The City of Sisters Townsite Act Conveyance EA

Introduction

This environmental assessment (EA) evaluates an application by the City of Sisters to purchase National Forest System lands for purposes of a sewage and wastewater treatment facility. Under authority of the National Forest Townsite Act (or Townsite Act) of July 31, 1958, the proposed 240 acre parcel may be sold to the City at fair market value. The parcel is located adjacent to the City of Sisters Urban Growth Boundary in Township 15 South, Range 10 East, Section 9, SE 1/4, and E 1/2 SW 1/4 Willamette Meridian (Figure 1), hereinafter referred to as Section 9 or the parcel. Surrounding the parcel is residential housing to the north, a privately owned ranch to the east, and Forest Service managed lands to the south and west. Three Creeks road borders a small section (20 acres) of Forest Service lands on the western boundary. Squaw Creek is located approximately 600 feet from the northwest corner of the parcel. Lands are within the Squaw Creek Subwatershed.

The Forest Service recognizes and supports the need of the City of Sisters for a long term effective solution to managing its community wastewater. We also recognize the benefits of an effective community wastewater treatment system to one of our key goals in managing the National Forest . . . to protect and restore the long term health of the Squaw Creek watershed. The City has concluded that their only reasonable option for a site to construct a wastewater facility is on the land in Section 9 south of town which is currently National Forest. For these reasons, the Forest service is committed to do everything we can within the legal authority of the Townsite Act to consider and act upon the City's proposal. There is also a possibility that a short-term Special Use Permit may need to be issued until the land transaction is completed to allow the City to begin construction in the fall.

Purpose and Need For Action

The primary purpose of this EA is to provide information to determine if the needs of the Sister's community to acquire the proposed parcel of land for a sewage and wastewater treatment system outweigh the public interests of retaining the land in the National Forest System. The EA will also assess environmental and social issues which need to be addressed in making the decision whether or not, and under what conditions, to sell the proposed land to the City.

Background Information

The City's main economy is tourism. During the busy summer months, thousands of people may visit on a single weekend. With a resident population of approximately 850 people, an influx of tourists and associated commercial development, Sisters is one of the largest communities in Oregon without a public sewage and wastewater system (HGE, Inc, 1997). Many of the vacant lots within the City

function as a drainfield for existing homes and businesses. A recent voluntary survey conducted by the City of Sisters and HGE Inc, an engineering firm working for the City, reported an estimated 12% of homeowners have had septic system failure. Presence of above ground untreated sewage from individual subsurface systems has prompted the Oregon Department of Environmental Quality (DEQ) and the Director of Environmental Health for Deschutes County to label the situation as a "potential health hazard". The City is also in violation of the DEQ's Ground Water Protection Policy.

Testing of wells in Sisters has not produced an obvious relationship between individual sewage systems and groundwater contamination. It is unknown whether the underground sewage is sufficiently diluted

by groundwater resources and/or displaced to another location. Should aquifer contamination occur, it can be difficult and costly to clean up. Since the primary drinking water supply for Sisters and surrounding residents is groundwater, there is a need for residents to protect a safe and dependable source of clean water.

Since the early 1970's, the City has recognized a need for a long-term solution to their situation. They identified a need to acquire sufficient land to locate a facility, mitigate social and environmental concerns, and expand the facilities as people hook up to the sewer. It has been a long process, but the City electorate voted to support a wastewater facility system in the spring of 1998. The City has said local developers are willing to provide a substantial amount of funding if land is secured and construction occurs in a timely manner. Over the years, the City analyzed suitable land within and adjacent to the City limits/Urban Growth Boundary. Criteria for the voter-approved wastewater system includes: compatibility with current land uses, availability for purchase, environmental suitability, reasonable piping system costs, and physical attributes which allow for a gravity collection system. Proposed lands in Section 9 met these criteria.

In January 1999, the City filed an application with the Forest Service to purchase the proposed lands under the legal authority of the Townsite Act. The Regional Forester has reviewed and accepted the application, and instructed the Sisters Ranger District to proceed with the EA to evaluate the City's proposal.

Additionally, Squaw Creek is designated a Wild and Scenic River in its upper reaches in lands which lie within the Three Sisters Wilderness Area. Water in Squaw Creek upstream just before the diversion gate of the Cloverdale Ditch is considered by the DEQ as "high quality". The Forest Service as well as other agencies and individuals have long-term concerns over contamination from septic systems adjacent to the creek and within the floodplain in the lower reaches. Many of the systems have been in place for 20 years or longer and are approaching their maximum life-span for efficient operation. Although no contamination has been validated, a recent watershed analysis concluded wastewater may contribute to localized water quality problems in the lower reaches (Sisters/Why-chus, 1998).

Proposed Action and Decision to be Made

In response to the City's application, the Forest Service proposes to sell 240 acres of National Forest lands described above under the authority of the 1958 National Forest Townsite Act for purposes of a sewage and wastewater facility system. The lands would be sold at fair market value based on a real estate appraisal. The City plans to develop the site into sewer treatment ponds, infrastructure, an effluent distribution area, roads, a buffer for residential properties and a buffer to protect forest lands. Conveyance would be limited to those lands essential to community needs and would contain provisions consistent with protection of adjacent National Forest.

The Forest Supervisor for the Deschutes National Forest will decide whether the community benefits of selling the proposed land to the City of Sisters for purposes of a sewage and wastewater facility outweigh the public interest of retaining the land as part of the National Forest System. If so, the land may be conveyed under the authority of the Townsite Act.

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Current Authorities, Regulations, and Policy for Wastewater Management

The proposed site is currently outside the City's Urban Growth Boundary. Once acquired, City and County zoning codes would apply. The Deschutes Comprehensive Land Use Plan (County Code F-2 Forest Use) outright allows ". . . utility facilities necessary for public service, except landfills or commercial facilities for the purpose of generating power for public use by sale." Reclaimed water (treated effluent) and biosolids management are administered by the US Environmental Protection Agency (EPA), under rule 40 CFR part 503, and the State DEQ, under Oregon Administration Rule 340. The State of Oregon and Deschutes County are responsible for permitting operation and maintenance of wastewater facilities and encourages the use of reclaimed waters for beneficial purposes. Rules and regulations by the DEQ have numerous stringent requirements, including monitoring, to ensure protection of the groundwater resource.

The parcel is located within two Management Areas as described in the 1990 Deschutes National Forest Land and Resource Management Plan (Forest Plan). These are Scenic Views and Deer Habitat. Lands designated for Scenic Views exhibit high quality scenery and landscapes representative of central Oregon. The desired condition for ponderosa pine forests within this management area is visual diversity through variations of tree densities and sizes. Forest lands allocated for Deer Habitat emphasize optimum habitat conditions for deer winter and transitional ranges.

Documents Incorporated By Reference

The following documents were used in this analysis and are incorporated by reference. These documents area available for public review at the Sisters Ranger District Office:

- 1990 Deschutes National Forest Land and Resource Management Plan - This plan was developed to guide all natural resource management activities and establish standards/guidelines on the Deschutes National Forest.
- 1993 Region 6 Interim Old growth Definition for Ponderosa Pine (Hopkins et al.).
- 1994 Wastewater System Engineering Study - Prepared by HGE Inc. to develop an updated wastewater planning study.
- 1997 Wastewater System Facilities Plan - Prepared by HGE Inc. for the City of Sisters.
- 1998 Soils and Wastewater Report for Sisters Wastewater Project - Prepared by Steve Wert.
- 1998 Deschutes National Forest Weed Control Environmental Assessment
- 1998 Sisters/Why-chus Watershed Assessment

Public Involvement/Scoping Process Used

Construction of a public sewer system in Sisters has been discussed for more than 25 years. Beginning in 1985, the City has conducted numerous public meetings to gauge public interest. Various newspaper articles which discussed issues involving a wastewater facility have appeared in the local newspaper in Sisters (The Nugget) since that time. In the mid-1980's, the City filed an application with the Forest Service to purchase lands in the same location under the legal authority of the Townsite Act. In 1988, the Forest Service completed an environmental assessment to convey the parcel under the Townsite Act. At that time, in accordance with the Act, a 45 day public notice was published in both The Bulletin and The Nugget . The decision notice was published in The Bulletin , The Nugget , and The Oregonian.

