

## Chapter 4

# ENVIRONMENTAL CONSEQUENCES

### INTRODUCTION

#### Background

This chapter contains analyses of the physical, biological, cultural, and economic impacts of implementing any of the three alternatives of El Camino Real de Tierra Adentro NHT Comprehensive Management Plan (CMP). Both adverse and beneficial consequences resulting from the alternatives are considered. Mitigating measures designed to avoid or reduce environmental consequences have been incorporated into the alternatives.

Several types of impacts resulting from continuing management guidance, as well as planned actions, have been considered in this chapter.

*Direct* impacts occur at the same time and place as the actions. *Indirect* impacts may occur later in time or farther in distance from the proposed actions. *Irreversible and Irretrievable*

*Commitment of Resources/Impairment* must be considered for actions that either deplete a nonrenewable resource or disturb another resource to the point that it cannot be renewed within 100 years. *The Relationship between Short- Term and Long- Term Productivity* analyzes: (1) short- term day- to- day, or even year- to- year, activities such as hunting, fishing, hiking, and photography. Short- term actions include management activities designed to permit, encourage, or discourage certain activities; (2) long- term productivity referring to the land's continuing ability to produce commodities, such as wildlife and plant products, as well as amenities such as scenery and recreation opportunities, for future generations. This ability depends on management practices and uses that do not impair resources to the extent that they are no longer capable of providing the resource commodities or opportunities.

*Cumulative* Impacts are additive impacts to a

particular resource, regardless of landownership, from the past, present, and reasonably foreseeable future. Where appropriate, impacts are evaluated for a study corridor that extends approximately five miles on either side of the defined trail route, including duplicate and variant routes.

Only the major impacts that would vary by issue or resource use are analyzed. Impacts that would not occur or would be negligible are not discussed. The following critical elements would not be affected: floodplains, prime and unique farmlands, hazardous and solid waste, wilderness, and wild and scenic rivers. Air quality would be minimally affected over the short-term and is therefore not included. Impacts on the fire management program are not addressed; due to generally sparse and low-growing vegetation near the trail and the nature of the actions proposed by any of the alternatives, this program would not be affected.

#### Assumptions for Analysis

In this document, impacts referred to as long-term are those that would occur over a 5- to 20- year period; while short- term impacts are those that would occur within a 5- year period following plan implementation. The life of the CMP is expected to be 20 years; the plan would be periodically reviewed to determine if goals and objectives are being met.

Analysis of the alternatives is based on the assumption that adequate finances and personnel would be available to implement plan decisions.

The unavoidable impacts would be monitored and continually evaluated during the life of this plan. Based on the monitoring and evaluation, actions would be adjusted to minimize impacts.

There would be increases in visitor use on BLM- administered lands and other federal or state- managed lands, and at private facilities along the trail, regardless of any actions taken as a result of this planning effort, due to ongoing state, local, and private tourism promotion efforts.

Off- highway- vehicle designations on BLM- administered lands associated with the trail would be revisited according to the following planning schedule:

1. Las Cruces Field Office - RMP revision, beginning in 2004.
2. Socorro Field Office - RMP revision, initiated in 2002.
3. Taos Field Office - La Cienega/Buckman area plan amendments and route designations, beginning in 2003.

Site- specific impacts associated with the development or improvement of facilities will not be addressed in detail in this document. Prior to their implementation, these activities will require site- specific analysis and a detailed summary of the potential effects.

**Threatened and Endangered (T&E) Species:** Under all alternatives, other than placement of interpretive or directional signing along roads, there are no surface- disturbing actions proposed in Río Arriba, Santa Fe, Bernalillo, and Valencia counties in New Mexico and El Paso County in Texas. As a result, there would be no impact to Threatened and Endangered species in these counties.

Actions will not be allowed to occur where they will adversely affect T&E or other special- status species or their habitats. To help protect special- status species, a National Environmental Policy Act (NEPA) document will be prepared prior to any site- specific action being permitted. The NEPA process will include identifying any such species in or near the area of activity; adjusting the project design, size, or location; applying appropriate stipulations (e.g., timing); or not authorizing the action.

In the event of any site- specific development associated with this plan, the Bureau of Land Management, the National Park Service, or other local managers would contact the U.S. Fish and Wildlife Service to initiate Section 7 consultation under the Endangered Species Act of 1973 if a “May Affect” determination on a species has been made. Potential adverse effects on listed and proposed species would be eliminated or reduced in compliance with the provisions of the act. Mitigation of adverse impacts might include relocating or redesigning sites and monitoring the effects of trail use. If necessary, trail use could be limited seasonally, the number of users could be restricted, a reservation system could be established for very popular sites, or other strategies could be developed to limit negative impacts.

## ***PREFERRED ALTERNATIVE***

### ***North American Indians***

The impacts from both Alternatives B and the Preferred Alternative may have a neutral or positive impact upon the North American Indian tribes associated with El Camino Real.

During implementation of the Preferred Alternative, additional consultation with affected tribes may lead to positive impacts by providing them with the opportunity to present their stories from the tribal point of view in exhibits and documents. Tribes that participate in the voluntary certification of sites and segments would be eligible for technical assistance and challenge cost- share monies for preservation, interpretive exhibits, and signage.

Where developments take place (roadside pull-outs and interpretive wayside exhibits as proposed in the Preferred Alternative, a site- specific analysis would take place to ensure that resources are not disturbed, or if resources would be impacted, proposed mitigation measures would take place in consultation with the tribes.



*Petroglyph on El Camino Real.*

Tribal consultation will be ongoing throughout the development and management of El Camino Real facilities, and any concerns identified by tribes will be taken into consideration. The goals of such consultation will be to avoid or mitigate any impacts or effects that may be identified.

