Rio Vista Natural Resource Park: A Plan for Its Future

Prepared for the City of Tucson's Parks and Recreation Department
by the RillitoBend Neighborhood Association
March 25, 2021

RillitoBend
NEIGHBORHOOD
ASSOCIATION

Cover: Morning view of one of Rio Vista Natural Resource Park's entrances on Cactus Blvd

Table of Contents

Appendices

Affiliated Groups

There are many groups and individuals that support the Park. For the purposes of this document, we have listed the groups within the neighborhood that support the efforts of the planning committee; the nearby neighborhoods that will be informed during the process; and groups and individuals who are passionate about the Park and wish to protect, enhance, and manage it as a natural resource park.

RillitoBend Neighborhood Association (RBNA) Board

RBNA is spearheading the effort to preserve the Park.

Stephen Brigham (President)
Linda Agen
Mary Bird
Terry DeCarolis
Lisa Fabrizio
Shirley Foerster
Nancy Fung
Wallace Kinkade
John Kovacik
John O'Hare
Cass Peel
Catlow Shipek
Estelle Stern-Eilers
Murray/Sue DeArmond (Advisors)

RillitoBend Neighborhood Advocacy Group (RNAG)

RNAG is made up of the RBNA Board (above) and the following residents of RillitoBend who are passionate about the Park and care about its future. Sponsored by the RillitoBend Neighborhood Association (RBNA).

Burke/Laura Beaumont
Sue Ann Breems
Lindy Brigham
Melanie Campbell-Carter
Leslie Eldenburg
Trica Oshant Hawkins
Mary Alice Keller
Kay Matthews
Vicky Stromee
David Tiers
Justin/Linda Turner
Rich/Sandy Young

RillitoBend NEIGHBORHOOD ASSOCIATION

www.rillitobendna.org

Nearby Neighborhoods Group (NNG)

NNG is made up of residents of the neighborhoods within a 1.5 mile radius of the Rio Vista Natural Resource Park, who have a vested interest in the Park's future, and who are consulted by the City when major changes are considered.

Cabrini	Donna M. King
Campus Farm	Jim Brooker, Chair
	Bonnie Poulos, contact
Hedrick Acres	Glenn Perkins, Co-Chair
	Linda Drew, Co-Secty
La Madera	Russ Scott
Mountain View	Maria Voris, VP
	Lisa Polita, Secty
Richland Heights East	Maureen Pollack, Pres
	Sandra L. Miller, Secty
	Catherine Sharp
Richland Heights West	John Mulholland
	Ellen Caldwell
Historic Winterhaven	Jennifer Pershing
Townhomes at Winterhaven	Jennifer Treece, Pres

Special Thanks

Thanks to all the neighbors, volunteers, and local organizations that support the Park.

Archaeology Southwest
Laurel Cooper
Desert Archaeology
HawkWatch International
Hitching Post Ranch
Mattress Firm (Tucson Clean and Beautiful)
Native Seeds/SEARCH
National Phenology Network
Southwest Monarch Study
Ron/Marcia Spark
Tucson Audubon
Watershed Management Group

And to the City of Tucson's Ward 3 Office and Parks and Recreation Department for their guidance and support.

What is a Natural Resource Park?

A natural resource is a naturally occurring substance or feature of the environment. Natural resources can be, and often are, exploited by humans. A park connotes a place that is protected and used for enjoyment. A "natural resource park" is thus a place that protects the health of its natural resources including the vegetation, wildlife, and landscape as well as its inherent hydrologic and ecologic functions, for the enjoyment of others. At Rio Vista Natural Resource Park, its natural resources—its open space, its vegetation, and its wildlife—are protected, while also being enjoyed by visitors through passive recreation. The Natural Features of the Park can be found in Appendix I.

Introduction

Rio Vista Natural Resource Park, a 40-acre City Park in the RillitoBend neighborhood in midtown Tucson, is a welcome respite to the many visitors who enjoy its open space and passive recreational activities. Studies have shown the positive effects on mental health from being in nature, and the Park's undeveloped section offers just that: nature. Situated on an alluvial plain of the Rillito River, Rio Vista retains remnants of its original mesquite bosque, supporting a diverse array of native and migratory wildlife. Park paths, lined with creosote and mesquite, with views of the Santa Catalinas beyond, wind through the site giving walkers the sense of actually being in nature. This is a very different feeling from that of an open grassy field, and one of the reasons so many people visit the Park. One can truly feel as though they have escaped the city, and yet they are right in town. These natural elements of this Park are what make Rio Vista such a gem, and they are in jeopardy.

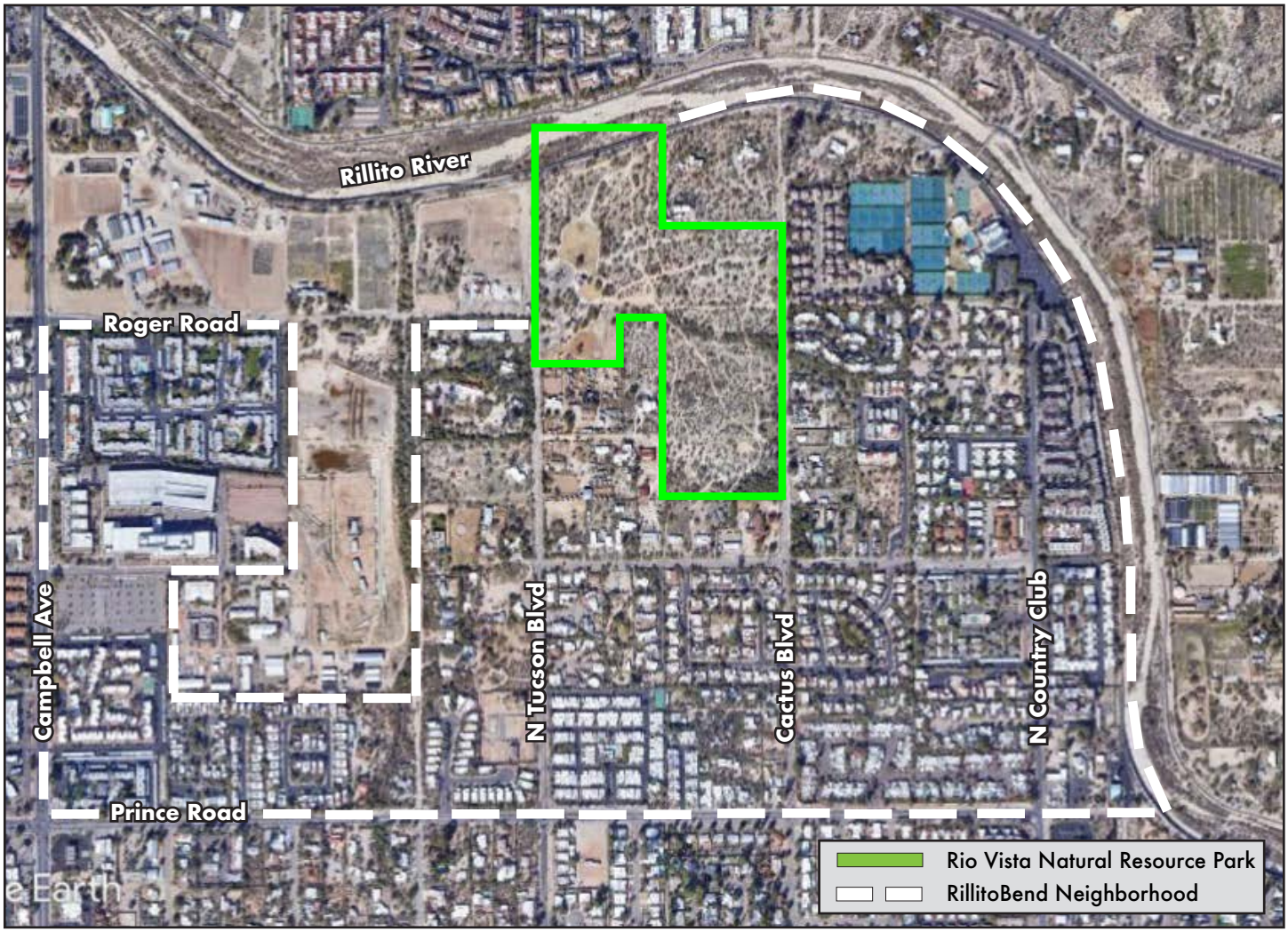
While most parks have standard procedures of care for their fields and facilities, Rio Vista, which is mostly undeveloped open space, requires different management procedures. Increased usage, long-term drought, neglect, and changing community concerns over the past 20+ years require reevaluating the management of the Park.

The main issues that threaten the future of the Park are:

1. encroachment of the Park's natural areas from "built" and "placed" human-made structures;
2. loss of natural stormwater flows from neighboring areas to support riparian habitat within the park due to drainage modifications and reduction in infiltration capacity to replenish soil moisture and shallow groundwater;
3. recent expansion of "social" or "rogue" trail networks which have led to the degradation of soil health and native vegetative cover;
4. maintenance of park infrastructure including supplemental irrigation systems associated with native mesquite tree plantings, presence of invasive and non-native plant species, and formal trail networks; and
5. legacy impacts from historic land use and management limiting resilience to drought and climate change.

These issues are critical to the life of the Park. For its long-term survival, a more thorough analysis of the Park's challenges and solutions will be conducted in a Conservation Plan, an outline of which can be found in Appendix III. The challenges of the watershed can be found in Appendix II.

Now more than ever, we must act to protect and preserve this valuable asset.



Rio Vista Natural Resource Park is located in the RillitoBend neighborhood of Tucson, AZ.

History of RillitoBend and the Park

A close-knit community of approximately 3,300 residents, RillitoBend has a long history of active engagement in preserving its open land in midtown Tucson.

In 1987, the City purchased approximately 40 acres of land in the center of the Rillito-Bend neighborhood from its residents with the intent to provide a park for the residents.

The development of Rio Vista as a Natural Resource Park posed significant challenges. Initially called the North Central District Park, it was envisioned as a built-out amenity like most of Tucson's public parks. Neighbors rallied to protect the open desert land. The process was contentious and involved many public meetings where most neighbors argued for an open, natural desert park consistent with the history and values of the surrounding neighborhood. Finally, with testimony from numerous neighbors, local

newspaper articles, and editorials supporting the neighbors' position, the City Council approved what was to become one of Tucson's first natural resource parks. The initial plan was implemented in 1999 and represented both built-out and natural areas within the Park, a compromise between the City and the residents.

