Reimagining Skunk Creek as a Valued Local Asset

A Spring 2020 Collaborative Project with Arizona State University's Project Cities & the City of Peoria

ASU Sustainable Cities Network
Arizona State University

Project Cities

PEORIA ARIZONA

This report represents original work prepared for the City of Peoria by students participating in courses aligned with Arizona State University's Project Cities program. Findings, information, and recommendations are those of students and are not necessarily of Arizona State University. Student reports are not peer reviewed for statistical or computational accuracy, or comprehensively fact-checked, in the same fashion as academic journal articles. Project partners should use care when using student reports as justification for future actions. Text and images contained in this report may not be used without permission from Project Cities.

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ACKNOWLEDGMENTS

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On behalf of the Julie Ann Wrigley Global Futures Laboratory, the Global Institute of Sustainability and Innovation, and the School of Sustainability, we extend a heartfelt thank you to the City of Peoria for enthusiastically engaging with students and faculty throughout the semester. These projects provide valuable real-world experience for our students and we hope that their perspectives shine light on opportunities to continuously improve Peoria's future livelihood and community well-being.

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To access the original student reports, additional materials, and resources, visit:
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ABOUT PROJECT CITIES

The ASU Project Cities program uses an innovative, new approach to traditional university-community partnerships. Through a curated relationship over the course of an academic year, selected Community Partners work with Project Cities faculty and students to co-create strategies for better environmental, economic, and social balance in the places we call home. Students from multiple disciplines research difficult challenges chosen by the city and propose innovative sustainable solutions in consultation with city staff. This is a win-win partnership, which also allows students to reinforce classroom learning and practice professional skills in a real-world client-based project. Project Cities is a member of Educational Partnerships for Innovation in Communities Network (EPIC-N), a growing coalition of more than 35 educational institutions partnering with local government agencies across the United States and around the world.

ABOUT SUSTAINABLE CITIES NETWORK

Project Cities is a program of ASU's Sustainable Cities Network. This network was founded in 2008 to support communities in sharing knowledge and coordinating efforts to understand and solve sustainability problems. It is designed to foster partnerships, identify best practices, provide training and information, and connect ASU's research to front-line challenges facing local communities. Network members come from Arizona cities, towns, counties, and Native American communities, and cover a broad range of professional disciplines. Together, these members work to create a more sustainable region and state. In 2012, the network was awarded the Pacific Southwest Region's 2012 Green Government Award by the U.S. EPA for its efforts. For more information, visit *sustainablecities.asu.edu.*

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ASU Sustainable Cities Network
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Sustainability through local action

ABOUT PEORIA

Ranked as the No. 1 place to live in Arizona by Money Magazine and the only Arizona city named as one of the best cities in the U.S. by Yahoo! Finance, the City of Peoria is currently home to more than 171,000 residents. The City enjoys a reputation as a family-oriented, active community with an exceptional quality of life. Peoria entertainment and recreational amenities include popular attractions such as Lake Pleasant, a large network of trails and open space, community parks, recreation centers, community theater, libraries, pools, and the spring training home for the San Diego Padres and the Seattle Mariners.

The City has demonstrated a strong commitment to sustainability, as evidenced by its directive to incorporate LEED building design standards, a council-adopted Sustainability Action Plan, and a dedicated full-time staff person to manage and coordinate organization-wide sustainability initiatives.

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Peoria is the place
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June 4, 2020

Dear Peoria community members,

It is with tremendous gratitude and excitement that we bring to your attention the results of the first year of our partnership with ASU's Project Cities program. This collaboration provided the opportunity to move beyond traditional resources, and explore all that is possible by working alongside faculty and students across several academic programs.

Project Cities is one of several partnerships we enjoy with ASU, and part of our ongoing strategy to learn from innovative community leaders as we address the complex challenges and opportunities we face as a fast-growing community. With a modest investment in this program, we received extensive research, creative recommendations, diverse perspectives, and innovative deliverables that take several key initiatives to the next level for us.

These include our efforts around water conservation, transit, placemaking, smart cities, and the possibilities around our Skunk Creek corridor near the P83 Entertainment District. Many of these efforts entailed public participation, and you may have participated by speaking to students at one of several Peoria events they attended, or by sharing your personal insight through a survey. By engaging students and faculty on these subjects, we have advanced our understanding and positions on each topic much more quickly than we could have without their assistance.

The project results provided us with invaluable insights into many of our most important opportunities and we are proud to see the students' deliverables advancing. We hold our partnership with ASU and Project Cities in high esteem and look forward to continuing this work on additional projects in the coming year.

Sincerely,

Cathy Carlat, Mayor

Jeff Tyne, City Manager

Peoria, Arizona

Proud partner of

ASU Sustainable Cities Network
Arizona State University

Project Cities

Rio Vista Recreation Center

Demographics

total population: **172,259**

median age: **39.5**

highly skilled and educated workforce of 85,252

11,997 veterans live in Peoria

73% of residents are homeowners

median property value: **$230,400**

31% of residents hold a Bachelor's degree or higher

median household income: **$73,039**

Schools

#3 of 131 Best School Districts for Athletes in Arizona

#5 of 40 Best School Districts in Phoenix Metro Area

#7 of 130 Best School Districts in Arizona

The Peoria Unified School District is one of the largest employers in the West Valley. The district consistently receives high ratings and offers signature programs such as the Career and Technical Education programs.

Peoria is also home to Huntington University, a liberal arts college offering digital media education in animation, broadcasting, film, graphic design and other digital media arts.

Leading industries

Peoria, Arizona is not just a scenic suburb of Phoenix, but also a thriving economic development hub with an educated workforce and high-end residential living. There are 22,470 employers and more than 75,000 people employed within Peoria. Leading industries include health care and social assistance, retail trade, and finance and insurance. Highest-paying industries include utilities, manufacturing and public administration. Beyond these industries, Peoria works actively to attract businesses from aerospace and defense, film and digital media, technology and innovation, hospitality and tourism, and research and development. Peoria is the place for business owners, developers and investors.

Health Care & Social Work
10,905 employees

Retail Trade
10,628 employees

Finance & Insurance
6,574 employees

History

Founded in 1886 by Midwestern settlers, Peoria is nestled in the Salt River Valley and extends North into the foothills around Lake Pleasant. Beginning as a small agricultural town, the economy received a major boost when a railroad spur line was built along Grand Avenue. The construction of the Roosevelt Dam in 1910 secured a reliable water supply, attracting more settlers to the area and business endeavors to the town center. Peoria's economy continued to have an agricultural focus for decades. Continually growing, Peoria assumed city status in 1971 with a population of 4,792. It has since grown into a city with a population over 172,000, and is renowned for its high quality of life and recreational amenities.

Sustainability

Peoria has demonstrated leadership in municipal sustainability efforts through a wide range of actions. Listed below are some of the City's sustainability accomplishments.

