Memorandum

To: Mike Geisel, City Administrator

From: TW Dieckmann, Director of Parks, Recreation & Arts

Date: 6/20/2024

Subject: Central Park forest management

Staff has become aware of a competitive grant opportunity from the Missouri Department of Conservation (MDC), providing 50% reimbursement for woodland management. Specifically, MDC will reimburse 50% of the City's contracted expenses in removing invasive species and planting native grasses. Unlike the City's fiscal year which coincides with the calendar year, this grant program cycle runs from July through June. The woodland area in Central Park, between the playground and Lake suffers from invasive species and limited high value timber. In hopes of leveraging the City's resources, staff solicited bid proposals to perform this work, which requires a four-year work plan. The best bid, in my opinion, was submitted by Native Landscape Solutions (NLS), $24,190 for year one and a total of $96,418 for the full four-year work plan. See description herein for a description of the bids.

The MDC grant is an annual competitive program, and we have a high degree of confidence that we will be successful in obtaining the grant for the 2024-2025 fiscal year. The grant program is competitive and funded annually. The City will have to apply in each of the successive program years. Once the City is participating in the program, there is a reasonable expectation of continuing in the program.

I recommend that the City Council authorize a budgetary transfer from the Parks Fund - Fund Reserve in the full amount of the four-year program, $96,418, and authorize a multi-year contract with Native Landscape Solutions (NLS), both of which are contingent on receiving the 2024-2025 MDC grant which would reimburse half of the City's year one expenditures.

Central Park is the focal point of our park system. It includes a mature, and relatively young forest. It has never had a professional forest management plan. The current forest has undesirable plant species in the understory and on hillsides that lack a forest canopy. These are often referred to as invasive species. They spread, and prevent desirable seeds (oak and hickory for example) from germinating and growing in the understory. This inhibits forest regeneration and future tree succession.

The City lacks available labor, equipment, resources, and professional forest management expertise for this work. I contacted Missouri Department of Conservation (MDC) Forester, Evan Parker, to discuss options and grant opportunities. We met May 9 at Central Park, along with City Arborist, Geoff Wegrzyn, and Park Superintendent, Tony Moore. Forester Parker provided the following recap and initial assessment.

"Objectives/Summary: We met to talk about management of the wooded areas at Central Park. It is very visible with high usage, so the aesthetic value to visitors is a priority. Other goals include restoration and management of the forest to maintain a natural character, with an eye towards a more open oak-hickory forest. The first step to reaching these goals will be control of the invasive species found at the site using third party contractors, MDC cost-share, and follow-up work, some of which possibly by in-house staff and/or volunteers. Some sort of herbaceous layer or cover crop should be planted to fill the growing space. In the years following the invasives removal, other forestry activities including thinning and seedling planting could occur to help move the forest through natural succession.

Existing Conditions: The focus wooded areas include the slope between parking lot/playground and the lake. This area is crossed by a number of paved walking trails, as well as a stream. The wooded areas are currently dominated by early succession species. These include white ash, redcedar, flowering dogwood, persimmon, sassafras, black cherry, and hackberry. The lower areas have more oaks, particularly black and shingle oaks. These early succession species are not inherently undesirable and some, such as persimmon, redcedar, and black cherry, have significant wildlife value. However, there is very little regeneration occurring in the forest, preventing the emergence of long-lived, valuable species such as oaks. This issue is worsened by the presence of a number of woody invasive species. Bush honeysuckle is the worst, but it is mostly relatively young and less than 5 feet tall. There are few large, strongly established individuals. Autumn olive is present primarily along walking trails. Callery pear is found in the more open areas along the stream. There is little groundcover present other than the bush honeysuckle.

Invasive Species Management: The first and most crucial step is to control the invasive species present in the area. Any other management activity done without adequate control will simply result in the further spread of invasives. All invasive species present at the site need to be controlled, not only the following three which are the most common.

- **Bush Honeysuckle:** The honeysuckle present is mostly too small for methods involving cutting, so foliar treatment would likely be the best approach. Foliar spraying should be done in late fall or early spring, when honeysuckle has leaves but native plant species do not. This ensures that spraying will only impact the invasive – unintentionally killing native vegetation will simply aid the return of honeysuckle in the next growing season.

- **Autumn Olive:** Autumn olive is mostly present along the trails and is much less abundant than honeysuckle. Nonetheless, it is essential to control autumn olive now to avoid it worsening, especially when growing space increases due to the killing of the honeysuckle. The recommended practice for autumn olive is to cut the stem, and immediately treat it with glyphosate. This works best if done in the growing season, but can happen at any time of year.

- **Callery Pear:** Pear was mostly found in the open areas along the stream and hillside. For large trees, cut them down and immediately apply glyphosate to the cut stump. For smaller trees, I recommend a foliar spray of glyphosate. Cut stump treatment is best performed in fall or winter. Foliar spraying must occur during growing season. Care should be taken to avoid spraying non-target species to assist in long-term replacement by native vegetation.

It is best to contract this work due to the high volume of invasives. Due to the likely abundant seedbank, it is important to be vigilant and conduct follow-up maintenance each year. At that point, targeted foliar spraying of young plants is the best approach.

