Sustainability Planning: Best Practices and Insights

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

Sustainable Cities Network

Arizona State University

Project Cities

PEORIA ARIZONA

Sustainability Action Plan 2.0

Renewing our Commitment to Peoria's Future

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

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 Student reports are not peer reviewed for statistical or computational accuracy, or comprehensively fact-checked, in the same fashion as academic journal articles.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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links.asu.edu/ PCPeoriaSustainabilityPlanning20S

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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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.

PEORIA TEAM

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Peoria is the place
World class ▪ Sustainable ▪ Future Ready

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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 — **2020**

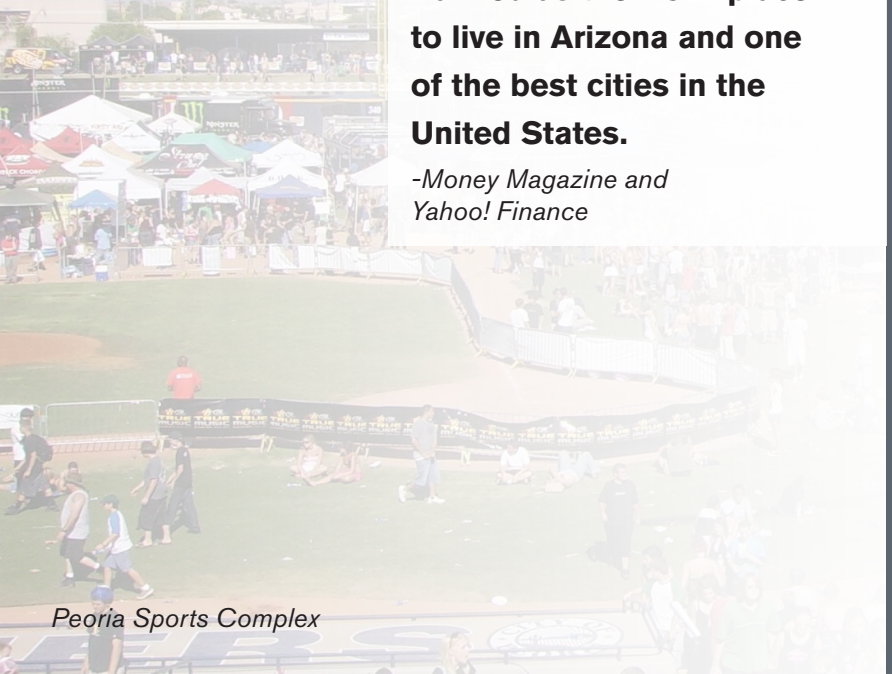
- **1889** — Peoria founded by William J. Murphy
- **1889** — First school district formed
- **1919** — Chamber of Commerce organized
- **1954** — Assumed city status with a population of 4,792
- **1954** — Peoria incorporated
- **1971** — Centennial celebration
- **1977** — Brewers spring training begins at Greenway Sports Complex
- **1986** — Theater for the Performing Arts and Rio Vista Recreation Center opened
- **1994** — Peoria Sports Complex opened
- **2007** — 20-year extension spring training agreement with San Diego Padres and Seattle Mariners
- **2012** — Selected as site of new $70M health clinic for Maricopa County Integrated Health System
- **2017**

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

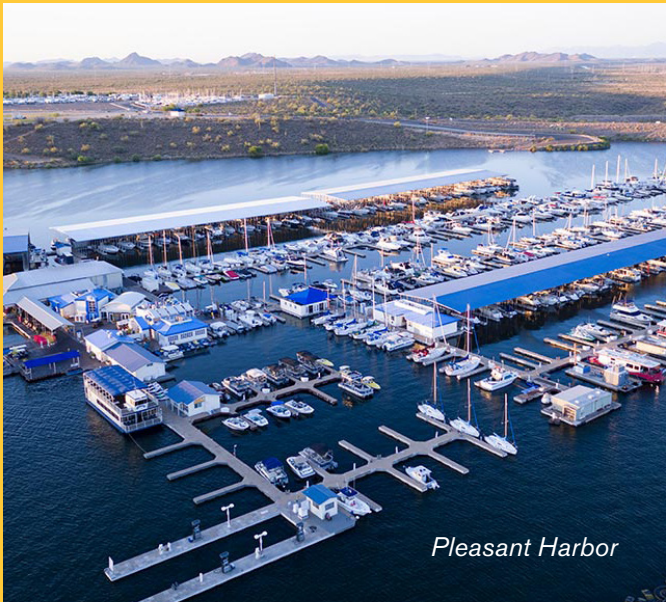
Urban ecology, ecotourism and recreation

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.

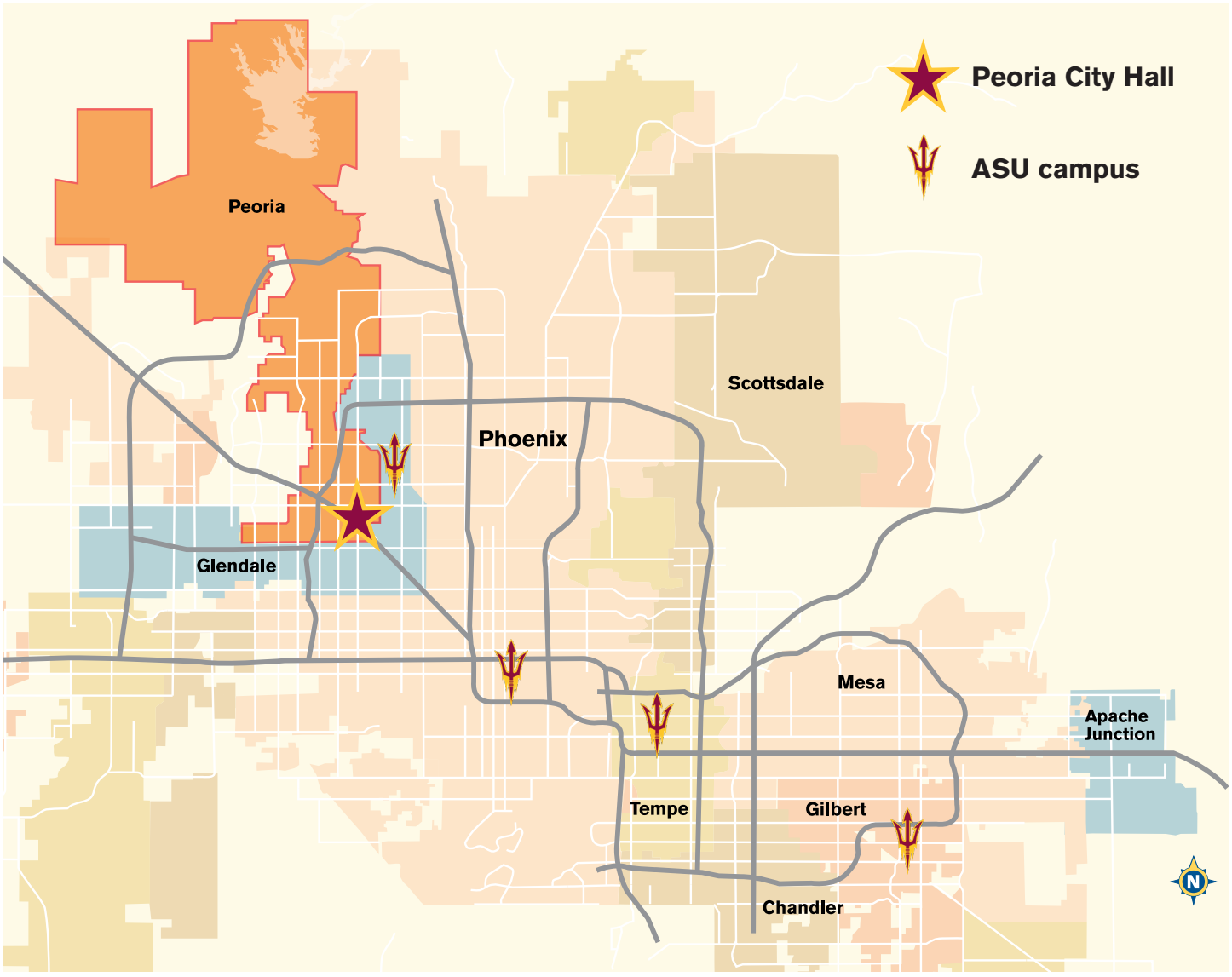
Lake Pleasant Regional Park contains a full-service marina, providing opportunities for water-oriented recreation such as kayaking, water skiing and even scuba diving. Visitors can also go horseback riding, take gliding lessons, hike, camp and more.