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Prior to this EA, the City applied for a loan from the USDA Farmers Home Administration (now called Rural Development) which completed an environmental assessment in 1988 supporting the loan/grant process. At that time, the sewer system was only designed to serve the core area. Local businesses and residents could not afford the system. Comments from these previous public scoping efforts have been reviewed and incorporated into the responses from the current public involvement process.

The City has again applied for funding from USDA Rural Development to construct the proposed wastewater facility, including the collection system and pump stations to be located throughout Sisters. Rural Development intends to adopt this Townsite Act EA for the proposed Section 9 site (sewage treatment ponds and effluent irrigation area) to fulfill its obligations under the National Environmental Policy Act. For an impact assessment of the remaining portion of the proposed action (collection system and pump stations), see page 23 under the heading "USDA Rural Development".

For this analysis, in accordance with the Townsite Act, a 45 day public notice appeared in The Nugget starting in February of 1999. A copy of the Forest Service scoping letter was provided to approximately 240 individuals, businesses, and organizations who have an interest in the process. An announcement of the proposed land acquisition was included in the winter of 1998/1999 and spring 1999 edition of the central Oregon Schedule of Projects which lists projects on surrounding public lands. This notification

reaches approximately 3,200 interested people. Approximately 20 people responded. Responses are summarized below including the page location within this assessment which addresses the comment:

- Comments were submitted which related to the purpose and need of the project. The comments ranged from objection to support of the proposed action (Proposed Action, pages 2, 10).
- Alternative wastewater facilities should be considered (Alternatives, page 6).
- Extra land would serve as a cemetery (Alternatives, page 6).
- Facilities located within the Squaw Creek floodplain, including pump station #3, could threaten water quality in Squaw Creek (pages 12, 23).
- The proposed facility would remove large trees (Old Growth, page 13).
- Use this opportunity to design a wetlands area for watchable wildlife (Alternatives, page 6).
- The proposed land in Section 9 is much greater than needed and could result in a use which was not an intended purpose (page 6 and Alternative C, page 12).
- The proposed action would cause visual and odor concerns (pages 16 and 19).
- The Sisters bike trail receives quite a bit of use and is special to many people (Alternative C, page 12).
- Mule deer may be affected by loss of habitat (Effects on Wildlife, pages 17, 23).

Issues

Many of the relevant comments received were used to focus the analysis in areas were the public desired a specific resource to be addressed. Some were used to explore alternatives which were not developed further (page 6). The remaining comments were used to formulate issues, which could not be otherwise addressed by the proposed action. The following issues were the basis for designing Alternative C, an alternative to the proposed action:

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Issue: The proposed parcel is larger than the immediate need.

Discussion: Alternative B (the proposed action) would convey 240 acres to the City, which includes future expansion beyond 20 years. Approximately 80 acres would not be needed immediately, according to the City.

Issue: Alternative B (the proposed action) would diminish the experience of using the Sisters bike trail.

Discussion: The initial proposal would limit public access to section 9 and eventually change the current bike trail location. This would cause the recreational experience of trail users to be changed as it is relocated to an area on National Forest Lands which is not as desirable as its current location.

Issue: Alternative B causes the Forest Service to manage a very small and isolated piece of land.

Discussion: The Forest Service would retain a sliver of a parcel (20 acres) adjacent to Three Creeks road which is not needed by the City and contains a rare plant listed as "Sensitive". The size shape of the remaining lands causes higher costs in maintenance of boundaries. In addition, the ownership pattern would impose different, and often contrasting, land management objectives which reduce the Forest Service's ability to apply prescribed fire and noxious weed control across the landscape.

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Alternatives

This section presents a detailed description of the alternatives responding to the "Purpose and Need" which are considered to be reasonable and viable by the decisionmaker (the Deschutes National Forest Supervisor). This section also includes a brief discussion of alternatives which were considered but eliminated from detailed study.

Alternatives Considered but Eliminated From Further Detailed Study

Alternative locations to the proposed parcel in Section 9 for siting the sewage and wastewater facility were evaluated by the City during a multiple year planning effort. Properties which were considered are described in Appendix A. City staff researched land ownership and land availability and no suitable private lands were found. Forest Service land in Section 9, best met criteria as stated in the "Purpose and Need" on page 1, as well as access to City water. The City's lack of finding suitable private or other lands is one of the criteria for applying the Townsite Act.

Some members of the public believe the City should consider alternative wastewater facilities. Alternative designs were evaluated by the City during earlier wastewater planning efforts (HGE Inc., Wastewater Systems Plan, 1997). Under the Townsite Act, the decision to be made is whether the community benefits of selling the proposed land to the City of Sisters for purposes of a sewage and wastewater facility system outweigh the public interest of retaining the land as part of the National Forest System. The City chooses the system. As part of this analysis, the system chosen by the City is assessed. As a requirement for receiving funding from the US Department of Agriculture Rural Development, the selected wastewater system is evaluated for it's technical merits by USDA staff. Alternatives to the City's selected sewage and wastewater facility were determined to be outside the scope of this assessment and were dropped from further consideration.

An alternative considered was to authorize a Special Use Permit for operation of a sewage treatment and disposal facility rather than sell National Forest lands. This was determined to be contrary to the Forest Service regional direction, since it would require that a large area of National Forest land be dedicated to a single use. Other rationale includes the responsibility for oversight, administration, liability, and technical skills required for the operation of a long-term permit. Also, the City would not have as much control over it's destiny as Forest Service Special Use Permits are for specific timeframes and require an environmental review before each issuance. Additionally, this would be contrary to the Regional

Forester's direction which requires a land conveyance to be pursued for this type of use. This alternative was eliminated from further consideration.

An alternative was considered which would create a wetlands and a watchable wildlife viewing areas using treated wastewater. The City may create an area for viewing birds at the holding pond, but creation of a wetland was eliminated from consideration at this time due to the associated construction and maintenance costs. In addition, operation of a wetland would require discharge of a higher quality effluent than the level which is currently planned. The City has expressed a desire to engage it's residents in the best way to manage this property to meet community needs in the future, in which case the Forest Service may assist the City in pursuing a wetland operation.

An alternative was considered which would convert a portion of the lands into a cemetery with effluent irrigation. The City would sell plots to generate revenue. This alternative was eliminated from further

consideration because the City has indicated a desire to operate the facility in a manner which retains as much existing vegetation as possible.

Another alternative considered discharge into Squaw Creek to benefit diminished water flows and high temperatures caused by summer irrigation diversion. Subsequent meetings were held by the City staff, DEQ representatives, and area residents determined the proposal was infeasible. In order to be viable, the wastewater system would need to be designed to discharge a higher quality effluent which could increase treatment costs above resident's financial means. Also, the amount of additional flow into Squaw Creek was estimated to be minor (less than an average of 0.23 cubic feet per second) and would be returned below the irrigation diversion, leaving a section of diminished flows in the creek. Trading effluent discharge for existing water rights was discussed with various landowners and no interested parties were found. This alternative was not analyzed further because of costs associated with the benefits, difficulty in securing approval from regulatory agencies to discharge the water, and lack of support from area residents. Evolving technologies and increasing importance of improving hydrologic function in the Squaw Creek Watershed may bring this alternative back for future consideration.