Planting: Once the invasive species are killed, it is essential to fill that growing space. This is particularly true due to the sparse groundcover. In the first year, it is best to spread a mixture of native grass seeds in the treated area. Suggested species include river oats, Virginia wild rye, Canada wild rye, bottlebrush grass, American break grain, and Canada brome. I can provide more detailed specification of species mixes and seed quantity later on. Given that there will likely be a need for follow up herbicide treatment, seeding only grasses (which wouldn't be affected by the herbicide) is the best investment. Grass seed also has a less strict window of seeding, needing to be spread by mid-March. Forbs/wildflowers would need to be sown earlier, and would be adversely affected by herbicides. The process simply involves broadcasting the seed on the ground at a specified density.

Future Work: The first step of improving forest management is invasive species control, but there is plenty of work to be done after that. After controlling invasives and planting native groundcover, we could develop a plan for improving the forest. This could involve planting trees (mostly oaks and hickories) since there is very little regeneration present. Most regeneration will continue to be invasives or early succession species currently dominating the canopy. Thinning the canopy by removing some existing trees may also be necessary. Flowering understory trees could be planted to improve aesthetic value. MDC would likely be able to provide cost-share funding for future work as well.

The Cost-Share Process: Chesterfield is eligible for 50% reimbursement for both invasive species control and native grass establishment. Reimbursable expenses include contractor labor, supplies, and some equipment rental/purchase. Non-reimbursable expenses that could be used for your match include administrative costs, volunteer or employee labor, and in-kind/donated supplies or equipment. All expenses must be documented (receipts/paid invoices submitted to me). Only expenses accrued after the agreement is signed are eligible for reimbursement. We could sign an agreement as early as July 2024. All work will need to be done and paperwork submitted by the end of April 2025. MDC requires either signage at the site or two different publicity measures (social media, website, newsletters).

Next Steps: MDC's fiscal year is July 1 – June 30, so that's the time frame we'd be looking at for this project. The contracted invasives species control work would be completed from summer through winter, as described for individual species. Seed would be spread in mid/late winter after the completion of invasive species treatments. Things we need to get started on include: a map of the area (preferably outlining the areas prioritized for work) and an estimated budget. The budget needs to include contractor bids for the invasives treatment and native planting costs. Please include any costs expected to be used as match. My team strongly likes to see the value of these projects to people, so I welcome information on how volunteers may be engaged, educational signage we could put up, etc.

The main contractor who handles this kind of work is Native Landscape Solutions. Other suggestions include Americorps STL, DJM, or Confluence Habitats. There are a number of smaller operations as well.

I'm excited by the potential of this project, and look forward to seeing it come together. Please let me know if you have any questions."

City staff solicited three proposals for removing invasive species and establishing native grasses.

Go Green!	$109,180.33 (one year proposal)
DJM	$ 23,690.00 (one year proposal)
Native Landscape Solutions	$ 24,190.00 (year one)

I recommend contracting with Native Landscape Solutions (NLS). I request it be placed on the next PR&A Committee agenda. If approved, it would then go to City Council as a whole for consideration. I will ask them to appropriate $96,418 to account 119-084-5251 (contractual services) from Parks Fund – Fund Reserves for this four-year plan. If approved, a Purchase Order (PO) would be created, and carried over year to year until work is completed. The NLS proposal in only $500 more than DJM, but provides a more comprehensive and multi-year approach based on science, seasonal considerations, and professional forest management practices. NLS also has a great reputation for doing this kind of work. Attached are the three proposals. According to city purchasing procedures, purchases between $10,000-25,000 require City Administrator and Director of Finance & Administration approval. Please let me know if you have any questions.

Please forward to PR&A Committee for review and recommendation.

MeJeisl 2024-6-25

City of Chesterfield, Missouri

Central Park

Native Stewardship Strategy

2024-2027

developed by:

Native Landscape Solutions, Inc

9850 Gravois Road

Affton, Missouri 63123

Native Stewardship Strategy

Contents

Native Stewardship Strategy

Introduction: The City of Chesterfield, Missouri is a growing community of approximately 50,000 population. The City has dedicated significant resources and time to develop a robust park, recreation and arts department to meet the needs of their residents. The City of Chesterfield continues to be successful in creating, programing and maintaining recreation facilities which meet the needs of the community. Perhaps no other park within the City system has come to represent the diversity and width of opportunities for residents the City has to offer more than Central Park. Central Park hosts the City Amphitheater, City Aquatic facility, outdoor playground and multiple trails through the rolling countryside of Chesterfield. Central Park serves as a hub for recreation activities in the department creating meaningful opportunities for residents to achieve the exercise and cultural health needs.

