Chapter Four: Alternatives for Management

CHAPTER OVERVIEW

The fourth criterion in the special resource study process includes an evaluation of whether the site requires direct management by the National Park Service instead of protection by another public agency or the private sector. Unless direct NPS management is identified as the clearly superior alternative, the National Park Service will recommend that others assume the lead management role, and that the area not be included in the national park system.

To complete the evaluation of this last requirement in the special resource study, the team initiated the following steps:

- Encouraged public opinion and ideas about managing the Waco Mammoth Site through a project website, press releases, scoping newsletter, and public meetings.
- Outlined a range of management alternatives and tested their viability with NPS leadership, with representatives from the city of Waco and Baylor University, and then with the public.
- Refined and more fully developed the range of management alternatives based on this input and identified potential environmental consequences associated with each alternative.

ISSUES AND PUBLIC CONCERNS

During the initial phases of the scoping process, stakeholders and the general public raised a number of ideas and recommendations for managing the resources of the Waco Mammoth Site. A summary of public input collected is presented below. The actual words of the members of the public who responded are paraphrased and condensed into overall categories of the different ideas expressed. Common threads of concern focused on the following primary themes: provide visitor access to the site, promote scientific research, maximize the educational potential, and balance resource protection with these activities.

Visitor Access

Convenient and meaningful access should be provided to the Waco Mammoth Site so that it becomes a destination point as a genuine national treasure to be popularly shared. The accommodations desired would be for people of all ages, interests, and abilities. Access should be available to individuals and to groups of varying sizes who might visit the site as a bonus to conventions or other businesses in Waco, or as an aspect of special events there. The Waco Mammoth Site should not only draw visitors from a national base, but also from a regional base that includes the relatively nearby population centers along the Interstate Highway I-35. Regional residents could easily become repeat visitors, coming to learn about the latest scientific findings from ongoing research as well as to bring family members and friends who have not yet seen the site.

Research

The excavation history of the site provides a context for research. Ongoing research should be a regular feature of the site. A multi-disciplinary approach should guide scientific research.

Education

The resource provides a wonderful opportunity for engaging and stimulating the imagination of children as well as adults. The site's educational potential is extraordinary and provides opportunities for interested people of all ages to contemplate the life forms and habitats that existed in the Waco area during the Pleistocene Epoch. Educational programs also can be directed towards how

science is carried out and how it contributes to the discovery process.

Resource Protection

Proper provisions for the physical protection of the site are vital for its long-term preservation. Resource protection should be undertaken to allow for ongoing research and the possibility of discovering more mammoth specimens as well as to allow for effective onsite interpretation for education and public enjoyment.

Supporting Comments

Other categories of comment from the public show tremendous community support for preserving the site and for making it available for public access. Various possibilities for partnering were suggested so that scientific research, visitor education, and community integration can be achieved in balanced harmony. Integrating the site effectively with Waco's other attractions such as the Cameron Park Zoo and the Mayborn Museum Complex of Baylor University is a desire. Some supporting comments cite socioeconomic data and population figures for Waco to become a major tourist attraction with the Waco Mammoth Site as a feature important to that desired result.

ALTERNATIVES DEVELOPMENT

In order to provide a philosophical foundation for future decision making regarding the management framework and range of potential uses appropriate for this special resource, the study team met with representatives of the city of Waco and Baylor University and developed the following list of guiding principles or purpose statements for the Waco Mammoth Site:

- Preserve and protect the outstanding paleontological site, collected specimens, and associated data known as the Waco Mammoth Site for present and future generations.
- Provide for the facilitation of orderly, regulated, and continuing research.
- Promote understanding and stewardship of resources by providing interpretive and educational opportunities.
- Provide opportunities to experience, understand, and enjoy the resource and surrounding area in a manner that is compatible with the preservation of resources.

Drawing from stakeholder and public input, the study team developed a range of management alternatives and tested their viability with current managers of the resource within the city of Waco and Baylor University and NPS leadership. Differences among alternatives related primarily as to who would manage the area and the approach or method to which the site's purpose would be achieved. Four potential management alternatives evolved and were outlined in a newsletter that was distributed for public review and comment during September 2007. Almost all of the public comments indicated that the alternatives presented in the newsletter represented a reasonable range of options to further develop and analyze in the special resource study. It was also interesting to note that a majority of the public comments submitted supported expanding the existing partnership between Baylor University and the city of Waco to include the National Park Service.

In accordance with the National Environmental Policy Act of 1969 (NEPA), one of the alternatives is a "no-action" alternative. This alternative represents continuing current management trends; it is alternative A in this document. This alternative also serves as the basis for comparing the environmental consequences of three other "action" alternative management scenarios. Two charts are provided at the end of this chapter to provide a quick comparison among alternatives. The first matrix provides a summary comparison of the components of each management alternative and the second matrix provides a summary comparison of the environmental consequences.

Elements Common to All Alternatives

There are a number of elements that are assumed to be common to all alternatives. They include a baseline level of development already underway by the Waco community to provide for resource protection and visitor access, accessibility, and the extent of the potential park boundary.

Level of Development

For the purposes of this study, it is assumed that Phase I construction initiated by the Waco community is underway and serves as the baseline level of park development for the site. The development includes an 8,400-square-foot shelter, with limited air-conditioned interior space over the excavation area and *in situ* specimens. The development will also include interpretive exhibits, an access road, a small parking area with overflow parking that can accommodate bus and recreational vehicles, connecting trails to the excavation shelter, a small visitor contact station with restrooms, utility extensions, and enhanced security systems.

Accessibility

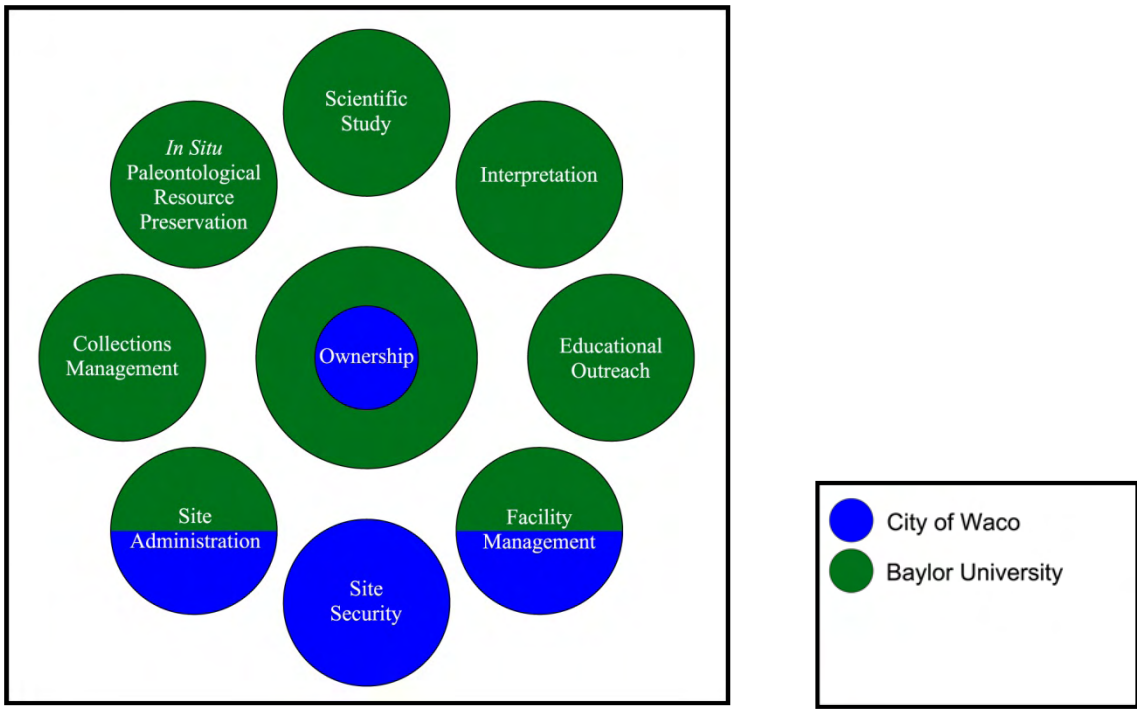
Any additional facility development would be accessible in accordance with the Architectural Barriers Act Accessibility Standards (ABAAS, May 8, 2006).

Park Boundary

The boundary of the potential park includes the 4.93-acre parcel containing the discovery site owned by the city of Waco and the surrounding three parcels totaling 104.41 acres owned by Baylor University. Acquisition of additional property beyond the collective 109.34 acres does not appear necessary at this time to ensure long-term protection of the special resource.

