



Exhibit 2

FOREST GROVE PARK MANAGEMENT PLAN

AUGUST 2014

creating healthy landscapes for a resilient future

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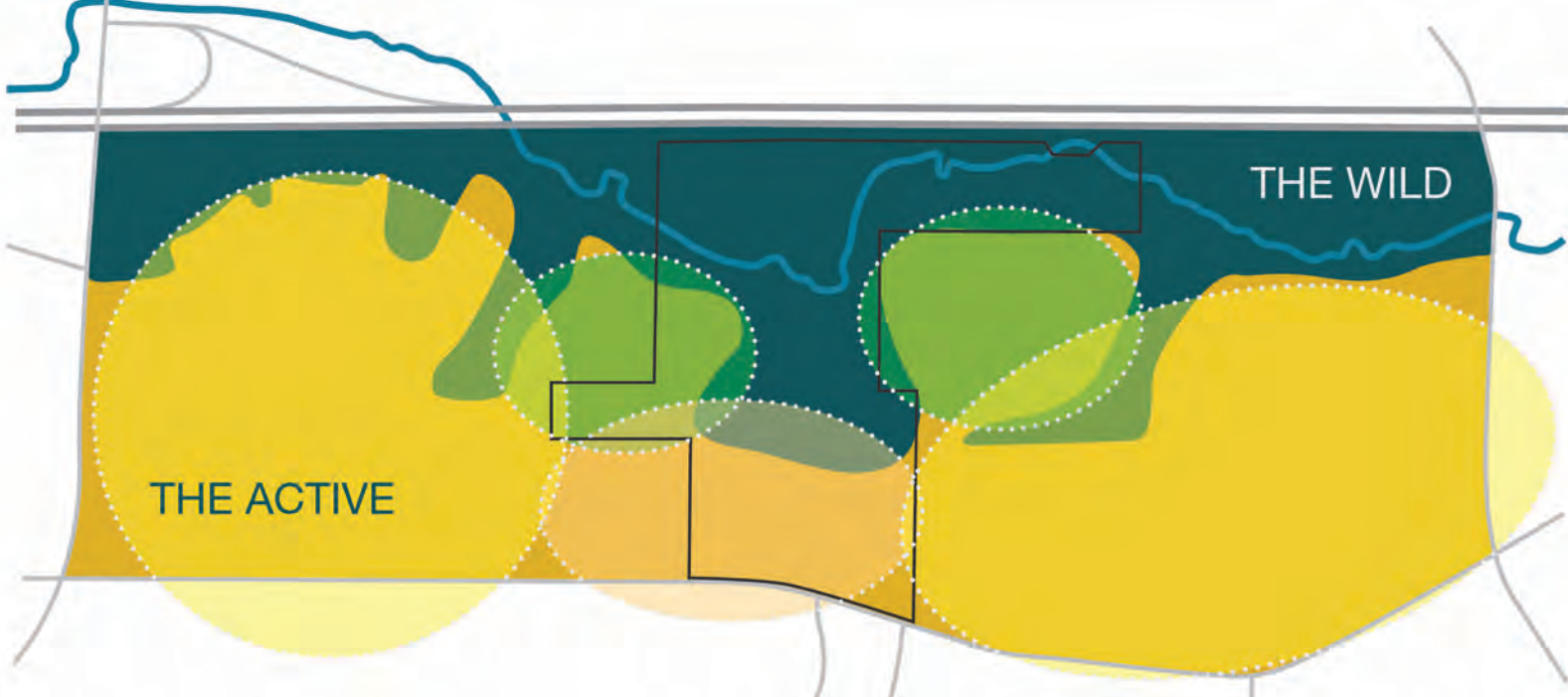
24 Next Steps



SUMMARY

The City of Bettendorf and Parks and Recreation department has retained RDG Planning and Design to complete a natural areas management plan to reconstruct, restore and preserve the integrity of the Forest Grove Park's natural features. The management plan primarily focuses on “the wild”, a portion of the park that was identified for passive recreation within the 2012 park master plan.

Generally speaking, “the wild” is moderately rolling topography with about 65 – 75 feet of vertical elevation change. The current land cover is predominantly woodland and agricultural row crop fields. The woodland areas have seen significant encroachment of invasive species over the past 10 – 15 years.



PARK PROGRAM

Programmatically the park has been divided into two distinct zones: The Wild and The Active. The management plan respects these zones provides distinct sub goals for the wild – the primary portion of the park that will be restored to near pre settlement conditions.