- Incorporation of LEED building design standards
- Appointment of a full-time city staff member who manages and coordinates sustainability initiatives
- Sustainable urban planning practices including open space planning and water management principles
- Sustain and Gain: Facebook page and brochures keep residents up to date on city sustainability efforts and ways to get involved
- Water Conservation Program: free public classes, public outreach at city events, and water rebate incentives for residents
- Council-Adopted Sustainability Action Plan: this strategic planning document, in its second iteration, ensures city departments are developing sustainability-oriented goals, tracking success metrics, and encouraging cross-communication in the preparation of Sustainability Update presentations made to the Peoria City Council on an annual basis
- Sustainable University: courses and workshops to empower residents to make small changes that make Peoria a better place to live. Topics covered include residential solar, gardening, composting and recycling

Awards and recognition

- Received three Crescordia awards by Arizona Forward at the annual Environmental Excellence Awards in 2016
- 12th City for Green Space in the U.S. in 2019 *(Wallethub)*
- Top 15 Safest Cities in the U.S. 2017-2019 *(Wallethub)*
- 6th Wealthiest ZIP Code in 2020 *(Phoenix Business Journal)*
- Top 50 Hottest Hoods in 2018 *(Phoenix Business Journal)*
- 10th Best City to Raise a Family in 2018 *(Wallethub)*
- Top 100 Golf Course in U.S. 2017-2019 *(Golf Digest)*

Lake Pleasant

1886 — Peoria founded by William J. Murphy

1889 — First school district formed

1919 — Chamber of Commerce organized

1954 — Peoria incorporated

1971 — Assumed city status with a population of 4,792

1977 — Brewers spring training begins at Greenway Sports Complex

1986 — Centennial celebration

1994 — Peoria Sports Complex opened

2007 — Theater for the Performing Arts and Rio Vista Recreation Center opened

2012 — 20-year extension spring training agreement with San Diego Padres and Seattle Mariners

2017 — Selected as site of new $70M health clinic for Maricopa County Integrated Health System

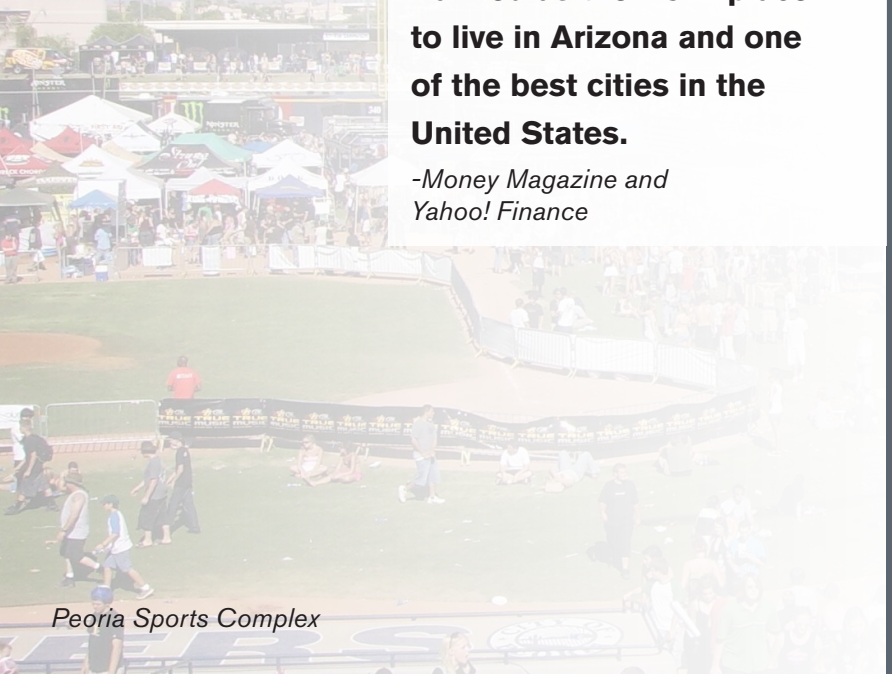
2020

Livability

Peoria is renowned as a great place to raise a family and start a career. A plethora of local amenities and attractions contribute to Peoria's livability. Beyond the tourist attractions of Spring Training and Lake Pleasant, the City offers many community facilities and recreational opportunities for all ages and interests such as an extensive public park system and annual community events. Peoria's dedication toward livability is also evident in the City's latest General Plan which addresses sustainable water use, housing, public services and more.

Ranked as the No. 1 place to live in Arizona and one of the best cities in the United States.

-Money Magazine and Yahoo! Finance



Peoria Sports Complex

Peoria strives to uphold these six major livability priorities in order to maintain an exceptional quality of life for its citizens.

- Arts, Cultural and Recreational Enrichment
- Economic Prosperity
- Smart Growth
- Superior Public Services
- Healthy Neighborhoods
- Integrated Transportation

Community facilities

- Peoria Community Center
- Rio Vista Recreation Center
- Peoria Sports Complex
- Peoria Center for the Performing Arts
- 36 neighborhood parks
- 2 libraries
- 3 swimming pools
- 6 golf courses
- 9 lighted multi-purpose ball fields
- 15 tennis courts

Lake Pleasant

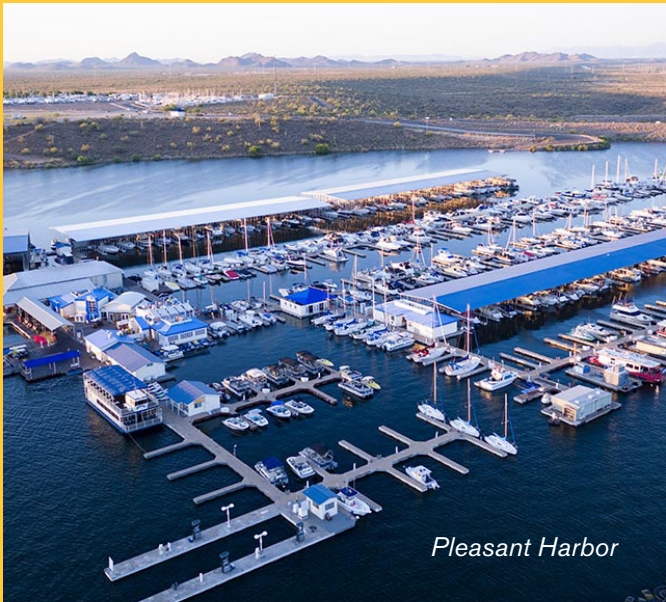
Urban ecology, ecotourism and recreation

Peoria is surrounded by the natural beauty of the Sonoran Desert and is home to Lake Pleasant, a 23,000-acre park and major recreational asset to the North Valley. The transient Agua Fria River and New River flow through Peoria, as do a multitude of washes and creeks. Most notable perhaps is Skunk Creek — known for the recreational trails running alongside it — which forges a connection between Peoria and Glendale. Northern Peoria is home to beautiful mountains and buttes including Sunrise Mountain, Calderwood Butte and Cholla Mountain.

Boasting over 300 days of sunshine annually, Peoria's ecotourism opportunities are a steady industry for residents and visitors. The City features over 60 miles of trails for walking, biking and horseback riding, as well as 570 total acres of accessible park land.