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 SOS 321 Policy and Governance for Sustainable Systems, 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/PCPeoriaSustainabilityPlanning20S

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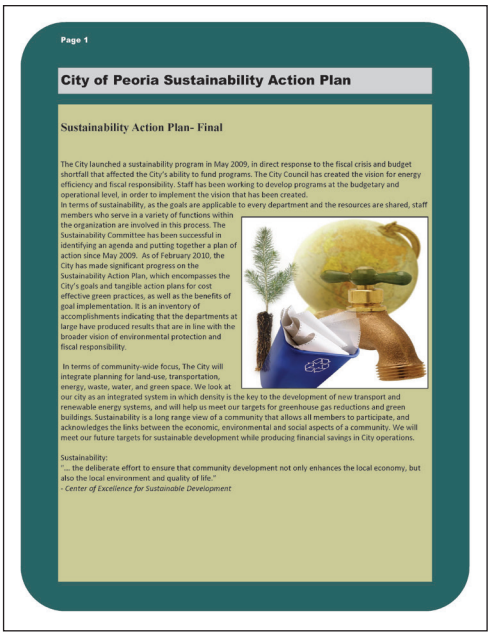
EXECUTIVE SUMMARY

Peoria is recognized as a local leader in sustainability, through its numerous sustainability programs for residents, businesses and internal operations. For example, the City incorporates LEED building standards, and has an internal "Green Team" that works to implement Peoria's sustainability initiatives. A cornerstone to the City's sustainability orientation is its *Sustainability Action Plan* (*SAP*). A thorough, informed, and accessible *SAP* can lay the framework for continued success in achieving sustainability goals.

In 2009, Peoria published their first *SAP*, then released an update, *Sustainability Action Plan 2.0* (*SAP2*) in 2017. At the forefront of *SAP2*, Peoria makes commitments to decrease waste, pollution, and consumption, and in turn, increase air quality, recycling, and the number of LEED-certified buildings in the city. Contemporary sustainability practices are constantly evolving, as new technology is developed and as municipalities gain new insights on the impacts of their daily operations. Therefore, a successful municipal sustainability plan must evolve as well, so city personnel are looking down the road to prepare for the next update; for the purposes of this report, this future version will be referred to as *Sustainability Action Plan 3.0* (*SAP3*).


Page 1

City of Peoria Sustainability Action Plan

Sustainability Action Plan- Final

The City launched a sustainability program in May 2009, in direct response to the fiscal crisis and budget shortfall that affected the City's ability to fund programs. The City Council has created the vision for energy efficiency and fiscal responsibility. Staff has been working to develop programs at the budgetary and operational level, in order to implement the vision that has been created.
In terms of sustainability, as the goals are applicable to every department and the resources are shared, staff members who serve in a variety of functions within the organization are involved in this process. The Sustainability Committee has been successful in identifying an agenda and putting together a plan of action since May 2009. As of February 2010, the City has made significant progress on the Sustainability Action Plan, which encompasses the City's goals and tangible action plans for cost effective green practices, as well as the benefits of goal implementation. It is an inventory of accomplishments indicating that the departments at large have produced results that are in line with the broader vision of environmental protection and fiscal responsibility.

In terms of community-wide focus, The City will integrate planning for land-use, transportation, energy, waste, water, and green space. We look at our city as an integrated system in which density is the key to the development of new transport and renewable energy systems, and will help us meet our targets for greenhouse gas reductions and green buildings. Sustainability is a long range view of a community that allows all members to participate, and acknowledges the links between the economic, environmental and social aspects of a community. We will meet our future targets for sustainable development while producing financial savings in City operations.

Sustainability:
"... the deliberate effort to ensure that community development not only enhances the local economy, but also the local environment and quality of life."
- *Center of Excellence for Sustainable Development*

Figure 1 *2009 City of Peoria Sustainability Action Plan*

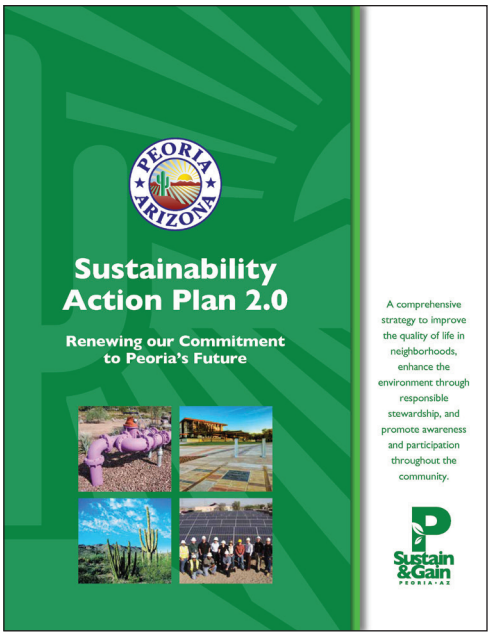


Figure 2 *2017 City of Peoria Sustainability Action Plan 2.0*

The City of Peoria sought the assistance of the ASU students in Candice Carr Kelman's class, **SOS 321: Policy and Governance for Sustainable Systems**, to research best practices in sustainable governance. Throughout the semester, students studied a selection of 23 municipal sustainability plans from communities across Arizona and across the US, to investigate best practices and lessons learned. Each group studied 2-3 sustainability plans, then presented their findings back to the group during class. Equipped with this pooled knowledge, students then examined Peoria's current *Sustainability Action Plan*, *SAP2*, with the end goal of providing feasible recommendations for the City to implement in their future 3.0 rewrite.

Each team focused on one section or chapter of the plan, then utilized the combined findings from studying other communities' sustainability planning efforts to develop their recommendations. Students identified several opportunities to improve the sustainability plan, such as better incorporating data, metrics, and graphics, as well as revising the document's formatting and organization. One team also worked with Project Cities staff to develop a sample infographic intended as a visual example for the types of imagery Peoria could consider for *SAP3*.

The student research summarized in the following sections intends to provide the City of Peoria with useful ideas to expand and clarify their plan, while simultaneously making the new edition more interesting and engaging for multiple audiences and stakeholders. Students reiterated throughout their findings the importance of ensuring the document be easily understood and accessed by residents, businesses, and government officials. Following this executive summary, the student findings and recommendations are organized in topic-specific sections by their corresponding chapter within the *Sustainability Action Plan*.

GOALS & RECOMMENDATIONS

The following report aims to assist the City of Peoria in revising the *Sustainability Action Plan 2.0*. Through a thorough review of peer community sustainability plan documents, student recommendations aim to update the document to be more modern, readable, and accessible. Suggestions are intended to equip city staff with potential next steps toward developing the *Sustainability Action Plan 3.0* as a useful resource not only for the City but also for the citizens of Peoria and other municipalities seeking sustainability guidance and leadership.

Figure 3 *Deputy City Manager Erik Strunk sets the stage at the Spring 2020 kickoff event with opening remarks*

Figure 4 *SOS 321 students engage with Peoria staff during breakout sessions at the Spring 2020 kickoff event*

KEY STUDENT RECOMMENDATIONS

General recommendations for the *Sustainability Action Plan*
Further involve stakeholders in the process of creating the *SAP3* by providing opportunities for stakeholder participation that are transparent and easy to understand (pp.34-35, 40, 43-44, 57, 76, 89).
Expand the use of metrics throughout the document. Measuring progress, including target timelines, and providing current data would be beneficial for all sections of the plan (pp.32, 34, 40, 58, 76, 83, 89).
Utilize key performance indicators (KPIs) to measure specific goals such as percent of materials recycled or reduction of greenhouse gas emissions and the amount of waste diverted from landfills (pp.44, 64-65, 67, 71, 74).
Develop a section of the plan devoted explicitly to summarizing KPIs from each existing chapter. KPIs provide quantifiable measurement and will demonstrate the city's success in achieving its goals (p.44).
Increase the use of graphics throughout the document to portray information and engage readers effectively. Charts, tables, infographics, and other visual tools like color coding can aid in the readability of the document (pp.40, 47, 49, 52, 57, 64, 67, 76, 78, 83, 89).
Include additional details in the new document, which may help improve the overall organization and understanding of the plan. Students specifically suggest adding the new Livability Goals, additional context information for each chapter, and discussing how each chapter overlaps with the contemporary themes in sustainability (pp.36, 39-40, 49, 52, 57, 73, 79-80, 89).
Reduce the amount of information in the introduction of the document. These extra pages take away from the main points of the plan and could potentially distract the reader. Specifically, it is recommended to begin with reducing the "Accomplishments" section.
Develop and disseminate a Spanish version of the sustainability plan to increase the document's reach and impact (pp.52, 57).

KEY STUDENT RECOMMENDATIONS

Recommendations for Community Building
Expand on the city's definition of community building to encompass more than urban development (pp.32, 34-36, 38-40).
Further incorporate the existing Livability Initiatives in the community building goals section (pp.36-37, 40).
Focus on community needs for future planning and the local economy (pp.32-34, 36-40).
Create opportunities for stakeholders to connect with each other and with local government, nonprofits, and businesses, to become more involved in contributing to Peoria's sustainability goals (pp.32-40).
Develop a framework of community leaders and city professionals to assess how engaged the community is in the decision-making process (pp.32-36, 37-40, 86).
Include the impacts of extreme heat on Peoria's community relating to urban development decisions in the new plan (pp.36-37, 40).
Measure and report the percentage of voter involvement and overall community participation in city sustainability initiatives (pp.33-34, 37-40).
Distribute virtual surveys to residents to monitor public opinion and progress (pp.33, 37-40).
Include images of public and community-organized events throughout this section of the plan to break up text and showcase community pride (pp.38, 40).
Add graphics of voter participation and charts showing community well-being metrics over time (pp.40, 52).