### ***Cultural Resources (Archeological/Historical)***

The Preferred Alternative places a stronger emphasis on interpretation and education, and includes on- site interpretation at several locations. Awareness and appreciation of archeological and historical resources related to El Camino Real would be maximized under this alternative. There would be a concerted effort to collect new information about the trail, and to generate more detailed and accurate inventories and maps of trail segments and archeological sites associated with the trail. Although, under this alternative, visitor use could increase in the Jornada del Muerto from 900 to 5,500 visits annually, and at the Teypama site from 200 to 400 visits annually, the educational efforts should dramatically reduce potential for inadvertent destruction of trail- related resources. High- potential sites and segments on public lands would receive proactive management, including closure of areas where their physical integrity is threatened. Protection would be extended to sites on non- federal lands through active, voluntary partnerships.

Increased public awareness inevitably increases potential for illegal collection of artifacts along portions of the trail that are publicly accessible. This would be partially offset by a site stewardship program, which provides for increased monitoring and patrolling of high- potential sites and segments. The Preferred Alternative also would include on- site interpretation at specific locations along El Camino Real de Tierra Adentro. (See Chapter 2, Preferred Alternative, Visitor Experience, Recreation). On- site interpretation brings increased potential for physical damage to trail segments and loss of artifacts through illegal collection. Specific measures to mitigate these potential effects would be incorporated into project planning for these on- site interpretive facilities; compliance with applicable federal and state laws will be completed as appropriate for each project.

### ***Energy and Minerals***

Areas with no change in VRM class: Existing mineral leases and mineral material contracts would continue to be managed under existing terms and conditions and management plans. New leasing and lease development and new contracts from BLM mineral material sites would be subject to existing management plans and site- specific environmental assessments. Prospecting and mining claim location would continue to be allowed in areas open to the Mining Law and closed in withdrawn areas. Existing and new surface disturbance under the Mining Law would continue to be regulated by the BLM's surface management regulations (43 CFR 3809) and/or the New Mexico Mining Act rules. Use and Occupancy under the Mining Law regulations (43 CFR 3715) would be enforced to prevent mining or other activities conducted under the pretense of the Mining Law, that are not authorized under the Mining Law.

Areas designated VRM Class II: Existing mineral leases that fall within areas designated VRM Class II would continue to be managed under the lease terms and conditions and management plans that existed at the time of issuance.

Existing standard lease terms may be sufficient to achieve the VRM Class II objective, with allowances for the relocation of a proposed drilling location of up to 200 meters and the prohibition of drilling activities for up to 60 days in any lease year. Since detailed information on the resource potential of the areas affected by VRM Class II guidelines is not known, the potential effects on economic activity in the area or on the government in terms of lost royalty income cannot be estimated at this time. Any loss from resource production (assuming that there are resources present that can be economically produced in the restricted area) would be offset to some degree by induced increases in economic activity brought about by implementation of an action alternative. The economic benefits of the Preferred Alternative would continue indefinitely and may serve as the base of other tourist- and recreation- based business activities in the future, while the benefits from resource production would cease when the resource is exhausted. In addition, any resources present in the restricted area would remain in place, and potentially available at some future time.

New leases within a designated VRM Class II area would include a stipulation requiring that lease operations be designed to conform to the VRM Class II objectives, allowing restrictions on lease development beyond the standard lease terms. Restrictions on lease development could result in an operator not drilling at the most geologically desirable location or during the most desirable time period. If the operator is not able or willing to conform to the restrictions, drilling could be precluded. The areas affected by VRM Class II guidelines are considered to have low potential for the discovery of economic oil and gas deposits.

Existing mineral material contracts that fall within areas designated VRM Class II would continue to be managed under the contract lease terms and conditions and management plans that existed at the time of issuance. The issuance of new contracts would be at the discretion of the BLM, provided that the mining conformed to the management objectives of VRM Class II or BLM could eliminate the visual

intrusion entirely by reclaiming the site after the expiration of any outstanding contracts. Discontinuing the issuance of mineral material contracts could force those desiring to obtain the materials to go to another less desirable or more expensive source.

A VRM Class II designation would not affect the status of existing mining claims or prohibit future prospecting and mining claim location under the Mining Law. An existing approved plan or notice for operations under the Mining Law (43 CFR 3809) would not be affected by the new VRM Class. However, any new surface-disturbance activities could be affected by the VRM Class II designation. BLM could require operators, under 43 CFR 3809, to conduct operations to meet the VRM Class II management objective. It is possible that an operator could not meet the VRM Class II management objective. However, failure to meet the objective could not be used to prohibit operations under the Mining Law. Imposition of the additional requirements to meet (or attempt to meet) the VRM Class II management objective could add additional costs to a mining operation. Use and Occupancy under the Mining Law regulations (43 CFR 3715) would be enforced to prevent mining or other activities conducted under the pretense of the Mining Law, that are not authorized under the Mining Law.

Federal Mineral Authorizations and Activities Near BLM- Proposed Projects - Existing federal mineral resource activities within the proposed VRM Class II area in Jornada del Muerto (T13S to T19S) are given in **Table 12**. There are no existing federal mineral activities within Santa Fe River canyon area proposed for management under VRM Class II guidelines. The inactive, reclaimed La Bajada uranium mine lies within the canyon at T15N R7E Section 9.

**Table 12:**  
***Existing Federal Mineral Activities in Relation to Proposed Development***

<b><i>Activity/ Authorization</i></b>	<b><i>Location</i></b>	<b><i>Relative to Proposed Development</i></b>
Mineral Material Site	T19S R2W S4	3 miles W of I-25 Upham pull-off
Mineral Material Site	T18S R2W S3	2 miles SW of Paraje del Perrillo pull-off
Mining Claims	T17S R2W S23, 24, 25, 26	Adjacent to Paraje del Perrillo pull-off
Mineral Material Site	T16S R2W S12	Adjacent to Yost Escarpment pull-off
The inactive Tonuco Mountain fluorite mine is two miles south of the San Diego pull-off site (T19S R1 W Section 19).		

