United States
Department of
Agriculture

Forest
Service

Southwestern
Region

February
2005

Final Environmental Impact Statement for Arizona Snowbowl Facilities Improvements

Volume 2

Response to Comments on the Draft Environmental Impact Statement

Coconino National Forest
Coconino County, Arizona

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE ARIZONA SNOWBOWL FACILITIES IMPROVEMENTS PROPOSAL

VOLUME 2

RESPONSE TO COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

COCONINO NATIONAL FOREST
COCONINO COUNTY, ARIZONA

FEBRUARY 2005

TABLE OF CONTENTS

INTRODUCTION **1**

1.0 NEPA PROCESS **3**
2.0 USFS POLICY **13**
3.0 DOCUMENT STRUCTURE **19**
4.0 MODIFIED ALTERNATIVES **21**
5.0 CULTURAL RESOURCES **25**
6.0 WATER RESOURCES **40**
7.0 CUMULATIVE IMPACTS **89**
8.0 WILDERNESS **91**
9.0 SOCIAL AND ECONOMIC RESOURCES **94**
10.0 VEGETATION **151**
11.0 WILDLIFE **160**
12.0 INFRASTRUCTURE AND UTILITIES **172**
13.0 TRAFFIC, PARKING AND RESORT ACCESS **176**
14.0 NOISE **183**
15.0 RECREATION **189**
16.0 AESTHETIC RESOURCES **200**
17.0 SOILS AND GEOLOGY **205**
18.0 CLIMATE **211**
19.0 NIGHTLIGHTING **223**
20.0 SUPPORTIVE COMMENTS **224**
21.0 WATER IMPOUNDMENT **235**
22.0 SNOWMAKING **238**
23.0 ENVIRONMENTAL JUSTICE **244**
24.0 HUMPHREYS POD **260**
25.0 AIR QUALITY **262**
26.0 PUBLIC SAFETY **264**

APPENDIX A: SUBSTANTIVE COMMENTORS ON THE DRAFT EIS

APPENDIX B: COMMENT LETTERS RECEIVED ON THE DEIS FROM TRIBES, FEDERAL, STATE AND LOCAL AGENCIES, AND ELECTED OFFICIALS

RESPONSE TO COMMENTS RECEIVED ON THE ARIZONA SNOWBOWL FACILITIES IMPROVEMENTS DRAFT EIS

The Notice of Availability for the Arizona Snowbowl Facilities Improvements Draft Environmental Impact Statement (DEIS) was published in the Federal Register on February 13, 2004. The minimum 45-day comment period for a DEIS was extended to 60 days at the outset due to the controversial nature of this proposal, and ended on April 13. Copies of the DEIS were burned to CD and distributed to the public, with hard copies of the document sent to tribes. Hard copies were available to anyone who requested them throughout the 60-day comment period. In response to the DEIS, a total of 9,887 *comments* were received by the Forest Service via various mediums, including: letters; form letters; faxes, emails; public meeting comment forms, petitions and oral comments. This number accounts for numerous repetitious comments included in form letters and petitions. The number of *commentors* on the DEIS totaled 5,716 (the reader should note that some commentors submitted numerous and multiple forms of comments).

Individuals who submitted comments outside of the 60-day comment period do not have standing to appeal the decision on this analysis, as per 36 CFR Part 215.13. However, all comments received outside of the comment period were retained and these individuals received copies of the FEIS. In addition, many comment letters were received in the general time of the DEIS comment period, but were clearly intended (as based on both date and content) to be submitted in response to the initial scoping period. These letters were recorded as such, and retained in the scoping project file.

Every medium of conveying comments was scrutinized for substantive comments,[1] and contact information for each commentor was entered into a master database. All substantive comments were extracted from each commentor, and were entered into the database, as well. These substantive comments provide the foundation for which this Response to Comments is based.

Depending on the resource or context, substantive comments organized into 26 groupings (see Table of Contents), and responded to either individually or thematically. Individual comments were sufficiently unique enough in nature or context that they were carried forward verbatim into the RTC and responded to. Thematic comments were created to be representative of common themes that were expressed by numerous (in some cases hundreds of) individuals. Many tables and figures from the FEIS were carried forward into the responses provided in this RTC, and include table numbers for reference. Tables

[1] Per 36 CFR Part 215, "substantive" comments are those that are "within the scope of the proposed action, are specific to the proposed action, have a direct relationship to the proposed action and include supporting reasons for the Responsible Official to consider."

and figures that do *not* include numbers in their headings indicate that they are unique to the RTC and they are therefore not found in the FEIS.

Appendix A of Volume 2 indicates the names and affiliations (if applicable) of people who submitted timely *and* substantive comments on the DEIS, and the general theme of their comment(s). Names and addresses of those submitting non-substantive comments were entered into the master database. All names and addresses were recorded with as much due diligence as possible, based on the legibility of information as submitted by the commentor. Letters received with illegible or incomplete names and addresses were retained in the project file.

As required by Forest Service Handbook 1909.15, Chapter 24.1(3), Appendix B of Volume 2 provides copies of comment letters received on the DEIS from Tribes, federal, state and local agencies and elected officials.

1.0 NEPA PROCESS

Thematic Comments

1.1 Extend the comment deadline for the DEIS.

NEPA requires that, at a minimum, the public be provided 45 days to comment on a Draft EIS. Due to the controversial nature of this project, the Coconino National Forest made the decision to extend this to 60 days. The Forest Supervisor concluded that two months provided ample time for the public to submit comments on the DEIS and, therefore, the comment period was not extended further. As indicated in Chapter 1 of the FEIS, 9,887 substantive comments were received on the DEIS.

1.2 The Forest Service should have conducted public meetings on the DEIS in the communities of the affected tribes.

It was not considered practical or reasonable to hold meetings in all tribal communities. However, the Forest Service did attempt to accommodate such requests. The DEIS and FEIS disclose tribal consultation efforts in Chapter 1. Chapter 1 of the FEIS has been updated in include more information on meetings which were held with the tribes. The Forest Service's tribal liaison regularly visited five local Chapter Houses (Tuba City, Cameron, Bodaway-Gap, Leupp and Coalmine) and was available to visit other Chapter Houses had there been interest expressed. Additionally, the tribal liaison attends meetings at these five Chapter Houses nearly every month and was available at those times for discussion of the Snowbowl proposal. In all, there were 41 meetings held with tribal representatives and the general tribal public as part of the Snowbowl analysis process. In total, 26 meetings were held on reservation lands.

1.3 The DEIS does not mention that any new decision will provide the framework for a new master development plan and a Forest Plan Amendment. These are significant actions and they should have been dealt with as significant issues in the DEIS.

Page 1-3 of the DEIS states: *"In relation to this EIS, the alternative that is ultimately approved via a ROD will provide the framework for a new master development plan (MDP), which will guide the future development of the Snowbowl."* A MDP is simply a planning document that, in this case, would reflect the suite of projects that is ultimately approved for implementation by the Forest Service through the NEPA process. These projects have already been deemed *major federal actions with potential to significantly affect the quality of the human environment*. Hence, the effects have been analyzed and disclosed in an EIS rather than an environmental assessment. The master planning process itself is not a significant action.

The amendment is specific to a reference made in the Forest Plan that "facility development at the Snowbowl is guided by the Final Environmental Impact Statement of 1979." This direction in the Forest Plan did not account for subsequent proposals and NEPA analyses that may occur for NFS lands within the SUP area due to changed circumstance or new information.

The reader is referred to Comment 1.12 for further information on issues.

1.4 The CNF has not adequately conducted tribal consultation on a government to government basis. Many tribal leaders did not receive hard copies of the DEIS in a timely manner, limiting their ability to comment on the DEIS with a full understanding of the proposal.

The DEIS and FEIS illustrate tribal scoping and consultation efforts in Chapter 1. The Forest distributed the DEIS to members of the tribal and public community who had commented on the Proposed Action. Hard copies and CDs were available upon request throughout the DEIS comment period, and were available at all times at the Supervisor's Office and Peaks Ranger District, should there have been additional requests to receive the document.

1.5 The Forest Service has not done adequate outreach. Only a limited number of open houses were held in communities of affected tribes. The only public meeting the Forest Service hosted was not easily accessible to concerned tribal members who live in the southwestern region.

The DEIS and FEIS disclose the extensive tribal scoping and consultation efforts in Chapter 1. The Forest Service attempted to accommodate requests from tribes for on-site meetings. However, it is noted that there is no specific legal or procedural requirement for the agency to hold a certain number of public meetings. In all, numerous contacts were made with tribal governments, traditional practitioners and the general tribal public and include: 205 phone calls, 41 meetings (26 of which were held on reservation lands), and 245 letters. The reader is referred to comment 1.2 for further clarification.

1.6 The Forest Service has failed to distribute the DEIS widely. CDs were sent to individuals who cannot use, or do not have, computers.

Hard copies of the DEIS were distributed to all tribal governments as well as tribal members who requested copies. In a letter accompanying each compact disk, it was made clear that hard copies could easily be obtained by request. However, very few requests for hard copies were made.

1.7 Hearings should be located within a reasonable distance for the members of all 13 tribes.

The reader is referred to comments 1.2 and 1.5.

1.8 The DEIS and FEIS should be translated into the languages of all 13 tribes.

Translation of the document would be hampered because much of its technical language does not exist in tribal languages. Further, written translation of the document is not practical because many traditional tribal members who do not speak English would not be able to read written language, since their language did not exist in written format until very recently. The tribal representatives the Forest Service worked with asked only for oral translations at meetings and for taking public comments.

1.9 Delay any decision on snowmaking and expansion of the ski area until completion of the National Register Nomination Process. Although a statement is made on page 3-22 that the Forest Service is in the process of a completing a National Register nomination for the Peaks as a TCP, to prolong such an important nomination appears to be an effort to side step issues of the tribes once more.

As indicated in the response to Comment 5.2, once a cultural property is determined *eligible* for the National Register of Historic Places (National Register), it is afforded all the same protections as a *formal listing* on the National Register. The TCP nomination and the Arizona Snowbowl EIS are two separate processes and are unrelated to one another.

1.10 The DEIS was not sent to all 13 tribes. Not all of the 110 chapters of the Navajo Nation have received the DEIS.

The reader is referred to Comment 1.6. In accordance with the government to government requirements of the NHPA and Forest Service policy, all 13 tribal governments were sent copies of the DEIS via Federal Express or US Postal Service Priority Service delivery. Based on our prior consultation discussions with the Navajo Nation, copies were sent to chapters in the Western Agency with whom the Forest has an active relationship.

1.11 The DEIS fails to present data supporting the purpose and need statements as related to social and economic issues. While Purpose #1 is expressed in the DEIS as "To ensure a consistent and reliable operating season, thereby maintaining the economic viability of the Snowbowl and stabilizing employment levels and winter tourism within the local community," the DEIS fails to show that the proposed action will achieve this purpose.

The analysis of impacts to Social and Economic Resources provided in Chapter 3 indicates that, in an economy the size of Flagstaff's, it is unrealistic to think that the Snowbowl would be a significant driver of tourism or the economy. However, that is not meant to underestimate the social and economic contributions that Snowbowl makes to the city and county. Currently, Snowbowl visitors average direct expenditures of $9.8 million annually in Coconino County, directly supporting 190 full-time job equivalents. When the Snowbowl's full range of direct and indirect economic impacts are considered, the ski area currently supports 232 FTEs and $12.08 million in economic output in the private sector. Furthermore, the Snowbowl's current public sector inputs include an annual average of $90,000, of which 25 percent goes to Coconino County, in fee payments to the US Treasury, $257,000 in state and county sales taxes and $36,000 in county personal property tax. These payments help to support a number of local programs and services, including: schools, libraries and the fire district. Finally, from a social/recreational perspective, the Snowbowl is an asset to the Flagstaff area, as it is the primary winter recreational attraction, and provides access to an alpine environment to those who would otherwise not likely visit the upper slopes of the Mountain.

Although the connection between Snowbowl and the Flagstaff economy is not quantitatively evident at a macro economic scale, the ski area's role in the social and economic fabric of the community cannot, and should not be discounted.

1.12 The 17 issues identified by the Forest Service as "tracking issues" are in reality highly controversial and significant issues. These issues should be reclassified for what they are - significant issues – and an in-depth analysis should be provided in the EIS.

The section "Issues, Resources Requiring Additional Analysis and Indicators" has been added to Chapter 1 of the FEIS to clarify how various topics were addressed in the analysis. The two cultural issues warranted the specific creation of a second action alternative. This does not imply that resources requiring additional analysis received a lesser level of scrutiny.

1.13 The DEIS should have analyzed an alternative that includes removal of all Snowbowl facilities and restoration of the SUP area.

In 1983, a Court of Appeals decision affirmed the decision of the Forest Service to allow improvements at the Arizona Snowbowl. Since the Supreme Court did not accept to hear the case, the lower court's ruling was upheld for the 1979 Final Environmental Statement Record of Decision. The 1979 Final Environmental Statement analyzed a number of alternatives, one of which included dismantling the ski area. Therefore, because the alternative analyzing removal of the ski area was not selected, this decision was regarded as precedence setting and was followed by adoption of the Forest Plan for the CNF, which directs continued operation of the Snowbowl. The Forest Plan specifically refers to the Snowbowl in managing activities in Management Area 15. Therefore, considering an alternative that calls for removal for the ski area would not be consistent with CNF management direction.

1.14 Many people will boycott the ski area, as well as local businesses, if either of the action alternatives is selected.

Comment noted. No specific response is necessary.

1.15 Respect the NEPA process by taking seriously the cultural concerns presented by the public through the long, documented history of opposition to commercial development on the Sacred Peaks.

The DEIS and FEIS present pertinent information necessary for the Decision Maker to make an informed decision, including information on cultural concerns.

Specific Comments

1.16 In the interest of responsibility and national pride, we are strongly critical of complete absences of a Purpose Statement regarding the Coconino National Forest (CNF). We cannot explain or overlook this dismissal of responsibility to protect the resources of the National Forest for these of future generations. We find the DEIS to be fundamentally flawed, lacking any purpose regarding ensuring the long-term sustainability of CNF resources. In sum, this constitutes failure to follow basic policy as set forth in the Federal Lands Policy and Management Act (1976), which requires federal agencies to manage for the long-term ecological sustainability of their lands. The first purpose statement should be the added statement about sustaining CNF resources and analyses related to this purpose should be included.

It is assumed that the commentor is referring to the "Purpose of the Plan" found on page 1 of the 1988 Coconino National Forest Plan. The first bulleted statement reads: *"[Establish] goals and objectives for multiple-use and sustained-yield management of renewable resources without impairment of the productivity of the land."* As a part of the EIS, a thorough review of consistency with the Forest Plan was conducted. The Forest Plan consistency analysis concluded that none of the alternatives would impair productivity of the land. Additionally, the analysis of the Forest Plan found that the presence and continued operation of the Snowbowl is consistent with management direction found in the Forest Plan.

1.17 The Forest Service should only support business that demonstrates a willingness to minimize impacts on leased Federal land. The proposed expansion indicates the Snowbowl's lack of concern for the rare sky-island ecosystems in the Southwest and should not be considered as an option. Snowbowl seems to have no interest in ecosystem integrity or sustainable use.

The reader is referred to the response provided in Comment 1.16. According to Forest Service policy and regulation, developed skiing represents a legitimate use of NFS lands.

1.18 Indeed, under "geotechnical analysis," the Forest Service identifies the need for a 10 million gallon impoundment to be constructed and maintained above the Sunset Chairlift. It not only defies common sense to classify this as a "tracking issue," it appears to be a "connected action" under NEPA that must be considered in the EIS. The construction identified under the heading of "ski area infrastructure and utilities," including but not limited to a 14 mile pipeline connecting the ski area to the City of Flagstaff's reclaimed water system, similarly appears to be a "connected action" under NEPA that must be considered and analyzed in the EIS. (DEIS at 1-17)

Construction of the 10 million gallon impoundment and the 14 mile reclaimed water pipeline are not connected actions, as defined by NEPA. They are key components of the Proposed Action, the effects of which are analyzed directly, indirectly, and cumulatively throughout the DEIS and FEIS.

1.19 The selection of Alternative 2 is arguably a forgone conclusion. If this is the case, the NEPA decision-making process is no more than an expensive facade and the Forest Service has failed to comply with both the letter and the spirit of the law. This analysis would also impact the alternatives that should have been considered – there is only one viable alternative considered in the DEIS.

Opinion noted. The Code of Federal Regulations (CFR), section 1502.14(e) requires that, if the agency has a preferred alternative at the DEIS stage, that alternative must be labeled or identified as such in the DEIS. At time of publication of the DEIS, the Forest Service's Preferred Alternative was the Proposed Action. However, this in no way should be interpreted as indicating that the selection of the Proposed Action is a foregone conclusion. Significant issues identified during the Proposed Action (scoping) comment period form the basis for the creation and analysis of alternatives to the Proposed Action. All alternatives discussed in the DEIS and FEIS define the full range of alternatives considered, including the alternatives not analyzed in detail.

1.20 There was a serious conflict of interest in preparing the DEIS, because it was paid for by the party proposing changes, the Arizona Snowbowl.

CFR section 1506.5(c) states that:

> *"… any environmental impact statement prepared pursuant to the requirements of NEPA shall be prepared directly by or by a contractor selected by the lead agency… It is the intent of these regulations that the contractor be chosen solely by the lead agency, or by the lead agency in*

cooperation with cooperating agencies, or where appropriate by a cooperating agency to avoid any conflict of interest. Contractors shall execute a disclosure statement prepared by the lead agency, or where appropriate the cooperating agency, specifying that they have no financial or other interest in the outcome of the project."

The process used to prepare, analyze, and document the anticipated affects of the Snowbowl proposal in the DEIS and FEIS has been fully and specifically consistent with the provisions of NEPA and Forest Service direction. It is common practice for special use applicants to provide funding for private consultants to prepare NEPA analyses throughout the Forest Service.

1.21 A new Forest Supervisor like Nora Rasure has no right in being the person to deal with these issues because she does not know us yet. She doesn't know about the land or people and she can't decide upon these things without a good knowledge base.

The decision whether or not to approve the Proposed Action at Snowbowl is solely up to the Forest Supervisor of the Coconino National Forest. As any prudent Decision Maker would do, the Forest Supervisor has relied upon the analysis and disclosure contained within the DEIS and FEIS, as well as consultation with veteran Forest Service staff members, tribes, and the public in reaching a decision.

1.22 The CNF has failed their government-to-government relationship with the Hopi because they haven't met with the traditional leaders from each village.

The Forest Service regularly met with the Cultural Resource Advisory Task Team who represents each of the Hopi villages and its members. As CRAT team advisers, they consult with traditional religious leaders in their villages, when appropriate, and provide the results of those comments to consulting agencies. In addition, many of the CRAT team members are traditional leaders themselves who represent many of the important clan and religious societies. The reader is referred to comments 1.2, 1.4 , 1.5 and 1.10 for further details regarding tribal consultation.

1.23 The DEIS inappropriately continues the assertion raised in the scoping document that most of the activities covered in the Proposed Action were approved within the 1979 FEIS and associated Record of Decision for the Arizona Snowbowl Ski Area Proposal. Projects not specifically identified in the 1979 Record of Decision are said "to remain within the contextual scope of the 1979 approvals." However, the DEIS goes on to state only the ski area size (777 acres), the skiable acreage and the comfortable carrying capacity of 2,825 are carried forward from the 1979 Record of Decision (ROD). The fact that the 1979 decision was incorporated in the 1987 forest

plan revisions does not allow the Forest Service to rely on an outdated analysis.

In preparing the current DEIS and FEIS, the Forest Service did not rely on the 1979 ROD, but tiered to it for the purposes of disclosing project components which were identified as a portion of the prior NEPA analysis. However, the non-significant Forest Plan amendment proposed and disclosed within the current DEIS and FEIS process recognizes the most current environmental analysis.

1.24 Executive Order 13175 of President William Jefferson Clinton on November 6, 2000 set forth a mandate for consultation and coordination with Indian tribal governments with the fundamental principle of recognizing that Indian tribes have a unique legal relationship with the United States of America. It is with this recognition that one of the purposes of the Executive Order provides that "policies that have tribal implications" that have substantial direct effects on one or more Indian tribes, must be given meaningful consultation and coordination with those tribes. It is with that mandate, that the Navajo Nation seek your assistance in granting a third extension for comments to be provided in a meaningful way.

EO 13175 essentially defines a trust relationship with Indian tribes and recognizes the right of Indian tribes to self-government and tribal sovereignty. Furthermore, EO 13175 calls for consultation between federal agencies and tribes. In light of the content of this executive order, it does not appear to apply to the proposed projects at the Snowbowl, in that this is a site-specific project that does not result in legislation or regulation changes.

The reader is referred to comments 1.1, 1.2, 1.4, and 1.5.

1.25 Bringing the Snowbowl area back to its natural state would be the best use of the land.

The reader is referred to Comment 1.13.

1.26 It is unclear whether or not highly treated wastewater contains harmful levels of byproducts from disinfection processes such as chlorination. This issue should be addressed by the research community. The Environmental Protection Agency should sponsor a study to develop methods for better detection of new pathogens.

The establishment or modification of the standards by which the EPA tests for water quality is beyond the scope of this analysis.

1.27 National Forest land should be designated as wildlife habitat and an area for passive recreation capable of being enjoyed by all citizens.

The Forest Plan has allocated the 777 acres within the SUP area to developed winter recreation. The SUP area, as well as all surrounding NFS land, is used by wildlife and is available for the enjoyment of the public.

1.28 If the reclaimed water is so refined, then perhaps the city of Flagstaff should start considering use of this water source for domestic use. The USFS cannot ignore this issue by saying that it has nothing to do with the city of Flagstaff's decision to sell the water to the Snowbowl.

Under current regulations, Class A+ reclaimed water (which receives the highest level of treatment), such as that produced by the Rio de Flag Water Reclamation Facility (WRF), is suitable for application where there is a relatively high risk of human exposure but is not specifically approved by ADEQ for direct domestic use.

1.29 Prior to implementation of this project, a comprehensive land management plan of the entire San Francisco Peaks are should be developed.

The planning document the commentor refers to is presently in place in the form of the Coconino National Forest Plan. The Forest Plan specifies and directs the management of the National Forest System lands, which comprise the majority of the San Francisco Peaks.

1.30 In our scoping comments we raised the issue of suitability of the Snowbowl as an appropriate location for [snowtubing]. The DEIS failed to address the issue of suitability in terms of resulting impacts.

The development of a snowtubing facility proximate to an existing ski area offers critical economies of scale from an operational and management perspective. As an example, the ski area has snow grooming equipment readily available for use in creating the snowtubing lanes. The fueling and maintenance facilities for the grooming vehicles are already in place. Similarly, the physical conditions of the site are well suited for the development of the snowtubing facility, the elevations are appropriate for the creation of machine-produced snow and the aspect is suitable for the retention of snowpack. The proposed snowtubing facility was assessed and considered in the development of the Proposed Action. All planning and design considerations indicate that the Snowbowl is an appropriate site for the development of a snowtubing facility.

1.31 Hidden within the argument that the Proposed Alternative would bring "terrain and infrastructure into balance with current use levels [p. ES-4]" is the justification for future additional development of the Snowbowl infrastructure. Snowmaking, additional ski trails, and more parking are needed now to meet public demand, which is projected to increase if the

Proposed Alternative is adopted - although, magically, "average peak day attendance levels are not anticipated to increase [p.3-44]."

While total annual visitation is projected to increase, daily attendance is not because under all alternatives, daily skier visitation would continue to be constrained by parking capacity – approximately 3,100 skiers. The frequency in which peak days occur is projected to increase under the Proposed Action (Alternative 2) as a result of the improved reliability of snow conditions.

1.32 The DEIS sorely misrepresents the impacts of increased traffic on Highway 180 and Snowbowl Road by treating them as "Tracking" issues. Re-evaluation is needed to address such impacts as "Cumulative Effects" that will likely lead to increased traffic accidents and future proposals for road expansions on and off Forest Service land. It is inevitable that someday Snowbowl will proposed a wider road between Highway 180 and Snowbowl if the proposed actions are carried out and user days increase as is hoped. These impacts are not dealt with properly by the DEIS.

The reader is referred to Comment 1.12 for a detailed discussion regarding changes made to Chapter 1 between the DEIS and FEIS regarding the use of the term tracking issues.

Coconino National Forest Plan Amendment # 10 (1994) addressed long-range vision and needs of Highway 180 including the section of highway 180 between Flagstaff and the Snowbowl Road. The final Vision and Guiding Description, which states the Highway 180 will be managed as a two lane scenic highway with improved safety and recreational opportunities, was incorporated into the Forest Plan and ADOT planning documents. Following this plan amendment this section of the highway was reconstructed to a standard that would accommodate anticipated needs. Currently, ADOT is working on the US 180 San Francisco Peaks Scenic Road Corridor Plan with some planned public meetings. Please feel free to contact them with your concerns for the future of this travel route.

Given an understanding of the critical caveat that peak day visitation is not anticipated to increase as a result of the Proposed Action, and even with the snowtubing facility, there is no indication that the proposed project would necessitate widening of the Snowbowl Road. The reader is additionally referred to the Traffic and Ski Area Access section of the DEIS and FEIS for an analysis of the anticipated affects to Highway 180.

2.0 USFS POLICY

2.1 Doesn't the existing ski area fulfill the Forest Service's mandate for multiple use?

The existing ski area facilities, lifts, and trails represent an example of how developed skiing on NFS lands contributes to the Forest Service "multiple use" mandate.

2.2 The CNF should review the mandates that govern their agency to realize that this is an inappropriate use of public land. Start with the Organic Act of 1897 which charges to first and foremost protect the forest reserves and resource base. In particular, attention should be given to the Multiple Use Sustainable Yield Act of 1960 which, among other things, states that the forest reserves be managed for "the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output".

Both the Organic Administration Act of 1897 and the Multiple-Use Sustained-Yield Act (MUSYA) of 1960 affect the management of NFS lands and are reflected in the management direction found in the CNF Forest Plan. As a part of the EIS, a thorough review of consistency with the Forest Plan was conducted. Additionally, the analysis of the Forest Plan found that the presence and continued operation of the Snowbowl is specifically consistent with the Forest Plan.

The Organic Administration Act of 1897 is the original act governing the administration of NFS lands. Today, it is one of several federal laws under which the Forest Service operates, the primary ones being the MUSYA and the National Forest Management Act (NFMA) of 1976. While the Organic Administration Act remains significant, it must be read in conjunction with the subsequent MUSYA and NFMA, which expand the purpose and uses of the National Forests. A brief summary of the Organic Administration Act follows.

Public lands set aside and reserved as national forests under 16 U.S.C. § 471 (an 1891 law authorizing the President to establish national forests, repealed in 1976) must be controlled and administered, to the extent practical, in accordance with the Act. The Act provides that no national forest may be established except to improve and protect the forest, or to secure favorable conditions of water flows, and to furnish a continuous supply of timber. The Secretary of Agriculture may issue regulations permitting settlers, miners, residents, and prospectors the free use of timber and stone in National Forests for domestic purposes. The Act permits access to National Forests for all lawful purposes, including prospecting and locating and developing mineral resources. Settlers may use land within National Forests for schools and churches. Waters within National Forest boundaries may be used for domestic, mining, milling or irrigation purposes, as governed by state or federal law. The Act requires the Secretary of Agriculture to protect National

Forests from fire and depredations. The Secretary may make regulations and establish services necessary to regulate the occupancy and use of National Forests and preserve them from destruction.

MUSYA is one of the most important laws governing the management of NFS lands. It recognizes that they are "lands of many uses." However; there are over 130 other laws that also apply. *Multiple use* means that the national forests are to be used for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. *Sustained yield* means harvest is in balance with growth. The act applies primarily to the 85 million acres of timberlands in the National Forest System. It requires "...harmonious and coordinated management of the various resources...and not necessarily the combination of uses that will give the greatest dollar return of the greatest unit output." Economic factors are considered, but they do not necessarily control management decisions. All resource values are weighed and trade-offs are made.

2.3 This proposal contradicts the August 2000 Department of the Interior purchase of a destructive pumice mine in operation of the eastern side of the San Francisco Peaks for reasons including the ongoing desecration of Native American scared lands.

The closure of the mine was spurred by a number of reasons, including: Tufflite's proposal to expand the pumice mine; the cultural and environmental concerns of the community associated with continued mining; as well as a Forest Service lawsuit regarding validity of the claims. The 90 acre mine was operated by Tufflite until August 28th, 2000 when the federal government brokered an agreement with the company. Secretary of the Interior Bruce Babbitt was a key player in the process, advocating for the closure of the mine. Tufflite agreed to cease operations in six months, and restore the site within ten years. The concern with mining on the Peaks under the General Mining Law of 1872 was that the Forest Service has no authority to limit mining activity if there is a valid claim. Thousands of acres were under claim by Tufflite and this represented a threat to the resources of the Peaks valued by the community. The difference between a ski area operation and a mining operation under the General Mining Law is that the Forest Service has full discretionary authority over the ski area operation. Prior to the buyout agreement for closure of the mine, the Coconino National Forest amended its Forest Plan by withdrawing 74,000 acres encompassing the San Francisco Mountain from mineral entry. Closure of the mine and protection of the area from mining activity, as well as continued operation of the Snowbowl, is consistent with the Coconino National Forest Land Management Plan.

2.4 The DEIS should examine and disclose skier demand in the western US over the past decade, and should also disclose how much ski area expansion has occurred over this time. The Forest Service should not keep permitting expanded ski areas in an essentially flat or declining skier market. The USFS should be placing proper management of the area's natural resources above "current use levels."

Skier demand is addressed in Comment 9.95.

2.5 Regarding the economic resources involved in the Proposed Action, the CNF is projected to increase its Snowbowl fees from an annual average of $90,000 to $193,000, or an increase of $103,000 per year (DEIS, page 3-83), which arguably provides an incentive of the CNF to accept the preferred alternative and creates a potential conflict of interest in the Forest Service's support of the Proposed Alternative.

As part of the Social and Economic Resources analysis conducted for the DEIS and FEIS, comparative data was presented to help the Decision Maker differentiate between the alternatives. The projected increase in fees paid by the Snowbowl equate to approximately 111 percent. Notably, the special use fees collected are not paid directly to the Forest upon which they are generated, but instead are paid directly to the U.S. Treasury. The individual Forest is allocated an operating budget as a portion of the Congressional appropriations process. In this situation the mechanisms for an agency receiving funding and collecting funds are two separate and unrelated processes.

2.6 What responsibility or obligation does the Forest Service have to ensure that the Snowbowl is financially solvent?

The Forest Service has no obligation to ensure the Snowbowl's financial viability; however, the CNF recognizes and values the social and recreational functions that the Snowbowl serves in the Flagstaff community. Enhancing its economic viability would help to sustain these functions. However, as a portion of the Forest Service's multiple use mandate and direction to provide recreation opportunities for the public, the Forest Service supports the winter recreational role that the ski area has provided over the decades. Additionally, via the agreement the Forest Service has executed with the National Ski Areas Association, the Forest Service is a partner with industry in providing Alpine skiing opportunities on national forests.

2.7 Disclose and discuss the authority underlying the Forest Service's disregard of Executive Order 13007's mandate to protect the physical integrity of American Indian sacred sites.

The Forest Service has not disregarded Executive Order (EO) 13007 – Indian Sacred Sites, which was signed on May 24, 1996 by President Clinton. Rather, this Executive Order was considered by the Decision Maker to identify a selected alternative. EO 13007

directs federal land management agencies to the extent practicable, as permitted by law, to: (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners; and (2) avoid adversely affecting the physical integrity of such sacred sites. The CNF followed this Executive Order to the extent practicable and in cooperation with consulting tribes, and investigated all options for mitigating, minimizing, and avoiding impacts to the San Francisco Peaks Traditional Cultural Property through the development of a Memorandum of Agreement. Further, the CNF will continue to consult with tribes in looking for ways to reduce or avoid impacts. The CNF accommodates access to traditional gathering areas and seeks to facilitate that access. Traditional cultural access is discussed in the Cultural Chapter of the FEIS.

The reader is directed to Comment 5.26 for further clarification.

2.8 The control of Snowbowl Road by a private business is inexcusable. It is not unnoticed by the public that Snowbowl controls the only access to winter mountain recreation, that they restrict that access to paying customers, and that it is public land.

While the Snowbowl Road is a Forest System Road, the ski area was responsible for paving it in the 1980s and continues to maintain it throughout the year, including snow removal. The reader is referred to the responses to comments 13.8, 13.9, 15.17 and 15.22 for more information regarding use of the Snowbowl Road and access to public lands from it.

2.9 The DEIS should explain the legal requirements that the federal agency has to uphold in consultation with tribes.

In addition to the “Legal Mandates” portion of Section 3A (in particular EO 13175), the Heritage and Cultural Resources analysis in the FEIS has been updated with a “Trust Responsibilities” section to provide a more extensive description of the legal requirements that apply to the Forest Service. In light of the content of EO 13175, it does not appear to apply to the proposed projects at the Snowbowl, in that this is a site-specific project that does not result in legislation or regulation changes.

2.10 If the Forest Service approves this development and its activities, it will be violating its charge to protect the forest and the water resources of the area.

The mission of the Forest Service is to sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations. The phrase, "CARING FOR THE LAND AND SERVING PEOPLE," indicates its mission to achieve quality land management under the sustainable multiple-use management concept to meet the diverse needs of people. While the Forest Service is charged with protecting natural resources, the NFS lands within the SUP area are administered “*for the purposes of constructing, operating and maintaining a winter*

sports resort…". As indicated, a Forest Plan consistency analysis for this proposal was conducted and identified no inconsistencies between the alternatives and Forest management direction. The reader is referred to comments 2.1 and 2.2 for more information.

2.11 The dire predictions that the current owners may not want to continue under present conditions is pure speculation and should not be part of the Forest Service' consideration as it would amount to subsidies of a private enterprise, which clearly is not the mission of the Forest Service.

The mission of the Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. As set forth in law, the mission is to achieve quality land management under the sustainable multiple-use management concept to meet the diverse needs of all people.

The Forest Service does not have a legal mandate to maintain economic viability of private enterprises permitted on the Forest. Furthermore, the Forest Service does not and will not contribute any financial assistance to the ski area facilities regardless of the alternative chosen. While a decision to authorize additional or improved facilities at the Snowbowl would lead to enhanced financial viability to the Snowbowl, the net effect would be to improve the recreational experience for the public. For additional information regarding the continued financial future and presence/absence of the ski area under each alternatives, the reader is referred to the Social and Economic Resources section of the DEIS and FEIS, as well as Section 9 of this Response to Comments.

2.12 It seems to me that the Forest Service, consistent with national concerns about resource protection, should be permitting and promoting long term low impact sustainable recreational uses for our few remaining relatively wild areas such as the Peaks, rather than short term, high impact use. Given the best predictions of the possible negative impacts of population growth and changing climate, coupled with potential dramatic impacts of heavy energy and water consumption, I suspect that operation of a major downhill ski area on the Peaks will become viewed as less and less desirable in the near future by most constituencies.

Opinion noted. The 40-year Ski Area Term SUP that expires in 2032 outlines the terms and conditions by which the ski area operates on NFS lands. The terms and conditions included in the SUP are standard for ski areas operating on NFS lands, addressing things such as: authorities; improvements; operations/maintenance; liabilities; and fee structures. Ski areas operating on NFS lands are, by nature, high density recreational developments that focus relatively large numbers of National Forest visitors on relatively small pieces of land that are administered and permitted specifically for these activities. The Forest Service recognizes the benefits that this type of developed recreation offers to the general public.

2.13 We question and object to the CNF equation of the proposed irrevocable damage to our sacred mountain with "management for multiple use." We suggest that you weigh this fiduciary responsibility against CNF's inclination to serve narrow economic and recreational interests of the comparatively small number of persons who will benefit from the proposed damage.

While the Forest Service respects this perspective, it is the duty of the Decision Maker to consider the range of issues raised by the public, including both supportive and oppositional. These considerations were compared against the Forest Service's Mission, Motto, Vision, and Guiding Principles.[2]

[2] See http://www.fs.fed.us/aboutus/mission.html

3.0 DOCUMENT STRUCTURE

3.1 The Draft EIS relies heavily upon "Montgomery and others, 2000," using it in particular to support the 260,000 acre-foot discharge figures. I attempted to review this document to further understand the definition of the study area ("the Coconino and San Francisco plateaus"), however this document is not listed in the References Section of the Draft EIS. If "Montgomery and others, 2000" refers to the 1989 reference by Montgomery and uses "others" from 2000 for further support, this is unclear. This confusion should be addressed in the final EIS.

A list of references from Errol L. Montgomery & Associates, Inc. – the consulting firm that assembled the Watershed Resources section – was mistakenly omitted from the DEIS. The references section in the FEIS has been revised to correct this error.

3.2 Regarding the DEIS p. 3-160, footnote # 193. "Drs. Lee Dexter, ..." This is an incomplete reference and is not included in the list of references. The authors must correctly cite which literature this analysis is based upon. This type of reference in the DEIS is typical of the attempts to misrepresent and diminish the extensive research conducted by NAU which is relevant to this preferred alternative.

The reader is referred to Comment 3.1. No attempt was made to misrepresent or diminish NAU research. The Forest Service apologizes for this omission.

3.3 References to "Wildlife Biologist, personal communication" are not verifiable and are useless in this Context.

Footnote #356 in the DEIS "Wildlife Biologist, pers. comm. 2003" has been expanded upon in the FEIS.

3.4 Because what is being proposed goes far beyond "facilities improvements," the revised DEIS title should, at a minimum, refer to Snowbowl "expansion." We fail to see any rationale for characterizing a 74 acre clear-cut or the transportation and application of wastewater to a sacred site as an "improvement."

The Snowbowl is currently operating within a defined 777-acre Special Use Permit area, and would continue to be constrained to this area, referring to the Proposed Action as a ski area "expansion" is a matter of perspective. The vernacular, "Facilities Improvements" was used to reflect the recreational benefits that are associated with the Proposed Action and Purpose and Need.

3.5 We would also like to express our disappointment regarding the lack of attention paid by the Draft EIS team to the hydrologic monitoring data that was collected by Dr. Abe Springer and the Northern Arizona University. These data were collected in collaboration with the Conservancy and the Coconino National Forest, and represent some of the best scientific data available to public and private decision-makers. The Conservancy prides itself on being a science-based conservation organization and we seek to provide scientific input to conservation issues whenever possible. It is our hope that we can work closely with the Forest Service to utilize scientific information for management decisions affecting the Peaks whenever possible.

The reader is referred to Comment 6.27.

4.0 MODIFIED ALTERNATIVES

4.1 Provide a special use permit to build a winter play area away from the San Francisco Peaks. Leave the Snowbowl itself as it is.

The proposal to construct a snowtubing facility at the Snowbowl's base area has merit logistically for a number or reasons. Snowbowl has an established market that is expected to benefit from such a facility, the ski area has much of the necessary infrastructure and equipment to construct and maintain a snowtubing facility, and the Snowbowl base area is at an elevation that would be ideal for constructing and retaining a snowtubing facility (which is by nature maintenance intensive). The reader is additionally referred to Comment 1.30.

4.2 The EIS does not itemize the safety concerns directly other than stating overcrowding. If overcrowding is the only issue, perhaps an entry station at the base of the hill could be set up with a turn around to inform guests of either a time for waiting or if they need to return on a different day. Parking and a shuttle system could also be set up during the winter with some planning. These alternatives were not mentioned or any others for mitigating some of the problems stated, why not?

As indicated in Purpose #2 of the Purpose and Need statement (see Chapter 1 of the FEIS), the EIS is intended to improve safety, skiing conditions and recreational opportunities by bringing terrain and infrastructure into balance. Therefore, the safety concerns that are referenced in the EIS are primarily related to on-mountain circulation and overcrowding at key bottleneck areas on trails. The realignment of certain lifts and terrain additions are intended to ameliorate these bottlenecks and improve the on-mountain circulation and safety for Snowbowl's guests.

Furthermore, the Proposed Action is specifically intended to improve the infrastructural capacity of the ski area allowing the facility to better accommodate the *existing* level of visitation and utilization. As mentioned elsewhere throughout the DEIS and FEIS and RTC, Snowbowl's on-mountain capacity is essentially constrained by available parking spaces.

Currently Snowbowl does not have an entry station at the base of Snowbowl Road to inform guests when the base area's parking lots are at capacity. However, this concept could be explored outside of the NEPA process. In addition, the Snowbowl anticipates the ability to offer weekend and holiday ticket sales over the internet in order to provide assurance and reliability to guests who are driving a considerable distance.

The reader is additionally referred to Comment 13.3 for information on mass transportation.

4.3 Why couldn't harvested summer monsoon rainwater be used to make artificial snow for the Snowbowl?

In order to store 10 million gallons of water, the planned snowmaking impoundment has been designed at approximately 1.9 acres in surface area with a maximum depth (floor to crest of the embankment) of 35 feet.[3] While using captured rain water is a novel concept, the quantity of water that is necessary to operate the proposed snowmaking system with confidence could not technically be met by captured rain water. In addition, rainwater could not possibly provide a consistent, dependable source of water for which Snowbowl could depend on each season. If an impoundment were to be built to catch rainwater, in order to supply the ski area's season-long requirement for the snowmaking system to operate, approximately 364 acre feet of water are needed. Another way to look at it is that the "monsoon catchment pond" would cover approximately 30 acres to a depth of 17 (this accounts for evaporation losses).

4.4 It would seem that by increasing parking spaces at Snowbowl, you would be endangering more drivers on Snowbowl Road. Why haven't other alternatives been considered in the DEIS, such as developing parking at the intersection of U.S. Highway 180 and Snowbowl Road or limiting access to Snowbowl Road?

Under Alternatives 2 and 3, increasing the ski area's CCC from 1,880 to 2,825 *without* increasing parking capacity indicates that the Snowbowl has an abundance of parking when compared to uphill and downhill capacity and guest services in light of overall demand (i.e., peak days average approximately 3,400 guests). Any substantial increases in skier parking (either at the base area or off-site) would potentially generate attendance levels far beyond what the on-mountain lift and trail and infrastructural networks could accommodate. The Traffic and Ski Area Access portion of the DEIS and FEIS discuss the adequacy and present capacity of the Snowbowl Road in detail.

When conditions warrant, Snowbowl or the Forest Service may position an attendant at the base of Snowbowl Road on busy days to inform guests when parking capacity has been reached.

4.5 Development and increased usage of bus transportation systems would create more job opportunities, reduce traffic along Snowbowl Road, and eliminate the need of unsightly parking lots, which would create further scarring, and leave irretrievable impacts within the SUP area.

The Snowbowl has offered mass transit systems in the recent past. This program was discontinued for a number of reasons. The reader is referred to Comment 13.3 for information on mass transit.

[3] For reference purposes, a football field is approximately 1.2 acres.

4.6 The tubing area should not be developed at the ski area. A snowplay area in town with snowmaking would make much more sense and quite possibly could be operated by Snowbowl.

The reader is referred to Comment 4.1.

4.7 The pipeline route from Thorpe Park to the south end of Snowbowl Road could be made into an extension of the Urban Trails network. Perhaps areas north and south of 180 in Baderville could tap into the waterline for fire hydrants. These local perks could help gain support for the project.

The Forest Service appreciates this suggestion and will take it into consideration. A series of fire hydrants to be located along the pipeline corridor has been discussed and will be incorporated into the final design of the pipeline.

4.8 Have the folks at Snowbowl and the Forest Service considered creating mountain biking trails below the ski lifts? Perhaps the income from selling downhill bike tickets during the warm months would serve to boost income enough to ensure corporate survival through the year, this is common practice in many western ski areas.

The concept of providing additional summer activities to offset low winter revenues at the Snowbowl is discussed in the DEIS on page 2-34 and in the FEIS on page 2-36 and 2-37. Due to the relatively low per capita revenue generated by summer activities, even a significant increase in summer offerings would not substantially improve the Snowbowl's financial viability.

4.9 An additional alternative is needed that does not include snowplay and associated infrastructure and parking expansion, but could include more limited run expansion and tree thinning within the bounds of existing runs, and a scaled-back Sunset Lift area expansion.

As indicated in on page 1-9 of the DEIS, as well as in the FEIS, the Decision Maker may make adjustments to the selected alternative, as long as the effects are within those described in the analysis. For example, the Decision Maker has the authority to approve a modified alternative which would reduce tree removal and eliminate snowmaking in the Humphreys Pod.

4.10 An alternative should have been analyzed that includes only limited expansion of the ski area within the bounds of existing runs.

As defined in Chapter 2 of the DEIS and FEIS, Alternative 3 was developed, in part, to respond to "scarring" issues and would reduce the amount of ground disturbance and vegetation removal associated with the Proposed Action. The reader is referred to

Comment 4.9 for more information on the abilities of the Decision Maker to "create" a selected alternative which has not been analyzed specifically in the EIS.

4.11 The range of alternatives presented is too limited, and we request the CNF develop a San Francisco Peaks ecological restoration alternative. In the DEIS there is no alternative for restoration of areas now dominated by non-native plant species, one without the addition of snowmaking, new structures, and expanded trails. The DEIS fully documents that it has allowed re-seeding of ski trails with nonnative commercial seed mixtures. This unfortunate practice, in the midst of one of the Southwest's most revered landscapes, threatens the long-term ecological integrity of the Peaks. However, rather than respond by proposing an alternative to remove non-native plant species and replant with natives, this DEIS uses the existence of these degraded lands as justification for continuing to remove native cover and re-seed with non-native species, and somehow to demonstrate that there will be no effects on native plant communities. This logic is unscientific and ignores the lack of information about the current effects of these non-native plant species on the biota of the Peaks. The DEIS should provide a restoration alternative that will restore the areas currently damaged by Arizona Snowbowl, not a suite of alternatives all of which are ecologically disruptive, unsustainable or not addressing existing ecological desegregation.

The management of the San Francisco Peaks as a whole is presently a portion of the CNF Forest Plan. Future planning and management of the mountain is a process which is most appropriately done at the Forest Plan level and is beyond the scope of this site-specific project analysis. However, Table 2-2 in the DEIS and FEIS provides information on vegetation best management practices that will be required upon implementation of the Selected Alternative. Native species will be used for future seeding and planting where they will function, in addition all seed will be certified as weed-free seed. (The reader is referred to Table 2-2 – Mitigation Measures and BMPs).

4.12 The DEIS lacks any serious alternatives. Alternative 3 appears to be an attempt to satisfy the necessity of having to have a third alternative and it is explicitly recognized and analyzed as not being a serious alternative. To ensure the integrity of the NEPA process, the Hopi Tribe recommends the Forest Service consider other alternatives, in which all projects analyzed are not proponent driven.

Alternative 3 directly responds to a number of issues raised (detailed in Chapter 1 of the DEIS and FEIS) by eliminating the proposed snowmaking and the snowtubing facility. The reader is referred to Comment 4.9 for information regarding the ability of the Decision Maker to select difference components from among Alternatives 1, 2 and 3, thereby creating a "new" alternative.

5.0 CULTURAL RESOURCES

Thematic Comments

5.1 Despite opposition, and despite the Forest Service's acknowledgement that proposed improvements would pose potentially irreversible and irretrievable impacts to religious and cultural values of 13 Native American Tribes, alternatives two and three, by virtue of their very substance, plainly disregard Tribal concerns.

Tribal concerns were not disregarded but were identified, disclosed and addressed through the NEPA process. These concerns were balanced with the need to improve facilities at the Snowbowl, as articulated in the analysis. Direct, indirect and cumulative effects pertaining to all resources analyzed in the EIS were used to allow the Forest Supervisor to make an informed decision.

5.2 The nomination of the San Francisco Peaks as a Traditional Cultural Property (TCP) for listing in the National Register of Historic Places is yet to be completed. The Forest Service should finish the nomination process before any new development of the Peaks is even considered.

The San Francisco Peaks TCP National Register Nomination is discussed in the DEIS and FEIS. As indicated, once a cultural property is determined *eligible* for the National Register of Historic Places (National Register), it is afforded all the same protection and status as a *formal listing* on the National Register. As a result, the San Francisco Peaks are now managed as if already on the National Register of Historic Places. The National Register nomination and the Arizona Snowbowl EIS are two separate, unrelated issues with no influence on one another. The reader is referred to Section 3A Heritage and Cultural Resources in the DEIS and FEIS for a specific *"Narrative Discussion Why the Proposed Action is Not Dependent Upon Completion of the National Register Nomination and Designation Processes."*

5.3 The DEIS acknowledges that the action alternatives will result in potential irreversible and irretrievable impacts to the spiritual and cultural values of thirteen Native American tribes; the mitigation described in the DEIS is inadequate and unacceptable.

Table 2-2 in the DEIS indicates that at Memorandum of Agreement (MOA) will be developed specifying the mitigation requirements necessary to minimize the project's adverse effects. Although Section 3A of the DEIS lists some possible mitigating actions, the MOA process of Section 106 of the National Historic Preservation Act is designed to explore and develop mitigating concepts in greater detail. Section 106 does not require that all parties involved in consultation agree that the stipulations will minimize or eliminate a project's adverse effect, only that a good-faith effort has been made to

identify mitigating measures. The referenced MOA is contained in Appendix D of the FEIS. The MOA contains a series of requirements that have been designed to mitigate the effects of the proposed project to the extent possible. The reader is additionally referred to Comment 5.5.

5.4 To consider building a Native American cultural center on this sacred site illustrates the Forest Service's insensitivity and lack of understanding of the true cultural value of the San Francisco Peaks. The idea of having a cultural and educational center on an area that is so sacred to 13 tribes defeats the spiritual and cultural purpose of holding the mountain in its revered sacredness.

The MOA recognizes that if the Tribes do not want to participate in a center, then a center will not be constructed. The reader is referred to the Record of Decision for more information on the cultural center.

5.5 The DEIS assumes that the intense negative cultural impacts to tribal members can be mitigated through a MOA and by ensuring continued access to sacred sites on the mountain.

The Forest Service has consulted with the Arizona State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council), both of which have concurred with the Forest Service's finding of adverse effect, pursuant to 36 CFR 800 regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 70f). The National Historic Preservation Act requires preparation of a MOA in consultation with the Tribes, SHPO and Advisory Council when there are identified adverse effects.

Pursuant to 36 CFR 800.6(b), the Forest Service has consulted with the following tribes: Hopi, Navajo Nation, Havasupai, Pueblo of Zuni, Hualapai, Yavapai-Apache Nation, Yavapai-Prescott, Tonto Apache, White Mountain Apache, San Carlos Apache, San Juan Southern Paiute, Fort McDowell Yavapai Nation, and the Pueblo of Acoma. All tribes, and Arizona Snowbowl, were asked for input on possible mitigation measures and were invited to sign the MOA as concurring parties. As of release of the FEIS, only the Yavapai-Prescott, Fort McDowell Yavapai Nation, Yavapai-Apache Nation and Hualapai have signed the MOA.

Rather than making the assumption that cultural impacts can be mitigated through the MOA; the Heritage and Cultural Resources analysis in the DEIS and FEIS repeatedly implies that the cultural impacts will be difficult, if not impossible, to fully mitigate and that all of the alternatives would potentially result in adverse effects to the traditional cultural values of the Peaks. The MOA represents a required and concerted effort to acknowledge and reduce these impacts to the extent this is possible and practical.

5.6 The DEIS indicates that ground disturbance impacts, while they "can be regarded as irretrievable in nature," are not considered irreversible because "the ground could be allowed to recover over time should the Snowbowl facilities ever be disassembled" (Page 3-28). This demonstrates a ludicrous and willful refusal to understand, let alone respect, the nature of the tribes' relationship to the Peaks for listing in the National Historic Register as a Traditional Cultural Property.

Facilities could be dismantled with disturbed areas re-vegetated, thereby restoring the SUP area to pre-development conditions over the long term. In a strict interpretation of the terminology, this implies that historic and proposed ground and vegetation disturbance is in fact *reversible* in nature because ecological and aesthetic functions of the SUP area would be restored. However, the FEIS acknowledges the tribal perspective and interpretation of the effects of "scarring" on the sacred landscape and that these effects may, in fact, be considered *irreversible* in nature.

5.7 The DEIS does not adequately address cultural spiritual concerns and does not fully investigate potential impacts to the affected tribes.

The "Scope of Analysis" section of the DEIS and FEIS acknowledges the difficulty in providing a precise analysis of the impact on the cultural and religious systems that focus on the Peaks, as much of the information stems from oral histories and a deep, underlying belief system of the indigenous peoples involved. As indicated in the DEIS and FEIS, the Forest Service has identified potential adverse effects to cultural resources associated with all alternatives based on tribal input. The reader is referred to the Environmental Consequences section of the Heritage and Cultural Resources analysis for a disclosure of effects by alternative and indicator.

5.8 Adding reclaimed water to the ecosystem could affect the physical as well as the spiritual properties of plants that are gathered for medicinal purposes.

As stated in the EIS, the reclaimed water produced at the Rio De Flag Water Reclamation Facility, which would be used for snowmaking, meets all pertinent state and federal water quality standards for this use. The proposed use of reclaimed water for snowmaking represents a low risk of adverse environmental impact to plants, wildlife, and humans. The tribes have not identified any locations where plants or other natural resource material are gathered within the Snowbowl SUP area.

The use of reclaimed water could result in some change in plant species composition (favoring early seral species) and some tree mortality may occur. As discussed in Comment 10.1, due to the hydrogeologic characteristics of the site (which result in rapid infiltration with little run-off), these effects would largely be limited to the ski trails that are already dominated by introduced grasses and forbs and the areas immediately

adjacent to them. Additional information on the potential effects of using reclaimed water on plants is discussed in comments 10.2, 10.3, 10.4, 10.11, and 10.12.

The potential impacts to medicinal plants are acknowledged in the DEIS and FEIS:

> *"From both a Hopi and Navajo perspective, any plants that would come into contact with reclaimed water would be contaminated for medicinal purposes, as well as for use in ceremonies needed to perpetuate their cultural values."*

5.9 To "relocate" plants would only diminish their cultural and medicinal values.

Transplanting plants has worked well in other parts of the country for mitigation, but a decision on whether or not to relocate plants will depend on the wishes of the tribes. The MOA indicates that the Forest Service will encourage and protect the natural regeneration of those plants when developing site-specific plans if any plants of traditional importance are identified within the SUP.

5.10 Because a portion of the mountain is public land does not make it any less sacred than the rest of the mountain. The entire mountain is sacred, and that sacred place is honored by all Native Americans.

The concept is acknowledged in using the terms "ethnographic" or "cultural landscape" throughout Chapter 3 of the DEIS and FEIS. In addition the proposed National Register boundary encompasses not only the 777 acres of the Arizona Snowbowl SUP area, but an additional 73,603 acres that comprise the remaining physical extent of the mountain.

5.11 To desecrate a sacred site is a violation of the First Amendment.

Religious Freedom is guaranteed by the First Amendment, which states:

> *"Congress shall make no law respecting an establishment of religion or prohibiting the free exercise thereof."*

In 1983, a Court of Appeals decision affirmed the decision of the Forest Service to allow improvements at the Arizona Snowbowl. The Court found that:

> *"Many government actions may offend religious believers, and may cast doubt upon the veracity of religious beliefs, but unless such actions penalize faith, they do not burden religion. The Secretary of Agriculture has a statutory duty, see e.g., 16 U.S.C. 471, 528 (1976) to manage the National Forests in the public interest, and he has determined that the public interest would best be served by expansion of the Snowbowl ski*

area. In making that determination, the Secretary has not directly or indirectly penalized the plaintiff for their beliefs (1983:12)."

5.12 Further development and snowmaking with reclaimed water on the San Francisco Peaks is a violation of the American Indian Religious Freedom Act.

The 1983 Court of Appeals Decision regarding the Arizona Snowbowl EIS found that the Forest Service was in compliance with American Indian Religious Freedom Act (AIRFA). Judge Richey found that:

> *"the AIRFA requires federal agencies to evaluate their policies and procedures with the aim of protecting Indian religious freedom, to refrain from prohibiting access, possession and use of religious objects and the performance of religious ceremonies, and to consult with Indian organizations in regard to proposed actions, but that AIRFA does not require 'Native traditional religious considerations always (to) prevail to the exclusion of all else (1983:21)'."*

The proposed projects will not restrict tribes from accessing the area for conducting traditional cultural and religious activities and the Tribes have been consulted throughout this process.

5.13 When prayers are offered it is important to have silence and no man made noise. Deities, spirits and animals that reside on and in the San Francisco Peaks need to rest. Prayers will not be able to be completed if these beings cannot rest.

The Forest Service understands the importance of this and, will continue to work with tribes through on-going consultation and through the MOA to mitigate any noise that limits the ability of tribal members to effectively pray or conduct traditional ceremonies. As discussed, tribal consultation will continue to address concerns such as noise that may occur during implementation of any of the alternatives.

Specific Comments

5.14 The Advisory Council of the National Historic Preservation Act has the mandatory responsibility for ensuring that Indian tribes are consulted in areas of this magnitude, and we submit that under that process, the Navajo has not been consulted.

The Navajo Tribe has been consulted and the Navajo people have been involved in the public participation process. The DEIS and the FEIS (pages 1-11 to 1-13) document the consultation efforts that have taken place in conjunction with the requirements of NEPA and NHPA. Since that time, the Forest Service has met with the Navajo Cultural

Preservation Office and has held public meetings in Cameron and Tuba City, Arizona. In total, throughout the NEPA and NHPA processes, two public meetings and numerous Chapter House meetings have been held on the Navajo Nation, in addition to contacts made at the Western Agency Fair and a Western Agency Navajo Council Meeting. One letter was received from the Navajo Nation during the DEIS comment period. The Forest Service has continued to invite Navajo comments and participation throughout the NEPA and MOA processes.

5.15 We recognize the substantial amount of work done to notify the relevant Tribes regarding the proposed improvements and include mitigation measures. EPA recommends that the Final EIS include input and suggestions from these Tribes and outline the mitigation measures that will be taken under the National Historic Preservation Act MOA. The Final EIS should address whether these mitigation measures have been agreed upon by the concerned Tribes and are avoiding damage to cultural values to the greatest extent possible.

The MOA, contained in Appendix D of the FEIS, reflects concerns from the Tribes. The Tribes did not provide any specific mitigation measures, although they were provided the opportunity. The reader is additionally referred to Comment 5.5.

5.16 What would be placed in the cultural center?

The Snowbowl has simply offered to construct and maintain a facility for this purpose. Its contents would be determined based on close coordination with any tribes wishing to participate in its development and operation.

5.17 Using reclaimed water, full of chemicals and pharmaceuticals, is an offense to the Kachina spirits.

The use of reclaimed water is one of the issues of the project and is addressed throughout the Heritage and Cultural Section of the DEIS.

5.18 Water used in mortuaries in the processing of deceased humans would desecrate a holy site to Native Americans.

This concern is documented in the DEIS and FEIS.

5.19 The issue of impact on cultural values should be qualitative in nature, not quantitative.

The “Scope of Analysis” section in the DEIS and FEIS notes the difficulty in conducting a precise analysis of the impact of the proposed projects on the cultural and religious systems that focus on the Peaks. This type of analysis does not lend itself to quantitative

study. Therefore, as suggested by the commentor, cultural impacts were addressed qualitatively in the DEIS and FEIS and very few quantitative analyses were included.

5.20 Alternative 2 will severely scar the San Francisco Peaks. This will diminish the value of the Peaks, therefore diminish the values of our culture.

This issue is specifically acknowledged and addressed in the DEIS and FEIS – "scarring" is identified as one of two issues for the project.

5.21 The desecration of the area, and pollution of the watershed are in direct conflict, and completely disrespectful of a Traditional Cultural Property, which this area has been proposed to be designated.

This was acknowledged as part of the National Historic Preservation Act Section 106 process with the determination that the proposal would have an adverse effect on the San Francisco Peaks TCP.

5.22 Would snowmaking (and increased moisture) on the mountain change the unique weather created by the Peaks? Would the Kachinas not return?

This question cannot be answered. Furthermore, it is not the Forest Service's place to speculate. However, some Hopi believe that this is the case, and is an example of why the project was determined to have an adverse effect on the San Francisco Peaks TCP.

5.23 The economic interests of this plan do not outweigh my rights as a voting citizen of Arizona to have a sewage-free natural environment nor the rights of the Native peoples who do not want sewage dumped on their sacred lands.

Referring to reclaimed water as "sewage" is an inaccurate characterization of the water proposed for use in Alternative 2. However; the Forest Service fully acknowledges the sensitive and controversial nature of this proposal regarding Native Americans and the San Francisco Peaks.

As detailed in the Watershed Resources analysis of the DEIS and FEIS, reuse of municipal wastewater has become increasingly important during the past several decades due to the growth in urban populations and constraints on the development of new water sources. Reuse is practiced extensively in the United States and around the world.

Two major studies have evaluated the health effects associated with ingestion of groundwater that has commingled with effluent in the subsurface as a result of wastewater recharge operations in California's Orange and Los Angeles counties. In these counties, recharge of secondary wastewater effluent had occurred for more than 30 years, resulting in populations being exposed to as much as 38 percent effluent in their drinking water supplies. Results of the comprehensive epidemiologic evaluation

concluded there were no adverse health effects in populations exposed to the effluent compared to unexposed populations.

In 2004, residents of Orange County, California broadly embraced plans for a $487 million "toilet-to-tap" project that promises to provide dependable, cheaper supplies to water scarce Southern California. The project, when it comes on line in 2007, will purify enough wastewater to serve 140,000 households.

Locally, reclaimed water processed at the Rio de Flag Water Reclamation Facility is presently used for irrigation at the following areas: the Catholic Cemetery; Northern Arizona University; Pine Canyon Golf Course, Flagstaff Medical Center; the Flagstaff public school system; and the city's public parks, facilities and cemetery. Reclaimed water processed at the Wildcat Hill Wastewater Treatment Plan is used for irrigation at golf courses, public parks, the Christmas tree farm, and for dust control. Therefore, the City of Flagstaff's past, present, and future are closely tied to the use of reclaimed water to meet its municipal needs. As detailed in the response to Comment 6.14, in 2004 voters approved a $23 million wastewater treatment upgrade project that would connect the Wildcat Hill reclaimed water system to the Rio de Flag system, thereby expanding use and availability of reclaimed water throughout the city and reinforcing the importance of this resource to Flagstaff's future.

5.24 The DEIS fails to distinguish between the alternatives and to take a hard look at the differing heritage and cultural resource impacts of each. In basic terms, the Forest Service appears to argue that no matter which alternative is selected, there will be comparable impacts on Native religious practices and beliefs, especially when considered with other past, present, and reasonably foreseeable future actions.

Each alternative carries with it certain impacts to cultural resources and Native religious practices and beliefs, although to varying degrees. These potential effects are defined throughout the Heritage and Cultural Resources Environmental Consequences section of the DEIS and FEIS. As indicated in the response to Comment 5.19, the effects determination was necessarily conducted in a qualitative manner, as quantification of effects to cultural and heritage resources is neither practical nor possible. There will be some degree of impact no matter which alternative is selected.

5.25 The [Hualapai] tribe reviewed the DEIS and is unsatisfied with the lack of information containing Section 106 consultation efforts that did not take place for this western-most tribe.

In response to the Hualapai concerns, a separate meeting was held on August 6, 2004, and the Forest Service continues to welcome additional suggestions and participation with the Tribe. Tribal consultation records and the project record demonstrate the Forest Service's efforts to contact and communicate with the Hualapai Tribe.

5.26 The DEIS does not contain "Indian Trust Assets", nor does it discuss the Sacred Sites Executive Order 13007 proclaimed by Presidential order.

Section 3A of the FEIS has been updated to include information on Forest Service trust responsibilities and greater explanation of Executive Order 13007 and other laws, regulations and policies followed by the Forest Service in preparing the alternatives and proposed action.

5.27 Spruce boughs are gathered by the Hopi on the access road for traditional and cultural uses. The Proposed Action would result in more noise and traffic on the Snowbowl Road, affecting the natural resource which in turn would have a negative effect on the Hopi and Tewa peoples' traditional uses of natural resources on Nuvatukyavi. The Hopi and Tewa people need to have quiet to perform their ceremonies on the mountain.

The Forest Service and the Snowbowl have already implemented management options to minimize vehicular traffic during certain weather conditions and times of the year, but would welcome suggestions for ways to further mitigate this situation. There are many options for managing access on the mountain (e.g., speed, temporary closures) that may partially mitigate this concern. The Forest Service believes that the land can be effectively managed for multiple uses.

5.28 The Peaks are land which the Hopi held and used as sacred for hundreds and hundreds of years before the arrival of non-natives.

Comment noted. No specific response is necessary.

5.29 [Even before the] close of the comment period, the Forest Service, the Snowbowl managers, and many Flagstaff residents [were] already well aware of how the Hopi people feel about the proposed snowmaking on the San Francisco Peaks. The debate has partly been framed as solid economic considerations vs. the soft spiritual beliefs of a minority population. The first measures are readily quantifiable while the latter are not and consequently are easily dismissed.

There is a fundamental and inherent difference between the analysis of impacts to economic and cultural and heritage resources. A defensible economic analysis could not rely on qualitative studies just as the potential impacts to the cultural and spiritual values on the Peaks could not rely on quantitative data. Both subjects have been given full and adequate disclosure within the DEIS and FEIS.

5.30 [Regarding the] EIS declaration that the reclaimed wastewater is clean by EPA standards. From the Hopi perspective, this is similar to a scientific panel using precise chemical analysis to prove to the Vatican that there is no physiological evidence that transubstantiation of the sacrament actually

occurs. For the Hopi, the concentration of detectable pollutants (though a concern since many plants in the Peaks are used for medical purposes), is in part irrelevant. The Hopi consider the very process of physically manufacturing snow an unnecessary and dangerous intervention on sacred processes and yet they are forced to rebut the Forest Service on technical grounds.

This issue reinforces the response to Comment 5.29 regarding the difficulty in addressing impacts to spiritual values of the Peaks. As indicated on page 3-17 of the FEIS:

> *"From both a Hopi and Navajo perspective, any plants that would come into contact with reclaimed water would be contaminated for medicinal purposes, as well as for use in ceremonies needed to perpetuate their cultural values. The Navajo believe that the plants, rocks, life, and spirit of the Peaks need to be respected, and that the application of reclaimed water – which is believed to be unclean – on the land would desecrate the spirituality of the Peaks. Both groups strongly believe that wastewater cannot be purified in any way, and that the use of reclaimed water would adversely affect the spiritual beings and forces that reside on the Peaks. These concerns are focused on spiritual and cultural issues, not the actual biological purity of the water itself (i.e., to the tribes, it is irrelevant that reclaimed water meets EPA and ADEQ standards)."*

5.31 The expansion will open the door to further development on the Peaks like microwave towers.

The 777-acre SUP area is surrounded by the Kachina Peaks Wilderness. Development of facilities and roads is precluded within Congressionally designated Wilderness areas. Any future proposals within the Snowbowl SUP area or elsewhere on the Peaks are subject to NEPA review by the Forest Service and as a matter of law and policy, tribes are always consulted on these projects. After conducting extensive tribal consultation and NEPA documentation, a wireless telephone facility and tower were approved for construction in 2001. The tower has not been constructed to date. If a future proponent comes to the Forest Service with a proposal then it is Forest Service policy that the review of environmental documentation for actions that are awaiting implementation occurs at least every three to five years to determine if the environmental analysis and documentation should be corrected, supplemented, or revised (FSH 1909.15, 18.03).

5.32 In our Hopi prophesies we know that if snowmaking and Snowbowl's expansions happen, there will be a bigger disaster that will affect the whole world.

The Forest Service acknowledges the perspective of some Hopi.

5.33 "Alternative One" in the Forest Service's Draft Environmental Impact Statement (DEIS) on the Arizona Snowbowl's proposed plan to make snow for reclaimed water and expansion, is the only alternative presented in the DEIS that will not further the irretrievable and irreversible adverse impacts to our Spiritual connections through the desecration of our sacred mountain.

This observation is reflected in the Alternative 1 discussion under Irreversible and Irretrievable Commitments of Resources in the DEIS and FEIS.

5.34 The Coconino National Forest, when analyzing alternatives for the proposed actions, must acknowledge that past development on the Sacred Peaks has caused irreparable damage, and desecration to our traditions of spirituality.

The Cumulative Effects discussion under the Heritage and Cultural Resources analysis in the DEIS and FEIS acknowledge this.

5.35 Please read the 1st amendment to the US constitution- particularly the section on freedom to exercise religion. How can a governmental organization such as yours actively seek to impinge upon someone's religious activities?

The First Amendment issue was addressed as part of the 1983 Court of Appeals decision. The reader is referred to the response to Comment 5.11 for more information.

5.36 When you removed the night lighting [in response to issues surrounding allowing] the Mountain to rest, you acknowledged the high spirituality and cultural effects of this sacred mountain.

Cultural issues regarding the night lighting proposal contributed, in part, to it being removed from the Proposed Action. The technical difficulty in addressing the “sky glow” produced by night lighting, and analyzing its effects on the darkness of northern Arizona’s sky, was another contributing factor as well as the fact that the purpose and need for the proposal could be met without night lighting.

5.37 For the Hopi, precipitation is not just a life-sustaining force. Rain and snow are also the material embodiment of the spirits of their ancestors. In this context we can see why the proposed snowmaking has been a cause for alarm to the Hopi.

The Hopi have shared this with us during consultation meetings. Their concern on this point has been identified as one of the major issues of this proposed project and efforts to minimize its effects are reflected in the Memorandum of Agreement.

5.38 Nowhere does the DEIS acknowledge the Navajo use of medicine bundles, their connection to the San Francisco Peaks, their significance to Navajo cultural and spiritual practice and the impacts that will and already have occurred to these medicine bundles due to development in the SUP area. The EIS must acknowledge that the proposed action will have significant adverse impacts to medicine bundles.

The FEIS has been updated to acknowledge the importance of Navajo Medicine Bundles and their connection to the San Francisco Peaks (page 3-11).

5.39 The DEIS is not specific in what type of monitoring of "special places" would be done and how it identifies and designates "special places." Doesn't the TCP designation acknowledge that the whole mountain is sacred and viewed as a special place? Does this mean that the whole mountain will be monitored?

Yes, the TCP nomination implies that the whole mountain is considered a special place that is recognized as requiring special consideration by the Forest Service. As part of the MOA process and continuing consultation, particularly sensitive areas on the Peaks would continue to be identified and monitored.

5.40 The DEIS states that over 205 acres will be covered with wastewater, yet does not clearly address [the effects of] manmade snow on ceremonial practices. The DEIS does not indicate how traditional practitioners will be notified of such contaminated areas. This will directly affect ceremonial prayers and medicines, animals, soils and minerals used for ceremonies.

Despite years of consultation, the Forest Service is yet to be informed that any ceremonies are conducted within the SUP area. Due to the topography of the Snowbowl SUP area, the potential direct effects of using reclaimed water for snowmaking would be confined to the SUP area and, potentially, to down gradient areas in Hart Prairie. Furthermore, should the Proposed Action be approved, tribes will be made aware of snowmaking activities as part of the continuing communications and consultations between the Forest and the tribes.

5.41 If there are to be 50 snowmaking machines operating on a 24 hour basis that would be audible up to 1.5 miles away, this will severely interfere with my spiritual practice.

Comment noted. No specific response is necessary.

5.42 Cultural practices that predate the existence and application of western science must be recognized in the EIS in equal terms.

This sentiment is acknowledged throughout the DEIS and FEIS.

5.43 The document says the entire Peaks and surrounding area is sacred, and then that there is no particular use, plant, or sacredness about the SUP area that the Forest Service has found. From my representation, with others, of the Navajo medicine men opposing the improvements at the SUP in the mid 1970's, I know that certain areas within the SUP were sacred, religious sites used by certain individual Navajo medicine men for rituals, prayers and the like, and that at times those areas were accessed by medicine men using SUP facilities.

From over 20 years of consultation, including consultation for this project, neither Navajo tribal officials nor tribal members have informed the Coconino National Forest that there are areas used for traditional practice *within* the SUP area. Tribal members do, however, use the chairlift to access areas beyond the SUP area on the upper reaches of the mountain where they conduct ceremonies.

5.44 At a minimum [the proposed projects] will include serious and continuing harms to American Indian people, communities, and spiritual traditions, as well as to the plants, animals, minerals, and ecologies intrinsically associated therewith. Our sacred mountain is a source of goodness and purity, and all effort to make it into a destination (especially for wastewater and recreationists) will disturb the natural order of things and damage all those beings and processes dependent on this order.

This sentiment is acknowledged throughout the DEIS and FEIS.

5.45 Although the DEIS appears to provide a reasonable summary analysis and disclosure of Hopi and Navajo values associated with the project area, the Apache perspectives are not disclosed or analyzed.

The Hopi were active participants throughout the pre-NEPA, and NEPA process. The Apache, while regularly invited, chose not to participate. Considerable information about Hopi and Navajo belief systems and historical uses and values for the Peaks is readily available through a number of sources, but this is not the case with the Apache. This does not imply that Apache perspectives were not considered, only that not as much information on Apache perspectives for the Peaks was brought forward or available for inclusion in the DEIS and FEIS.

5.46 The impact statement does not in any way provide adequate integration of our responsibility to uphold a respect for all religions and the freedom of religion which our nation was founded on.

The DEIS and FEIS attempt to accurately portray the cultural and spiritual significance of the San Francisco Peaks to various Native American cultures, while putting them into perspective regarding the historical, current, and future role for multiple use and Forest Service management.

5.47 Our community is not obligated to offend local indigenous cultures or to shoulder the burdens of increased traffic, scarring of the Peaks, and loss of the mountain's wilderness character, in order to benefit this private enterprise.

This comment reinforces the often difficult mandate that the Forest Service is required to carry out: *multiple use*. The reader is reminded that, while the Snowbowl SUP is permitted to a private entity, the Forest Service supports offering developed winter recreation opportunities on NFS lands – opportunities that the Forest Service is neither equipped to, nor capable of, providing.

The National Ski Areas Association (NSAA), USDA Under Secretary Mark Rey and USDA Forest Service Chief Dale Bosworth, have signed a Memorandum of Understanding (MOU) that outlines a framework of cooperation between the Forest Service and NSAA to achieve common goals of managing and promoting active participation in Alpine recreation. The MOU emphasizes the importance of public and private partnerships in providing recreational facilities, multiple use National Forest management and sustainable and viable communities.

5.48 We have been here long before any other humans have been here and we are the true stewards of this land, not the Coconino National Forest.

The Forest Service appreciates this view and the willingness of tribes to share their stewardship responsibilities with us. However, these mutual, but sometimes contradictory responsibilities illustrate the complexity of the historic and future administration of the NFS lands which comprise the majority of the San Francisco Peaks and which are administered by the Forest Service.

5.49 The DEIS states on page 3-124 that the cumulative impacts associated with Alternative 2 are negligible. We believe that the cumulative effects of this proposed action, when considered in conjunction with the effects of past and existing projects, will have a negative effect on the environment and possibly could also result in a violation of the Native American Freedom of Religion Act.

This comment is specific to the Social and Economic Resources analysis. Cumulative impacts as they relate to heritage and cultural issues are discussed in the Heritage and Cultural Resources analysis, which indicates that: *"in a cumulative context, both alternatives 2 and 3 would result in adverse, long-term effects to the spiritual values of the Peaks."* The overall determination for the projects effects to cultural resources is adverse.

5.50 The DEIS presents the potential impact of Alternative 2 as one that "would result in adverse, long-term effects to the spiritual values of the Peaks [p.3-25]," and snowmaking, in particular, as one that "may further impact the spiritual character of the entire Peaks beyond historic and existing ground disturbance. This could impact [the tribes'] ability to properly complete rituals [p.3-17]." These spiritual beliefs and concerns can be addressed only by the No Action Alternative. Yet the Forest Service's response is to ignore the fundamental incompatibility between Snowbowl expansion and honoring another culture's spiritual values; the agency weakly offers that its "focus will be on providing the Tribes the opportunity to have their religious experience in an uninterrupted manner [p. 3-17]."

The Forest Service manages federal lands under its jurisdiction for multiple use. Tribal use and reverence for the San Francisco Peaks is one of many important components that the Forest Service is required to consider in balancing recreation values and reasonable accommodation of traditional religious and cultural practices.

5.51 A precedent for taking the right and ethical action was set in the 1960s with the Blue Lake at Taos Pueblo (NM). That was hotly contested by outsiders, also, who had many reasons why they thought the Blue Lake should be open to the public. The outsiders also argued that such action did not deny access to the Taos Indians, totally missing the point that the Blue Lake was a sacred site that must not be violated by outsiders. After careful and lengthy consideration the plea by the Taos people that the Blue Lake should be inviolable was finally recognized. It is one of the few times that Native Americans everywhere feel their truly important cultural needs were recognized and addressed. Please use that precedent of the Taos Blue Lake as a model and do not further violate the San Francisco Peaks

We note your concern for recognizing cultural needs. However, although Blue Lake is another important place for Pueblo religion and culture, there are differences between its history and the Arizona Snowbowl ski area. Blue Lake did not have an established recreational facility at it, unlike the Snowbowl which has been in existence and consistently used by the public since 1938. More to the point, however, is that Taos Pueblo actively petitioned the government for the return of Blue Lake since the 1920's as part of lands claims negotiations. Due to their years of perseverance through the Indians Claims Commission and Congress, HR 471 was introduced in 1969 and signed by President Nixon on Dec. 15, 1970 to return 48,000 acres to the Pueblo. The return was initiated by the Pueblo of Taos, not the federal government, and northern Arizona tribes could prepare similar legislation, if they so chose. Considering the many on-going commercial and public uses of the Peaks that have been authorized since the 1890's through various land management planning reviews and decisions, it would not be appropriate for the Forest Service to initiate such action.

6.0 WATER RESOURCES

Preface

Text and data tables included in Watershed Resources section (Chapter 3H) of the FEIS have been modified from those originally included in the DEIS as follows:

First, on the basis of a number of public comments that raised questions and concerns regarding the quality of reclaimed water proposed for use in Alternative 2 of the DEIS, new data tables designated as 3H-1, 3H-2a and 3H-2b have been included in the FEIS. Table 3H-1 is a summary of comprehensive analytical testing of 144 substances for which numeric criteria have been developed by the State of Arizona as Surface Water Quality Standards (SWQS). This table lists the concentrations of these substances in reclaimed water from the Rio de Flag WRF and compares the concentrations to numeric SWQS for all designated uses of Arizona surface water. Tables 3H-2a and 3H-2b summarize the results of testing of metals, organic chemicals, and other parameters for which numeric criteria have been developed as drinking water standards. These tables list the concentrations of these substances in reclaimed water from the Rio de Flag WRF and compare the concentrations to primary and secondary drinking water standards. All of these tables were included in a technical report prepared in conjunction with the DEIS entitled *Analysis of Watershed Resource Issues for the Arizona Snowbowl Facilities Improvement Environmental Impact Statement* by Errol L. Montgomery and Associates. As noted in the DEIS, the technical report, in its entirety, was included in the official project record and available for review at the Peaks Ranger District. (*Note: Tables 3H-2a and 3H-2b in the FEIS appear as a single table in the technical report.*)

Second, on the basis of a number of public comments that raised questions and concerns regarding the presence of residual concentrations of pharmaceutical and personal care products (PPCPs) in reclaimed water, three new data tables designated as 3H-3, 3H-4, and 3H-5 have been included in the FEIS. These three data tables present the results of screening conducted by the U.S. Geological Survey (USGS) on Flagstaff reclaimed water. The testing followed protocols developed for a USGS nation-wide wastewater screening reconnaissance to quantify the presence of about 95 PPCP compounds that may potentially disrupt function of the endocrine system. Table 3H-3 presents the results of testing for human drug compounds; Table 3H-4 presents the results of testing for veterinary and human antibiotics; Table 3H-5 presents the results of testing for industrial and household wastes.

Third, the four data tables from Chapter 3H of the DEIS have been revised to correct for minor water balance errors in projections of watershed hydrologic conditions analyzed to determine direct and indirect effects of the proposed snowmaking. The water balance error was not noted in public comments, but rather in technical review by the consultant team that prepared the DEIS text. The errors in water balance derive from changes in watershed model designation of land uses that result in slightly different recharge rates. The changes in water balance do *not* modify the conclusions of the DEIS concerning water quantity or water quality. The revised tables are designated as Tables 3H-6, 3H-7, 3H-8, and 3H-9 in the FEIS.

Fourth, in response to public comments on the DEIS that follow, minor text changes have been made to Chapter 3H of the FEIS. An explanation of the revisions to the FEIS text is provided in the responses given to the following comments: 6.4, 6.20, 6.26, 6.27, 6.28, and 6.77.

On a final note, numerous respondents have raised questions and concerns regarding consequences of the intended use of City of Flagstaff reclaimed water for proposed snowmaking at the Arizona Snowbowl. The central theme expressed in these comments is that the use of reclaimed water for snowmaking would reduce winter discharges of reclaimed water from the Rio de Flag WRF, which in turn would decrease recharge to the regional C-aquifer and reduce groundwater availability to nearby Flagstaff wells. The concern as stated is a City of Flagstaff water resource management issue. The City has the legal right to put the reclaimed water to any reasonable use they see fit and is the responsible entity to determine the most suitable and beneficial use of reclaimed water. To illustrate the point, the City has approved funding and plan that will permit the Wildcat Hill reclaimed water system to be connected to the Rio de Flag system, providing additional reclaimed water availability for the City of Flagstaff reclaimed water uses and customers, once the Wildcat Hill plant is upgraded. As was stated in the DEIS text on page 3-200, "*the authority of the City to provide reclaimed water to the Snowbowl is not subject to decision by the Forest Service and is therefore not within the jurisdictional purview of this analysis.*" Although recharge from the Rio de Flag WRF outfall extends well beyond the scope of the EIS, we have attempted to respond to substantive comments on overall water resource impacts in the responses to comments that follow.

Thematic Comments

6.1 The analysis and conclusions in the DEIS do not accurately predict environmental and human consequences of reclaimed water use since the analysis is based upon incomplete and inadequate data. The conclusions reached in the DEIS are predominantly speculative. The DEIS speculates on the fate of the chemical contaminant present if the reclaimed water used to make snow, offering the unsupported opinion that dilution, soil absorption, and biodegradation will diminish concentrations of contaminants.

Extensive data concerning water quality of reclaimed water proposed for use in artificial snowmaking as part of the Arizona Snowbowl Facilities Improvements was acquired and evaluated to assess the potential environmental impacts. As explained on page 3-159 of the DEIS, this evaluation was conducted by reviewing pertinent records, permits, and required permit reporting provided by the City of Flagstaff and the Arizona Department of Environmental Quality for the treatment and monitoring of the Rio de Flag WRF. In addition, Federal and State requirements and standard industry practices, in Arizona and other states practicing the reuse and recharge of reclaimed water, were reviewed. A summary of the findings of this evaluation is discussed section 3H of the DEIS and FEIS. A more extensive analysis and compilation of data developed in this analysis was

provided in a technical report prepared in conjunction with the DEIS.[4] As noted in the DEIS, the technical report, in its entirety, was included in the official project record and made available for review at the Peaks Ranger District office.

The analysis of potential water quality effects to the receiving sub-watersheds was described in section 3H of the DEIS and FEIS. In this analysis, the fate of chemical constituents present in reclaimed water was evaluated based on calculations of precipitation, snowmaking water use, watershed losses, and groundwater recharge that may be expected under dry, average, and wet conditions. The absolute concentration of chemical solutes in resulting groundwater recharge cannot reliably be predicted due to many and varied physical, chemical, and biological processes that occur as water infiltrates below ground and mixes with other groundwater in storage. For further understanding of the potential changes of water quality and soil chemistry due to infiltration of reclaimed water in native soils, the reader is referred to pages 3-235 to 3-244 of the DEIS and pages 3-259 to 3-268 of the FEIS.

6.2 In order to adequately address the hydrologic issues, the FEIS should include further refinement of the nutrient mass balance performed to estimate nitrogen loading on the affected slopes, receiving waters, and ecological assessment of the effects of increased nutrients on vegetation and biota.

Additional information on the potential affects of nutrient loading on soils and the environment was presented in the DEIS. Pages 3-235 to 3-243 of the DEIS, and pages 3-259 to 3-268 of the FEIS, provide an assessment of potential changes in soil chemistry due to anticipated increases in soil moisture and nutrient loading. A summary of potential changes to plant species composition associated with the proposed use of reclaimed water, as well as the ecological significance of increased moisture and nutrients on biota, is included in the DEIS and FEIS.

6.3 Results of the NAU/USGS sponsored Catherine Propper study regarding proposed use of city recycled wastewater for snowmaking at the Arizona Snowbowl need to be disclosed in the FEIS.

During 2003 – 2004, Northern Arizona University (NAU) and the USGS collaborated to conduct a screening reconnaissance of Flagstaff reclaimed water for endocrine disrupting compounds and potential affects on aquatic wildlife. The USGS collected samples of reclaimed water and analyzed the samples for various human drugs, sex and steroidal hormones, veterinary and human antibiotics, and household and industrial waste products that may act as endocrine disrupting compounds. Dr. Catherine Propper of the NAU Department of Biological Sciences conducted a series of in vitro (test tube) and in vivo (whole body) tests on aquatic vertebrates in reclaimed water from the Rio de Flag WRF to assess the endocrine disrupting potential. A summary of Dr. Propper's findings appear

[4] Errol L. Montgomery and Associates, 2003.

in four abstracts given as presentations at the 2004 Annual Meeting for the Society of Integrative and Comparative Biology, held January 5-9 in New Orleans, Louisiana. At the time of writing, the conference presentations offer the only publicly available summary of Dr. Propper's research results.

As described in Westmoreland and others,[5] testing was performed on bullfrogs to assess changes in activity levels, feeding behavior, overall condition, and endocrine status after exposure to reclaimed water for one month. The results of the experiment suggest that exposure to reclaimed water may have adversely affected the bullfrog's feeding behavior. All other measures of behavior, activity, and stress hormone levels were not statistically significant compared to a control group.

As described in Hortin et al.[6] and Somley et al.,[7] testing was performed on female western mosquitofish (*Gambusia affinis*) to assess changes in anal tail fin length after exposure to reclaimed water for one month. Elongation of the mosquitofish anal tail fin is a bioindicator of endocrine disruption by compounds that mimic male sexual hormones called androgens. During the course of study a significant quantity of fish died, possibly associated with low dissolved oxygen levels or infection by microorganisms. The experiment was repeated after aerating the reclaimed water. The reclaimed water did not cause a change in mosquitofish anal fin length suggesting there is nothing overtly androgenic in the water.

As described in Phillips et al.,[8] testing was performed on African clawed frogs (*Xenopus laevis*) raised in reclaimed water to assess their physiological development. The rate of development and sex ratio was measured in tadpoles until metamorphosis. Tadpoles in reclaimed water underwent metamorphosis in fewer days, weighed less, and were shorter than individuals from control groups. There was no significant effect on sex ratio. The findings suggest that the reclaimed water is not significantly estrogenic, although exposure to reclaimed water influences endocrine-directed development in this aquatic species.

The studies conducted by Dr. Catherine Propper exposed test animals to 100 percent reclaimed water. However, as explained further in the response to Comment 6.6, the proposed use of reclaimed water for snowmaking at the Arizona Snowbowl would not result in comparable levels of environmental exposure as investigated by Dr. Propper.

6.4 The FEIS should include an analysis of (1) the PPCPs in Flagstaff's reclaimed water for which screening results are available, (2) the other possible PPCPs that may be in Flagstaff's reclaimed water for which screening results are not currently available, (3) the degree to which current water treatment systems can reduce the presence of these specific

[5] Westmoreland, K.L., et al., 2004
[6] Hortin, S.M., et al., 2004
[7] Somley, B.L., et al., 2004
[8] Phillips, J.D., et al., 2004

compounds in reclaimed water, (4) the possible effects of these specific compounds on humans and wildlife including mammals, birds, amphibians, invertebrates, and insects, and plants, (5) exposure risks posed to humans and wildlife by snowmaking (6) risk of contamination of groundwater supplies on the Peaks, specifically as they relate to the valuable resource of springs, and (7) risk of bioaccumulation posed by endocrine disrupting compounds.

As indicated in the DEIS and FEIS, the analysis of potential effects to water resources was conducted by reviewing pertinent records, permits, and required permit reporting provided by the City of Flagstaff and the Arizona Department of Environmental Quality (ADEQ) for the treatment and monitoring of the Rio de Flag water reclamation facility (WRF) influent and effluent. In addition, Federal and State requirements and standard industry practices, in Arizona and other states for the reuse and recharge of reclaimed wastewater, were reviewed.

1) As noted in Comment 6.3, the USGS conducted a screening reconnaissance of Flagstaff reclaimed water for potential endocrine disrupting compounds. Samples of reclaimed water were collected from the City of Flagstaff Rio de Flag WRF and Wildcat Hill Waste Water Treatment Plant (WWTP). Additionally, a groundwater sample from a City water supply well, designated as the Foxglenn Well, was collected. The water samples were analyzed for about 95 chemicals generally referred to as pharmaceutical and personal care products (PPCPs). Testing was done according to procedures largely developed by USGS and the Environmental Protection Agency (EPA) that enable quantification of PPCPs at very low detection levels. The USGS findings have been added to the FEIS and are presented in Tables 3H-3, 3H-4, and 3H-5. Table 3H-3 presents the results of testing for human drug compounds; Table 3H-4 presents the results of testing for veterinary and human antiobiotics; Table 3H-5 presents the results of testing for industrial and household wastes. It is important to note that the number of PPCPs detected and the concentration at which they were detected is significantly lower in the reclaimed water from the Rio de Flag WRF compared to the Wildcat Hill WWTP. The Rio de Flag WRF would be the source of reclaimed water used for the proposed snowmaking.

2) The screening reconnaissance conducted by the USGS includes a broad spectrum of about 95 known PPCPs where analytical methods exist for trace level analysis. According to the USGS,[9] the 95 targeted compounds were chosen from a large number of potential compounds based on usage, toxicity, potential hormonal activity, and persistence in the environment. The target list of PPCPs is currently the most comprehensive program of testing conducted by USGS and consistent with screening reconnaissance being done on a national level. Other possible PPCPs have not been analyzed in Flagstaff's reclaimed water.

[9] Kolpin, D., et al., 2002.

3) Because analytical methods have only recently been developed that are capable of detecting low levels of PPCPs observed in treated wastewater, there are limited empirical data to demonstrate the degree to which wastewater treatment systems remove PPCPs from the sewage. The analysis of removal effectiveness by various wastewater treatment processes is an emerging focus of applied research. Recent studies[10], corroborate findings of others that removal is directly related to chemical structure. Therefore, not all classes of compounds are removed equivalently.

   Two primary mechanisms remove substances from the incoming waste stream: microbial degradation, leading sometimes to complete mineralization; and sorption to filterable solids, which are later removed as sludge. The level of removal varies by chemical and treatment process but the view from the water utility industry is that wastewater treatment reduces, but does not eliminate, PPCPs from wastewater.[11] For example, in studying removal efficiency of 14 drug compounds representing five broad physiologic categories from WWTPs in Germany, the removal rate ranged from 7 to 96 percent and averaged about 60 percent.[12] A study, of 27 treatment plants in Japan,[13] confirmed removal of approximately 90 percent or more for almost all EDCs.

   The research to date confirms that enhanced wastewater treatment provides additional removal of PPCPs beyond conventional treatment. This conclusion is supported by the results of the screening reconnaissance of Flagstaff reclaimed water which showed fewer and lower concentrations of wastewater contaminants in effluent from the Rio de Flag WRF compared to Wildcat Hill WWTP. A recent study[14] in California has shown lower contaminant levels in effluent treated by enhanced biological nitrogen removal while treatment by microfiltration and reverse osmosis removed nearly all detectable levels of PPCPs.

4) A great deal of literature exists to describe the possible effects of EDCs on humans and wildlife while relatively little information is available concerning the effects of these compounds on insects and plant life. A summary of the current scientific view is summarized in pages 3-174 to 3-176 of the DEIS and pages 3-188 to 3-191 of the FEIS. For more detail the reader is referred to publicly-available information at the EPA website:

   http://www.epa.gov/endocrine/
   http://www.epa.gov/scipoly/oscpendo/
   http://oaspub.epa.gov/pls/gedri/pack_edri.All_Page

[10] Soliman, M., et al., 2004 and Davis, M., 2000
[11] Daughton, C., and Ternes, T., 1999.
[12] Ibid.
[13] Nasu, M., et al., 2001.
[14] Soliman, M., et al., 2004.

which is a leading repository of the current research in the U.S. In addition, information and results of EDC-related studies are available from a number of federal agencies, universities, and research organizations ranging from the National Science Foundation, American Water Works Research Foundation to Chemical Manufacturers Association.

5) The proposed use of reclaimed water for snowmaking poses minimal risks to humans and wildlife from exposure to PPCPs. Implementation of Alternative 2 has the potential to directly expose winter recreational users and Snowbowl employees to reclaimed water in the form of artificial snow. Potential exposure pathways include inhalation, ingestion, and dermal contact. The potential for incidental ingestion and dermal contact with snow are the primary routes of exposure given the water reuse is for snowmaking. The conversion of reclaimed water to snow and the cold winter temperatures in which it is applied will, for all practical purposes, preclude exposure via inhalation. For all routes of potential exposure, the hazard is lessened due to the nature of skiing as a season, winter-time recreational pursuit, thereby limiting exposure. Additionally, although direct and full body contact with artificial snow is expected to occur, the general need for winter garments to protect against the wet and cold will limit the potential for and amount of dermal contact. Consequently, the use of reclaimed water use in artificial snowmaking is not considered to have a major negative impact to the public during recreational uses.

   Conditions specified for the permitted reuse of reclaimed water under the City of Flagstaff Reclaimed Water Individual Permit are intended to minimize this risk of exposure and protect public health. To minimize risks of ingestion at reuse sites there are requirements for signage advising the public of the use of reclaimed water. At the Snowbowl, as at other open areas such as city parks and schools in Flagstaff where the reclaimed water is used, signs will be posted to alert staff and recreational users that reclaimed water is used for artificial snowmaking and to avoid intentional ingestion of snow.

   There are also limited routes for wildlife exposure to PPCP compounds that may be present in artificial snow made from reclaimed water. As stated in Chapter 3H, the permeability of the surficial sediments in the areas of proposed snowmaking is sufficiently high to absorb most snowmelt that occurs. Consequently, there is limited potential for wildlife to come in contact with snowmelt from reclaimed water. Any runoff that may occur would be in response to periods of heavy snowmelt where the melt water combines with natural snowmelt and moves in channels over relatively short distances before infiltrating to the subsurface. (The reader is referred to comments 11.3 and 11.9 for further information and detail concerning effects to wildlife.) Wildlife will also have limited contact with reclaimed water contained in the proposed 10 million gallon storage reservoir near the top terminal of the existing Sunset chairlift. The reservoir will be fenced to limit wildlife access.