Narrative: Central Park in the City of Chesterfield, Missouri is uniquely tucked into the rolling countryside of central Chesterfield. The park is interlaced with a series of pathways and walks offering residents a passive recreational outlet. These pathways are surrounded by a regenerating native plant environment. Good portions of the area were planted originally with native trees, grasses and forbs. There is a dominating non native invasive species component which is beginning to over take the overall site. Depending upon which of the five areas, the non native invasive component differs in species but has no less of a negative impact on the current and future conditions. If left unchecked these species will crowd out the desirable species and impact the quality of pollinator services the park can provide. Thus, the reason for this proposal being requested by the City of Chesterfield Parks Department. The NLS team can assist and engage both park staff and volunteers in the process of improving the Central Park. Staff and citizen buy in are great indicators in the long term success of this park and other facilities in the City of Chesterfield. Specifically the native seeding and on going stewardship tasks are ideal for engaging both City staff and volunteers.

Native Landscape Solutions, Inc. has done a quick inventory of each of the five sites to identify the presence of which non native invasive species are impacting the park. We have also identified as series of methods we believe represent the current best practices in the management of non native invasive species and best practices of stewardship moving forward.

Native Stewardship Strategy

Methods

Cut, Treat & Chip: This method is designed to target larger plant material in the park which needs to be removed. Specifically shrubs larger than 1" in diameter up to trees up to 6" in diameter. Larger trees are not included in this method. Smaller shrubs can be successfully treated with other methods. Plant material will be reduced to a manageable size for production crews to handle. The final cut will be a flush cut within three inches of the ground. Within fifteen minutes of the final cut the woody stump will be treated with a herbicide to kill the root system. Selected herbicide and application rate will be submitted to the City prior to herbicide application.

Basal Treatment: This method can be used to target all woody invasive plant material. Typically it is not used for plants which are bigger than four inches in trunk diameter. This method requires application of a high concentration herbicide to woody stems from the ground level to thirty inches up on the trunk/stem. The stem is to be treated completely-all sides– to the point of coverage but not runoff. Herbicide will be mixed with a bark penetrant to increase efficacy of application. A spray colorant will be added to the herbicide mix to increase applicator accuracy. Selected herbicide and application rate will be submitted to the City prior to herbicide application. Basal treatment is best used in the fall after leaf drop (November-January).

Foliar Treatment: This method is ideal for treatment of invasive weeds and smaller shrubs within the park. Selected herbicide is applied to the leaf surfaces of target invasive species. Herbicide is mixed with a "sticker" to increase herbicide adhering to the leaf surface. Methylated seed oil is an ideal product to function as the "sticker" for this application. A spray colorant will be added to the herbicide mix to increase applicator accuracy. Selected herbicide and application rate will be submitted to the City prior to herbicide application. This method can be used during the growing season with judicious treatments by the applicator or late season to target invasive species with persistent leaves prior to winter time.

Native Stewardship Strategy

Methods

Grass & Sedge Seeding: Native seeding is to be completed during the winter months of November– February. Grass & Sedge Seeding is specific to the use of only native warm & cool season grasses, sedges & rushes. This seed mix generally includes no less than five species specific to either a heavy shade woodland environment or a full sun savannah environment. The methodology is chosen to allow for the natural seed catch of invasive species to germinate and then be controlled. Most all of the invasive targets with Central Park are broadleaf in nature. Thus a selective broadleaf herbicide can be utilized to treat and manage the resprouts and newly emerged invasive species while still being able to start establish a more robust native plant community. The seed rate for this mix will range from 3-4# per acre.

Forb Seeding: Native seeding is to be completed during the winter months of November– February. Forb, native flowering species, seeding is specific to the use of a broad species list of flowering native plants. These seed mixes generally include 20-35 species depending upon the specific environment being seeded. For Central Park, recommendations for seed mixes will include three unique seed mixes: Savannah, Woodland & Riparian. Forb Seeding generally takes place the second winter period after a non native species removal project. Allowing for an extra growing season to take place allows for increased control of non native species in addition to allowing for any remnant forb species to re-emerge on the site. The seed rate for these mixes ranges form 10-12# per acre.

Stewardship: Stewardship services include weeding, pruning, height control mowing, and herbicide application. Through out the growing season non native and non desirable weed species germinate and begin growing. Stewardship services include a boots on the ground method of walking the entire project site on each visit. Technique to be employed by the stewardship crew is dependent upon the time of the year, non desirable species and limiting of non native seed sources. The NLS stewardship team can be available for training and mentoring City Park staff and volunteers if needed.

