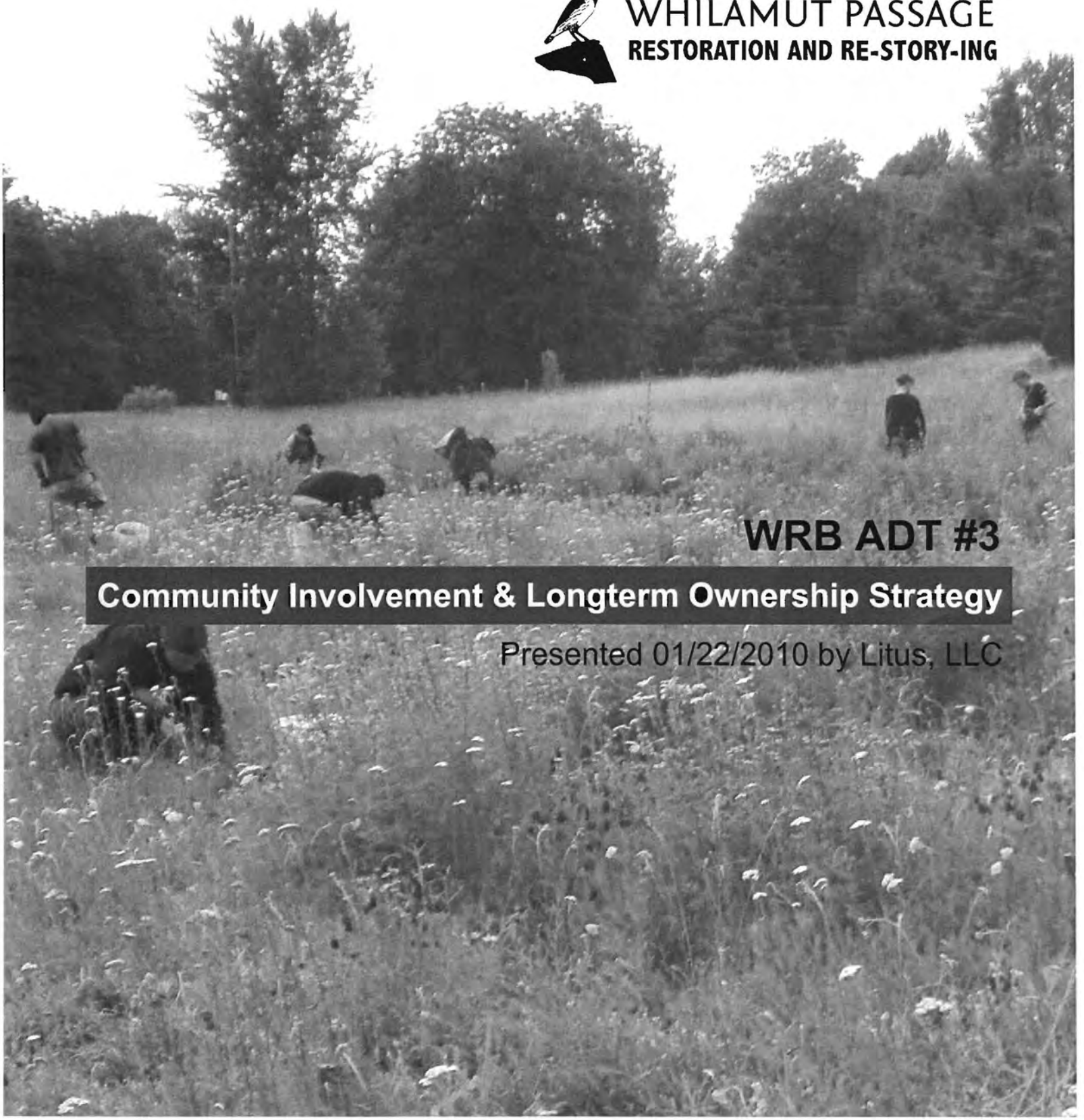
WHILAMUT PASSAGE
RESTORATION AND RE-STORY-ING



WRB ADT #3

Community Involvement & Longterm Ownership Strategy

Presented 01/22/2010 by Litus, LLC

Oregon Department of Transportation

OBEC

LCOG
Lane Council of Governments

EUGENE

SPRINGFIELD
OREGON

CILOS: Community Involvement & Long-term Ownership Strategy

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CILOS: Community Involvement & Long-term Ownership Strategy Executive Summary