6) The potential impact of using reclaimed water in the snowmaking system to groundwater quality is discussed on pages 3-193 to 3-197 on the DEIS, and in the FEIS on pages 3-215 to 3-219. As discussed in this section, the use of reclaimed water for snowmaking would result in increased concentrations of solutes in groundwater recharge that occurs in the Snowbowl area. However, concentrations of total dissolved solids (TDS) and nitrates, as well as PPCPs, are generally low in the reclaimed water and would be substantially attenuated by blending with snowmelt from natural snow in the watershed. The overall impact on groundwater quality is not likely to be major in the Hart Prairie watershed and negligible in terms of regional aquifer water quality.

7) In general, little is known of the toxicology and biological responses that may be elicited for many of the pharmaceutical compounds, personal care products, and industrial contaminants observed in wastewater effluent at the low levels that may be found in the environment (e.g., nanogram per liter or part per trillion level). As a class, these substances are not bioaccumulative for the most part[15] and water or the aqueous environment is not the main exposure route for most EDCs to animals[16]. For bioaccumulating compounds like PCBs (polychlorinated biphenyls), food is the main exposure route for wildlife and humans. Many EDCs, especially bioaccumulating compounds, are taken up in higher amounts as food on a daily basis. Humans are exposed to phytoestrogens, like isoflavones, via food such as dairy products and meat. Synthetic hormones are an exception, as exposure to water or the aqueous environment is theoretically the main route for unintended exposure to these compounds.

6.5 With use of reclaimed water for public recreation, you are creating a major public health liability exposure and contributing to a critical public health crisis with potential outbreak of unknown pathogens. Who will be liable should someone become ill from exposure to snow made from reclaimed water at Snowbowl.

As explained in the previous response, the use of reclaimed water in the proposed snowmaking is not considered to have a major adverse impact to the public during recreational skiing and snowplay. It should also be noted that reclaimed water used for public recreation, or any reuse application that has the potential for direct public contact, is very strictly controlled. The Arizona Department of Environmental Quality (ADEQ) has developed regulations compelling specific advanced treatment requirements for reuse applications having higher degrees of public contact, such as skiing, that include tertiary treatment with disinfection. In addition, ADEQ requires permits for all reclaimed water reuse that specify monitoring requirements, including frequent microbiological testing to assure pathogens are removed from wastewater, and reporting requirements. In meeting

[15] Erickson, B.E., 2002.
[16] Hohenblum, P., 2003.

these requirements, the reclaimed water is acceptable for unrestricted body contact and authorized for artificial snowmaking for skiing by ADEQ.

Additionally, the concept of liability is discussed in Comment 26.1.

6.6 Use of reclaimed sewage waste, that contains many pharmaceuticals, antibiotics, personal care products, industrial, commercial hospital, laboratory and household chemicals, and known endocrine disruptors, is carrying out an enormous experiment of unknown outcome on plants, wildlife and humans.

The general impact of PPCPs on human health and the environment is not known. As described in pages 3-174 to 3-176 of the DEIS and well as in the FEIS, the scientific evidence indicates that certain effects observed in wildlife can be attributed to chemicals that function as endocrine disruptors, but the causal link is weak. Researchers[17] have demonstrated that ethinylestradiol, a common birth control pharmaceutical, can induce endocrine disruptive effects in fish at concentrations present in some municipal sewage effluents. Estrogenic hormones in water are less likely to cause adverse effects in humans and terrestrial wildlife, which ingest limited quantities of water, than in fish that are constantly exposed to EDCs in the aquatic habitat.

The fate of reclaimed water in the environment is highly relevant to the potential risk. The fate of reclaimed water used for snowmaking in Alternative 2 is explained in the summary of watershed environmental consequences beginning on page 3-184 of the DEIS and in the FEIS on page 3-206. Snowmelt derived from artificial snow that is not sublimated will infiltrate into the permeable ground surface. There is little, if any, sustained runoff or surface water in the Snowbowl area. The infiltrating snowmelt in the area will consist of a blend of natural and artificial snow, which will dilute solutes from reclaimed water. Subsequent percolation through surface soils and underlying sediments will remove PPCPs, as shown by studies[18] of soil aquifer treatment. Snowmelt seepage will combine with other groundwater in storage and infiltrate to underlying perched or regional aquifers.

In summary, the fate of the proposed use of reclaimed water for snowmaking at the Arizona Snowbowl is understood in terms of its impact to the environment to a degree necessary for selection of an EIS alternative. Given the lack of existing research on the effects of potential EDCs and PPCPs on vegetation, there is insufficient information to judge the possible effects of these compounds upon plantlife, although as noted in the response to Comment 10.2, due to the hydrogeologic characteristics of the site (which result in rapid infiltration with little run-off), these effects would largely be limited to the ski trails that are already dominated by introduced grasses and forbs and the areas

[17] Snyder, S., 2003.
[18] Zhang, J., 2003.

immediately adjacent to them. The proposed use of reclaimed water for snowmaking represents a low risk of adverse environmental impact to wildlife and humans.

6.7 There are higher concentrations of solutes in the reclaimed water than in natural snow. What are these solutes and what are their effects? How will this affect the flora receiving runoff as the artificial snow melts?

The total dissolved solids (TDS) concentration in reclaimed water is around 350 milligrams per liter (mg/l). There is limited data available from the City of Flagstaff Utilities Department to document the concentrations of major ions in reclaimed water. As documented in Table 3 of the Montgomery and Associates technical report[19] that was used for the DEIS text in Chapter 3H, sulfate and chloride concentrations have been detected in reclaimed water at about 30 mg/l and 60 mg/l, respectively. Nitrate concentrations (as nitrogen) are monitored in reclaimed water and are typically in the range of 3 to 5 mg/l. Concentrations of fluoride have been detected in the range of 130 to 430 micrograms per liter (ug/l). Trace metal concentrations in reclaimed water include iron in the range of 40 to 80 ug/l, arsenic at or below 6 ug/l, copper at or below 11 ug/l, and lead at or below 3 ug/l.

The environmental consequences of the proposed snowmaking on flora is discussed on pages 3-266 to 3-269 of the DEIS and pages 3-290 to 3-293 of the FEIS. This section addressed the potential changes to plant species composition due to an overall increase in moisture and nutrients that would result from the application of reclaimed water in artificial snow. The concern with the effect of concentrations of solutes and TDS in snowmelt in areas covered by artificial snow is not expected to be significant to plant communities due to the generally low levels of inorganic solutes and TDS in reclaimed water and attenuation of solute concentrations from snowmelt from natural snow.

6.8 If chemical and biological constituents are returned to the watershed each winter, the snowmelt will become increasingly contaminated each spring. Will snowmaking at Snowbowl render the Flagstaff water table unpotable due to the use of reclaimed water in the future?

Using reclaimed water in artificial snowmaking will not render the underlying groundwater nonpotable. Testing conducted by the City of Flagstaff indicates the reclaimed water meets all water quality standards designated for state surface water uses under the Clean Water Act and for groundwater under the Aquifer Protection Permit Program. The dissolved solids and common inorganic solutes contained in reclaimed water, as mentioned in the previous response, are well below levels regulated by the EPA as secondary drinking water standards. There will not be a buildup of dissolved solids and inorganic solutes in underlying groundwater over time because there will be substantial, on-going attenuation, both during periods of snowmelt in the winter season and from year-to-year. The attenuation of reclaimed water solutes occurs as the

[19] Errol L. Montgomery and Associates, 2003.

snowmelt containing reclaimed water combines with other snowmelt from natural snow and blends with other natural groundwater recharge and groundwater in storage. In Arizona, the cities of Scottsdale and Tucson, among others, have implemented aquifer recharge programs utilizing municipal effluent.

6.9 The DEIS indicates that, "If all of the water resulting from melted artificial snow were to percolate into the regional aquifer, it would amount to only one-tenth of one percent of the water that is already soaking into the regional aquifer." This may be true on the amount of water affecting the regional aquifer, but it does not establish that this amount of dilution will make it safe.

As noted in the previous comment and discussed on pages 3-181 through 3-184 of the DEIS and pages 3-203 to 3-206 of the FEIS, the reclaimed water meets all standards prescribed by the State for protection of surface water and groundwater quality. In this regard, the reclaimed water itself meets aquifer water quality standards for drinking water uses were it to recharge to the aquifer *without* dilution and attenuation of solute concentrations. Yet as the respondent notes and the DEIS and FEIS explain in detail, the snowmelt from artificial snow containing reclaimed water would mix with other snowmelt and blend with other groundwater recharge and groundwater in storage. This would result in additional attenuation of solute concentrations.

6.10 Snowbowl should be required to install monitoring wells at the bottom end of the base area or on Forest Service land between Snowbowl and the private property or to monitor all of the existing springs and wells for groundwater contamination and to mitigate should there be any detectible water quality impacts from use of reclaimed water.

The reclaimed water proposed for snowmaking is governed by an Aquifer Protection Permit (APP) and Individual Reclaimed Water Permit issued to the City of Flagstaff. Reuse of reclaimed water requires the City to meet all effluent limitations, monitoring, and reporting required in these permits. The very same circumstances and requirements are applicable to all reuse applications (e.g., golf courses, parks, school grounds) served by the City of Flagstaff for each water treatment plant. In meeting these requirements, the various reuse applications are deemed to satisfy requirements of the APP Program. A review of documentation submitted to the ADEQ by the City of Flagstaff indicates full compliance with the terms and conditions of the permits.

6.11 Nowhere in the DEIS is the issue of odor emanating from snow addressed.

According to the City of Flagstaff Utilities Department, odor has not been an issue in the use of reclaimed water at other City reuse applications such as public parks, school grounds, and golf courses. There is no reason to expect that odor will be an issue in the proposed use of reclaimed water for snowmaking.

6.12 Many ski area snowmaking systems utilize chemical agents (i.e., Snow-max) that pose potential threats to the existing ecosystems. If Snowbowl intends to utilize these agents, this is likely to have a significant impact on water quality and may have impacts on local fauna, including plant used as part of traditional cultural and medical practices of a number of Native communities including the Navajo, Hopi, Walapai, Paiute, and Apache.

The Arizona Snowbowl does not plan on using a nucleating agent in the snowmaking system. However, it should be pointed out that such agents do not present a concern for environmental ecosystem impacts or water quality degradation. The specific snow-inducing agent cited in the comment, Snomax®, is an ice-nucleating protein derived from the naturally occurring bacteria, *Pseudomonas syringae (31a)*. According to the manufacturer, the strain of *Pseudomonas syringae* used in Snomax® has been proven to be a safe, non-pathogenic organism. Key agencies that have regulated the commercial development of Snomax include the U.S. Department of Agriculture, the U.S. Forest Service, and Environmental Canada. Snomax® is also approved for commercial use by regulatory agencies in Canada, Norway, Japan, Sweden, New Zealand, Chile, Argentina, France, Switzerland, and Australia.

6.13 The snowmaking alternative requires a significant commitment of treated wastewater that currently recharges Flagstaff's field wells. The DEIS needs to address the fact that water could be transferred from one basin to another, as well as reduced flow in the Rio de Flag due to the diversion of reclaimed water for snowmaking that could result in less recharge to Flagstaff's aquifer.

It is presumed the respondent is referring to the discussion of cumulative effects on pages 3-200 and 3-201 of the DEIS. This section was in response to general public comments regarding consumptive use of reclaimed water in the proposed snowmaking alternative and the potential impact on recharge to the regional C-aquifer. Data developed in the DEIS provided a quantitative basis from which to predict changes in groundwater recharge from the No Action Alternative and Proposed Action. An updated table, reflecting minor corrections in the water balance is provided in the FEIS and indicates that the proposed snowmaking would result in an estimated net average reduction in groundwater recharge to the regional aquifer of 154 acre-feet (AF) per year. The reader is referred to the discussion on pages 3-200 and 3-201 of the DEIS and pages 3-222 to 3-224 of the FEIS regarding the assumptions made for this calculation.

This analysis discussed the regional aquifer because that was the context of comments raised in public scoping. A more specific analysis of diversions from the Rio de Flag WRF and impacts on groundwater basins in the vicinity of Flagstaff cannot be reliably determined given the uncertainty of groundwater movement through the San Francisco Mountain volcanic rocks and underlying sedimentary formations that comprise the unsaturated zone. However, it is noted in the DEIS that snowmelt containing treated effluent could potentially recharge both the Little Colorado River and the Verde River

groundwater basins. The reader is referred to comments 6.16 and 6.88 regarding recharge along the Rio de Flag.

6.14 We have created downstream ecosystems that are dependent on reclaimed water in the Rio de Flag. What will the effects be on these ecosystems when reclaimed water is diverted to Snowbowl?

If Alternative 2 is selected, up to 1.5 million gallons per day (MGD) of reclaimed water from the Rio de Flag WRF may be used for snowmaking purposes. Discharges of reclaimed water to the Rio de Flag would not be eliminated if snowmaking is implemented - the Rio de Flag WWTP has the capacity to treat up to four MGD of wastewater and present flows are greater than two million gallons per day. Hence, over 500,000 gpd would still be available for release to the Rio de Flag.

Should reclaimed water sales to Arizona Snowbowl be implemented, wastewater flows discharged to the Rio de Flag would be expected to decrease, but not disappear, during the winter snowmaking season over the near-term future. The decrease in volume could have the effect of reducing the spatial extent of the artificial riparian zone immediately downstream of the Rio de Flag plant, decreasing the area of habitat available within this micro-ecosystem.

In general, wastewater generation and treatment needs are expected to increase as growth occurs in the City. Voters approved a $23,100,000 wastewater treatment upgrade project in 2004 that will permit the Wildcat Hill reclaimed water system to be connected to the Rio de Flag system, providing additional reclaimed water available for utilization by City of Flagstaff reclaimed water customers.

The reader is referred to Comment 11.2 for additional information on effects to wildlife along the Rio de Flag.

6.15 How long will it take for reclaimed water used in snowmaking to reach Flagstaff's aquifer?

As described in the Montgomery and Associates technical report[20] that was used for the DEIS text in Chapter 3H, due to the complex nature of the vadose zone sediments and deposits between the land surface and the regional aquifer, it is not possible to determine the travel time of recharge of snowmelt from the Snowbowl to reach the aquifer. If the recharge encounters large fracture and fault systems, travel time could be reduced; however, in any case, it is expected to be many years before the recharge would reach the regional aquifer in the vicinity of Flagstaff.

[20] Errol L. Montgomery and Associates, 2003.

6.16 Some of the Rio de Flag water goes to recharge downstream ecosystems and an aquifer that serves Flagstaff wells. If this water is pumped up the mountain for snowmaking, the water that does not sublimate may end up in an entirely different watershed, making it unavailable for Flagstaff use.

As explained in the DEIS, snowmelt that is not lost to sublimation will infiltrate the highly permeable volcanic soils and sediments of San Francisco Mountain and move, over time, to underlying perched or regional groundwater aquifers. Due to the complexity of the subsurface geology, the pattern of groundwater movement cannot be predicted. Further, the divides for groundwater movement in underlying groundwater basins do no necessarily coincide with the topographic divides for surface water flow. Consequently, it is not possible to project with any confidence the pattern of groundwater movement and ultimate fate of groundwater recharge. It is possible that some of the groundwater originating from infiltrating snowmelt at the Arizona Snowbowl contributes to both the Little Colorado River and Verde River groundwater basins.

6.17 The DEIS only reports total annual precipitation for dry, average, and wet years. It does not present snowfall data for dry, average, and wet years. Most of the recharge to our aquifers is from snowmelt not from rainfall.

The reader is referred to Figure 3E-2 of the FEIS, where annual snowfall trends from 1981-2003 are displayed.

6.18 How could decreased water availability increase demands and associated effects on other water sources (such as springs in the inner basin of the San Francisco Peaks), and costs associated with obtaining these resources (such as increased drilling depths in the case of new wells.)

The proposed use of reclaimed water for snowmaking does not represent a decrease in water availability any more than other uses of City of Flagstaff reclaimed water. As explained in the DEIS, the City has the legal right to put the reclaimed water to any reasonable use they see fit. Water reuse is regarded by the State of Arizona as a beneficial and efficient use of wastewater that preserves potable water resources that might otherwise be used to meet the water demand. The City of Flagstaff Utilities Department is the responsible entity to determine the most suitable and beneficial use of reclaimed water for the City. Consistent with their water resource management plan, the City has agreed to supply reclaimed water to Arizona Snowbowl if the improvements including snowmaking are granted. As stated in the DEIS text on page 3-200, "*the authority of the City to provide reclaimed water to the Snowbowl is not subject to decision by the Forest Service and is therefore not within the jurisdictional purview of this analysis.*"

The additional use of City of Flagstaff reclaimed water for the proposed snowmaking and the resultant decreased recharge from the Rio de Flag would have a very limited impact on groundwater availability in the C-aquifer in this region. Based on calculations

discussed in more detail in the response to Comment 6.79, it is concluded that the decreased aquifer recharge caused by diversions of reclaimed water for snowmaking would be negligible to groundwater levels in wells more than ¾ of a mile from the effluent flow in the Rio de Flag. Water levels and groundwater availability would not be affected at springs or wells elsewhere in the City or region.

6.19 Although the impact of incidental, unintentional recharge to the regional aquifer via the Rio de Flag is small compared to the total storage and total discharge of the entire aquifer, for wells in the immediate vicinity of the areas of recharge, it is highly significant. If wells of the City pump on average about 500,000 gallons/day (reported well yield for the Foxglenn well by the City of Flagstaff, about 400 ac-ft per year), then the amount of recharge from the Rio de Flag plant is approximately equal to the volume pumped from one of these wells. Then, recharge from the Rio de Flag is a highly significant percentage of the volume pumped from these wells. If this recharge is diminished, there may be significantly greater drawdowns in these wells from future pumping.

As indicated in the response to Comment 6.18, the proposed delivery of reclaimed water to Arizona Snowbowl for snowmaking is a water resource management decision made by the City of Flagstaff. The decision to provide reclaimed water results in a beneficial reuse opportunity that generates economic return to the City of Flagstaff Utilities Department. Further, the proposed delivery of reclaimed water to Arizona Snowbowl occurs in the winter when there is very little demand for water reuse.

The reader is additionally referred to Comment 6.79 for more information.

6.20 According to the DEIS, springs are considered unused unless there is documented human use. This discussion should recognize the enormously significant use of springs by a greatly increased diversity of plants and wildlife, including insects/pollinators, over surrounding dry uplands.

The discussion of the hydrogeologic setting provided in the DEIS and FEIS was not intended to imply that springs are only useful if developed by humans. Any available surface water source in the dry uplands of Northern Arizona is a valuable resource. The FEIS has been revised to indicate the significant value of surrounding springs for wildlife and plant diversity.

6.21 The Forest Service projects Flagstaff's population to grow by 45.8% between 2000 and 2015 as a reason for Snowbowl expansion and snowmaking. What are the potential impacts of a 45.8% increase in water consumption coupled with reduced recharge to the regional aquifer on Flagstaff and the surrounding communities?

The City of Flagstaff Utilities Department has planned for long-range water supply by continually updating its water production strategy through tracking of water use, climatic trends, reclaimed water availability, wastewater parameters, water quality, water quantity, conservation, population projections, and economics. The most current annual update is summarized in the 2004 Water and Wastewater Operation Plan[21]. Historic water usage data indicate that although population has increased significantly, per capita consumption has decreased since 1990. Consequently, an expected population increase of 45.8 percent does not necessarily correspond to comparable increase in water demand.

Nevertheless, future population growth will entail a greater demand for water supply. Flagstaff area voters approved a $46,600,000 water and sewer bond program in 2004 to meet increasing water demands and the City of Flagstaff has developed plans to drill new water supply wells and acquire additional water rights.

6.22 The estimate of 5,000,000 ac-ft of water in storage is highly uncertain because it is based on a very uncertain value of the void space in the aquifer, which is highly fractured and dissolution enhanced. The DEIS and Report should describe the uncertainty in this aquifer parameter and the resultant uncertainty in the volume of water stored in the aquifer.

All estimates for volume of groundwater stored in aquifers carry some level of uncertainty due to the natural non-uniformity of the physical parameters of the rock matrix and pore spaces, and due to the limitations of available methods to make such estimates. The storage volume estimated in the DEIS and FEIS is based on a reasonable assumption for average specific yield and is not presented as an absolute quantity. The estimate was given to provide perspective for the relative amount of groundwater in storage in the region, which in any event is very large as indicated by the relatively stable annual base flow measured at major springs that discharge from the regional aquifer. Seasonal trends in recharge are attenuated by the large storage capacity of the aquifer and have not been shown to substantially impact average annual discharge from the major springs.

6.23 The DEIS should analyze the impacts of full use of the allotted water (552 AF), not partial use (358 AF).

It is presumed the respondent is comparing the projected change in recharge in the Rio de Flag in Table 3H-4 of the DEIS (cited as 358 AF) to the estimated volume of reclaimed water used in snowmaking derived by Schwartzman and Springer[22] (cited as 552 AF) that appeared in comments to the Forest Service during the public scoping period. The DEIS relied on values in Table 3H-4 because it represented the most current and best available estimates of the volume of water available for groundwater recharge in the Arizona Snowbowl study area. These estimates included a detailed analysis of the projected

[21] City of Flagstaff Utilities Department, 2004.
[22] Schwartzman, P., and Springer, A., 2002.

snowmaking coverage and subsequent reclaimed water demand provided by Sno.Matic Controls and Engineering, Incorporated[23] and watershed modeling that projected the volumes of water available for groundwater recharge from precipitation and proposed snowmaking conducted by Resource Engineering, Incorporated[24]. As stated in Table 3H-4, the estimated reclaimed water use for snowmaking based on average-year precipitation is 364 AF. The comparative groundwater recharge estimates utilized average-year projected hydrologic because it is the best predictor of long-term impacts.

Instead of deriving water budgets based on average reclaimed water usage, Schwartzman and Springer calculated net change in recharge to the aquifer based on maximum reclaimed water usage. Their maximum value assumed 1.5 million gallons of reclaimed water, the maximum amount available under contract with the City of Flagstaff, would be used for snowmaking every single day over the four month period it is available. Schwartzman and Springer note that Arizona Snowbowl may not use the entire amount of reclaimed water offered by the City and the volume impact would be scaled down proportionally.

Specific Comments

6.24 The Forest Service fails to take a "hard look" at the relevant scientific evidence underlying the assumptions in the DEIS. As a part of the scoping process, the Forest Service was made aware of a diversity of scientific studies related to the use of reclaimed wastewater and associated hydrological issues that appear to contradict or undermine the assumptions made in the Proposed Action. Despite being brought to the Forest Service's attention, the DEIS does not analyze newer science or incorporate the new science into the DEIS's alternatives.

Based on extensive public comments generated during the public scoping process, the Forest Service developed a Plan of Study for the EIS that indicated watershed resources and soils and geology (as detailed in Chapter 1 of the DEIS and FEIS) as resources warranting additional analysis. Each of these resources is accompanied by a number of different indicators that were determined as a means of measuring or quantifying the anticipated level of impact. Every effort was made to develop indicators that would elicit quantitative, measurable, and predictable evaluation of the resource impact according to concerns identified in the comments, technical information, and scientific evidence raised by the public.

At the request of the Forest Service, Montgomery and Associates conducted a review of the environmental impacts of the proposed Arizona Snowbowl Facilities Improvements on watershed resources according to the Plan of Study. Montgomery and Associates[25] submitted a 102 page technical report and accompanying data tables and illustrations to

[23] Sno.Matic Controls and Engineering, Incorporated, 2003.
[24] Resource Engineering, Incorporated, 2003.
[25] Errol L. Montgomery and Associates, 2003.

the Forest Service in October 2003 that became the basis for Chapter 3H, Watershed Resources of the DEIS text. The technical report, in its entirety, was included as part of the official project record and made available for review at the Peaks Ranger District.

Chapter 3H of the DEIS contains approximately 50 pages excerpted from the technical report and provides an overview of the current, relevant, and applicable sources of scientific information that were utilized to respond to defined for the watershed resource evaluation. The FEIS has been updated to include additional information from the technical report. Further summary of the scope of the investigation and extent of analysis is given in Comment 6.25.

6.25 NEPA requires the Forest Service to consider in an EIS process the available, relevant scientific evidence regarding the Proposed Action and associated analysis. The Forest Service must "ensure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements," "identify any methodologies used," and "make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement." (40 C.F.R §1502.24) In failing to consider the available, relevant scientific evidence concerning the potential impacts of using reclaimed waste water and associated hydrological issues at appropriate times in the NEPA process, the Forest Service breached its duty to use accurate scientific analysis in the DEIS. This must be remedied before a final decision is made.

An overview of the study methodology provided in the DEIS and FEIS, prior to the Existing Conditions description in the Watershed Resources analysis. To evaluate the potential watershed resource impacts associated with the proposed Arizona Snowbowl Facilities Improvements projects, extensive analysis was conducted that included, among other tasks: 1) compiling and reviewing previous investigations that characterized local and regional hydrogeologic conditions; 2) field reconnaissance of the Arizona Snowbowl area and downslope areas; 3) identification of downgradient users of groundwater and springs; 4) inspection of the Rio de Flag WRF; 5) interviews with plant operators, pretreatment program staff, and management of the City of Flagstaff; 6) records review and interviews with ADEQ staff and inspectors from Water Permits, Water Quality Compliance, and Northern Regional Office; 7) review of industry practices in Arizona and California; 8) development of a watershed model to predict volumes of precipitation, sublimation, and recharge under different climatic conditions; 9) quantitative analysis of changes in groundwater recharge and groundwater solutes under different climatic conditions; and 10) review of current literature summarizing the occurrence and impact of PPCPs in reclaimed water and the regulatory process to regulate Class A+ wastewater.

In conducting the water resources analysis and reaching conclusions, numerous technical sources and reference materials were compiled, reviewed, and utilized. Eighty-two references or sources of information were used in compilation of text in Chapter 3H of

the DEIS and FEIS. The technical report[26] that was used to compile the DEIS and FEIS text in Chapter 3H cited 110 specific references or sources of information.

6.26 Montgomery and Associates have consistently and continuously incorrectly used the term Sinagua Formation in the Report and the DEIS. The Sinagua Formation is highly discontinuous and very complicated. It is incorrect to make it appear as simple as it appears in the conceptual diagrams on Figure 12 of the Report and Figure 3H-2 of the DEIS.

The use of the term "Sinagua Formation" in the DEIS is consistent with the use of the term by other investigators of the Hart Prairie watershed, who are cited in the report. The DEIS repeatedly characterizes the Sinagua Formation as a complex unit with discontinuous layers. In a meeting on September 23, 2004 with Dr. Abe Springer, he clarified his concern that the term "Sinagua Formation" not be used in a manner that implies it is consistent with the interpretations provided by Dr. Richard Holm, who is also cited in the DEIS. The distinction is chiefly regarding the age and origin of the deposits, but does not affect the hydrologic characterization of the deposits given in the DEIS. The appropriate text and figure in the FEIS were modified to avoid confusion in the use of this formation name.

6.27 DEIS p. 3-163. *"Seventeen of these wells were... for purposes of research associated with Nature Conservancy Headquarters."* This statement is incorrect as shown and misrepresents and diminishes extensive research conducted in both the Fern Mountain Botanical Area of the Coconino National Forest, and the Homestead at Hart Prairie of The Nature Conservancy by NAU students and faculty (Gavin 1988; Amentt 2002; DeWald and others 2004).

The FEIS text has been revised to indicate that the research was primarily conducted under grants from the Arizona Water Protection Fund issued by the Arizona Department of Water Resources and associated with the Fern Mountain Botanical Area and Homestead at Hart Prairie of The Nature Conservancy.

It was not the intent of the Forest Service or consultant team that prepared the analysis to diminish the extensive research conducted in this area by NAU faculty and staff. The extensive body of research that has been conducted, and the assistance and support of Dr. Abe Springer is fully acknowledged. Research conducted on the Bebbs willow community was helpful in developing a conceptual understanding of the sources of water that feed the shallow groundwater system and interpreting the likelihood of impact from upslope areas such as the areas of proposed snowmaking at Arizona Snowbowl. By way of example, detailed studies in the Fern Mountain Botanical Area led to development of a predictive numerical model by Gavin[27] to determine what change from average

[26] Errol L. Montgomery and Associates, 2003.
[27] Gavin, A., 1998.

precipitation conditions would be necessary to enhance seed germination in the Bebbs willow community. Gavin determined it would require a minimum of an eight percent increase in recharge from average conditions to create minimal conditions favorable to recruit and maintain new willow seedlings at the spring location he studied. On this basis, the FEIS has been updated to conclude that additional recharge from proposed snowmaking at the Arizona Snowbowl would not result in a water quantity benefit to the Bebbs willow community in the discussion of indirect effects.

The extensive data collected and well information from the studies conducted at the Fern Mountain Botanical Area and Homestead at Hart Prairie of The Nature Conservancy were not specifically included in the DEIS primarily owing to the very shallow nature of groundwater investigation (e.g., depths of 10 feet). Overall, this data was not considered as relevant to the analysis of local hydrogeology as were other investigations[28] in Hart Prairie that included geological records and groundwater monitoring data from wells constructed to depths ranging from 350 to 1,160 feet below land surface.

6.28 DEIS p. 3-201. "...rate of approximately 290,000 AF..." On page p. 3-167, the authors state this number is 260,000 AF/yr.

The two rates given in the DEIS represent two different parameters (discharge and recharge), are the result of two different methods of estimation (discharge from springs versus recharge from precipitation), and are from two different references (Montgomery & Associates, 2000, and Bills and other, 2000). Each rate is used appropriately for the specific context of the sections in which they appear. The estimated rates are distinct and it is not surprising that the rates are different.

As described in the DEIS on page 3-167, the average **"discharge"** rate of 260,000 AF/yr is based on average discharge from major springs that issue from the regional aquifer along the margins of the Coconino and San Francisco plateaus. This discharge rate is cited from Montgomery et al.[29], and is given in the section titled "Discharge from the Regional Aquifers." This discharge rate applies to a much larger region than the recharge rate given on page 3-201 of the DEIS.

As described by Bills and others (2000), the average "**recharge"** rate of 290,000 AF/yr given on page 3-201 of the DEIS is based on an estimate of percent of average annual precipitation that contributes recharge to the regional aquifer in the Lake Mary well field. Bills and others (2000) applied this percentage of precipitation to their study area, which is about a 1,600-square mile area surrounding Flagstaff, to arrive at a recharge rate of 290,000 AF/yr. The DEIS text should be changed to indicate that this rate is for the study area instead of the Lake Mary well field area.

[28] Halfpenney, L., 1971; Gookin, W., 1974; and Harshbarger, J., 1972
[29] Montgomery, E.L. et al., 2000.

6.29 The DEIS should describe what period of record was used to describe average, wet and dry climate.

This information has been added to Section 3I of the FEIS, on page 3-226.

6.30 The DEIS does not describe the amount of snowfall in an average, wet, or dry year, only the total amount of precipitation. The DEIS must list not only total annual precipitation for each of these years, but also total snowfall.

The DEIS and FEIS disclose historical snowfall trends in Figure 3E-2.

6.31 The DEIS must describe why the Snowslide Canyon Snotel station was not used. It is the closest, most representative station to the Snowbowl. It has recorded data from 1997 to present. The PRISM model should have been calibrated to the local Snowslide Canyon Snotel station.

The reader is referred to Comment 18.5 concerning the Snowslide Canyon SNOTEL site.

6.32 If this water is clean enough to drink, then why do you not use the reclaimed water to recharge the wells for Flagstaff?

Using reclaimed water to intentionally recharge or contribute water supply to Flagstaff wells is not practiced for three principal reasons: 1) sufficient groundwater is available without the need to augment supplies with reclaimed water; 2) the water quality of reclaimed water is better suited for non-potable reuse, and 3) using the water for recharge instead of reuse would actually increase potable water use (due to increased reliance on potable sources for uses such as irrigation, for instance).

The City of Flagstaff Utilities Department decides which water supplies to develop for municipal use. Presently, the City has chosen to obtain its water supply from surface water in Lake Mary and from groundwater produced at three principal wellfields. The City operational plan prioritizes use of renewable surface water and augments the demand with groundwater in drier periods when surface water is less abundant. Although the Flagstaff area is generally perceived as a “water short area”, groundwater is, in fact, truly abundant due to multiple aquifer systems available to the City for development, including the C-aquifer and R-aquifer systems.

The City has also invested in wastewater treatment and distribution systems to encourage reuse of treated wastewater for a variety of non-potable end uses, such as irrigation of public parks, school grounds, baseball fields, golf courses, and industrial water needs. Water reuse is a water conservation tool that provides a beneficial alternative to reclaimed water disposal, and generates an economic return for the City to help pay for the costs of treatment.

Advances in wastewater treatment technology and the increase in water demand are contributing to expansion of indirect potable reuse of reclaimed water. The use of higher levels of treatment makes reclaimed water a technically and economically feasible source of potable water. However, with very limited exceptions, direct potable reuse is not practiced, primarily due to lack of public acceptance. The FEIS (page 3-200) has been updated to include information on Orange County, California where residents have broadly embraced plans for a $487 million "toilet-to-tap" project that utilizes reclaimed water to provide dependable, cheaper supplies to water scarce Southern California.

6.33 The Rio de Flag water treatment plant is unable to remove all toxins from the water reclaimed there, particularly mercury, dioxins, PCBs, and pharmaceutical residues. Snowbowl is part of the watershed that supplies the water needs of the Flagstaff community. If the toxins mentioned above are returned to the watershed each winter, the snowmelt will be more and more toxic each spring. Over time, the action of snowmaking at Snowbowl will render the Flagstaff water table unpotable.

According to water quality testing conducted on reclaimed water from the Rio de Flag WRF that is summarized in Table 2 and Table 3 of the report, *Analysis of Watershed Resource Issues for the Arizona Snowbowl Facilities Improvement Environmental Impact Statement* by Montgomery and Associates,[30] there were no detectable concentrations of mercury, dioxin, and PCBs in treated wastewater. In addition, there were no detectable concentrations of pesticides referred to as DDT, DDE, DBCP, and EDB, as well as volatile organic compounds, and polycyclic aromatic hydrocarbons in reclaimed water from the Rio de Flag WRF.

As noted by the commentor, there are some pharmaceutical residues in reclaimed water from the Rio de Flag WRF. Yet as indicated in Comment 6.4, the number and concentrations of PPCP compounds detected are significantly lower in the treated effluent from the Rio de Flag WRF compared to the Wildcat Hill WWTP. The low concentration of PPCP compounds present in the reclaimed water source proposed for use in snowmaking would be further attenuated upon distribution into the environment during snowmaking. The concentrations of PPCPs that may be in snowmelt from artificial snow would be diluted by blending with other snowmelt on the slopes and in the area as well as mixing with groundwater once it infiltrates.

6.34 The Snowbowl wants to make manmade snow using A+ reclaimed water from the Rio de Flag Reclamation Plant. What exactly does "A+ reclaimed water" mean?

The term "A+ reclaimed water" is a classification of treated wastewater defined in regulations developed by ADEQ. Class A reclaimed water is the highest quality of wastewater. Class A reclaimed water is required for reuse applications where there is a relatively high risk of human exposure to potential pathogens in the reclaimed water.

[30] Errol L. Montgomery and Associates, 2003.

The "+" designation indicates that treatment is used to decrease the total nitrogen concentration to less than 10 mg/L in the reclaimed water. The "+" categories of reclaimed water minimize nitrate contamination of groundwater in reuse applications. Wastewater treatment facilities providing reclaimed water for reuse must identify the class of reclaimed water generated by the facility.

6.35 This effluent will be stored in a 10 million gallon pond until it is needed. Will the bacteria counts increase while this A+ brew is waiting to be used? What will the total bacteria numbers be when this water is finally sprayed onto the mountain?

If snowmaking is approved, the reclaimed water will be appropriately disinfected prior to discharge to the 10 million gallon storage reservoir to prevent proliferation of bacteria. The reclaimed water is disinfected twice at the Rio de Flag WRF for reuse applications. The reclaimed water at the Rio de Flag WRF is disinfected with ultraviolet light radiation as the final step of the wastewater treatment process and then further treated with a hypochlorite solution to assure that residual disinfection is maintained in the reclaimed water distribution system. Tests are conducted daily to ensure fecal bacteria are not present in the reclaimed water. Thus, the disinfection process results in a re-claimed water product that has no detectable coliform bacteria present. In addition, the reclaimed water leaving the Rio de Flag WRF carries a disinfection chlorine residual to inhibit the growth of micro-organisms within the distribution system. This chlorine residual would reduce the opportunities for bacterial growth in the snowmaking storage impoundment.

6.36 In order to adequately address the hydrologic issues the EIS should include: further water balance analysis to estimate changes in recharge to the regional aquifer associated with the snowmaking proposal; evaluation of how reduced effluent recharge in the Rio de Flag will affect nearby groundwater levels in the regional aquifer and water availability to the city's wells; further refinement of the nutrient mass balance performed to estimate nitrogen loading on the affected slopes, and ecological assessment of the effects of increased nutrients. Hydrologic analyses should be performed by qualified hydrologists included in the EIS team.

The reader's comment is derived from a letter submitted to the Forest Service during the project scoping period by hydrogeologists Peter Schwartzman and Dr. Abe Springer. The comments in this letter were taken into consideration and utilized to help develop the study plan followed in the DEIS and FEIS.

The requested information and analysis is presented in the DEIS and FEIS to the extent necessary for the NEPA process to go forward. Pages 3-200 and 3-201 of the DEIS, and 3-222 to 3-224 of the FEIS, discuss cumulative effects of the proposed action to the City of Flagstaff Water Well Fields. Comparative groundwater recharge estimates were provided in general response to broadly stated public concerns regarding reuse of reclaimed water for snowmaking and the impact of reduced winter discharges of treated

wastewater to the effluent-dependent waters of Rio de Flag. However, as noted in this specific section, this is beyond the scope of the EIS. The decision to provide reclaimed water to the Arizona Snowbowl was made by the City of Flagstaff and the City can put reclaimed water to any reasonable use it deems appropriate. The authority of the City to provide reclaimed water to Arizona Snowbowl and the impact, if any, this may have on the regional aquifer along the Rio de Flag in east Flagstaff is not subject to decision by the Forest Service and is therefore not within the jurisdictional purview of the EIS.

With respect to the comment regarding estimates of nitrogen loading and nutrient mass balance, the respondent is referred to the response provided to Comment 6.2.

6.37 What happens when a citizen dumps pesticides down the drain, a manufacturer discards solvents, or the toxic chemicals from a meth lab are flushed when the police knock on the door?

Public discharges to the sanitary sewer are regulated differently than industrial discharges from a manufacturing facility. Wastewater discharges from homes and commercial buildings generally contribute “conventional” pollutants such as fecal wastes, oil and grease, detergents, and other biodegradable household wastes. Wastewater treatment plants are designed to treat conventional household wastes. It is distinctly possible for any individual home or business to dispose of “toxic” chemicals much like the examples cited in the comment. To the extent that any “nonconventional pollutants” are discharged, however, the concentration and toxicity in entering the treatment plant will be exceedingly low because these compounds do not typically occur in bulk domestic wastewater discharges.

Industrial facilities may, on the other hand, generate substantial quantities and continuous discharges of wastes and non-conventional pollutants that may interfere with the treatment process or pass-through the wastewater treatment plant. Consequently, all municipal wastewater treatment plants are required to develop local pretreatment programs to control industrial discharges into their municipal sewer systems. These programs must be approved by EPA or the state. EPA has also developed national categorical pretreatment standards that apply numeric pollutant limits to industrial users in specific industrial categories. Additionally, many municipalities, such as the City of Flagstaff, have local pretreatment ordinances that prohibit discharges of certain substances to the wastewater collection system and set discharge limitations for other substances. Collectively, pretreatment programs are designed to reduce the level of pollutants discharged by industry and other non-domestic sources to assure effective wastewater treatment and reduce impacts of wastewater releases to receiving waters and the environment.

6.38 Protection of our water supply is crucial to Flagstaff's opportunity to grow, or even sustain what we currently have. An obvious solution would be to bring the water up to drinking quality before it is used.

Treated water from the Rio de Flag WRF is consistently high quality with respect to monitoring conducted to assure compliance with the facility AZPDES and APP permits. As discussed in the DEIS and FEIS text, monitoring conducted for the AZPDES permit confirms that reclaimed water meets established numerical limits for applicable surface water quality standards. Monitoring conducted under the APP permit confirms that reclaimed water meets established numerical limits for applicable aquifer water quality standards. Additional analysis of water quality monitoring results and regulatory compliance was provided on pages 47 to 50 of the Montgomery and Associates watershed resource summary report.[31] As indicated in this section, monitoring data from the Rio de Flag WRF indicates the reclaimed water meets all EPA Primary and Secondary Drinking Water Standards for which it has been tested.

6.39 The probable risk of destabilization of this water table in connection with snowmaking is not off-set or justified by the Snowbowl project's micro-benefit to local communities.

There is no finding in Chapter 3H of the DEIS that the reclaimed water use for the proposed snowmaking would "destabilize" the water table.

6.40 I have read studies on greywater and it is highly acidic. What are the long-term affects of this?

The hydrogen ion concentration, or pH, is an important quality parameter for both natural water and wastewater. During the first six months of 2003, the pH of reclaimed water from the Rio de Flag WRF[32] ranged from 6.90 to 8.02, which is well within the required range of 6.5 to 9.0 for the facility in the AZPDES permit. The reclaimed water pH is slightly alkaline on average.

6.41 Since some of these chemicals and drugs have very long lives when not in a body, they will be persistent and accumulative in the environment. Who will pay for the cleanup when it is discovered 20 years from now that some of the chemicals have become a biohazard?

As a class, the majority of PPCPs that may be present in treated wastewater are polar compounds that, for the most part, break down in surface water and do not bioaccumulate.[33] Very few PPCPs have been found to display characteristics of persistent organic pollutants such as DDT and PCBs.[34] The PPCP compounds which are prone to bioaccumulate, primarily certain personal care products such as the musk fragrances and sunscreen agents, are generally lipophilic in nature. Lipophilic

[31] Errol L. Montgomery and Associates, 2003.
[32] based on Discharge Monitoring Reports submitted by the City of Flagstaff
[33] Erickson, B.E., 2002.
[34] Daughton, C., 2001b.

compounds are more readily removed during wastewater treatment by biodegradation or sorption onto filterable solids[35].

The premise that chemicals in the reclaimed water will accumulate and create a biohazard is unfounded. Rather, the evaluation of watershed resources in the DEIS indicates the proposed use of reclaimed water for snowmaking, represents a low risk of adverse environmental impact to plants, wildlife, and humans.

6.42 Recent studies show the recycled water may not be safe for humans and its impacts on the fauna in the area is still open to question. If it isn't potentially harmful, why are there warning signs wherever recycled water is used?

The statement that "recent studies show the recycled water may not be safe for humans" is ambiguous and unsupported. The extent to which reclaimed water is or is not a human health and safety concern would depend on many factors, such as the types and amounts of chemical constituents in wastewater, the types of industrial, commercial, and household wastes discharged to the treatment plant, the effectiveness of industrial pretreatment and wastewater treatment, and exposure pathway. Poorly or partially treated wastewater could give rise to infectious disease. On the other hand, it is technically and economically feasible to treat wastewater to acceptable drinking water quality. For example, treated effluent from the Denver Direct Potable Water Reuse Demonstration Project exceeded the quality of Denver's drinking water for all chemical, physical, and microbiological parameters tested, except nitrogen[36].

Signage is required at all direct water reuse sites by Arizona law. Rules developed by ADEQ mandate that the users post and maintain signs to inform the public that reclaimed water is in use and that no one should drink water from the system. This requirement applies to all classes of reclaimed water and is intended, in particular, to avoid any acute health impacts that could result from ingestion of effluent that is not adequately disinfected. In direct response to the comment, it should be realized that there are many sites in Arizona where a lower quality of reclaimed water is used for irrigation. The law protects the public (e.g., golfers and farm workers) in the hot desert regions that might otherwise believe the water is potable.

6.43 The irrigation sites using the reclaimed water are clearly marked "do not drink this water", will such signs be posted for snow made from the same water? How long of an exposure to reclaimed snow would it take to make a person ill? How long will it take to see the effects on plants and animals downstream?

If the snowmaking alternative is approved, signs will be posted at the Arizona Snowbowl to inform the public that reclaimed water is used to make artificial snow and not to ingest

[35] Daughton, C., and Ternes, T., 1999.
[36] National Research Council, 2003.

the snow. To prevent illness from ingestion of reclaimed water in use at the Arizona Snowbowl as well as at City of Flagstaff parks and school grounds, the wastewater is disinfected by ultraviolet radiation followed by hypochlorite at the Rio de Flag WRF prior to reuse. Monitoring of bacterial levels is done daily to assure the reclaimed water is adequately disinfected. In terms of microbiological and chemical water quality, the proposed use of reclaimed water for snowmaking represents a low risk of acute or chronic adverse environmental impact to plants, wildlife, and humans.

6.44 The snowmaking alternative requires a significant commitment of treated wastewater that currently recharges Flagstaff's well fields; this water will not be available to Flagstaff's wells should it be used for snowmaking and the wastewater will pollute the fresh water that comes naturally from snow melt.

According to information posted on the City of Flagstaff internet web site, "reclaimed water is one of the most significant water conservation tools the City has. Over 500 million gallons of reclaimed water are used each year for irrigation, and new customers continue to come on line." The snowmaking alternative, if selected, would increase reclaimed water usage by 130 million gallons annually, on average. The City has approved a contract to provide Arizona Snowbowl with up to 1.5 million gallons of reclaimed water from the Rio de Flag WRF per day in the winter months of November through February. If the Snowbowl were to take the maximum amount of reclaimed water allowed by their contract, as much as 180 million gallons may be used. As expressed in previous comments and the DEIS text, the decision by the City to provide reclaimed water to Arizona Snowbowl and the impact this may conceivably have on regional groundwater availability extends well beyond the scope of the EIS and is not within the jurisdictional purview of the Forest Service.

Analysis of potential impacts of use of reclaimed water for proposed snowmaking within the study area is clearly part of the scope of the EIS. In this regard, the DEIS and FEIS concludes that the proposed snowmaking alternative represents a low risk of adverse environmental impact to plants, wildlife, and humans.

6.45 Pumping raw sewage onto a mountain that provides tributaries to the Colorado River and other groundwater sources would pose an enormous environmental and health risk to everyone who relies upon these water sources for their survival.

The source of water for the proposed snowmaking is not raw sewage, but Class A+ reclaimed water from the Rio de Flag WRF. In this capacity, the use of Class A+ reclaimed water does not present an enormous environmental and health risk, but rather a low risk for any adverse environmental and health impacts. Class A+ reclaimed water is approved by the State (ADEQ) for snowmaking and other applications, such as spray irrigation in public parks and schools, and considered safe for the expected public exposure in these uses.

6.46 Before moving forward with this project, more testing of Flagstaff's reclaimed waste water by independent third parties should be conducted to ensure its safety and purity.

The microbiological, chemical, and toxicity compliance testing on Flagstaff's reclaimed water is conducted by independent environmental laboratories licensed by the Arizona Department of Health Services (ADHS). ADHS laboratory licensure was established to help protect the public health and environment by surveying all licensed laboratories for compliance with all applicable regulations and reviewing their compliance testing data for scientific validity and defensibility. The ADHS Office of Lab Licensure conducts annual audits and periodic proficiency testing to assure licensed environmental labs are performing acceptably and to assure high quality standards are maintained.

6.47 It is my understanding that Flagstaff reclaimed water has a higher salt content than atmospheric precipitation. Assuming this to be true, the consequences would be man-made snow that has a lower melting temperature. This would result in slopes that melt easier in the day and freeze at night; thus, icy slopes that are not enjoyable to ski down.

Although reclaimed water has a higher salt content than atmospheric precipitation, the salt content in reclaimed water is not sufficient to measurably lower the freezing temperature. By way of example, it is true that concentrations of salt solutions such as those found in sea water have a lower freezing point than pure water. The depression in the freezing point is directly proportional to the concentrations of salt in water. Typically, sea water contains 35 grams of salts per kilogram of solution and freezes at -1.91 degrees centigrade (ºC) or 28.6 degrees Fahrenheit (ºF). In comparison, the salt content in reclaimed water, referred to as total dissolved solids (TDS) is about 350 mg/l, or approximately 1/100 of the salt content of typical seawater. Consequently, the freezing point depression of reclaimed water compared to pure water would be about 0.02ºC or 0.03ºF. This difference in the freezing point of reclaimed water is not material.

6.48 The proposed water plan will sooner or later contaminate all the water in the area. Many of Flagstaff natives will have to deal with toxic water and the resulting long term illnesses. Eventually the word will get out and even the tourist you are planning on will stay away.

The proposed use of reclaimed water for snowmaking will not contaminate water in the Flagstaff area or cause long-term illnesses. This has been addressed in DEIS and FEIS Section 3H and clarified in previous responses to comment, particularly comments 6.4, 6.5, 6.6, and 6.8.

6.49 The report of organic contaminants in the reclaimed water is distressing. What happens to these pollutants when the snow sublimates or evaporates? Does it get multiplied into the soil, or do bacteria change it to something more unhealthy?

While there may be some volatile organic compounds in reclaimed water, it is generally expected that most of the solutes in reclaimed water will remain in snow and meltwater rather than be lost to the atmosphere. As discussed in the DEIS and FEIS, according to several studies that have investigated wastewater treatment by snowmaking[37,38], the freeze/thaw cycles that occur in the snow pack tend to "purify" the ice crystals and reject solutes in the meltwater. Each of the intermediate formations and melting of the ice crystals in the snow pack contributes to this process. At the sites studied, snowmelt from reclaimed water exhibited a substantial reduction in nutrients, BOD, and suspended solids. It is not clear the extent to which these substances were removed by chemical decay or dilution.

Once the snowmelt percolates into the soil, additional removal of dissolved organic matter takes place by biogeochemical interactions in the subsurface. Nutrients in the infiltrating meltwater are stored in the soils until they are subsequently decomposed by aeration and bacterial action and released to the atmosphere or taken up in vegetation.[39] Dissolved organic compounds such as PPCPs in the meltwater are subject to similar removal processes, but little data are available to document the magnitude of reduction. Sorption is an important removal mechanism, inasmuch as the primary chemical contributors to estrogenic activity are all moderately hydrophobic and should partition to some extent within soil organic matter. A recent study has documented that 90 percent or more removal of estrogenic activity in domestic wastewater occurs via natural processes that comprise soil aquifer treatment.[40] Interestingly, the consistent removal of estrogenic activity at the recharge site studied did not result in accumulation in surface sediments.

6.50 The Forest Service has failed to consider the cumulative effect of the snow, made from wastewater, melting and poisoning the entire drainages below the Snowbowl. The Forest Service has treated the issue as if the impacts will be contained within the 777 acre SUP.

The DEIS evaluated the potential impacts of the proposed use of reclaimed water for snowmaking in terms of the direct, indirect, and cumulative effects on the environment. The "direct" impacts of the proposed snowmaking were evaluated by calculating and comparing the volume and chemical quality of groundwater recharge projected to occur in the immediate proximity of snowmaking areas. The immediate areas of direct impact were defined as the 1,061-acre Snowbowl Sub-area and the 769-acre Agassiz Sub-watershed. "Indirect" impacts were determined by calculating and comparing the volume and chemical quality of groundwater recharge to downgradient areas in the watersheds that might receive groundwater underflow from the snowmaking areas. Lastly, cumulative impacts were addressed by evaluating potential long-term effects on local and regional groundwater issues.

[37] Smith, E., and Mahoney, S., 1986.
[38] Wright Water Engineers, 1988.
[39] Wright Water Engineers, 1988
[40] Zhang and others, 2003.

The respondent's comment is specifically addressed in the analysis of the "indirect" impacts that are described on pages 3-184 to 3-197 of the DEIS and pages 3-206 to 3-219 of the FEIS. In this section, indirect effects were evaluated for the 4,250-acre Hart Prairie watershed area and particularly focused on impacts to groundwater users or potential receptors found downgradient from the Arizona Snowbowl in Hart Prairie. The nearest known groundwater users and potential receptors are the springs, stock tanks, and shallow wells located approximately 3,500 feet or more down slope from the nearest area of proposed snowmaking, as shown on Figure 3H-1 of the DEIS and FEIS.

The reader is referred to Comment 6.48 for additional information.

6.51 The reclaimed water reportedly meets Arizona Class A+ standards, however, these standard do not cover organic constituents, such as disinfection by-products (DBP's), pharmaceutical and personal care products (PPCP's), and the harder to treat and remove organic compounds as such as PCB's, pesticides, and PAH's. While these chemical consignments are admittedly present at parts per billion, or trillion levels, and they generally are not actually toxic, it is their chronic toxicity and bioaccumulation propensities (even at these low levels) that can pose hazards to animals and humans. We would like to see data on levels of these constituents in the reclaimed water proposed to be used. Additionally, it is reported that the USGS and Northern Arizona University are conducting a joint study on PPCPs in the reclaimed water source (Rio de Flag WRF), with results due out in 2004. An assessment of these results should be included in the Final EIS.

Reclaimed water from the Rio de Flag WRF has been analyzed for many of the organic constituents referred to in this comment including DPBs, PPCPs, and persistent organic pollutants, such as PCBs, pesticides, and some PAHs. Quantitative analyses of many of these constituents, excluding PPCPs, were reported in tables 2 and 3 of the technical report prepared in conjunction with the DEIS entitled, *Analysis of Watershed Resource Issues for the Arizona Snowbowl Facilities Improvement Environmental Impact Statement* by Errol L. Montgomery and Associates. As noted in the DEIS, the technical report, in its entirety, was included in the official project record and available for review at the Peaks Ranger District.

Based on this comment, a copy of tables 2 and 3 of the technical report have been included in the FEIS and are referenced as tables 3H-1, 3H-2a and 3H-2b. Table 3H-1 is a summary of comprehensive analytical testing of 144 substances for which numeric criteria have been developed by the State of Arizona as Surface Water Quality Standards (SWQS). This table lists the concentrations of these substances in reclaimed water from the Rio de Flag WRF and compares the concentrations to numeric SWQS for all designated uses of Arizona surface water. Tables 3H-2a and 3H-2b summarize the results of testing of metals, organic chemicals, and other parameters for which numeric criteria have been developed as drinking water standards. These tables list the

concentrations of these substances in reclaimed water from the Rio de Flag WRF and compare the concentrations to primary and secondary drinking water standards.

The monitoring results in these tables indicate concentrations of chemical constituents tested in reclaimed water from Rio de Flag WRF meet all numerical criteria for Arizona surface water quality standards, including the restrictive criteria established for aquatic and wildlife and domestic water source designations, and the drinking water standards tested.

With respect to PPCPs, the results of recently completed USGS screening reconnaissance of 95 PPCP compounds in Flagstaff reclaimed water is included in tables 3H-3 to 3H-5 of the FEIS.

6.52 It is important to consider that the snow that is produced from snow guns and towers will have reaches beyond the SUP area, and may have irreversible impacts. The wind blows, and according to Dr. Propper "One trillionth of a part of these endocrine disruptors could have severe negative impacts on an entire fish population."

The designation of areas that were used to evaluate the impact of reclaimed water use associated with the proposed snowmaking included both the ski runs and adjacent land. For example, in these areas where direct effects were evaluated, 1,061 acres of land in the Snowbowl Sub-area and 769 acres of land in the Agassiz Sub-watershed were included.

In response to the last statement of this comment, the reader is directed to Section 3K of the DEIS and FEIS, which indicates that there are no aquatic habitats in the Snowbowl Sub-area and Agassiz Sub-watershed.

6.53 We believe the Forest Service, the Snowbowl and the City of Flagstaff have a responsibility to monitor local wells and Leroux Springs for the presence of pharmaceutical contamination if snowmaking is approved. You should have a plan to deal with this contamination if it is found. This should include a system to decontaminate our wells or to supply safe water to all the residents in the community.

This has been addressed in Comment 6.10.

6.54 The snow guns aerosolize the reclaimed water. Anyone skiing past an operating gun will inevitably inhale the snow crystals. No one should have to inhale water that they wouldn't agree to drink from a glass.

It is possible that re-claimed water aerosolized during the snowmaking process could be inhaled. However, the potential time window for exposure via this mechanism is small. The most intensive snowmaking activities typically occur while a “base” of artificial snow is developed. During this time period, tall “swales,” of artificial snow are created

by the snowmaking guns. Trails with snowmaking swales do not offer optimal skiing conditions, and are typically not open to the public. Only after the swales are smoothed and packed by snow grooming equipment, is the trail generally opened for skiing.

Nevertheless, snow would also be made in the mid or late-season, to patch or supplement worn areas. During this time period, skiers could be exposed to crystallized re-claimed water in the atmosphere. However, the exposure time window would, again, be very transient, limited in time to the period during which a skier traversed through the throw area of snowmaking guns.

6.55 The DEIS does not adequately answer my concerns on Snowbowl's expansion. "Relying upon the expertise of regulating agencies…" who "…have approved reclaimed water for this direct application in snowmaking…" but with what evidence that their standards are enough?

Water reuse is extensively practiced in the United States and throughout the world. More than 40 years of experience in water reuse has led to formulation of guidelines, rules, and water quality standards for a variety of reuse applications. Federal and State rules typically specify requirements for treatment, treatment reliability criteria, and water quality standards for various reuse applications to protect public health and the environment. The level of treatment and water quality criteria are based on the expected degree of contact with reclaimed water by the public and aquatic animals and plants.

Arizona is one of a few states that have developed an enforceable program and criteria to specifically regulate water reuse. According to a recent textbook on potable reuse[41], Arizona, California, and Florida are the recognized technical leaders in developing water reuse regulatory programs. The Arizona water reuse program standards applied to reclaimed water use in snowmaking are also consistent with the approach taken in California which requires disinfected tertiary treatment of reclaimed water.

6.56 In several areas around the country scientists have found that a wide variety of compounds can have deleterious effects on a wide range of organisms including vertebrates and invertebrates. In addition you need to identify the compounds that are found in the 80% non-industrial waste stream and search the current literature, and case law (see Toxic Substances Control Act), to be in compliance with NEPA and NFMA.

It is presumed the respondent is referring to PPCPs found in domestic wastewater that may include any of a variety of human drugs (e.g., hormones, antibiotics, blood lipid regulators, analgesics, antidepressants, and tranquilizers), personal care products (e.g., soaps, shampoos, skin care products, insect repellants, and sun screens), and human and household waste products (caffeine, acetaminophen, detergents, and insecticides). As mentioned in the response to Comment 6.4, the results of the recently completed USGS

[41] National Research Council, 2003.

screening reconnaissance of 95 PPCP compounds in Flagstaff reclaimed water are given in Table 3H-3, Table 3H-4, and Table 3H-5 in the FEIS.

6.57 The interaction of changes in nutrient deposition and climate change is having unpredictable and varying effects, especially in topographically diverse alpine ecosystems, and where nutrient deposition is highest (Seastedt et al 2004). Numerous studies from the Niwot Ridge Long Term Ecological Research site in Colorado indicate the increased nitrogen deposition form anthropogenic atmospheric sources has significant effects on plant physiology and production (Bowman et al 1995), species abundance and diversity (Theodose and Bowman 1997: Bowman and Damm 2003), and even ecosystem function (Bowman 2003).

The impact of increased moisture and nutrients from the proposed use of reclaimed water for snowmaking on plant species composition is discussed on pages 3-266 to 3-269 of the DEIS and pages 3-290 to 3-293 in the FEIS.

6.58 What is the basic chemistry and nutrient content of water running in the summer that derives from melting artificial snow made from reclaimed water?

Due to the high permeability of volcanic soils and sediments of San Francisco Mountain, there is no sustained surface water runoff from melting snow at the Arizona Snowbowl. In years of above average snowfall when there may be limited surface water runoff during periods of heavy snowmelt, the projected nutrient content and TDS concentration in the snowmelt is shown in Table 3H-1 of the DEIS and Table 3H-6 of the FEIS. In this scenario (wet year, alternative 2) the combined snowmelt in the Snowbowl Sub-area is projected to have 1.2 mg/l of nitrogen and 30 mg/l TDS.

6.59 Impacts to groundwater feeding unknown aquifers is discussed but not at all in terms of regional ecology nor the implication of the National Forest resources. All ecological effects are dismissed with the premise of dilution, when ecological processes and biota may concentrate chemical constituents.

The potential impact of the use of reclaimed water in the proposed snowmaking to soils, vegetation, and wildlife are discussed in other sections in Chapter 3 of the DEIS. Pages 3-235 to 3-243 of the DEIS and 3-259 to 3-268 of the FEIS provide an assessment of potential changes in soil chemistry due to anticipated increases in soil moisture and nutrient loading. Pages 3-266 to 3-269 of the DEIS and 3-290 to 3-293 of the FEIS provide a summary of potential changes to plant species composition associated with the proposed use of reclaimed water for snowmaking. Finally, pages 3-295 and 3-296 of the DEIS and 3-320 to 3-321 of the FEIS discuss the ecological significance of increased moisture and nutrients on biota.

While there may be ecological processes that concentrate chemical constituents, as noted by the respondent, the fact that snow melt from areas of proposed snowmaking will combine with much larger volumes of melt water from natural snow in the watershed is highly relevant. The potential regional ecological effects from the proposed snowmaking will, therefore, be significantly attenuated due to substantial dilution of the source water.

6.60 The Forest Service has not taken into account the fact that nonylphenols and related chemicals to be delivered to the montane ecosystem and aquifers are lipophilic substances that bioaccumulate. They could therefore present hazards similar to those we now know about from chlorinated hydrocarbons and dioxin.

Nonylphenols are typically found as the lipophilic degradation product of alkylphenol ethoxylates, which are used as additives to detergents, cleaning products, paints, pesticides, and plastic. Investigations[42,43] show that nonylphenols and related compounds (e.g., short-chain nonylphenol ethoxylates) are commonly occurring and in relatively high concentrations in sludge from wastewater treatment plants while low concentrations of the substances may occur in the treated wastewater. Nonylphenols sorb strongly to the sludge in the wastewater treatment plant and will primarily be spread into the environment during land application of the sludge[44].

The degradation of alkylphenol ethoxylates by shortening or removing the ethoxylate chain makes the substances lipophilic, which means that they may bioaccumulate in live organisms. Studies[45] of fish exposed to wastewater discharges in Europe showed concentrations of nonylphenol in muscular tissues. It cannot be excluded that humans may be exposed to nonylphenolic compounds by consumption of contaminated fish.

While nonylphenols are not thought to represent similar toxicological hazards to the environment or human health as dioxin and chlorinated hydrocarbons[46], the extent to which the low concentrations of nonylphenolic compounds found in wastewater may represent an acute and long-term risk to the endocrine system is unknown. Recently, concerns have been raised about the potential estrogenic effects of nonylphenols and related compounds. Reproductive abnormalities have been observed in fish in rivers in the United Kingdom having nonylphenolic compounds in the microgram per liter range[47]. The EPA is currently in the process of developing aquatic life criteria for nonylphenols because of the potential for endocrine disruption.[48]

[42] La Guardia, M., et al., 2001.
[43] Kolpin and others, 2002.
[44] Center for Integrated Environment and Toxicology (CETOX), 2004.
[45] Ibid.
[46] Ibid.
[47] La Guardia, M., et al., 2001.
[48] USEPA 2003.

The USGS screening reconnaissance included analyses of a number of nonylphenols and related compounds including para-nonylphenol, nonylphenol monoethoxylate (NPEO1), nonylphenol diethoxylate (NPEO2), 4-tert-octylphenol, octylphenol monoethoxylate (OPEP1), and octylphenol diethoxylate (OPEP2). As shown in Table 3H-5 of the FEIS, there were no detectable concentrations of any of these nonylphenolic compounds in reclaimed water from the Rio de Flag WRF. In contrast, nonylphenolic compound concentrations of up to 25 ug/l were observed in reclaimed water from the Wildcat Hill WWTP.

6.61 Over the past few decades, various disturbing trends have led researchers to believe that environmental exposures are contributing to children's declining health status in the U.S. Federal and private health programs are just beginning to realize the extent of the problem and to seek solutions. If concerns about wildlife and adult human health are not sufficient to justify prudence in the further contamination of the Northern Arizona ecosystems and waters with various societal chemicals, then perhaps concerns for child health might dictate a more conservative approach. At least, the Snowbowl action should be postponed until the National Children's Study is completed.

The use of reclaimed water for snowmaking was evaluated and approved by the ADEQ. ADEQ has determined that use of highly treated, disinfected reclaimed water, designated as Class A reclaimed water, is acceptable where there is a high potential for public exposure. The DEIS concludes that the proposed use of reclaimed water for snowmaking at the Arizona Snowbowl would result in a low risk of adverse environmental impact to plants, wildlife, and humans. The same reclaimed water proposed for use at the Arizona Snowbowl is currently being used to irrigate Flagstaff city parks and school grounds, and this use is projected to increase in the future. The reader is referred to Comment 6.14 for additional information.

6.62 Can Flagstaff's water supply handle a constant flow of winter tourism?

Yes, the City of Flagstaff Utilities Department has more than sufficient capacity and available supply to handle a constant flow of winter tourism. To meet all customer demands, the City continually updates its water production strategy through tracking of water use, climatic trends, reclaimed water availability, wastewater parameters, water quality, water quantity, conservation, population projections, and related economics. In order to meet increasing demand requirements for a growing population base, the City completed two new water supply wells last year that provide an additional 1.7 MGD groundwater production capacity. The City of Flagstaff has plans and funding to drill four additional water supply wells and acquire new water rights, as necessary, to meet future population growth and water demands.

6.63 Has there been an economic study on the effects of Flagstaff losing its valuable and scarce wastewater?

Flagstaff is not "losing" its valuable wastewater. To the contrary, Flagstaff is reclaiming the wastewater for a beneficial use that provides an economic return for the City. Nor is the wastewater scarce; there is very little demand for reclaimed water during the winter months of November through February. Wastewater is the one water resource that will increase as population increases.

6.64 We are basically transferring water resources from one basin to another. How will this not impact future growth?

The respondent is referred to Comment 6.16.

6.65 Even if a large majority of the water does drain back in to the aquifer beneath the peaks, what about the rest of it?

Estimates of the fate of precipitation and any artificial snow in the local watershed were derived from watershed modeling conducted by Resource Engineering, Inc[49]. The model calculated volumes of water available for groundwater recharge and volumes of water lost to sublimation by using available climatic data to simulate wet, median, and dry year climatic conditions. The results are given in tables 3H-1, 3H-2 and 3H-3 of the DEIS. The amount of water lost to sublimation and recharge is a function of prevailing climate. In wet years as much as 60 to 70 percent of the snowfall may melt and infiltrate the subsurface as groundwater whereas in dry years most of the snowfall sublimates, or is lost to the atmosphere, and 10 percent or less ends up as groundwater.

6.66 With a prediction of future drought conditions the snow made would not be sustained for long periods. Would we then pump more water, increasing the net water loss from the regional budget?

If snowmaking is available, it is probable that more reclaimed water would be used to generate artificial snow in periods of below normal winter precipitation or above normal temperatures. There are practical constraints and contract limits to the amount of reclaimed water that can be used. On the practical side, snowmaking requires below freezing air temperatures and this will dictate the timing and duration of snowmaking. On the institutional side, according to terms of an agreement with the City of Flagstaff, the maximum amount of reclaimed water available for snowmaking on a daily basis during the months of November through February is 1.5 million gallons.

[49] Resource Engineering, Incorporated, 2003.

6.67 My concern is that Snowbowl will suffer an image problem with using reclaimed water for snowmaking, then seek redress by demanding to use potable water to protect their investment.

The Arizona Snowbowl and Forest Service do not expect the use of reclaimed water, if allowed, to be perceived negatively by the skiing public once its use is initiated. Arizona Snowbowl specifically procured reclaimed water for snowmaking and is committed to a substantial investment for the distribution pipeline because it is a positive and beneficial use of water resources in an arid climate. In all regards, the Arizona Snowbowl believes customers will find the benefits of snowmaking and the recreational advantages offered significantly outweigh any perceptions attached to the use of reclaimed water.

The "Alternatives Considered but Not Analyzed in Detail" section in Chapter 2 of the FEIS has been updated to include additional information on alternative on-site and nearby water sources.

6.68 Would Flagstaff be able to get this water back if the drought lingers and the city needs the promised water for its own needs.

The City of Flagstaff has no significant demands for reclaimed water during the winter months of November through February when Arizona Snowbowl would need the water supply. Even assuming long-term drought, the amount of reclaimed water will increase in association with increased Flagstaff population growth. Given the five-year term of the initial agreement for re-claimed water, it is likely that the City of Flagstaff will have the opportunity for ongoing review of the viability of reclaimed water use and availability under changing climate, circumstances, as the City will review its agreement to renew water sales to the Arizona Snowbowl periodically in the future, considering such factors at the time.

6.69 If we do spend millions of dollars to make this water potable, we should put it in Lake Mary where it will benefit the entire community.

Although reclaimed water from the Rio de Flag WRF is highly treated and may meet standards that have been developed for sources of drinking water, the general public may not support direct potable reuse. In other areas of the country such as San Diego and Denver, major initiatives to promote potable reuse have been stymied by a lack of public acceptance. The experiences have demonstrated it is technically and economically feasible to treat wastewater to an exceptional drinking water quality. However, at present time the general public and even some in the water industry will not support direct potable reuse due to the stigma attached to the reclaimed water.

As indicated in Comment 6.32, the FEIS (page 3-200) has been updated to include information on Orange County, California where residents have broadly embraced plans for a $487 million "toilet-to-tap" project.

6.70 Why not save that reclaimed water to fight the inevitable forest fires that will be caused from our severe drought.

The installation and operation of the proposed snowmaking infrastructure in Alternative 2 would enhance the capability to respond to forest fires in the San Francisco Peaks and surrounding vicinity. Alternatives 1 and 3, which exclude snowmaking, do not add any capabilities of improved fire fighting.

In Alternative 2, a residual pool would be maintained in the impoundment during the summer months to serve as a potential water source for wildfire fighting. The proposed pipeline route was selected, in part, to provide a water source for fire suppression needs for lands proximate to the pipeline between Flagstaff and the ski area. For example, a segment of the pipeline route is planned for Lowell Observatory property in order to provide fire hydrants and a water supply for fire suppression on observatory property west of their campus. Preliminary discussions with City officials have identified the value in maintaining water in the pipeline and a residual pool of reclaimed water in the impoundment at the ski area in the summer months to allow for potential use for fire fighting. Hydrants could be situated along the pipeline within the residential communities to provide access to the reclaimed water.

6.71 It is irresponsible of the Forest Service, the city, and local businesses to plan to enlarge a venue that will draw more tourists when we are in a location with limited water resources.

The respondent is referred to the response to Comment 6.62.

6.72 This wastewater, according to the hydrology report in the DEIS does state that by the ski area taking the wastewater, rather than having it recalculate in Flagstaff wells, will detrimentally affect the water levels for Flagstaff residents with wells. Given the drought and given the fire interest the Forest Service has shown and the historically drastic summer drought season measure enforced by the Forest Service, this seems irresponsible.

The discussion of watershed resources in Chapter 3H of the DEIS did *not* state that the use of reclaimed water for the proposed snowmaking would detrimentally affect the water levels for Flagstaff residents with wells. Rather, the DEIS concluded on page 3-201, that the estimated reduction in recharge is a very small fraction of the annual groundwater recharge that occurs in the area and, therefore, would have a negligible impact to groundwater availability.

This section of the DEIS also noted the proposed use of City reclaimed water for snowmaking and the potential effect this may have on regional groundwater availability was beyond the scope of the EIS. The City has the legal right to put the reclaimed water to any reasonable use they see fit. The City of Flagstaff Utilities Department is responsible to determine the most suitable and beneficial use of reclaimed water. As was

stated in the DEIS text on page 3-200, “the authority of the City to provide reclaimed water to the Snowbowl is not subject to decision by the Forest Service and is therefore not within the jurisdictional purview of this analysis.”

6.73 The water table is dropping even as pressures on the water supply increase owing to burgeoning population. This means that, at best, more and deeper wells will have to be drilled, making water more expensive for the population. All the cheaper solutions have been exhausted. One of the best ways to mitigate this situation is to introduce treated waste water right back into the aquifer by means of infiltration ponds, a well known technology that is simple, cheap, and effective.

As expressed in the previous response, the City of Flagstaff Utilities Department decides what is the most suitable and beneficial use of reclaimed water as part of its overall water resource management plan. In this regard, the City has the right to put the reclaimed water to any reasonable use it sees fit and has approved the proposed use of reclaimed water for snowmaking.

6.74 The use of reclaimed water is misrepresented within the DEIS and should be clearly noted as consumptive use, rather than a use that returns water to the aquifers.

It was not the intention of the DEIS to represent that the use of reclaimed water for snowmaking was an important mechanism for groundwater recharge. The DEIS frequently refers to the “proposed use of reclaimed water for snowmaking” as a clear indication that the reclaimed water was for consumptive use. The DEIS evaluated disposition of snowmelt from the artificial snow into groundwater to analyze the fate and environmental consequences of the proposed use of reclaimed water for snowmaking. Recharge is an unintended consequence of the snowmelt process that will vary considerably in relation to the prevailing climatic conditions. As mentioned in a previous response, in wet years as much as 60 to 70 percent of the snowfall may melt and infiltrate the subsurface as groundwater whereas in dry years most of the snowfall sublimates, or is lost to the atmosphere, and 10 percent or less ends up as groundwater. Recharge may not occur under very dry climatic conditions.

6.75 I don't know why Snowbowl can't collect rain and snow in the off season and use that during the ski season.

It is not practical to consider runoff from rain and snow in the off season as a source of water for snowmaking. First and foremost, there is typically very little runoff from snowmelt or rainfall in the SUP area given the highly permeable volcanic soils and sediments on the slopes of San Francisco Mountain. Consequently, a volume of rain and snowmelt comparable to the estimated 486 AF (about 150 million gallons) of water needed for snowmaking in dry winters is not available. Secondly, if a sufficient volume of snowmelt or rainfall was available, it would require a storage reservoir that is more

than 15 times larger than that planned in Alternative 2 (the snowmaking impoundment in the Proposed Action is proposed at 1.9 acres in surface area with a maximum depth of 35 feet). The land use and environmental impacts associated with such a large storage reservoir would be significant. Lastly, collecting and storing snowmelt and rainfall in a surface impoundment, if it were available, would entail considerable evaporative losses. Significant volumes of additional rain and snow and an even larger storage reservoir would be required to compensate for evaporative losses of surface water.

6.76 As Dr. Abe Springer and Peter Schwartzman have noted, the regional aquifer is recharged by wastewater from the Rio de Flag wastewater plant. If the preferred alternative is implemented, the water that normally recharges the aquifer will instead mostly be lost to sublimation.

Based on comments provided by Dr. Abe Springer and Peter Schwartzman during the public scoping process, a discussion of general impacts to City of Flagstaff water supplies was included in review of Cumulative Impacts on pages 3-200 and 3-201 of the DEIS and pages 3-222 and 3-224 of the FEIS. This section of the document noted that the proposed use of City reclaimed water for snowmaking and the potential effect this may have on regional groundwater availability was beyond the scope of the analysis. The City has the legal right to put the reclaimed water to any reasonable use it sees fit. The City of Flagstaff Utilities Department is responsible to determine the most suitable and beneficial use of reclaimed water. As was stated in the Cumulative Impacts analysis, “the authority of the City to provide reclaimed water to the Snowbowl is not subject to decision by the Forest Service and is therefore not within the jurisdictional purview of this analysis.”

Although this comment and the underlying argument is beyond the scope of the EIS, the watershed modeling conducted for the DEIS provides a quantitative basis for which to conduct this assessment. In this regard, the consumptive use of reclaimed water for the proposed snowmaking is estimated to result in a net reduction in groundwater recharge to the regional aquifer of 154 AF per year, on average. Please note that the FEIS has been revised and reflects a slightly lower value than that reported in the DEIS. The revision is based on minor corrections that were made to assure water balances were correct in the projected hydrologic conditions in tables 3H-1, 3H-2 and 3H-3 in the DEIS. The revisions in these tables resulted in a revision to Table 3H-4 of the DEIS. These four tables are now respectively designated as Tables 3H-6 to 3H-9 in the FEIS.

6.77 I disagree with the analysis on page 3-201, that the impact to the aquifer would be "negligible". This conclusion is made by the authors of the Draft EIS after comparing the amount of recharge to the aquifer from the Rio de Flag plant to the recharge seen in the area of the Lake Mary Well Field. Given climate variations and recent drought in the west, I have several problems with this analysis. First, I do not believe that using the recharge rates in the Lake Mary Well Field is a fair representation of how recharge occurs in the area. The aquifer is recharged here, as is noted by Springer and Schwartzman, due to lakebed seepage from Lake Mary. Because this

is an area where surface water is intentionally collected via the creation of Lake Mary with a dam, it would follow that recharge in this area is higher than it would normally be. Additionally, it is important to consider the fact that the amount of water available to recharge the aquifer at the Lake Mary Well Field will vary depending upon annual precipitation rates.

The reader makes a good point regarding the estimate provided by Bills and others (2000). The range of percent of the average annual precipitation reported by Errol L. Montgomery & Associates, Inc. (1993) that contributes recharge to the Lake Mary well field is based on a water budget for the groundwater flow model constructed for the Lake Mary well field area and it may not have been applicable for use by Bills and others (2000) for the larger study area of the USGS investigation. In addition, Bills and others (2000) used the upper end of the range instead of an average value in their statement about recharge to the regional aquifer. Evaluation of the potential impact of decreasing recharge along the Rio de Flag has been modified in the FEIS and does not include the reference to 290,000 af/yr recharge estimated by Bills and others (2000). In any case, however, the significance of recharge along the Rio de Flag in east Flagstaff is outside the scope of this analysis.

6.78 I am concerned about discrepancies within the Draft EIS between recharge and discharge rate of the regional aquifer. When hydrogeologists compile a water budget, they assume that discharge from the aquifer is equal to the amount of recharge. On page 3-167, the authors of the Draft EIS state that an average annual volume of more than 260,000 acre-foot discharges from the regional aquifer at the margins of the Coconino and San Francisco plateaus. Then, on page 3-201 the authors state that the annual groundwater recharge rate to the regional aquifer for the Lake Mary Well Field is estimated to be 290,000 acre-feet per year. Aside from the discrepancy in the numbers for this water budget (260,00 acre-feet vs. 290,000 acre feet), there statements need clarification.

The reader is referred to comments 6.28 and 6.77. Compilation of a regional water budget is beyond the scope of this EIS.

6.79 The recharge rate to the aquifer from the Rio de Flag Plant is also significant when compared to the in-city wells. The amount of recharge, whether using 178 acre-feet according to the Draft EIS (page 3-201) or 440 acre-feet according to Springer and Schwartzman, is on the same level as the production of the Continental or the Foxglenn wells near the plant. Removing recharge within the vicinity of the wells will reduce the amount of water available for pumping, which will likely increase drawdown rates at these wells.

The respondent is referred to Comment 6.76 to clarify that this comment is beyond the scope of the EIS and will not be specifically considered in selecting an alternative.

Additionally, as noted in this response, the consumptive use of reclaimed water for the proposed snowmaking will result in an estimated net reduction in groundwater recharge to the regional aquifer of 154 AF per year, on average.

As noted by Bills, et al. (2000; page 84), some chemical constituents associated with treated effluent have been detected at the monitor wells and production wells along the Rio de Flag drainage in east Flagstaff. These data, together with increases in groundwater storage in the Rio de Flag area reported by Bills, et al. (2000, page 99) indicate that recharge of effluent occurs in the Rio de Flag area. However, effluent recharge has occurred in this area, particularly in the Fox Glen area and the Country Club Golf Course reservoirs, long before the Rio de Flag WRF was built. There are presently no data available to provide conclusive estimates for the amount or rate of recharge of treated effluent from the Rio de Flag WRF. Estimates given in the DEIS and by Schwartzman and Springer (2002) assume that all discharged effluent that escapes evapotranspiration contributes recharge to the regional aquifer; this assumption overestimates the recharge because vadose zone processes and perched groundwater zones are likely to intercept some of the recharge, even where fractures and sinkholes occur along the Rio de Flag. This is not to say that rapid recharge does not occur along fractures, but the assumption that all of it becomes recharge is not accurate.

However, for purposes of discussion, if it is assumed that all of the effluent discharge (minus losses to evapotranspiration) reaches the deep aquifer and none of the recharge at the Arizona Snowbowl contributes to the east Flagstaff wellfield, then the average decrease in the amount of recharge due to snowmaking would be about 364 AF/yr, or 226 gpm. The assumed change in average potential recharge to the C-aquifer in east Flagstaff is calculated to cause the equivalent of 20 to 25 feet of additional water level drawdown in the nearest future production well, the Rio well, after five years, but less than one foot at the other existing production wells in east Flagstaff. This calculation is made using the Theis equation with an average transmissivity of 3,000 gallons per day per foot (average of reported values for immediate area), storage coefficient of 0.05 and 0.1 (based on data for immediate area), and distances from the flowing reach of the effluent-dependent Rio de Flag of 0.25 mile for the Rio well and 1.9 miles for the Fox Glenn well. It is recognized that the this equation is based on porous media, not fractured media; however, this equation is commonly used for such analyses despite its limitations and is appropriate for this case. For perspective, the Arizona Department of Water Resources criterion for excessive water level drawdown impact on existing wells due to pumping at new wells in an Active Management Area, such as Prescott, is 10 feet of drawdown in the first five years of pumping.

Ultimately, any changes in water levels or production at the wells are addressed by the City of Flagstaff in water resource management decisions that are outside the scope of this analysis.

6.80 The EIS should fully disclose analyses of each of these factors: (1) the effect snowmaking may have on available groundwater and reclaimed water resources for communities, through both direct reallocation of reclaimed water and decreased groundwater recharge, and (2) how decreased water availability may increase demands and associated effects on other water sources (such as springs in the inner basin of the San Francisco Peaks), and costs associated with obtaining these resources (such as increased drilling depths in the case of new wells.)

The respondent is referred to Comment 6.18.

6.81 Further studies need to be done to determine how much water will be left for the people who live in and around Flagstaff since the reclaimed water has been proven to sublimate. Peabody is ready to take the Coconino Aquifer water now that sinkholes (some a half mile long and 30 feet deep according to last years Navahopi Observer) are developing across the Navaho and Hopi Reservations. Will Peabody's tapping of the Coconino Aquifer to slurry coal cause water shortages if it is done in conjunction with this proposed snow making in this severely drought stricken area?

The degree to which water is lost from snow by sublimation is very much a function of the prevailing winter climate. In wet years, 40 percent or less of the snowfall may sublimate whereas in dry years 90 percent or more of the snowfall may be lost to sublimation.

The areas considered by Peabody for development of the C-aquifer are at large distances from the City of Flagstaff wellfield and therefore would have no impact on the C-Aquifer in the City of Flagstaff.

6.82 I could not find any assessment of the impact of the diversion of reclaimed wastewater on downstream flows in the Rio de Flag below the Wildcat Hill WWTP. Admittedly, this is more of a city issue as the City of Flagstaff has control over use of reclaimed water and can determine its most suitable and beneficial use. The issue is raised, however, because there is concern by Doney Park residents that the more reclaimed water that is used, the less flow there is through Doney Park, which is having a direct impact on area wildlife.

Presently, the diversion of reclaimed water for the proposed snowmaking would come from the Rio de Flag WRF, not the Wildcat Hill WWTP. In the future, however, the City has plans and approved funding for a $23,100,000 wastewater treatment upgrade project that will permit the Wildcat Hill reclaimed water system to be connected to the Rio de Flag system. Therefore, the City can utilize both plants to meet demands for reclaimed water. By the same token, discharges of reclaimed water will increase at both plants as growth occurs in the City.

6.83 How much of the snowpack under artificial snowmaking will be lost to sublimation (e.g., instead of leading to surface-water runoff or groundwater recharge via snowmelt)? How will this loss of water through sublimation affect recharge rates of the Regional Aquifer?

The reader is referred to Comment 6.65 to answer the first question and to Comment 6.72 as well as pages 3-200 and 3-201 of the DEIS and page 3-222 and 3-224 of the FEIS in response to the second question.

6.84 How will diminished recharge of groundwater levels further exacerbate local drawdown in the Regional Aquifer as populations increase and wells are added? Specifically, how will loss of effluent in the Rio de Flag affect well levels nearby, such as the City's current Floxglenn and Continental Wells and the new Interchange and Shop wells?

The reader is referred to Comment 6.79.

6.85 The total annual water production figures used in the DEIS are averaged over the 10-year period of 1992-2002. The drought did not really begin to hit until 1996, and did not hit severely until even later. Therefore, the percentage figure in the DEIS (slightly more that two percent) of the proposed water to be used for snowmaking is really quite low. If the DEIS looked at production in the last three years, the percentage that snowmaking would take from Flagstaff's total annual production would be higher.

The total annual City of Flagstaff water production averaged 2,650 million gallons (MG) over the 10-year period from 1992 through 2001.[50] For the last three years, the City water production was 2,869 MG in 2001, 2,857 in 2002, and 2,807 in 2003.[51] The average City production for the past three years is 2,844 MG per year, or 8,728 AF per year. If the DEIS and FEIS examined production in the last three years, the percentage that snowmaking would take from Flagstaff's annual production would be smaller, slightly less than two percent.

6.86 The DEIS does not mention the impact on wells below the Rio de Flag treatment plant if water is removed in this area for snowmaking. This should be specifically addressed, as these wells are likely to show a local effect.

The reader is referred to Comment 6.79.

[50] Schwartzman, P., and Springer, A., 2002.
[51] City of Flagstaff Utilities Department, 2004.

6.87 The Snowbowl DEIS state on page 3-201 that the reduction in recharge would represents less than 2% of the City's total water production. The reclaimed water recharge reduction is then inappropriately compared to the estimated total recharge for the Coconino Aquifer. The figure of 290,000 acre-ft is incorrectly identified on page 3-201 of the Snowbowl DEIS as the "annual groundwater recharge rate of approximately 290,000 AF of the regional aquifer estimated for the Lake Mary well field." The 290,000 AF estimated in the "Bill and Others, 2000" USGS report is an estimate for the whole study area, which comprises 1,600 square miles of the Little Colorado River and Upper Verde River Basins (se pages 6 and 83 of that report) and it is based on the top of the range of the 4-17% of precipitation that is estimated available for recharge. The reclaimed water, if used for aquifer recharge, could be supplied directly to the areas where declines in water levels are the greatest. Based on the above faulty analysis, the Snowbowl DEIS then states that "The cumulative impact from Snowbowl's diversion of treated effluent on the water available for recharge in the Rio de Flag drainage in the Flagstaff city limits is considered to be negligible. Why not use the same logic applied to the Snowbowl's impact of Flagstaff's BBB tax revenues, that any positive contribution no matter its statistical insignificance, is worthwhile? Either way, the final statement in that paragraph, "Therefore, there are no cumulative watershed impacts identified for this issue in relation to the alternatives analyzed within this analysis" is not defensible. This analysis and conclusion should be removed from the Snowbowl DEIS.

Please refer to the response to Comment 6.77.

6.88 The DEIS minimizes the projected impacts in several ways: 1) It does not analyze the impacts of full use of the allotted water, 552 AF, but rather of partial use, 358 AF. 2) It assumes that around 50 percent of the reclaimed water used will contribute to groundwater recharge, an estimate far below the 60-90 percent Schwartzman and Springer project as a reasonable estimate of water that will be lost to sublimation at Snowbowl. 3) It also does not acknowledge climate change, even though Schwartzman and Springer cautioned in their report that "Climatic indicators over the past three years suggest a transition away from the 1978-1998 PDO. 4) The DEIS does not acknowledge that any groundwater recharge from snowmaking to the regional aquifer is unlikely to contribute to Flagstaff's water supply. Because of the distance between Snowbowl and the City of Flagstaff's production wells, additional recharge at Snowbowl would likely provide little increase in groundwater availability to the City.

It appears the commenter is referring to Table 3H-4 in the DEIS. This table was originally developed by Peter Schwartzman and Dr. Abe Springer[52] and presented during the public scoping process. The table provides a preliminary comparative groundwater budget to estimate the change in recharge to the regional aquifer associated with the snowmaking proposal. A similar analysis with more refined input values was prepared and included in the review of Cumulative Impacts in the DEIS and FEIS.

This section of the DEIS and FEIS also noted the proposed use of City reclaimed water for snowmaking and the potential affect this may have on regional groundwater availability was beyond the scope of the analysis and will not be specifically considered in selecting an alternative. The City has the legal right to put the reclaimed water to any reasonable use it sees fit and is responsible to determine the most suitable and beneficial use of reclaimed water. As was stated in the DEIS text on page 3-200 and in the FEIS on page 3-222, "the authority of the City to provide reclaimed water to the Snowbowl is not subject to decision by the Forest Service and is therefore not within the jurisdictional purview of this analysis."

With this preface, as follows are responses to enumerated comments:

1) In developing an estimate of the projected recharge from Rio de Flag, the DEIS relied upon a watershed model of the area developed by Resource Engineering, Inc.[53] and estimates of reclaimed water use for snowmaking provided by Sno.Matic Controls and Engineering, Inc.[54] The watershed model provided projected volumes of precipitation losses to the atmosphere and as groundwater recharge under simulated wet, median, and dry climatic year conditions. Model projections of hydrologic conditions in the Snowbowl Sub-area, Agassiz Sub-watershed, and Hart Prairie Watershed are shown in tables 3H-1, 3H-2, and 3H-3, respectively, in the DEIS. These tables have been renumbered in the FEIS as 3H-6, 3H-7 and 3H-8, respectively. The projected reclaimed water use and groundwater recharge for average-year precipitation conditions is available in Table 3H-4 (DEIS) and Table 3H-9 (FEIS). The data in these tables are the best available and most relevant values for the analysis of comparative groundwater recharge estimates. In particular, data pertaining to average-year precipitation conditions was used rather than maximum values to most realistically analyze the recharge impacts to the aquifer that may occur over time.

2) Assuming average-year precipitation conditions, the watershed model projects 41.2 percent of the precipitation will recharge groundwater and 58.8 percent would be lost by sublimation in the subwatersheds analyzed in Chapter 3H of the DEIS and FEIS. These data are considered the best available and most relevant values for the analysis of comparative groundwater recharge estimates. The groundwater budget estimated by Schwartzman and Springer assumed 75 percent was lost to sublimation, which

[52] Schwartzman, P., and Springer, A., 2002.
[53] Resource Engineering, Incorporated, 2003.
[54] Sno.Matic Controls and Engineering, Incorporated, 2003.

would be associated with drier than normal conditions in the watershed model. For long-term projections of groundwater recharge to the regional aquifer, simulated conditions in average-year climatic conditions are more relevant.

3) The watershed model incorporates the best available climate-related data set and local hydrologic conditions for a semi-arid, high elevation alpine setting to derive projected water balances in simulated wet, median, and dry conditions. While there are likely year-to-year and multi-decadal variability in climatic conditions, the historical PRISM data set of precipitation estimates, averaged from 1960-1990, as utilized in the watershed model captures at least some of this variability. Additional information regarding the meteorological data used is provided in the FEIS, Chapter 3, Section I, Soils and Geology, sub-heading Climate.

   The model does not account for potential changes that may occur due to longer-term variation and trends that may relate to climate change. The current state-of-the science suggests[55] climate change is causing increasing regional and seasonal increases in temperature and this will affect timing and regional patterns of precipitation. However researchers cannot predict specific changes for specific regions with a high degree of confidence. Consequently, there is too much uncertainty at present time to quantitatively assess the degree of effect climate change may have on impacts to watershed hydrology relevant to this analysis.

   Climate change is discussed in the updated Air Quality (Section 3M) of the FEIS, as well as in the comments 18.1 through 18.23.

4) Some of the groundwater recharge that would occur in response to the proposed snowmaking may eventually reach the regional aquifer; however, it is unlikely to contribute water to existing C-aquifer wells operated by the City of Flagstaff or increase water supply at these well fields in any significant way. Although the pattern of movement, timeframe, and ultimate fate of groundwater recharge from areas of proposed snowmaking are not known, the recharge may contribute water supply to perched aquifers that are used for water supply for residents down slope.

6.89 The Report omits extensive water-level measurements from the shallow wells in the Fern Mountain Botanical Area and the Homestead at Hart Prairie which were installed to monitor depth to water for the Arizona Water Protection Fund projects.

The reader is referred to Comment 6.27.

[55] National Assessment Synthesis Team, 2000.

6.90 Records clearly show the affects drought has had on the watershed the past eight years. Of the past 8 years, there was no surface runoff from the watershed in three years. The records from the flume, wells, and extensive soil-moisture measurements cited in Amentt (2002) and DeWald and other (2004) would have greatly helped refine the understanding of water budgets used in the Climate sections of the DEIS.

The reader is referred to Comment 6.27.

6.91 The authors of the DEIS and the Report need to state that although the average long-term groundwater recharge may be approximately 260,000 ac-ft/yr, this number varies greatly. It may approach zero in dry years and may be greater during wet years.

The value of 260,000 AF/yr is given as an estimate of average annual *discharge* from springs that are fed by the regional aquifer. As discussed in comments 6.22 and 6.28, this total discharge rate from springs is relatively stable due to the attenuation of seasonal variations in recharge by the large storage capacity of the regional aquifer. Long-term climatic changes may eventually affect the amount of groundwater in storage and the base flow from the major springs; however, assessment of the potential for this effect is beyond the scope of this analysis. Because pumping from the R-aquifer is currently small, it is reasonable to assume, as stated in the DEIS and FEIS, that the long-term average annual recharge is equal to the estimate of average annual discharge from the springs, even though short-term trends in recharge may vary substantially from this long-term average. This information has been added to the FEIS for clarification.

6.92 The Forest Service's DEIS has dealt with the issue of public and wildlife health in a cavalier seven pages (3-171 – 178). They have quoted the National Research Council, the Forest Service incorrectly listed the reference as a 2003 study/publication, in a context of certifying the safety of reclaimed water. The executive summary of that NRC report does no such thing. This mis-representation further devalues the worth of this DEIS

It is presumed this comment is in reference to the following text on page 3-172 of the DEIS:

> *"Although many studies have investigated the toxicology of specific chemical constituents that may be present in wastewater, limited data is available to assess potential public health effects from concentrations and combinations of chemical constituents that occur in wastewater. Although not an issue in Flagstaff or at the Snowbowl, several detailed studies have examined potential human health hazards associated with drinking reclaimed water at Windhoek, South Africa, the only city in the world that has implemented direct potable reuse, and in Denver, Colorado, where direct reuse was rigorously assessed, but not adopted. Those studies*

suggested that no adverse health effects should be anticipated from the direct reuse of reclaimed water for drinking water purposes at these sites."

The last sentence of the above statement cited the National Research Council (NRC) report on the viability of augmenting drinking water supplies with reclaimed water given in Issues in Potable Reuse.[56] This statement from the DEIS and the NRC citation was very specific to say: 1) there is limited data available to assess potential public health effects from potable reuse of wastewater; 2) health effects studies were conducted at Windhoek, South Africa and Denver, Colorado; and 3) the findings of these two studies suggested there were no adverse health effects related to the direct reuse practiced at Windhoek and planned at Denver. Based on information from the NRC book, these statements are factual.