MITIGATION MEASURES

Mitigation measures are specific actions designed to minimize, reduce, or eliminate impacts of alternatives and to protect resources and visitors. The purpose of this special resource study is to evaluate the Waco Mammoth Site's potential for consideration as a new unit of the national park system. This phase of the study focuses on the evaluation of alternative management scenarios. If this site were to become a new unit of the national park system, additional planning and implementation proposals would be fully vetted through additional NEPA and NHPA compliance activities. This is where specific actions would be outlined to minimize, reduce, or eliminate impacts of alternatives and to protect resources and visitors, as well as also ensuring full compliance with the NEPA, NHPA, and NPS policy.



ALTERNATIVE A: CONTINUE CURRENT MANAGEMENT TRENDS (NO-ACTION)

Overview

The no-action alternative represents the continuation of current management trends at the Waco Mammoth Site and serves as a base-line measurement for comparing three proposed alternative management strategies. New programs, activities, or site development beyond the efforts currently underway by the Waco community are not considered in this alternative. For the purposes of this study, the following conditions and trends are presumed to continue.

Concept for Management

The Waco Mammoth Site is managed for the continuing preservation and protection of the paleontological resources, conducting scientific study, working towards enhancing resource protection of the *in situ* specimens, and providing for onsite visitor enjoyment and understanding through local community efforts.

Overall Management Framework

The existing cooperative management arrangement between the city of Waco and Baylor University is continued. The city of Waco manages the security and maintenance of the 4.93-acre property containing the core paleontological site. Baylor University manages the surrounding 104.41 acres and provides preservation of the *in situ* and collected specimens, preservation of the archives, scientific research involving the site and the collections, and educational expertise supporting the interpretive program for the core paleontological site.

Resource Management

Resources continue to be monitored and protected by the city of Waco and Baylor University.

Baylor University would continue to ensure the *in situ* paleontological resources are

stabilized and preserved. The current moratorium on excavation activities would continue.

The larger specimens collected from the site would remain in plaster jackets while the smaller bone fragments and soil samples would remain in cataloged cardboard boxes and stored within Baylor University's Mayborn Museum Complex. Research reports and documentation of the site and excavation activities would continue to be archived at the Mayborn Museum Complex.

Scientific Study

The university would continue to conduct scientific study of the resource to further the understanding of the circumstances of the site.

Level of Development

For the purposes of this study, it is assumed that the Waco community efforts to erect a protective shelter over the excavation area and to provide for controlled visitor access to the site are underway. Under this alternative, there would be no expansion of development beyond this effort.

Visitor Experience

Visitor understanding and appreciation of the resource continues to be provided off-site by a dedicated exhibit room within the museum setting of Baylor University's Mayborn Museum Complex.

Once the excavation shelter and site improvements are completed, visitor access would be accommodated. Opportunities for visitor understanding and appreciation of the paleontological resources would be greatly enhanced through onsite interpretive waysides and through controlled visitor access into the excavation shelter where views of the *in situ* specimens would be provided. However, as additional operational funding has not been allocated to accommodate daily visitation, there would not be any permanent onsite staff. Visitor access would be on a limited basis, with at least 12 events scheduled throughout the year to accommodate visitors into the excavation shelter as required by the Save America's Treasures grant. It is anticipated that existing staff from the city and Mayborn Museum would manage these events. Educational outreach programming for local schools or other groups would be very limited.

Facility Management

When the excavation shelter is completed, the city will be responsible for maintaining and operating the onsite facilities that provide for the protection of the *in situ* specimens and the accommodation of visitors.

The collection storage area housing the Waco Mammoth Site's paleontological collection and archives would continue to be maintained off-site within the geology/paleontology collections room of Baylor University's Mayborn Museum Complex.

Site Administration and Security

The city of Waco and Baylor University would continue to share site administration responsibilities. The city would continue to provide security, police, fire, and emergency medical services for the site.

Potential Site Recognition

Based on the initial findings of the special resource study, the Waco Mammoth Site is a potential candidate for two categories of site recognition. The first category is based on the resource evaluation and initial findings of national significance, which indicate that the Waco Mammoth Site is a potential candidate for national natural landmark status. The second category is based on the resource evaluation and initial findings of national significance and suitability, which indicate that the Waco Mammoth Site is potentially eligible for Congressional designation as a National Park Service affiliated area. A brief outline of each of these two designations is presented below.

National Natural Landmarks: National natural landmark designation is a process by

which natural areas, in both public and private ownership, are recognized as outstanding examples of our nation's natural heritage. The secretary of the interior, with the landowner's consent, designates national natural landmarks. Nationwide, nearly 600 sites have received this special designation. Two sites were designated national natural landmarks in 2006: Ashfall Fossil Beds National Natural Landmark in Nebraska, and Irvine Ranch National Natural Landmark in California. Prior to 2006, it had been almost 18 years since a site was designated. The National Natural Landmarks Program encourages conservation of these outstanding natural features. The National Park Service administers the program, and if requested, can assist national natural landmark owners and managers with the conservation of these important sites. These services may include any of the following:

1) Assisting national natural landmark owners with grant applications to fund site conservation and interpretive projects.

2) Providing or brokering technical assistance to national natural landmark owners.

3) Building partnerships by coordinating for research and other purposes with the National Park Service Rivers, Trails, and Conservation Assistance Program and the network of Cooperative Ecosystems Study Units and collaborating with academic institutions in various aspects of achieving the National Natural Landmarks Program's objectives.

National Park Service Affiliated Areas: Affiliated areas include a variety of locations in the United States and Canada that preserve nationally significant properties outside the national park system. Congress designates affiliated status through legislation, which may also authorize the secretary of the interior, through the National Park Service, to provide technical and/or financial assistance.

Technical assistance may include access to training and/or services such as interpretation, historic preservation, and other resource protection and preservation. Congress may appropriate financial assistance for one-time studies or preservation projects, or it may appropriate annual funds to help manage the affiliated area. Affiliated areas are permitted to display the NPS arrowhead symbol in tandem with the partner's symbol and may use it in their printed and online literature and other interpretive media about the site.

Under this alternative, it is assumed that these options represent potential site recognition only, as neither of these designations is actively being pursued by the city of Waco, Baylor University, or Congress at this time.

Ownership

The core paleontological site remains under the ownership of the city of Waco, while the surrounding lands continue under the ownership of Baylor University.

Ownership of the collected specimens and archives continues under shared ownership between the city of Waco and Baylor University.

Cost Estimate

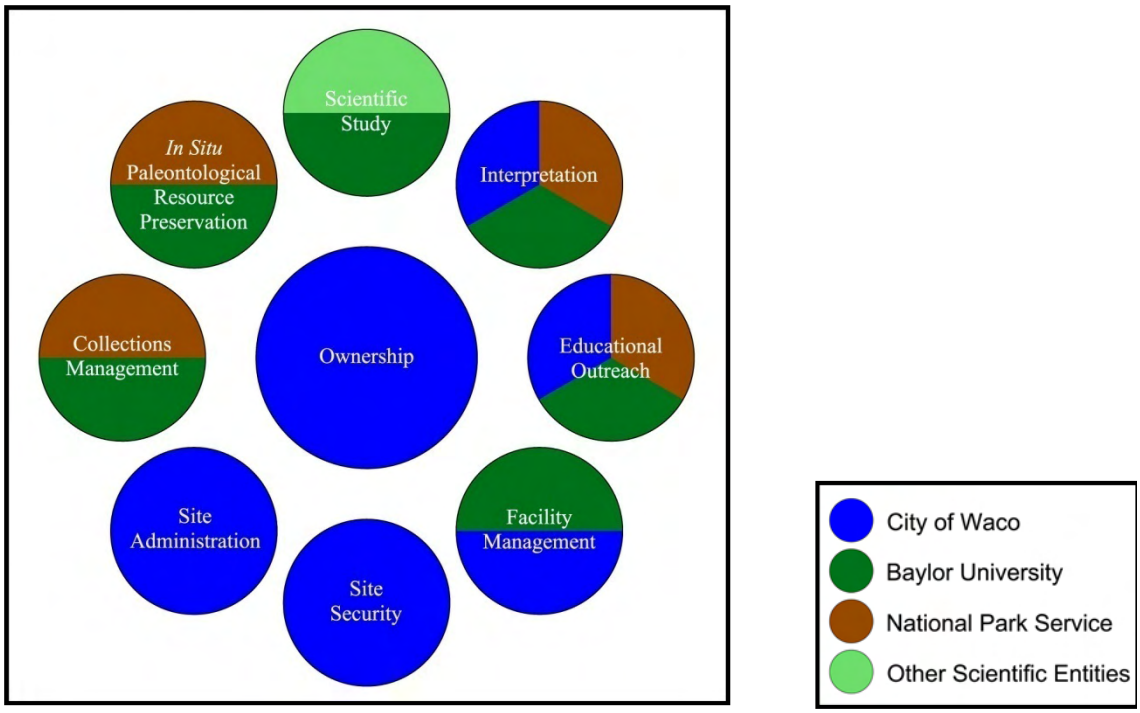
The current costs for managing the Waco Mammoth Site are difficult to quantify. Staff support for the site is an assigned collateral duty among other responsibilities. Under this alternative, it is assumed that no new funding for staffing, maintenance, and operations beyond what is currently being provided by Baylor University's Mayborn Museum Complex and the city of Waco's Department of Parks and Recreation would be provided. The costs to provide continued stewardship of the resource, as well as the added responsibilities for facility maintenance, utilities, security, and staffing when the site is open to visitors during the 12 scheduled events per year, would be covered by the city and the Mayborn Museum's existing funding levels.

