

CITY OF HILLSBORO

HILLSBORO PIONEER CEMETERY MASTER PLAN

FINAL REPORT 05.02.2014

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INTRODUCTION

The City of Hillsboro has managed the Hillsboro Pioneer Cemetery since 1998 when it took over official responsibility from Washington County. The cemetery includes the burials of many notable persons, significant to the history of Hillsboro, Washington County, and Oregon, and continues to receive interments on a limited basis. It lies at the western boundary of the city, adjacent to the main highway through town. Multiple events have been hosted there including historical re-enactments, a gravestone preservation workshop, community service headstone cleanings and an eagle scout data collection project. The City envisions this as a place for people of all ages to gather, learn and participate in interactive activities to learn more about the cemetery's prominent and interesting inhabitants.

The public is increasingly interested in finding their ancestors and learning more about Hillsboro pioneers buried there. As a community resource and gateway to the city, it is important to preserve, enhance and promote this historical cemetery. It is the hope that this Master Plan will help elevate interest in the cemetery, and will act as a catalyst for the recommended improvements. This momentum would provide an important added benefit of discouraging negative activities and replacing them with positive actions. The City sees both challenges and opportunities for the cemetery and the goal of this Master Plan is to address both the constraints and opportunities to plot a course for its future.

-Amber Ames, Hillsboro City Recorder



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ACKNOWLEDGEMENTS

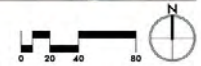
Cemetery Oversight Committee Members

- Amber Ames HILLSBORO CITY RECORDER
- Laurie DeVos HILLSBORO PARKS AND RECREATION PROJECT MANAGER
- Judy Goldmann HISTORIC LANDMARKS ADVISORY COMMITTEE MEMBER
- Deborah Raber HILLSBORO PLANNING DEPARTMENT PROJECT MANAGER
- Carol Surrency PRESIDENT, OREGON HISTORIC CEMETERIES ASSOCIATION
- David White HILLSBORO PARKS AND RECREATION MAINTENANCE

Lango Hansen Landscape Architects

- Kurt Lango PRINCIPAL
- Emily Carlson PROJECT MANAGER





AERIAL OVERVIEW

Hillsboro Pioneer Cemetery Master Plan



Lango Hansen Landscape Architects
Willamette Cultural Resources Associates



MISSION STATEMENT

Preserve and honor the history of past generations while providing a place for learning and reflection for generations to come.

SCOPE OF PROJECT

The Pioneer Cemetery is a significant cultural resource for the City of Hillsboro that offers a place of respect, a scenic respite and a glimpse into Hillsboro's history. The master plan for the cemetery addresses the functional needs of the grounds such as parking and circulation but also further enhances this important resource for public use and education. An open and interactive approach to the master planning process engaged City staff and the Cemetery Oversight Committee to create a lasting plan for the City of Hillsboro.

The Master Plan for the cemetery addresses interpretive signage, memorials for veterans and Washington County Hospital burials, landscaping, parking, circulation, pedestrian access, benches and gathering spots, fencing and security measures.

MASTER PLANNING

The first step in Master Planning was to gather information and perform historical research. Using GIS information from the City, a base map was compiled for use throughout the master planning process. The Washington County Museum Archives were visited and stakeholders and participants in the Cemetery Oversight Committee provided input and local knowledge. Additional interviews with City staff to understand site specific issues were performed. Willamette Cultural Resources Associates provided resources for the archeological research team.

Information gathered during the initial phase was compiled into a single site analysis drawing along with associated imagery to illustrate the existing conditions and history of the site. The site analysis drawing and imagery was shared with City Staff and the Cemetery Oversight Committee. After a review of cemetery history, the mission statement and goals for the project were crafted.

Based on the initial meetings and the results from the Ground Penetrating Radar (GPR), three initial master plan concepts were created for review by City Staff and the Cemetery Oversight Committee addressing the scope of the project.

The concepts were reviewed by Willamette Cultural Resources regarding any potential for concern over perceived intrusion on sacred space. An additional meeting with the Cemetery Oversight Committee took place at the cemetery to review the three concepts in the context of the site.

Based on feedback and preferences expressed, along with City Staff direction, the master plan options were refined into a single concept plan. At this point, maintenance recommendations and site improvement measures were formulated. After review and discussion with City Staff and the Cemetery Oversight Committee, this final concept was also shared with the State Commission on Historic Cemeteries.

Cost information and this final report serve as a basis for the procurement of potential grants and funding sources to help the City of Hillsboro achieve one of the most well loved and often visited historic cemeteries in the state.



CEMETERY HISTORY

The Hillsboro Pioneer Cemetery was officially established in 1860. Originally it was a part of the David Hill land claim. David Hill came to Oregon via wagon train and established a land claim of 640 acres. David Hill was a prominent member of the new community and the town was named in his honor upon his death in 1850.

Ten years later the International Order of Odd Fellows and the Masons each acquired portions of the land, creating Gardens A through D. Additions to these gardens came later, expanding the cemetery extents to the north and to the west. These philanthropic organizations were responsible for maintenance and operations of the cemetery. In 1952, the Hillsboro Cemetery Endowment Association took over operations of the cemetery, these efforts were supported through fundraising and donations.

The Tongue family, a prominent Hillsboro family, owned a small portion of the cemetery in the southeast corner. This portion was privately maintained by the family until 1965 when the plot became a part of the larger cemetery.

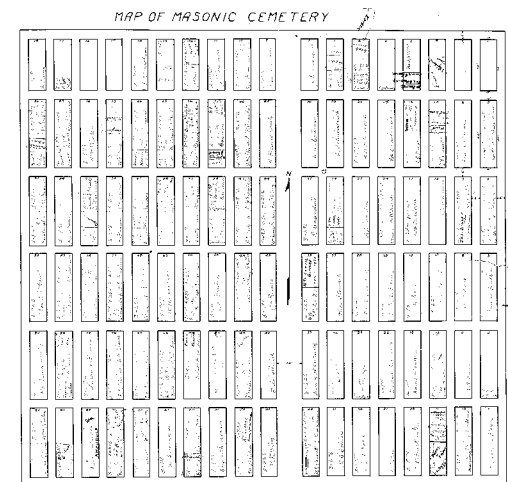
The cemetery property was dedicated and accepted by City Council Resolution in 1973, and the city officially took over operations and maintenance. Cemetery records are maintained by the Hillsboro City Recorder's office, and maintenance is provided by Hillsboro Parks and Recreation. The cemetery is an Irreducible Fund Cemetery, where only the interest earned on cemetery funds can be used for maintenance so that the principal is never reduced.

WASHINGTON COUNTY HOSPITAL BURIALS

The northeast portion of the cemetery was acquired by the Washington County Hospital for burials. Also known as the County Poor Farm, the hospital housed and cared for indigent members of the population. A new hospital building was constructed in 1923 after the previous structure burned down in 1920, and it has been recorded by Kimberli Fitzgerald and Deborah Raber in "Images of America: Hillsboro", that a small cemetery was located there. In 1950 the County Hospital building became the Washington County Extension Office. The occupants of the small cemetery were reportedly disinterred and relocated to the northeast portion of the Hillsboro Pioneer Cemetery, presumably sometime between the Hospital construction in 1923 and when it was repurposed in 1950. There were no records kept for this corner of the cemetery, and no markers were made to locate the people interred there. As a result, very little is known about how many or who may be buried in that portion of the site.

HILLSBORO PIONEERS

Many prominent early citizens of Hillsboro are buried in the cemetery. These people, like the Tongue Family and David Hill helped to establish Hillsboro both as a city and as a community. They traveled across the country on foot and wagon train to establish land claims that would later be the foundation of the city, served in local and state government, and created public infrastructure. Schools, parks and the city itself has been named in their honor. Countless other citizens buried in the cemetery are no less important to the foundation and early fabric of the community of Hillsboro. The cemetery is the recorded history of their lives.



WASHINGTON COUNTY HOSPITAL, 1923



HILLSBORO PIONEER CEMETERY, ESTABLISHED 1860
Hillsboro, OR, 8.42 acres



1 JOHN WRIGHT SHUTE (1840-1922)



Banker and Shute Park namesake

2 MARY RAMSEY WOOD (1787-1908)



"First Mother Queen of Oregon Pioneers" She lived to be 121 years old (as recorded in the Washington County Courthouse)

3 DAVID HILL (1809-1850)



Legislator in the provisional government, Hillsboro namesake. Pioneer cemetery was part of the David Hill land claim

4 MARIAH KATHERINE "KATE" WEHRUNG (1838-1923)



Moved to Oregon at age 10. "People often talk of coming across the plains on a Prairie Schooner. I didn't."