The text included above was very specific to applications of potable reuse at two sites only and did not make broader claims "certifying the safety of reclaimed water" to the population at large. Likewise, the text cited above went on to review health effect studies in California's Orange and Los Angeles Counties and noted, very specifically, there were no known adverse effects observed in populations exposed to reclaimed water in their drinking water supply. Yet this did not explicitly say, nor intend to imply, that reclaimed water was safe for all to consume.

[56] National Research Council, 2003.

7.0 CUMULATIVE IMPACTS

7.1 The DEIS acknowledges that temporary, construction-related disturbance to wildlife is irretrievable (Page 3-37), but identifies no other irreversible or irretrievable commitments of resources related to noise, traffic, or air quality after completion of construction and during operation of the increased area involved in the preferred alternative. Under the Proposed Action, Snowbowl's comfortable carrying capacity would increase from 1,880 to 2,825 people per day, and with peak days of 3,400 skiers plus 1,680 snow tubers, meaning Snowbowl's daily capacity could exceed 5,000 people. More than twice the current number of people and cars would result in predictable cumulative noise, traffic, and pollution impacts that the Tribe believes to be "irretrievable and irreversible" and at the very least should be included for consideration in Alternative 2.

As defined in the Introduction to Chapter 3 in the DEIS and FEIS, an *irreversible* commitment is a permanent or essentially permanent use or loss of resources; it cannot be reversed, except in the extreme long-term. Examples include minerals that have been extracted or soil productivity that has been lost. An *irretrievable* commitment is a loss of production or use of resources for a period of time. One example is the use of timber land for a logging road. Timber growth on the land is irretrievably lost while the land is a road, but the timber resource is not irreversibly lost because the land could grow trees in the future.

Based on the above definitions, the analyses presented in the DEIS and FEIS for noise, traffic and air quality indicate that no irreversible and irretrievable commitments of resources would occur with implementation of any of the alternatives.

There is a difference between *cumulative impacts* and irreversible and irretrievable commitments of resources. The reader is referred to the cumulative effects analysis presented for each resource area in the DEIS and FEIS, as well as information on past, present and reasonably foreseeable future activities presented in Appendix C of the DEIS and FEIS.

7.2 While the DEIS acknowledges that the spiritual character of the San Francisco peaks has been affected by previous disturbances within the SUP area, it does not clearly acknowledge the compound affects that the preferred alternative will have. The DEIS provides no mitigation measure suitable to address the past impacts and the impacts that will occur with proposed action.

A thorough cumulative effects review, based on spatial and temporal bounds, is provided for each resource in the DEIS and FEIS. Past, present and reasonably foreseeable future actions that have, or have potential to, affect the religions and spiritual values of the Peaks are identified in the Heritage and Cultural Resources cumulative effects analysis.

As discussed in the cumulative effects portions of the DEIS and FEIS, when considered individually, none of the projects that have occurred within or outside of the SUP area on the Peaks has been determined to have caused significant, adverse indirect effects to the Peaks. However, when considered cumulatively, they may have significantly affected the Peaks' spiritual character and the ability of rituals to be properly completed. Furthermore, from an ethnographic landscape perspective, over time, historic ground and vegetation disturbances have individually and cumulatively effected, or "scarred," the Peaks.

Every effort was made to identify and incorporate meaningful mitigation measures into the Proposed Action. The DEIS indicated that a Memorandum of Agreement (MOA) was being completed at the time of publication which would specify mitigation requirements to minimize the project's potential adverse effects. The MOA is included in Appendix D of the FEIS.

7.3 Will we see another proposal to further expand Snowbowl in a few years to accommodate the increase in skier visitation? The EIS must disclose how the proposed build-out would relate to future build-out, including the potential for development that is currently impossible due to lack of water.

The alternative approved in the Record of Decision (ROD) provides the framework for a new Master Development Plan (MDP), which will guide future development of Snowbowl. Beyond that point, no plans, projects or proposals have been discussed by Snowbowl or the Forest Service that can be identified or analyzed at this time. It is reasonable to speculate that, in the future, Snowbowl may approach the Forest Service with proposals to modify the lifts, improve the terrain network or upgrade infrastructure and guest service facilities as these become antiquated. However, all of Snowbowl's current and future activities are forever limited to its 777-acre SUP area. Due to the surrounding Kachina Peaks Wilderness, expansion into areas currently beyond the SUP area is precluded.

8.0 WILDERNESS

8.1 Since this development will occur in an area surrounded on three sides by the Kachina Peaks Wilderness Area, the nature and purpose of the wilderness area will be degraded. The Kachina Peaks Wilderness will experience massive amounts of new intrusion by people.

Neither Alternative 2 nor Alternative 3 would change the Arizona Snowbowl SUP boundary or increase access points to the Kachina Peaks Wilderness. Furthermore, all proposed projects are designed to increase use of NFS lands *within* the SUP area. It has been determined that all components of Alternatives 2 and 3 can be implemented consistently with the CNF Forest Plan. The hiking trail is designed to allow summer visitors to use and enjoy the NFS lands within the SUP area. If the commentor is referring to wintertime intrusions into Wilderness areas, the Forest Service has found such impacts to be relatively light and mostly temporary in nature, and would not expect such use to increase with this proposal. Additionally, over the last several years the agency has implemented a backcountry education and permitting system for Snowbowl users that should help in this regard.

8.2 The plan leaves little in the way of a buffer zone to protect the Kachina Peaks Wilderness Area with the high probability of permanently altering this beautiful and environmentally-sensitive area. The snowmaking (with its potential pollution), clear-cutting, habitat destruction, road-building and construction are all incompatible with the surrounding wilderness area.

All projects included within Alternatives 2 and 3 would occur within the 777-acre Snowbowl SUP area. As such, no development is proposed to occur within the Kachina Peaks Wilderness boundary. Additionally, no aspect of the Proposed Action would specifically lead to an increased use of the surrounding Wilderness area.

The reader is directed to the response to Comment 8.3 for further information on wilderness “buffer” zones.

8.3 Snowbowl will not be rigorously enforcing the Wilderness boundary. The Forest Service has a responsibility to protect congressionally designated Wilderness, including buffer areas.

Guests who ride the Agassiz Chairlift in the summer are not authorized to exit the SUP area into the Wilderness. While there are no designated Wilderness access points for skiers, they may enter the Wilderness area through the SUP boundary; however, they must obtain a permit at either the Hart Prairie Lodge or the Agassiz ski patrol building prior to exiting the SUP area. Winter access to the Wilderness is not proposed nor anticipated to change with implementation of any of the alternatives.

The Forest Service does have a responsibility to protect congressionally designated Wilderness areas, but this responsibility is limited to the physical bounds of the wilderness area and does not include the protection or management of "buffer areas" as suggested by the commentor. This condition is supported by the Congressional Record for the U.S. Senate (S126622, October 2, 1984, Section 9 "Buffer Areas") which states:

> *"The Congress does not intend that the designation of a Wilderness area under this act lead to the creation of protective perimeters or buffer zones around such Wilderness areas. The fact that non-Wilderness activities or uses can be seen or heard from areas within a Wilderness shall not preclude such activities or uses up to the boundary of the Wilderness area."*

Accordingly, "buffer zones" exist just inside the Wilderness boundary, and a Wilderness experience should not be expected at wilderness boundaries. With the ski area pre-dating the Wilderness designation, - admittedly setting up a somewhat difficult management situation - the agency feels any impacts to resources have been minimal, well-managed, and within acceptable tolerances.

8.4 The Wilderness boundary is adjacent to the ski area. If the snowmaking is audible in the adjacent wilderness areas, that alone would be reason to disallow snowmaking.

The proposed snowmaking system would likely be in full operation (i.e., all guns would be running) during the early season (late October through December), or as soon as ambient temperatures drop to adequate levels. Snowmaking would typically occur during the night when temperatures are lower; however, as daytime temperature drop, the length of time snow could be made over a 24-hour period would likely increase. While the majority of snow would be made in the early season in order to provide an adequate foundation of snow, the system (in its entirety or partially) could be operated periodically throughout the operating season to compensate for lack of natural precipitation.

While modeling the audibility of the snowmaking system in the Wilderness was not conducted for this analysis, the modeling that was conducted pertaining to the Hart Prairie and Fort Valley areas can be applied to make some basic assumptions about the Wilderness. Hart Prairie and Fort Valley are located approximately 1.5 and four miles (respectively) from the base area. At a distance of 200 feet, each tower and fan gun would produce an average noise level of approximately 73 and 62 dBA, respectively. These noise levels would decrease with distance. (The Noise analysis in the DEIS and FEIS provides information on noise levels for comparative noise sources.) From Fort Valley, it has been determined that the snowmaking system will not be audible. However, from a closer distance (1.5 miles and closer) the snowmaking system would be audible, and would be above ambient noise levels, especially from within the Wilderness. However, it is assumed that during the typical period of heaviest snowmaking operation

at Snowbowl (October through December), use of the Wilderness would be low, especially at night when it is most likely that ambient temperatures are lowest.

The reader is referred to Comment 8.3 for a discussion of Forest Service responsibilities to protect congressionally designated Wilderness areas.

9.0 SOCIAL AND ECONOMIC RESOURCES

Thematic Comments

9.1 What are the Flagstaff's expenditures to treat and process the reclaimed water? How much will Snowbowl pay for the reclaimed water? What is the purchase price of reclaimed water relative to projected increases in revenue?

The Rio de Flag WRF has treated wastewater at an average rate of 681 million gallons per year (1.87 MGD) during the past four years. The most recent data from 2002 indicates that approximately 25 percent of the wastewater treated at the WRF was beneficially reused in the Reclaimed Water System and 75 percent was discharged as Grade A+ treated effluent to the Rio de Flag channel. Because the Rio de Flag WRF is currently treating, and will continue to treat, and discharge this water independent of an beneficial reuse, the expenditure to treat and process the water is irrelevant to the analysis. It is further noted that a special bond was recently approved that will allow the Wildcat Hill Waste Water Treatment Plant to increase its reclamation standard to produce Grade A+ reclaimed water. This will serve to further increase the total quantity of reclaimed water that is treated but not put to beneficial reuse within the community.

Under the existing agreement with the City of Flagstaff, the Snowbowl will purchase water from the Rio de Flag Plant at a rate not to exceed 75 percent of the Potable Water Rate Schedule established by the City.

As detailed under a number of comments within this section (see comments 9.4, 9.10, 9.13, 9.20 and 9.72), the cost of purchasing the reclaimed water from the City of Flagstaff has been accounted for in the overall economic projections for the project. Although these economic models are considered proprietary, and are therefore not disclosed within the analysis, the Forest Supervisor reviewed this information and has given it consideration in reaching the decision documented in the ROD.

9.2 This proposal bears unforeseen costs on local taxpayers. The EIS needs to analyze the risk of using taxpayer resources for the expansion of a project that could result in an irretrievable commitment of resources once a use is established. Who will be responsible for paying for the snowmaking pipeline infrastructure? Who will pay the energy costs of pumping reclaimed water uphill?

The FEIS has been amended to clarify that all costs associated with the planning, development, construction, operation, and maintenance of all proposed infrastructure would be the full responsibility of the Arizona Snowbowl.

9.3 Will the Proposed Action create any direct or indirect costs to the City of Flagstaff or Coconino County, such as increased law enforcement or emergency response needs?

Law enforcement and emergency services for the Snowbowl are provided as follows:

- *Law Enforcement* - Services are provided by the Coconino County Sheriff's Office and by USFS law enforcement services. USFS law enforcement is on site four days per week, while the County Sheriff's Office provides patrol services on weekends. Typically, law enforcement is required in instances such as minor parking lot accidents, stolen skis, and, on occasion, skier injuries.

  Based on recent experience, law enforcement services are required approximately once every two weeks. Thus, in a season where the ski area remains open from mid-December to mid-April, law enforcement services may be required from eight to 10 times during the course of a season. However, in the instance of a season like the 2001/02 season, when the Snowbowl only operated for four days, requirements for law enforcement requirements were minimal.

- *Emergency Service Response* – Service is provided by Guardian Medical Transport, including both ground and helicopter service. During the ski season the Snowbowl has an agreement with Guardian to station one ambulance at the ski area each weekend/holiday day. During midweek periods, Guardian responds from the closest hospital, which is approximately 20 minutes away by ground transportation. Helicopter use is dependent upon the severity of the situation and dependant upon weather conditions.

  Based on recent experience, there are 50 to 60 ambulance calls and three to six helicopter calls annually during a typical recent season.

The law enforcement and emergency related impacts of the alternatives are estimated as follows:

Alternative 1 - No significant change is expected under Alternative 1. The current level of service would be sufficient to cover continued needs. Assessed ten years into the future, average annual skier visits would be approximately 12 percent higher than the current level. As such, the total number of law enforcement and emergency calls may increase by approximately 12 percent above the current level.

Alternative 2 - Law enforcement and emergency service needs can be expected to increase under Alternative 2. Law enforcement and emergency services are closely related to 'people activity.' Under this alternative, average *annual* visits (skier visits and snowtubing visits) would increase by approximately 162 percent above current levels – and would become more consistent from year-to-year. This increase in activity at the ski area would inevitably result in an increased need for services. It is anticipated that the ski

area could develop building space to provide a day clinic at the ski area to accommodate for this increased need. This project has been of interest in the past, but has not received sufficient support from the medical community because of the past inconsistency of the Snowbowl's business level. The more consistent level of business activity under Alternative 2 should make this project possible.

It is anticipated that the increased level of ski area activity under this alternative would result in the need for law enforcement services on approximately 20 to 25 occasions per season. Further, anticipated ambulance calls would total 130 to 155 per season, while helicopter calls would range from eight to 16 per season.

Alternative 3 – As detailed within the Social and Economic Resources section of the FEIS, Alternative 3 would have a longer implementation period than Alternative 2. It is possible that not all of the infrastructure would be built. As such, the effective impact of this alternative would be between Alternative 1 - no significant change and Alternative 2 and most likely closer to Alternative 1. Average annual skier visits would be approximately 19 percent higher than the current level. As such, the total number of law enforcement and emergency calls would be approximately 19 percent higher than the current level.

9.4 Will ticket prices increase to offset the costs of implementing the Selected Alternative?

As further detailed within the response to Comment 9.72, the Forest Service has conducted a review of the financial requirements for the viable implementation of the Proposed Action. This review, as well as specific discussions with Snowbowl management, indicates the viability of project implementation is not dependent upon a commensurate increase in lift ticket prices. The improvements in business stability which would result from a consistent operating season will be sufficient to support the cost of the proposed projects. While it is not anticipated that development of the projects proposed under the action alternatives would specifically elicit an increase in lift ticket prices, there are many other financial and operational considerations which may cause the Snowbowl to alter ticket prices in the future.

9.5 Flagstaff has far too many low-paying service sector jobs and not nearly enough higher paying jobs. The types of jobs to be created at Snowbowl are not well paying jobs. Expanding Snowbowl would do nothing to remedy this situation.

Comment noted. No specific response is necessary.

9.6 Snowbowl is a private, for-profit entity operating on public lands. It is not the Forest Service's responsibility to enable or subsidize a private, for-profit business at the expense of taxpayers.

Because the Snowbowl operates on National Forest System lands, and that the provision of public recreation opportunities and the use and enjoyment of public lands are mandated within the Forest Service's mission, the continuance of the Snowbowl as a public recreation opportunity is the in the interest of the Forest Service and is specifically allowed by the Forest Plan. The Snowbowl has the ability to provide a public service that is in demand and that cannot be fulfilled directly by the Forest Service. Additionally, no portion of the proposed facilities at the Snowbowl is or would be funded or subsidized by the Forest Service.

9.7 There is no guarantee that the community will benefit in any way from Snowbowl's expansion. The DEIS fails to provide evidence that proposed improvements at the ski area will improve Flagstaff's economy. It is unlikely that any potential recreational benefit created for the Snowbowl or economic benefits to the merchant community will outweigh the costs of implementing this project.

As previously stated in the response to comment 9.2, all costs associated with the development and operation of the proposed infrastructure would be the responsibility of the Arizona Snowbowl.

As detailed within the Social and Economic Resources section of the DEIS and the FEIS:

> *"The short-term impacts of the construction of* [Alternative 2] *improvements would result in the creation of 232 FTEs and $21.24 million in economic output in Coconino County. Increases in average visitation would result in a substantial positive economic impact. At the end of the 10 year planning period, these added expenditures would support an additional 331 FTEs and $17.23 million in economic output. Thus, the ski area would support a total of 564 FTEs in Coconino County."*

The analysis concludes that while the Snowbowl is not a significant "driver" of the area economy, it is clearly a key contributor to the general Flagstaff and Coconino County economy in terms of economic output and job creation. Additionally, the reader is referred to the response provided to Comment 1.11.

9.8 The DEIS completely ignores the financial contribution that Native Americans make to the economy of Flagstaff. The FEIS should analyze the effects of Native Americans doing their shopping and conducting business outside of Flagstaff if any alternative other than Alternative 1 is selected.

As required by NEPA, the DEIS, and FEIS assess the anticipated direct, indirect and cumulative affects to Flagstaff and Coconino County economy. An analysis of

contributing economic elements, other than those related to the Snowbowl proposal, was determined to be beyond the scope of this analysis.

The concept of Native Americans shopping and conducting business in Flagstaff is considered in the analysis and cannot be separated from the general population.

9.9 Growth in Flagstaff and the surrounding area has increased at a fast pace. Selection of the Proposed Action could cause additional growth and sprawl that has not been addressed in the DEIS.

The Social and Economic Resources section of the DEIS and the FEIS specifically addresses, *"The potential for the Proposed Action to affect a change in key local economic indicators (population; long- and short-term employment, housing, and tax revenues, etc.)."* Specifically, refer to a summary of these indicators provided in Table 3E-13.

9.10 The DEIS indicates that the Arizona Snowbowl may not be financially viable under the no-action alternative; however, this claim is unsubstantiated.

Within the Social and Economic Resources section of the DEIS and the FEIS it is noted that, *"the Snowbowl has invested a cumulative total of $4.42 million in capital expenditures."* The analysis notes that, *"over the 11 year period, the cumulative net income of the ski area was $2.65 million."* Additionally, the document notes that, *"during the same period the Snowbowl has made a total capital investment of $4.42 million."* And *"it is apparent that the differential between net income and minimum required capital investment has been a losing proposition, resulting in a net loss of $1.77 million over the period."* As shown in the analysis and reiterated above, continuation of ski area operations under the current conditions is not a sustainable option for the Snowbowl's owners.

Aspects of this comment are addressed in further detail in the response to Comment 9.72.

9.11 The DEIS indicates that the Snowbowl is not a significant contributor to the overall economy of Flagstaff. Therefore, this proposal is unnecessary.

The DEIS also makes it clear – and documents – that the Snowbowl is a positive contributor to the Flagstaff area economy. It is important to note that the vast majority of small businesses in Flagstaff – or any region – are not major drivers of their respective economies. Nevertheless, they make positive contributions by attracting expenditures, hiring employees, paying wages and paying taxes. These contributions, though often small in percentage terms, are collectively the underpinnings of the economy.

Purpose #1 in the Purpose and Need for the Proposed Action specifies: "*To ensure a consistent and reliable operating season, thereby maintaining the economic viability of the Snowbowl, and stabilizing employment levels and winter tourism within the local*

community." Clearly, the project proposal will provide a consistent and reliable operating season through its provision of machine-produced snow. This, in turn, will allow the Snowbowl to offer regular and dependable employment opportunities to its existing and future staff. Finally, the analysis concludes that while the Snowbowl may not be a single driving force in the local economy, it is a contributor to winter tourism within the local community.

Specific Comments

9.12 While the DEIS presents two factors affecting annual skier visitation, its estimate of annual skier visitation under Alternative 2 appears to employ only one of these factors: the length of the ski season. That estimate fails to account for if and how variability of annual snowfall might affect annual skier visitation and the economic viability of the ski area. The DEIS fails to disclose an analysis that factors ski season length and annual snowfall in its estimate of annual skier visitation and economic viability.

The commentor is essentially correct in noting that overall season length becomes the key determinant to annual visitation projections. By design, the development and operation of the proposed snowmaking system will dramatically decrease the Snowbowl's reliance upon natural snowfall, reducing the effects of natural variability on annual skier visitation and economic viability. The proposed system would increase consistency of the snowpack throughout the season, as well as extend it on both ends (i.e., early season and late season). The proposed system has been designed to provide full coverage on essentially all of the Snowbowl's skiable terrain.

9.13 A disclosure of what the required profit margin is for staying in business should be inquired into by the government.

The Forest Service has no legal or administrative basis for requiring that a specific profit margin be attained or maintained by a permittee.

9.14 There is no information on Alt 2 and 3 in terms of actual capital costs and how it will affect local people in terms of contributing to funding the project.

Capital Development Costs for each of the alternatives are provided in Table 3E-20 in the Social and Economic Resources section of the DEIS and FEIS. For Alternatives 2 and 3, development costs are estimated at $19.77 million and $10.22 million, respectively. Further, as previously detailed, all costs associated with the planning, development, construction, operation, and maintenance of all proposed infrastructure would be the full responsibility of the Arizona Snowbowl and would not "affect local people" other than through economic and job stimulus within the local economy.

9.15 The Forest Service should hire independent and professional engineers to reassess the money involved to build the infrastructure necessary for snowmaking - it seems the estimate is low.

The estimates of Capital Development Costs, provided in the DEIS and FEIS, and referenced in the response to Comment 9.14 above, were prepared by independent ski area planners and financial analysts working at the specific direction of the Forest Service.

9.16 How will the infrastructure be protected? The piping will undoubtedly be a target for vandals and those who passionately oppose the snowmaking. Will it be buried? Will it be 10 to 15 feet above the ground?

The proposed water transmission pipeline between Flagstaff and the Snowbowl would be buried a depth sufficient to prevent freezing (approximately four to six feet). All other infrastructural components (pumps and valves) would be installed within secure, partially buried, vault structures. On-mountain, the network of pipelines in the snowmaking system would be buried to a shallower depth, as the ground is much rockier. It would be up to the Snowbowl to devise means of protecting their investments from vandalism. The reader is referred to Comment 12.3 for additional information.

9.17 What are the potential costs of an equivalent water source to replacing that used by snowmaking?

The commentor is referred to Chapter 2 of the DEIS or FEIS. Under the heading titled: "Alternatives and Project Elements Considered but Eliminated from Further Analysis," a series of "Alternate On-Site and Nearby Water Sources" were evaluated. The analysis presented in the referenced section concludes:

> *"After ample due diligence, (logistical and economic considerations and water availability research) it was determined that the use of potable water sources was not a prudent choice to meet the Snowbowl's snowmaking requirements. In addition, the Forest Service determined that the additional environmental and political issues that would inevitably accompany any potable water alternative would make such a concept imprudent. Finally, collecting rain water and hauling water to the site were both deemed economically and logistically infeasible given the large capacity of water that would be required to run the snowmaking system.*
>
> *Therefore, in order to achieve the quantity of water necessary for Snowbowl's snowmaking needs, the current proposal to use reclaimed water from the City of Flagstaff represents the most reliable, practical, and ecologically responsible option."*

9.18 ***"Over the past eleven operating years, the Snowbowl has invested a cumulative total of $4.42 million in capital expenditures, all of which has been oriented toward ski area maintenance."*** **No actual breakdown of figures is given for this. There is nothing presented here to show that the $4.42 million was spent for necessary maintenance. A breakdown of these aggregate figures should be provided to show what the money was really spent for. This is a key and pivotal statement from the owners. There needs to be full public disclosure on this before we can accept it. What exactly is "maintenance?"**

A summary description of the $4.42 million in capital expenditures is provided on in the DEIS and FEIS which details that:

> *"The Snowbowl's capital expenditures have been oriented toward maintenance of the current level of quality, including items such as restrooms, groomers, water trucks, and background infrastructure. Capital investment has not been sufficient to add improvements that would be evident to the skier, such as new lifts, lodge space, terrain, etc."*

A more detailed accounting of these expenditures would not be relevant to this analysis, nor benefit the Forest Supervisor in reaching an informed decision.

9.19 ***"In the ski area industry, it is generally assumed that at least six percent of gross revenues should be allocated for maintenance capital …"*** **Where does the 6% figure come from? This figure lacks any evidence, such as information about how much other ski areas spend, what they spend it on and how much was spent over the 1980s, before the current owners bought the Snowbowl. Because this is a "generally assumed" percentage, it may not be true for Snowbowl. Maybe this is an area that, due to its particular character, can operate with 4% or 5%. Comparable figures from peer areas should be provided.**

The six percent figure is based on extensive studies of ski area finance in the U.S. over time (source SE GROUP, Landvest). Six percent is the typical *minimum* figure that is assumed to be adequate for maintenance of a ski area's existing capital equipment inventory in order to maintain the value of the asset. As noted by the reviewer, the figure does vary from ski area to ski area. However, because six percent is a *minimum* figure, most ski areas would budget for maintenance activities at or in excess of six percent.

9.20 ***"The Snowbowl's capital investment over the past eleven years has equaled 8.87 percent of gross revenues… this level has expenditure has required the ski area's owners to infuse additional capital as these expenditures have exceeded net revenues."*** **Without disclosure of the current owners' accounts, we cannot determine anything. Maybe the**

owners paid too much for this ski area. What specifically are the "capital expenditures"? The owners bought the Nordic Center, and maybe it should be sold. They bought the motel across the highway from the Snowbowl road. Is this included in the above figures? What exactly have they spent the money on? Public disclosure is needed here.

The reader should note that the Snowbowl is a privately held business and is not required to publicly divulge the full extent of their financial records. Forest Service Manual 2712 specifies: *"Financial statements and plans for financing are secured in confidence and are not public information."* Additionally, the Freedom of Information Act (5 USC § 552) provides specific exemptions for *"commercial or financial information obtained from a person as privileged or confidential."*

For the purposes of preparing an EIS, the Forest Service generally reviews and discloses financial information and data that is specifically relevant to the issues being evaluated. Additionally, the Forest Service may choose to review but not disclose business and financial data that it deems as pertinent to the decision. With regard to specific information surrounding the Snowbowl's total capital investments, purchase price of the ski area, and other business interests, this information was reviewed by the Forest Service, but is sufficiently proprietary in nature to justify limited disclosure. The Forest Supervisor has given this information consideration in reaching the decision documented in the ROD.

It is noted that the Arizona Snowbowl no longer owns or operates the Flagstaff Nordic Center.

9.21 ***"Alternative 2 envisions significant additional capital expenditures, with the intent of improving the offerings and quality of the ski area and, most significantly, allowing the ski area to provide a more consistent operation from year-to-year."*** **This is a charade to conceal the fact that what is really wanted with Alt. 2 is one simple outcome: the owners want to increase their profit rate and their rate of return on the original investment. That is the only need that is certain in the entire document. The rest of it, as the above statement suggests, is merely a way to equate the owners' financial interest with the public interest. All of this is ludicrous at one level, as there has never been any attempt to actually quantify and present actual consumer demand, which is ultimately what is supposed to drive the expansion proposal. What is the evidence for the unsatisfied consumer demand that would be met if Alt. 2 is approved?**

The evidence of "unsatisfied consumer demand" has been described in the DEIS pages 3-85 to 3-87. The record of use at the Snowbowl – when a skiing product is available – makes it clear that demand significantly exceeds supply and that additional supply – in the form of more operating days and an expanded facility – will result in an increase in skier visits.

9.22 ***"Over the 11 year period, the cumulative net income of the ski area was $2.65 million. However, as noted above, during the same period the Snowbowl has made a total capital investment of $4.42 million, simply to maintain existing facilities and retain a consistent level of facility quality."*** **Nothing like this can be stated without financial proof. The public must see what the specific investments and expenses were to believe the above. There is no evidence presented in this document to support such a generalization.**

The commentor is referred to the responses provided to comments 9.18 and 9.19 above.

9.23 Re-plumbing the existing facilities for gray water use back into their toilets will save on hauling and water costs, and septic pumping. Why has this option not been done already? This procedure can be and should have been done even without looking at the snowmaking project. I believe the EIS is misleading by presenting the 60% of water use for restrooms as a probable main reason for going ahead with developing an alternative water delivery system and thereby adding snowmaking to the water demand volume; which is really the higher of both demands. There is not enough information provided in the EIS as to what the annual costs are other than the stated water hauling for restroom water. I believe this information should be provided to the public and the Forest Serviced before anyone can state exactly that increasing capacity of the site; and developing a new water delivery system for snowmaking will set up a business condition of a reliable and sustainable income.

The proposed use of reclaimed water to service ski area toilet facilities was developed as an ancillary benefit to the availability of reclaimed water at the ski area. By developing a simplistic system to use reclaimed water in restroom facilities, the ski area would significantly reduce the amount of potable water which needs to be hauled to the site each day. This would have obvious benefits in terms of associated costs and total truck trips along the Snowbowl Road. Without the installation of the reclaimed water transmission line bringing the water from Flagstaff, there is no source of "gray water" to use for the restroom facilities as the commentor suggests. The DEIS did not specifically quantify the total annual costs that the Snowbowl incurs for transporting potable water to the ski area. However, subsequent review of ski area records indicate that this cost is approximately $147,000 per year.

9.24 An EIS representative informed me that the $750,000 (listed as Entitlement in EIS) was spent on the preparation of the EIS and paid entirely by the current Snowbowl owners. It was also stated that the pipeline is to be paid in its entirety without any grants/funding of any sort by the city, county, state, or federal governments; or any taxpayers dollars of any sort. Can this statement of financial responsibility be stated clearly in the EIS or somewhere for public record? To be sure is the 4.32 million "spent outside

impact area" is of this 12- inch diameter pipeline [sic]? If so, who is responsible for paying for the construction and associated inspection costs? I'm sure that if the Snowbowl's current owner is paying for the entire $19.77 million of improvements, what assurance does the public have that it will not become a taxpayer burden should default/bankruptcy/etc. occur?

Since the USDA Forest Service is the agency conducting this EIS review of the proposed projects, this document can only speak with certainty for the USDA and the Coconino National Forest. Neither the Forest Service nor the USDA would have any role whatsoever in funding the planning, design, construction, or operation of any portion of the project proposal. At the time of publishing, there are no known plans or agreements for any local, state, or federal agency or entity to participate in the funding of the projects reviewed within this EIS.

As detailed under the response to Comment 9.2 above, the Snowbowl would bear the entire cost of implementing the projects authorized in the ROD. The EIS further clarifies: *"Because all projects analyzed in the analysis of socioeconomic resources are proponent-driven and financed, no irreversible or irretrievable commitments of economic resources were identified."* This information is important in understanding that if the Snowbowl were to default or file for bankruptcy, no other entities, particularly the USDA Forest Service would be responsible for completing the project or liable for any outstanding debt.

9.25 I very simply believe, that if this is approved, they (the ski area) will attempt to obtain bond funding, tax rebates or breaks, or grants of some sort to pay for this.

The commentor is referred to Comment 9.24 above.

9.26 I have not seen the analysis for the cost of transport, new roads, noise and light pollution created by the use of the reclaimed water.

The general cost of project implementation and financial responsibilities have been addressed previously within the DEIS and FEIS.

9.27 Analysis of profitability, including the cost of capital improvement and pipeline construction and maintaining, were not adequately included in the DEIS. How does projected annual operating costs and profitability change when the costs of site upgrades, and pipeline construction and maintenance are included?

The commentor is referred to the responses provided to comments 9.13 and 9.72.

9.28 The mitigation measures contained in the DEIS are an inadequate means of minimizing the impacts of the proposed action. "…There is concern as to whether the Proposed Action is even viable considering the costs of mitigation measures. This issue must be addressed in the Final EIS.

The commentor is referred to the responses provided to comments 9.10, 9.13, 9.20 and 9.72.

9.29 Charging Flagstaff resident skiers to use the water we've already purchased and then discarded is a form of double taxation and is unconstitutional.

As detailed in the response to Comment 9.1, the Snowbowl would purchase the reclaimed water from the City of Flagstaff similar to other end users of the City's reclaimed water. Whether the City has the ability to charge the Snowbowl for the use of the reclaimed water is an issue addressed in the agreement between the City and the Snowbowl and is beyond the scope of this analysis.

9.30 The reason for the expansion proposal was to maintain or increase economic viability both to Snowbowl and to local businesses. Why is there no table on how Snowbowl/local businesses will benefit from the expansion? I would like to see figures and studies backing claims that an expansion will help!

The general contribution of the Snowbowl to the local and regional economy is well documented within the DEIS and FEIS. The *"Potential for the Proposed Action to Affect a Change in Key Local Economic Indicators (Population; Long- and Short-Term Employment, Housing, and Tax Revenues, etc.)"* is identified in the DEIS and FEIS as a prominent heading. The commentor is additionally referred to the response provided to Comment 9.11 above.

9.31 The promise of reliable skiing at a nearby resort is likely to prompt even more interest and investment in second homes, which will adversely affect the ability of families in Flagstaff to find affordable housing.

The analysis presented in the DEIS and FEIS concludes that the Snowbowl is a small but important contributor to the general Flagstaff economy. However, based on the overall scale of the Flagstaff/Coconino County economy, it is unlikely that the mere availability of "reliable skiing" will noticeably affect general property values or the availability of affordable homes.

9.32 Job increases at Arizona Snowbowl that would come with expansion would contribute very little to the local economy. These low-wage, no benefit, seasonal positions are in demand here. Even at current Snowbowl position levels there are constant openings during the ski season.

The commentor is correct in asserting that the Snowbowl is constantly seeking to fill job openings. The primary reason for this is the current lack of reliability of employment at the ski area. Seasonal employees do not know from one month - or even one week - to the next if there will be employment available for them based on the variability of natural snowfall and the sporadic operations of the ski area. While many of the jobs at the ski area are either seasonal or part-time in nature, the reader will note that the analysis expresses the anticipated 332 additional jobs created through the implementation of Alternative 2 as Full Time Equivalent jobs. The specific issue of appropriate wages is addressed under the response to Comment 9.88.

9.33 ***"The expansion of Arizona Snowbowl will have a positive net effect on Flagstaff's winter economy. These economic benefits will be reflected in increased revenues from property, sales, and BBB taxes, and in higher local employment."*** **This USFS statement is simply speculation and poorly considered speculation at that. A comparison of Flagstaff's BBB tax revenues from 2000-2001 and 2001-2002 seasons show about the same revenues despite the fact that Snowbowl was open for 138 days during the 2000-2001 season and only four days during the 2001-2002 season.**

In response to the first portion of this comment, the reader is referred to comments 9.11 and 9.30 above. With regard to the comment pertaining to the BBB tax revenues, the commentor is essentially correct. The analysis indicates that the Snowbowl has a positive but small contribution to overall BBB tax revenues. The Social and Economic Section of the DEIS and FEIS states:

> *"The calculations indicate that Snowbowl visitors make a positive contribution to BBB tax collections. Because this is an economy of significant size, BBB tax generated by Snowbowl visitors constitutes a small portion of total tax collections. This is shown in the table below."*

Table 3E-29
BBB Tax Collections Generated by Snowbowl Visitors as a Percentage of Total BBB Tax Collections

	Annual	Winter (Dec - April)
Total BBB Tax	$3,771,646	$1,347,104
BBB Tax Generated by Snowbowl Visitors	$39,460	$39,460
Percentage of Total Tax Generated by Snowbowl Visitors	1.05%	2.93%

"These findings are consistent with previous statements that the Snowbowl is a positive generator of economic activity, providing jobs and wages, but is not a major driver of the Flagstaff area economy."

9.34 I further suggest that if the Forest Service and the Snowbowl management [sic] persist in allowing this development to take place, that the Forest Service require a posted bond from the Snowbowl's owners and managers sufficient to remove all the equipment from Agassiz Peak's slopes when the business goes bankrupt due to the cost of snowmaking and expansion greatly exceeding the revenues generated from the ski area.

Suggestion noted. While the requirement of bonding an existing ski area for a new project development is without precedent, the terms of the Snowbowl Special Use Permit do allow the Forest Service to require a surety bond at their discretion. However, it is recognized that this clause within the SUP is intended to apply to an entirely new ski area development where there is no existing equity in the project on the part of the permittee. If the owners of the Snowbowl were unable to operate due to financial problems and abandon the area, the facilities and equipment, under the terms of the permit, would become the property of the United States and the Forest Service could use the value of the facilities and equipment to pay for removal.

9.35 While tourism related industries are not inherently bad for the regional economy, the continuing support of new tourism proposals will eventually turn Flagstaff into a community fraught with low paying jobs and housing costs unaffordable for the people that work in town (for examples of these types of communities look at Aspen, CO, Jackson, WY, and right down the road in Sedona.) In a DEIS so focused on the social and economics benefits of the proposed action, the omission of possible negative effects resulting from increased tourism and years of tourism dependency as a "cumulative effect" is glaring.

The reader is referred to Comment 9.11. The DEIS and FEIS both document that tourism accounts for 12 percent of the overall Coconino County economy and 24.5 percent of the Flagstaff economy. Of this, winter tourism is estimated to account for approximately 8.6 percent for a total of the Flagstaff economy. Clearly, the Snowbowl represents only a portion of the contribution of total winter tourism. The DEIS and FEIS conclude that the Snowbowl is an important, but small portion of the overall Coconino/Flagstaff economy. Notably, the scale of the Coconino/Flagstaff economy is far greater than the towns referenced in the comment. Both Aspen, CO and Jackson, WY represent relatively large ski areas situated in very small communities. As an example, census data indicates that the population of Flagstaff in 2000 was 52,894 persons. By comparison, the populations for Aspen, CO and Jackson, WY in 2000 were 5,914 and 8,647, respectively.

9.36 The section of Social and Economic Resources (3E) is lacking information on per capita income (or wages) as related to the employment and output that will be created by the proposed action. What kind of jobs will be created? What will the wages of these jobs be? Power and Barrett (2001) suggest that the use of employment as a primary impact indicator can be very misleading, insisting that more jobs are not necessarily a good thing and that choosing public goods on the basis of the jobs they will create leads to bad decisions and debases the public values that sustain the community.

Data is provided in the DEIS and FEIS which details "Distribution of Employment by Industry and Average Wages for Coconino County." The analysis intentionally focuses on a general discussion of both long- and short-term employment as a direct and indirect affect of implementation of the proposed projects. The proposed projects at the Snowbowl were not specifically intended to, but would indirectly lead to the creation of, additional jobs within the community. The analysis conducted does not imply that the project should receive approval on the basis of job creation. The reader is additionally referred to the responses provided to comments 9.32 and 9.88.

9.37 IMPLAN input-output analysis is used to determine direct and indirect impacts of the alternatives on employment and output. IMPLAN is highly amenable for conducting income analysis as well, yet this category is left out. The DEIS thoroughly discusses seasonal tourism, tax, revenues, and employment levels, yet somehow ignores income levels. The DEIS does discuss Snowbowl's past income levels, but performs zero income analysis on the projected employment and output creation.

As discussed in the response to the previous comment, general income levels in the greater Coconino County/Flagstaff area were not identified as a pertinent indicator in estimating the economic affects of the project proposal. As detailed in the response to Comment 9.32, the primary objective of the proposal in relation to employment is to increase the stability and reliability of the employment opportunities provided by the ski area.

9.38 On page 3-71, the DEIS states that *"Development of the proposed facilities has the potential to attract more skiers and other recreationists, to generate employment and to require additional public services."* Statements about "potential" are so vague as to be essentially meaningless in analysis. Questions raised in response are: How much potential, and what additional public services will be required, at what cost? These questions should be answered, and the answers supported by factual information, in the EIS.

The potential for the Snowbowl to attract more skiers is addressed in the DEIS. Please see pages 3-85 to 3-87 in the DEIS or pages 3-87 to 3-89 in the FEIS. In addition, these

projections are summarized in Table 3E-13. Table 3E-13 provides specific projections regarding visitor spending and short and long-term employment that could be generated under each of the alternatives.

The issue of public services is addressed in the response to Comment 9.3 above and has been included in the FEIS.

9.39 The DEIS states that *"The regional housing stock provides housing for Snowbowl employees and, to a lesser extent, seasonal housing for Snowbowl visitors."* There are only 22 full-time employees at Snowbowl. The other part-time and seasonal workers occupy housing because they live, work and/or go to school in Flagstaff, not because they work at Snowbowl. The suggestion that Snowbowl visitors live in Flagstaff seasonally because of Snowbowl is unsupported and unlikely.

The commentor is correct, the Snowbowl's fulltime, part-time and seasonal employees clearly make use of the regional housing stock.

With 9,155 seasonal housing units in the county, there is little doubt that a segment of the persons who use this seasonal housing stock also use the Snowbowl. It is common for destination visitors to ski areas throughout the U.S. to use seasonal housing as one source of overnight accommodations.

9.40 The DEIS also states *"Just as significantly, with 17.1 percent of the total housing stock held for seasonal use, there is substantial population fluctuation in the county dependent on the level of occupancy in these units. These non-local homeowners bring additional dollars to the local economy."* The previous sentence is wrong. The incidence of "non-local" homeowners does NOT necessitate any "additional" dollars being spent in the local economy. This is equivalent to saying that because I might own a home here and live here all year, then consequently I contribute even more "additional" dollars to the local economy. I contribute dollars but not "additional" dollars…this is true for second home owners, as well. The 17.1% figure is also misinterpreted in the above text. It is not an indication of anything as the 17.1% is being compared to an urban area, i.e., Phoenix and the Valley. Of course, the Flagstaff rate will be higher but it should be compared to other rural areas, such as the White Mountains, and areas around Tucson, not urban areas.

Dollars spent by owners and users of seasonal homes are very definitely a net addition to the local economy. Just as a business that exports goods to remote markets generates new dollars for the local economy, dollars spent by these non-local persons are a net addition to the local economy. In this instance, the 'export' is the attractiveness of Coconino County to tourism and travel activity. This is basic economics. If the Coconino County economy did not have scenic features, tourism attractions and

recreational facilities that were attractive to non-local persons, the total size of the economy would be smaller.

The DEIS comparison regarding seasonal homes as a percentage of the total is presented as intended. The significant point is that Coconino County's economy is more dependent on seasonal housing and the dollars it draws to the area than most regions in Arizona or the U.S. Assuming there is a relatively high percentage of seasonal housing in the White Mountains or areas around Tucson, the same point would apply.

9.41 ***"The Snowbowl is a unique attraction in that it is a winter oriented facility in a region that is commonly perceived as being oriented toward warm weather activities."*** **There is no evidence for this statement. It may be only the Peaks and their cover of winter snow that is the "attraction." The DEIS and City numbers indicate that the ski area itself is not an attraction at all. It is, more precisely, a recreational activity for skiers, and that is all that can be said in this case.**

The Arizona Snowbowl is clearly an attraction – as many as 180,000 persons have visited the facility in one year (this figure only accounts for skier visitation). Further, the Snowbowl is unique in the Flagstaff market. The next nearest facility offering Alpine skiing (Ski Sunrise) is located 125+ miles from Flagstaff. The commentor implies that skiing, as an activity, is not specifically an attraction. Skier visitation data presented in the analysis refutes this comment.

9.42 ***"The Snowbowl has been unprofitable in four of its most recent 11 operating seasons."*** **This is 35% of the time. How does this measure and compare with other comparable ski areas that rely on natural snowfall?**

Ski areas are typically privately held businesses that do not release profit and loss statements. As noted in the DEIS and FEIS, 82 percent of the ski areas in the U.S. currently use snowmaking systems.

9.43 ***"Without question, variability in natural snowfall and the lack of a snowmaking system have been the primary factors resulting in unprofitable seasons."*** **This is wrong. The reason for lack of profit in those years could be due to all manner of factors. The recession may be a factor. What Snowbowl spent on various costs that are not disclosed in the analysis might be a factor. This is a huge leap that hasn't been proven anywhere in this report.**

The statistical data presented in the DEIS and FEIS and within this response makes it clear that there is a strong relationship between natural snowfall and profitability at the Snowbowl. During the years for which profit/loss figures are presented in the DEIS and FEIS (1993–2003) there were four unprofitable years of operation – 1996, 1999, 2000, 2002. Several points are significant here:

- These four years of losses were also the four lowest snowfall years during the years analyzed.

- These four years of losses were also the four lowest in terms of total days of operation at the Snowbowl. Days of operation are, in turn, directly related to natural snowfall.

- These four years of losses were also the four lowest years in terms of total skier visits during the period shown.

Additionally, it is noted that the data analyzed extends to well before the referenced downturn in the economy.

9.44 ***"Currently, Snowbowl visitors average direct expenditures of $9.79 million annually in Coconino County including spending at the Snowbowl and at other area businesses."*** **This number is not substantiated in the DEIS. It should also be expressed as percentage of the total for the county if it is to be meaningful.**

The process by which the $9.79 million figure was calculated is explained in the DEIS on pages 3-85 to 87 and in the FEIS on pages 3-87 to 3-89. The figure is quite meaningful as expressed in the DEIS and FEIS. To express this level of spending in the context of the macro economy is not meaningful to the reader. However, total spending of $9.79 million is a substantial sum and is highly meaningful to the businesses and employees who are supported by these expenditures. Again, there are many small businesses in Flagstaff whose contribution to the economy is small in percentage terms. However, their positive contribution is no less consequential and their role in employing thousands of Flagstaff area residents is highly "meaningful" for those who hold these jobs.

9.45 ***"The Snowbowl's current public sector inputs include an annual average of $90,000 in fee payments to the Forest Service, $257,000 in state and county sales taxes and $36,000 in county personal property tax."*** **Again, express as a percentage of totals, to be meaningful.**

The Snowbowl is one of many small businesses in Flagstaff whose contribution to the tax base is small in percentage terms. However, their positive contribution is no less consequential and their role in supporting government activity at the federal, county and local level is highly "meaningful" for the government agencies that depend on this revenue.

9.46 ***"The Snowbowl is the primary winter recreational attraction in the area. The Snowbowl provides access to an Alpine environment to those who would otherwise not be able to visit this area. The Snowbowl provides support – both programmatic and financial – to a number of area groups."*** **The three previous statements have nothing to do with any "need" to expand the Snowbowl. To the extent that they are correct statements, they**

do not in any way lead to the conclusion that there should be an expansion. These features exist whether or not the Snowbowl expands.

The quoted statements from the DEIS provide context for understanding the Snowbowl's role within the community. The presence of the Snowbowl is significant to many members of the community. Many regard Flagstaff as a ski town and have moved to the area and made their lives there, in part, because skiing is available nearby. For many community members this attribute and contribution to their general lifestyle would be lost if the Snowbowl were to cease operations.

9.47 ***"The snowmaking system is the most significant improvement from an economic impact perspective; snowmaking would allow the ski area to consistently operate with quality skiing conditions an average of 125 days per season."*** **The 125 day figure should be compared to something else, like the average over the past decade. Also the 125 days figure is meaningless unless it also projects the actual dollar increase in ticket sales and the projected number of additional skiers. A claim of more days of available skiing is not credible if the average number of skiers drops. This means, as mentioned previously, that if the Snowbowl is open in December (which has not been specified and needs to be), people may ski then and not ski later in the season. If so, then more skier days will not increase revenue for the Snowbowl. There will be increased average revenues for December and lower than average revenues for the following months, with no net gain.**

During the past 12 seasons (1993 through 2004) the Snowbowl has operated an average of 86 days, with a range from four-to-138 days of operation.

The methodology used in projecting skier visits under each of the alternatives is shown on pages 3-85 to 3-87 of the DEIS and pages 3-87 to 3-89 of the FEIS. The data analyzed clearly displays that the demand for skiing opportunities is presently in excess of the Snowbowl's ability to fulfill them. Industry visitation trends show that skiers prefer to participate in November or December and are less interested in skiing during the later portions of the season, as the weather gets warmer and interests turn to spring/summer orientated activities. This is accounted for in the modeling of projected skier visitation. Simply stated, a skier visit is a skier visit independent of when in the season it occurs. As specifically discussed in the response to Comment 9.20, confidential total "ticket sales" and revenue projections were reviewed by the Forest Service in reaching a decision on this proposal but are not subject to public disclosure.

The Snowbowl has historically been, and would continue to be, open in December and potentially the later portions of November whenever snow conditions permit.

9.48 ***"The most significant factor by far would be the addition of a snowmaking system. This system would allow the ski area to consistently average 125 days of operation per season and allow the ski area to consistently offer quality ski conditions on a variety of terrain."*** **How many skier days are projected in Alternative 1?**

Skier visit projections for the baseline conditions and all alternatives at full build-out (10 years in the future) are presented in Table 3E-13 of the DEIS and FEIS and are summarized as follows: current average annual visitation - 98,142; Alternative 1 - 110,576; Alternative 2 - 214,700; and Alternative 3 - 117,716.

9.49 ***"Significantly, these fees/taxes would not vary substantially from year-to-year because ski area visitation would be more consistent in response to the installation of the snowmaking system. These fees and taxes would be significant sources of support for local programs and services, including schools libraries and the fire district."*** **Again, "significant" is not defined in any statistical way.**

The potential variation in these fees under Alternative 2 is documented in a very specific and "statistical" manner in the Alternative 2 discussion of Fiscal Impacts – see DEIS pages 3-101 to 3-102 and FEIS page 3-103. The average annual figure and expected range of variation is presented for Forest Service Fees, Sales Tax, and Personal Property Tax.

9.50 ***"Further the addition of a snowplay area would enable a new demographic of guests to gain access to snow and the Alpine environment."*** **It can be easily argued that there would be NO new demographic of guests, as it would be the same people who having been coming to Flagstaff from Phoenix each winter to play in the snow at various locations around town.**

As noted in the DEIS and FEIS snowplay/snowtubing are activities that require no experience, expertise, or personal equipment. Further, it is significant to note that the entrance fee to these activities is typically less than the cost of an Alpine skiing ticket. Thus, the addition of these activities at the Snowbowl would enable a significantly larger segment of the population to use the facility – in addition to Alpine skiers. With the development of a managed, lift-served snow tubing facility, visitors historically attracted for dispersed snowplay activities would have a safe, clean facility in which to recreate.

9.51 ***"Further, the addition of a snowmaking system would increase consumer confidence in the ski area."*** **Confidence has to be a measurable variable to have any meaning here.**

The word confidence is commonly used and understood and does not require quantitative measurement to be meaningful in this context. Intuitively, if users know that the

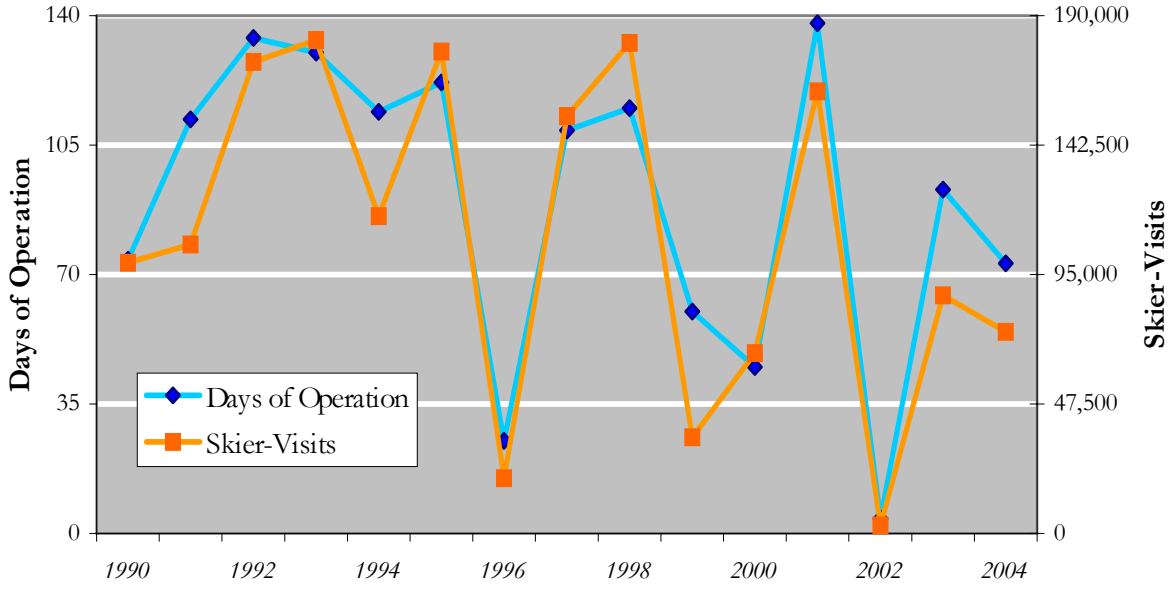
Snowbowl will be in operation consistently with or without natural snow, confidence in availability of the facility will increase.

9.52 ***"Market response to the Snowbowl's product is strong when quality skiing conditions exist."*** **Yet we have been in a recession as well. So macroeconomic conditions are a determinant. This must be addressed. Where is the evidence for the above statement about "market response?" There's no mention of Christmas holiday traffic over time. This is THE pivotal variable in all of the report, and yet it is never thematically addressed.**

The quoted phrase refers to market response to the Snowbowl over a 20+ year period, through a number of economic cycles – not just during the past few years. The comment regarding the "recession" is moot, the context of the quoted phrase makes it clear that it does not relate to the past two years only but to a longer time period.

The data presented in the DEIS and FEIS and in this response regarding historic Snowbowl operations make it apparent that in years where there has been adequate natural snowfall and adequate operating days, skier visits have increased. This is shown in the following figure:

Figure 3E-3
Comparison of Days of Operation and Skier Visits
(1990/91 – 2003/04)



As described in the DEIS and FEIS, general tourism in the Flagstaff area is most directly linked with the national economy – tourism has increased during periods of economic growth and decreased during periods of economic retrenchment. However, the evidence does not point to a significant link between the economy and skier visit trends at the Snowbowl. This is evident from the data of the past seven years (1998 to 2004). The table below presents a simple indication of the economy (growth or decline based on trends in the U.S. unemployment rate) and skier visits (above or below the average of 98,000).

Comparison of Economic Trends To Skier Visitation 1998-2004

Year	Economy	Skier Visit Trend	Skier Visits
1998	Growth	Above Average	180,000
1999	Growth	Below Average	60,000
2000	Growth	Below Average	45,000
2001	Decline	Above Average	162,000
2002	Decline	Below Average	3,000
2003	Decline	Below Average	87,000
2004	Growth	Below Average	74,000

If Snowbowl skier days were closely linked with economic trends, *Growth* in the economy column would be closely matched with *Above Average* in the skier visits column, while *Decline* would be matched with *Below Average*. However, this is not the case; the columns only 'match' in three of the seven years shown. For instance, 2001 was a year of economic decline; but the Snowbowl had an excellent year in terms of skier visits. It is apparent that skier visitation responds to availability (days of operation), primarily because of the strong demand for the product.

Christmas week skier visitation is an important part of the operating year for any ski area. However, all of the discussion and analysis in the DEIS and FEIS is on an annualized operating basis. Christmas week data is incorporated in this annualized data.

9.53 In Table 3E-12, "Current Economic Impact Arizona Snowbowl," the current Output is stated as $9.10 million. Supporting evidence should be given for this figure.

The entire process and methodology used to develop this figure is described on pages 3-85 to 3-89 of the DEIS and pages 3-87 to 3-91 of the FEIS. Additionally the reader is referred to the response provided to Comment 9.72.

9.54 ***"…the Snowbowl would become more competitive in the Arizona market."*** **This is not a reason to justify the expansion. Being "more competitive" is merely a statement about the possibility of increased profitability and nothing else.**

The necessary requirements for a ski area to remain competitive are not confined to profits. Competitiveness in the industry is a matter of business survival. While U.S. skier visits have increased at a slow rate over the past decade, the number of U.S. ski resorts has declined dramatically over the past 20 years and continues to decline. A commonality among the ski areas that have ceased operations is their failure to remain competitive in terms of terrain, snowmaking, lifts, services, programming and other factors.

Approximately 82 percent of the ski areas in the U.S. have snowmaking. The ski areas that remain competitive without snowmaking are those where natural snow is abundant, consistent, and reliable. This is not true for the Snowbowl. The Snowbowl cannot be competitive without snowmaking and, perhaps more importantly, cannot operate on a consistent basis without snowmaking. Thus a significant percentage of the Snowbowl's market is exported to more distant ski areas which are able to provide a reliable, consistent product.

9.55 ***"Local contributions: the Snowbowl recently donated ski tickets with a value of $30,000 to local public schools because of budget shortfalls."*** **Unless the Snowbowl is operating at full capacity so that these tickets could have been sold at the ticket window, these tickets are provided at no cost to the Snowbowl. This "donation" represents nothing in sacrifice to the owners and is merely good public relations. There's no opportunity cost to the owners at all with this type of "donation."**

Debating the value of charitable donations and the value of goodwill is not relevant to the analysis or the decision making process. It should be noted however, that there are both fixed and variable costs involved in ski area operation. While fixed costs are not dependent on skier visits, variable costs fluctuate with skier visits. Among the costs that vary with skier visits are: personnel; power usage; other utilities; administration, etc. As such, there are real costs involved in hosting skiers that do not pay for tickets.

9.56 ***"The Snowbowl makes a measurable contribution to the area economy by virtue of the expenditures made by ski area visitors. These contributions are summarized under 'Economic Indicators..."*** **As stated later in the DEIS, the multiplier effect of the Snowbowl's activity is minimal. The increase in multiplier effects with an expansion have to be shown. But the evidence is inconclusive.**

Expenditures made by ski area visitors have *direct* impacts on the economy – both at the Snowbowl and at other area businesses. Multiplier or indirect impacts are over and

above these direct impacts. Both direct and indirect impacts are documented in the DEIS and FEIS. Additionally, the reader is referred to the response provided to Comment 9.11.

9.57 ***"In summary, the Snowbowl is a unique facility – a winter recreation center in a state that is far better known for warm weather offerings – providing the only outlet for Alpine and Nordic activity in the region."*** **None of the above items should be considered cause or justification for "Expansion." They merely describe what currently exists. There is no reason to believe at this point that, with expansion, any of this will be different. The Snowbowl is a business in the community like any other. Its contribution is not pivotal for the economic livelihood of Flagstaff. These statements are NOT reasons to expand.**

The reader is referred to the response provided to Comment 9.46. As documented in under the "Financial Viability of the Ski Area Under All Alternatives" heading within the DEIS and FEIS, *"the viability of the ski area would remain tenuous"* under Alternatives 1 and 3 (without the implementation of Alternative 2).

9.58 ***"Because the Snowbowl's business volume would become more consistent under this option, the Snowbowl would have the capability to make more consistent contributions to area organizations …"*** **Snowbowl might have the opportunity, but if this is to be used as support for expansion, the amounts should be specified and committed to. Otherwise, there is no reason to include any of the "capability" of contributions in the report.**

The description of the charitable contributions made by the Snowbowl is presented in the DEIS and FEIS as a narrative discussion of the importance of the resort to the community in general. This characterization is not intended to imply that the specific economic value to these contributions is relied upon for the purpose or viability of the proposed project. Additionally, the reader is referred to the response provided to Comment 9.55.

9.59 These are public land and public resources. The preferred alternative serves business interests and a wealthier segment of our population, one that can afford $47/day lift tickets or a $10/day parking pass. It accommodates financially more affluent groups.

Comment noted. The existence of the Snowbowl as a commercial recreation venue on National Forest System lands is fully consistent with the National Forest Ski Area Permit Act of 1986.[57]

[57] 16 USC 497b.

9.60 The Tribe has been informed that the economic value of the tribal people to the City of Flagstaff would not be analyzed in the DEIS as it is outside the scope of the analysis. The Hopi Tribe believes this is a legitimate area of analysis and relevant to the issue of a proper assessment of the impact of the preferred alternative. Further, by ignoring it the tribes continue to be socio-economically as well culturally disenfranchised from the lands that are the source of their traditions.

The reader is referred to Comment 9.8.

9.61 The long-term economic impacts to Flagstaff residents was not considered in the DEIS. Local demographics of income-limited families clearly illustrate that a large sector would be taxed disproportionately for essential services compared to those with incomes at the median income level or beyond.

As previously noted (see response to Comment 9.2) the Snowbowl will be responsible for all costs associated with the implementation of the proposed projects. Additionally, as detailed in the response to Comment 9.24, the use of state and/or local tax receipts is not currently proposed as a funding source for the project. The projected effects to community emergency services is disclosed in the response to Comment 9.3.

9.62 Arizona Snowbowl will have to make compromises as do we all. They are a private industry and cannot expect the City of Flagstaff and the US Forest Service to subsidize their for-profit venture.

The reader is referred to the responses provided to comments 9.2, 9.24, and 9.61.

9.63 What is the relative change in assessed sales taxes, FTE-equivalents, projected IMPLAN spending, and other economic indicators over time? How do these economic indicators compare to peer ski areas over time?

This information is well documented with in the DEIS on pages 3-90 to 3-102 and in the FEIS on pages 3-92 to 3-104. Additionally, it is presented in summary format in Table 3E-13.

A specific comparison of these indicators to other regional or western ski areas was not identified as being a relevant indicator to the issues being addressed due to the inability to compare the impact of spending to local economies of varying sizes and types.

9.64 Is the increased revenue to Snowbowl, and indirectly to Flagstaff, enough to justify environmental impacts and disturbances assessed?

Business viability, effects to the local economy, environmental effects were all considered and disclosed in the FEIS. However, the amount of increased revenue is not important to the analysis.

9.65 It is imperative that the specific economic impact of the Snowbowl's operations be assessed independently. It is not meaningful to this decision to look at the cumulative impact of all tourism in Coconino County, it does not clarify the specific impact of the Snowbowl.

Based on the economic data and meaningful economic indicators available for comparison, the analysis presented in the DEIS and FEIS discloses the anticipated impacts of the project proposal to the greater Coconino County/Flagstaff area at a macro scale. This has the effect of understating the value and contributions of the Snowbowl to specific segments of the Flagstaff economy. Clearly if the analysis were able to isolate the value of the ski area as an attractant to economic activity for individual market segments such as hotels, restaurants, and winter sports related retail stores, the contribution of the ski area would be far more pronounced.

9.66 What percentage of the total tax income for the state and county sales taxes are produced each year by Snowbowl?

Coconino County anticipates total revenue from State Shared Sales Taxes and County Sales Taxes to be approximately $23.489 million for 2004.[58] Table 3E-17 of the DEIS and FEIS discloses that the Snowbowl paid an average of $257,185 in combined State and County sales taxes over the period 1998 to 2003. Expressed in percentage terms, the Snowbowl currently contributes approximately one percent of the County's total sales tax revenue. As detailed on page 3-98 of the DEIS and page 3-100 of the FEIS, the Snowbowl is projected to pay approximately $650,000 in total sales taxes under the Proposed Action. This would equate to approximately 2.75 percent of projected 2004 sales tax receipts for Coconino County. In addition, Coconino County receives approximately 25 percent of the Special Use Permit fees paid by the Snowbowl to the US Treasury, which is the same rate of payment to the County from other user fees assessed by the Forest Service.

9.67 If they can't sustain their business because of a lack of business they will have to shut it down. Others whose businesses fail have to shut down, why should they be any different?

Comment noted. No specific response is necessary.

[58] http://co.coconino.az.us/files/pdfs/budget/FY04AdoptedBudgetBookforOnline.pdf

9.68 The public must rely on the relationships between annual snowfall, annual skier visitation, and ski area revenues disclosed in the DEIS, which clearly indicate that low snowfall years could continue to result in low skier visitation and profit losses despite the installation of snowmaking at Snowbowl. That very real possibility would render Alternative 2 economically infeasible.

The comment neglects to recognize that with the installation and operation of the proposed snowmaking system, the number of skiers able to use the mountain during the low snowfall years will increase. The low temperatures have historically been present for snow while the natural precipitation has been low or has arrived too late in the season. With an adequate base of snow produced, late season natural snow will stay on the slopes longer.

9.69 *"Under these circumstances, continuation of the current operation as a for-profit business may not be sustainable…"* This is an unsubstantiated complete leap in logic. It is only under these owners that someone might say this. There could be all manner of alternatives with respect to staffing, ticket prices, maintenance, etc, that could turn this whole operation around. Maybe the Snowbowl is in fact quite mismanaged. The use of the word "sustainable" in this context means nothing.

It is certainly possible that current or future Snowbowl owners could institute management changes that would have some impact on profitability. These changes could include budget cuts as suggested by the comment. However, budget cuts would be accompanied by decreases in the level of service provided at the ski area.

Most significantly, it is clear that profitability at the Snowbowl is closely tied to the amount of natural snowfall. Snowfall is beyond any manager's control.

9.70 *"Moreover, net cumulative profits, during those 11 seasons have been more than exhausted by ongoing maintenance needs and small capital investments in the ski area."* This is another unclear generalization. Spending on the "maintenance needs and small capital investments" should be disclosed in the analysis to be meaningful.

The statement is not a "generalization," as specific figures are presented in the DEIS. On page 3-102 of the DEIS and page 3-104 of the FEIS it is noted that, *"the Snowbowl has invested a cumulative total of $4.42 million in capital expenditures."* Further, the DEIS and FEIS also notes that, *"over the 11 year period, the cumulative net income of the ski area was $2.65 million."* Additionally, *"during the same period the Snowbowl has made a total capital investment of $4.42 million."* And *"it is apparent that the differential between net income and minimum required capital investment has been a losing proposition, resulting in a net loss of $1.77 million over the period."*

9.71 ***"… the ski area would likely decrease expenditures on maintenance and non-essential services leading to an overall reduction in the quality of the services offered."*** **Before we can accept this argument, much more information is needed. There is no reason to believe that any of this scenario has to be the result. It is certainly possible that no quality reduction would take place if it is kept the way it has been. Changes might be made that would increase efficiency or ticket pricing and the price structure might be changed. These modifications could result in a business that makes a less than average rate of return but one that is sufficient for some investors. The current owners are not happy with the return on their investment and are asking for approval to expand and potentially improve their return. This may mean that they should sell the ski area, and it is possible that this is exactly what they intend. Certainly, if the Forest Service and the city approve this proposal, it will enhance the salability of the Snowbowl. Increasing the potential capital gain of the current owners in the case that the ski area changes hands in no way justifies the considerable time, expense and controversy invested in this unnecessary proposal.**

Comment noted. No specific response is necessary.

9.72 ***"While the Snowbowl has operated in its current form for a number of years, the financial analysis makes it clear that this may not be a viable business model – the business has been unprofitable in four of 11 years and the required capital investment has more than exhausted profits over that period."*** **There is no evidence presented that demonstrates that the "required" investment has "more than exhausted" profits. This is completely inaccurate. We don't know any of this to be the case as the owners have not opened the books and disclosed their financial statements. Before any of this can be taken seriously, they must disclose their accounts. None of the above statements have been proven with hard data. We know nothing about the "required capital investment." This needs to be presented in their financial accounts. Much of the argument for Alternative 2 is based upon the above generalizations. We do know that the owners bought the motel on highway 180 and have spent money in other ways that can't be said to the required or needed for maintenance. Several new runs were put in a few years ago, e.g., Volcano and Lava, and these were not necessary for maintenance. Are these kinds of expenditures included in the more than four billion [sic] dollars the owners claim to have spent? Again, we can't rely on these limited financial figures to legitimate expansion or lack of profitability. For all we know, the owners have made several bad investment decisions over the last few years and want to now be bailed out. These poor judgment decisions should not be included as "required" capital investment.**

Within the Social and Economic Resources section of the DEIS and the FEIS it is noted that, *"the Snowbowl has invested a cumulative total of $4.42 million in capital expenditures."* The analysis notes that, *"over the 11 year period, the cumulative net income of the ski area was $2.65 million."* Additionally, the document notes that, *"during the same period the Snowbowl has made a total capital investment of $4.42 million."* And *"it is apparent that the differential between net income and minimum required capital investment has been a losing proposition, resulting in a net loss of $1.77 million over the period."* As shown in the analysis and reiterated above, continuing with business as usual is a losing proposition for the Snowbowl's owners.

A summary description of the $4.42 million in capital expenditures is provided in the DEIS and FEIS which details that:

> *"The Snowbowl's capital expenditures have been oriented toward maintenance of the current level of quality, including items such as restrooms, groomers, water trucks, and background infrastructure. Capital investment has not been sufficient to add improvements that would be evident to the skier, such as new lifts, lodge space, terrain, etc."*

The reader should note that the Snowbowl is a privately held business and is not required to publicly divulge the full extent of their financial records. Forest Service Manual 2712 specifies: *"Financial statements and plans for financing are secured in confidence and are not public information."* Additionally, the Freedom of Information Act (5 USC § 552) provides specific exemptions for *"commercial or financial information obtained from a person and privileged or confidential."*

For the purposes of preparing an EIS, the Forest Service generally reviews and discloses financial information and data that is specifically relevant to the issues being evaluated. Additionally, the Forest Service may choose to review but not disclose business and financial data that it deems as pertinent to the decision, but that is proprietary in nature. With regard to specific information surrounding the Snowbowl's total capital investments, purchase price of the ski area, and other business interests, this information was reviewed by the Forest Service but is sufficiently proprietary to justify limited disclosure. The Forest Supervisor has completed a review of the financial requirements for the viable implementation of the Proposed Action. Snowbowl has demonstrated that the profitability of the Proposed Action is sufficient to support the proposal. The Forest Supervisor reviewed this information and has given it consideration in reaching the decision documented in the ROD.

The DEIS does not specify that the owners have expended more than four "billion" dollars. The correct figure is $4.42 *million.*

9.73 ***"A typical owner/investor would eventually be forced to significantly curtail operations by reducing capital investment/maintenance expenditures and the level of services being provided."*** **This may be exactly what is needed. Maybe what is needed is to curtail the operation and adjust the budget to a permanently marginal ski area. There is no evidence provided that by continuing as usual with Alternative 1, there would not be enough funds for maintenance and safety. This report fails to examine this issue. What is required now is to examine how much spending is necessary to maintain the ski area's operation as is. How much maintenance is necessary and what is the cost of this on an annual basis? This must be examined if the DEIS is to have any credibility.**

As stated in the DEIS and FEIS a key portion of the proposed project's Purpose and Need is *"To improve safety, skiing conditions, and recreational opportunities, bringing terrain and infrastructure into balance with current use levels."* To intentionally move toward a "permanently marginal ski area" as the commentor suggests is specifically contradictory to the established Purpose and Need for the project.

As shown in the DEIS and FEIS and reiterated above, business as usual is a losing proposition for the current Snowbowl owners. To speculate as to what another ownership group may or may not be willing or interested in doing with the ski area in terms of: acceptable investment, required maintenance, and level of service provided, is an unreasonable speculation and is not required by NEPA.

Based on a review of the current owner's business operations, the Forest Service is satisfied with the validity of the statement that the *"owner/investor would eventually be forced to significantly curtail operations by reducing capital investment/maintenance expenditures and the level of services being provided"* under the current business situation.

9.74 ***"In addition, the long-term viability of the Snowbowl would be enhanced under this alternative."*** **Explain what is meant by the term "viability" here. Recessions are one factor that would affect viability as much as anything else and ticket prices are another factor as well as gasoline prices over the next few years. These factors may be more important for viability than anything else. There are a variety of factors that affect such a nebulous term as "viability." The expenditure of 20 million dollars for "improvements" will also impact "viability". The viability of the ski area can't be accurately assessed without disclosing Snowbowl's books. Full public disclosure is a necessity here, as has been noted before.**

"Viable" in the sense used, is best characterized as practical and worthy of continuing. In this context, it is expected that the Proposed Action would improve in the following manner:

- Business volume (skier visits) would experience far less volatility from year-to-year as a result of more consistent days of operation

- Because of consistent operations with improved conditions and an expanded facility, the Snowbowl would capture more of the existing and exhibited demand for Alpine skiing and snowtubing in the market

Clearly, the expenditure of $19.78 million in development capital will demand a higher level of revenue to cover operating and capital costs. However, the available market demand is present to allow this to happen. The data analyzed spans a period of over 20 years, which is sufficient to neutralize the shorter-term effects of other market place influences such as recession or gasoline prices.

9.75 ***"During the most recent eleven ski seasons (1992/93 to 2002/03) the Arizona Snowbowl's business record has been inconsistent; in seven years, revenues have exceeded costs of operation and the ski area has been profitable."*** **How profitable? We need to see the accounts to know this with any clarity.**

Profit and loss is summarized in Figure 3E-4 of the FEIS. Additionally, in the text below the referenced Figure, it is noted that, "*Over the 11 year period, the cumulative net income of the ski area was $2.65 million.*" [Note a typographical error in this sentence was discovered. The figure should read $2.66 million. This has been corrected in the FEIS].

The actual profit and loss figures are shown below:

Arizona Snowbowl Annual Profit/Loss 1993-2003

Year	Profit/Loss
1993	$1,091,551
1994	$103,332
1995	$1,836,656
1996	-$1,211,826
1997	$1,028,324
1998	$1,765,857
1999	-$1,867,084
2000	-$404,784
2001	$1,468,364
2002	-$1,646,063
2003	$497,018
Net 1993 to 2003	***$2,661,345***

9.76 ***"Common sense says that any business that loses money during 36 percent of its operational periods would be regarded as a one of marginal viability."*** **This is one of the most absurd statements in the entire document. The area has been operating for decades with snow variability. The pricing structure, if anything, is a bigger factor. The words "marginal viability" need to be clarified. There is no proof presented in this document for such a generalization. If this is indeed the case, then an argument just as logically follows for closing down the ski area, as it shouldn't be operating at all if it is that marginal. The analysis should examine other ski areas that don't have snowmaking and rely on the variability of nature for their demand. There are many other businesses that operate profitability under these conditions. This has nothing to do with "common sense."**

The statement is supported by two specific facts:

- During four of 11 operating seasons, the Snowbowl business showed a loss. This pattern of loss can be expected to continue without the installation of a snowmaking system.

- The net operating profit over these 11 years ($2.66 million) was more than negated by the need to infuse $4.42 million in capital maintenance dollars. Under the current business model, any owner/investor would be required to continue to infuse capital if they choose to maintain the current level of service at the ski area.

There may be owners/investors who would be willing to continue to operate the ski area under the current business conditions. However, they would be atypical and would require motives for the continued operation of the ski area other than traditional business investments. Based on the current financial model, permanently closing the ski area is a very real possibility for the current ownership. While those in the community who oppose the presence of the ski area would see this as an acceptable outcome, there are many in the community who would view this as a great loss. General Forest Service direction is to allow multiple uses of public land and to provide recreation opportunities. Specific direction for the continued operation and management of the Snowbowl is allowed in the 1987 Coconino National Forest Plan.

9.77 ***"It is unlikely that the owner of any business would continue to operate on this basis over an extended period of time."*** **This may or not may be true. There are many other options besides expansion that should be considered. Ticket pricing should be examined. Ways of reducing maintenance expenses without sacrificing safety should be considered. The above statement is NOT a case for expansion but rather for sale of the area, or for trimming expenses, or raising prices. It is possible that the**

owners have made bad business decisions and are now seeking to justify investing more money.

The reader is referred to the responses provided to comments 9.20 and 9.72.

9.78 ***"Given the variability of snowfall at the ski area, the pattern of net profit/loss can be expected to continue for the foreseeable future…"*** **This is the case with all such climate and weather-related businesses. A snow removal business in Flagstaff is an example. Snow plowing businesses rely on snow for their profitability and are subject to the same vagaries. This is NOT an argument for expansion in this case. As an alternative, the investors can look at other ventures that can subsidize their ski area. Maybe there are summer opportunities that should be examined. The owner of a snow removal business in Flagstaff would be seriously looking at supplemental opportunities in this respect.**

The comparison with the owner of a snow removal business is not specifically applicable, for a number of reasons:

- The owner of a snow removal business owns trucks that can be used for myriad other activities – construction, excavation, trucking materials, etc. It is highly unlikely that there are any businesses in Flagstaff that rely solely on snow removal. These other uses can account for the bulk of the return on the investment. In contrast, the capital investment in a ski area is focused on Alpine skiing and other small businesses like chairlift rides.

- The capital investment in a snow removal business is transportable – it can be moved to a new geographic location. In contrast, an Alpine ski facility has a fixed location.

The Snowbowl has already initiated other activities to diversify the business (e.g., Sky Ride, hiking trails). Further, Alternative 2 envisions adding additional facilities to broaden the business base (i.e., snowplay, snowtubing, additional hiking trails, etc.)

9.79 ***"A rational investor would not undertake the improvements included within Alternative 3. Thus, the outcome of this alternative is effectively similar to that for Alternative 1. In the unlikely event that the Alternative was to be accomplished, the ski area would be placed in severe financial peril with the potential to cease business operations within several years."*** **If so, perhaps the owners should sell the area and take their losses like any other business would. The public is not obligated to bail out or support investors. That is not the way the market is presumed to operate.**

As further detailed within the responses to comments 9.2 and 9.24, the public is not being asked to finance any of the alternatives.

9.80 ***"However, as detailed under 'Financial Viability of the Ski Area,' the continuation of the current operation as a for-profit business may not be sustainable; the ski area would likely decrease expenditures on maintenance and nonessential services leading to an overall reduction in the quality of the services offered under Alternative 1."*** **At this point this is false. There is no evidence presented to suggest that the Snowbowl's quality of recreation will decrease. We need to see what the options are with respect to cost cutting and ticket pricing. We would want to know what exactly the $4 million on capital expenses has been spent on.**

Under current circumstances, the owners of the Snowbowl are losing money as recurring capital maintenance costs have exceeded operating profits. Alternative 1 represents a continuation of current operations. In these circumstances, the prudent owner/investor would choose to cut services/costs in order to stop losses. A listing of the $4 million spent on capital expenses is addressed in the response to Comment 9.18.

9.81 Are variations in annual snowfall statistically different than in years prior to 1993? How does assessing a longer period of time influence prospects of financial viability?

To respond to this comment, a statistical correlation analysis was performed on 22 seasons of snowfall and skier visitation data. For the winter seasons 1981/82 through 1993/93 snowfall has a correlation to skier visitation of 0.873. This indicates that for this period, snowfall is an accurate indicator of skier visitation 87.3 percent of the time. For the later half of the period of record, 1993/94 through 2002/03, snowfall is an accurate indicator of skier visitation 89.5 percent of the time. Statistically speaking, the relationship between snowfall and skier visitation is extremely similar for both periods.

9.82 Page 3-112 contains a strong assumption that Alternative 3 would not be a financially viable enterprise. Using the assumption, the DEIS lacks analysis of recreation and social impacts because Snowbowl may not be in operation. Regardless of whether it would continue to operate, such analyses are required to fully assess the alternatives. Specifically, we requested that additional analyses be conducted on the recreation and social functions assuming operations would continue under Alternative 3.

The FEIS details:

> *"In the event that Alternative 3 was to be fully accomplished, the recreational and social functions now associated with the Snowbowl would be placed in jeopardy if current weather trends continued. Expenditure of the capital necessary to complete Alternative 3 could place the ski area in a perilous financial situation and business operations could potentially cease within several years due to lack of reliable operating seasons. If this occurred, the Snowbowl's recreational and social functions would be lost. The Flagstaff area would lose its most significant*

Alpine recreation venue and the area population would lose a highly accessible portal to the mountains."

The response to Comment 9.46 details the significance of the Snowbowl to many members of the community. The DEIS and FEIS purposefully avoids speculating on the future of the Snowbowl under a build out scenario for Alternative 3. The economic modeling discussed within the response to Comment 9.72 clearly concludes that the prudent investor would not supply the required $10.22 million to develop the entire infrastructure described in Alternative 3.

9.83 Issues that must be addressed in the final EIS include the availability of funding for the expansion itself as well as the impact of corporate debt on the Snowbowl's ability to comply with long-term mitigation measures and other environmental requirements.

Concerns regarding the economic viability have been addressed within the response to Comment 9.72. The Forest Service has evaluated the capabilities of the Snowbowl under the various alternatives assessed within the DEIS and FEIS and determined that the current owners of the ski area have an acceptable strategy for funding the proposed projects which would include fully complying with the required mitigation measures.

9.84 *"Average annual visitation is projected to increase from the current level of 98,000 to 214,500 in 10 years: a net increase of 116,500."* How were these numbers calculated?

The description of the process used to develop this projection is presented on page 3-86 of the DEIS and page 3-88 of the FEIS, under Alternative 2. The projection for Alternative 2 (and for Alternatives 1 and 3) takes into account: the change in capacity of the facility, the change in skiable terrain, the potential change in days of operation as a result of presence/absence of snowmaking, and the change in the market area's population over time.

9.85 The DEIS states *"The emphasis on Retail Trade is reflective of an economy dependent on tourism."* This is not true. It is indicative of the fact that there is little industry in Flagstaff. If there was more industry and manufacturing, the percentage of retail would be less. And that is exactly why retail is a lower percentage in Phoenix compared to Flagstaff.

Table 3E-7 shows that a substantial segment of Coconino County's employment is in retail. This is common in economies with significant tourism sectors. Moreover, when paired with the data and facts presented on the pages following the referenced table, is becomes clear that tourism has a major influence on the Flagstaff economy and that retail data reflects this reality.

It is unclear as to what the commentor was referring to when noting that there is "little industry in Flagstaff." In economic parlance, employment in all categories must be in an industry. However, it would be accurate to note the relatively minor role that the *manufacturing industry* plays in the Flagstaff economy.

9.86 ***"Tourism is the most significant economic activity in Coconino County."*** **How is this measured? "Most significant" needs to be specified with numbers to be relevant.**

The Morrison Institute for Public Policy (Arizona State University) reports that, "*Tourism is the leading economic activity in Coconino County*." In addition, the Institute reports that, "*Coconino County has the highest per capita tourism employment figure in the state . . .Furthermore, tourism accounted for 31 percent of Coconino County's private-sector employment, second only to La Paz County's 39 percent. In most Arizona counties the figure was between 12 and 19 percent. Thus tourism is more important to Coconino County than to any other Arizona county except possibly La Paz.*" See *Destination Flagstaff: How Important is the Flagstaff-Area Tourism Cluster?* This source is cited in the DEIS and FEIS.

9.87 ***"During the latter part of the 1990s, approximately 13,345 Coconino County residents were employed in the tourism industry."*** **What was the average wage rate they were paid? This mean needs to be compared to the state average. As it is, it may be that the 20% of the residents in tourism are also the lowest paid people in the county. So the employment significance is not presented accurately unless wages are compared with other occupations.**

The statistic is accurate and significant – tourism provides jobs for over 13,000 persons in Coconino County. The statement is particularly significant to those who have jobs because of tourism. Tourism employment cuts across a number of standard industry groupings. According to the Morrison Institute, Coconino County's tourism industry employed more than 100 persons in the following industry sub-sectors: Eating and Drinking Places; Federal Government; Lodging Places, Gasoline Service Stations; Miscellaneous Amusement & Recreation Services; Gift & Souvenir Shops; Arrangement of Passenger Transportation and Marinas. Further, tourism-based jobs range from high-level management to low-level introductory jobs. A number of tourism-related jobs are in lower wage categories – often because they are of a seasonal or part-time nature. However, persons who take on a second job or persons seeking a small amount of income frequently fill these positions.

"Historically, service industries have been characterized as providing low-paying jobs. In Arizona, the lodging and foodservice sectors typically rank among the 10 lowest-paying industrial sub-sectors (ranked by average wage per job). The industry contends, however, that traditional salary and income data do not adjust for the large number of part-time workers or for tip income. Also, while tourism has large numbers of entry-level

workers, it provides jobs with a wide range of skills, and many flexible opportunities for youth, women, the elderly, minorities, and people with disabilities. Service jobs also provide career ladders for people without college degrees." (*Statewide Economic Study 2002, The Tourism Industry in Arizona,* Prepared for the Arizona Department of Commerce, by School of Hotel and Restaurant Management, Northern Arizona University.)

9.88 ***"In recent years, Arizona has attracted almost 30 million visitors on an annual basis. Just as significantly, direct and indirect tourism employment totals over 375,000 jobs and creates almost $14 billion in annual economic impact."*** **This is meaningless unless it is expressed as a proportion of the total dollars of income and output.**

Clearly, there is no economy or circumstance in which 375,000 jobs and $14 billion in economic impact would be regarded as "meaningless." For purposes of context, total year 2000 employment in Arizona was 2,242,700 persons and the 'gross state product' was approximately $153 billion. Therefore the employment and economic output totals referenced for the tourism sector would represent approximately 16.7 and 9.1 percent of the State's total economy, respectively. Both figures are from the Arizona Department of Economic Security.

9.89 ***"In summary, it is clear that tourism is critical to the Coconino and Flagstaff area economies and that the Arizona Snowbowl is one of a number of regional attractions that play a role in attracting tourism activity."*** **The definition of "critical" needs to be clarified. In what way and to what degree financially is tourism "critical"? Tourism may be critical for some motel owners and some restaurateurs, but otherwise we can't say that it is "critical" to anything in general. Further, what role is the DEIS referring to? There needs to be a statistical measure of this "role" if it is to have any meaning. There are no statistical measures presented to support this generalization.**

A review of the information provided in the DEIS and FEIS, and in response to Comment 9.89, makes it clear that tourism is critical to the well being of the Coconino County and Arizona economies. Again, tourism accounted for 13,345 Coconino County jobs (over 20 percent of total employment) in a recent year. Further, it accounted for 375,000 jobs and over $14 billion in economic output statewide in Arizona.

If these incomes and jobs were to disappear – or if 10 percent or more of any economy were to disappear – the situation would clearly be regarded as 'critical.' These tourism-based 13,000+ jobs and incomes are clearly critical to those persons who rely upon them for their livelihood. The data included in the DEIS and FEIS makes this evident.

9.90 ***"It is estimated that over 24 percent of the Flagstaff economy is generated by tourism activity."*** **What is the source of this statistic?**

The primary source of this statistic is the Morrison Institute for Public Policy – Arizona State University. See page 3-114 of the DEIS or page 3-117 of the FEIS, under the final bullet point.

9.91 ***"The Arizona Snowbowl is a positive contributor to area tourism and thus, the Flagstaff area economy."*** **This is a meaningless statement. We are all "positive contributors."**

The Arizona Snowbowl attracts visitors to the ski area who make expenditures – both at the ski area and at other area businesses. These expenditures support all of the employment at the ski area and a portion of the employment at area businesses that are the recipients of these expenditures. As documented in Table 3E-12 of the DEIS and FEIS, the direct impact of these expenditures is to support 189.3 FTEs, including jobs at the Snowbowl and at other businesses. A further 43.1 FTEs are supported on an indirect basis. These are not "meaningless" statistics, nor are they less significant because there are other positive contributors to the Flagstaff economy.

9.92 ***"The Snowbowl generates jobs, draws dollars to the local economy via visitor expenditures at area businesses and is significant to the area in that it offers a winter attraction in a region that is typically oriented toward summer tourism."*** **To say anything meaningful here, the analysis would need to show Snowbowl's total revenue as a percentage of Flagstaff's total revenue. These numbers are not provided in the DEIS.**

Again, it is apparent that the Snowbowl does not account for a major segment of total private sector economic activity in Flagstaff. However, this is true of the vast majority of small businesses in Flagstaff and does not make the Snowbowl – or any other small business – less of a positive element of the economy. Additionally, the reader is referred to the responses provided to Comment 9.11.

9.93 ***"In summary, the research indicates that tourism (in total) accounts for 24.5 percent of Flagstaff's economy. During the most recent five years for which data is available, an average of 35.3 percent of Flagstaff tourism occurred during the winter months. Since tourism in total is estimated to account for approximately 24.5 percent of the Flagstaff area economy, winter tourism can be estimated to account for approximately 8.6 percent of the Flagstaff area economy. In comparison, recent research indicated that the Northern Arizona University "helps keep more than 8,000 people employed. With total county employment of approximately 59,000, it can be estimated that the University accounts for approximately 13.6 percent of the Flagstaff area economy."*** **These numbers seem highly questionable. Winter tourism is considered to account for 8.6%, while NAU, who employs**

several thousand people, accounts for only 5% points more? NAU is a permanent, year-round economic presence. It is the biggest single employer in the County. The fact that tourism in general accounts for about 25% is possibly accurate, but NAU is not likely to then be only half that amount or approximately 14%. Additionally, the percentages are based on what? Is this income, revenue, or jobs? When it is stated that tourism is 24.5% of the economy, what is the base indicator? 25% of jobs, total income, total output, total revenue, or what? To be meaningful this needs to be specified.

All of these figures are explained and documented in the DEIS and FEIS.

- The 24.5 percent figure is explained in the DEIS on page 3-115 (page 3-118 of the FEIS). Further, the section quoted by the reviewer contains three footnotes (DEIS footnotes 148, 149 and 150 or FEIS footnotes 155, 156, and 157) explaining the sources, methodology and bases for these figures.

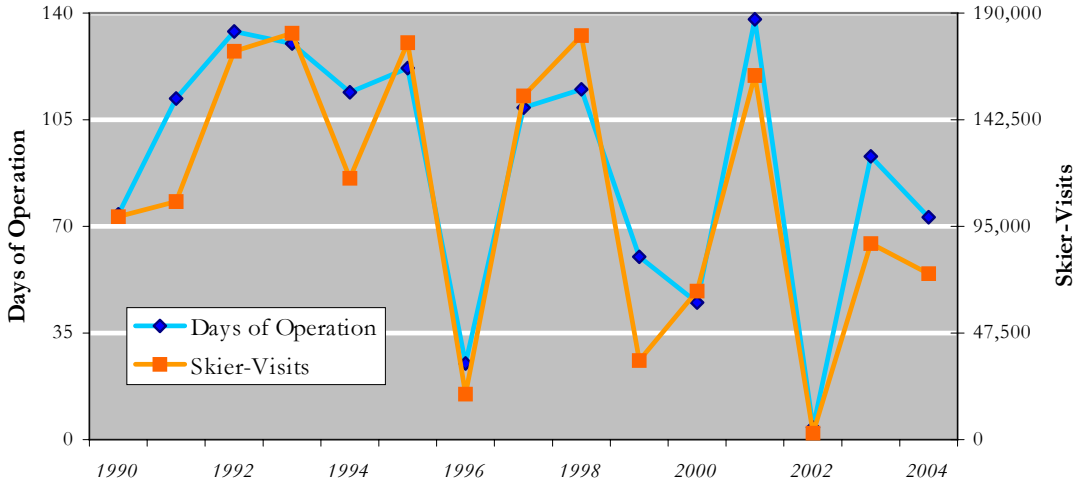
9.94 ***"Based on historical usage records at the Snowbowl, it is apparent that there is strong demand for skiing; the Snowbowl is typically used at or near its capacity level on days when there is good or excellent quality skiing."*** **This doesn't show that snowmaking would necessarily mean increased skiing and it is highly questionable as to whether it will provide "good or excellent quality skiing" given current climate conditions. Even if it will, it is clearly possible that with more ski days, the volume of ski traffic would be redistributed such that the same number of skier visits would be spread over a greater number of days. People now take advantage of good quality ski days. But with snowmaking, they may not. They may ski the same number of times per season but distribute their ski days more evenly, or maybe they would ski more in December, if snowmaking existed, but less in February.**

The statistical information presented in the DEIS indicates that the Snowbowl's skier visits vary significantly in response to average natural snowfall. An above average number of "days of operation" has historically resulted in an above average number of skier visits, while skier days have decreased when operating days decrease. Figure 3E-2 shows the historical relationship between natural snowfall and skier visits. This relationship is shown in tabular form in Table 3E-28.

The following additional information will also be included in the FEIS.

The relationship between skier visits and operating days is further illustrated in the figure below. The figure shows the historical relationship between operating days and skier visits at the Snowbowl. The figure includes data for the 2003/04 season.

Figure 3E-3
Comparison of Days of Operation and Skier Visits
(1990/91 – 2003/04)



The demand for skiing at the Snowbowl is clearly elastic – when more supply (operating days) is available, more skier visits result. Statistical correlation analysis indicates that the relationship is very strong, with variation in operating days being a useful statistic in predicting skier visits 87 percent of the time. The relationship is clear; there is substantial demand for skiing when the product is available. Further, increases in supply (operating days) result in increased use/skier visits.

Strong demand for skiing product in the Flagstaff market can be assessed from another perspective. Ski areas commonly use utilization rate as an indicator of performance. The utilization rate is expressed as the annual skier visitation divided by capacity. Capacity is defined as the ski area's daily comfortable carrying capacity. The annual capacity is daily Comfortable Carrying Capacity (CCC) times the number of operating days. The Snowbowl's current CCC is 1,880 skiers. Thus, in a year such as 2002/03, when the facility operated 93 days, the total capacity was 174,840. The utilization rate is determined by dividing the number of skier visits in that year (87,354) by total capacity, resulting in a utilization rate of 50 percent for the 2002/03 season.

U.S. ski areas typically view demand to be strong when they achieve utilization rates of 40 percent. Only those ski areas that experience unusually strong demand achieve utilization rates of 50 percent or more. Over the period 1990 through 2004, the Snowbowl's average utilization rate was 64 percent. Moreover, the ski facility achieved an 83 percent utilization rate in 1998, a year when operating days were above the norm. These figures are an indication that demand exceeds supply for Alpine skiing in the Flagstaff market.

9.95 ***"While there are fluctuations, the overall trend has also been positive for the Pacific West region…"*** **The previous statement is not true as shown by the negative for 2003 in this region.**

The term *trend* refers to the movement of a statistical indicator over time – not simply year-to-year variation. The phrase *overall trend* refers to the movement of Pacific West skier visits over the period shown in Table 3E-10. Using a moving three year average (a common statistic for measuring trends in skier visits over time), the figure has moved from an average of 10.7 million skier visits to an average of 11.3 million skier visits – this is positive.

On the topic of year-to-year variation, year 2003/04 skier visits at Pacific West ski areas were 11.83 million, an increase from the previous year.[59]

9.96 ***"The data also makes it clear that the level of fluctuation in the Arizona market is much more significant that at the regional or U.S. level and that the level of year-to-year fluctuation in skier visits is extreme at the Arizona Snowbowl."*** **This is inconclusive. One could look at any ONE ski area elsewhere and find similar statistics that show "extreme" variation. It would be more useful to compare Arizona Snowbowl with similar ski areas, such as Sunrise.**

The Arizona Snowbowl's variation in year-to-year skier visits is far more extreme than the vast majority of the ski areas in the U.S. A simple analysis of the data in Table 3E-10 shows that Pacific West skier visits vary more from year-to-year than do U.S. skier visits; that Arizona skier visits vary more from year-to-year than do Pacific West visits; and that Arizona Snowbowl visits vary far more from year-to-year than do Arizona visits.