The Wild

Management Goal: Restore the site to near pre-settlement conditions resulting in an ecologically stable, hydrologically functional and culturally significant landscape.

The Active

Management Goal: Prepare the site to facilitate future development and recreation resulting in a resilient, healthy landscape that is implemented through a low impact approach.



METHODOLOGY

On April 22, 2014 RDG Planning and Design completed a one day site assessment of Forest Grove Park to inventory and assess the park's natural features, including the following:

- Ground plane Vegetation
- Trees of significance
- Trees to prune
- Trees to remove
- Slope Stabilization
- Erosion Control
- Spencer Creek Condition

Our process involved walking the site and geo locating natural features using GPS technology and physical hand mapping in the field. These notes were then compared with the existing land cover data prepared by Applied Ecological Services, the existing historical land cover data, floodplain and soil information to inform the parks management strategy.

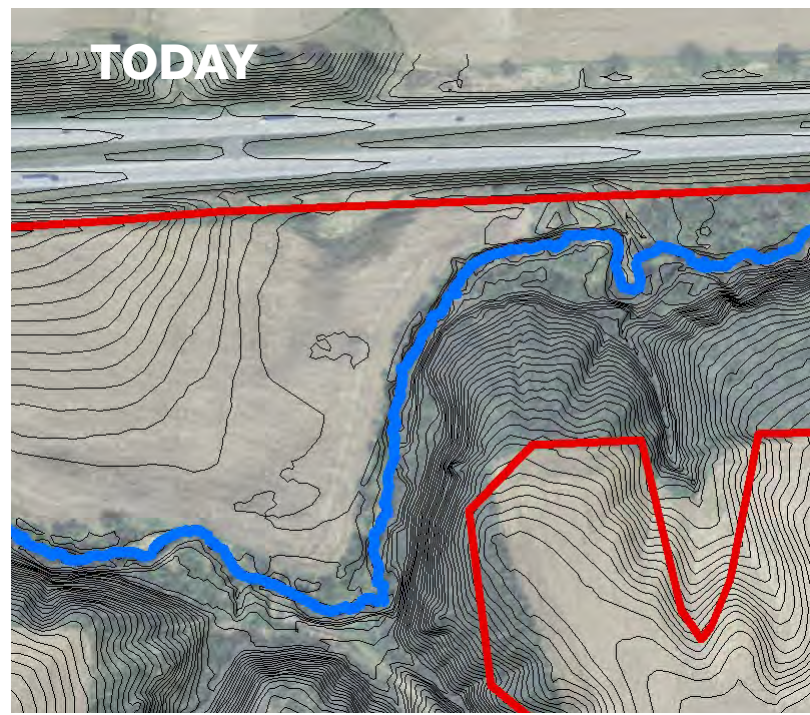
Recommended Management Zones – The Wild:

- Native Prairie
 - o Mesic
- Riparian Corridor
 - o Woodland Floodplain
 - o Aquatic Zone
- Upland Woodland
 - o Oak Savanna
 - o Oak Hickory Forest
 - o Maple Linden Forest



CURRENT CONDITIONS

Forest Grove Park is currently being taken over by non native invasives - primarily bush honeysuckle, garlic mustard, buckthorn and reed canary grasses. As shown in the photo above, the majority of the woodland areas are in need of immediate attention. Over the next several years, immediate efforts should be made to remove these invasives and began a regular management regime. If left unattended, the cost of restoration will increase significantly, with even greater negative impacts on the park's natural systems.



HEALTHY LANDSCAPES

Creating a healthy landscape can be completed through a number of management strategies. These diagrams identify the anticipated time line and results that should be expected.