Partnership Opportunities

The Waco Mammoth Foundation and the local community continue to play a key partnership role in supporting preservation

and public access initiatives for the Waco Mammoth Site.

The Waco Mammoth Foundation has spearheaded an energetic effort to seek public and private support for the Save America's Treasures initiative. Major donors include Baylor University, the city of Waco, McLennan County, the Cooper Foundation, the Waco Foundation, as well as a host of other foundations and private individuals.



ALTERNATIVE B: PARTNERSHIPS LED BY THE CITY OF WACO

Concept for Management

The Waco Mammoth Site would be managed for the continuing preservation and protection of the paleontological resources, conducting scientific study, providing for onsite visitor enjoyment and understanding of the paleontological resources, and providing a range of environmental educational and recreational opportunities within the surrounding lands.

Overall Management Framework

The existing cooperative management arrangement between the city of Waco and Baylor University would be expanded with additional partners, with the city assuming the lead responsibility for managing the site as a municipal park.

National natural landmark status would be actively pursued, allowing the city to seek technical assistance from the National Park Service for paleontological resource preservation, interpretation, and educational outreach. Additional partnerships, such as local community initiatives, land trusts, foundations, nongovernmental organizations, and federal, state, and local governments, would also be sought to assist with developing and managing the site.

This alternative would protect and interpret the site, and provide opportunities for research of the core paleontological resources. It would also give the city freedom to pursue possible broader ideas such as providing environmental education and recreational opportunities.

Resource Management

Resources would be monitored and protected by the city of Waco and Baylor University. Baylor University, with technical assistance and guidance provided by National Park Service paleontologists and museum

specialists, would continue to ensure the *in situ* paleontological resources are stabilized and preserved. With the protection from the elements provided by the excavation shelter, the current moratorium on excavation activities could be lifted to allow for controlled investigations.

Technical assistance by the National Park Service could also be provided to Baylor University to develop protocols and methodologies for initiating preparation and cataloging of the specimens currently housed in plaster jackets and the smaller fragments and soil samples in cardboard boxes. Dedicated space for establishing a specimen preparation laboratory may be accommodated within the museum or within the onsite facilities developed by the city. The collection would continue to be housed within Baylor University's Mayborn Museum Complex. Research reports, documentation of the site and excavation activities would also continue to be archived there.

Scientific Study

Baylor University would continue to conduct scientific study of the site. The university would also actively network with and coordinate scientific study by other scientific entities. Opportunities would be pursued to establish an endowment to support continued scientific study of the resource.

Level of Development

The Waco community efforts to erect a protective shelter over the excavation area and to provide for controlled visitor access to the site are currently underway. However, under this alternative the level of development could be expanded to accommodate a broader range of onsite visitor opportunities. The city could pursue their long-range vision for developing a city park at the site. As funding permits, additional facilities may be provided that could include an environmental education center, research and specimen preparation laboratory (either onsite or within the Mayborn Museum Complex), interpretive plaza, expanded interpretive waysides, expanded parking, expanded restrooms, administration/ maintenance support structure, interpretive nature trails and connecting trails to the Bosque River and Brazos River Corridor, boat dock, and picnic and informal play areas.

Visitor Experience

Similar to the visitor experience described in alternative A, visitor understanding and appreciation of the resource would continue to be provided off-site by a dedicated exhibit room within the museum setting of Baylor University's Mayborn Museum Complex. However, visitors would be able to participate in a wider range of interpretation programs in alternative B than in alternative A.

Once the excavation shelter and site improvements are completed, visitor access to the core paleontological area and surrounding lands would be made available to the visiting public on a daily basis. Opportunities for visitor understanding and appreciation of the paleontological resources would be greatly enhanced through onsite interpretive waysides and through controlled visitor access into the excavation shelter where views of the *in situ* specimens would be provided.

After development of a comprehensive interpretive plan to guide interpretive programming for the resource, visitor understanding and appreciation of the paleontological resources would be enhanced through additional onsite interpretive mechanisms. Guided tours and interpretive programs for school groups, and special events would be provided.

In addition, the environmental education center would provide enhanced visitor understanding and appreciation of the mammoth site as well as the unique environment found along the interface of the Texas Hill Country and Gulf Coastal Plain. The city of Waco, Baylor University, and the National Park Service could collaborate on the development of the interpretive plan, program, and media. They could also collaborate on educational outreach programs

targeting school groups at the elementary through high school level, programs for the general public to promote life-long learning, and scientifically detailed programs for students at the post secondary education level.

An interactive website could be established to provide a "Portal to the Pleistocene" with an in-depth presentation of the site and its relationship to the Pleistocene, updates on the progress of ongoing scientific study conducted at the site and on the collected specimens, and links to other mammoth sites found throughout the country and potentially other locations around the world.

Recreational opportunities could be developed by the city by providing access to the Bosque Riverfront and Brazos River Corridor by way of connecting trails. Water taxis could be accommodated along the site's Bosque riverfront, which could extend additional connections to other community attractions.

Facility Management

The city would be responsible for maintaining and operating the onsite facilities that shelter the *in situ* specimens and provide visitor access as well as the expanded site infrastructure described above.

As is described in alternative A, the collection storage area housing the Waco Mammoth Site's paleontological collection would continue to be maintained off-site within the geology/paleontology collections room of Baylor University's Mayborn Museum Complex.

Site Administration and Security

The city of Waco would be responsible for site administration and would continue to provide city services such as security, police protection, fire suppression, and emergency medical response for the entire site.

Site Recognition

The city would actively pursue national natural landmark (NNL) designation through the National Park Service's NNL program. Another option under this alternative could include Congressional designation as a National Park Service "affiliated area" to further strengthen the possibility of National Park Service involvement.

Ownership

The core paleontological site would remain under the ownership of the city of Waco; however, the surrounding lands currently under the ownership of Baylor University could be transferred to the city of Waco for the purposes of allowing the city to more fully develop the site as a city park.

Ownership of the collected specimens and archives would continue as shared ownership between the city of Waco and Baylor University.

Cost Estimate

Capital improvement cost estimates for this alternative are based on the recent master planning effort commissioned by the city. It is anticipated that $8.1 million would be needed to implement the city's long-range vision for creating a municipal park at the Waco Mammoth Site.

The city projects that a staff increase of approximately 5.5 FTE (full-time equivalent) positions would be needed to provide entry control, schedule group tours, provide general information, and maintain facilities. Additional assistance for large ground maintenance could be provided by existing crews from the city's Department of Parks and Recreation. Their annual operational costs are estimated to be approximately $300,000. Baylor University's Mayborn Museum staff anticipates a need to provide a full time coordinator of volunteers to recruit, schedule and oversee volunteers at the site. The training of volunteers could be conducted by the existing education staff of the Mayborn Museum as part of their assigned duties. The annual estimated cost is projected to be $45,000. Existing museum staff and/or trained

volunteers could participate in the fossil preparation efforts.

Technical assistance could be provided to Mayborn Museum and city of Waco staff by National Park Service paleontologists, museum curators, fossil preparators, and interpretive planners to help guide preservation and interpretive/educational outreach programming efforts. It is anticipated that $10,000 to $25,000 per year in additional NPS funding would be needed for a five-year period to support NPS staff time and travel expenses.