9.97 ***"… market share has varied dramatically – from 1.3 to 46.8 percent – again pointing to the variability of the Snowbowl's business due to lack of consistent snow."*** **It is possible that the variability is due to the most recent recession rather than lack of snow. This is another unsubstantiated generalization characteristic of this study.**

The market share statement quoted above refers to Table 3E-11. The data in the table extends back over seven operating seasons. This seven year period clearly extends back to a point in time well before the "recent recession" noted above. Further, this pattern of extreme variation in market share extends back over a longer period than shown in the table. The pattern is very clear – years of low market share coincide with years of relatively little natural snowfall and relatively few days of operation. Skier days vary in proportion to natural snowfall/operating days with market share varying from 1.3 to 46.8 percent. These are not "generalizations." Further, fluctuations in skier visits at the

[59] National Ski Areas Association, 2004a.

Snowbowl are not consistent with variations in the economy. Additional discussion on this subject is provided in the response to Comment 9.74.

9.98 The Snowbowl's highly variable share of the Arizona market makes it clear that the ski area's competitors within the state enjoy a more stable flow of business from year-to-year." This is not a valid generalization. To make such a statement, the analysis would have to provide supporting comparative statistics for the other ski areas.

The statistics backing up this statement are provided in Table 3E-9 of the DEIS and FEIS. During the seven years shown, total Arizona skier visits varied from -23 percent to +39 percent from the median. During the same period Arizona Snowbowl skier visits varied from -97 percent to +106 percent of the median. Clearly, Arizona Snowbowl skier visits, and thus market share, vary more dramatically than do visits at other Arizona ski areas. This is a valid comparison, as there are a small number of ski areas in Arizona. Despite repeated attempts to collect specific data for the Sunrise Ski Area, the management was unresponsive to requests for specific information.

9.99 *"With a proven demand for quality skiing in this market a consistent operating season would allow the ski area to significantly increase total annual visitation."* There has not been any "proven demand" presented in this report. In fact, there are no figures that suggest that with snowmaking, there will actually be increased demand. There have been no demand studies presented at all in this report. The "proven demand" is pure hypothesis and speculation. The only way one can discuss demand at all is to make the assumption that with snowmaking, skier demand would mirror past years when snow conditions were at their best. The assumption is then that with snowmaking the "good," and thus profitable years (7 of the last 11), would be the norm in future years. This has not been made clear anywhere in this report. Is this, in fact, what the DEIS preparers are arguing? If so, they are claiming that the only determinant of profitable years is the amount of snow. Yet we know from all business experience in any industry, that there are multiple variables in the total profit calculation. Given this, we can argue that the reason the Snowbowl has had some bad years might very well be due to mismanagement in those years. In other words, in lean snow years, the Snowbowl has not trimmed expenses in the way they should. They may have also made poor maintenance and investment decisions, which also reduce profitability. To know these details we need to have the owners disclose their accounts in full.

The reader is referred to Comment 9.95. Additionally, skier days will increase under Alternative 2 in response to two factors: 1) The ski area will operate on a consistent basis – the ski area will be open throughout the season and, as noted in the response to

Comment 9.95, there is strong demand for skiing whenever it is available and; 2) The skiing experience – more terrain and better lifts – will be enhanced.

9.100 ***"During the past seven seasons, the Arizona Snowbowl provided an average of 172.0 FTE jobs."*** **The analysis should provide context. What percentage of total employment in Flagstaff is this?**

The 'context' – data showing Flagstaff and Coconino County total employment – is shown in Tables 3E-7 and 3E-8 of the DEIS and FEIS.

9.101 Although the Arizona Snowbowl does not 'drive' the Flagstaff area economy, it is apparent that the ski area is a provider of jobs and that ski area visitors are positive contributors to the area economy." Again, this is not "apparent" from the analysis. There are only 22 fulltime jobs at Snowbowl. For the most part, Snowbowl hires for "casual labor", i.e., part-time and seasonal. These jobs pay no benefits, are at wage rates that need to be compared with other wages in Flagstaff, and represent the fact that the casual labor market is a completely different labor market than the permanent, full time labor market. The casual labor market is more fluid and doesn't suggest much significance for the local economy. Many who work at the Snowbowl are students, who wouldn't work more or less if the Snowbowl expanded. So, the conversion of the 22 full-timers and the remaining bulk of casual workers into FTE's is faulty. We can't statistically make that conversion as the economic impact of converted FTE's will inflate the economic effect. It would be more accurate to examine the 22 fulltime positions only. The casual laborers may not have any real effect as most of them may be only working to get a free season pass. If the Snowbowl is open more days, they might work more or they may not. If there are more part-time jobs created with snowmaking, many of those who would work them would merely reduce their part-time hours at other businesses in Flagstaff, which is not a net gain in employment.

The statement is documented by a variety of statistics and findings presented in the DEIS and FEIS:

'Provider of Jobs' – Arizona Snowbowl employment is described in text on page 3-80 of the DEIS and page 3-82 of the FEIS and shown in Table 3E-12.

'Positive Contributor' – the economic contribution of the Snowbowl is described in the text of the second bullet point on page 3-82 of the DEIS and page 3-84 of the FEIS. A more detailed description of visitor spending is provided in the text under *Visitor Spending* on page 3-87 of the DEIS and page 3-89 of the FEIS. Finally, Table 3E-12 provides statistics regarding the *Current Economic Impact of the Arizona Snowbowl.*

Part-time and Seasonal Jobs – the use of the term "casual labor market" by the commentor is somewhat misleading. Any person engaged in an occupation for wages is an active participant in the economy. Dollars earned and dollars spent have the same impact – whether or not the worker is full-time, part-time or seasonal. It is important to note several points regarding part-time and seasonal workers:

- A worker taking on a second job in order to support a household often holds these positions. This would be typical of a weekend worker at a ski area.

- Household members who would otherwise not hold a job often hold these positions. Again, the position represents an opportunity to earn additional dollars in order to support a household.

- Students often makeup a segment of the workforce at a ski area. NAU students currently comprise approximately 60 percent of the Snowbowl workforce.

- In many instances, the students are earning extra dollars to help support their education. Further, the dollars they earn are often expended in the local economy which obviously have the same value as any dollars spent in the local economy.

- While some workers may have a more immediate need for wages than others, the dollars exchanged have the same economic impact. To suggest that there is a separate group of "casual" workers with no fiscal impact is without basis.

'FTEs' – the conversion of total job positions to Full-Time Equivalents (FTEs) is not "faulty." FTEs are a well-accepted measure of employment that allows an analyst to measure the total impact of a project. During the high point of the past seven seasons, the Snowbowl has employed an average of 370 persons. However, this does not equate to 370 full-time jobs in terms of economic impact. Rather, the total amount of employment offered by the Snowbowl equates to 172 full-time, year-round jobs. This is a clear statement of the Snowbowl's employment impact. The use of FTEs does not inflate the economic impact. In fact, FTEs are specifically used so that employment impacts are not overstated. Full-time, part-time and seasonal employees all have real economic impacts. The recent prevalence of discounted season passes throughout the ski industry has decreased the attractiveness of accepting a part-time job for the value receiving a season pass as a portion of the benefits package. Pre-season passes are available for $399.

'Impact of Additional Employment' – the Snowbowl will only hire additional workers when the ski area attracts additional ski visits and generates additional revenue. As such, the new positions will be a net addition to the economy – not simply a replacement of other jobs. It is also interesting to note that the commentor feels that workers would "merely reduce their part-time hours at other businesses" in order to be employed by the Snowbowl. At the same time, the reviewer has reiterated that the new Snowbowl jobs would be 'low-wage' 'casual' positions. Why would these workers move to the

Snowbowl if the new positions were so unattractive? There is a noted lack of consistency in these comments.

9.102 ***"Increases in average visitation would result in some additional economic impact. At the end of the 10 year planning period, these added expenditures would support an additional 11 FTEs and $1.47 million in economic output. Thus, the ski area would support a total of 261 FTEs."*** **To use FTE's here inflates the employment impact. This is wrong. What has to be specified is the exact number of part-time and casual worker, including their hours and their pay. By using exact figures for what are essentially all part-time and seasonal jobs, we get an accurate measure of impact. Additionally, the DEIS gives no compelling support for the projected economic impact.**

The reader is referred to the responses provided to comments 9.32 and 9.101.

9.103 ***"The short-term impacts of the construction of the alternative's improvements would result in the creation of 232 FTEs and $21.24 million in economic output in Coconino County."*** **It is the case, as well, that any construction will have this effect. Building the pipeline will be a construction project like any other housing construction project. The long run value to the community of $10 million in new housing will obviously be much greater than $10 million spent on a pipeline to the ski area.**

The commentor is correct. Construction projects, including that proposed under Alternative 2, have a positive short-term economic impact. Ultimately, Alternative 2 construction would also have a long-term impact because the improvements will draw additional visits to the ski area and result in additional dollars being expended in the Flagstaff economy. These impacts are in the DEIS and FEIS.

9.104 ***"At the end of the 10 year planning period, these added expenditures would support an additional 331 FTEs and $17.23 million in economic output. Thus, the ski area would support a total of 564 FTEs in Coconino County."*** **This is quite inflated. What must be determined is the actual number of part-time jobs and corresponding wage rates. This is statistically incorrect methodology. The total income created from the part-time jobs is a better indicator.**

The values presented in the DEIS and FEIS are not "inflated," nor is the methodology "incorrect." The values presented in the DEIS and FEIS reflect the output of a detailed analysis in combination with the use of a broadly accepted economic impact model (IMPLAN). The process used to project these values is documented in the DEIS and FEIS.

To restrict the output projections to, "the total income created from the part-time jobs" would underestimate the impact of the alternative. This is not a selective analysis, but a full representation of the impact of the alternative.

9.105 ***"This would be a significant result; a substantial number of Flagstaff area residents would gain employment opportunities as a result of increased activity at the Snowbowl."*** **Again, there is no specificity here. "A substantial number" should be expressed in total jobs, total income, wage rates, and type of jobs. If it results in some new part-time jobs in the casual labor market at $6-8 an hour wage rates, the net gain may be nothing. Students will work at the Snowbowl for these and related jobs in restaurants at low wages, and shift from one low wage job to one of the ski related ones. Unless there is a net increase in part-time employment, and there may not be, then there is no net gain.**

The specificity requested is presented in the DEIS. A simple comparison of the projected employment figures for each alternative in Table 3E-13 provides the reader with the increase in employment. As noted above, all jobs and all wages have an impact on the economy. The reader is additionally referred to the responses provided to comments 9.32, 9.36, and 9.101.

9.106 ***"Within this analysis, the combination of secondary and induced impacts is referred to as indirect impacts. It is essential to note that all employment estimates are shown in terms of Full-Time-Equivalents."*** **As noted previously, FTE's should not be used here, as this inflates the impact.**

The reader is referred to the responses provided to comments 9.32 and 9.101.

9.107 ***"One FTE often represents more than one job position, particularly in situations where many workers are seasonal or employed on a part-time basis."*** **Most of these jobs, that is, all but 22 of them that currently exist, are casual labor and are drawn from that market. Many of these jobs are taken by students in order to get a free season pass. The multiplier effect is negligible.**

The commentor's continued use of the phrase "casual labor" is misleading. All of these positions are held by workers who are compensated in real dollars. While part-time and seasonal employees may not meet the commentor's personal expectations for 'the right kind of worker,' the reality is that all are active participants in the economy and all have an impact on the economy. The economic impact remains the same, whether or not the reviewer approves of the type of worker. The reader is additionally referred to the responses provided to Comment 9.101.

9.108 ***"In total, the Snowbowl is responsible for generating 232 full-time employment equivalents…"*** **To be accurate, specify the number of casual jobs here, otherwise the number is inflated.**

The reader is referred to the responses provided to comments 9.32 and 9.101.

9.109 ***"While the Snowbowl would still not be the major drive of the Flagstaff area economy, the importance of 564 full-time equivalent jobs is difficult to overstate."*** **This is clearly inaccurate. The FTE's can't be used here for reasons already mentioned. We need to see exactly how many part-time and seasonal jobs would be created and what the wage rate is. These are not significant employment numbers, in other words.**

The reader is referred to the responses provided to comments 9.32, 9.101, and 9.107.

9.110 On page 3-71, the DEIS initiates a discussion of population, housing and the area economy with regard to their importance to the Arizona Snowbowl. This discussion continues for several pages but adds nothing to the analysis from the perspective of the Purpose and Need and it is hard to understand why it is included. It is clear that Snowbowl makes no significant contribution to area growth rates, housing and economics and it is disingenuous for the DEIS to imply that it does.

None of this has anything to do with demonstrating "need" for snowmaking. The fact that Flagstaff's population is projected to increase doesn't justify or even suggest that the ski area should be expanded in any way. This data is valueless and irrelevant for the issue at hand. The fact that the population will grow may suggest that lift ticket prices can increase without decrease in demand. The population growth data might suggest higher demand for skiing but maybe not. And even though there may be projected demand increases, this fact doesn't imply an increase in supply (more skier capacity) would be needed.

The discussion of population, housing, and the area economy provides necessary context to assist in understanding area growth and economic patterns. It is important to understand, for instance, that tourism accounts for a significant segment of the area economy. The inclusion of this background material is standard in an assessment of socioeconomic impacts. The inclusion of the data is not intended to reflect on Snowbowl's significance or lack of significance to the region.

Specifics of the demand for skiing are detailed in the responses to comments 9.11 and 9.95.

9.111 The DEIS states *"A growing population provides more potential customers for the Snowbowl's business."* A growing population provides more potential customers for any business, but this is not an argument for expansion and snowmaking.

Population is one of a number of factors that any business would consider in assessing the potential for business growth. For the great majority of businesses, the expectation of growth in population is a positive indicator. More population equates to more potential for business. Any projection of a ski area's future ski visits or consideration of future development would include consideration of population growth. While population is but one of a number of factors that would be considered, it is apparent that population increase is a positive indicator for potential growth in skier visits.

9.112 *"The Snowbowl's function as a recreational/social facility in the Flagstaff area would be enhanced and secured."* Only the investors will be secured. The recreational value of no change will be just as secure for users. This statement is merely reflecting the investors' need for their own financial security. This report is, in its entirety, essentially a statement of financial need and the need to "secure" the investors' interests. There is no demonstrated need for any of the Alternative 2 from the perspective of users. For this reason alone, this report is not acceptable.

The findings of the DEIS and FEIS indicate that the Snowbowl could cease operations under Alternatives 1 and 3, but that Alternative 2 would result in more consistent business operations. The "demonstrated need" for Alternative 2 is presented in the DEIS and FEIS. The data provided makes it clear that demand for skiing exceeds supply. The reader is additionally referred to the response provided to Comment 9.46 for a discussion regarding the function of the Snowbowl as a recreational/social amenity.

9.113 *"The effect has been even more significant in the past 11 seasons, with above average snowfall resulting in well above average visits and below average snowfall resulting in well below average visits."* This has to be the result statistically, if there is any direct relationship between snow and visits. If there is, it will always be the case that above average snow must correlate with above average visits. But this is not a case for expansion. It can just as easily be an argument for removing the ski area. Volatility is not in-itself an argument for expansion. It can be an argument for closing it down, as well.

The close relationship between natural snowfall and visits has been documented in a number of locations in the DEIS and in this response.

"Volatility" has occurred because of significant variation in natural snowfall from year to year.

The case for ski area investment based on excess demand over supply has been documented in the DEIS and in this response. Two points regarding significance of demand levels are reiterated here:

- The Snowbowl has experienced an overall utilization rate of 64 percent (1990 through 2004). This is well above the average for U.S. ski areas and is indicative of a market where demand for skiing is strong.

- In years where supply – as indicated by days of operation – has been expanded, the Snowbowl's utilization rate increases. Since 1990, the overall utilization rate in years where operating days have exceeded 120 has been 71 percent. If the current supply of Alpine skiing product were sufficient for the market, the utilization rate would be expected to decline as supply increased. This is a strong indicator of unsatisfied demand for Alpine skiing and in excess of available supply.

The concept of permanently closing the ski area is not being evaluated for this analysis. The Snowbowl's historic and continued presence on the San Francisco Peaks is fully consistent with management direction provided by the National Forest Management Act, the Coconino National Forest Plan, and the National Forest Ski Area Permit Act of 1986. The concept of permanently closing the ski area was an alternative fully assessed within the 1979 EIS process. This alternative was not selected in the accompanying ROD. This decision was subsequently litigated all the way to the United States Supreme Court, which let the lower court's decision stand by not accepting the appeal.

9.114 It is telling to note that in the footnotes, spending "outside the ski area" is clarified as *"Outside the ski area includes other businesses operated by the Arizona Snowbowl, including lodging and Nordic skiing operations."*

Independent of who owns these businesses, they are separate from the Snowbowl and outside the National Forest. Additionally, the Snowbowl no longer owns or operates the Nordic Center.

9.115 *"When combined with base level (current) expenditures, spending by Snowbowl visitors would total $10.98 million* [comment refers to Alternative 1]. ***While this is not a dramatic increase over the current level of economic input, it does emphasize the Snowbowl's current positive contribution to the economy."* The key question here is what would Alt. 1 do for the investors' rate of return? Unless they disclose their accounts we have no reason to believe that Alt. 1 is not profitable and so on. They need to show exactly what the accounts would be projected to look like if we are to accept any of this.**

The investors' rate of return is not key to the analysis nor to the disclosure of effects.

9.116 ***"Visitor Spending – the economic impact of the alternatives would be primarily dependent on increases in spending generated by additional visits to the Arizona Snowbowl."*** **This is only true for skier visits that originate from out-of-town visitors. In other words, with more skier days, if most of the additional lift ticket sales are to locals, then no new revenue will accrue to the community. So with Alternative 2, the actual percentage of additional ticket sales to destination skiers needs to be projected. The only multiplier effects that will occur will be due to them. More locals doing more skiing, more NAU skiers on more days—none of this will have a multiplier effect. The generalizations in the Visitor spending text above have to be qualified.**

On the contrary, the task of the DEIS and FEIS is to measure the current and potential future economic impact of the Arizona Snowbowl under the alternatives. The spending that occurs at the Snowbowl now, and is estimated to occur in the future, will generate the economic impacts detailed under each alternative in the DEIS. Moreover, dollars spent by *both* non-destination and destination skiers have an impact on the economy. Net additional dollars expended by both local and non-local skiers will support additional economic activity and jobs. As noted above, there is excess demand for skiing.

The analysis measures *incremental* spending – expenditures that additional non-destination and destination skiers will make *because* they are skiing. This includes: lift tickets, rentals, purchases made on the way to and from skiing, etc. The tables below show average daily per capita spending figures for skiers and snowtubers as used in the analysis. Note that the spending figures are broken down between *destination* and *day* (non-destination) visitors in each instance.

Skier Per Capita Daily Mean Spending

	Day Skiers			Destination Skiers		
Spending Category	**In Ski Area**	**Outside Ski Area**	**Totals**	**In Ski Area**	**Outside Ski Area**	**Totals**
Eat/Drink/Entertain	$2.47	$5.71	$8.18	$6.10	$26.17	$32.27
Retail	$3.05	$9.99	$13.05	$7.54	$42.71	$50.25
Hotel/Lodging	$0.00	$0.00	$0.00	$0.00	$35.24	$35.24
Services (Ground)	$0.00	$3.36	$3.36	$0.00	$14.36	$14.36
Lift/Ski School	$34.18	$0.00	$34.18	$33.76	$0.00	$33.76
Total	***$39.70***	***$19.06***	***$58.77***	***$47.40***	***$118.48***	***$165.87***

Snowtubers Per Capita Daily Mean Spending

	Day			Destination		
Spending Category	**In Ski Area**	**Outside Ski Area**	**Totals**	**In Ski Area**	**Outside Ski Area**	**Totals**
Eat/Drink/Entertain	$1.85	$4.28	$6.14	$0.00	$0.00	$0.00
Retail	$2.29	$7.50	$9.79	$0.00	$0.00	$0.00
Hotel/Lodging	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Services (Ground)	$0.00	$2.52	$2.52	$0.00	$0.00	$0.00
Tubing Tickets	$10.25	$0.00	$10.25	$0.00	$0.00	$0.00
Total	***$14.40***	***$14.30***	***$28.70***	***$0.00***	***$0.00***	***$0.00***

While destination skiers spend more on a per capita basis, the spending of both destination and day skiers is fully relevant to the analysis. Day visitors make expenditures both at the ski area and outside the ski area that they would not otherwise make if they weren't skiing. These include: lift tickets; ski related services (rentals, lessons); purchases at retail shops; gasoline; convenience store items, etc. These expenditures are listed in the table above. All of these expenditures are *incremental* – they would not occur if the visitor were not skiing.

Finally, it appears that the commentor is suggesting that expenditures made by local persons do not have an impact on the economy. This is clearly not the case.

9.117 ***"Based on the average annual visitation levels of the past seven seasons, total spending by Arizona Snowbowl visitors (including spending inside and outside of the resort) is $9.79 million on an annual basis. Thus, the Snowbowl currently generates almost $10 million in spending in the local economy."*** **Again this is not substantiated in the DEIS. It is also meaningless, unless it is specified who receives this income. If most of it accrues to a few motel owners and restaurateurs, while the low wage employees receive little, then it is less significant. The ultimate distribution of the income has to be examined if the above statement is to be meaningful.**

The Snowbowl generates just under $10 million in the local economy. These dollars are highly meaningful to those who depend on them for business or personal income. Moreover, the statement is fully substantiated and documented in the DEIS and FEIS. The discussion on pages 3-85 to 3-87 of the DEIS and 3-87 through 3-89 of the FEIS explains the methodology used to develop these figures.

Dollars expended by Snowbowl visitors accrue to both the Snowbowl and a variety of other area businesses that provide goods and services to Snowbowl visitors. These include: restaurants, lodging, lounges, gasoline service stations, convenience stores, grocery stores, liquor stores, transportation providers and others. Expenditures at the Snowbowl and other businesses provide business owners with dollars to pay wages – in full or part – for the businesses' employees.

In sum, $9.79 million is highly meaningful to the 232 FTEs that are generated by those dollars.

9.118 ***"Induced – employment created by increased household spending. …These are induced jobs. Induced jobs would be generated over a relatively broad geographic area."*** **This is largely a false statistic. There is substantial evidence for redistribution of spending instead of any multiplier effects. If people spend more on skiing and less on other commodities and services, then it is a washout - no net induced spending and income at all. With skiing this may be the result.**

Induced employment is a broadly accepted measure and valid indicator of the employment impacts of a proposed project. Moreover, the projections of induced employment were generated using the IMPLAN model. Results generated by the IMPLAN model are based upon input/output data specific to the local economy – in this instance, Coconino County. As such, this is not a generalized multiplier figure being applied to Snowbowl expenditures, but a detailed and localized model that assesses the flow of these dollars as applied to the specifics of the local economy.

Increased spending on skiing will not result in less spending "on other commodities and services." As detailed in the DEIS and FEIS, the local demand for skiing far exceeds local supply. The provision of additional skiing opportunities would result in additional spending.

9.119 ***"Annual visitation and thus visitor expenditures would be substantially increased under this alternative. As such, the Snowbowl's contribution to the area economy would increase."*** **This still needs to be supported with data. The IMPLAN model is not sufficient as it is based upon premises of increased lift ticket sales that are not supported by any evidence.**

The reader is referred to the response to Comment 9.47, which details the support for the projected increase in skier visitation.

9.120 How does the Arizona Snowbowl compare to peer ski areas in terms of current per capita visitor spending and projected spending?

A comparison of the per capita spending data presented to the response to Comment 9.117 was made with national revenue per skier visit from the *2002-03 Economic Analysis of U.S. Ski Areas.*[60] For per capita revenue generated from lift ticket and ski school sales – the primary revenue category for the Snowbowl and ski areas nation wide – the Snowbowl ranges from $33.76 to $34.18. The national average for this same category is $34.67.

[60] National Ski Areas Association Journal, February/March 2004, Volume 11/Issue 7, page 20.

9.121 ***"A segment of the Forest Service fees are allocated to Coconino County."*** **How much money exactly goes to the county?**

Of the Special Use Permit fees paid by the Snowbowl to the US Treasury, approximately 25 percent are allocated to the county. Therefore based on the five years of data provided in Table 3E-16 of the DEIS and FEIS, total fees allocated to the county have varied from a low of $6,122 to a high of $39,928 with a median of $22,478.

9.122 ***"75 to 80 percent of this allocation is then used to support local schools."*** **Is this per year? How do schools budget this if it fluctuates so much?**

As noted in the same paragraph as the quoted comment (see pages 3-92 and 3-93 of the DEIS or pages 3-94 and 3-95 of the FEIS); the fees are collected and distributed on an annual basis. The amounts allocated to the county are disclosed in the response to Comment 9.121. The fees do fluctuate from year-to-year. Presumably, this makes it difficult for the county and schools to budget. There would be significantly less fluctuation in the fees under Alternative 2, because skier visits would not vary so significantly from year to year.

9.123 ***"As such, the fees are significant to local education."*** **Again, what numbers and percentages of the whole support this claim of "significance"?**

The reader is referred to comments 9.121 and 9.122, above.

9.124 ***"Because sales tax is directly related to revenues, the tax paid by the Snowbowl varies significantly dependent on visitation levels."*** **This is true, but it is also true for cyclical fluctuations and for other businesses too. Recessions can cause this, of course, so this variation is nothing new or necessarily important to mention here.**

Recessions do result in variation in general sales tax collections. However, these variations do not approach the extremes of the variation in tax collections from the Snowbowl, which range from negative 62 percent to positive 41 percent from the median. In contrast, BBB tax collections between 1993 and 2003 only varied from the median collection amount by negative 10 to positive four percent (inflation adjusted). This extreme variation in tax collections at the Snowbowl is clearly significant, far more so than variations that occur as a result of recessions. Because it is so dependent on natural snowfall, the Snowbowl's business volume varies far more significantly than do most businesses in Flagstaff. As such, it is important to point out these fluctuations, as they are far above the norm for the majority of area businesses.

9.125 ***"The Arizona Snowbowl pays an annual Personal Property Tax to Coconino County."*** **If this statement is to be relevant, the percent paid by Snowbowl of total county receipts should be specified.**

The Snowbowl pays approximately $36,000 in personal property taxes to the county. This does not account for a large percent of the county's total personal property tax collections. There are many small businesses in the Flagstaff area whose personal property tax payments do not account for a large percentage of the county total. This doesn't make their payments, or the Snowbowl's payments, irrelevant.

9.126 ***"Property taxes are allocated to the county school district, the library and the fire district. As such, they are essential for supporting local programs and services." There is nothing in the DEIS to support the claim that Snowbowl is "essential for supporting local programs and services."***

The reader is referred to the response to Comment 9.125. The property tax payments made by the Snowbowl, and every other small business, are essential for supporting local programs and services, though when viewed individually, they represent a small proportion of the total.

9.127 ***"Because Snowbowl visitation fluctuates dramatically, Receipt Act payments have varied by a substantial amount – 78 percent over and 73 percent under the median of the values shown in the table. A segment of the Forest Service fees are allocated to Coconino County."*** **Again, this needs to be converted to a percent of totals to be meaningful.**

The reader is referred to comments 9.121 and 9.122, above.

9.128 ***"The incremental increase in fees is significant in two ways: 1) it will provide additional funding for programs; and 2) because the fee level will be consistent, will provide stability in program funding."*** **This indicates that the Forest Service may have a conflict of interest in this matter. On the other hand, there are costs for the Forest Service in facilitating this that are not disclosed here. If an argument is made concerning marginal benefits, the costs should be specified as well.**

The Forest Service is responsible for the administration of the Special Use Permit held by the Snowbowl. This includes day-to-day operations, the development of projects, and working cooperatively to provide recreation and interpretive opportunities for the public visiting the site. The Special Use Permit fees collected by the Forest Service from the Snowbowl are paid directly to the United States Treasury and are not available specifically to the Coconino National Forest, or even the Forest Service in general. Forest Service funding is dependent upon congressional allocations as part of the Federal budgeting process. As discussed in the responses to comments 9.121 and 9.122, a portion of these fees are returned to the county.

9.129 ***"It is estimated that upon completion Alternative 2 would generate over $450,000 annually in Personal Property Tax payments."*** **What is this based on and who will assure this figure?**

The process of calculation is summarized on page 3-98 of the DEIS and page 3-100 of the FEIS, under Personal Property Tax for Alternative 2.

In brief:

- The Snowbowl currently pays a Personal Property Tax of $36,169 on an assessed value of $1,639,528. This is a tax rate of $22.06 per $1,000 of assessed value.

- Upon the completion of construction of Alternative 2 (10 years out), the Snowbowl's assessed value would increase by approximately $19,023,000, for a total of $20,662,528. Annual taxes of $455,833 would be assessed on this value based on the rate of $22.06 per $1,000 of assessed value.

9.130 ***"Because the industry is so dependent on the presence of snow, 82 percent of U.S. ski areas have installed snowmaking systems."*** **They have installed snowmaking systems for one unstated reason: to improve profits for the investors and to attempt to capture a larger share of a limited market. What is needed here is an examination of a variety of peer ski areas and comparison of their profitability before snowmaking with that after snowmaking.**

Like any consumer-based business, ski areas make improvements to satisfy consumer demands. Over the years, the ski industry has found that its consumers demand a more consistent product than that which is typically available with natural snowfall alone. As a result, the great majority of the industry (82 percent of U.S. ski areas) has installed snowmaking systems. As in any business, major investments are completed with the hope that they will result in improved profits. There is nothing unusual, or "unstated" about this motivation. This is a fundamental part of the economic system.

The specific profitability of the Snowbowl, and therefore a direct comparison to 'peer ski areas,' has been determined to be proprietary information (see response to Comment 9.20) and is not disclosed in the analysis.

9.131 Information on BBB tax collections generated by Snowbowl visitors as a percentage of total BBB tax collections is meaningless as it does not distinguish between locals and non-locals. The BBB tax is collected from both groups. The locals would be spending these funds whether or not there is skiing at the Snowbowl.

As noted in the response to Comment 9.117, day visitors make a number of expenditures that they would not otherwise make. These are fully relevant to the analysis.

9.132 The DEIS estimates the current level of BBB annual tax generation by Snowbowl visitors at $5.63 million. How is this figure determined? Its relevance is based upon what part of it is derived from local residents and what fraction is non-residents/out-of-town visitors.

Visitor spending is explained in the DEIS on page 3-87 and in the FEIS on page 3-89 – Visitor Spending. The data provided in the response to Comment 9.117 shows average daily per capita spending figures for skiers and snowtubers, as used in the analysis. Note that the spending figures are broken down between *destination* and *day* visitors in each instance. (For purposes of the analysis, we have assumed that all snowtubers will be day visitors.)

While destination skiers spend more on a per capita basis, the spending of both destination and day skiers is fully relevant to the analysis. Day visitors make expenditures both at the ski area and outside the ski area that they would not otherwise make if they weren't skiing. These include: lift tickets; ski related services (rentals, lessons); purchases at retail shops; gasoline; convenience store items, etc. These expenditures are detailed in the per capita spending data. The figures are *incremental* – expenditures made because of the ski trip.

9.133 …by increasing the demand for *"seasonal, recreational or occasional"* housing [p. 3-75] in an already limited housing market, Snowbowl expansion is most likely to punish those of us who call Flagstaff a permanent, year-round home, by helping to drive up the cost of all housing here.

The reader is referred to Comment 9.31.

9.134 …the DEIS argues on p. ES-13 that, *"…considering the environmental impacts to public lands and the opportunities for use of those lands that would benefit the most people over the longest term, the Forest Supervisor prefers Alternative 2."* Data included in the DEIS suggest that "the most people" who will benefit from the decision may hold a slim margin indeed - or none at all. The population in 2000 of individuals of Native American descent in Arizona is shown in Table 3E-2 to be about 256,000. Although I am sure that the tribes are not monolithic in the sacred value they ascribe to the Peaks, members of the tribes who do hold the Peaks sacred constitute a substantial proportion of this population, and tribal members residing in New Mexico and Utah can be added to this number. In addition, there are quite a few of us of non-Native descent who oppose expansion of the Snowbowl. I would venture that the total number who will "benefit" from Alternative 2 will not be much different: total annual Snowbowl visits are projected to increase to about 257,000 in 10 years. To this number can be added some percentage of area residents who will benefit economically

from increased winter tourism. Yet somewhere in the balance between potential beneficiaries should also be placed the generations to come. I proposed that the No Action Alternative offers an excellent opportunity to choose in favor of those generations.

Opinion noted. No specific response is necessary.

9.135 I note the argument that consistent availability of snow will benefit Flagstaff economically by providing more jobs during the winter tourism season. However, as any number of economic analyses of tourism have shown, these jobs will be mostly seasonal, low-paying service and retail jobs.

The reader is referred to Comment 9.88.

9.136 The economic analysis includes the statements on p. ES-5 that 1) "public demand at Snowbowl has grown significantly in the past 20 years, increasing …157 percent," and 2) that there is a "crowded, undesirable guest experience in many years [at Snowbowl]." These back-to-back statements beg the question: if our experience there is so awful, why have our visits to the place more than doubled in 20 years?

Increased visitation is a function of supply and demand. The ski area's facilities have essentially remained the same over the past 20 years while the population of Snowbowl's market has increased substantially.

9.137 *"Tourism is estimated to account for 12 percent of the county's total income – this is four times the national average."* Where is the source for this statistic?

Sources include: Arizona Office of Tourism-Office of Tourism Research Library and; Morrison Institute for Public Policy, Arizona State University. These sources are stated clearly in the DEIS and FEIS.

10.0 VEGETATION

Thematic Comments

10.1 The draft EIS fails to address the impacts that increased/longer-duration snowpack and subsequent runoff may have on wildlife habitats that are not accustomed to these conditions. How will these changes affect the biota of the San Francisco Peaks?

A more consistent snowpack during the ski season would supply more moisture to the areas where snowmaking is proposed, relative to current average conditions. The hydrogeologic characteristics of the analysis area result in rapid infiltration of snowmelt with little runoff. The additional moisture would result in greater vigor of the predominantly introduced grass and forb species that have been seeded on the ski trails. This would generally improve forage conditions for wildlife. Other effects on wildlife are described in the response to Comment 11.6 in the next section.

10.2 There have been no significant studies conducted on the long-term effects of reclaimed water on the vegetation of the Peaks. The effects of reclaimed wastewater on general and special status/protected plants need to be further analyzed and disclosed in the FEIS.

No specific studies have been conducted on the long-term effects of reclaimed water on vegetation in the analysis area. However, the Environmental Consequences section of the DEIS and FEIS discusses the results of studies conducted in other areas. Based on these studies, some change in plant species composition (favoring early seral species) and some tree mortality may occur. As discussed in the response to Comment 10.1, due to the hydrogeologic characteristics of the site (which result in rapid infiltration with little run-off), these effects would largely be limited to the ski trails that are already dominated by introduced grasses and forbs and the areas immediately adjacent to them. The bearded gentian is the only special status plant species that occurs in an area proposed for snowmaking. Table 2-2 of the DEIS and FEIS specifies that one small population of six plants would be either collected for research or transplanted to a suitable area at the discretion of the Forest Service.

10.3 Surveys/monitoring of general and special status plant species prior to the introduction of reclaimed water at Snowbowl will need to be conducted so that potential short- and long-term impacts on plants can be assessed.

The CNF has collected a substantial amount of data in the analysis area over the last ten years, including information on plant species composition; forest cover types; forest health (i.e., spruce bark beetle populations); threatened, endangered, and sensitive species; and noxious weeds. These data provide a baseline for assessing potential changes associated with implementation of the Proposed Action. Additionally, as

detailed in the response to Comment 10.2 above, the only special status plant species present in the project area has been surveyed as a part of the preparation of this analysis.

The reader is referred to Comment 6.10 for additional information.

10.4 Nutrient deposition in the environment due to the addition of reclaimed water to the snowpack could promote an environment where non-native plants and noxious weeds thrive, both within and beyond the Snowbowl permit area. Of special concern is the Bebb willow community, given that it is fed by both surface and sub-surface flows.

The potential effects of reclaimed water on plant species composition in the permit area are discussed in detail in the Environmental Consequences section of the DEIS and FEIS. Research conducted at NAU and hydrogeologic modeling completed for this project indicate that the springs in the lower portion of the Hart Prairie Watershed are fed primarily by shallow, perched aquifers. Snowmaking in the permit area would not result in a water quantity benefit to these springs or to the Bebbs willow community.

10.5 Construction/ground disturbance from creating new runs, lifts, infrastructure, snowplay areas, etc could impact existing plant communities on steep slopes in rare, high elevation spruce-fir and old growth forest, as well as introduce non-native species. Native vegetation on disturbed ground in this region is difficult to restore due to the slow growth rate of native plants and the proliferation of exotic species.

Construction activities associated with the proposed improvements may change plant communities in the analysis area. To prevent erosion on steep slopes, existing ski runs have been seeded with commercially available seed mixes that consist predominantly of grasses and forbs that are not native to the analysis area. A study conducted previously in the analysis area indicates that the seeded species are persisting on the cleared runs, while native species are persisting in adjacent natural forest openings. Furthermore, mitigation measures designed to minimize impacts to soils and vegetation, as well as to promote native plant re-establishment, are identified in Table 2-2 of the DEIS and FEIS. Among the relevant mitigation measures are requirements to use a specifically developed, weed-free seed mix for all areas to be revegetated, and the stockpiling of existing topsoil for use in subsequent revegetation activities.

10.6 While the DEIS states that the Proposed Action would affect one percent of spruce-fir forest on the Peaks, this is a regionally significant amount given the rarity of this habitat type on the Southern Colorado Plateau; the cumulative loss of spruce-fir is unknown but is likely greater than one percent.

Even when taking into account the past clearing of spruce-fir forest for the construction of existing ski trails and improvements, the cumulative loss of this forest type on the

Peaks is approximately two percent. Because a large majority of this forest type occurs within the Kachina Peaks Wilderness, relatively few other losses have occurred locally beyond natural mortality. From a regional perspective, there have been additional losses due to timber harvesting on the Kaibab Plateau and other areas and mortality due to spruce bark beetles, windthrow, and fire.

10.7 What will be the effect on wildlife habitat from fragmentation due to the construction activities for lifts and trails?

The reader is referred to comments 11.20 and 11.23.

Specific Comments

10.8 The DEIS fails to address any environmental issues surrounding the building of a hiking trail from the top of the Agassiz lift to the midway area. The only analysis displayed in the DEIS relates to potential increases in summer time visitation as the result of a new hiking opportunity. The DEIS completely ignores normal trail construction issues related to soil disturbance, increased erosion potential, vegetation removal as well as human impacts related to garbage and human waste. Assessment of these potential impacts is even more critical in a situation where use is likely to be high because of easy uphill access via the Sky Ride.

Effects to soils and potential for erosion discussed in this comment are addressed in the response to Comment 17.6.

As specified in the Proposed Action description, this trail would be constructed by removing dead and dying trees, with only minimal and incidental removal of live overstory vegetation. The proposed summer trail would be designed as a Forest Service System trail. Based on the anticipated use, it would be designed as a Level 3 trail. In order to accommodate occasional ATV use by ski area maintenance personnel, the trail would be constructed to a greater width than normal hiking trails – approximately 60 inches. The trail design would include erosion control features such as waterbars. Signage would indicate that off-trail travel is prohibited. The Snowbowl would be responsible for routine maintenance of the trail to ensure erosion protection and to remove garbage. Historically, Snowbowl has found that littering is not a chronic problem at the ski area. Ski area staff routinely monitor the trails and use areas to maintain an attractive appearance. Toilets would be available both at the top of the chairlift and at the base area.

10.9 The DEIS is lacking in detail to adequately describe potential impacts to a globally rare, Bebb willow-mixed grass ecosystem which exists in the Fern Mountain Botanical Area of the Coconino National Forest, the Homestead at Hart Prairie Preserve of The Nature Conservancy and private land.

No effects to this plant community are anticipated under the Proposed Action. The reader is referred to Comment 10.4.

10.10 Besides religious reasons to deny this proposal, we also need long-term studies (15 years+) to determine potential effects to using one-step-above gray water on high elevation species such as Engelmann Spruce, limber pine, bristlecone pine, and rare herbaceous species that occur no where else in Arizona.

Engelmann Spruce, limber pine, and bristlecone pine are not restricted (endemic) to the San Francisco Peaks. There are some endemic rare herbaceous species that occur only on the Peaks, such as the San Francisco Peaks groundsel and the bearded gentian. The reader is referred to comments 10.2 and 10.3 above.

10.11 The Conservancy is very concerned about the potential impacts to vegetation community composition as a result of nutrient deposition from effluent-based snowmaking activities. While the draft EIS references potential impacts to relatively disturbed, non-native dominated ski slope areas, the document does not address potential impacts to adjacent habitats that are dominated by native plants. Elevated levels of total nitrogen (N) , total dissolved solids (TDS), and total organic carbon (TOC) as described in Table 3H-1 (Snowbowl Sub-Area), indicate up to fivefold increases in total N, up to a 36-fold increase in TDS, and similar increases in TOC for the watershed within the SUP area. Table 3H-3 (Hart Prairie Watershed) indicates that the effects of snowmaking will be carried downstream into the Bebb willow community, potentially impacting both a globally rare vegetative community type and springs that serve as sources for domestic drinking water.

The reader is referred to comments 10.2 and 10.4 above. Rapid infiltration and limited run-off in the analysis area would largely limit the effects of additional N, TOC, and TDS to the ski trails where snowmaking is proposed and to the areas immediately adjacent to them.

Furthermore, as noted in Chapter 3 Section H of the DEIS and FEIS, *"[The] analysis projects solute concentrations only in the water available for groundwater recharge. It does not project the absolute solute concentrations in groundwater resulting from recharge because: 1) it neglects the complex biogeochemical processes that occur and result in losses and uptake of solutes during interaction with vegetation, soils, and underlying sediments; and 2) there are no data to estimate the seasonal volumes of perched groundwater available to commingle and blend with the recharge water. It is well documented that nutrients and dissolved organic matter are assimilated to varying degrees during infiltration and percolation of water through soil and sediments. Therefore, this analysis provides a conservative, semi-quantitative assessment of potential dilution and attenuation, over large areas, of solute concentrations from*

reclaimed water when combined with natural precipitation in groundwater recharge and the available amounts of solutes for uptake or migration into groundwater."

Thus, the relative increases (five-fold total N, up to 36-fold TDS) referenced by the reader indicated *un-diluted* concentrations, before mixing and co-mingling with natural precipitation and groundwater.

Meanwhile, Table 3H-3 of the DEIS, as referenced by the reader, discloses the amount of snowmaking water potentially available for recharge within the Hart Prairie watershed. This does not represent a water volume that is delivered to the Bebbs willow communities within the Hart Prairie. The reader is referred to page 3-191 of the DEIS or pages 3-212 and 3-213 of the FEIS: "*Because recharge infiltrates rapidly to underlying aquifers, and the local recharge near the springs is projected to be sufficient to provide the observed discharge, it is not known if any groundwater recharge from the areas of snowmaking reaches the shallowest perched aquifers down slope at the springs in Hart Prairie*." The springs and the Bebbs willow community in the lower part of the watershed are fed by shallow perched aquifers. It is not likely that snowmaking on the ski area would measurably affect the quantity of water discharged from these areas. Therefore, measurable quantities of constituents remaining in the treated water used for snowmaking would not be expected to reach these sources.

10.12 Another arena that has not been thoroughly considered at all by the Forest Service DEIS relates to hormone disruption as a major, underappreciated component of the plant chemical arsenal. Plant defenses could be disabled, initiating ecosystem collapse.

Some research has demonstrated that endocrine-disrupting chemicals, including hormone-active compounds, can inhibit the symbiosis between some plants and soil bacteria that fix nitrogen. The results of these studies suggest that areas treated heavily with pesticides or pollutants (e.g., agricultural areas) may experience an altered microbial species balance and reduced plant yields (i.e., growth).[61] However, the concentrations studied were about 50-fold higher than what is expected to occur in reclaimed wastewater. There is currently no evidence that the application of reclaimed water for snowmaking would affect symbiotic soil bacteria or plant growth in the analysis area (notwithstanding the effects of higher nitrogen concentrations, as discussed in the Environmental Consequences section of the DEIS [Vegetation Composition section, pages 3-266 to 3-269 of the DEIS or pages 3-290 to 3-293 of the FEIS]). There has been no evidence of ecosystem collapse in other ski areas where snowmaking using reclaimed water has been used for a number of years.

[61] Fox, J., M. Starcevic, P.E. Jones, M.E. Burow, and J.A. McLachlan. 2004.

10.13 Cutting old growth forest is simply unacceptable under any circumstances when over 75% of Arizona's old growth forest has been eliminated.

The reader is referred to Comment 11.17.

10.14 With more and widened runs, I have seen more trees fall because it creates a wind corridor. Clearing for additional runs will only make the problem worse. Less wind protection may increase sublimation. Increased sublimation may increase impurities from reclaimed water onto the Peaks.

Windthrow is a major natural disturbance factor in sub-alpine conifer forests. As disclosed in the Environmental Consequences section of the DEIS and FEIS (Impacts to T, E and S Plant Species, and Regionally Important Plant Communities section), clearing of new ski trails would result in secondary mortality of trees from windthrow along the cleared edges. The additional opening created would increase overall sublimation, but not substantially relative to that occurring on the cleared ski trails. Projected concentrations of total dissolved solids, total organic carbon, and total nitrogen in snowmelt estimated in the Environmental Consequences section of the DEIS and FEIS (Water Quality and Use of Reclaimed Water in the Snowmaking System section) have already taken sublimation into account.

10.15 The Conservancy would like to know what steps will be taken by the Arizona Snowbowl and the U.S. Forest Service to prevent increased recreation activities in the Alpine tundra to ensure that direct and cumulative impacts are mitigated.

BMPs and mitigation measures specific to this point are described in Table 2-2 of the DEIS and FEIS and detail that, *"the Snowbowl shall continue to restrict access to within the SUP during the summer months."* Additionally, it is planned that the creation of a designated hiking trail from atop the summer Sky Ride to the base area will serve as an attractant to summer users who desire a hiking opportunity.

10.16 The DEIS concludes that no irreversible or irretrievable effects or commitment of vegetation and wildlife resources would occur as a result of implementation of the Proposed Action. The Proposed Action, however, would clear vegetation on approximately 76.3 acres, and create ground disturbances on over 200 acres. If soil loss is considered an irreversible commitment of resources, how can vegetation be unaffected?

The FEIS has been updated to clarify that removal of vegetation (i.e., forest cover) represents an irretrievable loss of those plant materials affected (i.e., the timber). However, these effects are not irreversible because the ski area facilities could conceivably be abandoned and trees be allowed to re-establish.

10.17 Has a constructive use been designed for the trees that get downed for thinning?

Trees cut for thinning and for the clearing of new ski trails would be used for private and commercial purposes, to the extent feasible. These include uses by the Navajo and Hopi tribes (see MOA in Appendix D), uses within the SUP area, commercial uses, and/or fuel wood. The Snowbowl will be required to pay for the trees under a timber sale contract with the CNF based on the total volume to be cut.

10.18 The monitoring and management plan should be adaptive to allow for the potential to discontinue snowmaking if negative impacts to this Globally Rare ecosystem are observed. If a management plan exists for the Fern Mountain Botanical Area of CNF, it must be included in the DEIS and used to guide the preferred alternative.

The Vegetation Composition section of the DEIS and the FEIS discusses potential changes in plant community composition due to elevated nitrogen inputs from the use of reclaimed water. The main potential effects are proliferation of early seral species, including noxious weeds, and some mortality of trees along the edges of the cleared ski runs. These potential effects would generally be limited to the cleared ski trails and the areas immediately adjacent to them. Most vegetation on ski trails is composed of early seral species; therefore little change in plant species composition is anticipated. Table 2-2 (Mitigation Measures and BMPs) in the DEIS and FEIS includes a requirement for the development of a vegetation management plan and the monitoring and treatment of all construction areas and roadways for noxious weeds. Annual monitoring of Alpine tundra areas would also continue under the Proposed Action and adaptive management actions taken as deemed necessary.

10.19 A credible (independently conducted) science plan and rigorous scientific monitoring program is needed. This is not discussed or established in the DEIS. It is irresponsible to suggest that such a large project move forward without a baseline or method for monitoring the impacts.

Reclaimed water exiting the Rio de Flag WRF meets current ADEQ standards, and additional monitoring at the Snowbowl is not warranted nor required. In addition, the CNF has collected a substantial amount of data in the analysis area over the last 10 years, including information on plant species composition; forest cover types; forest health (i.e., spruce bark beetle populations); threatened, endangered, and sensitive species; and noxious weeds. These data provide a baseline for assessing potential changes associated with using reclaimed water within the SUP area.

The reader is referred to Comment 6.10 for additional information.

10.20 What are the possible impacts to a wide range of species - pollinators, and ecologically important species such as prairie dogs, and migrating birds and invertebrates? This not addressed in the DEIS.

As discussed in the response to Comment 10.18, the CNF has collected substantial inventory and monitoring data within the analysis area. The DEIS discusses impacts to priority groupings such as rare plant communities; threatened, endangered, and sensitive species; management indicator species; migratory birds; and game and non-game wildlife. Other components of the ecosystem are important. However, it is beyond the scope of this DEIS to analyze impacts on all species, particularly when the extent of the impacts would be nominal.

10.21 Reclaimed water will create artificial habitat that will also add to more fuels in the system during drought conditions. This has not been addressed in the DEIS.

A more consistent and longer duration snowpack would increase the average moisture availability for plants on the cleared ski trails and immediately adjacent areas, but would not affect other portions of the permit area. Vegetation on the ski trails consists of grasses and forbs. Shrubs would generally not be allowed to grow since they interfere with the grooming of the ski trails. Herbaceous and shrub cover in the adjacent spruce-fir forest is typically sparse. Therefore no major changes in fuel-loading would be anticipated under the Proposed Action.

10.22 The cumulative effects analysis is flawed by discounting the significance of the following impacts:

- **Of a total of 57 individuals of bearded gentian in 18 populations, six individuals will be removed. This equals 11 percent of the total population.**
- **120 Rusby's milkvetch plants will be removed.**
- **2.44 acres of mapped critical habitat for San Francisco Peaks groundsel will be lost to land leveling and recontouring.**
- **Snowmaking effects and added nitrogen would favor early successional and weedy species, which may reduce overall plant diversity and could result in limited tree mortality along the edges of ski trails.**
- **The remaining forest habitat within the study area will be further fragmented.**
- **31 lb/acre of nitrogen will be distributed onto the land surface per season.**

The environmental analyses presented in the DEIS and FEIS represent disclosures of anticipated and/or potential environmental impacts of Alternatives 1, 2, and 3. This includes analysis of direct, indirect, and cumulative effects. Comment 10.21 summarizes and restates information provided throughout the "Detailed Analysis of Direct and Indirect Effects" in the Vegetation analysis of the DEIS and FEIS. This information was carried forward into the "Cumulative Effects" analysis, and was considered along the list of 13 past, present, and reasonably foreseeable future projects which have been identified with potential to cumulatively affect vegetation resources. These direct, indirect and cumulative effects determinations, along with those presented for all other resources in the DEIS and FEIS, were used by the Decision Maker in arriving at the decision. This analysis does not attempt to discount any of the potential or anticipated effects, although it does place them in a contextual framework.

10.23 One area where Alternative #2 could be improved is the management of the forest that surrounds the existing Arizona Snowbowl ski runs. This area seems to be clogged with downed timber, perhaps introduced when the existing runs were cleared. This would seem to be a large store of wild fire fuel that, if ignited, would do far more environmental damage than the proposed expansion. Fuel source reduction should be added into the plan, especially when it could be done concurrent with other planned construction and would not add significantly to the overall project footprint.

As indicated in Table 2-2 in the DEIS and FEIS, a Vegetation Management Plan (VMP) is required to be completed with selection of any of the alternatives. The VMP would address issues such as insect outbreaks, fire risk, and safety. The downed timber is primarily a result of natural mortality events. Since 1999 we have been experiencing a major spruce bark beetle infestation, which peaked in 2000 thru 2001. The Forest Service has been working with an integrated pest treatment approach using pheromones to trap the beetles and another type of pheromones to disperse beetles. Some trees that are under attack we have been stripping the bark and killing the bark beetle broods. Any trees that are felled due to ski area operations are removed from the site.

11.0 WILDLIFE

Thematic Comments

11.1 Further studies on habitat disruption should be performed due to a longer duration snowpack, which could alter wildlife foraging behaviors and habitats. Furthermore, increased human activities during the spring may negatively impact the natural behaviors of many species.

Potential impacts to wildlife due to increased recreational activity and a longer-duration snowpack are specifically discussed in the DEIS and FEIS Environmental Consequences section.

11.2 The FEIS should disclose effects to wildlife along the Rio de Flag drainage, which find their only source of water there in dry winters, should reclaimed water be piped to Snowbowl instead.

The Proposed Action would reduce surface water availability for wildlife in a short section of the Rio de Flag drainage during the winter months. Current effluent discharge rate from the Rio de Flag WWTP is 1.9 million gallons per day (gpd). Under the Proposed Action, up to 1.5 million gpd would be diverted to the ski area between November and the end of February. An additional 55,000 gpd would continue to be diverted for reuse within the City of Flagstaff. The remaining 345,000 gpd would be discharged into the Rio de Flag and would be available as a surface water source for wildlife. However, the water currently discharged only remains as surface water for approximately one quarter of a mile before it percolates into the ground and becomes subsurface flow. Therefore, this reduction in available surface water in the winter months is unlikely to affect most wildlife species. For larger wildlife species such as elk and mule deer there are other water sources. The availability and nutritional quality of grasses and browse species is typically more limiting than the availability of surface water for drinking. Many smaller mammals and birds are not limited by the availability of surface water, particularly in winter months when ambient temperatures are lower. Amphibians, reptiles, and invertebrates are generally inactive during this period and would be unaffected by the reduced availability of surface water. Potential consumption of surface water by wildlife is not expected to exceed the amount that will be available in the Rio de Flag (345,000 gpd) in the winter months under the Proposed Action.

11.3 The use of reclaimed water for snowmaking could have potential negative effect on wildlife, included special status species, found on the San Francisco Peaks. Not only could there be problems related PPCPs found in reclaimed water, but the levels of nitrogen and other chemicals and pollutants could also have negative effects on wildlife.

No negative effects of reclaimed water use for snowmaking on wildlife are anticipated. As described in the Watershed Resources Section of the DEIS and FEIS, the

hydrogeologic characteristics of the Hart Prairie Watershed (including the Snowbowl Sub-Area) result in rapid infiltration and downward movement or percolation of snowmelt and surface water runoff. This reduces the potential for direct consumption of reclaimed water as snowmelt by wildlife. Although some direct consumption could occur, there is no indication there would be negative effects on terrestrial wildlife species. (Arizona Game and Fish Department uses reclaimed water directly from the WWTP to supply wildlife water sources in the Flagstaff area.) Although sublimation has the potential to increase solute concentrations, it is estimated that the mixing of reclaimed water with natural precipitation will result in a four-fold reduction of solute concentrations in snowmelt compared with initial reclaimed water concentrations. Snowmelt derived in part from snowmaking activities would represent only a fraction, if any, of the water consumed by terrestrial wildlife in the analysis area throughout the year.

The use of treated wastewater for snowmaking would not affect wildlife using the three springs in the Hart Prairie Watershed. These springs appear to be fed by shallow perched aquifers. Based on research conducted at NAU, snowmaking on the ski area would not increase the quantity of water discharged from these springs. Therefore, constituents remaining in the treated water used for snowmaking are not expected to reach these sources.

11.4 Project disturbance will also remove 74 acres of old growth forest on potential Mexican Spotted Owl habitat, as well as critical habitat for San Francisco groundsel. How will these species' critical habitat be affected and is this consistent with ESA and NEPA?

Potential effects on these species are analyzed in detail in the Biological Assessment and Evaluation (BA/BE) completed in conjunction with this analysis and on file in the project record. For the threatened Mexican spotted owl, the CNF has made a *may affect, but is not likely to adversely affect* determination for the Proposed Action and a *no effect* determination for Alternative 3. Both action alternatives would result in disturbance within mapped critical habitat for the threatened San Francisco Peaks groundsel, but neither would affect actual habitat or plants. Per a letter dated July 8, 2004, the U.S. Fish and Wildlife Service (USFWS) concurs with the Forest Service's determinations for both species.

The Proposed Action will not alter primary constituent elements for MSO. The removal of trees for the proposed improvements is limited to spruce-fir forest, which does not represent nesting or roosting habitat for MSO. There will be eleven trees removed along the Snowbowl Road, within the Snowbowl PAC. There will be no tree removal in MSO restricted areas and all construction activities within ½ mile of active nest sites would be restricted to periods outside the breeding season, which extends from March 1 to August 31. The removal of trees directly adjacent to Snowbowl Road and the remainder of the reclaimed water pipeline to Flagstaff will not affect primary constituent elements for this species. Therefore, the Proposed Action will have no effect on designated critical habitat for MSO. Potential effects on MSO are limited to possible noise disturbance, primarily during construction activities within the permit area and along Snowbowl Road.

The Proposed Action would result in activities within designated critical habitat for the San Francisco Peaks groundsel, but would not affect known plant populations or suitable habitat for this species. As with MSO, the USFWS has concurred with the CNF's determination that the Proposed Action may affect, but is not likely to adversely affect, San Francisco Peaks groundsel.

11.5 The Proposed Action has the potential to reduce habitat availability for wildlife, impact individuals, and cause a reduction in prey species. To guarantee that these impacts will not have long-term effects on species, the Final EIS should include the outcome of the Biological Opinion.

As stated in the response to Comment 11.4, the USFWS issued a letter of concurrence with the CNF's determinations of effects to the threatened MSO and San Francisco Peaks groundsel. Therefore as required under Section 7 of the ESA, "Informal Consultation" has been completed for the project and a Biological Opinion is not required.

11.6 The DEIS does not cite any data to support statements of "not likely to result in a trend toward Federal listing or loss of viability," for the Navajo Mexican vole and northern goshawk (p. 3-290). It is difficult to draw such a conclusion when the DEIS acknowledges that the number of voles potentially affected is not known.

As stated in the DEIS and FEIS, although the total number of voles potentially affected is unknown, the primary threats to the Navajo Mountain Mexican vole are increased tree density and reduced grass cover due to grazing and/or periodic drought. Although construction activities may directly impact some individuals or populations, widening of existing ski runs and clearing of new ski trails would create more potential habitat for this species. Snowmaking would increase total available moisture and grass cover in areas of occupied and potential habitat. Therefore, the Proposed Action is unlikely to adversely impact this species.

Based on extensive survey data, goshawks are not known to nest in the permit area, although they forage there occasionally. The construction of the reclaimed water pipeline would require the removal of 54 ponderosa pines within the Mars Hill Post-fledging Family Area (PFA). All of these trees are located directly adjacent to existing roads and the largest trees removed would be about 18 inches in DBH. Potential noise effects on nesting goshawks would be minimized or eliminated through the implementation of construction timing restrictions, as necessary. Therefore, the Proposed Action is unlikely to adversely impact the northern goshawk and is unlikely to result in a trend toward federal listing.

11.7 The DEIS should disclose effects to terrestrial vertebrates from consumption of snowmelt that is derived from reclaimed water.

The reader is referred to the response provided to Comment 11.3.

11.8 Macroinvertebrates were eliminated from analysis in the DEIS because all are presumed to be associated with late seral, high and low elevation riparian habitats. We presume that the DEIS is referring to aquatic macroinvertebrates, but taken literally it means all visible insects. These are certainly not limited to riparian habitats. Aquatic macroinvertebrates would, however, generally be limited to open water, so this discussion is confusing.

The term "macroinvertebrates", listed as a category of Management Indicator Species (MIS) in tables 3K-2 and 3K-3 of the DEIS and FEIS, refers only to aquatic macroinvertebrates. As a group, these MIS are used as an indicator of riparian habitat condition, primarily water quality. Aquatic macroinvertebrates were dropped from analysis because habitat does not exist in the analysis area.

11.9 The FEIS should address the effects to wildlife from the storage pond that could become a water source, and the perimeter fence that could entrap wildlife.

The snowmaking water impoundment within the permit area has the potential to attract wildlife by providing a surface water source. Access by wildlife would be restricted by the construction of a fence around the perimeter of the impoundment. Although final fence specifications have not been determined, it would be designed to exclude large mammals so that entrapment within the impoundment area would not occur. Due to the steep side slopes, slippery nature of the plastic liner, and resultant potential for drowning, leaving the impoundment unfenced for access by wildlife and/or humans would not be a viable option.

Specific Comments

11.10 The DEIS discounts the loss of a portion of the Gunnison's prairie dog (Cynomys Gunnison) colony that is currently present at Snowbowl, and the temporary disturbance of 17 acres of this colony. This prairie dog is an ecologically important and threatened component of western grassland ecosystems.

Because their range overlaps that of their primary predator – the endangered black-footed ferrets – the DEIS and FEIS discuss impacts to Gunnison's prairie dog in the context of potential effects on the black-footed ferret. Although the Proposed Action would have no effect on the black-footed ferret, it would result in the permanent removal of 0.5 acre and the temporary disturbance of 17 acres of the existing prairie dog town. The size of the prairie dog town within the permit area is estimated at 50 acres. Therefore, the Proposed Action would result in the permanent removal of roughly one percent and the temporary disturbance of approximately 34 percent of this colony based on aerial extent. Areas of temporary disturbance would likely be recolonized by prairie dogs over time. This colony is part of a complex of 37 prairie dog towns comprising 2,225 acres (Peaks West

Complex). The Proposed Action would impact approximately 0.8 percent of the known colonies within this complex.

11.11 While direct effects to spruce-fir habitat from the Proposed Action are discussed in the vegetation section of the DEIS, cumulative effects to the wildlife that utilize this habitat type include the construction of a proposed summer hiking trail. This trail traverses through the spruce-fir forest and will effect wildlife and result in further fragmentation of noxious weed dispersal; we believe the Forest Service should minimize additional impacts to the Peaks to the maximum extent possible.

The effects of recreational use of the summer hiking trail on wildlife are discussed specifically in the Environmental Consequences section of Chapter 3 of the DEIS and FEIS in the "Recreation" section in the Environmental Consequences section. Table 2-2 in the DEIS and FEIS identifies mitigation measures and BMPs, including specific measures and practices to minimize the spread of noxious weeds. All construction areas within the permit area, including the proposed summer hiking trail and all parking lots and areas surrounding guest services and maintenance facilities, would be monitored annually for at least five growing seasons and treated as necessary.

11.12 I am concerned about the food chain and how the animals will be affected after they eat these plants or drink the reclaimed snow runoff.

The reader is referred to Comment 11.3. There is no evidence that the use of reclaimed wastewater for snowmaking would have either direct or indirect adverse impacts on primary or secondary consumers.

11.13 Research by Dr. Catherine Propper at Northern Arizona University on the effects of reclaimed water demonstrated accelerated tadpole development as a result of the introduction of metabolically active contaminants. Before pursuing snowmaking with effluent we recommend further study to evaluate the short and long-term effects of this reclaimed water on the wide variety of taxa in the Snowbowl watershed.

No adverse effects of reclaimed water on these or other semi-aquatic, aquatic, or riparian species in the Hart Prairie Watershed are anticipated due to the general lack of a hydrologic connection and the projected dilution of compounds as a result of natural processes even if reclaimed water reached these locations. As discussed in the response to Comment 11.3, snowmaking activities would not increase discharge in most years at springs or in the Fern Mountain Botanical Area in Hart Prairie, which are fed by shallow, perched aquifers. In the event some reclaimed water, in the form of recharged groundwater, would reach these springs during exceptionally wet years,[62] the concentrations of solutes would be reduced by mixing with natural precipitation and other recharge and groundwater and through physical, chemical, and biological uptake as the

[62] However, during wet years, it is assumed that less snowmaking would occur and therefore reclaimed water would make up less of the total snowpack.

reclaimed water infiltrates through the soil. Mixing alone is expected to reduce solute concentration four-fold relative to reclaimed water at the source (WWTP).

Dr. Propper's study showed that exposure to reclaimed water affected feeding behavior in bullfrogs, had no statistically significant effect on mosquitofish, and accelerated tadpole development in African clawed frogs. This study used reclaimed water obtained directly from the source (WWTP) and therefore does not take into account substantial dilution that would occur if reclaimed water actually reached these downstream surface water sources. Measurable negative effects on terrestrial wildlife are unlikely, since solute concentrations would be substantially lower compared to those in reclaimed wastewater at the source. The reader is referred to comments 6.3 and 6.6 for more detail. In addition, the FEIS has been updated to include information on the Propper study.

11.14 If the water is pumped across Observatory Mesa, a major wildlife corridor will be disrupted. Due to all of the urban sprawl, animals do not have many corridors to migrate.

The entire length of the 14.8 mile pipeline would be buried within existing road and utility corridors and along the Snowbowl Road. Thus, the construction of the reclaimed water pipeline from Flagstaff to the permit area would not permanently impede wildlife movement or impact movement corridors. Because it would be buried, the pipeline would not present any physical barriers to wildlife movement and would result in some tree removal located directly adjacent to already cleared areas. There would be some potential temporary effects on wildlife movement during the construction of the pipeline, but these would be short-term and localized in nature.

11.15 The potential for the acoustic noise along the length of the pipe from the water being pumped might have the effect of disrupting indigenous wildlife or deter the passage of migrating wildlife.

The operation of the reclaimed water pipeline would not result in noise levels sufficient to affect wildlife. The pipeline would be buried to a depth of six feet. No data or evidence has been obtained to indicate that buried water transmission lines create noise sufficient to affect wildlife, despite the widespread distribution of these types of utility lines. Additionally, the DEIS and FEIS detail that the pump stations along the pipeline would be housed in concrete block vaults and would be inaudible, except in very close proximity where a slight hum may be audible.

11.16 Snowmaking will extend the ski season into spring and fall, which are vulnerable seasons for wildlife. They are feeding more to prepare for hibernation or to gain the weight after the winter. It is potentially dangerous to humans to increase activities in an area during wildlife mating season.

The reader is referred to Comment 11.1. Extension of the ski season earlier into the fall would not substantially affect wildlife feeding patterns. The length of the ski season would fall within the naturally observed range of variability in climate in the analysis

area, although there would be more consistent and continuous snow cover in the fall. This would reduce forage availability on the ski trails due to longer periods of snow cover, but would not affect other portions of the analysis area. Elk grazing on cleared ski trails would move to lower elevations or to nearby natural meadows earlier in the season, on average. Mule deer would be affected similarly, although they browse preferentially on forbs and shrubs and occur at higher densities in second generation growth, burned areas and pinyon-juniper woodlands on the north side of the Peaks. There would be reduced temporal availability of grasses and forbs for adult male black bears on the ski runs, although females and cubs are typically in their dens by early November.

Extension of the ski season earlier into the fall would not substantially affect mating activity of large mammals. The elk rutting season is in September, with calves born in May or June. Black bears breed in summer and young are born in dens in winter. Mule deer breed from December to mid-January and fawns are born from July into September. Although there is some potential overlap with the mule deer rutting season in early winter, there have been no known incidences of human-wildlife conflicts during the early portion of the ski season that can be attributed to interference with mating activities.

11.17 Expansion of the facilities would eliminate critical wildlife habitat by cutting rare old-growth forest and would leave no buffer between developed areas and the neighboring Kachina Peaks Wilderness, which the Forest Service is mandated to protect.

Some of the improvements under the Proposed Action would result in developed uses near to the SUP area/Wilderness area boundary. These include construction of the upper portion of the proposed Humphreys Chairlift and associated ski trails, which would come within 100 to 150 feet of the boundary for an approximate length of 1,200 feet. New ski trails on the northern edge of the existing Hart Prairie ski run would come within 175 to 350 feet of the boundary for an approximate length of 850 feet. New or expanded ski trails on the south side of the existing *Ridge* ski trail would come within 100 to 200 feet of the boundary for an approximate distance of 2,800 feet. The snowmaking water impoundment would come within 100 feet of a small portion of the south permit area boundary.

The reader is referred to Comment 8.3 for information on the Forest Service's responsibility to protect congressionally designated wilderness areas. The fact that non-wilderness activities or uses can be seen or heard from areas within a Wilderness does not preclude such activities or uses up to the boundary of the Wilderness area.

The Proposed Action and Alternative 3 would result in the removal of 76.3 and 64.4 acres of spruce-fir forest, respectively, for new ski trails and associated improvements and the treatment (selective thinning) of an additional 48.4 acres to address a spruce bark beetle outbreak. Spruce-fir forest affected contains components of old-growth in the form of trees or stands that are past full maturity and are showing signs of decadence. The CNF Forest Plan allocates a minimum twenty percent old-growth forest per 10,000 (10K) acre block. The 10K block that includes the SUP area also includes a portion of the Kachina Peaks Wilderness. Therefore, tree removal associated with new ski trail

construction would not affect the old-growth forest objectives for this 10K block. As discussed in the Environmental Consequences section of Chapter 3 of the DEIS and FEIS, treatment of the 48.4 acres within the Agassiz and Sunset pods would improve forest health. This treatment would reduce the probability of complete loss of this stand to bark beetles and the infestation of other stands in the SUP area or the adjacent Kachina Peaks Wilderness.

11.18 Impacts to The Nature Conservancy's Hart Prairie Preserve and effects to elk grazing are not addressed in the DEIS.

As discussed in the responses to comments 11.3 and 11.13, snowmaking in the SUP area is not expected to affect the surface or shallow subsurface water in downstream portions of the Hart Prairie Watershed due to rapid infiltration. Therefore, forage conditions for elk within the Nature Conservancy's Hart Prairie Preserve would not be expected to change as a result of the Proposed Action.

11.19 The Wildlands Council is aware of at least one endemic bee and restricted populations of regionally unique butterflies (e.g. Alberta arctic and Ridings satyr) that occur in these meadows on the San Francisco Peaks. There is no discussion of endemic wildlife, or restricted populations of butterflies in the DEIS.

Changes in plant species composition due to reclaimed water application in snowmaking may reduce habitat quality or suitability for endemic and regionally unique species in the upper portion of the Hart Prairie meadow located within the permit area. Some of these endemic species are tied to specific plants. Based on studies of the effects of reclaimed water on plant communities, an increase in weedy or early seral plant species can be expected. This would affect primarily the upper portion of Hart Prairie Meadow, which now contains a mix of native and introduced plants. The remainder of the ski runs support predominantly introduced (seeded) plant species. Based on infiltration characteristics, it is not expected that the effects of reclaimed water would extend to natural meadows in and around the permit area. The extent that competition between endemic and new invertebrate species would occur cannot be predicted with any certainty.

The reader is referred to the response provided to Comment 11.22 for more information on regionally important butterflies.

11.20 Aspen, spruce-fir and mixed-conifer habitat types provide valuable roosting, nesting and foraging habitat for forest dwelling birds. The DEIS did not analyze the effects of intra-patch fragmentation caused by the Proposed Action. Temple (1986) demonstrated a strong association between core area and the abundance of forest dwelling birds. The DEIS should have used the average width of ski runs and lifts in both the Proposed Action and existing condition to calculate the extent of interior forest remaining if the Proposed Action is implemented. The analysis should also determine whether the Proposed Action will functionally

eliminate the remaining interior forest within the permit area and cause habitat fragmentation as the result of edge effects in the adjoining Wilderness area.

The Proposed Action would result in some intra-patch fragmentation and edge effects that may reduce habitat or habitat suitability for forest-dwelling birds. These potential effects are discussed to some extent in the Environmental Consequences portion of the Wildlife section of Chapter 3 of the DEIS and FEIS. It is difficult to estimate the effects of the proposed improvements on the boreal avian community as a whole, since the effects would likely vary between species and groups (e.g., generalists versus forest interior species). It is likely that some of the small remaining patches between newly cleared ski trails would become unsuitable for nesting by forest interior bird species. This would most likely occur where the new Humphreys Chairlift and associated ski trails are proposed, the new trails north of the existing Hart Prairie Chairlift, and the new runs proposed south of the proposed Sunset chairlift alignment. Assuming a 100-foot zone of influence for edge effects, these improvements could result in a loss of up to approximately 90 acres of habitat for forest interior birds. The Proposed Action is unlikely to eliminate substantially more of the remaining interior forest habitat within the permit area compared to what has already been removed during past ski area development. Edge effects will not extend into the Kachina Peaks Wilderness and the proposed improvements would not fragment the more or less continuous forest cover in these areas.

11.21 New proposals would be harmful to the endangered Mexican Spotted Owl, Bald Eagles and Black Forest Ferrets.

The reader is referred to comments 11.4, 11.5, and 11.10. The CNF has prepared a BA/BE for the project and has determined that the Proposed Action *may affect, but is not likely to adversely affect* the Mexican spotted owl and will have no effect on the bald eagle or the black-footed ferret. “Informal Consultation” has been completed and the USFWS has concurred with the CNF’s determinations of effects to the Mexican spotted owl.

11.22 The following rare and regionally important butterflies are not mentioned nor analyzed: (1) A very rare population of Pontia occidentalis (western white) is present on the Peaks. (2) The Riding's satyr is only known from two localities in Arizona, and in the Peaks reaches the southernmost extent of its range. (3) A probably undecided species of Erynnis skipper has been collected, and specimen of the taxon are in the Arizona State University Invertebrate Museum. (4) A small, population of rare Pyrgus xanthus (xanthus skipper) exists on the Peaks. (5) The two Speyeria butterflies eliminated from consideration are shown by the USGS to occupy Northern Arizona.

The DEIS and FEIS generally analyzes effects to groups of species for which the CNF Forest Plan provides direction, such as threatened, endangered, and sensitive species; management indicator species; migratory birds; and game and non-game wildlife.

Although other species are also important, the scope of the analysis is generally limited, from a practical standpoint, to these priority groupings. A number of the invertebrate species mentioned above reach the southern extent of their range in northern Arizona and are therefore regionally rare. However, most of these species are widely distributed throughout western North America and have not been identified specifically for conservation (i.e., candidates for listing as threatened or endangered or Forest Service sensitive). Recommendations for monitoring have been made to determine the conservation status of the mountain checkered-skipper (*Pyrgus xanthus*), which is found in high mountain clearings between 8,000 and 10,500 feet in elevation. As discussed previously, the Proposed Action would result in the permanent loss of approximately 0.3 percent and the disturbance of approximately 1.7 percent of the subalpine grasslands on the San Francisco Peaks and may therefore reduce habitat or habitat suitability for this species. The two *Speyeria* butterflies mentioned are associated with riparian areas, which would not be affected under the Proposed Action.

11.23 The DEIS only analyzes impacts occurring from snowmaking during the nighttime. Analyses of daytime effects on wildlife are entirely neglected.

Snowmaking activities during daylight hours would result in some localized disturbance effects to wildlife. Snowmaking during daytime hours would occur only during periods when ambient air temperatures are sufficiently low, and primarily in the early season as Snowbowl strives to open terrain. Resident wintering birds engaged in foraging activities may be displaced away from the trails where snowmaking machinery is operating.

11.24 It is false to defend the notion that any impacts, loss of forest, etc. from development will be limited to a small aerial extent thereby moderating any cumulative effects. Any land modification is a further breaking up of an already fragmented landscape, destroying vital corridors and patches that support the various life cycles of all the components that make up the living whole of the San Francisco Peaks.

The significance of environmental effects is determined, in part, by the scale or spatial extent of those impacts across the landscape and also by the effects of past, present, and future actions. Both scale and context are important considerations. The extent of the cumulative effects of the Proposed Action on forest cover is influenced by scale and by the land management status of the affected biotic community. As stated in the DEIS and FEIS, the 777-acre Snowbowl SUP area constitutes approximately one percent of the San Francisco Peaks. The Proposed Action would affect approximately 14 percent of the spruce-fir forest within the SUP area. Outside the SUP area, a large proportion of these biotic communities occur within the Kachina Peaks Wilderness, which is protected from most human activities other than passive recreation. Furthermore, biotic communities on the Peaks (as elsewhere) are subject to large-scale natural disturbances such as fire, windthrow, and insect outbreaks which result in natural but constantly changing patchiness in both time and space. In this context, there is no evidence to indicate that the Proposed Action would destroy any vital components that make up the ecosystem on the Peaks.

11.25 The cumulative effects analysis is flawed by discounting the significance of the following impacts:

- **The Proposed Action may affect habitat for the northern goshawk. An estimated 54 pine trees will be removed in the Mars Hill PFA.**
- **The Swainson's thrush may be affected by the removal of 76.3 acres of spruce-fir forest.**
- **There is potential for disturbance of breeding thrushes by human recreational activity on the proposed hiking trail.**
- **There will be a negative impact on ferruginous hawk through the disturbance of the prairie dog colony.**
- **Recreation is acknowledged as the greatest single threat to water pipit.**
- **Daytime activities associated with skiing, and arguably with snowmaking, may interrupt foraging activities of bird species such as nuthatches and woodpeckers and may result in increased stress levels and metabolic demands. In addition, recreational activity may result in a greater abundance of nest scavengers and higher rates of nest predation.**
- **Recreational use of the summer trail would reduce suitable habitat for wildlife by up to 15 acres within the study area.**
- **Some species of migratory birds, and most large wildlife species, may be affected by tree removal, pond and other construction projects, and increased recreational use.**

The environmental analyses presented in the DEIS and FEIS discloses anticipated and/or potential direct, indirect, and cumulative environmental impacts of Alternatives 1, 2, and 3 on all of the species and activities discussed in this comment. These direct, indirect, and cumulative effects determinations, along with those presented for all other resources in the DEIS and FEIS, were used by the Forest Supervisor in making the decision documented in the ROD. This analysis does not attempt to discount any of the potential or anticipated effects, although it does place them in a contextual framework. By separating these bulleted statements from their context in the document their relative importance to the cumulative effects evaluation is lost.

11.26 The cumulative effects analysis within the EIS must take into account the significant increasing trends in recreational use within conifer and aspen habitat types and the resulting potential impacts to conifer and aspen-dependent wildlife species.

Increased recreational activities in these forest types would contribute to increased human-wildlife encounters in a cumulative context. These effects have been considered within the cumulative effects analysis documented within the DEIS and FEIS. Please

refer to Appendix C of the DEIS and FEIS for a detailed listing of the past, present, and reasonably foreseeable future projects that were identified and assessed.

12.0 INFRASTRUCTURE AND UTILITIES

12.1 Will roads be constructed to accompany the pipeline or will it follow existing roads?

No new roads would be constructed to accompany the proposed water pipeline from Flagstaff to the Snowbowl. The proposed pipeline would be installed in an existing Forest Road and existing natural gas pipeline right-of-way from Lowell Observatory to the junction of Highway 180 and Snowbowl Road. The remainder of the route would follow the Snowbowl Road to the ski area. Adequate vehicular access currently exists to construct and maintain the pipeline along its entire length.

12.2 The DEIS also ignores the fact that the proposed hiking trail is a road and access route for ATVs...not a trail. The DEIS does not make a case for why summer maintenance that has been successfully conducted all of these years without ATV access suddenly requires a major action with significant on-the-ground-effects.

As indicated in the Proposed Action description provided in Chapter 2 of the DEIS and FEIS:

> *"Hikers would primarily use the trail; however, the trail would be wide enough to permit ski area maintenance personnel to access the top terminal using all terrain vehicles… This trail would be approximately 5,280 feet in length and constructed to a width of five feet (slightly wider at switchbacks) to allow of ATV use."*

The proposed hiking trail's main function is to allow, for the first time, full hiking access between the top terminal of the Agassiz chairlift and the base area. This is something that the Snowbowl's summer guests have expressed interest in. The standard width of a hiking trail such as this is 36 inches. Vehicular access to the top of the Agassiz Chairlift does not currently exist, and Snowbowl has never had a method of accessing the upper elevations of permit area without running the Agassiz Chairlift. Therefore, the ski area proposes to expand the width of this trail to 60 inches to allow for occasional maintenance access via ATVs. The proposed trail is not being considered a road, and would not be installed with typical road construction techniques or to road standards (e.g., cut/fill ratios, width and use of road base). Therefore, this trail would not accommodate vehicles beyond ATVs, and its main function would be to accommodate hikers. While the Snowbowl has been able to adequately conduct necessary maintenance at the top terminal of the lift in the past, it has required exceptional effort in terms of transporting the needed tools and equipment to the top by foot. The ability to transport personnel and equipment via ATV would significantly improve efficiency.

12.3 How will the infrastructure be protected? The pipeline will undoubtedly be a target for vandals and those who passionately oppose the snowmaking. Will it be buried?

The entire extent of the pipeline will be buried. Although vandalism is obviously a potential issue of concern, it is beyond the scope of this analysis. Should approvals be granted, various deterrents would be employed to protect the ski area's investments from vandalism. These deterrents would likely focus on an added security presence at construction sites, with Snowbowl funding any Forest Service or local law enforcement personnel. Vandalizing infrastructure on NFS lands could fall under the jurisdiction of multiple local, state and Federal authorities. Clearly, the Forest Service and the Snowbowl would investigate and prosecute any crimes to the fullest extent possible.

12.4 The potential for breaks and leaks in the pipeline has not been addressed in the EIS.

Breaks and/or leaks are an inherent operational and financial concern in a pipeline of this magnitude. However, the risks of a leak or rupture in the pipeline do not pose major environmental or health and safety concerns as much as they do engineering and financial concerns (i.e., identifying and fixing these areas could be difficult and expensive). Therefore, final design and engineering of the proposed water pipeline would employ typical safeguards for minimizing the risks of a rupture to the pipeline.

12.5 What are going to be the environmental impacts of building and maintaining the pipeline?

The proposed reclaimed water pipeline would be constructed in previously-disturbed areas along existing roads and a natural gas pipeline right-of-way. All potential effects vegetation, wildlife, and cultural resources have been thoroughly analyzed and documented within the DEIS and FEIS. Disturbances to soils along the pipeline corridor were not modeled. Instead, modeling focused on impacts to soils that have potential to cause significant erosion due to slope angles (within the SUP area).

Ongoing maintenance of the pipeline would have minimal, if any, impacts as most of the maintenance would occur at pump stations. However, occasional ground disturbing activities could occur along sections of the pipeline route should any portion of it require excavation for maintenance.

12.6 Why can't vehicular delivery of reclaimed water for toilet services be used instead of constructing the pipeline?

Currently, the Snowbowl receives 100 percent of its water resources by vehicular delivery, resulting in potable water being used for non-potable resources. In an effort to conserve potable water resources, the Snowbowl would construct three spurs off of the proposed main water pipeline to fill the proposed water storage tanks at the Agassiz and

Hart Prairie day lodges, as well as at the proposed snowplay facility. The water storage tanks would in-turn supply these facilities with a source of non-potable water for non-potable uses, such as toilets. The ability to serve the toilet systems at the Snowbowl is an ancillary benefit to the development of the proposed snowmaking pipeline.

It is technically feasible to use vehicular delivery of reclaimed water for Snowbowl's non-potable water needs. This is explored in Comment 12.9.

12.7 The infrastructure of the town is not currently adequate to support congestion caused by tourism.

Tourism in Flagstaff is generated by a number of sources, including the Grand Canyon, Arizona Snowbowl, and the wealth of recreational opportunities that are available in the area. The DEIS and FEIS indicate that tourism accounts for 24.5 percent of Flagstaff's economy, with winter tourism estimated to account for approximately 8.6 percent of the Flagstaff area economy. It is assumed that the Snowbowl accounts for a large portion of this winter tourism, and therefore a commensurate amount of the city's infrastructure. However, summer tourism generated by visitation to and from the Grand Canyon certainly uses a greater proportion of the town's infrastructural resources. Other than frequent congestion at key intersections at peak times during the winter and throughout the summer, there have been no indications that Flagstaff's infrastructure is inadequate to support current and increased levels of use due the Snowbowl's operations.

12.8 The energy required each day to pump reclaimed water across 14.8 miles and up a 3,000-foot incline will likely be twice as great as the total energy required by the new lifts. Why aren't these calculations in the DEIS?

Due to associated costs, detailed engineering for power demands of proposed infrastructure is typically not completed until after an approval is granted, and therefore precise energy requirements of lifts and the pipeline are not known at this time. However, the reader is referred to the Infrastructure and Utilities section of the DEIS and FEIS, which indicates that, while electrical service is adequate to meet Snowbowl's current needs, lift upgrades and installations and the snowmaking pipeline would necessitate upgrades to the power supply. While Arizona Public Service (APS) has indicated that upgrading power to the Snowbowl does not pose a problem, additional discussions with APS are pending final project engineering, which is contingent upon project approval.

12.9 The EIS needs to examine the validity of expanding guest service facilities and toilet facilities if the use of reclaimed water is not approved or if a smaller amount of water is available than the amount required by all aspects of the Proposed Action.

Because the decision maker is enabled to approve a variation of any of the alternatives that have been analyzed in the DEIS, an alternative including a lesser amount of

reclaimed water could be implemented. In this case, provisions for meeting the Snowbowl's non-potable needs could still be provided. However, should Alternative 3 be selected, the Infrastructure and Utilities section of the DEIS and FEIS indicate that Snowbowl would continue to truck potable water to the ski area to meet all of its potable and non-potable needs. The current source for Snowbowl's potable water is the Bonito standpipe in Flagstaff, and one truck is used for transporting it to the ski area. Using the same truck for transporting both potable and reclaimed water would require thorough a sanitation process when converting between water sources. Or, alternatively, a second, dedicated truck could be purchased.

12.10 The EIS needs to explain how the increased toilet facilities will be supplied with water in the summer months when no reclaimed water is available.

Under both alternatives 1 and 3, no change would occur and potable water would continue to be used for non-potable needs in the winter and summer. It is anticipated that the proposed 10 million gallon snowmaking reservoir in Alternative 2 would be filled prior to the end of February each year, ensuring that non-potable water needs are met throughout the summer. Calculations indicate that the reservoir is more than sufficient to supply this need throughout the summer months.

12.11 The EIS needs to provide details regarding the dimensions of the three 10,000 gallon water storage tanks to be constructed at the snowplay area, Agassiz Lodge and Hart Prairie Lodge.

Each cylindrical, steel tank would be constructed to approximately 10 feet in diameter, 15 feet in height, and would be buried.

12.12 No evaluation of the impact of the increased energy production needed to pump wastewater several miles horizontally and over 3,000 feet vertically is included in this proposal.

The reader is referred to Comment 12.8.

13.0 TRAFFIC, PARKING AND RESORT ACCESS

Thematic Comments

13.1 The FEIS should analyze the current traffic congestion that exists both in the City of Flagstaff and along Highway 180, which would only be exacerbated if the Proposed Action is selected. Would the City of Flagstaff's existing traffic infrastructure support a longer ski season?

Average Annual Daily Traffic data for Highway 180 is provided in the DEIS and FEIS in Table 3C-1. The anticipated effects of traffic increases are documented within the DEIS and FEIS, as well. As indicated in the Traffic and Ski Area Access analyses presented in the DEIS and FEIS, combined *peak day* skier and snowplay facility traffic could contribute as many as 1,920 vehicles per day on the road under the Proposed Action (this assumption is based on round trip traffic). With the absence of snowmaking and a snowplay area, Alternative 3 would contribute approximately 1,360 vehicles per day on peak days. Thus, the Proposed Action represents an approximate 41 percent increase over existing peak day traffic related to Snowbowl, and Alternative 3 essentially represents no change from current conditions. While the overall peak day traffic is not anticipated to increase significantly under the Proposed Action, the frequency of busy days would increase across the course of the winter season.

13.2 Due to the increased visitation and increased traffic, will Highway 180 and Snowbowl Road need to be widened to accommodate increased skiers and traffic?

Snowbowl Road was designed and constructed following a relatively wet winter with high ski visitation and is currently adequate to accommodate existing and anticipated traffic volumes. An increase in traffic on U.S. Highway 180 and Snowbowl Road may occur, but both of these roads were engineered to accommodate projected traffic flow. The need to widen Highway 180 within the City limits will be influenced by other factors including residential growth.

13.3 The FEIS should address the feasibility of mass transport (shuttling from the bottom of Snowbowl Road) to accommodate increased visitation from snowplay and tubing. Just because Snowbowl does not wish to continue a shuttle bus operation does not mean that it is not a viable alternative to expanded parking or that it is not a valuable customer service. The 1979 EIS and ROD recognized that it was not possible to meet the parking demand. The ROD required a shuttle system that accommodated 50% of the comfortable carrying capacity.

The 1979 EIS and ROD did require that a shuttle system be provided to transport skiers from Highway 180 to the Snowbowl. As a result, the shuttle system was implemented in the winter season of 1982 and operated through the improvement of Snowbowl Road from a narrow dirt road to a two-lane, paved road in 1989/90. After access to the base area improved dramatically, guests began driving their own vehicles to the base area and demand for the shuttle system decreased. As a result, the shuttle system provided by the Arizona Snowbowl was discontinued in 1994. To this end, analysis of a potential shuttle system was not completed for the 2004 EIS as it had already been analyzed, implemented and proven not to be necessary once the access road was paved. In addition, parking is the only limiting factor for peak day visitation.

13.4 The DEIS consistently views lack of parking as a constraint on visitor activities instead of analyzing increased attractions and traffic as further exacerbating the problem. The analysis focuses more on getting people to the bottom of Snowbowl Road than it does how to deal with the increased attraction of legal snowplay once visitors have arrived. In fact, the DEIS makes a good case for taking steps to decrease any further individual automobile traffic up the road. There is nothing in the DEIS to suggest that this new parking lot will solve the significant public access issues facing the Forest Service.

New attractions and the addition of snowmaking technology are anticipated to help stabilize attendance levels across the season but are not predicted to increase daily skier attendance levels beyond the historic peak days, which have averaged just over 3,400 guests over the past 10 seasons. In other words, peaks days, which correspond to good natural snow conditions, would reasonably be expected to occur irregardless of snowmaking. Provision of a more consistent snowpack from snowmaking would increase the frequency of peak days across the season when natural precipitation is lacking.

The snowplay facility would essentially operate as a separate entity from the skiing operations, with separate parking and guest service facilities. The proposed snowplay parking area has been sized to accommodate the full capacity of the snowtubing operation plus the necessary transition between guests arriving and those departing. Skiers would not be allowed to park in the snowplay parking area, and the modest 0.3 acre increase in skier parking is considered negligible and skier attendance would continue to be limited to parking capacity.

13.5 The FEIS should address how winter driving conditions (natural snow and ice) are more hazardous than summer conditions. Increasing the number of drivers - particularly drivers who are not experienced in winter driving conditions - would be dangerous, creating public safety concerns from increases in accidents along Highway 180 and Snowbowl Road.

It is reasonable to assume that highway accident rates may experience a proportionate increase with annual visitation. The reader is referred to the response to Comment 9.3 for specific information regarding anticipated changes in emergency responses.

Specific Comments

13.6 Comparing the potential increase in winter traffic with the daily tourist traffic in summertime does not take into account that summer traffic is dispersed throughout a much longer day (there are four more hours of sunshine in mid-summer than in mid-winter and some visitors drive through the night to reach the Grand Canyon). Trips to Snowbowl are concentrated around opening and closing times.

The DEIS and FEIS acknowledge that winter traffic in Flagstaff and on Highway 180 that is attributed to Snowbowl is concentrated in the morning, when skiers are going to Snowbowl, and in the late afternoon, when they depart. Spring, summer, and fall, which experience considerably higher ADT levels, see traffic spread out across the day. The reader is referred to the response to Comment 13.1 for estimated increases in vehicular traffic, and percent increases over existing conditions, associated with the Proposed Action and Alternative 3.

13.7 The DEIS does not adequately analyze how the constrained parking situation will be improved by the Proposed Action. In fact, the DEIS makes a good case for taking steps to decrease any further individual automobile traffic up the road. The snowplay facility has been designed to accommodate a larger number of visitors than there is parking capacity. Increasing the uphill lift capacity will provide for an increase in skiers.

Daily attendance at Snowbowl is indeed constrained by parking capacity. However, by design, no significant additions to Snowbowl's skier parking capacity were incorporated into the action alternatives, other than for the snowplay facility. Increasing the ski area's CCC from 1,880 to 2,825 *without* increasing parking capacity indicates that Snowbowl's has an abundance of parking when compared to uphill/downhill capacity and guest services in light of overall demand (i.e., peak days average approximately 3,400 guests). Therefore, the addition of new lifts, trails guest services will help better balance the resort. Increased skier parking would potentially generate attendance levels far beyond what the on-mountain lift/trail and infrastructural networks could accommodate. The reader is additionally referred to the response to Comment 13.4, which explains that adequate additional parking would be developed to fully accommodate the proposed snowplay facility.

13.8 The EIS needs to fully address the lack of public winter and shoulder season access to the Humphrey's and Kachina Trail heads as well as lack of access to parking for dispersed back country winter recreation. As soon as it snows, the Forest Service closes access to these public use areas by

closing the parking lots directly adjacent to these trail heads. There is no other parking available.

While issues related to parking and access for the Humphreys and Kachina trails are beyond the scope of this analysis, the reader is directed to the Recreation analysis in the DEIS and FEIS for further information on available parking for these areas. Snowbowl's parking areas are available throughout the summer months and on weekdays during the ski season for backcountry use. Backcountry and/or dispersed recreationists can and would continue to be able to use these parking lots during the summer and ski season weekdays for free or ski season weekends for a fee. While the Snowbowl strives to accommodate dispersed backcountry users to the extent possible, the provision of public access and parking for these users is not incumbent upon the Snowbowl. Were it not for the parking areas at the ski area and the snowplowing that the ski area provides on the Snowbowl road, access to the backcountry trailheads would be even more limited and/or remote.

13.9 It is also not fair that people are charged to park their cars unless skiing. I thought this was a multi-use area. What about hikers or those who simply want to enjoy views of the mountain?

The policy to charge for parking is beyond the scope of the decision being made within this analysis.

The Arizona Snowbowl began the practice of charging dispersed recreation users for parking at the Arizona Snowbowl during the 2003/04 winter season. Parking fees are only collected during busy weekends in the winter operating season to allow the Snowbowl to attempt to manage the volume of dispersed users attracted to the area. Frequently, the Snowbowl turns away skiing guests once the parking lots are full. The parking lots were developed by the Snowbowl and are maintained by the Snowbowl to provide parking for paying skiing customers.

13.10 While Highway 180 is an ADOT responsibility, it would seem that some mitigating efforts should be taken should the Proposed Action be implemented. A more detailed analysis and review of these impacts (through a Traffic Impact Analysis), along with proposed or required mitigation measures to be shared by Snowbowl and ADOT should be a part of any increase in activity.

It is not clear what mitigation measures the commentor would like to see implemented. The traffic analysis indicates that on peak days, which are anticipated to increase in frequency, Snowbowl-related traffic could increase by as much as 41 percent across the course of a given day.

13.11 The analysis lacks hourly traffic counts that would shed light on the acknowledged traffic backups. The reality is that skiers arrive at the Snowbowl at various times during the day, and that they all leave at about the same time in the afternoon, thus causing traffic congestion on southbound 180 from Snowbowl all the way through Flagstaff. The analysis also ignores the facts that these backups happen almost exclusively on weekends and holidays, when Snowbowl visitation spikes.

