Park and Open Space Management Plan

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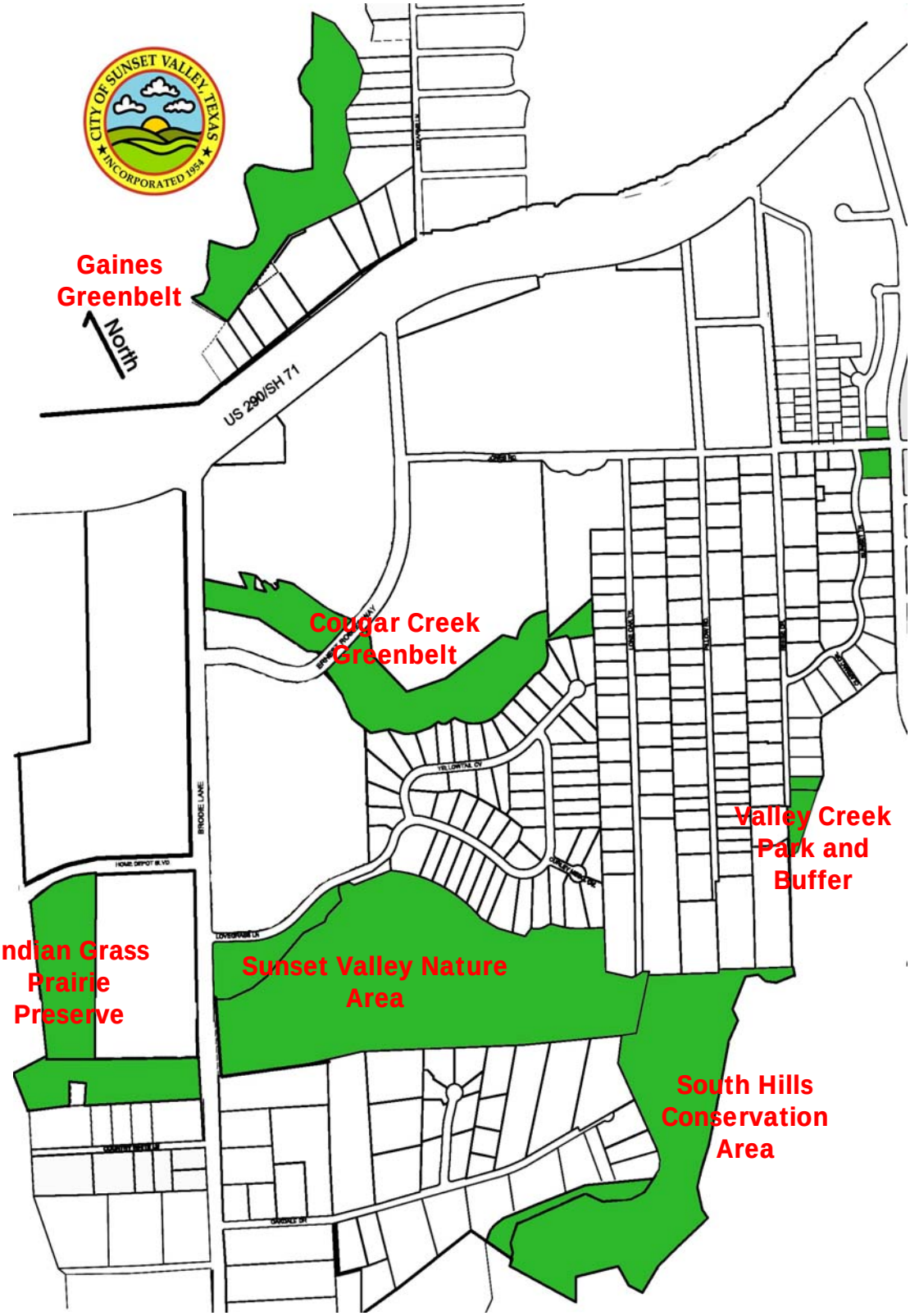

Figure 1. Map of Sunset Valley Park and Open Spaces.

Park Management Plan

Objectives and Guidelines

The City of Sunset Valley Parklands shall be managed to maintain ecosystem diversity while supplying appropriate recreational opportunities. At this time there is only one Parkland space, Valley Creek Park. The management of Valley Creek Park consists of landscape management, insect control, and playground management. Parklands shall also be protected from degradation from surrounding urbanization

Park Management Plan

The Park Management plan for each tract shall contain:

I) A description of the area

II) A recommended management program.

Tract descriptions will include location and tract acreage, as well as descriptive information on the habitat and public access. The management program will include a description of the impacts of management activities.

Park Management Plan

Valley Creek Park

I. Description

A. Physical Description and Access

Valley Creek Park is located at the end of Reese Drive, bordered by the main branch of Williamson Creek along the southeastern edge (Figure 2). Valley Creek Park is 1.5 acres in extent, with designated parking spaces. Valley Creek Park is designated for recreational activities and is handicap accessible. Valley Creek Park contains a playground area with various equipment including swings, geo-dome, tri-level bars, spring saw, and picnic tables.

Figure 2. Valley Creek Park. Park boundary in turquoise.

B. Geology and Vegetative Analysis

With the close association with Williamson Creek, the soil type of Valley Creek Park is primarily that of Mixed Alluvial Land (Md). Mixed Alluvial Land is comprised of beds of exposed limestone and gravelly alluvium (USDA, 1974). The soil is a grayish, brown calcareous clay loam. The creek bed is composed mostly of a gravelly alluvium.

Valley Creek Park is a wooded area comprised primarily of cedar elms (*Ulmus crassifolia*), with a smaller number of live oaks (*Quercus fusiformis*), ashe juniper (*Juniperus asheii*), and sugar hackberry (*Celtis laevigata*). Since the area is a park with a playground there is very little understory. Zoysiagrass, a drought tolerant, shade friendly grass, is the prominent ground cover. There is also a landscaped area around the sign for the park, which has various perennials.

II. Management Program

A. Vegetative Management

Valley Creek Park will be mowed and the landscape bed monitored twice monthly. The irrigation system within the landscape bed will be checked every other month beginning in January. The tree canopy will be maintained following the guidelines in the Urban Forest Management Plan. Oak Wilt is a significant threat to native oak populations. Valley Creek Park shall be surveyed yearly to determine any threats of oak wilt and proper oak wilt suppression techniques will be used.

B. Wildlife Management

Although there is a variety of wildlife that makes their home within Sunset Valley, the primary concerns in Valley Creek Park are fire ants and other insects such as wasps and hornets. Beginning in March and throughout the summer, Imported Fire Ants (*Solenopsis invicta*) will be controlled using approved ant baits. In accordance with the City's Organics First Program and with concern for the nature of the area, organic compounds such as Green-Light with Conserve will be the first choice for fire ant control. All structures in Valley Creek Park will be inspected to make sure no stinging insect nests are attached, if a nest is found it will be removed immediately.

C. Playground Management

There are specific guidelines to properly maintain a public playground. The Consumer Product Safety Commission (CPSC) has developed a checklist for playground safety to reduce the number of accidents that occur on playgrounds. A copy of this checklist has been included in the appendix. Valley Creek Park will be checked at least once weekly. The inspections will include at a minimum checking for the following:

1. Trip hazards such as rocks, sticks, tree stumps, and litter.
2. Exposed equipment footings
3. Sharp points or edges on equipment
4. Function of equipment, including checking for loose or broken hardware
5. Rust and chipped paint on metal components
6. Appropriate fall zone sizes and mulch (double shredded bark mulch or engineered wood fibers) will be maintained according to CPSC and ASTM standards.

Open Space Management Plan

Objectives and Guidelines

The City of Sunset Valley Greenspace/Preservation and Conservation Areas (Tracts) shall be managed to maintain and enhance ecosystem diversity while supplying appropriate recreational opportunities. The management of these areas shall consist of vegetative control and restoration, wildlife management, removal of trash, creek and slope stabilization, maintenance of trails, and continued monitoring programs. These areas shall also be protected from degradation from surrounding urbanization. In areas where endangered, threatened, or species of concern exist, the welfare of these species shall be paramount in management plan development.

The Tracts, currently, have several uses including wildlife habitat, ecological and geologic preservation, and water quality protection. In 1999, an "Ecological and Botanical Inventory" was conducted by Druid Environmental that determined the current conditions of the Tracts and provided management recommendations. This plan incorporates those recommendations as well as additional proposed activities. Most of the physical descriptions are derived from the report completed by Druid Environmental.

I. Open Space Management Plan

Each tract provides varying habitats with different management issues and shall be managed on an individual basis. The management plan for each tract shall contain:

I) A description of the tract.

II) A recommended management program.

III) A system for monitoring management activities.

Tract descriptions will include location and tract acreage, as well as descriptive information on the habitat and public access. The management program will set specific prioritized goals for each tract. The management program should include a description of the impacts of management activities. The program will address habitat enhancement, vegetative restoration, oak wilt suppression, animal management, fire ant control, and other management goals. The monitoring section will be used as a system to monitor and evaluate the effectiveness of the management program. This will provide the basis for future changes in the management plan.

Open Space Management Plan

Tract 1: South Hills Conservation Area

I. Description

A. Location and Acreage

The South Hills Conservation Area is located at the southern edge of the City of Sunset Valley, along the western edge of the Cherry Creek neighborhood (Figure 3). The tract is 42.83 acres in extent.