An alternative was considered which would utilize less land. Initially the City would be deeded 120 acres for siting the facility and for irrigating existing vegetation. Within ten years as land requirements expand due to population growth, the irrigation area would be converted to a crop such as alfalfa. Grain crops utilize more nitrogen on less land. This alternative was eliminated from further consideration because of the following reasons: 1. Conversion to a grain crop would require removal of all vegetation which would be inconsistent with surrounding uses and aesthetics. 2. Additional costs would be incurred to reconfigure buried irrigation lines. 3. Land clearing, and all other conversion activity would occur at the same time the holding ponds would be at capacity and effluent would need to be applied elsewhere during construction.

Alternative A - No Action

Under this alternative, there would be no conveyance of National Forest Lands to the City residents for a wastewater facility and the Forest Service would continue to manage the site as we presently do. The discussion which follows describes the existing conditions and resources of the proposed land acquisition area. This will provide a baseline from which to compare the other alternatives and their effects.

Vegetation and Site Description

The area generally is comprised of a coniferous forest with slightly rolling terrain and many dry draws. The elevation is approximately 3,220 feet. The dominant vegetation is ponderosa pine, bitterbrush, and Idaho fescue with drier areas containing sagebrush and juniper. The stand is generally open-canopied, with clumps of mature and immature pine.

Approximately 10 acres near the eastern border of the parcel has been identified as exhibiting some of the important attributes of an old growth forest (e.g., medium/large trees, large woody debris, and canopy layers). Far exceeding any old growth attributes found in any other stands on the parcel, this stand has been influenced by an irrigation ditch. An average of 30 trees per acre are at least 21" in diameter or larger. Throughout the remaining stands in the parcel, there is evidence of selective harvesting from the 1930's and 1940's. The western edge of the area is more mesic, containing clumps of aspen, cottonwood, and scattered snowberry shrubs.

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There is an abandoned gravel pit in the center of the parcel which contains a small seep. This appears to be a vernal pond, which contains seasonal water especially in the spring, and supports riparian vegetation such as large willows, baltic rush, and sedges. Although this is not classified as a wetland, it contains special habitat which is unusual in dry ponderosa pine forests.

Surveys have found a relatively small population of Peck's penstemon (*Penstemon peckii*), a rare endemic wildflower found only in the Sisters area and listed by the Regional Forester as Sensitive. This population is one of seven known to occur in the Squaw Creek watershed. These plants are at their southern edge of their global range and are important to the overall population for preserving unique ecotypes and a full complement of genetic variability. It is one of 91 known global populations and comprises 0.05% of the population. A large population lies on Federal land approximately 1/2 mile upstream. Historically, suitable habitat was probably much greater due to an abundance of seasonal water and a periodic fire regime. Suitable habitat diminished as fires were suppressed and water was diverted for irrigation. The current local population is isolated and vulnerable to habitat changes due to surrounding private lands, fire suppression activities, and weed invasion. Diffuse knapweed, a noxious weed, is also found along road 16 (Three Creeks) and extends south from the parcel approximately seven miles. Most of the weeds are within 20 feet of the road, but are invading further back into the

forest.

Hydrology/Water Quality

Squaw Creek is the largest, perennial stream in the watershed and is located approximately 600 feet from the northwest corner of the parcel. Squaw Creek between Alder Springs to Maxwell Ditch is listed by the State of Oregon as "303(d)" or degraded water quality for lowered temperatures and impaired habitat/flow modification. The stream system is fed by snowmelt with highest peak flows occurring in spring and during rain on snow events. Flows of up to 2,000 cubic feet per second have been recorded near the City, which is very close to the calculated "100 year event". Squaw Creek through Section 9 is downcutting the channel and bank erosion is occurring. The floodplain has narrowed and is less than 100 feet wide in most areas. Both the 100 and 500 year floodplain boundaries are located west of Three Creeks road, adjacent to the northwestern boundary of the parcel. Two abandoned stream channels parallel Squaw Creek. Flow in these channels other than minor spring runoff has not been great since the diversion of irrigation water in the 1870's. Based on USGS topographic maps and on-site measurements, the southern portion of the parcel is approximately 30-50 feet higher in elevation than Squaw Creek. These measurements correspond to the 1988 Federal Emergency Management Agency Floodplain Insurance Map.

Groundwater recharge within the Squaw Creek watershed is considerable. Generalized groundwater flows tend to run from southwest to northeast somewhat parallel to the creek. The aquifer is a confined system. When wells are drilled within the aquifer, the artesian characteristics allow water to rise to levels from 30 to 80 feet below the surface. This further protects the deep aquifer from septic contamination, however local contamination to shallow wells is possible.

Soils and Minerals

Existing soils are deep, well-drained, and is typical of glacial outwash. Nearly all of the site is underlain by round gravel ranging in size from 1/4 to 20 inches in diameter. Generally, the top soil is laden with sand.

There are no mining claims or claimable minerals known to exist on the parcel.

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Scenic Resources

The Section 9 parcel is visible from numerous interior roads which originate/terminate from private lands as well as Highway 20, Three Creeks road, and road 4606. City residential lots border National Forest Lands to the north. The main visual feature, in addition to an open space appearance, is scattered clumps of black- and yellow-barked ponderosa pine. The Scenic Integrity Level is classified as High or Retention (management activities are not evident) as viewed from Highway 20 and Three Creeks road.

Less than a mile away to the north is downtown Sisters and a major transportation corridor.

Indication of a nearby population center can be evidenced by the illegal dumping of appliances, car bodies and household debris.

Wildlife

Wildlife use in the area includes deer, eagles, badgers, ground squirrels, cavity nesters, and a variety of passerine birds. The applicable Deschutes Forest Plan Standards and Guidelines call for maintenance or improvement of forage conditions within the Deer Habitat Management Area, and watchable wildlife within Scenic Views.

Herds of mule deer are common to the area in the winter, especially adjacent to the Urban Growth Boundary. Deer are able to skirt the developed community to the north and transition to the west in the summer months. Although deer hiding cover is marginal within the parcel, the lands are most valued for providing quality forage during most of the winter months. Locally, approximately 6,000 acres of deer winter range are designated by the Forest Plan.

There are no known nesting sites for species listed as Threatened or Endangered on this parcel. A Bald Eagle Conservation Area (BECA) encompasses the parcel. Although nesting eagles are within a couple miles, it is unknown whether or not these eagles use the area as part of their home range for food.

Recreation and Public Access

The parcel is directly adjacent to the community of Sisters. Because of this proximity, it receives quite extensive day use by the nearby residents, including walking, running, biking, wildlife viewing, and limited off-road use surrounding the old gravel pit. There are no developed recreational facilities except the Sisters Bike Trail which diagonally traverses the area. Bike riders and walkers access the trail at the northwest corner and either go for a short distance, or utilize two loops, the Eagle Rock Loop (5.5 miles round trip) or the Peterson Ridge Loop (16 miles round trip).

A Forest Road Special Use Permit exists in the northeast corner of the parcel to provide access to private land.