Native Stewardship Strategy

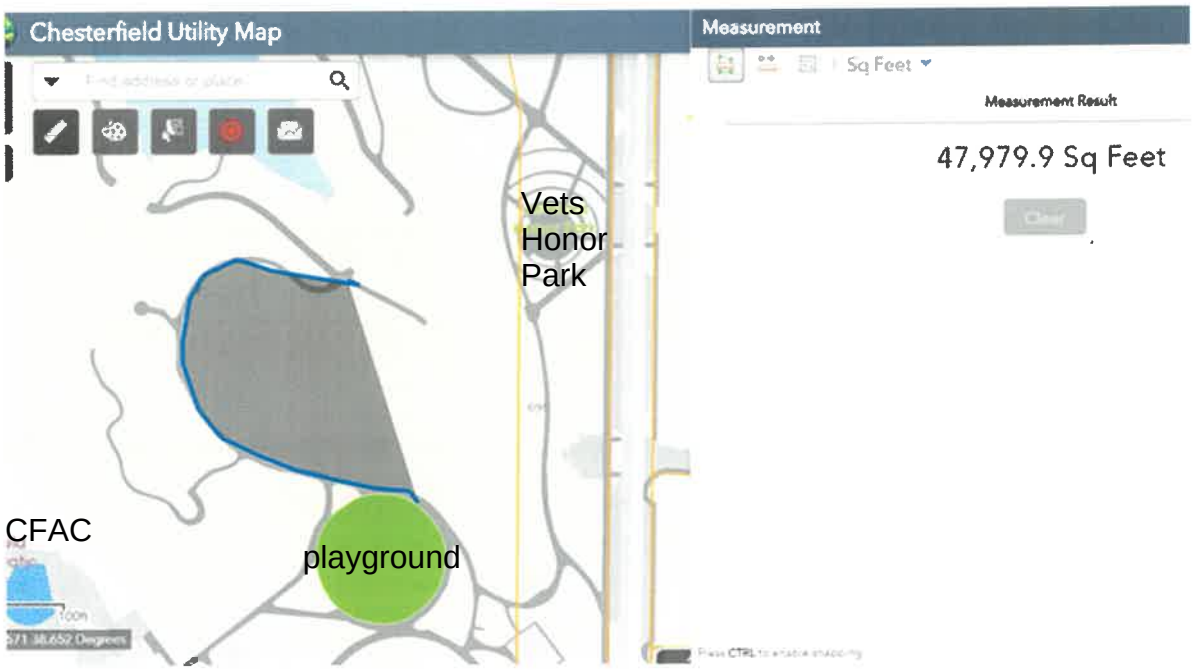
Scope of Work

In an effort to review the entire scope of work we have broken out our discussion based on the areas identified by City staff in there plans forwarded to us. We have added names to each of the five components for discussion and scope of work purposes.

The Playground Knoll: (47,980 sf) This area of the park is just North of the existing playground. This knoll has a mature canopy of native tree species with an apron of invasive Bush Honeysuckle, Sericea Lespedeza, and Russian Olive. The interior of the site has limited small Bush Honeysuckle emerging throughout. The size of the invasives around the margin we would recommend using the Cut, Treat & Chip methodology. The interior of the site could be treated with a foliar spray method late in the season. This foliar treatment could also be used during follow up stewardship visits to control resprouts and newly emerged invasive plant material. Future improvements to this area could be the seeding of native grasses and sedges followed up the following season with seeding of native woodland wildflowers.

See attached schedule for task pricing and scheduling.

Limits of the area are highlighted in grey.