KEY STUDENT RECOMMENDATIONS

Recommendations for Education and Outreach
Create opportunities for Peoria to teach sustainability to younger demographics in K-12 schools, potentially through partnerships similar to the Green Schools Alliance (pp.41-44).
Increase inclusivity within the sustainability plan by utilizing community feedback gathered by surveying Peoria residents of varying demographics (pp.39, 42-44).
Continue partnering with other cities in the region to stay updated on current technology to increase community input (pp.41-44).
Utilize KPIs to provide a framework for measurable sustainability goals that are available to the public (pp.33-34, 37, 43-44, 65, 71, 74).
Create KPIs that provide measurable educational outcomes. It may be useful to reference the City of Tempe's *Climate Action Plan* to develop said KPIs (pp.41, 44).
Ensure the sustainability plan is cohesive and transparent by incorporating all categories of the plan into education and outreach efforts (p.44).

KEY STUDENT RECOMMENDATIONS

Recommendations for Transportation
Create cohesive transportation development plans by bringing together various stakeholders to inform land use and transportation planning decisions (pp.51, 56-57).
Encourage planners to innovate transportation planning efforts by considering the complexity and intersectionality inherent to transportation planning. This type of planning will require a coordinated inter-departmental approach (pp.51, 56-57).
Leverage placemaking-oriented design elements to engage the community's sense of place when moving about the city (pp.47, 53-54, 56-57).
Prioritize the enhancement of transportation access and mobility equity by implementing transit-oriented development (TOD) principles (pp.48, 54, 56-57).
Identify target streets to begin implementing TOD and invite local artists or community members to collaborate on public art placemaking initiatives such as murals (pp.36, 39, 54, 57).
Encourage local employers to incentivize public transit use or allow employees flexible start times to reduce automobile rush hour conditions (pp.48, 54-55, 57).
Adopt a parking pricing strategy to discourage personal vehicle usage and encourage the use of public transit (pp.45, 55, 57).
Include information on greenhouse gas (GHG) emissions and other automobile-related pollution (pp.47, 51-52, 57).
Construct wildlife corridors under or over roads where wildlife crossings are common (pp.57, 82).
Integrate land use planning and transportation planning into the next edition of the sustainability plan (pp.50, 56-57).
Improve readability and comprehension for various stakeholders by providing more detailed information about transportation planning, such as "fast facts" and implementation strategies (pp.49, 52, 57).

KEY STUDENT RECOMMENDATIONS

Recommendations for Recycling and Waste Reduction

Encourage residential composting by increasing awareness of composting options and providing additional outlets for residents (pp.58, 63, 66). Specific suggestions include:

- Share helpful information with residents, such as a list of local composting facilities or local farmers who accept donated compostable materials (pp.63, 66).
- Offer additional outlets to residents such as municipal compost collection (pp.63, 66).
- Advertise Peoria's repurposed compost bin service to all residents (pp.63, 65-66).

Develop strategies that encourage and incentivize residents to reduce waste generation and exercise more frequent recycling practices, with improved alignment with the city's recycling capacity (pp.59, 62-63, 65-66).

Provide residents with information on green procurement to encourage responsible purchasing at the residential level (pp.60-63, 65-66).

Develop and share an infographic targeted towards Peoria residents, such as the example displayed on page 65, that depicts top strategies residents can practice to reduce waste generation or repurpose waste items (pp.65, 67).

Amend Peoria City Code Sec. 22-10-E, which suspends a resident's recycling privileges after three accounts of placing non-recyclable items in their recycling container (p.67).

Facilitate municipal green procurement by examining emissions reduced, money saved, and reduced energy usage data from items purchased by the City (pp.58-60, 62-63, 64-67).

Establish more precise indications of what Peoria deems a "green purchase," such as specific eco-certifications, qualifications, or material composition requirements (pp.60-62, 64-67).

Track goals and objectives with key performance indicators (KPIs) such as total pounds of material collected, percent of materials recycled or repurposed, citizen satisfaction surveys, landfill diversion, and cost savings (pp.58-69, 64-65, 67).

Design and include more charts, graphs, and visuals throughout the sustainability plan to illustrate the financial and environmental benefits of municipal green procurement practices (pp.65, 67).

KEY STUDENT RECOMMENDATIONS

Recommendations for Water Resources
Continue to prepare for drought emergencies and set safety measures specifically for low income residents (pp.69, 72-73, 76).
Provide specific actions and steps for residents to reach water-saving goals (pp.70, 72-74, 76).
Expand the water rebate program to be more accessible and subsequently reduce water consumption across multiple categories (pp.70, 72, 76).
Expand municipal use of reclaimed water into other projects such as restoration of degraded natural water systems around Peoria (pp.68, 70, 72, 76).
Launch educational programs that destigmatize the idea that reclaimed water is not safe to drink (pp.71, 76).
Identify more efficient methods for collecting and treating wastewater to save on energy and cost (pp.68, 71-72, 76).
Evaluate water resource metrics by including water quality results, amount of reclaimed water that is consumed, key performance indicators, climate change statistics, and data on water rebate usage (pp.69, 74, 76).
Include visualizations of water statistics that can help people become more informed about water usage and quality in Peoria's water system (p.76).
Incorporate infographics that illustrate Peoria's water systems, where the water comes from, and how it is reclaimed and used to better engage readers with the material (p.76).

KEY STUDENT RECOMMENDATIONS

Recommendations for Municipal Facilities and Energy
Provide stakeholders with the opportunity and instructions to invest in energy efficiency programs (pp.79-83).
Investigate building codes and analyze means to implement renewable energy policy within code updates (pp.77, 79-80, 82-83).
Incorporate employee conservation practices into the plan, such as educating workers on how they can make a difference (pp.80-81, 83).
Display current metrics for the energy mix of the City of Peoria and Arizona to best explain the existing energy situation to readers (pp.77-79, 82-83).
Gather and add relevant data to the plan, including current data regarding installed solar facilities in Peoria, energy consumption in municipal facilities, and more specific metrics on energy consumption of existing water facilities (pp.78-83).
Include graphics in this section to spark interest among readers and explain points that may be better understood visually. Suggested graphics include a guide on how to implement energy-efficient practices in residences and interesting facts related to solar and other renewable energy (pp.78, 83).
Restructure the Municipal Facilities section under the banner of Energy. A Municipal Facilities subsection may still be applicable, although many of the existing points appear to fit better under the topic of Energy (pp.80, 83).
Consider implementing more ongoing deadlines for suggested goals and actions (pp.78-79, 83).
Incorporate formatting aspects from the Baltimore and Washington, D.C. documents to increase organization and comprehension (pp.77, 79-80, 83).

KEY STUDENT RECOMMENDATIONS

Recommendations for Management Practices
Host forums and community events to provide more opportunities for stakeholders, citizens, and small businesses owners, to get more involved in city planning efforts (p.89).
Develop specific and measurable indicators to implement sustainability goals promptly (pp.85, 88-89).
Generate goals to measure the successful collaboration between different stakeholders (pp.85-86, 89).
Continue establishing the role of the Green Team in city management to alleviate pressure from other departments and facilitate communication (pp.27, 85-86, 89).
Continue evaluating Peoria's progress using a third-party system, such as LEED for Cities and Communities (formerly the STAR Community Rating System), to help city planners and managers stay updated on progress without bias (pp.88-89).
Establish KPIs to track the progress of sustainability goals within other departments, such as transportation and education, to help departments perform better on third party ratings (pp.86-87, 89).
Implement more charts, infographics, and clearly defined graphics to help differentiate and clarify the management practices sections about all other aspects of the plan (p.89).
Add management practices sections in all sub-categories to emphasize how KPIs are being tracked, the topic's relation on the timeline, and how to properly involve stakeholders (p.89).
Add more details to existing goals and how departments plan on accomplishing each goal to make the sustainability plan more manageable (p.89).
Underneath each main section of the plan, include relevant project breakdowns. Projects could be finished or in progress. Suggested details to include are individuals in charge of coordinating and implementing the projects, and specific information such as metrics and current project status (pp.85, 88-89).

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FACULTY
CANDICE CARR KELMAN

SOS 321: POLICY AND GOVERNANCE FOR SUSTAINABLE SYSTEMS
SCHOOL OF SUSTAINABILITY

Planning for a Sustainable Peoria

Maximizing the accessibility, comprehension, and impact of sustainability plan documents

ACKNOWLEDGMENTS

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INTRODUCTION

Peoria has demonstrated long-term dedication to building a more sustainable future despite the complexity of sustainability challenges; the City has earned a reputation as a forward thinking community through its various city-run sustainability programs.