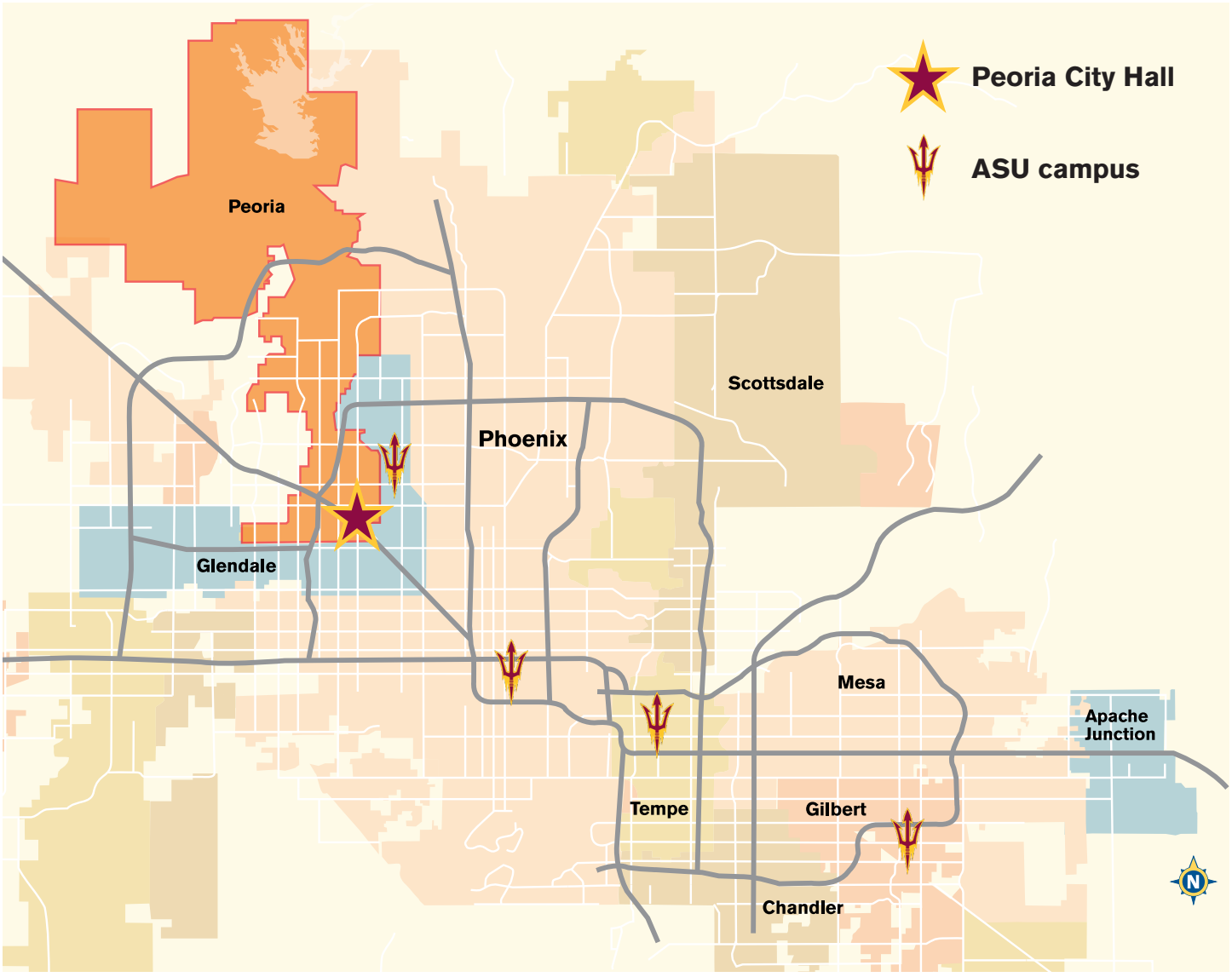
Lake Pleasant Regional Park contains a full-service marina, providing opportunities for water-oriented recreation such as kayaking, water skiing and even scuba diving. Visitors can also go horseback riding, take gliding lessons, hike, camp and more.

Skunk Creek



Pleasant Harbor

MAP OF PEORIA & GREATER PHOENIX, ARIZONA



The following report summarizes and draws highlights from work and research conducted by students in FSE 104/404 EPICS Gold, for the Spring 2020 partnership between ASU's Project Cities and the City of Peoria.

To access the original student reports, additional materials, and resources, visit:

links.asu.edu/PCPeoriaSkunkCreek20S

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EXECUTIVE SUMMARY

As Peoria grows, city developers, designers, and other officials are presented with an opportunity to strategically incorporate green spaces and recreational amenities in underutilized landscapes near urban centers. Peoria's Skunk Creek corridor features favorable conditions for recreational interventions to grow and adapt the area into a strengthened community asset. This project portfolio began in Fall 2019, with the Skunk Creek Activation report, which aimed to provide multiple levels of suggested amenities to implement in the area. Using this initial set of findings and recommendations, the Spring 2020 students continued the Skunk Creek portfolio by building on prior research and developing further actionable suggestions surrounding the corridor.

Public green spaces provide a myriad of benefits, as they foster community engagement, mitigate the effects of pollution, and help reduce the Urban Heat Island Effect. Furthermore, the availability of green space with recreational amenities and rest areas allows for physical activity and relaxation as well as an escape from the Arizona heat. Studies also show green spaces can contribute to a wide variety of positive sociocultural and economic outcomes in a population. The Skunk Creek corridor is one such space, which, when fully activated, has the potential to serve as an important city asset that increases sociocultural wellbeing, economic prosperity, and ecological harmony in the City of Peoria.

This project was conducted by a small group of five engineering students in Joshua Loughman's **FSE 104/404: EPICS Gold** course. These students represented a variety of engineering disciplines, including engineering management, civil engineering, and computer science.

The students spent the semester examining existing conditions of the Skunk Creek area, and developing proposals to reimagine the untapped potential of the site. Equipped with city staff insights and the results from a survey of Peoria residents, the City identified some underutilized areas of the Skunk Creek Trail and its adjacent facilities, and with this information students developed their project scope and design plans for future construction to enhance the Skunk Creek Corridor.

Following this Executive Summary is the student report summary and recommendations intended to benefit the City's plan to develop Skunk Creek into a multi-functional recreational green space.

PROJECT GOALS

Student research and recommendations aim to support multi-use land development along the Arizona Canal Diversion Channel (ACDC). The project is driven to enhance the trail value and usability for visitors, residents, and local businesses by developing a more aesthetically pleasing, functional, recreational environment.

Figure 1 *Students participate in a game of Peoria trivia at the Spring 2020 semester Kickoff event*

Figure 2 *Scott Whyte, Peoria Real Estate Development Officer, stops at an informational sign during a site visit of the Skunk Creek's New River Trail*

KEY RECOMMENDATIONS AND NAVIGATION GUIDE

Recommendations for pedestrian bridges

Construct two or more new pedestrian bridges across Skunk Creek to connect the trails on the north and south sides of the floodplain, subsequently increasing connectivity between different community nodes (pp.25-30).

Consider the following proposed locations to build pedestrian bridges for their ease of access to key entertainment and service locations (pp.28-29).

- The intersection of 83rd Avenue and West Country Gables, in alignment with West Greenway Road
- Near 77th Avenue connecting to the Peoria Sports Center
- The intersection of 75th Avenue and W Paradise Lane

Design the new bridges in a similar fashion to Peoria's existing pedestrian bridge by incorporating a similar truss design (p.27).

Incorporate student-suggested trail branding and color palette schemes on new pedestrian bridges to continue building a cohesive identity around Skunk Creek Corridor (p.27).

Recommendations for branding and identity

Integrate the suggested color palettes into design elements along the Skunk Creek Trail system, in accordance with the student-suggested node themes (pp.31-32).

Install consistently branded signage at key points along the Skunk Creek trail, including major intersections, that display navigational, historical, and/or ecological information about the area (pp.33-36).

Design all prospective signs to be clear and legible to help visitors use the trail area to its maximum potential (pp.33, 36).

Include informational signage that can direct trail users to entertainment and service amenities nearby the trail, such as P83 retail and entertainment district, Arizona Broadway Theatre, and Peoria Sports Complex (pp. 34-36).