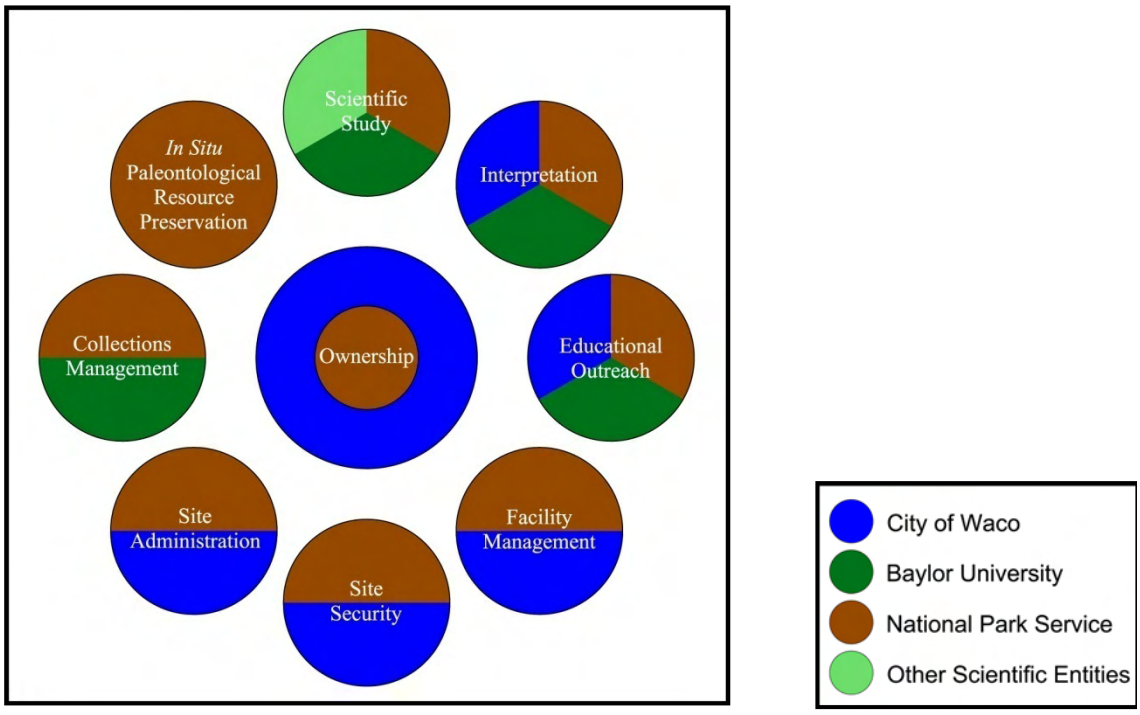
Partnership Opportunities

As in alternative A, the Waco Mammoth Foundation and the local community would continue to play key partnership roles in supporting preservation and public access initiatives for the site.

Technical assistance from the National Park Service could be provided if the city were to successfully pursue National Natural Landmark designation for the site. If Congress were to designate the Waco Mammoth Site as a National Park Service affiliated area, technical and potentially financial assistance could also be provided.

A number of other opportunities could be pursued to help support management of the site, including the following:

- donations or grants from government, corporate, and/or private sources
- community volunteers and student interns
- volunteer scholar and student led research activities
- entry fees could be charged to help offset operational expenses



ALTERNATIVE C: PARTNERSHIPS LED BY THE NATIONAL PARK SERVICE

Concept for Management

Similar to the management described in alternative B, in alternative C the Waco Mammoth Site would be managed for the continuing preservation and protection of the paleontological resources, conducting scientific study, providing for onsite visitor enjoyment and understanding of the paleontological resources, and providing a range of recreational and environmental educational opportunities. Alternative C is different from alternative B in that management responsibilities for fulfilling this purpose would be delegated among the National Park Service, the city of Waco, and Baylor University, and there would be an expansion of partnership opportunities with others.

Overall Management Framework

The Waco Mammoth Site would be managed as a new unit of the national park system, in partnership with the city of Waco, Baylor University, and others.

The National Park Service would prepare a general management plan to guide future managers of the site by clearly defining what level of resource conditions and visitor experiences should be achieved and maintained over time. Developed in consultation with local governments, park stakeholders, and the general public, the plan would establish overarching resource management goals and provide guidance concerning the overall level and intensity of development appropriate for the site. A partnership development strategy would be included as an integral component of the plan. Under this alternative the National Park

Service would take the lead responsibility for ensuring the protection, scientific study, and visitor enjoyment of paleontological resources, enlisting the help of partners to accomplish this mission. The city of Waco or other partners would take the lead for initiating additional recreational, interpretive, and environmental educational opportunities on the site. For example, the National Park Service would make sure that *in situ* paleontological resources are protected and would provide opportunities for visitor enjoyment, but would not likely initiate major capital improvements for expanded visitor services or administrative facilities. Any major investments to provide a full service visitor center or environmental education facility, administrative facilities, and regional trail connections could be pursued by the city and other partners.

Resource Management

The National Park Service would develop a resource stewardship strategy including a collections management plan to guide resource management activities. For the purposes of this study, it is assumed that future resource management strategies would include the following recommendations:

The National Park Service would assume responsibilities for the core paleontological resources of the site. This would include monitoring the conditions of the *in situ* specimens and perhaps exploring other areas within the excavation shelter to acquire additional information about the circumstances of the site. Other site resources in the surrounding lands would be managed by the city of Waco.

The paleontological collections management would be divided between the National Park Service and Baylor University. The National Park Service would develop protocols and methodologies for initiating preparation and cataloging of the specimens currently housed in plaster jackets and the smaller fragments and soil samples in cardboard boxes. It is assumed that a specimen preparation laboratory could be incorporated into the city's proposed environmental education center at the site with the National Park Service operating the lab. The collection would continue to be housed within Baylor University's Mayborn Museum Complex, except that select portions of the collection may be housed onsite within the education center for the purposes of exhibiting prepared specimens and/or exhibiting the specimen preparation process to the public. Research reports and documentation of the site and excavation activities would be maintained onsite by the National Park Service. Similar to alternative B, this would benefit future researchers as access to prepared specimens would be made possible for the first time. It would also provide a benefit for the public as select fossils could be cast for exhibit purposes. However, under this alternative, it would provide an added benefit of integrating the specimen preparation activities into the interpretive experience at the site.

Scientific Study

To further the understanding of the site and its circumstances, the National Park Service would support and coordinate the scientific study of the core paleontological resources and geologic context. Opportunities would be pursued to establish an endowment to support continued scientific study of the resource. The National Park Service would consult with the Cooperative Ecosystem Studies Units (CESU) national network to help facilitate expanded research opportunities through other scientific institutions. Each CESU is structured as a working collaborative among federal agencies and universities that are focused on specific biogeographic regions of the country. The Waco Mammoth Site falls within the interface of three biographic regions: the Gulf Coast, Desert Southwest, and Great Plains. Baylor University could apply for inclusion in either of these units to expand their opportunities to apply for potential federal funding of future research initiatives for the site.

Level of Development

The National Park Service would initiate a general management planning effort to

provide guidance concerning the overall level and intensity of development appropriate for the site. For the purposes of this study, it is assumed that the level of development would be as follows.

Similar to alternative A, the Waco community efforts to erect a protective shelter over the excavation area and to provide for controlled visitor access to the site are underway. However, under this alternative the National Park Service would provide for enhanced interpretive mechanisms of the paleontological resources and would partner with others to initiate a broader range of other onsite visitor opportunities. For example, the city of Waco could pursue their long-range vision for developing a city park at the site that may include, as future funding permits, an environmental education center with expanded indoor and outdoor interpretive opportunities, interpretive nature trails connecting to the Bosque Riverfront and other regional trailways along the Brazos River corridor, boat access along the Bosque Riverfront, and picnic and informal play areas. It is also assumed that NPS staff could be accommodated within the administrative facilities developed by the city.

Visitor Experience

Visitors would be able to participate in a similar range of interpretation programs as outlined under alternative B.

Similar to that described in alternative A, visitors' understanding and appreciation of the resource would continue to be provided off-site by a dedicated exhibit room within the museum setting of Baylor University's Mayborn Museum Complex.

Once the excavation shelter and site improvements are completed, visitor access would be accommodated. Opportunities for visitor understanding and appreciation of the paleontological resources would be greatly enhanced through onsite interpretive waysides and through controlled visitor access into the excavation shelter where views of the *in situ* specimens would be provided. Access to the core paleontological area and surrounding lands would be made available to the visiting public on a daily basis.

Interpretive programs and media provided through the Waco community's Phase I park development efforts would be expanded through the collaborative efforts of the National Park Service, the city of Waco, and Baylor University. A comprehensive interpretive plan would be prepared to guide the development of enhanced interpretive mechanisms and programs for the resource. Guided tours and interpretation programs for school groups and special events would be provided. Opportunities to allow the visiting public to observe the specimen preparation work would be developed.

The partners would also collaborate on educational outreach programs targeting school groups at the elementary through high school level, programs for the general public to promote life-long learning, and scientifically detailed programs for students at the post-secondary education level.

In addition, an environmental education center would provide enhanced visitor understanding and appreciation of the mammoth site as well as of the distinctive environment found along the interface of the Texas Hill Country and Gulf Coastal Plain.

The specimen preparation laboratory with strategically placed viewing windows could be integrated into the city's environmental education center to provide opportunities for visitors to observe the fossil preparation process.

An interactive website could be established to provide a "Portal to the Pleistocene" with an in-depth presentation of the site and its relationship to the Pleistocene, updates on the progress of ongoing scientific study efforts, and links to other mammoth sites found throughout the country and potentially other locations around the world.

