

Chapter 11:

Treatment Projects

INTRODUCTION

This second section of the Treatment Plan identifies treatments for each of the district's component landscapes. Organized in the same order as the history and analysis chapters, each section begins with a brief description of an overall treatment strategy for the entire component landscape. As noted in Chapter 8, these treatments are consistent with the overall district-wide strategy, and may vary from landscape to landscape and feature to feature.

For each landscape, a series of specific treatment projects are then presented as a way to implement the landscape treatment. These projects may address specific repair, restoration or rehabilitation of individual features or may be longer-term, on-going maintenance concerns specific to that component landscape. In general, projects have been categorized into one of nine types for ease of categorization and prioritization:

- 1) Maintenance: Usually a relatively simple project, but may sometimes require special strength, equipment or skills. A schedule (periodic, annually) or a change in method may be indicated.
- 2) Repair and/or Replacement: This type of project will usually indicate failure or problems with an *historic feature*, often due to age. Repair and replacement may sometimes require technical skills such as carpentry.
- 3) Masonry Repair: The district contains a large amount of historic masonry, the repair of which requires some technical training and/or experience. More complex masonry repair might be accomplished as a partnership with the Historic Preservation Training Center.

4) Improvement: This is a project that changes the visual appearance or material of a feature, usually a *non-historic* feature.

5) New Construction: These are major projects, requiring significant financial commitment and with a potential impact on the historic landscape.

6) Vegetation Removal and/or Replacement: These projects might include cutting down trees, clearing understory and planting trees, shrubs, grasses, groundcovers

7) Interpretation: This is a project that might best be accomplished through educating the public.

8) Investigation or Planning: These projects require significant physical investigation or significant further research to determine their desirability and feasibility.

9) Access: These are projects to make more of the district universally accessible.

A means of accomplishing each project is also indicated. Generally, projects are proposed to be implemented in one of three ways. The first is a contract project, implying that significant additional funding, design or planning, and contract labor will be required. The second is a staff initiative, indicating that a project could be implemented by knowledgeable permanent or seasonal staff given adequate funding and time beyond regularly scheduled activities. The third type of project is a partnership project, or one done in conjunction with another NPS unit, such as the Historic Preservation Training Center, or an outside organization.

The project descriptions generally state why the project should be undertaken, followed by more specific recommendations for undertaking each project. These recommendations are, unfortunately, somewhat general in nature. However, developing project specifications for one preservation project during the course of this CLR indicated that prior to beginning any preservation project, numerous discussions with park staff from varied divisions, with the State Historic Preservation Office, and with NPS regional staff were required prior to and during the development of any detailed specifications. Therefore, these projects are presented not as a "how-to" manual, but rather an overall road map of the tasks (and their potential problems or concerns) required for

the preservation of each landscape. Recommendations have photographs or drawings illustrating either problem conditions which need to be fixed or the desired appearance or outcome of a specific project. Often, the desired condition is illustrated with a historic photograph. All treatment projects for a given landscape are also indicated on Drawings 25 to 34, which together comprise the Treatment Plan.

Cost estimates for each project were calculated by the project team and were provided to the staff at CNRA as a separate document. These were “conceptual” cost estimates based on square foot costs of similar construction or identifiable unit costs of similar construction items. Such estimates, prepared without a fully defined scope of work, are meant to be guidelines for assessing future funding requirements, and their future use should take inflation into consideration.

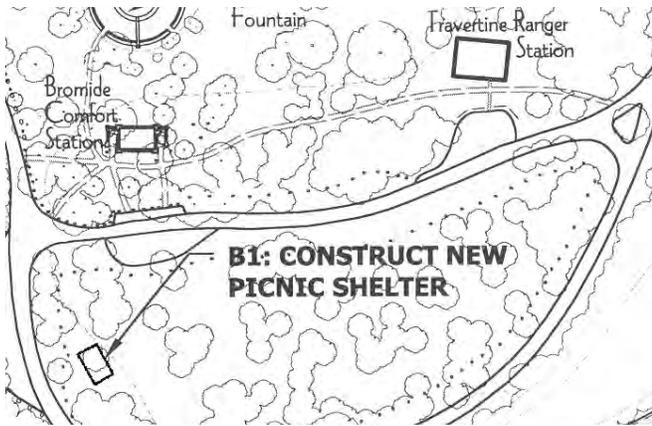


Figure11-1. Proposed location for Bromide Springs picnic pavilion.

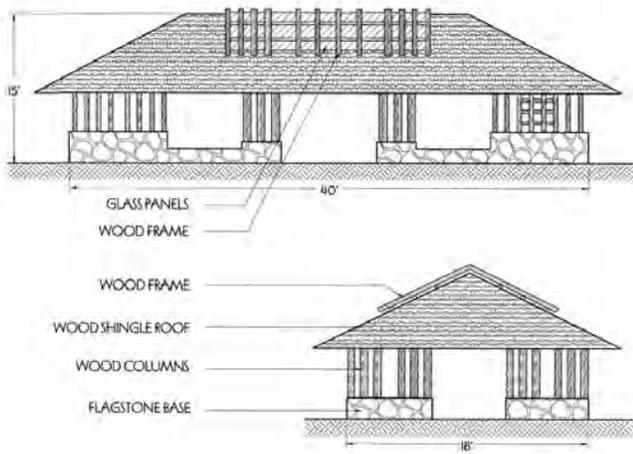


Figure11-2. Conceptual design for Bromide Springs picnic pavilion, using materials appropriate to historic period, yet design is clearly contemporary.

BROMIDE SPRINGS AREA: REHABILITATION TREATMENT

The desired addition of a new picnic shelter, upgrading of the water systems to restore mineral water to the area, and minor changes for improved ADA access imply that rehabilitation (rather than preservation) is the treatment most appropriate for the Bromide area. The proposed projects are depicted on Drawing 25.

Project B1: Construct new picnic shelter

Type: New Construction

Implementation: Capital/Contract

Rationale: Demand for a picnic shelter for large gatherings and for use in rainy weather is high, despite the fact that no such facility exists in the district. As a result, picnickers often use the Bromide Pavilion for gatherings, moving picnic tables into the structure, blocking the water spigots. Providing a new facility for picnicking will allow the Bromide Pavilion to be used as it was historically.

Recommendations: The proposed new shelter must be compatible with old design, but clearly distinguishable as new construction. A suggested location for the picnic area is the eastern side of the Bromide area, near, but not on the area where a picnic shelter was proposed in the 1940 master plan. However, the Secretary of the Interior's Standards do not recommend constructing features which were designed but never implemented. Therefore, it is recommended that a new picnic shelter be located slightly west of the 1940s proposed site, near a widened asphalt parking pull off (Figure 11-1). Another possible location for the shelter is Walnut Grove, as described in **Project WG3** below.

Although a prefabricated picnic shelter might be less expensive, the construction of a picnic shelter within the Bromide Area will have a huge impact on the historic character of the area. As a result, a structure designed to be in keeping with the historic character is recommended, perhaps utilizing pre-fabricated components. Figure 11-2 shows two concept elevations for the shelter as an open air, wood and stone structure. Additional facilities such as grills and picnic tables should be located within and nearby the shelter. Lights and electrical service should also

be included as part of the structure design, and the shelter should be fully ADA accessible with a hardened pathway leading to it. Once a new structure is built, the use of picnic tables in the historic pavilion should be prohibited.

Project B2: Remove concrete block pump house and pipe

Type: Improvement—Visual

Implementation: Staff

Rationale: The pump house (Figure 11-3) is no longer functioning and cannot be retrofitted to restore function. Since it detracts from its surroundings, does not date to the period of significance (1933–1940), and is not on the LCS, it may be removed. A pipe in Rock Creek just upstream from the low-water crossing is part of this structure and should be located and removed along with the structure.

Recommendations: This project should probably be done prior to and/or in conjunction with restoring water to the pavilion (Project B9, below), since its demolition may provide additional clues to the original plumbing of the pavilion. Removal should include capping off the wellhead to prevent contamination. Once the pumphouse has been removed, the area should be regraded and replanted with understory vegetation.

Project B3: Stabilize bank at causeway steps

Project Type: Vegetation Planting

Implementation: Staff

Rationale: A volunteer pathway near the steps to the low-water causeway (Figures 11-4 and 11-5) from the dump station parking area is forming a deep gully as water erodes the pathway.

Recommendations: The bank should be regraded to eliminate the pathway and gully and should be stabilized with new soil or stones, geotextile, bank-stabilizing vegetation of medium-high shrubs or a combination of all three. Snow or temporary fencing should be placed to prohibit foot traffic down the bank until vegetation has established itself. Since the causeway steps are not that well-constructed, another, but more costly approach



Figure 11-3. Concrete block pump house to be removed as part of Project B2.



Figure 11-4. Causeway steps. Eroded area is to the left (out of view). Steps should be maintained, but eroded area should be revegetated.



Figure 11-5. Eroded path near causeway steps should be revegetated and protected with temporary fencing.



Figure 11-6. “Ancient Rivers” sign at Bromide Springs does not match historic sign.



Figure 11-7. Original “Ancient Rivers” sign, no date. Current sign should be replaced with sign duplicating original as shown here. The sign at Travertine Island can be used as a template for reconstructing new sign.



Figure 11-8. Culvert in front of the Resource Management Office (formerly the Travertine Ranger Station) should be removed.

would be to construct a new flight of steps along the pathway and remove the old steps.

Project B4: Replace “Ancient Rivers” sign

Project Type: Replacement

Implementation: Staff

Rationale: Existing sign (Figure 11-6) does not match historic sign, though text is historically accurate.

Recommendations: When existing sign fails, replace with a sign closely matching the historic sign, based on photographs and original plans (Figure 11-7 and Figure 9-22). However, if interpretive needs indicate a new text message is preferred, a new sign following current NPS signage guidelines should be instituted.

Project B5: Remove culvert at Resource Management Office (formerly the Travertine Ranger Station)

Project Type: Improvement

Implementation: Staff

Rationale: This culvert (Figure 11-8) is not historic and is no longer needed, since visitors no longer access building from the north.

Recommendations: Remove culvert and restore area to turf to match surroundings.

Project B6: Maintain Pavilion terrace

Project Type: Masonry Repair

Implementation: Partnership or Staff

Rationale: The terrace surrounding the pavilion has changed over the years. The two trees within the terrace are in poor condition (Figure 11-9).

Recommendations: French drains in terrace at entrance to pavilion should be cleaned on a regular basis. Mortar joints within the terrace, though not original, should be retained. Joints should be maintained by weed pulling or herbicide treatment, to prevent deterioration of the joints due to water infiltration. Stones at the gap in the wall at the northwest corner should be maintained, and cleared

of weeds. If photographic documentation of a tree in this gap is located, a tree should be replanted in this location. However, the authors have been unable to confirm that a tree originally grew here.

The two extant trees located in the west end of the terrace were severely impacted by the 2000 ice storm and are in decline. These trees should be maintained as long as possible; additional pruning and/or fertilization may help to extend their lives. Replacing these trees will be difficult. The trees are mature and deep stump and root removal could potentially impact the entire terrace and paving. New trees will be significantly smaller in stature and will likely never attain the size of the original trees, which were mature at the time of construction. New trees will also have a minimal water supply due to the current impervious nature of the terrace. Thus, tree replacement in these locations will require extra care and pre-planning. When the trees die, their stumps should be removed in the least invasive manner possible. Roots and soil should be excavated and new soil added. Oak trees should be planted to match the original species, and replacement trees should be large caliper so they are more resistant to vandalism. Tree protection should be also provided until trees are mature. If new trees do not survive, then the locations may be filled in with mortared flagstone to match the existing pavement.

Project B7: Provide ADA access at terrace

Project Type: Access

Implementation: Staff

Rationale: The curb and steps at all of the terrace entrances prevent universal access to the terrace and drinking water.

Recommendations: Access cannot be provided at the east end, unless steps leading to the terrace are removed. Access should be provided on the west side of the terrace. Currently, the large extant stone at the edge of the terrace acts as a barrier rather than as a threshold. The area should be regraded to provide seamless transition between path and terrace. This area may require a small additions of compacted trail aggregate and minor regrading each year to remain accessible.



Figure 11-9. Two trees in eastern terrace are in poor condition.



Figure 11-10. Bromide Pavilion, circa 1937. Semi-circular bench at base of terrace should be reconstructed as per original plans and drawings. Plantings around bench should be restored.

Project B8: Restore semi-circular bench at Pavilion

Project Type: New Construction

Implementation: Capital/Contract

Rationale: The semi-circular bench (Figures 11-10 and 11-11) is a missing part of the pavilion and an important lost landscape feature.

Recommendations: Replace the bench based on historic photos and historic plans (such as Figure 11-12), utilizing extant stone bases. Cedar or other rot-resistant laminated wood should be used to reconstruct the bench surface. Brown Trex® plastic lumber might be investigated as a bench material, but while durable, it may prove to be too

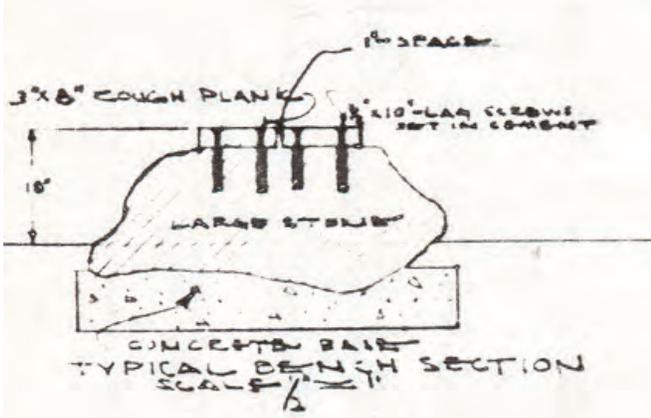


Figure 11-11. Cross-section showing construction of semi-circular bench, to be duplicated in reconstruction.

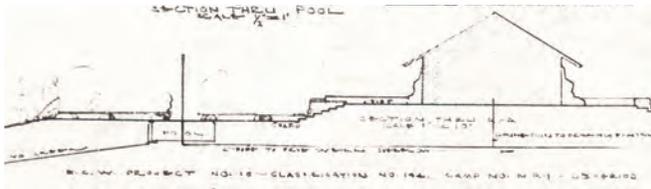


Figure 11-12. Portion of “Spring Development. Bromide Pavilion Springs,” NP-PLA-3048B, 1935. Cross-section showing relationship of semi-circular bench to the terrace wall and pavilion, to be duplicated in reconstruction.



Figure 11-13. City water in the Bromide Pavilion should be replaced with mineral water. Original signs are likely located underneath the existing signs, which seem to be bolted on the original wood bases.

flexible, lacking tensile strength for the spans between stones. It may also present an unnatural appearance in the landscape. Care must be taken to preserve extant stones when refastening new bench surfaces; a mason skilled in historic work should be consulted. One or more bench support stones may be missing and should be replaced in kind. Clearing of the understory around benches will be

required, although large trees should be retained so that existing shade may be utilized. New plantings will also be required to match historic conditions surrounding the benches.

Project B9: Restore mineral water to Pavilion

Project Type: Investigation/Repair and Replacement

Implementation: Capital/Contract with significant staff involvement

Rationale: The original, historic purpose of the Bromide Pavilion was to provide mineral water for drinking and health purposes. Today the building only dispenses city water (Figure 11-13), an aspect that diminishes the historic character of the setting.

Recommendations: This is a potentially complex and difficult project, one that must address the issues of water rights, aquifer water supply and drought in a region where water is an important resource. Significant research will be required. Because of the poor quality and flow of the existing wells, a new well will probably need to be located in or possibly outside the district. In the latter case, land may need to be purchased by a park friends group to procure access to the well. The type of water—bromide, medicine, or other mineral composition—may be important, particularly to local visitors, yet this may be difficult to control. A well will need to be drilled and depending on the location and flow of the well, water may need to be pumped to the pavilion and/or treated with chlorine.

Within the pavilion, the existing water supply tanks located on the second floor would need at a minimum to be rehabilitated. More likely, a pressure tank and treatment system will need to be located between the well and the pavilion. New plumbing under the building would also be required. Non-wasting spigots, perhaps on-demand, ADA-rated, spring-loaded drinking fountain spigots, should replace the existing spigots that flow continually.

Once water is reintroduced, a new mineral water composition sign should be introduced. It may be possible to erect a new composition sign, perhaps at or near the former dispensing window interpreting the old signs and indicating the new water's composition.

Project B10: Rehabilitate Pavilion Lily Pond and surrounds

Project Type: Repair and Replacement
Implementation: Capital/Contract

Rationale: This rectangular basin (Figure 11-14) was repaired about 5 years ago and filled with sand to a shallow depth. The pond's water system is connected to the 12th Street fountain, which is filled by city water. The pool has on-going leak so that it requires consistent refilling.

Recommendations: The Lily Pond should be reconstructed in concrete at its existing size and location, but at a new, shallower depth, with water stops utilized in its construction. As part of the reconstruction, the pool's concrete curb should be replaced with a flagstone coping with grass joints to match the original. Once the leak is repaired, a recirculating water pump should be used to create the pool's central water jet, with a flow and appearance matching those seen in historic photographs. A fountain timer might also be useful to regulate the jet and a float used to help resupply water lost to evaporation. New plumbing, drain, and electrical systems will therefore be required. Care should be taken during construction to protect the nearby cottonwood tree. Lily plants should continue to be grown in pots. The addition of small fish (a local species) would help naturally reduce algae growth in the pond. This project should be linked with the rehabilitation of the 12th Street fountain (see **Project B12** below).

Project B11: Replace cottonwood at Lily Pond

Project Type: Vegetation Replacement
Implementation: Staff

Rationale: Though currently in good condition, the cottonwood (Figure 11-15) adjacent to the Lily Pond is beginning to move past maturity and into decline. Cottonwoods often do not live past 100 years and this tree, mature in the 1930s, is beginning to reach that age. As one of the tallest trees in the area, it is also potentially vulnerable to lightning strikes.