Community-Based Approach

Considering the costs and benefits of hiring independent contractors, our team concluded that the most effective approach would be to collaborate with students and educators to achieve on-the-ground restoration and community stewardship goals. This approach would require a paid coordinator and could utilize an Americorps member to implement cost-effectively. Through involving students and community members to install and maintain native habitat in Alton Baker Park, we hope to build a community that is more knowledgeable, engaged and invested in stewardship for the long-term.

Adopt-a-Plot

In our plan, each of fourteen schools will adopt a quarter-acre plot, which they will restore over five years using enclosed work plan. In addition to restoration work, students will have education plans tailored by their teachers about the site, integrating core educational standards with the work they are doing, from writing and math to reflection, art and public presentation. Students may be involved in monitoring and research efforts, as well.

Americorps Member paired with Program Coordinator

A Project Coordinator with extensive knowledge of Willamette Valley ecosystems will guide an Americorps member. Schools will be provided with sets of fifteen booklets on Willamette Valley Prairie Plants developed by the Project Coordinator that teachers can use to prepare students, and that students can use in the field to facilitate knowledgeable work.

Existing Elements

Currently, educational stewardship includes ongoing restoration in the Walama Butterfly Meadow, ongoing restoration in Wildflower Hollow Riparian Forest, ongoing restoration efforts in "pods" of shrubs on west side of landfill, as well as other City of Eugene projects in the park. Walama and Nearby Nature are currently doing restoration parties with Churchill High School's Rachel Carson School, Network Charter School, Village School, Cesar Chavez Elementary, Looking Glass, and Hamlin Middle School.

Foreseen Impact

Fourteen schools would be involved, with groups of 20-40 students per school, working for three years is 840 to 1680 students, assuming only one class per school is involved. Restoration parties are typically three hours long, times two restoration parties per year (transport provided; schools could increase this by adding transportation funding) is six hours per student plus any adult chaperones, bring the number of hours to 5,040 to 10,080 student volunteer hours.

The physical result of this work would be three and a half acres of Willamette Valley Upland and Wetland Prairie Habitat restored from existing weedy vegetation to native vegetation on enriched soil. The social result of this work would be that 840 to 1680 students engaged actively in their urban greenspace to restore and steward it, with some of those students also doing public education and outreach activities to enrich the community at large. An inspired fourth grader can have tremendous impact on their family's behavior.

Restoration would provide a mosaic of habitat for native animals, including butterflies, moths, bees, other insects, arachnids, vesper sparrow, grasshopper sparrow, gopher snake, western fence lizard, pacific tree frog, killdeer, and with public education, we might even have a pair of nesting meadowlarks, Oregon's State Bird. The public would have opportunities to view these animals in the prairie, on singing perches, on rock piles and in vernal pools.

Community Stewardship in Eco-Restoration

The restoration of prairie habitat at this site involves a large amount of planning and effort to successfully implement the project. One approach to implementation would involve the hiring of a contractor to complete a certain amount of work for a said price.
This process often leaves out the long-term maintenance necessary to insure the success of the transition to a functioning ecosystem. There is also a limited knowledge base of the appropriate plant communities, due to the highly imperiled state of our valleys prairies. The scope of work in this land rehabilitation effort with the amount of funding that exists for it may best be achieved by establishing a collaborative effort with the larger local community.

Many benefits would come from a community-focused restoration effort. Dollars would stretch further with certain maintenance and implementation efforts fueled by volunteers. A sense of ownership would be expanded onto the local community helping curb site obstacles such as vandalism. Utilizing this platform as more of a living laboratory would help expand the local knowledge base of imperiled valley habitats.