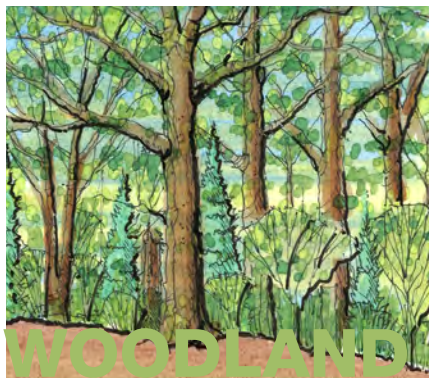
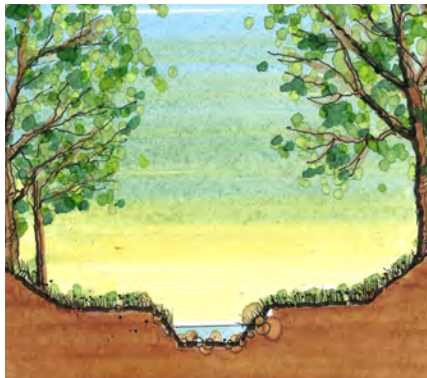
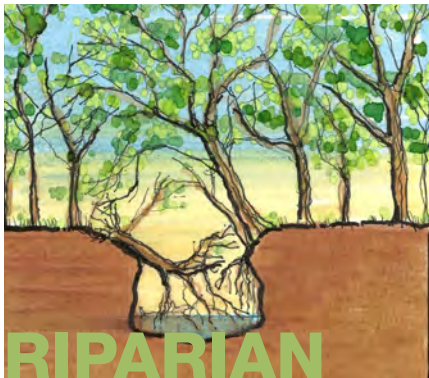
TODAY



1-5 YEARS



5-10 YEARS



MANAGEMENT STRATEGIES

OBJECTIVES



Upland Woodland: A significant portion of the upland woodland areas have been invaded with *Lonicera* species (*Lonicera tartarica*, *L. morrowii*, *L. x bella*), *Rosa multiflora* (Multiflora Rose) and *Rhamnus Cathartica* (Buckthorn). *Lonicera* and Multiflora Rose pose a significant ecological threat as they displace and squeeze out the native landscape.

The upland woodland areas were evaluated from two perspectives: the health of each specific tree and the health of the overall plant communities. The following three categories identify how each tree was evaluated:

Trees of Significance: These trees will be landscape focal points and serve as specimen trees. Consideration should be given to limb up or remove branches that pose a threat to human safety if positioned near a trail. If branches are not over a trail and do not pose a threat, branches should be left alone to serve as habitat for all of the parks insects and birds.

Trees to be pruned: These trees pose a threat to human safety or are showing signs of weakness that may jeopardize the tree's health. A certified arborist should oversee these activities.

Trees to come down: These trees pose a threat to human safety and are typically located adjacent to programmed spaces or trails.

In addition to specific tree identification, the upland woodlands were also evaluated from an ecological health standpoint. Each specific typology will require varying levels of restoration. Generally speaking, the predominant threat to each of the landscapes is the presence of invasive species. Invasives shade out ground plane vegetation, eliminating understory vegetation which exposes topsoil. This in turn leads to surface erosion, stormwater runoff and an overall unhealthy landscape.

Reconstructing and restoring prairie takes multiple years to accomplish and must be tailored to the sites existing conditions. Based on the park's program and management goals, the project requires two distinct prairie development and management processes. Within the areas that have been in agricultural production, a complete reconstruction is necessary. The following steps are an abbreviated summary of what should be anticipated in order to achieve a healthy, successful prairie. Detailed specifications should be developed prior to proceeding with a management strategy.

Riparian Corridor: This zone will require two distinct land management strategies, including tree removal and grade stabilization. Significant stream bank erosion is ongoing in several areas.