Recommendations: When this tree dies, it should be replaced in-kind with a native cottonwood. A large tree might be located elsewhere in the park and brought in



Figure 11-14. Lily pond with jet, existing conditions. Pool should be repaired and grass joints should be replaced on flagstone coping.



Figure 11-15. Cottonwood tree near Bromide Lily Pond. Tree replacement should be planned.

with a tree spade, or a replacement tree could be grown or purchased.

Project B12: Rehabilitate 12th Street Fountain

Project Type: Repair and Replacement
Implementation: Capital/Contract

Rationale: During the period of significance, the 12th Street Fountain had a 30-foot artesian jet (Figure 11-16). Today the fountain is a delicate jet, run off of city water (Figure 11-17). Returning a central visual feature to the fountain, will restore the appearance and feeling of the entry.

Recommendations: Given water supply issues within the region, it is unlikely that an artesian well to supply a jet at the scale of the original will be practical to locate



Figure 11-16. 12th Street Fountain shortly after construction, circa 1935.



Figure 11-17. Existing fountain lacks powerful, artesian well jet.



Figure 11-18. One of a pair of unused drinking fountains on both sides of the 12th Street Fountain.

and drill, either within or without the park. The easiest way to recreate the water feature as it appears in historic photographs would be to install a mechanical fountain supplied by a re-circulating water pump to save water. This will require an electrical line and, most likely, new plumbing, and a timing system may be useful to regulate the jet and to replenish evaporation. For efficiency, this project should be linked with the repair of the lily pond (see above), since these two water features are currently linked. The rehabilitation should install two valves for the two water features; currently they both utilize the same valve and line. Depending on the status of the existing piping and requirements of a new jet, this project has the potential to be disruptive to the existing masonry paving and walls. Therefore, this work should also be coordinated with other water and masonry repair projects at the entire fountain area (see **Project B13** below).

If the fountain and pool continue to be used by the children of local residents as an informal wading/swimming pool, then a chlorination system may also be required, if the park feels it impractical to enforce a no-wading policy.

Project B13: Restore drinking fountains at the 12th Street Fountain

Project Type: Repair and Replacement

Implementation: Capital/Contract

Rationale: Although stone pedestals remain, drinking fountains once located near the end piers of the semi-circular walls are no longer functioning (Figure 11-18).

Recommendations: Spigots should be replaced and if possible, existing piping, presumably still present within the structures, should be re-used, possibly after being slip-lined with nylon or polypropylene pipe (Figure 11-19). If lines are no longer functional, feasibility of replacing lines should be carefully assessed to ensure that pipe replacements do not irreversibly damage extant wall fabric. Like the 12th Street fountain, these drinking fountains should be connected to the city water supply, unless a mineral water well is available (see **Project B9**, above). This project should also be coordinated with the lily pond and 12th Street fountain rehabilitations.

Project B14: Replace non-historic coping at 12th Street Fountain

Project Type: Masonry Repair

Implementation: Partnership or Capital/Contract with other fountain project(s)

Rationale: The south side of the 12th Street Fountain basin has a non-historic concrete coping (Figure 11-20).

Recommendations: The concrete coping should be replaced by large, mortared flagstones matching those on the other half of the pool, as shown in historic photographs. Work might be triggered by or coordinated (if possible) with the rehabilitation of the fountain and plumbing or with other masonry repair projects in the area.

Project B15: Maintain flagstone at 12th Street Entry

Project Type: Maintenance

Implementation: Staff

Rationale: Flagstone paving and masonry are beginning to show wear at the 12th Street Fountain paved area (Figure 11-20) and on the entry walkways paralleling 12th Street.

Recommendations: Mortared flagstone joints should be repointed as necessary and kept free of weeds and grass by pulling or with an herbicide such as Round-up®. Flagstones which are loose or severely split should be replaced in-kind or repaired. The historic tree once located within the paved area around the fountain is not recommended for replacement.

Project B16: Replace lettering on entry piers

Project Type: Replacement

Implementation: Contract

Rationale: Entry piers once had cast iron lettering on their south elevations. This lettering was removed, and a new sign is located adjacent to the piers (Figure 11-21).

Recommendations: Lettering matching the historic lettering (Figures 4-22 and 9-20) could be replaced



Figure 11-19. Detail of drinking fountain to be replaced at the 12th Street Fountain. New plumbing and fixtures will be required.



Figure 11-20. Concrete coping along southern half of pool edge should be replaced with flagstone to match the other half. Flagstone terrace should be maintained by sweeping and weed removal.



Figure 11-21. Entry pillars (left) should receive cast iron lettering to match original. “Platt Historic District” text will clearly identify the historic district and will complement existing CNRA sign.



Figure 11-22. The Bromide Ranger Station should have non historic features removed and, over the long term, non-historic doors and windows replaced.



Figure 11-23. Clogged gutter and drain on Bromide Hill. Adding grates over the inlets may help reduce erosion and the need for periodic trail resurfacing.

to help provide a visual identity for the district. “Platt Historic District” is suggested as lettering to complement existing NPS signs. Lettering should be returned to both sets of piers, as per the original conditions.

Project B17: Remove non-historic features at Ranger Station

Project Type: Long- and Short-term Improvement
Implementation: Staff

Rationale: The Bromide Ranger Station is visually cluttered with non-historic features that supported its former use as a residence.

Recommendations: The chain link fence surrounding the building should be removed. Vines on the garage are damaging to the finish and materials and should be removed by cutting at the base and treating cut ends with an herbicide such as Round-up®. From a long-term standpoint, carport could also be removed.

Project B18: Replace Bromide Ranger Station doors & windows

Project Type: Long-term Replacement
Implementation: Contract

Rationale: Existing doors and windows do not match historic photographs and plans (Figure 11-22).

Recommendations: Future replacement doors and windows should match historic photographs and conditions in size, color, and appearance.

Project B19: Install grates on Bromide Hill Trail inlets

Project Type: Improvement
Implementation: Staff

Rationale: Current gutter inlets on Bromide Hill trail do not have grates and clog with debris (Figure 11-23) and as a result, stormwater backs up on and erodes trail surface.

Recommendations: Although it is unclear whether the original gutters had grates, lockable, self-flushing grates should be installed over inlets to aid in maintenance.

Project B20: Rehabilitate/Provide ADA access at Bromide Hill

Project Type: New Construction and Access
Implementation: Capital/Contract

Rationale: The view from Bromide Hill is a significant experience within the park and is not ADA accessible.

Recommendations: Grade a ramp or switch-backed trail to access paths on the hilltop that lead to the overlook. Although Figure 11-24 depicts a ramp on the northeast

side of the parking area, it may be possible to locate on the northwest side instead. In either location, ramp construction may require a retaining wall, the design and appearance of which should be in keeping with the historic character of the area. A boulder retaining wall may be appropriate. The hilltop paths should be regraded as needed to ensure level access.

An accessible overlook area should also be constructed. This could be constructed as a widening in the trail, located just above the flat ledge currently used as a viewing platform for fully-abled people. A retaining wall will need to be constructed and shrubby vegetation between the trail and the flat ledge will need to be removed. The concrete steps (Figure 11-25) at the end of the trail could either be replaced or retained.

While the ramp from the parking lot to the hilltop might be easily graded by park staff, the construction of the overlook, may require more extensive design and engineering, given the rocky substrate and steep grades on the cliffside.

Project B21: Replant trees in Bromide Springs

Project Type: Vegetation Replacement

Implementation: Staff

Rationale: Trees have been lost from this area due to age and storm damage.

Recommendations: Trees should be replanted to maintain the area's character-defining overhead canopy and balance of sun and shade on the ground plane. A lack of precise historic documentation prohibits the replacement of individual trees. Locations for new trees should be determined by in-field study, and should be planted in areas where the loss of trees has created a hole in the canopy cover and/or where stumps are located, or where a topographic depression indicates a former stump location. A comparison of aerial photographs from 1940 and 1999 will also be helpful in locating areas where canopy cover has decreased over time and trees should be planted in these areas. Trees may also be planted in close proximity to large trees in obvious decline. As described in Chapter 6, this area indicates a loss of slow-growing trees such as oak and hickory and an increase in hackberry. Therefore, species planted in this area should be primarily oaks.



Figure 11-24. Conceptual plan for ADA-accessible ramp to paths to Bromide Hill Overlook.



Figure 11-25. Existing concrete steps at the Bromide Hill overlook are inaccessible, and small overlook structure should be added up the trail to provide access to the view.

Project B22: Maintain small prairie area on top of Bromide Hill

Project Type: Vegetation Management

Implementation: Staff

Rationale: As shown on historic and existing conditions aerials, a small patch of extant grassland near the top of Bromide Hill appears to be a remnant prairie, perhaps undisturbed from pre-settlement times. It should be retained and may benefit from more active periodic management.

Recommendations: This small prairie patch should be surveyed to determine its current species composition and to determine if it is threatened by woody plant or red



Figure 11-26. One of four firepits to be preserved at Walnut Grove. Obtrusive fire brick should be removed, and replaced. Grills should be repaired or replaced and chained or cabled to structure.



Figure 11-27. Second of four firepits to be repaired. This structure may not support firebrick interior.

cedar invasion. Cedar should be manually removed from the area. A prescribed burn might be implemented in the area on a periodic basis to help prevent woody incursion and encourage native prairie plants. Given the small extent of the area, care must be taken when burning to prevent wildfire.

WALNUT GROVE: PRESERVATION TREATMENT

Walnut Grove exhibits high integrity and treatment in this area focuses on retaining that integrity by preserving extant historic features and character. Therefore, preservation is an appropriate approach for this

landscape. If a new picnic shelter is located here, rather than at Bromide Springs, then the treatment approach would better be defined as rehabilitation. Proposed projects are depicted on Drawing 26.

Project WG1: Preserve fire pits

Project Type: Masonry repair

Implementation: Staff or Partnership

Rationale: The fire pits' masonry has deteriorated and some of their grills have been lost (Figures 11-26).

Recommendations: Masonry should be repaired, and internal firebricks should be replaced if structures show need. Firebrick should not extend less than three inches below stone faces. Smaller grills may not have enough space for firebricks (Figure 11-27). While fire pits at Cold Springs Campground were constructed with firebrick, no historic evidence of this exists for those at Walnut Grove. New steel grills should be fabricated to match remaining grills and should be cabled to the structures to prevent loss.

Project WG2: Preserve Monkey Tree

Project Type: Maintenance

Implementation: Staff

Rationale: Although play activity on the tree is potentially injurious to the tree, this use is traditional (Figure 11-28) and should be continued (Figure 11-29).

Recommendations: Retain dead branches for bouncing. Trim potentially hazardous branches. Periodically fertilize. If compaction around base of tree becomes severe, a mulch of hardwood chips two to four inches deep may be applied around the base of the tree.

Project WG3: Construct picnic shelter (alternate location from Bromide Springs)

Project Type: New Construction

Implementation: Capital/Contract

Rationale: District visitation and use indicates demand for a picnic shelter for large groups and rainy weather. Walnut Grove would be an appropriate location for the shelter, since it is already a designated picnic area

and since a shelter here would not compete with extant historic structures, as would be the case in Bromide Springs.

Recommendations: If this site is chosen as a picnic shelter location, the shelter could be designed to recall (e.g., built in the same location, scale, and dimensions as) one of the former CCC camp buildings (Figure 11-30). As well as being a functional picnic shelter, such a structure could also help interpret the district's CCC history.

Project WG4: Revise turf management

Project Type: Maintenance

Implementation: Staff

Rationale: Wild rye establishing itself in the foreground of Walnut Grove is somewhat inconsistent with the traditional mowed setting of the area, but is a low-maintenance native groundcover. A change in mowing patterns could recreate historic appearance, while retaining wild rye in the area (Figure 11-31).

Recommendations: Mow areas along the perimeter road, and reduce height of understory in clumps of trees located along the perimeter road. Concurrently, reduce mowing at edge of vegetated slope at the north and west sides of the area and establish and encourage wild rye in the understory.



Figure 11-28, Monkey Tree, historic photo, no date, circa 1950.



Figure 11-29. Monkey Tree, 2001. Note loss of bark and branches.

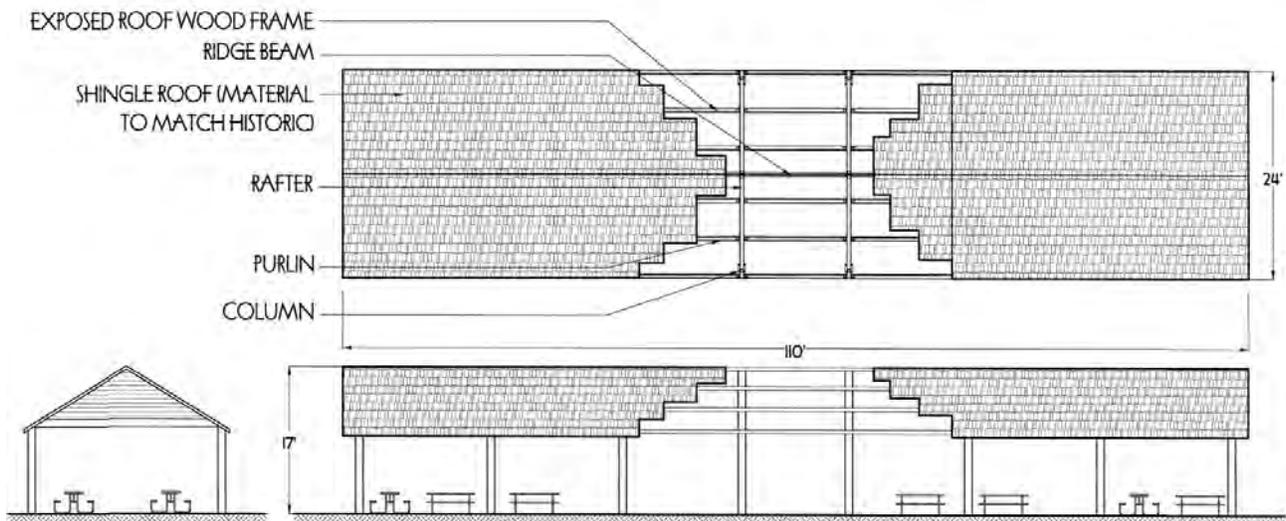


Figure 11-30. Plan and section of proposed alternate picnic pavilion.



Figure 11-31. Canada wild rye grows in the understory at the northern, back edge of Walnut Grove. Reducing mowing along this wooded forest edge might be “exchanged” for increased maintenance in the understory at the front of the picnic area.



Figure 11-32. White lines indicate how additional trees should be planted within the existing plantings at Walnut Grove. Note large sunny area should not be planted, so that visitors may use the area for outdoor sports.

Project WG5: Replace trees within picnic area

Project Type: Vegetation Replacement

Implementation: Staff

Rationale: Trees have been lost from this area due to age and storm damage.

Recommendations: Trees should be replanted to maintain the area’s character-defining overhead canopy and balance of sun and shade on the ground plane

(Figure 11-32). A lack of precise historic documentation prohibits the replacement of individual trees. Locations for new trees should be determined by in-field study, and should be planted in areas where the loss of trees has created a hole in the canopy cover and/or where stumps are located, or where a topographic depression indicates a former stump location. A general rule of thumb may be to plant trees in areas where canopy cover is less than thirty percent. Trees may also be planted in close proximity to large trees in obvious decline. However, the three major, central open areas should be retained without trees, to allow space for outdoor sports such as volleyball and frisbee. Although no data exists to show historic species composition circa 1940, other areas in the park show an increase in hackberry and a loss of oak trees. As a result, replacement trees should be oak and black walnut.

BLACK SULPHUR SPRINGS: PRESERVATION TREATMENT

A preservation treatment in Black Sulphur Springs is appropriate because the following projects primarily propose the repair and replacement of extant historic features. Many of the changes in that have occurred at Black Sulphur Springs are reversible. For example, the beach along Rock Creek can be easily be reestablished through more frequent sand removal and regrading. More difficult, however, will be confronting the changes in the pavilion: returning mineral water flow to the pavilion is perhaps the major preservation issue in the area. If this is accomplished, the original purpose of the pavilion will be restored, raising the integrity of the area. This and other proposed projects for the Black Sulphur Springs area are depicted on Drawing 27.

Project BSS1a: Preserve Black Sulphur Springs Pavilion

Project Type: Repair and Replacement

Implementation: Capital/Contract

Rationale: The pavilion should be repaired to prevent further change and deterioration.

Recommendations: Two major actions should be undertaken: First, the building's stucco should be cleaned and lead should be abated on the wooden portions of the building. Repainting of the structure should reinstate the building's original colors; paint analysis may be useful to determine this. Second, the metal shingle roof should be inspected by an historical architect to determine its specific condition, metal type, and preferred methods of repair and restoration (Figure 11-33). Metal roofs can be quite durable, and if rust is not too severe and leaking is not a problem, then washing, removing rust with a metal brush (sanding should not be undertaken if it will deteriorate the metal) and repainting with a rust resistant paint may be an acceptable treatment. Paint analysis may help determine the existing paint system and the roof's original color; any new paint must be compatible with the old. Acrylic sealers are another possible treatment that might "buy time" for the existing roof.

If the roof's condition is severely compromised, replacement in-kind may be necessary. The pavilion's faux terra-cotta tile style may be possible to find as a modern reproduction. However, because of the limited number of styles and sizes of metal shingles commercially available today, an exact replacement would potentially require special fabrication. Suppliers of metal tile include the W. F. Norman Corporation, Millennium Tiles, and others. Replacement with a similar, but substitute metal shingle of a different size or scale should only be undertaken as a last resort. Work on the building may require the removal of some of the trees that have grown up around the structure (see **Project BSS1b**).

Project BSS1b: Rehabilitate Plantings

Project Type: Tree replacement

Implementation: Staff

Rationale: Pavilion treatment (see **Project BSS1a**) may trigger removals of trees and plantings.

Recommendations: If trees need to be removed, replacement plantings should focus on restoring deciduous species (elm, hackberry, and Osage orange) at the buildings' four corners (Figure 11-34). However, current plantings do not conform to historic photographs or drawings, and it is not clear whether plantings shown on drawings were ever implemented as designed. As a result, new plantings should be designed in keeping with,



Figure 11-33. Pavilion roof requires repair or replacement after further investigation.