### ***Livestock-grazing***

Under the Preferred Alternative, the existing livestock- grazing operations on public lands would continue with no reductions and limited additional restrictions. The greatest impacts would occur in Jornada del Muerto area of the Las Cruces Field Office. New range improvements proposed on portions of the Las Cruces Field Office section of the trail would have to meet VRM Class II guidelines. Any new range improvement/construction projects in this area would need to be mitigated to meet visual guidelines, although no range improvement projects have been identified for these areas. The Preferred Alternative would provide for increased interpretation and information near Jornada del Muerto section of the trail. The additional interpretation is expected to stimulate additional interest in visiting the public lands on Jornada del Muerto section. The increased recreational use of the public lands would provide the greatest impact to the livestock- grazing operations. The occasional public- land visitor seeking assistance from the rancher would continue to increase due to the increased publicity about the trail. Additionally, damage to rangeland improvements from vandalism would continue to occur from time to time, but at an increased level due to the increased visitor use. The actual impact from the increased visitor use is not expected to

affect the viability of the ranching operations, but it could provide an additional nuisance factor.

### ***Land and Realty Uses***

Changes in VRM class from Class III and IV to Class II in those areas of the trail that are designated as high- potential sites and segments would impact land uses in those areas (See Appendix H for a description of the VRM classification system). For the sites within Jornada del Muerto and Santa Fe River canyon areas, new rights- of- way and lands uses would be allowed only if they did not deviate from the basic elements of the predominant landscape. Uses would not be silhouetted against the skyline, and new power line or pipeline rights- of- way may need to be buried. Communication towers and buildings may need to be painted with approved colors in these areas. Maintenance of existing rights- of- way would need prior approval of the field office. An exchange with the State of New Mexico may enhance protection of the trail north of the Yost Escarpment site. The BLM and the State Land Office have completed several exchanges in the last few years and have some ongoing exchanges. Therefore, a state exchange in this area could proceed relatively quickly if both parties agreed. Additional visitors to the desig-

nated sites would increase traffic in the area and could cause some impacts to existing rights-of-way. More people in the area may cause damage to existing facilities. auto tour routes could result in increased deterioration of local streets and roads. Acquisition of private land within the Santa Fe River corridor would be a priority.

### ***Recreation***

Developing, marking, and interpreting an auto tour route would contribute to increased public awareness of the NHT. Visitors would benefit from this opportunity to follow the approximate trail route, and to visit related resources and interpretive facilities. Visitor use on BLM-administered lands could increase in Jornada del Muerto from 900 to 5,500 visits annually, and at the Teypama site from 200 to 400 visits annually. Visitor use at privately developed sites or facilities would be expected to increase in response to educational efforts and increased publicity for the trail.

Additional opportunities to experience the trail corridor through recreation on BLM-managed lands would increase visitor enjoyment of the NHT. The ability to drive or hike in the trail corridor, to receive interpretive messages on-site, and to see trail-related cultural, natural, and landscape resources would be beneficial and would result in memorable experiences.

Although no immediate threats have been identified or closures recommended at this time, future off-highway-vehicle opportunities on public lands could be restricted in the immediate vicinity of historic or cultural sites for resource protection.

### ***Visitor Experience/Information and Education***

A coordinated, collaborative program of trail-related interpretive and educational programs, media, and activities, along with trail promotion, would increase visitor use along the NHT, and would foster visitor appreciation of trail history and significance. Visitors would be

offered a range of ways to experience the trail-meeting their level of interest and learning styles.

Certification of sites, segments, and interpretive facilities would benefit the visitor experience through the increased identification, interpretation, and use of trail-related resources. Standards of quality reached through the certification process would contribute to the development of accurate and consistent media and programming, and would increase visitor enjoyment and understanding of the trail's history and significance.

Development of an interpretive plan would assist Camino Real Administration and partners to present a cohesive, integrated interpretive and educational program, and would result in public understanding and appreciation for the trail.

### ***Scenery***

This alternative would focus on protecting on-the-ground trail resources that best illustrate the trail's significance (high-potential historic sites and segments) and trail-related interpretive/educational programming and activities. To protect and prevent inappropriate visual intrusions, restrictive visual resource management (VRM) objectives would be assigned to public lands within the critical foreground/middle-ground viewshed or landscape component along trail segments and around sites (roughly five miles to either side of the trail segments or sites, as shown in Maps 4A-C; the VRM classification system is explained in Appendix H). With more restrictive visual resource management objectives, activities would be limited to those that would not attract attention and the level of change to the characteristic landscape would be low. This would result in amendments of the Mimbres and White Sands RMPs for 97,873 acres of existing VRM Class IV public land in Jornada del Muerto to a more restrictive VRM Class II in the vicinity of high-potential historic segments and around high-potential historic sites within the Las Cruces Field Office. It would also result in the amendment of 903

acres of VRM Class III public lands in the vicinity of high- potential historic trail segments and around high- potential historic sites to the more restrictive VRM Class II in the Las Cruces Field Office.

The Taos Resource Management Plan would be amended by assigning VRM Class II to 998 acres of previously unassigned public lands within the foreground/middle- ground viewshed along 0.3 mile of high- potential historic trail segments and extending through the Santa Fe River canyon. Assignment of Class II VRM management objectives on public lands would assist in preserving the scenery along high- potential historic trail segments and near high- potential historic sites through objectives that are set to retain the existing characteristic landscape and prevent inappropriate visual intrusions.

### ***Socioeconomics/Social Values/ Environmental Justice***

The Preferred Alternative would provide for the protection of trail resources and existing recreational and interpretive facilities through new and on- going activities. Trail resources on federal land would be protected; those on private land would be certified. In addition, resources on federal lands would be identified and interpreted by displays and activities or educational opportunities. Resources on state or private lands would be encouraged to also provide interpretation and educational facilities. This alternative would encourage resource preservation through tax agreements (taxing land preserved as open space at a lower rate) and would provide for challenge cost- share programs of up to 50% federal cost sharing for project implementation. The alternative also includes a number of other features to promote public awareness and interest.