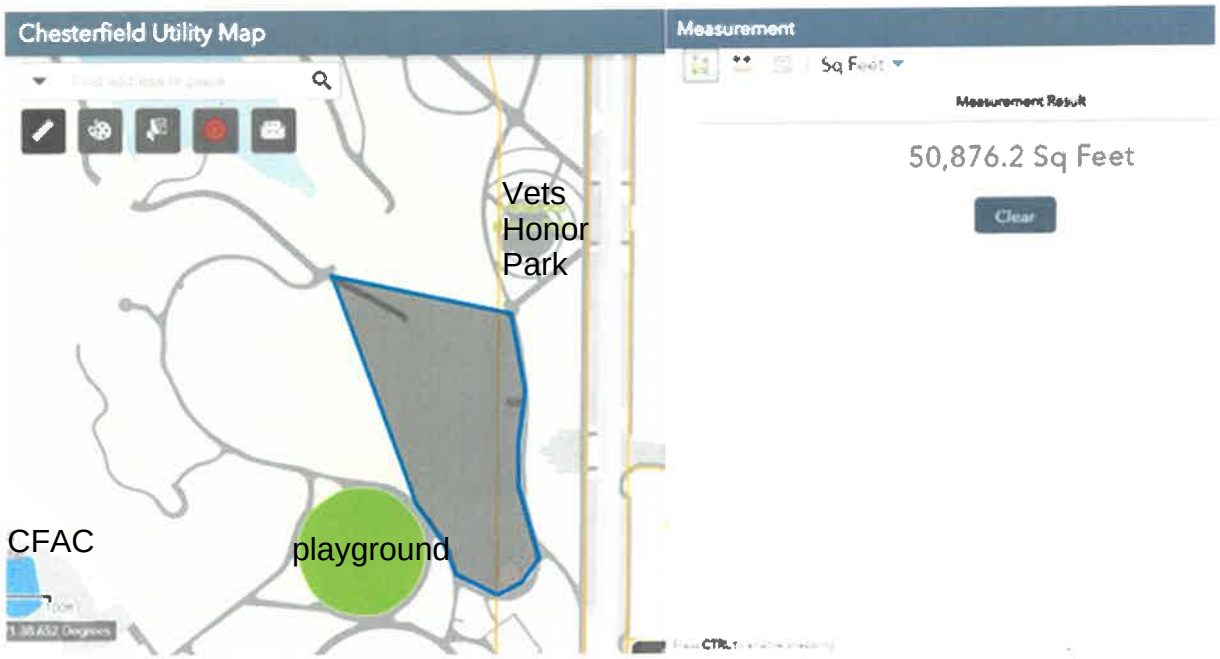
Native Stewardship Strategy

Scope of Work

The Box Office Overlook: (50,876 sf) This area contains the riparian corridor and the Flow Sculpture. This area is a mix forest and savannah with a riparian corridor descending to the lake. This area contains a large number of invasive species including large Callery Pear, Bush Honeysuckle, Autumn Olive, Sericea Lespedeza, Common Privet, Multiflora Rose, Japanese Honeysuckle and Boxelder. We would recommend using the Cut,Treat & Chip method in this area. The existing Callery Pear and large Bush Honeysuckle contribute to the annual seed load of invasive species significantly. It could be followed up with a foliar application to address the invasive perennial species. With a little work this area could be opened up to give residents a view of the riparian corridor from the box office walkway. In addition, if some of the larger volunteer Cottonwood and Sycamore trees were limbed up or removed they would open a view of the lake. Future improvements to this area could be the seeding of native grasses and sedges followed up the following season with seeding of native savannah wildflowers.

See attached schedule for task pricing and scheduling.

Limits of the area are highlighted in grey.



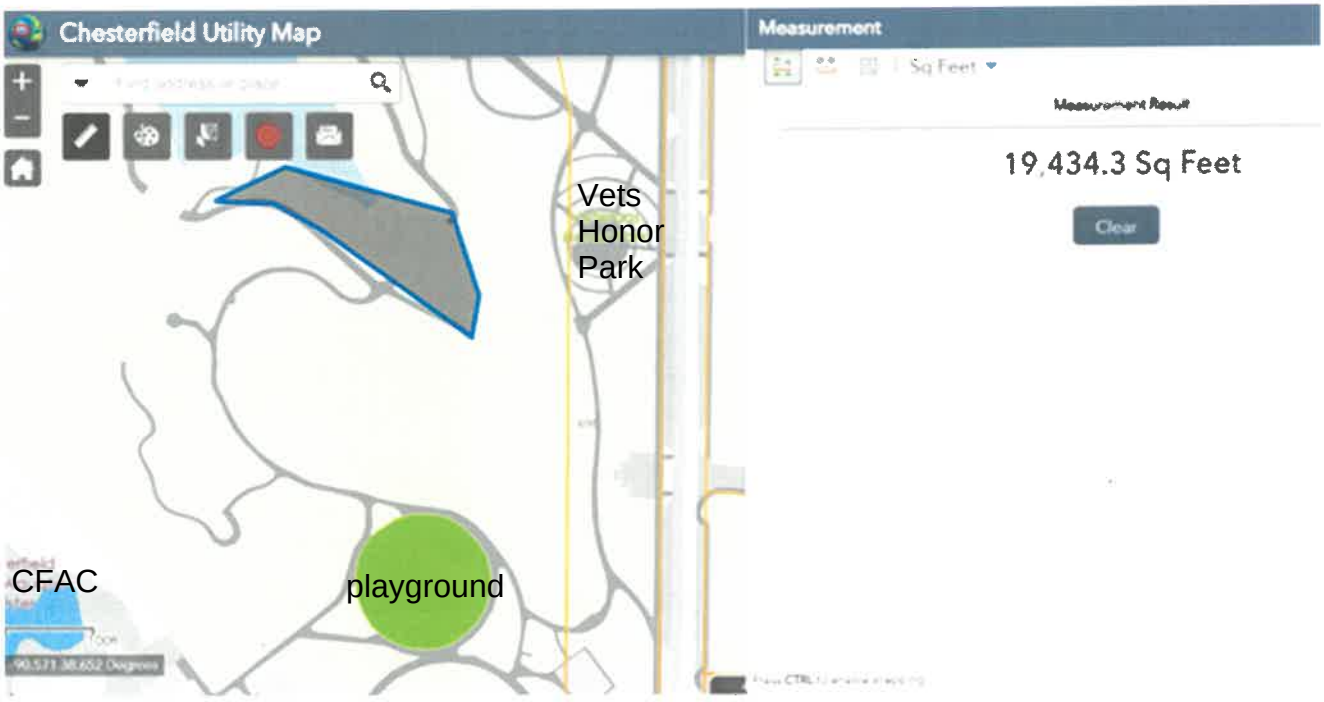
Native Stewardship Strategy

Scope of Work

Amphitheatre Lake SW Apron: (19,434 sf) This area of Central Park is bordered by paved trails and the lake edge. This section has a rich riparian edge to the lake with a good native plant community. There are several unique populations of Lead Plant and Blackberries along the pathway. It is negatively impacted by Bush Honeysuckle, Callery Pear, Walnut and Sericiea Lespedeza. Removal and control of these non native or non desirable invasive species will maintain the view of the lake and further allow for the development of the existing native plant community. Future improvements to this area could be the seeding of native grasses and sedges followed up the following season with seeding of native riparian wildflowers. Native seed species mix could be uniquely tailored to add complimentary species to the existing native plant community.

See attached schedule for task pricing and scheduling.

Limits of the area are highlighted in grey.