Figure 3. South Hills Conservation Area. Footpath trail is marked in red. Maintenance trail marked in yellow.

B. Physical Description

The South Hills Conservation Area has a peak elevation of approximately 740 feet above sea level, and is crossed by fault lines including the Balcones Fault. The lowest elevation is 670 feet within the Dry Fork Branch of Williamson Creek, along the western border of the tract. The Dry Fork branch of Williamson Creek is ephemeral and has a confluence with the main branch of Williamson Creek at the northwestern edge of the tract. The fault lines crossing the area have created an interesting geology exposing various substrates. The creek channel has exposed Edward's limestone, whereas the

sides of the creek and other outcroppings contain Georgetown limestone. Above the Georgetown limestone, along the hills is Del Rio clay topped with Buda limestone. Some portions along the hillsides have been eroded and demonstrate the high gypsum content of the Del Rio clay. This site also contains fossil remains along the bottom of slopes from the Buda limestone and Del Rio clay.

Soils within the area include Ferris-Heiden along slopes and flats. Ferris soils are light olive-gray and are mottled with yellow at depths greater than six inches. Heiden soils are dark grayish brown clay at the surface and olive-yellow below 15 inches. These soils are highly susceptible to erosion. The other main soil type of the area is from the Tarrant series, which are shallow, stony, clay soils overlying limestone.

C. Botanical Description

The extant plant community of the South Hills Conservation Area is that of an Ashe Juniper-Oak Series (*Juniperus ashei- Quercus spp*.). It is thought that this area may have, at one time, been closer to a tall grass prairie community of the Blackland Prairie in some areas based on the soil types. The most common tree on this tract is Ashe Juniper (*Juniperus ashei*), with Cedar Elm (*Ulmus crassifolia*) also present. Along the eastern boundary Live Oak (*Quercus fusiformis*), Sugar Hackberry (*Celtis laevigata*), Texas Persimmon (*Diopyros texana*), and Pencil Cactus (*Opuntia leptocaulis*) are more prevalent. Shin Oak (*Quercus durandii var. breviloba*), Texas Ash (*Fraxinus texensis*), Mexican Buckeye (*Ungnadia speciosa*), and various other trees are also present. Grasses such as Side-oats Grama (*Bouteloua curtipendula*), Silver Bluestem (*Bothriochloa laguroides*), and Tall Dropseed (*Sporobolous asper*) are common in open areas. A small population of Alabama Lipfern (*Cheilanthes alabamensis*) has also been found within the tract. This tract also supports a wide variety of herbaceous species including Turk's Cap (*Malvaviscus arboreus*), Blue Curls (*Phacelia congesta*), and Frostweed (*Verbesina virginica*).

D. Wildlife Description

No official surveys have been conducted at this time, so the wildlife description is based on field observations. Observed wildlife within the City of Sunset Valley includes White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*), Raccoon (*Procyon*

lotor), Striped Skunk (*Mephitis mephitis*), Virginia Opossum (*Didelphis virginiana*), Eastern Cottontail Rabbit (*Sylvilaus floridanus*), Bobcat (*Lynx rufus),* Common Gray Fox (*Urocyon cinereoargenteus*), Nine-banded Armadillos (*Dasypus novemcinctus*), Squirrels (*Spermophilus sp*.) and other various rodent species. Texas Rat Snake (*Elaphe obsoleta lindheimeri*), Prairie Kingsnake (*Lampropeltis calligaster calligaster*), Western Diamondback Rattlesnake (*Crotalus atrox*), Rough Earth Snake (*Virginia striatula*), Red-eared Slider (*Trachemys scripta elegans*), Texas River Cooter *(Pseudemys texana*), Green Anole (*Anolis carolinensis*), Reticulated Gecko (*Coleonyx reticulates),* and American Toad *(Bufo americanus)* are the reptile and amphibian species identified to date. Central Texas is along a migratory bird path and has a rich diversity of bird species. The bird species identified to date in Sunset Valley are located in Table 1(Appendix).

E. Public Access

The South Hills Conservation Area is open to the public for foot traffic during daylight hours on marked trails. From time to time, access to the tract or portions of the tract may be limited in order to let the area recover from various natural and anthropogenic disturbances and during times of maintenance and management activities. Public notice will be provided at least 7 days prior to the closure of the South Hills Conservation Area, except in times of emergency situations. Persons found in the South Hills Conservation Area during a period of restricted public access shall be asked to leave the area and shall not receive a citation except for violations of the law other than being present in the conservation area during a period of restricted access.

II. Management Program

A. Goals

A large portion of the South Hills Conservation Area has been damaged through various activities. The management priority for the South Hills Conservation Area is to restore damaged areas to a pre-disturbance state. The following management goals have been outlined for the South Hills Conservation Area:

1. Presently, a system of maintenance trails is used by volunteers and staff for access to the site for management activities. A primary footpath will be identified and maintained through the area.

2. All damaged areas shall be restored.

3. On one of the hillsides along the southern border there is a large area that has been impacted by erosion. The slope needs to be stabilized and a centralized trail system established. Removal of woody vegetation is not recommended from this area. The area may be experimentally planted with bunch grasses, a terraced system installed in certain locations, or another approved method or combination of tactics may be used to accomplish this goal.

4. The existing boundary fences shall be maintained along the border with the City of Austin.

5. Install signage in the South Hills Conservation Area along the trails and the boundary between the Sunset Valley Nature Area and South Hills Conservation Area. The signage shall be maintained and new signage will be erected as necessary.

6. Trash and debris shall be removed from the South Hills Conservation Area on a semi-annual basis. Trash along trails can be removed continuously, but twice a year, one day will be set aside to remove larger debris and other trash that may have accumulated.

B. Vegetative Management

Invasive plant species shall be monitored and removed from locations throughout the tract. Table 2 lists invasive species that require control measures. These species are aggressively invasive and shall be controlled through removal or controlled herbicide applications. Wicking, by applying the herbicide directly to the stem of a plant, is the preferred application method in most situations.

Ashe Juniper (*Juniperus ashei*) and Honey Mesquite (*Prosopis glandulosis)* are both natives to Texas but can be opportunistic in their growth habit and may require additional control. These plants require control when they start competing for habitat from other species and create monocultures or thickets. The goal of this plan is to increase or maintain species diversity, and large monocultures of any one species can effect the community composition.

Ashe Juniper occurring along slopes should remain intact and allowed to proceed through a natural succession to control soil erosion. Ashe Juniper that has grown onto flat uplands and have created thickets below larger trees can be controlled through removal and replanting other native understory species. These small trees can be removed through a basal cut and do not require the application of an herbicide. Table 3 provides a list of approved native plants for plantings.

Honey Mesquite is a tree with a large tap root that performs a function commonly known as “hydraulic lift”. During dry nights, moisture moves up the tap root and into the surrounding surface soils providing water to nearby plants. This combined with a thorny defense makes mesquite the perfect nurse plant for other species, such as Greenbrier (*Smilax bona-nox*), to grow up and create thickets. Mesquite that are encroaching onto open grasslands, are small (below 6 feet), and have multiple small stems (<1 inch) warrant removal. Mesquite will reestablish even after basal cuts, so the use of an approved herbicide applied directly to the cut area is recommended. Drilling holes and applying herbicide into the basally cut trunk may also be effective.

Seedlings and saplings shall be planted to encourage an increase in species diversity. Areas that have been disturbed should be planted and/or seeded with approved plant species. Disturbance can be due to storm damage, animals, erosion, or through anthropogenic means. Each restoration effort should have a written plan including location of restoration, species removed, number and type of plants for revegetation, equipment/supplies needed, and costs. All plantings shall be planted using standard practices and provided supplemental water (hand watering, use of DRI-WATER, or Water Gators) for approximately one month after the initial planting.

Oak Wilt is a significant threat to native oak populations. This tract shall be surveyed yearly to determine any threats of oak wilt and proper oak wilt suppression techniques will be used.

C. Wildlife Management

Specific wildlife populations shall be monitored on an as needed basis with the exception of white-tailed deer on this tract. Wildlife such as coyotes, raccoons, other small mammals, reptiles, and birds shall be monitored at this site depending on trends within the general area. If a marked increase or decrease in any animal population is noticed, approved monitoring will begin. The overall health of the ecosystem will be monitored on a continual basis.

White-tailed deer and other browsing animals can effect plant community composition when they overpopulate an area. White-tailed deer shall be monitored annually and management recommendations made based on population fluctuations. White-tailed deer management incorporates all Tracts south of US 290 and a new management program will be initiated each year. Practices designed to increase deer populations are not recommended.

Imported Fire Ants will be controlled through the City's Organics First Program. If chemical control is necessary, approved chemicals and bait formulations will be used that minimize impacts on native ants, flora, and fauna.

D. Fire Break Maintenance

A fire break shall be maintained along the eastern edge of the tract which interfaces the Cherry Creek Neighborhood. An approximate ten foot section shall be maintained clear of debris and low-growing vegetation. In locations where this would precipitate the removal of large trees a shaded fire break technique shall be used. Shaded fire breaks require the removal of the understory and small limbs below 6 feet in height. A shaded fire break may be as wide as 15 feet. Shaded fire breaks remove the vegetation that provides easy, readily combustible fuel for a fire. The area maintained by the City combined with the existing acreage on the residential lot shall constitute the fire break at 1 ½ times the fuel height.