Local parcels which have changed public ownership status on the Sisters Ranger District within the last 10 years includes:

- Land sale at fair market value for cash of 40 acres to the Sisters School District in 1991 under the Sisk Act;
- Land exchange of 250 acres to Deschutes County in 1997 in return for two parcels to the Deschutes National Forest/Sisters and Bend-Ft. Rock Ranger Districts totalling 320 acres;

- Land exchange of 50 acres in Township 15 south, Range 10 east, Section 9 to Dorro Sokol in 1998 in exchange for 141 acres located in the headwaters of Browns Creek on the Deschutes National Forest/Bend-Ft. Rock Ranger District; and
- A proposed land exchange of 58 acres of Forest Service managed lands to Crown Pacific Ltd., as part of a much larger exchange throughout the Deschutes, Fremont, and Winema National Forests.

Fire/Fuels

The Sisters/Why-chus watershed analysis has identified this area as a high priority for fuels reduction. The watershed has a relatively high occurrence of fires on Federal lands which required suppression action between 1982 and 1996, totalling 222. During this timeframe, four fires have occurred in Section 9. No data was available to include approximately 44,000 acres of private land within the watershed. Approximately 65% of these fires occurred in the urban interface between Forest Service and other lands. The trend identified in the watershed calls for an increase in human-caused fires concentrated in pine forests near the City and subdivisions.

Heritage Resources

The Section 9 parcel was acquired by the Forest Service in 1949. It was previously owned by the Sweethome Lumber Company, a company affiliated with the railroad industrialist and timber baron, J. Hill. Consequently, this parcel was subjected to periodic logging episodes, likely high-grading of old-growth ponderosa pine. These activities during the first half of the 20th Century left traces in the form of logging/skid roads, stumps and a change in the timber stand composition. There are also two common minerals (cinder/gravel) pits within this parcel, whose extraction history is not well documented. In addition to the borrow pits themselves, there are associated "waste" areas where unwanted material was stockpiled, roads and vernal seeps. In addition to the two industrial activities noted above, there was domestic use of the area during the historic period prior to 1950 related to the practice of dumping household garbage on adjacent lands. This practice continues today on many of Oregon's public and private lands. However, there are no known historic or archaeological sites located on lands proposed for conveyance to the City of Sisters. Background research and pedestrian archaeological survey failed to located any National Register eligible historic properties or associated features that represent any of these, or other, historic activities.

Alternative B - Proposed Action

To meet the City's need for a sewage and wastewater facility until the year 2020, the Forest Service would convey 240 acres under the Townsite Act to the City of Sisters. The following would be the land requirements for the wastewater treatment operation: 30 acres for the sewage treatment facility and holding ponds, 168 acres for irrigation (sufficient until the year 2020) and 42 acres for buffers between

adjacent lands. A 330 foot strip (20 acres) would be retained for important Peck's penstemon habitat adjacent to Three Creeks road. The 240 acre parcel would be conveyed at fair market property values, including the value of merchantable timber, as determined by the consulting appraiser and approved by the Forest Service review appraiser. The following actions would be completed in this analysis as required by the Act:

- A complete tract examination including inspection, surveys and appropriate record search.
- Determine if the lands meet essential community needs resulting from internal growth and if the community objectives are greater than those served by retention in Federal ownership.

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- Examine lands to determine whether mining claims, special land uses, cultural resources, Threatened or Endangered species, floodplains or wetlands are present. If found, determine measures needed to eliminate, resolve, or mitigate adverse impacts.
- Determine no other suitable private or other lands are available.

Uses must conform to the applicable Federal, State, and County requirements, regulations and zoning. DEQ and Deschutes County would have regulatory jurisdiction over the facility. The City would make a Comprehensive Plan amendment to bring the land within the Urban Growth Boundary and zone the area for Special Uses (effluent treatment and dispersal). The facility would be an "allowed" use under State and County Land Use laws (see page 3). Access would be provided by extending Locust Street in the Buck Run subdivision to the southeastern section of the parcel, where the facility would be located. The City has indicated a desire to keep the Sisters Bike trail in it's present location for approximately 10 years before moving it to another location. Also, the City has suggested the use of a community-based process to determine land management decisions on the Section 9 parcel. As briefly described on page 2, the following detail is provided:

The City proposes an aerated lagoon treatment and holding pond system on the parcel of land (Figure 1). Flows into the sewage plant are expected to average approximately 148,700 gallons per day. Raw sewage would be collected by gravity flow at three pump stations strategically located within the City limits. From the pump stations, sewage would be transferred to the headworks of the aerated lagoons, located in the southeast corner of the parcel. This area would encompass approximately 22 acres and would be enclosed with a six foot high perimeter fence and lighted for facility security and maintenance. As wastewater enters the headworks of the facility, it would then screened and biosolid debris would be dewatered for transfer to a dumpster for periodic disposal to an approved DEQ site. Next, water enters two parallel, aerated lagoons with 10 foot minimum width dikes. Each lagoon would be 12 feet deep, lined with 60 millimeter plastic material, and covers 1.6 acres. An internal dike extends most of the way across the middle creating two cells in each lagoon. Flow would occur from the first cell and around the dike to the second cell. Wastewater would then recycled from the second cell back to the first to facilitate deposition of solids and to reduce algae formation, a process which would be key to reduction of odor.

By gravity, wastewater flows from the aerated lagoons into a 15 foot deep 13.1 acre holding pond which is lined with 60 millimeter plastic material and surrounded by a 10 foot dike. A second smaller pond would be constructed in approximately 10 years once the need for expansion of the facility is reached. Each pond would have a center dike which operates as in the aerated ponds. A wind powered aerator/ mixer would provide additional treatment, facilitate additional disposition of solids, and sustain gentle mixing and oxygenation of the cell. Again, this process would be designed to minimize algae formation. Effluent would be stored in the holding pond until conditions become suitable for irrigation. A floating withdrawal structure in the holding pond would allow effluent withdrawal from below the surface and above the bottom to minimize the discharge of particulates. Two pumps would lift effluent to a microscreen adjacent to a chlorine contact basin.

After contact, water would be treated to a "Level 2 effluent", designated by DEQ to rate the beneficial purposes for which it is to be used. Ratings can range from a Level 1 which is treated biologically but not disinfected, to a Level 4 which can be applied to areas which allow public use.

During the summer, disinfected effluent would be distributed on existing forest vegetation by buried and fixed irrigation lines, initially covering approximately 85 acres on the western portion of the parcel. A

screening process removes or breaks up particulates and additional algae that could clog irrigation equipment. This process also facilitates the disinfection process to kill pathogenic bacteria and also reduces odor in the irrigated areas. Public access would be controlled in the irrigation plot through signing and/or a low visibility fence. This would allow mule deer to utilize the vegetation. In approximately 20 years, the ponds and lagoons would be dredged and "sludge" would either be applied within the irrigation plot or transported to an alternate site approved by DEQ. A minimum buffer strip of 100 feet would be maintained between the irrigation site and adjoining lands. Water from an adjacent City well would be utilized for plant maintenance and to supplement the sewage lagoons during dry periods.

Due to gradient requirements, the tentative location for pump station #3 would be located outside the parcel and adjacent to where Highway 20 crosses Squaw Creek. Concerns for contamination to nearby Squaw Creek as well as DEQ regulations have contributed to the design of a "dual redundancy system". Should a power outage occur, overflow would not be allowed and the system would be backed up with dual pumps and on-site standby generation. Collection piping would be encased in concrete and extends below the creek bed surface.