The local community could be involved in various fashions. Regular community work parties would be established at appropriate times of the year when maintenance/implementation efforts are most needed. Reaching out to schools throughout our area will help pass the stewardship torch onto the next generation. This could bring lots of hands to help and much needed environmental curricula to local schools. Businesses, church-groups, and fraternities/sororities are often looking for volunteer activities large enough to accommodate the size of their entire group. Restoration activities would provide such a niche for said organizations.

A community-focused restoration effort will need a central coordinator/organization or group of organizations to facilitate. A North-West Service Academy Americorps member would provide a .75 FTE Coordinator. A collaborative effort between community-based organizations and local governments would provide a strong core to insure the project's successful implementation.

Components of Habitat Restoration

Obstacles to Restoration

Habitat restoration on this site presents certain obstacles, yet has great potential. Obstacles to the restorative process will require solutions that are both innovative and comprehensive. Invasive vegetation, vandalism, funding, poor quality sub-soils, and restoring a native landscape over a landfill with a thin cap are all clear obstacles. Overcome however, the opportunities are ripe for the reestablishment of some of the most critically imperiled habitat in the United States.

Emphasis on Forbs

The relatively thin cap of the landfill creates hazards for deep tap-rooted species such as trees and shrubs. With these conditions in mind, a prairie habitat with a high emphasis on native forbs would be the most appropriate landscape to install. Declining prairie habitats once covered roughly half of the Willamette Valley. Presently, there is less than half of one percent remaining. Of these, exotic vegetation, agriculture, development and the absence of regular burning are a constant threat to their long-term survival.

Site Preparation

The existence of exotic vegetation at this site will require some site preparation before installing appropriate native vegetation. Due to the close proximity to the Willamette River, chemical herbicides are not an option. Techniques employed should clear the landscape from exotic vegetation without leaving residual toxic compounds that could hamper pollinator activity.

Habitat Mosaic

The prairies of the Willamette Valley varied in topography. Species present in a given area fluctuated based upon the topography and hydrology of that area. The topography of this site varies enough to support the establishment of a mosaic of an upland and wetland prairie habitat type. The distinction can be drawn along the lines that define the delineated wetlands.

Restoration Strategy for Prairie Habitats

Upland Prairie with an emphasis on forbs

Prior to site preparation, *Rubus armenius* needs to be physically removed from the site. This will be accomplished by mowing and removing the canes, followed by the grubbing of the root crowns. The site will be prepared by mulching with two to four feet of deciduous leaf material. Leaves will be left in place to break down and shade out exotic vegetation for two growing seasons. Leaf material could be acquired for free through the City of Eugene's street leaf collection program. The poor quality sub-soils present will benefit from the addition of large quantities of organic matter such as leaves. Perennial native forbs need to be propagated starting in autumn one year before planting at site. After transplanting starts of native forbs, annual forb seeds should be sown. Native grass seed should be sown one to two autumns after forb planting. This time variance will depend upon how well forb species are establishing themselves. Prairie habitats should be selectively weeded for two to three years after planting to remove exotic perennial grass and forb species. Seeds for upland species should be genetically sourced from the southern Willamette Valley. All seed sources should be within twenty-five miles of Eugene.

Wetland Prairie

The delineated wetland status of parts of this site will require site preparation without the addition of any fill material. The site in this area will be cleared of exotic vegetation by placing a shading fabric over the ground for two growing seasons. This material can be held in place by either 1x2x24" wooden stakes or large rocks. Large rocks would be reassembled on site into habitat piles. Perennial native forbs need to be propagated starting in autumn one year before planting at site. After transplanting starts of native forbs, annual forb seeds should be sown. Native grass seed should be sown one to two autumns after forb planting. This time variance will depend upon how well forb species are establishing themselves. Prairie habitats should be selectively weeded for two to three years after planting to remove exotic perennial grass and forb species. Seeds for wetland species should be genetically sourced from the southern Willamette Valley. All seed sources should be within twenty-five miles of Eugene.