"For Peoria, sustainability means working together to make a difference, while encouraging community-wide sustainability through interactions with citizens via online resources, social media outlets, public forums, and the exchange of ideas" (City of Peoria, Sustainability, n.d.).

Editor's Note
Students originally included an outdated quote from Peoria's website. The updated quote here reflects Peoria's current definition. Retrieved on February 19, 2021.

From this statement and conversations with staff, the team inferred that Peoria's sustainability plan intends to alter social, economic, and management structures within the community to create a more sustainable way of living and doing business.

To accomplish these goals, Peoria established an intradepartmental "Green Team" that works to ensure all departments work together to complete projects, track progress and communicate sustainability benchmarks to the City Council. In 2009, members of the committee published the first draft of the *Peoria Sustainability Plan*. However, sustainability is a dynamic concept, and the field is continually evolving in response to our improved understanding of sustainable systems. Therefore documents like the *SAP* must be regularly updated with contemporary information; to this end, Peoria published an updated, simpler, and more streamlined document in 2017. The *SAP2* update was intended to better reflect the needs of the community leadership at that time.

In 2019, the primary sustainability position was moved from the City Manager's office to the Water Services Department. Recent turnover in staff, including the hiring of a new Sustainability and Water Conservation Coordinator, has highlighted the opportunity for an update to the program's planning and tracking efforts. Peoria identified this as a win-win opportunity to leverage their partnership with ASU, and seek student research support in assessing contemporary trends in municipal sustainability planning efforts around the country.

Students first reviewed the City's existing planning documents and conducted interviews with staff. In addition to analyzing *SAP2*, students also studied 23 other municipal sustainability plans; approximately half were other Arizona communities while the other half represented both peer communities and other notable communities' sustainability planning efforts. These documents were compared to Peoria's plan, with the intent of providing relevant examples and feedback.

The following sections of this report include in-depth exploration into each chapter of *SAP2*. Recommendations are provided based on these analyses, with the aim of assisting Peoria to enhance their sustainability planning efforts.

RESEARCH METHODS

Process

At the start of the spring semester in January, students divided into eight groups of four to five members, with each group to focus on a different chapter of *SAP2*, and one group focusing on synthesizing the final report. The groups were divided as follows:

- Report synthesis (introduction, conclusion, executive summary, and overall editing)
- Community Building
- Education and Outreach
- Transportation
- Recycling and Waste Reduction
- Water Resources
- Municipal Facilities (expanded in this report to include Energy)
- Management Practices

Editor's Note
After reviewing other community plans, the student group responsible for the Municipal Facilities section decided to broaden its scope to include energy.

Within each group, the team created and agreed upon a "code of conduct." The code of conduct assigned project management roles, distributing the various responsibilities across the project. The code of conduct documents also established communication norms and meeting frequency.

Students worked with their team throughout the semester to conduct an analysis of strengths, weaknesses, opportunities and threats (SWOT analysis) of their sections. This analysis, coupled with the knowledge generated via a benchmarking study of other communities, provided the students the basis to compile strategic recommendations for Peoria's next iteration of the *Sustainability Action Plan*.

Benchmarking study

In February 2020, students began their background research on the practice of sustainability planning. Each group was assigned sustainability planning documents from 2-3 communities, most groups examined one plan from Arizona, and one community from another state to analyze for best practices; these documents included a variety of forms, including climate action plans, open space plans, sustainability justice plans and more. Following this effort, each group shared their findings back to the class, to pool knowledge and help their peers identify additional sources relevant to each of their topics from the Peoria plan. Benchmarking *SAP2* against 23 other cities allowed for adequate comparative analysis to support suggested opportunities for improvement. The benchmark analysis helped students understand realistic sustainability initiatives and determine relevant and successful plans for Peoria.

Figure 5 *Three of the many municipal plans students reviewed as part of their benchmarking analysis, including L.A.'s Green New Deal (2019), Sustainable Salt Lake (2015), and Tempe's Climate Action Plan (2019)*

Consultation with city staff

Students were presented with multiple opportunities throughout the semester to speak directly with city staff. An initial group meeting was arranged between students and city staff at the Project Cities Kickoff event on February 5th, 2020. At the meeting, students spoke with both executive- and department-level leadership to learn more about their needs and expectations for the project, as well as to get an initial "lay of the land." At the event, students discussed the context of sustainability operations in detail with Peoria's Water Services Planning and Engineering Manager, Daniel Kiel, and learned more about Peoria's goals for the project.

Figure 6 *Planning and Engineering Manager Daniel Kiel speaks with students during the spring 2020 kickoff event to provide a contextual project baseline*

Peoria staff, Daniel Kiel and Victoria Caster, and a representative from Central Arizona Conservation Alliance also joined the class for progress update presentations in late February. Each group presented their progress and received direct feedback from Peoria and Project Cities staff. Peoria staff also provided written feedback on the final draft of the written report later in the semester.

FINDINGS AND ANALYSIS

Each of the following sections corresponds with a chapter from Peoria's *Sustainability Action Plan 2.0*. Students present findings from the benchmarking of 23 other sustainability plans or similar municipal planning documents. The information contained in each studied plan provided unique insights on best practices in similar efforts. Cases presented here are referenced per their relevance to the sustainability topic at hand, and do not necessarily present a comprehensive analysis of the entire plan.

Editor's Note

The City of Peoria's most recent General Plan, *Plan Peoria AZ 2040*, was designed around six overarching city values, also known as the Livability Initiatives. The City aims to incorporate these priorities throughout its work to uphold an exceptional quality of life for Peoria citizens. The following abbreviated descriptions of each initiative were taken from Peoria's General Plan webpage at: **www.peoriaaz.gov/government/departments/planning-and-zoning/general-plan**

To increase the wealth and quality of living for all with policies that supports a diverse, innovative, competitive, entrepreneurial, and sustainable economy.

To provide superior levels of public facilities and services in a responsible, reliable, safe, and compassionate manner.

To holistically create a seamless network of mobility choices, through acknowledgment and dedication to continuing to foster and grow transit options.

To enhance accessibility of the arts, preserve historic and cultural elements, and provide educational opportunities for lifelong learning.

To guide future growth and development into a sustainable citywide development pattern, while enhancing quality of life in our communities.

To protect and enhance the health and welfare of Peoria's citizens, workers, and visitors by integrating health-promoting design and development practices.

COMMUNITY BUILDING

"Through design standards, Peoria can create areas that work together as a cohesive community. The city is committed to promoting the development of environmentally responsible buildings and creating vibrant, pedestrian-friendly, mixed-use neighborhoods" (City of Peoria, Sustainability Action Plan 2.0, 2017).

Benchmarking case studies

Baltimore, Maryland

Throughout the *2019 Baltimore Sustainability Plan*, the city is repeatedly referenced as one big, tight-knit community. Baltimore residents are highly engaged, creating their own community activities, participating in the public decision-making process and voicing their concerns and opinions to one another. Residents refer to their neighborhoods as "villages" and talk about their closeness with others in multiple interviews. Their Community section features five key factors:

2019 Baltimore Sustainability Plan key community factors
Neighbors
Environmental literacy
Healthy school environments
Waste and recycling
Urban agriculture

Each of these sections has subsections with topic specific goals and measurements for success. Using specific metrics allows each "key factor" to have a clear implementation plan and course of action to respond appropriately.

Editor's Note
Climate justice refers to the framing of climate change as an environmental and human rights issue rather than solely an environmental issue.

Providence, Rhode Island

The City of Providence's ***Climate Justice*** *Plan* was created in late 2019 to address how the city government could better bring people of color into the decision-making process and to equitably transition the city away from fossil fuels with goals extending to 2050 (City of Providence, 2019).

As part of its goals to increase collaborative governance, the City utilizes a framework called “Spectrum of Community Engagement to Ownership” to assess the strength of community engagement within the city. In this framework, they consider the stance of the city towards the community on a scale from not allowing people into the decision-making process to community ownership. There are 5 aspects of community engagement considered within the scale:

Providence community engagement framework aspects
Impact
Community engagement goals
Message to community
Activities
Resource allocation ratios

Most data utilized for this framework is qualitative, based on assessments from the city’s Office of Sustainability and the Racial and Environmental Justice Committee (REJC). The REJC is made up of both city officials and community leaders. On the Providence website, there are applications open for residents in the community to join the REJC. Additionally, the resource allocation ratio identifies the percentage of resources allocated to systems administration compared to community partners. The highest status of this spectrum, community ownership, has the goal of 80-100% of resources allocated to “...community partners and community-driven processes” (City of Providence, 2019). Therefore, they use data based on the city’s allocation of resources towards the community.