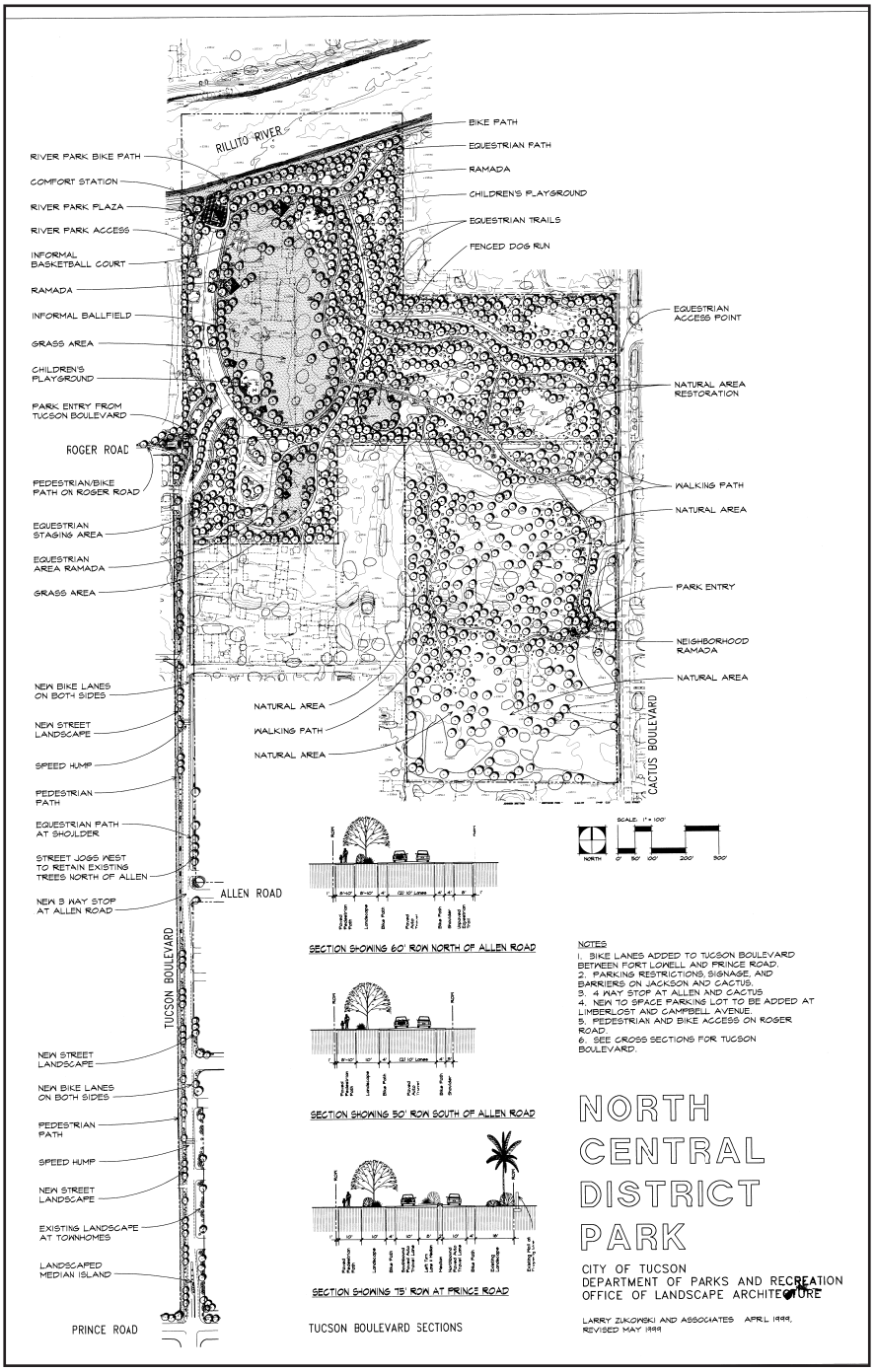
In 2008, Pima County's General Obligation Bond money of approximately $1.5 million was used to enlarge the grassy area, install restrooms and shade structures, plant/irrigate trees, and improve the egress to the River Park Loop Trail. The Park was dedicated in 2010.

Today, roughly a quarter of the Park has built-out amenities: a playground, picnic tables, grassy field, benches, drinking fountains, a bike rack, and restrooms. The remaining three quarters of the Park are undeveloped: walking paths among mesquite, creosote, and large eucalyptus trees.

Recently, the Park has become prone to "embellishments" such as a Compassion Garden, several memorial benches and more recently a large sculpture—all of which is counter to the original concept. RillitoBend and its neighbors would like to protect the Park from seemingly random additions and miscellaneous built structures unless they speak to the inherent nature of the Park.

Refer to Appendix V for more information about the Park's history and the neighborhood's efforts to retain its rural qualities and its allure as a haven for artists and nature lovers.

The Park's dedication in 2010 brought out dignitaries from the City and County.



An early Landscape Plan of the North Central District Park (aka Rio Vista Natural Resource Park) showing the developed and undeveloped areas
by Larry Zukowski and Associates, 1999

Rio Vista Natural Resource Park
Rendering by Stephen Brigham, 2020

Vision

We envision Rio Vista Natural Resource Park to be a local, accessible example of the greater Sonoran Desert. Through appropriate management, we envision the Park supporting healthy populations of native wildlife and vegetation while maintaining its open space elements for community enjoyment. The Park's vision is the community's vision—that of enjoyment in nature.

Purpose

The purpose of this document is to provide the City of Tucson's Parks and Recreation Department with an overview of the important issues that concern RillitoBend and the neighborhoods surrounding the Rio Vista Natural Resource Park. With this document, the Parks and Recreation Department, slated to start its Master Planning process in the 2nd quarter of 2021, will be better equipped and informed to execute its Master Plan in a timely manner.

By creating a stakeholder-supported "road map" that represents the needs of both the City and the community, we can protect and preserve this unique Park. As one of the few natural resource parks in Tucson, the current and future state of this Park is in crisis. This Plan supports Rio Vista's original intention and offers an informed overview of the Park's current conditions along with suggested guidelines for managing its precious resources.

We enjoy birding at the Rio Vista Natural Resource Park. It is an in-town, convenient location to spend time looking for birds and enjoying nature. Its location on the Rillito River riparian corridor is ideal for attracting birds and other wildlife. Over 133 bird species have been reported from Rio Vista to Cornell University's eBird database. It's a great place!

Betty and Peter Bengtson
Tucson Audobon

It has been joyful to experience its undeveloped open space in such close proximity to our neighborhood and the river. We have walked together (or with dogs), run, or contemplated Rio Vista in silence a couple times daily during these 2+ decades. And as we proceeded to significantly enhance the natural resource character of our own property over the years, we have always dreamed of what Rio Vista too could become. Of course, it would be simpler in natural scope within each of its many more acres; however its very size allows for countless resources to be conserved, enhanced and frankly nurtured from scratch.

John Kovacik & Leslie Eldenburg
Nearby residents of the Park

My husband and I live in midtown Tucson so we relish the expansive views and proximity of the Catalina Mountains from Rio Vista Park by the Rillito River. It's spectacular any time of day, but it is especially delighting at sunset.

There is a large grassy area near the park entrance which tends to be heavily populated since it has a well equipped playground, shade trees and picnic tables. It also attracts dog walkers.

We prefer the more solitary natural desert paths to the east although they appear to be especially fragile and vulnerable to overuse. There we may see an occasional horseback rider from the nearby stables, and we have encountered a variety of wildlife as well.

When we stumbled upon the labyrinth constructed from local rocks for the first time. It was a marvelous surprise, and we now try to incorporate it during most of our walks.

We realize it is a real challenge to oversee such a varied park of this size, but it is obviously enjoyed by residents and visitors to Tucson alike. We do hope it will be intensively maintained as a natural resource for generations to come.

Marcia Spark
Long-term Tucson resident
U of A Extension Master Gardener

Goal

The stated goal of this Plan is to preserve and protect the "Natural Resource" concept of the Park in line with the above vision statement.

Objectives

To achieve this goal the following objectives will address the issues that threaten the Park:

1. Address immediate maintenance needs of existing infrastructure and vegetation.
2. Implement an action plan that will enhance the native riparian habitat, restore the health of the natural open space, support educational opportunities, and foster long-term stewardship and enjoyment of the Park.
3. Establish a working, collaborative relationship between the City's Parks and Recreation Department and the RillitoBend community.

Recommendations to Achieve Our Shared Goal to Preserve and Protect the "Natural Resource" Concept of the Park

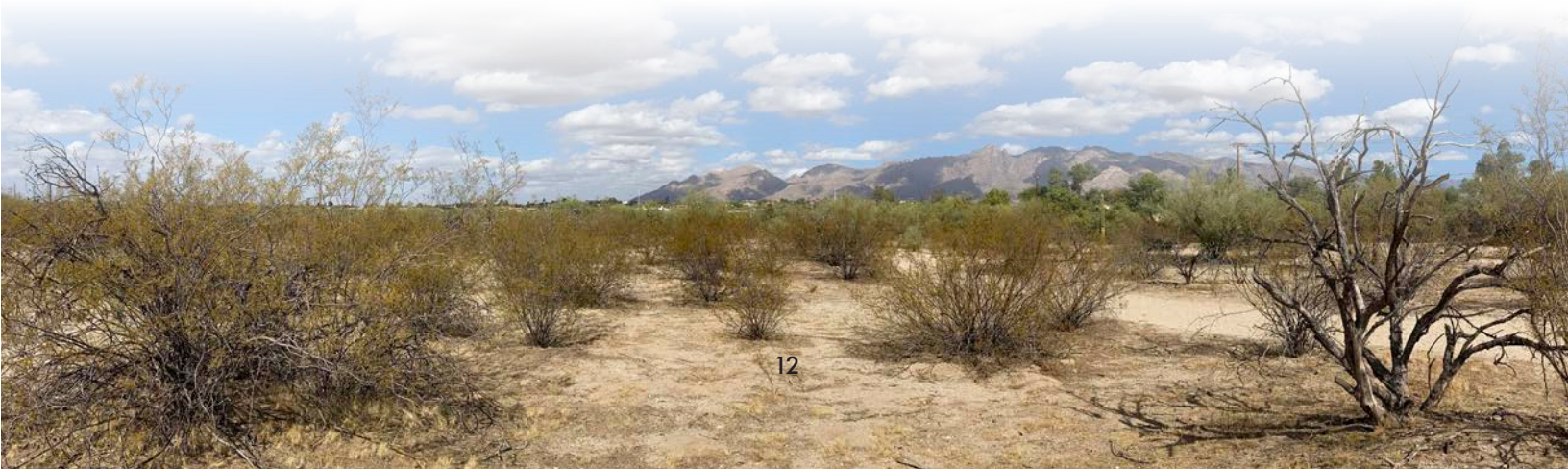
The Rio Vista Natural Resource Park is relatively small given its stated objective to provide undeveloped natural open space for the unstructured enjoyment and passive recreation of the community. Approximately twenty-five percent of the original Park plan was devoted to development with a large grassy area set aside for a playground, restrooms, and picnic ramadas. The remaining seventy-five percent was left as 'natural' (interpreted as untouched) but it still needs to be managed to preserve its integrity as a natural resource.