Habitat enhancement features for birds and herps

Singing perches need to be installed to improve habitat for Western Meadowlark. Installing rock piles will help create habitat for small reptiles and amphibians. Combined, these two enhancement features provide habitat without puncturing the thin landfill cap.

To install the rock piles with singing perches, lay shade fabric down to prevent vegetation from engulfing rock piles, sink a 4" steel pipe into a small concrete form, install the wooden perch, then build the rock pile around it. Rock piles should be eight feet across and at least three feet high using rocks around ten to twelve inches across. Wooden singing perches could then be mounted in the steel housing pipe and easily replaced when degraded.

Components of Habitat Restoration

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Plot Adoption Program

The integration of local schools into the restoration of habitat would be achieved through an Adopt-A-Plot program. This would involve a school adopting a small portion of the area to be restored to prairie habitat. Plots would be roughly a quarter-acre in size. Schools would be recruited to participate in service learning projects focusing on implementation of restoration protocol.

A service learning recruitment program of this nature would require adequate coordination to facilitate. An Americorps member guided by a Project Coordinator would facilitate community involvement. The project coordinator would need to have extensive experience in the restoration of Willamette Valley ecosystems to efficiently coordinate restoration.

Plant propagation for restoration would take place mostly at various schools throughout our community. A cooperative effort between the project coordinator and the City of Eugene's Native Plant Nursery would also help facilitate the propagation necessary for restoration. Service learning field trips to the site would be timed with the implementation of necessary restoration components. Generally, two field trips per school per year would be required for a successful project.

Plot adoption would also occur with local community groups working to restore habitat. Large community groups looking for volunteer activities would be recruited to participate in the plot adoption process. Local churches, businesses, and organizations from higher learning institutions would be among the community groups recruited for project involvement.

Education Plan

Through involving students and community members to install and maintain native habitat in Alton Baker Park, we hope to build a community that is more knowledgeable, engaged and invested in stewardship. In our plan, each of fourteen schools will adopt a quarter-acre plot, which they will restore over five years using our implementation plan. In addition to restoration work, students will have education plans tailored by their teachers about the site, integrating core educational standards with the work they are doing, from writing and math to reflection, art and public presentation. Students may be involved in monitoring and research efforts, as well.

This project will be implemented by an Americorps member with an organization, oriented and supervised by a Project Coordinator. Schools will be provided with booklets on Willamette Valley Prairie Plants that teachers can use to prepare students, and that students can use in the field to facilitate knowledgeable work. The Project Coordinator would put the booklet together and orient teachers on its use.

1) Recruit schools.
   a. Identify schools with existing ties to the site and/or schools that are geographically close to the site. Include schools that have attended field trips, work parties, or had classroom visits. If more than fourteen schools commit, pair middle and high school classes with elementary school classes to facilitate mentorship and collaboration.
   b. If additional schools are needed, identify schools that would like students to spend more time doing project-based learning, stewardship, community involvement, hands-on science activities, outdoor education and/ or place-based learning.
2) If a teacher or parent project champion is not obvious, schedule presentations at staff and PTO meetings to find teacher and/ or parent project champion(s).
3) With teachers, schedule classroom visits, busses and follow-up visits as needed. If funding exists, schedule additional bus visits to site.
4) Orient teachers to field site, implementation plan, how to use the field guide/ plants manual "Seeding to Seedling ©," resource binder with existing curriculum pieces and how to connect field studies to state standards.
5) Ascertain if there are additional needs for classroom study opportunities. For advanced and/or students who choose to do further community service on the site, assist teachers as needed in guiding them in setting up monitoring research, writing articles and public education pieces for local media, developing presentations to other schools and grades. Collect all appropriate site data in central location at an organization. This can be used as a student leadership development opportunity, as well.
6) Follow up with regular check-in. Teachers may want to meet monthly to network and share ideas, or they might prefer to work independently. Help teachers present their class' work to their community, i.e., submit interesting reports and/or photos to their school newsletter/ website, send updates to the principal and PTO, etc. Maintain file of these publications for institutional memory, grant writing and program development.
7) Have teachers submit reviews of how the program is going, including any assessments of the students' learning, anecdotal observation, how the teacher is feeling about the program, and possibilities for expansion within the school to other classes.