III. Monitoring

Each year the tract shall be reevaluated for project completion and new projects suggested. This plan will be re-evaluated after three years for efficacy, and changes can

be made at that time. Six months after each vegetative restoration effort sites will be evaluated and suggestions made to improve future projects. The evaluation of each project shall be completed on Form A in the appendix.

Open Space Management Plan

Tract 2: Gaines Greenbelt

I. Description

A. Location and Acreage

The Gaines Greenbelt is located at the northern edge of the City of Sunset Valley, and connects with the City of Austin's Barton Creek Greenbelt (Figure 4). The area is bisected several times by Gaines Creek. Gaines Creek is ephemeral and is a tributary for Barton Creek. The tract is 22.08 acres in extent.

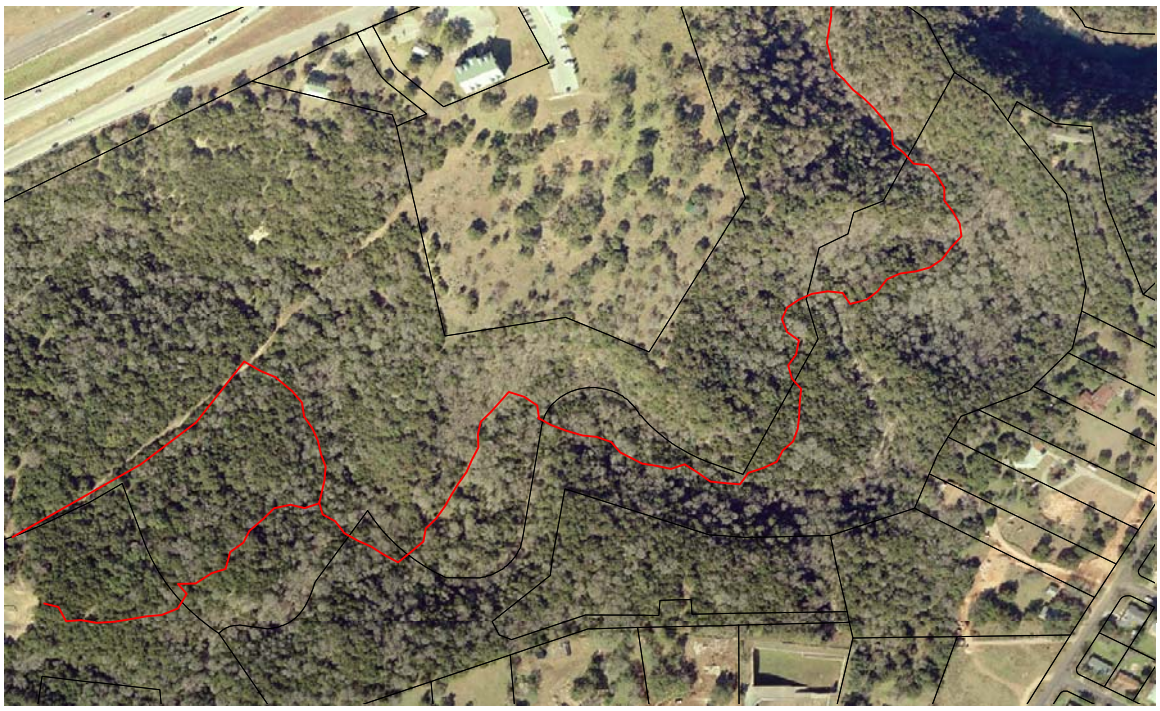

Figure 4. Gaines Greenbelt. Trail is marked in red.

B. Physical Description

The Gaines Greenbelt has an elevation varying from 570 to 660 feet along the plateau. The plateau is capped by Georgetown Limestone and extends toward Ben White Boulevard. This cap was mapped by Garner and Young (1976) and is nearly unrecognizable due to construction within the area. The most common geological formation is the exposed Edwards Limestone along the ravines and hillsides. Along the creek there are several overhangs and a cave that provide shelter for wildlife.

The soil of the Gaines Greenbelt is mostly Tarrant soils and rock outcrops. This is a soil that is commonly found on steep slopes along rivers. The soil is a gray-brown stony clay or clay loam that is approximately seven inches thick overlaying limestone. Between 50-80 percent of the area has rock outcrops of broken limestone.

C. Botanical Description

The plant community of the Gaines Greenbelt is that of an Oak – Juniper woodland (*Quercus spp.* and *Juniperus ashei*). Although mostly wooded the area does support a few small, open grasslands. The most common tree on this tract is Ashe Juniper (*Juniperus ashei*). Other common trees are Live Oak (*Quercus fusiformis*), Texas Oak (*Quercus texana*), Cedar Elm (*Ulmus crassifolia*), Shin Oak (*Quercus durandii var. breviloba*), Texas Ash (*Fraxinus texensis*), Sugar Hackberry (*Celtis laevigata*), and Escarpment Black Cherry (*Prunus serotina*). Shrubs and small trees of the understory include Texas Persimmon (*Diospyros texana*), Carolina Buckthorn (*Rhamnus caroliniana*), and Red Buckeye (*Aesculus pavia*). The slopes and cliffs provide habitat for various ferns including Southern Shield Fern (*Thelypteris kunthii*), Purple Cliffbrake (*Pallaea atropurpurea*), Alabama Lipfern (*Cheilanthes alabamensis*), and Blackstem (*Asplenium resiliens*). Some interesting plants found within the Gaines Greenbelt are Fiddleleaf Tobacco (*Nicotiana repanda*), Brazos Rockcress (*Arabis petiolaris*), Mormon Tea (*Euphorbia antisyphillitica*), and Twisted-leaf Yucca *(Yucca rupicola*),

D. Wildlife Description

The Gaines Greenbelt is unique in that it provides habitat for the endangered Golden-cheeked Warbler (*Dendroica chrysoparia)*. Golden-cheeked Warblers nest in the Ashe-Juniper and Oak woodlands surrounding canyons and ravines. These small songbirds (~4.5 inches) were listed as endangered in 1990, their decline is related to habitat loss and fragmentation. Migratory in nature, these birds spend the winter in Mexico and Central America, and Central Texas is the only place where these birds nest and raise their young. Other bird species found in Sunset Valley are listed in Table 1.

No official surveys have been conducted at this time, so the wildlife description is based on field observations. Observed wildlife within the City of Sunset Valley includes White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*), Raccoon (*Procyon*

lotor), Striped Skunk (*Mephitis mephitis*), Virginia Opossum (*Didelphis virginiana*), Eastern Cottontail Rabbit (*Sylvilaus floridanus*), Bobcat (*Lynx rufus),* Common Gray Fox (*Urocyon cinereoargenteus*), Nine-banded Armadillos (*Dasypus novemcinctus*), Squirrels (*Spermophilus sp*.) and other various rodent species. Texas Rat Snake (*Elaphe obsoleta lindheimeri*), Prairie Kingsnake (*Lampropeltis calligaster calligaster*), Western Diamondback Rattlesnake (*Crotalus atrox*), Rough Earth Snake (*Virginia striatula*), Red-eared Slider (*Trachemys scripta elegans*), Texas River Cooter *(Pseudemys texana*), Green Anole (*Anolis carolinensis*), Reticulated Gecko (*Coleonyx reticulates),* and American Toad *(Bufo americanus)* are the reptile and amphibian species identified to date. Central Texas is along a migratory bird path and has a rich diversity of bird species. The species identified to date in Sunset Valley are located in Table 1.

E. Public Access

The Gaines Greenbelt is open to the public for foot traffic during daylight hours on marked trails. From time to time, access to the tract or portions of the tract may be limited in order to let the area recover from various natural and anthropogenic disturbances, protection of endangered species, and during times of maintenance and management activities. Public notice will be provided at least 7 days prior to the closure of the Gaines Greenbelt, except in times of emergency situations. Persons found in the Gaines Greenbelt during a period of restricted public access shall be asked to leave the area and shall not receive a citation except for violations of the law other than being present in the conservation area during a period of restricted access.

II. Management Program

A. Goals

Due to the sensitive nature of this area, management goals reflect the need to maintain the area for Golden-cheeked Warbler habitat. No activities, including but not limited to, forms of habitat manipulation (tree or brush removal, plantings, etc.), creek clean ups, or use of machinery shall occur during the nesting period for Golden-cheeked Warblers from March through July.

1. Spring surveys shall occur each year to assess the status of Golden-cheeked Warblers in the area. These may be performed in conjunction with other local organizations.

2. A primary footpath will be identified and maintained through the area. Footpaths shall be monitored by staff on a monthly basis to identify any hazards or damages that may have occurred.

3. All damaged areas shall be restored.

4. Vegetation composition analysis should be conducted to determine levels of species diversity and richness in the area. Permanent transects can be established so that this may be monitored on an ongoing basis.

5. Currently there is no signage in the Gaines Greenbelt. In order to increase awareness of the critical nature of the habitat, interpretive signage should be installed at the entrance and exit of the Sunset Valley portion of the preserve area.

6. Garbage and other debris shall be removed from the preserve on an annual basis in the fall.

7. Create an entrance to the Gaines Greenbelt from properties within Sunset Valley. When doing this several factors should be considered. In clearing the trail, canopy cover must be maintained. Breaks in canopy cover effectively fragment the habitat and create a new series of ecological issues. The resulting trail should be no wider than 3 feet and no taller than 6 feet. If the trail descends on a slope a series of switchbacks should be utilized to decrease the effects of erosion.