The objectives stated as follows include recommended actions to help us achieve the goal of preserving and protecting Rio Vista as a Natural Resource Park for generations to come.

1 Objective: Address immediate maintenance needs of existing infrastructure and vegetation

Three critical areas need to be addressed to maintain the existing vegetation: a) irrigation, b) invasive species, and c) paths.

A view north to the Catalina Mountains from Rio Vista Natural Resource Park, where the land is relatively flat and soil compacted in areas.



a. Irrigation: Existing and Extension

Background: Re-establishing native trees and shrubs is critical for the long-term health of the natural areas within the Park. The native trees provide a canopy to protect the smaller plants and animals from the intense heat and sun. They create habitat by providing food and shelter for animals like coyotes, bobcats, owls, and raptors. A Conservation Plan (see Appendix III), will address the restoration of the soil and ground cover plants, but the more immediate concern at this time of record drought paired with record high temperatures is preserving the native trees.

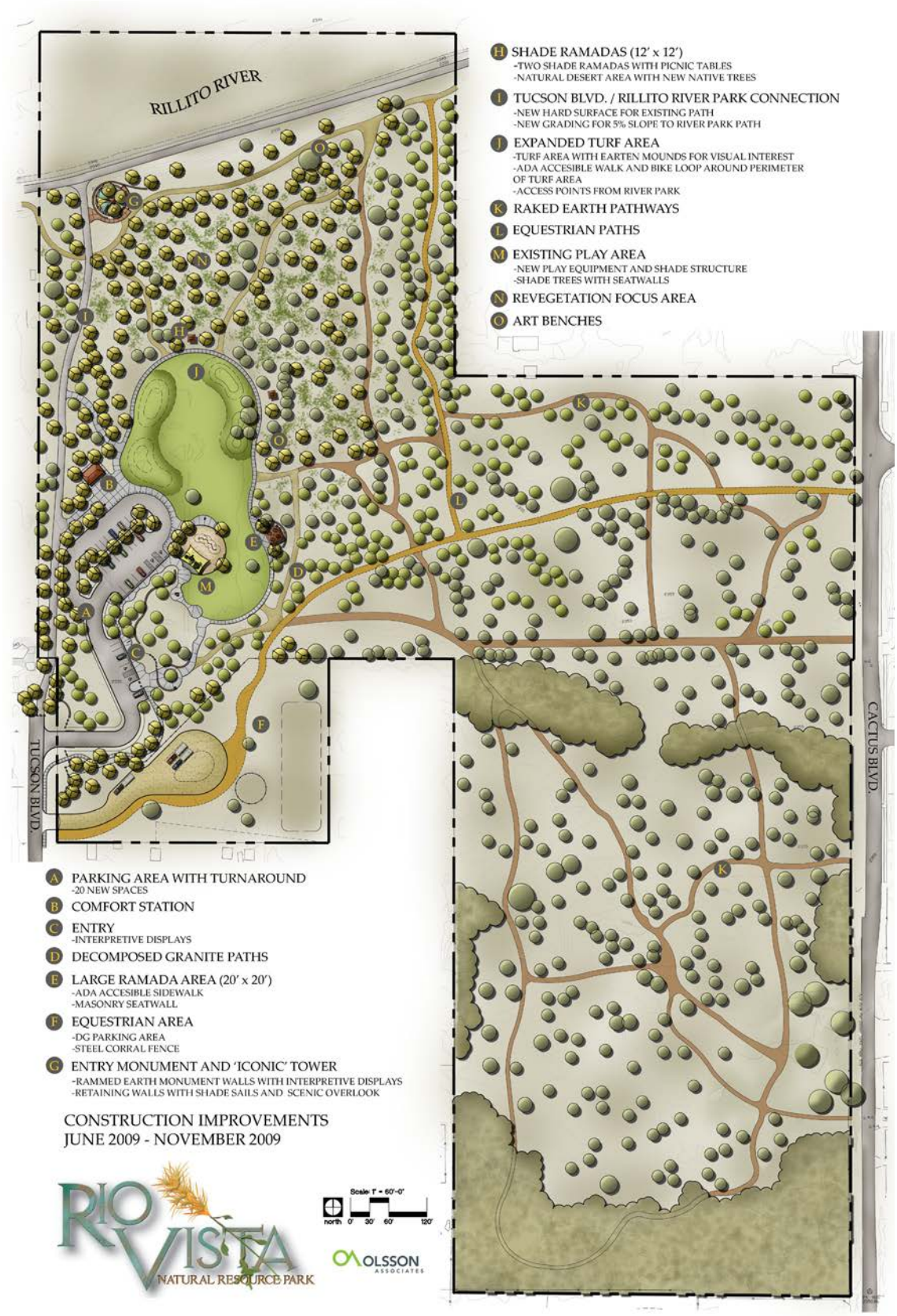
The original plan for the Park addressed the restoration of the historical mesquite bosque environment. Mesquite saplings were planted north and east of the developed area. These newer trees and nearby shrubs are watered through a drip irrigation system using reclaimed water. The irrigation to these trees is in disrepair. In addition, many of these trees need their original tree stakes removed.

A cluster of non-native trees (olives and eucalyptus) associated with the historic ranch house in the southeastern portion of the Park are in crisis. The historic irrigation lines have broken or been misdirected, and emitters damaged, resulting in many of these non-native trees becoming stressed or dying.

Changes in the natural drainages which fed the Park resulting from surrounding residential developments and road conveyance and grading has further stressed the native and non-native plants throughout the Park. Ongoing drought and climate change have exacerbated the environmental conditions. Until comprehensive restoration actions are initiated to enhance stormwater infiltration and promote native habitat, it is imperative that the following remedies be implemented.

Specific Recommendations

- Maintain and repair existing irrigation to support native trees and the few remnant non-native "tall" trees which provide critical raptor perches.
- Plan for extension of irrigation to future restoration areas to support establish ment of new plantings.



Map of Rio Vista Natural Resource Park
Rendering by Olsson Associates, 2009

b. Invasive Species: Removal and Management

Background: Though most of the Park's plants are native, non-native plants such as oleander and olive trees were planted around the original homestead off Cactus Blvd. In addition, invasive species like African sumac (*Rhus lancea*), stinknet (*Oncosiphon pilulifer*), cheatgrass, Mediterranean grass, and London rocket have encroached in several areas. The very invasive and fire-prone buffelgrass is taking hold at the edges of the Rillito River and could potentially become an issue in the Park if not managed.

Specific Recommendations

- Remove the fast growing and spreading invasive species such as African sumac before reseeding can occur. Continue to remove buffelgrass in areas proximate to the Park.
- Consider removal or maintenance of the non-native "tall" trees as part of a comprehensive phased mesquite bosque riparian restoration approach in concert with the Park's Conservation Plan.

c. Path Development

Background: In recent years the open space, 'natural' areas of the Park have been severely degraded with rogue paths cut across significant parts of the Park so much that in some areas it is unclear where designated paths are. These rogue paths are the result of a combination of equestrian, pedestrian, and off-leash dog use.

The formal path network also needs attention. The lack of stormwater diversion strategies has resulted in many trails capturing and conveying stormwater which promotes trail surface erosion, areas of ponding, and the widening of trails as users navigate poor trail conditions. Additionally, the use of heavy trucks on trails has led to trail widening and compaction of adjacent soils supporting native plants.

Specific Recommendations

- Develop a new pathway system with minimal pathways through the 'natural' areas. This will require closing paths and/or revising paths based on an analysis of natural area management given environmental conditions and include stormwater harvesting practices.
- Develop and enforce rules for horses and pedestrians.
- Post rules (attractive and eye-catching) at all entrances about staying on the paths and keeping dogs on leash.
- Develop low, natural looking physical barriers to discourage off-path use.
- Minimize use of maintenance vehicles in the natural areas.

Mesquite bosque on the north side of the Park, remnants of a riparian woodland.

2 Objective: Implement an action plan that will enhance the native riparian habitat, restore the health of the natural open space, support educational opportunities, and foster long-term stewardship and enjoyment of the Park

There are significant needs for the Park beyond the immediate needs identified in the above sections. A comprehensive Conservation Plan is critical to accomplish the restoration and long-term health of the Park.

In addition, future enhancements of existing structures should be considered and educational opportunities pursued, all geared to the enjoyment and awareness of the Park by its visitors, ensuring long-term preservation of the Park.

For all the considered improvements and enhancements to the Park, any changes should always consider the area surrounding the Park. Other City entities have projects in the vicinity of the Park such as the "Treat Avenue Bicycle Boulevard" which will run north down Cactus Boulevard to the Rillito River Park. The RillitoBend Neighborhood Association has developed a vision for the Neighborhood with enhancements to Cactus Blvd. that should be considered when making changes to the Park in addition to the watershed issues. (See Appendix VII - RillitoBend Neighborhood Vision and Opportunities.)

a. Conservation Plan

Background: The original plan for the Rio Vista Natural Resource Park focused on developing the built areas such as the delineation of the turf grass area, playground, parking lot, and entrance way. The natural areas were outlined, and the 'bosque' area was planted with trees and irrigation, but no detailed conservation planning was undertaken for the majority of the 'natural' areas. Because of our continuing drought, with climate change predicted to bring even warmer and drier conditions to the Southwest, coupled with the increased usage of the Park, it is imperative that a comprehensive Conservation Plan be developed for the Park's natural areas.

The Conservation Plan will be a comprehensive study of the underlying threats to the ecological health of the Park: its soil, water management, human usage, etc. This approach will be strategic and targeted.

Of critical concern for the Conservation Plan is restoration of the soils. As a working horse farm, and with the continued impact of horses, the soil is compacted and, in many places, devoid of the desert crust so critical to the long-term survival of vegetation.