El Camino Real NHT yearly budget, at the optimum and at full operation, under this alternative would be \$475,000 for administration and related activities, including challenge cost- share funding. In addition, the state/local challenge cost- share program 50% match would result in

another \$60,000 yearly in government expenditures, for a total of \$535,000 expended yearly by all levels of government for identified administration and implementation activities. This expenditure can be expected to generate a net benefit of \$1,190,000 in combined sales, 36 new jobs, and approximately \$92,820 in increased tax revenues in the ESA per year. Note that this estimate of benefits is conservative and incomplete for the reasons discussed below.

Implementation of the Preferred Alternative can be expected to generate some additional recreational travel and heritage tourism visits along the route. After a lengthy period of growth, visitation rates for the ESA have been essentially flat for the past several years, and this situation is expected to continue for the foreseeable future. Any new visits that would be generated from implementation of the Preferred Alternative would generate two beneficial effects: Improved visitation and continuing viability of the individual trail sites; and increased economic activity of the surrounding communities through increased visitor expenditures.

Currently, the best- documented expenditure rate for tourist travel in New Mexico is \$96.45 per day per person. At this point, it is not possible to quantify the number of additional visitors or visitor days that might be generated by implementation of the Preferred Alternative. Two important points are stressed:

1. Visitor forecasts to existing and future facilities, such as El Camino Real International Heritage Center and others located on federal, state, and local lands, and on private property, are predicated in part on implementation of an NHT action alternative.
2. It has been the common experience of other designated national historic trails (such as Lewis & Clark, Oregon, Mormon Pioneer, California, and Santa Fe) that increases in visitation are directly related to the quality of the public awareness and promotional programs that are conducted for them. Special events, in particular,

greatly improve visitation rates. Therefore, for this analysis, it is too speculative to assume a figure for increased visitation resulting directly from the implementation of the Preferred Alternative, but it is recognized that such an increase would occur, and generate additional, but presently unquantified, economic benefits beyond those resulting from direct government expenditures. These benefits are expected to begin immediately upon plan implementation, and continue for the indefinite future.

Implementation of the Preferred Alternative would result in unquantified social benefits in the ESA. The economic improvements and additional service and hospitality- industry jobs generated by increased visits would enhance the economic stability of communities in the ESA, especially those with higher rates of unemployment. Other benefits would include improved governmental services resulting from increased tax revenues, and avoidance of future social costs that might otherwise result from continued economic problems. Low- moderate-income families and individuals, at- risk youth, and the Hispanic and North American Indian communities may be expected to find new employment in the service sector. Proportionately, the greatest improvements can be expected in the poorer counties of New Mexico, and to a lesser extent in El Paso County and the Mexican “gateway communities.” This alternative would not directly impact North American Indian reservation lands, but North American Indians could generally benefit from induced economic activity from increased visitation.

Finally, the Preferred Alternative would add to the effectiveness of ongoing BLM and NPS international outreach efforts, such as Habitat Chat, Sister Communities, and the ongoing cooperative agreements between the NPS, BLM, and INAH. This would help these programs to achieve objectives of the enhancement and sustainable management of natural resources, maximum efficiency in use of fiscal resources, and coordination of cross- border activities, along with improved information sharing and relationship development.

Implementation of the Preferred Alternative may result in unquantified adverse impacts to state and local tax revenues. These would occur if private lands are purchased as part of the plan and thus removed from the tax rolls, or if agreements are made with private landowners to preserve sites by reducing taxes to open-space values. This marginal loss of revenue could negatively impact delivery of government services to an unknown degree. However, this loss may be more than offset by gains in tax revenues associated with increased economic activity stimulated by the alternative. The magnitude of such gain or loss is unknown at this time.

### ***Vegetation/Noxious Weeds/Soils/Water/Air***

Although visitor use under the Preferred Alternative could increase in Jornada del Muerto from 900 to 5,500 visits annually and at the Teypama site from 200 to 400 visits annually, damage to soils and vegetation is expected to be minimal, and be mitigated by proper design of trails and pullouts. The change in visual classification is not expected to be a barrier to vegetation management activities on public lands. Soils would be disturbed on approximately 0.4 acres where the pullout parking areas are constructed and interpretive signs placed near the Upham Exit, the Paraje de San Diego, the Ojo de Perrillo/Point of Rocks, and the Yost Escarpment. An additional 0.5 acres would be disturbed if a companion trail were constructed in this area. Efforts to rehabilitate vegetation and control vehicle traffic and parking at the Teypama site near Socorro would result in improved conditions on 0.2 acres of public land.

A biological evaluation was prepared, and it noted that there was no potential habitat in the project area for federally listed threatened and endangered plants. There is potential habitat in this area for four special- status plant species: *Peniocereus greggii* var. *greggii*; *Escoberia duncanii*; *Penstemon ramosus*; and *Toumeyia papyracantha*. Site- specific inventory and environmental assessment would be conducted prior to any construction activity to ensure protection of these species.



Given the small area of disturbance and the mandatory application of site- specific best-management practices to protect water quality, there would be no net impact to surface- water or ground- water resources as a result of implementing the Preferred Alternative.

Designation and development of the auto tour route would result in increased vehicular traffic along unpaved, county- maintained roads, which may impact water and air quality. The increased vehicular traffic could result in increased airborne PM<sub>10</sub> particulate matter (dust), especially during dry periods. The construction of pullout parking areas and hiking trails would remove vegetation and expose soils for a brief period of time, and so impact air and water quality for a brief time. These areas will be covered with gravel at the completion of the construction, and therefore will not contribute to long- term airborne PM<sub>10</sub> levels in the areas. Water quality issues may be addressed with pavement, drainage control practices, timely revegetation of disturbed areas, or other best management practices, as appropriate. Dust abatement measures will be developed for the unpaved county- maintained roads if PM<sub>10</sub> particulate matter levels become problematic.