PRIMARY INVASIVE SPECIES



BUSH HONEYSUCKLE



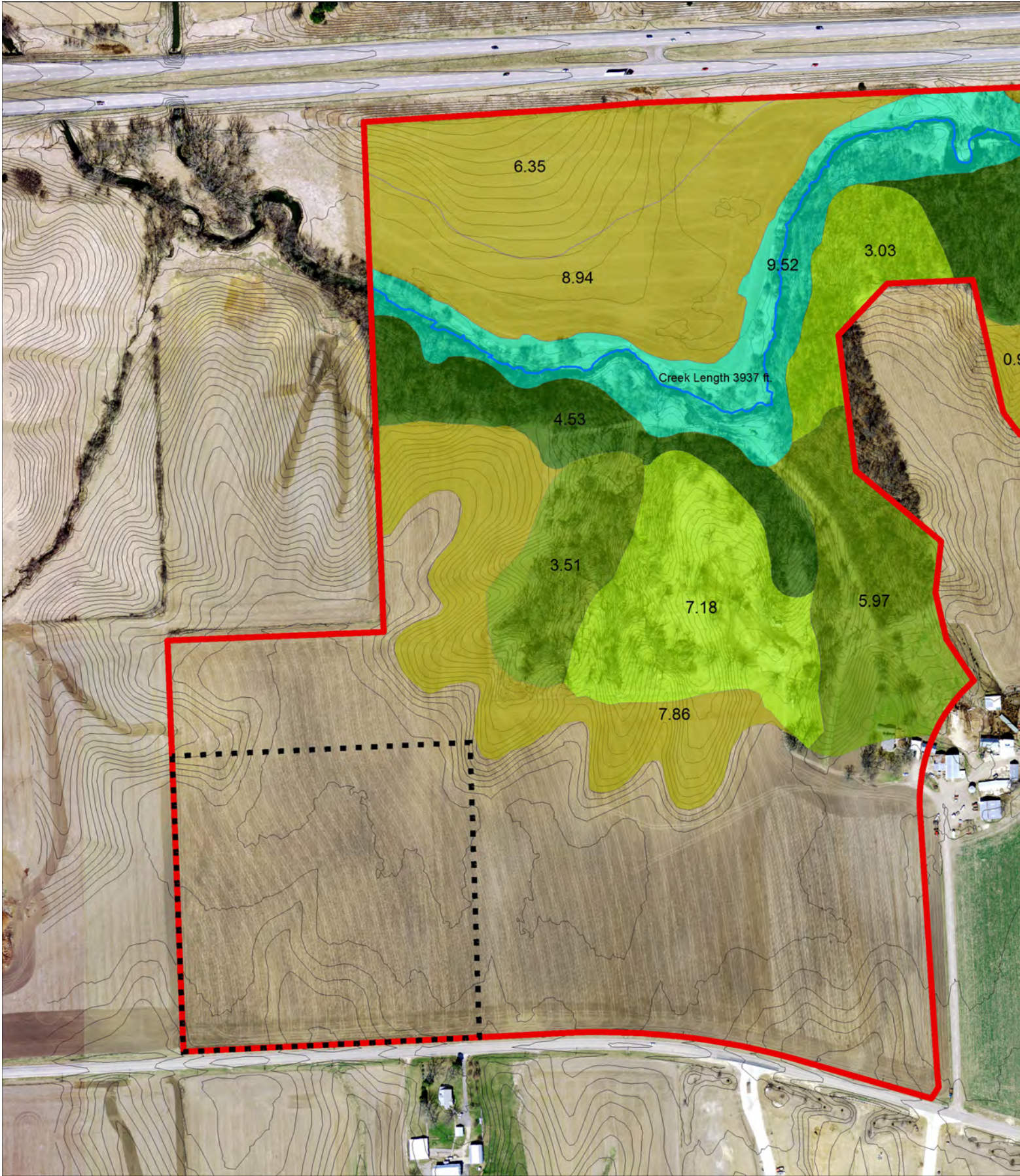
GARLIC MUSTARD



REED CANARY GRASS



MULTIFLORA ROSE





MANAGEMENT ZONES

Legend

-  Site Boundary
-  School Boundary
-  Riparian Corridor
-  Maple Linden
-  Mesic Prairie
-  Oak Hickory
-  Oak Savanna
-  Wet Mesic Prairie

OAK SAVANNA

Oak Savanna: The existing conditions within the delineated oak savanna areas are showing positive signs of ecological health. A significant portion of the ground plain is stable. There are several areas where multiflora rose and buckthorn have begun to invade. These areas should receive the following landscape restoration strategies:

Step 1- Trash removal: There are a number of locations on site that contain piles of tires, old vehicles, appliances and other trash. All trash should be legally removed and disposed of off site prior to any controlled burning.

Step 2 - Invasive species removal: Generally the oak savanna area is free and clear of a predominant invasive, however scattered stands of multi flora rose and buckthorn exist. These invasive should be removed by both mechanical and chemical means.

Step 3 - Tree Removal / Preservation / Enhancement: As discussed above, there are a significant number of trees that should be addressed.

Step 4 - Active Gully Erosion: After the removal of trash, invasive, and trees, the active gully erosion adjacent to the current agricultural fields should be addressed. Consideration should be given to re-grade and armor (if necessary – hydrological runoff calculations should be completed based on future land uses).

Step 5 – Seeding: In areas where earth moving activities have taken place, consideration should be given to install a savanna seed mix.

Step 6 - Controlled Burns: Upon completion of the trash, invasive and tree removal activities, the site should undergo a controlled burn in either early spring or late fall. Controlled burns should be repeated annually for the first four years and biannually thereafter.