5 FERN HOBBS (1883-1964)



Attorney and secretary to Oregon Governor Oswald West, led the enforcement of Prohibition under martial law in notorious Copperfield, OR incident, was a Commissioner for the State of Oregon and worked with the Red Cross in Europe during World War I

6 G.A.R. MEMORIAL



Grand Army of the Republic Memorial to the Unknown Soldiers

7 1895 MAP OF ODD FELLOWS' CEMETERY



8 TONGUE FAMILY MONUMENT



9 THOMAS H. TONGUE (1844-1903)



Congressman, state legislator, and Hillsboro mayor, decided a large tract of land known as Tongue's Addition to the city

HISTORICAL OVERLAY

Hillsboro Pioneer Cemetery Master Plan



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1934



1940



1953



1963



1972



1983



1994



2004

HISTORIC AERIALS

Hillsboro Pioneer Cemetery Master Plan



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EXISTING CONDITIONS

As represented by the historic aerial photos taken by the Army Corps of Engineers, the cemetery extents have largely remained the same since it was firmly established while the City of Hillsboro has grown up around it.

The Tualatin Valley Highway is one-way travelling westbound as it borders the cemetery to the south. The Portland and Western Railroad borders the cemetery on the north. North of the railroad right of way is a wetland area formed around Dairy Creek. Fir Lawn Cemetery is a private cemetery to the north of that. Private property borders the cemetery on the west and commercial property operates on the east.

Across the highway to the south is a shopping center. The only pedestrian access to the cemetery is from the southwest corner, where a crosswalk signal and striping lead across the highway from the shopping center to a bus stop in front of the cemetery. At the southeast there is a sidewalk along the commercial property which terminates at a drainage ditch in front of the Tongue Family plot. The gravel shoulder of the highway then runs the length of the property from the cemetery entrance to the bus stop at the other end.

A narrow gravel road with three branches, one at the west, one in the center and one at the east, forms a loop with the highway. The cemetery is accessed by car from the highway via the primary entrance marked by a cemetery gate at the east branch. The east and central road branches have the highest use, the road is visibly less used past the central branch. The west road branch has a steep grade to the highway shoulder making access to the highway more difficult in this location. The primary cemetery entrance also serves as the primary exit.

Parking is a packed dirt pull off area to the northern extent of the cemetery, with scrub-shrub and planted conifers buffering the cemetery from the railroad right of way. There are areas of dense vegetation and scrub-shrub along the north property line. Throughout, the cemetery is planted with impressive mature trees, the primary species being oak. There is a tightly pruned hedge approximately five feet wide that borders the highway impeding views into the cemetery. It is inundated with poison oak creating a hazard for maintenance crews.

Historic cemetery plat maps and burial records confirm the areas with a high probability of buildable open space. There

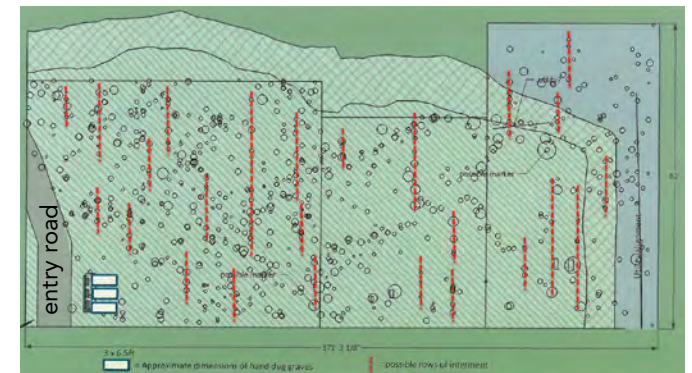
are small open areas located at the intersection of the center and north roadways, and relatively larger areas located on either side of the west roadway. This is the lowest point of the cemetery, the grade rises 10' to 12' to the west and east of this low natural depression or bowl.

There is an existing memorial by the Grand Army of the Republic. The concrete paving distinguishing it from the surrounding space is cracking and in need of repair.

The northeast portion of the cemetery is perceivable as open space but is known to have unmarked graves from the Washington County Hospital burials. It was determined that this area be further explored through archeological methods using Ground Penetrating Radar (GPR).

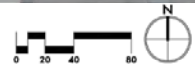
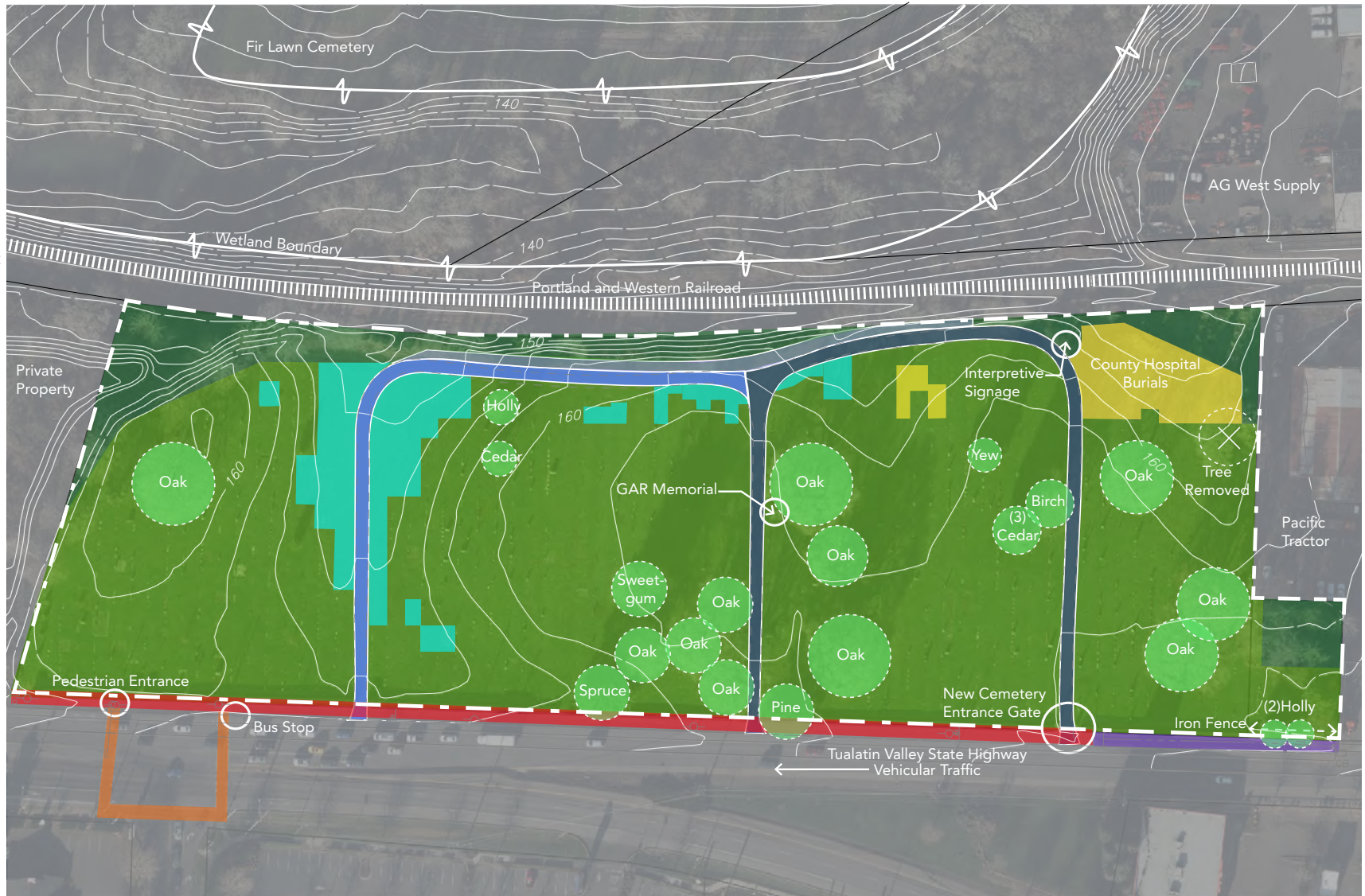
GROUND PENETRATING RADAR

Given that one of the goals of the master planning project is to reclaim the northeast corner of the cemetery as useable open space, it was identified as a critical location requiring further investigation. GPR uses archeological methods to determine what, if anything, is below the surface of the ground. GPR does not give definitive answers but provides more information and is less invasive than excavation. The results of this study showed that the site in that corner has been highly disturbed, and therefore the probability is high that there are interments throughout the northeast corner. The archeologists who reviewed the data from the radar performed in the field felt that they could identify rows of gravesites throughout, represented by the red dashes shown in the graphic below. This information while not conclusive helps to guide what level of construction can reasonably be expected to occur.