Figure 11-34. Building repairs may impact trees around pavilion. Plantings should be rehabilitated.

but not duplicating historic plans (Figure 4-38) and should complement, but not impinge on, the historic structure. Such plantings would include specimen trees and possibly ornamental trees such as redbuds, but no low-growing foundation plantings such as shrubs or perennials.

Project BSS2: Rehabilitate Black Sulphur Springs Fountain

Project Type: Masonry Repair

Implementation: Staff, Partnership or Contract

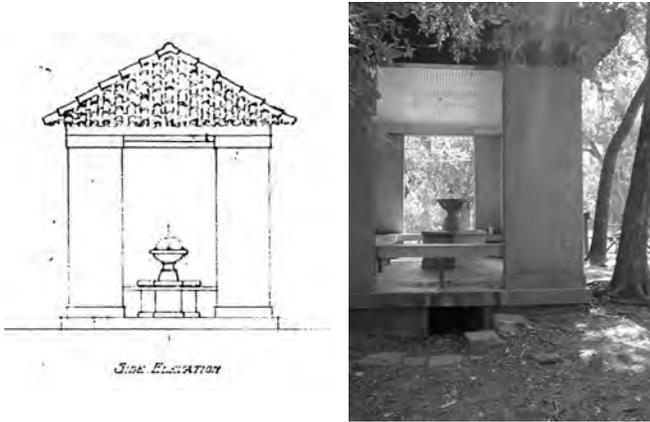


Figure 11-35. Comparison of original elevation and current conditions. Note five jets in original drawing and extant crawl space under pavilion.

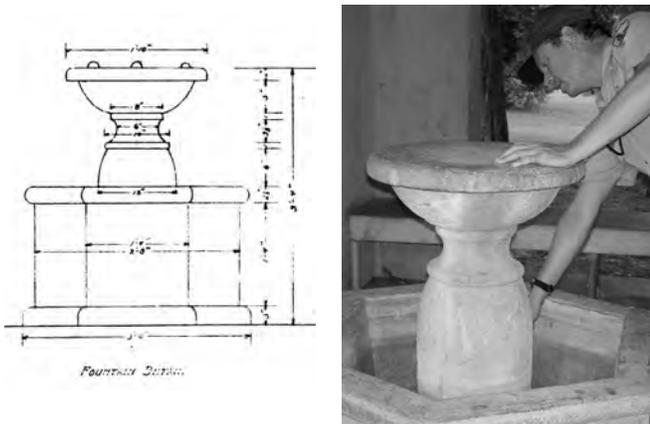


Figure 11-36. Comparison of original fountain elevation and current conditions. Note filled basin and lack of fountain jets.

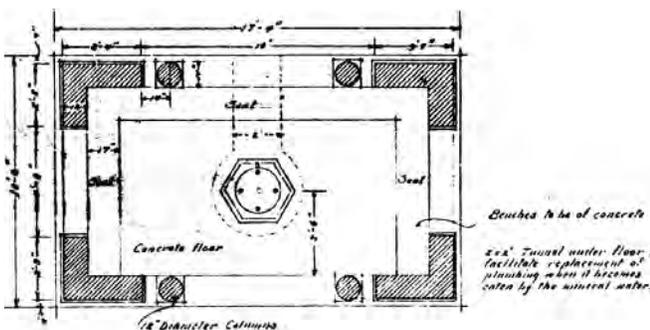


Figure 11-37. Original plan showing location of benches and fountain.

Rationale: Loss of a functioning fountain dispensing mineral water compromises the pavilion's integrity. The presence of water should be reinstated in the pavilion.

Recommendations: Treatment of the fountain will depend to some degree on the condition of its infrastructure. If extant pipes can be replaced or slip-lined, then it may be possible to reuse all or portions of the existing fountain pedestal and basin. If not, the entire fountain may need to be reconstructed.

Ideally, the fountain would be restored with five mineral water jets supplying the central basin of the fountain (Figure 11-35). However, the four jets on the perimeter may be difficult to recreate and maintain. If originally installed (there is no photographic documentation of these jets), water lines for these jets were presumably cast into the original basin, and likely failed due to corrosion or clogging, perhaps caused by the mineral content of the water. Avoiding these conditions could also be difficult today. As a result, it may be easier to restore a single central jet within the basin rather than reinstate the four jets on the basin's perimeter. If the fountain is intended to provide potable water, a chlorination system would also need to be installed, since the fountain will not be connected directly to the spring. It may therefore be preferable to retain the spigot outside the pavilion and make the fountain basin a purely decorative feature. Finally, a timing or motion detection system to turn the flow on and off is recommended for the fountain to reduce water waste.

Recreating the fountain basin itself also poses some challenges (Figures 11-36 and 11-37). The original circular basin was filled in with concrete. This concrete might be chipped out of the basin, though the feasibility of this is not clear. Alternatively, the circular basin might be sawn off its pedestal and replaced with a new basin of the same size and dimensions, perhaps cast from the original. The new basin may then be attached to the extant pedestal and the joint sealed and made as unobtrusive as possible.

By replacing only the basin, more of the fountain's original fabric will be retained. However, depending on the condition of the piping and the difficulty of matching materials, it may simply be easier to cast an entire new pedestal from the original and replace the entire pedestal, including water supply lines. In either case, the octagonal pool surrounding the pedestal should be retained *in situ* if at all possible.

Project BSS3a: Stabilize causeway

Project Type: Masonry Repair

Implementation: Staff or Partnership with Historic Preservation Training Center

Rationale: Sand deposition above and below the causeway has altered creek flow, resulting in undercutting at the causeway base and along stone wall on south side of Rock Creek (Figure 11-38).

Recommendations: This project should be done in conjunction with **Project BSS3b**. The sand upstream of the bridge (Figure 11-39) and the sandbar downstream (Figure 11-40) should be removed to allow the creek to freely flow around the causeway foundations. Periodic cleaning of silt and sand deposition has been necessary in the past and will continue to be necessary in the future. The need for such cleaning has also been documented in a recent Federal Highways inspection report for the causeway.

These actions will also entail some vegetation removal on the sandbar on the downstream side of the causeway. A preliminary investigation of Oklahoma waterway permitting seems to indicate that a permit for dredging may not be required in small creeks. However, this should be confirmed and permitting requirements for work in the stream should be fully investigated prior to commencing work. Once sand is removed, the damage to the causeway foundations should be investigated and repaired as needed.

Project BSS3b: Reinstate beach area by cleaning Rock Creek channel

Project Type: Maintenance

Implementation: Staff

Rationale: Sand deposition in Rock Creek has eliminated traditional bathing/wading area below pavilion (Figure 11-39). This area was historically dredged to maintain the beach.

Recommendations: The hill below the pavilion should be regraded as needed and sand should be removed from the creek channel, to recreate conditions in historic photographs. Sand may be removed to the old Lewis place. Sand removal is also necessary to keep the sand bar



Figure 11-38. Dark areas at base of stones indicate places where stream is undercutting causeway. Masonry repair is required.



Figure 11-39. Undercutting of bridge occurs due to silt and sand build up and blockage of western waterway under causeway. Removal of sand will improve these conditions and help reinstate former favorite swimming beach.



Figure 11-40. Island downstream of causeway is another result of silt and sand deposition in Rock Creek.



Figure 11-41. Two low curbs at the entry to the pavilion are barriers to ADA accessibility. While the lower curb can be easily surmounted by constructing a ramp at the north end of the parking area, the second curb is still a barrier. A long-term solution of ramping between the second curb and the grade of the pavilion is proposed.

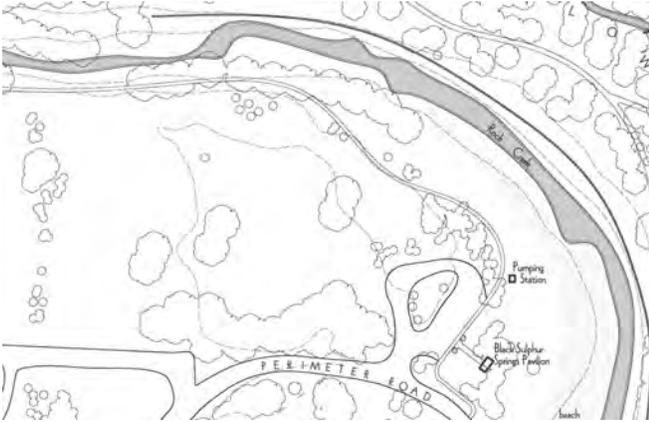


Figure 11-42. Alignment of original trail from Black Sulphur Springs to West Sulphur, to be reinstated.

from forming along the causeway and blocking its box culverts (see **Project BSS3a**).

Project BSS4: Provide ADA access to Pavilion

Project Type: Access/Long-term Repair

Implementation: Staff or Contract

Rationale: The experience of water is a key aspect of the park. Two low (approximately four-inch) curbs prohibit wheelchair access to the Black Sulphur Springs Pavilion (Figure 11-41).

Recommendations: A ramp on to the flagstone sidewalk may be easily provided at the northernmost end of the Black Sulphur Springs parking area. However, once on the sidewalk, a curb still acts as a barrier to the pavilion.

Adding new paths to the area is not recommended. Rather, when repair of the flagstone walk becomes necessary, the walk should be regraded as a low ramp. This is a long term solution, one which should be undertaken only after sulphur water is restored to the pavilion.

Project BSS5: Restore Trail to West Sulphur

Project Type: Repair/Replacement

Implementation: Staff

Rationale: As shown on the 1940 Period Plan for Black Sulphur Springs (Drawing 5 and Figure 11-42), a trail once existed along the southwestern bank of Rock Creek between West Sulphur and Black Sulphur Springs. Construction of the new Chamber of Commerce and the new CNRA visitor center may make this a useful link to reinstate.

Recommendations: Following the design guidelines in Chapter 9, the alignment of the old trail should be cleared and a new, compacted surface installed.

FLOWER PARK: PRESERVATION TREATMENT

Like Black Sulphur Springs, Flower Park retains high integrity. A preservation treatment will help retain this integrity by allowing the repair of features and the replacement of deteriorated historic fabric.

Work has already begun on the preservation of Flower Park with the rehabilitation of the Flower Park trails in the Summer of 2003 (Figure 11-43). Phase 1 of this project was completed in September 2003, and Phase 2 is slated to begin in the Summer of 2004. In addition, plans for the new Visitor Center near the Vendome Well call for the rehabilitation of Vendome/ Flower Park parking lot, including repaving and repair of historic stone curbing. These projects are in the line with the proposed treatment projects below. All proposed treatment projects are depicted on Drawing 27.

Project FP0: Rehabilitate Flower Park Trail System

Project Type: Access and Repair/Replacement
Implementation: Staff

Rationale: Flower Park is a high-use area of the park and trails have widened and shifted over the years. New material has been added, covering the original stone edging, which is believed to be intact but buried.

Recommendations: The paths should be rehabilitated to improve function and access, while retaining and recapturing historic appearance. Existing paths should be excavated to reveal extant stone edging, which has been buried over the years. Stone edging should be exposed and then re-laid as necessary to stabilize and repair it (Figure 11-43). Damaged stones shall be replaced in kind. The trails should be widened to 6 feet, accommodate two people walking side-by-side and to allow two wheelchairs traveling in opposing directions to pass each other. This should be done by retaining the upper edge of each trail segment in its original location, and moving the lower edge to accommodate the new width. Minor alterations in trail alignment at the ends of trail segments may be made to allow the widened trail to meet extant bridges or features. Edging and path should meet surroundings at grade and, based on historic photographs, care should be taken not to sink it below grade or project it above grade.

With trail rehabilitation, surrounding grades may need to be altered from their existing conditions and returned as close as possible to historic conditions to provide positive drainage across turf areas and path areas. This may require the reestablishment of former swales, revision of existing swales and/or removal of underbrush along the base of the Flower Park hill. Trail surfacing should duplicate historic conditions with compacted crushed granite.

Additional project specifications were developed in the Spring of 2003, in conjunction with the Oklahoma State Historic Preservation Office. These specification should be followed in the Summer 2004 project.

Project FP1: Restore Vendome stream edges, pools, and dams

Project Type: Repair and Replacement
Implementation: Staff



Figure 11-43. Rehabilitation of trails in Flower Park, Summer 2003. Work included excavating the extant trail, comparing its alignments to those shown in historic documents, and regrading of surrounds to effect positive drainage. Future trail rehabilitation should follow the plans, specifications and techniques used in this project.



Figure 11-44. Flower Park stream, circa 1935. Original stream edge featured boulders interspersed with turf.



Figure 11-45. Stream and pool edges are being undercut in some locations and should be stabilized as needed. Edges should be carefully reinstated to match historic conditions (Figure 10-44).



Figure 11-46. The upper wading pool is narrowed in size, and its edges do not have the same boulder edges as the rest of the stream. Pool should be enlarged to original size.

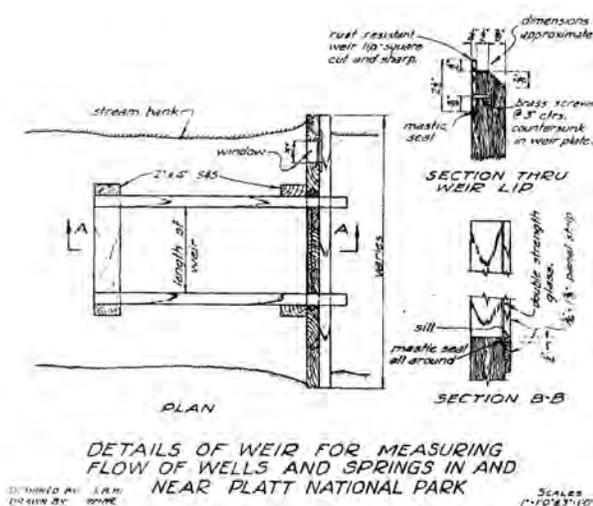


Figure 11-47. Wooden weir in Vendome stream was constructed circa 1940 to measure water flow from Vendome well. Extant conditions vary somewhat from this drawing.



Figure 11-48. This gate at the entrance to Flower Park has already been removed. If necessary, it could be replaced by bollards.

Rationale: The stone edges of the Vendome stream are deteriorating and in some places are being undercut by stream flow (Figures 11-44 and 11-45). The stream's pools have narrowed over time and no longer reflect their historic configurations (Figure 11-46).

Recommendations: The two wading pools should be enlarged and reconfigured to match their outline at the end of the period of significance. The pools' perimeter configuration may be determined from the 1940 period plan (Drawing 5), which is derived from historic aerial photographs. Soil composition in the filled in areas may also help indicate the original extent of the pools. The new pools should be edged with boulders, consistent with the rest of the stream; recent site reconnaissance undertaken during the renewal of the park's trails has shown that some original boulder edges may still exist under soil placed when the pools were filled in.

The extant boulder stream edges and dams should be assessed for deterioration and rebuilt in-kind as needed to eliminate wash-outs and undercutting. Boulder stream edges and dams should be dry laid or mortared in place, as based on original construction methods and exhibited in existing conditions. The sole extant wood weir, which was constructed in 1940 to measure the flow of the Vendome well, should be reconstructed in kind as well, based on existing conditions and historical drawings in CNRA files (Figure 11-47). Banks should be reseeded in turf and protected from foot traffic for a period following construction. Future turf management should also avoid the over-use of weed whackers at the stream edges, to maintain cover and reduce erosion.

Bank restoration will be a large, complex project. The project could be done in phases: stream edges, the upper pool, and the lower pool could be restored in three consecutive summers, for example. It will also be important to photo-document in detail the entire stream prior to construction. Such documentation will be both a record of change and an aid in accurately rebuilding extant historic conditions.

Construction will also likely require diversion of the Vendome stream during construction. This will dry out and probably kill the algae and weeds currently growing in the bottom of the pools. Such divergence could also periodically be used to control vegetation growing in the pools, if desired.

Project FP2: Replace gate at parking lot

Project Type: Improvement
Implementation: Staff

Rationale: Existing gate is unsightly and restricts pedestrian movement.

Recommendation: If deemed necessary due to attempted vehicular access, the gate should be replaced as described in Chapter 9, or with an unobtrusive lockable or removable bollard compatible with historic setting.

Project FP3: Improve appearance of Flower Park along Broadway Avenue

Project Type: Improvement
Implementation: Staff

Rationale: The Flower Park frontage along Broadway Avenue is an important “front door” to the Platt District and should present a stronger, more managed appearance (Figure 11-49). This project should be coordinated with the local government’s proposed streetscape changes.

Recommendations: Once the street’s asphalt apron, guardrails, and electrical poles are removed or redesigned, the park boundary should be managed as a released natural area, perhaps with a mowed zone directly adjacent to the roadway. This is desirable east of the parking lot, but care should be taken along the north side of the parking lot to prevent opening undesirable views. Dense undergrowth should be thinned and dense overstory pruned to encourage growth of prairie grasses and forbs along the roadside.

Project FP4: Replace trees throughout Flower Park and Vendome parking lot

Project Type: Tree Replanting
Implementation: Staff

Rationale: Trees have been lost from this area due to age, storm damage, and beaver damage.

Recommendations: Trees should be replanted to maintain the area’s character-defining overhead canopy and balance of sun and shade on the ground plane. A



Figure 11-49. Frontage along Broadway presents a somewhat disheveled appearance to the town, and should be improved in conjunction with Sulphur’s proposed streetscape improvements.



Figure 11-50. White lines indicate how additional trees could be planted under more open-canopied areas in Flower Park.

lack of precise historic documentation prohibits the replacement of individual trees. Locations for new trees should be determined by in-field study, and should be planted in areas where the loss of trees has created a hole in the canopy cover and/or where stumps are located, or where a topographic depression indicates a former stump location. A comparison of aerial photographs from 1940 and 1999 will also be helpful in locating areas where canopy cover has decreased over time and trees should be planted in these areas. Trees may also be planted in close proximity to large trees in obvious decline. A rule of thumb might be to plant trees should in areas where canopy cover is less than twenty percent (Figure 11-50). As described in Chapter 6, an analysis of current conditions with the 1936 survey shows a general increase in hackberry and a loss of oak trees. As a result,



Figure 11-51. Upper trails in Flower Park are enclosed by vegetation. Dense cedars and understory plants should be thinned as part of Project FP5.