B. Vegetative Management

Minimal habitat manipulation is recommended for the Gaines Greenbelt. Due to the number of steep slopes, Ashe Juniper (*Juniperus ashei*) is needed for stabilization and

erosion control. Mature Junipers are also necessary, along with hardwood species, for Golden-cheeked Warbler habitat. Understanding and monitoring vegetative species composition will help to establish baseline habitat information.

Invasive plant species (Table 2) shall be monitored and/or removed from locations throughout the tract. These species are aggressively invasive and shall be controlled through removal or controlled herbicide applications. Wicking, by applying the herbicide directly to the stem of a plant, is the preferred application method in most situations.

Seedlings and saplings shall be planted to encourage an increase in species diversity. Areas that have been disturbed should be planted and/or seeded with approved plant species. Disturbance can be due to storm damage, animals, erosion, or through anthropogenic means. Fall seeding of wildflowers may also be conducted to increase the species diversity in open areas. All plantings shall be planted using standard practices and provided supplemental water (hand watering, use of DRI-WATER, or Water Gators) for approximately one month after the initial planting.

Oak Wilt is a significant threat to native oak populations. This tract shall be surveyed yearly to determine any threats of oak wilt and proper oak wilt suppression techniques will be used throughout the city.

C. Wildlife Management

Since the Gaines Greenbelt connects with the Barton Springs Greenbelt it would be best to monitor and protect wildlife populations in cooperation with the City of Austin. As listed in the management goals Golden-cheeked Warblers shall be monitored each spring. Other specific wildlife populations shall be monitored on an as needed basis. Wildlife such as white-tailed deer, coyotes, raccoons, other small mammals, reptiles, and birds shall be monitored at this site depending on trends within the general area. If a marked increase or decrease in any animal population is noticed approved monitoring will begin. The overall health of the ecosystem will be monitored on a continual basis.

Imported Fire Ants will be controlled through the City's Organics First Program. If chemical control is necessary, approved chemicals and bait formulations will be used that minimize impacts on native ants, flora, and fauna.

D. Fire Break Maintenance

The eastern edge of the Gaines Greenbelt that borders the houses on Stearns Lane is a plateau that drops down into the main portion of the Gaines Greenbelt. This cliff may aid in acting as a firebreak between the greenbelt and the neighboring community. Since this is critical endangered species habitat and geographic features separate the areas, no other tree removals are recommended at this time.

III. Monitoring

Each year the tract shall be reevaluated for project completion and new projects suggested. This plan will be re-evaluated after three years for efficacy, and changes can be made at that time. Six months after each vegetative restoration effort sites will be evaluated and suggestions made to improve future projects. The evaluation of each project shall be completed on Form A in the appendix.

Open Space Management Plan

Tract 3: Indian Grass Prairie Preserve

I. Description

A. Location and Acreage

The Indian Grass Prairie Preserve is located along Williamson Creek between Country White Lane, Home Depot Boulevard, Brodie Lane, and the apartment complex (Figure 5). Part of the western boundary is adjacent to watershed protection lands of the City of Austin. Contained within the preserve area are a radio tower, an associated small building, and a gravel road. A wastewater line is also located north of Williamson Creek. The area comprises 21.43 acres in extent.

Figure 5. Indian Prairie Grass Preserve. Trail marked in yellow.

B. Physical Description

Located approximately 700 feet above sea level, the Indian Grass Prairie Preserve has several interesting physical features. The substrate of the Indian Grass Prairie Preserve is Edwards Limestone and a cave occurs along the northern edge of the area. This cave commonly called Sunset Valley Cave (Goat's Head Cave) and Rattlesnake

Sink is a recharge feature for the Edwards Aquifer. The cave is composed of two main chambers and is home to a variety of invertebrate species. The Indian Grass Prairie Preserve is located within the Edwards Aquifer recharge zone.

The site is bisected by Williamson Creek, which is composed of Mixed Alluvial Land. Mixed Alluvial Land is comprised of beds of exposed limestone and gravelly alluvium (USDA, 1974). The majority of the site is composed of Tarrant and Speck soils. Tarrant soils are well-drained clay soils found atop limestone. Speck soils are reddish brown and also overlay a limestone substrate.

C. Botanical Description

The plant community of the Indian Grass Prairie Preserve is that of a Plateau Live Oak – Midgrass vegetative community (*Quercus spp*.). The site consists of an open prairie area located near the radio tower. Many invasive species such as Johnson (*Sorghum halepense*) and Bermuda grass (*Cynodon dactylon*) inhabit this area. Native species found here include Silver Bluestem (*Bothriochloa laguroides*), Indiangrass (*Sorghastrum nutans*), Purple Threeawn (*Aristida purpurea*), Curley Mesquite (*Hilaria berlangerii*), and Side Oats Grama (*Bouteloua curtipendula*). This area is also being encroached by Honey Mesquite (*Prosopsis gradulosa*).

The major tree species include Live Oak (*Quercus fusiformis*), Ashe Juniper (*Juniperus asheii*), Cedar Elm (*Ulmus crassifolia*), Sugar Hackberry (*Celtis laevigata*), and Texas Ash (*Fraxinus texensis*). The understory is composed of Elbowbush (*Foresteria pubescens*), Texas Persimmon (*Diospryos texana*), and Wafer Ash (*Ptelea trifoliolata*).

D. Wildlife Description

No official surveys have been conducted at this time, so the wildlife description is based on field observations. Observed wildlife within the City of Sunset Valley includes White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*), Raccoon (*Procyon lotor*), Striped Skunk (*Mephitis mephitis*), Virginia Opossum (*Didelphis virginiana*), Eastern Cottontail Rabbit (*Sylvilaus floridanus*), Bobcat (*Lynx rufus),* Common Gray Fox (*Urocyon cinereoargenteus*), Nine-banded Armadillos (*Dasypus novemcinctus*), Squirrels (*Spermophilus sp*.) and other various rodent species. Texas Rat Snake (*Elaphe obsoleta*

lindheimeri), Prairie Kingsnake (*Lampropeltis calligaster calligaster*), Western Diamondback Rattlesnake (*Crotalus atrox*), Rough Earth Snake (*Virginia striatula*), Red-eared Slider (*Trachemys scripta elegans*), Texas River Cooter *(Pseudemys texana*), Green Anole (*Anolis carolinensis*), Reticulated Gecko (*Coleonyx reticulates),* and American Toad *(Bufo americanus)* are the reptile and amphibian species identified to date. Central Texas is along a migratory bird path and has a rich diversity of bird species. The species identified to date in Sunset Valley are located in Table 1.

E. Public Access

The Indian Grass Prairie Preserve is open to the public for foot, bicycle, and equestrian traffic during daylight hours on marked trails. From time to time, access to the tract or portions of the tract may be limited in order to let the area recover from various natural and anthropogenic disturbances and during times of maintenance and management activities. Public notice will be provided at least 7 days prior to the closure of the Indian Grass Prairie Preserve, except in times of emergency situations. Persons found in the Indian Grass Prairie Preserve during a period of restricted public access shall be asked to leave the area and shall not receive a citation except for violations of the law other than being present in the conservation area during a period of restricted access.

II. Management Program

A. Goals

Management of this tract focuses on protection/restoration of natural resources, maintaining and enhancing the prairie areas, as well as protecting the cave and recharge to the aquifer.

1. Assess the status of the cave entrance. The door to the cave is prone to erosion and a new gate system is necessary. This area needs to be protected from trash and unfiltered runoff entering the system.

2. The prairie area needs to have periodic control/removal of mesquite and invasive grasses. Late winter/early spring mowing in this area is

recommended as well as fall seeding with native grasses and wildflowers. These are all components of a long-term prairie restoration project.

3. A primary foot (equestrian) path will be identified and maintained through the area.

4. Garbage and other debris will be removed on an annual basis. Garbage shall be removed from the creek on a bi-annual basis.

5. Boundary fences will be maintained along the perimeter of the property.

6. Install signage in the Indian Grass Prairie Preserve along the trails. The signage shall be maintained and new signage will be erected as necessary.

B. Vegetative Management

Invasive plant species (Table 2) shall be monitored and/or removed from locations throughout the tract. These species are aggressively invasive and shall be controlled through removal or controlled herbicide applications. Wicking, by applying the herbicide directly to the stem of a plant, is the preferred application method in most situations. Pesticides will not be used within the drainage basin of the cave.

Ashe Juniper (*Juniperus ashei*) and Honey Mesquite (*Prosopis glandulosis)* are both natives to Texas but can be opportunistic in their growth habit and may require additional control. These plants require control when they start competing for habitat from other species and create monocultures or thickets. The goal of this plan is to increase or maintain species diversity, and large monocultures of any one species can effect the community composition.

Ashe Juniper occurring along slopes should remain intact and allowed to proceed through a natural succession to control soil erosion. Ashe Juniper that has grown onto flat uplands and have created thickets below larger trees can be controlled through removal and replanting other native understory species. These small trees can be removed through a basal cut and do not require the application of an herbicide.

