

# Tony Aguirre Community Center Rain Gardens

A Proposal to the Kansas City, MO,  
Parks and Recreation Department

# Problem/Opportunity

- Tony Aguirre Community Center and Villa Del Sol stormwater runoff contributes to flooding at the intersection of 21<sup>st</sup> Street and West Pennway
- Water from the community center puddles in the center's yard, creating a haven for mosquitoes and impeding foot traffic.
- Stormwater runs into storm drains on the property and in the street—adding stress to local infrastructure and sending untreated water into the Missouri River.
- Animal waste, car oil, and other natural and synthetic pollutants run into the Missouri River.

# Problem/Opportunity

- In modest neighborhoods in Kansas City, such as the Westside, rain gardens aren't understood to be useful.
- Westsiders may not know or have considered the benefits rain gardens bring to individual properties and to the community.
- Rain gardens present an aesthetic different from conventional flower gardening, leading those who know little of rain gardens to discount their value landscape amenities and property enhancements.
- Rain gardens can connect people to people, and people to the larger environmental issues affecting them, such as climate change, urban air and land quality, and community life and relationships.



**A look uphill to community center overflow parking areas. To the right is Observation Park.**



**The slope from Observation Park toward the Community Center yard and butterfly garden.**



Swimming pool roof, drain, and downspouts leading to the butterfly garden and depression in the Community Center Yard



**Berm and condition of present community center yard**



Rain garden opportunity at the lowest point in the Community Center yard. Above the drain is the butterfly garden.

# Solutions

- Build and maintain two rain gardens on community center grounds.
- Create a functional and attractive base of native plantings. These deep-rooted species will help absorb and clean water before it gets the chance to run off into the street.
- With a broad neighborhood and local constituency, the center presents a perfect opportunity to demonstrate the functionality of rain gardens and their aesthetic benefits.

# Solutions

- Provide opportunities building, planting, and maintaining rain gardens for volunteers working with several Westside citizen committees and groups.
- Many people who will volunteer are active in the community on many levels. Their experience will be invaluable in raising interest and awareness about water quality issues on the Westside.
- Provide educational and interpretive materials to community members about the environmental and human benefits rain gardens and native plants.
- Connect the rain garden to the community and help to begin community discussions about larger issues, such as climate change, urban air and land quality, and community relationships.

# Proposal

- Because of its location, the center grounds experience above normal to severe water runoff from the hill, the center's overflow parking lot, and from the center's roof.
- We propose to build two rain gardens totaling 1,140 square feet on the grounds of the Tony Aguirre Community Center. (Garden nearest community center:  $2,500 \text{ f}^2 \times .30 = 780 \text{ f}^2$ ; garden nearest Riverfront Heritage Trail, drainage from hill and trail:  $1,200 \text{ f}^2 \times .30 = 360$ .)
- Rain gardens will be located on either side of a large berm located east of the center near West Pennway.



**Toward berm and rain garden sites, from north—note location of storm drain.**

The berm is the site of a community butterfly garden, which is registered with the nonprofit MonarchWatch and the University of Kansas as a Monarch Waystation (Waystation ID #1750).



**Larger rain garden, 780 f<sup>2</sup>, draining patio, sidewalk,  
community center roof (2500 f<sup>2</sup>), from north**

Red marks the rain garden and the blue marks major water entry into the garden and places where erosion must be checked.



Larger rain garden from northeast wall



**Clearer view of depression on community center side of the berm.**



Again, from the slope above.



**Riverfront Heritage Trail and Butterfly**



**View from center of proposed rain garden toward community center, from north.**



**Sidewalk and patio that drains toward larger rain garden.**



**View from picnic area toward proposed rain garden site, from southwest**



**From inside the community center toward butterfly garden and proposed rain garden site.**



Smaller rain garden site, from north.