Figure 11-52. Dense vegetation east of the Flower Park comfort station discouraged use of upper trails. Clearing here has already begun as part of the 2003 trail rehabilitation (see Project FP0).



Figure 11-53. Large concrete siphon covers and manholes without regular maintenance needs could be placed below grade, but only when infrastructure is replaced in the future.

replacement trees should be primarily oak species and black walnut. Once new trees are established, future plantings should focus on replacing removed trees in kind.

Project FP5: Rehabilitate vegetation around paths and stairs on hillside north of the comfort station

Project Type: Vegetation Removal

Implementation: Staff

Rationale: Cedars are overgrown and in decline; and densely forested hillsides do not represent the historic conditions (Figures 11-51 and 11-52).

Recommendations: Cedar forest should be thinned to create sunny openings along the upper pathways and to create views to southern portion of Flower Park. Vegetative screening along Highway 7, however should be maintained. Thinning should focus on removals of dead, dying, or very mature cedars with lower dead branches. Female trees, which act as seed sources, should also be targeted for removal. Cedar removal should create large openings which should be further thinned of woody understory. The goal of understory removal should be to encourage growth of prairie grasses and flowering forbs. Small open areas can be mowed early in the spring to help manage and select for warm season grasses. Open areas or islands might also be entirely cleared of understory and planted with seed or plugs of prairie grasses and forbs to help further increase populations of preferred cover species.

Project FP6: Replace large concrete manhole and siphon covers

Project Type: Long-term Improvement

Implementation: Staff

Rationale: Large concrete pads are intrusive in green park environment (Figure 11-53).

Recommendations: When concrete pads deteriorate or new infrastructure is planned, manholes should be redesigned and placed at grade and covered with soil and turf. This treatment is very appropriate for manholes which are not accessed on a regularly scheduled basis, and

other manholes could be made less conspicuous through similar treatments.

Project FP7: Remove reunion posts

Project Type: Improvement

Implementation: Staff

Rationale: Posts (Figure 11-54) are not historic and notifications of reunion locations will be more conveniently handled at the new Visitor Center.

Recommendation: Remove two posts located at the intersection of the perimeter road and Highway 177.



Figure 11-54. Reunion posts near Flower Park should be removed.

Project FP8: Provide new light standards if park events continue to require nighttime lighting

Project Type: Improvement

Implementation: Staff or Contract

Rationale: Interpretive activities and civic events sometimes use park at night and existing lighting, may be insufficient. Current lighting is provided from a light standard southeast of Lincoln Bridge, on a standard utility fixture, with service provided via a utility pole near the comfort station (Figure 11-55).

Recommendations: New lighting, if deemed necessary, should be functional for events rather than ornamental. Because lighting was never a character-defining feature of the area, fixtures should be unobtrusive and kept to a minimum. Fixtures should also be clearly non-historic, yet compatible with the historic setting. Returning light fixtures to Lincoln Bridge is not recommended. If electrical fixtures are added or changed, the visually intrusive power pole located near the comfort station (Figure 11-55) should be relocated at the same time.



Figure 11-55. Extant utility pole in Flower Park might be relocated or placed underground, possibly as part of area lighting plan.

landscape and/or increase maintenance through soil compaction, tree damage, litter, etc.

Recommendations: If Flower Park is consistently used for civic events, then guidelines for such use may be useful in reducing conflicts between preservation, maintenance, and use. For example, by determining preferred locations for vendors, food booths, performers and audience groups, it may be possible to then preservation efforts such as tree planting or pool enlargement with coordinate event needs (lighting, electrical supply).

Project FP9: Develop guidelines for use of Flower Park for civic events

Project Type: Planning

Implementation: Staff

Rationale: Flower Park is a desirable location for civic events, but large crowds could negatively impact the



Figure 11-56. Extant entry piers in Flower Park should be retained as is, but enhanced with plantings in keeping with historic plans.

Project FP10: Restore or rehabilitate main entrance piers

Project Type: Repair and Replacement/Planting
Implementation: Staff

Rationale: Although the main entrance was partially disassembled following a number of vehicular collisions (Figure, the existing gateway could be redesigned more in keeping with historic conditions.

Recommendations: While it might be possible to reconstruct the original gateway's missing, semi-circular walls (Figures 4-42, 4-43, and 5-20), this may require a major reconfiguration to locate the walls and piers at a reasonable distance from the road's curb line (Figure 11-56). Such a reconfiguration would, in turn require a relocation of the entry's associated pathways which connect with the rest of the Flower Park paths. If restoration is feasible, it should be done. If not, the remaining elements might be strengthened with additional ornamental plantings in keeping with the original.

BUFFALO PASTURE: REHABILITATION TREATMENT

The Buffalo Pasture retains moderately high integrity, as described in Chapter 7. The projects proposed below primarily involve retaining and repairing existing features such as the area's fence and dam. However, vegetative changes have been relatively significant, and to return this area to more open prairie will require removals of both planted and invasive vegetation. This level of vegetation removal and replacement represents a rehabilitation treatment rather than a preservation of existing conditions. Other treatment projects are described below and are also highlighted on Drawing 28.

Project BP1: Provide interpretive signage or "exhibit" about bison

Project Type: Interpretation
Implementation: Staff/Partnership

Rationale: The bison are a historic feature of the park and should be interpreted as such to the public.

Recommendations: The bison might be considered to be a "cultural resource" as they are part of the historic setting of the district. An interpretive sign explaining the history of the bison—how they came to the park in the 1910s and how they've been managed—as well as the natural history of the species in the area should be located near the bison overlook. The standard Harper Ferry's double pedestal anodized aluminum frame sign should be used and positioned near the parking terrace.

Project BP2: Preserve bison overlook

Project Type: Masonry Repair
Implementation: Staff/Partnership

Rationale: Portion of the stone wall around the parking area are deteriorating (Figure 11-57).

Recommendations: Stone walls should be repaired to prevent erosion and further deterioration. Repair should follow district-wide masonry guidelines and match existing construction as closely as possible.

Project BP3: Remove stone stockpiles from visible portions of the Buffalo Pasture

Project Type: Improvement
Implementation: Staff

Rationale: Stone stockpiles intrude visually in historic setting.

Recommendations: Stones visible from the bison overlook and Highway 177 should be removed from view, and perhaps located in reorganized lower yard.



Figure 11-57. Stone wall at the Buffalo Pasture overlook needs relatively minor repairs.

Project BP4: Preserve Buffalo Pasture dam and pond

Project Type: Masonry Repair
Implementation: Staff

Rationale: Spillway is currently being undercut (Figure 11-58).

Recommendations: The dam should be inspected and areas being undercut should be repaired.



Figure 11-58. The Buffalo Pasture dam is spalling, cracking and being undercut. Masonry repairs are needed.

Project BP5: Preserve Buffalo Pasture fence

Project Type: Repair and Replacement
Implementation: Staff

Rationale: Fence is aging and beginning to deteriorate. Though some areas are still sound, others are rusting and pitting.

Recommendations: Fence should be inspected and assessed for repair. Posts and wire mesh should be replaced in kind as necessary (Figure 11-59).



Figure 11-59. Buffalo Pasture fence requires painting and minor repairs.

Project BP6: Reinstate lettering on South Entry piers

Project Type: Replacement/Signage
Implementation: Staff/Contract

Rationale: The historic piers at the south entry (Figure 11-60) look significantly different than they did during the period of significance (Figure 4-62). A new sign has



Figure 11-60. Extant piers at the south entry lack a strong historic presence or purpose.

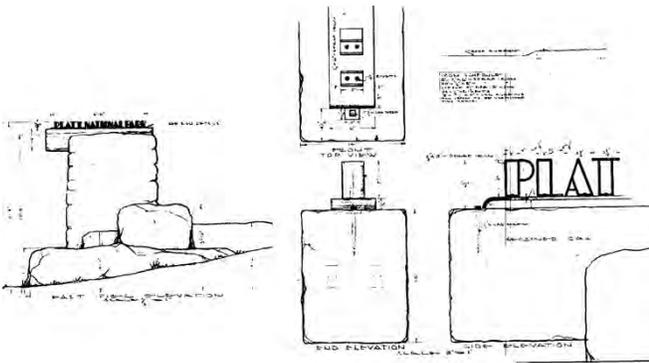


Figure 11-61. Portion of “Entrance Portal, South Entrance,” Drawing NP-PLA-3038A. Strap iron lettering could be replaced on south entry piers to match original design.

been attached to the eastern pier, notifying visitors to their entry into the Chickasaw National Recreation Area.

Recommendations: An entry setting reinforcing the historic character of the area might be created at the south entry. This could be done by returning the piers to their historic appearance (Figure 11-61). Strap iron lettering that matches the original (Figure 11-61) should be replaced on the piers, and the contemporary CNRA sign relocated to complement the piers. This will aid in identifying the area as the “Platt Historic District.”

Project BP7: Rehabilitate Buffalo Pasture Vegetation

Project Type: Vegetation Removal and Replacement

Implementation: Staff

Rationale: The invasion of red cedar into the formerly open grassland of the Buffalo Pasture is a result of fire suppression in the district. Cedar growth has shaded out forage plants and reduced the ability of the land to support the bison. If no action is taken, most preferred native grasses will continue to be gradually replaced by species better adapted to increased shade, soil compaction, and cooler temperatures. In general, the condition of the pasture will decline and the remaining grasslands will convert to additional red-cedar woodland.

Recommendations: Much of the Buffalo Pasture should be cleared of woody vegetation through a combination of prescribed burn and mechanical removal as described above. Cedar removal will improve pasturage for bison and open views from the perimeter road and the Buffalo Pasture Trail into the pasture. The extent of proposed clearance is shown on Figure 11-62, which can be used as a reference for management, though localized field conditions should also be taken into consideration. In general, clearance is proposed for the higher and flatter elevations of the pasture. Existing woodland should be maintained in the ravines, where woodlands were historically. Historic dump sites should also be maintained in woodland cover, to protect their potential archeological values. In zones adjacent to the woodlands, a transitional zone, providing protective cover for livestock and wildlife, should be created by selective mechanical removal of female red cedar trees.

Areas that have been cleared and burned may naturally return to grassland, depending on the seed bank retained in the soil. Revegetation might also be accomplished by prairie restoration, with the area reseeded with native grasses and mulched with prairie hay. Local experts should be contacted to determine the best seed mixes, prairie establishment techniques, and seeding times for the area. Seeds might be collected locally, perhaps from within the CNRA, or purchased from a regional supplier; efforts should be made to retain local species and genotypes, which will be better adapted to local conditions. The park currently contracts with NRCS plant material center, Knox City Texas, to provide seed grown from local genetic pool. According to county soil data, most of the Buffalo Pasture soils consist of the Rayford cobbly loam soil type. The rangeland for this soil is classified as shallow prairie. The plant community for this soil would fall into a category of a tall or mixed prairie, with an approximate species composition of 92% grasses, 5% forbs and 3% woody plants. Preferred plants

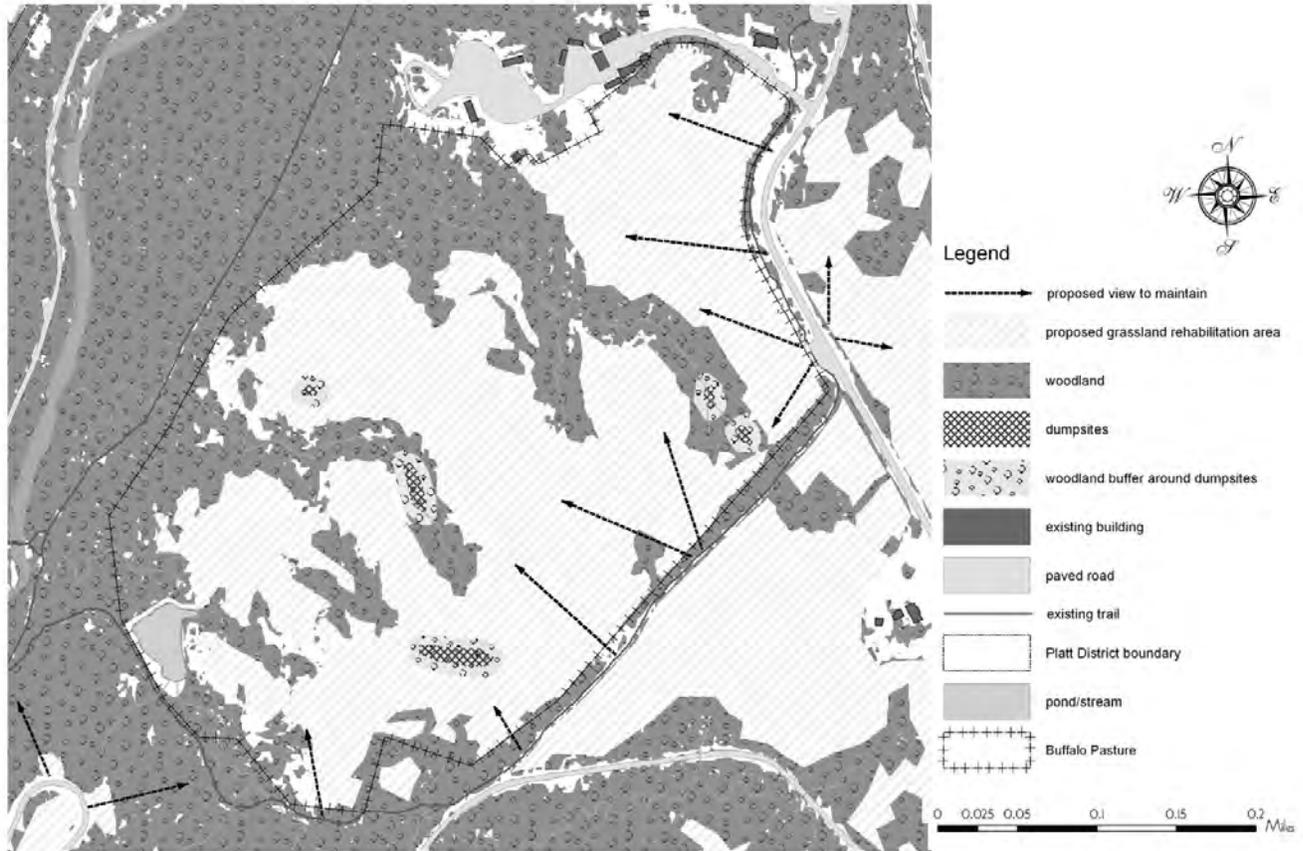


Figure 11-62. Proposed plan for the rehabilitation of vegetation in the Buffalo Pasture area, in keeping with the overall vegetation treatment described in Chapter 10 and depicted on Drawing 35. Clearing is proposed for the higher and flatter portions of the pasture, to result in conditions closer to historic conditions, including more open views.

for livestock forage production include: little bluestem, Indian grass, big bluestem, switchgrass, sideoats grama, hairy grama, prairie scurf pea, black samson, perennial sunflower and skunk bush. Additional species might also include wild rye, tickclover, perennial lespedeza, ashy sunflower, clasping-leaved coneflower, purple coneflower, Indian blanket, dotted gayfeather, purple prairie clover, prairie coneflower, and black-eyed susan.

It will take a minimum of approximately 2-3 years to fully establish a prairie planting in formerly wooded areas. During this time, spring mowing or burning may be necessary to control cool season grasses; again, local experts should be contacted to determine the best management practices for the region. Once grassland has been established, ongoing management may include monitoring of the restored prairie and periodic prescribed burns to prevent re-invasion by woody species. In addition, a grazing management strategy should be developed to prevent overgrazing of the pasture and to ensure the continuing health of the bison herd.

SUPERINTENDENT’S RESIDENCE: PRESERVATION TREATMENT

The Superintendent’s residence landscape should be preserved. Restoring this area is not recommended, since historic documentation of as-built landscape conditions is limited. In addition, although the landscape is significant, it has no visitor use, so priority of treatment is relatively low. No significant elements will be reconstructed or restored; rather, existing features will be repaired and missing historic fabric replaced where appropriate. The treatment projects described below are depicted on Drawing 28.

Project SR1: Preserve Superintendent’s Residence and Garage

Project Type: Repair and Replacement
Implementation: Contract



Figure 11-63. The windows and doors on the Superintendent's Residence should eventually be replaced with ones duplicating the historic features in appearance. without foundation plantings, looks forlorn in the landscape. Foundation plantings should also be returned.



Figure 11-64. Non historic features, such as the chainlink fence, should be removed.

Rationale: Residence exhibits typical wear over time.

Recommendations: Chimney masonry should be repaired, building should be re-roofed, and other work undertaken as needed.

Project SR2: Replace windows and doors on residence and garage

Project Type: Long-term Replacement

Implementation: Staff

Rationale: Modern windows, doors, and other exterior features reduce historic appearance and feeling of area (Figure 11-63).

Recommendations: Future work on the building's exterior should strive to recreate the building's historic appearance (Figures 4-57, 4-59, 5-28, etc.). When window and door replacement becomes necessary over the long term, new windows and doors should be chosen to match the fenestration and appearance of the originals, to return the historic appearance of the building.

Project SR3: Preserve Superintendent's Residence landscape

Project Type: Long-term Improvement

Implementation: Staff

Rationale: Historic conditions at the end of the period of significance are poorly documented, so landscape treatment should focus on preserving existing features.

Recommendations: Although a planting plan for the Superintendent's residence exists (Figure 4-56), photographs of the completed area show that these plans were not fully implemented as designed. Documentation of the as-built landscape are, however, limited, making any sort of restoration impossible.