Alternative C

Alternative C was designed to respond to the issues located on pages 4 and 5. The Forest Service would convey 160 acres under the Townsite Act to the City of Sisters for purposes of locating a sewage and

wastewater facility (Figure 2). This alternative would provide sufficient land to operate for approximately ten years, retaining an additional 80 acres for public use. The Sisters bike trail would not move from it's current location except for a very small segment in the south end of section 9. The Forest Service would have a greater success applying ecosystem management principles to the remaining section of land because it would not be as small and isolated as in Alternative B.

The design and location of the facility would be as described under Alternative B except the irrigation plot would be limited to 88 acres, and it would be located on the eastern portion of the parcel. An additional 22 acres for the sewage treatment facility and 50 acres for buffering adjoining lands would account for the remaining land.

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Environmental Consequences

This section discloses environmental consequences expected as a result of Alternative A (No Action), Alternative B (Proposed Action) and Alternative C. This section provides the scientific and analytic basis for comparison of the alternatives. It also describes the effects of the alternatives, while addressing the effects on issues as listed on pages 4 and 5.

Effects on Vegetation

Alternative A - This area was identified in the Why-chus watershed analysis as a high priority area for reducing the risk of high intensity stand replacement fires. Vegetation would be managed under Forest Plan Standards and Guidelines for Deer Habitat and Scenic Views. Possible future treatments within the next ten years would include fuel management activities such as understory thinning of the trees to reduce crown fire potential and increase forest health, prescribed burning, and brush mowing. Custodial services would continue such as law enforcement, fire suppression and periodic cleanup of illegally deposited litter and debris.

Alternatives B and C - Once ownership transfers to the City, future management is no longer under Forest Service's jurisdiction. It is expected the City of Sisters would irrigate with treated wastewater, and that the irrigated area would be increased as demand increases. It is estimated the facility would need to initially remove approximately 22 acres of trees and other natural vegetation in the southeast portion of the parcel to construct the wastewater facility. Disposal of merchantable timber removed for the project would be the City's responsibility. Remaining nonmerchantable timber and slash would be treated or disposed of under guidelines set forth by the Oregon Forest Practices Act.

The City of Sisters would be able to, at their discretion, harvest additional timber from the parcel under guidelines consistent with State and Local zoning requirements. The City has indicated that their management of the area would strive to blend in with the uses and aesthetics of the surrounding lands.

All irrigated vegetation would have improved growth rates due to the additional water and nutrients they would receive. This would result in more robust natural vegetation as the existing shrubs, trees, grasses, and herbaceous plants may receive more moisture than they normally do. Any present noxious weed or exotic plant species seeds could be encouraged to germinate and grow, especially in sites lacking adequate vegetative cover, and would be dealt with by a City Ordinance.

Old Growth

Alternative A - There would be no change from current management as directed by the Forest Plan. The 10 acre patch of trees along the southeastern edge of the parcel which have been identified as currently exhibiting some of the important characteristics of an old growth stand would continue to grow at increased rates due to their favorable location. Given time, it is surmised that the remaining scattered trees on the parcel would continue to grow at a slower rate and eventually develop some of the attributes of an old growth forest. Planned management activities such as thinning and prescribed burning would accelerate this process.

Alternatives B and C - The wastewater facility would be constructed on the southeastern edge of the parcel. The City has indicated a desire to keep as much of the existing vegetation as possible, including the stand of trees along the eastern edge of Section 9 which have been identified as having some of the

characteristics of an old growth stand. Siting of the facility greater than 200 feet from the boundary would avoid this stand. With these assumptions, there would be no direct or cumulative loss of stands which currently exhibit potential old growth characteristics on Federal lands within the Squaw Creek watershed.

Sensitive Plants

Alternative A - Under this alternative, lands containing sensitive plants would remain contiguous within Section 9 and managed under Forest Plan allocation for Scenic Views. Overall, adjacent public and private habitats have been fragmented due to loss of Federal protection from land exchanges and construction activities. Foreseeable management activities include fuels reduction which has been prioritized to occur within the area. It is likely prescribed fire would be applied in the future, resulting in a beneficial effect to the population. Planned noxious weed control activities along Three Creeks road in the spring of 1999 would also benefit the penstemon population by reducing the threat of weed invasion. Currently, suitable habitat for Peck's penstemon does not exist within the parcel due to lack of seasonal water and flooding.

Alternative B - The Forest Service would convey 240 acres and retain a 20 acre strip along Three Creeks road containing Peck's penstemon. This alternative is not likely to contribute to loss of viability of the species or Federal listing, but the project may indirectly impact habitat. This relatively small

portion of land would be difficult to manage for sensitive plants due to the proximity of other ownership, therefore a future land exchange would be possible. The smaller size and irregular shape of the parcel would also make implementation of beneficial projects such as prescribed burning more difficult, and possibly cause restoration projects to be implemented elsewhere.

Although much of the area is currently not suitable for the penstemon because the lack of seasonal water and flooding, this alternative would irrigate 85 acres. This could have a beneficial effect on the population by restoring habitat.

Alternative C - This alternative is very similar to Alternative B in effects to the penstemon population, except a larger buffer between the plants and the wastewater facilities would exist, affording better protection from disturbance.

Noxious Weeds

Alternative A - No project would be proposed and current rates of introduction and spread of noxious weeds would continue. The Why-chus watershed analysis has prioritized this area to receive noxious weed education, prevention, and control. The 1998 Deschutes National Forest Weed Control Environmental Assessment and associated Finding of No Significant Impact addresses existing weed populations as discussed in this EA. Reasonable and foreseeable actions would include spraying populations along Three Creeks road with herbicide, hand pulling, and monitoring starting in 1999.

Alternatives B and C - Currently, lands to be conveyed are virtually weed-free. However, these alternatives would have a moderate risk of introducing or spreading noxious weeds from the parcel onto Forest Service lands. This is due to existence of known populations in the area, expected construction activities using ground disturbing equipment, imported soil or cinders, and vehicles which would frequent the site. The City of Sisters and the Forest Service would enter into an integrated weed management plan prior to conveyance of the land to offset these risks. Weed control on Forest Service lands along Three Creeks road would continue as described in Alternative A.

Effects on Hydrology/Water Quality

Alternative A - Implementation of the "No Action" alternative would delay the City's construction of a sewage and wastewater facility for several years while they try to obtain an alternate location. Local residents and business' would continue to use individual subsurface sewage disposal. Partnership funding from local contractors could disappear since construction of individual sewage and wastewater systems for each new project would be necessary. Meanwhile, the City would rely on the current system in violation of DEQ and Deschutes County groundwater protection policies. Risk of potential degradation to water quality in Squaw Creek and its associated floodplain from cumulative use of individual septic systems is greater with this alternative based on similar conditions in other

communities.

Alternatives B and C - The land would be conveyed to the City of Sisters and a sewage and wastewater facility would be constructed. There should be no measurable impacts to Squaw Creek due to the location of the irrigation plots, lagoons and holding ponds which are well outside the 100 and 500 year floodplains. Also, the distance from the proposed facilities and the rise in the floodprone area is approximately 30-50 feet. There would be no measurable affect to the water quality parameters for which the creek is listed (temperature regimes and flow).

Impacts to the groundwater from sewage and wastewater treatment operation would not be measurable due to the following factors:

1. Plastic liners in the ponds and lagoons would protect groundwater from infiltration.
2. A relatively deep static groundwater table.
3. The application of effluent water to irrigate native vegetation would occur at rates based on evapotranspiration and nitrogen uptake capabilities. No extra water would be applied for groundwater recharge.
4. Rules and regulations administered by the EPA and DEQ have numerous stringent requirements imposing protection of the groundwater resource including leaching of nitrates and phosphates. Introduction of heavy metals, as well as other toxic chemicals into the wastewater system would be unlikely because the City does not contain businesses that discharge industrial strength wastes. The City of Sisters would be required to continuously demonstrate compliance through required plan submittals, permit processes, monitoring, and reporting.
5. Effluent irrigation has been used in other central Oregon communities for at least 20 years.