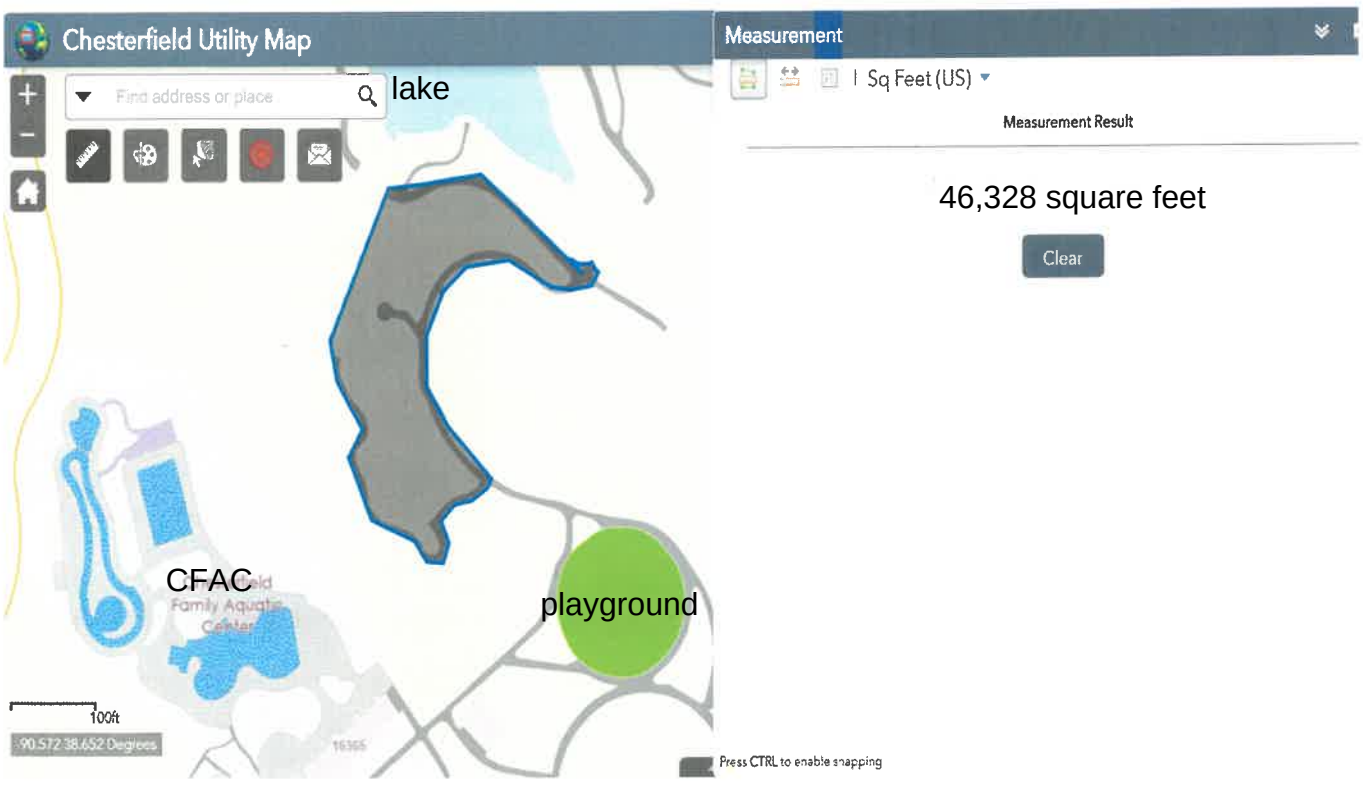
Native Stewardship Strategy

Scope of Work

Aspire Sculpture Riparian Woodland: (46,328 sf) This area of the park is dominated by an interactive riparian corridor. The riparian corridor is a heavily used attraction within the park with lots of pedestrian trails interwoven along the corridor. The Aspire Sculpture over looks the riparian corridor and is placed in a fairly open woodland. There is a very manageable non native invasive population throughout this area. Clearing the Eastern edge of the riparian corridor and surrounding slopes would increase the view of the riparian corridor from the existing concrete pathway.

See attached schedule for task pricing and scheduling.

Limits of the area are the highlighted in grey.