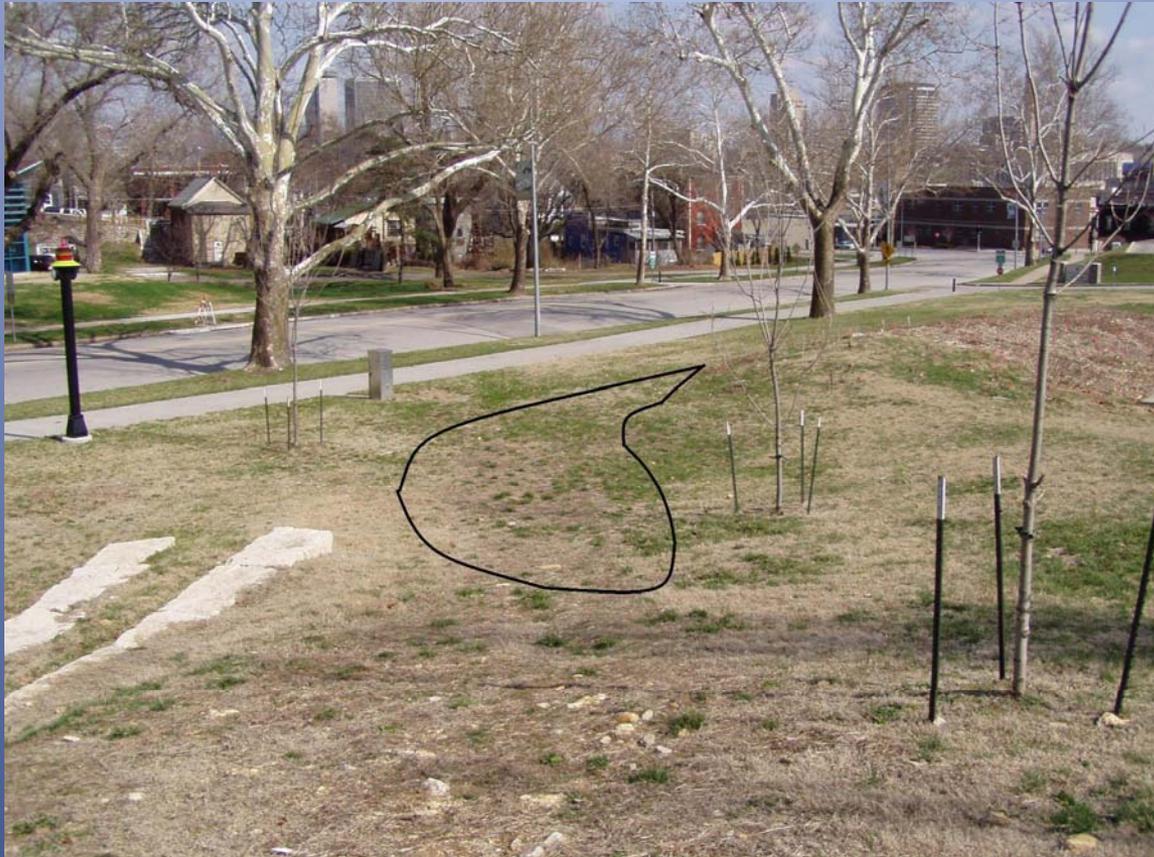
**View uphill, toward Villa Del Sol, from site of proposed smaller rain garden, from southeast.**



**Smaller rain garden site in relation to the Riverfront Heritage Trail.**



**Amphitheatre next the smaller rain garden.**



**View down toward smaller rain garden site.**

# Tasks

- Excavation of garden areas with bobcat or other park excavator.
- Tilling and loosening soil in the garden areas with garden tiller and hand labor by volunteers.
- Soil Amendment: Mixing mulch and excavation soil by hand by volunteers.
- Backfilling excavated areas to within six inches of surrounding soil by hand with volunteers.
- Using rock to ring the outer edges of the gardens and creating rocked run-in areas to diminish the amount of soil eroding into the gardens, all by hand with volunteers.
- Planting and mulching, by hand with volunteers, Youth Conservation Corps workers, and Missouri Department of Conservation employees, scheduled for June 13.

# Schedule

- We plan to begin the rain garden project on or near May 15, working with Parks Department and other Partners to coordinate excavation.
- Excavation should begin on or around June 1.
- With volunteers, Missouri Department of Conservation employees, and Youth Conservation Corps workers, we plan to have the rain garden completed June 15.

# Anticipated results

- 1. Show the effectiveness of rain gardens at retaining and mitigating stormwater runoff. While the reduction from the smaller rain garden near the Riverfront Heritage Trail will only be slight, we can expect a large reduction in water going down the storm drain on the community center grounds. The drain will act as an overflow from the rain garden.
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- Community members will think seriously about constructing rain gardens on their own properties.
- Volunteers will be able to consult and advise on these projects.
- Promotion of the rain garden idea.
- We also seek to promote the natural benefits of the rain garden with our elementary school children (Primitivo Garcia World Language School), and among the constituencies of the community center and public library.
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- At the very least, we see the rain garden as a good-faith, blood and bones effort to improve our community center grounds, mitigate stormwater runoff, and to introduce an appreciation of native plant and animal species.