Consider hosting a sign design contest with local schools to help generate designs for signage along Arizona Highway 101, and further engage the community during Skunk Creek's development process (p.35).

KEY RECOMMENDATIONS AND NAVIGATION GUIDE (CONT'D)

Recommendations for trail amenities
Construct shaded rest areas at strategic locations along the trail, such as nearby pedestrian bridges or high-activity points (p.38-39).
Consider incorporating recreational activity equipment at the rest areas to further engage the community with the trail area (p.38).
Install smaller-scale shade structures with benches nearby informational sign install sites to provide short-term rest areas for pedestrians and bicyclists (pp.38-39).

FACULTY
JOSHUA LOUGHMAN

FSE 104/404: EPICS GOLD
IRA A. FULTON SCHOOLS OF ENGINEERING

Reimagining Skunk Creek

Design interventions to actualize the value of Skunk Creek Corridor as a recreational urban periphery asset

ACKNOWLEDGMENTS

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INTRODUCTION

Skunk Creek, which cuts through the Northwest Phoenix Metro Area, is an ephemeral stream which spans approximately 30 miles, channeling water from nearby hills into the Agua Fria system. The creek epitomizes the urban-wild periphery, with recreational trails running alongside important habitat zones for native wildlife. Historically, Skunk Creek has served as a corridor for animals and native peoples to travel between what is now the North Phoenix area, and Gila Bend in the South Valley. The project area west of Interstate-17 at the intersection of Deer Valley Road is also known for its petroglyphs, further highlighting the important history of the site. Figure 3 shows existing Peoria trails in the project area.

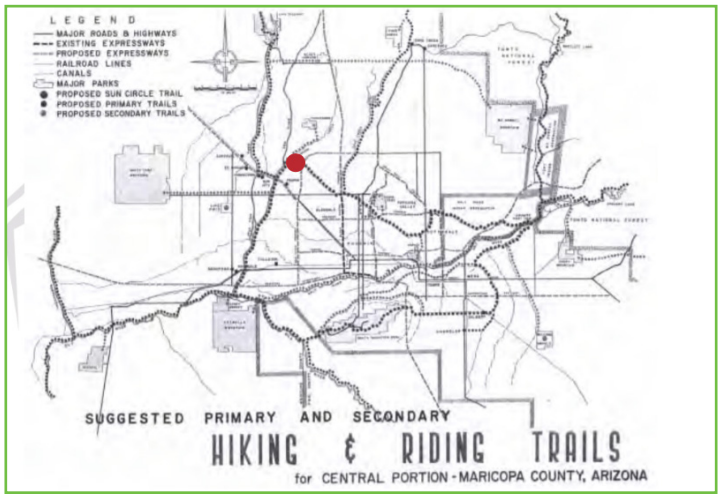

Figure 3 *Project location with respect to regional trails, by Maricopa County Parks*

Figure 4 *Scott Whyte, Peoria Real Estate Development Officer, guides students along the Skunk Creek Corridor during a site visit in February, 2020*

To the east, the project is bound by the existing 75th Avenue alignment and the Arizona Canal Trail on the north side, slightly east of the 75th Avenue bridge. To the west, the existing paved trails exist on the south side of Skunk Creek, beginning slightly east of the 83rd Avenue bridge and extending north to the existing sidewalks and bike lanes north of the creek.

The project area spans from 75th Avenue to 83rd Avenue on both the north and south sides of the Arizona Canal Diversion Channel (ACDC). Successful completion of the project will encourage further development along the ACDC. In doing so, gaps between the north and south sides of the ACDC will be mitigated, increasing land usability and community members' desire to be involved in their local community grounds. Figure 5 depicts the span of the project site considered for development, highlighted in yellow. All proposed ideas are designed to fit within this area.

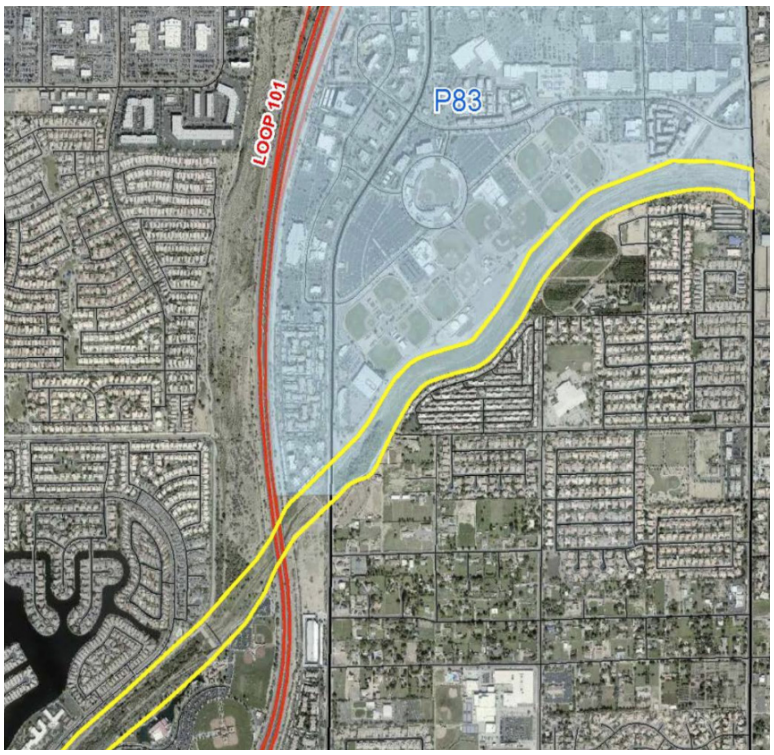

Figure 5 *Aerial view of project site, highlighted in yellow, juxtaposed against the P83 district, highlighted in blue*

Over the past 20 years, the City of Peoria has been working to enhance the project site through various funded projects. Figure 4 lists previous projects conducted in the area.

City of Peoria past projects in or near Skunk Creek Corridor	
Title	***Year***
Parks Recreation Open Space and Trails Master Plan	2006 update
Peoria Sports Complex Urban Design Plan	2010
Skunk Creek Trailhead and Peoria Sports Complex Trail	2011
Community Services Master Plan	2014
Skunk Creek Bridge on 83rd Avenue Improvements	2016

Figure 6 *Recent history of municipal projects that include some aspect of Skunk Creek or were executed in the same area*

The current Skunk Creek Multi-Use Path project proposed developing the area surrounding the Arizona Canal Diversion Channel. This report aims to address aspects of the trail that are lacking and suggests initial design alterations that can be made based on the City of Peoria's available funding and prescribed requisites.

Stakeholder and project requirements

City leadership aims to beautify the Skunk Creek Corridor and connect the southern trail to the northern trail via pedestrian bridges. Peoria is also looking to provide economic development and prosperity to local businesses through trail rehabilitation and renovation by implementing access points between the trails and companies. Expected project outcomes include implementing user-friendly and sustainable designs, gathering community members' input for Skunk Creek's future development, beautifying the existing trail framework, and building a valuable, interactive landscape.

RESEARCH METHODS

EPICS students spent the Spring semester devising potential ways to further activate the Skunk Creek Corridor through sustainable design and engineering. Students analyzed the site to determine opportune locations to implement pedestrian bridges that would increase connectivity throughout the corridor, as well as developed a potential branding strategy to apply to the area that coincides with the City of Peoria's existing brand design.