A current issue for residents surrounding the park is flooding during rainstorms. Arroyos and drainages have been heavily modified by surrounding residential developments and road alignments. Opportunities exist to expand and/or create additional stormwater entry points along Cactus Blvd. to flow into the Park. Within the Park there is the opportunity to receive and distribute this stormwater to increase retention and infiltration to diminish downstream flooding and support native plants.

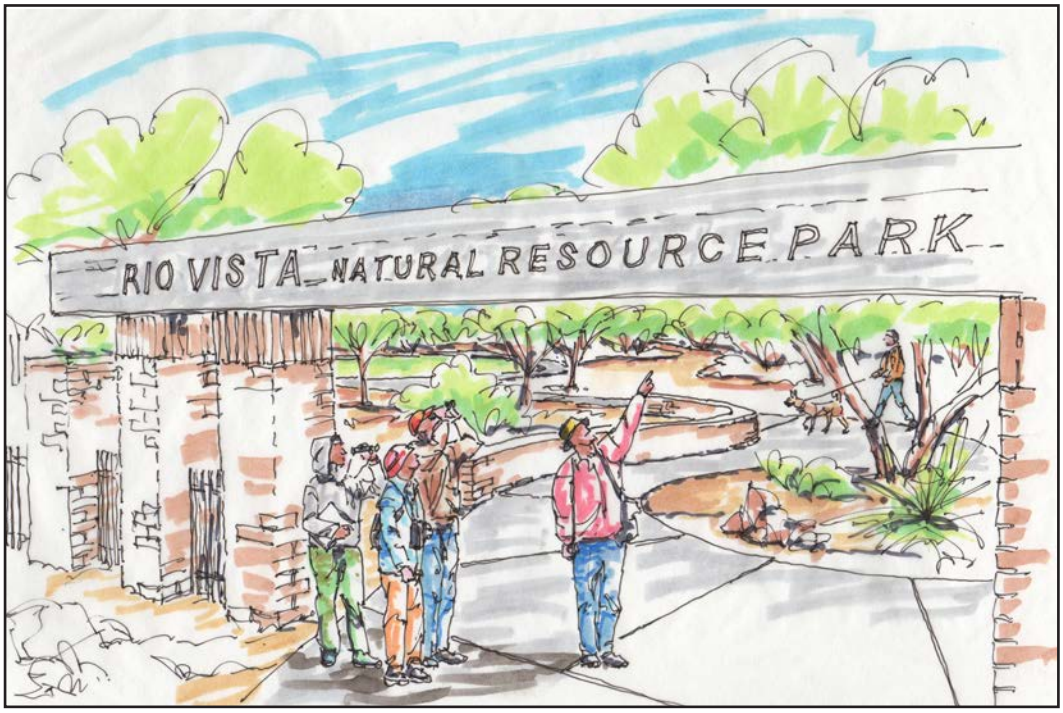
Over the years, interested neighbors have noted the state of the Park and started to work on remedies for problems that have been identified. We can build on the efforts already undertaken. See the outline of the Conservation Plan in Appendix III.

b. Future Enhancements of Existing Structures and Practices

The entrance portal on Tucson Boulevard has been neglected and could offer welcoming and educational opportunities. Past graffiti abatement was poorly done, overall paint has faded, and its introductory welcome sign is outdated and in disrepair. Rethinking the purpose of the structure and re-imagining its design to include educational opportunities and current information would be a welcome start.

Wherever possible, additional resources should be put toward enhancing the community participation and educational amenities of the Park. Existing signs in the Park need a facelift. Their graphics are faded and the structures have been neglected. The signs should be redone to be more engaging, durable, and informative.

The ongoing use of the Parks and Recreation's large maintenance trucks within the Park continues to degrade Park trails and vegetation. The use of these heavy vehicles to traverse the Park further compacts the soil, reduces infiltration, and prevents any vegetative growth. A few suggested solutions include, A) locate garbage canisters where maintenance staff can easily access them from exterior park roads without the need to traverse interior Park trails; or B) to erect a small shed to house a quad, trailer, and maintenance tools. Maintenance crews would then be able to access the Park with a smaller, lighter, and more nimble vehicle, allowing vegetation to survive and being less obtrusive to park users.

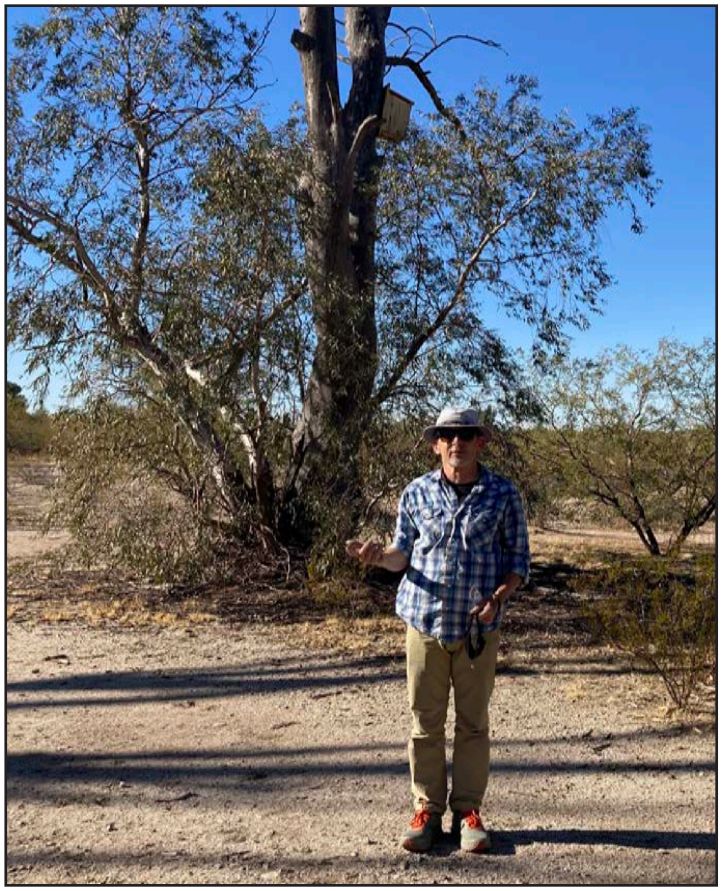


Rendering by Stephen Brigham, 2020

c. Educational Opportunities

Engaging and educating the public about the Park and its natural resources has obvious benefits for the visitor. They become more reverent and knowledgeable about its plants and animals. And in return, the Park becomes the ultimate beneficiary. The more people know about this Park and its biodiversity, the better the Park will be supported in years to come.

The Park is used by people with many different intellectual backgrounds and interests including birding, research, plant identification, and many as yet unknown pursuits. Examples of educational opportunities include providing bird, animal, and plant lists for people interested in the natural aspects of the Park. A signed interpretive nature trail could be established to guide people through the various aspects of the Park. A phenology trail could be created for interested citizen scientists. Bird boxes could be installed and monitored by community science volunteers. The entrance could be enhanced to include plaques, information distribution kiosks, tables for natural groups such as Audubon, HawkWatch International, and the Arizona Native Plant Society to provide literature and expertise for their educational outreach efforts.



Mike Shaw of HawkWatch International with American Kestrel nesting box in tall eucalyptus tree

d. Funding Opportunities

Understanding that the City has limited funding for many, if not most, of the issues outlined in this Plan, the RillitoBend Neighborhood Advocacy Group will lead the effort to enlist support from various sources at local, state, and national levels.

Many of the educational opportunities can be solicited from the various organizations that regularly use the Park (see Appendix IV). Most of these organizations, especially if they are non-profits (501(c)(3)s), have a requirement to educate. The University of Arizona Extension Center is in the neighborhood and is in the business of education. Collaboration with many of these organizations would benefit both the visitors to the Park and the organizations. A list of priority needs and funding opportunities can be found in Appendix VI.

Many of these non-profit partners may be able to leverage additional grant funding to complement City funding for Park restoration actions.

Local, State and Federal Agencies have grant opportunities that will be pursued as well as the Pima County Bond Program. The RBNA has voiced concern over the plan to use Proposition 407 monies to install a 'splash pad' in the Park. This money would go a long way to implementing many of the current and future needs of the Park's natural resource assets and supporting infrastructure.

3 Objective: Establish a working relationship between the City's Parks and Recreation Department and the RillitoBend community

Elements of a working relationship are based on inclusion, trust, and open communication among the participants. Stakeholders are involved early, and goals are mutually agreed upon.

The RillitoBend Neighborhood Advocacy Group (RNAG), comprised of the RillitoBend Neighborhood Association (RBNA) Board and residents of RillitoBend, will represent the community. The Nearby Neighborhoods Group (NNG), made of representatives from the surrounding Neighborhood Associations located within a 1.5 mile distance from the Park, is collaborating with RNAG to create one voice in representing the needs of Rio Vista Natural Resource Park.

Specific Recommendations

- All new projects and all decisions regarding changes to the Park should include consultation with RNAG, the official representatives of the neighbor hood's interests.
- End the ad hoc placement of vegetation and structures in the Park moving forward.

We look forward to working with the City of Tucson Parks and Recreation Department to preserve and enhance our Park for future generations.

Respectively submitted by
the Master Plan team of RNAG:

Mary Bird (co-lead)
Lindy Brigham (co-lead)
Sue DeArmond
Trica Oshant Hawkins
Catlow Shipek
Estelle Stern-Eilers

RillitoBend NEIGHBORHOOD ASSOCIATION

Notes

l to r: *Cylindropuntia leptocaulis*, Christmas Cholla; *Streptanthus carinatus* ssp. *arizonicus*, Arizona Silverbell; and *Caesalpinia pulcherrima*, Mexican Bird of Paradise

Appendix I
Natural Features of the Park

Soils and Drainage

Rio Vista Natural Resource Park is situated on an alluvial floodplain on the south bank of the Rillito River. The site is relatively flat, with slopes ranging from 0 to 3 percent. Roughly half of the site's soils are classified as Arizo-Riverwash, composed of gravelly to very gravelly loamy sand. The other half are classified as Glendale silt loam, composed of silt loam at the surface and clay loam slightly deeper.