Recreational opportunities could be developed by the city by providing access to the Bosque Riverfront and Brazos River corridor by way of connecting trails. Water taxis could be accommodated along the site's Bosque riverfront, which would extend the additional connections to other community attractions.

Facility Management

The facilities constructed through the Waco community initiative providing protection of the *in situ* specimens and providing visitor access to the excavation area would be operated and maintained by the National Park Service.

Additional facilities developed by the city to enhance the environmental educational and recreational opportunities of the site would be operated and maintained by the city of Waco.

Similar to alternative A, the collection storage facility housing the Waco Mammoth Site's paleontological collection would continue to be maintained off-site within Baylor University's Mayborn Museum Complex.

Site Administration and Security

The National Park Service would be the primary manager of the 4.93-acre core paleontological site, while the city of Waco would be the primary manager of the surrounding 104-acre city park. The city would provide city services such as security, police protection, fire suppression, and emergency medical response for the entire site. It is assumed that shared jurisdiction for law enforcement would be established between the city of Waco and the National Park Service for areas under NPS management.

Site Recognition

Congress would designate the site as a new unit of the national park system. The process for national natural landmark designation could be pursued by the National Park Service.

Ownership

Enabling legislation would allow flexibility for a mixture of land ownership and management among the key entities that would best fulfill the mission. For example, while a National Park Service boundary may be authorized for the entire site, some or all of the land may remain with the city of Waco and Baylor University. It is assumed for the purposes of this study, that the federal government would acquire ownership of the core paleontological site, the collected specimens, and archives. The lands owned by Baylor University would be transferred to the city of Waco for the purpose of allowing the city to more fully develop the surrounding lands as a city park.

Cost Estimate

Similar to alternative B, capital improvement cost estimates for this alternative are based on the recent master planning effort commissioned by the city. It is anticipated that $8.1 million would be needed to implement the city's long-range vision for creating a municipal park at the Waco Mammoth Site.

The city projects a staff increase of approximately 5.5 FTE (full-time equivalent) positions would be needed to provide entry control, schedule group tours, provide general information, and maintain facilities. Additional assistance for large ground maintenance could be provided by existing crews from the city's Department of Parks and Recreation. Their annual operational costs are estimated to be approximately $300,000.

There would be no projected increases in staffing or operational expenses beyond current levels already provided by Baylor University's Mayborn Museum.

The National Park Service would program and develop enhanced interpretive mechanisms for the site as well as within the excavation pavilion. The projected estimated cost for enhanced interpretive media is $585,000. It is anticipated that NPS staff could be accommodated within the administrative spaces of city-owned facilities, so there would

be no additional capital improvement costs for NPS needs.

The estimated annual costs for NPS employees is based on the assumption that staff would be supervised and supported by the Lyndon B. Johnson National Historical Park located in Johnson City, 144 miles to the southwest of the site. At the fully staffed level, it is estimated that approximately 4 FTE (full-time equivalent) positions would work at the Waco Mammoth Site with a focus on the core paleontological area. Employees would include a paleontologist who would serve as the resource manager and research coordinator for the site; a collections manager/fossil preparator who would work with Mayborn Museum staff and trained volunteers to initiate specimen preparation efforts; an interpretive specialist who would oversee the interpretive/educational outreach programs, supervise seasonal interpreters, and serve as the volunteer coordinator; and two to three seasonal interpreters.

Annual staffing costs including benefits are estimated to total $246,000. Annual operational costs for supplies, materials, utilities, and equipment would be approximately $99,000 annually.

Partnership Opportunities

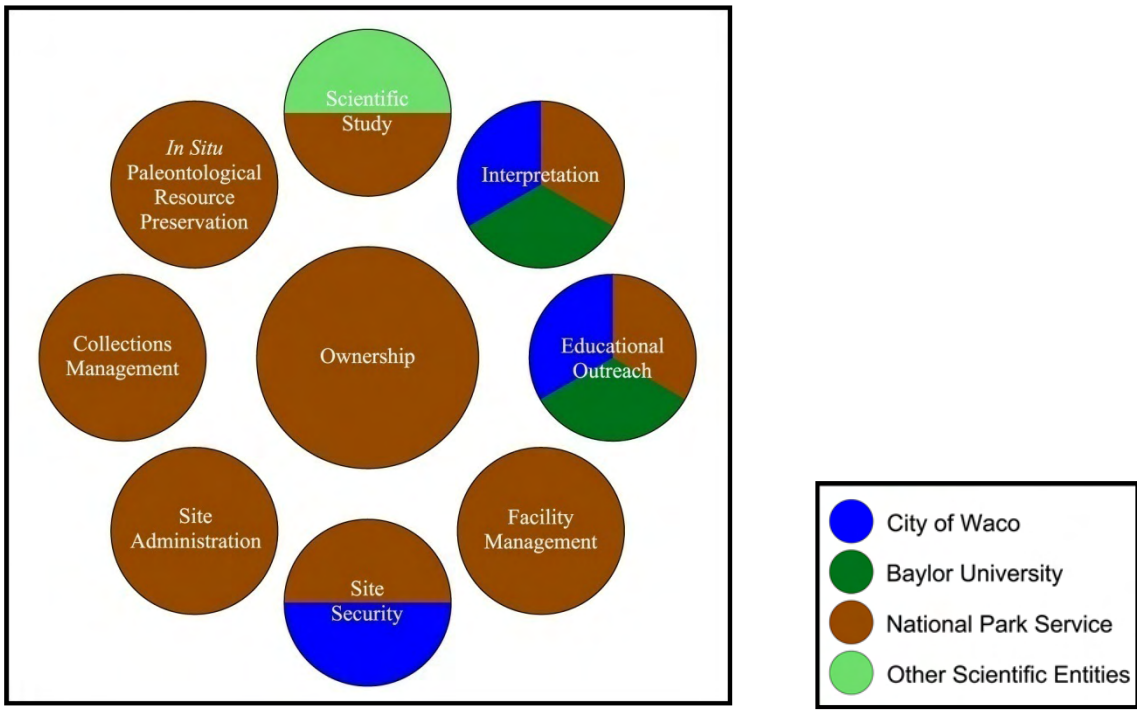
The National Park Service would join the existing management partnership between the city of Waco and Baylor University, taking the lead regarding the resource protection and visitor enjoyment of the fundamental paleontological resources.

As in alternative A, the Waco Mammoth Foundation and the local community would continue to play key partnership roles in supporting preservation and public access initiatives for the site. A written agreement could be developed between the National Park Service and the Waco Mammoth Foundation establishing the foundation as an NPS Friends Group. Additional partners would be invited to help support expanded resource protection and visitor enjoyment opportunities.

Cooperative agreements could be developed with the city and/or other partners for taking the lead in funding and managing a more fully developed surrounding parkland for enhanced visitor opportunities.

A number of other opportunities could be pursued to help support management of the site, including the following:

- donations or grants from government, corporate, and/or private sources
- community volunteers and student interns
- volunteer scholar and student led research activities
- entry fees could be charged to help offset operational expenses



ALTERNATIVE D: MANAGED AS A FOCUSED UNIT OF THE NATIONAL PARK SYSTEM

Concept for Management

As is in alternative A, in alternative D the Waco Mammoth Site is managed for the continuing preservation and protection of the paleontological resources, conducting scientific study, and providing for onsite visitor enjoyment and understanding. Alternative D is different from alternative A in that the management responsibility for fulfilling this purpose is transferred to the National Park Service.

Overall Management Framework

Waco Mammoth Site would be managed as a new unit of the national park system; the federal government would own and the National Park Service would manage the entire paleontological resource (*in situ* fossils and the collection of fossils currently housed at Baylor University).

The National Park Service would prepare a general management plan to guide future managers of the site by clearly defining what level of resource conditions and visitor experiences should be achieved and maintained over time. In consultation with local governments, park stakeholders, and the general public, the plan would establish overarching resource management goals and provide guidance concerning the overall level and intensity of development appropriate for the site. A partnership development strategy would be included as an integral component of the plan.

Under this alternative, the National Park Service would focus on the core mission of protection, scientific study, and interpretation of the fundamental paleontological resources. The National Park Service would not likely expand beyond this core focus to initiate

other projects such as an environmental education or other recreational opportunities.

Partners would still play a role in educational outreach, interpretive programs, and site security to assist the National Park Service with achieving its core mission.

Resource Management

The National Park Service would develop a resource stewardship strategy including a collections management plan to guide resource management activities. For the purposes of this study, it is assumed that the following resource management strategies would be included.

Paleontological resources would be inventoried, monitored, and protected by the National Park Service. Other site resources in the surrounding lands would be inventoried, monitored, and protected as well. Resource stewardship plans would be developed to guide future management of these resources.

The National Park Service would ensure the *in situ* paleontological resources are stabilized and preserved. With the protection from the elements provided by the excavation shelter, the current moratorium on excavation activities could be lifted to allow for controlled investigations.