Stakeholder interest was taken seriously throughout the project, including the needs of city leadership, Peoria residents, and local businesses. Students felt it was important to take a holistic approach when proposing project development ideas. Therefore, they included an overarching PESTLE analysis, cost-benefit analysis, and multiple choices for infrastructure and branding applications.

PESTLE analysis

Editor's Note

A PESTLE analysis is a planning concept that considers the following factors to make project decisions: political, economic, social, technological, legal, and environmental. It can be used as a tool by companies or organizations to track their conditions while launching a new service or good. This analytic tool provides a holistic view of an entity's circumstances from many different angles while contemplating some development plan.

Editor's Note

The onset of the Covid-19 pandemic, which occurred in the middle of this project, warrants additional considerations for each section of the PESTLE analysis. For instance, enhancing outdoor activity opportunities may have positive benefits for residents who can't see friends indoors. At the same time, the economic uncertainty it caused may give city leadership pause when considering large capital expenses.

PESTLE analysis of Skunk Creek design project	
Factor	***Details***
Political	The client is a city government that is beholden to the will of city residents Need to be aware of what city residents want to see on the trail Use opinions may vary greatly, some may want to expand it while others may want to do something else, like convert it into a lake
Economic	Limited budget to implement attractions and bridges across such a long stretch of land
Social	Neighborhoods, the P83 Complex, and the Spring training grounds are all along the trail, potentially affecting operations in those places Trail users may also be affected by trail improvements
Technological	Most proposed attractions are low-technology and do not require digital devices Certain attractions and bridges, however, do have some technological requirements
Legal	Land ordinance laws and other land usage laws must be considered Part of the trail is a flood control zone, where permission is required to develop that land
Environmental	There is no need for intense, large-scale landscaping Some proposed attractions and bridges will physically alter the trail As the project's goal is to increase usage of the trail, more alternative means of transportation may be used, instead of personal vehicles, which will reduce carbon emissions Any structure built on-site should be constructed of resilient materials to withstand possible, however unlikely, flooding A small riparian zone in the middle of the project area must be preserved, though staff are interested in enhancement strategies

Figure 7 *Student PESTLE analysis of Skunk Creek design interventions to evaluate multiple project angles*

Stakeholder consideration

Stakeholder interest was considered throughout the design process. City officials would clearly be continuously engaged in the planning and building process along the corridor; as they are sponsoring the project, city staff represent key stakeholders. Students determined that any construction activities should not be too loud, especially after normal business hours, to be courteous to the surrounding residential areas. Park visitors and tourists of the area should also be considered and accommodated where possible if amenities are temporarily taken offline; these are the primary users of the space. Listening to stakeholder input is a vital step in the planning process to ensure new efforts are needed, wanted, and useful.

Stakeholder profiles	
Primary	Jay Davies: Chief of Staff to Peoria City Manager Peoria's Office of Economic Development
Secondary	Other City of Peoria officials Residents in close proximity to the project area Local business owners in and around the project area Trail users
Other	Tourists/Visitors P83 Sports Complex customers Spring Training Grounds personnel

Figure 8 *Description of Skunk Creek project stakeholders*

FINDINGS AND ANALYSIS

Project context

The Skunk Creek Trail provides opportunity to incorporate aesthetic improvements through landscaping and amenities, information about the trail's history through signage, and trail connectivity through pedestrian bridges. An important challenge to consider is that the project site is located in a floodplain. The channel between the north and south trails can flood during severe weather events, though this is infrequent. Subsequently, area landscape designs and building materials must be resilient to flooding.

The City of Peoria seeks to strategically activate parts of the floodplain area and embankments between 73rd Avenue and 83rd Avenue. The project area offers clear connectivity opportunities between the Rio Salado Recreation Center, the P83 district and the Peoria Sports Complex Grounds. The P83 Entertainment District features restaurants, retail and more, while the Peoria Sports Complex, holds annual Spring Training games and other large events. Peoria strives to activate the existing space and connect the southern trail to the northern trail with pedestrian bridges to help make the landscape a usable, recreational amenity. Peoria also aims to amplify economic development and local business prosperity by rehabilitating the trail and connecting access points of the potential recreational space with surrounding businesses.

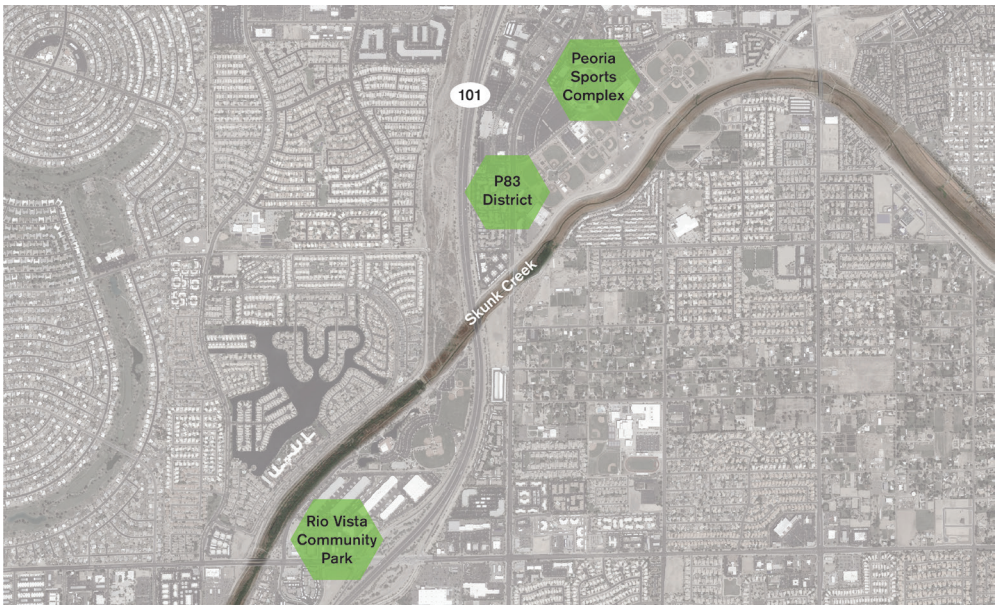

Figure 9 *Project area context map, highlighting key public amenities*

Currently, trail users do not utilize the land to its maximum potential due to its lack of connectivity and accessibility. At a minimum, students intend for their project plan suggestions to connect the trail from each established node, including but not limited to pedestrian bridges, economic development for the surrounding areas, access points for trail users, and an aesthetically pleasing environment for trail users and tourists. The Skunk Creek corridor's development may also positively impact tourism in Peoria by providing new opportunities for engagement with visitors. The project plan does require investment from Peoria, however it would most likely be a large upfront investment followed by low long-term maintenance costs. Students have specified unique design principles that can help reinvigorate the Skunk Creek Corridor and subsequently attract more users to the trail. New attraction sites along the trail could also increase the social media activity in the site, in turn attracting even more visitors to the area.

Any technology that could be installed into the park, whether it be flood tracking equipment or water fountains, will need to be durable enough to last many years in order to get a good return on investment. Some environmental issues were considered during the proposal's formation, especially noting that site construction managers and planners must be conscious of minimizing the impact on wildlife in the area. Project managers should be aware of the infrequent floods that could happen and strategically choose building materials that can withstand potential floodwaters.

Proposed locations of trail improvements are identified in the following sections. It should be noted that specific locations were only chosen for pedestrian bridges. Future considerations should include trail connections, restrooms, park benches, pavilions, and other structures. This section will serve as an overview of proposed ideas to improve Skunk Creek. These should be considered as initial ideas that can be adjusted by the City of Peoria before presenting the ideas to an engineer.