### ***Wildlife***

Under this alternative, a few sites along Jornada del Muerto desert passage would be developed for public use. Disturbance to wildlife would be short term during construction, with most wildlife species expected to reoccupy nearby habitat after construction activities are completed. Miscellaneous dispersed recreational activity within the planning area, such as camping, climbing, hiking, and biking would result in site- specific short- term negative impacts on the microbiological, small mammal, and avian components of the localized fauna. Proposed projects under this alternative that would cause short- term negative impacts to wildlife are those projects that propose the development of pullout parking areas; development of trail segments; development of a companion trail; and development of an auto tour route. Approximately 0.9 acres would potentially be

disturbed in Jornada del Muerto area. There would be no adverse impacts to federally listed threatened and endangered or special - status wildlife species in the areas proposed for recreational development; a biological evaluation was prepared, and it noted that the locations of the proposed project sites did not possess the habitat required for the listed species.

Future potential habitat- improvement projects in Jornada del Muerto and Santa Fe River canyon areas would be evaluated to determine whether they conform with VRM Class II objectives. VRM Class II management guidelines for an additional 98,776 acres within Jornada del Muerto and 998 acres in the Santa Fe River canyon could restrict placement or design of habitat improvement projects; however, no habitat improvement projects have been identified for these areas. There is potential for restoration of natural water features and native vegetation within the affected portion of the Santa Fe River canyon, which would improve habitat and scenic values over the long term.

### ***Cumulative Impacts***

Implementation of the Preferred Alternative is integral to the cumulative visits and economic activity of all trail resource sites along the route. Improvements at any single site or combination of sites would likewise affect activity elsewhere along the trail. Already mentioned is the nearly completed International Heritage Center, which would add cumulatively to the benefits of the trail along its route. Other certified sites would add to the trail's overall socioeconomic viability.

The benefits of implementing the Preferred Alternative to the local and regional economy would include improvements in both permanent and temporary employment opportunities and revenues as the planned maintenance and improvement of existing facilities and programs are implemented. The more active and intense development program under the Preferred Alternative, with its associated higher expenditure and visitation levels, would yield greater benefits than under Alternatives A and B. These benefits would be both local and regional in

nature, and would also be international, with enhanced employment opportunities along the Mexican border and southward in the Mexican State of Chihuahua.

As a result of increased and sustained public visitation to cultural resources, which were previously relatively unknown, certain impacts can be anticipated. At each of the historical and archeological properties opened for public visitation, public educational materials in brochures and signage would emphasize the need to leave any observed surficial artifacts in place. Programs designed to mitigate the adverse effects of public visitation would be carried out before the properties are opened and promoted for visitation. Such mitigation measures would include programs of mapping, surface collection and analysis of a sample of surface artifacts, and sampling and dating of features. Despite planned educational programs with a conservation message, it is anticipated that the surface assemblage of artifacts would eventually be lost at publicly interpreted sites. Certainly, any attractive artifacts, such as polychrome ceramics, would disappear. However, the sampling of the sites would result in the analysis and curation of a representative sample of this surface collection.

The presence of public visitors at historical and archeological sites at periodic, irregular intervals discourages illegal vandalism and digging. Although the surface artifacts may eventually disappear, illegal excavations all but cease at publicly interpreted sites. One benefit from the Preferred Alternative, therefore, would be the preservation of the subsurface components of specific locations along the trail.

With the enhanced programs of outreach and education associated with the Preferred Alternative, interest in the trail and its related sites would be stimulated in the local communities. The number of volunteers joining local chapters of the New Mexico Site Steward program is expected to increase significantly. As a result, the number of trail-related sites that would benefit from regular monitoring and patrolling would increase from the inspection of 111 properties now within the Las Cruces and

Socorro field offices of the BLM to 300 within 5 years of implementation of the plan.

## ***ALTERNATIVE A***

### ***North American Indians***

There would be no impacts to North American Indians under this alternative.

### ***Cultural Resources (Archeological/Historical)***

Under Alternative A, public awareness and appreciation of archeological and historical resources related to El Camino Real would remain low. In the absence of a directed program of research, it is likely that some important trail segments and trail-related archeological sites would remain undiscovered. These circumstances increase the probability of inadvertent damage. However, visitor-related impacts such as collection of artifacts and physical damage to trail segments would be lowest under this alternative. Protection of trail segments and trail-related archeological properties would occur primarily through the National Historic Preservation Act, and other laws that protect cultural resources on federally owned lands. As federally funded or approved projects are proposed, their potential impacts to cultural resources, including El Camino Real, would be considered. Protection would extend to non-federal lands only if federal funds or approval are required.

### ***Energy and Minerals***

Existing mineral leases and mineral material contracts would continue to be managed under existing terms and conditions and management plans. New leasing, lease development, and contracts would be subject to existing management plans and site-specific environmental assessments. Prospecting and mining claim location would continue to be allowed in areas open to the Mining Law and closed in with-

drawn areas. Existing and new surface disturbance under the Mining Law would continue to be regulated by the surface management regulations (43 CFR 3809) and/or New Mexico Mining Act rules. Use and Occupancy under the Mining Law regulations (43 CFR 3715) would be enforced to prevent mining or other activities conducted under the pretense of the Mining Law that are not authorized under the Mining Law.

### ***Livestock-grazing***

Under Alternative A, the existing livestock-grazing operations on public lands would continue, with no reductions or additional restrictions. The occasional public-land visitor seeking assistance from the rancher would continue to increase due to the increased publicity about the trail. Additionally, damage to range-land improvements from vandalism would continue to occur from time to time, but at an increased level to due increased visitor use.