Stance Towards Community	0 Ignore	1 Inform	2 Consult	3 Involve	4 Collaborate	5 Defer To
Impact	Marginalization	Placation	Tokenization	Voice	Delegated Power	Community Ownership
Community Engagement Goals	Deny access to decision-making processes	Provide the community with relevant information	Gather input from the community	Ensure community needs and assets are integrated into process & inform planning	Ensure community capacity to play a leadership role in implementation of decisions	Foster democratic participation and equity by placing full decision-making in the hands of the community; Bridge divide between community & governance

Figure 7 *Excerpt from the Providence Climate Justice Plan's "Spectrum of Community Engagement"*

Editor's Note
The triple bottom line (TBL) is a rethinking of the traditional accounting framework to include three dimensions of performance: social, environmental, and financial.

Santa Fe, New Mexico

In 2018, Santa Fe released the *Sustainable Santa Fe 25-Year Plan*, which utilizes a framework for sustainability focused on the **triple bottom line** of quality of life, economic vitality, and ecological resilience. A similar framework could be useful for Peoria's *SAP3*, specifically in addressing the strength and role of communities within Peoria. In Santa Fe's Economic Vitality section, there is a "Community Development" subsection that includes the goal to improve "...social cohesion by stimulating a diverse, innovative economy with high-wage, high impact jobs alongside jobs with living wages that enable community reinvestment" (City of Santa Fe, 2018). This strategy offers one perspective on how a city can organize and outline an increase in sustainable development within its community. One specific initiative of Santa Fe in this section is to establish the monitoring of "...local sustainability-related employment levels and average wages" (City of Santa Fe, 2018). Monitoring sustainability-related employment is beneficial for increasing social resilience. In addition to the inherent benefit of having more green jobs in the economy, it encourages residents to participate in sustainability activities in their personal lives. Currently, this initiative is still developing, and the plan does not specify what metrics Santa Fe will use to track this goal.

Economic Vitality

Community Development

Achieve long-term sustainable economic growth and improved social cohesion by stimulating a diverse, innovative economy with high-wage, high impact jobs alongside jobs with living wages that enable community reinvestment.

A. Simplify and modernize business licensing and permitting processes.
B. Increase exports (economic based business) while reducing imports (to minimize overall leakage).
C. Increase entrepreneurship, public-private partnerships, and philanthropic funding.
D. Establish an approach to develop a baseline to monitor local sustainability-related employment levels and average wages.

Figure 8 *Excerpt from the Sustainable Santa Fe 25-Year Plan listing Community Development goals*

Santa Fe County is also taking on other sustainability initiatives to create a viable long-term plan. The 2015 *Santa Fe County Sustainable Growth Management Plan* (*SGMP*) was developed to help involve several stakeholders residing in Santa Fe County. Stakeholders included tribal leaders, residents, the County Development Review Committee, developers, and environmental groups, among others. The *SGMP* was created to establish policies that support the growth of Santa Fe.

Some of the policies address preservation of sensitive lands, growth management area designations, and zoning regulations. A significant aspect of the *SGMP* is that it is community-based and acknowledges community participation, historical development, and the overall importance of sustainable communities. This can help monitor the impacts of development on the community and help mitigate changes.

Additionally, the *SGMP* provides sustainable principles for the communities in Santa Fe, including environmental responsibility, economic strength and diversity, and community livability. These principles are reflected in the Purpose for Creating the *SGMP* section of the plan, which focuses on the community settings and the different aspects of the community. These aspects include respect for place, efficient development patterns, preservation of historical communities, and developing mixed-use areas. Incorporating elements like these highlights the overall goals of the *SGMP* and reflects the needs of the community and its involvement as a top priority.

Scottsdale, Arizona

In Scottsdale's 2016 update of its *General Plan*, the City highlights its commitment to "value Scottsdale's unique lifestyle and character." A significant portion of this commitment is the preservation and promotion of the Native Desert Sonoran landscape and environment combined with implementing at least the silver standard LEED certification of engineering projects as defined by the US Green Building Council (City of Scottsdale, 2016). Old Town reflects the integration of traditional and modern design principles. The atmosphere is friendly toward both tourists and residents. It gives visitors the sense they contribute to a community that best reflects what a sprawling desert city should be: modern with sustainable technology and practices combined with the often romanticized interpretation of desert living. Additionally, Scottsdale's "Getting Arizona Involved in Neighborhoods" (GAIN) initiative has proven successful in giving residents a chance to become involved in their communities. The initiative encourages residents to become involved in block parties, clean-up events, and more, establishing a symbiotic relationship where residents feel welcomed and included; thus, the community as a whole becomes more resilient and interconnected.

Analysis & discussion

In the *SAP2* Community Building section, priorities include creating a cohesive community through mix-used areas, traditional neighborhood design principles, retaining businesses in the city, and improving existing neighborhoods. The section is mainly focused on urban planning rather than community building through social interactions between the city and the community. For this section, it could be helpful to expand on how Peoria is promoting more community engagement and incorporating its livability initiatives within these development goals. City leadership could set standard goals related to quality housing options, sustainability-related employment, cultural and natural heritage preservation, advocating community pride while building **placemaking** could be expanded upon in this section.

Editor's Note

As defined in the Fall 2019 Project Cities Placemaking report, placemaking is the process of developing spaces which integrate four major components: sociability, uses and activities, access and linkages, and comfort and image. This report can be accessed at:
links.asu.edu/PCPeoriaPlacemaking19F_Report

Promoting social resilience

The Community Building section could also focus on building social resilience in Peoria concerning long-term sustainability issues. Social resilience refers to a community's ability to respond to current or future social problems. The students identified a common theme during the review of other sustainability plans. The examined plans focused on the resilience within communities to make decisions for both short-term and long-term city planning relating to climate change. Part of this focus emphasizes the need to include communities within the decision-making processes of city government relating to climate change issues. Climate change and municipal sustainability issues are interconnected given that urban development can lead to perpetuating existing processes that contribute to the causes of **anthropogenic climate change**, and yet those impacts of climate change can also affect a city's ability to expand. Therefore, building social resilience and increasing autonomy within the community to act matters in determining how a city can respond to these issues both in the short-term and long-term.

Editor's Note

Anthropogenic climate change refers to climate changed caused by human action or inaction. The term refers to the current geological age, the anthropocene, where human activity has been a dominant influence on the environment.

Regarding climate change and sustainability, Peoria could include initiatives in the Community Building section related to the impacts of extreme heat on the community. For example, current goals are to encourage sustainable development in traditional neighborhood design by incorporating more mixed-use infrastructure. Extreme heat should be considered in these design principles, given that the density of the city can influence the frequency of extreme heat events. For example, in 2010, the Environmental Health Perspectives released a longitudinal study on the association between urban density and the frequency of extreme heat events (EHEs) in large U.S. cities (Stone et al., 2010). From 1956-2005, researchers found that "...the most sprawling cities (top quartile) experienced a rate of increase in EHEs that was more than double that of the most compact cities" (Stone et al., 2010). Therefore, Peoria could potentially focus on how to prioritize and incentivize **mixed-use, high-density development versus low-density urban sprawl**, through the context of the impacts of extreme heat. The whole community, especially the groups most vulnerable, must be considered in the community building section to determine Peoria's resilience potential during extreme heat events.

Editor's Note

Students are referring here to the practices of horizontal and vertical development in Peoria. Horizontal development refers to outward city expansion, which can pose challenges to resource distribution and transportation for the outer edges of a city. This leads to urban sprawl, which can also increase heat and air pollution.

Vertical development refers to building upwards, either by retrofitting existing structures or planning for multi-story replacements over time. One common application of this concept is mixed-use development, with grocery stores and restaurants on the bottom floor and housing above.

Improving community engagement

The City of Providence's Spectrum of Community Engagement to Ownership prioritizes establishing a stronger relationship between the city government and their community in the decision-making process. Once implemented, this framework could be beneficial for the City of Peoria to strengthen the connectivity between the community and the decisions made by the city, and evaluate the "healthy neighborhoods" livability initiative. This framework could specifically benefit the initiative under healthy neighborhoods that advocates community pride to lead to "...collaboration, pooling of resources, and healthy social interactions" (City of Peoria, *General Plan*, n.d.).

Providence's *Climate Justice Plan* could be helpful for the city of Peoria to expand on the social aspect of community building. As previously mentioned, Providence currently uses qualitative data from the city government Office of Sustainability and a task force of both government officials and community members to evaluate their status of community engagement. They also use a resource allocation ratio to identify what percentage of resources are allocated to community-driven processes in sustainability decisions (City of Providence, 2019). Using a similar metric in Peoria could be beneficial for tracking community engagement.

A comparison with the *2019 Baltimore Sustainability Plan* reveals several opportunities for building out the community section of Peoria's *SAP3* to be more robust. The *Baltimore Plan* lays out exactly what the city should accomplish within the next few years. Their main priority is the happiness and well-being of their residents. One of its main goals is to allow an annual permit free day each year. An unrestrained annual event would allow residents to organize and host public gatherings, allowing them to connect and strengthen communal bonds. Furthermore, this produces a strong sense of community pride. Another primary goal is to advocate for more substantial community participation. To measure this goal, Baltimore assesses the average percentage of residents who vote, come to community events, and lead community events.