Several small washes cross the Park, flowing gradually toward the northwest. Most of the washes have been interrupted or diverted by various park installations (playground, parking area) or other disturbances. Today, stormwater that once ran in the Park's washes is channeled northward along Cactus Blvd, entering the Park only during extreme events at the lowest spots where washes intersect the road. On-site stormwater seeps into the soil or, in extreme events, sheet flows over the soil surface. Infiltration in the less disturbed areas is good, but in areas of high impact, the ground surface has become nearly impermeable and sheet flow or pooling is common. In these sites, the soil has been so degraded that vegetation is sparse. Additionally, decreasing rainfall and increasing temperatures in the region have further desiccated the soils, and natural recovery through germination and establishment of native plants is greatly diminished.

The site is relatively flat and the soil, mostly gravely sand and silt, is compacted and degraded by horses, vehicles, pets, and pedestrians.

Vegetation

The majority of plants in the Park are native to Arizona and the Sonoran Desert. Being so close to the Rillito River, the Park was historically riparian woodlands in areas closest to the river, and mesquite bosque as one moves farther from the river to the south. As recently as the 1990s Fremont cottonwood and Goodding's willows lined the river bank here. Over time, with the lowering of the water table, bank stabilization projects, and other habitat impacts, all of the original cottonwoods and willows are gone from the river's bank by the Park.

Today, patches of the mesquite bosque still remain, primarily in lower-lying areas along the now mostly defunct washes. In the more open areas, plants such as creosote, desert broom, wolfberry, white thorn and catclaw acacia, and paloverde are common, but sparse. Smaller shrubs and forbs including burroweed, desert senna, and globe mallow are commonly found in the Park. Seasonally, the ground in some areas of the Park may be covered with a variety of sunflowers cañaigre, and small, native grasses. These are all plants that have traditionally adapted to our arid, desert environment. Today, there is very little, if any, recruitment of the native shrubs and trees. Some of the older, established plants appear stressed or dying. There is extensive visual evidence of the effects of heat and drought on these plants. Additionally, in areas where soils are heavily impacted, recruitment of native ground-covers such as small forbs and grasses is low to non-existent.

Several non-native species of plants have also become established in the Park. Some of these are invasive and threaten native species. These include African sumac, Mediterranean grass, and London rocket, among others. Along the banks of the Rillito River at the north end of the Park, buffelgrass has become an issue and several neighborhood-organized removal events have occurred. At the Park entrance off Cactus Blvd. there is a stand of old eucalyptus trees, in which both Cooper's hawks and great horned owls have nested. These trees were once watered by the City but more recently, have not been receiving supplemental water. Today, they are dead, stressed, or dying.

When the site was established as a Natural Resource Park in the 1990s, the City planted numerous small trees (mostly mesquite) in the more impacted areas at the north end of the Park. Irrigation was provided to those saplings.

Native grasses and trees of Rio Vista Park

A Harris' hawk perches on a eucalyptus tree watching...

Wildlife

The Park's location proximate to the Rillito River, as well as its inherent diverse native vegetation that provide food and shelter, make it an important habitat for both native and migratory wildlife species. The Park is important as a corridor for native species to move between the Rillito River and local neighborhood washes; it is a year-around home toseveral species of small mammals and nesting birds (and possibly coyotes); and the Park also serves as an important migratory stop for birds during spring and fall migrations. The presence of native wildlife species is one of the elements that make Rio Vista Natural Resource Park unique; because it is managed as a native habitat, one can visit the Park and regularly see native animals species. Mammal species that have been seen in the Park include coyote, bobcat, desert cottontail rabbit, and javelina. Common native birds living year-around in the Park include phainopepla, Gambel's quail, curved-billed thrasher, Cooper's hawk, great horned owl, Abert's towhee, and red-tailed hawk. Migratory birds that have been documented in the park include Peregrine falcon, western tanager, Lucy's warbler (likely nesting), ash-throated flycatcher (nesting), indigo bunting, and western bluebird.

It is understood that anywhere humans come into contact with wildlife, there is potential for conflict. The incidents of human-wildlife conflicts are rare within the Park with more reports of encounters and issues with off-leash dogs than with wildlife. Neighbors are, for the most part, aware of the wildlife that live there and the possibility of encounters. Neighbors and visitors use the Park with that knowledge. Nonetheless, offering education about human-wildlife encounters would be welcomed by users.

Appendix II
Watershed Context

Rio Vista Natural Resource Park is within the urbanized Christmas Wash watershed. Midtown Tucson contributes stormwater to Christmas Wash originating in the south at the El Con Mall and drains largely north outletting at the Rillito River within the RillitoBend Neighborhood. Neighborhoods throughout the Christmas Wash watershed experience chronic flooding as many of the older midtown neighborhoods lack sufficient stormwater infrastructure.

Upon request by the City of Tucson, Pima County Regional Flood Control District, in partnership with the City of Tucson's Department of Transportation and Mobility initiated in 2018 the Christmas Wash Study (see: study info here) to assess flood concerns and identify stormwater solutions. Several projects within the Palo Verde Neighborhood (between Speedway to Grant and Alvernon to Country Club) have been completed to mitigate flooding within the neighborhood. As the neighborhoods within Christmas Wash have been largely developed with few open space opportunities remaining, the City and County are increasingly turning to green stormwater infrastructure (GSI) solutions to alleviate flooding.

Rio Vista Natural Resource Park, located lower in the Christmas Wash watershed, has two significant channels which convey neighborhood generated stormwater through to Christmas Wash. Park enhancements using GSI practices typically provide a strong return on investment. Chronic flooding downstream of the Park, near the end of Tucson Blvd., may be partially mitigated by enhancing the Park's ability to retain and infiltrate stormwater.

Rio Vista Natural Resource Park, within the 500 year flood zone of the Rillito River, is located along a historic flood terrace and a meander of the Rillito River. This historic floodplain soil is predominantly a sandy or silt loam with high infiltration rates. The soil and drainage context of the Park lends itself to being complementary for implementing GSI, stormwater harvesting practices, to mitigate downstream flooding by retaining and infiltrating stormwater.

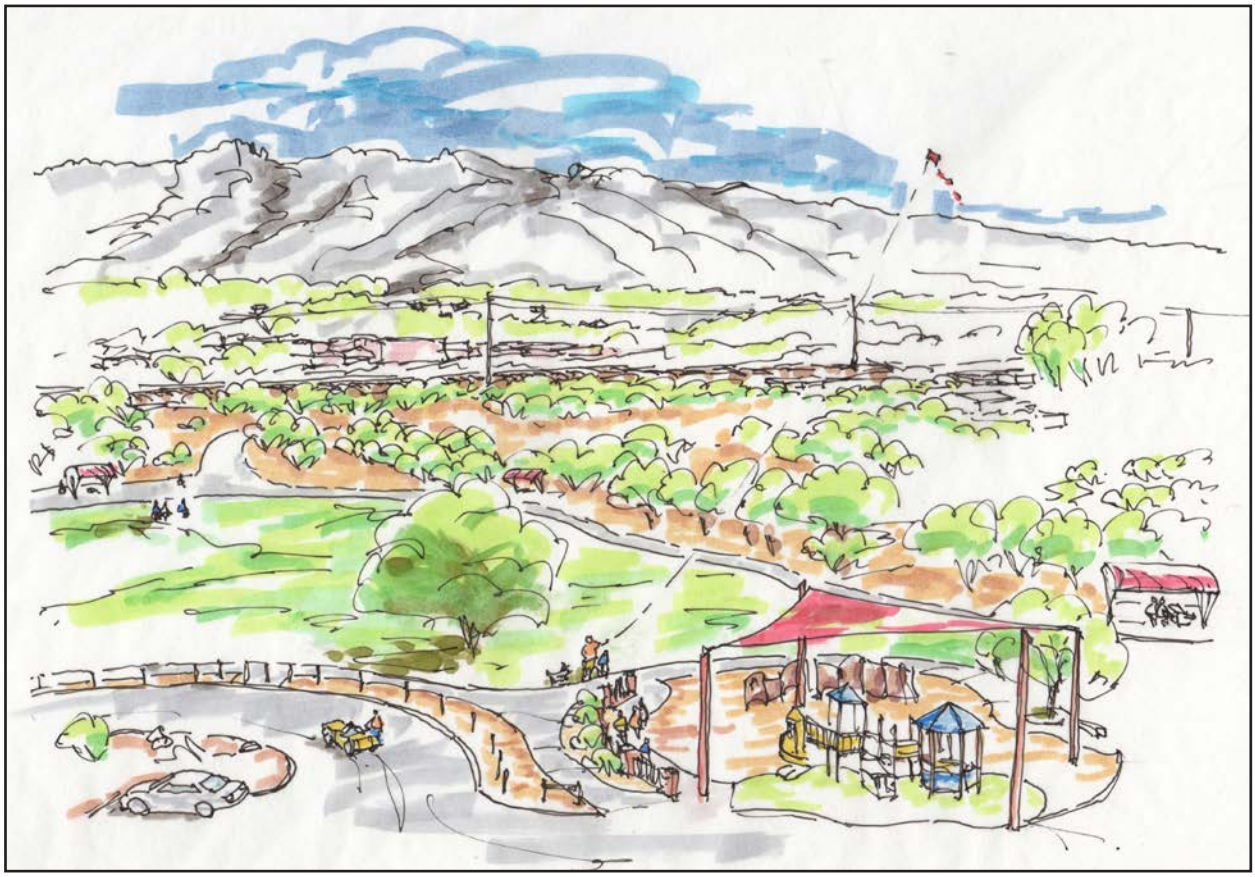
Additionally, by infiltrating stormwater within the Park there is a strong likelihood of recharging the underlying groundwater aquifer where historic groundwater levels along this reach of the Rillito were likely within 40-50 feet of the ground surface (Little River, 2004).

Appendix III
Conservation Plan Overview

The Conservation Plan Overview serves as a focused distillation of a more in-depth Conservation Plan yet to be developed. It includes the Vision for the Park—what we see and hope for the future. Most importantly, the Conservation Plan Overview identifies the resources that are imperiled and the threats to those resources. Various opportunities are presented to reduce or remove those threats.

Vision for Rio Vista Natural Resource Park

We envision Rio Vista Natural Resource Park to be a local, accessible example of the greater Sonoran Desert. Through appropriate management, we envision the Park supporting healthy populations of native wildlife and vegetation while maintaining its open space elements for community enjoyment. The Park's vision is the community's vision—that of enjoyment in nature. A Conservation Plan for the Park will serve as a guide to ensure that the Park continues to exist in that capacity in perpetuity.