However, historic photographs indicate evidence of foundation plantings, now missing, around the house. Based on historic photographs, these should be reinstated to ground the house in its landscape. Other extant trees, shrubs and features should be preserved through pruning and fertilization. Weeds on the two flagstone patios should be removed by weeding or spraying; the masonry of these features should be repaired as needed. The historic stone curb around the driveway seems to be extant, though hidden by asphalt. This could be reinstated. In contrast, although historic photos from the 1930s show a driveway at the rear of the building, this driveway should not be reinstated as it was never intended to be permanent. Non-historic features such as the chain link fence (Figure 11-64) should be removed if feasible.

PRAIRIE UPLANDS: REHABILITATION TREATMENT

As described in Chapter 7, the Prairie Uplands demonstrate somewhat diminished integrity due to vegetative changes. To return this area to its historic condition, a significant level of vegetative rehabilitation—removing cedar and woody species and replanting prairie grasses and forbs—will be required. This level of activity moves the treatment for this area more toward an overall rehabilitation rather than simple preservation.

Project PU1: Rehabilitate Vegetation in Prairie Uplands

Project Type: Vegetation Removal and Replacement
Implementation: Staff

Rationale: Like the Buffalo Pasture, open grassland in the Upland Prairie has been taken over by invasive cedars, in part due to fire suppression in the district. Red cedar has enclosed open spaces, creating conditions which were not present during historic period (Figure 11-65).

Recommendations: Like the Buffalo Pasture, the Prairie Uplands should be cleared of woody vegetation through a combination of prescribed burn and manual removal. The uplands east of Highway 177 should be cleared of large areas of cedar, as shown in Figure 11-66. This figure shows woodlands maintained along the area's streams and ravines, and maintained in areas where woodlands existed historically, as determined from an analysis of the 1940 aerial photograph. In addition, some woodland should be maintained as a screen along the urban interface near Veteran's Hospital and area residences. However, woodland along the interface should be thinned, with female, over-mature and masses of young cedars (less than 3", as described in the 2001 "Hazard Fuels Assessment") removed from the area, as per urban interface guidelines listed above.

Areas that have been cleared and burned may naturally return to grassland, depending on the seed bank retained in the soil. Revegetation might also be accomplished by prairie restoration, with the area reseeded with native grasses and mulched with prairie hay. Local experts should be contacted to determine the best seed mixes, prairie establishment techniques, and seeding times for



Figure 11-65. The Prairie Uplands are densely vegetated and enclosed with cedar and other woody species. These should be removed and replaced with open prairie.

the area. Seeds might be collected locally, perhaps from within the CNRA, or grown by NRCS plant material center; efforts should be made to retain local species and genotypes, which will be better adapted to local conditions.

It will take a minimum of approximately 2-3 years to fully establish a prairie planting in formerly wooded areas. During this time, spring mowing or burning may be necessary to control cool season grasses; again, local experts should be contacted to determine the best management practices for the region. Once grassland has been established, ongoing management may include monitoring of the restored prairie and periodic prescribed burns to prevent re-invasion by woody species. Because of the smaller extent of grassland in this area, periodic burning might be replaced by periodic mowing as a means to discourage woody plants and cool-season exotic grasses.

Project PU2: Preserve former golf course dams

Project Type: Masonry Repair
Implementation: Staff

Rationale: These three structures pre-date the 1940s and are currently in relatively poor condition.

Recommendations: The upper two structures are in worse condition than the lower structure, although none originally exhibited high levels of workmanship. The remains of the dams should be retained and repaired according to district-wide masonry guidelines (Chapter 9). Positive drainage should be maintained around the

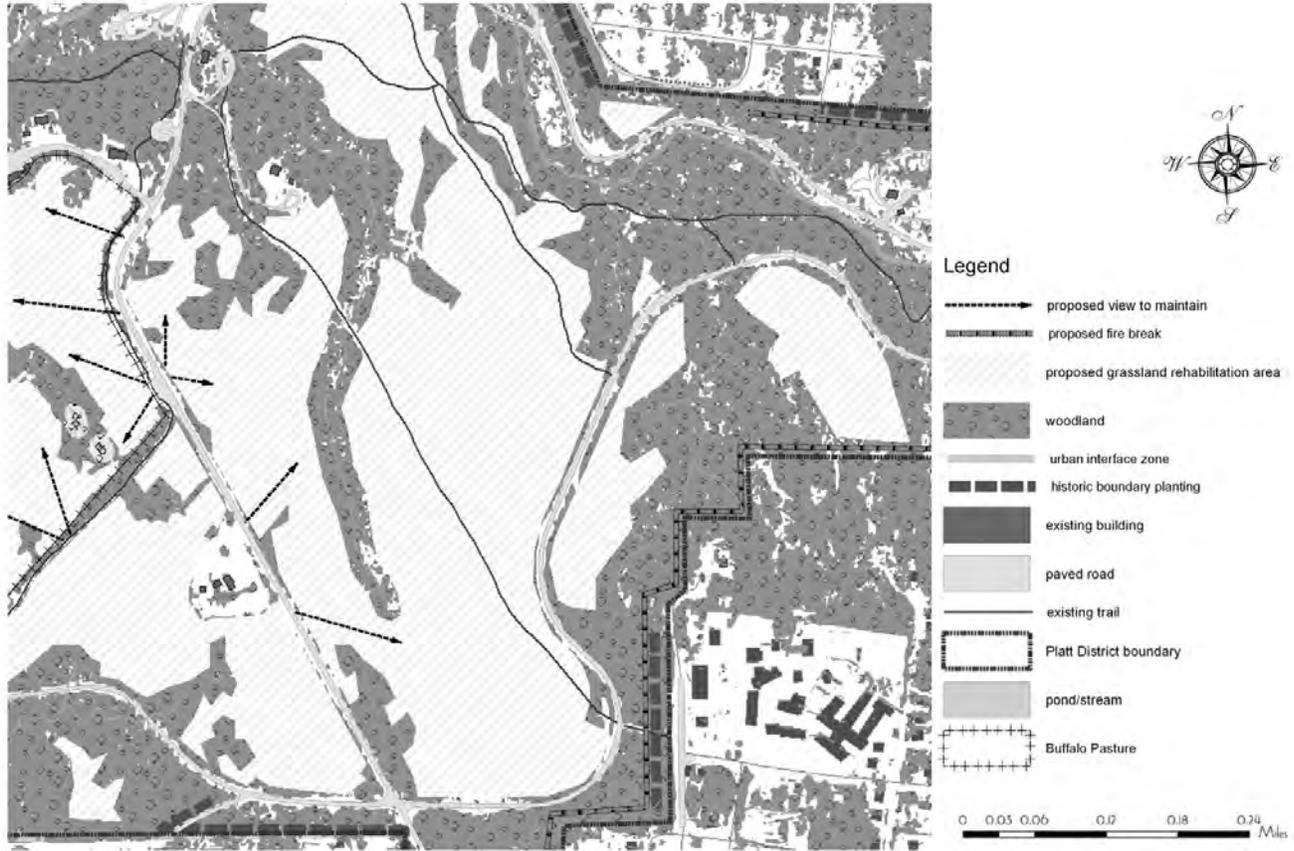


Figure 11-66. Proposed grassland rehabilitation for the Prairie Uplands area, to return area to more visually open historic and more ecologically healthy conditions. See Chapter 10 and Drawing 35 for additional information.

structure and vegetation around the dams should be cleared.

Project PU3: Connect Veteran's Trail with existing one-way trail to perimeter road to create loop trail

Project Type: Long-term Improvement
Implementation: Staff

Rationale: Trail extension could improve or extend visitor experience

Recommendations: Veteran's Trail is a pleasant experience through prairie uplands and cedar groves. The experience could be extended by curving the trail around to meet an existing trail that dead-ends at the perimeter road. Alignment of this trail linkage is indicated on Drawing 28.

PAVILION SPRINGS: PRESERVATION TREATMENT

Projects proposed for Pavilion Springs include limited ADA access upgrading and repairs to plumbing for the spring. These projects are in keeping with a preservation treatment for the area, and are depicted on Drawing 29.

Project PS1: Provide ADA access to edge of building

Project Type: Access
Implementation: Staff

Rationale: Because of the sunken floor of the pavilion, providing ADA access to the Big Tom Spring would require major re-engineering of the building's floor and entries, negatively impacting the historic structure. As an alternative, a graded ramp could be provided to the

western edge of the building, providing wheelchair users with at least a visual experience of the spring.

Recommendations: A ramp-like path with a slope of five percent or less should be graded from the parking lot around the south side of the steps to the level area at the building's south entrance (Figure 11-67). A gap in the boulders lining the edge of the parking lot may need to be created, but many of these are non-historic, placed at grade, and easy to move. The ramp should be aligned to clarify the pavilion's connection to Veteran's Trail to the south. The path should also be surfaced in compacted gravel fines to match other areas of the district and should be a minimum of three feet wide according to ADA access recommendations.

Project PS2: Replace or repair drain line on north side of pavilion

Project Type: Repair and Replacement

Implementation: Staff

Rationale: The drain line from the pavilion edge to the stone and step structure to the north is clogged, apparently by tree roots (Figure 11-68).

Recommendations: This line should be cleaned and, if necessary, replaced with PVC lines

Project PS3: Rehabilitate area vegetation

Project Type: Replanting

Implementation: Staff

Rationale: Trees and other vegetation have been lost due to age, road repair, and storm damage. The landscape around the pavilion has lost some of its shaded quality.

Recommendations: A limited amount of tree replacement should occur throughout the area. Trees should be planted at extant stumps or wherever a large (40 feet wide) gap occurs in the overhead canopy. Replacement species should be oak, ash, and elm. Oak trees lost at the corners of the pavilion should be replaced in kind in locations as close to the originals as possible (Figure 11-69). It may be necessary to minimally grind extant stumps and delay replacement until decay allows new holes to be dug. Trees may also need to be offset



Figure 11-67. Improved, if not full, ADA access can be provided by constructing a ramp between the parking area and the entrance to the pavilion, along the arrow shown in the photograph.



Figure 11-68. Drain line on the north side of the pavilion should be repaired.

from their original locations by two to four feet unless decay allows placement over old locations. Virginia creeper should also be re-established to grow on the guard rail along Highway 177 just west of the pavilion.

Project PS4: Preserve grade stabilization structure to the north of pavilion

Project Type: Maintenance

Implementation: Staff

Rationale: This structure, hidden in undergrowth, has been neglected over time, but may be helpful in directing and controlling run-off during storm events.



Figure 11-69. Trees lost near the building, as demonstrated by this trunk, and trees in the open landscape immediately south of the pavilion should be replanted to retain the area's shady setting.



Figure 11-70. No longer used, the non-historic information kiosk north of Pavilion Springs should be removed.



Figure 11-71. Seepage from springs behind underpass wall should be redirected via minor masonry repairs.

Recommendations: The swale leading to and from the structure should be cleared of vegetation and debris removed.

Project PS5: Remove information kiosk in former elk pasture and current picnic area south of Lincoln Bridge

Project Type: Improvement

Implementation: Staff

Rationale: This structure (Figure 11-70) does not date to the period of significance and is no longer used.

Recommendations: Remove structure and any foundation; return area to grass or gravel as appropriate.

Project PS6: Redirect water seepage at Highway 177 underpass, west and east walls

Project Type: Masonry repair

Implementation: Staff or Partnership with Historic Preservation Training Center/

Rationale: Water seeping through wall is damaging masonry and makes walking surface slippery (Figure 11-71).

Recommendations: Although it is impossible to staunch the flow of spring water, the structures in this area would benefit from channeling this moisture away from the wall. This might be accomplished by chiseling out key joints on and at the bottom of the wall to channel the water away. However, this must be carefully done, so as to not damage surrounding masonry.

HILLSIDE SPRINGS: PRESERVATION TREATMENT

No major changes are needed or proposed for Hillside Springs; hence, preservation is an appropriate treatment. Most of the projects proposed center around cleaning and repairing the exterior and the plumbing of the Hillside Springs enclosure. Water at this site is not potable due to bacterial contamination. Proposed repairs to the spring

holding tank lid and the piping may remediate these problems, and testing should probably occur before and after changes are made to the piping or the holding tank. The other change proposed is rehabilitation - mostly clearing and thinning - of the area's dense woody vegetation. All treatment projects are highlighted on Drawing 29.

Project HS1: Clean spring enclosure, including round basin and runnel, of algae and other debris; investigate seepage problems

Project Type: Maintenance/Investigation

Implementation: Staff

Rationale: There is a significant amount of unsightly algae and debris on and around the spring enclosure and basin (Figure 11-72).

Recommendations: As a first step, the masonry walls should be cleaned. The masonry gutter at the bottom of the wall should also be thoroughly cleaned out to help water drain away from the structure. Cleaning might be accomplished with a *gentle* power wash, with care taken to prevent damage to the structure, stone, and masonry joints by powerful water jets. If power washing is too damaging, cleaning could be done by hand with soft bristle brushes and perhaps a masonry cleaner such as Pro-So-Co® or a small amount of bleach to inhibit algae growth. However, care would need to be taken to prevent run off into the surrounding waterways.

The basin and runnel should also be cleaned. A power washer may be used if it is not damaging to the structure, stone, and masonry joints, though hand cleaning with a brush may be necessary on the basin. In particular, care should be taken not to damage the concrete parging above the basin.

An annual cleaning of the structure may be a simple solution to the accretion of algae and debris. The algae growth is tied to the seepage of spring water from behind the wall. However, historic photographs show seepage at the base of the wall, so it is possible this has been a problem since construction. While it might be possible to place tile drainage behind the wall, in some locations, stone outcroppings behind the wall will probably make this difficult. A test dig would determine feasibility of tile drainage.



Figure 11-72. Algae covers not only pools, but masonry. Regularly scheduled cleaning, plus increasing the sun in the area should help make the area less damp and more pleasant.

Algae growth is accelerated by the shade and continually damp conditions. Enlarging the drainage channels at the base of the wall may help water to more efficiently drain away. Clearing vegetation (see **Project HS6**) will also allow more sunlight to reach and dry out the area.

Project HS2: Repair bubblers and piping

Project Type: Repair and replacement

Implementation: Staff

Rationale: Algae, bacteria, and mineral accretion in the basin and runnel are unsightly and may be causing the decrease in bubbler flow and height that has occurred over the years (Figure 11-73).

Recommendations: Pipes leading to the bubblers should be reamed and cleaned out if possible; mineral and bacterial accretions may be clogging flow. The corrugated pipe located in the area located just north of the terrace should also be investigated to see if this outlet is in some way reducing bubbler flow. The current holding tank and piping should also be inspected and assessed. If pipes are in poor condition, they should either be slip-lined with nylon or polypropylene or replaced with PVC or stainless steel. Re-piping may require new connections to the spring's holding tank or excavation behind the masonry wall. This project might be done in conjunction with **Project HS3** below.



Figure 11-73. In addition to cleaning the pool, the lack of flow from the spring's bubblers should be investigated, and pipes leading to them cleaned or replaced. Note seepage from spring through wall to the right.



Figure 11-74. Lid on the spring container is rusted, and should be replaced.



Figure 11-75. Hillside Spring, shortly after construction. Note low post locational sign to the left and more open, sunny aspect of area.

Project HS3: Repair or replace rusting metal lid of spring container

Project Type: Repair and replacement

Implementation: Staff

Rationale: Lid is rusting and in poor condition that could lead to contamination or debris entering spring and clogging pipes (Figure 11-74). It is not clear if the holes in the lid are contributing to bacterial contamination of the spring.

Recommendations: A new lid matching the old in size and shape should be fabricated. If possible, a less reactive material such as stainless steel should be used. A steel cover should be hidden from view by planting ground cover or prairie grasses in the area.

Project HS4: Replace signs

Project Type: Repair and replacement

Implementation: Staff

Rationale: Hillside Spring and "Water Unsafe for Drinking" signs did not exist during the period of significance.

Recommendations: The Hillside Springs sign should be replaced with a low post sign (Figure 11-75) duplicating the original sign. The unsafe water sign should be removed and replaced with a smaller sign with a similar warning message in a new location. The low location of the bubblers and lack of true drinking fountain also already discourage some visitors from drinking the water. Therefore, a new warning sign does not need to be so prominent. It might be located on the flat rim of the basin, or on the wall next to the arch.

Project HS5: Repair split stone on entry wall

Project Type: Masonry Repair

Implementation: Staff

Rationale: Split stone (Figure 11-76) should be fixed before it falls off and becomes damaged or lost.

Recommendations: Follow district-wide guidelines for masonry repair.

Project HS6: Rehabilitate area vegetation

Project Type: Vegetation removal and replacement
Implementation: Staff

Rationale: Historic photographs reveal this area was more open and sunny. Tree removal would help reduce shade and algae growth on the structures and would also make the spring more apparent to visitors.

Recommendations: This project should be coordinated with similar work around the Leeper House (see Project AH3). The dense cedar forest to the north, south and west of the spring should be thinned by mechanical means. Dead and dying vegetation, especially overly mature cedars, should be removed. A few younger cedars should be retained for regrowth and to maintain some enclosure in the area. If little regeneration of cedar is seen in the understory, additional male cedar may be replanted. Dead and dense vegetation immediately around the spring should also be removed, to recreate the more open, grassy surrounds around the structure, particularly to its south (Figure 4-74).

With the thinning of the forest, understory forbs and grasses should be enhanced by an increase of sunlight. This regrowth should be monitored and if necessary, enhanced by planting. Existing understory forbs and grasses might be interplanted with prairie plant plugs. Larger cleared areas might also be reseeded with a mixture of native grasses and forbs. Soils north of the Buffalo Pasture are of the Stephenville Darnell type, and as a result classified as sandy savannah. The area's potential plant community is a tall or mixed prairie with an idealized composition of 87% grasses, 3% forbs and 10% woody plants. Preferred plants for this area include: big bluestem, little bluestem, Indian grass, switch grass, wild rye, tick clover, perennial lespedeza, and ashy sunflower. Fallen trees and dead vegetation should also be removed from the stream leading from the fountain. Water tolerant or marsh species might be planted in this area to improve the appearance of the understory and to reduce erosion.