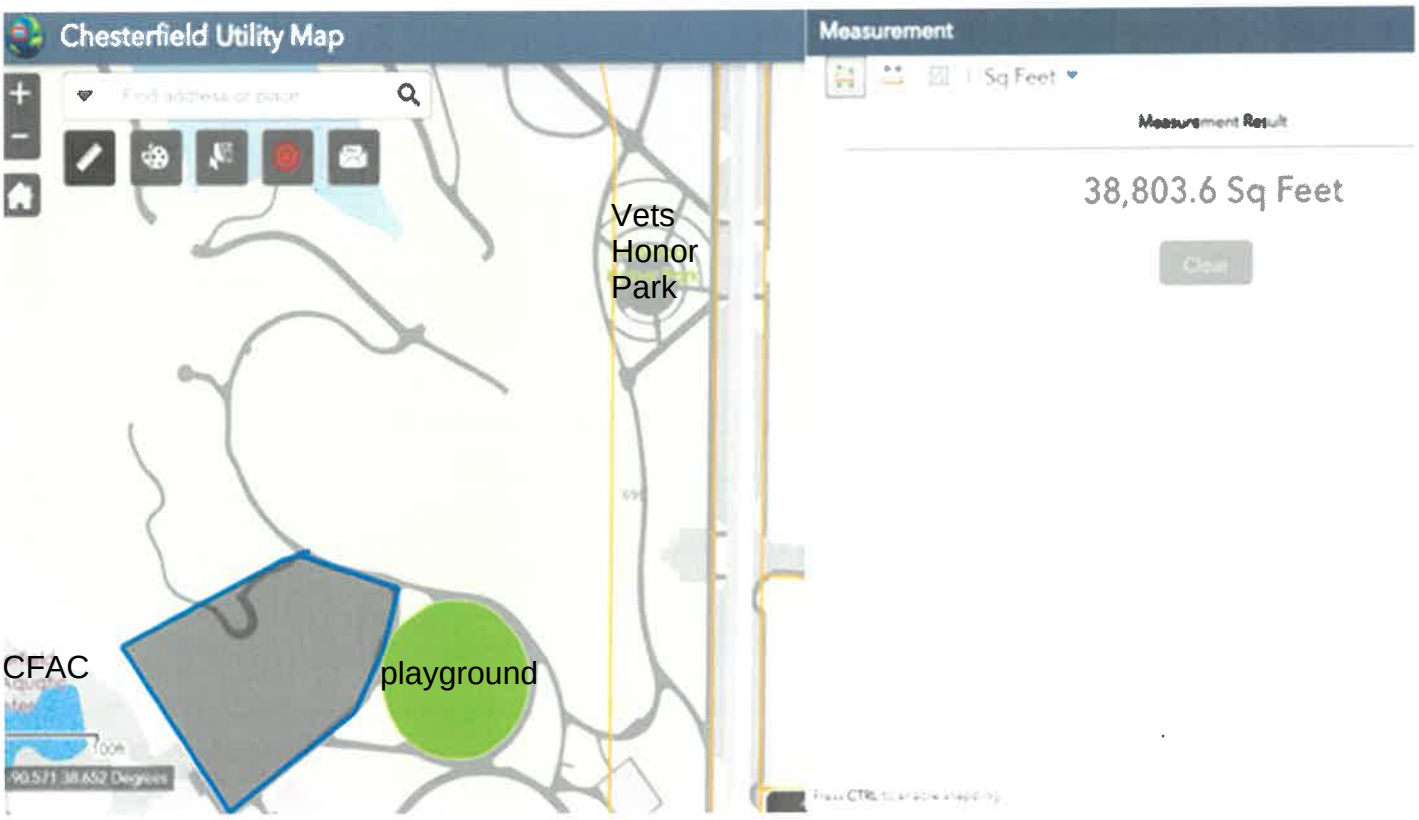
Native Stewardship Strategy

Scope of Work

Aquatic Center Apron: (38,803 sf) This area of the park adjoins the aquatic center perimeter fence to the southwest and abuts the riparian corridor and playground area. These edges of the area are impacted by large Bush Honeysuckle and Autumn Olive. Cut, treat and chip would be the recommended method for these invasives. Smaller invasives and Sericea Lespedeza can be treated with a targeted foliar application. This area will benefit from future seeding of native grasses, sedges and forbs to enrich the native plant community.

See attached schedule for task pricing and scheduling.

Limits of area are highlighted in grey.



Native Stewardship Strategy

Pricing Format by Year

2024

Location	Activity	Month	Cost
The Playground Knoll:	Cut, treat & Chip:	August	$ 7,700.00
	Foliar Application	November	$ 2,485.00
	Native Grass Seeding	December	$ 1,840.00
Box Office Overlook:	Cut, treat & Chip:	August	$ 7,700.00
	Foliar Application	November	$ 2,485.00
	Native Grass Seeding	December	$ 1,840.00

2025

Location	Activity	Month	Cost
The Playground Knoll:	Stewardship	April, June & August	$ 1,884.00
	Native Forb Seeding	December	$ 3,840.00
Box Office Overlook:	Stewardship	April, June & August	$ 1,840.00
	Native Forb Seeding	December	$ 3,840.00
Aqua Center Apron:	Cut,treat & Chip	February	$ 6,270.00
	Foliar Application	November	$ 2,175.00
	Native Grass Seeding	December	$ 1,840.00
Amphitheatre Lake:	Cut,treat & Chip	February	$ 3,720.00
	Foliar Application	November	$ 1,240.00
	Native Grass Seeding	December	$ 1,090.00
Aspire Sculpture Area:	Cut,treat & Chip	August	$ 7,700.00
	Foliar Application	November	$ 2,485.00
	Native Grass Seeding	December	$ 1,840.00