Rio Vista Natural Resource Park
Rendering by Stephen Brigham, 2020

Vegetation

As described above in Appendix I - Natural Features of the Park, the Park's vegetation is a mix of established native and non-native species. There are a variety of trees, shrubs, and annual and perennial grasses and forbs. Also, several invasive species have become established in the park. The challenges that threaten the Park's vegetation include the lack of an adequate watering regime (which has stressed many plants); invasion of several exotic, undesirable plant species; limited native groundcover plants; limited canopy cover; and an increasingly warmer and drier climate.

The following opportunities exist to address the issues faced by the Park's vegetation, and should be included in the Conservation Plan:

- Survey and document existing vegetation.
- Identify historic vegetation patterns.
- Install, repair, and manage irrigation system.
- Engage in stormwater harvesting practices to increase soil moisture.
- Ensure a water supply to established large trees while phasing in the development of native large riparian tree habitat.
- Identify invasive species and their prime locations, and establish control practices.
- Establish native ground cover through restoration efforts (identify key native ground cover plants, their primary microhabitats, and create restoration plots via seeding and plantings).
- Monitor phenology of park vegetation.

Caesalpinia gilliesii, Yellow Bird of Paradise
© 2019 Melanie Campbell-Carter

Ferocactus wislizeni, Fishhook Barrel Cactus
© 2019 Melanie Campbell-Carter

Wildlife

As described above in Appendix I - Natural Features of the Park, there are a variety of wildlife that use the Park as their home habitat, or as a movement and migration corridor. Numerous bird, reptile, insect, and mammal species have been observed and documented in the Park. While the Park is one of the few natural habitats in the area, these wildlife are confronted with a variety of challenges that threaten their existence there. These challenges include the lack of quality habitat due to lack of adequate watering regime; habitat loss due to neglect, human impacts, and drought; and a lack of concrete knowledge about which specific species use the park and how they use it (information that would help guide Park management to support wildlife). Finally, there is the challenge of human-wildlife conflicts, as well as off-leash dogs encountering wildlife.

The challenges that wildlife face and/or present can be addressed through the following opportunities, which should be included in the Conservation Plan:

- Survey and document wildlife species including migratory species.
- Establish habitat restoration projects as described above with native vegetation.
- Establish wildlife observation and monitoring projects.
- Educate public/Park users about urban wildlife.
- Install structures to attract & support wildlife (e.g., bird boxes, bat houses & native bee homes).

Open Space Elements

In addition to the Park's vegetation and wildlife, the beauty of the park, and its attraction to Park visitors, are the natural, open space elements of its existence. As described in Appendix I – Natural Features of the Park, these include the soil, drainage, potential for water catchment and infiltration, the walking paths through the park, and its stunning vistas and overall visual quality. However, these very foundational open space elements also face numerous challenges which should be addressed in the Conservation Plan. These challenges include soil compaction from years of neglect and non-management (which limits stormwater infiltration and inhibits plant recruitment); soil quality (limited organic matter and increased parching due to climate change); disturbance of natural runoff channels; decreased visual quality with habitat degradation; widening of paths due to misuse; off-leash dogs; and an accumulation of pet waste.

Numerous opportunities exist to address these challenges to the Park's open space elements and these should be included in the Conservation Plan:

- Restore natural drainage channels (Shannon Wash).
- Increase soil permeability.
- Create passive water harvesting elements to capture and keep rainwater onsite.
- Create visually appealing educational signage about park paths.
- Create visually appealing educational art installations.
- Install visually appealing dog poop receptacles with educational messages.
- Adjust maintenance needs to eliminate need for large maintenance vehicles to use walking paths.
- Educate public/Park users about urban wildlife.
- Install structures to attract & support wildlife (e.g., bird boxes, bat houses & native bee homes).

Appendix IV
Educational Opportunities

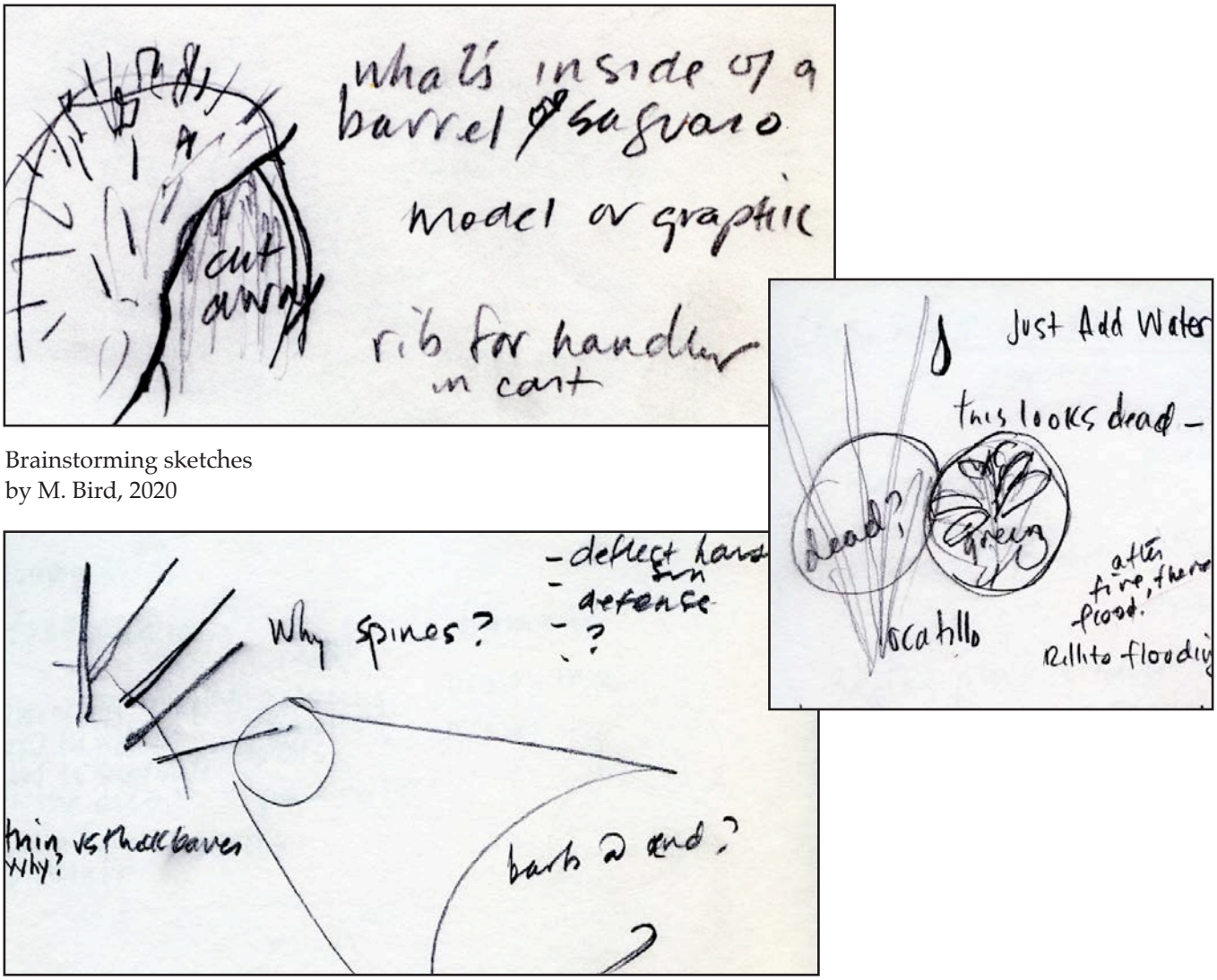
Engaging and educating the public about the Park and its natural resources has obvious benefits for the visitor as well as for the Park. With a better understanding of the Park's plants and animals, ecosystem, and habitats, the visitor respects and values what the Park offers. And in return, the Park becomes the ultimate beneficiary. Raising awareness makes the Park a better place.

The following educational strategies/activities can serve to increase one's appreciation of the Park's vegetation, wildlife, and open space. Some strategies may need further development and design, and funding and prioritizing may be necessary. The community is a willing partner in many of these activities, as demonstrated by programs and projects previously accomplished through community action.

Educational program at Rio Vista Natural Resource Park
Rendering by Stephen Brigham, 2020

Strategies/activities to address vegetation opportunities

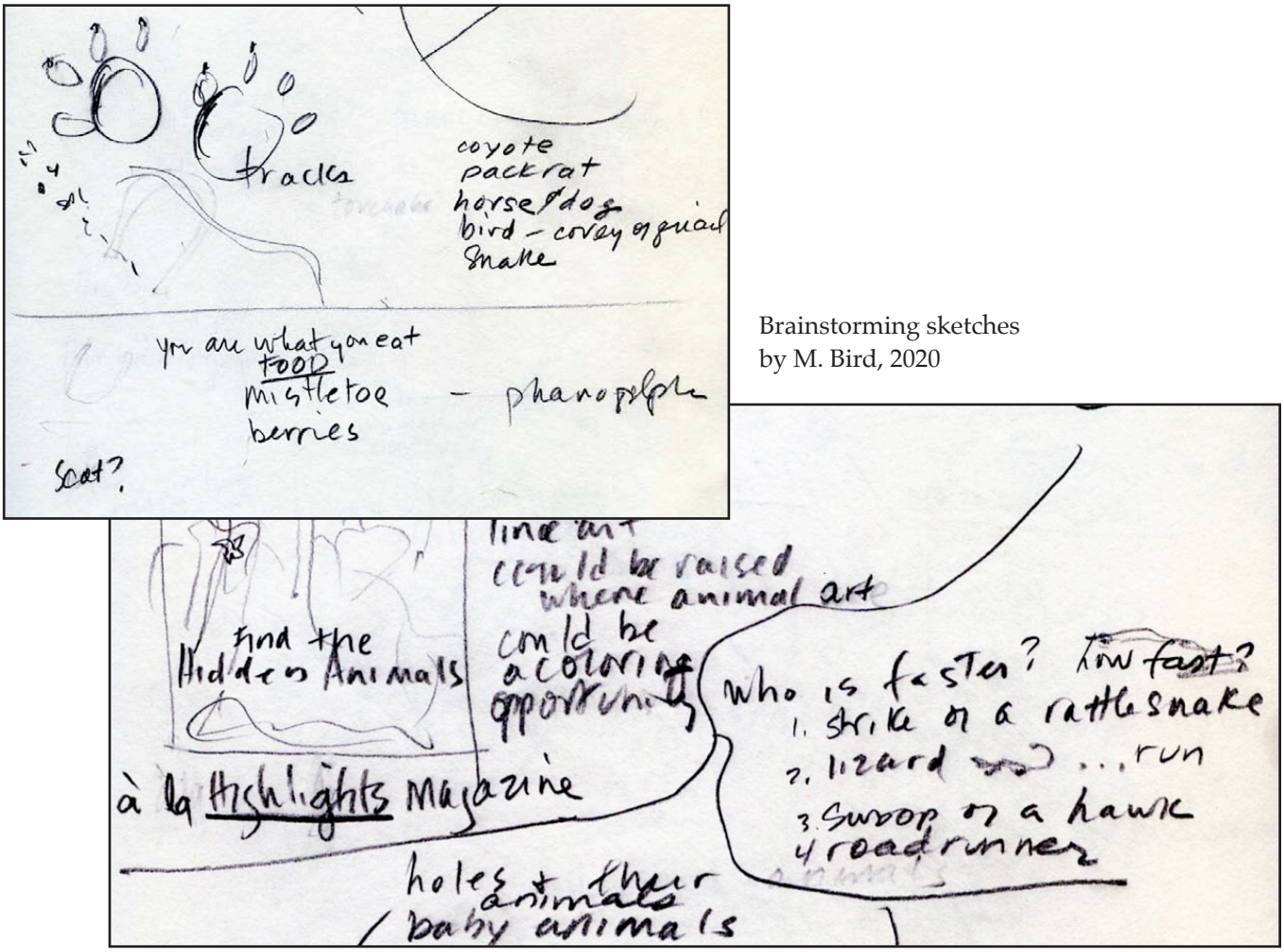
- Conduct a series of educational watershed management workshops with an action project component (e.g., creating passive rainwater harvesting elements).
- Increase public awareness about park vegetation.
- Create trail map/brochure with info corresponding to specific plants on path (downloadable online, laminated/reusable located at park entrance/exit points, app, QR points).
- Install signage at select individual plants with natural history info.
- Create Rio Vista Phenology Trail and recruit and train park walkers to participate.
- Host a series of guided nature walks through the park (recruit via PRs, Nextdoor, social media, etc.).
- Conduct a Park "BioBlitz" to identify and record park vegetation.