### ***Land and Realty Uses***

Under Alternative A, there would be no change in VRM guidelines, and present users of the land would see very little effect on their ongoing operations. Additional visitors to the designated sites would increase traffic in the area and could cause some impacts to existing rights-of-way. Requests for new rights-of-way and land uses would continue to be allowed on a case-by-case basis. New rights-of-way and land uses would be subject to existing management plans and site-specific environmental assessments. Sale and exchange of public land would occur only where designated in existing land use plans. Some private and state land could be acquired based on existing plans. Maintenance of existing rights-of-way would continue as necessary. Existing roads would continue to be used without restrictions. Applications for new rights-of-way and land uses in the vicinity of the International Heritage Center would be allowed only in conformance with the Socorro Resource Management Plan Amendment for the Heritage Center (2001).

### ***Recreation***

Visitors would not be offered recreational experiences on the NHT. Current recreational opportunities would continue to be provided, but visitors would not have the opportunity to engage in activities related to the trail. Visitor use would depend on the level of publicity generated by off-site, private entities and activities. Visitor use in Jornada del Muerto would not be expected to exceed 1,500 annual visits under this alternative, and use at the Teypama site would probably not change from existing levels of use.

### ***Visitor Experience/Information and Education***

Visitors would not be offered experiences on El Camino Real de Tierra Adentro NHT. Visitors would continue to learn about and experience the trail, but through diffused and uncoordinated methods. Some visitors would continue to be confused about the location and availability of visits to trail-related resources and sites. Other visitors, particularly those from out of state or other countries, would be adversely impacted by the relative lack of trail orientation, information, and interpretation. Visitor understanding of trail-related resources and sites may be diminished by the loss of resources to neglect or vandalism.

### ***Scenery***

This alternative would allow the continuation of scenery management practices as established in the current resource management plans along trail segments and around sites associated with the national historic trail. Scenery would continue to be managed under the various assigned VRM class objectives. There would be no change in classifications. Scenic values within the corridor along 29.1 miles of trail on public lands assigned VRM Class IV would be subject to major modification of the character of the landscape from activities that could dominate the landscape and attract attention of the observer or person wanting to experience the setting that early travelers experienced. VRM

Class III has been assigned to public lands along 12.5 miles of trail. In Class III lands, which have moderately valued scenic resources, the landscape character would be partially retained through management objectives prescribed for these lands. On the 1.1 miles of trail within existing VRM Class II lands in the Las Cruces Field Office, scenic values would be retained through the management objectives prescribed for lands within this class. On the remaining 16.9 miles of trail on public lands within the boundaries of the Taos Field Office, no VRM classification has been assigned. Here, scenic values would be considered on a case-by-case basis.

### ***Socioeconomics/Social Values/ Environmental Justice***

Under Alternative A, the no action alternative, current management activities of the various federal, state, and local agencies, private landowners, and other entities would continue. Since the no-action alternative would provide for a continuation of existing conditions along the route of the NHT, it is expected that the current “baseline” socioeconomic effects and benefits to the local and regional economy would continue. There would be no planned change in direct government employment or in related private-sector employment serving visitors or other service sectors. In addition, there would be no additional revenue generated from increased visitor spending beyond that already anticipated in the baseline. No additional social or economic benefits to area residents would be realized.

Under Alternative A, there would continue to be very limited opportunities for coordination or enhanced interpretation or recreational opportunities. Existing activities and operations would continue, and visitors would continue to travel the current routes and visit existing sites. New related developments, such as El Camino Real International Heritage Center, would be completed as planned. Implementation of the Sister Communities Program, Habitat Chat, and the ongoing cooperative agreements between the NPS, BLM, and INAH would continue. The socioeconomic benefits resulting from these already-planned projects have been accounted for in the baseline.

### ***Vegetation/Noxious Weeds/Soils/Water/Air***

Alternative A is a continuation of the existing situation and should provide for little change in the vegetation of the trail zone. However, with the increase in visibility of the trail and opportunities for vehicle travel down the trail with 4x4s, 4-wheelers, and motorcycles, damage to soils and vegetation may occur at some locations. There would be no measurable impacts to surface-water or ground-water resources.

### ***Wildlife***

Modification of wildlife habitat is not proposed under this alternative; therefore, there would be no impacts to wildlife.

### ***Cumulative Impacts***

Implementation of Alternative A would result in no change from the current situation along El Camino Real. The existing situation of uncoordinated recreational, interpretive, and access improvements would continue, with minor improvements in temporary employment opportunities and revenues as the currently planned development of El Camino Real visitor-serving facilities takes place.

## ***ALTERNATIVE B***

### ***North American Indians***

The impacts from both Alternatives B and the Preferred Alternative may have a neutral or positive impact upon the North American Indian tribes associated with El Camino Real.

During implementation of the Preferred Alternative, additional consultation with affected tribes may lead to positive impacts by providing them with the opportunity to present their stories from the tribal point of view in exhibits and documents. Tribes that participate in the voluntary certification of sites and segments would be eligible for technical assistance

and challenge cost- share monies for preservation, interpretive exhibits, and signage.

Where developments take place (roadside pull-outs and interpretive wayside exhibits as proposed in the Preferred Alternative), a site- specific analysis would take place to ensure that resources are not disturbed, or if resources would be impacted, mitigation measures would take place in consultation with the tribes.

Tribal consultation will be ongoing throughout the development and management of El Camino Real facilities, and any concerns identified by tribes will be taken into consideration. The goals of such consultation will be to avoid or mitigate any impacts or effects that may be identified.

### ***Cultural Resources (Archeological/Historical)***

Alternative B emphasizes off- site interpretation of El Camino Real de Tierra Adentro. Under this alternative, public awareness and appreciation of archeological and historical resources related to El Camino Real would increase, and there would be a concerted effort to collect new information about the trail and to generate increasingly accurate and detailed inventories and maps of trail segments and archeological sites associated with the trail. These measures would reduce potential for inadvertent destruction of trail segments and sites related to the trail. Alternative B emphasizes protection of trail resources. In addition to the consideration given to all cultural resources under current federal laws, regulations, and policies, high-potential historic sites and segments would receive particular emphasis and would be subject to more proactive protective measures, such as closure to off- road vehicles where threats to the integrity of the resource develop, and monitoring. Protection would be extended to sites on non- federal lands through active, voluntary partnerships.