LEGEND

- VEGETATED AREA
- GRAVESITES
- PRIMARY VEHICULAR ACCESS
- SECONDARY VEHICULAR ACCESS
- EXISTING PARKING
- APPARENTLY VACANT
- NO RECORDS
- HIGHWAY SHOULDER - NO PEDESTRIAN SAFETY
- DRAINAGE DITCH - NO PEDESTRIAN ACCESS
- PEDESTRIAN CROSSING



SITE ANALYSIS

Hillsboro Pioneer Cemetery Master Plan



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CEMETERY AS PUBLIC OPEN SPACE

In the past, cemeteries were regularly used as a destination to escape the heat and closeness of the city. They were civilized wild places, organized into grids and ornamentally planted. City dwellers would pack lunches and spread their picnic blankets on the tombs of loved ones and strangers alike.

Today cemeteries are often activated only during interments and ceremonies. As saleable gravesites diminish in cemeteries, revenue for daily upkeep is reduced. Additional revenue from public sources is often required for maintenance and improvements. Part of the success other pioneer cemeteries have had is brought about by citizen committees and public fund raising efforts. Bringing the public's awareness and attention to the cemetery as useable public open space is an effort brought by these groups.



We looked at three cemeteries who have had success garnering public support. Lone Fir Pioneer Cemetery in Portland, Oregon has two citizens groups who support it, the Friends of Lone Fir and the Lone Fir Cemetery Foundation. Fund raising through public events like music shows or scrabble tournaments produces proceeds donated to the cemetery. Sales of travel mugs and baby onesies inscribed with the Lone Fir logo contribute additional support as well as 'brand' or cemetery awareness.

Jacksonville Cemetery is a pioneer cemetery in southern Oregon. Each Memorial Day, the summer season is kicked off with a community cemetery clean up and workshops are offered to teach cemetery volunteers how to properly care for headstones. History tours are held regularly throughout the summer months featuring different cemetery relevant



topics at each lecture. Self guided walking tour pamphlets are available for the casual visitor. Each October a living history tour led by costumed actors brings in visitors from across the country. These fund raising efforts are led by Friends of Jacksonville's Historic Cemetery and the Jacksonville Cemetery Commission.

Mountain View Cemetery in Vancouver, British Columbia is on a larger scale, but it has similar ways of attracting the public. Their cemetery rejuvenation was begun with renovations to the masonic section with new architecture, beautiful gardens and walking paths. Artist-in-residence led events bring the public to the cemetery on Halloween. This yearly party includes craft stations, temporary art exhibits and features memorial traditions from many cultures. Mountain View also hosts a cemetery Open House day and outdoor musical concerts. A self guided walking tour is available, accompanied by the iPhone app iCemetery, which drops a pin on the map to locate any gravesite entered into the search field.

Art, music and film events in the cemetery are not original to just these cemeteries. Forest Hills Cemetery in Boston has a contemporary sculpture path featuring temporary installations. Evergreen Washelli Cemetery in Seattle hosts Art in the Mausoleum, inviting local up-and-coming artists to present their work. Hollywood Forever Cemetery in California holds an outdoor film series in conjunction with the local film society. All these events invite participation and introduce the cemetery as public open space.

MEMORIAL PRECEDENTS

As part of the master plan process, the City felt it was important to memorialize the unmarked graves present in the cemetery. We looked at a number of memorials that incorporate place making with memorialization. The Lincoln Memorial Garden utilizes native plants that would have been present in Lincoln's time, and stone council rings that ground a sense of place within a wild garden.

Woodlands Memorial Garden in New Westminster, B.C. memorializes residents who died at the Woodlands Institution. When the cemetery there was renovated for use as a park their tombstones were used as construction material. The Memorial Garden project salvaged those grave markers and placed them in memorial walls that follow pathways encircling the site.

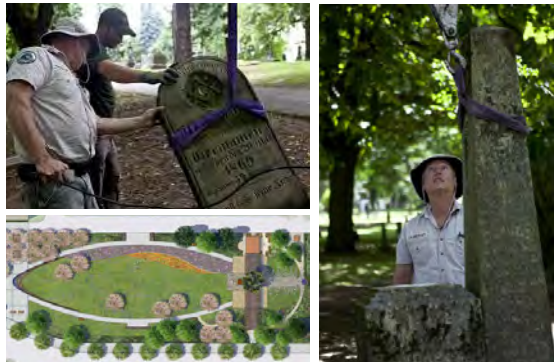
LONE FIR PIONEER CEMETERY, ESTABLISHED 1855
Portland, OR, 30.5 acres

Operated by METRO
Supported by Friends of Lone Fir and
the Lone Fir Cemetery Foundation

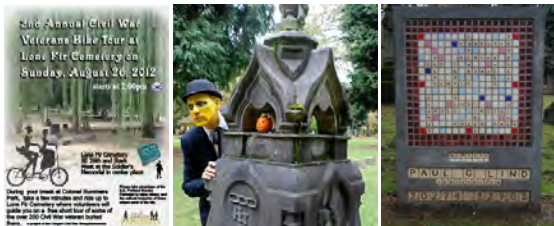
Additional Revenue from Sales, Charitable Donations



Fund Raising Efforts



Grave Marker Repair and Memorialization



Year-Round Events

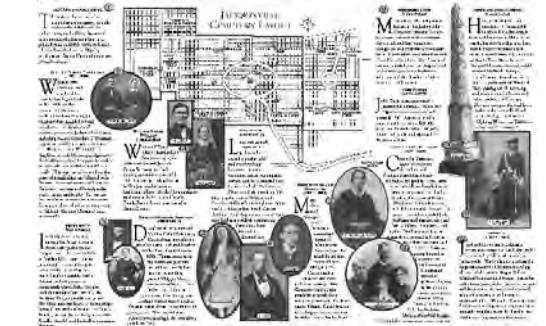
JACKSONVILLE CEMETERY, ESTABLISHED 1859
Jacksonville, OR, 30 acres

Operated by the City of Jacksonville; Cemetery Sexton
Supported by Friends of Jacksonville's Historic Cemetery and
the Jacksonville Cemetery Commission, Community Groups and
Volunteers

Additional Revenue from Grants, Charitable Donations



Living History, Guided Walking Tours and Cemetery Clean-Up Days



Historical Brochure



Interpretive Signage



Project Specific Fund Raising

MOUNTAIN VIEW CEMETERY, ESTABLISHED 1887
Vancouver, BC, 106 acres

Operated by the City of Vancouver; Cemetery Manager

Additional Revenue from Loans, Sales



Masonic Area Redevelopment



Artist Curated Events



Self-guided Walking Tour Brochure and iCemetery App

CASE STUDIES – GARNERING PUBLIC PARTICIPATION AND SUPPORT

Hillsboro Pioneer Cemetery Master Plan



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Willamette Cultural Resources Associates



RESPITE GARDEN

CONCEPT 1

The first concept presents the least amount of impact on existing conditions. Vehicular traffic maintains the current circulation pattern but traffic is restricted to one direction. Surface improvements are made to existing parking. The existing sidewalk in front of the adjacent commercial property is extended to the main cemetery entrance gate.

Three new spaces enhance visitor experience. The first is a naturalistic respite garden. Trees, naturalistic plantings and a small water feature to mask highway noise create a garden for quiet contemplation. A new wayfinding plaza is located adjacent to parking. In the northeast corner, a wood deck is cantilevered over the existing grade as a gentle insertion into the site, with interpretive kiosks which speak to the Washington County Hospital Burials.

CONCEPT 2

In Concept 2, there are two entrances and a new cemetery gate is added at the single exit. A retaining wall expands the existing parking area. An additional sidewalk extends from the existing pedestrian crossing and bus stop to the new cemetery exit.

Similar in concept to a traditional committal shelter with the sides of the structure open to the cemetery grounds, a new shelter in the west would provide a visitor gathering place. Existing trees along the north property line are replaced with a new allée of trees and enhancement plantings.

In the northeast corner of the site, the existing kiosk is left in place to mark the entrance to a winding soft-surface path leading to a dry stack seatwall ring encircling flagstone pavers. The path and sunken garden location are based on possible open areas identified by GPR.

CONCEPT 3

Concept 3 offers the largest impact. The vehicular circulation in this concept is reversed so the single entrance is located at the west and the only exit is located to the east. A sidewalk connection across the entire front of the site provides pedestrian access along Tualatin Valley Highway. Parking and a wayfinding plaza are located at the western open space, convenient to traffic entering the cemetery.

The existing vehicular road at the center of the site is

converted to a pedestrian only memorial walk. A historic road, now essentially non-existent, is recovered for use as a pedestrian path connecting parking and memorial walk.

The County Hospital Memorial is more expansive in the spirit of civil war battlefield memorials. A retaining wall would be built to fill over and level that area of the site. A small plaza with interpretive elements would serve as a threshold. Stone bench seating characteristic of grave markers are an abstract representation of possible gravesites located in that corner.

COMMITTEE FEEDBACK

The Cemetery Oversight Committee responded positively to various elements of all three concepts. It was agreed the paving material of vehicular traffic should be an improved gravel road with a banded concrete edge.