Brainstorming sketches
by M. Bird, 2020

Strategies/activities to address wildlife opportunities

- Conduct group project events to build and install wildlife structures.
- Conduct group project events to improve habitat (e.g., projects to improve vegetation and soil).
- Increase public awareness about park wildlife.
- Install signage about wildlife at key habitat areas.
- Host a series of guided nature walks through the park (recruit via PRs, Nextdoor, social media, etc.).
- Create activity book about park elements.
- Create a Rio Vista Park "Quest" (treasure hunt-type educational adventure).
- Conduct public program about urban wildlife (threats and coping strategies).
- Create Rio Vista Phenology Trail and recruit and train park walkers to participate.
- Conduct a Park "BioBlitz" to identify and record park wildlife.
- Partner with local schools to offer park as outdoor classroom (provide activity book and/or guided nature walks and activities).



Brainstorming sketches
by M. Bird, 2020

Strategies/activities to address open space opportunities

- Conduct a series of educational watershed management workshops with specific park action projects components (e.g., creating passive rainwater harvesting elements, rechanneling & restoring drainages, diverting stormwater from park paths, etc.).
- Hold a competition for decorating dog poop receptacles – winner's design is used for new installations (could be a painting workshop onsite).
- Create a Rio Vista Park "Quest" (treasure hunt-type educational adventure).
- Include information about park open space elements in all educational materials and programs.

Rio Vista Natural Resource Park
Rendering by Stephen Brigham, 2020

Appendix V
RillitoBend: Past, Present, and Future

Residents Value Open Space

The RillitoBend neighborhood is a desert "oasis" tucked in the bend of the Rillito River north of Prince Road and east of Campbell Avenue. It is an enclave of open space with scattered single-story homes set amidst undisturbed desert land.

From early days, residents valued the neighborhood's natural swath of desert, becoming the last holdout of County land south of the Rillito River. Annexed with the city in the mid-1970s, its residents have remained true to the original vision "to protect and maintain the existing rural residential character" (Neighborhood Association document, 1960s). Their long-standing efforts to protect the character and integrity of the neighborhood from developers, City transportation planners, and encroaching suburbia are well documented.

RillitoBend Neighborhood Mural
by Sue Ann Breems, 2020

RillitoBend's Equestrian Tradition Continues

Horses have long been part of the community's history. Colonel Cedric Fauntleroy, an ace pilot in WW I and successful businessman, moved to Tucson in 1951 and started a horse farm, Gentleman's Acres, to breed and raise thoroughbred and quarter horses for racing. Mostly pasture land, the property extended to the Rillito River and included a race track. Charles and Jean Bagley purchased the farm in 1965 and began building stalls and runs for their "pets" (burros and horses). In 1987 the City bought 13 acres from the Bagleys as part of the 40 acres that has become Rio Vista Natural Resource Park. Today, Hitching Post Ranch at Gentleman's Acres continues the equestrian tradition offering boarding, specialized clinics, etc.

RillitoBend's Attraction for Artists

Artists were drawn to the beauty and rural character of the neighborhood. Maynard Dixon (1875-1946), an artist known for his portrayal of the American West, lived and worked in the neighborhood. His painting *Home of Tucson*, 1945, shows the familiar scene of the Catalinas from his home off Prince Road—a scene largely unchanged today. (The painting can be found at Tucson's Museum of Art.) George Phar Legler (1885-1982) created a fantasy land called "The Valley of the Moon," which in 2015 was designated a Historic Landmark by the Tucson Historic Preservation Foundation. He bred frogs and rabbits and had a refuge for lost and wounded wildlife for a time. He was a tinkerer and his magical creations can be seen as visionary art. The "Moon's" wondrous world of landforms and characters continue to capture the imagination of many young Tucsonans.

Linda Ronstadt, the pop singer and Tucson's most famous artist, grew up on her parents' 10-acre property in the neighborhood. Her whole family sang, and we have been blessed with their singing. They sang at the Park's dedication in 2010.

Today the neighborhood continues to attract artists and those who value the beauty and rural feel. A large and recently installed mural—made of 1000s of hand-painted mosaic tile showing the flora and fauna of the area—is an example of a resident artist's vision of the neighborhood.

Enhancing the Neighborhood for the Future

The RillitoBend Neighborhood Association (RBNA) has continued to enhance the neighborhood for the benefit of all residents. Within the park, volunteer neighbors created a labyrinth located on the degraded, abandoned Wanamaker homestead site. They installed two benches, castoffs from the City, nearby so visitors would have a place to rest and enjoy the open view of the Catalina Mountains. They have conducted plant surveys and birding walks. They have worked on Park projects to pull invasive species, create barriers to block rogue paths, and weed. RBNA has also worked with neighbors in establishing several linear gardens nearby: along Cactus Blvd outside the wall of Winterhaven Village Townhouses and, more recently, along Allen Road, outside the wall of Meadowview. Neighbors designed, purchased the plants, installed, and maintained these gardens. In addition, a successful grant by RBNA led to the planting of trees along the north side of Prince Road between Country Club Road and Cactus Blvd.

RBNA has recently partnered with Mattress Firm (Tucson's Clean and Beautiful's Adopt-A-Park partner). RBNA will train and educate Mattress Firm staff about the Park's vegetation and habitats while Mattress Firm will provide hands-on support in weeding and clearing.

Neighbors cleaning, weeding, and planting along Cactus Blvd at the Park entrance

Neighbors planting new linear garden outside Meadowview on Allen Road, Fall 2020

Neighbors weeding linear garden outside Winterhaven Village Townhouses on Cactus Blvd, Spring 2020

Sue Ann Breems and friends installing tile RillitoBend Neighborhood Mural, Spring 2020

Appendix VI
Priority Needs, Funding Opportunities, and Partners

Understanding that the City has limited funding for many, if not most of the issues outlined in this Plan, the Rillitobend Neighborhood Advocacy Group (RNAG) suggests targeting conservationpriority needs first, and will lead the effort to enlist support from various local, state, and national agencies. It is also important to note that there are many volunteer organizations that use the Park and are willing and able to provide in-kind services such as work crews and educational platforms.

Immediate Priorities:

1. Irrigation

a. Maintain and repair existing irrigation to support native trees and the few remnant non-native "tall" trees that provide critical raptor perches.
b. Plan for extension of irrigation to future restoration areas to support establishment of new plantings.

2. Projects and planning

a. Develop updated Master Plan.
b. Cease all physical changes to the park until an updated Master Plan is adopted.
c. Cease work on impromptu planning activities until an updated Master Plan is adopted and a conservation planner is selected through a consensus process with Ward 3, RillitoBend Neighborhood Association, and City of Tucson Parks and Recreation.

Priorities after an upated Master Plan is adopted:

3. Conservation Plan

a. Develop a Conservation Plan after agreement on the updated Master Plan.
b. Some considerations for Plan: Identify plants most likely to survive changing climate and that require minimal to no irrigation. Include an Invasive species identification and removal plan. Create a "tall tree zone" on the eastern edge of the Park as a recall to the original riparian tall trees in the area, to link existing raptor and low-level habitat areas, and to absorb Cactus Blvd stormwater. Provide additional landscape features.
c. Prioritize implementation steps to restore and enhance natural areas.

4 Paths

a. Develop a new pathway system for pedestrians and equestrians to minimize

pathways through the 'natural' areas. This will require closing paths and/or revising paths based on an analysis of natural area management given the environmental conditions. Stormwater harvesting practices will also need to be included.

b. Develop and enforce rules for horses and pedestrians.

c. Post rules (attractive and eye-catching) at all entrances about staying on the paths and keeping dogs on leash.

d. Develop low, natural looking physical barriers to discourage off-path use.

e. Minimize use of maintenance vehicles in the natural areas.

5. Maintenance

a. Develop alternative plans for Park maintenance practices and equipment to minimize impact on paths and natural areas.

b. Use smaller vehicles in natural areas.

c. Place garbage receptacles where vehicles can access them without widening paths and damaging natural areas.

d. Provide effective and attractive dog waste stations where needed.

e. Consider partnering with Park Friends and volunteers for some maintenance routines.

6. Stormwater

a. Develop stormwater flow plans at Park edges to enhance and distribute stormwater flow into the Park for stormwater detention/retention and infiltration within the Park to support landscape and native habitat.

b. Address erosion and ponding along Park pathways through the use of stormwater harvesting practices.