Connecting Stewardship to Educational Standards

Example Activities for Engaging Local Schools

Science, Math, Language Arts, Arts, PE, Social and Communication Skills

a. Planting: **Scarify, Stratify, Germini*** (Target Grades 8-12) Students harvest prairie seed in the fall from local road ditches or other known locations, strip and store the seed, cold or hot stratify the seed, and propagate seed in a school greenhouse or under grow lights. They will be able to identify plants of the prairie and collect seeds from these remnants in a local ecotype.

b. Litter removal: **Signs of Life*** - This activity allows students to see the signs made by animals on the prairie that may not be active at the time of their visit. These animals can then be categorized into habitat types and classified by the diet they eat.

c. Invasives removal: **A Weed Feed*** (Target Grades 9-12) As a follow-up to a visit to the Refuge, students create a variety of salads from some of the plants pulled form the prairie in their stewardship activities.

d. Public education: **At Home in the Savanna*** (Target Grades 4-6) By constructing a bulletin board of the layers in a woodland or savanna, the students will learn about the interrelationships of plants and animals of wooded areas. Students will research a particular species to be included on the bulletin board and share this information with the rest of the class.

e. Monitoring: **Transect Search** - A look at vegetative groups found within a range of selected sites: prairie (remnant / restored), riparian forest, woodlot or disturbed land. Monitor and compare over time

f. Science: **Wildflower Identification*** - Students observe seasonal wildflowers of the Park. The wildflowers found will indicate the quality and quantity of life and the diversity of habitats.

g. Math: **Sticky Situations*** - The students collect different types of seeds by hiking through the prairie, during hikes, games, or stewardship activates. The seeds stick to leggings made of different types of furs. The seeds will be collected from the leggings and grouped by type. The students will use a bar graph to graph and discuss what the

information could mean to scientists studying animals. (Note: This is best done in the fall.)

h. Language Arts: Prairie Poetry* - Students will experience a walk on the prairie and use their observations as the inspiration for a poem to be written in one of the forms presented by the teacher.

i. Art: **Prairie Artistry*** - Through a walk on the prairie, students will develop an awareness of patterns found in various prairie plants. They will investigate and record observations as they look for patterns in nature. Students look for elements of design on the prairie and create an art work emphasizing one of these elements.

j. Health: **Succession Procession*** - A hike along a prairie trail will provide participants the opportunity to observe successional changes.

k. Presentation skills: ***Prairie Propaganda**** - Students will design an advertisement for some aspect of the prairie (i.e. prairie plants, oak trees, rich soils, animal life, virtues of homesteading). Then create a commercial that will sell your product to other audiences.

** Selected projects from Project Bluestem: A Prairie and Savanna Curriculum at Neal Smith National Wildlife Refuge.*

Ideally, longer-term programs should have at least some of the following elements:

l. **Orientation to place:** some component of natural history, history, planning, budgets, water, reading, writing, etc – information and research about the place that can be subject-specific and standards-based

m. **Service to place**: something that contributes on a practical, achievable level to improving the place: weeding, litter removal, leading walks

n. **Study of place**: learn something about the place that we don't already know: density of natives vs. non-native plants in an area, number of pedestrians per hour, frequency of bird travel, etc.

o. **Reflection on place**: synthesize: e.g., directed essay, free-write, free-draw, quiet reflection time, two-student summary to each other

p. **Produce about place**: e.g., editorial on land use, art piece for Skipping Stones magazine, data table for pollinators, recommendations for restoration methods, summary of change over time of work in place

q. **Teach about place**: present what they produced to community, e.g., teach a unit to a younger grade, write an article or series for the science section of the newspaper, lead a botanical illustration class on-site for community members, tell stories at library, present art or photo show at local gallery, present educational play at local schools or library