Soil Resources

Alternative A - Alternative A would have no effect on the physical component of the soil resource. The site proposed for conveyance would not be disturbed for construction of pipelines, reservoirs, facilities, or irrigation plots. Existing levels of forest management such as thinning, prescribed burning, and mowing would continue.

Alternatives B and C - Soil would be displaced during construction and installation of the facility. Initially, approximately 20 surface acres of soil would be borrowed to build dikes necessary to create the sewage lagoons and storage ponds, moving an estimated 135,000 cubic yards of soil material. Construction of headgate facilities, lagoons and ponds would remove a total of 22 acres from productivity.

Construction related to installation of pipelines for transfer mains, electrical lines, and irrigation would be excavated along less than one mile of existing roads and forest. Ditches would need to be sufficiently

deep to bury 10-24 inch piping.

The site characteristics and the design of the wastewater facility would allow storage and disposal of effluent to occur without adverse effects to the soil resource. Nitrogen would be the primary element used to regulate wastewater reuse at Sisters and it's utilization and migration rates would be key in reducing effects to groundwater. Approximately 64% of nitrogen loss would occur in the lagoon sites. In general, as effluent is treated and applied through irrigation, the soil rapidly converts nitrogen and other nutrients to become available for plant uptake. Plant utilization and soil characteristics which contribute to nitrogen decay are expected to consume remaining levels. Estimates of annual nitrogen uptake of on-site ponderosa pine communities are approximately 35 pounds per acre per year. This rate was used to calculate the proposed size of the proposed irrigation plot. Approximately 85 acres would be initially needed for sufficient uptake of nutrients, and would be regulated by the DEQ. Year-round uptake capability of native vegetation during favorable climate conditions might increase this rate slightly.

Scenic Resources

Alternative A - Nearby residents or forest users would notice forest management activities and community efforts to continue on the Section 9 parcel. The Why-chus watershed analysis has identified specific recommendations for the parcel which could affect the local scenery within the next 5 to 10 years:

- Cooperative projects to reduce interface fuels and prescribed fire;
- Community policing of trash dumping, yard debris and local gravel pit use;
- Educational and interpretive programs oriented towards residents and tourists, enhancing appreciation of natural resources, native plants, wildlife, and forest ecology;
- Community weed pulls of noxious species;
- Road closures and conversion to trails;
- Outreach to Off Road Vehicle users regarding appropriate use and preventing resource damage;
- Outreach towards recreational gun use in populated areas; and
- Develop partnerships to monitor urban/interface use and impacts.

Alternative B - The City is expected to retain the visual characteristics through design and signage of the facility. Wastewater facilities and treatment area would not be visible as viewed from Highway 20, nearby residential areas, or Three Creeks road due to distance, topography, and screening provided by trees and shrubs. To retain the scenic characteristics of the site, existing forest vegetation would be retained and irrigated. Use of existing forest vegetation for disposal of effluent is a less efficient environment for utilization of nitrogen than grain crops and therefore requires a greater land base.

Structures would be sited, designed and painted to be as unobtrusive as possible. Irrigation plots would probably extend to the north within the next 20 years as the facility is expanded to accommodate expected growth. The City has indicated a desire to maintain a minimum 100 foot buffer distance between irrigation and residential areas.

Alternative C - Alternative C is similar to Alternative B except the wastewater disposal system would be designed using approximately 85 less acres. Although the irrigation plot would be located closer to residential areas in this alternative, the City would maintain at least a 100 foot buffer. Unobtrusive signing and/or a low visibility fence surrounding the irrigation plot, screening provided by shrubs and trees, and topography would make the irrigation plot subordinate to the landscape.

The Forest Service would maintain the western portion of Section 9 and likely implement recommended actions listed under Alternative A. Remaining lands would continue to be managed for deer habitat and scenic views as directed in the Forest Plan.

Effects on Wildlife

Alternate A - Current wildlife use of the parcel would continue. This includes deer, eagles, badgers, ground squirrels, cavity nesters, and a variety of passerine birds. Bald eagles nest nearby, it is unknown whether or not these eagles use the area as part of their home range for food. Herds of mule deer are common to the area in the winter, especially adjacent to the Urban Growth Boundary. Human/wildlife interactions are relatively frequent due to the close proximity of residential areas. The Forest would continue to manage under Forest Plan direction for deer winter range and watchable wildlife. Maintenance or improvement of forage conditions within the parcel would continue.

Alternatives B and C - Wildlife use in the area would be modified to adapt to the activities and facilities in the area. Although the utility of the area as winter range would be reduced by approximately 22 acres due to fencing of the facility, mule deer would be able to utilize the 85 acre irrigation plot. The loss of local Federal winter range ownership would be approximately 4% for Alternative B and 3% for Alternative C; however Federal ownership within the Tumalo Winter Range is expected to increase by over 6,000 acres if a proposed land exchange between the Forest Service and Crown Pacific Limited is approved. Overall effects to the local herd would be negligible because the limiting factor is solitude, which is provided by an adjacent seasonal closure.

Increased production of vegetation caused by irrigation could attract more deer into the area. Animals could linger in the area for a longer period. This could result in an increase in human/wildlife interactions. Adjacent residents may experience a greater amount of landscaping damage from foraging deer.

Habitat would be increased and enhanced for many species due to the new water source created by the irrigation plot, lagoons and holding ponds. The water source would also provide an increase in forage base (insects). Although, public access is restricted or controlled in these areas because waterborne diseases can affect humans, these same diseases are not likely to affect wildlife. Waterfowl habitat would exist where it did not previously exist, and a variety of passerine bird species such as crossbills,

blackbirds, and wrens, would also be attracted to the site. Opportunities for viewing wildlife would increase. Public viewing of birds at other wastewater treatment facilities has become a very popular activity in central Oregon, although unauthorized access to restricted areas could become a problem.

The parcel is deficient in large snags suitable for cavity-nesting species. Clearing of an additional 22 acres for the facility would further reduce future snags, although the irrigated plots would have increased growth rates.

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The proposed wastewater facility would not remove nesting or roosting habitat for nearby bald eagles. Foraging habitat could be increased due to an increase in visiting waterfowl to the holding pond, although opportunities are abundant in adjacent areas.

Effects on Recreation/Public Access

Alternative A - There would be no change to current public access and recreational amenities. The Forest Service would continue to authorize a special use permit to provide access to private land. The community of Sisters would continue to use the parcel for walking, running, biking, wildlife viewing, and limited off road use surrounding the old gravel pit. The Bike trail would continue to be utilized in its present location. The Forest Service would pursue activities which prevent or lessen resource damage, including road closures, law enforcement and public education programs.

Alternative B - This alternative would transfer 240 acres to City ownership. Motorized access would be limited except for roads essential for access to the sewage treatment and wastewater facility. The City of Sisters would be required to provide an easement for access to private land. Road closures would reduce occurrences of illegal dumping, trespass, and vandalism. The City would likely adopt an ordinance which eliminates discharge of firearms (shooting) within Section 9. Approximately 110 acres in the southern portion of the parcel would be fenced and public access would be restricted. Some former users of Section 9 may eventually be displaced to nearby public lands.

The Sisters bike trail would stay in its current location for 10 years, which is the estimated time before the facility would need to be expanded. The irrigation areas would be designed to minimize impact to the bike trail. This would not change the current experience users enjoy in the short term. If additional irrigation land is needed after ten years, the trail would be relocated to an alternative site.