CURRENT CONDITIONS



RESTORED SAVANNA

FORESTED AREAS

The biggest challenge within the management zones identified as “forest” is the presence of Lonicera SP and Eastern Red Cedar. Currently a significant portion of the woodlands are extremely dense, with very little sunlight reaching the ground. Management of these areas should move forward and follow the same steps as outlined for the Oak Savanna, with two exceptions

1 - Prior to completing any burning, all of the Eastern Red Cedar and other large non specimen trees should be removed and destroyed. This can be accomplished on or off site through grinding or burning. Trees could also be potentially used for stream bank stabilization along Spencer Creek.

2 - The management goal for these areas is to create a mature landscape with adequate ground plain shading to support woodland plant communities. To be considered a forest, tree canopy will generally cover at least 50% of the land areas while typical mid western savanna’s range in coverage from 10 - 50% (often resembling pasture).

FOREST

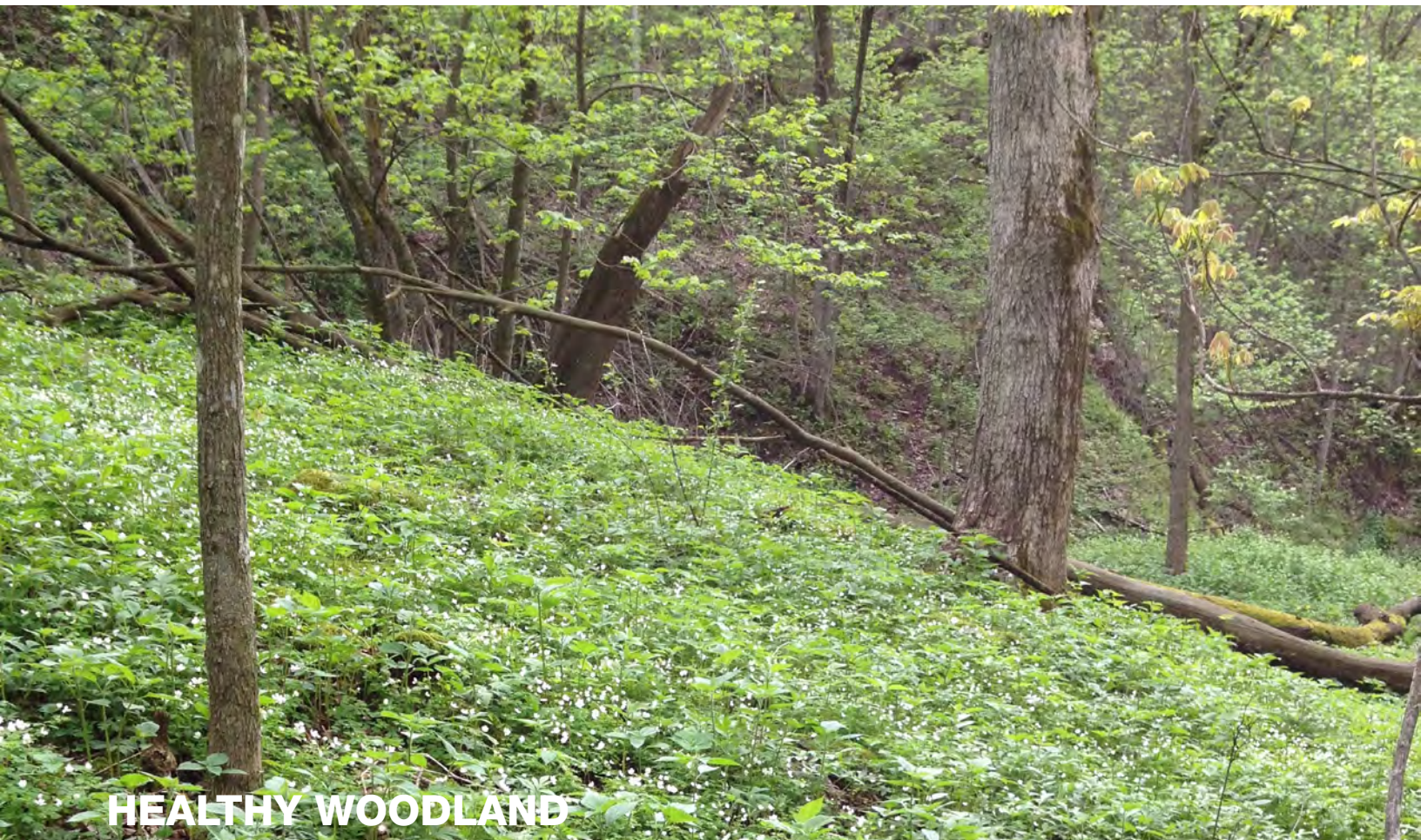


SAVANNA





CURRENT CONDITIONS



HEALTHY WOODLAND

NATIVE PRAIRIE

Prairie Reconstruction:

Step 1: Herbicide Application - Existing row crop areas should be sprayed with a non selective herbicide (such as round up or rodeo) 10 days prior to the commencement of seeding to kill any existing weeds.