Project HS7: Replace trees in parking island

Project Type: Vegetation Replacement
Implementation: Staff



Figure 11-76. Stone at entry wall is cracked and should be repaired before it is lost or further damaged. Masonry throughout the district should be annually inspected for these types of issues.



Figure 11-77. Additional trees should be planted in island as per historic photographs, such as Figure 4-72.

Rationale: Trees historically were planted in the island for shade.

Recommendations: Based on historic photos, replace two trees in parking island (Figure 11-77). These trees appear to have been elms and should be replaced with either cedar elm or winged elm. Additional trees in this parking area will be particularly helpful if the lot is used to accommodate training center users.



Figure 11-78. Trail below Hillside Springs has erosion problems and stone swale here should be reconstructed.



Figure 11-79. Stone seats and pond at Employee Residence should be preserved.

Project: HS8: Reconstruct stone swale on trail northeast of Hillside Springs

Project Type: Masonry Repair
Implementation: Staff

Rationale: This swale was poorly constructed during the FHWA project and a smoother surface will reduce this structure's current tripping hazard (Figure 11-78).

Recommendations: Flagstones should be relaid according to district-wide guidelines with smaller joints and a smoother surface to facilitate water flow, reduce tripping hazards, and prevent erosion around flagstones. The area around the swale may also need some regrading to help effectively channel drainage.

EMPLOYEE RESIDENCE: PRESERVATION TREATMENT

As noted in Chapter 7, the integrity of the Employee Residence area is somewhat lower than in other areas of the district, due to structure losses that affect its setting. However, many of the features located immediately around the structure remain intact. A preservation treatment is proposed to retain these extant elements. All treatment projects are indicated on Drawing 29.

Project: ER1: Preserve stone seats and pond

Project Type: Masonry repair and Vegetation Removal
Implementation: Staff/Partnership

Rationale: Stone seats and pond have suffered from lack of maintenance over time (Figure 11-79).

Recommendations: This out-of-the-way area is easily forgotten during routine maintenance. Woody vegetation should be cleared from around area to create an open setting around the seats, table, and pond and vines cleared off the structures. Grass should be established around the features and then periodically mowed. The structures should be checked to ensure that their masonry is still in good condition and repointed as necessary. The pond, which collects rainwater, should periodically be drained and cleaned of algae.

Project ER2: Replace missing stepping stones

Project Type: Repair and replacement
Implementation: Staff

Rationale: Steps and stepping stones between the house and the seating area have been lost over time.

Recommendations: Steps should be replaced with stones that match extant stones in shape, color, material, size, and spacing. Missing stones might be buried under duff or moved slightly from their original locations, so the area should be searched prior to locating new stones.

Project ER3: Replace residence windows and doors

Project Type: Long-term replacement

Implementation: Staff or Contract

Rationale: Modern windows and doors reduce historic appearance and feeling of area.

Recommendations: Future work on the building exterior should strive to recreate the building's historic appearance. When window replacement becomes necessary over the long term, new windows and doors should be chosen to match the fenestration and appearance of the originals, to return the historic appearance of the building.

ADMINISTRATION & HEADQUARTERS: PRESERVATION TREATMENT

Preservation is also an appropriate treatment for the Administration and Headquarters landscape. Although some change has occurred to the area, proposed alterations to the Leeper House for its conversion from offices to training center will provide opportunities to revise the landscape in a manner more in keeping with the conditions at the end of the period of significance. Individual feature treatments otherwise emphasize repair and replacement. Treatment projects for this area are also depicted on Drawing 29.

Project AH1: Rehabilitate parking, pedestrian access and ADA access at the Leeper House

Project Type: New Construction

Implementation: Contract, if part of Leeper House Rehabilitation

Rationale: No longer used as park headquarters, the Leeper House will become a training center, with altered needs for access and parking.

Recommendations: New uses of and alterations to the building will require changes to the surrounding access. In particular, pedestrian access on the south side of the Leeper House should be simplified and reconfigured. The



Figure 11-80. Treads on steps leading to the Leeper House should be repaired.

current parking area along the maintenance area access road could be reduced in size by locating training center parking at the Hillside Springs parking area. In addition, removal of visitor parking from the access road area could reduce potential conflicts with maintenance vehicles. ADA access, however, would need to be retained from the existing parking area due to steep grades on the north side of the Leeper House. As a part of these changes, the steps from Hillside Springs to the Leeper House should also be stabilized (see **Project AH2**)

Project AH2: Repair steps from Hillside Springs

Project Type: Repair

Implementation: Staff

Rationale: Loss of granite fines on surface on steps requires periodic replacement, especially if steps receive increased use if parking is relocated to Hillside Springs (Figure 11-80).

Recommendations: These steps act as a drainage way during strong rainfall, and to prevent erosion, areas of decomposed granite between stone treads should be replenished and stabilized as per district-wide guidelines. However, in some areas, where erosion is severe and repetitive, it may be necessary to harden the surfaces by paving areas between treads with dry-laid flagstone. It may also be possible to redirect drainage around the steps in some areas by regrading. This project might be undertaken in conjunction with vegetation thinning as described in **Project AH3**. See guidelines in Chapter 9 for additional information on maintaining trail surfaces.



Figure 11-81. Vegetation around the Leeper House should be thinned, to better reflect historic conditions and to allow for regeneration over time.



Figure 11-82. Satellite dish behind the Leeper House should be painted brown to make it less obtrusive in the landscape.



Figure 11-83. Foundation plantings hide the Leeper House, neither enhancing the building nor reflecting historic conditions.

Project AH3: Rehabilitate vegetation around Leeper House

Project Type: Vegetation Removal

Implementation: Staff

Rationale: Cedars planted by the CCC crews in this area in the 1930s have reached maturity, are now in decline. The dense thickets these cedars have created around the building does not reflect historic conditions (Figure 11-81), which were more open and less enclosed.

Recommendations: The dense forest around the building should be thinned. Dead trees and overly mature trees should be removed. Some younger cedars should be retained to maintain a lesser degree of enclosure; these young cedars should be allowed to regrow. If no young cedars are present, male cedars could also be replanted.

With the thinning of the forest, understory forbs and grasses should be enhanced by an increase of sunlight. This regrowth should be monitored and if necessary, enhanced by replantings. Forbs and grasses might be reseeded in some areas or existing areas might be interplanted with prairie plant plugs. This project should be coordinated with similar vegetative rehabilitation in the Hillside Springs area (see description of **Project HS6**).

Project AH4: Camouflage satellite dish

Project Type: Improvement

Implementation: Staff

Rationale: The satellite dish is a modern intrusion into the area's historic setting (Figure 11-82)

Recommendations: Although this dish might be relocated sometime in the future, to reduce its visual impact now, the structure should be painted NPS brown, using water based Latex Paint only. In addition, it could be screened by planting or allowing woody vegetation to grow out around both sides, while retaining its central signal corridor.

Project AH5: Replace foundation plantings

Project Type: Vegetation Replanting
Implementation: Staff

Rationale: Plantings at the base of the building appear haphazard and overgrown (Figure 11-83).

Recommendations: Proposed new uses of the Leeper House will impact access and the landscape around the building, providing an opportunity for replanting foundation plantings and for providing shade on the building's west side. Varied foundation plantings around the Leeper House are seen in historic photographs, but there is no good record of the appearance of such plantings at the end of the period of significance. Therefore, new plantings should be consistent with historic character and species seen in photographs, but should not duplicate any specific view or planting. Foundation plant species seen in historic photographs include iris, redbud, and honeysuckle.

In addition, if paths and parking areas are changed to make the building more ADA accessible, the construction activities (such as staging and pouring concrete) may affect the lawn surrounding the building. This may provide an opportunity to reconsider the use of lawn in this area. Existing turf might be replaced with a shortgrass prairie mix that would require less mowing and which would transition to the proposed vegetative changes at Hillside Springs. In fact, this overall project might be undertaken in conjunction with **Projects AH3** and **Project HS6**.

MAINTENANCE AREA: PRESERVATION TREATMENT

Despite many changes - primarily new buildings - in the maintenance area, the central quad remains extant with high integrity. The projects proposed below reflect a treatment of preservation of existing buildings and elements. However, were the maintenance area to be relocated—a concept proposed in the General Management Plan of 1988—then a treatment of rehabilitation to accommodate a new use for the area might need to be considered. Treatment projects for the Maintenance Area are depicted on Drawing 29.

Project M1: Preserve buildings and area with active uses

Project Type: Long term Maintenance
Implementation: Varies

Rationale: The central quadrangle is a unique set of buildings with high integrity and should be preserved.

Recommendations: The maintenance area, which services the entire 9,000-acre CNRA, exhibits far more, and more intensive use, than it did during the period of significance. As a result, there have been continuing plans for development of a new or revised maintenance area. Regardless of the strategy chosen, it is important to keep the extant historic maintenance structures in some use, since abandonment is usually a precursor to extensive deterioration and demolition for historic buildings. This should be avoided at all costs.

Project M2: Reconfigure area around removal of Building 108

Project Type: Masonry repair and Improvement
Implementation: Partnership/Staff

Rationale: Building 108 was a temporary, non-historic structure.

Recommendations: With the removal of Building 108, the gap in the historic wall around the maintenance quadrangle can be repaired, and the security fence replaced atop the fence, as was true historically. A gravel pad and picnic table located outside the wall and fence, on the former location of Building 108, next to the crew room, would be acceptable since it is not a permanent feature and as such would not negatively impact the historic setting.

Project M3: Regrade area around Residence 6 and associated garages

Project Type: Improvement
Implementation: Staff

Rationale: The area around Residence 6 exhibits poor drainage (Figure 11-84) and silt accumulates at the base of the buildings.



Figure 11-84. Drainage around Residence 6 should be improved by creating swales to drain water away from the building and its garage and carport.

Recommendations: Swales around the building should be reshaped (or created) to move water away from buildings and walkways. Existing vegetation should be preserved.

Project M4: Relocate horses

Project Type: Improvement
Implementation: Staff

Rationale: Horses were not part of the setting of the Maintenance area (though mules seem to have been located here until 1946).

Recommendations: Horses should be moved to a location outside, but nearby the district, if possible.

CENTRAL CAMPGROUND: PRESERVATION TREATMENT

As discussed in Chapter 7, Central Campground's integrity is moderately high. However, documentation of this area is somewhat limited and restoring this area to a specific date is not recommended. Rather, a preservation treatment is proposed to retain extant historic character and features and to recapture reversible character losses through feature repair and vegetation management. In

addition, some minimal visual improvements, such as removal of extra signage, are also proposed. Due to steep slopes at critical points (for example, near the comfort station) major changes to improve ADA access are not recommended. Rather, the provision of an ADA-accessible camping experience should be provided at either Rock Creek or Cold Springs Campground. The projects listed below are highlighted on Drawing 30.

Project CC1: Remove "no parking" sign and hanging sign at comfort station

Project Type: Improvement
Implementation: Staff

Rationale: Traffic sign and hanging sign (Figure 11-85) did not exist historically.

Recommendations: Replace "no parking" sign with historic sign according to district-wide guidelines. Alternatively, boulders could be placed around base of structure to discourage parking right in front of building. The functions served by the hanging signs could be accommodated by the small kiosk at the entry of the campground.

Project CC2: Reinstate historic link between Central Campground and Flower Park

Project Type: Repair and Replacement
Implementation: Partnership with local highway commission

Rationale: Reinstating historic crossing will improve access to park and visitor center.

Recommendations: A trail crossing across Route 177 (Buckhorn Road) should be reinstated at its historic location midway between Broadway Avenue and the perimeter road. This crossing will connect Central Campground with the Flower Park path system and thence to the Visitor Center. The crossing should be indicated with curb cuts, pavement striping, and pedestrian signage and/or flashers as per state highway standards to promote safety and pedestrian visibility.

Project CC3: Replace entry gate

Project Type: Improvement
Implementation: Staff

Rationale: Existing steel gate (Figure 11-86) is unsightly.

Recommendations: Replace with new gate as per district-wide guidelines.

Project CC4: Replant trees in camping areas

Project Type: Vegetation Replacement
Implementation: Staff

Rationale: Loss of trees due to age and weather has reduced shade in this campground (Figure 11-87).

Recommendations: Trees should be planted in the open areas encompassed by the park roads. Although overall numbers of trees have not decreased here, the area's species composition has changed, and shade is lacking. New trees should primarily be oaks and redbuds, and they should be planted in areas between designated campsites to help develop sense of separation between sites. However, this will take some time to develop, since tree plantings might be considered a longer term "investment." To facilitate growth, trees should be good-sized (minimum two-inch caliper) and should be protected after planting to prevent abuse by campers. A rustic wood structure or stakes and guy wires may help prevent soil compaction at tree bases and damage to young trunks. Adding more light hangers may help prevent new trees from damage by campers.

Understory growth should not be encouraged in the grassy areas of this campground, since this area consistently maintained a park-like quality historically.

Project CC5: Thin cedars along north edge of campground at urban interface

Project Type: Vegetation Removal
Implementation: Staff

Rationale: Cedars were planted during the period of significance as boundary screens, but have become dense thickets of vegetation. Though these plantings



Figure 11-85. Standard highway "No Parking" sign should be replaced with a half-log sign.



Figure 11-86. Entry gate should be replaced with new gate, as per district wide guidelines.



Figure 11-87. Trees should be replanted in open areas to provide additional shade for campers.



Figure 11-88. Trees should be planted in the open areas of Panther Falls, to anticipate future tree losses.



Figure 11-89. Edge of pool at Panther Falls should be repaired.

are historic, they may increase the risk of fire damage in urban areas and should be thinned.

Recommendations: Trees along the full northern edge of the campground should be thinned to reduce fire risk. Thinning should focus on removals of female cedar trees, overly mature trees with dead branches, and those less than three inches (see Chapter 10 for more information on fire risk reduction). In addition, dense stands of deciduous understory, and dead or diseased trees should also be removed. Care should be taken to maintain some visual screening for privacy along boundaries where private homes or structures are within 200 feet or less of the park boundary. However, privacy screening should be maintained in areas where campsites or homes directly abut the park boundary.

Project CC6: Replant trees in Panther Falls area

Project Type: Vegetation Replacement
Implementation: Staff

Rationale: Loss of trees due to age and weather has reduced shade in this picnic area (Figure 11-88).

Recommendations: Trees should be replanted to maintain the area's character-defining overhead canopy and balance of sun and shade on the ground plane. A lack of precise historic documentation prohibits the replacement of individual trees. Therefore, locations for new trees should be determined by in-field study. Trees should be planted in areas where open canopy spans more than 30 feet, and/or where stumps are located, or where a topographic depression indicates a former stump location. A comparison of aerial photographs from 1940 and 1999 will also be helpful in locating areas where canopy cover has decreased over time and trees should be planted in these areas. Trees may also be planted in close proximity to large trees in obvious decline. Trees should be good-sized (minimum two-inch caliper) and should be protected after planting to prevent abuse by visitors.

Project CC7: Repair edge of pool at Panther Falls

Project Type: Repair/Replacement
Implementation: Staff

Rationale: Edge of pool is eroding (Figure 11-89).

Recommendations: Edge of pool should be repaired in a manner similar to that recommended for Flower Park stream and pool edges, above. Additional fill of sand or silt, possibly from the Black Sulphur area, should be brought in to fortify eroding areas near the boulder edges. Boulders should be replaced as needed to form a more continuous edge.

COLD SPRINGS CAMPGROUND: PRESERVATION TREATMENT

Cold Springs Campground has high integrity, with most elements from the period of significance intact. Therefore, the treatment projects described below together comprise

an overall treatment of preservation, with an intent of retaining, repairing, and replacing all historic features in kind. Minor changes are proposed to improve campground drainage and promote accessible camping. These treatment projects are depicted on Drawing 31.

Project CS1: Provide New Use for Checking Station

Project Type: Investigation/Interpretation

Implementation: Staff

Rationale: The checking station is a wonderful example of CCC architecture that should be used and if possible made available to the public (Figure 11-90).

Recommendations: This building is in fairly good shape. Some minor regrading should be done to improve drainage away from building. A few shade trees should be replanted on the west side of the building, if they do not interfere with traffic. The hanging interpretive sign is not historic and should be removed. Currently used for storage, this building could become an office for the campground host with interpretive or other park information. Or, another use might be found for it.

Project CS2: Improve ADA access at comfort stations

Project Type: Access

Implementation: Staff

Rationale: Though signed as accessible, comfort stations still prevent some barriers to easy access.

Recommendations: Simple improvements can be done with sensitivity to the historic structure. Paving at the building entries should be repaired to make smooth, level approaches. Door hinges should be offset to increase door width to maximum and partitions and fixtures changed inside to meet ADA guidelines.

Project CS3: Identify, redesign and construct ADA-accessible campsites

Project Type: Access

Implementation: Staff



Figure 11-90. Regular use of the checking station will help preserve the building.

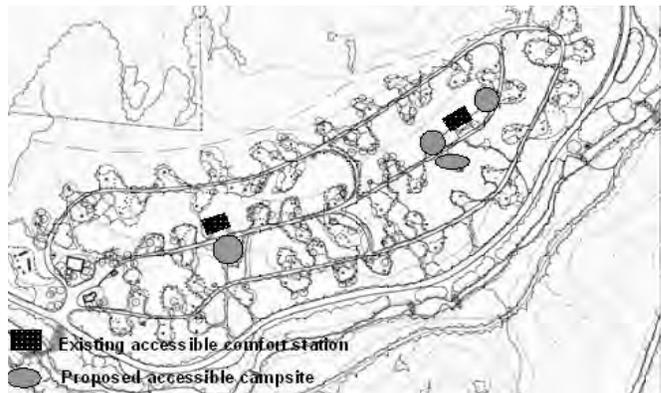


Figure 11-91. Proposed numbers and locations for accessible campsites. While image shows sites clustered around comfort stations, some of these might also be dispersed throughout the campground to allow for different camping experiences.

Rationale: All visitors should be accommodated in the Cold Springs Campground, one of the most popular camping sites in the park. Accessibility guidelines indicate that for every 50 to 75 campsites, 4 accessible campsites should be provided.