A sidewalk and planting area in the right-of-way should be continuous across the street frontage of the cemetery, and the possibility that space could be borrowed from cemetery property or the highway shoulder to increase the size of planting area for street trees was discussed. A larger planting area would allow a wider range of tree species options.

The vehicular traffic circulation shown in Concept 3 was preferred. The current central road should be closed to vehicular traffic and repurposed as a pedestrian only experience with an artistic or historic interpretation, without detracting from the craftsmanship of cemetery headstones as artistic works.

A progression of garden spaces was approved. These will include a grotto style respite garden, a gathering space to accommodate up to 20 people, and the northeast corner should be reclaimed as an inviting public space. Several times benches or seating were mentioned as a needed addition.

It was expressed that the historic character of the site should be maintained without imposing too much of a modern aesthetic. Other ideas for historic context to be developed with future design development were to include the history of the fraternal organizations that developed the site as a cemetery, and to memorialize and celebrate the common person as well as the more famous and well known characters interred in the cemetery.



SUNKEN STONE GARDEN



MEMORIAL WALK PAVING TREATMENT



CONCEPT 1

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CONCEPT 2

Hillsboro Pioneer Cemetery Master Plan



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CONCEPT 3

Hillsboro Pioneer Cemetery Master Plan



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HILLSBORO PIONEER CEMETERY MASTER PLAN

With consideration to the feedback received from the Cemetery Oversight Committee, three concepts were refined into a final master plan.

Vehicular circulation is arranged so that cars enter the cemetery at the west roadway. A new cemetery gate to match the existing is added to formalize this new entry. A retaining wall is necessary to improve the condition between the lower grade of the cemetery and the higher grade at the highway. Vehicular surfacing is improved throughout with a new gravel overlay to retain the rustic nature of the existing surface, and banded concrete edging adds formality. Trees along the roadway to the north are replaced with an elegant allée, perhaps native Serviceberry, traditionally a plant associated with Memorial Day. The only exit is located at the east roadway which provides drivers entering the four lanes of one-way traffic on the Tualatin Valley Highway more time to access other lanes.



A continuous sidewalk provides a pedestrian connection across the entire front of the site with street trees and planting buffering the highway. Bicycle access is added with the addition of bike lane striping. The maintenance-heavy hedge is replaced with a decorative wrought iron fence to match the historic iron fence at the Tongue Family plot. The wrought iron fence treatment continues the perimeter of the entire site to enhance security. A concrete curb or small wall mitigates the grade difference between sidewalk and cemetery. A planting area and soft-surface path follow the iron fence along the south side inside cemetery grounds.



Parking and a Wayfinding Plaza are located in the west open space as vehicles enter the cemetery. The existing parking area to the north is retained for use as overflow parking. Parallel parking spaces are treated with gravel in the same manner as the roadway for minimal visual impact. The wayfinding plaza is paved with permeable concrete pavers that extend across the road to give drivers a visual indication that they are in a pedestrian zone. The plaza has a planting area to buffer it from the road and a trellis structure provides shelter above orientation signage. Dry-stack seatwalls enclose plaza from cemetery lawn and provide visitors a place to sit while they wait for their party to assemble.

Across the road from the Wayfinding Plaza is a Grotto Garden with a small stone path winding through naturalistic plantings

and trees. The path terminates at a water feature and stone benches are peppered throughout to provide places of respite and contemplation.

The roadway at the center of existing circulation is closed to vehicular traffic and is transformed into a pedestrian only Heritage Walk. Plinths with art work or historic interpretive elements devised in collaboration with the local Hillsboro arts community create a meandering experience punctuated by benches and planting areas set within the gravel surface. The buried historic road west of the new pedestrian way is recovered for use as a soft-surface path. Soft-surface pathways, Heritage Walk, and the low-traffic vehicular road form a series of figure eight looped pedestrian connections throughout the site. Pedestrians can follow surfaced roadways and paths or step off into cemetery lawn to visit gravesites.

The memorial by the Grand Army of the Republic to Unknown Soldiers is repaved with permeable concrete pavers that extend this memorial plaza across the pedestrian way. The monuments and flag pole are reoriented into a central arrangement flanked by benches and planter pots. Lighting is added to a new flag pole base in order to properly display the flag in accordance with the Flag Code of the United States.

At the northeast corner, a Memorial Overlook utilizes wood decking in the manner of the plank roads of pioneer Hillsboro. Building this plaza as a cantilevered deck extends usable space over the steep change in grade and minimizes disturbance caused by construction. In this area of uncertain burial extents, post holes for the structure can be hand excavated. The cantilevered plaza provides two interpretive elements, one that speaks to the history of the city of Hillsboro and its early settlers, and another that tells the story of the Washington County Hospital. Stone benches are integrated with the planting area that buffers the plaza from the existing road. One bench is oriented to direct views toward the open field of unknown burials to the plaza's east. The field is reclaimed by removing select trees. A new tall evergreen hedge is a visual barrier from the adjacent railway and naturalistic plantings with bulbs and wildflowers planted in the lawn create a pleasing useable open space.



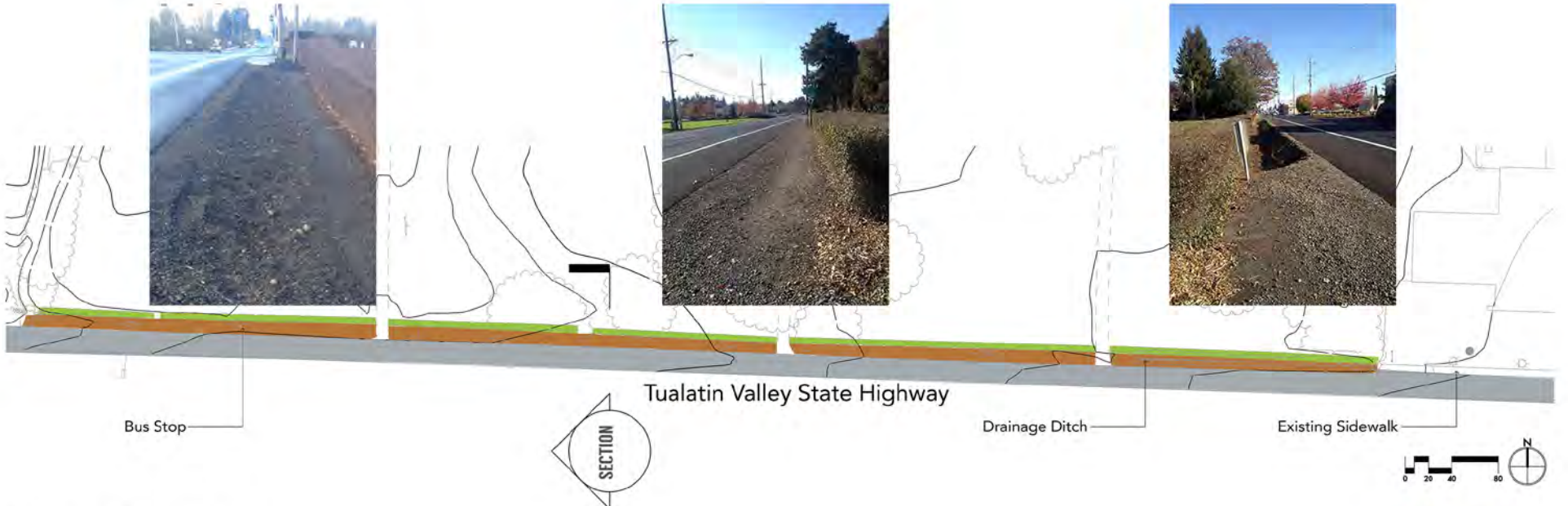
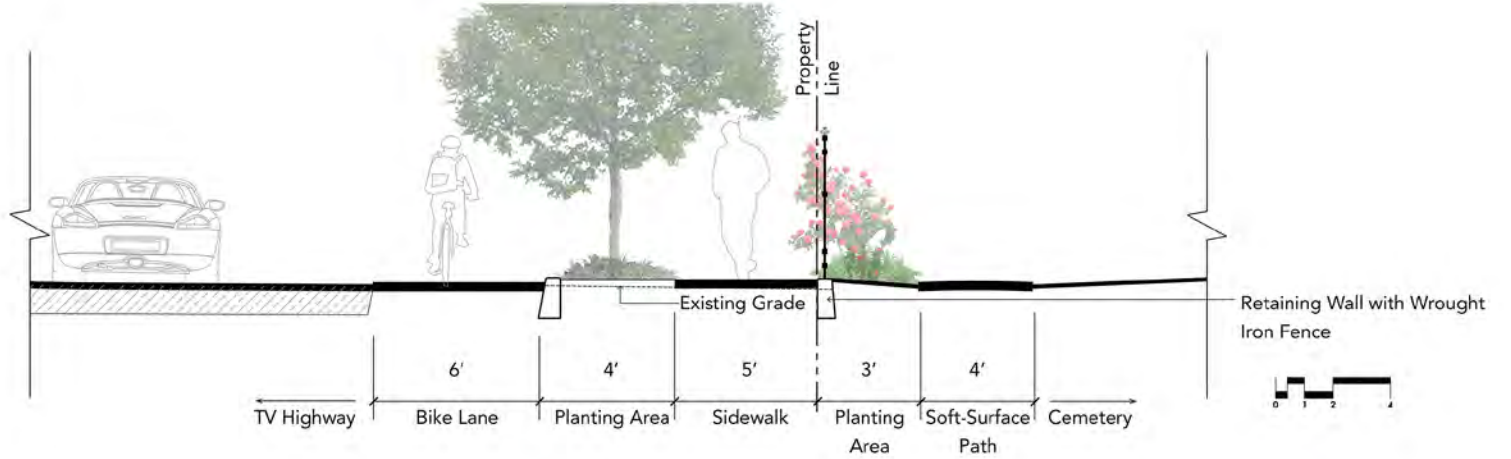
MASTER PLAN CONCEPT