Honey Mesquite is a tree with a large tap root that performs a function commonly known as “hydraulic lift”. During dry nights moisture moves up the tap root and into the surrounding surface soils providing water to nearby plants. This combined with a thorny defense makes mesquite the perfect nurse plant for other species, such as Greenbrier (*Smilax bona-nox*), to grow up and create thickets. Mesquite that are encroaching onto open grasslands, are small (below 6 feet), and have multiple small stems (<1 inch) warrant removal. Mesquite will reestablish even after basal cuts, so the use of an approved herbicide applied directly to the cut area is recommended. Drilling holes and applying herbicide into the basally cut trunk may also be effective.

Seedlings and saplings shall be planted to encourage an increase in species diversity. Areas that have been disturbed should be planted and/or seeded with approved plant species (Table 3). Disturbance can be due to storm damage, animals, erosion, or through anthropogenic means. Fall seeding of wildflowers may also be conducted to increase the species diversity in open areas. All plantings shall be planted using standard practices and provided supplemental water (hand watering, use of DRI-WATER, or Water Gators) for approximately one month after the initial planting.

Oak Wilt is a significant threat to native oak populations. Oak wilt was identified on adjacent property to south boundary in 1998. A trench was cut in cooperation with the Texas Forest Service and the Country White Neighborhood to protect the oaks on this tract. This tract shall be surveyed yearly to determine any threats of oak wilt and proper oak wilt suppression techniques will be used throughout the city.

C. Wildlife Management

White-tailed deer will be monitored at this site annually. Wildlife such as coyotes, raccoons, other small mammals, reptiles, and birds shall be monitored at this site depending on trends within the general area. If a marked increase or decrease in any animal population is noticed approved monitoring will begin. The overall health of the ecosystem will be monitored on a continual basis.

Imported Fire Ants will be controlled through the City’s Organics First Program. If chemical control is necessary, approved chemicals and bait formulations will be used that minimize impacts on native ants, flora, and fauna. In the drainage basin for the recharge feature boiling water will be used to control fire ant infestations.

D. Fire Break Maintenance

With the exception of the southern and eastern borders most of the Indian Grass Prairie Preserve is surrounded by other natural areas and a fire break is not necessary. The majority of the remaining borders are surrounded mostly by the open prairies and do not pose the threat of a tree falling into a neighboring property and accelerating the spread of wildfire.

III. Monitoring

Each year the tract shall be reevaluated for project completion and new projects suggested. This plan will be re-evaluated after three years for efficacy, and changes can be made at that time. Six months after each vegetative restoration effort sites will be evaluated and suggestions made to improve future projects. The evaluation of each project shall be completed on Form A in the Appendix.

Open Space Management Plan

Tract 4: Cougar Creek Greenbelt

I. Description

A. Location and Acreage

The Cougar Creek Greenbelt is located along the Sunset Valley Branch (commonly called Cougar Creek) of Williamson Creek (Figure 6). The tract extends from Brodie Lane, across Ernest Robles Way, and south of Jones Road. The tract is 23.37 acres in extent.

Figure 6: Cougar Creek Greenbelt. Trail is marked in red.

B. Physical Description

The Cougar Creek Greenbelt has an elevation ranging from 680 to 700 feet above sea level. Geological features include Buda Limestone on the eastern portions and river terrace deposits of sand, silt, and clay along the western portion (Garner and Young, 1976). Soil types include Crawford clay, Speck stony clay loam, and Tarrant soils. The construction of berms along the tributary along with a nearby re-irrigation system has caused the formation of an ephemeral wetland on a southwestern portion of the property. The berms were constructed to constrain the flow of the creek, a concrete dam was also

constructed at the terminus of the berm. A trail also follows the east to west layout of the area and connects to a handicapped accessible granite gravel trail located behind the Village Shopping Center. This tract is bisected by Ernest Robles Way and a significant recharge feature is located southeast of Ernest Robles Way.

C. Botanical Description

The plant community of the Cougar Creek Greenbelt is that of a Plateau Live Oak (*Quercus spp*.) – Midgrass series. Live Oak (*Quercus fusiformis*) and Cedar Elm (*Ulmus crassifolia*) are the dominant canopy trees, with Agarita (*Berberis trifoliata*), Elbowbush (*Foresteria pubescens*), Prickly Pear (*Opuntia lindheimeri*), and Pencil Cactus (*Opuntia leptocaulis*) common understory species. Other common woody plants include Ashe Juniper (*Juniperus ashei*), Honey Mesquite (*Prosopsis gladulosis*), Prairie Sumac (*Rhus lanceolata*), and Sugar Hackberry (*Celtis laevigata*).

Common grasses include Buffalo grass (*Buchloe dactyloides*), Annual bluegrass (*Poa annua*), and Silver Bluestem (*Bothriochloa laguroides*). Among other common grasses were several invasive species including Bermuda grass (*Cynodon dactylon*), Johnsongrass (*Sorghum halapense*), Common Oats (*Avena fatua*), Wheat (*Triticum aestivum*), and King Ranch Bluestem (*Bothriochloa ischaemum*).

Common herbaceous species include Frostweed (*Verbisina virginica*), Prairie Coneflower (*Ratibida columnifera*), Texas Broomweed (*Gutierrezia texana*), and Roosevelt weed (*Baccharis neglecta*). Texas star (*Lindheimeri texana*), Indian Blanket (*Gaillardia pulchella*), and Common Sunflower (*Helianthus annuas*) are also seasonally found throughout the tract.

The wetland (mesic) areas that have developed are inhabited by Sand Spikerush (*Eleocharis montevidensis*), Large-spike spikerush (*Eleocharis palustris*), and several other species of rush (*Juncus spp*.). The area is also inhabitated by Rattlebush (*Sesbania drummondii*).

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D. Wildlife Description

With the exception of White-tailed Deer surveys, no other official wildlife surveys have been conducted at this time. Observed wildlife within the City of Sunset Valley includes White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*),

Raccoon (*Procyon lotor*), Striped Skunk (*Mephitis mephitis*), Virginia Opossum (*Didelphis virginiana*), Eastern Cottontail Rabbit (*Sylvilaus floridanus*), Bobcat (*Lynx rufus),* Common Gray Fox (*Urocyon cinereoargenteus*), Nine-banded Armadillos (*Dasypus novemcinctus*), Squirrels (*Spermophilus sp*.) and other various rodent species. Texas Rat Snake (*Elaphe obsoleta lindheimeri*), Prairie Kingsnake (*Lampropeltis calligaster calligaster*), Western Diamondback Rattlesnake (*Crotalus atrox*), Rough Earth Snake (*Virginia striatula*), Red-eared Slider (*Trachemys scripta elegans*), Texas River Cooter *(Pseudemys texana*), Green Anole (*Anolis carolinensis*), Reticulated Gecko (*Coleonyx reticulates),* and American Toad *(Bufo americanus)* are the reptile and amphibian species identified to date. Central Texas is along a migratory bird path and has a rich diversity of bird species. Since water is available periodically throughout the year this area may also be an ideal place for birds and bats to frequent. Table 1 includes a list of bird species identified on Sunset Valley property.

E. Public Access

The Cougar Creek Greenbelt is open to the public for foot traffic during daylight hours. Bicycle and equestrian traffic are permitted on marked trails during daylight hours. From time to time, access to the tract or portions of the tract may be limited in order to let the area recover from various natural and anthropogenic disturbances and during times of maintenance and management activities. Public notice will be provided at least 7 days prior to the closure of the Cougar Creek Greenbelt, except in times of emergency situations. Persons found in the Cougar Creek Greenbelt during a period of restricted public access shall be asked to leave the area and shall not receive a citation except for violations of the law other than being present in the conservation area during a period of restricted access.

II. Management Program

A. Goals

The management of the Cougar Creek Greenbelt will focus on the protection/restoration of natural resources, increasing species diversity, and enhancing the wetland area.

1. Develop a program to manage invasive grass species, while increasing the density of native grasses. This may be accomplished by various mowing strategies, possible herbicide application, and reseeding.

2. Maintain open grasslands by selectively removing mesquite, juniper, and other woody species that can form thickets.

3. Wetland enhancement. This will include the removal of several large dead trees and the seeding/planting of wetland species. This will also include the construction of bat boxes and bird houses (ex. Purple Martin for mosquito control).

4. Re-establish trail to connect City Hall to the Village Trail (Buffer Trail) after construction of new residential area is complete.

5. Garbage and other debris will be removed from the area on an annual basis.

7. Development of wetland observation area with interpretive signage.

B. Vegetative Management

Invasive plant species (Table 2) shall be monitored and/or removed from locations throughout the tract. These species are aggressively invasive and shall be controlled through removal or controlled herbicide applications. Herbicide application is not allowed within the drainage basin of the recharge feature. Wicking, by applying the herbicide directly to the stem of a plant, is the preferred application method in most situations.

Ashe Juniper (*Juniperus ashei*) and Honey Mesquite (*Prosopis glandulosis)* are both natives to Texas but can be opportunistic in their growth habit and may require additional control. These plants require control when they start competing for habitat from other species and create monocultures or thickets. The goal of this plan is to increase or maintain species diversity, and large monocultures of any one species can effect the community composition.

Ashe Juniper occurring along slopes should remain intact and allowed to proceed through a natural succession to control soil erosion. Ashe Juniper that has grown onto flat uplands and have created thickets below larger trees can be controlled through removal and replanting other native understory species. These small trees can be removed through a basal cut and do not require the application of an herbicide.