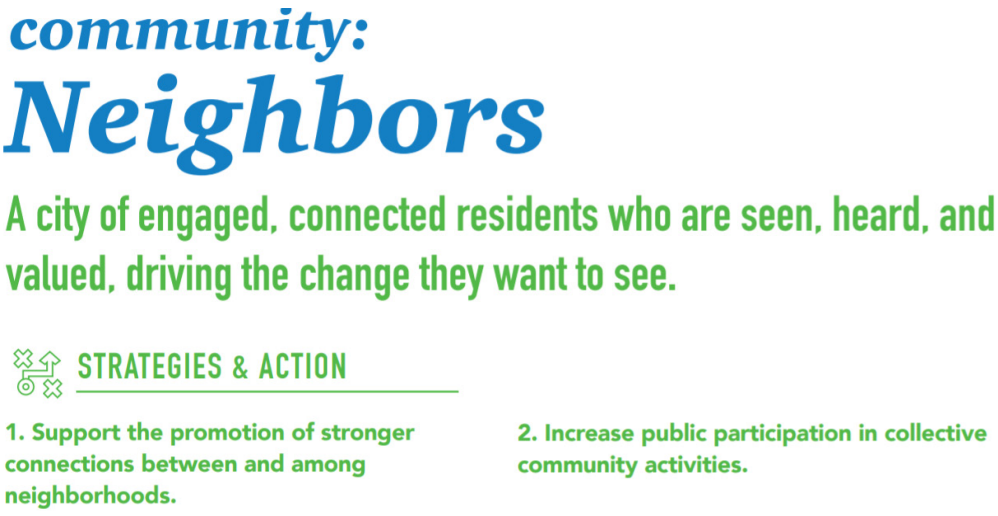

Figure 9 *Excerpts from the Community section of the 2019 Baltimore Sustainability Plan, including the City's definition of "community", and two of the section's overarching strategies*

Peoria could implement similar practices into their sustainability programs. Through community events such as clean up projects and zero waste days, community members can become more connected with each other and Peoria's sustainability program. Community engagement is key to building **social capital**; increased social capital can also improve social resilience, enabling communities to effectively respond to disruptions resulting from external changes. Social capital and social resilience are difficult to quantify, but methods to do so do exist. For example, the City of Peoria could assess its community building efforts through a semi-annual survey of community members on how well they think the community is doing, what they could improve on, and the overall happiness of the community.

Editor's Note
Social capital refers to the relationships and networks between people in a particular community, as well as the sentiment of "goodwill" and willingness to do things for others.

Editor's Note

ASU's own Sustainable Neighborhoods and Happiness Lab offers peer-reviewed methods and guidance on quantifying social benefits of sustainability.

Reflections on Community Building

The Community Building section of *SAP2* focuses on developing community connectivity through urban planning focused practices. Still, the study of other communities highlights the opportunity to enhance social resilience through increased community involvement and inclusivity. This will also increase opportunities for minorities to be more involved, not only with Peoria as a whole but also within their individual neighborhoods. Along the same line, Peoria could benefit by encouraging placemaking initiatives that showcase community pride. One way to do this could be by incorporating more of Peoria's livability initiatives into their sustainability planning process. Overall, students noticed the Community Building section focuses more on urban planning and development than the community. Students think a greater emphasis should be placed on the people rather than the infrastructure.

Recommendations for Community Building

- Expand on the city's definition of community building to encompass more than urban development.
- Further incorporate the existing livability initiatives in the Community Building goals section.
- Focus on community needs for future planning and the local economy.
- Create opportunities for stakeholders to connect with each other and with local government, nonprofits, and businesses.
- Develop a framework for community leaders and city professionals to assess how engaged the community is in the decision-making process.
- Include discussion around the impacts of extreme heat on Peoria's community, relating to urban development decisions in the *SAP3* update.
- Generate opportunities for stakeholders within the community to contribute to Peoria's sustainability initiative.
- Track metrics on aspects of community participation, such as voter involvement, rates of public comment, etc.
- Distribute virtual surveys regularly to monitor public opinion and perceptions of progress towards goals.
- Incorporate images of public and community-organized events throughout the Community Building section to break up text and showcase community pride.
- Add graphics of voter participation and overall community happiness from the previously recommended surveys (if the survey is conducted before the new plan is created).

EDUCATION & OUTREACH

"Education and communication are powerful tools for fostering sustainable innovation and change. A progressive education and outreach program will help employees and residents understand their role in sustainability along with providing positive encouragement for their efforts" (City of Peoria, Sustainability Action Plan 2.0, 2017).

Benchmarking case studies

Santa Fe, New Mexico

The City of Santa Fe has already begun the process of integrating sustainability education into its curriculum. The *Sustainable Santa Fe 25-Year Plan* discusses how the City is ensuring K-12 students are given access to a relevant sustainability curriculum. Creating resources relevant to a student's environment is crucial in ensuring they are interested in the content and understand the relevance. By creating a space for students to explore some of these concepts, it will further solidify their understanding.

Tempe, Arizona

Water conservation is at the forefront of sustainability challenges in the southwest region. Currently, the City of Tempe offers residents a variety of educational opportunities surrounding water conservation and tracking water usage with WaterSmart software. WaterSmart is a management application that tracks a resident's hourly water usage, displays comparisons to similar households, and features such as leak alerts, high usage or bill notifications, a bill explainer tool, comparisons to previous years, and interactive water-saving tips. This is an easy tool that helps residents know how much water they are using and how to save money. Tempe also offers workshops and courses that teach about the "Sustainable Landscape."

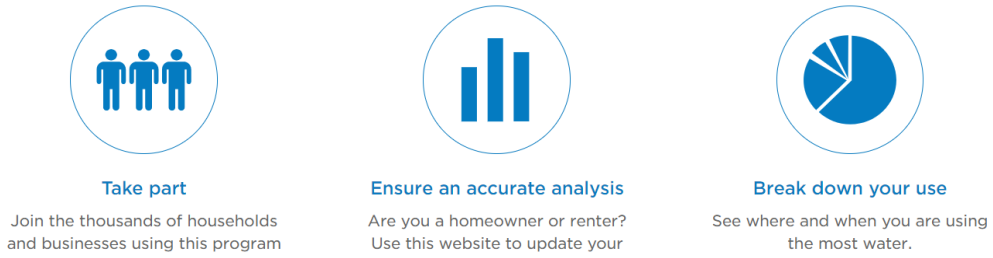

Figure 10 *Visuals from Tempe's WaterSmart portal homepage*

Analysis & discussion

The City of Peoria is already making considerable efforts towards providing effective and informative sustainability education, as seen through the “Sustainable U” classes and *Sustain & Gain* magazine. There is an opportunity for Peoria to carry out inclusive community engagement practices to collect and implement community feedback into the *SAP3*. Peoria would benefit from adopting more sustainability focused education outreach, specifically for Peoria’s youth.

Figure 11 *Informational flyer for Spring 2021 Sustainable U classes, by City of Peoria*

Figure 12 *Cover of the 2020 edition of the Sustain & Gain magazine, by City of Peoria*

Engagement and awareness strategies

The City of Tempe is an effective city comparison because it is in the same region, and water conservation is at the forefront of its sustainability challenges. An opportunity for the City of Peoria to conduct more resident outreach and engagement is to utilize a water management application, similar to the WaterSmart software used by Tempe. The city also conducts at-home water consultations to get even more residents involved.

Teaching sustainability in schools

A strong model of sustainability education and outreach that could be valuable to Peoria comes from Clark County School near Las Vegas, Nevada. Clark County school districts are currently partnered with Green Schools Alliance. This organization provides programming, tools, and resources to schools and teachers to educate K-12 students about sustainability. Implementation of education programs like Green School Alliance creates the opportunity for youth to be informed and excited about sustainability.

Inclusive stakeholder engagement

There is an opportunity for Peoria to conduct outreach through community surveying, as proven by New York. New York has a comprehensive sustainability action plan with an efficient outreach strategy for its citizens through online surveys. After conducting a city-wide survey, New York was able to construct its revised sustainability action plan based on what the community reported as most important. Through the use of online surveys, Peoria could also increase community feedback and engagement.

Reflections on Education & Outreach

Peoria's youth is a crucial demographic to consider because they are the future decision makers . Peoria's youth would benefit from added educational programs across the school district, which provide an opportunity to inform and educate local youth about sustainable living and get them excited about sustainability. Currently, the City of Peoria engages with its community members via the "Sustainable U" classes and *Sustain & Gain* magazine, both useful tools for engagement. Peoria could also benefit from conducting online community surveys to engage the public and garner feedback quickly. Another opportunity for the City of Peoria to receive more resident feedback and engagement is to utilize a water management application. This application would allow for residents and the City to be aware of overall water consumption and tips on how to reduce water use.