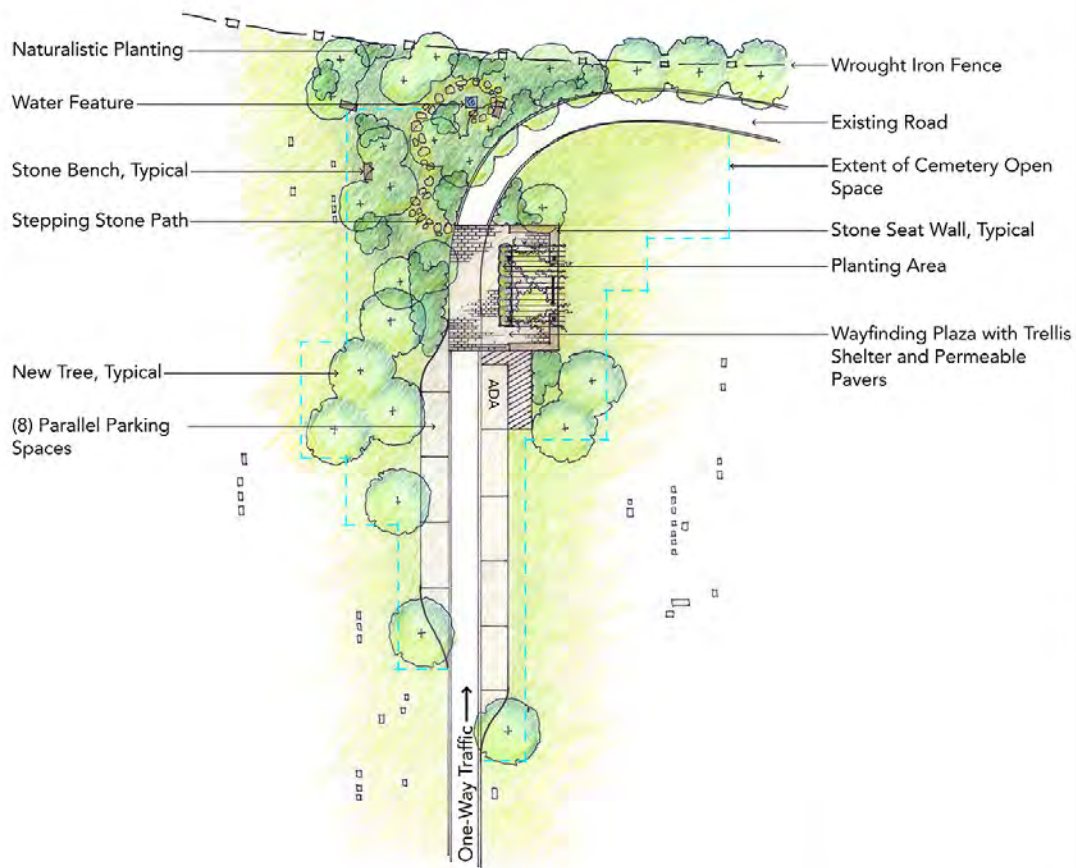
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SECTION



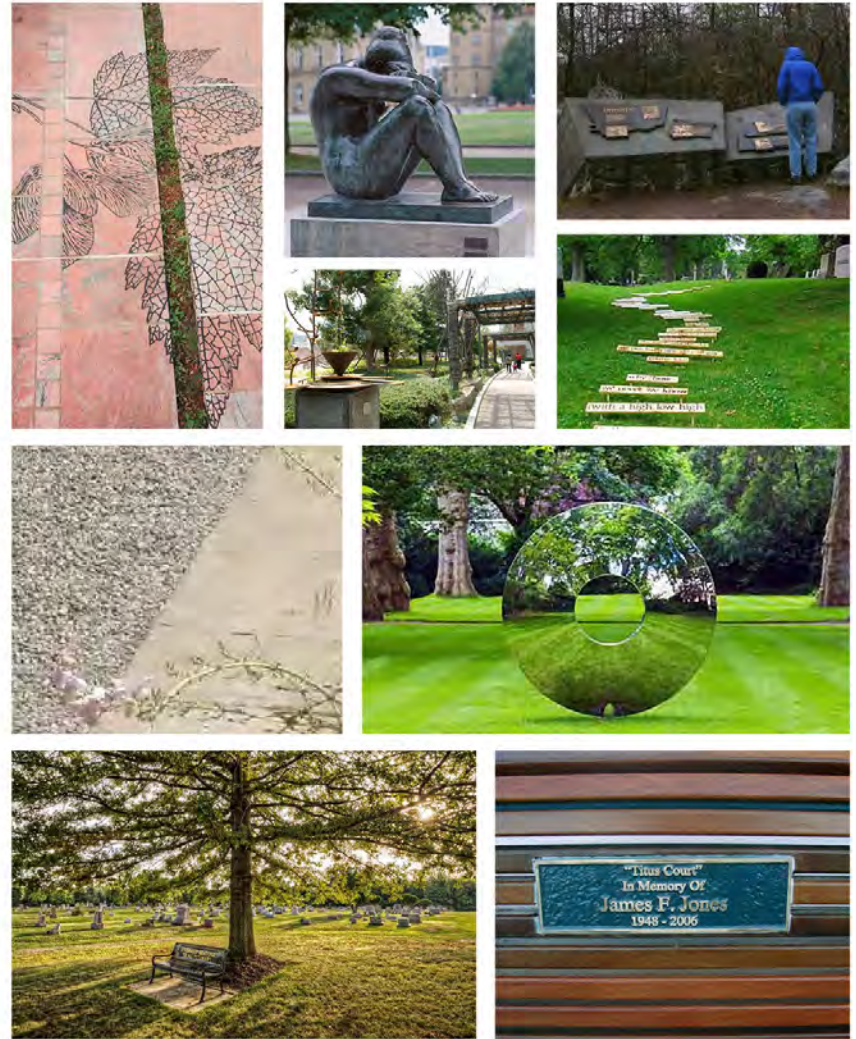
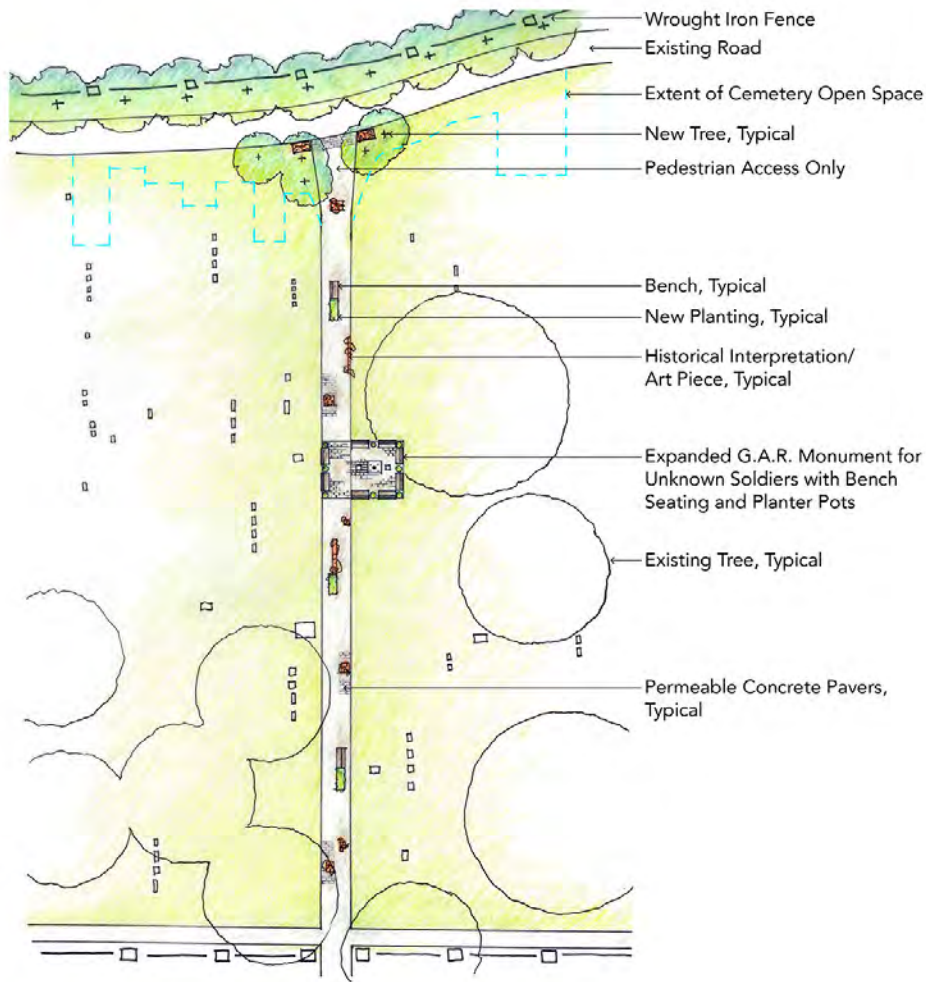