While hourly data on traffic congestion through the City of Flagstaff (i.e., Humphrey's Street) was unavailable for this analysis, the DEIS and FEIS state in the "Traffic and Ski Area Access" section,

> *"… traffic typically spikes during the morning and evening rush (i.e., ingress and egress) between Snowbowl and Flagstaff. This is especially true on busy weekends and good snow days, and results in traffic being backed up on portions of Highway 180. This particularly affects residents from Cheshire Estates and Fort Valley."*

While the overall peak day traffic is not anticipated to increase considerably under the Proposed Action, the frequency of busy days would increase across the course of the winter season. The reader is referred to the response provided to Comment 13.1 for additional information on projected traffic attributable to Snowbowl's operations under alternatives 1, 2, and 3. Notably, the incremental increase in peak day traffic would be attributable to the proposed snowplay facility. Since the snowplay facility would not have the same operating hours as the skiing operations, and would operate in one hour increments across the course of the day, the increased traffic would be spread out throughout the day. However, there would be some overlap when the afternoon snowplay sessions are ending at the same time skiers are departing.

13.12 Compare the data found on ADOT's website vs. Table 3C-1 (p. 3-40). There are unexplained differences in the year 2000 data. Also, data for the years 2001 and 2002 (missing in the DEIS) have the effect of reducing AADT for this portion of Highway 180, when compared with published numbers in the DEIS.

At the time of release of the DEIS (February 2004), AADT for the locations provided in Table 3C-1 was limited to years 1998, 1999 and 2000. ADOT has since updated its website with data for years 2001 and 2002. Table 3C-1 in the FEIS has been updated to reflect year 2001 and 2002 data, as well as to correct for published discrepancies in AADT for year 2000 on ADOT's website.

13.13 Since virtually every vehicle that visits the Snowbowl makes two trips per day (one in each direction) on 180 between Flagstaff and Snowbowl Road, the analysis must multiply the number of Snowbowl vehicles by two on each day the Snowbowl operates to correctly compare Snowbowl traffic to Highway 180 AADT.

The "Traffic and Ski Area Access" section of the FEIS has been updated to clarify that the existing and anticipated traffic (primarily between Flagstaff and the ski area) generated by Snowbowl's operations results in round trip *vehicles per day*. It is noted that for purposes of comparison to AADT – which only captures the total number of vehicles on a section of highway – that the total number of vehicles is used as the appropriate indicator in the analysis.

13.14 On Page 3-45, peak day Snowbowl vehicles under the Proposed Alternative are estimated at 1,920 vehicles. This equates to 3,840 vehicle trips between Snowbowl Road and Flagstaff. When compared with the AADT numbers, the conclusion is that on peak days, Arizona Snowbowl visitors alone would generate a traffic volume equivalent to the AADT for Highway 180 for this road segment. This traffic volume would be added to the Grand Canyon traffic volume for that day. Therefore, Arizona Snowbowl peak day traffic under the proposed alternative would have a major impact on Highway 180 traffic volume between Snowbowl Road and Flagstaff.

The reader is referred to the response to Comment 13.13 for a discussion on vehicular trips per day generated by Snowbowl.

Average Annual Daily Traffic (AADT) is defined as the total volume of traffic on a road segment for one year, divided by 365. As stated on the "Average Annual Daily Traffic" (Existing Conditions) in the DEIS and FEIS, "*Correspondence with ADOT engineers confirmed that Snowbowl's wintertime operation, irrelevant of high or low attendance levels, have little impact on AADT for U.S. Highway 180*." In computing ADT and, therefore, AADT, all traffic on Highway 180 is counted, including that related to Snowbowl and the Grand Canyon. Table 3C-3 in the FEIS has been expanded to include data for I-40 (Business Loop) through Flagstaff (Humphrey's Street) as well as its intersection with Navajo. Data indicates that summer ADT for Highway 180 is sufficiently higher than winter (especially at intersections with Aspen and Navajo) and that it offsets any contributions made by the Snowbowl.

13.15 The snowplay area adds about 200 trips per day [on Highway 180] in each direction. The anecdotal information presented in the DEIS that Snowbowl turns away this many people already and so therefore there is no increase in traffic does not substitute for detailed analysis.

The EIS does not discount the effects of the snowtubing facility on traffic. Detailed projections of traffic attributable to the snowtubing facility are provided in the Traffic and Ski Area Access analysis, which are combined with projections for skier traffic. The analysis merely points out that current dispersed snowplay traffic on Highway 180 is at or above what the snowtubing facility is expected to generate.

13.16 The Snowmaking, if as successful as Snowbowl would presumably like it to be, would cause an increase not only in peak visitation but would also increase visitation during non-peak times.

While traffic would likely increase during non-peak times, due to a more consistent snowpack, it is peak day visitation and related traffic that is addressed in the EIS.

14.0 NOISE

Thematic Comments

14.1 Increased noise from snowmaking equipment needs to be further analyzed for potential impacts to wildlife, including wildlife migration and habitat of small mammals, birds, amphibians, etc.

Potential impacts to various wildlife species from snowmaking and construction related noises are thoroughly discussed in the "Detailed Analysis of Direct and Indirect Effects" analysis in the Wildlife section. Amphibians are excluded from this discussion, as none are assumed to be present during the late fall and winter when Snowbowl would be operating its snowmaking system.

14.2 Noise generated during construction and operation of the snowmaking system will impact the experience of many people who utilize the Kachina Peaks Wilderness for recreation.

As stated in the DEIS and FEIS, the entire snowmaking system would be primarily operated at night between late October and December, or as soon as ambient temperatures (including daytime) drop to suitable levels for making snow. After a sufficient base layer of snow is produced, the intent is that only portions of the system would need to be brought on line to "patch" thin areas. Nonetheless, while fan and tower guns would be audible (62 and 73 dBA at 200 feet, respectively) from immediately within the Wilderness, noise generated from this equipment would dissipate rapidly with distance. However, the late fall and winter months, when the snowmaking system would be used, receive the lowest levels of Wilderness use. Furthermore, very few, if any, recreationists would be expected to use the Wilderness area at night during the winter and there would be no anticipated effects to Wilderness users from nocturnal snowmaking operations. Additionally, the reader is referred to Comment 8.3.

14.3 Noise generated from operation of the snowmaking system will impact nearby homeowners, potentially affecting use and enjoyment of their property.

As discussed in the "Direct and Indirect Effects" analysis of the DEIS and FEIS, the proposed snowmaking system would not be audible in the Fort Valley area. Under a worst-case scenario, the Hart Prairie area could be affected by noise levels as high as 38 dBA under certain atmospheric conditions. As stated, the subjective audibility of operation of the snowmaking system would be "very quiet" to "quiet", being specifically characterized within the DEIS and FEIS as sounding similar to *"wind in trees at 10 mi/hr."*

Specific Comments

14.4 According to the DEIS the snow guns that Snowbowl will be operating will produce noise in the 60-90 decibels range which OSHA reports indicate can cause permanent hearing damage. The noise levels produced by snowmaking equipment could have a potentially disastrous effect on the health of the wildlife communities in the areas adjacent to the Arizona Snowbowl and might result in a "dead zone" which is depleted of the natural animal populations that have been forced to migrate elsewhere.

The noise range cited in the DEIS and FEIS for the two types of snowmaking guns range from 62 to 73 dBA. By way of example, a noise level of 60 dBA would be roughly equivalent to the loudness of ordinary daily conversation. A noise level of 70 dBA would be roughly equivalent to the loudness of traffic next to a busy roadway at a distance of 100 feet. Additionally it is noted that these are the noise levels produced within 200 feet of the gun. Beyond 200 feet from the emission source, noise levels decrease rapidly. The effects to wildlife communities from noise produced by snowmaking equipment are addressed in response to Comment 14.1.

14.5 This noise will have reaches far beyond Snowbowl's SUP area. Potentially up to 1.5 miles. Please create a diagram to illustrate the range of noise pollution.

The Forest Service considered the suggestion of the commentor to provide an illustrative of the anticipated noise affects. The analysis prepared for the DEIS and FEIS concludes that the sensitive receptor areas will not be negatively affected by noise. A diagram has been incorporated as Figure 3B-1 into Chapter 3B, page 3-33 of the FEIS, visually portraying the attenuation of sound with distance from a theoretical stationary point source. The reader is referred to Chapter 3B of the DEIS and FEIS for a detailed narrative discussion of potential noise impacts to surrounding communities.

14.6 Noise and commotion during the period of construction would destroy the recreational experience of many people. Later, although the noise of snowmaking would be mostly at night, that mechanized racket would diminish the perception and reality of the Peaks as a rare, unspoiled, much-loved natural presence.

It is presumed that the commentor is referring to potential impacts to users of the adjacent Wilderness. The reader is referred to comments 8.4 and 8.3 for additional information.

14.7 Animals generally have a broader spectrum of hearing, why isn't there a reference to their hearing range in the DEIS. What effects will this have on animals, and plants if 25 tower guns are operating at 100% from October through December?

The potential effects on various wildlife species from simultaneous operation of up to 50 snowmaking guns (25 fan and 25 tower) consistently between October and December is discussed in the DEIS and FEIS (Section 3B). The reader is referred to Comment 14.1. There are no studies which indicate that plants are capable of auditory perception. Therefore, the effects of noise on plants was not considered in the analysis.

14.8 The discussion of large mammals on p. 3-299 is not backed by any data. There is no evidence that bears or mountain lions will tolerate the noise levels associated with blasting 10-20 ac/ft of bedrock during the construction of the 10 million gal reservoir (an impact that will rival a small volcanic eruption of the Peaks), or of snowmaking, especially spanning 24 hours a day of an artificially lengthened ski season. The noise levels produced by construction activities and of snowmaking equipment are presented at different distances than the comparison sounds, making it impossible to understand the actual sound level. In addition, there is no documentation of the cumulative effects of numerous and continuous noise sources in the bowl-like morphology of the Arizona Snowbowl.

The anticipated effects of temporary and permanent noise sources on wildlife associated with the Proposed Action are documented in the DEIS on page 3-296, as well as in the FEIS on page 3-321 and 3-322.

14.9 The noise from snowmaking equipment will pollute the Snowbowl area as well as surrounding areas. Sound in the still cold air carries for miles and will disrupt the meaning of wilderness and the purpose people seek it.

Atmospheric conditions are an integral component in modeling noise conditions and were accounted for in the noise analysis presented in the DEIS and FEIS.

14.10 The DEIS treats noise issues in a way that might be appropriate if the Snowbowl were located in an industrial or urban setting. The discussions as to what an acceptable noise level might be are not appropriate for a site located near low density housing, and more significantly, for a site that is surrounded on three sides by the Kachina Peaks Wilderness. Criteria that are used for such places as Grand Canyon National Park would be more appropriate. The Snowbowl expansion proposal clearly has the potential to further degrade the Wilderness experience of recreationists within the Kachina Wilderness. This is true during the construction period and during the operations period of the facility.

The noise analysis presented in the DEIS and FEIS does establish a series of background points where ambient noise levels and conditions were measured. The analysis then makes a comparison of the anticipated condition to these baselines. The reader is referred to Section 3B of the DEIS and FEIS for additional information. The fact that the Arizona Snowbowl is bound on three sides by the Kachina Peaks Wilderness does not

preclude the ski area from current and/or future operations and activities that inherent to operating a ski area. The reader is referred to responses to comments 8.2, 8.3 and 8.4 for information pertaining to potential impacts to the Wilderness from additional noise in the SUP area. The ski area predates the Wilderness designation and is recognized in the legislation that established the wilderness as an existing feature.

14.11 It is inappropriate to refer to natural sounds such as wind as "noise." Wind and other natural sounds are background sounds and are a part of natural quiet. Although they do affect the level at which noise can be heard, they are not themselves noise. The sounds of snowmobiles, cars, pumping stations, guns used for artificial snowmaking, and other such equipment are part of the noise that would be experienced if these activities were allowed.

Webster's New World Dictionary defines *noise* as: 1) a sound of any kind, 2) a sound or combination of sounds. The DEIS and FEIS compare existing ambient noise levels with predictions, and account for acceptable noise levels. As indicated in the DEIS and the FEIS, existing ambient noise levels in the analysis area are highly dependent on noise sources such as snowmobiles, passenger vehicles, and wind.

14.12 As the DEIS points out, people use the Wilderness area during the periods that snow might be made. As backcountry equipment improves, it is likely that day time activities and overnight camping will increase in the Wilderness area, although camping is not allowed above 11,000 feet. Accordingly, the relatively quiet conditions in the Wilderness area and the other areas surrounding Snowbowl should be protected from noise that would compromise the natural quiet resource and values. Discussions about typical municipal ordinances and similar criteria are incomplete at best and possibly inappropriate.

The reader is referred to Comment 14.10.

14.13 Maybe little can be done about existing noise, but new recurring noise activities should not be allowed. As the DEIS points out, the background sound/noise level is quite low; measured to be 30 dBA. This is an indicator that noise generated by new equipment would be quite audible near the site, considering that individual snow guns produce 62 to 73 dBA at 200 feet. Software recently developed for the National Park Service and the Federal Aviation Administration might be useful to determine the audibility of the proposed equipment.

A qualified acoustical consultant with experience in a variety of residential, commercial, and industrial projects performed the noise analysis presented in the DEIS and FEIS. While other models may be useful for conducting a noise analysis for this type of project,

the Forest Service is confident that the analysis performed lends itself to a credible determination of the potential effects of operating the snowmaking system.

14.14 Table 3B-2 shows that 65 L_{dn} is acceptable. However, other sources indicate that 40 to 48 L_{dn} is more typical in rural areas. (U.S. Federal Interagency Committee on Noise. 1992. Federal agency review of selected airport noise analysis issues. Washington, D.C. At B12.) The same report shows that 65 L_{dn} is what you would expect in "urban" or "dense urban with heavy traffic." Even though the criterion should be audibility rather than a noise level, the levels assumed to be acceptable in the DEIS are clearly not appropriate for the subject site.

While the Snowbowl SUP area is located in a rural setting, urban-type sights and sounds are clearly inherent in the operation of a developed ski area. Thus, the HUD regulations presented in Table 3B-2 are appropriate for this analysis.

The Federal Interagency Committee on Noise (FICON) was formed in 1990 to review Federal policies that govern the assessment of airport noise impacts. The FICON review focused, in part, on the manner in which noise impacts are determined, including whether aircraft noise impacts are fundamentally different from other transportation noise impacts and to help determine appropriate methodologies for civil and military aviation scenarios on populations in the general vicinity of airports. The suggestion that the same standards that apply to aviation noises should be applied to the Snowbowl snowmaking proposal is unsupported.

14.15 It would be appropriate to complete a more thorough analysis that would determine the level of audibility of the site equipment. The analysis should include the surrounding rural areas, and in particular, should include the adjacent Wilderness.

The reader is referred to comments 14.13 and 14.16.

14.16 The acceptable noise level should not be some instantaneous noise level expressed in dBA or some average day-night average sound level measure as L_{dn}. The Wilderness criterion should be audibility. If a new noise is audible in the wilderness area, it should not be allowed.

There is no standard or criterion for measuring the acceptability of noise effects within Congressionally designated Wilderness areas. Furthermore, there is no requirement that activities cannot be heard from wilderness areas (refer to comments 8.2, 8.3 and 8.4). As stated in the DEIS and FEIS, the only applicable national noise code is established in the US Housing and Urban Development Department (HUD) regulations. HUD regulations express noise levels in dBA and L_{dn}.

14.17 I'm concerned about the noise level of the snow making equipment and would recommend purchasing the quietest snow making equipment available. I recommend a noise curfew on the mountain; requiring snow making to end at a certain hour. Occasionally there are social gatherings at the ski lodges that may have music or other noise as part of the entertainment. I recommend a noise curfew on this type of entertainment as well.

Should snowmaking be approved for use at Snowbowl, the public can be assured that the ski area will install a state-of-the-art system using the most minimally audible equipment reasonable. Snowmaking technology has evolved considerably over the decades, both in terms of efficiency and audibility. However, due their reliance on both air and water lines (for air-style guns), even the most advanced systems cannot reduce noise down to levels that may be "acceptable/tolerable" to all people.

Because snowmaking technology must take maximum advantage of cold temperatures, it is imperative to the function of the system that it operate at night when temperatures are lowest. Additionally, it is noted that snowmaking equipment operates most efficiently and therefore more quietly at lower temperatures.

14.18 There is a serious conflict between this statement: pg. 3-34, "*However, as daytime temperatures decrease throughout the season, the length of time over a 24-hour period in which snow could be made would increase*," and this statement: pg. 3-297, "*Snowmaking and associated snow cat use would take place during nighttime hours in winter*." Which is it? The impacts of daytime snowmaking are not presented anywhere in the DEIS and the statement about it only appears under the topic of noise.

The commentor is correct in noting the inconsistency between the statements. The text on page 3-297 of the DEIS and 3-322 of the FEIS has been amended to state the following: *"Snowmaking and associated snowcat use would take place primarily during nighttime hours in winter."* The validity of the wildlife effects determinations were reassessed in making this clarifying change to ensure that the conclusions reached did account for snowmaking and grooming operations occurring during daylight hours. None of the conclusions documented in the DEIS and FEIS were found to need reassessment or further evaluation.

The reader is referred to Comment 11.23 for additional information.

15.0 RECREATION

Thematic Comments

15.1 The DEIS states that daily skier visitation is not expected to increase as a result of the Proposed Action. If this is the case, there is no justification for the installation of this extensive snowmaking infrastructure.

While average *daily* attendance levels are not anticipated to increase under the Proposed Action, total *annual* visitation is anticipated to increase substantially as a function of the provision of a longer and more reliable ski season. Daily attendance is currently, and would continue to be, limited by skier parking capacity under all alternatives analyzed in detail.

15.2 The methodology for projecting visitation changes is not adequate and no evidence is provided to justify increases in annual visitation.

Annual skier visitation projections and the methodology uses are discussed in detail in the response to Comment 9.47.

Specific Comments

15.3 A Proposal for upgrading the existing lifts sounds appealing, but that would just increase the number of skiers on the slopes at any given time.

The additional lifts and terrain to be developed under the Proposed Action would have the effect of lowering lift and trail densities as compared to the existing conditions. Daily attendance at Snowbowl would continue to be limited by parking capacity. While the comfortable carrying capacity of the resort would increase from 1,880 to 2,825 skiers-at-one-time, this increase is simply upgrading the infrastructure to better accommodate the existing level of visitation. Under the proposal, total skiable terrain would increase from roughly 139 acres to approximately 204 acres. The reader is additionally referred to the response to Comment 26.5 which further explains the proposed changes in lift capacities.

15.4 According to the DEIS, *"daily skier visitation is not proposed to increase as a result of the Proposed Action."* (DEIS at 1-14) The impacts addressed in the DEIS appear to be based on the assumption of no growth in daily visitation. There does not, however, appear to be any basis for this assumption. Even according to the DEIS, "the frequency of peak days is anticipated to increase throughout Snowbowl's operating season." (DEIS at 3-44) Contrary to the prior assertion, this means that the Forest Service anticipates an increase in daily visitation. The Forest Service needs to provide a thorough analysis of the impacts of each of the alternatives in

light of realistic projections of daily (not just annual) visitation. If there is no increase in daily visitation, there does not appear to be any need for this project. If there is an anticipated increase, the Forest Service needs to fully disclose, discuss, analyze and consider this issue.

The commentor is correct – the analyses presented in the DEIS and FEIS are based on the assumption that there would be essentially no increase in *daily* skier visitation. (However, operation of the snowplay facility would increase overall daily attendance at the Arizona Snowbowl.) Snowmaking would provide a more consistent and reliable ski season and the Snowbowl would be expected to experience an increase in total *annual* visitation, although this would not increase *daily* skier visitation because, as indicated, the limiting factor for daily skier visitation would remain parking capacity (refer to the response provided to Comment 15.3). This is also explained in the response to Comment 15.1.

15.5 According to the DEIS, the current CCC for Snowbowl is 1,880 skiers. (DEIS at 2-1) Peak day visitation is in excess of 3,400 skiers. (DEIS at 2-2) Under the proposed alternative, the CCC would increase to 2,825 skiers. (DEIS at 2-5) Peak day visitation would continue to be in excess of 3,400 skiers. (DEIS at 2-5) There is, however, no reasoned analysis as to why the current CCC of 1,880 skiers (and configuration at Snowbowl) is not adequate. Indeed, it appears that "Snowbowl is typically used at or near its capacity level [1,880] on days when there is good or excellent quality skiing."

At attendance levels at or approaching Snowbowl's CCC of 1,880, Snowbowl's lift, trail and guests service capacities work in equilibrium. However, at attendance levels in excess of 1,880, these capacities become out of balance and the guest experience diminishes. By upgrading lift, trail and guest service capacities while maintaining essentially the same parking capacity, the Snowbowl has an opportunity to significantly improve the quality of the recreational experience for the number of guests that it has historically attracted on peak weekends and good snow days.

15.6 While annual snowfall is correlated to visitation, to what degree would improvements in facilities and skiing opportunities increase under Alternative 3? How does current daily Comfortable Carrying Capacity (CCC) of 1,885 visitors influence visitor satisfaction? How would visitor satisfaction be affected with an increase in CCC to 2,825 under Alternative 3?

As indicated in Comment 15.5, at attendance levels at or approaching Snowbowl's existing CCC of 1,880, an uncrowded, comfortable guest experience is provided. At attendance levels beyond the CCC, however, lift, trail, and guest service capacities become out of balance; long lift and food service lines, and high trail densities, are the result. Thus, at attendance levels beyond the CCC, guest satisfaction is negatively affected by overcrowding.

Alternative 3 essentially involves all of the proposals included in the Proposed Action, with the exception of snowmaking, the snowplay area, halfpipe, and the realigned Aspen Lift. Without snowmaking, Alternative 3 would represent a continuation of Snowbowl's historic reliance on natural snowfall to dictate the quality of the guest experience. Implementation of the proposed projects is highly dependent upon the improvements to financial stability that the inclusion of snowmaking would provide. However, under an assumption that all of the Alternative 3 projects were to eventually be developed, the guest experience would be similar to that of Alternative 2 during times of good natural snow cover.

15.7 No statistical evidence is presented to verify the claim that, *"It is apparent that up and down variation in snowfall results in similar variation in skier visits."* (p. 3-105).

The reader is referred to the response provided to Comment 9.95.

15.8 It is impossible to evaluate the environmental impact of a ski area expansion without daily attendance figures. Impacts occur on a daily basis, directly related to the number of people visiting an area each day.

It is not considered practical or necessary to provide daily attendance levels in this analysis. However, annual attendance at the Snowbowl, as well as number of days open each season, is provided in Table 3F-1 in the DEIS and FEIS. In addition, as stated in the "Existing Conditions – Comfortable Carrying Capacity" discussion of the DEIS and FEIS: *"over the past 10 seasons, average peak day (i.e., holidays and good snow days) attendance has been approximately 3,434 guests."* Average peak days were calculated by analyzing the ten highest attendance levels of each season. Peak day attendance levels provide a glimpse of the "worst case" scenario, implying that the parking lots are filled to capacity, lift lines are long, terrain is crowded, and food service and restroom facilities are beyond capacity. However, most days, especially weekdays, do not experience anywhere near this level of visitation or crowding.

15.9 It seems to contradict itself if we're doing all these changes and then we're not expecting skier visitation days to increase. I think it makes more sense to bring the current use levels in balance with the current capacity that's presently there, rather than increasing the user days and making it larger.

The reader is referred to the responses provided to comments 15.1, 15.4, and 15.5, above. Based on historic daily and annual attendance levels (especially when correlated with annual snowfall – refer to Figure 3E-2 and Table 3F-1), it is apparent that demand for skiing currently exceeds supply. Essentially, when snow quality is marginal or better, the Snowbowl experiences a high utilization rate due to its location near a large, under supplied market. While Snowbowl's parking and, to some degree, terrain capacities can accommodate relatively high use, the demand for skiing exceeds Snowbowl's uphill capacity (i.e., lifts). By increasing Snowbowl's lift and terrain capacity and *not*

increasing daily attendance, the Proposed Action would bring facilities into much better balance.

15.10 The additional ski runs, as described, are intermediate and advanced, whereas the greatest identified need in the Executive Summary is beginner terrain. There is no appreciable increase in beginner terrain - only an increase in the number of lifts (four additional tows) serving beginner terrain - again, increasing the number of skiers on already overcrowded runs.

Snowbowl has a demonstrated lack of beginner and intermediate terrain. While Alternatives 2 and 3 increase the amount of intermediate and advanced terrain, there is little beginner-level terrain outside of the Hart Prairie area that is physically available for development. While beginner terrain increases by a modest 1.6 acres under alternatives 2 and 3, by increasing intermediate and advance skiing opportunities throughout the SUP area, pressure would be taken off of Snowbowl's beginner areas. This is designed to provide a safer, more enjoyable skiing/learning experience on the beginner terrain that the ski area does have, as well as offer more opportunities for a logical progression as guests advance through the learning process.

15.11 Although the proposed enhancements to the Arizona Snowbowl facilities would serve the interest of recreational skiers and snowboarders, these same enhancements would adversely affect the interests of recreational campers, wildlife observers, and hunters. It is important to the credibility of the process that the concerns of these interests be given equal weight with the concerns of the recreational skiing industry. Speaking as a hunter and outdoorsman and a resident of Arizona, I object to the expansion of the Snowbowl facilities on the grounds that the proposed work will adversely impact the quality of the area for all outdoorsmen other than recreational skiers.

It is noted that the 777-acre SUP is within Forest Plan Management Area 15 - Developed Recreation Sites. All proposals analyzed within the EIS meet the standards and guidelines of Management Area 15. Incidentally, the SUP area is not closed to hunting, however, it is surrounded by approximately 19,000 acres of designated Wilderness, all of which is available for a variety of non-motorized recreational uses, including hunting. Implementation of any of the alternatives would not change use or management of the SUP area. The agency and the user public often see the use of the general area for skiing, hunting, hiking, and other recreational opportunities as being complimentary.

15.12 The DEIS broadly compares Snowbowl to industry averages across all ski areas in the western United States. Which ski areas in the United States are considered "peer" ski areas? How do skier days, annual investment, quality of facilities, and other indicators compare to peer ski areas?

The reader is referred to the response provided to Comment 9.99. Generally, there are no other ski areas of the same caliber within the western United States that suffer from similar variability of snowfall and extreme fluctuations in annual visitation. Ski industry analysts involved in the compilation of this analysis found the quality of the skiing experience and facilities that the Snowbowl is able to provide is quite remarkable given their current dependence upon natural snowfall and the variability of their economic performance. As detailed further in the Social and Economic Resources section of the DEIS and FEIS, this is in large part attributable to the fact that current ownership has historically invested capital into the ski area that has not come from Snowbowl's profits.

15.13 In Table 3E-10, the years Snowbowl had a negative change in visitation, the average of all other ski areas also declined, while not as significantly. How do individual peer ski areas compare for the same indictors?

In some instances there may be a slight correlation to changes in annual visitation between the Snowbowl and other comparable regional ski areas. However, the magnitude of the changes is incomparable. Typically one sees changes in visitation on the order of zero to 15 percent within the Pacific West region to a range of up to 40 percent within Arizona as a whole. As detailed in Table 3E-10 of the DEIS and FEIS, the Snowbowl has endured variations in annual visitation ranging from 2,857 to 180,082 visitations.

15.14 For annual skier visits, what is the proportion/number of season ticket holders relative to snowfall? What is the proportion/number of season ticket holders relative to annual operating costs?

Because the public typically purchases season passes in the early fall, they must make their buying decision independent of knowing how snow conditions will be in the coming season. Historically, the Snowbowl has offered a partial refund or credit to pass holders at the conclusion of ski seasons with low snowfall and limited skiing opportunities. Therefore, the fluctuations seen in the number of season passes sold do not closely mirror changes in total annual snowfall. The relationship between season pass sales relative to annual operating costs was not found to be indicative of trend. Season pass sales represent a marginally variable revenue source, while annual operating costs are primarily composed of fixed costs combined with a smaller variable cost component, which is driven by overall operations and visitation. Therefore, how these comparisons could prove useful to the decision maker was not made clear by the comment.

15.15 There are several new runs proposed. The runs should not be excessively wide as *Logjam* was cut. The wind on the Peaks does too much damage to wide runs. Runs should be cut with many tree islands and glades. Some runs that are proposed are very good ideas but some are poor. The runs skier's left of *Waterfall* cut across rock cliffs/boulder fields and would require significant blasting and grading and would be more south facing. I see no Waterfall Bypass to skiers' left proposed. The runs proposed

skier's left on the new Humphrey's Lift are south facing and will not hold the snow. The access run from the bowl side has no snowmaking planned so would rarely be open so ski patrol would have no access to the top of this chair and would need to have a patrol shack at the top of Humphrey's Chair.

Most of the proposed new trails are too narrow to safely and reasonably incorporate tree islands, however; Alternatives 2 and 3 each call for approximately 47 acres of improved glades in the upper portion of the SUP area north of the Agassiz chairlift's top terminal. It is acknowledged that snow retention in the Humphreys pod could present challenges to snow retention. However, as explained in the Recreation section of the DEIS and FEIS, the trails proposed for this area specifically incorporate narrower widths and the use of intertrail islands to increase shading. Additionally, the proposed inclusion of snowmaking in this area will substantially improve the reliability of this terrain. Finally, the ski patrol headquarters, located at the top of the Agassiz chairlift, would provide response in the Humphreys pod with construction of Trails #44 and #33 (see Proposed Action map). While snowmaking is not proposed for the upper traverse (Trail #44) it is planned for the lower entrance (Trail #33). During low snow conditions, ski patrol functions can easily access the lower three quarters of the terrain from the lower traverse or use snowmobile assistance to reach the upper quarter of the pod.

15.16 Besides *Waterfall*, three other dangerous areas on the mountain are not addressed. The bottom of Agassiz Chair is not fixed. Traffic going to the Sunset Chair needs to be merged before the bottom of *Agassiz Run*. The new *Upper Volcano* cutting across the midway catwalk will create another usage situation. A novice way off the top of Hart Prairie Chair needs to be cut on skier's left. If new trails are to be cut at least these problems could be fixed.

Clearly, not all of the deficiencies or circulation challenges can be rectified by any one design. The Forest Service and ski area operator, during routine management of the permit, work together closely to ensure unsafe areas are identified, marked and mitigated as necessary in order to provide a safe experience. Ski area planners and the Arizona Snowbowl worked with the topographic features found within the SUP area to achieve trail designs and improvements that better disperse skiers across the mountain and improve the recreational experience.

15.17 The Forest Service should allow access to points off Snowbowl Road for backcountry users. To alleviate mass parking of sledders, a parking permit system could be implemented.

Parking on the Snowbowl Road for dispersed recreational use is a management decision beyond the scope of this analysis. As indicated in the Traffic and Ski Area Access section of the DEIS and FEIS, parking and staging of dispersed recreational activities along the Snowbowl Road has historically caused numerous logistical and safety

problems, including: pedestrian/vehicular encounters, sanitation and refuse concerns, and difficulties for emergency vehicles passing through congested areas. Therefore, the Forest Service prohibited parking along the Snowbowl Road with the 2002/03 season.

While backcountry recreationists may park at the ski area to gain access to the Humphreys and Kachina Peaks Trails, snowplayers are discouraged from parking at the ski area. However, the Proposed Action addresses the historic demand for snowplay on the Forest with inclusion of a proposed snowplay facility and the provision of designated snowplay parking. The Forest Service, ski area operator, and other agencies work together to provide suitable snow play opportunities in other areas, and to plan for the future of this activity.

15.18 The proposed development does not appear to include increased night activity, however neither does it explicitly state that night activity will not be facilitated by snowmaking. We request this issue be clarified. Especially given the size of additional lodges- will these include facilities for overnight stays?

Aside from increased operational activities associated with grooming and snowmaking, no nighttime activities are proposed in association with any of the alternatives. Occasionally, activities such as "torch runs" are permitted. These activities are of minimal impact and duration, and are not felt to adversely impact night sky conditions as has been discussed here and in other sections of the document. The installation of a night lighting system was included in the original Proposed Action and would have allowed for night skiing, however, this was dropped from the proposal early in the analysis process for a number of reasons, including tribal and community concerns over potential effects to cultural resources as well as the "sky glow" that could have been created. Regarding overnight stays, the Snowbowl does not currently have, nor propose, overnight accommodations for guests. Furthermore, overnight accommodations are not a permitted activity in Snowbowl's SUP or winter/summer operational plans.

15.19 The DEIS still lacks in detail as to how 66.5 acres of new skiing terrain will be achieved. Neither the scoping document or the DEIS specify what is included in "new skiing terrain." For instance, is it the area covered only by new runs, or does it also include the forested areas proposed for thinning? Forest Service definitions of a "natural opening" and a "forested mosaic" as described in the scoping document and repeated in the DEIS are necessary to help gauge the dimensions and potential visual impacts of the proposed ski runs.

As presented in the Proposed Action description in Chapter 2 of the DEIS and FEIS, approximately 65.5 acres of new skiing terrain (defined as trails with specific center line and left/right edges) are proposed. In addition, approximately 47.4 acres of tree thinning/glading are proposed to occur within the Agassiz and Sunset pods.

The reader is referred to the Aesthetics Resources analysis as presented in the DEIS and FEIS for information on the anticipated visual impacts of new trail construction. Figure 2.5 in the DEIS has a representation of where the trees would be removed. By looking at the representation of the runs overlayed with the orthophoto which has the actual tree cover the commenter can approximate the locations where tree removal will occur.

15.20 The DEIS notes that the proposed tubing facility is likely to attract a new market and will increase numbers in the permit boundary area well beyond the "proposed on-mountain" carrying capacity of 2,825. With this simple statement the Forest Service proposes to significantly increase the number and type of use occurring within the permit area boundary. There is no analysis in either the 1979 ROD or the current DEIS that adequately supports increasing the overall usage within the permit boundary area.

Documentation of increased visitation associated with the snowtubing facility is included in the DEIS and FEIS; please refer to the Recreation and Social and Economic Resources sections of the documents. Furthermore, neither the Forest Plan nor the 1979 ROD precludes increased use and activity within the SUP area.

15.21 The Forest Service failed to analyze the advisability of increasing use in an area already plagued with traffic, parking, over crowding issues and public access issues. The proposed development of snowtubing facilities with a carrying capacity of "600 tubers-at-one-time," will actually translate into as many as 1,680 guests on peak days. The DEIS does not address how the Forest Service will successfully manage this increase in use.

By design, the snowtubing facility would be self sufficient, and would essentially operate independent of the ski area. While helping meet demand for snowtubing across the region, particularly when snow conditions below the ski area elevation are poor, the snowtubing facility would compliment ski area facilities in terms of providing quality, safe winter recreation opportunities. It would have dedicated parking, ticketing, and guest services, thereby eliminating the need for people visiting the snowtubing area to use the skiing facilities. While the DEIS and FEIS indicate that this facility could be expected to draw as many as 1,680 guests on *peak* days, average daily use would be considerably lower at approximately 340 to 430 guests per day.

15.22 It is still unclear in the DEIS whether snowplay activities other than tubing-for-pay will be allowed in this area. The DEIS fails to address questions regarding the overall use of the new parking area associated with the snowtubing facility. If the Forest Service wishes to assert that this expansion is needed to satisfy public use, then the DEIS must specifically state how this new parking will provide access for people not wishing to pay to go tubing. Simply claiming that dispersed snowplay elsewhere will be reduced by this action does not translate into a cumulative effects

analysis that shows how safety, sanitation and vehicular and pedestrian congestion would be alleviated.

Nowhere in the DEIS or FEIS is it implied that the proposed snowtubing facility is intended to, or would potentially, alleviate *all* problems associated with dispersed snowplay on the CNF. As stated in the DEIS and FEIS, this facility would offer an additional recreational opportunity for three public groups: 1) people who currently drive to the Snowbowl base area expecting to partake in snowplay activities, and are subsequently turned around; 2) non-skiers who otherwise might not visit the SUP area; and 3) Snowbowl's existing skiing clientele. The Forest Service believes that by providing a developed and managed snowplay destination on the CNF, some of the demand for dispersed snowplay activities will be met.

As stated in the DEIS (page 3-42), as well as in the FEIS, dispersed snowplay is prohibited within the SUP area, and parking for snowplay activities was prohibited on the entire length to the Snowbowl Road beginning with the 2002/03 season. The new parking lot is designed and intended for guests visiting the Snowbowl's snowtubing facility. A parking management plan would need to be devised for efficient management of the snowplay parking lot.

The reader is referred to the response provided to Comment 13.8 for additional information on public parking at the Snowbowl and access to NFS lands adjacent to the Snowbowl SUP area.

15.23 The establishment of a snowplay area at Snowbowl would not eliminate the need for less organized (and less expensive to use) snowplay areas where people can use their own sleds or tubes. I would certainly hope that the Forest Service would not use the establishment of a pay snowplay area to consider closing such areas as Wing Mountain and the Crowley pit to snowplay.

The proposed snowtubing facility at Snowbowl is intended to offer a fun, managed, lift-served, and safe alternative form of winter recreation for those who are willing to pay a fee. Dispersed snowplay is expected to continue on the CNF; however, opportunities for such activities are not abundant. Use of Wing Mountain and the Crowley pit areas for snowplay is briefly mentioned in the DEIS (page 3-129) and FEIS in order to put snowplay use and opportunities on the CNF into perspective. However, management of these areas is well beyond the scope of this analysis. Clearly, providing a developed opportunity will assist in fulfilling a portion of the existing demand, which should lead to a proportionate decrease in dispersed use elsewhere. During some years snow conditions at Snowbowl are poor for skiing, but good for snowplay, while conditions below that elevation are poor for snowplay. Given this, snowplay at the ski area offers a good opportunity within the complete spectrum of management options for snowplay across the general area.

15.24 The Draft EIS, at page ES-4, claims that *"When compared to ski industry norms (and guest expectations), Snowbowl exhibits a deficit of intermediate and beginner level terrain and a surplus of novice terrain as shown in Table ES-1."* Neither Forest Service nor ski industry design standards call for comparison with "ski industry norms." The Forest Service should be comparing terrain with the skill level of skiers that patronize Snowbowl. It appears that no such information is presented in the Draft EIS. The Draft EIS fails to cite how "ski industry norms" were determined.

The reader is cautioned not to confuse *norms* with *standards*. The use of norms in the Purpose and Need statement regarding terrain ability levels reflects what one would typically experience at most ski areas across the United States, indicating that the majority of skiers fall into one of the three intermediate groupings. This is indicated in Table 3F-2. While the specific distribution of the Snowbowl market segment may differ slightly from that of the nation, it is accurate to assume that the skiing demographic will still represent a traditional "bell-shaped" curve with the majority of visitors being characterized as low-intermediate, intermediate, or high intermediate. Given the Snowbowl's market and locality, it is reasonable to assume that the ability level curve is likely skewed toward the beginner and low intermediate.

15.25 The Draft EIS, at page ES-4, states that *"Currently, areas of intermediate and beginner terrain are inadequately sized to accommodate the public's demand for terrain of these ability levels on peak days."* This implies that the Forest Service is designing improvements for peak days, rather than the some percentile of peak day visitation, which is generally the ski area design standard.

While no "ski area design standard" exists, as the commentor suggests, it is in fact typical for ski areas, whether operating on public or private lands, to design their facilities (including guest services, parking, and restrooms) and lift/trail networks to accommodate peak day demands. A *peak day* is generally defined as attendance levels between 110 to 125 percent of CCC. In Snowbowl's case, historic average peaks days of 3,400 guests represent approximately 180 percent of the ski area's existing CCC (1,880). Upgrading the ski area's guest services and the lift/trail network to accommodate a new CCC of 2,825 (under the stated constraint that peak days will continue to be approximately 3,400 guests under any alternative scenario), would place peaks days in the 120 percent of CCC range, which is typical in the ski industry and would provide for a more enjoyable experience.

15.26 Your analysis of the need for more intermediate terrain is askew. The existing skier distribution at Snowbowl can certainly be interpreted another way, and it's an obvious one. There is more beginner than intermediate because there are more beginner skiers at Snowbowl than the resorts of Colorado, Utah, etc. Apparently the managers of Snowbowl have forgotten

who they cater to. They are not drawing from a population of expert or even intermediate skiers. They're drawing from a population that skis infrequently with the exception of the local Flagstaff-area residents. To attempt to justify increased intermediate terrain because Snowbowl has less than other ski resorts is ridiculous. There is a reason Hart Prairie lift is so busy.

The reader is referred to the response to Comment 15.24.

15.27 Increased user days will always correlate with natural snow events, even with snowmaking. Instead of battling over an earlier opening date, why not adjust the lease to allow skiing into and (if possible) through the month of April?

Ski Area Term Special Use Permits do not mandate a specific closing date. Snowbowl's 40-year Term SUP, which was signed in 1992 and expires in 2032, is no exception. More so than other ski areas operating in wetter climates, Snowbowl's closing date each season is primarily dictated by snowpack and, even more so, by demand as Snowbowl's market switches focus to more summer oriented recreational pursuits south of Flagstaff. Therefore, "extending" the Snowbowl season further into the spring would do nothing to address its economic or recreational limitations. Many ski areas in other parts of the country have attempted to remain open well into May and even June without success. Quite simply, it is human nature to gravitate toward warmer weather interests once spring arrives even if the quality of the skiing is excellent.

16.0 AESTHETIC RESOURCES

Thematic Comments

16.1 The visual simulations were largely based on summertime, low-contrast views and from unacceptable locations. Only with simulated wintertime views of snow covered slopes can the full impact of the area expansion be recognized.

The location of each of the four visual simulations provided in the DEIS and FEIS was determined after thorough consideration by the CNF Landscape Architect. Each of these locations was carefully considered for its ability to represent how people visually encounter the ski area. The simulations clearly show the scale and extent of the areas that would be modified sufficient for an assessment of the aesthetic effect of the proposal. The assessment assumed that all areas cleared of overstory trees would be seen at some time with snow cover that would contrast with surrounding trees

16.2 The Humphreys Pod will be a significant environmental impact because it would have a west-southwest facing aspect higher on the slope than the Hart Prairie runs and because the Snowbowl today primarily consists of northwest facing ski runs.

The Recreation section of the DEIS and FEIS details the following:

> *"While the Humphreys pod does not offer an optimal slope aspect, operations at other western ski areas – at similar elevations – have demonstrated that this can be effectively overcome through the installation of snowmaking infrastructure and through a concerted effort in maintaining adequate coverage in this pod. Additionally, the ski trails have been specifically designed in a mosaic of open spaces with the intent of maximizing the shading potential of the existing tree canopy. Through a combination of snowmaking, natural shading, and effective snow management, it is anticipated that the skiing terrain within the Humphreys area would provide an acceptable skiing product throughout the majority of Snowbowl's operating season."*

Specific Comments

16.3 The proposed half pipe on Sunset would be another visual eyesore on the mountain that I would question unless it could be done in a careful way.

The proposed halfpipe would be contoured and rough-shaped with dirt. The feature would be completely revegetated and would therefore be consistent with the surrounding

ski trail features. The halfpipe would only be visible in the immediate foreground from the area of the Hart Prairie Lodge and parking areas. Furthermore, a half pipe is characteristic of modern-day ski areas and would not substantially add to the existing development and infrastructure. As such, implementation of the proposed halfpipe would be consistent with the direction of managing for visual resources within the SUP area.

16.4 The analysis relies on the belief that most of the visual impacts would be confined to the foreground, thus allowing use of the Modification and Maximum Modification VQOs as visual standards. Once it is recognized that the majority of visually impacted National Forest area exists in the Middleground and Background, I believe it will be necessary to impose the Retention and/or Partial Retention VQOs as criteria for evaluating the environmental impact of new ski runs on the west face of the San Francisco Peaks.

VQOs define how the landscape will be managed, the level of acceptable modification permitted, and the circumstances in which modifications may be allowed. The criteria for establishing VQOs incorporate many components, including the characteristic of the landscape, deviations from the characteristic of the landscape, and management direction for individual management units. The VQOs of Modification and Maximum Modification at all viewing distances were prescribed at the time of the Coconino Forest Plan (1987, as amended) following public review. These VQOs were considered necessary for any traditional ski resort facilities to occur on the site and are consistent with ski facilities throughout the west.

As stated in the FEIS:

> *"Visual management direction specific to Management Area 15 includes managing for VQOs of Retention or Partial Retention <u>with the exception of the Snowbowl</u>. Visual resource management Standards and Guidelines specific to the Snowbowl SUP area are provided in the Forest Plan and direct that management activities meet the standards defined by the prescribed Modification and Maximum Modification VQOs at a minimum because of the ski area developments (such as roads, parking areas, buildings, and lifts) and cleared runs."*

Thus, the Forest Plan concludes that, given the inherently developed nature of the SUP area, *Modification* and *Maximum Modification* are appropriate VQOs to guide current and future development of the Snowbowl. The VQOs for a particular Management Area are established by, and specified within the Forest Plan. There is no requirement or mechanism to impose a stricter level of visual quality management on the Snowbowl; to do so would be to disregard the intent of the Forest Plan.

16.5 There is plenty of research to support the conclusion that beautiful scenery has a beneficial effect on human spirit. The expanded buildings and roads, the graded slopes, and the large water storage facilities would diminish the beauty of the scenery.

The VMS system used for assessing scenic impacts of the proposal assumes, as the writer does, that any visible deviation from the natural scenery "…would diminish the beauty of the scenery." The assessment accurately discloses the extent of damage to scenic resources resulting from the proposed action and finds them to be within the parameters set by the Forest Plan. See 16.4 for more discussion of this issue.

This analysis is consistent with CNF Forest Plan direction pertaining to scenic quality: *"Maintain and enhance visual resource values by including visual quality objectives in resource planning and management activities"* (Forest Plan, page 22). Aesthetic impacts are thoroughly addressed and analyzed in the DEIS and FEIS.

16.6 Building a new 400-space parking area below the Hart Prairie Lodge in an area now characterized by a beautiful aspen grove will have visual impacts both locally as well as from a distance. It might be helpful to mitigate the visual impact of the new parking area from points to the west by requiring a berm or a fairly dense landscaping screen along the lower edge of the parking area.

The reader is referred to Figure 3D-2 in the DEIS and FEIS. As depicted in the "simulated conditions," the proposed snowplay parking lot is visible from the west as a small opening in the tree canopy. Awareness of the proposed snowplay parking lot is limited to the immediate foreground in portions of Hart Prairie Meadow. Construction of a berm is unlikely to mitigate for construction of the snowplay parking lot; but specific screening strategies, including vegetative screening, will be considered in more detail prior to and during construction of the facilities in order to mitigate scenic impacts.

16.7 The 12-foot fencing required to exclude elk could have a visual impact depending on the exact location of the impoundment and the type of fencing utilized.

Reasonable measures, including color and design, will be implemented to minimize the visual prominence of fencing around the impoundment. However, it is likely that, regardless of mitigation measures, the fencing would be visible from certain points within the Kachina Peaks Wilderness and the Arizona Snowbowl SUP in the immediate foreground view. This is not considered to be a major impact to the visual quality of the SUP area. The final fence design will need to effectively exclude elk and may or may not necessitate a height of 12 feet; there are a variety of designs that do not require heights of 12 feet.

16.8 The expansion of the area into heavily timbered slopes to the south off Ridge, and in the proposed Humphreys lift area, are not warranted and will be far more damaging visually and environmentally than the study admits. For instance, will the impact on the southern ridge line of the Agassiz peak be visible form Flagstaff proper? Also, encroachment on the Kachina Wilderness boundary should receive higher consideration.

It is not clear how the reader came to the conclusion that proposed projects could potentially be more damaging than the analysis determines. A thorough analysis of the potential visual impacts, including four visual simulations, is presented in the DEIS and FEIS. Because of Snowbowl's due west orientation on the Peaks, no portion of the ski area is, or would potentially be, visible from Flagstaff.

The Forest Service does have a responsibility to protect congressionally designated Wilderness, but this responsibility is limited to the physical bounds of the Wilderness area and does not include the protection or management of "buffer areas." The reader is referred to the response provided to Comment 8.3 for more information on Wilderness buffers.

16.9 The creation of more parking lots for the snowplay area will destroy a large portion of the prairie and create a gross off-season visual impact, neither of which I believe was discussed at length in the DEIS.

A total of 5.2 acres would be impacted for construction of the snowplay parking lot, 2.2 acres of which would involve the removal of aspen trees. The visual impacts have been analyzed to ensure that they will meet the stated VQOs for the SUP area of *Modification* and *Maximum Modification*. The reader is referred to response provided to Comment 16.6 for more detail.

16.10 The Humphreys Pod would significantly alter the view of the San Francisco Peaks from locations such as Hart Prairie, Wild Bill Hill, Government Knoll, Government Prairie, Sitgreaves Mountain and Parks. These impacted areas are located in the foreground, middle ground, and background. The Humphreys Pod would be a significant environmental impact because it would have a west-southwest facing aspect higher on the slope than the Hart Prairie runs and because the Snowbowl today primarily consists of northwest facing ski runs.

As stated in the DEIS and FEIS, the Humphreys pod would be visible from several vantage points in the foreground, middleground, and background distance zones. To this end, the visual impacts have been thoroughly analyzed and determined to be compliant with the *Modification* and *Maximum Modification* VQOs.

16.11 I do not accept the accuracy of the simulation in 3D-4. I believe that the Humphreys Pod would be far more visible from the location than portrayed in the image.

The reader is referred to the "Photo Simulation Methodology" section provided in the DEIS and FEIS which details the spatial and geographic accuracy of the techniques used to create the photo simulations.

16.12 Would the water impoundment be visible from the Highway?

The proposed water impoundment would be situated due east of the existing Sunset Lift top terminal. As such, the water impoundment would not be seen from Highway 180. From this vantage, a small opening in the forest canopy would be visible. The reader is referred to Figure 3D-2 for more information.

17.0 SOILS AND GEOLOGY

Thematic Comments

17.1 The DEIS completely ignores normal trail construction issues related to soil disturbance and increased erosion potential.

The reader is referred to DEIS Chapter 3 Section I, Soils and Geology, Indicator: "Modeled Changes in Erosion/Sedimentation…" for a detailed and quantitative discussion outlining the erosion potential associated with trail construction activities and their corresponding soil disturbances.

17.2 Adding reclaimed water containing nitrogen and PPCPs to the semi-arid ecosystem at Snowbowl may cause changes in soil chemistry, soil organism composition, soil moisture and composition, and relative abundance. These changes may ultimately affect productivity/suitability, biomass of native vegetation and related wildlife. The DEIS's claim that "no changes to soil chemistry would occur due to the input of reclaimed water in the form of snowmaking" is insufficient.

The reader's assertion that the DEIS concludes that there will be no changes to soils chemistry due to the use of re-claimed water is incorrect. The reader is referred to the DEIS Chapter 3 Section I, Soils and Geology, Indicator: "Analysis of Potential Changes to Soil Chemistry…" for a detailed and quantitative discussion of the anticipated changes to the soil chemistry. Specifically, the Conclusions sub-heading of Section I outlines specific anticipated changes to the soils acidity, microbial profile, and nutrient-cycling that would result from the application of re-claimed water.

17.3 The DEIS notes that approximately 30 percent of the disturbed soil is on slopes with moderate to severe erosion potential and low revegetation potential, even with mitigation measures. The DEIS does not go on to discuss the site specific impacts of soil disturbance activities and site specific mitigation measures.

The DEIS discusses site-specific effects in Chapter 3 Section I, Soils and Geology, outlining the risks of rill and sheet erosion on steep slopes and in areas where topography naturally concentrates surface water flows. The primary site-specific risks are the loss of the limited topsoil resource and the inability to re-establish viable vegetative cover in disturbed soils with a large surface rock fraction.

Site-specific mitigation measures will be outlined in a required erosion control plan for all project elements that involve ground disturbance. This erosion control plan will be developed and submitted to the Forest Service for review and approval prior to

implementation of proposed project elements, as noted in the FEIS Chapter 2, Table 2-2, Mitigation Measures and BMP's. However, even with mitigation measures and BMP's in place, there remains the likelihood for topsoil resource loss on steeper slopes.

17.4 When discussing the effects of soil detachment on steeper slopes, the analysis leaves out any discussion of the slow process of soil formation at high altitude, especially in thin-soiled meadows.

In Chapter 3, Section I, Soils and Geology, Cumulative Effects, sub-heading: Irreversible and Irretrievable Commitments of Resources, the DEIS observes that because pedogenesis is a process that requires decades to centuries, the anticipated soils losses caused by soils disturbing activities would likely be a permanent and irretrievable loss of soils resources.

17.5 How will soil detachment and erosion affect the water that will then be taken from wells for drinking purposes?

Soils that are mobilized via erosional processes are transported via surface water runoff, or by wind. In the case of water transport, the fate of sediment that is mobilized by surface runoff is to be re-deposited elsewhere on the land surface, in zones of gentle or flat slope where surface run-off slows and ponds or re-infiltrates. Groundwater drinking water supply wells would not be influenced by sediment transport. Drinking water wells or domestic water supply systems that are supplied by springs that access shallow groundwater or that are under the direct influence of surface water could possibly be impacted by sediment introduced by surface runoff. However, the probability of any such impact within the Snowbowl project vicinity is very small, due to the very low probability of direct surface drainage from the Snowbowl project area reaching downgradient domestic supply wells, across soils that exhibit high infiltration rates.

Specific Comments

17.6 The DEIS fails to address any environmental issues surrounding the building of a hiking trail from the top of the Agassiz lift to the midway area. The only analysis displayed in the DEIS relates to potential increases in summer time visitation as the result of a new hiking opportunity. The DEIS completely ignores normal trail construction issues related to soil disturbance, increased erosion potential, vegetation removal as well as human impacts related to garbage and human waste. Assessment of these potential impacts is even more critical in a situation where use is likely to be high because of easy uphill access via the Skyride.

The vegetation and use aspects of this comment have been addressed in the response to Comment 10.8. The reader is correct: an analysis of the soils impacts due to the proposed hiking trail disturbance footprint were inadvertently omitted from the DEIS. This

analysis has been included in the FEIS, and tables 3I-25, 3I-27, 3I-28 and 3I-30 of the FEIS have been updated to incorporate and include sediment detachment effects of the hiking trail.

17.7 The denser snow created [during snowmaking] saturates and compacts soil and may lead to slope destabilization.

Artificial snow is typically denser than natural snow. However, the relative increased overburden weight of additional artificial snow would be small relative to the weight of the overall natural snowpack, and would be very unlikely, in and of itself, to cause soils compaction. The melting of artificial snow would contribute additional moisture to the surface soils horizons. However, the coarse andesitic soils at Arizona Snowbowl are very infiltrative, and saturated conditions would be unlikely to persist outside the usual snowmelt season. Lastly, the trail system complex at Arizona Snowbowl has not exhibited instances of slope instability over the course of Snowbowl's nearly seven decades of operation.

17.8 The cumulative effects of the Transwestern Lateral Pipeline construction, Inner Basin water pipeline maintenance, private land development and miscellaneous recreational uses in combination with the proposed action may negatively affect soil resources in the area if left unmitigated, primarily from enhanced concentrated surface flows. In order to avoid impacts from erosion, the Forest Service should provide commitments in the ROD that the provisions of water management plans and erosion plans will be implemented and enforced.

The cumulative effects of the components to which the reader refers are disclosed in the DEIS. However, a detailed analysis of mitigation measures and/or water and erosion management plans, for these land uses that are not directly related to the Arizona Snowbowl proposal, are beyond the scope of the document.

17.9 The on the ground impact of the proposed snow play area and associated parking will be substantial. This is a completely new use within the permit boundary and will cause significant soil disturbance on a currently undisturbed meadow. The DEIS does not display an analysis based on specifics of this disruption. The general discussion and tables of terrain to be graded by slope class, sediment detachment and Best Management Practices provide an initial layer of information related to potential impacts. Unfortunately, the DEIS does not go on to specifically discuss terrain changes necessary for the 7 acre tubing facility. The DEIS does not convey the depth of soil disturbance and potential changes in runoff patterns due to slope changes, soil compaction and soil disturbance.

Although not displayed as separate line-items in the analysis, the areas slated for grading and soil disturbance associated with the proposed snowplay area and parking lot are included in Table 3I-25 of the DEIS, and the associated sediment detachment numbers are disclosed in Table 3I-27. The depth of soils disturbance would vary by project component. The depth of grading would be determined in the field depending on the slope contours. Depth of burial of snowmaking pipelines would also depend on the amount and depth of topsoil. Because of the SUP's rocky terrain and limited topsoil resources, it is estimated that depth of burial would be at most 2-3 feet in places where topsoil is the deepest. Drainage and runoff effects due to grading are outlined in the DEIS on page 3-216 and in the FEIS on page 3-239.

17.10 Digging to install the snowmaking system and grading must be done in an environmentally aware way or not at all. I very much question if this can be done above *Midway* or on steep runs.

Chapter 2, Table 2-2, Mitigation Measures and BMPs, outlines a variety of management practices designed to reduce the risk of soils loss, including stockpiling prior to and re-spreading of topsoil after soil-disturbing project elements. Nonetheless, on steep slopes and in areas of concentrated surface flow where the risk of erosion is high, these mitigation measures would likely only reduce, but not totally eliminate soils resource loss, as disclosed in the DEIS.

17.11 The effects of soil disturbance are not adequately addressed in the DEIS. This appears to result from the fact that only ground disturbance activities that might result in permanent scarring of the San Francisco Peaks are considered a significant issue.

The reader is referred to Chapter 1 of the FEIS, which provides an updated description of how resources were analyzed throughout the document. While only two issues were identified (both cultural), other resources analyzed received a lesser level and detail of analysis.

17.12 Maps relating to soil disturbance activities for the Proposed Action are not complete. The most extensive map, Figure 2-8 relating to the grading plan, does not include disturbance from roads, utilities or the snowmaking system.

Although the Grading Plan maps in FEIS figures 2-5 and 2-8 do not specifically show disturbances associated with utility corridors, the reader is referred to Figure 2-6, which portrays the snowmaking and utility pipeline alignments. The associated soil disturbance for these pipelines would closely follow their alignments as shown, and would extend outward from the pipeline alignment to a total width of 40 feet. The reader may request a detailed disturbance map categorized by disturbance type from the Forest Service project record.

17.13 Tables simply displaying information are not a substitute for actual analysis and on the ground implementation plans. The potential of applying the Best Management Practices listed in Table 2-2 does not make the soil disturbance issues insignificant under the law.

The effects of soil disturbance are analyzed and disclosed in Chapter 3, Section I, which also acknowledges that *"Successful implementation of … [mitigation] measures can reduce, but not eliminate the high risk of erosion and topsoil loss on steeper slopes."*

17.14 The DEIS continues attempts made in the scoping document to minimize the on the ground impacts of lift construction by describing three of the construction activities as realignments. The DEIS should have fully displayed and analyzed the site specific effects of the construction phase and maintenance activities for all of the proposed lift upgrades, realignments and new locations. The construction activities for these realigned lifts will create significant soil disturbance through the use of heavy equipment to dismantle the lifts. These impacts are every bit as significant as the construction of new lifts.

Re-alignment is an accurate description of the construction activities associated with the three lifts in question. The soil disturbances associated with lift construction for re-alignment would be minimal, since removal and re-emplacement of the towers would not involve over-the-ground access by heavy equipment. The reader is referred to Chapter 2, Table 2-2 Mitigation Measures and BMPs, which indicates, *"All towers and concrete necessary for lift construction will be transported via helicopter, unless otherwise approved by the Forest Service in the field."*

17.15 The physical impact to soil, vegetation, and wildlife have not been adequately addressed by the DEIS. Like so many other predetermined government analyses yours has simply stated that impacts to such resources are insignificant. I strongly disagree. 15 miles by only 30 feet amounts to 2.3 million square feet of destruction for the pipeline alone. Add to that the construction of the holding pond, tree-removal for trails and excavation and tree-removal for new and expanded buildings and you've got a hugely significant area of direct physical impact.

The vegetation and wildlife aspects of this comment are addressed in responses to comments 11.4, 11.6, and 11.14. Chapter 3, Section I of the document includes a detailed analysis of the effects of soils impacts, and acknowledges the potential for related soils resource losses. Please refer to the response to Comment 17.13 for further detail. The fifteen mile by thirty foot reclaimed water supply pipeline impact to which the reader refers would occur in areas of existing utility corridors and existing roads that have been previously impacted, as described in Chapter 2, page 2-6 of the DEIS:

"In accordance with Forest Plan direction to locate additional uses within existing utility corridors, the proposed reclaimed water pipeline route follows the Transwestern Lateral Natural Gas Pipeline from west of the [Lowell] observatory to the intersection of U.S. Highway 180 and Snowbowl Road. The remainder of the proposed pipeline route is located on observatory private property or existing Forest Service roads. The proposed route was also selected to minimize impacts and inconveniences to traffic and private property during construction of the pipeline."

18.0 CLIMATE

Thematic Comments

18.1 The DEIS fails to address global warming as either an influencing factor or as a cumulative effect pertaining to the installation of snowmaking technology and use of fossil fuels. It does not make sense to combat the consequences global warming with additional energy-consuming technologies. Given the ever present possibility of drought in Northern Arizona, snowmaking at the Snowbowl is not an economically or environmentally sustainable proposal.

The FEIS has been updated to include a section on climate change, including potential effects of climate change on Arizona Snowbowl's operations. The new section can be found in Chapter 3, Section M - Air Quality, sub-heading "Climate Change."

The intent of the snowmaking proposal is not to combat the consequences of global warming. Throughout Snowbowl's six decades of operation, the ski area has been plagued by issues of reliability and consistency related to its snowpack. As stated in Chapter 1 of the DEIS and FEIS, the primary Purpose and Need driving the proposal is "*To ensure a consistent and reliable operating season, thereby maintaining the economic viability of the Snowbowl*..." An analysis of the sustainability of snowmaking at the Snowbowl, even under various likely climate change scenarios, has been conducted by Sno.matic, Inc. The reader is referred to Comment 18.15 for a more detailed analysis of the impacts of warming temperatures on snowmaking at Snowbowl.

18.2 The USFS should manage its resources in a sustainable manner, which means managing within the carrying capacity of the resources. This proposal is a short-term, short-sighted, and wasteful use of energy and resources.

Opinion noted. No specific response is necessary.

18.3 Northern Arizona's climate - a high desert - has a long history of unpredictable winter weather and is not conducive to skiing. Consequently, the Snowbowl has and should operate within the natural variability of snowfall in the region.

Opinion noted. No specific response is necessary.

18.4 The DEIS should describe what period of record was used to describe average, wet and dry climate. Also, the DEIS does not describe the amount of snowfall in an average, wet, or dry year, only the total amount of precipitation.

The FEIS has been updated to include this information on page 3-226.

18.5 The DEIS must describe why the Snowslide Canyon Snotel station was not used. The PRISM model should have been calibrated to the local Snowslide Canyon Snotel station.

The following clarification on the usage of the PRISM model within the analysis is offered. The PRISM model is developed and maintained as a research product of Oregon State University. The analysis used the rigorously peer-reviewed data products of the PRISM model to arrive at a spatially and topographically plausible set of average-year climate inputs. Climatic data from proximal SNOTEL sites was used to derive dry-year and wet-year modifier coefficients in order to interpolate from the PRISM average-year data. The PRISM data available at the time of the analysis extended from 1960 to 1990, and the study researchers use as inputs only those climate stations with at least 20 years of (not necessarily continuous) record. The Snowslide Canyon SNOTEL site was installed in 1998, and offered, at the time of writing, only five years of climate record. In order to maintain consistency with the approach of the PRISM research of using at minimum 20 years of record, the Snowslide Canyon SNOTEL data was not used in the DEIS study.

18.6 The DEIS is incomplete because of a failure to take into account global climate change and its impact on the economic viability for the ski area. In order to understand if snowmaking will improve economic viability over time, the CNF must understand how the rest of the ski industry across the country and internationally is dealing with climate change.

As indicated in the response to Comment 18.1, the FEIS has been updated to include a section on climate change, including potential effects of climate change on Arizona Snowbowl's operations. An analysis of the sustainability of snowmaking at the Snowbowl under various likely climate change scenarios, has been conducted by Sno.matic, Inc. The reader is referred to the response provided to Comment 18.15 for a more detailed analysis of the impacts of warming temperatures on snowmaking at Snowbowl.

The ski industry, both in North America and internationally, has recognized climate change as a serious issue that has the potential to substantially affect the winter recreation industry, both operationally and economically.[63] The National Ski Areas Association (NSAA) has initiated the "Keep Winter Cool" campaign, "…a partnership between the

[63] WRI, 2002 and NSAA, 2004b.

NRDC (Natural Resources Defense Council) and the National Ski Areas Association (NSAA) to raise visibility and public understanding of global warming and spotlight opportunities that exist right now to start fixing the problem."[64] The NSAA, joined by over 70 member ski areas, formally supports the McCain-Lieberman Climate Stewardship Act.[65] (Note: the McCain-Lieberman bill was defeated by the Senate in October, 2003. A similar bill was introduced in the House in March 2004, but has not yet come to a vote). Nationally, various ski area members of the NSAA have implemented a variety of measures to reduce their impacts on greenhouse gas emissions, including "…using pollution-free wind energy to run buildings and lifts, applying energy-efficient 'green building' techniques, retrofitting existing facilities to save energy, replacing inefficient compressors in snowmaking operations, using alternative fuels in resort vehicle fleets, and providing or promoting car pooling or mass transit use by guests and employees."[66] The Snowbowl has adopted many voluntary programs in an effort to reduce environmental impacts of its operation. This is evidenced by an internal document entitled "Arizona Snowbowl Sustainable Slopes - A Pollution Prevention Program Embracing the National Environmental Charter for Ski Areas".

18.7 Global warming will cause rapid melting of snow on the slopes no matter if the snow is natural or produced with snowmaking technology. Global warming will necessitate machine-produced snow playing a greater role in maintaining the snow pack at the Snowbowl in the future.

Several of the potential effects of global warming on operations at the Arizona Snowbowl are discussed in the FEIS, Chapter 3, Section M - Air Quality. As indicated in the FEIS, these effects may include:

- Shorter winters
- Warmer winter temperatures
- Increased incidence of winter snowpack melt and sublimation loss
- Earlier spring snowmelt
- An increase in the elevation at which seasonal snowpack can be maintained

However, the Purpose and Need for the snowmaking proposal is not to combat the consequences of global warming - it is to attain a viable ski operation in the existing and probable future climatic environment. It is nevertheless possible that the effects of global warming may increase the role of snowmaking in ski area operations over time.

18.8 The Final EIS must include a detailed analysis of the impacts of multi-decadal drought, both as an influencing factor on the proposed action, and the cumulative effects of drought as it relates to the proposed action.

[64] NSAA, 2004a.
[65] NSAA, 2004b.
[66] Id.

As a part of the updated Climate Change section in the FEIS, it is acknowledged that the possibility that longer-term regional climatic trends may be trending towards a dryer phase over the next several decades, due to a shift towards the cooler phase of the Pacific Decadal Oscillation (PDO). However, as a part of this analysis, the FEIS indicates:

> *"...many researchers believe that the PDO circulation pattern shifted to a cool phase in the late 1990's, indicating that winter precipitation may exhibit below average trends in the Southwest for the next several decades. However, it may be some time before researchers develop a level of certainty whether or how such a PDO shift might have occurred."*

Based on this observation, the possibility of a multi-decadal drought is sufficiently speculative that a detailed analysis of this scenario lies beyond the scope of this analysis.

Specific Comments

18.9 Arizona Snowbowl does not see enough days of operation to warrant this kind of development nor does it have enough of a cold season to justify making snow.

A detailed review of Arizona Snowbowl's temperature regime was conducted specifically for the purpose of investigating the feasibility of operating a snowmaking system. This analysis, based on five years of observed temperature data (1998-2003) from the Snowslide Canyon SNOTEL site which is located near Arizona Snowbowl at a similar elevation, found that on average, Arizona Snowbowl sees approximately 1,500 hours of temperatures below 28 degrees Fahrenheit (providing adequate conditions for snowmaking) between November 1st and February 28th each year. The analysis conclusion indicated that with the aforementioned available hours of operation, the proposed snowmaking system design, Arizona Snowbowl could achieve production of 350 acre feet (AF) of snow by the critical Christmas period in 80 percent of operational seasons.

18.10 All future climate predictions model the next 20 to 30 years in the Southwest as a major dry period that may be accelerated by the effects of global warming. Could Snowbowl operate through several ski seasons only on snow-making from reclaimed water? How many dry winters can the ski resort survive?

The reader is likely referring to the hypothesis that the Pacific Decadal Oscillation began trending towards a cool phase during the late 1990's, indicating the beginning of a multi-decadal period where the Southwest's precipitation is below average. It is important to recognize that while an examination of historic climate trends reveals longer-term periods of below average precipitation, it also reveals that year-to-year climate during these time frames is also highly variable. Thus, during PDO's cool phase, precipitation would still range from dry to wet from year-to-year. Only the overall precipitational trend over the

course of several decades would be below average. It is improbable, based on Snowbowl's elevation and temperature regime, that the ski area would receive no snowfall, even under climate change scenarios. Nonetheless, in terms of Snowbowl's ability to operate through multiple seasons entirely on artificial snow, an analysis was performed relative to water usage and terrain coverage under a dry year scenario. The model estimates that in a dry year, with limited natural snow, Snowbowl would require approximately 486 AF of water per year. Water requirements would be 364 AF to build an initial base, while an additional 122 AF would be required to re-establish snowpack after mid-season melt events. This volume is well within the amounts available under Snowbowl's re-claimed water contractual agreement with the City of Flagstaff. Additionally the reader is referred to the response to Comment 22.10.

18.11 Global warming will continue to reduce the snow days in our mountains, and the proposed solution will further marginalize both the problem and our resources.

The reader is referred to Comment 18.1. While the regional effects of global warming may include a reduction in the duration of seasonal snowpack, the purpose of Arizona Snowbowl's snowmaking proposal is not meant as a “proposed solution” to the problems caused by climate change. Rather, snowmaking is proposed in order to attain consistency and reliability to the recreating public while ensuring an economically viable skiing operation under climatic conditions that exhibit a high degree of variability over time.

18.12 The DEIS does not provide any discussion or comments regarding weather and temperature patterns or forecasts. The effects of climate are routinely discussed in NEPA documents related to forest health, fire, cattle grazing and wildlife management.

The FEIS has been updated to include a section on climate change, including potential effects of climate change on Arizona Snowbowl's operations. The new section can be found in Chapter 3, Section M - Air Quality, sub-heading “Climate Change.”

18.13 Further subtracting from the underlying assumptions of the DEIS is the long term climatic trend of the southwest. The Snowbowl ski area operating history has been during a relatively "wet" period in the southwest United States. The current trend is towards a resumption of more normal "dryer" and potentially warmer conditions. This climatic trend will likely continue to make Snowbowl operation a marginal business exercise, even with the snowmaking project completed.

Arizona Snowbowl began operation in 1938. As noted in the FEIS, during the 20th century, the Pacific Decadal Oscillation (PDO) has exhibited approximately three distinct multi-decadal trends in Arizona precipitation:

- 1925 – 1946: Wet
- 1947 – 1976: Dry
- 1977 – 1998: Wet

Thus, almost 30 years of Snowbowl's operational history reflect relatively dry climatic averages. The reader's observation concerning the potential future climatic trend is correct; however, many climate scientists believe that the PDO is shifting back towards a dry multi-decadal trend. The reader is referred to Comment 18.8, which examines the viability of snowmaking under prolonged dry climatic conditions.

18.14 Page 3-208 [DEIS] stated warm temperature can influence losses from the snow pack during winter months and that WRENSS (evapotranspiration) nomograph was used for site adjustments. However, no clear statement was made whether even with snowmaking that the depth required can be maintained during warm winters, say for example the year of 2001/2002. Is it to be understood, that the estimated maximum two applications of approximately 24 inches will be sufficient?

The analysis of snowmaking feasibility used site-specific temperature data from the Snowslide Canyon SNOTEL site, over the site's period of record from 1998 through 2003. This includes the warm winter of 2001-2002. The two application scenario to which the reader refers describes a possible operational outcome in a dry year, and is not meant to portray a “maximum” snowmaking application rate. It is possible that snowmaking applications would exceed a 24 inch seasonal average depth during dry conditions.

18.15 Pumping this water uphill thousands of feet (thereby consuming hundreds of thousands of kilowatt hours of electricity, which in turn creates tons of carbon dioxide emissions contributing to global warming) adds to the foolishness of this idea. This is particularly true given that ski runs around the nation have implemented projects to reduce their use of electricity because of concerns about global warming.

See the response to Comment 22.6 for further discussion of existing and proposed electrical power requirements.

18.16 Documented changes to global thermohaline circulation suggest that in the long-term, the proposed enhancements are a "losing proposition." Global temperature increases will reduce the effectiveness of snowmaking equipment and almost certainly curtail snow-industry recreational activities in Arizona and reduce the profit margins of the snow-recreation industry to the point of non-viability.

The reader is referred to the responses to Comments 18.15 and 22.2 for further discussion of the implications of temperature increases upon the viability of snowmaking at Arizona Snowbowl.

Note: The term *thermohaline* is used by ocean-atmosphere scientists to describe ocean currents as being transport mechanisms that are driven by gradients of both temperature and salinity.

18.17 At the very least, the NEPA analysis should fully analyze and disclose the following effects of global warming over the next several decades:

1) Effects of increasing frequency and duration of maximum snowmaking temperatures on snowmaking effectiveness, water volume use, and operational costs.

A temperature *sensitivity analysis* was performed in conjunction with the DEIS and FEIS. The initial snowmaking feasibility study used five years of temperature data from the NRCS Snowslide Canyon SNOTEL site (representing the entire period of record since its installation in 1998) to review the snowmaking production potential under average temperature conditions. It is important to note that the initial study represents a conservative analysis because:

- The five-year period of record includes the 2002 season, one of the warmest and driest years within the available instrumental climate record.

- The elevation of the Snowslide Canyon SNOTEL site is 9,730 feet above mean sea level, which is near the base elevation of Arizona Snowbowl. The higher elevations of the ski area would experience colder temperatures, and therefore increased snowmaking operational potential.

The sensitivity analysis examined snowmaking production potential for three different temperature perturbations:

1. Existing temperatures +2 ºF
2. Existing temperatures +4 ºF
3. Existing temperatures +6 ºF

The perturbations were performed by uniformly adjusting all temperatures of record by the indicated shift. This analysis is a very simplistic simulation of potential warming -- the regional effects of climate change warming would be seasonally and diurnally variable.

The baseline analysis, upon which the snowmaking feasibility analysis was predicated, and the conceptual design of the system based, reviewed the 80th percentile snowmaking production attainable by a December 25th target date. The

baseline analysis indicates a snow volume of 334 AF by December 25th, under Snowbowl's existing temperature regime. In other words, given Snowbowl's temperatures, it is expected that 334 AF of snow could be produced by December 25th in 80 percent of operational seasons. Meanwhile, the analysis indicates that in 80 percent of operational seasons, a total of 1,269 hours of snowmaking operation would be possible over the entire snowmaking season, from November 1st to February 28th. The temperature perturbation analysis compares predictions of 80th percentile December 25th production and total seasonal snowmaking operational hours under the various warming scenarios against the aforementioned baseline numbers. The following tables portray the results of this analysis.

Temperature Scenario	Dec. 25th 80th Percentile Snowmaking Production (AF)	Production Change from Baseline
Baseline SNOTEL 1998 - 2003	334	0%
Baseline +2 ºF	272	-19%
Baseline +4 ºF	237	-29%
Baseline +6 ºF	189	-43%

Temperature Scenario	80th Percentile Available Seasonal Hours of Operation	Hours of Operation Change from Baseline
Baseline SNOTEL 1998 - 2003	1,269	0%
Baseline +2 ºF	1,092	-14%
Baseline +4 ºF	923	-27%
Baseline +6 ºF	821	-35%

The results of the sensitivity analysis estimate that under a six degree warming scenario, Snowbowl's expected December snow production would decrease by approximately 43 percent in 80 percent of operational seasons. However, if the production target is relaxed to a goal to be met only half of the time, Snowbowl could expect production of approximately 219 AF by Christmas.

Although the sensitivity analysis did not investigate alternative system designs, it is important to note that it would be possible to incorporate more advanced snowmaking system technology in the snowmaking system design. Such technology would enable increased snow production under marginal temperature conditions, and would thereby make it possible to come closer to current production targets, even under warmer average conditions. Nonetheless, investment in more advanced technology would increase the capital costs of implementing the proposal, and increasing snowmaking operation under marginal conditions would increase operational costs. The overall conclusion of the sensitivity analysis indicates that even if regional temperatures warm by as much as six degrees, the ability to reliably produce 189 AF of snow for the critical Christmas period would sufficiently warrant the investment of capital to develop the snowmaking system.

2) **Effects of increased temperatures on melting rates of "swales" of blown snow, and corresponding changes in the need for snowmaking need over time.**

   Increased ambient temperatures would increase the rate at which snow, both natural and artificial, would melt. This would have the effect of increasing the amount of snow made, and water used, over the season to offset melt loss.

3) **Effects of increased shoulder season rain events on snowmaking needs and effectiveness, including water volume use, operational costs, and overall feasibility.**

   Increased incidence of shoulder season rain-on-snow events would have the effect of increasing the energy inflow into the snowpack, and subsequent increased melt loss. A quantitative review of these effects on water volume use, and operational costs is beyond the scope of the analysis, except to note, as above, that water use and operational costs would increase. As noted above, snowmaking operations would be feasible, albeit with less optimistic snow production targets.

4) **Effects of anticipated declines in annual snowfall and snow pack attributed to drought and global warming on annual skier visitation, and ski area revenues.**

   The reader is referred to the response to Comment 9.94 for a detailed quantitative analysis of snowfall trends versus skier visitation.

5) **Combined long-term effects of global warming, the ongoing drought, and regional growth on societal demand for and availability of reclaimed water, particularly in light of potentially increased ski area demands as described in 1, 2, and 3 above.**

   A review of the effects of global warming upon societal trends concerning reclaimed water demand and availability is well beyond the scope of reasonable NEPA analysis. It is important to note that society, as embodied by the citizens of the City of Flagstaff, will have the opportunity for ongoing review of the viability of reclaimed water use and availability under changing climate, social and, political circumstances, as the City will review its agreement to renew water sales to the Arizona Snowbowl periodically in the future, considering such factors at the time.

18.18 The Draft EIS fails to address maximum temperatures under which snow can be made, the effects of climate change on more southern and lower elevation ski areas, and the Humphrey Pod's southwest aspect.

The snowmaking feasibility study, available in the project record, assumes that snowmaking start-up becomes possible at a maximum wet-bulb temperature of 28

degrees Fahrenheit. This assumption was also used in the snowmaking temperature sensitivity analysis.

The regional effects of climate change are less certain than the global average effects. Certainly, an increase in average temperatures would have more of an effect on ski areas of lower latitude and elevation, whose temperature regimes would become more marginal for winter recreation sooner than areas located at higher elevations and more northerly climates. It should be noted that Arizona Snowbowl's base elevation of approximately 9,800 feet represents a sufficiently high altitude that the existing temperature regime offers comparatively cold existing or "baseline" temperatures upon which global warming would be imposed.

Increased temperatures would further marginalize terrain on the lower elevations of the mountain, requiring increased snowmaking utilization to maintain skiability.

18.19 The DEIS and preferred alternative must address the role of climate change in the proposed facilities improvements and discuss mitigation for these potential changes.

In response to public comment, the FEIS has been updated to include a section on climate change, including potential effects of climate change on Arizona Snowbowl's operations. The new section can be found in Chapter 3, Section M - Air Quality, sub-heading "Climate Change".

A discussion of mitigation for changes in climate is not warranted; mitigation is developed and proposed to offset the impacts of a proposal on the environment, not the effects of the environment on a proposal.

18.20 Let us suppose that all of the upgrades and miracles of modern technology are put in place on the Mountain and the drought worsens. Will more expansion and upgrades be warranted to save the business once again?

If this were to become the case, a new proposal and an accompanying public environmental analysis process would be required.

18.21 The DEIS fails to outline how Snowbowl and Flagstaff would deal with continued drought conditions. The City of Flagstaff has issued a permit to Snowbowl to use water from the Rio De Flag for snow making for a period of five years. The DEIS fails to demonstrate what effects continued drought changes in Flagstaff leadership, and community growth will have on the future renewal of this permit.

An analysis of the effects of drought upon the potential future political, economic, and water supply decisions by the City of Flagstaff lies well beyond the scope of this analysis. The commentor correctly points out that the City of Flagstaff has agreed to provide

reclaimed water product to Arizona Snowbowl for a period of five years. At such time that the reclaimed water agreement is up for renewal, the City of Flagstaff leadership would review the renewal in light of the political, economic, and water supply situation at the time, and make an informed decision at that time concerning the renewal of the agreement. The agreement may be extended for three additional five year periods after the first five year period.

18.22 The DEIS estimates do not consider the effect of prolonged drought on the city's dependence on wells.

An analysis of the effects of general drought conditions upon the City of Flagstaff's groundwater usage is beyond the scope of the analysis. The reader is referred to the response to Comment 6.21 for a more detailed discussion concerning City of Flagstaff water supply planning.

18.23 One of the most important items that we think should be acknowledged is the fact that the Snowbowl is not a sustainable operation. We understand that the Forest Service is supposed to manage its resources in a sustainable manner, which means managing within the carrying capacity of the resources. Consequently, the Snowbowl needs to operate within the natural variability of snowfall.

As noted in the DEIS and FEIS, 82 percent of the ski areas in the United States currently use snowmaking systems. The commentor is referred to Chapter 2 of the DEIS or FEIS. The reclaimed water product available from the City of Flagstaff represents one component of the water resources carrying capacity. The analysis presented in the referenced section concludes:

> *"In order to achieve the quantity of water necessary for Snowbowl's snowmaking needs, the current proposal to use reclaimed water from the City of Flagstaff represents the most reliable, practical, and ecologically responsible option."*

18.24 I have found a significant relationship between the Pacific Decadal Oscillation (PDO) and flood flows in the Verde River. The PDO is an index of sea surface temperature in the northern Pacific Ocean. Sea surface temperatures in the north Pacific are important, because they affect atmospheric circulation and the way in which storms develop and move on the North American Continent. In the Southwest, negative phases of the PDO are associated with more El Ninos and moister conditions (including greater snowfall). We experienced a negative PDO phase from 1943 to 1977, a positive PDO from 1977 to 1997, and have been in a negative phase again since 1997. This recent negative phase can explain the decrease in precipitation in Arizona, including snowfall. According to the PDO pattern,

we can expect to see current dry condition to continue for 10 to 20 more years.

The reader's comment is noted, and is in general agreement with the findings found in Chapter 3, Section M - Air Quality, under the newly added "Climate Change" sub-heading of the FEIS.

18.25 Overlain on the PDO cycle is global warming. The US Global Change Research Program predicts that global warming will cause a 3 degree to >4 degrees F rise in annual average temperatures in the Southwest by the 2030s and an 8 degree to 11 degree F rise by the 2090s. One effect of this warming will be a shortening of the winter season. In fact, the effect of warming has already been observed; in California and Nevada the length of the snow season decreased 16 days from 1951 to 1996. My point here is this: considering that snowmaking is only practical where there is already a base of snow, and considering that climate predictions indicate the long-term viability of Arizona Snowbowl is extremely doubtful, the initiation of snowmaking would be a waste of resources. I think the DEIS is fatally flawed, because it did not consider the effects of climate variability.

The FEIS climate change section in Chapter 3, Air Quality, newly added sub-heading "Climate Change", includes a review of the PDO cycle as well as anthropogenic climate change. Snowmaking is frequently used to build up a base of snow where none exists. The reader is referred to Comment 18.15 for a discussion of the feasibility of snowmaking operations under warmer climatic conditions.

19.0 NIGHTLIGHTING

19.1 The proposed development does not appear to include night lighting; however, neither does it explicitly state that night lighting will not be included. We request this issue be clarified.

Chapter 2 of the DEIS and FEIS under the section titled: "Alternatives Considered but Not Analyzed in Detail," as well as the cover letter which accompanied the DEIS, provide a detailed explanation and rationale for the previous exclusion of night lighting from the Proposed Action and subsequent analysis. Should the Snowbowl propose a night lighting system in the future, another NEPA analysis would be necessary.

19.2 Aside from recreational purposes, would some form of lighting be required for snowmaking operations during the night-time hours?

No lighting of any kind is proposed for recreational purposes. Depending on final design of the snowmaking system (i.e., how much automation is incorporated), low-wattage bulbs may be installed inside valve houses for safety of employees working at night. However, these bulbs would only be visible when valve house doors are opened. There may be some increased use of snowmobiles with lights during night hours as a function of the operation the proposed snowmaking equipment under Alternative 2.

19.3 There are issues of light-pollution caused by lighting additional parking, public-access and ski trails.

The Proposed Action does not include any lighting for parking, public access or trails. As discussed in Comment 19.2, low-wattage bulbs may be necessary for conducting nighttime snowmaking operations under safe conditions. However, none of these lights would incrementally contribute to visual impacts from a distance.

20.0 SUPPORTIVE COMMENTS

Supportive comments (that were deemed substantive) are provided here in order to offer the reader a complete perspective of the range of comments that were received. In most cases, no responses are necessary or provided.

20.1 Everyone needs to clearly understand that the Snowbowl Special Use Permit is not being expanded. All improvements would be within the existing Special Permit acreage and would not be in the Kachina Peaks Wilderness.

20.2 I am also in favor of lights on the lower runs and expanding the boundaries of the existing area. This is something that the Flagstaff area needs and when it can be done without using precious ground water, it's an idea that should be implemented.

Refer to the Nightlighting Response to Comments section for a complete understanding of the Proposed Action concerning nightlighting.

20.3 It may be a good idea to "try out" a season with Alternative 2 and listen and react to the public, environmental, and Native American organizations and have the possibility to fall back to Alternative 3.

20.4 The reliability [of snowmaking] would give the operators of Snowbowl a more consistent revenue stream, allowing them to better provide the level of service required.

20.5 I strongly recommend that Snowbowl re-plumb their bathroom facilities using reclaimed wastewater to flush toilets and urinals reducing negative impacts of using hauled potable water from Flagstaff.

20.6 Open basin storage of the effluent would provide another water source for the wildlife. No doubt that is needed. We at the city now provide a great deal of reclaimed water to AZ Game & Fish every summer before the rain starts, for filling their wildlife catchments. Every year, we provide the Hopi and the Navajo, through Coconino County transport, large quantities of reclaimed water for their livestock in times of drought. Certainly, I understand the religious significance the use of reclaimed water at the Snowbowl may have for them. Regardless, it does not preclude them the material need to use it for their animals, which they use for their sustenance.

20.7 The city currently maintains a water pipeline from the inner basin to town. How much more intrusive can the pipeline for Snowbowl be? It's my understanding that water leakage from the city pipes actually benefits the wildlife.

20.8 The snowmaking will also help the forest grow and be less susceptible to forest fires that have destroyed millions of acres in the West.

20.9 The use of reclaimed water will allow for the environment to improve so as to avoid further damage from the bark beetles and more importantly, a wildfire.

20.10 The snowmaking system would help with additional spring runoff to help the vegetation on the mountain become strong before the summer heat and dry spells arrive.

The reader is referred to Response to Comment 10.1 in the Vegetation section of this RTC.

20.11 The use of reclaimed Class A water makes perfect sense given Flagstaff's limited water resource. Many public and private entities are using reclaimed water to meet their ever increasing water demands. Reclaimed water is widely used for landscape and agricultural irrigation and for direct groundwater recharge with no adverse affects. The use of reclaimed water for snowmaking will only enhance the flora and fauna on the San Francisco Peaks and may result in the preservation of our weakened Ponderosa Pine forests by giving them more moisture to ward off the Bark Beetle infestation.

The reader is referred to Response to Comment 10.1 in the Vegetation section of this RTC.

20.12 This will provide the mountain with an adequate source of water should a fire break out and it will keep the mountain healthy due to more water.

20.13 It will also provide needed expansion of water availability with a minimum of three fire hydrants, and a retention basin which will undoubtedly be used in the future to assist firefighting efforts.

20.14 This reservoir will also serve as a refill station for the helicopter buckets for fire fighting. There will be fire hydrants along the pipe line from town that will also serve for fire-fighting not only for the Forest land but for the residential properties nearby.

20.15 From an environmental standpoint, the water that is used will eventually find it's way back into the aquifer which would have a positive effect on our community.

20.16 I have no concerns the reclaimed water will cause adverse problems to the flora and fauna. We are living with a global warming planet and putting much needed water back into the extremely dried mountain can only help.

20.17 The proposed use of reclaimed water is highly appropriate in that it saves perhaps our most precious commodity in northern Arizona, potable water.

20.18 I support the proposed use of treated Flagstaff wastewater at Snowbowl. The continued development of recycling of limited resources will be essential in our future as the population grows.

20.19 Using recycled water for snowmaking machines is best. Using our precious groundwater is dangerous. It is a precious commodity that has not been renewed with the current meteorological conditions.

20.20 As far as using reclaimed water for snowmaking, we need to remember that we have a finite amount of water and it has always been recycled. Whether the moisture comes form the sky or a snow gun it has been someplace else before and it will return to the groundwater supply, which is always needed in Northern Arizona.

20.21 The Snowbowl contributes to the economic well being of both Flagstaff and Northern Arizona through the creation of jobs and tax revenue generation. In addition, property values in the area can be positively impacted by this proposal.

The potential for selection of any of the alternatives to affect property values in the Flagstaff area is not discussed in either the DEIS or FEIS.

20.22 The water used is reclaimed during the spring melt and the plan provides some much needed storage of water for particularly dry summers and forest fire prevention/fighting (which hopefully will never be needed).

20.23 I believe that the Hart Prairie aquifers could be recharged with the addition of this high quality reclaimed water, instead of the unnatural path the reclaimed water is currently pouring into via the Rio de Flag, which was never meant to flow perennially from the plant.

20.24 By allowing an improvement to the existing ski resort you will realize a large influx of money into the Flagstaff area which will result in better schools and quality of life for all in the area.

20.25 As far as the water supply goes, we would be better to put the clean purified water back on our mountain where it will eventually go back into our water table, than to send the water down the Rio de Flag where it leaves Flagstaff.

20.26 If there was a reliable season I have no doubt that the number of season pass and single day pass sales would increase dramatically.

20.27 Snowmaking would not only economically benefit the Flagstaff area, it would have an environmental benefit by storing water in the form of snow (as natural as it gets) when it is plentiful (winter) and have it return to us in dryer times (spring and summer).

20.28 The use of class A+ water is increasing throughout the southwest as a means to conserve potable water. Transporting reclaimed water to the ski area and allowing the water to percolate back to the aquifer is a positive and environmentally prudent action.

20.29 In an area plagued with drought it seems ridiculous not to allow moisture to be placed back into the environment. Even though the benefits would be local, they would still be a benefit to that ecosystem.

20.30 The use of reclaimed water from Flagstaff is an important element of this alternative and will also reduce the dependence on groundwater withdrawal in the forest while creating a negligible environmental impact.

20.31 It is much needed to balance the severe peaks and valleys experienced by many of Flagstaff's businesses due to inconsistent snowfall. A more stable winter tourism season will allow small businesses in that segment to expand and new businesses to risk starting up, expanding the employment opportunities in Flagstaff.

20.32 I would much rather see my dollars spent locally for skiing than traveling to other areas with more dependable snow.

20.33 Because of the lack of predictable snow coverage at the Snowbowl many skiers choose to spend their skiing days at out-of-state facilities thereby having a negative net impact on the state's economy.

20.34 Not only does the resort provide direct and indirect employment to more than 200 Flagstaff area residents, it is a large driver of municipal revenues that help to fund essential government services. Now is the time to take action to ensure that these benefits do not go away, but that they also increase.

20.35 Snowmaking will improve the viability of the operator - an important consideration as overseer of these resources. Their economic stability, or lack of, affects their ability to maintain and preserve the resources they are entrusted with. Enabling the ski resort to expand their operations to include snowmaking will enable the lessee to be more economically stable - that makes good sense.

20.36 By selling Snowbowl the water, the city will now have money to build better facilities to store the six million gallons of [reclaimed] water [produced by the city] a day.

The concept of what the city of Flagstaff would use revenues generated from the sale of reclaimed water to the Snowbowl has not been explored in the DEIS or FEIS.

20.37 Recreation is important if we are to provide constructive activities for our young people. It is necessary for the overall health and welfare of our community. I think the value of the recreation is just as important, if not more so, than the economic advantages of providing reliable skiing at Flagstaff.

20.38 It will not only make the ski area available for a longer amount of time, it will be an enormous economic impact for the citizens of Flagstaff and surrounding areas. The amount of jobs will increase (which is a major issue in a presidential election), this addition to the Snowbowl will also increase revenue to practically every business in the area.

20.39 In addition to boosting Flagstaff's economy, the creation of approximately 200 jobs at the Snowbowl would also be very beneficial. For those employed there, it would be nice to know that they had jobs throughout the entire ski season, not just for the short time, never knowing when the Snowbowl will close due to lack of snow.

20.40 If one can reasonably interpret data from companies like ours and the local hoteliers, less than 25% of our business is currently generated during the months of November through March. When combined with careful planning, a strong winter economy would be beneficial for everyone.

20.41 Every weekend we are training out of town because the Snowbowl does not have enough snow to open. This means we are spending our dollars out of town and not here in our own community.

20.42 Snowmaking will produce jobs that are needed in the Flagstaff community. It will also increase tax revenue which will allow us to improve our infrastructure.

20.43 Phoenix and Tucson skiers spend significant dollars in Utah, Colorado, New Mexico, and California, a good portion of that money could be spent in Arizona with reliable conditions and upgraded facilities at the Snowbowl.

20.44 Snowbowl will be buying the water (an option that City Council already unanimously approved). This will add more city dollars from something already here; we don't have to entice a new company to come to town. And as far as 'encouraging' low paying tourism jobs, we will be creating a "dependable" job that people can rely on.

20.45 Thousands of recreational skiers are being denied the opportunity to enjoy the National Forest, which is supposed to be managed for the benefit of all, due to the short, unpredictable ski seasons in Arizona.

20.46 This permitted use has been a joint use area that reflects the desires of recreational users in this Forest. It would not be good or equitable policy to exclude these users by denying these improvements. Various user groups, including Native American traditions, can coexist with this plan.

20.47 The peaks are public land and public land is for everyone's use, not just for one group of people.

20.48 The snowplay area will undoubtedly be well-used, I would like to see the Forest Service make available sloped areas in various places, where families can informally play in the snow to fill a recreational need for lower income families.

20.49 As the Forest Service has pointed out, a key part of the mission of your agency is to manage the public lands under your jurisdiction for multiple uses. Included in those uses are various recreation opportunities. Recreational skiing at the Arizona Snowbowl has a long history of being a valid and appropriate use of National Forest lands. Without the snowmaking element contained in Alternative Two, that valid and appropriate use of the forest could very well vanish.

20.50 The Peaks are here for all of us and not just for those who believe they are "sacred."

20.51 Skiers and snowboarders have a right to public land, with quality recreation. With continued snowmaking the winter season for skiing can obviously be extended. With the change in weather patterns, drought continuing with little moisture, this will assure long term recreation and the survival of the Snow Bowl recreation area.