Step 2: Prepare Seedbed - Immediately prior to seeding, the seed bed should be prepared by cultivation or disking the top 6” of soil.

Step 3: Plant Seed - Using a rangeland type drill or no till planter, apply seed at the prescribed rate. After the seed has been installed, roll the seeded area with a cultipack roller and water with fine spray. Seeding operations should commence between April 15, and no later than June 1st.

Step 5: Watering - Native seeds should be watered periodically, approximately 1” per week during the establishment period. Supplemental watering may be necessary.

Step 6: Mowing - reconstructed prairie should be mown once per month to minimize the growth of annual weeds. Clippings should be removed from the site and legally disposed of.

Step 7: Controlled burn - reconstructed prairies may take two years of growth to develop enough biomass to carry a fire. Once the reconstructed prairie is able to carry a fire, prescribed burning should take place annually in early spring.

Step 8: Spot Spraying – during June, July and August, spot spraying should be completed to eliminate the growth of annual weeds which can easily “out compete” the native plants.

Prairie Restoration:

Please see the Oak Savanna section below for a detailed management strategy.

RECONSTRUCTION



CURRENT CONDITIONS



RECONSTRUCTED PRAIRIE

RIPARIAN & STREAM RESTORATION

In order to accommodate the increasing flows of Spencer Creek, the following actions are recommended along the corridor.

Step 1: Determine required permits – The portion of Spencer Creek that flows through Forest Grove Park is within a designated floodplain. The Iowa DNR, Army Core of Engineers or other agencies may have jurisdiction over this section of Spencer Creek that have specific regulations for floodplain development or construction.

Step 2: Complete a hydrological assessment – A licensed professional should be retained to determine the streams projected flow rate and volume to adequately size bank armoring, determine flow paths and overall stream reach.

Step 3: Design – following the hydrological assessment, a licensed professional should develop plans and specifications that identify specific improvements. Typical stream restorations will involve cutting banks back to achieve a 4:1 or shallower slope. In areas where banks cannot be cut due to the proximity of existing steep terrain, the development of an alternative flow path should be considered to discourage active bank erosion.

Step 4: Construct – Typically this process will begin with the implementation of an erosion and sediment control plan, tree removals and then grade stabilization. Consideration should be given to restore pool / riffle structures to aid in the oxygenation of the stream, improving the overall health of the Stream.

Step 5: Plant – Following the grading and stabilization of Spencer Creek, the riparian corridor should be sparsely planted with floodplain trees (swamp white oaks, sycamore, cottonwood, etc) and seeded with a native prairie seed mix. The management of this riparian corridor should follow the actions outlined for native prairie reconstruction, but include limited tree planting. Trees planted should be set back at least 30' from the top of the bank.