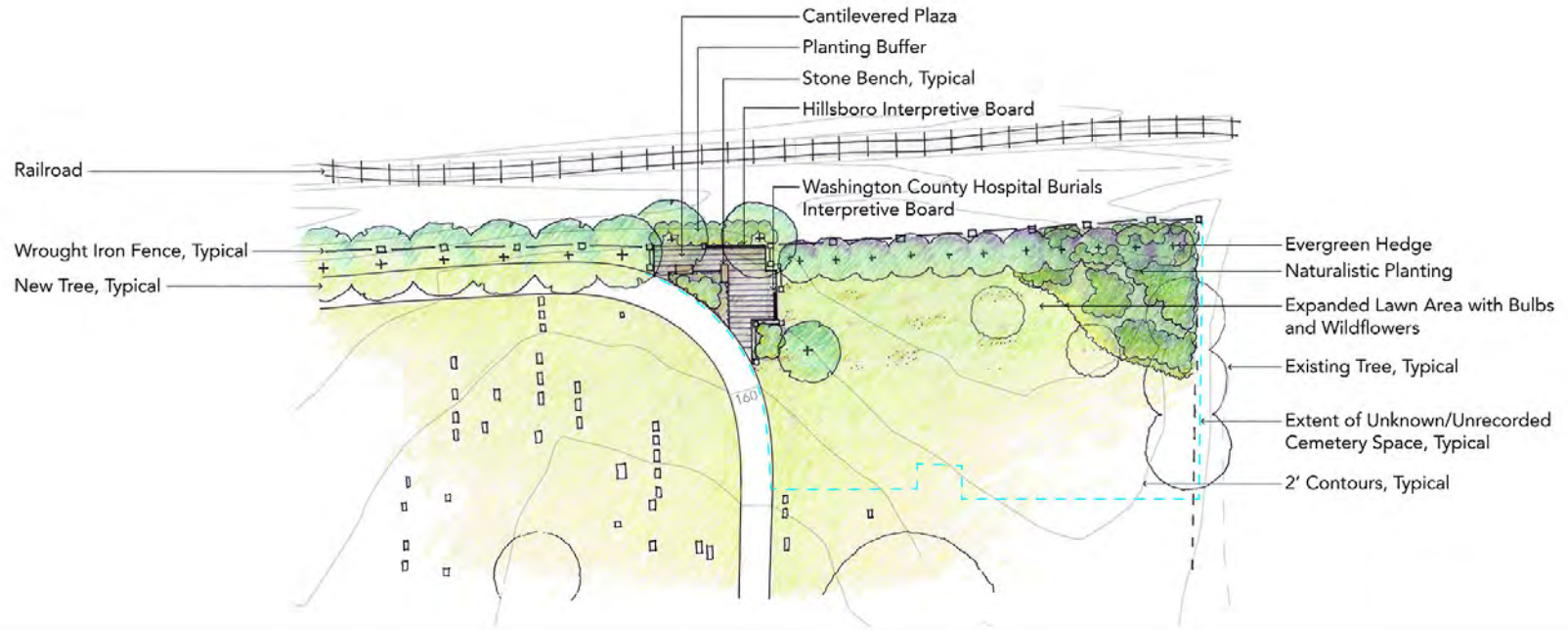
WAYFINDING PLAZA AND GROTTO GARDEN

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Willamette Cultural Resources Associates





MEMORIAL OVERLOOK

Hillsboro Pioneer Cemetery Master Plan



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 Willamette Cultural Resources Associates

as these can cause damage to the stone. Cleaning agents such as D/2 Biological Solution or non ionic cleansers such as Photo-Flo, a photography product, are considered safe. Common household abrasive products should never be used. Particularly fragile or crumbling stones should not be cleaned.

Careful assessment should be made before undertaking headstone repair. The historical context and condition of each stone must be carefully considered. In some cases stones may be endangering public safety as they pose potential fall hazards. It has been a common practice in the past to repair broken or falling headstones using blind pinning techniques and infill with resins or Portland Cement to piece together broken stones. These types of repairs can cause damage to the integrity of the stone. Infill materials containing Portland Cement can expand and contract with changes in the weather causing headstones to crack. Resins can harden in the elements resulting in repair failure. Drilling required for blind pinning can damage fragile stone material.

Jahn Restoration Mortars is considered reliable material for patching and infill work, and a three day restoration seminar is required before orders can be filled for this product. It is recommended that a specialist in grave stone repair lead conservation and preservation efforts. Jonathan Appell, a renowned monuments conservator, has written articles detailing the proper processes and recommended materials for cleaning and restoration of headstones. His articles can be found be through the following link.

Mr. Appell also lectures and leads preservation training workshops, and has previously led a headstone preservation



workshop at the Hillsboro Pioneer Cemetery. More information about Mr. Appell can be found on his website.

Additional references for proper care of headstones is available from the Department of Veterans Affairs National Cemetery Administration.

The Association for Gravestone Studies has good information for resetting and repairing falling or broken stones.

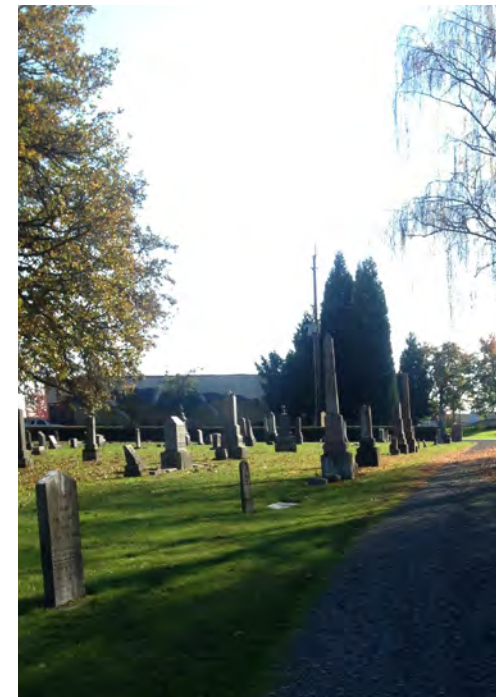
Products recommended by Mr. Appell as safe for cleaning and repair of headstones can be found through the following websites.



CAUTION

Historic monuments may be unstable. Falling monuments can injure or kill.

Please do not lean against, climb on or play around structures in the cemetery.