Recommendations: Proposed accessible campsites are recommended on relatively level sites located near the comfort stations (Figure 11-91). Alternatively, two sites may be located further from the rest rooms, along an accessible (less than five percent slope) route.

As discussed in Chapter 9, campsites should have a firm and stable surface (such as compacted granite fines) that can accommodate tent stakes. The site should slope no more than 1:50 in any direction, unless necessary for



Figure 11-92. Clogged culvert in campground is just one issue contributing to poor drainage in Cold Springs Campground. Culvert should be cleared.



Figure 11-93. Swale north of campground should continue to be cleared.

drainage, in which case a 1:33 slope is allowed. The site should contain accessible tables, grills, and lantern hangers.

Project CS4: Improve drainage in campground

Project Type: Improvement, Repair, Planting
Implementation: Staff

Rationale: In major rain events, portions of campground flood or drain poorly, due to level grades, siltation of drainage ways, clogged culverts (Figure 11-92), and compacted soils.

Recommendations: There is no easy solution to this problem, and it should be approached holistically, using a number of management techniques. Existing drainage

culverts, some of which are almost buried, should be excavated where necessary, cleaned out and made functional. Drainage ways leading to these culverts are in many cases filled in with silt and/or compacted, since some currently serve as volunteer trails. These drainage ways should be restored as vegetated swales with shrubs, groundcovers, and mulch to facilitate infiltration. Recent research on “rain gardens” to manage stormwater in suburban areas may provide help on reconstructing these drainage ways appropriately. Revegetation, however, will be difficult, due to the high use of the campground. As a result, the project should probably be carefully timed with the camping season and done in sections over a number of years. Temporary barriers to change pedestrian patterns and habits may also be necessary, as may be closing sites during the camping season, to allow for plant growth. Visitor education will also be important in preventing the public from ignoring barriers and trampling plant. For example, any barriers should be accompanied by interpretive signage explaining why the work is being done.

Project CS5: Maintain swale to north of campground

Project Type: Annual Maintenance
Implementation: Staff

Rationale: The swale (Figure 11-93) and dam diversion should be periodically maintained to promote positive drainage.

Recommendations: Current practices of clearing this swale with a backhoe on a regular basis should be continued.

Project CS6: Reduce number of volunteer paths and improve privacy between sites

Project Type: Improvement, Planting
Implementation: Staff

Rationale: There are significantly more paths in the campground than existed historically; these paths compact soils and exacerbate drainage problems. They also reduce privacy between sites (Figure 11-94).

Recommendations: This project should be undertaken in conjunction with **Project CS4**. New paths have generally been created by visitors to link sites to each other and to the comfort stations. Eliminating all of these new paths will be impossible, and reductions should focus on the smallest, least-used paths and those which are located in drainage ways. These paths should be revegetated with shrubs and trees, as should areas where campsites are close together and have no visual boundaries. Temporary barriers and interpretive signs should be provided to retrain visitors and restrict their use of repaired areas.

Project CS7: Anchor boulders used to delineate sites

Project Type: Improvement

Implementation: Staff

Rationale: Boulders which are not anchored are moved by visitors to accommodate their vehicles and perceived needs.

Recommendations: See district-wide guidelines. Boulders between sites should be partially buried rather than simply placed at grade. Since they are probably about 700 to 1,000 boulders within the campsite, boulders in high use areas should be embedded first. The smallest stones should be replaced with larger stones, since burial will render the small ones ineffective.

Project CS8: Provide site markers with occupancy indicators

Project Type: Improvement

Implementation: Staff

Rationale: Existing site markers are difficult to see and do not have means of indicating whether site is occupied.

Recommendations: Historic markers were similar to extant bollard-like markers (Figure 11-95). Any new marker should be in keeping with the historic style, but should have a means of indicating occupancy. This might be a red metal flag attached to the back of the bollard. Like a mailbox flag, the bollard flag could be raised when the site is occupied or reserved. To reduce overcrowding on campsites, the two tent and ten-person limit per

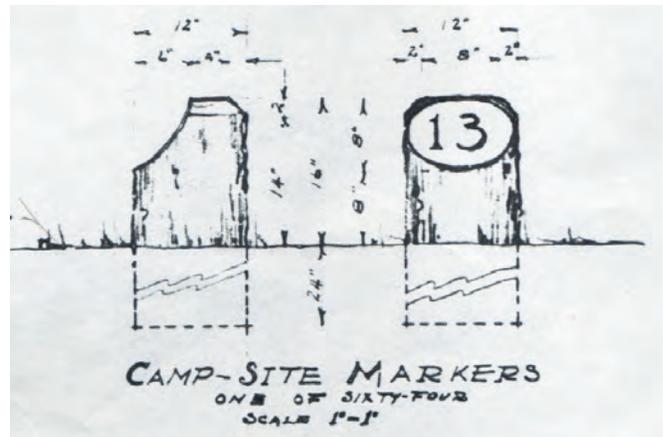


Figure 11-95. Historic campsite markers.



Figure 11-94. Existing campsites lack privacy and multiple volunteer paths connect sites. New understory plantings should be installed in conjunction with drainage repairs. Boulders should be embedded in grade.

campsite currently in the Superintendent's Compendium should be enforced.

Project CS9 : Preserve wood and garbage can enclosures

Project Type: Repair

Implementation: Staff

Rationale: Wood and garbage can enclosures (Figure 11-96) are historic structures.

Recommendations: Although raccoon-proofing garbage is a high priority, locating the large, brown garbage cans within these enclosures is not recommended. Rather, continuing the use of standard garbage cans with lids is



Figure 11-96. Existing wood and garbage can enclosures should be preserved.



Figure 11-97. Large picnic tables in Cold Springs need repairs to wooden planking and concrete bases.



Figure 11-98. Cold Springs crossing should be rebuilt to provide stable footing.

preferred. It may be possible to use a strap or some other technique to keep lids on cans, though visitor use of such straps is admittedly not predictable.

Project CS10: Repair large concrete tables at group sites

Project Type: Repair and Replacement
Implementation: Staff

Rationale: Although the date of construction of these two tables, one 20 feet long, one 36 feet long, is unknown, they are popular structures and should be preserved.

Recommendations: The tables' large wood seats and surfaces are rotting and their concrete is deteriorating (Figure 11-97). Wood planks are three and one-half inches thick, and should be replaced in kind with large cedar timbers that might be locally milled. The surface finish should match the original. Deteriorating concrete should be patched, with care taken to match existing concrete as closely as possible.

Project CS11: Thin cedars along north edge of campground at urban interface

Project Type: Vegetation Removal
Implementation: Staff

Rationale: Cedars planted during the period of significance as boundary screens have become dense thickets. Though they are historic, they may increase the risk of fire damage in urban areas and should be thinned.

Recommendations: Trees along the full northern edge of the campground should be thinned to reduce fire risk. Thinning should focus on removals of female cedar trees, overly mature trees with dead branches, and those less than three inches. In addition, dense stands of deciduous understory, and dead or diseased trees should also be removed. Care should be taken to maintain some visual screening for privacy along boundaries where private homes or structures are within 200 feet or less of the park boundary. However, privacy screening should be maintained in areas where campsites or homes directly abut the park boundary.

Project CS12: Repair Cold Springs Crossing

Project Type: Masonry Repair and Construction
Implementation: Staff/Partnership

Rationale: Current stepping-stones and trail connection are incomplete and difficult to use (Figure 11-98).

Recommendations: Although no historic documentation of this crossing has been located, it is important in connecting Cold Springs Campground to the Buffalo and Antelope Springs Trail. Extant stones should be re-aligned and new stones placed to create a continuous, easily used stone trail. Extant stepping-stones in the Buffalo and Antelope Springs area should be used as models for construction of this crossing. Stones should be well-anchored, slightly raised above normal flows, and shaped and configured to allow flood water to flow around them.

Bank erosion on both ends of the stepping-stones is also a problem. A permanent set of stone steps on both sides of the creek should be constructed; these might either be a simple set of large, dry-laid boulders or a more extensive masonry structure in keeping with historic steps elsewhere in the district. Slopes around the steps should be re-vegetated with native bank vegetation.

Project CS13: Improve water hydrants

Project Type: Improvement
Implementation: Staff

Rationale: Hydrants flood during high use; gray water management should be improved.

Recommendations: See district-wide guidelines.

LITTLE NIAGARA FALLS & TRAVERTINE ISLAND: PRESERVATION TREATMENT

Little Niagara and Travertine Island is a difficult area from a preservation standpoint. It is one of the highest use areas of the district, and receives a significant amount of wear on its structures and ground plane. The area floods easily and lost numerous mature trees during the recent ice storm. However, it is also one of the sites



Figure 11-99. Elements at the large picnic area, such as the flaking table top, seats, and walls shown here, should be repaired with new flagstone, using historic masonry techniques.

with the poorest visual documentation, both at the level of the overall landscape and at the feature level. Thus, while it has a compelling history of use, its appearance historically cannot be well determined. Preservation is therefore an appropriate treatment for this area since it will keep conditions as they currently are, yet will allow for upgrades and improvements. Although it is tempting to restore missing historic structures in this area, in most cases this is not recommended, since a single or a pair of photographs is usually not sufficient to accurately recreate a feature.

The following preservation treatment projects are depicted on Drawing 32.

Project LN1: Preserve features at large stone picnic area

Project Type: Masonry Repair
Implementation: Staff or Partnership

Rationale: These important historic features, despite previous repairs, continue to deteriorate.

Recommendations: Although portions of this area have been lost, extant features should be restored (Figure 11-99). This will involve repointing the extant walls, and significantly repairing the tables and benches. Concrete parging, which has protected some of the original surfaces, should be removed and the original flagstone surfaces restored. In general, replacing missing features in this area is recommended only if sufficient documentation is located. Although a limited number



Figure 11-100. Table at the “End of the World” should be repointed and its cracked bench repaired.



Figure 11-101. Circular stone bench in 2004 (top) and 1993 (bottom). Repair of this feature may not be possible.

of photographs exist, there are no drawings or even measurements, so recreating elements—such as the missing fireplace—at the appropriate size and scale may be difficult.

Project LN2: Preserve Travertine Island sign

Project Type: Repair and Replacement

Implementation: Staff

Rationale: Sign is still extant, but deteriorating.

Recommendations: The life of this extant sign (Figure 9-21) should be extended as far as possible. Holes and rotted areas on the posts of this sign should be filled with epoxy. Detailed measurements of the sign should be recorded and detailed photographs documenting its construction should be taken to facilitate its exact replication at a later date. When the sign is eventually deconstructed, any pieces (such as hardware) that might be used as templates for its reconstruction, should be saved. Depending on its condition, it may be possible to re-use the sign panel in the reconstruction; at the very least it should be used as a template for replication.

Project LN3: Repair table and restore its missing benches at the “End of the World”

Project Type: Masonry Repair and New Construction

Implementation: Staff or Partnership

Rationale: Condition of cracked bench and spalling table will continue to worsen (Figure 11-100).

Recommendations: The masonry of the table should be repaired, with joints repointed and missing stones replaced. Although documentation is limited, the stone benches should be repaired to fully restore the table’s function.

Project LN4: Restore or preserve round stone table

Project Type: Masonry Repair and New Construction

Implementation: Staff or Partnership

Rationale: Table (Figure 11-101) is a historic structure, but is currently only partially intact.

Recommendations: If a number of photographs of this structure can be located, then it should be reconstructed, based on existing conditions and the photograph. The area should be searched to see if parts of the structure are buried in underbrush. Because of limited documentation, care should be taken to rebuild this feature at an appropriate size and scale. If no photographs can be located, the extant rubble should be preserved and periodically cleared of vegetation.

Project LN5: Clear debris and silt near stone pedestrian bridges at the north side of Travertine Island

Project Type: Annual Maintenance
Implementation: Staff

Rationale: The area underneath the pedestrian bridges has silted in and is only minimally flowing.

Recommendations: The channel is silted in at its intersection with the main creek, and this area should be cleared using shovels or, if necessary, a backhoe, to restore water flow around the north side of the island. This channel should be checked and cleaned out annually or as needed.

Project LN6: Shore up flagstone swale east of Mission 66 comfort station

Project Type: Repair
Implementation: Staff

Rationale: Flagstone swale dating to the 1970s is being undercut by the creek.

Recommendations: This structure is not an historic structure, but performs an important function in collecting and diverting stormwater from different areas into the creek. Solutions to the undercutting may include the placement of large rip-rap stones at the eroding base of the structure. Alternatively, the structure may need to be shortened if the creek continues to widen. Clearing the channel around the north side of Travertine Island may also reduce undercutting by diverting some of the water volume back around the island and reducing flow at the base of the swale.

Project LN7: Replace pipe rail bridges

Project Type: Long-term improvement
Implementation: Staff

Rationale: As bridges (Figure 11-102) are replaced, they should be reconstructed to be more in keeping with the historic environment.



Figure 11-102. Bridge at Little Niagara should be eventually replaced as per district-wide guidelines.



Figure 11-103. Beach area at Little Niagara should be periodically replenished.

Recommendations: Extant historic abutments should be retained. See district-wide guidelines for additional bridge recommendations.

Project LN8: Add sand to beach at Little Niagara

Project Type: Maintenance
Implementation: Staff

Rationale: Soil is highly compacted in the Little Niagara beach and picnic area (Figure 11-103).

Recommendations: Compacted soils around Little Niagara Falls will be an ongoing problem and likely



Figure 11-104. Path width at Travertine Island should be reduced slightly by reducing width of mowing band on each side of path.

not something that can be changed. However, it may be possible to more regularly replenish sand, perhaps relocated from the Black Sulphur Springs area, to enhance the beach-like quality of the space. See district-wide guidelines for stabilized soil mix which might be used along creek banks.

Project LN9: Reduce mowing along paths to reduce path width

Project Type: On-going Maintenance
Implementation: Staff

Rationale: Paths at Travertine Island have become excessively wide over time (Figure 11-104).

Recommendations: Although Travertine Island is highly used, the width of paths in this area seems to be wider than necessary, lending the area a less “natural” feeling. Mowing on both sides of the paths could be reduced or eliminated to allow vegetation to regrow along the path margins. A maximum path width of six feet throughout the area should be sufficient to accommodate most uses.

Project LN10: Stain new concrete walk at Mission 66 comfort station

Project Type: Improvement
Implementation: Staff

Rationale: Bright white concrete walk contrasts with historic setting.

Recommendations: See district-wide guidelines for recommendations.

Project LN11: Replant trees at Travertine Island, Little Niagara Falls, and Lost Cave Falls

Project Type: Vegetation Replanting
Implementation: Staff

Rationale: Loss of trees due to age and ice storms has changed historic character and appearance.

Recommendations: Although there is limited documentation of this area’s vegetation historically, recent ice storms have significantly reduced the overhead canopy of this area. A tree-replanting effort should be undertaken on the island to return this sense of shade and enclosure. Approximately fifty trees should be planted throughout the area. Species should duplicate those common to the area, including sycamore and oak. Trees and shrubs should also be planted along the sidewalk along the parking area and in the triangular openings created during the construction of the walkway to the Mission 66 comfort station. These plantings might benefit from mulching and tree protection during their early years of establishment.

ANTELOPE AND BUFFALO SPRINGS: PRESERVATION TREATMENT

The Antelope and Buffalo Springs area was significantly changed during the Mission 66 years, and while the loss of some of the 1930s features is unfortunate, it is important to realize that the restoration or reinstating missing features is not appropriate under a district-wide preservation treatment. In addition, a preservation treatment does not treat a property to a particular date or period in time. Rather, the goal of the preservation treatment in this area is to prevent further loss by preserving, repairing, and if possible, restoring extant features. Any new elements should be created in a manner consistent with the historic setting. Drawing 33 depicts the following proposed treatment projects.

Project ABS1: Rehabilitate forest vegetation

Project Type: Vegetation Management
Implementation: Staff

Rationale: Over time, the forest area between the Nature Center and Buffalo and Antelope Springs has become increasingly enclosed. This is very apparent in comparisons of aerial photographs that span the latter years of the twentieth century. The increase in woodland is due to fire suppression and to the release of management in the area after it was designated an environmental study area. Today, conditions are more wooded and enclosed than historic conditions, though this is less due to cedar encroachment than in other areas of the park, and more due to increased deciduous understory growth.

Recommendations: Because of the relative lack of cedar encroachment except along the former perimeter road corridor and south boundary, no major vegetative clearing or prescribed burning is proposed for this area. Rather, mechanical control of cedar is proposed. Within the overall forest, prairie patches should be located and cedar trees removed, to create a more complex forest matrix. As shown in Figure 11-105, one larger area of prairie, located just west of Buffalo Springs, and bisected by the former perimeter road, will be the primary focus of this activity.

This and other prairie remnants are still extant, but are quite degraded. Such areas should be surveyed for extent, demarcated, and then mechanically cleared of all invasive cedars. Large deciduous canopy trees, especially oaks, should be retained. After cedar clearance, the area should be periodically spring mowed (or burned, if patches are large enough so fire can be contained) to promote the growth of native prairie grasses over cool season grasses. The improvement and enlargement of such prairie areas should improve use of the area for interpretation and for nature study and recreate a less dense forest.

Project ABS2: Address multiple sign types

Project Type: Improvement
Implementation: Staff

Rationale: There are at least four types of signage throughout area, including plant interpretation; a single NPS standard interpretive sign, low half log signs, and roofed signs constructed at the same time as the Nature Center (Figure 11-106).