BEFORE





AFTER





STREAM BANK CONDITION

Legend

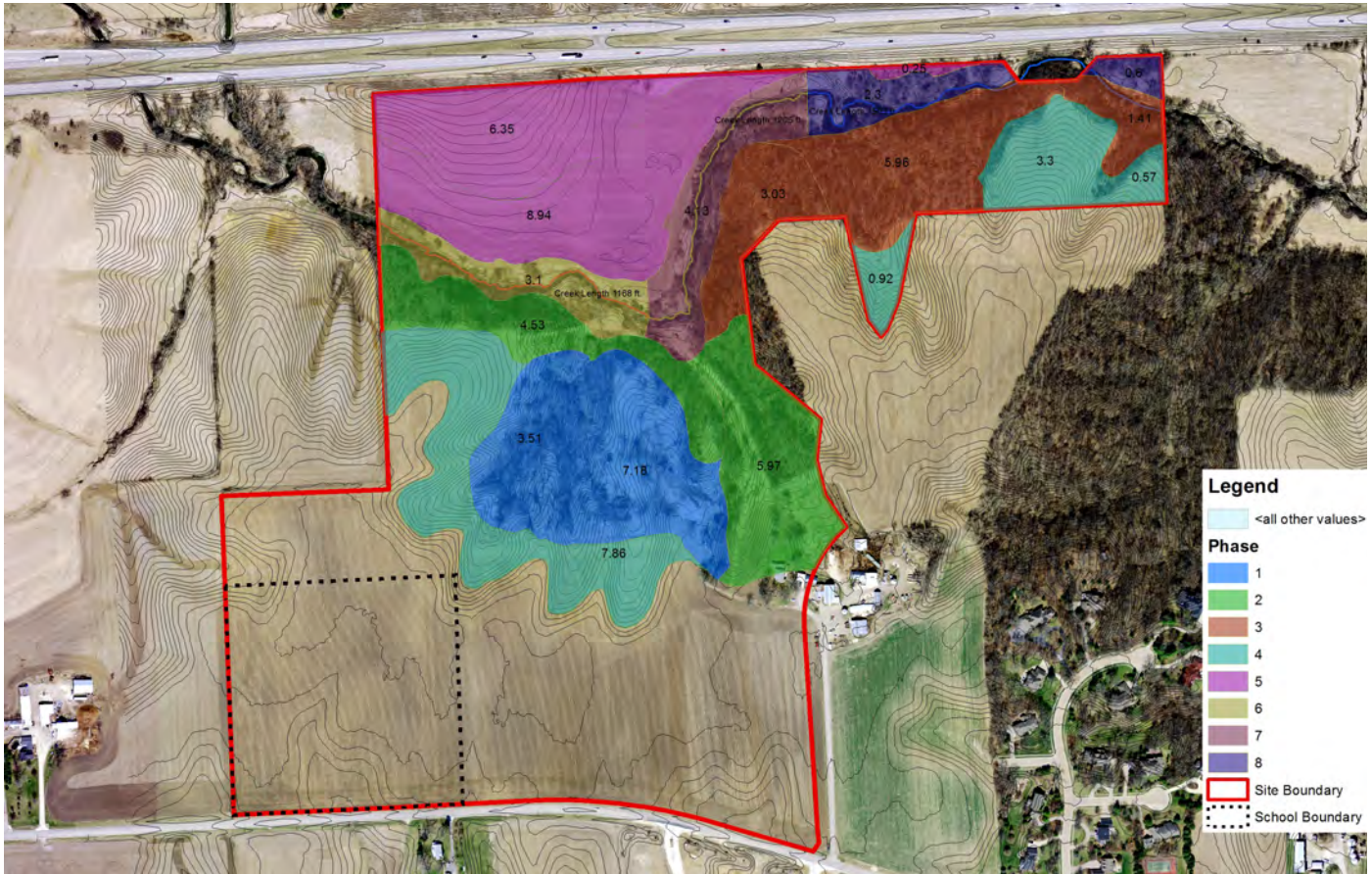
-  Site Boundary
-  School Boundary

Stream Bank & Channel Condition

-  1
-  2
-  3
-  4

PHASING PLAN

Restoration efforts have been phased based on two parameters: 1) allocated funding for initial park improvements and 2) ecological need. Prior to completing stream restoration work, it's highly recommended that the upland woodland and prairie areas become stabilized through restoration efforts, minimize active erosion and bank slumping.



COST MODEL

The following cost model has been developed based on a three year process that will use a traditional design - bid - build approach. The numbers below include contractor fees, general conditions and a 15% contingency. A detailed breakdown is available.