Western Red Cedar



Oak



Serviceberry



Juniper



Yew



Dorothy Perkins Rambling Rose



Lilac



Heavenly Bamboo



Azalea



Bridal Wreath Spirea



Calla Lily



Forsythia



Rosemary



Echinacea



Narcissus



Oregon Iris



Orange Daylily



Trillium



Crocus



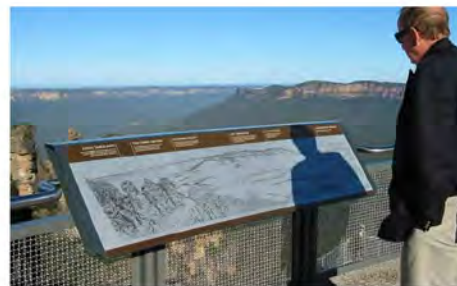
Comfrey

PLANTING PALETTE

Hillsboro Pioneer Cemetery Master Plan



Lango Hansen Landscape Architects
Willamette Cultural Resources Associates



SITE FURNISHINGS

Hillsboro Pioneer Cemetery Master Plan



Lango Hansen Landscape Architects
Willamette Cultural Resources Associates

| HILLSBORO PIONEER CEMETERY | | | | | | | | |
|--|--|----------|-------|-------------|----------|------------------|------------------|-------|
| Master Plan Cost Estimate | | | | | | | | |
| Lango Hansen Landscape Architects | | | | | | | | |
| Item | | Quantity | Unit | Cost/Unit | Cost | Subtotal | Total | Notes |
| *Note: Allow an additional cost of 4% per year for inflation | | | | | | | | |
| 1 RIGHT OF WAY | | | | | | | | |
| | Survey Work | 1 | LS | \$10,000.00 | \$10,000 | | | |
| | Traffic Control | 1 | LS | \$10,000.00 | \$10,000 | | | |
| | Sawcut Asphalt | 1,140 | LF | \$1.50 | \$1,710 | | | |
| | Fine Grading and Soil Amendment | 10,260 | SF | \$0.25 | \$2,565 | | | |
| | Storm Utilities | 1 | Allow | \$50,000.00 | \$50,000 | | | |
| | 6" Concrete Curb/Gutter | 1,140 | LF | \$20.00 | \$22,800 | | | |
| | Pedestrian Concrete Paving | 5,360 | SF | \$10.00 | \$53,600 | | | |
| | Patch Asphalt | 1,140 | SF | \$2.50 | \$2,850 | | | |
| | Bike Lane Striping | 1 | LS | \$1,000.00 | \$1,000 | | | |
| | Import Topsoil, 24" depth | 340 | CY | \$30.00 | \$10,200 | | | |
| | Irrigation Infrastructure | 1 | LS | \$40,000.00 | \$40,000 | | | |
| | Irrigation | 4,560 | SF | \$1.50 | \$6,840 | | | |
| | Shrubs and Groundcover | 4,560 | SF | \$3.00 | \$13,680 | | | |
| | Trees | 38 | EA | \$600.00 | \$22,800 | | | |
| Subtotal | | | | | | \$248,045 | | |
| | Design, Engineering and Permits | | | 40% | \$99,218 | | | |
| | Mobilization | | | Allow | \$10,000 | | | |
| | Construction Contingency | | | 5% | \$12,402 | | | |
| | Estimating Contingency | | | 10% | \$24,805 | | | |
| | General Conditions, Insurance, Bond | | | 10% | \$24,805 | | | |
| | General Contractor Overhead and Profit | | | 4% | \$9,922 | | | |
| Subtotal | | | | | | \$181,151 | | |
| TOTAL - Right of Way | | | | | | | \$429,196 | |
| 2 STREET FRONTAGE | | | | | | | | |
| | Hedge Demolition | 1 | LS | \$1,500.00 | \$1,500 | | | |
| | Fine Grading and Soil Amendment | 7,980 | SF | \$0.25 | \$1,995 | | | |
| | Soft Surface Path | 4,288 | SF | \$2.50 | \$10,720 | | | |
| | Concrete Curb Wall, 2' ht | 1,140 | LF | \$50.00 | \$57,000 | | | |
| | Wrought Iron Fence | 1,140 | LF | \$75.00 | \$85,500 | | | |
| | Irrigation | 3,420 | SF | \$1.50 | \$5,130 | | | |
| | Shrubs and Groundcover | 3,420 | SF | \$3.00 | \$10,260 | | | |
| Subtotal | | | | | | \$172,105 | | |
| | Design, Engineering and Permits | | | 20% | \$34,421 | | | |
| | Mobilization | | | Allow | \$10,000 | | | |

| | | | | | | | | |
|--------------------------|--|--|-------|-----|-------------|-----------|------------------|--|
| | Construction Contingency | | | 5% | \$8,605 | | | |
| | Estimating Contingency | | | 10% | \$17,211 | | | |
| | General Conditions, Insurance, Bond | | | 10% | \$17,211 | | | |
| | General Contractor Overhead and Profit | | | 4% | \$6,884 | | | |
| | Subtotal | | | | | | \$94,331 | |
| | TOTAL - Street Frontage | | | | | | | \$266,436 |
| 3 NEW ENTRY GATE | | | | | | | | |
| | Entry Gate | | 1 | LS | \$15,000.00 | \$15,000 | | |
| | Subtotal | | | | | | \$15,000 | |
| | Construction Contingency | | | 5% | \$750 | | | |
| | Estimating Contingency | | | 10% | \$1,500 | | | |
| | General Conditions, Insurance, Bond | | | 10% | \$1,500 | | | |
| | General Contractor Overhead and Profit | | | 4% | \$600 | | | |
| | Subtotal | | | | | | \$4,350 | |
| | TOTAL - New Entry Gate | | | | | | | \$19,350 |
| 4 PERIMETER FENCE | | | | | | | | |
| | Option A: | | | | | | | |
| | Wrought Iron Fence, 6' height | | 1,750 | LF | \$75.00 | \$131,250 | | Wrought Iron Fence at Street Frontage and Memorial Overlook included with those Package Costs, Typical |
| | Subtotal | | | | | | \$131,250 | |
| | Construction Contingency | | | 5% | \$6,563 | | | |
| | Estimating Contingency | | | 10% | \$13,125 | | | |
| | General Conditions, Insurance, Bond | | | 10% | \$13,125 | | | |
| | General Contractor Overhead and Profit | | | 4% | \$5,250 | | | |
| | Subtotal | | | | | | \$38,063 | |
| | TOTAL - Option A, Wrought Iron | | | | | | | \$169,313 |
| | Option B: | | | | | | | |
| | Black Chain Link Fence, 6' height | | 1,750 | LF | \$35.00 | \$61,250 | | |
| | Subtotal | | | | | | \$61,250 | |
| | Construction Contingency | | | 5% | \$3,063 | | | |
| | Estimating Contingency | | | 10% | \$6,125 | | | |
| | General Conditions, Insurance, Bond | | | 10% | \$6,125 | | | |
| | General Contractor Overhead and Profit | | | 4% | \$2,450 | | | |
| | Subtotal | | | | | | \$17,763 | |

| | | | | | | |
|---|--|--------|-------|-------------|----------|------------------|
| TOTAL - Option B, Chain Link | | | | | | \$79,013 |
| 5 VEHICULAR CIRCULATION | | | | | | |
| | Retaining Walls at Entry Access, 2' height | 38 | LF | \$60.00 | \$2,280 | |
| | Concrete Edging | 2,510 | LF | \$25.00 | \$62,750 | |
| | Top Dress Existing Gravel | 13,800 | SF | \$1.00 | \$13,800 | |
| Subtotal | | | | | | \$78,830 |
| | Design, Engineering and Permits | | | 20% | \$15,766 | |
| | Mobilization | | | Allow | \$10,000 | |
| | Construction Contingency | | | 5% | \$3,942 | |
| | Estimating Contingency | | | 10% | \$7,883 | |
| | General Conditions, Insurance, Bond | | | 10% | \$7,883 | |
| | General Contractor Overhead and Profit | | | 4% | \$3,153 | |
| Subtotal | | | | | | \$48,627 |
| TOTAL - Vehicular Circulation | | | | | | \$127,457 |
| 6 WAYFINDING PLAZA AND GROTTO GARDEN | | | | | | |
| Wayfinding Plaza and Parking Area | | | | | | |
| | Roadway Demolition | 440 | SF | \$2.00 | \$880 | |
| | Clear and Grub | 4,633 | SF | \$0.10 | \$463 | |
| | Fine Grading and Soil Amendment | 4,633 | SF | \$0.25 | \$1,158 | |
| | Permeable Concrete Unit Pavers | 3,305 | SF | \$15.00 | \$49,575 | |
| | 6" Concrete Curb | 141 | LF | \$25.00 | \$3,525 | |
| | Metal Edging | 185 | LF | \$8.00 | \$1,480 | |
| | Pavement Markings | 8 | stall | \$15.00 | \$120 | |
| | Handicap Symbol | 1 | stall | \$75.00 | \$75 | |
| | Handicap Signage | 1 | EA | \$200.00 | \$200 | |
| | Waste Receptacle | 2 | LS | \$1,300.00 | \$2,600 | |
| | Dry Stack Stone Wall | 50 | LF | \$45.00 | \$2,250 | |
| | Trellis Shelter | 1 | LS | \$20,000.00 | \$20,000 | |
| | Wayfinding Signage | 1 | LS | \$5,000.00 | \$5,000 | |
| | Irrigation | 1,510 | SF | \$1.50 | \$2,265 | |
| | Shrubs and Groundcover | 1,510 | SF | \$3.00 | \$4,530 | |
| | Trees | 14 | EA | \$600.00 | \$8,400 | |
| Subtotal | | | | | | \$102,522 |
| | Design, Engineering and Permits | | | 20% | \$20,504 | |
| | Mobilization | | | Allow | \$5,000 | |
| | Construction Contingency | | | 5% | \$5,126 | |
| | Estimating Contingency | | | 10% | \$10,252 | |
| | General Conditions, Insurance, Bond | | | 10% | \$10,252 | |