# Native plant and animal species

This is a listing of possible plant species for the rain garden, and animal species the rain garden could attract.



## Canadian Goldenrod

This plant presently grows along the edges forested areas of Silk Stocking Ridge west of Holly and Mercier Streets, and Beardsley Road. It spreads on strong rhizomes—underground stems that push roots below and shoots above them. This flower can grow to four feet tall outside of the forest setting.



## Little Bluestem

This is a common grass of the western and Missouri prairies. It is also present along highway right-of-ways, and in limited areas along Silk Stocking Ridge. It grows to 24 inches and its deep roots reach as much as 12 feet below the ground.



## **Sideoats grama**

This deep-rooted grass is common in Missouri prairies and was once a dominant grass, along with Big and Little Bluestem along dry edges of riverbottoms, such as the West Bottoms.



## **Prairie Dropseed**

Prairie Dropseed is a subtle and prolific grass in Missouri upland prairies.



## **Lanceleaf Coreopsis**

This 2- to 2 ½-foot flower is known for startling arrays of sulphur-yellow flowers that attract several species of butterflies and bees.



## Prairie Blazing Star

The stunning flower stalks of the Blazing Star can grow to five feet. Honeybees, bumblebees, Little Carpenter bees, Miner bees, and Leaf-Cutting bees find this flower irresistible. Butterfly visitors include Monarchs, Swallowtails, Painted Ladies, Sulfurs, Whites, and others. The caterpillars of the rare *Schinia gloriosa* (Glorious Flower Moth) feed on the flowers and seed capsules.



## **Black-Eyed Susan**

This is the most common of American wildflowers and a prolific prairie plant. It can often be seen growing next to highways, in open fields, and flower gardens, reaching a height of three feet.



## **Echinacea (Purple Coneflower)**

The Purple Coneflower is a deep-rooted flower that blooms from July to October. This 3- 4-foot wildflower is known for its medicinal properties and is prized by gardeners for its ability to tolerate long periods of rain and drought.



## **New England Aster**

This flower grows in low-lying areas and forest edges from Missouri to Maine and from North Carolina to North Dakota. It can grow to six feet, but most often it grows between two and three feet tall.



## Blue Sage

This perennial is a Missouri native on limestone glades, prairies, and open ground. It grows 3-5' tall with flowers that bloom summer to fall. Blue Sage is in the mint family member and attracts bees and butterflies.



## Wild Quinine

Once used as substitute for quinine in World War I, this white flower is native to Missouri meadows, prairies, and forest edges. It grows between 2 and 3 feet tall and attract numerous bees and butterflies.



**Blue Wild Indigo**



## **Baldwin's Ironweed**

This 2- to 5-foot flower is often found in Missouri glades, prairies, and forest edges. It attracts a number of butterflies and bees, and is known for its ability to grow in various soils and to withstand drought.



## Soft Rush

Soft rush grows in dense clusters from rhizomes, up to 3 1/2 feet in height. Stems are dark green, singular (not branched), soft, with fine vertical lines, round in cross section, with a sharp tip, and with sheaths around the base.



**Gray tree frog (*Hyla versicolor*)**

Missouri's most common species of treefrog once populated springs and permanent seeps along Silk Stocking Ridge. Still present in the neighborhood, it can be identified in summer and fall by its birdlike trill.



### **Plains Leopard Frog (*Rana blairie*)**

This river and prairie frog eats a number of insect pests and is, itself, preyed upon by our numerous garter snakes. Its chuck-chuck-chuck call can be heard in spring and fall at dusk.



**Blanchard's Cricket Frog (*Acris crepitans blanchardi*)**

This tiny frog (5/8" to 1 inch) is known by its gick-gick-gick call. It preys on mosquitoes, gnats, and other small insects.



### **Eastern American Toad (*Bufo americanus americanus*)**

This is the most common toad in Missouri. It is a common resident of our compost heaps and brush and leaves in untended alleys. It eats earthworms and a number of beetles, including cockroaches and other pests.



**Western Chorus Frog (*Pseudacris triseriata*),**

Most of the summer, this secretive frog hibernates beneath the ground. But in spring it frequents temporary puddles and seeps.



**Northern Spring Peeper (*Pseudacris crucifer crucifer*)**

This tiny frog (3/4" to 1") is a true harbinger of spring. Their high-pitched, peeping call can be heard along Silk Stocking Ridges on warm spring nights and during the day in early summer and fall.