Increased public awareness inevitably increases potential for illegal collection of artifacts along portions of the trail that are publicly accessible. Under Alternative B, this would be partially offset by increased monitoring.

### ***Energy and Minerals***

Existing mineral leases and mineral material contracts would continue to be managed under existing terms and conditions and management plans. New leasing, lease development, and new contracts would be subject to existing management plans and site- specific environmental assessments. Prospecting and mining claim location would continue to be allowed in areas open to the Mining Law and closed in withdrawn areas. Existing and new surface disturbance under the Mining Law would continue to be regulated by the surface management regulations (43 CFR 3809) and/or the New Mexico Mining Act rules. Use and Occupancy under the Mining Law regulations (43 CFR 3715) would be enforced to prevent mining or other activities conducted under the pretense of the Mining Law that are not authorized under the Mining Law.

### ***Livestock-grazing***

Under Alternative B, the existing livestock-grazing operations on public lands would continue, with no reductions or additional restrictions. The occasional public- land visitor seeking assistance from the rancher would continue to increase due to the increased publicity about the trail. Additionally, damage to range- land improvements from vandalism would continue to occur from time to time but at an increased level to due increased visitor use.

### ***Land and Realty Uses***

Effects on Land and Realty Uses under Alternative B would be similar to Alternative A. However, the identification and protection of trail resources on public land would increase pressure on other land uses. In areas designated as auto - tour routes, increased traffic on city, county, and state streets and roads could potentially increase road maintenance requirements. Requests for new rights- of- way and land uses would be allowed only in areas that did not conflict with identified trail resources, and special stipulations might be necessary to protect trail resources.

## ***Recreation***

Developing, marking, and interpreting an auto tour route would contribute to increased public awareness of the NHT. Visitors would benefit from this opportunity to follow the approximate trail route, and to visit related resources and interpretive facilities. Visitor use in Jornada del Muerto would not be expected to exceed 1,500 annual visits under this alternative, and use at the Teypama site would probably not change from existing levels of use.

Although no immediate threats have been identified or closures recommended at this time, future off-highway-vehicle opportunities on public lands could be restricted in the immediate vicinity of historic or cultural sites for resource protection.

## ***Visitor Experience/Information and Education***

The development of a coordinated interpretive and educational program emphasizing resource protection on the NHT would benefit visitors, increasing their awareness of resource values and threats. Visitors would understand how their individual actions contribute to resource protection. In some cases, visitors may be disappointed by the lack of a comprehensive, trail-wide interpretive and education overview, or by the relative inability to have experiences in the trail corridor.

Certification of sites, segments, and interpretive facilities would benefit the visitor experience through the increased identification, interpretation, and use of trail-related resources. Standards of quality reached through the certification process would contribute to the development of accurate and consistent media and programming, and would increase visitor enjoyment and understanding of the trail's history and significance.

Development of an interpretive plan would assist Camino Real Administration and partners in presenting a cohesive, integrated interpretive and educational program, and would result in increased public understanding and appreciation for the trail.

## ***Scenery***

As in Alternative A, there would be no change in VRM classifications. Scenic values within the vicinity of the trail would continue to be managed under the objectives of the various assigned VRM classes within the Socorro and Las Cruces field offices. Impacts to scenic values on public lands within the Taos Field Office would continue to be assessed on a case-by-case basis, because no VRM classes have been assigned through a resource management plan for those lands within the vicinity of the trail. Continued development and human activities on public lands along trail segments and around sites within the three field offices may lead to the loss of historic landscape characteristics and scenery.

## ***Socioeconomics/Social Values/Environmental Justice***

Alternative B would provide for the protection of trail resources and existing recreational and interpretive facilities through new and on-going activities. Trail resources on federal land would be protected; those on private land would be certified. In addition, resources on federal lands would be identified and interpreted by displays and activities or educational opportunities. Resources on state or private lands would also be encouraged to provide interpretation and educational facilities. This alternative would encourage resource preservation through tax agreements (taxing land preserved as open space at a lower rate) and would provide for challenge cost-share programs of up to 50% federal cost sharing for project implementation. The alternative also includes a number of other features to promote public awareness and interest.

The NHT's yearly budget under Alternative B is anticipated to be \$475,000 for administration and related activities, including challenge cost-share program projects. In addition, the state/local challenge cost-share program 50% match would result in another \$60,000 yearly in government expenditures, for a total of \$535,000 expended yearly by all levels of government for identified administration and

implementation activities. This expenditure can be expected to generate a net benefit of \$1,190,000 in combined sales, 36 new jobs, and approximately \$92,820 in increased tax revenues in the ESA per year. Note that this estimate of benefits is very conservative and incomplete for the reasons discussed below.

Implementation of Alternative B can be expected to generate some additional recreational travel and heritage tourism visits along the route. After a lengthy period of growth, visitation rates for the ESA have been essentially flat for the past several years, and this situation is expected to continue for the foreseeable future. Any new visits created by implementation of Alternative B would generate two beneficial effects: They would improve the visitation and continuing viability of the individual trail sites; and they would contribute to the economic activity of the surrounding communities through increased visitor expenditures.

Currently, the best-documented expenditure rate for tourist travel in New Mexico is \$96.45 per day per person. At this point, it is not possible to quantify the number of additional visitors or visitor days that might be generated by implementation of Alternative B. Two important points are stressed:

1. Visitor forecasts to existing and future facilities, such as El Camino Real International Heritage Center and others located on federal, state, and local lands, and on private property, are predicated in part on implementation of an NHT action alternative.
2. It has been the common experience of other designated national historic trails (such as Lewis & Clark, Oregon, Mormon Pioneer, California, and Santa Fe) that increases in visitation are directly related to the quality of the public awareness and promotional programs that are conducted for them. Special events, in particular, greatly improve visitation rates. Therefore, for this analysis, it is too speculative to assume a figure for increased visitation resulting directly from the implementation

of Alternative B, but it is recognized that such an increase would occur, and generate additional, but presently unquantified, economic benefits beyond those resulting from direct government expenditures. These benefits are expected to begin immediately upon plan implementation and continue for the indefinite future.