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|---|--|-------|----|-------------|----------|-----------------|--|
| | General Contractor Overhead and Profit | | | 4% | \$4,101 | | |
| Subtotal | | | | | | \$55,236 | |
| TOTAL - Wayfinding Plaza | | | | | | | \$157,757 |
| Grotto Garden | | | | | | | |
| | Clear and Grub | 4,030 | SF | \$0.10 | \$403 | | |
| | Fine Grading and Soil Amendment | 4,030 | SF | \$0.25 | \$1,008 | | |
| | Stepping Stone Pathway | 108 | LF | \$7.50 | \$810 | | |
| | Water Feature | 1 | LS | \$50,000.00 | \$50,000 | | |
| | Stone Benches | 3 | EA | \$2,500.00 | \$7,500 | | |
| | Irrigation | 4,030 | SF | \$1.50 | \$6,045 | | |
| | Shrubs and Groundcover | 4,030 | SF | \$3.00 | \$12,090 | | |
| | Trees | 15 | EA | \$600.00 | \$9,000 | | |
| Subtotal | | | | | | \$86,856 | |
| | Design, Engineering and Permits | | | 20% | \$17,371 | | |
| | Mobilization | | | Allow | \$5,000 | | |
| | Construction Contingency | | | 5% | \$4,343 | | |
| | Estimating Contingency | | | 10% | \$8,686 | | |
| | General Conditions, Insurance, Bond | | | 10% | \$8,686 | | |
| | General Contractor Overhead and Profit | | | 4% | \$3,474 | | |
| Subtotal | | | | | | \$47,559 | |
| TOTAL - Grotto Garden | | | | | | | \$134,415 |
| TOTAL - Wayfinding Plaza and Grotto Garden | | | | | | | \$292,172 |
| 7 HERITAGE WALK | | | | | | | |
| | Roadway Demolition | 1,030 | SF | \$2.00 | \$2,060 | | Remove Gravel Road for Narrowing North Access and at New Permeable Concrete Pavers |
| | Concrete Demolition at G.A.R. Monument | 100 | SF | \$2.00 | \$200 | | |
| | Top Dress Existing Gravel | 2,485 | SF | \$1.00 | \$2,485 | | |
| | Concrete Edging | 567 | LF | \$15.00 | \$8,505 | | |
| | Permeable Concrete Unit Pavers | 609 | SF | \$15.00 | \$9,135 | | |
| | Metal Edging | 310 | LF | \$8.00 | \$2,480 | | |
| | Flag Pole and Footing | 1 | LS | \$2,500.00 | \$2,500 | | |
| | Uplighting at Flag Pole | 2 | EA | \$1,500.00 | \$3,000 | | |
| | Monument Setting | 1 | LS | \$10,000.00 | \$10,000 | | |
| | Benches | 10 | EA | \$1,500.00 | \$15,000 | | |
| | Entry Monuments | 3 | EA | \$1,500.00 | \$4,500 | | |
| | Interpretive Signage | 2 | EA | \$5,000.00 | \$10,000 | | |

| | | | | | | | | |
|--|--|--|-------|----|-------------|----------|------------------|--|
| | Planters | | 8 | EA | \$1,300.00 | \$10,400 | | |
| | Fine Grading and Soil Amendment | | 100 | SF | \$0.25 | \$25 | | |
| | Irrigation | | 100 | SF | \$1.50 | \$150 | | |
| | Shrubs and Groundcover | | 100 | SF | \$3.00 | \$300 | | |
| | Trees | | 8 | EA | \$600.00 | \$4,800 | | Includes trees proposed in site open areas |
| | Clear and Grub | | 1,160 | SF | \$0.10 | \$116 | | At New Pedestrian Path in Historic Roadway |
| | Soft Surface Pedestrian Path | | 1,160 | SF | \$3.00 | \$3,480 | | |
| | Seeding Disturbed Areas | | 1,030 | SF | \$0.15 | \$155 | | |
| | Subtotal | | | | | | \$89,291 | |
| | Design, Engineering and Permits | | | | 20% | \$17,858 | | |
| | Mobilization | | | | Allow | \$10,000 | | |
| | Construction Contingency | | | | 5% | \$4,465 | | |
| | Estimating Contingency | | | | 10% | \$8,929 | | |
| | General Conditions, Insurance, Bond | | | | 10% | \$8,929 | | |
| | General Contractor Overhead and Profit | | | | 4% | \$3,572 | | |
| | Subtotal | | | | | | \$53,752 | |
| | TOTAL - Heritage Walk | | | | | | \$143,043 | |
| | <i>*Note: Cost Estimate does not include Art Pieces or Plinths</i> | | | | | | | |
| | 8 MEMORIAL OVERLOOK | | | | | | | |
| | Clear and Grub | | 9,100 | SF | \$0.10 | \$910 | | |
| | Tree Removal | | 10 | EA | \$300.00 | \$3,000 | | |
| | Fine Grading and Soil Amendment | | 9,100 | SF | \$0.25 | \$2,275 | | |
| | Wood Deck | | 1 | LS | \$30,000.00 | \$30,000 | | |
| | Wrought Iron Fence | | 70 | LF | \$75.00 | \$5,250 | | |
| | Stone Benches | | 2 | EA | \$2,500.00 | \$5,000 | | |
| | Interpretive Signage | | 2 | EA | \$5,000.00 | \$10,000 | | |
| | Seeding | | 4,375 | SF | \$0.15 | \$656 | | |
| | Irrigation | | 4,015 | SF | \$1.50 | \$6,023 | | |
| | Shrubs and Groundcover | | 4,015 | SF | \$3.00 | \$12,045 | | |
| | Trees | | 14 | EA | \$600.00 | \$8,400 | | |
| | Subtotal | | | | | | \$83,559 | |
| | Design, Engineering and Permits | | | | 20% | \$16,712 | | |
| | Mobilization | | | | Allow | \$10,000 | | |
| | Construction Contingency | | | | 5% | \$4,178 | | |
| | Estimating Contingency | | | | 10% | \$8,356 | | |
| | General Conditions, Insurance, Bond | | | | 10% | \$8,356 | | |

| | | | | | | | | |
|---|--|-------|----|----------|----------|-----------|-----------------|--------------------|
| | General Contractor Overhead and Profit | | | 4% | \$3,342 | | | |
| Subtotal | | | | | | | \$50,944 | |
| TOTAL - Memorial Overlook | | | | | | | | \$134,503 |
| 9 EDGE IMPROVEMENTS AND OVERFLOW PARKING | | | | | | | | |
| | Tree Removal | 42 | EA | \$300.00 | \$12,600 | | | |
| | Clear and Grub | 5,910 | SF | \$0.10 | \$591 | | | |
| | Light Grading | 2,500 | SF | \$10.00 | \$25,000 | | | |
| | Top Dress Ex. Gravel at Overflow Parking | 2,500 | SF | \$3.00 | \$7,500 | | | |
| | Soil Preparation | 5,910 | SF | \$0.25 | \$1,478 | | | |
| | Irrigation | 5,910 | SF | \$1.50 | \$8,865 | | | |
| | Shrubs and Goundcover | 5,910 | SF | \$3.00 | \$17,730 | | | |
| | Trees | 27 | EA | \$600.00 | \$16,200 | | | |
| Subtotal | | | | | | | \$89,964 | |
| | Design, Engineering and Permits | | | 20% | \$17,993 | | | |
| | Mobilization | | | Allow | \$10,000 | | | |
| | Construction Contingency | | | 5% | \$4,498 | | | |
| | Estimating Contingency | | | 10% | \$8,996 | | | |
| | General Conditions, Insurance, Bond | | | 10% | \$8,996 | | | |
| | General Contractor Overhead and Profit | | | 4% | \$3,599 | | | |
| Subtotal | | | | | | | \$54,082 | |
| TOTAL - Edge Improvements and Overflow Parking | | | | | | | | \$144,046 |
| TOTAL - MASTER PLAN | | | | | | | | \$1,725,515 |
| <i>*Note: Total Cost Estimate includes Fence Option A</i> | | | | | | | | |
| SUMMARY COST | | | | | | | | |
| | Package | | | | | Subtotal | Total | Notes |
| | 1 Right of Way | | | | | \$429,196 | | |
| | 2 Street Frontage | | | | | \$266,436 | | |
| | 3 New Entry Gate | | | | | \$19,350 | | |
| | 4 Perimeter Fence Option A | | | | | \$169,313 | | |
| | 5 Vehicular Circulation | | | | | \$127,457 | | |
| | 6 Wayfinding Plaza and Grotto Garden | | | | | \$292,172 | | |
| | 8 Heritage Walk | | | | | \$143,043 | | |
| | 9 Memorial Overlook | | | | | \$134,503 | | |
| | 10 Edge Improvements and Overflow Parking | | | | | \$144,046 | | |
| TOTAL - MASTER PLAN | | | | | | | | \$1,725,515 |