### **Five-lined Skink (*Umececes fasciatus*)**

The Five-Lined or “Blue Tailed” Skink lives in niches and holes in our many rock terraces and vacant lots, where it feeds on small frogs and insects.



### **Western Worm Snake (*Carphophis vermiformis*)**

This small snake (7" to 11") lives among our rock walls and under logs and boards in wooded fringes along alleys and around vacant lots, where it eats earthworms and insects.



**Prairie Ring-neck Snake (*Diadophis punctatus arnyi*)**

This small snake (6" to 10") finds home under rocks in our yards and along alleys and rock walls. It eats all manner of soft-bodied animals, including earthworms, slugs, and insects.



**Lined Snake (*Tropidoclonion lineatum*)**



**Black Rat Snake (*Elaphe obsoleta*)**



### **Eastern Garter Snake (*Thamnophis sirtalis sirtalis*)**

Garter snakes often are found under boards, rocks or other objects in city lots. The Eastern Garter Snake is the most common of Missouri's five garter snakes species. It eats mice and insects.

# Partners

- 15-20 Westside resident volunteers: Labor for project
- Kansas City, MO, Parks and Recreation Department: Excavation, mulch, and rock—Steve Lampone
- Missouri Youth Conservation Corps: Labor for planting and mulching—Jillian Hishaw, YCC
- Missouri Conservation Department: Supervision, labor, and advice—Wendy Sangster, MDC
- Hallmark: \$500 for plants—Wendy Sangster

# Partners

- Tony Aguirre Advisory Committee: 4-5 volunteers and supervision of work progress—Patrick Dobson and Ezekiel Amador
- WAY Coalition (Westside Action for Youth): 4-5 volunteers—Lynda Callon
- Kansas City Public Library: Educational materials, books, Web access—Julie Robinson
- Mattie Rhodes Center: Native stone from property at 20<sup>th</sup> Street and West Pennway—John Fierro

# Partners

- Westside Housing Organization: Native stone from property at 20<sup>th</sup> Street and West Pennway—Katherine Walker
- Westside CAN Center, Lynda Callon

# Budget

## Labor and supervision (less community volunteers):

- Parks Department employee and excavator for 4 hours @ \$75=\$300
- Youth Conservation Corps: 15 workers @ \$7/hour x 12 (hours)=\$1,260
- YCC Crew Leaders supervisors/workers: 2 @ \$12/hour x 12=\$288
- Missouri Department of Conservation supervisor: 1 @ \$16/hour x 12=\$192
- Missouri Department of Conservation biologists: 2 @ \$18/hour x 12=\$432

## Materials

- Plants:  $(1,140 \text{ f}^s / 2.25 \text{ f}^s) 507 \times \$8/\text{plant} = \$4056$
- Rock: Outline of garden:  $154' \times (2 \times 4'') = 3 \text{ tons (House of Rocks)} @ \$182 = \$546$
- Soil Amendment and Cover: Compost and Mulch:  $18 \text{ yards}^3 @ \$35/\text{yard}^3 = \$630$
- $120 \text{ f}^2$  stone for water inlets and outlets @  $\$360/\text{ton} \times 2 = \$720$
- Five tons of flagstone for walkways, bench foundations, and garden decoration ( $70 \text{ f}^2/\text{ton}$ ) @  $\$182/\text{ton} = \$910$
- **Total project labor and materials: \$9,334**

# Commitments

## Costs funded in-kind and cash:

- Kansas City, MO, Parks Department employee and excavator for 4 hours @ \$75=\$300
- Youth Conservation Corps: 15 workers @ \$7/hour x 12 (hours)=\$1,260
- YCC Crew Leaders supervisors/workers: 2 @ \$12/hour x 12=\$288
- Missouri Department of Conservation supervisor: 1 @\$16/hour x 12=\$192
- Missouri Department of Conservation urban biologists: 2 @ \$18/hour x 12=\$432
- KC Parks Department, Mulch: 18 yards<sup>3</sup> @ \$35/yard=\$630
- Mattie Rhodes and Westside Housing Organization: Rock, 2 tons @ \$182/ton=\$364
- Hallmark Foundation: \$500 for plants=\$500
- Missouri Department of Conservation: \$500 for plants=\$500
- Expected donations from neighborhood fundraising: \$201
  
- **Subtotal commitments from community and partners (less community volunteers): \$4,667**

# MARC Grant Request

- **Matching MARC Water Quality Education Grant request: \$4,667**
- **Total commitments and grant: \$9,334**