Implementation of Alternative B would result in unquantified social benefits in the ESA. The economic improvements and additional service and hospitality-industry jobs generated by increased visits would enhance the economic stability of communities in the ESA, especially those with higher rates of unemployment. Other benefits would include improved governmental services resulting from increased tax revenues, and avoidance of future social costs that might otherwise result from continued economic problems. Low- to moderate-income families and individuals, at-risk youth, Hispanic residents, and North American Indians (both on reservations and in the larger community) may be expected to find new employment in the service sector. Proportionately, the greatest improvements can be expected in the poorer counties of New Mexico, and to a lesser extent in El Paso County and the Mexican "gateway communities." This alternative would not impact tribal lands directly; North American Indians would generally benefit from induced economic activity from increased visitation.

Alternative B would add to the effectiveness of ongoing NPS and BLM international outreach efforts, such as Habitat Chat, Sister Communities, and the ongoing cooperative agreements between NPS, BLM, and INAH. This would help these programs to achieve objectives of enhancement and sustainable management of natural resources, maximum efficiency in use of fiscal resources, and coordination of cross-border activities, along with improved information sharing and relationship development.

Implementation of Alternative B may result in unquantified adverse impacts to state and local tax revenues. These would occur if private lands are purchased as part of the plan and thus

removed from the tax rolls, or if agreements are made with private landowners to preserve sites by reducing taxes to open- space values. This marginal loss of revenue could negatively impact delivery of government services to an unknown degree. This loss may be more than offset by gains in tax revenues associated with increased economic activity stimulated by the alternative. The magnitude of such gain or loss is unknown at this time.

### ***Vegetation/Noxious Weeds/Soils/Water/Air***

Impacts under Alternative B would be similar to Alternative A. With augmented visibility for the trail and the lack of interpretation along the trail, increased visitor use may lead to additional damage to soils and vegetation at some locations. Damage to soils and vegetation is expected to be minimal and to be mitigated by proper design of trails and pullouts. There would be no measurable impacts to surface water or ground water resources.

### ***Wildlife***

Modification of wildlife habitat is not proposed under this alternative; therefore, there would be no impacts to wildlife.

### ***Cumulative Impacts***

Implementation of Alternative B is integral to the cumulative visits and economic activity of all trail resource sites along the route.

Improvements at any single site or combination of sites would likewise affect activity elsewhere along the trail. Already mentioned is the nearly completed International Heritage Center, which would add cumulatively to the benefits of the trail along its route. Other certified sites would add to the trail's overall socioeconomic viability.

The benefits of implementing Alternative B to the local and regional economy would include improvements in both permanent and temporary employment opportunities and revenues as the planned maintenance and improvement of

existing facilities and programs are implemented. These benefits would be both local and regional in nature, and would also be international, with enhanced employment opportunities along the Mexican border and southward in the Mexican State of Chihuahua.

Because Alternative B emphasizes off- site interpretation of El Camino Real de Tierra Adentro, cumulative impacts resulting from public visitation at high- value interpretive sites would not occur. These sites would never be opened for public visitation and recreational use as part of heritage tourism.

Increased interest (both legitimate and illegitimate) in the trail would result from public awareness and outreach programs, mostly based out of El Camino Real International Heritage Center. Increased public awareness should result in a growing population of volunteers participating in local chapters of the statewide site stewardship program. Based on the numbers of sites the Farmington chapter of the site stewards can actively patrol, it is estimated that site stewards in the Río Abajo region would be able to monitor approximately 300 properties annually. This active patrolling should result in improved site protection and should nullify any increase in looting or "pot- hunting" at El Camino Real- related sites.

### ***IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES***

Under Alternative A, there would no change from the current expenditures, because there would be no change from the current management program. Current federal land- management activities would continue, and there would be no certification of private lands or special efforts made to identify trail resources or coordinate recreation and interpretive activities. Therefore, there would be no new irreversible and irretrievable commitment of resources created with this alternative.

Under both Alternatives B and the Preferred, there would be irreversible and irretrievable



commitments of resources in terms of funds expended for action plan implementation. This amount is estimated at \$535,000 per year in combined federal funds and local challenge cost-share program match under each alternative. Other unquantified commitments of resources would be created if state and local agencies, trail associations, and the private sector commit them in coordination with the federal government in implementation of either Alternative B or the Preferred Alternative.

#### ***RELATIONSHIP BETWEEN THE LOCAL SHORT-TERM USE OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY***

Current federal land management, and state, local, and private-sector recreation and interpretation activities under Alternative A would continue, and thus would marginally improve the long-term productivity of the socioeconomic environment over both the short and long-term.

Under Alternatives B and the Preferred, enhancement and coordination programs would result in both short-term benefits resulting from construction and long-term benefits from the enhanced operations. The Preferred Alternative would be expected to have the most favorable overall net socioeconomic benefits from increased visitation and economic activity.

#### ***UNAVOIDABLE ADVERSE IMPACTS***

There would be no unavoidable adverse socioeconomic impacts under Alternative A. The only unavoidable adverse impact under Alternatives B and the Preferred would be the potential loss in local tax revenues from either government purchases of private lands or tax agreements resulting in lowered tax rates.

There is potential under the Preferred Alternative for new surface disturbances totaling 0.9 acres of land in Jornada del Muerto area for recreational development adjacent to areas that have already been subject to human disturbances for many years—primarily roads. Given the relatively small size of these disturbances spread out over five recreation sites (pull-outs) and a short trail, impacts to other resources would be minimal and difficult to measure.



*Cross of Cristo Rey near Sunland Park, New Mexico.*