



Saddle Hills & TV Towers Neighborhood Project

Assessing Green Infrastructure on a Watershed Scale

City of Omaha Stormwater Program

SITE AND PROJECT SUMMARY

The Saddle Hills and TV Towers Neighborhoods are located near 78th and Crown Point Avenue in north central Omaha and are part of a 160-acre watershed. The watershed is divided into two distinct sub-watersheds by a ridge, with each watershed having its own storm sewer system.

The project began when the owner of the property at the bottom of the watershed sought solutions to the significant runoff depositing sediment from the neighborhood above. The University of Nebraska at Lincoln received an Urban Waters Grant from the EPA to evaluate the watershed and develop educational programs and tools to inform local residents about stormwater issues and green infrastructure solutions. Many people and organizations came together for this project, including the Saddle Hills Neighborhood Association, TV Towers Neighborhood Association, Emmanuel Fellowship Church, the University of Nebraska at Lincoln and Omaha, Omaha Stormwater Program, and the Nebraska Statewide Arboretum. Mobile apps, outreach materials, workshops, and many other beneficial efforts were developed with the project.

Both the North and South watersheds had flow sensors installed in the storm sewers in 2011 to monitor the amount of runoff from the neighborhoods. A rain gauge at the west end of the neighborhood

relates the amount of rainfall to the amount of runoff from the neighborhood. Monitoring will continue in the neighborhoods, providing insights into water quantity benefits of green infrastructure practices on a watershed scale as they are installed.

After the Urban Waters Project, additional funding was obtained through Nebraska Department of Environmental Quality's 319 program to construct six rain gardens in the south watershed. A watershed study was conducted to identify optimal locations for rain garden installation, which includes the size of contributing area, ease of construction, and visibility within the neighborhood. Four of the rain gardens were installed in cooperation with homeowners at their homes in the right-of-way and two installed in Saddle Hills Park.

The University of Nebraska at Omaha's Center for Urban Sustainability and the City of Omaha Stormwater Program continue to work with Northwest High School to provide educational resources to teach students about stormwater and green infrastructure. The Saddle Hills Project is an excellent resource for this effort and engages students into their community. There has been a tremendous response from the neighborhoods over the course of this project, and the project looks to build upon that momentum going forward.

PROJECT DETAILS

| | RAIN GARDENS |
|-------------------------|---|
| Number of Rain Gardens | 6 |
| Total Contributing Area | 44.6 acres |
| Underdrain | None |
| Pre-Treatment System | Flagstone & utility box curb-wells |
| Predominant Land Use | Residential |
| Predominant Soil Types | Silty Clay loam |
| Sedges | Fox, Pennsylvania, Palm, Plains Oval |
| Perennials | Amsonia, Penstemon, Aster |
| Shrubs | Pawnee Buttes Sandcherry, Ninebark, Dogwood, Viburnum |

| MONITORING | METHOD |
|------------------------------------|--|
| Weather Conditions | Rain gauge |
| Flow from North & South Watersheds | Isco 2150 Area Velocity Module w/ Area Velocity Sensor |
| Plant health | Plant assessment worksheet |
| Infiltration of Rain Gardens | Double-ring infiltrometer, Modified Phillip-Dunne (MPD) infiltrometers, Mini-disk infiltrometers |

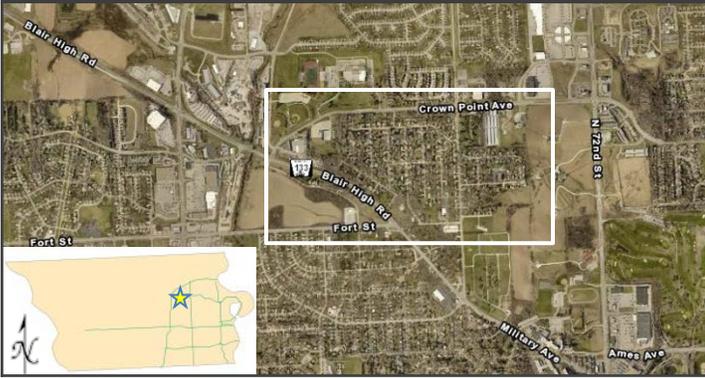


| WATERSHED SIZE | |
|--------------------|-----|
| South (acres) | 116 |
| North (acres) | 68 |
| Total | 184 |
| Percent Impervious | 40% |

| RAIN GARDEN COSTS | |
|---------------------|-------------|
| Design/Survey/Study | \$29,078.77 |
| Construction | \$43,574.38 |
| Plants | \$8,354.25 |
| Total | \$81,007.40 |

| DESIGNED BY | PLANTING PLAN BY | CONSTRUCTED BY | MONITORING/ASSESSMENT BY | MAINTENANCE BY |
|------------------|---------------------|-----------------------------------|---|----------------------------|
| Fyra Engineering | Christina Hoyt, NSA | Kloos Kutters & GreenLife Gardens | City of Omaha & UNO Center for Urban Sustainability | City of Omaha & Homeowners |

SITE LOCATION-N 78th St & Crown Point Ave



RAIN GARDEN PRETREATMENT



PHOTOS



PROJECT LAYOUT