The National Park Service would develop protocols and methodologies for initiating preparation and cataloging of the specimens currently housed in plaster jackets and the smaller fragments and soil samples in cardboard boxes. The storage of collected specimens and archives would continue to be housed within Baylor University's Mayborn Museum Complex, until the collection could be accommodated in a new collection storage facility constructed onsite. This would require an exception from the NPS Intermountain Region museum collections strategic planning goal of moving management of museum collections towards regional repositories. The primary reason for deviating from this regional plan is that the integrity of the resource is tied to the fact that all of the fundamental paleontological resource components have been under the curatorial care of a single institution. This management alternative strives to maintain this condition; with a shift in resource stewardship from Baylor University to the National Park Service. The intent would be to keep the fundamental resources onsite; however, other collected specimens not related to the fundamental paleontological resources or geologic context may be housed in other regional repositories. A collections management plan would be prepared to help guide this distinction.

Scientific Study

As in alternative C, the National Park Service would support and coordinate scientific research to further the understanding of the site and its circumstances. Opportunities would be pursued to establish an endowment to support continued scientific study of the resource. The National Park Service would also consult with the Cooperative Ecosystem Studies Units (CESU) national network to help facilitate expanded research opportunities through other scientific institutions.

Level of Development

The National Park Service would prepare a general management plan to provide guidance concerning the overall level and intensities of development appropriate for the site. For the purposes of this study, the following is assumed.

As in alternative A, the Waco community efforts to erect a protective shelter over the excavation area and to provide for controlled visitor access to the site are underway.

However, under this alternative, additional development could be pursued by the National Park Service to house the entire paleontological collection onsite within a new collections storage facility that would include a specimen preparation laboratory. Administrative office space and maintenance support facilities would also be required.

Visitor Experience

As in alternative A, visitor understanding and appreciation of the resource would continue to be provided off-site by a dedicated exhibit room within the museum setting of Baylor University's Mayborn Museum Complex.

Once the excavation shelter and site improvements are completed, visitor access would be accommodated. Opportunities for visitor understanding and appreciation of the paleontological resources would be greatly enhanced through onsite interpretive waysides and through controlled visitor access into the excavation shelter where views of the *in situ* specimens would be provided. Access to the core paleontological area and surrounding lands would be made available to the visiting public on a daily basis.

Interpretive programs and media provided through the Waco community's Phase I park development efforts would be expanded through the collaborative efforts of the National Park Service, the city of Waco, and Baylor University. A comprehensive interpretive plan would be prepared to guide the development of enhanced interpretive mechanisms and programs for the resource. Guided tours and live interpretation programs for school groups and special events would be provided. Opportunities to allow the visiting public to observe the specimen preparation work would be developed.

The partners would also collaborate on educational outreach programs targeting school groups at the elementary through high school level, programs for the general public to promote life-long learning, and scientifically detailed programs for students at the post-secondary education level.

An interactive website, linked to the National Park Service website, could be established to provide a "Portal to the Pleistocene" with an in-depth presentation of the site and its relationship to the Pleistocene, updates on the progress of ongoing scientific study conducted at the site and on the collected specimens, and links to other mammoth sites found throughout the country.

Facility Management

The National Park Service would be responsible for maintaining and operating all facilities.

Site Administration and Security

The National Park Service would be responsible for site administration and security. It is assumed that shared jurisdiction for law enforcement could be established between the city of Waco and the National Park Service. It is also assumed that the city would provide fire suppression and emergency medical response to the site, as it would in the other alternatives.

Site Recognition

Congress would designate the site as a new unit of the national park system. The process for national natural landmark designation could be pursued by the National Park Service.

Ownership

The Waco Mammoth Site land parcels and the entire paleontological collection including associated documentation and archives would be transferred at no cost to the federal government.

Cost Estimate

National Park Service estimated costs are based on very broad needs typically associated with the development of a new unit of the national park system. If the site becomes a new unit of the national park system, the National Park Service would develop a general management plan that would better outline facility needs. For the purposes of this study, it is estimated that an additional $2.6 million in capital improvement costs would be needed to provide for enhanced interpretive mechanism, onsite administrative/maintenance support facilities, and collection storage facility. It is also anticipated that staff would lease administrative support space off-

site for a number of years until general management planning, compliance, and development plans would be complete and funding for capital improvements would be available. It is projected that leasing costs of $27,000 per year for a period of five years would be needed.

At the fully staffed level, it is estimated that approximately 10 FTE (full-time equivalent) positions would be needed at the Waco Mammoth Site. Employees would include park superintendent and administrative staff, paleontologist/resource manager/research coordinator, collections manager/fossil preparator, interpretive/ education specialist/volunteer coordinator, seasonal interpreters, maintenance personnel, and law enforcement rangers. Annual staffing costs including benefits are estimated to total $580,000. Annual operational costs for supplies, materials, utilities, and equipment will be approximately $188,500.

Partnership Opportunities

A written agreement could be developed between the National Park Service and the Waco Mammoth Foundation establishing the foundation as an NPS friends group. This would allow the Waco Mammoth Foundation to continue to play a key partnership role in supporting preservation and public access initiatives for the site. Additional partners would be invited to help support expanded resource protection and visitor enjoyment opportunities.

Opportunities to collaborate with the Mayborn Museum and the city of Waco regarding interpretive and educational outreach programs would be initiated.

A number of other opportunities could be pursued to help support management of the site including the following:

- donations or grants from government, corporate, and/or private sources
- community volunteers and student interns
- volunteer scholar and student led research activities
- entry fees could be charged to help offset operational expenses
- security and fire protection services could be substantially enhanced by partnerships between the National Park Service and the city of Waco.

ALTERNATIVES CONSIDERED BUT DISMISSED

During the study process, some additional management alternatives were raised through public comment or National Park Service concerns that were considered but dismissed. These included a number of scenarios in which the site would be managed by a single entity other than sole management by the National Park Service. This could include sole management by Baylor University, sole management by the city of Waco, sole management by the Texas Parks and Wildlife Department, or sole management by another entity such as a scientific association or other nonprofit group.

Both the city of Waco and Baylor University expressed concern that this approach would not be a viable management option. Transferring the sole management responsibilities to either the city or the university would compromise the effectiveness of maintaining the current level of resource stewardship. Both the city of Waco and Baylor University view their existing partnership as utilizing the strengths of each institution's expertise. With the recently chartered Waco Mammoth Foundation, a nonprofit organization and community advisory board for the site, the partnership has grown. The city and university view this expanded partnership as a strong one, which has made great strides in advancing protective measures for the site as well as in developing opportunities for public access and appreciation.

Conversations with personnel at the Texas Parks and Wildlife Department (TP&W) revealed that they are currently downsizing personnel and decommissioning a significant number of state park units due to fiscal constraints. At this time, it does not appear to be economically feasible for TP&W to assume the sole management responsibility for the site given the department's current financial challenges with maintaining the existing state park system.

The city of Waco and Baylor University do not see any advantage in transferring the sole management responsibility to another scientific association or nonprofit group, as they anticipate that a single entity would still rely on the existing partners to function successfully. However, the city and university did acknowledge the power of collaboration with other universities and scientific institutions to conduct research and enhance the understanding of the site, and that this type of partnership would always be an available option.

SUMMARY AND COMPARISON OF ALTERNATIVES

Alternative Highlights

Table 4 summarizes the differences among the alternatives by contrasting their major features and highlights. Table 5 summarizes the differences between the alternatives by contrasting their potential environmental impacts.

Environmentally Preferred Alternative

NEPA regulations and NPS policy require that this study identify the environmentally preferred alternative. The reader is reminded that **the environmentally preferred alternative should not be viewed as the National Park Service preferred alternative** or as a positive or negative recommendation by the National Park Service or the Department of the Interior for any future management strategy or action.

The environmentally preferred alternative is determined by applying criteria set forth in NEPA, as guided by direction from the Council on Environmental Quality (CEQ). The CEQ has stated that the environmentally preferred alternative is the alternative that will promote the national environmental policy as expressed in NEPA, Section 101, by meeting the following objectives:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.

- Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

This special resource study evaluates management options and not detailed development proposals; therefore, the last objective, "Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources" would be more appropriately evaluated when subsequent implementation planning is developed, although all alternatives could incorporate this as a goal for future development proposals.

As the site is already under the stewardship of the city of Waco and Baylor University and is being protected from incompatible uses, each of the alternatives would fulfill the responsibilities of this generation as trustee of the site for succeeding generations. Similarly, the other goals listed above would be satisfied, only to a slightly greater or lesser degree, by each of the alternatives. However, alternatives B and C attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences. Under these alternatives, the lands surrounding the core paleontological resources accommodate expanded opportunities for enhanced visitor enjoyment of the other resources of the site. Therefore, alternatives B and C are considered the environmentally preferred alternatives.