PEDESTRIAN BRIDGES

The addition of at least two pedestrian bridges will greatly increase connectivity between the southern and northern trails. The bridges will incorporate new trail branding and color schemes, and exhibit a similar structural style to the existing pedestrian bridge near the Rio Vista Recreational Center (Figure 10). Since this bridge was already approved by the City of Peoria, a similar truss design could theoretically be used by engineers to develop the three recommended pedestrian bridges listed on the following pages.

Figure 10 *Existing pedestrian bridge near Rio Vista Recreation Center*

Initial cost estimates for pedestrian bridges

Student calculated bridge cost estimates			
Location	***Length***	***Cost per linear foot***	***Total estimated cost***
83rd Ave. and West Country Gables	335 ft.	$500	$167,500
Near 77th Ave. at Peoria Sports Complex	335 ft.	$500	$167,500
75th Ave. and W. Paradise Lane	365 ft.	$500	$182,500

Figure 11 *Conceptual rough estimates for cost of implementing suggested pedestrian bridges*

Editor's Note

Students used a rough estimate of $500/foot to create this cost analysis, based on a review of similar projects and input from engineering faculty at ASU. This simplified approach was necessary due to limitations on student capacity. Actual costs will certainly vary based on construction specifications for final design. The relationship between length and cost, while correlated, can be significantly influenced by a number of external variables, such as the condition of the ground, access issues, height of the channel at that point, design features, etc.. These figures are merely conceptual and would not represent a true cost accounting.

Recommended pedestrian bridge locations

83rd Avenue and West Country Gables (Figure 12A):

A pedestrian bridge at these major cross streets would also connect to West Greenway road. This location is recommended because it would provide a convenient connection for the adjacent Peoria Estates residential subdivision to freely cross from the south trail to the north trail, and avoiding a detour to N 83rd Avenue. Additionally, the bridge would increase pedestrian access to the Polar Ice-skating rink located north of the trail and make it possible for residents to reach the Peoria sports complex from the south trail. From a construction standpoint, this location is at a narrower location in the wash, meaning the bridge would require a shorter span, thus decreasing the material cost to construct.

Near 77th Avenue (Figure 12B):

A pedestrian bridge connecting the southern trail to baseball fields of the Peoria Sports Complex (PSC), near 77th Avenue, would provide direct connectivity between the residential communities south of the trail and PSC. This location is also beneficial to McLendon's Farm, as city staff indicated an interest in working with the business to create a consumer-facing farm stand that would sell the hyper-local produce and/or juices. This inclusive planning would allow PSC visitors to enjoy fresh local citrus and support local businesses, as well as allow trail users and farm stand visitors direct access to PSC. This location is easily constructible as the wash channel is still fairly narrow at this point.

75th Ave and W Paradise Lane (Figure 12C):

75th Ave and W Paradise Lane are the major cross streets. This location is suggested because of its potential to tie into existing sidewalks and trails that are partially constructed on the north side of this location. Its proximity to a new residential subdivision in development on the south side of the trail may also prove beneficial. Residents in the area would have improved access to the Arizona Broadway theatre to the north, and increased access to PSC. From a construction standpoint, this bridge location would be more costly due to the increased span required. However, it would make the trail on the north side of the creek feel more complete by finishing the existing sidewalks that abruptly end.

Figure 12A *Proposed bridge location 1*

Figure 12B *Proposed bridge location 2*

Figure 12C *Proposed bridge location 3*

Figure 12 *Proposed bridge location context maps*

Recommendations for pedestrian bridges

- Construct two or more new pedestrian bridges across Skunk Creek to connect the trails on the north and south sides of the floodplain, subsequently increasing connectivity between different community nodes.
- Consider the following proposed locations to build pedestrian bridges for their ease of access to key entertainment and service locations.
    - The intersection of 83rd Avenue and West Country Gables, in alignment with West Greenway Road
    - Near 77th Avenue connecting to the Peoria Sports Center
    - The intersection of 75th Avenue and W Paradise Lane
- Design the new bridges in a similar fashion to Peoria's existing pedestrian bridge by incorporating a similar truss design.
- Incorporate student-suggested trail branding and color palette schemes on new pedestrian bridges to continue building a cohesive identity around Skunk Creek Corridor.

BRANDING

Applying Peoria brand standards to the Skunk Creek Corridor's newly implemented amenities and key surrounding areas will help develop the trail's identity and visually connect it to the City of Peoria, while also building on the sense of place residents feel while visiting Skunk Creek. Students assigned colors from city brand standards to the important nodes connected to the trail, namely the general areas of the suggested pedestrian bridges. Visually branding these areas can help connect the Skunk Creek Corridor to its surroundings, as well as provide navigational use.

Color palettes

Rio Vista Recreation Center node

The Rio Vista Recreation node is themed around "family" and "recreation." The recommended color palette for branding elements around this node include Peoria's standard Dark Purple, Light Purple, and Yellow (Figure 13). This node contains the Rio Vista Recreation Center, children's playgrounds, and sports fields.

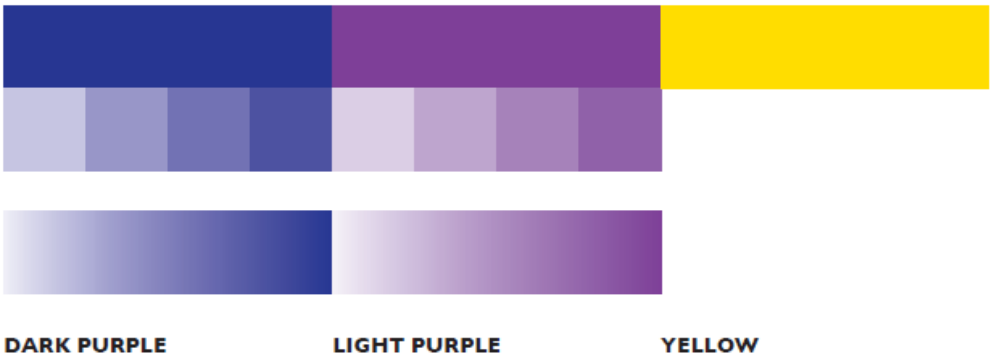

Figure 13 *Suggested color palette for Rio Vista Recreation node*

P83 access node

The P83 Access node focuses on “shopping” and “nightlife.” The recommended color palette for branding elements in this area come from Peoria’s Specialty Color Palette 3, consisting of Dark Red, Light Red, and Yellow. This area is located about one mile from the trail, and is a main hub for shopping, dining, and nightlife in Peoria. It includes many restaurants, bars, and retail stores.

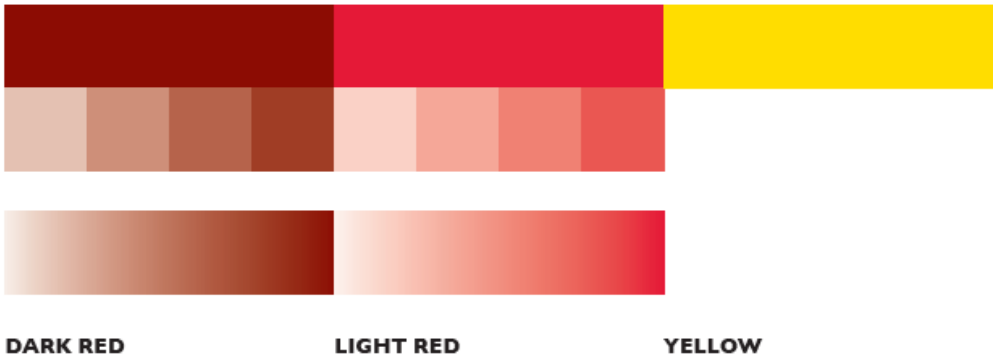

Figure 14 *Suggested color palette for P83 Access node*

McLendon’s Farm node

The McLendon’s Farm node focuses on “farm/local” and “entertainment.” The recommended color palette for branding elements includes swatches from Peoria’s Specialty Color Palette 2, including Dark Green, Light Green, and Yellow. This node's main features are McLendon's Farm, an organic farm, the eastern side of the Peoria Sports complex, and nearby access to the Arizona Broadway Theatre.