7. Entries and Improvements

a. Refurbish the three Park entrance elements on Cactus Boulevard with improved landscape, gathering areas, parking spaces as needed, and park educational directories to other conservation elements in the park.

b. Restore and enhance the Main Entry of the Park on Tucson Boulevard with information highlighting the unique attributes and commitments to conservation, Park maps, and an area for ongoing demonstration and educational venues at the Park.

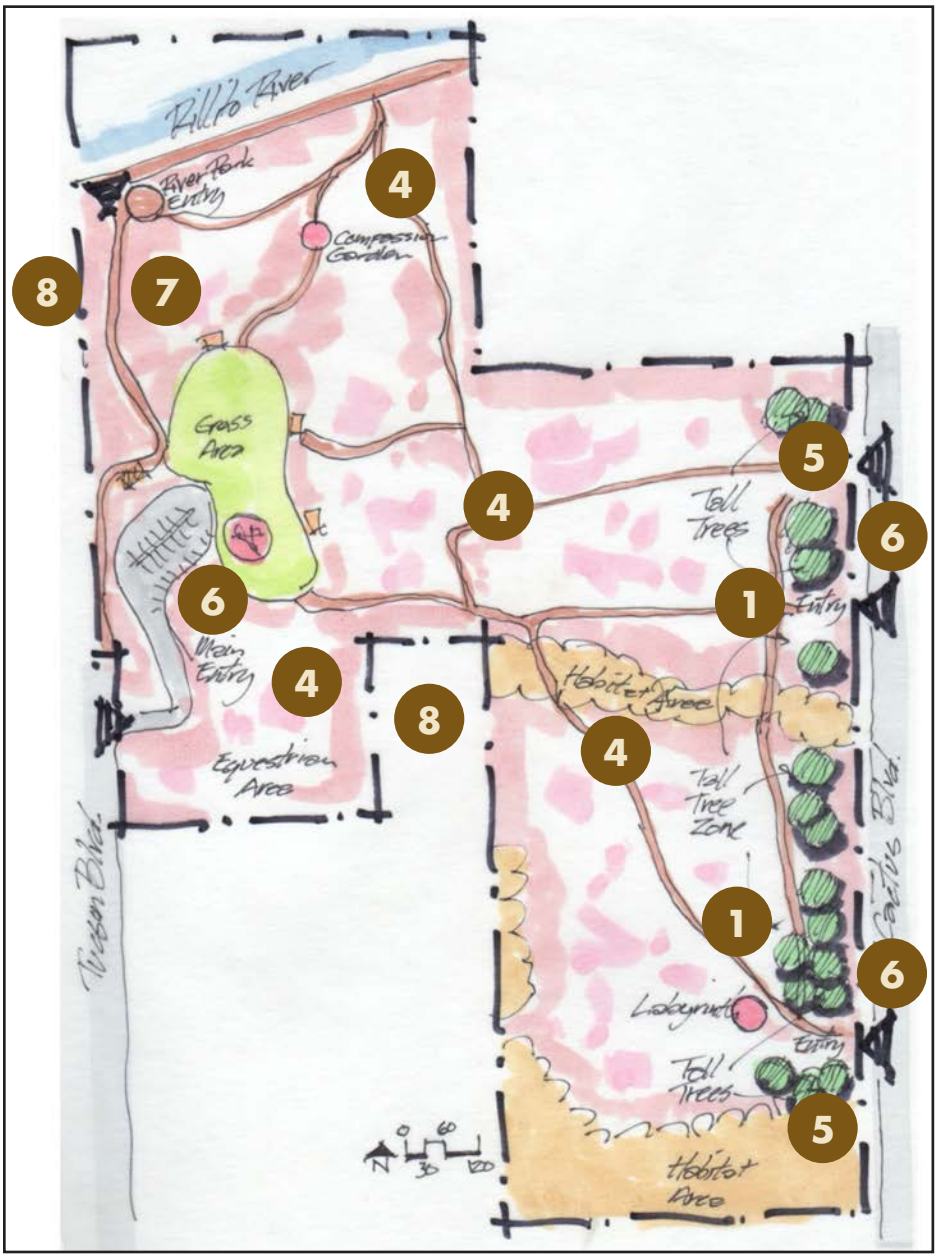
c. Landscape the area around the new Red Stallion sculpture to improve it visually and to facilitate pedestrian access around it.

d. Develop park standards for amenities such as benches and tables to match the 'natural' vision similar to the Gneiss benches. Minimize such additions.

e. Develop signage standards for maps, informational signs, pedestrian and equestrian path designations etc.

8. Park Extension Opportunities

a. Explore partnership with UofA Farm on the west side of the Park.
b. Explore acquisition of abutting properties.
c. Explore conservation easements with abutting properties.



Map of Rio Vista Natural Resource Park showing priorities

1. Repair and maintain irrigation. Plan for future extension.
2. Develop updated Master Plan. Cease all work until Master Plan is adopted.
3. Develop and begin to implement Conservation Plan.
4. Develop new path system. Establish barries. Post and enforce rules.
5. Develop stormwater flow plans at Park edges. Address erosion and ponding on paths.
6. Refurbish entrances with improved landscaping and directories. Develop standards for signage and amenities
7. Develop alternative plan for Park maintenance and equipment.
8. Explore partnerships for potential Park expansion.

Funding Opportunities

These are some examples of funding sources.

More research will be done for funding of specific projects.

1. Federal
- a. Grants.gov
- b. Partners for Fish and Wildlife (will fund City projects)

2. State of Arizona - Department of Forestry and Fire Management
- a. Urban and Community Forestry Grants
- b. Invasive Plant Program Grant

3. Pima County
- a. County bonds
- b. Neighborhood Reinvestment Program – for streets and parks

4. City of Tucson
- a. Mayor's tree planting program
- b. Slow Streets program
- c. Green Stormwater Infrastructure Program

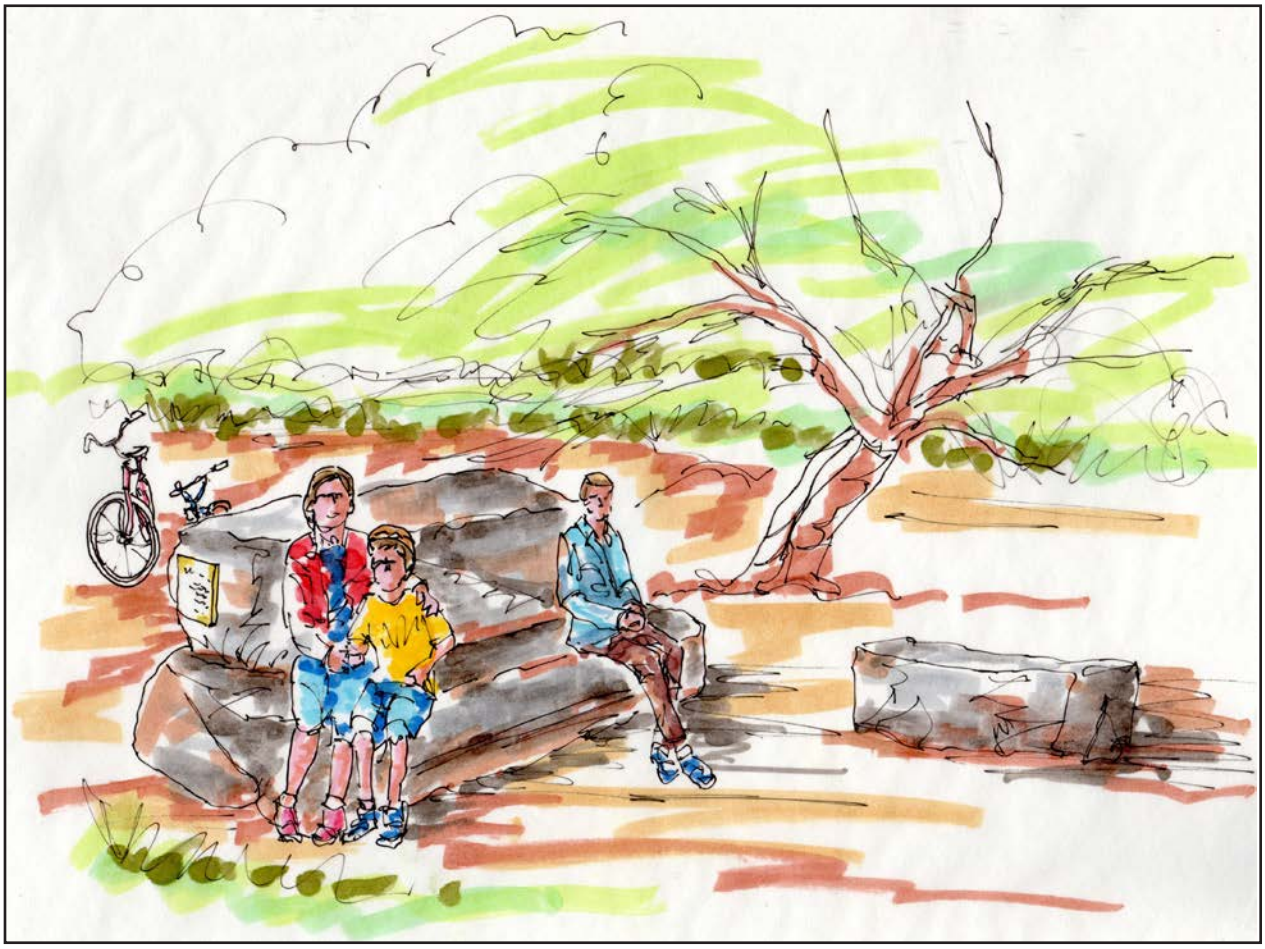
5. Utilities (*Most major utilities have community investment arms.*)
- a. Tucson Electric Power
  - i. Environmental Stewardship
  - ii. Raptor Protection Program

6. Volunteers

7. Tucson Parks Foundation

8. Volunteer Organizations and Partners

AZ Native Plant Society
Desert Archaeology
HawkWatch International
Hitching Post Ranch
Mattress Firm (Tucson Clean and Beautiful)
Native Seeds/SEARCH
National Phenology Network
Southwest Monarch Study
Tucson Audubon
Watershed Management Group



A Gneiss Bench to Sit On, 2009
Installation by Chris Tanz; at Rio Vista Natural Resource Park
Rendering by Stephen Brigham, 2020

Appendix VII
RillitoBend Neighborhood Vision and Opportunities

RillitoBend's vision document, *Neighborhood - Vision and Opportunities*, portrays a community that values open desert land.

To view the full document, go to rillitobendna.org/documents.