Most Effective and Efficient Alternative

The 1998 Omnibus Parks Management Act (*Public Law 105-391 §303*) and NPS policy mandates that each special resource study identify the alternative or combination of alternatives which would, in the professional judgment of the director of the National Park Service, be most effective and efficient in protecting significant resources and providing opportunities for appropriate public enjoyment. For the purposes of this study, effectiveness and efficiency are defined as the capability to produce desired results with a minimum expenditure of energy, time, money, or materials.

While all of the alternatives provide for protection and public enjoyment of the special resources of the Waco Mammoth Site, there are distinct differences between the alternatives with regard to the degree of management effectiveness and efficiency.

A comparison of costs associated with each alternative indicates that alternative A, the no-action alternative that continues current management trends, would require the least expenditure of energy, time, money, and materials. However, alternative A does not include increases in staffing or operational funding; consequently accommodating visitor access to the site is limited under this alternative to only monthly scheduled events. This is not a reasonable level of public enjoyment for such a nationally significant treasure, and as such, alternative A is the least effective of all the alternatives.

Of the three action alternatives, alternative D requires the least expenditures of energy, time, money, and materials, although the range of visitor opportunities is limited to just those associated with the core paleontological resources. Alternatives B and C provide a greater range of visitor enjoyment opportunities without compromising resource integrity. Under both alternatives, the lands

surrounding the core paleontological resources are used to accommodate expanded opportunities for visitor understanding of the geological context of the site, establishing environmental education programs, and providing recreational access along the Bosque River. Alternatives B and C are more effective in providing a greater range of appropriate public enjoyment opportunities at the Waco Mammoth Site than alternative D.

When comparing the projected costs of alternatives B and C, alternative B requires a lower expenditure of energy, time, money, and materials, which would be supported from a number of funding sources: federal, municipal, and private. Under this city of Waco led partnership approach, NPS expertise is leveraged by providing technical assistance and guidance from NPS specialists to the existing managers of the site. This arrangement results in a very effective and efficient approach for protecting and enhancing the conditions of paleontological collection, enhancing interpretive and educational programs, and enabling an expanded level of scientific research and study related to the special resource.

While the range of visitor opportunities are similar under alternatives B and C, alternative C provides a greater level of assurance for maintaining long-term resource protection. Alternative C assumes a full time, onsite commitment of NPS specialists with experience in the management and interpretation of paleontological resources. The day-to-day efforts of NPS resource managers and interpreters under this alternative has the potential to provide a more stable and consistent approach for protecting and enhancing the conditions of paleontological collection, enhancing interpretive and educational programs, and enabling an expanded level of scientific research and study related to the special resource in comparison to the periodic NPS technical assistance provided under alternative B. Assuming initial and continued funding is made available to support this level of resource stewardship, alternative C is the most effective and efficient management alternative.

DETERMINATION OF NEED FOR DIRECT NPS MANAGEMENT

The review of the existing partnership between the city of Waco and Baylor University demonstrates that this partnership is currently providing adequate protection of the special resources of the Waco Mammoth Site and is working toward providing for visitor enjoyment. These were key factors in the finding that direct NPS management would not be the only practicable means for meeting the goals of protecting resources and furthering public use. However, to meet these goals to the fullest extent, there are significant roles that the National Park Service could have in guiding the preservation efforts of the paleontological collection, enhancing the interpretive and educational outreach programs, and enabling an expanded level of scientific research and study of this special resource.

Table 4: Summary Table of Alternative Highlights

	Alternative A Continuation of current management trends	**Alternative B** Partnerships led by the city of Waco	**Alternative C** Partnerships led by the National Park Service	**Alternative D** Managed as a focused unit of the National Park System
Overall Management Framework	The existing cooperative management arrangement between the city of Waco and Baylor University is continued.	The existing cooperative management arrangement between the city of Waco and Baylor University is expanded with additional partners, with the city assuming the lead responsibility for managing the site as a city park.	Waco Mammoth Site would be a new unit of the national park system, in partnership with the city of Waco, Baylor University, and others.	Waco Mammoth Site would be a new unit of the national park system, with the entire paleontological resource managed onsite by the National Park Service (*in situ* specimens and the paleontological collection currently housed at Baylor University).
Concept for Management	Managed for the continuing preservation and protection of the paleontological resources, conducting scientific study, and providing for onsite visitor enjoyment and understanding.	Same as alternative A, plus… A range of recreational and environmental educational opportunities could be provided by the city.		Same as alternative A.
Paleontological Resource Protection	**Discovery Site & Geologic Context** Moratorium on excavation activities continues. **In Situ Specimens** Stabilized and preserved **Collected Specimens** Storage at Baylor University's (BU) Mayborn Museum Complex. **Archives** Maintained by BU	**Discovery Site & Geologic Context** Controlled excavation activities may resume. **In Situ Specimens** Stabilized and preserved **Collected Specimens** Storage at Mayborn Museum Complex, specimen preparation and cataloging by BU with technical assistance provided by NPS. **Archives** Cataloged and maintained by BU	**Discovery Site & Geologic Context** Controlled excavation activities may resume. **In Situ Specimens** Stabilized and preserved **Collected Specimens** Storage at Mayborn Museum Complex and onsite by NPS. Specimen preparation and cataloging by NPS. **Archives** Cataloged and maintained by NPS	**Discovery Site & Geologic Context** Controlled excavation activities may resume. **In Situ Specimens** Stabilized and preserved **Collected Specimens** Storage, specimen preparation, and cataloging onsite by NPS. **Archives** Cataloged and maintained by NPS

Table 4: Summary Table of Alternative Highlights

	Alternative A Continuation of current management trends	**Alternative B** Partnerships led by the city of Waco	**Alternative C** Partnerships led by the National Park Service	**Alternative D** Managed as a focused unit of the National Park System
Scientific Study	Scientific study continues to be conducted by Baylor University.	Scientific study conducted by Baylor University and other scientific entities.	Scientific study conducted by BU, NPS, and other scientific entities. Cooperative Educational Study Units assist in networking with the scientific community.	Scientific study conducted by NPS and other scientific entities. Cooperative Educational Study Units assist in networking with the scientific community.
Interpretive Opportunities	The Waco community effort to construct an excavation shelter and provide for visitor access and interpretation are assumed to be complete. Interpretive opportunities would continue to be provided through controlled visitor access to the core paleontological area during at least 12 public events scheduled throughout the year.	Same as alternative A, except… Access to the core paleontological area and surrounding lands are made available to the visiting public on a daily basis. City of Waco, Baylor University, and NPS collaborate on the development of an expanded interpretive program and media. In addition, an environmental education center provides enhanced visitor understanding and appreciation of the mammoth site as well as the unique environment found along the interface of the Texas Hill Country and Gulf Coastal Plain.		Same as alternative A, except… Access to the core paleontological area is made available to the visiting public on a daily basis. City of Waco, Baylor University, and NPS collaborate on the development of an expanded interpretive program and media.
Educational Outreach	Educational outreach programs continue to be limited.	City of Waco, Baylor University, and the National Park Service collaborate to provide educational outreach programs targeting school groups at the elementary through high school level, programs for the general public to promote life-long learning, and scientifically detailed programs for students at the post secondary education level. Interactive "Portal to the Pleistocene" website could be established to provide an in-depth presentation of the site and its relationship to the Pleistocene, updates on the progress of ongoing scientific investigations, and links to other mammoth sites found throughout the country and potentially other locations around the world.		
Recreational Opportunities	Recreational opportunities are not currently provided.	Access to the Bosque Riverfront by way of connecting trails and water taxis service could be accommodated. Picnic areas area could also be provided.		Same as alternative A.

Table 4: Summary Table of Alternative Highlights

	Alternative A Continuation of current management trends	**Alternative B** Partnerships led by the city of Waco	**Alternative C** Partnerships led by the National Park Service	**Alternative D** Managed as a focused unit of the National Park System
Facility Management	City of Waco continues to provide for the maintenance and operations of onsite facilities. Baylor University continues to provide for the maintenance and operations of paleontological collection storage space at Mayborn Museum Complex.	Same as alternative A, although… Specimen preparation laboratory may be established and maintained by Baylor University within the Mayborn Museum Complex or established and maintained by the city of Waco onsite.	NPS provides for the maintenance and operations of the excavation shelter. City of Waco provides for the maintenance and operations of all other onsite facilities. Baylor University maintains paleontological collection storage space at Mayborn Museum Complex.	National Park Service provides for the maintenance and operations of all onsite facilities.
Site Security and Law Enforcement	City of Waco continues to provide city services such as security, police protection, fire suppression, and emergency medical response for the study area.		Same as alternative A, plus… Shared jurisdiction for law enforcement established between city of Waco and the National Park Service.	
Site Administration	City of Waco and Baylor University continue to share site administration responsibilities.	City of Waco is the primary manager of the site.	NPS is primary manager of the core paleontological area while the city of Waco is the primary manager of the surrounding lands.	NPS is the primary manager of the site.
Ownership	**Core paleontological site** City of Waco **Surrounding lands** Baylor University **Collections and Archives** Baylor University & city of Waco	**Core paleontological site** City of Waco **Surrounding lands** Baylor University transfers to the city of Waco. **Collections and Archives** Baylor University & city of Waco	**Core paleontological site** City of Waco transfers to NPS. **Surrounding lands** Baylor University transfers to the city of Waco. **Collections and Archives** Transfers to NPS.	All lands, collections, and archives transferred to the National Park Service.