Timeline for Habitat Restoration

2011-2012 School year: Begin recruitment in local schools for service learning projects.
Fall 2012: Remove *Rubus armenius* from the site. Broadcast leaves in upland potion of site. Place shade fabric in wetland portion of site.
Summer 2013: Collect seed for perennial wetland /upland forb species.
Fall 2013: Clean and cold stratify perennial forb seeds.
Winter 2014: Germinate seeds in cold frames.
Spring 2014: Move seeds from cold frame to shaded enclosure and water through the end of summer.
Summer 2014: Collect and clean seeds for annual upland/wetland forb species.
Fall 2014: Remove shade fabric from wetland portion of site. Plant starts of wetland species into area where shade fabric has been removed. Plant upland starts into decomposed leaf material. Direct sow seeds for annual forb and selective perennial species into upland/wetland portions of site.
Spring 2015: Selectively remove exotic forb/grass species from entire site.
Summer 2015: Continue selective removal of exotic vegetation from site.
Fall 2015: Mow and remove thatch from prairie.
Spring 2016: Selectively remove exotic forb/grass species from entire site.
Summer 2016: Continue selective removal of exotic vegetation from site. Collect and clean native grass seed.
Fall 2016: Mow and remove thatch from prairie. Sow native grass seed. (Depending on how well native forbs are establishing themselves.)
Spring 2017: Selectively remove exotic forb/grass species from entire site.
Summer 2017: Continue selective removal of exotic vegetation from site. Collect and clean native grass seed.
Fall 2017: Mow and remove thatch from prairie. Sow native grass seed. *(Sowing of native grass seed in 2017 will only be necessary if grass seed is not sown in 2016.)*

CILOS: Community Involvement & Long-term Ownership Strategy Budget

Material/Labor	Details	Cost
Rock	55,500lbs. @.05	$2,775.00
Shade fabric		$3,510.00
Student transport	2trips/yrfor 3 yrw/14schools@$125.00/trip	$10,500.00
Stakes for shade fabric	40 bundles of 50 @$9.99 ea	$399.60
Cement	4 90lb. Bags @$3.35ea	$11.22
Native bulbs	3yr bulbs x 45,000 bulbs	$6,075.00
Steel Pipes	housing post 4 singing perches	$101.90
Native Seed	seed species available commercially	$1,876.00
Seed Collection		$8,440.00
Seed Cleaning Equipment		$268.00
Nursery Equipment		$1,633.00
Potting soil	1 unit=7.5yds.	$309.00
Fuel for Equipment Transport	school outreach/seed collection	$2,975.00
Planting/weeding tools		$2,100.00
Copies of Curriculum Materials	11,500 copies @.05	$1,275.00
Americorps member, 2014-17		$36,000.00
Project Coordination, 2014-2017	400 hours annually @$25/hr	$30,000.00
Educational Outreach/School Recruitment		$1,750.00
Total		**$109,998.72**

**See budget details for more information*

Budget Details

1) Rocks would be used to construct two habitat piles that are a minimum of eight feet wide and three feet tall. Rock size would be roughly eight to twelve inches across.
2) Shade fabric would be utilized to prepare wetland portions for planting.
3) Student transport would involve two trips per school per year for three years with fourteen schools. These field trips provide much needed labor for restoration implementation and educational opportunities for local schools.
4) Stakes are 1x2x24" wooden stakes used for securing shading fabric to the ground in wetland portions of site.
5) Cement would be used to construct forms for the housing stands for singing perches.
6) Native bulbs would be grown out by contract for ~ $135.00 per thousand bulbs.
7) Steel pipes would provide a housing for inserting wooden poles for singing perches. This would facilitate easy replacement of the perches once they succumb to the elements.
8) Seed for native species available commercially would be purchased when seed source is within 25 miles of project area.
9) Seed Collection: few species are available commercially where the genetic source falls within the twenty-five mile radius of the site. The majority of species will need to be collected from the wild in the local area.
10) Seed cleaning equipment is utilized for extracting seed from collected plant material or chaff. Tools include bowls, buckets, screens, colanders and fans.
11) Nursery equipment would be utilized for the propagation of native plants.
12) Potting soil would be purchased in bulk and utilized for native plant propagation.
13) Fuel would be necessary for school recruitment, seed collection, tool transport, volunteer outreach, site maintenance and monitoring, etc.
14) Planting and weeding tools would be needed in quantities sufficient to supply large class(es) or large volunteer turnouts.
15) Copies of materials would enhance educational opportunities and better prepare students for restoration activities at the site via informative pamphlets, etc.
16) An Americorps member would be necessary for school/volunteer recruitment and coordination.
17) The Project Coordinator would be responsible for training and guiding the Americorps member. The Project Coordinator would be responsible for implementing the restoration plan.
18) Educational outreach would entail recruiting local schools to participate in site restoration through service learning projects.