Honey Mesquite is a tree with a large tap root that performs a function commonly known as "hydraulic lift". During dry nights moisture moves up the tap root and into the surrounding surface soils providing water to nearby plants. This combined with a thorny defense makes mesquite the perfect nurse plant for other species, such as Greenbrier (*Smilax bona-nox*), to grow up and create thickets. Mesquite that are encroaching onto open grasslands, are small (below 6 feet), and have multiple small stems (<1 inch) warrant removal. Mesquite will reestablish even after basal cuts, so the use of an approved herbicide applied directly to the cut area is recommended. Drilling holes and applying herbicide into the basally cut trunk may also be effective.

Seedlings and saplings shall be planted to encourage an increase in species diversity. Areas that have been disturbed should be planted and/or seeded with approved plant species (Table 3). Disturbance can be due to storm damage, animals, erosion, or through anthropogenic means. Fall seeding of wildflowers may also be conducted to increase the species diversity in open areas. All plantings shall be planted using standard practices and provided supplemental water (hand watering, use of DRI-WATER, or Water Gators) for approximately one month after the initial planting.

Oak Wilt is a significant threat to native oak populations. This tract shall be surveyed yearly to determine any threats of oak wilt and proper oak wilt suppression techniques will be used throughout the city.

C. Wildlife Management

Specific wildlife populations shall be monitored on an as needed basis with the exception of white-tailed deer on this tract. Wildlife such as coyotes, raccoons, other small mammals, reptiles, and birds shall be monitored at this site depending on trends within the general area. If a marked increase or decrease in any animal population is noticed approved monitoring will begin. The overall health of the ecosystem will be monitored on a continual basis.

White-tailed deer and other browsing animals can effect plant community composition when they overpopulate an area. White-tailed deer shall be monitored annually and management recommendations made based on population fluctuations. White-tailed deer management incorporates all municipal tracts south of US 290 and a new management program will be initiated each year. Practices designed to increase deer populations are not recommended.

Central Texas is home to a large population of bats. Bats actively control many insect populations. Since there is an ephemeral wetland, that can provide water for bats, bat inhabitation is encouraged. Bat boxes can be placed in the vicinity of the wetland areas to encourage nesting.

Imported Fire Ants will be controlled through the City's Organics First Program. If chemical control is necessary, approved chemicals and bait formulations will be used that minimize impacts on native ants, flora, and fauna.. In the drainage basin for the recharge feature boiling water will be used to control fire ant infestations.

D. Fire Break Maintenance

The majority of the borders of the Cougar Creek Greenbelt, meet other open areas and do not pose an additional fire threat. The border with the residents of Yellowtail Cove is buffered by a grass berm for flood control. This area also falls within a critical water quality zone, and the residents have a vegetative buffer zone. The vegetative buffer zone is an area of natural vegetation maintained in order to reduce the sediment load of the water flowing from the residential area into the water quality zone. Since the vegetative buffer of most residents remains in a natural state, and the remaining lawn is manicured creating an official fire break is unnecessary.

III. Monitoring

Each year the tract shall be reevaluated for project completion and new projects suggested. This plan will be re-evaluated after three years for efficacy and changes made at that time. Six months after each vegetative restoration effort sites will be evaluated and suggestions made to improve future projects. The evaluation of each project shall be completed on Form A in the Appendix.

Open Space Management Plan

Tract 5: Sunset Valley Nature Area

I. Description

A. Location and Acreage

The Sunset Valley Nature Area is located between Lovegrass and Oakdale (Figure 7). The tract surrounds a portion of the main branch of Williamson Creek and connects with the South Hills Conservation Area. Brodie Lane separates the Sunset Valley Nature Area from the Indian Prairie Grass Preserve. The flow of Williamson Creek is ephemeral and no permanent body of water is located on the tract. The tract is 64.59 acres in extent.

Figure 7. Sunset Valley Nature Area. Trail is marked in red.

B. Physical Description

The elevation of the Sunset Valley Nature Area extends from approximately 670 to 700 feet. A third of the tract has an Edward's Limestone substrate and the remainder of the site is Buda Limestone. The tract is bisected by Williamson Creek, which is composed of Mixed Alluvial Land (Md). Mixed Alluvial Land is comprised of beds of exposed limestone and gravelly alluvium (USDA, 1974). The majority of this tract is

composed of Tarrant and Speck soils. Tarrant soils are well-drained clay soils found atop limestone. Speck soils are reddish brown and also overlay a limestone substrate.

C. Botanical Description

The Sunset Valley Nature Area is considered to be a Plateau Live Oak (*Quercus fusiformis*) - Midgrass plant community. Trees found commonly in the upland area include Live Oak (*Q.fusiformis*), Cedar Elm (*Ulmus crassifolia*), Juniper (*Juniperus asheii*), and Honey Mesquite (*Prosopsis gradulosis*). The understory is composed of Texas Croton (*Croton fruticulosis*), Elbowbush (*Foresteria pubescens*), and Yaupon (*Ilex vomitoria*). The grassland areas are composed of Side Oats Grama (*Boutoloua curtipendula*), Purpletop (*Tridens flavus*), Curley Mesquite (*Hilaria berlangeri*), and Buffalo grass (*Buchloe dactyloides*). The SVNA is also home to a national champion Bigelow Oak (*Quercus durandii var., breviloba*) along the Dry Fork Branch of Williamson Creek.

Along the stream banks a closed canopy Oak –Juniper woodland has formed. Common species along the creek are Osage Orange (*Maclura pomifera*), Sugar Hackberry (*Celtis laevigata*), Texas Oak (*Quercus texana*), and Post Oak (*Quecus stellata*). Elbowbush (*Foresteria pubescens*), Agarita (*Berberis trifoliolata*), and Mountain Laurel (*Sophora secudiflora*) are common understory species. At one section of the creek a small population of Alabama lipfern (Cheilanthes alabamensis) exists.

Common wildlflowers throughout the tract are Wild Onion (Allium spp.), Spiderwort (Tradescantia humilis), White Prickly Poppy (Argemone albiflora), Southern Dewberry, and Tropical Sage (Salvia coccinea).

D. Wildlife Description

With the exception of White-tailed Deer surveys, no other official wildlife surveys have been conducted at this time. Observed wildlife within the City of Sunset Valley includes White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*), Raccoon (*Procyon lotor*), Striped Skunk (*Mephitis mephitis*), Virginia Opossum (*Didelphis virginiana*), Eastern Cottontail Rabbit (*Sylvilaus floridanus*), Bobcat (*Lynx rufus),* Common Gray Fox (*Urocyon cinereoargenteus*), Nine-banded Armadillos (*Dasypus novemcinctus*), Squirrels (*Spermophilus sp*.) and other various rodent species.

Texas Rat Snake (*Elaphe obsoleta lindheimeri*), Prairie Kingsnake (*Lampropeltis calligaster calligaster*), Western Diamondback Rattlesnake (*Crotalus atrox*), Rough Earth Snake (*Virginia striatula*), Red-eared Slider (*Trachemys scripta elegans*), Texas River Cooter *(Pseudemys texana*), Green Anole (*Anolis carolinensis*), Reticulated Gecko (*Coleonyx reticulates),* and American Toad *(Bufo americanus)* are the reptile and amphibian species identified to date. Central Texas is along a migratory bird path and has a rich diversity of bird species. Table 1 includes a list of bird species identified on Sunset Valley property.

E. Public Access

The Sunset Valley Nature Area is open to the public for foot traffic during daylight hours. Bicycle and equestrian traffic are permitted on marked trails during daylight hours. From time to time, access to the tract or portions of the tract may be limited in order to let the area recover from various natural and anthropogenic disturbances and during times of maintenance and management activities. Public notice will be provided at least 7 days prior to the closure of the Sunset Valley Nature Area, except in times of emergency situations. Persons found in the Sunset Valley Nature Area during a period of restricted public access shall be asked to leave the area and shall not receive a citation except for violations of the law other than being present in the conservation area during a period of restricted access.

II. Management Program

A. Goals

The management goals for the Sunset Valley Nature Area will focus on the protection/restoration of natural resources, increasing species diversity, trail maintenance, and outreach opportunities.

1. In order to maintain the grass-woodland mix, a program to control the spread of Juniper and Mesquite shall be undertaken. The procedures for this program are listed under vegetative management.

2. Trash will be removed from the site on an annual basis, including removal of accumulated debris from the creek.

3. Restoration of prairie areas with native grasses.

4. All damaged areas shall be restored.

5. Trail signage and maps will be installed.

B. Vegetative Management

Invasive plant species (Table 2) shall be monitored and/or removed from locations throughout the tract. These species are aggressively invasive and shall be controlled through removal or controlled herbicide applications. Wicking, by applying the herbicide directly to the stem of a plant, is the preferred application method in most situations.

Ashe Juniper (*Juniperus ashei*) and Honey Mesquite (*Prosopis glandulosis)* are both natives to Texas but can be opportunistic in their growth habit and may require additional control. These plants require control when they start competing for habitat from other species and create monocultures or thickets. The goal of this plan is to increase or maintain species diversity, and large monocultures of any one species can effect the community composition.

Ashe Juniper occurring along slopes should remain intact and allowed to proceed through a natural succession to control soil erosion. Ashe Juniper that has grown onto flat uplands and have created thickets below larger trees can be controlled through removal and replanting other native understory species. These small trees can be removed through a basal cut and do not require the application of an herbicide.