20.52 Arizona is growing quickly and the quality of recreation is diminishing at Snowbowl due to lack of sufficient services to meet the needs of all Arizonians.

20.53 Public lands should be for public use with all aspects of recreation provided for as well as the protection of sensitive areas. We feel that there is a good balance of these aspects and that the improvements for AZ Snowbowl will not adversely affect protected and sensitive areas.

20.54 Providing responsible stewardship of these lands includes identifying sustainable uses that benefit the public, and this certainly meets that goal.

20.55 The demand for winter recreation exceeds the supply of existing facilities in a fast growing state like Arizona.

20.56 One of the goals of the USFS is to see that quality winter recreation is available on public lands. By approving Alternative 2, you are allowing Snowbowl to meet the expectations of the citizens of Arizona and provide them with a modern ski area and quality produced.

20.57 The Snowbowl fills an important recreational need for the citizens of Arizona in providing ski and snowboard users a location to pursue their avocation within a reasonable distance of metropolitan areas.

20.58 I believe Snowbowl assists the Forest Service in managing the Peaks Wilderness area by providing a developed area where most people enjoy the scenery. Between the access road and the lodges with food and rest rooms, the majority of people who visit the "peaks" see them with the benefit of the amenities that Snowbowl provides. What would the impact on the "peaks" be if thousands of visitors were just wandering around on their own with no other services.

20.59 The area badly needs the expanded trails and improved lifts to relieve the congestion that skiers experience now and it would also be good idea to upgrade the lodges at this time.

20.60 Importantly, this action you are considering would simply make the Snowbowl a more long-term feasible operation and facility. That is good for all of Arizona, and good for Arizona tourism. That is a very special ski area, but it needs some expansion and it needs a water supply for artificial snow.

20.61 We feel that the snowplay area is of special importance. I would tend to lend it a status of equal importance after witnessing the high numbers of people coming to Flagstaff seeking an opportunity to play in the snow.

20.62 Because the quality of the water to be used in snowmaking has become an even greater issue now that the NAU professor Kathy Propper has presented the results of her study of recycled water and its effects on small aquatic creatures, I would like to suggest that consideration be given to cleaning this water via reverse osmosis.

20.63 Except for NAU, FUSD and Wisconsin Tissue, it's not often that a city can find such a good customer like Snowbowl, especially off-season, and we should take advantage of those opportunities when they arise.

20.64 The past improvements have most definitely improved the ski area, however, the single most needed improvement is snowmaking. Snowmaking is standard operation procedure in the ski industry and will allow the ski area to begin building a snow base on beginner and intermediate terrain early in the season.

20.65 The Arizona Snowbowl's plan to use A+ reclaimed water for snowmaking is a logical use for this type of water. This type of water is cleaner than most cities actual drinking water and would have no significant ecological effect on the land around the Arizona Snowbowl. The use of this water for snowmaking will not only provide a reliable season for Arizona Snowbowl but also will ensure a longer snow pack, provide a pond for fire suppression efforts in the summer months, and enable the ski area to provide a level of skiing quality that is at least standard in more than 88% of ski resorts around the United States.

20.66 Long lift lines, congested ski trails, lack of dining seating and lack of automation are examples of how Snowbowl has not maintained pace with other ski areas. Alternative 2 must be approved for the sake of Flagstaff and my friends.

20.67 Snowmaking is currently allowed, and performed on over 85% of ski areas in the western US alone. Arizona skiers deserve and expect the same facilities found at other major ski areas. Quality recreation begins with adequate facilities and equipment, and Snowbowl is currently seriously limited in what it can provide. The long lift lines, as well as the congested ski trails truly limit its effectiveness. It has definitely not been allowed to keep pace with other major ski areas.

20.68 Since the Forest Service has authorized a permit for skiing on this public land, it should now untie the resorts hands so it can become a quality ski area.

20.69 Without these improvements Arizona Snowbowl will not be able to remain competitive with other ski areas that compete for Arizona skiers. Alternative 2 must be approved and supported for Arizona Snowbowl to have any viable future in the ski industry.

20.70 The Snowbowl is in need of upgraded infrastructure including snowmaking. Other permittees in the National Forest system have enjoyed the competitive advantage that snowmaking affords. That leaves Snowbowl at competitive disadvantage to other federally permitted operations. Through their abilities to bring a complete ski season to the public, these permittees enjoy a near-federally protected monopoly advantage as compared to the Snowbowl, which must fend for itself against unpredictable and fickle weather conditions. Snowmaking levels the playing field and is fair and equal treatment of Snowbowl in comparison to its peers in the industry.

20.71 Science has proven that the use of reclaimed water would not be detrimental to the environment. Science has also said the Grand Canyon is millions of years old and the Park Service has declined to carry a book citing the biblical version of creation, which would make the canyon only about 6,000 years old. If the government can cite science over religious views in this case, it needs to apply the same standards to the Indian's religious views. If the Indian's spirits are going to be offended at the use of reclaimed water, maybe the Christian's God is offended that a book about creation is taken off the shelves at the National Park bookstore. The point is, they are both religious views.

20.72 While a few Native Americans may deplore joint use of the Peaks, a requirement of Federal Law, we see many of their kin sharing in and enjoying the recreational opportunities as well as some who are there earning a living. Both are important and both would be greatly enhanced by a reliable expanded season.

20.73 The Snowbowl takes up only about 1% of the San Francisco Peaks leaving the rest for those who truly believe that it is sacred. I believe it is a resource that can be shared by all.

20.74 I think that it is just wrong for some Native Americans (and others) to use religion as a reason to oppose the Snowbowl improvements. My personal religion is just as pagan as theirs: I worship trees and mountains and consider all mountains to be sacred places. And I have no objections whatsoever to using effluent water to make artificial snow on them.

20.75 As to the issues of "desecration" of a sacred mountain, this issue has already been through the District Court, Federal Court of Appeals and the US Supreme Court. The Snowbowl is not requesting improvement outside of the 777 acre permit area, and to allow snowmaking on a small percentage of the permit area, would in no way interfere with the religious practice of the Native Americans.

20.76 Current conditions at the Snowbowl are crowded, and safety would be improved through the proposed expansion.

20.77 I have personally responded to injuries both on and off the slopes that in my opinion were directly attributable to overcrowding. I won't take my 4 year old skiing to Snowbowl on crowded weekends despite owning a ski pass, because it is just too dangerous and not a quality experience.

20.78 One of my biggest concerns is about the snow play area. It seems safer to have a designated place for sledding and enjoying the snow, rather than just pulling off on the side of Highway 180 somewhere.

20.79 It is very apparent, particularly during the past several years, that natural snow quantities are insufficient for safe and reliable operation of this facility.

20.80 Safety would also be enhanced by building new chairlifts and ski runs which would disperse skiers and snowboarders on the mountain.

20.81 The proposed upgrades would not only make this a more enjoyable experience, but also a safer one by eliminating the crossing of the Snowbowl road by the Hart Prairie Lodge, and with adequate snow, more rock and obstacles would be covered, and falls would be safer.

20.82 Another major problem that plagues Snowbowl is the snowplayers. This is a huge safety issue. Numerous times while on the hill teaching I have had to ask sliders to leave or relocate because they pose a safety hazard. They risk being hit by a skier, or they could slide into danger and either hit someone or a natural object. The snowplayers need an area strictly for snowplay to keep them from just scattering about the slopes as they please.

20.83 Currently, Flagstaff uses much reclaimed water on all parks, school district fields, Continental and Aspen Golf courses. There has been absolutely no claims or proof that any damage from years of use have been found.

20.84 In the end, all water is recycled. Rain has fallen, seeped into the earth, been pumped out or evaporated and falls again. This recycled water just happens to have been purified by man instead of layers of rock. Better to use this for snow than pumping water from the aquifer which could be better used for drinking.

20.85 It is interesting that using A+ water is accepted throughout the community and the pursuit of more uses in the topic of many water commission meetings. Only with the proposed use of class A+ water at the Snowbowl has any question been mentioned. Opponents are attempting to use reclaimed water as an obstacle to the EIS process.

21.0 WATER IMPOUNDMENT

21.1 Although a spillway for the impoundment is briefly discussed in the DEIS, the location of this spillway is not shown on Figure A-1, page A-2, and design specifications for this spillway are not shown. The location of the spillway must be shown in addition to the downstream area which would be affected by a spill over the spillway.

The preliminary design of the proposed water impoundment is conceptual and does not include a specific design for the spillway. A final design, and the associated engineering, would not be created until after a decision on the proposal is made. The final design would be subject to Forest Service review and approval, as well as other state and federal permitting. A description of the conceptual impoundment design, including a plan view map, is included in the Geotechnical Report, contained in the project file, which is available from the CNF. The Geotechnical Report also includes a downstream inundation analysis and map showing areas that would be affected by a modeled dam hazard classification study flood.

21.2 Possible silting up of the impoundment is not addressed in the DEIS. The DEIS needs to include any effects that erosion from up slope activities might have on the functionality and life of the impoundment.

The risk of silting or sedimentation within the proposed impoundment is low. Delivery of bed-load silt or sediment is a concern that pertains primarily to reservoirs, impoundments, or other storage bodies fed by live channels or streams, as the bed-load sediment carried in the stream settles out in the zones of lower velocity within a reservoir. Because the proposed snowmaking impoundment at the Snowbowl is not located on a live stream or channel, but would be supplied with water from the proposed reclaimed water pipeline, little natural sedimentation would be expected. The impoundment would be lined with a synthetic geo-textile mesh, which would completely cover the natural substrate from which the structure would be excavated. This would reduce or eliminate the risk of sedimentation from entrainment (the process of drawing in and transport of solid particles or gas by the flow of a fluid) of the reservoir-bottom sediments. It is possible that sediment could be introduced by up-slope erosional events caused by high-intensity summer thunderstorm activity. However, the structure would be maintained on an annual basis. Such annual maintenance would include cleaning of any accumulated debris or sediment, thus maintaining the structure's functionality and operational lifespan.

21.3 The DEIS does not discuss the level of potential risk for a flood "bulking up" in this location. Should a flood occur, what is the projected volume and density of a possible debris flow. Debris flows are capable of enormous erosion and destruction.

A dam breach analysis was conducted in conjunction with this EIS. The Geotechnical Report, in its entirety, is located in the project record. A summary of the dam breach and downstream inundation analysis is provided in the DEIS and FEIS, including a dam breach flood inundation map.

21.4 Indeed, under "geotechnical analysis," the Forest Service identifies the need for a 10 million gallon impoundment to be constructed and maintained above the Sunset Chairlift. It not only defies common sense to classify this as a "tracking issue," it appears to be a "connected action" under NEPA that must be considered in the EIS.

Specific areas of concern exist as either "issues" or "resources requiring additional analysis" within NEPA analysis, as defined in Chapter 1 of the DEIS and FEIS. "Issues" are those that drive the formation of alternatives while "resources requiring additional analysis," do not drive the formulation of alternatives, but are analyzed throughout the analysis to disclose their effects. The designation of some issues were labeled "resources requiring additional analysis" does not imply that they received a lesser level of analysis.

The proposal for the 10 million gallon water impoundment is an integral component of the Proposed Action. An analysis of the snowmaking system sizing and capacity was conducted in the initial project planning stages by Sno.matic, Inc. This analysis is contained in its entirety in the project Administrative Record, available from the CNF. The sizing analysis examined three different potential impoundment capacities at 1.5, 5, and 10 million gallons. Sno.matic's system analysis, which considered: operational temperatures, system throughput, and the rate of re-claimed water delivery; concluded that a 10 million gallon storage volume would provide an optimal system capacity within the available space and siting constraints for the storage reservoir. The snowmaking impoundment is specifically addressed in Issue #18 and a 124 page Geotechnical Report was developed to design and analyze the potential effects of the impoundment. The Geotechnical Report is contained in the project record and a summary is contained in the Geotechnical Analysis in the DEIS and FEIS.

21.5 The construction of a large holding pond on the upper slopes of Snowbowl poses a significant threat to soil stability and, hence, a safety threat to recreationists. The porous volcanic soils in the area proposed for this pond are not suitable for holding water. Water percolation and its impacts to the stability of the slope will be difficult to accurately estimate. Even if the pond is lined it will be hard to estimate whether the unstable alpine soils will support its mass on such a steep slope.

The reader is referred to the Geotechnical Report, located in the project record, for a detailed analysis of the Geotechnical design constraints associated with the proposed snowmaking water impoundment. Nonetheless, the following excerpt from the Geotechnical Report is relevant to the reader's comment:

"The maximum embankment height is on the order of 24 feet making the structure a small, low head structure. The reservoir area will be lined with HDPE to create a 'bathtub' configuration that during normal operations will prevent any release of water to the soil and rock below the reservoir. However, all liners leak at some point in their life through defects in the liner or more often in the seams that that join sheets of liner. The most common defect is a small pinhole leak producing orifice flow through the liner and into the porous soil beneath. Such leaks, even if they were numerous, would not result in saturation of the foundation and embankment, but would perch and flow harmlessly beneath the structure and out on the bedrock/soil interface."

22.0 SNOWMAKING

Specific Comments

22.1 Snow can only be made below 28ºF without the use of additives, and only optimally below 25ºF. This begs the question, does the snowmaking plan entail the use of additives such as Snomax which can impact water quality and soil erosion. Studies are very limited to this effect, but any effects analysis must disclose whether Snowbowl plans to use Snomax or some other coagulant additive, and identify any potential impacts including a review of the literature on the subject.

Snowbowl does not plan on using a nucleating agent such as Snomax in the snowmaking system. For additional information on snowmaking additives, please refer to response to Comment 6.12. Snow can be effectively produced at temperatures as warm as 34ºF without the use of additives depending on the configuration of the snowmaking equipment. The commentor is correct in that snow production rates decrease at warmer temperatures.

22.2 The Draft EIS fails to disclose any temperature data to determine when snow can actually be made. The analysis in the DEIS appears to have assumed that snow will be made all fall and into February.

Table 3I-2 discloses average, maximum, and minimum temperature data that was averaged over a 30-year period. The data in the table illustrates that in October the average temperature is 28.2ºF, in November: 19.1ºF, and in December: 13.3ºF. The minimums are, of course, much lower. This data leads to the conclusion that even in October, adequate temperatures are present for snow to be produced.

22.3 The DEIS, at page 3-139, notes regarding the proposed Humphrey's pod unfavorable southwest aspect, that "*operations at other western ski areas – at similar elevations – has demonstrated that this can be effectively overcome through the installation of snowmaking infrastructure and through concerted effort in maintaining adequate coverage in this pod.*" The DEIS does not define what constitutes a concerted effort. Meanwhile, the Draft EIS fails to identify what other ski areas they are referring to. While they purportedly consider other ski areas at "similar elevations," they fail to consider latitude – obviously critical in assessing the utility of snowmaking and ability to retain snow.

A "concerted effort" in maintaining adequate snow coverage would hinge on monitoring to focus snowmaking efforts on areas of concern. Furthermore, efficient grooming operations would be employed to spread snow as the coverage becomes uneven and inconsistent due to thawing. The reader is additionally referred to Comment 24.2.

To determine the feasibility of snowmaking at the Snowbowl, four years worth of detailed data (1997/98, 1998/99, 1999/00 and 2001/02)[67] from the Snowslide Canyon SNOTEL site were analyzed.[68] (The elevation of this weather site is 9,730 feet amsl, or roughly even with the base area of the ski area). The weather analysis involved creating an hourly temperature profile using recorded maximum and minimum temperatures and then counting the number of hours in each day which fall within two degree temperature "bins." This allowed the number of available snowmaking hours for each day to be determined. Snow production was calculated based on various system sizes and configurations depending on the number of guns and the production characteristics of the guns at each temperature range.

The snowmaking analysis, which is contained in the project file, determined that snowmaking temperatures are reasonably low, providing good production capability. A mix of airless guns and tower guns was recommended in order to boost efficiency/coverage while minimizing power requirements. The systems design which ultimately resulted is based on the determination that in eight out of ten years, with a mix of 25 airless guns and 25 tower guns, the snowmaking system could produce approximately 359 acre feet of snow by Christmas. For reference, this could cover Snowbowl's entire 204 skiable acres with approximately 1.75 feet of snow.

22.4 More precipitation as rain, especially in the shoulder seasons, will surely undermine the intent of snowmaking, making the ski area more [sic] consistently reliable. Yet the Draft EIS apparently fails to consider this, for instance by recording current weather trends and on what days of the year rainfall would significantly destroy the snow base that the proposed snowmaking would create.

It is assumed that this comment implies that rain events would undermine the intent of snowmaking, which is proposed to offer a *more* consistent snowpack. The reader is correct in that rain on snow events would adversely affect the snowpack, as is the current case. However, as soon as temperatures drop to sufficient levels, snowmaking could be used to recover a minimal snowpack and thereby counteract these effects. This is analogous to the methods of ski areas in the eastern and northeastern portions of the United States.

22.5 Effective snowmaking is based on creating an abnormally hard snow/ice surface that creates an unnatural hazard to skiers and snowboarders. If the Forest Service knowingly enables snowmaking and its attendant hazards for snow recreationalists, it may become jointly liable in the event of lawsuits filed by those who are injured as a result of skiing on these surfaces.

[67] Data for 2001/02 had problems with maximum/minimum temperature and was not used.
[68] When compared to the past 30 years worth of data, this period of record is considered warm.

While it is doubtful that machine-produced snow will ever match the quality of natural snow, technology has evolved over the years to a point where, in most cases, the product is widely accepted (especially when groomed). Combined with natural snow as the season progresses, machine-produced snow provides durability and consistency. Obviously the intent of the proposal is to offer skiers and snowboarders the highest quality product possible, and therefore the Snowbowl is committed to installing a state-of-the-art system.

It is acknowledged that skiing and snowboarding have inherent risks, as do most outdoor recreation pursuits. Given the current conditions, and lack of sufficient snowfall, there is likely a similar frequency of instances when snow coverage is marginally adequate for skiing in all portions of the ski area. Under thin snow conditions, rocks, stumps and other obstacles may become exposed which would pose similar, if not greater, hazards to skiing guests.

22.6 Where will the substantial amount of energy required for snowmaking operations come from? The Draft EIS does not address this, yet it is a significant environmental impact.

As indicated in the Infrastructure and Utilities section, with the addition of snowmaking infrastructure, new/upgraded lifts, and other projects, Snowbowl's existing power supply line is inadequate and would need to be upgraded through Arizona Public Service. The upgrade would involve replacement of the existing wires on the existing poles or placement of the power line underground within the trench for the reclaimed water line where it follows Snowbowl Road. The anticipated environmental effects of the purchase of additional power from the commercial network are beyond the scope of this analysis. It is noted that to assess the environmental effects of the incremental increase in power consumption, as suggested by the commentor, the analysis would be have to be conducted on a regional spatial scale. Even so, a detailed quantification of the incremental increase in power consumption would prove to be very small in terms of the total power consumed within the region. However, for discussion purposes, it is possible to make some order of magnitude estimates of the increase in energy usage and the environmental effects of increased power consumption at Arizona Snowbowl. Using estimated power requirements associated with the proposed lift upgrades, snowmaking distribution system, and pumping capacity for reclaimed water from Flagstaff, coupled with judicious and conservative estimates concerning equipment hours of operation, it is possible to estimate existing and proposed energy usage. The results of this analysis are outlined in the following table:

Existing and Proposed Energy Usage at the Arizona Snowbowl (MWh)[a]

Infrastructure Component	Existing	Alternative 2	Alternative 3
All Lifts	0.7	1.4	1.4
Snowmaking Distribution System, Including Pumps, Compressors, Guns	0.0	5.7	0.0
Reclaimed water pumping from Flagstaff (est.)	0.0	4.5	0.0
Total	***0.7***	***11.6***	***1.4***

[a]MWh = one megawatt hour, a unit of energy production or consumption

A rough estimate of the net change in carbon dioxide (CO_2) emissions associated with the proposed power usage was derived by examining the net 2002 annual electrical power industry carbon dioxide emissions, which includes sources from coal, petroleum, and natural gas generation. In 2002, the net CO_2 emissions associated with the electric power generation industry totaled 2.25 billion metric tons, including sources from coal, natural gas, and petroleum fired plants.[69] This estimate of CO_2 emissions was paired with the estimated 2001 U.S. electric power production of 2.68 billion megawatt hours (MWh) from thermal (fossil fuel) sources.[70] Dividing the total CO_2 output by the total generation output yields a U.S. national average of 0.84 metric tons of CO_2 emissions per MWh of generation production. Multiplying this estimate by the energy consumption estimates in the above table provides an estimate of the net change in CO_2 emissions associated with the proposal. The numbers portrayed in the following table represent the worst-case scenario that all of the existing and proposed power requirements are supplied by fossil fuel sources:

Estimated CO_2 Production (metric tons)

Infrastructure Component	Existing	Alternative 2	Alternative 3
All Lifts	0.6	1.2	1.2
Snowmaking Distribution System, Including Pumps, Compressors, Guns	0.0	4.8	0.0
Reclaimed water pumping from Flagstaff (est.)	0.0	3.8	0.0
Total	***0.6***	***9.7***	***1.2***
Change	***0.0***	***9.1***	***0.6***

It is important to place the 9.1 metric ton net increase of CO_2 emissions in context with overall U.S. CO_2 emissions associated electrical energy production. The 9.1 metric tons, divided by the total 2002 emissions of 2.25 billion metric tons, represents less than 0.0000001% of total U.S. CO_2 output related to the generation of electrical power using fossil fuels.

[69] EIA, 2003.
[70]EIA, 2002.

22.7 Sunrise ski area uses snowmaking and would have provided a good opportunity to evaluate some of the effects. Ecological and economical analysis of effects on the White Mountains and associated communities are absent from this DEIS.

There are likely many similarities as well as differences between the Snowbowl and Ski Sunrise and their respective environments. The analysis documented in the DEIS and FEIS are site-specific analyses designed to expressly evaluate the anticipated effects of the project proposal at the Snowbowl and within the surrounding environment and community. Incidentally, Ski Sunrise was contacted during this analysis, but was unwilling to share any information that would have been useful.

22.8 I think Snowbowl needs to use reclaimed water to make some snow on a field or hillside in Flagstaff next fall as a test for a couple of reasons. (1) They might find out that the reclaimed water doesn't make the quality of snow they are anticipating without significant extra treatment, and (2) if it does make high quality snow it will provide an opportunity of the public to see for themselves this quality.

In the Fall of 2002, the Snowbowl arranged an airless snowmaking gun demonstration at the Rio De Flag treatment facility. A large mound of snow was successfully produced. The quality of the snow was consistent with what one would expect of snow made from potable water. Interestingly, water quality samples taken prior to the snowmaking process and similar samples taken of the machine-produced snow revealed that the overall water quality improved slightly as a function of the freezing process.

22.9 The DEIS admits that Night Skiing was eliminated for a number of reasons including that the mountain needed to rest, yet the noise from snowmaking machines at full operating potential would extend beyond the parameters that were indicated in the initial Night Skiing proposal. Night Skiing would have only been done between certain hours; snowmaking at its full operation will extend far beyond the impacts of Night Skiing. On these grounds alone, snowmaking would not be allowed.

The night lighting system was eliminated from the proposal for a number of reasons, including public and tribal concerns but also due to the expense and technical complexity of evaluating and modeling (and mitigating for) the visual impacts of the lighting system. The noise potentially generated by operation of the snowmaking system was modeled and evaluated, as detailed in Section 3B of the DEIS and FEIS. The noise analysis concludes that sound emissions dissipate rapidly with distance. Given that the Snowbowl occupies a small portion of the mountain, the vast majority of the mountain will remain unaffected.

22.10 Snowmaking is for ski areas that already have a good base and consistent supply of snow. It would seem that climate changes indicate the Peaks are losing their supply of snow necessary to run a ski resort. Snowmaking is not for providing the main supply for skiers.

There are a number of ski areas in the United States that rely upon snowmaking capabilities for their primary, and occasionally only, source of snow. Mountain High Resort, operating in Southern California, is an example of a ski area that receives very little natural snowfall, yet successfully hosts in excess of 400,000 skiers annually using an extensive snowmaking system. While it is the hope of the Snowbowl that snowmaking would primarily be used to augment natural precipitation, snowfall records contradict this.

22.11 I support the idea of creating a snowtubing area at the Snowbowl but strongly oppose the use of snowmaking with treated effluent in the snowmaking system.

Most ski areas would not be able to offer amenities such as halfpipes, terrain parks, and snowtubing facilities without the availability of snow made possible through snowmaking technology. In Snowbowl's case, the lower elevations in the base area do not typically receive a sufficient amount natural snow to provide the needed quantities of snow from which to sculpt the tubing lanes. For this reason, the snowtubing facility is eliminated from Alternative 3, which does not include snowmaking.[71] Reclaimed water is the only environmentally feasible source of water for snowmaking available to the Snowbowl

[71] The halfpipe near the Sunset chairlift is retained in Alternative 3, as the basic form for this facility is proposed to be rough-shaped out of dirt to minimize the amount of snow that would be required to construct and maintain it throughout the season.

23.0 ENVIRONMENTAL JUSTICE

The basic intent of EO 12898 is to ensure that minority and low-income populations are not subject to disproportionately high levels of environmental risk. Research into fulfilling this intent revealed that EO 12898 is both vaguely written and widely interpreted[72] across governmental and non-governmental sectors alike. Therefore, between the close of the DEIS comment period and release of this FEIS, the Environmental Justice analysis has been completely reconstructed. This included: additional review of the issues related to this proposal; a reconsideration of the Environmental Justice analysis presented in the DEIS; a thorough review of the comments submitted on the DEIS; and consultation with numerous District, Regional, and Washington Office Forest Service staff members.

The Environmental Justice analysis contained in Section 3N of the FEIS presents information reflecting a disproportionately high and adverse environmental effect to Native Americans who hold the Peaks sacred. This determination is the same for Alternatives 1 through 3, with varying degrees of the level of impacts between them (i.e., Alternative 1 is the least, while Alternative 2 is the most).

Because the Environmental Justice analysis has been revised between the DEIS and FEIS, it is recommended that, prior to reading the following response to comments, the reader review Section 3N of the FEIS.

23.1 The Executive Order put in place by Clinton, concerning Native American sacred sites called for the highest consideration be given to this issue - the DEIS gives only token consideration.

While the Forest Service could find nowhere in Executive Order 12989 where it is stated that issues concerning Native American sacred sites be given "highest consideration," the Environmental Justice analysis presented in the FEIS has been revised and reevaluated.

23.2 The CEQ guidance explicitly directs agencies, such as the Forest Service, with regard to properly conducting environmental justice analysis. *"Agencies should integrate analyses of environmental justice concerns in an appropriate manner so as to be clear, concise and comprehensible within the general format suggested by 40 C.F.R. §1502.10."* The Forest Service's methodology for analyzing environmental justice within the Snowbowl DEIS is insufficient under this standard. The agency completely disconnects the environmental justice analysis from logically related and intertwined cultural heritage issues. It also fails to be sufficiently clear and comprehensible as required by CEQ guidance.

[72] Per Council on Environmental Quality, 1997. page 5, the CEQ Guidance is "meant to be applied with flexibility."

40 CFR 1502.10 – Recommended Format – states that: *"agencies shall use a format for environmental impact statements which will encourage good analysis and clear presentation of the alternatives including the proposed action."* It proceeds to outline a standard format for environmental impact statements. The Forest Service has demonstrated that the DEIS and FEIS follow this outline, as well as additional Region 3 formatting guidelines.

As stated in the Council on Environmental Quality's 1997 Environmental Justice - Guidance Under the National Environmental Policy Act (1997 CEQ EJ Guidance), *"neither the Executive Order nor this guidance prescribes any specific format for examining environmental justice, such as designating a specific chapter or section in an EIS or EA on environmental justice issues* (page 10)." Page 8 states: *"There is not a standard formula for how environmental justice issues should be identified or addressed."* Because CEQ guidance does not specify a format for examining Environmental Justice, and because the Environmental Justice analysis is sufficiently referenced back to the Heritage and Cultural Resources analysis, the specific location of these to analyses in the EIS relative to each other is irrelevant.

23.3 The CEQ guidance calls on the Forest Service to prepare environmental justice analysis, like all other NEPA analysis, in a manner that is "clear, concise and comprehensible" (CEQ, E.J. *Guidance at 10).* In this case, the Forest Service has certainly managed to render the environmental justice analysis concise, dedicating a mere five pages to these complex issues but, the analysis is anything but clear and comprehensible.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.4 The first three pages of the "Environmental Justice" section are a cut and paste litany of environmental justice regulations. The listed regulations, however, are not well organized, well explained or well cited. For example, the last half of page 3-336 includes sections entitled "Human Health Effects" and "Environmental Effects" that define how the agency should determine whether those effects are disproportionately high. These sections, however, do not cite to any particular authority, leaving the reader confounded as to their relevance and weight. Furthermore, at no point during the regulatory recitation does the DEIS explain the particular applicability of the law to the Snowbowl action. This section is neither clear nor comprehensible.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.5 The last part of the Environmental Justice section, "Existing Conditions," first gives a cursory description of population statistics. It then includes a subsection called "Tribal Consultation" which lists contacts between government agents and Tribal members. Neither subsection contains any discussion of relevant legal standards, an explanation of its relationship to "existing conditions" or an analysis of its significance with regard to environmental justice issues.

By design, the Environmental Justice analysis presented in the FEIS refers heavily to data included in both the Heritage and Cultural Resources (Section 3A) and Social and Economic Resources (Section 3E) analyses.

23.6 The phrase "environmental consequences" and/or a definition for that phrase do not exist within the summary of applicable law, and the section itself gives no indication of its purpose. What the section does contain are the conclusions that *"no environmental justice issues"* and *"no disproportionately high/adverse human health or environmental effects"* have been identified. The section, however, fails to explain or analyze how such conclusions were reached, leaving it entirely unclear and incomprehensible.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.7 By failing to articulate any part of the Environmental Justice section in a clear or comprehensible manner the Forest Service fails to meet its environmental justice obligations under NEPA.

NEPA does not contain any direction specifically for incorporating Environmental Justice analyses or determinations. However, the 1997 CEQ EJ Guidance makes it clear that attainment of Environmental Justice is wholly consistent with the purposes and policies of NEPA.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.8 In the Snowbowl DEIS, the Forest Service disconnects and disengages its environmental justice analysis from the rest of the document. Instead of providing an "integrated analysis," the Forest Service seems to have added a formulaic Environmental Justice section as an afterthought in a failed attempt to fulfill its NEPA requirements. This short and conclusory section, which is void of analysis as noted above, ignores at least 30 full pages of interrelated analysis in the Cultural Heritage section of the document. CEQ guidance has underscored that Environmental Justice in the NEPA context should include these kinds of social and/or cultural

issues. The only connecting reference is a stand alone sentence at the end of each "Environmental Consequences" subsection on page 3-339 that refers the reader to *"Chapter 3, Section A discussion of direct, indirect and cumulative effects to cultural values"* without any indication of how such discussion is related or meaningful. The Forest Service has placed the two sections at opposite ends of the document, without any linking analysis, instead of taking a holistic approach that builds off of the inextricably intertwined nature of the Cultural Heritage and Environmental Justice issues in this case.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.9 By failing to integrate environmental justice analysis into the NEPA document in a meaningful way, the Forest Service fails to meet its environmental justice obligations under NEPA.

The reader is referred to Comment 23.7 as well as the revised Environmental Justice analysis presented in the FEIS.

23.10 On page 3-339, the DEIS finds with respect to all three proposed alternatives that *"no disproportionately high/adverse human health or environmental effects"* on the Native American communities who live near San Francisco Peaks exist or have been identified. The Forest Service makes this erroneous finding by omitting the explicit language of relevant guidance documents and E.O. 12898 that mandate the consideration of social and cultural impacts, and by completely failing to consider the profound cultural and social impacts that the Snowbowl expansion will have on affected Native American communities.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.11 The DEIS's finding that "no disproportionately high/adverse human health or environmental effects" exist includes no analysis and no citation to a particular authority. The reader is forced to conclude, however, that the finding is based, at least in part, if not entirely, on the definitions provided on page 3-336, since it is the only other place that a definition for "disproportionately high and adverse" effects appears within the DEIS. The Forest Service, however, misquotes this definition to avoid finding that environmental effects on affected Native American communities are, in fact, disproportionately high and adverse.

The Environmental Justice analysis has undergone a thorough revision for the FEIS. The reader will note that the FEIS acknowledges that use of reclaimed water within the SUP

area has potential to represent a disproportionately high and adverse environmental impact, with the potential for both cultural and social effects for Alternatives 1, 2, or 3 to Native Americans who hold the Peaks sacred.

23.12 The DEIS deletes passages which are germane to the finding of a "disproportionately high/adverse human health or environmental effects" on the Native American communities.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.13 The DEIS inexplicably eliminates the language in the definition that details exactly what types of effects should be considered when analyzing environmental effects. This language would certainly be important in any environmental justice analysis, but is particularly essential in this case given that the deleted passage explicitly brings "cultural" and "social" impacts under the umbrella of environmental effects that the agency must consider as it determines whether those effects are "disproportionately high." In this case, the cultural and social impacts are the main and essential impacts that the affected Native American communities will suffer, so whether or not they are included in this case is a determinative factor in the Forest Service's ultimate finding. The Forest Service's elimination of the portion that would fundamentally change its analysis in this case is careless at best and deceptive at worst. The Forest Service cannot reasonably come to the conclusion that "no disproportionately high/adverse human health or environmental effects" exist when it has failed to document any consideration of the social and cultural effects that the Native American communities have suffered.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.14 The DEIS also fails to include or consider other language from the CEQ guidance that requires the consideration of cultural and/or social impacts on Native American communities. CEQ is explicit and detailed in describing the Executive Order's expectation that agencies include social and cultural impacts in an environmental justice analysis. Moreover, because the guidance has used the imperative "must consider" as part of its language, this expectation is not merely a request but a demand. Under the guidance, an agency is given no discretion as to whether or not it may consider social and cultural effects, but is required to do so when making a determination of whether those effects are disproportionately high and adverse. By ignoring this imperative the Forest Service fails its obligations under NEPA. By failing to include this explicit language the Forest Service

also fails to follow through on the analysis that the language explicitly demands.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.15 The CEQ guidance also includes at least two other references to the importance of social and cultural values in an environmental justice analysis.

- ***"Agencies should recognize the interrelated cultural, social, occupations, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community."*** **(CEQ, E.J. Guidance at 9)**

- ***"Agencies should recognize that the impacts within minority populations, low income populations, or Indian tribes may be different from impacts on the general population due to a community's distinct cultural practices."*** **(Id. at 14)**

The DEIS fails to make any mention of this language included within the CEQ guidance. The Forest Service makes no indication that it has "recognized the interrelated cultural, social" or other factors that may "amplify" the natural and physical environmental effects that the Snowbowl expansion may have. It does not analyze within the environmental justice context how the snowmaking, the scarring of landscape or the increases in human traffic may "disrupt the community structure" of Native Americans groups whose fundamental spiritual identity may be profoundly effected by the Snowbowl project. Furthermore, the DEIS makes no mention, within the environmental justice context, of how each community's "distinct cultural practices" may be particularly affected. By ignoring these issues the Forest Service fails its obligations under NEPA guidance. By failing to include this explicit language the Forest Service also fails to follow through on the analysis that the language explicitly demands.

The reader is referred to the revised Environmental Justice analysis presented in the FEIS.

23.16 Along with the conclusory finding that "no disproportionately high/adverse human health or environmental effects" exist in this case, the DEIS also states on p. 3-339 in the "Environmental Consequences" subsection that

"no environmental justice issues have been identified... as per USDA Departmental Regulations #5600-2." **USDA guidance is particularly applicable in this case, because the Forest Service, as a USDA unit, must pay particular attention to its own agency's regulations. This conclusion in the Environmental Consequences subsection does not provide a citation for the particular part of the regulation on which it relies.**

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.17 In the earlier subsection of the Environmental Justice section entitled "U.S. Department of Agriculture Departmental Regulations," the DEIS provides a general overview of Reg. #5600-2, quoting important language from the "Goals" section of the regulations. The DEIS fails, however, to quote any passages from the sections on scope, definitions, implementation policy or the discussion of NEPA, all seemingly important and applicable considerations for an agency attempting to determine exactly how those regulations should be applied. Again, the Forest Service culls only language that does not mention the necessity of including social and cultural impacts.

The reader is referred to the FEIS for the Environmental Justice analysis, which has undergone revision.

23.18 Like the CEQ guidance, Reg #5600-2 explicitly includes social effects as an important environmental justice consideration. The policy makers at USDA wisely built off of the CEQ guidance, employing language that is widely used among federal agency guidance documents to insure consistency among its programs. The Forest Service has no latitude to ignore such explicit agency language. Again, the Forest Service's omission of language that includes social effects is irresponsible at the least and suspect at worst. By ignoring this language the Forest Service fails its obligations under USDA regulation #5600-2. And, by failing to include interrelated social effects in its consideration, the Forest Service fails to follow through on the analysis that the regulation demands.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.19 The Memo accompanying Executive Order 12898, states that when doing a NEPA analysis *"Each Federal agency shall analyze the environmental effects, including human health, economic and social effects on minority communities and low-income communities."* This Memo was created by the Executive for the express purpose of spelling out to government agencies what was expected of them. The Forest Service's failure to

undertake any analysis of cultural and social effects is therefore a direct breach of the Order itself.

Chapter III of the 1997 CEQ EJ Guidelines (page 7) indicates it is clear that attainment of Environmental Justice is wholly consistent with the purposes and policies of NEPA. Direction at 40 CFR 1500.4 indicates that being brief and not repetitious is appropriate. Therefore, because social and cultural impacts were thoroughly analyzed and disclosed in Section 3A of the DEIS and FEIS the expanded Environmental Justice analysis presented in the FEIS refers to Section 3A to avoid redundancy.

23.20 The failure of the Forest Service to conduct an adequate environmental justice analysis regarding impacts of the Snowbowl expansion is not a harmless error, because an analysis that includes social and cultural impacts would certainly render a different conclusion. In this case, the Proposed Actions would have adverse impacts to the central social and traditional cultures of the thirteen tribes recognized by the Coconino National Forest. These comments do not endeavor to conduct the complete analysis of social and cultural impacts, since that is the duty of the Forest Service, but does highlight a few obvious social and cultural impacts that should provide a minimum basis for consideration.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.21 The DEIS acknowledges on p. 3-28 the importance of the San Francisco Peaks to thirteen Native American tribes and admits of snowmaking that *"based on the belief systems of many of the tribes we must consider at least a portion of these impacts as a potentially irreversible impact to these tribes' religions."* Therefore, the Forest Service's environmental justice analysis must, at a minimum, consider the serious impacts of snow-making on affected Native American communities.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.22 The DEIS notes on p 3-7 that *"The concept of landscape should be considered when discussing Native American relationships to the land." "Many groups consider the landscape to be part of a living cultural system, which encompasses both the people and the land together."* (DEIS p. 3-7) The issue is clearly not about access to particular sites but about the effects of alterations to the natural landscape. Any development that affects the Peaks natural environment damages the "continuing cultural identity" of the region's Native American tribes. Therefore, the Forest Service's environmental justice analysis must, at a minimum consider the

serious impacts of altering the landscape on affected Native American communities.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.23 The Forest Service has sought very little input from affected Native American communities. The Cultural Heritage analysis of Section A is based almost entirely on studies and documents produced by scholars of Native American culture and spirituality. While such materials can provide supportive factual data, they cannot replace the invaluable first hand input available from community members themselves. Environmental justice requires that agencies go above and beyond the 'normal' course of business to receive such input. Here, the Forest Service has failed to do so.

In addition to the cited published studies, the Cultural Heritage section of Chapter 3A also includes statements and information provided by numerous tribal members and traditional religious practitioners to the Forest Service and the press over a period of years, as well as during the consultation process for this project. Chapter 1 and Section 3A in the FEIS have been updated to include the tribal outreach which has occurred since the DEIS was released to the public. The Forest Service is confident that opportunities for public participation throughout this analysis have been sufficient for the Decision Maker to make an informed decision.

23.24 Both the Environmental Justice and Cultural Heritage Sections of the DEIS mention that a formal letter was sent to each of the thirteen tribes which hold the San Francisco Peaks sacred. Several follow-up phone calls were made and two formal meetings were held in December of 2002. This level of outreach is inadequate under the Forest Service's environmental justice obligations.

Chapter 1 and Section 3A in the FEIS have been updated to include the tribal outreach which has occurred since the DEIS was released to the public. Throughout the Tribal scoping process, specific to the Snowbowl's Proposed Action, the Forest Service estimates that approximately 205 phone calls were made, 41 meetings were held and 245 letters were exchanged.

23.25 The DEIS acknowledges that the proposed Snowbowl expansion will have permanent impacts on central cultural and religious sites of affected Native American Communities. Therefore, the Forest Service must make every effort to include input from those adversely effected communities. However, the Forest Service has failed to adequately garner participation from potentially impacted persons, holding only two meetings in Native American Communities and soliciting input only via letters to community leaders, at least one of which was never actually delivered by the United

States Postal Service. The Forest Service's failure to do more excludes, denies, and subjects Native American populations to discrimination, because the communities that will be most affected by the expansion have not been adequately included.

The reader is referred to Comments 23.23 and 23.24

23.26 The Council on Environmental Quality provides additional guidance on E.O. 12898 that specifies approaches that the Forest Service should implement in order to garner adequate input from effected communities. "…" While CEQ's guidance does not necessarily require that federal agencies adopt all of these methods to achieve NEPA's goals or to meet executive guidance concerning environmental justice considerations, federal agencies must clearly redouble their efforts during NEPA processes for proposed actions that implicate environmental justice. The Forest Service has attempted no "adaptive or innovative" measures to inform and educate tribal members, or to solicit their input on the proposed expansion. The Forest Service makes no indication that it "developed a strategy," "enhanced" its scoping procedures or used "adaptive or innovative approaches." One meeting in two different locations on the same day is certainly not a use of "different meeting sizes and formats." The Forest Service did not encourage or even allow for meaningful participation from a majority of affected communities. There is no indication that translators or translated documents were available. There has been little opportunity for oral testimony or use of audio or visual equipment. By failing to consider even a few innovative measures that would provide meaningful opportunities for broader community input, the Forest Service has failed in its obligation under NEPA.

Executive Order 12898 requires agencies to work to ensure effective public participation and access to information. *"Thus, within its NEPA process and through other appropriate mechanisms, each Federal agency shall, wherever practicable and appropriate, translate crucial public documents, notices and hearings, relating to human health or the environment for limited English speaking populations" (*1997 CEQ EJ Guidance, page 4). As indicated in Comment 1.8, translating the document into Native American languages was deemed a technical impossibly, as many of the languages that are spoken by the 13 tribes do not have written components. In addition, many of the technical terms have no equivalents.

Tribal scoping is discussed in Chapter 1 and in the Heritage and Cultural Resources analysis of the DEIS and FEIS. Also see Comments 23.23 and 23.24. As indicated, the tribal scoping effort clearly went beyond "one meeting in two different locations on the same day." Public involvement is governed by a general "reasonable and good faith effort" standard. We have had translators available at public meetings to take comments from meeting attendees.

23.27 As part of USDA, the Forest Service is required to pay special attention to adherence of that agency's regulations. USDA Reg #5600-2 states that: *"USDA agencies should find creative and meaningful ways to facilitate access to information about the proposed action and the NEPA process to potentially affected minority and low income populations. Outreach possibilities would include organizing public meetings at a time and place that is convenient for the potentially affected communities, scheduling meetings with elected officials and/or community organizations, and publishing a newsletter to keep people informed."* Again, in this case, "creative and meaningful" efforts are especially critical, given the large number of Indian Tribes that will be affected by the proposal, the central role the Peaks play in the religious and cultural existence of these tribes, and the clear affront the proposed Snowbowl expansion poses to these beliefs. The Forest Service has refused to use many of the adaptive measures suggested by its own agency regulations. No notices have been published in Native American publications or newsletters. No public service announcements have been made on Indian radio stations. No "newsletter" to keep affected communities informed has been developed. By failing to consider these and other innovative measures mentioned above that would provide meaningful opportunities for broader community input, the Forest Service has failed in its obligation under its own agency regulations.

The reader is referred to Comment 23.3.

23.28 In addition to the translation requirements included in the various environmental justice guidance documents cited above, NEPA also requires that documents be translated to facilitate public participation. In order to encourage full public scrutiny and participation, information contained in EISs and other NEPA documents must be plain and accessible to general members of the public. To this end, the CEQ's implementing regulations for NEPA state that: "*Environmental impact statements shall be written in plain language and may use appropriate graphics so that decision makers and the public can readily understand them."*

According to the 9th Circuit, this section *"imposes a requirement that an EIS must be organized and written so as to be readily understandable by governmental decision makers and by interested non-professional lay persons likely to be affected by actions taken under the EIS."* (Oregon Environmental Council v. Kunzman, 817 F.2d 484, 494 [9th Cir. 1987]).

In this case, the class of "interested non-professional lay persons likely to be affected by actions taken under the EIS" clearly includes members of Southwestern tribes for whom the Peaks have central religious and cultural significance. This includes, of course, not only tribal members who may

happen to live in the vicinity of the San Francisco Peaks, but members who presently reside on Reservation land and either do not speak English, or do not speak English as a primary language. Where a substantial portion of the affected public speaks a language other than English, the requirement to provide impact statement written in "plain language" and "clear prose" clearly entails translation of the document into additional language or languages. For example, the Environmental Protection Agency, in implementing NEPA, "has prepared versions of documents in Spanish when public interest has warranted the action." 53 Fed. Reg. 18579, 18580 (May 24, 1988). NEPA clearly requires a translation of the DEIS for the proposed action and all subsequent NEPA analysis to similarly be translated into Navajo, Hopi, Apache and all other tribal languages so to be "readily understandable" by the many Indian people clearly affected by the proposed expansion of the Snowbowl facilities. By failing to translate these and other documents, the Forest Service has doubly failed in its obligation under NEPA and environmental justice guidance documents.

The Forest Service cooperated with the tribes throughout the NEPA process. The Hopi Tribe picked the times and places for public meetings, as did the Forest Service Navajo Liaison in cooperation with the Navajo people. In addition, several articles were published in local tribal papers and numerous Chapter House meetings were attended by Forest Service staff. Translators were available at public meetings to explain the reasons for the proposal, the analytical process, and the technical analyses described in the DEIS as well as to assist tribal members in providing comment in their native language.

The nature of a complex proposal such as this necessitates a correspondingly technical and thorough analysis. While every effort was made to present this FEIS in a clear and straightforward manner, many of the individual analyses that constitute Chapter 3 are technical and detailed and are not easy to simplify or involve concepts that do not exist in tribal languages..

The reader is referred to Comment 1.8 for a response to the translation component of this comment.

23.29 Beyond the usual considerations of NEPA alternatives analysis as discussed (supra/infra) in these comments, the Forest Service, in this case, is also obligated to consider alternatives developed by communities particularly affected by environmental justice considerations. The CEQ guidance states:

"In cases where a proposed action might have a disproportionately high and adverse impact on minority or low income populations, agencies should make a strong effort to encourage members of those communities to help develop and comment on possible alternatives. Efforts would

***include organizing meetings to facilitate public input on the alternatives."* (CEQ, E.J. Guidance at 3)**

Along with a general failure to conduct appropriate outreach, as noted above, the Forest Service has particularly failed to "encourage" input as to the development of various alternatives. If the Forest Service seriously considered alternatives proposed by community members it would likely be looking at such measures as downsizing current Snowbowl operations, minimizing current impacts by other means or re-siting the facility altogether. However, the Forest Service has failed to encourage the input for development of such alternatives, thereby also failing to make such alternatives available for consideration.

At a minimum, however, the Forest Service needs to incorporate community input into the analysis of each alternative. The CEQ requires that such analysis *"should include potential impacts to subsistence consumption and human health as well as the related economic and social effects of each alternative."* (CEQ, E.J. Guidance at 4)

Tribes were specifically asked to suggest alternatives as part of the MOA process, as well as during earlier consultations regarding the Proposed Action and DEIS.

In the memorandum to heads of departments and agencies that accompanied EO 12898,[73] President Clinton specifically recognized the importance of the procedures under NEPA for identifying and addressing Environmental Justice concerns. The memorandum particularly emphasizes the importance of NEPA's public participation process, directing that "each Federal agency shall provide opportunities for community input in the NEPA process." Hence, the Forest Service provided opportunities to participate during the scoping period and has fulfilled its obligations to encourage the development of alternatives. Suggestions to remove the facility were not considered, as they would not meet the stated purpose and need. Finally, sections 3A and 3E of the DEIS and FEIS provide information on social and economic effects associated with each alternative. The reader will note that no subsistence consumption or human health effects are identified as associated with the action alternatives.

23.30 Just as environmental justice considerations specifically require input from potentially affected communities regarding alternatives, they also require such input regarding mitigation measures… In the case of Snowbowl expansion, the Forest Service has made absolutely no effort to garner input from affected communities regarding mitigation measures. This failure has not only excluded those populations from meaningful participation, it has resulted in the development of a mitigation strategy, a "Native American

[73] Memorandum form the President to the Heads of Departments and Agencies. Comprehensive Presidential Documents No. 279 (February 11, 1994)

cultural resource center" that will actually worsen conditions for those affected communities. That the Forest Service is even willing to propose such a center is symptomatic of its refusal to understand, let alone respect, the nature of the tribes' relationship to the Peaks with regard to environmental justice concerns.

Such a proposal also flies in the face of pertinent guidance documents and regulations. The EO memo states that *"Mitigation measures... should address significant and adverse environmental effects of proposed Federal actions on minority communities and low income communities."* (EO Memo at 280). The Forest Service cannot seriously claim that a "cultural center" is truly aimed at addressing the effects of the expansion on the Indian tribes. A "cultural center" open to the public at large is clearly a venue for non-Native American persons to become familiar with Native American culture and practice. Is the Forest Service suggesting that tribal community members, let alone spiritual leaders and tribal elders, would visit such a center? Is the Forest Service suggesting that such visits would replace the lost natural resources central to these communities' spiritual practices? In actuality, for many community members, such a center, by drawing attention to a sacred place that many communities treasure as private would further negatively affect the social values already impacted. *"Mitigation measures include steps to avoid, mitigate, minimize, rectify, reduce, or eliminate the impact associated with a proposed agency action."* (CEQ, E.J. Guidance at 16 [quoting 40 C.F.R. §1508.20]). In the case of the Snowbowl expansion, the proposed "cultural center" does not avoid the potential cultural harm created by the expansion. It does not minimize those impacts. It does not rectify the harm. It does not reduce or eliminate the impacts associated with the harms. In fact, it does the very opposite; the creation of such a center would amplify already high adverse impacts.

By failing to encourage community input and then proposing an unacceptable and disrespectful "mitigation measure" the Forest Service has failed its environmental justice obligations under NEPA, EO 12898, CEQ guidance and USDA regulations.

Tribes were specifically asked to suggest alternatives as part of the MOA process, as well as during earlier consultations regarding the Proposed Action and DEIS. The MOA is contained in Appendix D of the FEIS. As indicated in the ROD, and the MOA, that tribes would not be represented in such a center if they did not so wish. The reader is referred to comments 5.3, 5.4 and 5.5. The MOA contains a list of mitigation measures to be included in any action alternative.

23.31 Certain plants in the area are utilized by Native Americans for both religious and medicinal purposes. I oppose the use of reclaimed water for snowmaking not only because of their objections on religious ground, but also because the water may in fact have detrimental effects on plants for medicinal uses. Having studied the Council on Environment Quality's guidelines for federal agencies regarding Environmental Justice, I believe the use of reclaimed water for snowmaking constitutes a significant environmental justice issue.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.32 On page 3-339, the DEIS finds with respect to all three proposed alternatives that *"no disproportionately high/adverse human health or environmental effects"* on the Native American communities who live near San Francisco Peaks exist or have been identified. The Forest Service makes this erroneous finding by omitting the explicit language of relevant guidance document and E.O. 12898 that mandate the consideration of social and cultural impacts, and by completely failing to consider the profound cultural and social impacts that the Snowbowl expansion will have on affected Native American communities.

The reader is referred to the FEIS for the Environmental Justice analysis, which has been revised.

23.33 We emphatically disagree with the methods and conclusion of the DEIS assertion that there are no environmental justice issues associated with the Proposed Action or Alternative 3. Our views, supported by data and discussion in the DEIS, are that the adverse impacts to the human environment are directly and poignantly focused on American Indian people, including many Apaches, to whom the project area is sacred. These impacts will have serious consequences for the health and welfare of this low-income and minority population. Revise the methods used to assess the EJ issues.

The reader is referred to the FEIS for the Environmental Justice analysis, which has undergone revision. The reader will note that the Environmental Justice analysis determines that there is a certain level of disproportionately high and adverse environmental effects to Native Americans who hold the Peaks sacred associated with *all* alternatives.

23.34 The DEIS states that no environmental justice issues were identified relating to the preferred alternative. The Tribe does not agree with this determination and pursuant to the requirements of consideration of environmental justice issues and Executive Order 13007 mandating the

protection of the physical integrity of American Indian sacred sites, the Hopi Tribe requests consultations with CNF and USDA Department

Regulations 35600-2, so that we may identify environmental justice issues in directly related to the selection of either Alternative 2 or 3.

Chapter 1 and Section 3A of Chapter 3 in the FEIS have been updated to include more information on consultation, which occurred throughout the NEPA process and the Forest Service's legal obligations.

24.0 HUMPHREYS POD

24.1 The Humphrey's Pod trails do not entail thinning or glading, as the Draft EIS, at page 2-8, notes that, "*approximately 47.4 acres of tree thinning/glading would occur within the Agassiz and Sunset pods*" (as opposed to Humphrey's pod). Observing Figure 2-2, it appears that no tree cover would be kept within these trails of between 200 and 400 feet in width. Subsequently, little of these trails will retain tree cover or shading, contradicting the Draft EIS's suggestion of "*maximizing shading potential of the existing tree canopy.*"

Thinning and/or glading is only proposed for the upper portion of the Agassiz and Sunset pods, as indicated in the DEIS (page 2-8) and in the FEIS. Tree islands have been incorporated into the conceptual design of the Humphreys pod, and final design would incorporate sculpted edges and the retention of intertrail tree islands to the maximum extent possible in order to maximize shading. For the purposes of full disclosure, the trail configurations shown in the project mapping depict a scenario where the full width of each trail has been cleared. The final layout of the proposed trails will be flagged in the field and reviewed by the Forest Service prior to implementation. This design will be constrained to total clearing equal to, or less than the acreage disclosed in the DEIS and FEIS documents.

24.2 The Draft EIS, page 3-139, regarding Humphrey's Pod and its southwest aspect, does not provide a definition of "*effective snow management.*"

"Effective snow management" pertains to practices such as careful and consistent monitoring of snowpack levels and employing strategies for covering thin areas with snowmaking and grooming. As an example, soft, unconsolidated snow melts at a much faster rate than packed groomed snow. Snow management may employ such techniques as early season packing, and mid- to late-season snow farming (moving snow from deeper areas to shallower areas).

24.3 Elimination of the Humphrey's Pod would mitigate the most important environmental impact of the proposed alternative, namely visual scarring of the west face of the San Francisco Peaks, yet the alternative was not analyzed because it would not meet Snowbowl's objective of increasing intermediate ski average and maximizing the ski area's carrying capacity. This is an incredible omission for a document purporting to be an environmental impact study.

Aside from the rationale mentioned by the commentor, visual impacts were not identified as being significant issue, and therefore an alternative which omitted construction of the Humphreys pod was not carried forward into the analysis. Incidentally, in reaching a decision on the proposal, the Forest Supervisor is not required to select any one

alternative in its entirety but may construct the Selected Alternative by removing all, or a portion of, any of the proposed project elements.

25.0 AIR QUALITY

25.1 When moisture is blown up into a moisture poor environment a significant portion of that moisture will evaporate and may carry with it any impurities associated with the original water source. The use of reclaimed wastewater has the potential to increase air pollution in the area of the San Francisco Peaks as well as in other areas within the region where wind currents may distribute this polluted air. In addition to this, rain or snow falling through the polluted air will bind some of the pollution bringing it down to the ground polluting areas far outside the watersheds outlined in the DEIS. This issue must be addressed prior to continuation of the project.

As discussed in the Air Quality analyses provided in the DEIS and FEIS, the Proposed Action can be implemented in full compliance with all State and Federal ambient air quality standards.

By definition, evaporation is the transition of water from the liquid to a gaseous state. In a gaseous state, water molecules are not bound together via hydrogen bonding as they are in a liquid state, and are not arranged in a cohesive molecular structure (i.e., droplets) that could "carry impurities" as the commentor implies. Nonetheless, water does evaporate as it is sprayed into a very fine mist by compressed air during the snowmaking process. At the same time, volatile (readily evaporable) organic compounds that may be present in the reclaimed water, could partition into the atmosphere by being exposed to the air when distributed by snowmaking equipment. However, such compounds would be exposed to the atmosphere for only a relatively short time. Most exposure would occur during the fall from the nozzle to the ground. Once water droplets have frozen and accumulate on the ground, and are spread and compacted by snow groomers, comparatively little surface area (only the top-most layer) would be exposed to the atmosphere, relative to the total surface area of frozen water crystals. In addition, volatile compounds in the atmosphere would likely be oxidized and degrade quickly via ultra-violet radiation and other atmospheric processes. It is unlikely that partitioning of volatile compounds to the atmosphere during this process would contribute measurable quantities of air pollution.

25.2 EPA recommends that the Final EIS evaluate air quality impacts from construction equipment emissions and mitigation measures to reduce these impacts. Specifically, EPA recommends evaluating the use of particle traps and other appropriate controls to reduce emissions of diesel particulate matter and other air pollutants. The Forest Service should ensure that construction-related trips of workers and equipment, including trucks and heavy equipment, are reduced as much as possible, that equipment does not idle unnecessarily, and equipment is tuned.

Snowbowl would maintain compliance with all local, state, and Federal air quality regulations. Per EPA's request, the following mitigation measures have been incorporated into Table 2-2 of the FEIS.

- The primary contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained.

- Idling time and construction-related trips will be minimized, as appropriate.

- In order to minimize emissions and particulate matter, existing power sources and/or clean fuel generators will be utilized rather than temporary power generators.

26.0 PUBLIC SAFETY

26.1 The potential for lawsuits claiming damage to the environment and the public health should be considered before moving ahead with this project.

The DEIS disclosed that there are no identified public health or significant environmental issues associated with the Proposed Action. The Arizona Department of Environmental Quality allows reclaimed water with an "A" rating to be used for snowmaking purposes. The reclaimed water produced by the Rio de Flag Water Treatment Plant currently exceeds this standard. As detailed in the Watershed Resources sections of the DEIS and FEIS, reuse of municipal wastewater has become increasingly important during the past several decades in part due to the growth in urban populations and constraints on the development of new water sources. Reuse is practiced extensively in the United States and around the world. Furthermore, the City of Flagstaff operates a progressive program to use reclaimed water for irrigation on parks, playgrounds, golf courses, and other city grounds. In this regard, the use of reclaimed water for snowmaking is no different, and the potential for lawsuits claiming damage to the environment and/or public health due to its use is beyond the scope of this analysis.

Additionally, the concept of liability is discussed in Comment 6.5.

26.2 In areas where reclaimed water is presently used, there are signs posted to warn against consumption of the water. Will these signs be posted at the Snowbowl? If so, how will that keep children from putting snow in there mouths or accidentally consuming the snow in the case of a wreck?

There will be signs posted at Snowbowl informing visitors of the use of reclaimed water as a snowmaking water source. Much like areas of Flagstaff where reclaimed water is used, it is the responsibility of the visitor or the minor's guardian to avoid consuming snow made with reclaimed water. It is important to note that machine-produced snow would be mixed and therefore diluted with natural snow decreasing the percentage of machine-produced snow within the snowpack. Because ADEQ approved the use of reclaimed water, it is assumed different types of incidental contact that could potentially occur from use of class A reclaimed water for snowmaking were fully considered.

26.3 The Proposed Alternative would result in more people skiing and snowplaying, thereby causing more congestion and an increase in skier injuries.

Although the Proposed Action increases Snowbowl's CCC from 1,880 to 2,850, the proposal is designed to better accommodate Snowbowl's current visitation levels, rather than spur increased daily attendance. Regardless of Snowbowl's on-mountain lift and terrain capacities, daily visitation at the resort would continue to be limited by on-site parking, which is proposed to increase by a nominal 0.3 acre. With the development of

the proposed increases in skiing terrain, the on-mountain congestion currently experienced has potential to decrease rather than increase as suggested by the commentor.

26.4 The safety issue can be solved in another way; limit the number of skiers on the runs at any one time. This means making it known that numbers will be limited and will be on a first come, first served basis.

Technically, Snowbowl does operate on a first-come, first-serve basis, as daily attendance is limited by guest parking (approximately 3,100 guests). While parking in both Alternatives 2 and 3 is proposed to increase by a nominal 0.3 acre, terrain is proposed to increase by almost 74 acres (approximately 57 percent) in the Proposed Action and 64 acres (approximately 46 percent) in Alternative 3. As detailed in the Social and Economic Resources section of the DEIS and FEIS, the Snowbowl has been unprofitable in four of the previous 11 seasons. The concept of limiting skiers, and therefore revenue, would further, and substantially, decrease the ski area's economic viability. Reducing the number of skiers would not meet the purpose and need of improving recreational opportunities and would not be consistent with Forest Plan direction.

26.5 The installation of high-speed lifts increases the number of skiers on the mountain, increasing overcrowding on ski runs and increasing danger to skiers. The only factor presently keeping skier density in check is slow lifts - more skiers are in lift lines and less actually skiing.

While high-speed lifts are proposed in both Alternatives 2 and 3, increased terrain in both alternatives would help dissipate skiers, thereby decreasing overcrowding. The reader is referred to Comment 26.3. As detailed throughout the DEIS and FEIS, the Comfortable Carrying Capacity (CCC) of the resort will increase from 1,880 currently to 2,825. Approximately 70 percent of the increase in CCC is attributable to the installation of the proposed new lifts (Humphreys, two teaching lifts, and a lift serving the proposed half pipe).

RESPONSE TO COMMENTS

APPENDIX A : Substantive Commentors on Draft EIS

APPENDIX B : Comments Received on the DEIS From Tribes, Federal, State and Local Agencies, and Elected Officials

Coconino National Forest
Peaks Ranger District

APPENDIX A

SUBSTANTIVE COMMENTORS ON THE DRAFT EIS

The comment codes provided throughout Appendix A correspond to the context/resource headings provided in the following table and are addressed throughout the Response to Comments. All comment codes assigned to each commentor are general in nature.

Comment Code	Context/Resource Heading
1	NEPA Process
2	USFS Policy
3	Document Structure
4	Modified Alternatives
5	Heritage & Cultural Resources
6	Watershed Resources
7	Cumulative Impacts
8	Wilderness Issues
9	Social & Economic Resources
10	Vegetation Resources
11	Wildlife Resources
12	Infrastructure & Utilities
13	Traffic & Ski Area Access
14	Noise
15	Recreation
16	Aesthetics
17	Soils & Geology
18	Climate
19	Nightlighting
20	Supportive Comments
21	Water Impoundment
22	Snowmaking
23	Environmental Justice
24	Humphreys Pod
25	Air Quality
26	Public Safety

Substantive Commentors on Draft EIS

First Name	Last Name	Organization	Comment Code
		Flagstaff Activist Network	1, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 18, 21, 22, 23, 24
		Icomindios Switzerland	1, 5
		Pan African Forum	1, 5
		Society of Threatened Peoples and Human Rights Association	1, 5
		Verein fur Internationale Brauchtumsforderung	1, 5
Carrie	Abels		1, 6, 8, 11, 18, 20
Rob	Abromavage		1, 6, 8, 11, 18
Jan	Achilles		1, 5
Laura	Ackerman		1, 6, 8, 11, 18
Evelyn	Adams		1, 6, 8, 11, 18
Lani J.	Adams		1, 6, 8, 11, 18
Mike	Adams		20
Angel Yael	Adeyoha		1, 5
Jennifer Anne	Adler		1, 6, 8, 11, 18
Brian P.	Agenbroad		1, 5
Maxine	Agenbroad		1, 5
Lavinia	Aguirre		1
Adriel	Ahern		1, 5
Daniela	Ahmed		1, 5
Tom	Ainsworth		1, 5
Stewart	Aitchison		9, 18
Steve	Akam		1, 5
Theresa I. E.	Albers		1, 5
Wanda June	Alexander		1, 5
Marakesh	Ali		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Janice	Allen		1, 6, 8, 11, 18
Michael	Allen		1, 6, 8, 11, 18
Tim	Allen		20
Doug	Alley		1, 6, 8, 11, 18
David	Allred		6
Iris	Allrunner		1, 5
Crystal	Altene		1, 5
Jason	Altman		1, 6, 8, 11, 18
Beverly	Amer		20
T.S.	Amer		20
Michael	Amundson		1, 6, 9, 11, 13
Ben	Anderson		6, 9, 13
G.	Anderson		1
Judith	Anderson		1, 5
Kirk	Anderson		1
Robert	Anderson		1, 6, 8, 11, 18
Vanessa	Andrews		1, 5
Kelly	Anquoe		1, 5
Laureen	Antes		1, 5
Tiffany	Antol		1, 13
Anita	Antoninka		6
Elene	Antonio		1, 5
Jennifer	Apachee		1, 5
Julie	Arcino		1, 5
Dan	Arkin		1, 6, 8, 11, 18
Merlin and Mary	Armbruster		1, 6, 8, 11, 18
Michelle	Arnold		1, 5

First Name	Last Name	Organization	Comment Code
Tina	Arnold		1
Susan	Arnot		1, 6, 8, 11, 18
D.K.	Arter		1, 5
Jerdino	Arthur		1, 5
Holly M.	Asher		1, 5
Lauren	Ashley		1
Aimee	Auby		1, 6, 8, 11, 18
Kyra	Auerbach		1, 6, 8, 11, 18
John L.	Auran		20
Walti	Aurelien		1, 5
Ray	Austin		1, 6, 8, 11, 18
Tracy	Auton		1
Rishi	Awatramani		1, 5
Jane	Ayers		1, 5
Liz	B.		1
Alexis	Baca-Spry		5, 9, 10
Marcus	Badoni		5
Jacquelyn	Baetz		1, 6, 8, 11, 18
David	Bagnato		20
Derrick	Bahe		1, 5
J	Bailey		1
Gayle	Baingo		1, 6, 18
Linsey	Baker		1, 5
Marian & Peter	Baker Gierlach		1, 6, 8, 11, 18
S.	Baker		1
Sam	Baker		1
Thaddeus	Baker, Jr.		20

First Name	Last Name	Organization	Comment Code
W.	Baldwin		1, 5
Lyle	Balenquah		1, 5, 6, 9, 10
Brandon	Ballengee		1, 6, 8, 11, 18
Linda	Balmoos		1, 5
Alice	Baloo		1
Ernest W.	Baloo		1, 5
Daniel	Balugay		1, 5
Ari	Banias		1, 5
Steve	Barancik		1, 6, 8, 11, 18
Raquel	Baranow		1, 6, 8, 11, 18
Cecilia	Barber		1, 5
Janet	Barber, Ph.D.		1, 6, 8, 11, 18
Maxine	Barbone		1, 5
Noah	Bard		14, 20
Sharon	Barington		1, 6, 8, 11, 18
Maryellen	Barnes		1
David	Barnhill		1, 6, 8, 11, 18
Celestine	Barnwell		1, 6, 8, 11, 18
Rick	Barrett		20
John	Barthel		1, 6, 8, 11, 18
Alan	Bartl		1, 5
Bryan	Bates		5, 6
Timothy	Bates		1
Vanesscia	Bates		1, 5
Rodney	Baumbach		1, 6, 8, 11, 18
Clare	Bayard		1, 5
Beth	Bayley		1, 5

First Name	Last Name	Organization	Comment Code
Micah	Bazant		1, 5
John	Beamer		20
Paul	Beamer		20
Susan Lamb	Bean		5, 6, 9, 10, 13, 14, 16, 17
Jeri D.	Beard		5
Dave	Beauregard		20
James	Beavers		4, 10, 13
Amee	Beck		1, 6, 8, 11, 18
Ann	Beck		6
Ryan	Beck		20
LaDawn	Becker		1
Bernita	Bedah		1, 5
Bonnie	Bedonie		1
Jon	Bedonie		1
Christopher	Beeson		1, 6, 8, 11, 18
Terri	Beeson-Davis		1, 5
Alex D.	Begay		1, 5
Amelia B.	Begay		1, 5
Arnold E.	Begay		1, 5
Bernita	Begay		5
Broderick	Begay		1, 5
Cecelia L.	Begay		1
Charlene	Begay		5
D.	Begay		5
Darian	Begay		1, 5
Darrell	Begay		1
Dino P.	Begay		5

First Name	Last Name	Organization	Comment Code
Douglas E.	Begay		1
Edward	Begay		5
Eugene	Begay		1
Evelyn M.	Begay		1, 5
Harold	Begay		6
Harry J.	Begay		1
Howard	Begay		1
J. Kaibah	Begay		1, 5
J.C.	Begay		1
Joel	Begay		1
Laura	Begay		5
Lavonna F	Begay		1, 5
Lindsey	Begay		1, 5
Lucy	Begay		5
Mekini	Begay		1
Melanie	Begay		1, 5
Mia	Begay		1, 5
Nizba	Begay		1, 5
Pauline	Begay		1, 5
Reanna	Begay		1, 5
Roland	Begay		1, 5
Stanson	Begay		1, 5
Miranda Shawneya	Begaye-Petty		1, 5
Elsie	Begoody		1
Kelly	Beitman		1, 5
Joseph	Belli		1, 6, 8, 11, 18
	Bellonger		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Peter and Mary	Belov		1, 6, 8, 11, 18
Arlena	Benallie		1, 5
Brandon	Benallie		1, 5
Berta	Benally		1, 5, 6, 9, 10, 11, 12, 13, 14, 16, 18
Clayson	Benally		1, 4, 6, 14, 18
Imogenie	Benally		1
Jeneda	Benally		1, 5, 6, 10, 11, 23
Karen and Timothy	Benally		1, 5
Klee	Benally		1, 5, 6, 7, 14
Renee	Benally		1, 5
Herman	Bender		1, 6, 8, 11, 18
Julia	Benedetti		1, 6, 8, 11, 18
Linda	Benfield		1, 5
I.	Benjamin		1, 5
Tory	Bennetsen		9
Gordon	Bennett		1, 6, 8, 11, 18
Louise	Benson	Hualapai Tribe	5
Willard C.	Benward		1
Doris	Beran		1
Leah	Berger		1, 6, 8, 11, 18
Natalie	Berghahn		1, 5
Busch	Berit		1, 5
Amanda	Berk		1
Matthieu	Bernard		1
Nancy	Bernardi		1, 6, 8, 11, 18
Mo and Birgit	Berndt		1, 5
Andy	Bessler	Sierra Club	1, 9, 18

First Name	Last Name	Organization	Comment Code
Sara	Best		20
Sat Sansar S.	Best		1, 6
Kelly and Gaylene	Beyale		1, 5
Dana	Beym		1
Kelly	Beym		1, 6
Sophia	Beym		1, 3, 5, 6, 9, 13
Kit	Bezy		1, 6, 8, 11, 18
Jessie	Bhangoo		1, 6, 8, 11, 18
Briana	Bia		1, 5
Landon	Biakeddy		1
Maggie	Biakeddy		1
Bettina	Bickel		1, 6, 8, 11, 18
Thomas A.	Bida		1, 4, 6, 9, 10, 15, 16, 18
Nicolette	Bielly		1
Karen	Biesanz		1, 6, 8, 11, 18
Roxanne	Bighorse		1, 5
Frank	Bilagody	To'Nanees'Dizi of the Navajo Nation	1, 5
Evelyn	Billo		1, 6, 8, 11, 18
Teralyn	Billy		1, 5
Leander	Birch		1
Denny	Birkland		20
James	Biser		1, 6, 8, 11, 18
Beryl Singleton	Bissell		1, 6, 8, 11, 18
C.	Bistinnie		1, 5
Cynthia	Bittick		1, 6, 8, 11, 18
Cathrina	Bjazevich		1, 6, 8, 11, 18
Sara	Black		1, 5

First Name	Last Name	Organization	Comment Code
John	Blackbear		1, 5
Danny	Blackgoat		1, 5
Scott	Blair		1
Matt	Blais		1, 6, 8, 11, 18
Ramos	Blaise		1
Sharlane	Blaise		1, 6, 8, 11, 18
Michael	Blakeslee		6
Maria Angelyn	Blatchford-Bird		1, 5
Steve	Bledsoe		1, 6
Heinrich	Bleicher-Nagelsmann		1, 5
Jon	Block		1, 6, 8, 11, 18
F. Scott	Blodgett		1, 5
Claudia	Bloom		1, 5
Joshua	Bloomfield		1, 5
Jenny	Blue		1, 2, 6, 18
Martha	Blue		1, 5, 9
Keith	Blunt		1, 6, 8, 11, 18
Joe	Bluth		20
Jimmy	Bob		1
Richard	Bodane		1, 6, 8, 11, 18
Barbara	Boelter		1, 5
Sherry	Bohlen		1
Brent	Bohmont		4, 20
Connie	Boitano		1, 6, 8, 11, 18
Erika	Boka		1, 6, 8, 11, 18
Debby	Bolen		1, 6, 8, 11, 18
Deborah	Bollinger		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Tim	Bonatus		20
Patrick	Bondy		1, 5
Rob	Bonner		20
Suzanne	Bonner		20
David	Borden		6
Larry	Borden		1, 6, 8, 11, 18
Michael	Bordenave		1, 6, 8, 11, 18
Gary	Boren		1, 6, 8, 11, 18
Mary G.	Borgaard		1, 5
Eric	Borowsky		20
Lisa	Borowsky		20
Heather	Bostian		1, 5
Richard L.	Boston		1, 5
Cameron	Boswell		1
Gary	Botello		1, 5
Suzanne	Botello		1, 5
Martin	Botkin		1, 6, 8, 11, 18
Nathan	Botsch		1, 5
Gena	Bouquet		1, 5
Eric	Bourgeois		1, 6, 8, 11, 18
Dennis J.	Bowen, Sr.		1
Connie	Bowser		1, 5
Maral	Boyadijian		1, 6, 8, 11, 18
Talynne	Boyd-Jensen		1, 5
Charlie	Boyer		20
Davis	Boyer		20
Elizabeth	Boylston		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Billy and Barbara	Boyte		1, 6, 9
Jim	Bradley		1, 6, 8, 11
Kat	Brady		1, 5
Randall	Brady		1, 6, 8, 11, 18
Daniel	Bragdon		1, 5
Susan	Brandes		1, 6, 8, 11, 18
Eric	Brandt		20
Ashley	Braun		1, 6, 8, 11, 18
Clait E.	Braun		1, 6, 8, 11, 18
Alethea	Braun-Dunagan		1, 9
LaDonna	Brave Bull		1, 5
Mary Jo	Brave Bull		1, 5
Leslie	Brearley		1, 5
George	Breed		1, 5
William	Breed		1, 6, 16, 18
Joan	Breiding		1, 6, 8, 11, 18
Skylar J.	Brett		1, 5
Brad	Brewer		20
Aaron	Brinkerhoff		1, 6, 8, 11, 18
Bob	Brister		1, 6, 8, 11, 18
Thomas	Broderick		20
Vincent	Bronson		1, 5
Melissa	Brooks		1, 6, 8, 11, 18
Richard J.	Brose		6
Jackson	Brossy		1, 5
Ann	Brown		6
Diana	Brown		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Graci	Brown		5
Heather	Brown		1, 6, 8, 11, 18
Jason	Brown		1, 5
Rick	Brown		1
Stephen	Brown		1, 6, 8, 11, 18
Nicole	Browning		1, 5
Barbara	Brozy		1, 5
Randy	Bruck		1
Patricia	Brunet		1
Sven	Brunso		20
Gregory	Buck		1, 6, 8, 11, 18
Jennifer	Buck		1, 6, 8, 11, 18
Laura	Buckley		1, 5
Doug and Lee	Buckmaster		1, 6, 8, 11, 18
Tom	Buder		20
David	Buel		1, 5
William H.	Buell		6
Amy	Buffum		1, 6, 8, 11, 18
Terry	Bunch		1, 6, 8, 11, 18
Susan	Bunn		1, 5
Joyce	Burk		1, 6, 8, 11, 18
Kelly	Burke	Grand Canyon Wild Lands Council	1, 2, 3, 4, 5, 6, 9, 10, 11, 14, 15, 18, 19, 22
Anita	Burns		20
Carolyn	Burns		1, 6, 8, 11, 18
Vicki	Burns		1, 6, 8, 11, 18
Tarsi	Burnside		1, 5
David	Burton		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Tony	Busalacchi		1, 5, 8, 14
Dale	Buskrik		8, 11
Enrique	Bustamante		1, 5
Jodi	Butler		1
Larissa L.	Butler		1, 5
L.	Butterworth		1, 6, 8, 11, 18
Dieter	Buttler		1, 5
Felix	Buttler		1, 5
Mortiz	Buttler		1, 5
Anne	Buttyan		1, 6, 8, 11, 18
Logan	Byers		18
Winifred	Cahill		6, 14
Janis	Calouro		1, 6, 8, 11, 18
Christopher	Calvo		18
Sal	Camarillo		1, 5
David	Cammack		1, 5
Stanley	Campbell		1, 5, 6
Stephen	Canning		9
John	Cannon		1, 6, 8, 11, 18
Chelsea	Cano		1
Susan	Cantillon-Cuda		1, 6, 8, 11, 18
Ann	Cantrell		1, 6, 8, 11, 18
Erica	Carder		1, 6, 8, 11, 18
Charity	Cardin		1
Scott	Carpenter		1, 6, 8, 11, 18
Sandra	Carrillo		1, 6, 8, 11, 18
Keith	Carsella		20

First Name	Last Name	Organization	Comment Code
Dan	Carsen		1, 6, 8, 11, 18
Marian	Carter		1, 6, 8, 11, 18
Jennifer	Carvalho		1, 5
Donna	Cassano		12
Kari	Cassellius		1, 6, 8, 11, 18
Brendan	Cassiday		20
Virginia	Cassidy		1, 6, 8, 11, 18
Wesley	Cater		1, 6, 8, 11, 18
Harry	Catron		1, 5
Erin	Caughman		1, 6, 8, 11, 18
Sharon	Cavallo		1, 6, 8, 11
Doris	Cellarius		2, 6
Jeanne	Chadwick		1, 5
Ted	Chamberlain		20
Joy	Chambers		1, 6, 8, 11, 18
Sheila	Chambers		1, 6, 8, 11, 18
James	Chandler		1
Elii	Chapman		5, 6
Samatha	Chappell		1, 6, 8, 11, 18
C	Charles		1, 5
Lisa	Charley		1, 5
Alicia Kay	Charlie		1, 5
Donna and Larry	Charpied		1, 6, 8, 11, 18
Odile	Charpy		1
Roselyn	Chase		1
Marie-Claire	Chauvel		1
Yolanda	Chavez		1

First Name	Last Name	Organization	Comment Code
Lois J.	Chedsey		20
Bridget	Chee		1, 5
Clarence	Chee		1, 5
Vicky	Chen		1, 6, 8, 11, 18
Beverly	Cherner		1, 6, 8, 11, 18
Les & Annette	Cherow		5, 6, 9
James	Cherrix		6
Larry	Chiang		1, 6, 8, 11, 18
Beverly	Chischillie		1
Carlos	Chischillie		1
Steven	Chischilly		1, 5
Linda	Chiu		1, 5
Nadia	Chornodolsky		1
Kien	Chou		1, 5
Kyle	Christie		5, 10
	Christole		1, 5
Jeremy	Christopher	Greater Flagstaff Economic Council	20
Stephanie	Christopher		1, 6, 8, 11, 18
Arlyn	Christopherson		1
Lenny	Chrostowski		1, 6, 8, 11, 18
Mei Ling	Chun		6
Johannes	Cicatka		1, 5
Richard	Clapp		1, 6, 8, 11, 18
David	Clark	Azee' Bee Nahagha of Dine Nation	5
Glenn	Clark		6
Jennell	Clark		1, 5
Jerome	Clark		1, 5

First Name	Last Name	Organization	Comment Code
Kim	Clark		20
Mathew	Clark		1, 6
Tracy	Clark		20
Albert	Clarke		1, 5
Leah	Claw		1, 5
Tim	Claw		1, 5
Autumn	Cleverley		1, 6, 8, 11, 18
L.G.	Clifton		1, 5
Peter	Cline		20
Teresa	Clitro		5
Willie	Clitro		5
Calvin	Cly		5
Larry	Coats		9
Monika	Coby		1
Joanne	Cockerill		1, 6, 8, 11, 18
Marcelle	Coder		6, 11
Jonathan	Coker		1, 6, 8, 11, 18
Kenneth	Cole		20
Darryl	Colebank		1, 6
Emily K.	Coleman		1, 6, 8, 11, 18
Timothy	Coleman		1, 6, 8, 11, 18
Herve	Colimard		1
Herve	Colimard		1
Mara	Collins		1, 5
Pamela	Comello		1
Josh	Connor		1, 5
Gudrun	Conrad		1, 5

First Name	Last Name	Organization	Comment Code
Thomas	Conroy		1, 6, 8, 11, 18
Lindsey	Convery		1, 5
Steven	Coochyamptewa		1
Geoffrey	Cook		1
Patricia	Cook		1, 6, 8, 11, 18
Nikki	Cooley		9, 10
Eileen	Cooper		2, 8
Karen K.	Cooper		20
Joan	Cooper-Dai		20
Walt	Copeland		1, 5
Jeff	Corben		20
Nicole	Corbo		5
Claire	Corcoran		18
James	Corcoran		1, 6, 8, 11, 18
Stephanie	Cordeau		1, 6, 8, 11, 18
Margaret	Corley		1, 6, 8, 11, 18
Michael	Cornelius		20
Rob	Corwin		1, 5
Michael	Coughlan		5, 6
Florence	Coulon		1
Barbara	Coulter		1, 6, 8, 11, 18
Cathy	Cousins		1, 6, 8, 11, 18
Nathan	Cowlishaw		1, 5
Theresa	Crabtree		1, 5
Michele	Craig		1, 6, 18
Robin	Craig		1, 6, 19
David	Crawford		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Julie	Crawford		5
Faren Sanders	Crews		1, 5
Paul	Crimmins		1, 6, 8, 11, 18
James	Crittenden		1, 5
Tony	Croce		18
Jim	Cross		20
Connie	Crusha		1, 6, 8, 11, 18
Beth	Cumming		1
Gary	Cumming		1
Jon	Curley		1
Maureen	Curley		1, 5
Sherwin	Curley		1, 5
Kathleen	Curran		1, 5
Michael	Curto		1, 6, 8, 11, 18
Joe	D.		1
Wanda	Dabkoska		1, 5
Florence	Dacey		1, 5, 6
Erin	Daily		1, 6, 8, 11, 18
Alan	Dakak		1, 6, 8, 11, 18
Jody	Daline		6, 10, 17
Hernal	Dallas Sr.		1
Lona	Dallessandro		1, 6, 8, 11, 18
Marcella	Dan		1, 5
Becky	Daniels		1, 5
Melanie	Daniels		1, 5
Georgette	Danthinne		1
Jon	Davis		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Justin	Davis		20
Raishawn	Davis		1
Stanley	Davis		6
Nancy	Davlantes		1, 6, 8, 11, 18
Bertha	Daye		1, 5
Rebecca	de Groot		1, 5, 6
Marta	De Leon		6
Marci	De Sart		1
Mike	Deadrick		20
Percy	Deal	Hardrock Chapter of Navajo Nation	1, 5, 6, 8, 11, 18
Rachel	Dean		1, 5, 6, 8, 11, 18
Robert	Dean		1, 6, 8, 11, 18
Diana	DeChilly		1
Johana	DeChilly		1
Guy	DeCorte		1, 6, 8, 11, 18
Jill	Dedera		6
Glenn	Dedman		1
Ella	Deekar		1
Glenda	Deer		1, 5
Regina	Dees		1, 6, 8, 11, 18
Maryvonne	Deforges		1
Vic	DeFrancesco		1, 6, 8, 11, 18
Danielle	DeGuerre		1, 5
Aliticia	Dehardena		5, 9
Giovanni Michel	Del Franco		1
Cathy	delaCruz		1, 5
Jim	DeLaura		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Pam	DeLuca		1, 5
Syona	deMaya		1
Martine	deMeurichy		1, 5
Christina	DeMichele		1, 5
Bobby	Dempsey		1, 5
Lynn	DeMuth		1, 5, 6
Dorothy	Denet		1
Robin	Denetsosie		1, 5
Bear	Denipah		1
Sam	Denipah		1
Adrian	Deniz		1, 5
Tyler	Dennison		1
Dorothy	Dent		1, 6, 8, 11, 18
Jeremy	Derickson		6
JeanLuc	Derouineau		20
James	Derzon		1, 6, 8, 11, 18
Paul	Devillard		1
Carmel	Dewakuku		1, 5
Clayton	Dewey		1, 5
John	DeYoung		1, 5
Barbara	DiAdamo		1
Uta	Dickhofer		1, 5
Michael W.	Diehl		1, 6, 8, 15, 18
Mary-Helen	Dill		1
Daniela	Dillinger		1, 5
Teri	Dillion		1, 10
Linda	Dills		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Dylana	DiSalvo		1, 5
Lance	Diskan		1, 11, 19
Aaron	Divine		2, 6, 13
Jamie	Divine		20
Mike	DiVittorio		6, 9
Velma	Dixon		1, 5
Gayle	Dobbs		1, 5
Gloria	Dodge		1, 5
Jack	Doggett		6
Rebecca	Dohm		1, 5
Isabelle	Dolif		1, 5
Gary	Doll		1, 6, 8, 11, 18
R. Renee	Dolney		1, 6, 8, 11, 18
Steve	Donlon		6
Peggy	Donnell		1
Stephen	Donnelly		1, 6, 8, 11, 18
Bret	Dooley		20
Mark	Doppke		1, 6, 8, 11, 18
Susana	Dorley		1, 6, 8, 11, 18
Kaj	Dorstenia		1, 6, 8, 11, 18
Olivia	Douglas		1
Catherine	Doutey		1, 5
Denise	Draper		1, 5
Emily	Dreblow		1, 5
Kevin	Drees		1, 6, 8, 11, 18
Paul C.	Dreyer		20
Gordon	Drinen		2, 9

First Name	Last Name	Organization	Comment Code
Qwo-Li	Driskill		1, 5
Diane	Dross		1, 5
Thomas	Drumm		6, 15
James	Dryer		1, 6, 8, 11, 18
Suzanne	Duarte		1, 6, 8, 11, 18
Dainuri	Dufford		6
John	Duffy		1, 23
Sheila	Duffy		20
Shawn	Duke		1, 6, 8, 11, 18
Robert	Dull		1, 6, 8, 11, 18
K.	Dulski		1, 5
Cliff	Dulworth		1, 5
David T.	Duncan		9, 13
Jerry	Dunker		20
John	Dunn		1, 6, 8, 11, 18
Colette	Dupont		1, 6, 8, 11, 18
Norma D.	Duran		1, 5
Phil	Duran		1, 5
Randy	Durband		1
John	Durham		20
P.	Durham		1, 6, 8, 11, 18
Rebecca	Durham		1, 6, 18
Bobby	Duvall		9
Marry	Duwyenie		6, 25
Wendy	Dyet		1, 5
Bo	Eaton		1
Noelle	Eberz		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
William	Eckhart		20
Esmee	Eco		1, 6, 8, 11, 18
Marianne	Edain		1, 6, 8, 11, 18
Eric	Edelstein		1
Carol	Edwards		1, 6, 8, 11, 18
Laura	Edwards		1, 6, 8, 11, 18
Monnie	Efross		1, 6, 8, 11, 18
Debbie	Efting		1, 5
	Egermann		1, 5
Grit	Einsiedel		1, 5
Susan J.	Eklund-Leen, Ph.D		1, 5
Rob	Elliott	Friends of Flagstaff Future	1, 2, 5, 6, 9, 10, 15, 17, 18
Lynette D.	Ellis		1, 5
Sandy	Ellis		1, 5
George W.	Ellison		1, 6, 8, 11, 18
Jerome & Patricia	Ellsworth		1, 4, 6, 8, 9, 11, 14, 18, 26
Wallace M.	Elton		2, 5, 11
Denise	Endischee		1, 5
Victoria	Endres		1, 9
Allen	England		1, 5, 6
Susanne	Englert		1, 5
Katherine	Ereneta-Greene		1, 5
Jennifer	Erwin		1, 6, 8, 11
Henry	Esplain		5
Candy	Evans		1, 5
Dave	Evans		1, 6, 8, 11, 18
Dinda	Evans		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Geoffrey	Evans		1, 5
Shawn	Evans		1, 6, 8, 11, 18
Lee	Everest		20
Cherryl	Evoy		1, 6, 8, 11, 18
Shelley	Ewing		1, 6, 8, 11, 18
W	F		1, 5
Helen	Fairley		1, 5, 6, 18
	Fairy		1, 5
Dave	Fallow		1, 6, 8, 11, 18
Don	Fanning		1, 6
James C.	Faris		1, 5
Adele	Fasick		1, 6, 8, 11, 18
Audrey	Fatooh		1, 6, 8, 11, 18
E.	Feasler		1, 6, 8, 11, 18
Bob	Feit		1, 6, 8, 11, 18
Laura	Ferejohn		1, 6, 8, 11, 18
Lorraine	Ferrante		6
Alice	Ferris		20
Jeanne	Ferris		1, 6, 8, 11, 18
Donald L.	Ferry		8
Anita	Fieldman		1, 6, 8, 11, 18
Rebecca	Fields		11
Joanne	Finch		1, 5, 6, 10, 11
Kris	Finn		1
Mark J.	Fiore		1, 6, 8, 11, 18
Jessa	Fisher		1, 5, 18, 24
Karen	Fisher		1, 5

First Name	Last Name	Organization	Comment Code
Anne Marie	Fitzell		1, 6, 8, 11, 18
N.	Fitzer		1, 5
Sylvie	Flak		1
Sean	Flanagan		5
David	Flanner		1, 5
Jacalyn	Fleming		1, 6, 8, 11, 18
Tim	Flood		6
Edward	Flounoy Jr.		1, 6, 8, 11, 18
Bobbie Dee	Flowers		1, 5, 6
Gerry	Foley		1, 5
Jay	Foley		1
Hilary	Folks		1, 5
Jenny	Fontana		1, 5
JW	Fonte		18
Christy	Foraker		1, 5
Bill	Forbes		1, 6, 8, 11, 18
Gregory	Forbes		1, 6, 8, 11, 18
Deborah	Ford		1, 6, 8, 11, 18
Julie	Ford		1, 6, 8, 11, 18
	Forin		1, 5
	Fortini		1, 5
J.K.	Fort-Strietzel		1, 6, 8, 11, 18
Victoria	Foster		1
Giselle	Foucaut		1
Lea	Foushee		1
Kathleen	Fox		6, 15
Maryanne	Fox		1, 11

First Name	Last Name	Organization	Comment Code
G.	Foyard		1
Ned. B	Francisco		1, 5
Markus	Frank		1, 5
Tera	Frank		1
Dan	Frazier		12, 18, 20
Jason Michael	Frazier		1, 5
Steve	Frazier		1
Shirley	Frederick		5
Jeanne	Freeland		1, 5
Jen	Frey		6, 14
Michael	Frick		1, 5
Anthony	Friend		1, 6, 8, 11, 18
Dennis	Fritzinger		1, 6, 8, 11, 18
Jeff	Frontz		1, 6, 8, 11, 18
Christopher	Frost		1, 6, 8, 11, 18
Peter & Mary	Fule		18
Jamie	Fullmer	Yavapai-Apache Nation	1
Hans	Füsser		1, 5
J.	Gabriel		1, 5
Florence	Gaia		1, 5
Megan	Gailey		20
Vickie and Joel	Galang		5
Pash	Galbavy		1, 5, 6
Deborah	Gallegos		1, 5
Susan	Gallegos		1, 6, 8, 11, 18
William	Galli		1, 6, 8, 11, 18
Santiago	Galvis		1, 23

First Name	Last Name	Organization	Comment Code
Candace	Gambler		1, 5
James	Gannon		1, 6, 8, 11, 18
Margaret	Ganz		1, 5
Al	Garbagnati		1
Bernadette	Garcia		1, 5
Camilo	Garcia		1, 6, 8, 11
Jason	Garcia		1
Paula	Garcia		1, 5
Raymond	Garcia		10
Ines	Gardilcic		1, 5, 6
Jean	Gardner		1, 6, 8, 11, 18
Richard	Gardner		1, 6, 8, 11, 18
Sharon	Garrels		1, 6, 8, 11, 18
Brenda	Garrod		20
Jan	Garton		1, 6, 8, 11, 18
Marci	Garton		2
Michael J.	Garvin		1, 6, 8, 11, 18
Kevin	Gawenus		20
Jamie W.	Geiken-Joyner		1, 5, 6, 8, 11, 16
Joolie	Geldner		1, 5
Kevin	Genter		1, 5
Lucy	George		1
Michael	George and family		1, 6
Sarah	Gerbing		1, 5
Sophie	Gergaud		1
Debra	Gerheart		1, 6, 8, 11, 18
Carol	Gerratana		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Lee	Gibson		1, 6, 8, 11, 18
Brenton	Gicker		1, 5
Eric	Giddens		1, 5, 6
Julie	Giguere		10, 18
Doug	Gilbert		6, 11
James	Gilland		1, 6, 8, 11, 18
Giuliana	Gillman		2
Ben S.	Gilmore		1, 5
Leonard	Gilmore		1
Allen	Ginsberg		20
Gregory	Giquel		1
Alicyn	Gitlin		1, 10, 11, 17
Rainer	Glas		1, 5
Johnson	Gleason, Jr.		1, 5
Eleonore	Gock		1, 5
Horst	Gock		1, 5
Julia	Gock		1, 5
Stephanie	Goebel		5
Alan	Goggins		1, 6, 8, 11, 18
Kenn	Goldman		1, 6, 8, 11, 18
Pamela	Goldman		1, 6, 8, 11, 18
Richard	Goldman		1, 5
Prado	Gomez		1, 5
Ellie	Gonzalez		1, 5
Jack	Goodburn		1, 6, 8, 11, 18
Raven	Goode		1, 5
Yvonne	Goode		1