Phase 1 - Owner & Volunteers Responsibilities					
General Park Trash & Fence Removal	1	LS	\$	53,367.00	
Phase 1 - REAP Grant Application					
Target Area #1	10.69	AC	\$	206,974.00	
		Subtotal	\$	206,974.00	
		20% Overhead, Profit, and Contingency		\$41,394.80	
		Subtotal		\$248,368.80	
		Total		\$301,735.80	
				Contracted Amount	City & Volunteers
				\$164,368.80	\$53,367.00
					REAP Grant
					\$150,000.00
Phase 2					
Oak Hickory	5.97	AC	\$	119,325.38	
Maple Linden	4.53	AC	\$	90,543.38	
		Subtotal	\$	209,868.75	
		25% Soft Costs & Contractor Fees		\$52,467.19	
		Total		\$262,335.94	
				Contracted Amount	City & Volunteers
				\$157,401.56	\$104,934.38
Phase 3					
Oak Savanna	3.03	AC	\$	66,470.63	
Maple Linden	5.96	AC	\$	130,747.50	
Maple Linden	1.41	AC	\$	30,931.88	
		Subtotal	\$	228,150.00	
		25% Soft Costs & Contractor Fees		\$57,037.50	
		Total		\$285,187.50	
				Contracted Amount	City & Volunteers
				\$171,112.50	\$114,075.00
Phase 4					
Prairie	7.86	AC	\$	59,008.95	
Prairie	0.92	AC	\$	6,906.90	
Prairie	3.3	AC	\$	24,774.75	
Prairie	0.57	AC	\$	4,279.28	
		Subtotal	\$	94,969.88	
		25% Soft Costs & Contractor Fees		\$23,742.47	
		Total		\$118,712.34	
				Contracted Amount	City & Volunteers
				\$118,712.34	\$0.00
Phase 5					
Prairie	6.35	AC	\$	47,672.63	
Prairie	8.94	AC	\$	67,117.05	
		Subtotal	\$	114,789.68	
		25% Soft Costs & Contractor Fees		\$28,697.42	
		Total		\$143,487.09	
				Contracted Amount	City & Volunteers
				\$71,743.55	\$71,743.55
Phase 6					
Riparian	3.1	AC	\$	37,781.25	
Stream	1168	LF	\$	314,308.80	
		Subtotal	\$	352,090.05	
		25% Soft Costs & Contractor Fees		\$88,022.51	
		Total		\$440,112.56	
				Contracted Amount	City & Volunteers
				\$154,039.40	\$132,033.77
					SRF
					\$154,039.40
Phase 7					
Riparian	4.13	AC	\$	50,346.46	
Stream	1205	LF	\$	326,615.25	
		Subtotal	\$	376,961.71	
		25% Soft Costs & Contractor Fees		\$94,240.43	
		Total		\$471,202.13	
				Contracted Amount	City & Volunteers
				\$164,920.75	\$141,360.64
					SRF
					\$164,920.75
Phase 8					
Riparian	2.9	AC	\$	35,343.75	
Stream	1563	LF	\$	426,699.00	
		Subtotal	\$	462,042.75	
		25% Soft Costs & Contractor Fees		\$115,510.69	
		Total		\$577,553.44	
				Contracted Amount	City & Volunteers
				\$202,143.70	\$173,266.03
					SRF
					\$202,143.70

NEXT STEPS

Implementation: Moving forward with a phased implementation plan must be strategic and sequentially build upon initial restoration efforts that take place. Once an initial effort has been completed, on going maintenance will be critical to the ultimate success of the project. Based on the site visits, restoration procedures and current conditions, RDG strongly emphasis that annual funds be allotted to the park for these costs. Please see the attached cost model for more information. Other opportunities for restoration can be garnerd from in kind donations through conservation volunteers, colleges, scouting groups and other campaigns. One successful platform for launching an activitiy like this can be completed through a “bio blitz” which significantly increases the public’s awareness of the parks hidden natural beuty, wildlife and habitat.

Capitol and on going funding for these efforts may come from the City’s capitol and operational budgets, as well as these potential resources that support green infrastructure and land management activities:

Natural Resource Conservation Service (NRCS): Funds are available through the farm bill and other government appropriations that will help pay for land managent costs. It is suggested that the city partner with the Soil and Water Conservation District to receive these funds - the majority of the work necessary to recieve these funds has been completed through this planning effort. These funds are available annually through the federal governement.

Resource Enhancement And Protection (REAP): The state of Iowa has typically allocated funds to this program on an annual basis. Funding levels vary depending on the legislature and governor’s final budget. This management plan will position the City well for receiving these funds. The intial application is typically due in mid August. Please see the following link for more information: <http://www.iowadnr.gov/Environment/REAP/REAPFundingatWork/CityParksOpenSpaces.aspx>

State Revolving Fund - Green Infrastructure Forgiveable Loan (SRF): The Iowa Finance Authority and the Iowa DNR have partnered to provide communitieis a unique funding source for low impact development and green infrastructure. The park’s stream restoration is uniquely suited for this funding source. In order to qualify for this funding stream, an active loan from IFA for wastewater improvements is required. RDG is able to assist in the application for these funds and has successfully helped other communities recieve substantialanl funding. Deadlines vary annually, but typically are due during the first and third quarters of each year.

