



BROKEN ARROW

Where opportunity lives

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I. Summary

The Monarch Butterfly is in rapid decline and the United States, Canada, and Mexico are working to restore the Monarch populations. The City of Broken Arrow can do its part by planting Monarch Waystations which consist of native pollinators and milkweed. The U.S. Fish and Wildlife Service has a target goal of a quarter billion butterflies by 2020. We have identified six locations for initial Monarch Waystation sites, with a combined total of 3.2 acres. Among the sites will be both aesthetically pleasing ornamental sites and more natural wildflower plots with lower maintenance needed. Implementation will cost \$15,173.00. Project is ready to proceed pending approval and a funding source.

II. Introduction

The Monarch Butterfly is the iconic orange-and-black butterfly known for its extraordinary annual migration up to 2,000 miles one way from points all over the United States to overwintering sites in central Mexico.

Over the past 20 years, the North American Monarch Population has plunged from a high of one billion to less than sixty million, due mostly to loss of critical habitat.

Recent surveys of the wintering Monarchs in Mexico show the population has fallen to as low as ten percent of its 20-year average. A decline in milkweed and nectar plants in the Midwest has reduced the capacity of the population to recover to sustainable levels.

Starting in September and October, eastern/northeastern populations migrate from southern Canada and the United States to over-wintering sites in central Mexico where they arrive around November. They start the return trip in March, arriving back around July. No individual butterfly completes the entire round trip. Female monarchs lay eggs for the next generation during the northward migration and at least five generations are involved in the annual cycle. The last generation makes the trip south into Mexico and can live up to eight months.

The U.S. Fish and Wildlife Service set a Monarch population goal of 250,000,000 by 2020. Broken Arrow is an ideal location to help reach the USFWS goal and help the Monarchs because we are in the center of their migration paths.

III. Goals/Objectives

- Mayors' Monarch Pledge – www.nwf.org/MayorsMonarchPledge
- Register & Certify milkweed locations as Monarch Waystation Sites- www.monarchwatch.org/waystations/certify.html
- Volunteer created community event
- Public education and involvement with intention of public doing plantings on private properties.

IV. Scope of Work

According to the Monarch Waystation Registry in Broken Arrow there are currently five certified Monarch Waystations. The City of Broken Arrow currently has no Monarch Waystation sites or regular milkweed plots. The Parks Department along with members of the community identified locations for Waystation sites. Among these sites will be both aesthetically pleasing ornamental sites and more natural wildflower lower maintenance sites. Volunteers have offered assistance with the program to communicate with the public, organize events, and encourage citizen participation at their homes and businesses. City departments have also offered assistance toward the program. The Parks Department and Battle Creek Golf Course will install and maintain the initial Monarch Waystations.

Locations:

- | | |
|---------------------------|-----------------|
| ➤ Broadway Street Gateway | 560 sq. ft. |
| ➤ City Hall | 100 sq. ft. |
| ➤ Jackson Park | 900 sq. ft. |
| ➤ Ray Herral Nature Park | 3,000 sq. ft. |
| ➤ Veterans Park | 10,350 sq. ft. |
| ➤ Battle Creek GC | 124,802 sq. ft. |

V. Timetable

The expected timetable for the project has been planned / scheduled by phases, and a schedule is provided below.

	Description of Work	Start Dates
Fall Phase	Construct beds and sow seed	November 1 st , 2016
Spring Phase	Install plants in ornamental sites	March 1 st , 2017

VI. Maintenance

The ornamental sites will have regular 2-3 week maintenance cycle. Nutrients will be added to achieve proper conditions, density will be managed by plot thinning, beds will be mulched, dead stalks removed, beds will be watered as needed to maintain growth, and invasive species removed from beds. Treat for aphids and milkweed bugs if necessary using liquid dish soap with 1.5 tablespoons per gallon of water.

The native sites will be mowed to a height of 3-6 inches (or above the height of the seedlings) whenever competing vegetation begins to completely shade the seedlings during the first year. Do not mow once the plantings have gone dormant in late fall. During the second year, mow if weeds are out competing the native wildflowers/milkweed. The second year mowing should only be completed between March 15th and May 1, or make certain mow above height of forb seedlings. Once established mowing will be once per year. Spot treat undesirable plants. Sites will be soil tested and nutrients added as needed.

VII. Budget

The expected budget is provided below.

	Description of Work	Anticipated Costs
Broadway Street Gateway	Install Kwik Kerb border, irrigation, soil, and plants. KBAB grant of \$2200 available but must be used at Broadway site landscaping. Register site with signage.	\$1,664.00 if grant money used.
City Hall	Install Kwik Kerb border, irrigation, soil, and plants. Register site with signage.	\$1,494.00
Jackson Park	Use existing border, install irrigation, soil, and plants. Register site with signage.	\$2,584.00
Ray Herral Nature Park	Four sites at this location. Install irrigation, plants, and sow seed. Current or no border used. Register site with signage.	\$2,623.00
Veterans Park	Site Prep and Sow seed on East pond bank. Register site with signage.	\$534.00
Battle Creek Golf Course	Site Prep and Sow seed in native areas along #1 Tee, #6 Tee, between #13 Tees, and #14 Green. Register site with signage.	\$6,274.00
	Total	\$15,173.00

Source for donated seed hasn't been found.

VIII. Implementation Team

Brad West, Project Coordinator / Grounds Supervisor

Scott Esmond, Parks & Recreation Director

Phillip Hink, Park Maintenance Manager

Chris Ohler, Horticulturist

Will Heffernan, Battle Creek G.C. Superintendent

Jill Gerardi-Spurgeon, Volunteer

Janet Skates, Volunteer

IX. Evaluation

The phases were titled Fall and Spring phases to correlate the sowing and planting with the actual weather conditions. Most of which will be evaluated after establishment of plant material.

X. Future Recommendations

Several other locations have been reviewed and/or documented for the project pending the outcome of the initial year. There is potential for unknowns such as percentage of germination, plant loss, and maintenance issues our staff would like the opportunity to evaluate before making future recommendations. If the public embraces the Monarch Waystations and community involvement is present the Monarch Project has plenty of room to grow.

XI. Next Steps

Will proceed based on project approval and an established direction for project funding.



Broadway Street Gateway



Jackson Park



City Hall





Veterans Park



Ray Herral Nature Park