Honey Mesquite is a tree with a large tap root that performs a function commonly known as “hydraulic lift”. During dry nights moisture moves up the tap root and into the surrounding surface soils providing water to nearby plants. This combined with a thorny defense makes mesquite the perfect nurse plant for other species, such as Greenbrier (*Smilax bona-nox*), to grow up and create thickets. Mesquite that are encroaching onto open grasslands, are small (below 6 feet), and have multiple small stems (<1 inch)

warrant removal. Mesquite will reestablish even after basal cuts, so the use of an approved herbicide applied directly to the cut area is recommended. Drilling holes and applying herbicide into the basally cut trunk may also be effective.

Seedlings and saplings shall be planted to encourage an increase in species diversity. Areas that have been disturbed should be planted and/or seeded with approved plant species. Disturbance can be due to storm damage, animals, erosion, or through anthropogenic means. Fall seeding of wildflowers may also be conducted to increase the species diversity in open areas. All plantings shall be planted using standard practices and provided supplemental water (hand watering, use of DRI-WATER, or Water Gators) for approximately one month after the initial planting.

Oak Wilt is a significant threat to native oak populations. This tract shall be surveyed yearly to determine any threats of oak wilt and proper oak wilt suppression techniques will be used throughout the city.

C. Wildlife Management

Specific wildlife populations shall be monitored on an as needed basis with the exception of white-tailed deer on this tract. Wildlife such as coyotes, raccoons, other small mammals, reptiles, and birds shall be monitored at this site depending on trends within the general area. If a marked increase or decrease in any animal population is noticed approved monitoring will begin. The overall health of the ecosystem will be monitored on a continual basis.

White-tailed deer and other browsing animals can effect plant community composition when they overpopulate an area. White-tailed deer shall be monitored annually and management recommendations made based on population fluctuations. White-tailed deer management incorporates all municipal tracts south of US 290 and a new management program will be initiated each year. Practices designed to increase deer populations are not recommended.

Central Texas is home to a large population of bats. Bats actively control many insect populations. Bat boxes can be placed in the vicinity of the wetland areas to encourage nesting. This area is also home to great horned owls and red tailed hawks and additional nesting boxes or platforms can also be install in this area.

Imported Fire Ants will be controlled through the City's Organics First Program. If chemical control is necessary, approved chemicals and bait formulations will be used that minimize impacts on native ants, flora, and fauna.. In the drainage basin for the recharge feature boiling water will be used to control fire ant infestations.

D. Fire Break Maintenance

The majority of the border of the SVNA does not require a defined fire break. The residences bordering the area are a distance away from the property lines. The majority of the adjoining properties have a similar vegetative structure at the rear of the property. For these reasons a maintained fire break across the entire boundary is not necessary. The trail on the southern side of the tract shall be used as a fire break for residences close to the tract.

III. Monitoring

Each year the tract shall be reevaluated for project completion and new projects suggested. This plan will be re-evaluated after three years for efficacy and changes made at that time. Six months after each vegetative restoration effort, sites will be evaluated and suggestions made to improve future projects. The evaluation of each project shall be completed on Form A in the appendix.

Open Space Management Plan

Miscellaneous Trail Links

Village Trail

I. Description

The Village Trail links the Cougar Creek Greenbelt to Lovegrass Lane and the Sunset Valley Nature Area (Figure 8). The Village Trail is within a 15 foot easement through the vegetative buffer of the Sunset Valley Village Shopping Center managed by Trammel Crow. The trail itself is maintained by the City of Sunset Valley. The formal trail is composed of one section that is concrete, near Ernest Robles Way and the remainder is decomposed granite gravel.

Figure 8. Village Trail. Trail is marked in red.

II. Management Goals

The management goals for the Village Trail are as follows:

A. Maintain trail integrity. The Village Trail will be inspected periodically for damage and erosion. The trail base is composed of road base material topped

with compacted decomposed granite. The layer of granite will be periodically raked and re-compacted to maintain a level surface.

B. Mowing. The edges of the trail will be mowed/trimmed to provide trail clearance.

C. In accordance with the City's Organics First Program and with concern for the nature of the area, organic compounds such as Green-Light with Conserve and Vinegar will be the first choice for fire ant and vegetative control.

Open Space Management Plan

Miscellaneous Trail Links

Lone Oak/Curley Mesquite Link

I. Description

The Lone Oak/Curley Mesquite Link is a small trail linking Lone Oak Trail to Curley Mesquite Cove and the Sunset Valley Nature Area (Figure 9). The easement is for a 6 foot wide trail between two adjacent properties (40 and 42 Lone Oak Trail) and continues along the edge of 5 Curley Mesquite Cove. Part of the trail is enclosed by a fence on both sides with a mulch path. The mulch path from Lone Oak Trail, leads to the entrance of the Sunset Valley Nature Area and to Curley Mesquite Cove.

Figure 9. Lone Oak/Curley Mesquite Link. Trail marked in red.

II. Management Goals

A. The mulched path will be maintained by periodically adding new mulch.

B. The path and fence shall be relatively free of vegetation. Large weeds and climbing vines shall be removed.

C. In accordance with the City's Organics First Program and with concern for the

nature of the area, organic compounds such as Green-Light with Conserve and Vinegar will be the first choice for fire ant and vegetative control.

Parks and Open Space Management Plan Project Evaluation

Project Title:_____

Evaluation Date:_____

Project Completion Date:_____

Project Location:_____

Project Description:_____

_____

_____

_____

_____

Planting Specifications	Watering Protocol
# of plants planted_____ # of plants alive at 6 months_____ % Survival _____	Water Gators: Y N DRI-WATER: Y N Hand-watering: Y N Other:_____

Project Notes:_____

_____

_____

_____

Recommendations:_____

_____

_____

_____

Project Evaluator

Attach Before and After Photographs

Table 1. The Birds of Sunset Valley

Identified by Robin Dennis between 2001 and 2004, Cindy Sperry 2004, Carolyn Meredith 2004, Carla and Walt Jenkins 2005, and Plateau Wildlife Management 2006.

Family	Common Name	Scientific Name
Ardeidae	Yellow Crowned Night Heron	*Nyctanassa violacea*
Cathartidae	Turkey Vulture	*Cathartes aura*
	Black Vulture	*Coragyps atratus*
Accipitridae	Sharp-shinned Hawk	*Accipiter striatus*
	Red-tailed Hawk	*Buteo jamaicensis*
	Red-shouldered Hawk	*Buteo lineatus*
Falconidae	Merlin	*Falco columbarius*
	American Kestrel	*Falco sparverius*
Phasianidae	Wild Turkey	*Meleagris gallopavo*
Charadriidae	Kildeer	*Charadrius vociferus*
Columbidae	Inca Dove	*Columbina inca*
	White-winged Dove	*Zenaida asiatica*
	Mourning Dove	*Zenaida macroura*
Cuculidae	Yellow-billed Cuckoo	*Coccyzus amercanus*
	Greater Roadrunner	*Geococcyx californianus*
Strigidae	Great Horned Owl	*Bubo virginianus*
Caprimulgidae	Common Nighthawk	*Chordeiles minor*
Apodidae	Chimney Swift	*Chaetura pelagica*
Trochilidae	Black-chinned Hummingbird	*Archilochus alexandri*
	Ruby-throated Hummingbird	*Archilochus colubris*
Picidae	Downy Woodpecker	*Picoides pubescens*
	Red-bellied Woodpecker	*Melanerpes carolinus*
	Ladder-backed Woodpecker	*Picoides scalaris*
	Northern Flicker	*Colaptes auratus*
	Yellow-bellied Sapsucker	*Sphyrapicus varius*
Tyrannidae	Eastern Pheobe	*Sayornis phoebe*
	Great-crested Flycatcher	*Myiarchus crinitus*
	Least Flycatcher	*Empidonax minimus*
	Scissor-tailed Flycatcher	*Tyrannus fotficatus*
	Western Kingbird	*Tyrannus verticalis*
	Eastern Kingbird	*Tyrannus tyrannus*
Laniidae	Loggerhead Shrike	*Lanius ludovicianus*
Vireonidae	Blue-headed Vireo	*Vireo solitarus*
	Red-eyed Vireo	*Vireo olivaceus*
	White-eyed Vireo	*Vireo griseus*
Corvidae	Blue Jay	*Cyanocitta cristata*
	American Crow	*Corvus brachyrhynchos*
Hirundinidae	Purple Martin	*Progne subis*
	Barn Swallow	*Hirundo rustica*
	Cliff Swallow	*Petrochelidon pyrrhonota*