First Name	Last Name	Organization	Comment Code
Arifa	Goodman		1, 6, 8, 11, 18
Kate	Goodson		1, 5
Leslie	Gordon		1, 6, 8, 11, 18
K.M.	Gorman		1, 2, 5, 6, 9
Aliena	Gorter		1, 5
Walter	Gosart		6, 13
Jeff	Goss		1, 5
Jack	Gossett		20
Frank	Gotze		1, 5
David	Gougler		1, 6, 8, 11, 18
Cassandra	Gould		1, 5
Darin	Goulet		1, 5
Lou	Graf		1, 5, 6
Charlene	Grahn		1, 6, 8, 11, 18
Vicki & Jay	Granade		1, 6, 9
Gordon	Grant		1, 6, 8, 11, 18
William E.	Grant, Dr.		6, 11
Tamara	Grausy		1
Carol	Gray		1, 6, 8, 11, 18
Faith	Gray		20
Melissa	Gray		1, 6, 8, 11, 18
Tina	Gray		1
Kevin	Green		1, 5
Nellie	Green		1, 5
Yvonne	Green		1, 6, 8, 11, 18
Kenny	Greene		20
Sonya	Greene		1, 5

First Name	Last Name	Organization	Comment Code
Keith and Kathie	Greenwalt		4, 20
Christie	Gregg		1, 5
Johannes	Gregor		1, 5
John	Gregory		1, 5
Jack	Grehan		20
Mark	Grenard		1, 6, 8, 11, 18
Sylvan	Grey		1, 5
Jeff	Greyeyes		5
Santiago	Griego		6
Lesli	Griffen		20
Alex	Griffin		1, 6, 8, 11, 18
Jennifer B.	Griffith		1, 6, 8, 11, 18
Linda	Griffith		6
Howard	Gross		1, 6, 8, 11, 18
Ina	Grove		1, 6, 8, 11, 18
Ravi	Grover		6, 11, 18
Teresa	Gryder		1
Mike	Guerreiro		1, 6, 8, 11, 18
A.	Guevara		1, 5
James E.	Guinn		1, 5
Lonnie	Guinn		1, 5
Joanne	Gullyes		6
David	Gunnells		1, 6, 8, 11, 18
Hester	Gunther		1, 6, 13
Tim	Gwinn		1, 6, 8, 11, 18
Steve	Haag		20
Feodora	HaBlauer		1, 5

First Name	Last Name	Organization	Comment Code
Cami	Hadley		1, 6, 8, 11, 18
Carol	Halberstadt		1, 5, 6, 18
Bruce	Hall		20
F	Hall		1, 5, 6
James D.	Hall		20
Matt	Hall		1, 5, 6
Robert	Hall		1, 5
Tex G.	Hall	National Congress of American Indians	1, 5
Karin	Hallberg		1, 5
Mary	Halligan		1, 5, 6, 8, 11, 18
Nicole	Hammond		20
Teresa	Hammond		1, 6, 8, 11, 18
Miranda	Hancock		1, 5
Holly	Hancock von Guilleaume		1, 6, 8, 11, 18
Lisa B.	Hanf	Environmental Protection Agency	1, 5, 11, 17, 25
S.	Hanna		1
Micheal	Hannus		1, 5
Howard	Hansen		20
Jinnah	Hansen		1, 5
Winnie	Hanseth		6, 9
Tina	Hansleben		1, 5
Don	Hanson		20
Eric	Hanson		20
Erika	Hanson		1, 5
Kevin	Harding		1, 6, 8, 11, 18
Ruby	Harding		1

First Name	Last Name	Organization	Comment Code
Dan	Hardy		1, 6, 8, 11, 18
Karen	Hardy		1, 6, 8, 11, 18
Nathan	Hardy		1, 5
Tom	Hardy		1, 6, 8, 11, 18
Warren	Harkey		1, 6, 8, 11, 18
Mark	Harmsen		1, 6, 8, 11, 18
Kurt & Julie	Harris		20
Ronald	Harris		1
Walter E.	Harris, III		1, 5
Mary J.	Harrison		1
Aggie Nizhonie	Hart		1, 5
Gordon	Hart		1, 5
Mellanie	Hart		1
Stephen C.	Hart		10, 12
Elaine	Hartley		1, 6, 8, 11, 18
Marlene	Hartmann		1, 6, 8, 11, 18
Rudy	Hartmann		1, 5
Andrew	Harvey		1, 6, 8, 11, 18
Lemuel	Harvey		1, 5
Laura	Harwood		20
Marshall	Hasbrouck		1, 6, 8, 11, 18
Brenda	Haskan		1
Edgar	Haskan		1
Ed	Hasson		1, 6, 8, 11, 18
Carol	Hathaway		20
Bob	Haugen		1, 6, 8, 11, 18
Kimberle	Hausser		1, 6

First Name	Last Name	Organization	Comment Code
Maureen	Hawley		1, 6, 8, 11, 18
Carly	Hay		1, 5
Heather	Hayes		9
Larry	Hayes		1
Ryan	Hayes		1, 5
Sara	Hayes		1, 5, 6, 8, 11, 18
Lynn	Hays		1, 5
Kelley	Hays-Gilpin		5, 9, 18
James	Heater		1, 6, 8, 11, 18
Marieke	Heijdeman		1, 5
Ryan	Heinsius		6, 9, 12
Dennis	Heinzig		1, 6, 8, 11, 18
Judy	Heiser		1, 6, 8, 11, 18
Don	Helfrich		1
Nancy	Helin		1, 5, 18
Ted	Helmick		1, 5
Michael	Hemes		1, 5
Stan	Hemry		1
Anne	Hendrickson		1, 6, 8, 11, 18
Alice	Henneberg		1, 6, 8, 11, 18
Seth	Henry		6, 8, 11
Lance	Henson		1, 5
Edward P.	Herman MD		20
Lynda Aurelius	Hernandez		2, 11
Ronnie Raven	Hernandez		1, 5
Betty Jean	Herner		1, 6, 8, 11, 18
Cletus	Herrera		1, 5

First Name	Last Name	Organization	Comment Code
Els	Herten		1, 5
Markus	Hesselbach		1, 5
Dolores	Hesselbrock		1, 5
Udo	Heusinger		1, 5
Beth	Hewitt		1, 6, 8, 10, 11, 18
Joshua	Heydorn		20
John	Heyl		6
Nancy	Hiatt		20
Tim	Hibbs		1, 6, 8, 11, 18
James	Hickman		1, 6, 8, 11, 18
Melody	Hicks		1
Mar-Elise	Hill		6
Kuusela	Hilo		1, 5
Jennifer	Hinkle		1
Robert	Hirsch		20
Sidney	Hirsh		1, 6, 8, 11, 18
Carl	Hitchens		1, 6, 8, 11, 18
Earline	Hittel		1, 6, 8, 11, 18
Evan	Hjerpe		9
Joel	Hobbs		1, 6, 8, 11, 18
Jeffery L.	Hoch		1, 6, 8, 11, 18
Jeffrey D.	Hoffman		20
Michael	Hogan		1
Phyllis	Hogan		5, 6
Adrienne	Hohenberg		1, 6, 8, 11, 18
Ashkii	Hola		1
William	Holden		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Joe	Holgate		5
Rusty	Holgate		5
Debbie B.	Holiday		1, 5
Sarah M.	Holiday		1, 5
Daniel	Holland		1, 6, 8, 11, 18
Garrett T.	Holly		1, 5
Jennifer A.	Holmes		6, 12
Matthew	Holmes		6
Sylvia	Holmes		1, 5, 6, 10, 14
Louella	Holter		9, 18
Jed	Holtzman		1, 6, 8, 11, 18
Rodolofo	Holz		1, 6, 8, 11, 18
Felicia	Holzer		1, 5
Yvonne	Homeyer		1, 6, 8, 11, 18
G.	Honson		5
Rechelle	Honyumptewa		1
Surya-Patricia Lane	Hood		1, 5
Cordelia	Hooee		1, 6, 8, 11, 18
Megan	Hooker		3, 6
Suzan	Hooper		1
Patrice M.	Horstman		1, 5, 6, 7, 9
Larry	Hoskie		1, 5
Randall	Hoskie		1, 5
Ian	Hough		1, 2, 5, 6, 9, 18
Russell	Houle		1, 5
Bernie	Hovden		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
George	Howard		1
Lou	Howard		1, 5
Matilda	Howas		1
Alicia	Howe		1, 6, 8, 11, 18
David	Howe		20
David T.	Howenstein		1, 6, 8, 11, 18
Terry	Hubbard		6, 9
Paige	Hubbell		1
Mike	Hudak		1, 6, 8, 11, 18
Alice	Huffman		1, 5
Michael	Hughes		1, 6, 8, 11, 18
Kristin	Huisinga		1, 6, 9, 18
Karlynn	Huling		6
Garrick	Hull		1, 5
Marilyn	Hurst		20
Bryan	Huskon		1, 5
Joyce	Huskon		1, 5
Todd	Hutchins		1, 6, 8, 11, 18
Les	Hutchison		9
Lluis Escude	Ibarra		1, 5
Steven	Ibarra		1, 5
Alroy	Ignacio		1, 5
Harald	Ihmig		1, 5
Margaret	Imhof		1, 6
Shawnee	Inez		1, 5
Donna	Inglish		20
Maia	Ingram		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Sharon L.	Iron		1, 5
Diane	Irving		1
Ivan	Irving		1
Charlene	Isaac		5
Crystal	Isaac		1
Patricia	Isaac		1
Sarah	Isaac		1
Catherine	Isabel		1
Ciyunsi	Ishii		1
Lomayumtewa	Ishii		1
Lomayumtewa	Isho		1
Robert	Ivens		6
Mael	Izsa		1
Lenny	J.		1, 5
Cary Stevens	Jackson		1, 5
Dawn	Jackson		1, 5
Jennifer	Jackson		1, 5, 6, 11, 13, 19
Lorissa	Jackson		1
Sara	Jackson		1
Bea	Jacobs		22
Chris and Suzy	Jacobsen		20
Don	Jacobson		1, 6, 8, 11, 18
Denise	James		1
Eugene	James		1, 5
John	James		1, 5
Linda	James		1, 5
Lorenzo	James		1, 5

First Name	Last Name	Organization	Comment Code
Marcellus	James		1, 5
Sammy	James		5
Irvin	James Jr.		1
Wendy	James-Kerr		5, 6, 10, 14
Maria	Janca		1
Karen	Janda		1, 6, 8, 11, 18
Marilyn	Jasper		1, 6, 8, 11, 18
Andrea L.	Jaussi		5
David	Jaussi		5
Pascal	Javaloyes		1
Britta	Jebens		1, 5
Thomas	Jenkins		1, 5
Jean	Jenks		6
Maria	Jensen		1, 5
Nancy	Jensen		1, 6, 8, 11, 18
Matilda	Jerry		5
Genevieve	Jervey		5, 6, 9
Jonathan	Jette		1, 5
Karl	Jim		1, 6, 8, 11, 18
Monte	Jim, Jr.		1
Kurt	Jimenez		1
Carol	Jimerson		1, 5
Laura	Jobe		18
Cara	Joe		18
La Verne	Joe		1, 5
R.	Joe		1
Ryan	Joe		1

First Name	Last Name	Organization	Comment Code
Allan L.	John		5
Betty	John		5
Justin L.	John		5
Lewis	John		1
William	John		5
Johansen	Johns		1, 5
Wahleah	Johns		1
Amanda E.	Johnson		1, 5, 6, 10
Amos	Johnson	Navajo Nation Council Delegates Office	1, 6
Anne	Johnson		1, 5, 6
Bonnie	Johnson		1, 5, 6, 9, 18
Caleb	Johnson	Hopi Tribe	1, 6
D'Arcy	Johnson		1, 5
Darla	Johnson		1
Eva	Johnson		1, 6
Geoffrey L.	Johnson		1, 5
Heather	Johnson		1, 6, 8, 11, 18
James D.	Johnson		1, 6, 8, 11, 18
Jerry	Johnson		6
Karen S.	Johnson		1, 5, 18
Katie	Johnson		1, 5
Kim	Johnson		1, 6, 8, 11, 18
Lena	Johnson		1, 5
Leta	Johnson		1, 5
Lynn	Johnson		1, 6, 8, 11, 18
Matthew J.	Johnson		6, 10, 12
Roabie	Johnson		1, 14

First Name	Last Name	Organization	Comment Code
Ronda	Johnson		1, 5
Russell	Johnson		20
Thelma	Johnson		1, 5
Theresa	Johnson		1, 5, 6
Tyler	Johnson		1, 5
Anne	Johnson-Grim		1, 6, 8, 11, 18
Denver	Johnston		1, 6, 8, 11, 18
Linda	Johnston		1, 5
Alison	Jones		1, 5
Barbara	Jones		1, 6, 8, 11, 18
Brian	Jones		1
Darci	Jones		1, 5
James	Jones		1
Lisa G.	Jones		1, 5
Michael	Jones		1, 6, 8, 11, 18
B.J.	Jordan		1, 5
Fran	Joseph		1, 6, 9
K.	Josephs		1, 5
Relinda	Juan		1, 5
Jerry	Juliani		6
Anne	Jung		1, 5
Scott	Jurek		1, 5
Kristi	Kack		20
Kasia	Kalczynska		1, 5
Elfina	Kalemsa		1
Mark	Kanefsky		20
Jon A.	Kapecki		1, 5, 8

First Name	Last Name	Organization	Comment Code
Brigitte	Karg		1, 5
Charlotte	Karg		1, 5
Julia	Karg		1, 5
Petra	Karg		1, 5
Ulrich	Karg		1, 5
Patricia	Kaspar		1, 6, 8, 11, 18
Thilo	Kass		1, 6
Alice	Katoney		5, 6
Arnold	Katoney		1, 5, 6
L.	Katoney		1
Noah	Katoney		5, 6
Ed	Katz		20
Joni	Kay		1, 6, 8, 11, 18
Leanne	Kayaani		1
Valeria	Kayaani		1
Janet	Kaye		1
Janita	Kaye		1
Joann	Kealiinohomoku		5
Linda	Keams		1, 5
Candice	Kearns		1, 6
Eleanor	Kearns		1, 5
Gina	Keeswood		1, 5
Reggie	Keeswood		1
Gloria	Keeto		1, 5
Phyllis	Kegley		6
Art	Keith		1, 5
Elder Walter	Kelley		1, 5

First Name	Last Name	Organization	Comment Code
Klara B.	Kelley		1, 5
Sarah	Kelley		5, 6, 9, 26
Sean	Kelley		1, 5
Kelli	Kellogg		1
Kevin	Kelly		6
Maureen	Kelly		1, 5
Brett	Kencairn		5, 6, 9, 10, 22
Kristen	Kendall		20
Matthew	Kendall		1, 6, 8, 11, 18
Jonnafay	Kennedy		1
Cleneth	Kenneth		5
Meg	Keoppen		1, 6, 8, 11, 18
Jan	Kerata		1, 26
Andrew	Kerr		1, 6, 8, 11, 18
John	Kesich		1, 6, 8, 11, 18
Elizabeth	Ketabian		1, 6, 8, 11, 18
Bryan	Ketchum		1, 5
Kriss	Kevorkian		1, 6, 8, 11, 18
MJ	Keweninyouma		1
Mha Atma S.	Khalsa		1, 6, 8, 11, 18
Deborah	Khanjani		1, 5
Mai-Stella	Khantouche		1, 5
Swen	Kießwetter		1, 5
Zeynep	Kilic		1
Bob	Kilpatrick		20
Ursula	Kilz		1, 5
Darrell	Kinder, Jr.		1, 5

First Name	Last Name	Organization	Comment Code
Nick	King		20
Peter	King		1, 6
Wendy	King		1, 6, 8, 11, 18
Rayne	Kingfish		1
Ryan	Kingfisher		1
Karen	Kinne-Herman		6
Fern	Kinsel		5
Sophia	Kinyon		1
Saran and Norton	Kirschbaum		1, 6, 8, 11, 18
Elena	Kirschner		9, 12, 14
Edward	Kirsten		1, 6, 8, 11, 18
Greg	Klause		20
Keith	Kleber		1, 6, 8, 11, 18
Sarica	Klein		6
Stuart and Jeanne	Klein		1, 6, 8, 11, 18
Katie	Klemenchich		1
Gisela	Kluwin		1, 2, 5, 6, 10, 13, 18
Bonny	Knowlton		1
Philip	Knuth		1, 6, 8, 11, 18
George	Koch		10, 14, 18
Michael	Koch		1, 5
Kaden	Koffler		1, 6, 8, 11, 18
Matthew	Kohberger		1, 6, 8, 11, 18
Martha	Kohler		1
Phil	Kohlmetz		1, 5
Ellen	Kolasky		1, 6, 8, 11, 18
Jed	Koller		5, 6

First Name	Last Name	Organization	Comment Code
Xenia	Kopf		1, 5
Mark	Koplik		1, 6, 8, 11, 18
Ceridwen	Koski		1, 5
David	Kozlowski		1, 6, 8, 11, 18
David	Kramer		1, 6, 8, 11, 18
Lawrence	Krantz		1, 6, 8, 11, 18
Dan & Dianna	Krehbiel		1, 9
Ulrike	Kress		1, 5
Ferenc	Kreti		1
James	Krochel		1
Hans Arie	Kroon		1
Marion	Kuepker		1, 5
Tony	Kugler		6
Andrew	Kuhry-Hauser		1
Edwin	Kurtz		9
E.F.	Kusnerik		1, 5
Celia	Kutcher		1, 6, 8, 11, 18
Jim	Kuzava		1, 6, 8, 11, 18
Robert	Kwint		20
Michael	Laatasch		20
Lisa	Lackey		1, 6, 8, 11, 18
Kevin	Laffey		1, 6, 8, 11, 18
Debra	LaFrance		1, 5
Michael	Lainoff		9
Alexandra	Lamb		6, 10, 11, 14, 17
Sloane	Lamb		1, 6, 8, 11, 18
Wendy	Lamb		14

First Name	Last Name	Organization	Comment Code
David	Lambard		20
Dave and Marcia	Lamkin		6
Nomy	Lamm		1, 5
Linda	Lance		20
Linda	Lance		20
Marty	Landa		1
Donavann	Lane		1
Earl and Sue	Lane		1, 6, 8, 11, 18
Ken	Lane		6, 9, 15
Rowena	Lane		1
John	Langan		1, 6, 8, 11, 18
Nancy	Laplaca		1, 6, 8, 11, 18
Mondy	Lariz		1, 6, 8, 11, 18
Fleur	Larsen		1, 5
Fabien	Larvaron		1
Cal	Lash		1, 6, 8, 11, 18
Helen	Lau		1, 5
Rebecca	Laufer		1
Daniel	Laughlin		1, 6, 9
Marlana	Laughter		1, 5
Velma	Laughtor		5
Richard	Lautze, Jr.		1, 5
Rhett	Lawrence		1, 6, 8, 11, 18
Miki	Laws		1, 8, 10, 11
Adam	Lawson		1, 5
Jennifer	Lawson		1, 5
Margaret	Lawson		1, 5

First Name	Last Name	Organization	Comment Code
Dian	Lea		1, 6, 8, 11, 18
David	Leavitt		1, 6, 8, 11, 18
Debbie	Leavitt		6
Monique	Lebailly		1
Angie	Lee		1
Crystal	Lee		1, 6, 8, 11, 18
David	Lee		1, 6, 8, 11, 18
Martha	Lee		1, 5
Vince	Lee		1, 5
Kathleen	Leenerts		1, 5
Patrick	LeGallen		1
Mark	Lemkin		1, 6, 8, 11, 18
Shelly	Lemon		5, 6, 8
Evelyn	Lenz		1, 6, 8, 11, 18
Crystal	Leonard		1
Leland	Leonard		1, 5
Susannah	Lerman		1, 6, 8, 11, 18
Carri	LeRoy		1, 5
John B.	LeRoy		1
E.	Leslie		9, 10, 11
Biancarelli	Letizia		1, 5
Bambuda	Leung		1, 5
Molly	Leung		1, 5
Mark	Levine		20
Mrs. RT	Lewicky		20
Roman	Lewicky		20
Andrew	Lewis		5

First Name	Last Name	Organization	Comment Code
Andrew	Lewis		1
Dona	Lewis		1, 5
Jeff	Lewis		1, 6, 8, 11, 18
Tryphena	Lewis		1, 6, 8, 11, 18
Joanne	Lewis-Tsinijinnie		1, 5
Brigitte	Leyenberger-Schiel		1, 5
Ricky	Leyva		1, 5
Edgar	Lickey		1, 6, 8, 11, 18
David	Lien		1, 6, 8, 11, 18
Irvin	Lindsey		1, 6, 8, 11, 18
Tara	Lindsey		1, 5
Nick	Lisberg		1, 5
Kamie	Liston		1, 6, 8, 11
Todd	Littell		20
Ernie J.	Little		1, 5
Monty	Little		1, 5
Peter	Little		1
William	Little		1
Ed	Little, Jr.		1, 5
Arnold	Littlecreek		1, 5
Spencer A.	Littleman		1, 5
Jacob	Livingston		1, 5
Don	Lockard		1, 6, 8, 11, 18
Peter	Loeff		1, 6, 8, 11, 18
Christine	Lofquist		1, 6
Robert W.	Lofthouse		1, 5
Ed	Logan		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Patricia	London		1, 6, 8, 11, 18
Denise	Lonechild		1, 5
Kara L.	Long		1, 5
Kelvin Dewayne	Long		1, 5, 6, 18
Beverly J.	Loomis		6
Andrea	Lopez		20
Anthony Guy	Lopez		1, 6, 8, 11, 18
Sharon Masek	Lopez		9, 18
Susan	Loscher		1, 5
Tricia Diane	Loscher		1, 5
Jonathon	Lotz		1, 6, 8, 11, 18
Jodie	Lougee		1, 5
Amy	Louis		1, 6
Cyrus	Louis		1, 5
Johnny	Lowe		1
Kimberly M.	Lowe		1, 5
Sandra	Lubarsky		1, 6, 9
Ivo	Lucchitta		6, 9
Reiner	Luginbühl		1, 5
Jeff	Luker		1
Laurencita W.	Luna		1, 5
Mary-Lee	Lutz		1, 5
Martha	Lynne		1, 6, 8, 11, 18
Kate	Lyon		5
Helga	Maassdorf		1, 5
Hope	MacDonald		1
Greg	Mace		20

First Name	Last Name	Organization	Comment Code
Lynn	Mace		1
Dan	Mack		1, 5
Mark	Mackey		20
Tom	Mackin		20
Anne Marie	Mackler		1, 5
Violet	Macktima		1, 5
Marc	MacLean		1, 6, 9
Andy	Mader		1, 5
Bobby	Madison		1, 5
Echo	Mae		1, 6, 8, 11, 18
Susan	Maeder		1, 5
Katy	Maehl		1, 5
Markus	Mager		1, 5
Jessica	Maggio		9, 18
Marie Bernadette	Magnin-Robert		1
AJ	Magowan		1
Elizabeth	Magowan		1
Omid	Mahadavi		1, 6, 8, 11, 18
Shannon	Maho		1, 5
Nancy	Mahowald		20
Andrew	Malk		1, 6, 8, 11, 18
Wendy	Malmid		1, 6, 8, 11, 18
Anne	Malone		1, 6, 8, 11, 18
Roland	Manakaja	Havasupai Tribal Council	1, 6, 18, 22
Gary	Manfredi		1, 6, 8, 11, 18
Henri	Manguy		1
Ti	Manka		1

First Name	Last Name	Organization	Comment Code
Meaghan	Manning		6, 11
Helen	Manning-Brown		1, 6, 8, 11, 18
Jone	Mannoogian		1, 6, 8, 11, 18
Jolene	Manus		1
Jessie Jade	Manygoats		1, 5
Katherine	Mareck		1, 6
Muir	Mariner		1, 6, 8, 11, 18
Elise	Marks		1, 6, 8, 11, 18
Gayla	Marsh		1, 5
Sarah	Marsh		20
Leigh	Marshall		1
Lisa	Marshall		1, 6, 8, 11, 18
Sarah	Martiinez		1, 5
Lydia	Martin		1, 5
Scott	Martin		1, 6, 8, 11, 18
Cassandra	Martinez		1, 5
Chris	Martinez		1, 5
Jason	Martinez		1, 5
Maurice L.	Martinez		1, 5
Tewa	Martinez		1, 5
Winter Dawn	Martinez		1, 5
Joan	Martini		1, 6, 10, 13, 18, 19
Paula	Martini		20
Steve	Martins		1
Jeff	Marvin		20
Lloyd	Masayumptewa		6
Dallas	Massey, Sr.	White Mountain Apache Tribe	1, 2, 3, 5, 23

First Name	Last Name	Organization	Comment Code
M.	Mathewson		1, 6, 8, 11, 18
Carol	Mattern		1, 6, 8, 11, 18
Thomas	Matthews		6, 8, 11
Andrea	Mayer-Rinner		1, 5
Shannon	Mayorga		1, 6, 8, 11, 18
Goldie	Mazaika		1, 6, 8, 11, 18
Kim	Mazik		1, 6, 8, 11, 18
Raphael	Mazor		1, 6, 8, 11, 18
Suzanne	Mazzo		1, 5
Joe	McAneny		1, 6, 8, 11, 18
Rudy	McBee		1, 5
Annette	McCabe-Begay		1, 5
Edward	McCain		1, 6, 8, 11, 18
Katherine	McCamant		1, 6, 8, 11, 18
Bill	McCamley		20
Colleen	McCann		5
Jim	McCarthy		6, 8
Lori	McCarthy		1, 5
Jeremy	McClain		1, 5
Marjorie & Samuel	McClanahan		20
Paul	McCloskey		20
Karen	McCormick		1, 5
LaVelle	McCoy	Flagstaff Chamber of Commerce	20
Sheila	McCrea		1, 5
Nancy	McCulla		6
John	McCulloch		20
Soonya	McDavid		5, 6 , 8, 9, 18, 22

First Name	Last Name	Organization	Comment Code
Todd	McDonald		1, 6, 8, 11, 18
Michelle	McGarrian		9
Maureen	McGee		1, 5
Jim	McGeorge		20
Robert	McGillicuddy		1, 18
Robert	McGillicuddy		18
Kelley	McGovern		1, 6, 8, 11, 18
Patrick	McGuffin		1, 6, 8, 11, 18
Matthew	McGuire		1, 6, 8, 11, 18
Daniel	McHugh		1
Theresa	McHugh		1, 6, 18
Sharon	McKemie		1, 6, 8, 11, 18
Joe and Mary	McKeon		1, 5
Stephanie	McKinney	Greater Flagstaff Economic Council	20
Jessica	McKown		1, 5
Susan	McLean		1, 6, 8, 11, 18
BJ	McManama		1, 5
Jim I.	Mead		9
David	Meanwell		1, 6, 8, 11, 18
Alvin	Medina		5, 6, 9, 18
K.	Melena		1, 5
Katie	Melena		1, 5
Fielding	Mellish		1, 5
Tim	Melnick		1
Karl	Meltzer		1, 5
Monica	Mendez		1, 6, 8, 11, 18
Margaret	Mendoza		1

First Name	Last Name	Organization	Comment Code
Kimberly	Meneely		1, 5
Philip	Merkle		1, 6, 8, 11, 18
Robert A.	Mertz		6, 8, 11, 18
Doug	Meyer		13, 15, 16, 24, 26
Janina	Meyer		1, 5
Pamela	Meyer-Middleton		1
Daniel	Meyers		6
M S	Meyers		1, 6, 8, 11, 18
Michael	Mihok		1, 6, 8, 11, 18
Mark	Miles		6, 14
Mark	Miles		14
David	Milgram		1, 6, 9
Lenard	Milich		1, 6, 8, 11, 18
Gary	Millam		20
Tracy	Millard		1, 6, 8, 11, 18
Barbara	Miller		1, 5
Dannell Joyce	Miller		1, 5
Dawn	Miller		1, 5
Diane & Mike	Miller		6, 9, 10
Dusty	Miller		1, 6, 8, 11, 18
Jerrid Lee	Miller		1, 5
Jessica	Miller		1, 5
Joan	Miller		1, 6, 8, 11, 18
John	Miller		1, 6, 8, 11, 18
Mark	Miller		1, 6, 8, 11, 18
Robert D.	Miller		20
Samantha	Miller		1, 5

First Name	Last Name	Organization	Comment Code
Vivian	Miller		1, 6, 8, 11, 18
Sarah	Millet		1, 6, 8, 11, 18
Mike	Mills		1, 5, 6
Anne	Minard		1, 5, 6
Michaella	Mintcheff		1, 6, 8, 11, 18
Dan	Miranda		1, 5
Kathy	Miranda		1, 5
Ray	Miranda		1, 5
Louise	Misztal		1, 6, 8, 11, 18
Charley	Mitchell III		1, 5
Bernice	Mitchem		1
Cristina	Mitra		1, 5
Leif	Mjos		9, 15
Ken & Barbara	Moak		20
Elke	Moeller		1, 5
Linda	Moeller		1
Ann F.	Moffat		1, 6, 8, 11, 18
Ronda	Moffit		1
Phillip	Mohorich		1, 6, 8, 11, 18
T.	Mohr		1, 6, 8, 11, 18
Jay	Moller		1, 6, 8, 11, 18
Katrina	Molnar		1, 5
LuJuanna	Monroe		1, 5
Stephen	Monroe		6
Joe	Montoya		1
Anna	Moomaw		1, 6, 8, 11, 18
Ken	Mooney		6

First Name	Last Name	Organization	Comment Code
Donald	Moore		20
Ellen K.	Moore		1, 5
Jan	Moore		1, 6, 8, 11, 18
Rick	Moore		1, 2, 6, 18
Robert	Moore		1
Jose	Morales		1, 6, 8, 11, 18
Phyl	Morello		1, 6, 8, 11, 18
Maria	Moreno		1, 5
Paul	Moreno		1, 6, 8, 11, 18
Justine A.	Morez		1, 5
Christa	Morgan		1, 2, 6, 12, 13, 15, 22
Leona	Morgan		1, 5
Nelson	Morgan		1, 5
Gian Andrea	Morresi		1, 6, 8, 11, 18
Aharon	Morris		1
Carlene	Morris		1
Don	Morse		20
Gloria	Morton		1
Mikasa	Moss		1, 6, 8, 11, 18
Paul	Moss		1, 6, 8, 11, 18
Ingrid	Mossinger		1, 5
Suzanne	Motsinger		6, 10, 11, 15, 26
Mark	Motyka		1, 5
Philip	Moyer		1, 6, 8, 11, 18
Jeffrey	Muehlbauer		6, 9, 13, 18
Robert	Mueller		1, 6, 8, 11, 18
Sean	Mueller		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
SJ	Mueller		1, 5
Roger & Donna	Muhlenkamp		20
Brian J.	Mulcahy		1
Shawn	Mulford		1, 5, 6
Mike	Mullarkey		1, 6, 8, 11, 18
Alan	Munro		1, 6, 8, 11, 18
Michael J.	Murphy		1, 5
Sherlin	Murphy		1, 6, 8, 11, 18
Tina	Murray		1
Greg	Muszynski		20
Jan	Muziel		9, 16
Derick Lee	Myron		1, 5
Jeff	N.		1
Aleisha	Naegle		1, 5
Mika	Nagayoshi		1, 6, 8, 11, 18
Deborah	Nagle		1
Cynthia	Naha		5
Makalika	Naholowaa		1, 5
Harlan	Nakala		1, 5
WJ	Napoleon		1, 5
Visiedo	Nartine		1
Kendell	Nash		1, 5
Marcelo	Nasif		1, 6, 8, 11, 18
Maria	Nasif		1, 6, 8, 11, 18
Conette A.	Natani		1, 5
John K.	Nauman		4, 9, 13, 15, 16, 17
Veronika	Naumann		1, 5

First Name	Last Name	Organization	Comment Code
Carrie	Nazarchyhk		1, 5
William	Nellis		20
Andy	Nelson		1
Angela	Nelson		1, 5
Bertha	Nelson		1
Derek	Nelson		1, 6, 8, 11, 18
Jen	Nelson		1, 6, 8, 11, 18
Joshua D.	Nelson		20
Michele	Nelson		1, 5
Sarah	Nelson		1, 5, 6, 18
T. J.	Nelson		1
Teresa	Nemeth		1, 5
Donna	Nespoli		1, 6, 8, 11, 18
Alice	Neuhauser		1, 6, 8, 11, 18
Manuela	Neumann		1, 5
Joe	Nevaquaya		1, 5
Darlene	Neville		1
Kelley	Nez		1, 5
Michelle	Nez		1
Nelson	Nez		5
Norris	Nez		1
R.	Nez		1
John	Nichols		20
Jeanette	Nickels		1, 6, 8, 11, 18
Lars	Niemi		20
Bruce	Noble		20
Dominique	Noel		1

First Name	Last Name	Organization	Comment Code
Mark	Noethen		1, 6, 8, 11, 18
Paul	Noonan		1
Delphine	Norberto		1, 5
James M.	Nordlund		1, 5
Christina	Norlin		1, 6, 10
Andrew	Norris		1, 5
Sherri	Norris		1, 5, 6
Deborah	Northcutt		18
Teresa	Noryian		6
Jim	Notestine		1, 6, 8, 11, 18
Alexandra	Nowel		15
Jimmie & Jerry	Nunn		20
Roberto	Nutlouis		1, 5, 6
John M.	Nutter		20
Kemy	Oakes		1, 5
Ross	Oakley		1, 6, 8, 11, 18
Brandon	Oberhardt		1, 5, 6
Leta R.	O'Daniel		1
Wes	Odell		1, 6, 8, 11, 18
don	Odenweller		20
Paul	O'Donnell		1, 6, 8, 11, 18
Kathie	Oehme		22
Adam	Okoye		1, 5
Helen	Oliff		1, 5
Bonnie	Oliver		1, 5
Rose	Oliver		1, 6
Rosemary	Olsen		1, 5

First Name	Last Name	Organization	Comment Code
Tiffany	Olsen		1, 5
Susan	Olshuff		1, 6, 8, 11, 18
Peter	Olson		1, 6, 8, 11, 18
Colleen	O'Neill		6, 9, 11, 14
Sue	Ordway		6, 14
Jon	Orlando		1, 5, 9
Joe	Orr		1, 6, 8, 11, 18
Frederick	Ortlund		20
Cortney	Ott		1, 6, 8, 11, 18
Valerie	Overby		5
Cornell	P.		1, 5
Polly J.	Pace		1, 5, 6
Lisa	Pacheco		1, 5, 6
Daryl	Pahona		9
Erica	Palma		1, 5
Shannon	Pangani		1, 6, 8, 11, 18
Carolyn	Pankow		8
Mark	Paquette		1
Keri	Paradis		1, 6, 8, 11, 18
Fran	Parchcorn		1, 5
Michael	Park		20
Chris	Parke		20
Donnita	Parker		20
Gloria	Parker		1
Lea	Parker		6, '9, 12, 14
Reece	Parker		1, 6, 8, 11, 18
Jaynie	Parrish		1

First Name	Last Name	Organization	Comment Code
Ronald	Parry		1, 6, 8, 11, 18
Kenneth E.	Parsons		26
Evangeline	Parsons-Yazzie		1
Frances	Patch		1, 6, 8, 11, 18
Debra	Patla		2, 5, 6
Patricia	Patterson		1, 5
Katja	Patts		1, 5
Glorice	Pavey		6, 9
John	Pavich		20
Sandra L.	Peace-Carey		1
AnneMarie	Pedersen		20
Marella	Pedersen		1, 5
David	Pederson		20
Maureen	Pedraza		1
Gwen	Pekarik		1, 5
Jen	Pelletier		1, 5
Kanahus	Pellkey		1, 5
Jane	Pelton		1, 6, 8, 11, 18
Katherine	Pentz		1, 5
Megan	Pepple		1, 5
Arlen	Perdasofpy		1
Betty	Perkowski		20
Jean-Luc	Peron		1, 5
Sonita	Persand		1
Robert	Pestolesi		20
Tony	Peterangelo		1, 5
Jo-An	Peters		1

First Name	Last Name	Organization	Comment Code
Becky	Peterson		1
Leslie	Peterson		1, 5
Michael	Petrocci		1
Alex	Petsch		1, 5
Kara	Pewthers		1, 5, 11
Fred	Pfeifer		20
Tracy	Pheneger		1, 6, 8, 11, 18
Charles	Phillips		1, 6, 8, 11, 18
Ken	Phillips		20
Kyle	Phillips		1, 5
Leigh Ann	Phillips		1, 6, 8, 11, 18
Richard	Phillips		1, 5
Michael	Phipps		6
Barbara	Pickering		1, 6, 8, 11, 18
Steve	Pickering		1, 6, 8, 11, 18
Micheal	Piehl		1, 6, 8, 11, 18
Pat	Pierson		1
Wayland	Piestewa		1, 6
Eric	Pihl		1, 6, 8, 11, 18
Cheri	Pillsbury		1, 6, 8, 11, 18
Kurt	Pipal		1, 8, 11
Diane M.	Pittman, M.D.		1, 6, 8, 11, 18
Celine	Planchou		1
Justin	Plaskov		1
Daniel	Plunkett		1, 6, 8, 11, 18
Linda Easom	Poag		1, 6, 8, 11, 18
Gerrie	Poferl		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Anita	Poleahla		5
Duane	Poncy		1, 5
Rainer	Popp		1, 5
Patricia S.	Port	US Department of the Interior	22
Louise	Portailler		1
Robert R.	Porter		1, 6, 8, 11, 18
Keri	Postlewait		6, 9
Dr. Bertram	Postner		1, 5
Jacquelyn	Potter		1, 6, 8, 11, 18
Micheal	Powers		1, 6, 8, 11, 18
Paul	Poyner		1
Theodor	Prappas		1
Jasmine	Presson		1, 5
Bucky	Preston		1, 5
Greg	Preston		1, 6
Jane	Preston		25
Mark	Pretti		1, 6, 8, 11, 18
Charlotte	Price		1, 6, 8, 11, 18
Edison	Price		1, 5
Maggie	Price		1, 5
Iris	Price-Nez		1, 5
Mikel	Privert		20
Steven	Profit		1, 6, 8, 11, 18
Susann	Puppe		1, 5
Jim	Purdue		9
Anjali	Puri		1, 5
Bonnie	Pyle		6

First Name	Last Name	Organization	Comment Code
Patrick	Pynes		4, 5
Alonzo	Quavehema		5
Linda	Quavehema		5
Andrea	Quijada		1
Max	Quijano		1, 6, 8, 11, 18
Sigfrido	Quijano		1, 6, 8, 11, 18
Ana	Quintero-Coggin		1, 5
Scott	Rabun		20
Paul	Raczkowski		20
Josep	Rafanell		1
Nick	Raible		20
Amit	Raikar		1, 6, 8, 11, 18
Jennie	Rambo		1, 6, 8, 11, 18
Anna	Ramsey		1
Vincent	Randall	Yavapai-Apache Nation	1, 5
Kristina	Rask		5
Karen	Raskin-Young		6
Pat	Rasmussen		1, 6, 8, 11, 18
Harriet	Rauenzahn		1
Derek	Rayhorn		20
Kalle	Rechberg		1, 5
Hunter	RedDay		1
James and Dorothy	Redhorse		1, 5
Arentha	Redhouse		1, 5
Margaret Hiza	Redsteer		1, 5
Florene	Reed		1, 5
Robert	Reed		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Sky Dawn	Reed		1, 5
Laverda	Reed-Taraian		1, 5
Lorraine	Reeves		1
Robyn	Reichert		1, 6, 8, 11, 18
Bryant	Reiff		20
Lisa	Reinhold		1, 5
Paul	Reinshagen		1
Ann	Relis		9
Nadja	Rence		1, 5
Rob	Renville		1
Kirstin	Replogle	Sierra Club National Environmental Justice Committee	1, 5
June	Rettig		1, 6, 8, 11, 18
Meredith	Rettig		1, 6, 8, 11, 18
Bryon	Reynolds		1, 6, 8, 11, 18
James H.	Reynolds III		1, 6, 8, 11, 18
Amy	Rheault		1, 6, 8, 11, 18
Jeff	Rhode		20
Seda S.	Rhodes		1, 5
Allen	Ribelin		20
Joy	Rice		1
Leona	Rice		1
Lydia	Rice		1
Patricia	Rice		1, 6, 8, 11, 18
Dolly	Rich		4, 6, 9, 22
Don	Richard		1
Paul	Richards		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Don	Richardson		1, 6, 8, 11, 18
Scott	Richardson		20
Stewart	Richardson		1
Noah	Richman		1
Adriana	Rico		1, 6, 8, 11, 18
Carmen	Rico		1, 6, 8, 11, 18
Donna	Riddle		6, 11
Andrew	Ridley		1, 6, 8, 11, 18
Emily	Rieber		1, 6, 8, 11, 18
Tim	Rienecker		1, 5
Charlotte	Riggs		1, 5
William	Ring		20
Stephen	Ritland		14
Joe	Rivera		1, 6, 8, 11, 18
Joe	Rivera		1, 5
Luis Jorge	Rivera-Herrera		1, 6, 8, 11, 18
Casey	Rivero		20
Catrina	Roallos		1, 5
Jed	Roanhorse		1, 5
Mark	Roanhorse Jr.		1
Nicole	Robare		1, 5
Bob	Robbins		1
Jane	Robbins		1, 6, 8, 11, 18
Claude	Robert		1
Jesse Rose	Roberts		1, 5
Matthew	Roberts		1, 5
Melissa	Roberts		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Dave	Robinson		1, 6, 8, 11, 18
Jeffery S.	Robinson		20
Judy	Robinson		20
Larry	Robinson		1
Marilyn	Robinson		1
Rebecca	Robinson		1
Richard	Robinson		1, 6, 8, 11, 18
Robert	Robinson		1, 6, 8, 11, 18
Roger	Robison		1, 6, 8, 11, 18
John Paul	Roccaforte		5, 20
John Paul	Roccaforte		20
Sam	Rocco		1, 6, 8, 11, 18
Elizabeth	Rocha	Yavapai-Apache Nation	1, 18
Helene	Rochard		1
Nick	Rodin		1, 6, 8, 11, 18
Alan	Rogers		1, 6, 8, 11, 18
Jennie	Rogers		1, 5
John	Rogers		1, 6
Kno	Romano		1, 6, 8, 11
Kirstin	Romer		1
Sara	Römer		1, 5
Roxane	Ronca		1
Reeta	Roo		1, 6, 8, 11, 18
Christoper	Root		1, 6, 8, 11, 18
Melissa	Ropke		1, 6, 8, 11, 18
Carter	Rose		1, 6, 8, 11, 18
Kelley	Rose		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Kyle	Roseborrough		6
Minedi	Rosello		1
David	Rosenbaum		1, 6, 8, 11, 18
Jennifer	Rosenberg		1, 6, 8, 11, 18
Cheryl	Rosenfeld		1, 6, 8, 11, 18
Stewart	Rosenkrantz		1, 6, 8, 11, 18
Alex	Ross		20
John	Ross		1, 6, 8, 11, 18
Margaret J.	Ross		1, 6, 8, 11, 18
Charles	Roth		4
Janine	Roucou		1
Bernadette	Rousseaux		1
Julia	Rouvier		1, 5, 6
Richard	Royal		20
Maureen	Royer		1
Maurice	Ruble		1
Faith	Rudeburch		1, 6
James	Rudoy		1, 6, 8, 11, 18
Dan	Ruiz		1, 5
Danny	Ruppert		1, 5, 6
Lara	Rusch		1, 6
Chuck	Rush & family		20
Dana	Russell	Native Americans for Community Action, Inc. Chief Executive Officer	1
Steve	Russell		1, 5
Robert	Rutkowki		1, 6, 8, 11, 18
Ellen	Ryan		1, 5, 6

First Name	Last Name	Organization	Comment Code
Richard	Ryan		1, 6, 8, 11, 18
Margaret	Rydant		1, 6, 8, 11, 18
Elroy	S.		5
Sally	S.		5
Miguel	Saavedra		1, 5
Eli	Saddler		1, 6, 8, 11, 18
Leila	Sadeghi		1, 6, 8, 11, 18
Pete	Sadler		9
Linda	Safley		1, 5
Roselle	Safran		1, 6, 8, 11, 18
David	Sagert		1, 5
Joe	Salazar		1, 6, 8, 11, 18
Liane	Salgado		1, 6, 8, 11, 18
Tina	Samm		1, 5
Dominique	Samy		1
B.	Sanders		1, 5
Jerry	Sanders		20
Robert	Sanders		1, 6, 8, 11, 18
Patrick	Sandoval		1, 5
Jennifer	Sands		1, 6, 8, 11, 18
Arika	Santos		1
Steven	Sardo		1, 6, 8, 11, 18
Franco	Sarracino		1
Kay	Sather		1, 6, 8, 11, 18
Adam	Savett		1, 6, 8, 11, 18
Evelyne	Savigny		1
Rosemarie	Sawdon		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Joanie	Sawyer		6
Gabriel	Sayegh		1, 5
Barbara	Schaffer		1, 5
Irmelie	Scheiwiller		1, 5
Erwin	Scherer		1, 5
Linda	Schermer		18
Jeanne	Schieferstein		1, 6, 8, 11, 18
John	Schilling		4
Laura	Schleifer		1, 5
Madeline	Schleimer		1, 6, 8, 11, 18
George	Schmid		1, 6, 8, 11, 18
Hans J.	Schmidt		20
Lara	Schmit		1, 6, 9
Anna	Schneider		1, 6, 8, 11, 18
Greg	Schneider		1, 6, 8, 11, 18
AJ	Schneller		8
Ellan	Schneller		1, 6, 8, 11, 18
Miriam	Schoberl		1, 5
Patricia	Schreiner		1, 6, 8, 11, 18
Gunhild	Schuchart-Gerhold		1, 5
Gail	Schuessler		1, 6, 8, 11, 18
Jonathan	Schuler		20
Jeffery	Schultz		20
Andy	Schumacher		1, 5
Mare	Schumacher		1
Maja	Schuppan		1, 5
Barbara	Sciacca		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Dave	Searles		1, 5
Tamara	Seaton		1, 5
Derek	Sebade		20
Ferrell	Secakuku		5
Julia	Secker		1, 5
Michelle	Seeger		20
Alvey	Seeyouma		1, 5
Bettina	Seidl		1
Leland	Sekay		6
Lorie Lee	Sekayumptewa		1, 5
David	Selden		20
Paul C.	Selmants		1, 5
Jon	Senour		1, 6, 8, 11, 18
Randy	Serraglio		1, 6, 8, 11, 18
Victoria	Serrano		1
Bria	Servoss		1, 5
Gail	Servoss		1, 5
Roxanne	Seth		1, 5
Suzanne	Severeid		1, 5
Pat	Sewell		1, 6, 8, 11, 18
Tobin	Shackelford		1, 6, 8, 11, 18
Suzanne	Shacoski		1
Beth	Shannon		1
Eve	Shapiro		1, 6, 8, 11, 18
Beloved	Sharp		1, 5
Elizabeth	Sharp		20
Hiromi	Sharp		1, 5

First Name	Last Name	Organization	Comment Code
Merion M.	Sharp		1
Michael	Sharp		1, 5
Brian	Sheehan		1, 5
Holly	Sheehan		1, 5
Marvin J.	Sheffield, Dr.		1, 6, 8, 11, 18
Peggy	Sheldon-Scurlock		1, 6, 18
Jon	Shelky		20
Leo	Shepard		5
Brad	Sherman		1, 5
Elizabeth	Shiel		1
Derrick	Shields		20
Alison	Shilling		1, 6, 8, 11, 18
Joe	Shirley Jr.	Navajo Nation	1, 5
Ron	Short		6
Glenn	Shorty		1, 5
Magoo	Shoulderblade		1, 5
Michael	Shouliakovsky		1, 6, 8, 11, 18
Jim	Showalter		1, 6, 8, 11, 18
Derek	Shuman		1, 6, 8, 11, 18
Farida	Sidiq		1
Gene	Simon		20
Philip	Simon		1, 6, 8, 11, 18
Jeff	Simpson		1, 6, 8, 11, 18
Jason	Singer		5
Latisha	Singer		1
Soni	Singh		1, 5
Andrea	Siow		1

First Name	Last Name	Organization	Comment Code
Stephaine	Sivak		6
Mary	Skordinsky		6
Tony	Skrelunas et.al.	Grand Canyon Trust	1, 5, 6, 7, 9, 10, 11, 17, 18
Jakey	Skye		1
Thomas L.	Slaback		1, 6, 18
Malinda	Slaybaugh		20
Wayne	Sletten		20
Orleta	Slick		5
Francis D.	Slider		1, 6, 8, 11, 18
Kay	Smalkangesi		5
E. Karsten	Smelser		1, 6, 8, 11, 18
Stephen	Smikla		20
Colin	Smith		1, 6, 8, 11, 18
Connie	Smith		1, 6, 8, 11, 18
David	Smith		20
Ejay	Smith		1, 5
Franklin	Smith		5
James L.	Smith		1, 5
James T.	Smith		6
John	Smith		5
Juanita	Smith		1
Louise	Smith		1
Pamela	Smith		1, 6, 8, 11, 18
Richard F.	Smith		1, 6, 8, 11, 18
Susie	Smith		7, 18
Thomas	Smith		1, 5
Wayne	Smith		1, 5

First Name	Last Name	Organization	Comment Code
Emma	Smoldt		5, 16, 20
Edward	Snow		1, 6, 8, 11, 18
Dick	Snyder		20
Ashley	Soard		1, 6, 8, 11, 18
Amber	Sogorka		1, 6, 8, 11, 18
Mary	Sojourner		1, 6
Belinda Whirlwind	Soldier		1
Ellen	Soles		1, 5, 9
Judy	Solomon		1, 5
Julie	Sommer		1
Michelle	Soper		1, 6, 8, 11, 18
Doug	Southard		20
Dude	Sparklingeyes		1, 5
Virginia	Spencer		5
Kevin	Spingola		1, 13
Heather	Spitzer		1, 6, 8, 11, 18
Richard	Spock		1, 6, 8, 11, 18
Richard	Spotts		1, 6, 8, 11, 18
Abe	Springer, Ph.D.		1, 3, 6, 10, 18, 21
Angela	Stablein		1, 6, 8, 11, 18
Patti	Stack		1
Malcolm	Stallings		1, 6, 8, 11, 18
Brad and Jennifer	Stanton		1, 6, 8, 11, 18
Debra	Stark		1, 6, 8, 11, 18
Stefan	Stark		1, 5
Arlo	Starr		1, 5
Joy	Staveley		20

First Name	Last Name	Organization	Comment Code
Rachel	Steagall		6
Linda C.	Stedman		9
John	Steiner		1, 6, 8, 11, 18
Lori Alison	Steiner		1
Jim	Steitz		1, 5, 6, 8, 11, 18
David	Stephens		20
Paul	Stephens		1, 6, 8, 11, 18
Craig	Stern		20
John	Steup		1, 6, 8, 11, 18
Timothy	Stewart		1, 6, 8, 11, 18
Frank	Stieber		1, 6, 8, 11, 18
Tanya	Stiller		1, 5
Michael	Stock		6, 18
SJ	Stockman		1, 6, 8, 11, 18
Susan	Stokes		1, 6, 8, 11, 18
John P.	Stolenberg, P.E.		1, 6, 8, 11, 18
Anita	Stolte		1, 5
Bjorn	Stolte		1, 5
Janina	Stolte		1, 5
Brian	Stoltz		20
Roderick	Stomberg		20
Jim	Stone		1
Kathy	Stone		1, 6, 8, 11, 18
Tom	Stone		6
Chanda	Storer		1, 5
Albert	Strahl		1, 5
BT	Strahl		1, 5

First Name	Last Name	Organization	Comment Code
Howard	Strauss		1, 6, 8, 11, 18
Mitch & Ana	Strohman		1
Ron	Strohmeyer		22
Iris	Strosny		1, 5
Blaine	Stuart		20
Adrian	Stubblefield		1, 6, 8, 11, 18
Heather	Studebaker		1, 5
Christina	Stuehler		1, 5
Gernot	Stuhler		1, 5
Todd	Stuiber		20
	Sturtz		1, 5
Ann	Suda		1, 6, 8, 11, 18
Deanna	Sudduth		1, 5
Anggraeni	Sukojunwono		1, 6, 8, 11, 18
Thom	Sulanke		1, 6, 8, 11, 18
Kate	Sulivan		1, 6, 8, 11, 18
Allison	Sullivan		20
Shoshanna	Sumka		1, 6, 8, 11, 18
David	Sundersingh		1, 6, 8, 11, 18
Charlotte	Surveyor		1
James	Surveyor		1
A.R.	Sutherland		1, 5
Nancy	Sutherland		1, 5
Rachel	Swadener		1, 6
William H.	Swan		20
Scott	Swanson		1, 6, 8, 11, 18
Vanessa	Swanson		1, 5

First Name	Last Name	Organization	Comment Code
Greg	Sweel		1, 6, 8, 11, 18
KieBwetter	Swen		1, 5
Nina	Swidler		1, 5, 6, 9, 13
Marguerite	Swift		1, 6
Jason	Sykes		1, 5
Ruth	Szanto		1, 5
Courtney	Szper		1, 5, 6
Daniel	Tabaha		1, 5
Lila	Tabobondung		1, 5
Tyrrell	Tahe		1, 5
Lisa	Talayumptewa		6
Jolene	Talgo		1
Jeff	Taliman		1
Bob and Joanne	Tallarovic		6
Adam	Tannenbaum		20
Marcos	Tapia		1, 5
Jennifer	Taptto		1, 5
Drew	Taraisan		1, 5
Judith	Tartakowsky		1, 5
Jack	Tasoff		1, 6, 8, 11, 18
Chris	Tate		1
Thomas	Tauber		5, 18, 19
Lili	Taylor		1, 6, 8, 11, 18
Sherry Horne	Taylor		1, 6, 8, 11, 18
Wayne	Taylor, Jr	Hopi Tribe - Chairman	1, 2, 4, 5, 6, 7, 9, 10, 23, 26
Julie	Teel		1, 6, 8, 11, 18
Lisa	Temmen		1

First Name	Last Name	Organization	Comment Code
Genevieve	Tenoso		1, 5
Simon	Teolis		1, 6, 8, 11, 18
Lee and Charlotte	Terbot		1, 6, 8, 11, 18
Clancy	Terry		5
Reynalda	Terry		8
John	Tester		20
Karen L.	Testerman		1, 5
Debby	Tewa		1, 9, 10
Leslie	Thatcher		9
Dora	Thayer		5, 11, 18
Rylie	Thayer		5, 6
Rylie	Thayer		6
Margaret	Thede		1, 6, 8, 11, 18
Maribeth	Theisen		1, 6, 8, 11, 18
Hartwig	Theobald		1, 5
Cheryl	Thomas		1, 5
Jon	Thomas		1, 6, 8, 11, 18
Leone	Thomas		1, 5
Shawn	Thomas		5
Wesley	Thomas		1, 5
Charlene A.	Thompson		1
Cynthia	Thompson		1, 5
J.A.	Thompson		1
Michael W.	Thompson		1, 5
Neil	Thomson		20
Elsa	Thoral		1
Florian	Thur		1, 5

First Name	Last Name	Organization	Comment Code
Cathy	Tibbetts		1, 5
Denise	Tietjen		1, 5, 6
Geri	Tillett		1, 6, 8, 11, 18
Ruth & Rick	Tilman		1, 13, 14, 18
Caroline	Tinker		1, 6, 8, 11, 18
Dave	Tobias		1, 6, 8, 11, 18
Ronald	Todd		20
Nizhoni	Tohe		1
Robert	Tohe		1, 5, 6
Brian	Toledo		1, 5
Bessy	Tom		1
Michelle	Tom		1, 5
Jean M.	Toner		5
Glenda M.	Torrence		1, 5
Ian	Torrence		1, 5
Paul	Torrence		1, 5, 6, 9, 10, 13, 18
Jim	Torson		1, 6, 9
Nandor	Tot		1, 5
Amy	Toulson		1, 6, 8, 11, 18
William	Towler	Coconino County Community Development	6, 13, 14, 15, 16
Petey	Towles		1, 5
Kathy	Toya		1
DeeAnn	Tracy		18
Jasmin	Trageser		1, 5
Gene R.	Trapp		1, 6, 8, 11, 18
Ruth	Tremaine		1
Marc	Trenam		1

First Name	Last Name	Organization	Comment Code
Dushana Yoganathan	Triola		1, 6, 8, 11, 18
Eric	Triplett		1, 6
Brian	Tritle		4, 6, 7, 12, 13, 15, 17
Penny	Trovillion		20
Gene and Elsie	Trujillo		1
Norma	Trujillo		5
TlvDa	Tsi		1, 5
Marilyn	Tsinajinnie		1
Ty	Tsinijinni		1, 5
Earl B.	Tsinijinnie		1
John	Tsinnie		1
Lisa	Tso		6
Monica	Tso		5
Rachel	Tso		1, 5
Tom	Tso		1, 5
Debbie Lynn	Tsosie		1
Jo Lena	Tsosie		1, 5
Nichole	Tsosie		1, 5
Rena	Tsosie		1
Gabriella	Turek, PH.D.		1, 6, 8, 11, 18
Cindi	Turer		20
Micheal	Turisk		1, 6, 8, 11, 18
Margaret	Turley		1, 5, 6
Serena	Turley		6
Denise	Turner		1, 5
Nick	Turner		20

First Name	Last Name	Organization	Comment Code
Steve	Tyler		1, 6, 8, 11, 18
Crystal	Uchino		1, 5
Laura	Uhlig		1, 5
Bill	Ulfelder	The Nature Conservancy	3, 6, 10, 11
Maryann	Ullmann		1
B. Josh	Ulrich		1, 5
Tom	Umland		1, 6, 8, 11, 18
Christopher	Updike		1
Bobbie	Ursin		3, 6, 10, 11
Toby	Urvater		1
Emilie	Utigard		1, 5
Eva	Valencia		1, 5
Anne	Valette		1
Alan	Vallecorsa		20
John	Van Deloo		1, 6, 8, 11, 18
Daniel	van Schooneveld		1, 5
Mike	Vandeman		1, 6, 8, 11, 18
Mike	Vandeman		1
Heidi	Vanderheiden		1, 6, 8, 11, 18
Tony	vanRenterghem		1, 5
Melody	Varner		1, 5
Natasha	Varner		6
Jeronimo	Vasquez		1
Matt	Veltkamp		1, 5
Gary	Verburg		20
Fuilbert	Veronquie		1, 5
Christian and Domy	Verot		1

First Name	Last Name	Organization	Comment Code
Gerald	Vertrees		1, 6, 8, 11, 18
Tim	Vest		20
Daniel	Vice		1, 6, 8, 11, 18
Toni	Vick		1
Arisa	Victor		1, 6, 8, 11, 18
Phoenix	Vie		1, 6, 8, 11, 18
Dee	Vieira		1, 6, 8, 11, 18
Terry	Vierra		1, 6, 8, 11, 18
John	Villinski		1, 6, 8, 11, 18
Thomas	Vincent		1, 6, 8, 11, 18
Diana	VonHoldt		1, 6, 8, 11, 18
Margaret	Vreeken		1, 6, 8, 11, 18
Joy	W.		1, 5
Michael	Wacker		1
Nancy	Wages		1, 6, 8, 11, 18
Deborah	Waggoner		1, 6, 8, 11, 18
Anna	Wagner		1, 5
Eva	Wagner		1, 5
Robert	Wagner		1, 6, 8, 11, 18
Werner	Wagner		1, 5
Cy	Wagoner		1
Gerri	Wainwright		20
Kathy	Wakil-Garber		1, 5
Virginia	Walden		1, 6, 8, 11, 18
John H.	Walder		2, 6, 9
Michelle	Waldon		1, 5
Ann	Walker		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Thomas	Walker, Jr.		1
Greg	Wallace		20
Gregg M.	Wallace		6
James	Wallace		20
Sailor J.	Wallace		1, 5
Marion	Walsh		1, 6, 8, 11, 18
Janet	Walter		20
Marcus	Walther		1, 6, 8, 11, 18
Stephen	Warble		1, 6, 8, 11, 18
Andrea	Warburton		1, 5
Bob	Ward		1
Carol	Ward		1
Paula	Ward		20
Tyler	Ward		1, 9, 10, 12
Haji	Warf		1, 6, 8, 11, 18
Barbara	Warner		1, 6, 8, 11, 18
Deborah	Warner		1, 6, 8, 11, 18
Laura	Watchempino	Acoma Water Commission	5
Alfred	Watchman		1, 5
Gordon	Watkins		20
Virginia	Watson		1
Kate	Watters		1, 9, 10
Steve	Weatherburn		5
Mary Jo	Weber		1, 6, 8, 11, 18
Michael	Weber		5, 6, 11
Stella D.	Weber		1, 6
Jarrad	Webster		1, 5

First Name	Last Name	Organization	Comment Code
Mary Ann	Webster		1, 6, 8, 11, 18
Nancy	Wedow		1, 6, 8, 11, 18
Dale & Danielle	Wegner		20
Ju Lei	Weigel		1, 5
Mark	Weintz		1, 5
Marlene	Weir		1, 5
Steve	Weishapl		1, 5, 6
Kelley	Welborn		9
Aimee	Welch		1, 6, 8, 11, 18
Jeff	Welch		6
Vern	Weller		1
Cheri	Wells		1
Eva	Wells		1
Diane	Werlinger		1, 5
Brad	Wesley		1, 5
Kathy	Wesley-Kitcheyan	San Carlos Apache Tribe	5
Anthony	West	Arizona Conservation Alliance	1, 6
Scott	Westbrook		1, 6, 8, 11, 18
Rebecca	Westgate		1, 5
Eric	Wetzel		9
Jennifer	Whealy		1, 5
Kevin	Whealy		1, 5
Orlando	White		1, 5
Mathew	Whited		2, 6, 9
Anne	Whitefield		1, 6, 8, 11, 18
T. Eston	Whitefield		1
Gwendolyn	Whitegoat		1, 5

First Name	Last Name	Organization	Comment Code
Lillian	Whitegoat		1, 5
Martin	Whitehair		1
Rogina	Whitehair		1, 5
Travis	Whitehair		1, 5
Margie	Whitethorne-Nez		5
Dana	Whitney		1, 6, 8, 11, 18
Michael	Wichman		1, 6, 8, 11, 18
Inge	Wienert		1, 5
Fred G.	Wight		1, 5
Nancy	Wilburn		20
Marian	Wilcox		5
Nancy	Wildermuth		6, 9
Shari	Wildschutte		1, 6, 8, 11, 18
Ardith	Wililie		1, 5
Chris	Wilkens		20
Cynthia	Wilkerson		1, 6, 8, 11, 18
Kerry	Wilkinson		20
Faith M.	Willcox		1, 6, 8, 11, 18
Craig	Williams		1, 6, 8, 11, 18
Lisa	Williams		1, 5
Moriah	Williams		1, 6, 8, 11, 18
Robert	Williams		1, 6, 8, 11, 18
Ron W.	Williams		20
Travis	Williams		1
Lara	Willie		1
Jennifer	Willis		1, 6, 8, 11, 18
C.R.	Wilson		1

First Name	Last Name	Organization	Comment Code
Don	Wilson		1, 6, 8, 11, 18
Judith	Wilson		18
Lanky	Wilson		1
Richard & Jean	Wilson		1, 5, 6, 9, 15, 16, 26
Robyn	Wilson		1, 6, 9
Robyn	Wilson		1, 5
Terri	Wimberly		9
Micheal	Wingard		1, 6, 8, 11, 18
Ellen	Winter		6, 12
Michael	Wolcott		1, 5
Anen	Wolf		1, 5
Cara E.	Wolf		1, 5, 6
	Wolfe		1, 5
Iris	Wolfe		1
Gerald A.	Wolff		1, 6, 8, 11, 18
Barbara	Wolfson		10
Lilith	Wolinsky		1, 8, 11, 18
Patricia	Wong		1
Larry	Wood		5, 6, 10, 11
Aja	Woodrow		1, 5
Tanja	Woods		1, 5
Stephanie	Woolbright		13
Tom	Wootten		6, 8, 11
Geof	Worcester		1, 5
Jillian	Worssam		1, 6, 8, 11, 18
Nancy	Worthly		6
V.	Woynus		5

First Name	Last Name	Organization	Comment Code
Desmon	Wright		20
Dion	Wright		9, 18
Ruth	Wright		2
Dana	Wullenwaber		1, 6, 8, 11, 18
Bonnie	Wunderlich		1, 5
David	Wusstig		20
Brian	Wyatt		1
Bryan	Wyberg		1, 2, 5, 8, 9, 11, 16
Michael	Wylie		1, 6, 8, 11, 18
Rafael	Wypich		1, 5
Yeaa	Yacalis		1, 5
Eileen D.	Yager, M.D.		5
Patrick	Yahya		1, 5
Gabriel	Yaiva		6
Kevin	Yates		1, 5
Berlyn	Yazzie		1
Brian H.	Yazzie		1
Brooke D.	Yazzie		1, 5
Duane	Yazzie		1, 5
Etta	Yazzie		1
Evonne L.	Yazzie		1, 5
Frank	Yazzie		1
Frankco	Yazzie		1
Gregg	Yazzie		1, 5
Hanson	Yazzie		1
Helen	Yazzie		1, 5
Hoskie	Yazzie		1

First Name	Last Name	Organization	Comment Code
Jacqueline	Yazzie		1, 5
Janell Elise	Yazzie		1, 5
Jennifer Lynn	Yazzie		1, 5
John	Yazzie		1, 5
Larry T.	Yazzie		1
Lorene	Yazzie		1, 5
Lucinda	Yazzie		1
Marvin	Yazzie		5
Natasha	Yazzie		1
Nolan	Yazzie		5
Perry	Yazzie		1
Robert	Yazzie		1, 5
Roderick	Yazzie		1, 5
Tanya	Yazzie		1, 5
Thomas	Yazzie		1
Tova	Yazzie		1, 5
Tyrone	Yazzie		1, 5
Stephanie	Yoo		1
Carolyn	York		1
Mark	York		1, 6, 8, 11, 18
Kristina	Yoshida		1, 5
Donald L.	Young		20
Elisa	Young		1, 5
Gary	Young		1, 6, 8, 11, 18
Michele	Young		1, 5, 6
Lois	Yuen		1, 6, 8, 11
Rachel	Yukimura		1, 6, 8, 11, 18

First Name	Last Name	Organization	Comment Code
Christine	Zachary		1, 5
Benjamin	Zack		1, 5
Paul	Zackery		1, 6, 8, 11, 18
Jennifer L.	Zahn		20
Glenda	Zahner		1, 5, 6, 8, 11, 18
Lynda	Zakrzewski		1, 5
Shari	Zaloski		1, 6, 8, 11, 18
Paul	Zarchin		1, 6, 8, 11, 18
Bob	Zavoda		1, 5
Steve	Zavodnyik		1, 6, 10, 11, 18
David	Zavos		20
Mirah	Zeitlyn		1, 5
Karen	Ziemski		6, 23
David	Zimmerman		6
Rebecca	Zinger		1, 6, 8, 11, 18
Vincent	Zito		1, 6, 8, 11, 18
Alonzo			1, 5
Amelia			1, 5
Angie			1, 5
Balba			1, 5
Boncour			1, 5
Dasia			1, 5
Doro			1, 5
Ferrero			1, 5
Frederic			1, 5
Grand			1, 5
Hafenklang			1, 5

First Name	Last Name	Organization	Comment Code
Jacksta			1, 5
Jahnke			1, 5
Jason			1, 5
Jenny			1, 5
Joey			1, 5
Johanntgen			1, 5
Karch			1
Karen			1, 5
Laura			1, 5
Lenain			1, 5
Matthias			1, 5
Megan			1, 5
Mellon			1, 5
Nicolette			1, 5
Rayann			1, 5
Sarafina			1, 5
Saskia			1, 5
Soonie			1, 5
Tiffany			1, 5
Tisha			1, 5
Wapitti1			1, 5

APPENDIX B

COMMENT LETTERS RECEIVED ON THE DEIS FROM TRIBES, FEDERAL, STATE AND LOCAL AGENCIES, AND ELECTED OFFICIALS

Postmarked 4/13/2004

White Mountain Apache Tribe

EXECUTIVE OFFICE OF THE CHAIRMAN

Dallas Massey, Sr., Tribal Chairman

.1086

March 31, 2004

Nora B. Rasure
Forest Supervisor
Coconino National Forest
Snowbowl DEIS Comments
2323 E. Greenlaw Lane
Flagstaff, Arizona 86004

NORA

Dear Supervisor Rasure:

The White Mountain Apache Tribe has received the February 2004 Arizona Snowbowl Facilities Improvements Draft Environmental Impact Statement (DEIS), which has been reviewed by the Tribe's Heritage Program.

Overall, we are alarmed and disappointed to discover in the DEIS and related communications the Coconino National Forest's (CNF) clear intent to cause massive, continuing, and largely unmitigated damage to the physical and spiritual integrity of a widely recognized American Indian Sacred Site, National Register-eligible historic property, and fragile, already highly stressed ecosystem. At a minimum the results will include serious and continuing harms to American Indian people, communities, and spiritual traditions, as well as to the plants, animals, minerals, and ecologies intrinsically associated therewith. Our sacred mountain is a source of goodness and purity, and all efforts to make it into a destination (especially for wastewater and recreationists) will disturb the natural order of things and damage all those beings and processes dependent on this order.

From the perspective of many Apache cultural specialists, the proposed project amounts to an expanded continuation of a decades-old uncontrolled experiment to find out what will happen (next) to Native people and ecosystems with the desecration and disrespectful alteration of sacred landscapes. We respectfully suggest that we already know too well the disastrous results of such unnecessary and short-sighted experiments. We question and object to the CNF equation of the proposed irrevocable damage to our sacred mountain with "management for multiple use." We remind you of CNF's shared Trust Responsibility for the welfare of Indian people and Tribes, and suggest that you weigh this fiduciary responsibility against CNF's inclination to serve narrow economic and recreational interests of the comparatively small number of persons who will benefit from the proposed damage. We object to all proposed alterations to the physical integrity of this vitally important mountain and urge you to reconsider traveling the reckless path mapped out as the proposed alternative in the DEIS.

Specific comments and requests:

P.O. Box 1150 • Whiteriver, Arizona 85941
telephone (928) 338-1560 • facsimile (928) 338-1514

1086-2

1. Because what is being proposed goes far beyond "facilities improvements," the revised DEIS title should, at a minimum, refer to Snowbowl "expansion." We fail to see any rationale for characterizing a 74 acre clear-cut or the transportation and application of wastewater to a sacred site as an "improvement."
2. Include an alternative that analyzes the removal of all Snowbowl facilities and restoration of the decades of damage caused by the facilities.
3. Although the DEIS appears to provide a reasonable summary analysis and disclosure of Hopi and Navajo values associated with the project area, the Apache perspectives are not disclosed or analyzed. Furthermore, neither the significant adverse impacts to American Indian spirituality, nor plans for addressing and mitigating those impacts, are adequately considered or disclosed. The notion that a "Native American cultural and education center" located within the expanded Snowbowl and intended primarily for the non-Indian patrons of the facility would in any way mitigate or compensate for the destruction of our sacred mountain is offensive. We recommend close collaboration with the cultural program representatives of the Yavapai-Apache Nation and the Tonto Apache Tribe to identify, assess, and attempt to mitigate the Apache values threatened by the proposed damage.
4. We emphatically disagree with the methods and conclusions of the DEIS assertion that there are no environmental justice issues associated with the proposed action or Alternative 3. Our views, supported by data and discussion in the DEIS, are that the adverse impacts to the human environment are directly and poignantly focused on American Indian people, including many Apaches, to whom the project area is sacred. These impacts will have serious consequences for the health and welfare of this low-income and minority population. Revise the methods used to assess the EJ issues.
5. Disclose and discuss the authority underlying the Forest Service's disregard of Executive Order 13007's mandate to protect the physical integrity of American Indian sacred sites.

We appreciate the opportunity to provide comments on the DEIS, endorse the to-be-announced alternative requiring removal of Snowbowl facilities and restoration of its footprint (or the "No Action" DEIS alternative), and request continued involvement in the National Register nomination and DEIS processes.

Sincerely,

Frank J. Enfield Jr.
for Dallas Massey, Sr.
Tribal Chairman

xc: Chairman, Hopi Tribe
President, Navajo Tribe
Chairman, Yavapai-Apache Nation

Attention to: Eddie Tso

Fx (928) 871-6106

724-3327

file

RECEIVED
APR 7
4/7/04
DEVELOPMENT OFFICE

TO: The Navajo Medicine Men's Association/Window Rock
FROM: Vincent Randall on behalf of the Western Apache NAGPRA Working Group
And the Yavapai-Apache Nation

We would like to thank-you for inviting us to address this important issue. I am writing on behalf of the Western Apache NAGPRA Working Group, which consists of traditional Elders from White River, San Carlos, Payson and Camp-Verde (Yavapai-Apache Nation). For the Western Apache People The Peaks, known to us as *Dzil Cho*, are extremely important. The Mountain is important for a number of reasons. We often hear the word "Sacred", it is easy to say, but what does that really mean? To our People it means there is more up there than meets the eye, more than simply a mountain. *Dzil Cho* marks our place in this world and is the home of the Mountain Spirits (Gan) who bless our lives and anchor our understanding of what it means to be Apache. The Mountain supplies us with important medicines and other plants for our use. My Father gathered his tobacco there, it is the source of Big Mountain Lion Medicine and our ladies have in recent years gone back to the high meadows to collect many different plants. The flanks of the Mountain supplied us with meat and other foods. As a young girl my Grandmother (born in 1875) and her family would set up camp and hunt antelope on the flanks of *Dzil Cho*. On the east side of the Mountain my Great Grandmother (born circa 1836 near Mormon Mt.) saw the first white people in the region driving cattle through before Flagstaff was even a town.

For the people who own and control what happens on *Dzil Cho* the most sacred thing is money. We know money is important. We cannot raise our families in this world without it, but there is a line we cannot cross. The Sacred is not for sale. We have lost so much of our old culture to convenience and to the business of modern life that the further selling and development of *Dzil Cho* is not acceptable. With the business of making money, more is never enough. If the upgrades to the Snow Bowl go through and the drought continues the grey water from Flagstaff will not be enough and they will want more. Where will it come from? Will they drink up all the water in the region for the benefit of business while others go without? The answer is yes they will. Using the water in this way makes no sense.

I would like to ask the Forest Service how they can ignore the convictions of over a quarter of a million Indian People for the benefit of a few skiers and business's? The government always ignores its trust responsibilities to Indians when it comes to supporting business. When the Mountain is harmed it harms all of us; Red, White, Black, Brown and Yellow alike. It is up to us, the Indian People to take care of it. We were here first and we do not plan to leave. It is with these thoughts on my mind that I tell you the Western Apache NAGPRA Working Group and the Yavapai-Apache Nation support all of your efforts and prayers in uniting us to stop the development on the Peaks.

Thank-you, Vincent Randall

Vincent Randall

Tribal Councilman, Apache Historian and Former Chairman

Yavapai-Apache Nation

Phone: (928) 567-3649 Fax: (928) 567- 3994

RECEIVED
APR - 1 2004
COCONINO N.F.

Nora B. Rasure, Forest Supervisor
Coconino National Forest
1824 S. Thompson
Flagstaff, AZ 86001

March 23rd, 2004

NORA MR
TATEA
KJ

RE: SNOWBOWL EXPANSION

Dear Nora,

We are writing to you voicing our concern over the proposed expansion to the Arizona Snowbowl located on Dzil Cho (San Francisco Peaks). That concern encompasses several distinct topics. but only one issue; *the health of the Mountain.* We know from centuries of surviving on the beautiful, but unforgiving landscape of central and northern Arizona that the health of the land is directly correlated to the health of our People, Apache and Yavapai alike. Our ancestors lived with a light hand on the landscape and practiced conservation before it was fashionable, not because it was politically correct, but because it was the strategy that allowed us to be sustained in our country. There was no alternative plan or government agency to bail us out.

Simply looking at graphs 3E-3 and 3E-4 it is obvious there is a natural periodicity to the winter weather experienced in the high desert that correlates directly to the commercial success (or failure) of the Arizona Snow Bowl. The owners of the facility should take the location of their operation into consideration when reviewing the likelihood of a successful business plan. With that in mind how can the Forest Service with its trust responsibilities to over a quarter of a million Native Americans and their 13 respective Tribes including the Yavapai-Apache Nation oversee a project, which flies in the face of the natural forces which have shaped and nurtured the region for eons?

Further aggravating the situation is the fact that the water to be used for snow making will only be needed on the Mountain when because of drought it is at a premium in the city of Flagstaff. It seems to be a short sited strategy for a municipality in conjunction with private business supported by a federal agency to utilize a critical public resource like water to prop up a marginally successful enterprise such as skiing in the desert. It seems in this case the forces of commerce are attempting to trump common sense for the benefit of a few to the detriment of many.

2400 W Datsi Street, Camp Verde, AZ 86322

861-2

Let us suppose all of the upgrades and miracles of modern technology are put in place on the Mountain and the drought worsens? Will more expansion and upgrades be warranted to save the business once again? Will gray water have to be brought from farther a field to prop up business? It seems they should be downsizing not expanding. It will also be the residents of the Verde Valley who will experience the negative downstream effects of polluted water in our aquifers if the water making the faux snow is not monitored or regulated effectively.

As stated in our letter of September 2000 (enclosed) to your predecessor the Yavapai-Apache Nation is not against development, far from it. What we are opposed to is the improper use of water and the further destruction of forest, especially our sacred fir trees used in religious practice and mountain songs.

In light of an expanding population within the state, in the midst of a drought, in a diminishing spiral of ground and fossil water supplies, it seems to fly in the face of reason to pump water up a mountain in the desert to make snow. The Forest Service took a calculated risk and brave step forward with the White Vulcan Mine. We hope you continue that same spirit by not allowing the artificial creation of snow on Dzil Cho.

Sincerely,

Jamie Fullmer	Vincent Randall	Elizabeth Rocha
Tribal Chairman	Apache Historian	Cultural Specialist

Rec 31814

.545

Yavapai-Apache Nation

Phone: (928) 567-3649 Fax: (928) 567-3994

March 2, 2004

Nora Rasure, Forest Supervisor
Coconino National Forest
5075 N. HWY 89
Flagstaff, AZ 86004

RE: FURTHER DEVELOPMENT ON THE SAN FRANCISCO PEAKS

Dear Supervisor,

I am writing to request that the comment period for the Snow Bowl expansion and the additional development it requires be extended to the full 120 days permitted. The length and complexity of the EIS is such that for consultation to be effective and not just rhetorical more time will be required by our staff for serious and thoughtful study of the document. It is our understanding that Tribal consultations are a commitment the Forest Service holds in good faith as not simply a perfunctory regulation, but an obligation of responsibility as modern stewards of our traditional lands. Your consideration in this matter is appreciated by all of us. We would also appreciate further discussion on this issue of deep importance.

Sincerely,

Jamie Fullmer
Chairman

2400 W. Datsi Street, Camp Verde, AZ 86322

THE NAVAJO NATION
P.O. Box 9000 • Window Rock, Arizona • 86515 • (928) 871-6352 • (928) 871-4025 FAX

JOE SHIRLEY, JR.
PRESIDENT
FRANK J. DAYISH, JR.
VICE PRESIDENT

April 13, 2004

Ken Jacobs, Team Leader
ATTN: Nora Rasure, Supervisor of the Coconino National Forest
5075 North Highway 89
Flagstaff, Arizona 86004

RE: **Navajo Nation's Comments to the Draft Environmental Impact Statement for the Arizona Snowbowl Improvement Project**

Dear Mr. Jacobs:

First, let me advise you that I have only just received a copy of the draft Environmental Impact Statement that was forwarded to the Navajo Nation by your offices. I have been informed that at least one additional copy was forwarded to certain communities and chapters in the Western portion of the Navajo Nation as recent as last week. Unfortunately, there are four other agencies of the Navajo Nation also are wishing to obtain copies for review and written comment. With that in mind, and after my cursory review of the draft EIS, there are several technical issues that my staff and the communities must carefully consider and weigh in order that meaningful consultation be given to a project of this magnitude that is significantly culturally sensitive, and I implore your office to grant a third extension to allow time to formally address the proposal as set forth in the draft EIS.

The San Francisco Peaks is the essence of who we are. It is a Holy place of worship that was placed in the West for our sacred prayers and worship. It is a place where several of our Navajo people have placed theirs and that of their children's umbilical cords, and is the Holy house of our sacred deities whom we pray to and give our offerings. It is also a place where our Navajo medicine healers or medicine men have placed their sacred bundles and use the sacred dirt from the San Francisco Peaks to place inside these bundles. The San Francisco Peaks is also a place where we gather and collect our sacred herbs for healing and our way of life ceremonies yearlong. The United States of America will commit genocide by allowing the desecration of the essence of our way of life.

The draft EIS, at a minimum, discusses several factors toward utilizing reclaimed wastewater for use in the development of the ski resort. Notwithstanding the categorical and scientific findings in the draft EIS, the very essence of utilizing reclaimed wastewater amounts to desecration of a sacred Holy site of the Navajos. Our neighbors, the Hopi Tribe, also agree with this point.

Executive Order 13175 of President William Jefferson Clinton on November 6, 2000 set forth a mandate for consultation and coordination with Indian tribal governments with the fundamental principle of recognizing that Indian tribes have a unique legal relationship with the United States of America. It is with this recognition that one of the purposes of the Executive Order provides that "policies that have tribal implications" that have substantial direct effects on one or more Indian tribes, must be given meaningful consultation and coordination with those tribes. It is with this mandate, that the Navajo Nation seek your assistance in granting a third extension for comments to be provided in a meaningful way.

In addition, the Advisory Council of the National Historic Preservation Act has the mandatory responsibility for ensuring that Indian tribes are consulted in areas of this magnitude, and we submit that under that process, the Navajo Nation has not been consulted.

I also have looked at the three (3) Alternatives to the proposed improvement project and find that while these are meaningful alternatives, they do nothing to discuss in a meaningful way continued expansion of the Snow Bowl. For example, both Alternatives 1 and 3 do not allow for use of reclaimed wastewater, however, they allow for the expansion of the Snow Bowl to move forward. This is a very grave concern to the Navajo Nation and our elders, many of who wish to be heard in a meaningful way.

I seek your acquiescence to our concerns and ask that you allow for a third extension to this very sensitive project. At the very minimum, the Navajo Nation seeks a minimum of 60 days as a third extension to provide meaningful consultation on this project. A meeting is requested between your office and my office, the Navajo Historic Preservation Office, the Advisory Council of the National Historic Preservation Office, the Dine' Medicine men's Association and the Save the Peaks coalition forthwith.

Sincerely,

THE NAVAJO NATION

Joe Shirley Jr.
President

HAVASUPAI TRIBAL COUNCIL
P.O. BOX 10 • SUPAI, ARIZONA 86435 • (602) 448-2731

April 8, 2004

Mr. Ken Jacobs
Forest Supervisor
Coconino National Forest
2323 E. Greenlaw Lane
Flagstaff, AZ 86004

Re: Comments Regarding the DEIS Snowbowl Facilities Improvement

Dear Mr. Jacobs:

The Havasupai Tribe appreciates the opportunity to submit the following comments regarding the Draft Environmental Impact Statement (DEIS) for Snowbowl Facilities Improvements. While we appreciate the efforts of the DEIS preparers to present a balanced assessment of the impacts of the proposed project, we have serious reservations about the resulting document. Our comments regarding these reservations are as follows:

1) The Purpose and Need of the project has not been thoroughly explored.
The No. 1 stated purpose of the project is to "ensure a consistent and reliable operating season". The State of Arizona in general is in a climatic regime that has each of the three currently operating ski areas in the State on a marginal profitability status. The underlying assumption in the DEIS, "make the snow, and they will come", is never explored or substantiated. The other ski area in Arizona that is somewhat similar in size and makeup (Sunrise Park), does reportedly have snowmaking capability on approximately 25% of its terrain. Yet, no research or documentation was presented in the DEIS that shows this has enabled Sunrise Park to have a consistent and reliable operating season. A recent viewing of the Sunrise area's status shows that is up for sale.

Further subtracting from the underlying assumption of the DEIS is the long term climatic trend of the southwest. The Snowbowl ski area operating history has been during a relatively "wet" period in the southwestern United States. The current trend is towards a resumption of more normal "dryer" and potentially warmer conditions. This climatic trend will likely continue to make Snowbowl operation a marginal business exercise, even with the snowmaking project completed.

2) There is no explanation of the criteria for classification of issues as "Significant", "Tracking", or "non-issues".
While we agree with the classification of the two of the three Heritage Resources issues related to impacting Tribal cultural, spiritual, and visual values as "significant", we do not agree with the relegation of the remaining issues as "tracking", in particular issues related to impacts to water resources quantity and quality. The classification was specified as being conducted based on the results of internal and public scoping, but no details are presented to substantiate the categorization.

Our overall concern with the classification is that not enough emphasis has been placed on developing a scientific basis for each of the issues. The relegation of many issues to simply a "tracking" status potentially allows degradation of resources without any real understanding of the resulting outcomes.

HAVASUPAI TRIBAL COUNCIL
P O BOX 10 • SUPAI, ARIZONA 86435 • (602) 448-2731

3) **The issue of the impact of using reclaimed water on Tribal cultural and spiritual values associated with the San Francisco Peaks is given "significant" status, but is not treated as such.**
The DEIS presents a qualitative discussion of the issue, but rather than treating it for what it is, a major assault of the basic purity of the San Francisco Peaks to the affected Tribes, it relegates the impacts to the incremental change category. The DEIS discusses issues related to ceremonial accessibility and protection of shrine areas, but gives no response regarding the real issue.

4) **Water quality impact issues are discussed and some minimal reclaimed water chemical analyses are presented, but the analytical results, especially for organic compounds, are never reported, nor are fate and transport issues for the area even very well understood. Additionally, this was classified as a "tracking" issue, whereas we feel it warrants "significant" status.**
The reclaimed water reportedly meets Arizona Class A+ standards, however, these standards do not cover organic constituents, such as disinfection by-products (DBPs), pharmaceutical and personal care products (PPCPs), and the harder to treat and remove organic compounds such as PCBs, pesticides, and PAHs. While these chemical constituents are admittedly present at part per billion, or trillion levels, and they generally are not acutely toxic, it is their chronic toxicity and bioaccumulation propensities (even at these low levels) that can pose hazards to animals and humans. We would like to see data on levels of these constituents in the reclaimed water proposed to be used. Additionally, it is reported that the USGS and Northern Arizona University are conducting a joint study on PPCPs in the reclaimed water source (Rio de Flag Water Reclamation Facility (WRF)), with results due out in 2004. An assessment of these results should be included in the Final EIS.

Generally, these recalcitrant type organic compounds, which survive and resist treatment because of their chemical makeup, are the compounds that can also migrate great distances through the environment, due to these same characteristics. The fate and transport of chemicals that end up in the snowmaking cover is little understood, especially once they melt and move downward into perched and deeper groundwater reservoirs. Yet, rather than presenting scientific evidence that fate and transport of chemicals will not occur, monitoring is proposed, which will only provide an indication of a problem after the fact.

5) **The issue of the impacts of snowmaking on the local/regional water supply is classified as "tracking", whereas this issue should be given "significant" status.**
The reclaimed water from the Rio de Flag WRF currently is used to a certain extent in the City of Flagstaff, but the Rio de Flag streambed receives the majority of the discharge, where it provides recharge to the regional aquifer. The recharge of the regional aquifer by the reclaimed water discharged into the Rio de Flag will not be replaced by its application to the slopes as snow. A significant portion of the water in the artificial snow will likely be lost from the region through sublimation to the atmosphere. In an area that is already experiencing serious water shortfalls, use and waste of water in this fashion should not even be considered. Should regional climatic trends continue and water shortfalls become even more serious, the competition for even this reclaimed water and its resulting increased value would likely quickly rise beyond the level of affordability of the ski area.

Should you have any questions or if I can provide you with additional information, please do not hesitate to contact me.

Sincerely,

Robert Mike Jr., Natural Resources Director, Havasupai Tribe

Postmarked 4/13/04

AZEE' BEE NAHAGHA OF DINE NATION
P.O. Box 1570
Chinle, Arizona 86503

RECEIVED
APR 21 2004
COCONINO N.F.

David Clark, President
Herman B. Johnson, Vice President
Nathan Begay, Treasurer
Maggie B. James, Secretary

NORA

duplicate 3 fax

April 13, 2004

Forest Supervisor
Coconino National Forest
SB DEIS Comments
2323 East Green Law Lane
Flagstaff, AZ 86004

Dear Sirs:

Enclosed is a Resolution that was passed by the Azee Bee Nahagha of Dine Nation opposing the proposed Snowball project.

Thank you and if you should have any questions, my daytime telephone is (928)725-3688. Thank you.

Sincerely,

Maggie B. James
Secretary

AZEE' BEE NAHAGHA OF DINE NATION
P.O. Box 1570
Chinle, Arizona 86503

David Clark, President
Herman B. Johnson, Vice President
Nathan Begay, Treasurer
Maggie B. James, Secretary

RESOLUTION OF THE AZEE' BEE NAHAGHA OF DINE NATION

STRONGLY OPPOSING THE ARIZONA SNOWBOWL FACILITIES IMPROVEMENTS AS PROPOSED BY THE ARIZONA SNOWBOWL RESORT LIMITED PARTNERSHIP AND THE U.S. FOREST SERVICE ON THE SACRED SAN FRANCISCO PEAKS WITHIN CONONINO NATIONAL FOREST

WHEREAS:

1. The Native American Church of Navajoland, Inc. (NACNL) was established in 1966 as a non-profit organization and incorporated within the Navajo Nation and the States of Arizona, New Mexico, Utah and Texas; and

2. Pursuant to Navajo Tribal Resolution CO-65-67, THE Navajo Nation Council granted inherent rights and responsibilities to NACNL as a bona fide religious organization to utilize peyote as a sacrament by its members; and

3. Pursuant to NACNL resolution dated June 07, 2003 The Native American Church of Navajoland, Inc. officially changed its name to Azee' Bee Nahagha of Dine Nation (ABNDN) (literal translation: Medicine Peyote Ceremony of Navajo Nation); and

4. While the freedom of religion for all people is an inherent right guaranteed by the First Amendment of the United States Constitution, The NACNL has experienced religious persecution in its use of the sacrament through unfavorable court decisions and suppressive enforcement of tribal, state, and federal laws; and

5. The passage of Public Law 103-344, the American Indian Religious Freedom Act of 1004 (AIRFA) finally provides protection for the free exercise of traditional Native American religion and practices through respect and recognition; and

6. Our prayers, songs, and teachings identify sacred items, instruments, offerings and places In the promulgation of our religious practices and beliefs; and

7. One of our four sacred mountains, Dook'oos'liid, "Shining Clouds on Top" is being considered for expansion of recreational facilities and artificial snowmaking for the enjoyment of a few (skiers) at the religious and cultural expense of 13 Native American area tribes; and

8. The proposal of artificial snowmaking with reclaimed waste water is an affront to the Native American religion, culture, identity, and value system as well as the seasonal cycles of nature; and

9. The proposal of artificial snowmaking with reclaimed waste water is an affront to Native American religion, culture, identity, and value system as well as the seasonal cycles of nature; and

10. The ABNDN general membership believes that Dook'oos'liid should be conserved and preserved in a natural state with normal seasonal cycles to ensure harmony and respect.

NOW, THEREFORE BE IT RESOLVED THAT:

The Azee' Bee Nahagha of Dine Nation general membership hereby strongly opposes any Arizona Snowbowl facilities improvements.

Furthermore, the conservation and preservation of the sacred Dook'oos'liid should be a reaffirmation that traditional Native American religion be respected as an integral part of our beliefs, culture, traditions and heritage.

CERTIFICATION

We hereby certify that the foregoing resolution was duly considered by the general membership at a duly called 3rd Quarter General Meeting at Bodaway/Gap (Navajo Nation) Chapter House, Arizona, March 27, 2004, at which a quorum was present and same was by a vote of 142 favor; 0 opposed; 0 abstained.

Motion: Thomas Nez

Second: Lafel Vann

David Clark, President

Herman Johnson, Vice President

To'Nanees'Dizi (Tuba City) Chapter

Western Navajo Agency
Post Office Box 727
Tuba City, Arizona 86045
Telephone: (928) 283-3284
Fax: (928) 283-3288

APR 1 3 2004
NORA
TATE

Mr. Frank Bilagody
Vice President

Mrs. Cora Maxx-Phillips
Secretary/Treasurer

Mrs. Angela Begay
Grazing Official

Mrs. Priscilla Littlefoot
Chapter Manager

Mrs. Christina Charley
Office Specialist

Council Delegates
Mr. Raymond Maxx
Harry William, Sr.
Hope M. Lonetree
Harry J. Goldtooth

TND-03-33-04

RESOLUTION OF THE TO'NANEES'DIZI CHAPTER OF THE NAVAJO NATION (TO'NANEES'DIZI) TUBA CITY (NAVAJO NATION), ARIZONA

RESOLUTION OF THE TO'NANEES'DIZI CHAPTER OPPOSING ARIZONA SNOWBOWL OWNERS AND OPERATORS PROPOSAL FOR SNOW MAKING, USING RECLAIMED WATER AND EXPANDING RECREATIONAL SKI DEVELOPMENT

WHEREAS:

1. The Dine Beehaz' aanii Bitse Silei- the declaration of the foundation of the Dine Law predates the formation and establishment of the U.S Constitution; and
2. As such, the Dine Beehaz' aanii (law_ embodies diyin bitsaadee beehaz aanii (traditional law), Diyin Dine bitsaadee beehaz annii (Natural Law), and Diyin Nahookaa dine bi beehaz annii (Common Law); these laws provide sanctuary for the Dine life and culture, our relationship with world beyond the sacred mountains, and the balance we maintain with the natural world; and
3. Pursuant to 2 N.N.C 102 (A) The Navajo Nation Council is the governing body of the Navajo Nation
4. Dooko oo slid (San Francisco Peak) figure prominently in the origin, clan and ceremonial stories of the Dine; and
5. Dooko oo slid is the holy mountain of the West and together with twelve other holy mountains, form the boundaries of the sacred Dine ' homeland; and
6. Doko oo slid is religiously and culturally significant to the Dine' and other Indigenous People because it contains:
   i. - Home of the Holy People
   ii. - Please that are significant in the historical and cultural practices of the Dine' People
   iii. - Places for conducting sacred ceremonies and prayers
   iv. –Places for gathering medicines, minerals and other materials for ceremonial and traditional uses
   v. – Locations with traditional stories attached to the land; and

7. The Navajo People recognize that the San Francisco Peaks are Scared to the indigenous People in the Southwest who have not relinquished traditional spiritual ties to inherit historical knowledge, sacred religions, oral history, and traditional use which pre-dates Western Civilizations arrival on this continent; and
8. By Resolutions CJY-48-98 & CJA 09-00, the Navajo Nation has historically opposed any development on Doo' koo' slid
9. "Alternative one" in the Forest Service's Draft Environmental Impact statement (DEIS) on the Arizona Snowbowl's proposed plan to make snow from reclaimed water and expansion, is the only alternative presented in the DEIS that will not further the irretrievable and irreversible adverse impact to our Spiritual connections through the desecration of our sacred mountains, and

10. The Coconino National Forest, as the federal land agency responsible for analyzing land management policies, decisions, an environmental effect on the San Francisco Peaks, Is currently supporting "Alternative Two" Proposed Action which calls for:

- Snowmakings with reclaim water that amounts to approximately 180 million gallons of wastewater per season. A ten million gallon wastewater storage pond comprising 3.5 acres surface area, A 74 acre clear-cut for ski runs. New Ski lifts and further infrastructure expansion of ski facilities. "Alternative Two" will allow access to previously inaccessible areas.
- The Forest Services DEIS admits that the "preferred alternative" (alternative two) will cause irreversible and irretrievable impacts to the physical, spiritual cultural integrity inaccessible areas.