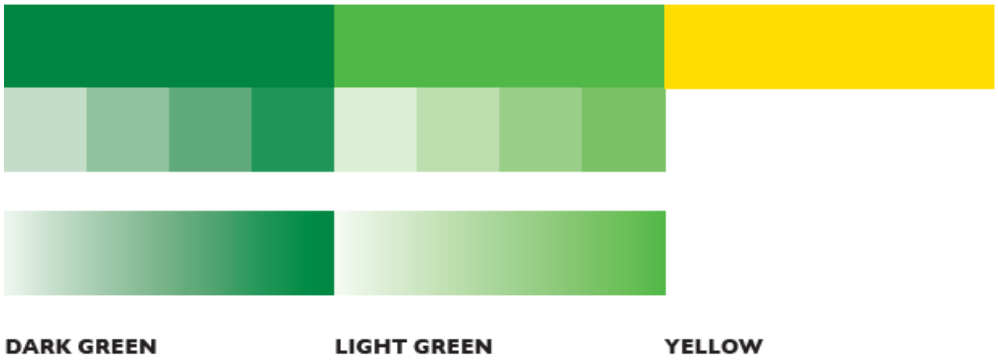

Figure 15 *Suggested color palette for McLendon's Farm node*

Signage

Along with other aspects of the trails, signs can provide directions, explain the area surroundings, and point to interesting areas users may access from the trails. The few existing signs on Skunk Creek Trail could be enhanced, as they do not currently inform users of the surrounding area or indicate points of interest. For example, the sign in Figure 16 only indicates where the trailhead is located, and features a couple symbols that could be interpreted in multiple ways. Enhancing sign design along the trail to improve readability and usage can be beneficial for many users.

Figure 16 *Existing trail signage example*

Figure 17 indicates student-proposed signage locations along Skunk Creek Trail, and the corresponding tables on the following pages detail the purpose of each proposed location. Signs are proposed at all major intersections and potential future intersections.

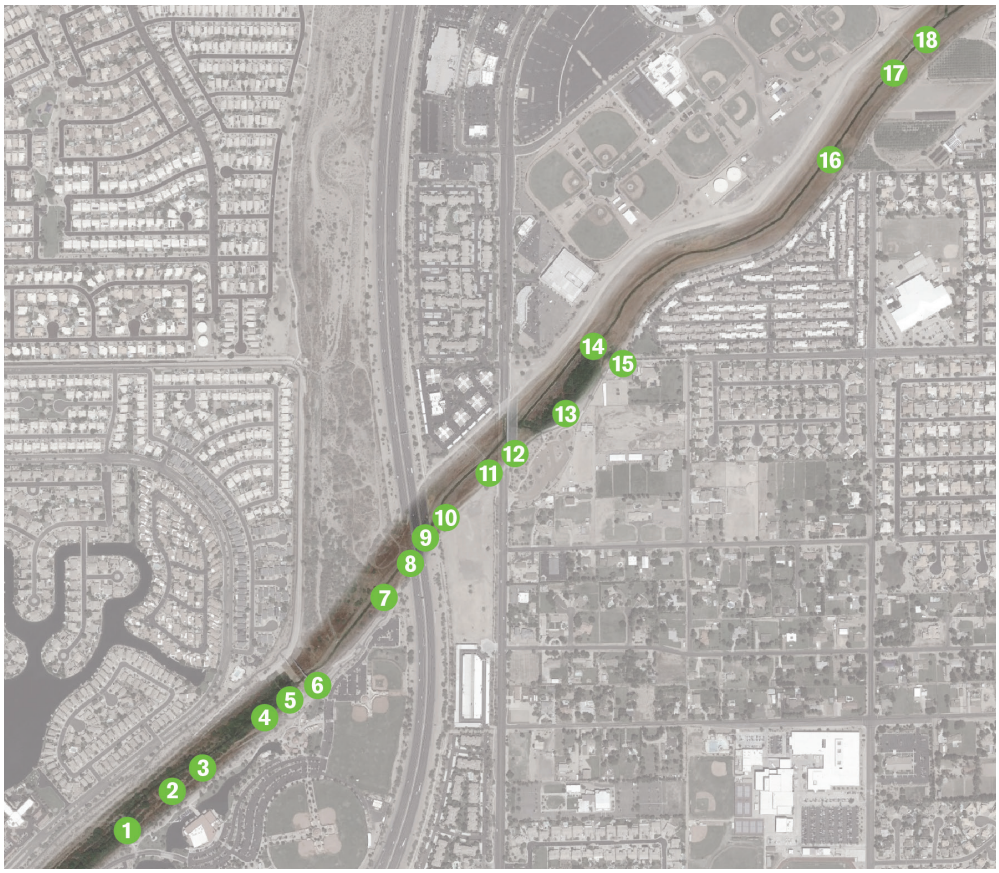

Figure 17 *Locations of proposed signage*

Proposed sign locations (1/2)	
Sign	***Proposed location and purpose***
1	At the intersection of Skunk Creek Trail and a path leading to the Rio Vista Recreation Center Describes the amenities in either direction of the intersection Could also include basic Trail rules, as it is a relatively high-traffic area
2	At an entrance to the trail coming directly from Rio Vista Serves as a gateway from Rio Vista to the trail Similar to Sign 1, would describe available amenities in either direction of the sign A second sign at this location could face the opposite direction to be targeted at trail users, and describe what Rio Vista has to offer
3	Near an existing seating area alongside the trail Provides trail users with information about the vegetation and wildlife living in the floodplain Could also exhibit information about the area's culture, as there is a residential zone on the opposite side of the creek
4	Situated at a point where the trail branches off and meanders into the floodplain where users have worn "unofficial" trails into the ground Can exhibit safety information pertaining to the floodway, such as times it is safely accessible, and important plant and animal identification
5	Provides an overview of the floodway Can contain historical information about the floodway, when it was built, and about some of the major floods that have occurred
6	Currently exists on the trail Information needs updated to describe what is in either direction of the sign and what amenities are across the bridge Potentially can include historical information about the bridge itself, such as when it was built
7	Situated where the Rio Vista node meets the P83 node, and therefore should reflect a change in trail design per recommended branding colors It is recommended to make this sign double-sided, and include information about both adjacent nodes