Alternative C - Alternative C would be similar to Alternative B except the Forest Service would retain management of approximately 100 acres in the western edge of Section 9. People who recreate on this parcel would experience less change than in Alternative B. Most of the Sisters bike trail would not need to be relocated and would not be affected by the land transaction. A very small segment of the trail in the southern portion of the parcel would be relocated on National Forest lands. This relocation is not expected to cause an experiential change for the users. The remaining National Forest lands would allow

for continued historic recreational uses such as hiking, horseback riding and Off Highway Vehicle use. As in Alternative B, most of the unofficial target shooting range would become City property.

Fire/Fuels

Alternative A - Section 9 has been identified as high priority area for fuels reduction in the Why-chus watershed analysis. In the next five to ten years, activities which reduce risk of high intensity wildfires in the urban interface would be implemented. These would include understory thinning, prescribed burning, and brush mowing. Community prevention efforts to reduce fuel loadings around houses and adjoining forested lands would continue. Fire suppression would remain the primary responsibility of the Forest Service.

Alternative B and C - Upon implementation of these alternatives, it is assumed the conditions would be present for ideal vegetative growth within the 85 acre irrigation plot. Brush and grasses could respond by increasing their biomass. Although irrigated, summertime vegetation would quickly dry and become a hazard

due to needle drape and volatile oils contained within the bitterbrush. Under seasonable conditions, the irrigation plot could intensify a wildfire which is more likely to originate outside of the irrigated area. Under the Alternative B scenario, fire suppression would be the primary responsibility of the local fire department. Under Alternative C scenario, primary suppression responsibility would be split between the Forest service on their lands, and the local fire department on City lands.

Other Effects on Humans

Alternative A - Background noise from Highway 20 is minimal at night, although it is evident a City is nearby. Current levels of lighting are limited to the occasional porch light, although City businesses which use nighttime lighting are less than a mile away. Residents closer to the section 9 parcel enjoy lower levels of noise and lighting. There are no problems associated with odor. There would be no other known effects to the human environment except as previously noted.

Alternatives B and C - Construction may result in a minor inconvenience to nearby residents due to noise, exhaust emissions from construction equipment, and public access disruption; however, construction impacts would be periodic and of relatively short duration.

Noise at the wastewater treatment facility would be created by mechanical treatment components. These would include irrigation sprinklers which would be operated at night. Two particular components would be noticeable from a noise perspective:

1. submerged aeration system blowers which operate every day of the year during most of the day;

and
2. exposed electrical motors driving surface aeration devices.

The treatment facility is located in a remote portion of Section 9, greater than 1/4 mile from the nearest residents. Noise abatement would be provided by strategic placement of the facility, construction of levees surrounding aerating devices and blowers, vegetation, and terrain which provides a shield from noise. Noise from the facility would not be detectable from residential areas, even during periods when surrounding land uses from the City and traffic from adjacent Highway 20 are at their lowest levels. In addition, noise would be controlled by the existing City's planning standards for noise abatement.

The facility would be lighted using "on demand" timers, switches and motion detector devices. The City has proposed using which would turn off lights when not needed. All lighting would be aimed toward the ground and would conform with the City's dark sky ordinance.

The wastewater facility would be designed to minimize conditions which contribute to odor as described in the proposed action on page 10. Any off-site migration of odors originating from the facility and treatment areas would be negligible and would not be noticeable by nearby homeowners or users of adjacent National Forest Lands. The siting of the facility would be in a location where prevailing winds are beneficial. Effects from odor migration are expected to be similar to an identical facility constructed in Joseph, Oregon, which are negligible.

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Toxic Substances

Alternative A - The parcel was surveyed for hazardous materials and none were found.

Alternatives B and C - The City would utilize hypochlorine delivered to the facility in plastic containers similar to household bleach containers. Chlorine is used as a final treatment to disinfect effluent before it is used for irrigation. Chlorine is considered a hazardous material and is toxic to humans who come in contact with the liquid. A gaseous form of chlorine was considered but eliminated due to handling restrictions and safety benefits associated with chlorine in a liquid form.

Other potentially toxic substances could be utilized from time to time. These substances would likely include solvents or cleaning materials utilized in pursuing proper operation and maintenance of the facility. The City would regulate storage and utilization of hazardous substances, including foreign substances which may be introduced into the system by City residents. These procedures are intended to protect City staff and the public. Toxic substances such as heavy metals and radioactive materials are not likely to be introduced into the system since Sisters has no industrial sources from which these materials originate.

A hazardous spill plan and an ordinance which directs the use and storage of hazardous substances

would be drafted and adopted prior to the operation of the sewage and wastewater facility. These would be coordinated with the local fire department.

Economics

Alternative A - There would be no conveyance of land for a sewage or wastewater system and no revenue to the Federal treasury from the transaction. Federal ownership of section 9 would remain intact and costs associated with management would remain at current levels.

Alternative B - Conveyance of 240 acres would occur immediately upon payment from the City to the Forest Service for the fair market value. Revenues from the sale of the property would go to the Federal treasury.

Under implementation of Alternative B, application of ecosystem management principles on a landscape scale would be difficult. Ownership patterns would create a relatively small (20 acre) inholding to maintain. If the Forest Service decides to consolidate ownership in the future, the inholding would be less desirable for trade than in Alternative C. In the future, the Forest Service would prioritize this 20 acre parcel for trade to consolidate ownerships under a separate environmental assessment and public notification process.

Alternative C - Acquisition of 160 acres would have an immediate effect of lessening initial capital outlay for City residents in the purchase of lands for the facility. Less money would go to the Federal Treasury than in Alternative B.

Under implementation of Alternative C, the ownership pattern would remain a relatively small (100 acre) inholding to maintain. This would be a larger piece than in Alternative B. If the Forest Service decides to consolidate ownership in the future, the inholding would be more desirable for trade than in

Alternative B. Also, the remaining parcel would be hard to implement ecosystem management principles on a landscape scale, but not as difficult as in Alternative B.

As projected growth approaches the capacity of the facility additional planning costs would be incurred as the City searches for more land. It is very unlikely the Forest Service would sell or trade the balance of the parcel (totalling 100 acres) to any other entity except the City of Sisters. If the City decides to purchase these lands, the increased costs for purchasing those lands would be attributed to the fair market appraisal value at that time. In addition, when the capacity has irrigation area has reached capacity and additional land for disposing wastewater is acquired, irrigation plots would need to be reconfigured to efficiently utilize the area. Irrigation lines would need to be excavated and reburied.

Alternative C was based upon a 3% growth rate provided by a recent Portland State population study

and used in the 1997 HGE Inc. Wastewater System Facilities Plan. This rate was also used for development of Alternative B which provides sufficient land to operate a sewage and wastewater facility beyond the year 2020. According to these sources of information, Alternative C would provide a suitable land base to operate a sewage and wastewater facility for approximately 10 years. Rates are based on the following forecasts and assumptions:

1. Historical growth rates for Sisters are inaccurate due to restricted residential development.
2. Recent growth trends in other parts of Deschutes County are much higher (5%) than Sisters.
3. Deschutes County has a long term growth rate of 3%.

Currently, statistics from local construction starts have indicated the growth rate could be much greater than expected. Therefore, in this scenario, Alternative C may provide sufficient land for wastewater disposal for less than the expected ten years. It is unknown if this is a trend, but a community sewage and wastewater system could encourage growth and expansion in areas which previously were restricted by individual subsurface systems.