" While there is no means to assess whether the religious values would be permanently impact with the utilization of snowmaking technology, based on the belief system of many of the tribes we must consider at least a portion of these impacts as a potentially irreversible impact to these tribes' religion./ In addition, the use of reclaimed water is believed by the tribe to be impure and would have an irretrievable impact on the utilization of the soil, plants and animal for medical and ceremonial purposes."

-Chapter 3, page 3-27

11. Legal remedies such as the American Indian Religious Freedom Act, and the National Historical Preservation Act, and Federal agency-adopted land policies provide no mechanism for judicial protection or legal redress to aggrieved Navajo Traditionalist Spiritual Practitioners and other tribes; and
12. Protection of San Francisco Peaks will require the combined strength and support of diverse voices through US Southwest.

NOW, THEREFORE BE IT RESOLVED THAT:

1.The Navajo Nation Council opposes Arizona Snowbowl owners and operator's proposal for snowmaking using effluent and reclaimed water from the City of Flagstaff in orders to expand its recreational developments on San Francisco Peaks.
2. The Navajo Nation Council supports "Alternative one", No Action in the DEIS.
3. The proposed action if affirmatively, for development, will irrecoverably contradict Navajo Traditional practitioner, the time – immemorial tradition of sanctity and reverence afforded the peaks.
4. The Coconino National Forest, when analyzing alternatives for the proposed actions must acknowledge that past development on the Sacred Peaks has cause irreparable damage. And desecration to our "Traditions of Spirituality"
5. The Coconino National Forest as part of its Tribal Consultations must afford equal weight to our "Traditions of Spirituality" as it does modern economic development.
6. The Navajo Nation furthermore request the forest Services to conduct public comment meetings with translators in affected communities and extend the public comment period from 60 to 120 days.

To'Nanees'Dizi (Tuba City) Chapter

Western Navajo Agency
Post Office Box 727
Tuba City, Arizona 86045
Telephone: (928) 283-3284
Fax: (928) 283-3288

Mr. Frank Bilagody
Vice President

Mrs. Cora Maxx-Phillips
Secretary/Treasurer

Mrs. Angela Begay
Grazing Official

Mrs. Priscilla Littlefoot
Chapter Manager

Mrs. Christina Charley
Office Specialist

Council Delegates
Mr. Raymond Maxx
Mr. Harry William, Sr.
Hope M. Lonetree
arry J. Goldtooth

CERTIFICATION

We hereby certify that the foregoing resolution was duly considered by the To'Nanees'Dizi Chapter at a duly called chapter meeting a Tuba City, Arizona, at which a quorum was present and that it was passed by vote of 55 Favor, 0 opposed and 0 Abstained, on this 12 day of March 2004.

Motion: Bobby Bennett Second: Juanita Burns

Frank J. Bilagody
Frank Bilagody, Vice-President

Raymond Maxx, Delegate

Cora M. Phillips, Secretary/Treasurer

Hope McDonald, Council Delegate

Harry Williams, Council Delegate

Harry Goldtooth, Council Delegate

Hope M. Lone-Tree, Council

Angela M. Begay
Grazing Official

THE HOPI TRIBE

Wayne Taylor, Jr.
CHAIRMAN

Elgean Joshevama
VICE-CHAIRMAN

January 13, 2003

Coconino National Forest, Peaks Ranger District
Attn: Snowbowl Upgrade
5075 N. Highway 89
Flagstaff, Arizona 86004

Dear Coconino National Forest,

The Hopi Cultural Preservation Office hereby provides Coconino National Forest with the enclosed Hopi Cultural Resources Advisory Task Team Resolution. This Resolution is in response to former Forest Supervisor Jim Golden's correspondence dated September 23, 2002, and the December 9, 2002, public meetings in Tuba City and Kykotsmovi, regarding Coconino National Forest Project: 1981-60, Arizona Snowbowl Facilities Improvements Proposed Action. Also enclosed are Hopi Tribal Council Resolutions H-125-94 and H-31-75.

On December 19, 2002, the Hopi Cultural Resources Advisory Task Team unanimously passed this Resolution, which states, in part:

> BE IT FINALLY RESOLVED that the Hopi Cultural Resources Advisory Task Team declares its support for the statements of our tribal and village leaders, and the Hopi people, and that our opposition to Coconino National Forest Project 1981-60, the Arizona Snowbowl Facilities Improvements Proposed Action, is consistent and unwavering.

The Hopi Cultural Preservation Office and the Hopi Cultural Resources Advisory Task Team sincerely appreciate the signing of the Memorandum of Understanding between the Hopi Tribe and Coconino National Forest on January 9, 2003. We will continue to work with Coconino National Forest to address culturally sensitive issues, recognition of Traditional Cultural Property concerns, and the nomination of *Nuvatukyaovi* for the National Register of Historic Places. Best wishes for the New Year and thank you again for your consideration.

Respectfully,

Leigh J. Kuwanwisiwma, Director
Hopi Cultural Preservation Office

Enclosures (DRAFT Resolution, H-125-94 and H-31-75)

cc: Peaks District Ranger, Gene Waldrip
Forest Archaeologist, Peter Pilles
Peaks Archaeologist, Heather Cooper

P.O. BOX 123 — KYKOTSMOVI, AZ. — 86039 — (520) 734-3000

THE HOPI TRIBE

Wayne Taylor, Jr.
CHAIRMAN

Elgean Joshevama
VICE-CHAIRMAN

HOPI CULTURAL RESOURCES ADVISORY TASK TEAM RESOLUTION
CONONINO NATIONAL FOREST: SNOWBOWL UPGRADE
December 19, 2002

WHEREAS, the Hopi Cultural Preservation Office has identified knowledgeable Hopi people to assist with consultation on key issues and concerns, and the Hopi Cultural Resources Advisory Task Team is composed of knowledgeable individuals from the Hopi villages and was established to provide culturally appropriate advice to the Hopi Cultural Preservation Office in all matters of cultural importance to the Hopi people; and

WHEREAS *Nuvatukyaovi*, "Place of Snow on the Peaks," the San Francisco Peaks, since time immemorial is sacred to the Hopi people because it is the spiritual home of the *Katsina*, significant religious deities that all Hopis believe in; and the existence of shrines around and within *Nuvatukyaovi*, the "calendar" provided by the sun in relationship to *Nuvatukyaovi*, the medicinal herbs gathered at *Nuvatukyaovi*, and all of the religious ceremonies regulated by *Nuvatukyaovi* demonstrate the sacred relationship of the Hopi people to *Nuvatukyaovi*; and

WHEREAS, *Nuvatukyaovi* is a Hopi Traditional Cultural Property of the Hopi Tribe; and the Hopi Cultural Resources Advisory Task Team supports the nomination of *Nuvatukyaovi* to the National Register of Historic Places, and commercial, residential and recreational development of areas surrounding *Nuvatukyaovi* is adversely impacting and destroying Hopi Traditional Cultural Properties; and

WHEREAS, the United States Forest Service, Coconino National Forest has put forth Coconino National Forest Project 1981-60, the Arizona Snowbowl Facilities Improvements Proposed Action, including:

-installation of snowmaking infrastructure, including a 14 mile-long pipeline and 10 million gallon water storage pond, to use "reclaimed" water originating from the Rio de Flag Water Treatment Plant in Flagstaff, to support 203.5 acres of season-long snow covering;
-realigning and lengthening three existing lifts;
-installation of a new chairlift and four surface lifts through development of 66.5 acres of "new skiing terrain;"
-development of a snowplay and tubing area, surface lifts, parking, and guest facilities;
-night skiing on portions of the lower mountain;
-the creation of a "halfpipe;" and
-improvement of service facilities and resort infrastructure; and

P. BOX 123 — KYKOTSMOVI, AZ. — 86039 — (520) 734-3000

WHEREAS, Hopi Tribe's previous opposition to commercial development on the San Francisco Peaks is stated in the attached Hopi Tribal Council Resolutions, H-125-84, and H-31-75, which states, "the Tribal Council hereby goes on record as opposing any and all development of the San Francisco Mountains, an area most sacred to the Hopi Tribe;" and

WHEREAS, the Hopi Cultural Resources Advisory Task Team, the Hopi Cultural Preservation Office, and the Hopi people have expressed a unanimous consensus in opposition to all elements of the Proposed Action, and that these concerns are based on the adverse effects that the Proposed Action will have on the religious practices of the Hopi people;

NOW THEREFORE BE IT RESOLVED that the Hopi Cultural Resources Advisory Task Team asserts that natural condition of *Nuvatukyaovi* must be maintained and preserved, that the shrines on the mountain must be protected, and the that Coconino National Forest must recognize the Hopi people's First Amendment rights.

BE IT FURTHER RESOLVED that the Hopi Cultural Resources Advisory Task Team declares the whole mountain is a Traditional Cultural Property and that we oppose its further desecration, and that there are no mitigation measures that will enable this Proposed Action to have "no adverse effects" on *Nuvatukyaovi* as a Traditional Cultural Property; and

BE IT FINALLY RESOLVED that the Hopi Cultural Resources Advisory Task Team declares its support for the statements of our tribal and village leaders, and the Hopi people, and that our opposition to Coconino National Forest Project 1981-60, the Arizona Snowbowl Facilities Improvements Proposed Action is consistent and unwavering.

HOPI CULTURAL RESOURCES ADVISORY TASK TEAM RESOLUTION
CONONINO NATIONAL FOREST: SNOWBOWL UPGRADE
December 19, 2002

Leslie David

Valjean Joshevama, Sr.

Wilton Kooyahoema, Sr.

Harlan Nakala

Gilbert Naseyowma

Lewis Numkena, Jr.

Owen Numkena, Jr.

Reuben Pawytewa

Harold Polingyumptewa

Raliegh Puhuyouma

Martin Talayumptewa, Sr.

Orville Talayumptewa, Sr.

Jim Tawyesva, Sr.

Dalton Taylor

THE HOPI TRIBE

Wayne Taylor, Jr.
CHAIRMAN
Elgean Joshevama
VICE-CHAIRMAN

February 7, 2003

Coconino National Forest, Peaks Ranger District
Attn: Snowbowl Upgrade
5075 N. Highway 89
Flagstaff, Arizona 86004

Dear Coconino National Forest,

This letter in is response to former Forest Supervisor Jim Golden's correspondence dated September 23, 2002, and the December 9, 2002, public meetings in Tuba City and Kykotsmovi, regarding Coconino National Forest Project: 1981-60, Arizona Snowbowl Facilities Improvements Proposed Action. This letter is also in fulfillment of the commitment made in my letter dated October 28, 2002, to provide the Forest Service with a formal response to the Proposed Action as a follow-up to the public meetings.

The Hopi Tribe appreciates the Forest Service acting favorably on our request to conduct public meetings at Hopi on this Proposed Action, and we appreciate the comments of all the speakers at the public meetings and the articles on the meetings published in local newspapers. The Hopi Cultural Preservation Office has provided Coconino National Forest, for the record, with a video tape of the public meetings, and a copy of a Hopi Cultural Resources Advisory Task Team Resolution opposing all elements of the Proposed Action.

As the Forest Service knows, Hopi clans migrated through the San Francisco Mountains, *Nuvatukyaovi*, "Place of Snow on the Peaks," made settlements nearby and placed shrines on the mountains to serve as places of worship. All of the religious ceremonies encompassed within *Nuvatukyaovi* demonstrate the sacred relationship of the mountains to the Hopi people. The history of clans migrations through the area continue to be related, discussed and passed on. The mountains contain clan and society shrines, and several significant gathering areas for medicinal and religious use. Hopi Priests continue to visit *Nuvatukyaovi*.

In 1981, former Chairman Abbott Sekaquaptewa stated, in part:

> The Peaks have always been of critical importance to the religious beliefs and practices of all Hopis with implications affecting all mankind...Hopis believe that continued or expanded commercial use of the home of the Kachinas (the Peaks) for a ski resort or any other similar

> commercial or recreational purpose would constitute a direct affront to the Kachinas and to the Creator, thereby resulting in severe adverse consequences to the Hopis and all mankind...

In 1998, I stated:

> Protection of *Nuvatukyaovi*, as it is known to Hopi, has always been of primary concern for the Hopi people. The Hopi Tribe has worked closely with the Forest Service on numerous issues and we will continue that dialogue. For the Hopi Tribe, *Nuvatukyaovi*, is a Traditional Cultural Property and we will work toward its inclusion in the National Register of Historic Places.

Today, the Hopi Tribe stands by these statements, and we have, and will continue the dialogue aimed at protecting our interest in *Nuvatukyaovi*. At the public meetings on December 9, 2002, Hopi and Navajo people unanimously spoke in opposition to the Proposed Action. Timothy Begay, representing the Navajo Nation, cited the Navajo Nation Council Resolution calling for the removal of the Snowbowl Ski Area from the San Francisco Peaks.

Darren Melvin, 16, spoke wisely and eloquently in Kykotsmovi when he said, in part:

> This mountain is like our church and there are certain things you don't do because of respect.

Elliot Selestewa, Jr., from Moencopi, spoke in Tuba City for all Hopi people when he said, in part:

> I was a Hopi when I was born. When I die I will be a Hopi. I will go home to the mountain as a spirit to bring rain to my people...Maybe the Creator is saying it is high time I speak to everyone on the planet.

I reiterated that

> The San Francisco Peaks, which we call *Nuvatukyaovi*, "Place of Snow on the Peaks," since time immemorial are the spiritual essence of what Hopis consider to be among the most sacred landscapes in Hopi religion, the spiritual home of the Katsina, significant religious deities that all Hopis believe in, and therefore they are sacred.

The Hopi people have spoken and will continue to speak with one voice opposing commercial development on the San Francisco Peaks. The Hopi Tribe's previous opposition to commercial development on the San Francisco Peaks is stated in Hopi Tribal Council Resolutions, H-125-84, and H-31-75:

> The Tribal Council hereby goes on record as opposing any and all development of the San Francisco Mountains, an area most sacred to the Hopi Tribe.

Abbott Sekaquaptewa's 1981 testimony in the Hopi Tribe's appeal of the 1979 Record of Decision also states, in part:

> The continuing use and threat of use of the Peaks for such commercial recreational purposes as a ski resort has had and will continue to have adverse impact on Hopi religious beliefs and practices... The Hopis have frequently expressed their opposition to the ski resort on the Peaks. The Hopis never consented to the construction and/or expansion of the ski resort.

Also in 1981, Kikmongwi Ebin Leslie of Walpi Village stated, in part:

> Shrine sites are some of the most important things in traditional Hopi life. We should continue to practice our traditional religious ceremonies and visit these sites. We cannot be denied access to these sites, it is ours and what is yours cannot be denied the use.

The recent public meetings hosted by the Hopi Tribe on this Proposed Action have also made clear that the position of the Hopi people on development on the San Francisco Peaks remains unchanged. Therefore, the Hopi Tribe again requests that Coconino National Forest respect Hopi's position opposing development on *Nuvatukyaovi*.

As Loris Vicente Taylor stated, in part, at the December 9, 2002, meeting in Kykotsmovi:

> One thing that is straightforward about the Hopi position is that it is consistent and unwavering... The Proposed Action not only defies nature but the very existence of the *Katsinas* that make the Peaks their home.

The objectives of the Proposed Action depend upon there being man made snow on the mountain. However, further desecration of *Nuvatukyaovi* will continue to cause less snow on the mountain in years to come. Hopi is concerned that *Nuvatukyaovi* will be forever scarred. Hopi is also concerned that if the Proposed Action is implemented, it will bring further destruction to our gathering areas and shrines.

As Vice Chairman Elgean Joshevama stated, in part, at the December 9th meeting in Kykotsmovi:

> We as Hopis know why and understand why we oppose this...Who have you become to take away the responsibility of nature to make snow?...When Hopis do not show up at hearings such as this, that is the ultimate indication that they do not approve of and will not support the question that is at hand or the decision to be made.

On December 19, 2002, the Hopi Cultural Advisory Task Team unanimously passed a resolution, which states, in part:

> BE IT FINALLY RESOLVED that the Hopi Cultural Resources Advisory Task Team declares its support for the statements of our tribal and village leaders, and the Hopi people, and that our opposition to Coconino National Forest Project 1981-60, the Arizona Snowbowl Facilities Improvements Proposed Action, is consistent and unwavering.

The Hopi Cultural Preservation Office is preparing a similar Hopi Tribal Council Resolution to reiterate Hopi Tribal Council Resolutions H-125-84 and H-31-75 specific to this Proposed Action.

Nuvatukyaovi is sacred to the Hopi, and we cannot allow it to be further desecrated. Therefore the Hopi Tribe opposes all elements of the Proposed Action, and particularly the snowmaking and night skiing elements. These elements are clearly beyond the scope and context of the 1979 Final Environmental Impact Statement and associated Record of Decision.

In response to statements that the Forest Service "accommodate" the tribes or "mitigate" adverse effects of the Proposed Action, as the Hopi Tribe has consistently stated, and officials of Coconino National Forest have acknowledged, that the whole mountain is a Traditional Cultural Property. Statements which try to minimize the effect of the Proposed Action and increased development on Hopi religious beliefs and practices will be incorrect, and will not understand the importance and meaning of *Nuvatukyaovi* and its sacred sites to the Hopi. There are no mitigation measures that will enable this Proposed Action to have no adverse effect on *Nuvatukyaovi* as a Traditional Cultural Property.

The ceremonies associated with the mountain, the plants and herbs gathered on the mountain, and the shrines and ancestral dwellings located on the mountain are of central importance to the religious beliefs and practices of the Hopi people. The impacts of the Proposed Action, including clear cutting and night lighting, are incompatible with the Hopi Tribe's previous requests that the natural condition of *Nuvatukyaovi* be maintained and preserved and that the Hopi shrines and sacred places on the mountain be protected.

The Proposed Action states, "The Forest Service proposes a series of improvements for the Arizona Snowbowl Ski Area to address health and safety and economic concerns associated with the current operation." We fail to see how the Proposed Action addresses health and safety concerns through the elements being proposed for site-specific review and approval, including installation of snowmaking infrastructure, realigning and lengthening three existing lifts, installation of a new chairlift and four surface lifts, development of a snow play and tubing area including surface lifts, parking, and guest facilities, night skiing on portions of the lower mountain, or the creation of a "half pipe."

Furthermore, the proposed use of reclaimed wastewater for snowmaking raises serious health and safety concerns about untreated substances remaining in the wastewater and its

potential effects on human health and the environment. The impact of the Proposed Action to rare and fragile alpine habitat and its animals and plants is viewed by the Hopi Tribe as an illegitimate sacrifice. If the plants and animals could have a say, they would say "no" to the Proposed Action.

In addition, regarding economic concerns, will the economic value of the Hopi and Navajo people to the City of Flagstaff be analyzed in the draft Environmental Impact Statement?

As other Hopi people before me, I know that the religious beliefs and practices of our people as they relate to the Peaks and the Kachina ceremonies are very sincere. They form a vital part of virtually all aspects of our life and culture. Therefore, the Hopi Tribe again requests that no upgrade of the existing ski development or other commercial development take place on *Nuvatukyaovi*, the San Francisco Peaks.

The Hopi Tribe accepts the assurances of the Forest Service that this Proposed Action is a proposal and not a decision. As you know, the Forest Service is to be a neutral gatherer of information under the National Environmental Protection Act. The Hopi Tribe believes that officials of Coconino National Forest will continue to consult in good faith, and that the purpose of a draft Environmental Impact Statement is to consider, and not facilitate, a Proposed Action by a single stakeholder.

As Leroy Shingoitewa said at the meeting in Tuba City,

> Each one of us has a responsibility. I hope the Forest Service is listening.

Subsequent to the development of the draft Environmental Impact Statement for this Proposed Action, for the reasons explained at the public meetings, the Hopi Tribe hereby requests the Coconino National Forest conduct public meetings on the draft Environmental Impact Statement at all 12 Hopi villages.

The Hopi Tribe has consistently made clear through consultations in accordance with the National Environmental Policy Act, the National Historic Preservation Act, the American Indian Religious Freedom Act, and other Federal statutes and Executive Orders that *Nuvatukyaovi* is a Hopi Traditional Cultural Property and Sacred Landscape. Therefore, the Hopi Tribe hereby reiterates our support for the nomination of *Nuvatukyaovi* to the National Register of Historic Places.

The Hopi Tribe will continue to work with Coconino National Forest to address culturally sensitive issues, recognition of Traditional Cultural Property concerns, and toward the nomination of *Nuvatukyaovi* for the National Register of Historic Places. The Hopi Tribe therefore requests that a moratorium on commercial development be upheld while the nomination is developed, submitted and approved.

If you have any questions or need additional information please call Leigh J. Kuwanwisiwma, Director of the Hopi Cultural Preservation Office or me. Thank you again for your consideration.

Respectfully,

Wayne Taylor, Jr.
Chairman
THE HOPI TRIBE

Enclosures: October 28, 2002, January 13 and 15, 2002, letters

xc: Editors: Hopi Tutuveni, Navajo-Hopi Observer, Eagle-Eye, Arizona Daily Sun, w/encls.
President, Navajo Nation, w/encls.
Director, Navajo Nation Historic Preservation Department, w/encls.
Timothy Begay, Navajo Nation Historic Preservation Department, w/o encls.
Acting Forest Supervisor, w/encls.
Peaks District Ranger, Gene Waldrip, w/encls.
Forest Archaeologist, Peter Pilles, w/encls.
Peaks Archaeologist, Heather Cooper, w/encls.

THE HOPI TRIBE

RECEIVED
APR 1 5 2004
COCONINO N.F.
DAR. SO

.1085

Wayne Taylor, Jr.
CHAIRMAN

Caleb Johnson
VICE-CHAIRMAN

NORA

March 31, 2004

Mr. Ron Doba, Chairman
Flagstaff Water Commission
Flagstaff City Hall, 211 West Aspen Ave.
Flagstaff, Arizona 84001

Dear Chairman Doba and Commissioners,

This letter confirms the request expressed by Hopi Cultural Preservation Office Legal Researcher Terry Morgart at your March 25, 2004, meeting. The Hopi Tribe requests that the Flagstaff Water Commission provide for a hearing of the concerns of the Hopi Tribe and Save the Peaks Coalition regarding the proposed use of City recycled wastewater for snowmaking at the Arizona Snowbowl.

Hopi people call the San Francisco Peaks *Nuvatukyaovi,* "Place of Snow on the Peaks." *Nuvatukyaovi* is the most sacred landscape in Hopi religion. *Nuvatukyaovi* is the home of the *Katsinam,* or Kachinas. Therefore, the Hopi Tribe has always opposed development on the San Francisco Peaks. And therefore, and the Hopi Tribe opposes Alternative 2 - the Proposed Action in the Snowbowl Facilities Improvement Draft Environmental Impact Statement.

Our concerns with the proposed use of City recycled wastewater for snowmaking on *Nuvatukyaovi* are numerous and include what Val Jean Joshevema of our Cultural Resources Advisory Task Team described to officials of Coconino National Forest as "hospital waste." Therefore, we are interested in the test results presented at the March 25th meeting by Northern Arizona University Professor Catherine Propper and U.S. Geological Survey scientists, and how these results and additional studies may apply to the proposed use of City recycled wastewater for snowmaking at the Arizona Snowbowl.

And therefore, the Hopi Tribe requests that the Flagstaff Water Commission provide us with the opportunity to express our concerns to you regarding this proposal. Thank you for your consideration.

Respectfully,

Caleb Johnson
Vice-Chairman
HOPI TRIBE

xc: Office of the Chairman
Leigh Kuwanwisiwma, Hopi Cultural Preservation Office
Andy Bessler, Save the Peaks Coalition
Nora Rasure, Forest Supervisor, Coconino National Forest

RECEIVED
APR 2 1 2004
COCONINO N.F.

THE HOPI TRIBE

Wayne Taylor, Jr.
Chairman

Caleb H. Johnson
Vice Chairman

NORA NR
original

April 13, 2004

Nora B. Rasure, Forest Supervisor
Coconino National Forest
2323 E. Greenlaw Lane
Flagstaff, Arizona 86001

Re: Draft Environmental Impact Statement for Arizona Snowbowl Facilities Improvements

Dear Ms. Rasure,

This letter and its attachments constitute the Hopi Tribe's response to the Coconino National Forest's (CNF) Draft Environmental Impact Statement (DEIS) for Arizona Snowbowl Facilities Improvements, dated February 2004, which describes and recommends a Proposed Action for the further development of the Snowbowl Ski Area on the San Francisco Peaks.

The DEIS states that it, "has been prepared to analyze and disclose the environmental effects of a proposal to provide a consistent/reliable operating season through snowmaking." The DEIS acknowledges the Proposed Action would result in irretrievable commitments of heritage, cultural, and aesthetic resources and irreversible commitments of soil resources. The Hopi Tribe believes the Proposed Action would result in irreversible commitments of these resources and also result in irretrievable or irreversible commitments of watershed, vegetation, and wildlife resources, and that *Nuvatukyaovi* or "Place of Snow on the Peaks" would be forever scarred.

Over the years the Hopi Tribe has worked closely with the Coconino National Forest on numerous issues, and there is a Memorandum of Understanding in place to facilitate cooperation on protecting the integrity of the Peaks and its sensitive resources. The Hopi Tribe expects the Coconino National Forest to show due consideration of the Hopi Tribe's position opposing further development on *Nuvatukyaovi*, consistently made clear to the CNF through documented consultations, and we have accepted the assurances that the CNF will take into account the Hopi concerns about the expansion and snowmaking, as well as listening to other tribes and groups that have serious concerns about the impacts of the Preferred Alternative.

The Hopi people have spoken and will continue to speak with one consistent and unwavering voice opposing further commercial development on the San Francisco Peaks. We appreciate our March 11, 2004, meeting, and your participation in our public meeting on March 23, 2004. Therefore, on behalf of the Hopi Tribe, I reiterate the Tribe's support of the DEIS' Alternative 1 (No Action), and opposition to Alternative 2 (the Proposed Action).

Thank you for your consideration; the Hopi Tribe looks forward to continuing consultations on this DEIS to identify an alternative that would ensure a future for *Nuvatukyaovi*, the San Francisco Peaks.

Respectfully,

Wayne Taylor, Jr.
Chairman/CEO
THE HOPI TRIBE

Enclosures: Hopi Tribe's Response to DEIS;
January 13, 2003, letter with December 19, 2002, CRATT Resolution opposing Proposed Action;
February 7, 2003, letter opposing proposed action; March 31, 2004 letter to Flagstaff Water Commission.

xc: Joe Shirley, President; Navajo Nation
Dallas Massey, Sr., Chairman, John Welch, White Mountain Apache
Fred S. Vallo, Sr., Governor, Acoma Pueblo
Jamie Fullmer, Chairman, Yavapai Apache
Nancy Hayden, Prescott Yavapai
Roland Manakaja, Havasupai Tribe
Arlen P. Quetawki, Sr., Governor, Zuni Pueblo
Louise Benson, Chairwoman, Hualapai

The Hopi Tribe's Response
to the
Draft Environmental Impact Statement (DEIS) for the Arizona Snowbowl Facilities Improvements
February 2004
Coconino National Forest (CNF)

Introduction

The San Francisco Peaks, north of Flagstaff, Arizona, called *Nuvatukyaovi* or "Place of Snow on the Peaks" by the Hopi, has since time immemorial been a central and essential element of Hopi culture, religion, and survival. The Peaks are the home of the *Katsinam* and the focus of prayers for rain and snow, upon which the Hopi way of life depends.

It is from this perspective that the Hopi Tribe provides its review of and response to the Coconino National Forest's DEIS and the Proposed Action therein.

The Hopi Tribe has previously opposed commercial development on the San Francisco Peaks through various actions, including the adoption of Hopi Tribal Council Resolutions H-125-84 and H-31-75. On December 19, 2002, the Hopi Tribe's Cultural Advisory Task Team (CRAAT) unanimously passed a Resolution that states, in part, "that the Hopi Cultural Resources Advisory Task Team declares its . . . opposition to Coconino National Forest Project 1981-60, the Arizona Snowbowl Facilities Improvements Proposed Action . . . "

In addition, in previous correspondence to the Coconino National Forest regarding the Proposed Action dated February 7, 2003, we stated that limiting development and changes on the Peaks is a primary concern of the Hopi people, and that the Hopi Tribe opposed all elements of the Proposed Action, particularly the proposals for night skiing and snowmaking. The Tribe stated that the Proposed Action will have a significant adverse effect on the overall environment of the Peaks and the watershed, as well as the condition and integrity of this historic property that is in the process of being nominated to the National Register of Historic Places as a Traditional Cultural Property of 13 Native American tribes. *See Enclosures.*

Summary of the Tribe's Position

The general position of the Hopi Tribe regarding the DEIS and its proposed action is as follows:

1. The DEIS is insufficient and flawed, requiring additional work before it is substantially complete;
2. The Proposed Action will result in the loss of heritage, cultural, and aesthetic resources as well as watershed, vegetation, and wildlife resources, and that *Nuvatukyaovi*, will be forever scarred. Therefore, the Hopi Tribe opposes the DEIS' Alternative 2 (the Proposed Action); and
3. The Hopi Tribe supports the DEIS' Alternative 1 (no action).

The following comments specific to the DEIS are also offered - organized by the DEIS' sections - and as support for the Tribe's position.

Executive Summary / Purpose and Need

The Hopi Tribe believes the purpose of a DEIS should be to consider, and not facilitate,

Description of Alternatives

Regarding the DEIS' subsection on Mitigation and Best Management Practices (Page 2-21), the Hopi Tribe supports avoiding any impact by not taking the Proposed Action rather than attempting to mitigate the damage after taking the Proposed Action. In Table 2-2, Cultural Resources (Page ES-28), the proposed Mitigation Measure is a Memorandum of Agreement (MOA) that will be developed prior to a ROD being rendered, specifying the mitigation requirements necessary to minimize the preferred alternative's adverse effects. The stated objective is to reduce impacts to cultural resources, and the effectiveness/feasibility is characterized as moderate, usually resulting in a significant reduction of effects. The DEIS does not indicate what mitigating measures will be proposed in an MOA that could or would mitigate the irretrievable adverse impact on *Nuvatukyaovi*. The Hopi Tribe does not believe that a MOA can mitigate or minimize the adverse effects of Alternatives 2 or 3. As we stated in our February 7, 2003, letter, "There are no mitigation measures that will enable this Proposed Action to have no adverse effect on *Nuvatukyaovi* as a Hopi religious place." In that letter, we also indicated that CNF's statements minimizing the impact of the Proposed Action and its increased development on Hopi religious beliefs and practices is incorrect, and does not recognize the importance and meaning of *Nuvatukyaovi* and its sacred sites to the Hopi people. Therefore, we believe the effectiveness/feasibility of a MOA for Alternatives 2 and 3 should be considered low, and "may not substantially reduce effects."

Affected Environment and Environmental Consequences

Heritage & Cultural Resources

The DEIS defines "Irreversible and Irretrievable Commitments of Resources" (Page 3-2). An irreversible commitment of resources is defined as, "a permanent or essentially permanent use or loss of resources . . " that, "cannot be reversed, except in the extreme long term ..." An irretrievable commitment is a "loss of production or use of resources for a period of time." The DEIS concludes (Page 3-27) that, "The impacts to physical/cultural/spiritual qualities of the Peaks can be regarded as irretrievable."

The Hopi Tribe's concerns regarding the use of reclaimed wastewater for snowmaking are focused on adverse impact on the spiritual, cultural, medicinal, *and* biological purity of the water. Our concerns cannot be simply dismissed as purely spiritual. The spiritual and the physical are interconnected.

As noted above, the DEIS assumes that the intense negative cultural impacts to tribal members can be mitigated through a MOA and by ensured continued access to sacred sites on the mountain. The Guest Service Facilities component of the Proposed Action (Page 3-17) to construct a Native American cultural and education center in or near the Agassiz Lodge, does not mitigate the Tribe's concerns with the Proposed Action.

Over the years, the Hopi Tribe has worked closely with the CNF on numerous issues as described in *Collaborative Stewardship of the San Francisco Peaks* by the Coconino National Forest, which notes that during the 1979 development of the ROD regarding the proposed actions on the Peaks, "tribal values had no effect in making a decision, since any level of ski development was unacceptable... What was wrong? ... No respect for traditional values, in the same way economic and recreational values were valued." In the 2004 DEIS, the Forest Service is making the same mistake.

Noise, Traffic, & Ski Area Access; Air Quality

The DEIS acknowledges that temporary, construction related disturbance to wildlife is irretrievable (Page 3-37), but identifies no other irreversible or irretrievable commitments of resources related to noise, traffic, or air quality after completion of construction and during operation of the increased area involved in the preferred alternative. Under the Proposed Action, the Snowbowl's comfortable carrying capacity would increase from 1,880 to 2,834 people per day, and with peak days of 3,400 skiers plus 1,680 snow tubers, meaning the Snowbowl's daily capacity could exceed 5,000 people. More than twice the current number of people and cars would result in predictable cumulative noise, traffic, and pollution impacts that the Tribe believes to be "irretrievable and irreversible" and at the very least should be included for consideration in Alternative 2. For example, OSHA indicates exposure to noise at the range of 60-90 decibels can cause permanent hearing damage, and the noise produced by 50 snowmaking machines is in this range. Furthermore, spruce boughs are gathered by the Hopi on the access road for traditional and cultural uses. The Proposed Action would result in more noise and traffic on the Snowbowl road, affecting the natural resource which in turn would have a negative effect on the Hopi and Tewa peoples' traditional uses of natural resources on *Nuvatukyaovi*. The Hopi and Tewa people need to have quiet to perform their ceremonies on the mountain.

Aesthetic Resources

The DEIS acknowledges (Page 3-70) that, "additional developed terrain and infrastructure in previously undisturbed portions of the Special Use Permit area would represent irretrievable effects to visual resources for the useful life of the Snowbowl." The Hopi people and the Hopi Tribe are concerned that *Nuvatukyaovi* will be forever scarred. We believe that the clearing of the land for additional ski slopes would further disfigure a living entity. The permanent scarring of the mountain as depicted in the computer-generated virtual images is not acceptable to the Hopi Tribe and cannot be mitigated in an MOA.

Social & Economic Resources

Regarding the economic resources involved in the Proposed Action, the CNF is projected to increase its Snowbowl fees from an annual average of $90,000 to $193,000, or an increase of $103,000 per year (Page 3-83), which arguably provides an incentive for the CNF to accept the preferred alternative and creates a potential conflict of interest in the Forest Service's support of the Proposed Action.

The Tribe has been informed that the economic value of the tribal people to the City of Flagstaff would not be analyzed in the DEIS as it is outside the scope of the analysis. The Hopi Tribe believes this is a legitimate area of analysis and relevant to the issue of a proper assessment of the impact of the preferred alternative. Further, by ignoring it the tribes continue to be socio-economically as well culturally disenfranchised from the lands that are the source of their traditions.

The DEIS states but does not give convincing evidence that the Proposed Action is economically feasible for the Snowbowl's current owners. The Hopi Tribe requests that any final EIS contain a complete reclamation plan, with appropriate financial bonds from the proponent to assure the impacts resulting from the proposed ski area development will not be abandoned.

Recreation

The DEIS acknowledges (Page 3-144) that the ski area and the Peaks' wilderness represent different, and in some cases, conflicting management emphases. In addition the expansion of the Snowbowl and the increased use contained in the Proposed Action represent an inherent conflict with the Hopi Tribe's and other tribes' spiritual and cultural connection to and use of the Peaks.

Infrastructure, Utilities, Geotechnical, & Watershed Resources

The DEIS concludes that (Page 3-156) that there will be no irreversible commitment of these resources as a result of the preferred alternative. However, the DEIS acknowledges that,

> Limited data is available to assess potential public health effects from concentrations and combinations of chemical constituents that occur in wastewater ... Although the occurrence of antibiotics and steroids has generated nearly all the controversy to date, many other classes of drugs, bioactive metabolites and transformation products, and personal care products have yet to be examined . . . Understanding of the effects posed by endocrine disruptors to wildlife and humans is incomplete . . .

(Pages 3-172 to 3-176) Still, the DEIS concludes that no irreversible or irretrievable effects or commitments to watershed resources are anticipated.

Under the Proposed Action, a 10 million-gallon on-mountain recycled wastewater impoundment would be used as a source of water for snowmaking, non-potable water needs at the ski area, and firefighting operations as a high elevation water source (Page 3-152). This use would spread recycled wastewater not only over the ski and snowplay areas but far outside the Special Use Permit area. In this section of the DEIS Water and Wastewater are treated as a combined category, yet cross contamination of the potable and recycled supplies is not addressed. Water line breaks and seepage from the impoundment which would distribute recycled wastewater outside of the Special Use Permit area are also not addressed.

Our concerns with the proposed use of City recycled wastewater for snowmaking on *Nuvatukyaovi* which were not adequately addressed in the DEIS' analysis and conclusion are numerous and include: hospital waste, increased pathogens and pharmaceutical residue from fecal matter, potential traces of toxins and diseases, long term negative effects on plants and fauna, and degradation of the spring used for ceremonial purposes. The City of Flagstaff sponsored research resulting in conclusions of NAU biologists who have discovered that the effects of reclaimed water on animals observed, "supports the hypothesis that reclaimed wastewater contains endocrine disrupting compounds (EDC's) that may act on thyroxin or may alter hypothalamic-pituitary-thyroid activity." The CNF's conclusion regarding lack of any effect ignores this information. How will these results and additional studies apply to the proposed use of City recycled wastewater for snowmaking at the Arizona Snowbowl in the EIS? How do the City of Flagstaff and the Forest Service propose to deal with the potential liability if the recycled wastewater is scientifically proven to harm the environment and human health?

Furthermore, it is the Tribe's understanding that the City of Flagstaff will require the ski area to post signs warning users not to eat the snow or drink melted snow. This is not disclosed in the DEIS. If reclaimed water is not fit for human consumption and must be warned against,

what about the living plants and animals that will inevitably ingest the snow and the melted runoff?

Vegetation & Wildlife

The DEIS concludes (Pages 3-274, 3-308) that no irreversible or irretrievable effects or commitments of vegetation and wildlife resources would occur as a result of implementation of the Proposed Action. The Proposed Action, however, would clear vegetation on approximately 76.3 acres, and create ground disturbances on over 200 acres. If soil loss is considered an irreversible commitment of resources, how can vegetation be unaffected? In addition, the Hopi people and the Hopi Tribe are concerned that contaminants and increased nitrogen levels in the recycled wastewater may affect native and non-native plants differently, and affect the Peaks' meadow ecosystem. The proposed 200 acres is a small percentage of the total land on the Peaks, but it is a significant portion of the total meadow area and meadows are very important to wildlife and in maintaining the biodiversity on the mountain. There may be unintended consequences of using reclaimed water. Scientific studies show that reclaimed water has significantly more nitrogen than well water. The Rio de Flag ecosystem is full of algae and other plants that grow so prolifically because of increased nitrogen. Since the Rio de Flag used to flow only seasonally and now has nearly permanent water, the ecosystem is radically different than before the treatment plants were built. This is a dramatically changed ecosystem on a large scale.

Environmental Justice

The DEIS states that no environmental justice issues were identified relating to the preferred alternative. The Tribe does not agree with this determination and pursuant to the requirements of consideration of environmental justice issues and Executive Order 13007 mandating the protection of the physical integrity of American Indian sacred sites, the Hopi Tribe requests consultations with CNF on USDA Departmental Regulations 35600-2, so that the we may identify environmental justice issues in directly related to the selection of either Alternative 2 or 3.

We also recommend that the Forest Service consult with the twelve other tribes that consider the Peaks sacred, so that they too may identify environmental justice issues related to the tribes and so called "low income and minority populations" in relation to the selection of the Proposed Action.

Conclusion

As the Hopi Tribe indicated to the CNF at our March 11, 2004, meeting, the Tribe can tolerate the Snowbowl's presence if it is left the way it currently is. Therefore, we support Alternative 1 of the DEIS, which is the no action alternative. With the no action alternative, the Tribe believes we can choose a legacy of respect for living culture, spirituality, and a healthy environment as well as a future based on commitment to solutions that strengthen our entire community. The Tribe believes this Alternative is the most in line with the federal government's responsibilities toward Native peoples and the protection of the practice of their religion.

In addition, we oppose the preferred alternative for the reasons provided herein.

Finally, the Hopi Tribe considers the DEIS to be fatally flawed and substantially incomplete. It does not address Native American socioeconomic or environmental justice concerns (or environmental justice consultation), or provide an adequate analysis and assessment of the potential for contamination relating to the use of the recycled wastewater and its potential effects on plants, animals and people. In addition, the CNF did not provide notice to the Hopi Tribe that the Proposed Action would result in a new Master Plan for the Snowbowl and an Amendment Forest Plan. Furthermore, the DEIS lacks any serious alternatives. Alternative 3 appears to be an attempt to satisfy the necessity of having to have a third alternative and is explicitly recognized and analyzed as not being a serious alternative. To ensure the integrity of the NEPA process, the Hopi Tribe recommends the Forest Service consider other alternatives, in which all projects analyzed are not proponent driven.

There is a Memorandum of Understanding (MOU) between the Hopi Tribe and Coconino National Forest in place to facilitate cooperation on protecting the integrity of the Peaks and its sensitive resources. The Hopi Tribe will continue our dialogue with the Forest Service in hope of gaining your understanding of our concerns and issues, allowing the CNF to weigh them equally with the economic factors of the proponent.

The Great Spirit created Man and Woman in his own image. In doing so, both were created as equals. Both depending on each other in order to survive. Great respect was shown for each other, in doing so, happiness and contentment was achieved then, as it should be now.

The connecting of the Hair makes them one team, for happiness or contentment cannot be hieved without each other.

The Canyons are represented by the purples in the middle ground, where the people were created. These canyons are Sacred, and should be so treated at all times.

The Reservation is pictured to represent the land that is ours, treat it well.

The Reservation is our heritage and the heritage of our children yet unborn. Be good to our land and it will continue to be good to us.

The Sun is the symbol of life, without it nothing is possible – plants don't grow – there will be no life – nothing. The Sun also represents the dawn of the Hualapai people. Through hard work, determination and education, everything is possible and we are assured bigger and brighter days ahead.

The Tracks in the middle represent the coyote and other animals which were here before us.

The Green around the symbol are pine trees, representing our name Hualapai – PEOPLE OF THE TALL PINES –

HUALAPAI NATION
OFFICE OF THE CHAIRWOMAN

Louise Benson
Chairwoman

P.O. Box 179 • Peach Springs, Arizona 86434 • (520) 769-2216

Carrie Imus
Vice Chairwoman

April 12, 2004

Ms. Nora B. Rasure, Forest Supervisor
Coconino National Forest
2323 E. Greenlaw Lane
Flagstaff, AZ 86004

Re: Comments on Draft Environmental Impact Statement (DEIS) for Arizona Snowbowl Facilities Improvements

Dear Ms. Rasure:

The San Francisco Peaks or known as Wi' Han Bacha in the Hualapai Language, is a sacred site for the Hualapai people and Tribe. Since time immemorial, the Peaks served an important link for the Hualapai people's cultural survival through oral traditions depicting the mountain as an important link to religious ceremonials honoring creation. Regardless of the historic impacts that tie the Euro-American Anglos to attest their significance for recreation-building and economic ventures, does not preclude the indigenous tribal pre-historical existence at the San Francisco Mountains.

The San Francisco Mountains and Peaks is a place of great religious and cultural importance for the Hualapai Tribe. The tribe possesses a wealth of traditional knowledge about the Peaks, knowledge derived over many generations before the conception of United States of America. The tribe reviewed the DEIS and is unsatisfied with the lack of information containing Section 106 consultation efforts that did not take place for this western-most tribe. In the review of the DEIS, page 3-3, 3A Heritage and Cultural Resources, the sections do not address the Hualapai concerns and issues in relation to the purpose and need of the proposed action in the DEIS.

The federal government has a unique relationship with Indian Tribes: the federal government *should* support rights of tribes to exercise self-government and has obligations as a trustee for Indian lands and natural resources. The doctrine of the trust

responsibility must be taken into account when federal agencies take actions that affect Indian trust lands and other natural resources, including actions that are subject to generally applicable federal laws, such as National Environmental Policy Act (NEPA). NEPA requires the preparation of an environmental impact statement for any proposed federal action that would significantly affect the quality of the human environment. This requirement is implemented through regulations issued by the President's Council on Environmental Quality (CEQ). 40 C.F.R. parts 1500 – 1508.

When an EIS is prepared, the CEQ regulations include provisions requiring the lead federal agency to invite affected Indian tribes to become involved in the EIS process at several points, including: scoping, providing notice of public hearings, meetings and the availability of NEPA documents and commenting on the draft EIS.

In addition, a tribe may become a cooperating agency for the preparation of an EIS and tribes have rights under certain federal laws that were enacted to protect historic places and other cultural resources and the graves of their ancestors, including the National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act (NAGPRA), and Archaeological Resources Protection Act (ARPA). These federal laws apply to many places within the jurisdiction of the Coconino Forest Service, even with permits and applications signed by the Forest Supervisor.

Although a statement is made on page 3-22 that the Forest Service is in the process of a completing a National Register nomination for the Peaks as a Traditional Cultural Property (TCP), to prolong such an important nomination appears to be an effort to side step issue of the tribes once more.

The DEIS does not identify "Indian Trust Assets", nor does it discuss the Sacred Sites Executive Order 13007 proclaimed through Presidential order. The DEIS lacks any explanation of the legal requirements that the federal agency has to uphold in consultation with tribes. We do not support the proposed alternatives and have no other choice but to consider Alternative One – No Action, until further consultation requirements are met on your part to enter into a Memorandum of Agreement to carry out the responsibilities that your agency must fulfill per our official request.

In conclusion, a relationship between the federal government and the tribes is described as "government-to-government". This is recognized in Executive order 13175, which states, "The United States continues to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, tribal trust resources, and Indian treaty and other right." Tribes are sovereign governments and they must be treated as such even when the matters at issue are beyond the reach of tribal territorial sovereignty. Moreover, tribes and federal agencies may enter into agreements through which tribes assist federal agencies in carrying out their responsibilities. In one sense, the term "government-to-government" relations is a way of reminding people that Indian tribes are different from non-governmental organizations that advocate for the interest of particular groups that comprise of the general public.

We would like to further consult with your agency to identify solutions to our concerns that we have raised in this letter. If you have any concerns or question regarding this letter, please contact Loretta Jackson, THPO, @ (928) 769-2234 or myself at the above number. Thank you.

Sincerely,

Louise Benson

Louise Benson, Chairperson
Hualapai Tribal Council

Rec'd 05/13/04

RECEIVED
MAY 13 2004
COCONINO N.F.

NORA

THE SAN CARLOS APACHE TRIBE

Historic Preservation & Archaeology Department
P.O. Box 0
San Carlos Arizona 85550
(928) 475-2329
Fax (928) 475-2423

Kathy W. Kitcheyan
Chairwoman

Robert E. Howard
Vice-Chairman

May 10, 2004

Ms. Nora Rasure, Forest Supervisor
Coconino National Forest
1824 S. Thompson St.
Flagstaff, AZ 86001

Dear Ms. Rasure:

Thank you for your letter of April 26 concerning your evaluation of the proposal from Arizona Snow Bowl and inviting us to enter into a Memorandum of Agreement to further consult on this matter.

As you are aware, the San Francisco Peaks are of the highest cultural significance to many traditional Apaches, including many members of the San Carlos Apache Tribe. In the recent past knowledgeable San Carlos Apache Tribal members, as well as Tribal members from the White Mountain Apache Tribe, the Tonto Apache Tribe, and the Yavapai-Apache Nation, have offered in-depth consultations on the traditional importance and cultural resources of the Peaks. Much of this information was used as the basis for the determination that the Peaks are eligible for the National Register of Historic Places.

Our elders have on previous occasions told the Coconino National Forest that the best way to protect the cultural resources on the Peaks is to keep the whole mountain as natural as possible, and that past Anglo activities have damaged and destroyed many cultural resources. We encourage you to deny any proposals that adversely effect traditional cultural values. The only sure way to mitigate these adverse effects, and to maintain healthy cultural resources, is to manage the Peaks to resemble as close as possible pre-Anglo conditions.

We have always been respectful and forthcoming in dealing with the Coconino National Forest, and have always dealt with the Forest in good faith. We see no reason at this time to enter into a Memorandum of Agreement in this matter.

Thank you for keeping us informed of Forest Service activities on traditional Apache lands.

Sincerely,

Kathy W. Kitcheyan

Kathleen Wesley Kitcheyan
Chairwoman

cc:
Dallas Massey, Chairman – White Mountain Apache Tribe
Vivian Burdette, Chairwoman – Tonto Apache Tribe
Jamie Fullmer, Chairman – Yavapai-Apache Nation

The Legislative Branch
The Navajo Nation

Lawrence T. Morgan
Speaker of the Navajo Nation Council

VIA FAX 928-527-3620

April 14, 2004

Ms Katherine Farr
Land Management Planner
Coconino National Forest, USDA
2323 E. Greenlaw Lane
Flagstaff, AZ 86004

Dear Ms. Farr,

I am submitting my comments on the proposed Snowbowl Facilities Improvement Draft Environmental Impact Statement (DEIS) even after learning that the deadline was yesterday (4/13/04). My comments are as follows:

(1) **LACK of PUBLIC NOTICE.** There was insufficient time to response to the proposal due to the fact that any and all the public notices for comments were not properly circulated to Tribal newspapers, public meeting such as chapter houses, and using other forms of media ie…radio stations. As you made know a majority of the Navajo people receive daily information through the local Navajo spoken radio stations. The lack of proper notification including clarification in the Navajo language was not adhered to or was considered. I would like to inform you that the Navajo language was used as a code during World War II that turn the tide against Japan. And today this language is still used by a majority of the Navajo people to communicate very important issues such the snow bowl proposal.

(2) **LACK of TRIBAL PARTICIPATION**. The U.S. Forest Service did not directly contact the affected Tribes or appropriate Tribal council for their participation and comments nor were any meetings scheduled or held in those Indian communities.

(3) **LACK of INFORMATION.** Lack of Information regarding water quality and quantity. There is insufficient information on the reclaimed water on where is the water coming from, how the water was used, how much water will be use. The water proposed to be used been adjudicated? As you made know that not all the waters in the Arizona has been adjudicated that includes any return flows following use.

(4) **LACK of RECOGINZATION and SENSETIVITY for NATIVE AMERICAN RELIGION.** Doo'ko'os lid or San Francisco Peaks in comparison is equivalent to the great cathedrals and churches that were built in this country and any desecration or tainting with blood, pharmaceutical byproducts, industrial and business pollution shows lack of respect for native religion. This leads back to the lack of information regarding water quality and quantity.

Thank you and Respectfully submitted,

Amos F. Johnson, Council Delegate
Black Mesa/Forest Lake/Rough Rock Chapters

Rec'd 4-1-4

K 8613

Jim Golden
Forest Supervisor
Coconino National Forest
Flagstaff, AZ 86004

September 7th, 2000

4/1/04

RE: Waste water @ the Snowbowl

Dear Jim,

It was brought to my attention last week there has been a move by the Arizona Snowbowl to determine the feasibility of piping waste water up to the ski runs in order to supplement the lack of naturally occurring real snow. It seems to us this option is poorly conceived by the owners considering the environmentally sound and traditionally sensitive advances recently made on your watch in the Peaks District, namely the mineral withdrawal and the victory at White Vulcan. It may be feasible, but it defies common sense.

To reiterate our stance; the Yavapai-Apache Nation is not against development, far from it, however certain places such as the Peaks do not need anymore alteration or artificial adjustments. It is not merely the use of polluted water we object to, but the destruction of more forest that will accompany the construction of such a large, invasive project. Skiing in the desert runs the same risks as golfing in the desert, inasmuch as water is the common denominator for both activities. As time goes on there will be more and more focus on the topic of water and its uses for us all. We may have reached a threshold in the region when the success of large scale developments based on the poor use of water will have to make due as is or wither based on the naturally occurring climate we all share.

Your friend,

Vincent Randall

Vincent Randall
Tribal Chairman

2400 W. Datsi
Camp Verde AZ 86322

NATIONAL CONGRESS OF AMERICAN INDIANS

.929

March 25, 2004

RECEIVED
APR 16 2004
COCONINO N.F.
NORA

Nora B. Rasure
Forest Supervisor Coconino National Forest
Superbowl DEIS Comments
2323 E. Greenlaw Lane
Flagstaff, AZ 86004

EXECUTIVE COMMITTEE

PRESIDENT
Tex G. Hall
Mandan, Hidatsa, and Arikara Nation

FIRST VICE-PRESIDENT
Joe A. Garcia
Ohkay Owingeh
(Pueblo of San Juan)

RECORDING SECRETARY
Juana Majel
Pauma-Yuima Band of Mission Indians

TREASURER
W. Ron Allen
Jamestown S' Klallam Tribe

REGIONAL VICE-PRESIDENTS

ALASKA
Edward K. Thomas
Tlingit and Haida Tribes

EASTERN OKLAHOMA
Jefferson Keel
Chickasaw Nation

PLAINS
Frazier
Cheyenne River Sioux Tribe

Jams, Jr.
Band of Chippewa Indians

NORTHEAST
Kevin Seneca
Seneca Nation

NORTHWEST
Ernie Stensgar
Coeur d' Alene Tribe

PACIFIC
Leslie Lohse
Paskenta Band of Nomlaki Indians

ROCKY MOUNTAIN
Geri Small
Northern Cheyenne Tribe

SOUTHEAST
Eddie Tullis
Poarch Band of Creek Indians

SOUTHERN PLAINS
Zach Pahmahmie
Prairie Band Potawatomi Nation

SOUTHWEST
Manuel Heart
Ute Mountain Ute

WESTERN
Arlan Melendez
Reno-Sparks Indian Colony

EXECUTIVE DIRECTOR
Jacqueline Johnson
Tlingit

.I HEADQUARTERS
1 Connecticut Avenue, NW
on, DC 20036
.7767
202.466.7797 fax
www.ncai.org

Dear Ms. Rasure;

On behalf of the National Congress of American Indians, I am writing to express my deep concern regarding recommendations in the Draft Environmental Impact Statement for Arizona Snowbowl Facilities Improvements allowing expansion of the facility and the use of reclaimed wastewater to make snow on the San Francisco Peaks. The San Francisco Peaks is sacred to thirteen American Indian tribes and wastewater and further development of this sacred place will cause significant and irreplaceable damage to this most revered area.

As the oldest and largest national organization of American Indian and Alaska Native tribal governments, NCAI is deeply concerned with the respectful treatment of Native American human remains and the protection of sacred places. The Native people of the United States continue to witness the loss and destruction of sacred lands that are critical to the preservation of traditional cultural values and beliefs.

The San Francisco Peaks are essential because they hold a spiritual and cultural significance to thirteen tribes throughout Arizona and New Mexico. Ceremonies are held on the hallowed ground and sacred medicinal plants integral to certain ceremonies and religious practices grow on San Francisco Peaks The use of reclaimed wastewater on this sacred place ruins the spiritual quality of the San Francisco Peaks and will have an adverse affect on the health of the essential plants needed for ceremonies given the irreversible pollution of the soil and plants the wastewater will cause.

Additionally, by adding more lifts to extend further up the peak, the increased activity will interfere with the katsinas', or natures spirits, rehearsals o rain that are crucial to the Hopi existence. For a significant part of the year, tribes need to make use of the peaks for ceremonies that protect the people for the rest of the year. When ceremonies are not taking place, these sacred areas must remain undisturbed to protect the integrity of the ceremony and the blessings it holds.

NCAI supports the thirteen affected tribes' sovereign right to protect their ancestors' spirits, their traditional lands and sacred sites, and their cultural resources by collectively claiming and protecting the San Francisco Peaks by formally opposing construction of new snow by using reclaimed wastewater. The use of reclaimed wastewater will destroy the educational, cultural, and spiritual significance of the land.

929-2

NCAI also supports and recommends that San Francisco Peaks be determined eligible for listing on the National Register of Historic Places due to their historical and cultural value.

Please find enclosed a copy of National Congress of American Indian resolution SD -02-018, Protection of Threatened Sacred Places; An Urgent Priority. This resolution, adopted by over 250 tribal governments, opposes expansion of the Arizona Snowbowl and supports the protection of the San Francisco Peaks.

If you have any questions about the concerns we have expressed, I or my staff would be more than happy to speak with you or put you in touch with the traditional practitioners whose religious practice will be affected by the construction being planned.

I thank you very much for your attention and cooperation on this important matter.

Sincerely,

Tex G. Hall
President

NATIONAL CONGRESS OF AMERICAN INDIANS

EXECUTIVE COMMITTEE

PRESIDENT
Tex G. Hall
Mandan, Hidatsa, and Arikara Nation

FIRST VICE-PRESIDENT
Joe A. Garcia
Ohkay Owingeh
(Pueblo of San Juan)

RECORDING SECRETARY
Juana Majel
Pauma-Yuima

TREASURER
Alma Ransom
St. Regis Mohawk Tribe

REGIONAL VICE-PRESIDENTS

ABERDEEN
Harold Frazier
Cheyenne River Sioux

ALBUQUERQUE
John F. Gonzales
San Ildefonso Pueblo

ANADARKO
James M. Potter
Prairie Band Potawatomi

BILLINGS
[illegible] Small
[illegible]nem Cheyenne Tribe

JUNEAU
Mike Williams
Yupiaq

MINNEAPOLIS
Bob Chicks
Stockbridge-Munsee Band of Mohican Indians

MUSKOGEE
Jefferson Keel
Chickasaw Nation

NORTHEAST
Kevin Seneca
Seneca Nation

PHOENIX
Evelyn B. Juan-Manuel
Tohono O'odham Nation

PORTLAND
Ernie Stensgar
Coeur d'Alene Tribe

SACRAMENTO
Richard Milanovich
Agua Caliente Band of Cahuilla Indians

SOUTHEAST
Eddie Tullis
Poarch Band of Creek Indians

EXECUTIVE DIRECTOR
Jacqueline Johnson
Tlingit

NCAI HEADQUARTERS
1301 Connecticut Avenue, NW
Suite 200
Washington, DC 20036
202.466.7767
202.466.7797 fax
www.ncai.org

THE NATIONAL CONGRESS OF AMERICAN INDIANS

RESOLUTION #SD-02-018

Title: Protection of Threatened Sacred Places: An Urgent Priority

WHEREAS, we, the members of the National Congress of American Indians of the United States, invoking the divine blessing of the Creator upon our efforts and purposes, in order to preserve for ourselves and our descendants the inherent sovereign rights of our Indian nations, rights secured under Indian treaties and agreements with the United States, and all other rights and benefits to which we are entitled under the laws and Constitution of the United States, to enlighten the public toward a better understanding of the Indian people and their way of life, to preserve Indian cultural values, and otherwise promote the health, safety and welfare of the Indian people, do hereby establish and submit the following resolution; and

WHEREAS, the National Congress of American Indians (NCAI) was established in 1944 and is the oldest and largest national organization of American Indian and Alaska Native tribal governments; and

WHEREAS, the NCAI adopted Resolution #SPO-01-162 at its 2001 Annual Meeting in Spokane, Washington, calling for the creation of a Sacred Lands Protection Coalition to address the inadequacy of current laws and administrative policies pertaining to protection of sacred lands; and

WHEREAS, said Coalition was organized in March 2002 and has been working to achieve goals specified in the above resolution; and

WHEREAS, on November 8 and 9, 2002 Sacred Lands Protection Coalition convened a meeting in San Diego, California, of traditional spiritual leaders and elders, tribal leaders and advocates for sacred places including representatives from more than 50 Indigenous nations to identify issues, potential solutions and strategies for the protection of sacred places.

NOW THEREFORE BE IT RESOLVED, that the NCAI does hereby make the protection of endangered sacred places identified at the San Diego Coalition meeting an urgent priority. Such actions and sites should include:

1. Assisting the Zuni Nation (of New Mexico) in their efforts to halt any development of the Salt River Project coal strip mine and its adverse impacts on the sacred Zuni Salt Lake and the Sanctuary Zone including halting further removal of any ancestral remains.

2. Assisting the Quechan Nation (of California) in their struggles to halt the Glamis Imperial Mining at the sacred Quechan Indian Pass.

3. Assisting the Pitt River Nation (of California) in stopping the Calpine Corporation construction of geothermal mining in the sacred Medicine Highlands Region.

4. Assisting the Carrizo/Comecrudo Nation (of Texas) to end the destruction of sacred lands flooded by Amistad Lake and Falcon Dam on the Rio Grande River. Further, we support the development of a graves protection policy in the state of Texas.

5. Assisting the Mandan/ Hidatsa/Arikara and other tribal nations' ongoing struggle to protect sacred places due to the six main-stem damns on the Missouri River.

6. Assisting the Lakota Nation's ongoing struggle to protect and return the sacred Black Hills. Furthermore, support of the Lakota peoples opposition to National Park Service excavation in the sacred Badlands area.

7. Assisting Native Nations of the Northern Plains who have historically used Pipestone National Monument for religious and cultural purposes to fully participate in the development of management plans.

8. Assisting the efforts of the Hualapai Nation in protecting sacred landscapes in Truxton Canyon and Crozier Canyon that are being damaged by private landowners' excavation of boulders for use in decorative landscaping.

9. Assisting the efforts of the Hopi and Navajo people in halting the Peabody Coal Company slurry coal mining process that depletes the Navajo aquifer and negatively impacts the desert landscape and cultural life ways.

10. Assisting the Snoqualmie Tribe (of Washington) in the preservation of Snoqualmie Falls and to restore the natural free flowing falls by decommissioning the hydroelectric facility.

11. Assisting the Coastal Chumash people (of California) in their struggle to protect and recover ownership of sacred lands in the Gaviota Coastal region of southern California.

12. Assisting the Tohono O'odham Nation (of Arizona and northern Mexico) in protecting the sacred Poboquivari Mountain from desecration and the recovery of that ownership of this mountain.

929-5

13. Assisting the Lummi Nation (of Washington) in the recovery and reburial of ancestral remains excavated by the city of Blaine at the ancient village of Semiahmah.

14. Assisting the Yurok Nation (of California) in increasing water flows at the Klamath River to preserve the salmon and other endangered species of the ecosystem. Further, to support national legislation to redress previous ecological damage and to prevent future diversion of critical water flows.

15. Assisting the Berry Creek, Moore Town, and Enterprise rancherias (of California) in their efforts to protect sacred lands impacted by the fluctuation zone of the California Water Project at the Oroville Dam Reservoir.

16. Assisting the southwest tribal nations to stop the expansion of the Arizona Snow Bowl at the sacred San Francisco Peaks which are now considered eligible for listing under the National Register of Historic Places.

17. Assisting the Tongva and Acjachemen peoples (of California) in the protection and preservation of Puvungna.

18. Assisting the San Luis Rey Band of Mission Indians (of California) to protect Katuktu, also known as Morro Hill, from desecration.

19. Assisting the Muscogee (Creek) Nation to protect Ocmulgee National Monument and Ocmulgee Old Fields from destruction by the federal highway, Eisenhower Extension, in central Georgia.

20. Assisting the Apache Peoples to protect Mt. Graham from desecration and destruction by the federal government and educational institutions.

21. Assisting the many Native Peoples to protect the Medicine Wheel from destruction by federal and private entities.

22. Assisting the First Nations Dakota Tribes of Minnesota to recover ownership of the Cold Water Spring located on the Department of the Interior Old Bureau of Mine Lands in Minneapolis, MN; and

23. Assisting the Picuris Pueblo to protect and reclaim its sacred micaceous clay-gathering place from further mining damage; and

BE IT FURTHER RESOLVED, that the NCAI consider extending solidarity and support for the following Indigenous sacred sites outside of the United States:

1. Assist the efforts of the United Confederation of Taino people of Puerto Rico in reclaiming the Caguana Ceremonial Site currently under National Park Service Control.

2. Assist the Yaqui people struggle in preserving and protecting the sacred Yaqui Zona Indigena in present-day Sonora, Mexico; and

BE IT FINALLY RESOLVED, that this resolution shall be the policy of NCAI until it is withdrawn or modified by subsequent resolution.

CERTIFICATION

The foregoing resolution was adopted at the 2002 Annual Session of the National Congress of American Indians, held at the Town and Country Convention Center, in San Diego, California on November 10-15, 2002 with a quorum present.

Tex Hall, President

ATTEST:

Juana Majel, Recording Secretary

Adopted by the General Assembly during the 2002 Annual Session of the National Congress of American Indians, held at the Town and Country Convention Center, in San Diego, California on November 10-15, 2002.

Native Americans for Community Action, Inc.

MAIN OFFICE:
2717 N. Steves Blvd., Suite 11
Flagstaff, Arizona 86004-0708
FAX: (928) 526-0708
Phone: (928) 526-2968

FAMILY HEALTH CENTER
1500 E. Cedar Ave., Suite 26
Flagstaff, Arizona 86004
FAX: (928) 773-9429
Phone: (928) 773-1245

April 12, 2004

Nora B. Rasure
Forest Supervisor
U.S. Forest Service
1824 S. Thompson
Flagstaff, AZ 86001

RE: Snowbowl DEIS Comments

Dear Ms. Rasure:

NACA is a community based organization that was created to provide services for Native American clients in the Flagstaff area in a manner that is culturally appropriate. We have listened with open ears regarding the alternative proposals set forth in the current DEIS.

The only conclusion that we can draw at this time is that a 60 day comment period deadline is not adequate. We are aware that there are significant language and technological communication barriers at play here that make a 60 day comment period unreasonable. Additional time needs to be allowed in order to provide information about this issue to be brought before Native American members of the 13 major tribal groups in this area. To not do this is not realistic and will cast some serious doubt on the validity of this process.

Before you assumed your new duties, you may have heard of Canyon Forest Village proposals and the DEIS issued as a result. In this case, I seem to remember the comment period to have been longer than 60 days. If this is true, then why is this situation different? Regardless of this, the current comment period is too short. It is our position that there are too many uncertainties with the proposals put forth and that a longer comment period period be instituted.

Sincerely,

Dana Russell
Chief Executive Officer

Postmarked 4/13/4

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1111 Jackson Street, Suite 520
Oakland, CA 94607

TAKE PRIDE IN AMERICA

April 13, 2004

Ken Jacobs, Team Leader
5075 North Highway 89
Flagstaff, Arizona 86004

Dear Mr. Jacobs,

The Department of the Interior has reviewed the Draft Environmental Impact Statement for the Arizona Snowbowl Facilities Improvements, Coconino National Forest, Coconino County, Arizona. The Preferred Alternative described in the document proposes to create snowmaking on 205 acres of ski-able terrain at the ski area, using reclaimed water from the City of Flagstaff.

It also proposes adding one new chairlift and four surface lifts; realigning and/or lengthening three of the current chairlifts; creating 74 acres of new ski runs; creating a snow-play/tubing area and associated infrastructure. All of the proposed improvements would occur entirely within the 777-acre ski area.

General Comments

The U.S. Fish and Wildlife Service (Service) has been in consultation under Section 7 of the Endangered Species Act (ESA) with your office about this proposed action. The Service expects to continue working closely with the U.S. Forest Service on this consultation, and hopes to be advised at the earliest opportunity if a new preferred alternative is selected as a result of the public input now underway.

Often in the process of artificial snowmaking, chemical substances are used to seed ice crystallization for the snow. No mention is made of this potential issue in the report. Nonetheless, this information is significant in that the additive(s) could alter the soil structure, thus potentially increasing soil erosion where applied, or, if the additive does bind in the soil, it might run off into domestic water supplies.

The use of additives in commercial snowmaking is so common that if no additive(s) is proposed to be used, this information should also be indicated in the DEIS. The U.S. Geological Survey recommends that this clarification be made.

Thank you for the opportunity to review and comment on this DEIS.

Sincerely,

Patricia Sanderson Port
Regional Environmental Officer

cc: Nancy J. Gloman, USFWS Acting Regional Director, Region 2
Willie Taylor, Director OEPC HQ

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

.1161

RECEIVED
APR - 9 2004
COCONINO N.F.
NORA
DATE

April 2, 2004

Nora B. Rasure
Forest Supervisor, Coconino National Forest
2323 E. Greenlaw Lane
Flagstaff, AZ 86001

Subject: Draft Environmental Impact Statement (DEIS) for the Arizona Snowbowl 2002 Facilities Improvements Plan [CEQ #040059]

Dear Ms. Rasure:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and Section 309 of the Clean Air Act.

We have rated this Draft EIS as Lack of Objections- (LO)(see enclosed "Summary of Rating Definitions"). However, EPA recognizes the cultural importance of the San Francisco Peaks and the significant value they hold for at least 13 Indian Tribes. We also recognize the substantial amount of work done to notify the relevant Tribes regarding the proposed improvements and include mitigation measures. EPA recommends that the Final EIS include input and suggestions from these Tribes and outline the mitigation measures that will be taken under the National Historic Preservation Act Memorandum of Agreement. The Final EIS should address whether these mitigation measures have been agreed upon by the concerned Tribes and are avoiding damage to cultural values to the greatest extent possible. The Forest Service should continue to consult with the Tribes throughout development of the project to address concerns.

The cumulative effects of the Transwestern Lateral Pipeline construction, Inner Basin water pipeline maintenance, private land development and miscellaneous recreational uses in combination with the proposed action may negatively affect soil resources in the area if left unmitigated, primarily from enhanced concentrated surface flows. EPA notes that the USDA-ARS Water Erosion Prediction Project (WEEP) model results (page 3-227) show five of the six affected soils units with erosion hazards of "severe" and re-vegetation potential as "low to moderate." Therefore, as the DEIS notes on page 3-249, it is important to implement practices designed to manage water drainage, facilitate re-vegetation, and minimize sediment transport. Best Management Practices that will be adopted for these purposes should be outlined in the

Final EIS. Specifically, implementation and maintenance of drainage mechanisms such as adequately spaced waterbars should be used to decrease erosion potential resulting from the introduction of snowmaking water on un-graded trails. In order to avoid impacts from erosion, the Forest Service should provide commitments in the ROD that the provisions of water management plans and erosion plans will be implemented and enforced.

EPA recommends that the Final EIS evaluate air quality impacts from construction equipment emissions and mitigation measures to reduce these impacts. Specifically, EPA recommends evaluating the use of particle traps and other appropriate controls to reduce emissions of diesel particulate matter and other air pollutants. Traps can control approximately 80 percent of diesel particulate matter and specialized catalytic converters can control up to 50 percent of hydrocarbon emissions. The Forest Service should ensure that construction-related trips of workers and equipment, including trucks and heavy equipment, are reduced as much as possible, that equipment does not idle unnecessarily, and equipment is tuned to the manufacturer's specifications.

Both federally-listed threatened and sensitive plant and wildlife species exist in the project area. The proposed action has the potential to reduce habitat availability for wildlife, impact individuals, and cause a reduction in prey species. In particular, it will result in the removal of approximately 156 trees; impact the ferruginous hawk, the three-toed woodpecker, and Navajo Mountain Mexican voles; impact habitat for mule deer and northern goshawk, and result in reduced plant species diversity for wildlife. To guarantee that these impacts will not have long-term effects on species, EPA suggests that the Final EIS include the outcome of the Biological Opinion.

We appreciate the opportunity to review this DEIS. Please send two copies of the Final EIS to this office when it is officially filed with our Washington, D.C. office. In the meantime, if you have any questions, please call Summer Allen, the lead reviewer for this project, at (415) 972-3847.

Sincerely,

Lisa B. Hanf

Lisa B. Hanf, Manager
Federal Activities Office

MI# 004047
Enclosures:
Summary of Rating Definitions

1161-3

cc: Gayl Honanie, Director
Hopi Environmental Protection Office
The Hopi Tribe
P.O. Box 123
Kykotsmovi, AZ 86039

Leigh J. Kuwanwisiwma
Director of the Hopi
The Hopi Tribe
P.O. Box 123
Kykotsmovi, AZ 86039

Stephen B. Etsitty
Executive Director
Navajo Nation EPA
P.O. Box 339
Window Rock, AZ 8651 5

Eugenia Quintana
Navajo Nation EPA
P.O. Box 339
Window Rock, AZ 8651 5

Pamela Overman
Tribal Programs Office
U.S. Environmental Protection Agency

Pam Sponholtz
U.S. Fish and Wildlife Service
P.O. Box 338
121 E. Birch Ave, Suite 312
Flagstaff, AZ 86002

SUMMARY OF EPA RATING DEFINITIONS

1161-A

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

RECEIVED
MAR - 1 2004
COCONINO N.

.264

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
3003 N. Central Avenue, Suite 800
Phoenix, Arizona 85012-2946
(602) 280-8801
FAX (602) 280-8809

address change sent

NORA

Nora Rasure
Forest Supervisor, Coconino National Forest
Snowbowl DEIS Comments
2323 E. Greenlaw Lane
Flagstaff, Arizona 86004

FEB 25 2004

Dear Ms. Rasure:

This response is in regard to a letter dated February 2, 2004, regarding the proposed Arizona Snowbowl Facilities Improvements Draft Environmental Impact Statement in Coconino county, Arizona.

The Natural Resources Conservation Service (NRCS) has general responsibility, nationwide, for implementing the Farmland Protection Policy Act (FPPA) and to review projects that may affect prime farmland and/or wetlands associated with agriculture. After reviewing the information provided, the following is noted:

1- The proposed new projects if implemented as planned, are exempt from the requirements of the FPPA, as revised in 1994, that excludes land which is already in or is committed to urban development, currently used as water storage, or land that is not prime or unique farmland.

2- We do not see any immediate concerns or impacts that would directly affect wetland areas associated with agriculture.

We recommend that any future development projects receive a prime farmland determination prior to any construction activities. Should you have questions, please feel free contact Jeff Schmidt, Community Assistance Coordinator at 602.280.8818. Thank you again for the chance to review the proposed project.

Sincerely,

Jeffrey A. Smith acting for

JAMES A. BRIGGS
Assistant State Conservationist (T)

cc:
Ron Eckfield, DC, Douglas, Arizona
Diane Gelburd, Director, ESC, Washington, DC (Environmental Document #2854)
Jeff Schmidt, Community Assistance Coordinator, NRCS, Phoenix, Arizona

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

An Equal Opportunity Provider and Employer

COCONINO COUNTY ARIZONA

COMMUNITY DEVELOPMENT

William L. Towler
Director

NORA MD
JAPE
FO

April 10, 2004

Nora B. Rasure, Forest Supervisor
Coconino National Forest
1824 S. Thompson Street
Flagstaff, AZ 86001-2529

Re: Snowbowl DEIS Comments

Dear Ms. Rasure:

I am submitting these comments on the draft DEIS as comments from me as Coconino County Community Development Director. These are not comments from the Board of Supervisors who as far as I know have not taken a position. I am not taking a position in favor of or opposed to any of the alternatives either, but am merely raising a few issues that are unclear or inadequately addressed in the DEIS. My comments closely follow similar comments that I made to then-Supervisor Jim Golden dated November 15, 2002 in response to the Snowbowl proposal. As before, the comments fall into the following areas:

Snowmaking:

This appears to be the most controversial aspect of the entire project, and the one that I am least qualified to speak to and have the least desire to take a position on. The location of the pipeline is one of the issues that affects private property in the unincorporated county, and I note that the only area affected by the proposed route is along South Snowbowl Road. I also note that there are no pumping stations proposed on nonfederal land. Any changes to this proposal could require zoning approval. The amount of information and analysis on this issue, starting on page 3-157, is impressive. It is interesting to note that the impact of the proposed snowmaking on water quality of wells and springs utilized by private property owners downslope in Hart Prairie cannot be determined with any certainty. It would appear appropriate either for Snowbowl to be required to install monitoring wells at the bottom end of the lease area or on Forest Service land between Snowbowl and the private property or to monitor all of the existing springs and wells and to take corrective action should there be any detectible negative impacts.

There is a little discussion of the impact of the use of reclaimed wastewater on overall groundwater recharge in the aquifer, but I could not find any assessment of the impact of

2500 North Fort Valley Road, Building 1 • Flagstaff, AZ 86001-1287
(928) 226-2700 Fax (928) 226-2701

the diversion of reclaimed wastewater on downstream flows in the Rio de Flag below the Wildcat Hill WWTP. Admittedly, this is more of a city issue as the City of Flagstaff has control over use of reclaimed water and can determine its most suitable and beneficial use. The issue is raised, however, because there is concern by Doney Park residents that the more reclaimed water that is used, the less flow there is through Doney Park, which is having a direct impact on area wildlife.

Lighting

I greatly appreciate the Snowbowl and Forest Service decision to eliminate night skiing from the proposed action. If any new outdoor lighting is proposed at all, for example in the new parking areas or around the lodges, although not required, this should be done in complete conformance to the Coconino County lighting ordinance (Zoning Ordinance Section 17).

Snowplay

There is certainly an identified need for organized snowplay, and the Snowbowl is one place to accommodate that need. Unfortunately, the establishment of a snowplay area at Snowbowl would not eliminate the need for less organized (and less expensive to use) snowplay areas where people can use their own sleds or tubes. I would certainly hope that the Forest Service would not use the establishment of a pay snowplay area to consider closing such areas as Wing Mountain and the Crowley pit to snowplay. As I pointed out before, the addition of snowplay adds about 40% to the capacity of Snowbowl, potentially increasing traffic to and from Snowbowl by 40%, increasing domestic water use by 40%, increasing wastewater flows by 40%, etc. Building a new 400-space parking area below the Hart Prairie Lodge in an area now characterized by a beautiful aspen grove will have visual impacts both locally as well as from a distance. It might be helpful to mitigate the visual impact of the new parking area from points to the west by requiring a berm or a fairly dense landscaping screen along the lower edge of the parking area.

Traffic

The DEIS seems to indicate that the incremental change in traffic due to all of the proposed improvements is insignificant. However it also seems to say that there would be an additional 560 peak day trips, which is about 50% more than the current base. The snowplay area adds about 200 trips per day in each direction. The anecdotal information presented in the DEIS that Snowbowl turns away this many people already and so therefore there is no increase in traffic does not substitute for detailed analysis. The snowmaking, if as successful as Snowbowl would presumably like it to be, would cause an increase not only in peak visitation but would also increase visitation during the nonpeak times. The crucial impact period on Highway 180 is after the ski area closes each afternoon. During the period from about 4:30 to 6, it is often impossible to pull out onto Highway 180 due to the steady stream of traffic, and traffic backs up on

Humphrey's from Route 66 nearly to Columbus. While Highway 180 is an ADOT responsibility, it would seem that some mitigating efforts should be taken should the proposed action be implemented. Perhaps a signal at Fremont would help break up the traffic coming into the city. Perhaps the snowplay area should have a different closing time so that not all visitors leave Snowbowl at exactly the same time. A more detailed analysis and review of these impacts (through a Traffic Impact Analysis), along with proposed or required mitigation measures to be shared by Snowbowl and ADOT should be a part of any increase in activity.

Noise

The DEIS acknowledges that there would be an increase in noise due to the equipment that is utilized for snowmaking (snowmaking fans and tower guns). At a demonstration of the equipment when a snowplay area was proposed at 180 and Snowbowl Road, the noise was quite noticeable at a considerable distance. In the quiet winter evenings and nights characteristic of this area, the noise will carry a considerable distance. Grooming equipment, for example, can be heard at Fern Mountain. The ongoing noise sources cited in the DEIS such as snowmobiles and other vehicles are limited to daytime use. There is virtually no background noise at night in Hart Prairie. While the impact may be small as noted by the modeled 38dBA level, it would definitely be noticeable.

Wildlife

The DEIS does not seem to adequately address the potential impacts on wildlife of the impoundment areas for reclaimed wastewater. Unless built specifically to attract wildlife and to be a designated wildlife watering area, presumably the impoundments would need to be fenced. Appendix A that addresses impoundment design seems to raise more questions than it answers. First it raises the possibility of blasting, rock crushing, and other activity just to create the impoundments. The proposed design seems to call for fencing to keep wildlife out. The 12-foot fencing required to exclude elk could have a visual impact depending on the exact location of the impoundment and the type of fencing utilized.

Native American Concerns

The Board of Supervisors has historically been extremely sensitive to Native American issues and concerns especially related to activities on and around the San Francisco Peaks. While the DEIS includes all of the efforts that the Forest Service has taken to include tribes in the process, extreme care is called for in addressing and satisfying tribal concerns.

As usual I appreciate the opportunity to comment and continue to enjoy the close working relationship with the Coconino National Forest on this and other issues.

Sincerely,

William L. Towler
Community Development Director

Cc: Board of Supervisors

RICK RENZI
1ST DISTRICT, ARIZONA

.37

RESOURCES COMMITTEE
SUBCOMMITTEE ON FORESTS AND FOREST HEALTH
SUBCOMMITTEE ON WATER AND POWER

FINANCIAL SERVICES COMMITTEE
SUBCOMMITTEE ON CAPITAL MARKETS, INSURANCE, AND GOVERNMENT SPONSORED ENTERPRISES
SUBCOMMITTEE ON FINANCIAL INSTITUTIONS AND CONSUMER CREDIT
SUBCOMMITTEE ON HOUSING

VETERANS' AFFAIRS COMMITTEE
SUBCOMMITTEE ON HEALTH

Congress of the United States
House of Representatives

February 3, 2004

NORA ____
TATE ____

Supervisor Nora Rasure
Coconino National Forest
2323 East Greenlaw Lane
Flagstaff, Arizona 86004-1810

Dear Supervisor Rasure:

I would like to extend my personal appreciation of your professional work on the Draft Environmental Impact Statement (EIS) for the Arizona Snowbowl Improvement Project released on February 2, 2004.

The Coconino National Forest has demonstrated the ability to tackle a complex issue and produce this important document. I fully support the work of the Coconino on the final EIS for the Arizona Snowbowl Improvement Project.

Please do not hesitate to contact me directly with any future issues of concern.

Sincerely,

Rick Renzi
United States Congressman
First District of Arizona

HOUSE OFFICE BUILDING
INGTON, DC 20515
(202) 225-2315
FAX: (202) 226-9739

www.house.gov/renzi
rick.renzi@mail.house.gov

WHITE MOUNTAIN OFFICE
2707 SOUTH WHITE MOUNTAIN ROAD
SUITE E
SHOW LOW, AZ 85901
TOLL FREE: (866) 537-2800
FAX: (928) 532-5088

FLAGSTAFF OFFICE
2501 NORTH 4TH STREET
SUITE 23
FLAGSTAFF, AZ 86004
(928) 213-3434
FAX: (928) 213-5447

PRESCOTT OFFICE
107 NORTH CORTEZ
SUITE 208
PRESCOTT, AZ 86301
(928) 708-9120
FAX: (928) 708-9121

CASA GRANDE OFFICE
P.O. BOX 11186
CASA GRANDE, AZ 85203
(520) 876-0929
FAX: (520) 844-1575

PRINTED ON RECYCLED PAPER

File — No Response Needed

JEFF FLAKE
6TH DISTRICT, ARIZONA

424 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-2635

DISTRICT OFFICE:
10 SOUTH STAPLEY DRIVE
SUITE 215
MESA, AZ 85204
(480) 833-0092

RECEIVED
APR 14 2004
COCONINO N.F.

COMMITTEE ON INTERNATIONAL RELATIONS
SUBCOMMITTEES:
ASIA AND THE PACIFIC
AFRICA

COMMITTEE ON THE JUDICIARY
SUBCOMMITTEES:
COMMERCIAL AND ADMINISTRATIVE LAW
IMMIGRATION, BORDER SECURITY, AND CLAIMS

COMMITTEE ON RESOURCES
SUBCOMMITTEE:
FORESTS AND FOREST HEALTH

Congress of the United States
House of Representatives

April 12, 2004

NORA

Mrs. Nora Rasure
Forest Supervisor
Coconino National Forest
1824 S. Thompson St.
Flagstaff, AZ 86001

Dear Supervisor Rasure:

I am contacting you to voice my support for the preferred alternative (alternative two) in the Environmental Impact Study currently under review by the Coconino National Forest regarding the upgrade of facilities and use of reclaimed snow at the Arizona Snowbowl.

The Arizona Snowbowl has been an Arizona destination for over sixty years, with over 100,000 visitors annually. For most of that time the ski area has struggled to maintain a consistent business operation and keep up with the competition. With the proposal to utilize reclaimed water as a source to make snow, the Snowbowl can join hundreds of other snowmaking ski areas across the country to ensure a quality experience for its customers in an environmentally responsible way.

In addition to the use of reclaimed water to make snow, the preferred alternative allows the Arizona Snowbowl to improve chairlifts, as well as build a snowplay and tubing area, on its existing facilities. Due to these improvements, I believe the community of Flagstaff and the State of Arizona will benefit from increased tourism and improved recreational opportunities for Arizona families.

With the population growth in Arizona, the need for such quality recreation is clear. Your attention to this matter is greatly appreciated.

Sincerely,

JEFF FLAKE
Member of Congress

PRINTED ON RECYCLED PAPER

JOHN SHADEGG
3rd District, Arizona

WASHINGTON, DC OFFICE:
306 Cannon House Office Building
Washington, DC 20515
(202) 225-3361
Fax: (202) 225-3462

ARIZONA OFFICE:
301 East Bethany Home Road
Suite C170
Phoenix, AZ 85012
(602) 263-5300
Fax: (602) 248-7733
http://johnshadegg.house.gov

Congress of the United States
House of Representatives
Washington, DC 20515–0303

SELECT COMMITTEE ON HOMELAND SECURITY
SUBCOMMITTEE ON EMERGENCY PREPAREDNESS AND RESPONSE
CHAIRMAN

ENERGY AND COMMERCE

FINANCIAL SERVICES

REPUBLICAN STUDY COMMITTEE
REPUBLICAN POLICY COMMITTEE
ASSISTANT WHIP
STEERING COMMITTEE

April 13, 2004

Ms. Nora Rasure
Supervisor
Coconino National Forest
2323 East Greenlaw Lane
Flagstaff, Arizona 86004-1810

Dear Ms. Rasure:

The Coconino National Forest is currently reviewing the Draft Environmental Impact Statement (DEIS) for the Arizona Snowbowl Improvement project. I am writing to express my support for the Preferred Alternative as detailed in the DEIS.

The Preferred Alternative will allow the Arizona Snowbowl to dramatically improve its services and will provide a much-needed economic boost to the local community. Unpredictable weather and the current drought have significantly impaired the Snowbowl's ability to compete with other ski areas due to lack of snow. The proposal to utilize reclaimed water as a source to make snow will allow the Snowbowl to better forecast revenues, create jobs, and improve long-term planning.

I urge you to retain the Preferred Alternative in the Final Environmental Impact Statement. Furthermore, I urge that this plan be included in any future Record of Decision by the Forest Service on the Arizona Snowbowl Improvement project.

Sincerely,

John Shadegg
Congressman
Arizona 3rd District
U.S. House of Representatives

JBS:ch

J. D. HAYWORTH
5TH DISTRICT, ARIZONA
ASSISTANT MAJORITY WHIP
CHAIRMAN
CONSERVATIVE OPPORTUNITY SOCIETY

WASHINGTON OFFICE:
2434 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-2190

Congress of the United States
House of Representatives
Washington, DC 20515–0305

COMMITTEES:
WAYS AND MEANS
SUBCOMMITTEES:
SOCIAL SECURITY
SELECT REVENUE MEASURES

RESOURCES
SUBCOMMITTEES:
WATER AND POWER
FOREST AND FOREST HEALTH
www.house.gov/hayworth

April 12, 2004

RECEIVED
APR 19 2004
COCONINO N.F.
NORA

Nora Rasure
Forest Supervisor
1824 S. Thompson St.
Flagstaff, Arizona 86001

Dear Supervisor Rasure:

I appreciate the opportunity to submit my comments on the pending Environmental Impact Study currently under review by the Coconino National Forest. It is obvious that you and your staff have put forth a considerable amount of effort and outreach in managing the public process. For that effort I am grateful.

The Arizona Snowbowl has been an Arizona treasure for over sixty years. For most of that time the ski area has struggled to maintain a consistent business operation and keep up with the competition. With the proposal to utilize reclaimed water as a source for making snow the Snowbowl can join hundreds of other ski areas across the country and ensure a quality product for its customers. Thankfully, the owner has been able to keep the operation open despite the current drought conditions. However, no businessperson has unlimited resources. With the population growth in Arizona, the need for quality recreation is very obvious.

With the improvements to the Arizona Snowbowl, the community of Flagstaff and the State of Arizona will benefit from increased tourism, direct economic impacts, and improved recreation for Arizona families. Upgrading facilities and improving service is critical for the success of any business.

Managing public land for multiple use includes winter recreation. I believe that using a small percentage of the San Francisco Peaks for skiing and snowplay is appropriate. Clearly, the Forest Service is within its rights to issue a permit for the ski area to operate. We now have an opportunity to provide a more consistent operation, provide improved services, and make sure Arizona Snowbowl is able to expose the next generation of skiers and snowboarders to the enjoyment of the snowcapped mountains.

Best regards,

J. D. Hayworth
Member of Congress

JDH:rs

DISTRICT OFFICE: 14300 NORTH NORTHSIGHT BOULEVARD, SUITE 101, SCOTTSDALE, AZ 85260 (480) 926-4151

PRINTED ON RECYCLED PAPER

KEN BENNETT
District 1

PRESIDENT OF THE SENATE
FORTY-SIXTH LEGISLATURE

RECEIVED
APR - 9 2004
COCONINO N.F.

Arizona State Senate

April 7, 2004

NORA
RATE

Nora Rasure, Forest Supervisor
1824 S. Thompson St.
Flagstaff, AZ 86001

Dear Supervisor Rasure,

I appreciate the opportunity to submit my comments on the pending Environmental Impact Study currently under review by the Coconino National Forest. It is obvious that you and your staff have put forth a considerable amount of effort and outreach in managing the public process. For that effort I am grateful.

The Arizona Snowbowl has been an Arizona treasure for over sixty years. For most of that time the ski area has struggled to maintain a consistent business operation and keep up with the competition. With the proposal to utilize reclaimed water as a source to make snow, the Snowbowl can join hundreds of other ski areas across the country to ensure a quality product to its customers. Thankfully, the current owner has been able to keep the operation open despite the current drought conditions. However, no businessperson has unlimited resources. With the population growth in Arizona the need for quality recreation is very obvious. The snow and winter fun available or residents of Arizona is an example of diversity this Great State has to offer.

With the improvements to Arizona Snowbowl, the community of Flagstaff and the State of Arizona will benefit from increased tourism, direct economic impacts, and improved recreation for Arizona families. Upgrading facilities and improving service is critical for the success of any business.

Managing public land for multiple use includes winter recreation. I believe that using a small percentage of the San Francisco Peaks for skiing and snowplay is appropriate. Clearly, the Forest Service is within its rights to issue a permit for the ski area to operate. We now have an opportunity to provide a more consistent operation, provide improved services, and make sure Arizona Snowbowl is able to expose the next generation of skiers and snowboarders to the enjoyment of the Snowcapped Mountains.

Sincerely,

Ken Bennett

KEN BENNETT
Senate President

1700 W. Washington, Senate Wing, Room 204, Phoenix, AZ 85007
Phone: (602) 926-5584; Fax (602) 926-3429 EMAIL: kbennett@azleg.state.az.us

TOM O'HALLERAN
1700 WEST WASHINGTON, SUITE H
PHOENIX, ARIZONA 85007-2844
CAPITOL PHONE: (602) 926-4079
CAPITOL FAX: (602) 417-3101
TOLL FREE: 1-800-352-8404
tohaller@azleg.state.az.us

DISTRICT 1

COMMITTEES:
TRANSPORTATION
WAYS AND MEANS

RECEIVED
APR - 9 2004
COCONINO N.F.

NORA NR
TR

Arizona House of Representatives
Phoenix, Arizona 85007

April 7, 2004

Ms. Nora Rasure, Forest Supervisor
1824 S. Thompson St.
Flagstaff, AZ 86001

Dear Supervisor Rasure:

I appreciate the opportunity to submit my comments on the pending Environmental Impact Study currently under review by the Coconino National Forest. It is obvious that you and your staff have put forth a considerable amount of effort and outreach in managing the public process. For that effort I am grateful.

The Arizona Snowbowl has been an Arizona treasure for over sixty years. For most of that time, the ski area has struggled to maintain a consistent business operation and keep up with the competition. With the proposal to utilize reclaimed water as a source to make snow, the Snowbowl can join hundreds of other ski areas across the country to ensure a quality product to its customers. Thankfully, the current owner has been able to keep the operation open despite the current drought conditions. However, no businessperson has unlimited resources. With the population growth in Arizona, the need for quality recreation is very obvious. The snow and winter fun available for residents of Arizona are examples of diversity this Great State has to offer.

With the improvements to Arizona Snowbowl, the community of Flagstaff and the State of Arizona will benefit from increased tourism, direct economic impacts, and improved recreation for Arizona families. Upgrading facilities and improving service is critical for the success of any business.

Managing public land for multiple use includes winter recreation. I believe that using a small percentage of the San Francisco Peaks for skiing and snowplay is appropriate. Clearly, the Forest Service is within its rights to issue a permit for the ski area to operate. We now have an opportunity to provide a more consistent operation, provide improved services, and make sure Arizona Snowbowl is able to expose the next generation of skiers and snowboarders to the enjoyment of the Snowcapped Mountains.

Sincerely,

Tom O'Halleran

TOM O'HALLERAN
State Representative District 1

TO:va

City of Williams

Ken Edes
Mayor

Bernie Hiemenz
Vice Mayor

Pat Carpenter
Dan Barnes
Don Dent
Cary Price
Michael F. Vasquez
City Council

Dennis Wells
City Manager

April 8, 2004

Peaks Ranger District
U. S. Forest Service
Attn: Ken Jacobs
5075 N. Highway 89
Flagstaff, AZ 86004

Dear Mr. Jacobs:

Please allow this letter to stand as an endorsement of the Snowbowl upgrade including the snow making capability.

The City of Williams supports the proposal for numerous reasons which include: positive economic impact, sustaining winter recreation during a normally slow period, and regional benefits extending across Northern Arizona and the State.

The City of Williams is in full support of the Snowbowl proposal.

Sincerely,

Kenneth D. Edes

Ken Edes
Mayor

113 South 1st. Street • Williams, AZ 86046-2549 • (928) 635-4451 • Fax (928) 635-4495
Relay TDD Service (800) 367-8939 • Relay TDD Voice Service (800) 842-4681