Potential Stewardship Groups and Funding Sources

Potential Stewards of Park:

- CPC members and affiliates
- Currently and historically involved schools
- New Students/ Schools
- Harlow Neighborhood Association
- Cyclists (GEARS, Commuters, Parents w/kids who bike here)
- Pollinator Enthusiasts (e.g. North American Butterfly Association)
- Native Plants enthusiasts (e.g. Native Plant Society of Oregon)
- Bird enthusiasts (e.g., Lane County Audubon Society)
- Walking and exercise groups (e.g. Baby Bootcamp, Oregon Track)
- Homeless, plus their groups and services
- Parks and Open Spaces
- Church groups: stewarding nature, reconciliation, peace
- Peace group that installed peace garden in ABP.
- Boy Scouts are right there – it would be a perfect match for some of the troops
- Boaters – water and riparian maintenance
- Other groups dedicated to upland prairie restoration

Possible funding sources for curriculum development, activities:

- Friends of Alton Baker Park Foundation or Endowment
- Service learning (kids contribute to community)
- Work to school (kids learn specific job skills like water quality testing)
- No Child Left Inside Act (kids get outside)
- Healthy Kid initiatives (kids get active outside)
- Science and Math curriculum development
- Environmental justice (kids from different socioeconomic backgrounds get outside, kids mitigate a superfund site)
- Watershed/ Willamette River/ water quality (kids help/learn water quality, watershed)
- Art (kids from different socioeconomic backgrounds do art, music)
- City staff time (limited): Stream Team, Volunteers in Parks, Parks and Open Spaces
- Possible ODOT/ OBEC Grant for community development
- Neighborhood Association mini-grant

C- Community Involvement and Longterm Ownership Strategy (CILOS) $132,300.00

Artist(s): Walama Restoration Project & Nearby Nature

Items	Unit	Unit $	Qty	Cost	Notes
Material/Labor					
Rock	55,500lbs. @.05			$2,775.00	
Shade fabric				$7,020.00	
Student transport	2trips/yrfor 3 yrw/14schools@$125.00/trip			$10,500.00	
Stakes for shade fabric	80 bundles @ 9.99 each			$800.00	
Cement	4 90lb. Bags @$3.35ea			$12.00	
Native bulbs	3yr bulbs	45,000 bulbs		$7,200.00	
steel pipes	housing post 4 singing perches			$102.00	
native seed	seed species available commercially			$1,876.00	
seed collection				$10,128.00	
seed cleaning equipment				$268.00	
nursery equipment				$1,633.00	
Potting soil	2 units=15yards			$309.00	
Fuel for eqipment transport	school outreach/seed collection			$2,975.00	
Planting/weeding tools				$2,450.00	
Copies of curriculum materials		11,500 copies @.05		$1,275.00	
Education Coordinator				$36,000.00	
Project Coordination	400 hours annually @$25/hr 2014-2017			$30,000.00	
Educational Outreach/School Recruitment				$1,950.00	
Irrigation supplies				$3,000.00	

Subtotal:		$120,273.00
10% Contingency	$	12,027.00
Total		**$132,300.00**