Recommendations for Education and Outreach

- Create opportunities for Peoria to teach sustainability to a younger demographic in K-12 schools, potentially through partnerships similar to the Green Schools Alliance.
- Increase inclusivity within the *SAP3* by utilizing community feedback gathered by surveying Peoria residents of varying demographics.
- Continue partnering with other cities in the region to stay informed of current technology that can help increase community input.
- Utilize key performance indicators (KPIs) to provide a framework for measurable sustainability goals that are available to the public.
- Standardize KPIs that produce measurable educational outcomes.
- Develop a section within the *SAP3* devoted to KPIs from each existing category of the plan.
- Ensure the *SAP3* is cohesive and transparent by incorporating all categories of the plan into education and outreach efforts.

TRANSPORTATION

"Trips by Peoria residents, visitors and daily business travelers have an effect on the overall quality of life and the environment. Choosing alternative modes of transportation, along with clean technology vehicles, can help reduce congestion and lessen our environmental impact. Peoria is also committed to developing efficient and environmentally responsible transportation networks" (City of Peoria, Sustainability Action Plan 2.0, 2017).

Benchmarking case studies

Albuquerque, New Mexico

One of Albuquerque's main transportation focuses is the reduction of vehicle emissions by transitioning to cleaner burning fuels and electric vehicles (EVs). One way the City plans to do this is through their Green Sticker parking program. Residents with vehicles that produce little to no emissions can qualify for this parking program, which allows them to park at any meter within the city for two hours for only $29 per year. Residents qualify for the program if their vehicles meet a particular Greenhouse Gas and Smog score as determined by the EPA. Albuquerque has also set a goal of municipal fleet electrification. The City cites the Climate Mayors Electric Vehicle Purchasing Collaborative as the way Albuquerque gets excellent deals on new fleet vehicles. The City set a goal for 63% conversion to hybrid and EVs by 2020. In September, the mayor will purchase a total of 50 hybrid and EVs. For public EV charging, Albuquerque has commissioned a siting location study to determine the best locations for EV stations and which neighborhoods would benefit the most from added charging stations.

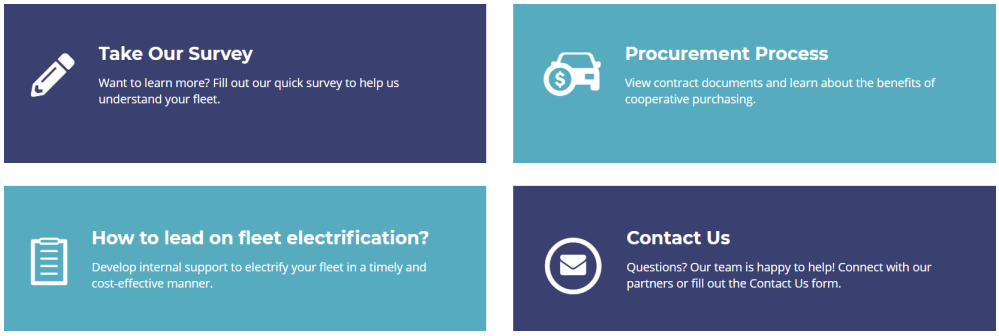

Figure 13 *Climate Mayors EV homepage, featuring calls to action to learn about building an electric municipal fleet*

Editor's Note
The EPA Greenhouse Gas and Smog score calculator used by the City of Albuquerque in its parking program can be accessed at **www.fueleconomy.gov/feg/findacar.shtml**

Editor's Note
Municipal vehicle fleet electrification was further explored by Project Cities students in Spring 2019 for the City of Glendale. View insights and recommendations from this project at **links.asu.edu/PCGlendaleEVFleet**

Austin, Texas

The *Austin Strategic Mobility Plan* (*ASMB*) focuses on enhanced public transportation and bike paths, much like Peoria's plan. Austin experiences a high volume of commuters, such as residents, visitors, and daily business travelers, which affect the city's overall quality of life and environment. Due to this commuter reality, the *ASMB* focuses heavily on bicycle trail planning, which is implemented on a separate code than regulated urban planning. Austin is increasing cycling infrastructure by removing 20% of existing parking spaces within city confines, creating space for bike lanes while also limiting the amount of new parking being constructed. The main goal of the *ASMB* is to have 50% of Austin's daily commuters choose alternative modes of transportation rather than drive personal vehicles by 2039. This goal benefits the environment by decreasing carbon emissions and enhancing the existing street networks in downtown Austin to create a more sustainable and reliant future public transport. Parking space removal should be considered an option for Peoria to encourage a reduction in individual car travel.

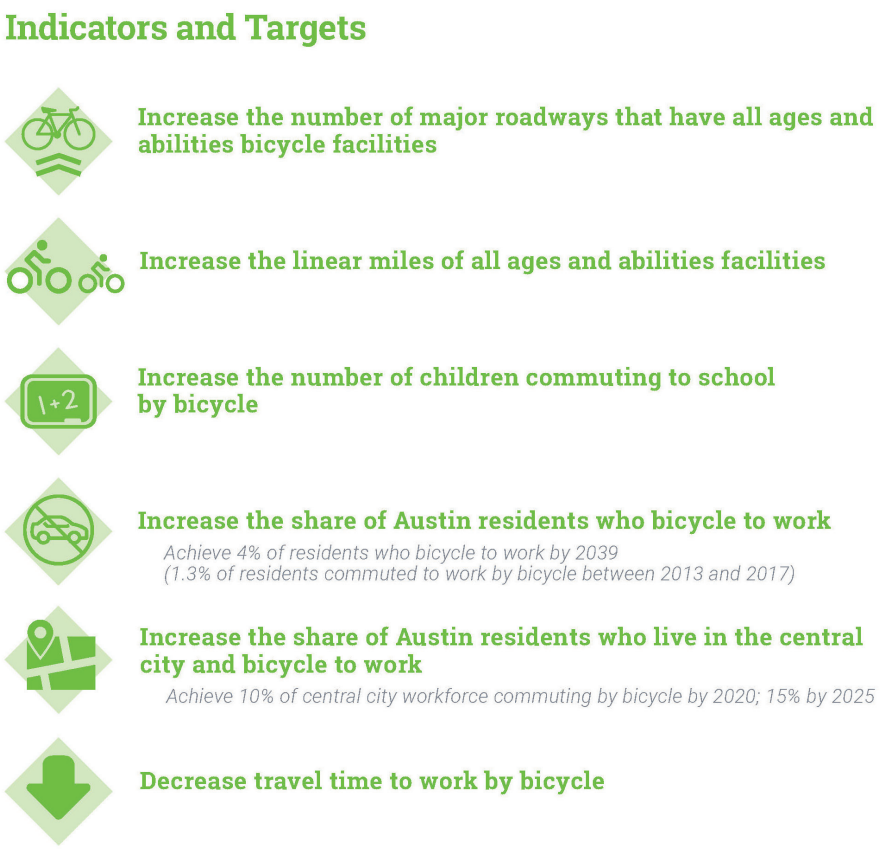

Figure 14 *Bicycle System Indicators and Targets as outlined in the Austin Strategic Mobility Plan, by City of Austin*

Avondale, Arizona

The City of Avondale offers various public transportation options such as Valley Metro bus routes, Zoom, Dial-a-Ride, and taxi subsidies. In 2012, Avondale planned to further expand public transportation and bicycle systems over the following 20 years. Avondale uses technology to measure traffic data to efficiently move cars and reduce greenhouse gas emissions. Avondale is working to strengthen the existing bike and pedestrian system through improving connectivity, access, comfort, safety, and recreational opportunities. The implementation of **placemaking** strategies can improve sustainable transportation.

Editor's Note

In the Fall 2019 Project Cities cohort, students explored and recommended placemaking efforts for the City of Peoria. These findings align with the recommendations from the placemaking report. Additional insights can be found at: **links.asu.edu/PCPeoriaPlacemaking19F_Report**

Boulder, Colorado

Boulder County has a goal in its *Environmental Sustainability Plan* to promote an active lifestyle for residents in an area that doesn't experience extreme heat temperatures. Other main focuses are on alternative fuels, electricity, and lowering emissions for a growing city. Boulder is also interested in incentives. Specifically, the plan details the Trip Tracker program, where participants of "green" transportation can earn rewards to local stores. This chapter of the plan also features vehicle cost statistics and policy priorities. The chapter is further explained by employing graphic design features to help outline key points and benefits for readers.