Figure 18 *Details pertaining to student proposed signage locations (1/2)*

Proposed sign locations (2/2)	
Sign	***Proposed location and purpose***
8 & 9	Situated alongside the 101 highway Features information about the highway
10	Situated where the trail branches off toward a currently empty plot of land that will eventually be commercially developed Features information about the future commercial development and describes what amenities would be available for residents upon its completion
11 & 12	Shown in Figure 20, these signs already exist but could benefit from a stylistic upgrade Similar to signs 8 and 9, a design contest in local schools could be held to generate new designs
13	Situated next to a small, riparian area full of dense vegetation and wildlife Features ecological information about the corridor
14 & 15	Situated near the Skunk Creek Trailhead where the trail branches off into a residential area One sign can describe what the trail features in either direction, similar to other suggested signs located at intersection points The other sign can direct trail users toward the residential area and describe what amenities are within walking distance from the trailhead
16	Situated at an intersection of the trail and nearby residential area Indicates a location for people in the neighborhood to enter the trail Features information about what is located in either direction of the trail, and potentially information about the adjacent neighborhood
17	Located near the potential farm stand, adjacent to McLendon's Farm Informs and engages trail users with the farm stand by featuring information about the farm's history and the new farm stand Figure 18 shows McLendon's farm, and a potential location for the proposed farm stand
18	Located adjacent to a proposed pedestrian bridge Features information about different amenities on the North and South trail, including the nearby Peoria Sports Complex

Figure 19 *Details pertaining to student proposed signage locations (2/2)*

Generally speaking, this investigation revealed a lack of informational signage targeted at trail users throughout the project area. Informational signs are recommended to educate trail users about amenities on and nearby the trail, as well as to improve the connection between trail users and the land, by describing historical and ecological features of the Skunk Creek Corridor.

A redesigned sign structure may also be beneficial to increase clarity and understanding of key information for different users. Figure 20A illustrates existing informational signage along the trail, and 20B juxtaposes a proposed student revision, including specific information and how they suggest it is laid out on the signs. The content on informational signs should vary based on its immediate surroundings.

Figure 20A *Existing trail signage* ***Figure 20B*** *Proposed sign revision*

Figure 20 *Student proposed sign structure redesign*

Another option to consider for some suggested sign locations is information podiums. Figure 21 shows an initial student mockup and a digital rendering of a potential information podium design that could be implemented along the trail. The proposed design includes an engraved QR code that links to the City of Peoria's website to provide information about the trail, the area's history, general directions, and nearby amenities.

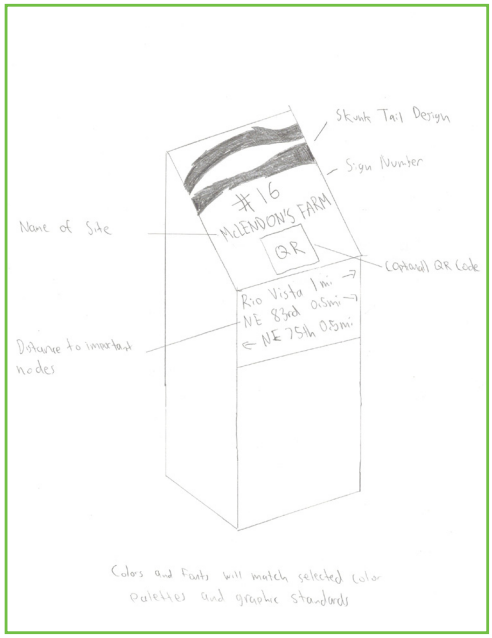

Figure 21A *Student sketch* ***Figure 21B*** *Conceptual mockup*

Figure 21 *Proposed informational podium design*

Recommendations for branding and identity

- Integrate the suggested color palettes into design elements along the Skunk Creek Trail system, in accordance with the student-suggested node themes.
- Install consistently branded signage at key points along the Skunk Creek trail, including major intersections, that display navigational, historical, and ecological information about the area.
- Design all prospective signs to be clear and legible to help visitors use the trail area to its maximum potential.
- Include informational signage that can direct trail users to entertainment and service amenities nearby the trail, such as P83 retail and entertainment district, Arizona Broadway Theatre, and Peoria Sports Complex.
- Consider hosting a sign design contest with local schools to help generate designs for signage along Arizona Highway 101, and further engage the community during Skunk Creek's development process.

TRAIL AMENITIES

Central Arizona's desert climate necessitates shade and rest areas in public outdoor recreational spaces, especially in the summer months. Currently, the Skunk Creek Trail provides little to no shade for pedestrians and bicyclists. Shade structures placed at strategic locations, such as nearby information signage, would be a useful investment for the safety and comfort of trail users.

Figure 22A *Students walk along a sunny part of Skunk Creek that could benefit from extra shading*

Figure 22B *A potential style of shading that could be implemented along the trail, by City of Peoria*

Figure 22 *Shade structures could prove beneficial along the trail, especially along stretches with few trees and natural shading*

Benches and shaded areas along the trail will also facilitate connectivity at the pedestrian bridges by meeting user needs for rest, hydration, and a shaded spot to cool down. There is also potential to add games and recreational activities near the rest areas to further engage the community with the trail and develop its identity as an attraction. Outdoor games such as pickleball, cornhole, and trail lookouts can help better engage trail users with their surrounding environment.

Editor's Note

Students who participated in the Fall 2019 edition of this class proposed locations for various amenities, including benches, shade structures, and water fountains. The Fall 2019 Skunk Creek summary report is available at **links.asu.edu/PCPeoriaSkunkCreek19F**.

Exact locations of rest areas and recreational amenities are at the discretion of Peoria leadership. However, potential well-performing locations could include the entrances of pedestrian bridges and high-activity points along the trail. Specifically, students suggest the site near the 83rd Avenue and Skunk Creek interchange. Land along this roadway is set to be developed into a business park, as proposed by the City of Peoria. Trail amenities at this location could provide connectivity between the new developments and the trail area via park benches, outdoor eating areas, and shade structures. While this location would mainly serve those working in the business park, it can also mark the approximate halfway point along the trail for pedestrians and bicyclists, and serve as a model for future developments.

Recommendations for trail amenities

- Construct shaded rest areas at strategic locations along the trail, such as nearby pedestrian bridges or high-activity points.
- Consider incorporating recreational activity equipment at the rest areas to further engage the community with the trail area.
- Install smaller-scale shade structures with benches nearby informational sign install sites to provide short-term rest areas for pedestrians and bicyclists.

CONCLUSION

This report covered only a brief examination of possible modifications to the Skunk Creek Trail area to be considered by Peoria in its efforts to reimagine the existing infrastructure and usability of the Skunk Creek trails. The city's goal is to optimize the underutilized green space, and further develop Skunk Creek into an attractive recreational amenity that benefits residents and visitors alike.

Students **FSE 404: EPICS Gold** partnered with the City of Peoria to help develop feasible design ideas to enhance the trail for optimal results. Students started by examining the interests of key stakeholders: residents, city leadership and staff, and Peoria businesses. Following their analysis, students sketched out design recommendations and some key considerations for each, including the installation of pedestrian bridges, a trail branding strategy, and suggested amenity implementation. These actions were chosen to help guide Peoria leadership toward executing effective decisions to enhance the trail system for all its users.

As the second Skunk Creek project co-facilitated by ASU EPICS and Project Cities, this report is intended to build up on the Fall 2019 Skunk Creek Activation report. Equipped with the previous semester's work as a starting place, the Spring 2020 students aimed to round out the project with realistic and actionable recommendations that can increase the value Peoria derives from this space.

Figure 23 *Students stop and chat at a seating area along the New River Trail, where it was observed that despite the beautiful scenery, the bench fixture appears designed to face the trash receptacle*

REFERENCES

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To access the original student reports, additional materials, and resources, visit:

links.asu.edu/PCPeoriaSkunkCreek20S

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