Effects of Current Land Exchanges/Changes in Public Ownership

Alternative A - Current Forest Service/public ownership of adjacent lands surrounding the City of Sisters would not change at this time.

If they are within the public interests, land exchanges rather than conveyances under the Townsite Act are generally preferred by the Forest Service. In this case, a land exchange would not occur in a timely manner.

Alternatives B and C - Implementation of either action alternative would continue a trend which changes use and ownership of surrounding publicly owned lands. Approximately 240 and 160 acres (respectively) would be sold to the City of Sisters for fair market value. In contrast to a land exchange, the conveyance of lands to the City of Sisters would result in a direct reduction of National Forest lands for public use. Loss of open space character is gradually moving outward from the Urban Growth Boundary as the City expands. This effect would be more apparent from a local perspective, although from a regional perspective, a greater amount of lands are changing to Forest Service management than are traded or sold.

Effects of Other Resources Not Previously Mentioned

Heritage Resources

No heritage resources are present which are eligible or potentially eligible for the National Register of

Historic Places. Proposed activities in Alternatives B and C are in compliance with The National Historic Preservation Act and the Advisory Council on Historic Preservation. There would be no known direct, indirect, or cumulative effect to these resources.

Prime Lands

This parcel is not classified as prime forest, farm, or range lands. Proposed activities in Alternatives B and C are in compliance with the Farmland Protection Policy and Department Regulation 9500-3, "Land Use Policy". There would be no direct, indirect, or cumulative effect to these resources.

Social Factors

There would be no known direct, indirect, or cumulative adverse effects on Native Americans, minority groups, women, or the civil rights of citizens as a result of any alternative.

Executive Order 11988 (Floodplains) and 11990 (Wetlands)

Executive orders 11988 and 11990 direct Federal agencies to avoid, to the extent possible, both long- and short-term adverse impacts associated with the modifications of floodplains and wetlands. All alternatives do not have specific actions which adversely affect floodplains and wetlands. The proposed location of wastewater facilities and irrigation is well outside the 500 year floodplain and the possible flooding boundary in the event of Carver Lake Morraine Dam failure, as delineated by the 1988 Federal Emergency Management Agency Flood Insurance Map. Proposed activities in Alternatives B and C are in compliance with Executive Order 11988 (Floodplain management) and 11990 (Protection of Wetlands) and USDA Departmental Regulation 9500-3.

There is a small area (less than one acre) within the borrow area for the gravel pit which retains water and supports riparian vegetation. This area does not satisfy the criteria for saturated soil and therefore would not be defined as a wetland under Executive Order 11990. Implementation of Alternatives A or B would not impact this area. Under Alternative C, most available land would be needed for effluent irrigation. The City has indicated a desire to retain the area in its current existing condition, but would retain the option for future irrigation in the borrow area.

Compliance with State and Local Laws

Alternative A - The City of Sisters is currently in violation of the DEQ's Ground Water Protection Policy. Implementation of Alternative A would increase the timeframe for which the City of Sisters would comply with this policy.

Alternatives B and C - The City of Sisters and Deschutes County would make a Comprehensive Plan amendment to bring the land within the Urban Growth Boundary and zone the area for Special Uses (effluent treatment and dispersal). At this time, they would be consistent with State and local laws,

environmental policies, and address land use policies.

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Environmental Justice

The proposed project is not located in a minority community and would benefit residents of low and moderate income. Therefore, construction would not pose a disproportionately high or adverse effect to those populations. Construction of a sewage and wastewater facility under Alternatives B or C would facilitate development of low-income housing. Proposed activities in Alternatives B and C are in compliance with Executive Order 12989 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations".

USDA Rural Development

The proposed action would include construction of a conventional gravity collection system throughout the town of Sisters, as well as three pump stations. The gravity sewer lines would be installed along various street and road rights-of-way or easements, and a force main would be constructed southward to the proposed Section 9 treatment site. The force main would cross Squaw Creek near the intersection of Locust and Jefferson Streets. Three pump stations would be constructed: Pump Station #1 would be located in the northwestern part of town at the corner of Barclay Drive and Lundgren Mill Road; Pump Station #2 would be located in the northeastern part of town north of the termination of Laho Lane and adjacent to the City limits; and Pump Station #3 would be installed at the junction of Highway 20 and Squaw Creek, west of the highway and north of the creek.

Short-term impacts from construction of the gravity sewer lines would include dust, exhaust emissions, noise, and increased traffic from construction activities, but these impacts would terminate upon completion of pipeline installation. Although the force main and Pump Station #3 would be installed within the 500-year flood plain of Squaw Creek, there would be no long-term or significant impact to the natural function or value of the flood plain area.

No endangered, threatened, or sensitive wildlife or fish species would be impacted by the construction of the collection system or pump stations. Construction within Squaw Creek may require a removal/fill permit from the Oregon Division of State Lands and the US Army Corps of Engineers; the permit would include work period restrictions relative to within-stream construction as well as additional mitigation measures, such as restoration of the stream bank and revegetation using native plantings.

As a condition of RD funding approval, the City of Sisters may not extend or install sewer service lines to any new development to be located within flood plain areas when practicable alternative, non-flood plain sites are available, nor provide sewer service to any new structures which would encroach upon or adversely affect any designated wetlands within the City limits or Urban Growth Boundary.

Discussion of Reasonably Foreseeable Future Actions

Biosolid Disposal

In order to fully address Sisters sewage disposal problems, the City would have to find a solution for disposal of the community's solid waste in the future (10-20 years). It is anticipated that under Alternatives B, and possibly Alternative C, the area would be used for application and disposal of biosolids. In this case, biosolids are defined as solid waste which has been treated, cleaned, disinfected, and mixed with water to make a very diluted liquid organic solution that can be disposed or applied under environmentally acceptable conditions. Specific details regarding application and reuse would become

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available later as the City develops their plans. All methods would occur in accordance with regulations established by DEQ and Deschutes County.

Vegetation Conversion

Under implementation of Alternative B and especially under C, population growth after an estimated ten years would cause the wastewater facility to be operating at capacity with the proposed land acquisition. After ten years the City of Sisters would either pursue additional land or pursue other wastewater disposal options. These options primarily include effluent irrigation on the existing forest or convert existing forested land to an agricultural crop or grasses. The City has indicated a desire to involve the community in decisions which effect the vegetation on the parcel.

Precedence For Other Communities

There are other communities in Oregon which are rapidly growing and may face situations similar to Sisters. As populations increase and standards or requirements for water quality are imposed, new proposals to use National Forest lands could be received. If this happens, the Forest Service would involve the public and prepare appropriate environmental analysis to address future proposals.

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List of Preparers and Consultation With Others

This section identifies the Forest Service personnel who participated in the environmental analysis and the preparation of the EA. For a list of organizations and individuals contacted during the scoping process, refer to the Project File located at the Sisters Ranger District.

Interdisciplinary Team

Jeff Sims - Special Uses and Lands Specialist
Maret Pajutee - District Ecologist
Monty Gregg - Wildlife Biologist
Randy Gould - Hydrologist
Terry Craig - Soils Scientist
Don Zettel - Archeologist
Brian Tandy - Forester
Mike Hernandez - Team Leader
Chris Mickle - Writer/Editor

Agencies and Persons Consulted

Steve Wert - Soil Scientist and Sanitarian
Richard Nored - HGE Inc., Architects, Engineers, Surveyors and Planners
Barbara Warren - City of Sisters Administrator
Mona Ellison - USDA Rural Development
Dick Nichols et al. - Oregon Department of Environmental Quality

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