Family	Common Name	Scientific Name
Paridae	Carolina Chickadee	*Poecile carolinensis*
	Black-crested Titmouse	*Baeolophus atricristatus*
	Tufted Titmouse	*Baeolophus bicolor*
Certhiidae	Brown Creeper	*Certhia americana*
Trglodytidae	Bewick's Wren	*Thryomanes bewickii*
	Canyon Wren	*Catherpes mexicanus*
	Carolina Wren	*Thyrothorus ludovicianus*
Regulidae	Ruby-crowned Kinglet	*Regulus calendula*
Sylviidae	Blue-gray Gnatcatcher	*Polioptila caerulea*
Turdidae	Hermit Thrush	*Catharus guttatus*
	Wood Thrush	*Hylocichla mustelina*
	American Robin	*Turdus migratorius*
	Eastern Bluebird	*Sialia sialis*
Mimidae	Gray Catbird	*Dumetella carolinensis*
	Northern Mockingbird	*Mimus polyglottos*
Sturnidae	European Starling	*Sturnus vulgaris*
Bombyciilidae	Cedar Waxwing	*Bombycilla cedrorum*
Parulidae	Orange-crowned Warbler	*Vermivora celata*
	Tennessee Warbler	*Vermivora peregrina*
	Nashville Warbler	*Vermivora ruficapilla*
	Magnolia Warbler	*Dendroica magnolia*
	Yellow-rumped Warbler	*Dendroica coronata*
	Black and White Warbler	*Mniotilta varia*
	Black-Throated Green Warbler	*Dendroica virens*
	Connecticut Warbler	*Oporornis agilis*
	Golden-cheeked Warbler	*Dendroica chrysoparia*
	Pine Warbler	*Dendroica pinus*
	Yellow Warbler	*Dendroica petechia*
	Mourning Warbler	*Oporornis tolmiei*
	Common Yellowthroat	*Geothylpis trichas*
	Yellow-breasted Chat	*Icteria virens*
	American Redstart	*Setophaga ruticilla*
Thraupidae	Summer Tanager	*Piranga rubra*
Emberizidae	Spotted Towhee	*Pipilo maculatus*
	Field Sparrow	*Spizella pusilla*
	Chipping Sparrow	*Spizella psserina*
	Clay-colored Sparrow	*Spizella pallida*
	Black-throated Sparrow	*Amphispiza bilineata*
	Fox Sparrow	*Passerella illiaca*
	Lincoln Sparrow	*Melospiza lincolnii*
	White-crowned Sparrow	*Zonotrichia leucophyrys*
	White-Throated Sparrow	*Zonotrichia albicollis*

Family	Common Name	Scientific Name
Cardinalidae	Northern Cardinal	*Cardinalis cardinalus*
	Indigo Bunting	*Passerina cyanea*
	Painted Bunting	*Passerina ciris*
Icteridae	Red-wing Blackbird	*Agelaius phoeniceus*
	Common Grackle	*Quiscalus quiscula*
	Great-tailed Grackle	*Quiscalus mexicanus*
	Brown-headed Cowbird	*Molothrus ater*
	Orchard Oriole	*Icterus spurius*
	Baltimore Oriole	*Icterus galbula*
Fringillidae	Lesser Goldfinch	*Carduelis psaltria*
	House Finch	*Carpodacus mexicanus*
	American Gold Finch	*Carduelis tristis*
Passeridae	House Sparrow	*Passer domesticus*

Table 2: Invasive/Exotic Plant List

List of invasive, exotic plants requiring control measures

Common Name	Scientific Name
Japanese Privet	(*Ligustrum lucidum*)
Chinese Privet	(*Ligustrum sinense*)
Chinaberry	(*Melia azedarach*)
Chinese Tallow	(*Sapium serbiferum*)
Johnson Grass	(*Sorghum halepense*)
King Ranch Bluestem	(*Bothriochloa ischaemum*)
Beggar's Lice	(*Desmodium sp.)*
Heavenly Bamboo	(*Nandina domestica*)
Japanese Honeysuckle	(*Lonicera japonica*)
Bermuda Grass	(*Cynodon dactylon*)
Tree of Heaven	(*Ailanthus altissima*)
Golden Bamboo	*(Phyllostachys aurea)*
Bastard Cabbage	(*Rapisum rogustrum*)

Table 3. Plants Suitable for Open Space Plantings. Plants considered suitable for planting within the management areas. List is not exhaustive and other plants may be used upon approval.

Scientific Name/ Family	Common Name
Agavaceae	
Dasylirion texanum	Texas Sotol
Anacadiaceae	
Cotinus obovatus	American Smoke Tree
Rhus aromatica	Aromatic Sumac
Rhus lanceolata	Flameleaf Sumac
Rhus virens	Evergreen Sumac
Asteraceae	
Achillea millefolium	Yarrow
Coreopsis lanceolata	Coreopsis
Echinacea purpurea	Purple Coneflower
Helianthus maximiliani	Maximillian Sunflower
Liatris spp.	Gayfeather
Melampodium leucanthum	Blackfoot Daisy
Solidago canadensis	Tall Goldenrod
Solidago nemoralis	Prairie Goldenrod
Rudbeckia hirta	Black-eyed Susan
Asclepiadaceae	
Asclepias tuberosa	Butterfly Weed
Aquifoliaceae	
Ilex decidua	Possumhaw
Ilex vomitoria	Yaupon Holly
Berberidaceae	
Berberis (Mahonia)swaseyi	Texas Barberry
Berberis (Mahonia)trifoliolata	Agarita
Boraginaceae	
Ehretia anacua	Anaqua
Cactaceae	
Opuntia leptocaulis	Pencil Cactus
Opuntia lindheimeri	Spineless Prickly Pear
Commelinaceae	
Tradescantia spp.	Spiderwort

Scientific Name/ Family	Common Name
Cornaceae	
Garrya lindheimeri	Lindheimer silktassel
Ebenaceae	
Diospyros texana	Texas Persimmon
Fabaceae	
Bauhinia lunarioides	Anacacho Orchid Tree
Cercis canadensis	Redbud
Dalea frutescens	Black Dalea
Eysenhardtia texana	Kidneywood
Leucaena retresa	Goldenball Lead-tree
Mimosa borealis	Fragrant Mimosa
Sophora affinis	Eve's Necklace
Sophora secundiflora	Texas Mountain Laurel
Wisteria frutescens	Texas Wisteria
Fagaceae	
Quercus fusiformis	Live Oak
Quercus glaucoides	Lacey Oak
Quercus muhlenbergii	Chinquapin Oak
Quercus stellata	Post Oak
Hippocastanaceae	
Aesculus pavia	Red Buckeye
Aesculus pavia var. flavescens	Yellow Buckeye
Lamiaceae	
Monarda spp.	Bee Balm
Physostegia angustifolia	Spring Obedient Plant
Physostegia virginiana	Fall Obedient Plant
Salvia coccinea	Scarlet Sage
Salvia farinacea	Mealy Blue Sage
Salvia greggii	Cherry Sage
Liliaceae	
Nolina texana	Sacahuista, Bear Grass
Yucca spp.	Yucca
Malvaceae	
Malvaviscus arboreus	Turk's Cap
Pavonia lasiopetela	Rock Rose

Scientific Name/ Family	Common Name
Oleaceae	
Foresteria pubescens	Elbow Bush
Onagraceae	
Guara lindheimeri	Pink Guara
Platanaceae	
Platanus occidentalis	Texas Sycamore
Poaceae	
Andropogon gerardii	Big Bluestem
Andropogon glomeratus	Bushy Bluestem
Buchloe dactyloides	Buffalo Grass
Bouteloua curtipendula	Side Oats Gramma
Bouteloua gracilis	Blue Grama
Chasmanthium latifolium	Inland Sea Oats
Hilaria belangeri	Common Curly Mesquite
Muhlenbergia spp.	Muhly Grass
Panicum virgatum	Switchgrass
Schizachyrium scoparium	Little Bluestem
Sorghastrum nutans	Indiangrass
Ranunculaceae	
Aquilegia chrysantha	Columbine
Clematis drummondii	Old Man's Beard
Delphinium spp.	Larkspur
Rhamnaceae	
Rhamnus caroliniana	Carolina Buckthorn
Rosaeceae	
Prunus mexicana	Mexican Plum
Prunus serotina	Escarpment Cherry
Rubiaceae	
Cephalanthus occidentalis	Buttonbush
Sapindaceae	
Ungnadia speciosa	Mexican Buckeye
Scropuhulariaceae	
Penstemon spp.	Penstemon
Ulmaceae	
Ulmus americana	American Elm
Ulmus crassifolia	Cedar Elm

Scientific Name/ Family	Common Name
Verbenaceae	
Callicarpa americana	American Beautyberry
Lantana horrida	Texas Lantana
Verbena spp.	Perennial Verbena
Vitaceae	
Parthenocissus quinquefolia	Virginia Creeper

Consumer Product Safety Commission

Public Playground Safety Checklist

CPSC Document #327

Is your public playground a safe place to play?

Each year, more than 200,000 children go to U.S. hospital emergency rooms with injuries associated with playground equipment. Most injuries occur when a child falls from the equipment onto the ground.

Use this simple checklist to help make sure your local community or school playground is a safe place to play.

Public Playground Safety Checklist

1. Make sure surfaces around playground equipment have at least 12 inches of wood chips, mulch, sand, or pea gravel, or area mats made of safety-tested rubber or rubber-like materials.

2. Check that protective surfacing extends at least 6 feet in all directions from play equipment. For swings, be sure surfacing extends, in back and front, twice the height of the suspending bar.

3. Make sure play structures more than 30 inches high are spaced at least 9 feet apart.

4. Check for dangerous hardware, like open "S" hooks or protruding bolt ends.

5. Make sure spaces that could trap children, such as openings in guardrails or between ladder rungs, measure less than 3.5 inches or more than 9 inches.

6. Check for sharp points or edges in equipment.

7. Look out for tripping hazards, like exposed concrete footings, tree stumps, and rocks.

8. Make sure elevated surfaces, like platforms and ramps, have guardrails to prevent falls.

9. Check playgrounds regularly to see that equipment and surfacing are in good condition.

10. Carefully supervise children on playgrounds to make sure they're safe.

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