Native Stewardship Strategy

Pricing Format by Year

2026

Location	Activity	Month	Cost
The Playground Knoll:	Stewardship	April, June & August	$ 1,884.00
	Foliar Application	November	$ 1,125.00
Box Office Overlook:	Stewardship	April, June & August	$ 1,840.00
	Foliar Application	November	$ 1,125.00
Aqua Center Apron:	Stewardship	April, June & August	$ 1,674.00
	Foliar Application	November	$ 1,240.00
	Native Forb Seeding	December	$ 3,625.00
Amphitheatre Lake:	Stewardship	April, June & August	$ 1,884.00
	Foliar Application	November	$ 625.00
	Native Forb Seeding	December	$ 1,850.00
Aspire Sculpture Area:	Stewardship	April, June & August	$ 1,884.00
	Foliar Application	November	$ 1,125.00
	Native Forb Seeding	December	$ 3,840.00

Native Stewardship Strategy

Pricing Format by Year

2027

Location	Activity	Month	Cost
The Playground Knoll:	Stewardship	April, June & August	$ 1,944.00
	Foliar Application	November	$ 1,235.00
Box Office Overlook:	Stewardship	April, June & August	$ 1,944.00
	Foliar Application	November	$ 1,235.00
Aqua Center Apron:	Stewardship	April, June & August	$ 1,725.00
	Foliar Application	November	$ 1,45.00
Amphitheatre Lake:	Stewardship	April, June & August	$ 1,884.00
	Foliar Application	November	$ 655.00
Aspire Sculpture Area:	Stewardship	April, June & August	$ 1,944.00
	Foliar Application	November	$ 1,475.00

NATIVE LANDSCAPE SOLUTIONS, INC.
OUR ROOTS RUN DEEP

City of Chesterfield
Central Park

NNIP & Stewardship calendar/costs

6/19/2024

				Cut, Treat & Chip			Foliar Application		Grass Seeding		Forb Seeding		Stewarship		
Stewardship 2024	**Acreage**	**Cost/year**	**Total Qty**	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
The Playground Knoll 47,980 sf	1.1	$12,095	3								$7,770			*$2,485*	*$1,840*
Box Office Overlook 50,876 sf	1.17	$12,095	3								$7,770			*$2,485*	*$1,840*
Aqua Center Apron 38,803 sf	0.89	$0													
Amphitheatre Lake SW Apron 19,434 sf	0.45	$0													
Aspire Sculpture Woodland 46,328 sf	1.17	$0													
Total for 2024		$ 24,190.00									*$15,540*			*$4,970*	*$3,680*

Stewardship 2025		**Cost/year**	**Total Qty**	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
The Playground Knoll 47,980 sf	1.1	$5,724	4				*$628*		*$628*		*$628*				*$3,840*
Box Office Overlook 50,876 sf	1.17	$5,724	4				*$628*		*$628*		*$628*				*$3,840*
Aqua Center Apron 38,803 sf	0.89	$10,285	3		*$6,270*									*$2,175*	*$1,840*
Amphitheatre Lake SW Apron 19,434 sf	0.45	$6,050	3		*$3,720*									*$1,240*	*$1,090*
Aspire Sculpture Woodland 46,328 sf	1.17	$12,095	3								*$7,770*			*$2,485*	*$1,840*
Total for 2025		$ 40,573.00			*$9,990*		*$1,256*		*$1,256*		*$9,026*			*$5,900*	*$12,450*

Stewardship 2026		**Cost/year**	**Total Qty**	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
The Playground Knoll 47,980 sf	1.1	$3,009	4				*$628*		*$628*		*$628*			$1,125	
Box Office Overlook 50,876 sf	1.17	$3,009	4				*$628*		*$628*		*$628*			$1,125	
Aqua Center Apron 38,803 sf	0.89	$6,539	5				*$558*		*$558*		*$558*			$1,240	*$3,625*
Amphitheatre Lake SW Apron 19,434 sf	0.45	$3,615	5				*$380*		*$380*		*$380*			$625	*$1,850*
Aspire Sculpture Woodland 46,328 sf	1.17	$6,849	5				*$628*		*$628*		*$628*			$1,125	*$3,840*
Total for 2026		$ 20,012.00					*$2,822*		*$2,822*		*$2,822*			*$5,240*	*$9,315*

Stewardship 2027		**Cost/year**	**Total Qty**	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
The Playground Knoll 47,980 sf	1.1	$3,179	4				*$648*		*$648*		*$648*			*$1,235*	
Box Office Overlook 50,876 sf	1.17	$3,179	4				*$648*		*$648*		*$648*			*$1,235*	
Aqua Center Apron 38,803 sf	0.89	$3,175	4				*$575*		*$575*		*$575*			*$1,450*	
Amphitheatre Lake SW Apron 19,434 sf	0.45	$1,870	4				*$405*		*$405*		*$405*			*$655*	
Aspire Sculpture Woodland 46,328 sf	1.17	$3,419	4				*$648*		*$648*		*$648*			*$1,475*	
Total for 2027		$ 11,643.00					*$2,924*		*$2,924*		*$2,924*			*$6,050*	


City of Chesterfield Mapping Service
Amphitheater
CHESTERFIELD PARK DR
VETERANS PLACE DR
Lake SW Apron
Sculpture Riparian
Woodland
Vets
Honor
Park
Playground
Knoll
Box Office
Overlook
Aquatic Center Apron
Chesterfield
Aquatic Center
playground