Recommendations: The historic half-log sign at Antelope Spring should be preserved, repaired, and painted as necessary, and the half log sign at Bromide retained and made more historically accurate when

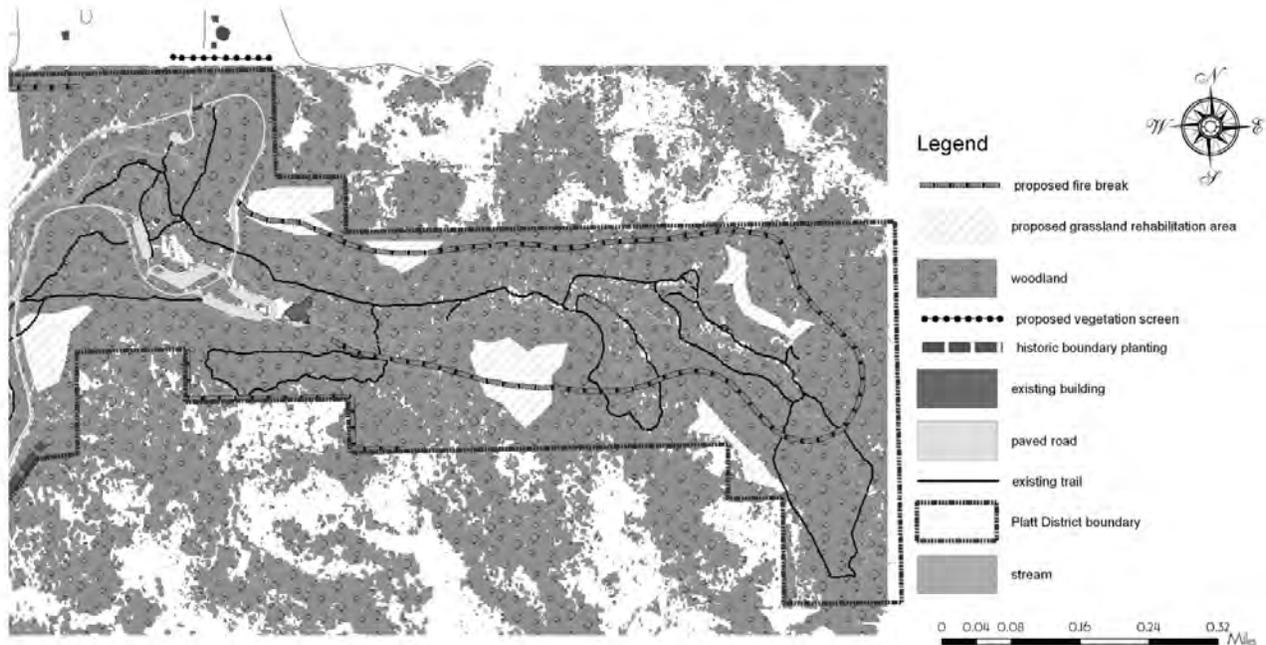


Figure 11-105. Proposed vegetation management for the Antelope and Buffalo Springs area, focusing on cedar control with some grassland rehabilitation.



Figure 11-106. Just two of the numerous types of signs located at Antelope and Buffalo Springs.



Figure 11-107. Trail to Antelope Springs has a number of rough paved swales which reduce ADA accessibility. Trail grades should be evened and paved swales reconstructed to create as level a surface as possible.

replaced. Plant interpretive signs damaged in the ice storm should be repaired or removed. Roofed signs should also be preserved. See district-wide signage guidelines for additional recommendations.

Project ABS3a: Clear historic road remnant to the north as a fire break

Project Type: Vegetation Removal
Implementation: Staff

Rationale: The existing perimeter road trace, looping around Buffalo and Antelope Springs is a logical location for a firebreak near the boundary of the park.

Recommendations: Vegetation along the former road alignment should be cleared to a width of fifteen feet, and could be maintained as native grasses. The road remnant could also serve as fire and management access for the rest of the area. If desired, the surface of the trace could be further improved and upgraded as part of the trail system over the long term. However, existing trail management is already extensive and the additional trail maintenance may not be warranted.

Project ABS3b: Thin vegetation along boundaries

Project Type: Vegetation Removal
Implementation: Staff

Rationale: Another concern in the area is the need for a buffer or firebreak along the urban interface along the district's southern, eastern, and northern boundaries. Evidence of the CCC's cedar boundary plantings is most evident along the district's far eastern boundary, but vegetation is dense along the entire boundary in this area.

Recommendations: Vegetation along the northern, eastern and southern boundaries should be thinned to reduce fire risk. Thinning should focus on removals of female cedar trees, overly mature trees with dead branches, and those less than three inches. In addition, dense stands of deciduous understory, and dead or diseased trees should also be removed. Care should be taken to maintain some visual screening for privacy along boundaries where private homes or structures are within 200 feet or less of the park boundary.

Project ABS4: Even trail grades, maintain smooth surface, and install limited seating to create ADA-accessible experience

Project Type: Maintenance and Improvement
Implementation: Staff

Rationale: The trail between the Nature Center and Antelope Spring has very low grades and with minor modifications could be an ADA-accessible trail and nature experience.

Recommendations: The grades on this trail should be checked and graded out to below five percent. Rough or bumpy surfaces should be smoothed to allow safe and

easy wheelchair access (Figure 11-107). Benches—large stones might be appropriate in this area—with an open space for wheelchairs nearby might be installed along the way to aid less able people with resting spots. Two seating areas (a bench at Antelope Spring and a large rock along the trail) currently provide resting areas. Access should at least be provided to Antelope Spring. Access to Buffalo Spring could be possible if one of the bridges across the lily pond's three falls were made ADA-accessible with an even, secure surface and handrails. Given its more hidden nature, the middle crossing may be the best place to construct an accessible crossing with a railing. To make a fully accessible trail, a transition between the granite-fine trail and the flagstones around the Buffalo Spring enclosure would also need to be instituted. Access to the lower level of Buffalo Spring is not recommended since it would require major modifications to the historic structure. See district-wide guidelines for additional recommendations on trail accessibility.

Project ABS5: Preserve stepping stone crossings throughout the area

Project Type: Maintenance

Implementation: Staff

Rationale: Stepping-stones (Figure 11-108) are historic structures and should be maintained.

Recommendations: The current practice of both bridging over stepping-stones to provide an accessible experience and retaining them in other places for a historic experience should be continued. Retaining and preserving stones under bridges is an appropriate preservation treatment.

Project ABS6: Replace pipe rail and plank bridges

Project Type: Long-term improvement

Implementation: Staff

Rationale: As bridges are replaced, they should be reconstructed to be more accessible and compatible with the historic environment.

Recommendations: These bridges include the wood plank bridge at Buffalo Springs and another wood plank bridge on the return trail between the stone arch bridge



Figure 11-108. Stepping stones within the Antelope and Buffalo Springs area should be preserved, even those under bridges.



Figure 11-109. The USGS gauge box is again being used to store water flow measuring apparatus, and should be preserved.

and Antelope Springs. See **Project ABS4** for more information on accessibility concerns and the district-wide guidelines in Chapter 9 for bridge recommendations on bridge construction.

Project ABS7: Preserve USGS gauge box and reduce visual impact of new measurement tools

Project Type: Repair and Improvement

Implementation: Staff/Partnership with USGS

Rationale: This feature (Figure 11-109) dates to the historic period and should be maintained. New measurement tools, recently installed, are visually intrusive.



Figure 11-110. Lost tree at the uppermost dam at Antelope Springs has caused minor breach; this should be repaired.



Figure 11-111. Stone bridge at lowermost crossing should be reset and made level. A fully ADA-accessible bridge in this location is not recommended.

Recommendations: New measurement equipment should be painted a dark color (black, brown or green) to reduce their visual impact. In addition, any future devices such as antennae, solar panels, and flow equipment should be carefully and sensitively installed to reduce impact on the overall historic scene of Antelope Spring. The historic gauge box should be inspected and any masonry problems repaired. The box's current use as a place to locate measurement equipment should continue.

Project ABS8: Repair the uppermost dam/falls of Antelope Spring

Project Type: Masonry Repair

Implementation: Staff

Rationale: The loss of tree on northern end of dam has created a small breach that should be repaired (Figure 11-110).

Recommendations: A new stone or stones should be laid in around the remaining stump to prevent flow around the north side of the dam. Construction may be completed with stone, or it may be mortared by diverting water around the area until the mortar has cured. If the small breach is not repaired, the bank to the north will be undercut and the dam and crossing will be weakened.

Project ABS9: Replace stone bridge at lowest dam/falls of Antelope Spring

Project Type: Masonry Repair

Implementation: Staff/Partnership

Rationale: Bridge broke in February 2004 and should be replaced.

Recommendations: This stone bridge (Figure 11-111) was not part of the 1930s construction, and is reported to be the top of a stone table that once existed at Buffalo Springs. According to Lawrence Howell, who participated in moving the original slab, the bridge did not replace an existing crossing. The stone was heavy, and did not sit level in the landscape; it had cracked previously and its recent break was likely due to uneven loading and weak stone structure.

The bridge should be replaced, since preservation is the proposed treatment for this area and because there is little documentation of this area prior to the bridge's construction. In addition, after forty odd years, visitors have come to expect a crossing in this area. A stone slab bridge or stepping stones are preferred replacements, and a large, 10-foot long slab is available in CNRA storage. If this large stone can be relocated to this area (no mean feat!), it would make a good replacement. A wooden bridge in this location would be overly visible and not in keeping with the historic conditions and is not recommended. It is recommended that any new bridge retain a low profile, while at the same time not blocking the flow of water, particularly during high water.

Project ABS10: Investigate flow at lowest dam/falls at Antelope Springs

Project Type: Investigation

Implementation: Staff

Rationale: Water currently flows underneath the lowest dam and it is unclear if this is part of the original construction of the dam

Recommendations: This project was undertaken as the CLR went to press. An investigation showed the presence of a box culvert/clean-out under this bridge. Major leakage was arrested.

Project ABS11: Rehabilitate Buffalo Springs Comfort Station

Project Type: Planning, Maintenance

Implementation: Staff

Rationale: Lack of use is detrimental to historic structures.

Recommendations: Rehabilitation of this structure (Figure 11-112) for some new use is strongly encouraged, since lack of use is generally a death knell for historic structures. As a first step, vegetation around the structure should be cleared to reduce fuel loading around it and reduce its potential destruction by fire. The interior should then be cleaned, vermin removed, holes sealed on exterior and the interiors repaired to the degree necessary. If reinstated as a comfort station, the condition of electric and water lines should be investigated. In addition, the sewer line should be slip-lined and a grinder installed.

Project ABS12: Rehabilitate vegetation around Buffalo Springs

Project Type: Replanting

Implementation: Staff

Rationale: Recent tree losses in this area have reduced the area's sense of seclusion and enclosure by canopy (Figure 11-113).

Recommendations: Although no historic planting plan for this area exists, plant lists show the vegetation was



Figure 11-112. Buffalo Springs comfort station should be rehabilitated.



Figure 11-113. Vegetation at Buffalo Springs should be rehabilitated through pruning and replanting.

vertically layered with shrubs, small trees, and canopy trees. This sense of layering has been lost and should be reinstated. Weedy species should be removed and new vegetation encircling the spring enclosure should be planted. The area should be surveyed and a planting plan developed and implemented

Project ABS13: Preserve extant road bridge and large box culverts

Project Type: Vegetation Removal

Implementation: Staff

Rationale: Trees growing in bridge decks are damaging the structures.



Figure 11-114. One of three dams below stone arch bridge. All three need repairs.



Figure 11-115. Erosion occurs along the drainage ways in the southern part of the campground. Culvert cleaning, regrading, bioengineering, and other techniques should be used to correct these problems.

Recommendations: Trees growing in bridge decks and damaging stone work should be removed. Vegetation around structures should be cleared to reduce fuel loading around them and reduce the potential for fire damage. These clearing projects might be conducted in conjunction with **Project ABS3**.

Project ABS14: Preserve three dams below stone arch bridge

Project Type: Masonry Repair

Implementation: Staff/Partnership

Rationale: These three dams were placed to prevent springs from breaking out along the stream channel and to add water noise to the surroundings. All three dams

are now deteriorating quite badly, and should be repaired (Figure 11-114).

Recommendations: Vegetation should be cleared from the entire channel between the stone arch bridge and the three dams and beyond. The upper two dams should be stabilized and repaired as needed. The lower dam will require more extensive rebuilding. Springs located near the base of and at the north end of the middle dam may complicate the repair process somewhat.

ROCK CREEK: PRESERVATION TREATMENT

Preservation is an appropriate treatment for Rock Creek, requiring the retention of all existing features. In general, Rock Creek is in better condition than the other campgrounds, in part because of its younger age. Some limited upgrading of infrastructure for today's larger recreational vehicles would be permitted under preservation, and is suggested below. These and other preservation treatment projects for Rock Creek are depicted on Drawing 34.

Project RC1: Investigate and repair drainage

Project Type: Repair and Improvement

Implementation: Staff

Rationale: Excessive water flow during storms is causing erosion along intermittent drainage ways, reducing campsite size.

Recommendations: Drainage problems in the campground occur primarily in the last consecutive loops before Chigger Hill, where storm water drains through a relatively level area at the base of that hill and where an intermittent stream channel drains off Bromide Hill into Rock Creek (Figure 11-115). As in Cold Springs Campground, there is probably no single solution to these drainage issues which should be using a number of management techniques. Existing drainage culverts should be excavated where necessary and cleaned out. Eroding drainage ways might be armored with stone in areas where velocities are particularly high, or alternatively, bioengineering techniques such as those originally used in the construction of the Rock Creek revetment wall in Flower Park might also be used. In

addition, the larger watershed should be examined. It may be possible, for example, to slow or retain storm water in the area between the perimeter road and the eastern campground perimeter road, reducing velocities in the areas where it flows between campsites.

Project RC2: Add water & electric hookups at selected RV sites

Project Type: Improvement

Implementation: Staff/Contract

Rationale: Hook-ups are a desired by many campground users.

Recommendations: Hook-ups, if provided, should be added to sites in a manner and in locations where they will be as unobtrusive as possible. Hookups should be installed on the outside sites, so that RV doors open onto campsite area instead of roadway (Figure 11-117). Water and electrical pedestals should be placed on the islands for driver side hookups.

Project RC3: Stain new concrete walk at comfort stations

Project Type: Improvement

Implementation: Staff

Rationale: Bright white concrete walk contrasts with historic setting.

Recommendations: See district-wide guidelines .

Project RC4: Identify, redesign and construct ADA-accessible campsites

Project Type: Access

Implementation: Staff

Rationale: All visitors should be accommodated in the Rock Creek Campground. Accessibility guidelines indicate that for every 100 to 150 campsites, 7 accessible campsites should be provided.

Recommendations: Proposed accessible campsites are recommended on relatively level sites located near the

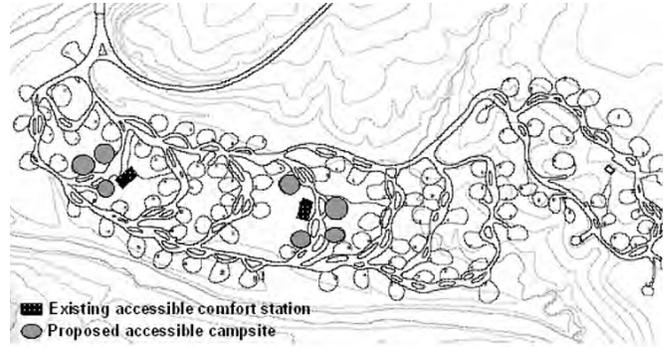


Figure 11-116. Proposed numbers and locations for accessible campsites. While image shows sites clustered around comfort stations, some of these might also be dispersed throughout the campground to allow for different camping experiences.



Figure 11-117. Outside loop campsite is appropriate for installing RV electrical and water hook-ups.

comfort stations (Figure 10-116). Alternatively, three sites may be located further from the rest rooms, along an accessible (less than five percent slope) route. Because of the steep grades in the Chigger Hill area, locating accessible campgrounds in this area is not recommended.

As discussed in Chapter 9, campsites should have a firm and stable surface (such as compacted granite fines) that can accommodate tent stakes. The site should slope no more than 1:50 in any direction, unless necessary for drainage, in which case a 1:33 slope is allowed. The site should have accessible tables, grills, and lantern hangers.



Figure 11-118. Entry sign should be repaired, with elements replaced in-kind to match historic sign.

Project RC5: Repair concrete picnic tables

Project Type: Repair and Replacement

Implementation: Staff

Rationale: Concrete is spalling where rebar is too close to concrete edge (Figure 11-118).

Recommendations: Concrete tables should be repaired, either by patching small problems or replacing table members where necessary.

Project RC6: Replace entrance sign in-kind

Project Type: Repair and Replacement

Implementation: Staff

Rationale: Existing sign is deteriorating and should be replaced in the future.

Recommendations: Sign should be measured and historic documentation reviewed to replace sign in-kind.

Project RC7: Consider shower facilities

Project Type: Planning

Implementation: Staff

Rationale: Shower facilities are popular with visitors and could be an incentive for visitors to use the campground.

Recommendations: Although new structures would not be part of a preservation treatment, the addition

of showers might be considered an infrastructural upgrade. Any such structure should be sited so that the existing layout, features, and internal viewsheds of the campground are impacted as little as possible. Other considerations for siting would include proximity to existing water and sewage lines.

Project RC8: Locate and remove exotic species

Project Type: Vegetation Removal

Implementation: Staff

Rationale: Tree-of-heaven and mimosa are particularly noticeable in the forest makeup of the Rock Creek area.

Recommendations: As described in greater detail above, mimosa may be controlled by a combination of cutting and application of an NPS approved herbicide. Repeated cutting is the recommended treatment for tree-of-heaven.

Project RC9: Thin vegetation at urban interface and/or create firebreak in western part of campground

Project Type: Vegetation Removal

Implementation: Staff

Rationale: Portions of Rock Creek Campground comprise part of the urban interface (other parts of the district boundary abut CNRA lands) and management of the campground's western boundary should reflect fire management goals.

Recommendations: As these lands were not part of the park in the 1940s, there is no evidence of boundary screening plantings in this area, so vegetation thinning along the interface will not remove historic vegetation planted by the CCC. Thus vegetation along this interface should be thinned to reduce the risk of wildfire. However, care should be taken to preserve a privacy buffer between the campground and adjacent properties. Vegetation might be thinned directly along the boundary line, or a fire break located between Rock Creek and the park boundary might be another means of accomplishing the same goal. Either way, the firebreak should link with the rest of the CNRA urban interface (as distinguished from the district boundary).