Table 4: Summary Table of Alternative Highlights

	Alternative A Continuation of current management trends	**Alternative B** Partnerships led by the city of Waco	**Alternative C** Partnerships led by the National Park Service	**Alternative D** Managed as a focused unit of the National Park System
Level of Development	Waco community efforts to construct excavation shelter, interpretive waysides, access road, parking, visitor contact station, restrooms, security fencing, and connecting trails to the excavation shelter are assumed to be complete. The development is treated as an existing condition under this alternative.	Same as alternative A, plus… As funding permits, additional facilities may be provided onsite. This could include an environmental education center, research and specimen preparation laboratory (either onsite or within the Mayborn Museum Complex), interpretive plaza, expanded interpretive waysides, expanded parking, expanded restrooms, administration/maintenance support structure, interpretive nature trails and connecting trails to the Bosque River and Brazos River Corridor, boat dock, picnic and informal play areas.		Same as alternative A, plus… As funding permits, additional facilities may be provided onsite. This could include onsite collections storage, specimen preparation laboratory, and administration/ maintenance support structure.
Site Recognition	Potential National Natural Landmark Eligible for NPS Affiliated area status	The city pursues National Natural Landmark designation. National Park Service affiliated area status may be considered by Congress to further strengthen NPS involvement.	New unit of the national park system	
Initial Costs	(1)	Waco Community $8.1 million	Waco Community $8.1 million NPS $0.6 million	NPS $2.6 million
Annual Costs	(2)	City of Waco $300,000 Mayborn Museum $45,000 NPS (for 5 years) $25,000	City of Waco $300,000 Mayborn Museum (2) NPS $345,000	NPS $768,500

(1) It is assumed that the Waco community efforts to erect a protection shelter over the excavation area and to provide for controlled visitor access to the site are already underway. Funding for additional staffing, programs, or facilities is not included under the no-action alternative.

(2) Annual costs for managing the Waco Mammoth Site are difficult to quantify as staff support from the city of Waco and/or the Mayborn Museum Complex is an assigned collateral duty among a range of other responsibilities.

Table 5: Summary Table of Potential Environmental Consequences

		Alternative A Continuation of current management trends	**Alternative B** Partnerships led by the City of Waco	**Alternative C** Partnerships led by the National Park Service	**Alternative D** Managed as a focused unit of the National Park System
Fundamental Resources	***In Situ* Specimens** and **Geologic Context of the Discovery Site**	No impact Rationale: Current resource conditions continue to be stabilized. The current moratorium on additional excavations remains in place. There are no anticipated changes to the existing condition of the resource.	Moderate, long-term beneficial Rationale: Technical assistance from the NPS could enhance stabilization efforts and guide controlled excavation activities that could promote a greater understanding of the paleontological resource.	Moderate, long-term beneficial Rationale: Same as alternative B but with NPS taking the management lead for stabilization efforts and controlled excavations.	
	Paleontological Collection	No impact Rationale: The collection storage continues at the Mayborn museum. There are no anticipated changes to the existing condition of the resource.	Moderate, long-term beneficial Rationale: Technical assistance provided by NPS to develop protocols and methodologies to guide the specimen preparation and cataloging efforts by Mayborn Museum staff. The results of this effort would enhance the usefulness of the collection for future research as well as allow opportunities for casting of select fossils for interpretive purposes.	Moderate, long-term beneficial Rationale: Same as alternative B but with NPS taking the management lead for specimen preparation.	
Other Resources	**Soils** and **Prime Farmland**	No impact Rationale: There are no changes anticipated to the existing condition of the resource.	Minor, long-term adverse Rationale: To accommodate additional park development within the study area, some localized loss of soils and prime farmland are anticipated.		
	Floodplains and **Wetlands**	No impact Rationale: There are no changes anticipated to the existing condition of the resource.	Negligible to minor, long-term adverse Rationale: To accommodate connecting trails and water taxi service along the Bosque River, some construction is anticipated within the floodplains and potential wetland areas of the study area.		Same as alternative A.
	Vegetation, Wildlife, Habitat, and **Special Status Species**	No impact Rationale: There are no changes anticipated to the existing condition of the resource.	Minor, long-term adverse Rationale: To accommodate additional park development within the study area, some localized loss of vegetation and wildlife habitat are anticipated. As development plans are prepared, consultation with US Fish and Wildlife Service and the state of Texas would be needed to assess the potential for impacting special status species. Moderate, long-term beneficial Rationale: Resource management strategies are implemented to restore native vegetation and enhance wildlife habitat.		

Table 5: Summary Table of Potential Environmental Consequences

		Alternative A Continuation of current management trends	**Alternative B** Partnerships led by the City of Waco	**Alternative C** Partnerships led by the National Park Service	**Alternative D** Managed as a focused unit of the National Park System
	Visitor Experience	Negligible to minor, long-term beneficial Rationale: Controlled visitor access to the core paleontological area with onsite interpretation mechanisms continues to be provided during at least 12 public events scheduled throughout the year.	Moderate, long-term beneficial Rationale: Daily access provided to the core paleontological area and surrounding lands with enhanced onsite interpretation mechanisms, potential environmental educational and recreational opportunities and facilities that partners led by the city of Waco might develop. Educational outreach programs are made available to local and regional communities.	Moderate, long-term beneficial Rationale: Same as alternative B but with NPS taking the management lead for enhanced interpretation of the core paleontological area. Provisions for accommodating visitor observation of the specimen preparation effort could be integrated into the interpretive experience. Educational outreach programs are made available to local and regional communities.	Moderate, long-term beneficial Rationale: Daily access provided to the core paleontological area and enhanced onsite interpretation mechanisms provided by the National Park Service. Provisions for accommodating visitor observation of the specimen preparation effort could be integrated into the interpretive experience. Educational outreach programs are made available to local and regional communities.
Management Operations	**City of Waco**	Minor, long-term adverse Rationale: Assume staffing levels stay the same; however additional operational funding needed to maintain the excavation shelter.	Moderate, long-term adverse Rationale: Expanded responsibilities assigned to city of Waco Parks and Recreation Department for managing a new city park.		Moderate, long-term beneficial Rationale: Management responsibilities for the study area are transferred to NPS.
	Mayborn Museum Complex	Negligible, long-term adverse Rationale: Assume staffing levels stay the same with little change in current museum operations.	Moderate, long-term adverse Rationale: Expanded responsibilities assigned to museum staff for providing interpretive and educational outreach programs for a new city park.	Negligible to minor, long-term adverse Rationale: Management responsibilities are shared with NPS.	Moderate, long-term beneficial Rationale: Management responsibilities for the study area are transferred to NPS.
	National Park Service	Not applicable	Minor, short-term adverse Rationale: No management responsibilities assigned, however a commitment for technical assistance would be provided.	Moderate, long-term adverse Rationale: Expanded responsibilities assigned to the NPS Intermountain Region for managing and operating a new unit of the national park system.	

Table 5: Summary Table of Potential Environmental Consequences

		Alternative A Continuation of current management trends	**Alternative B** Partnerships led by the City of Waco	**Alternative C** Partnerships led by the National Park Service	**Alternative D** Managed as a focused unit of the National Park System
Socioeconomic Environment	**Waco MSA Economy**	Negligible to minor, short-term beneficial Rationale: Anticipate limited increased visitor spending would occur within the community when public events are scheduled at the site.	Moderate, long-term beneficial Rationale: Anticipate daily increased visitor spending would occur within the community.		
	Central Texas Region Communities	Negligible, short-term beneficial Rationale: Limited opportunities for educational outreach programs provided.	Moderate, long-term beneficial Rationale: Expanded and enhanced educational outreach programs provided to central Texas regional school systems.		
	Adjacent Neighborhoods and Businesses	Negligible to minor, short-term adverse Rationale: With the monthly operation of a new park accessed by New Steinbeck Bend Road, it is anticipated that there would be an increase in traffic congestion when public events are scheduled at the site.	Minor, long-term, adverse Rationale: With the daily operation of a new park accessed by New Steinbeck Bend Road, it is anticipated that there would be a daily increase in traffic congestion.		