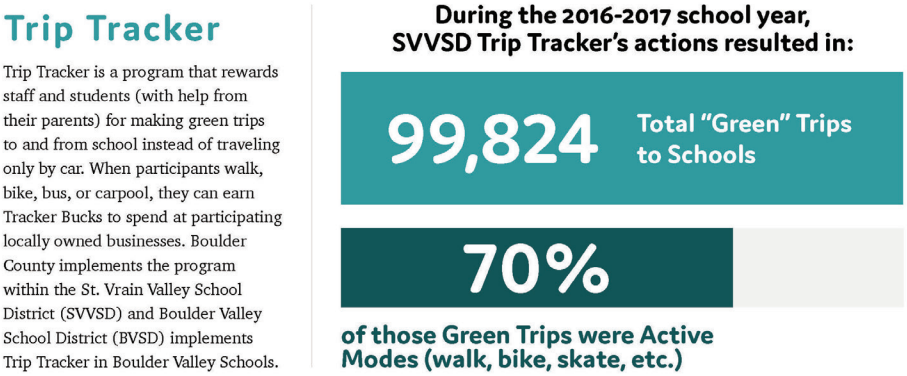

Figure 15 *Excerpt from Boulder County's Environmental Sustainability Plan Transportation chapter, illustrating "Trip Tracker" data*

Editor's Note
Equitable mobility refers to a transportation system that increases high quality, affordable mobility options and considers transportation impact on low-income communities, such as air pollution.

Houston, Texas

The *Houston Climate Action Plan* (*HCAP*) strongly focuses on both greenhouse gas emissions and **equitable mobility**. One way the City plans to increase equitable mobility is by waiving transit costs for qualifying individuals. Other significant areas of focus are **Transit-Oriented Development** (TOD) and an electrified regional transit corridor. By adopting TOD practices, Houston aims to support infill development, promote pricing strategies for parking, and encourage employers to incentivize transit-use by their employees or implement flex-time. Another aspect of the *HCAP* that stood out is the draft plan features a timeline for the remaining drafting stages and a hyperlink for readers to comment. The design of the *HCAP* shared many of the strengths noted in *L.A.'s Green New Deal: Sustainable City pLAn*.

Editor's Note

In urban planning, transit-oriented development is a type of urban development that maximizes the amount of residential, business and leisure space within walking distance of public transport. TOD promotes a symbiotic relationship between dense, compact urban form and public transport use.

Las Vegas, Nevada

In the "Sustainability Resources" section of the Las Vegas website, transportation is framed through "Land Use and Mobility." The City has focused on adopting **"complete streets"** principles and enforcing development codes and policies "to help reduce sprawl, provide mixed-use land use, preserve open space, ensure good quality air, and create compact, walkable communities" (City of Las Vegas, 2019). Las Vegas has electrified its municipal fleet and is committed to adding hundreds of miles of bike lanes, trails, and paths.

Editor's Note

Complete streets refer to a transportation policy and design approach that emphasize safe and convenient transportation access for all users, regardless of age and abilities. Complete streets differ from traditional design principles in that it focuses on all mode of transportation, not just automobiles.

Los Angeles, California

L.A.'s Green New Deal: Sustainable City pLAn is a current document from 2019 that divides its transportation goals into two chapters: Mobility and Public Transit, and Zero-Emission Vehicles. In both sections, the City clearly states its visions and target dates before delving into specific details surrounding each goal. One of L.A.'s significant transportation goals is to become **carbon neutral** by 2050. Subsequently, their plans focus on electrifying everywhere they can, including all forms of public transportation and even delivery trucks. L.A. also recognizes its hot climate and plans to implement more shade infrastructure with accessible drinking water for public transportation stops. Providing waiting areas like these will further contribute to vehicle emission reduction as more people choose public transit. Finally, *L.A.'s Green New Deal* is impeccably designed with color coordination to differentiate sections, and other design features to break up text-heavy sections. The document includes photographs of community members, infographics with relevant data and target dates, and graphic elements that tie the entire document together. The beginning of *L.A's Green New Deal* dedicated a few pages to explain the plan's various design elements (Figure 16). Together, these design attributes make the plan more reader-friendly than other plans that do not have the same stylistic elements and navigational tools.

Editor's Note
A carbon neutral organization achieves net-zero carbon emissions on balance, by offsets from carbon removal or by simply eliminating carbon emissions altogether.

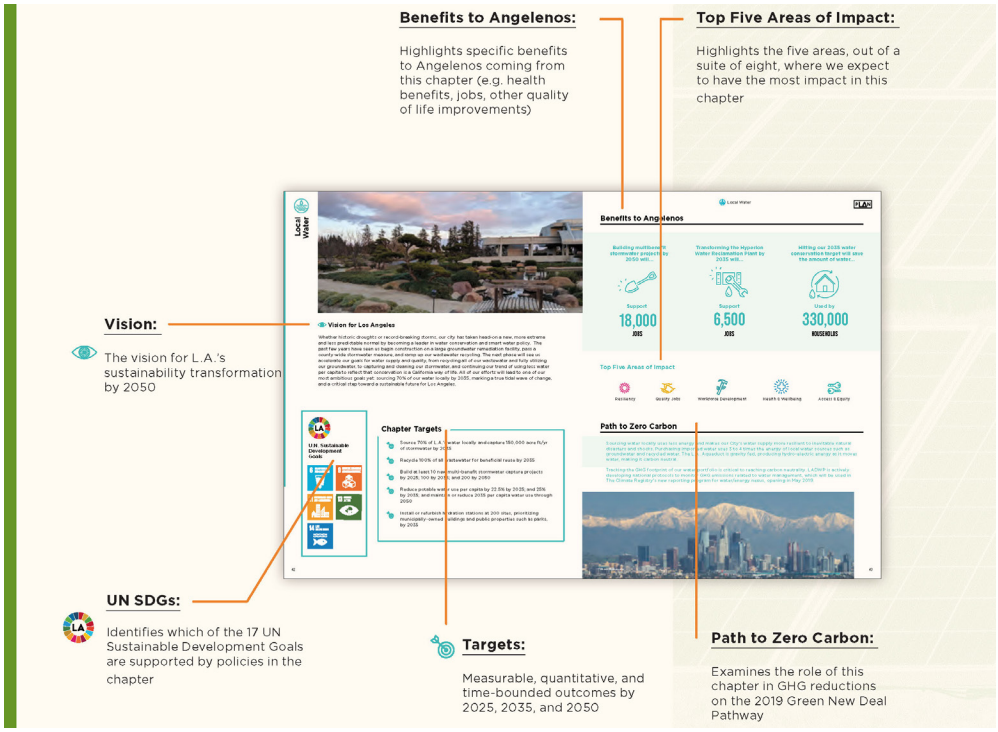

Figure 16 *Excerpt from the introductory section of L.A's Green New Deal, explaining the document structure for the reader*

Oklahoma City, Oklahoma

Oklahoma City's transportation plan, *Planokc*, contains many suggestions and ideas Peoria may find useful. The document's first outlined goal is to build secondary streets that connect to main streets to reduce traffic. *Planokc* also details an enhanced bus system called EMBARK, which will accommodate and attract more people by servicing more areas than the previous system. The City will also add electric streetcars and other types of rail stations to promote public transportation usage. Bike facilities and walking or cycling trails will also be added throughout the city to encourage outdoor recreation and enhance connectivity. *Planokc* also lists factors that can potentially impede progress and different ways to accomplish city goals.

Santa Fe, New Mexico

In the *Sustainable Santa Fe 25-Year Plan*, transportation is located within the "Economic Vitality" section alongside "Community Development" and "Built Environment." Santa Fe's livability goals focus specifically on carbon neutrality. *Sustainable Santa Fe* also details the "Path Forward," "Priority Recommendations," and "Implementation Costs." Specific strategies include adopting transit and EV-supportive zoning and land use regulations, increasing transit ridership by addressing the **"first and last mile,"** and employing a transportation coordinator. Several performance trends are listed in the document, including a walkability index and an all-transit usage performance score.

Editor's Note

The "first and last mile" connection describes the beginning and end of an individual trip using public transit. The term emerged to highlight the lack of connection between public transportation and destinations.

Surprise, Arizona

The City of Surprise is primarily focused on providing public transportation options to the community. To serve those protected under the Americans with Disabilities Act (ADA), the City offers the Surprise Senior Center Bus, RideChoice Taxi Service, and shared Paratransit transportation. Surprise has also established a free Park & Ride facility for the community to utilize the Valley Metro public transportation system. Regarding the Public Works fleet, the City also emphasizes the use of hybrid vehicles.

Analysis & discussion

Transportation is a challenging section of any sustainability plan, especially in urban car-centric regions such as the Phoenix Metropolitan Area. According to 2019 data, the average Peoria household owns two vehicles and has an average commute time of 30 minutes (U.S. Census Bureau, 2019). More people may decide to move to a city with a well connected transit network that is serious about tackling climate change through transportation efforts. Peoria's willingness to be proactive in this area while making specific targets will likely have a positive effect on the city's growth.

Identifying the main focus

Peoria's five main transportation goals provide a solid structure to build upon. The last few years have proven successful in implementing transportation programs such as the Peoria on the Go (POGO) circulator (Figure 17). Several cities with similar transportation networks identify their main focus as carbon neutrality or reducing greenhouse gas (GHG) emissions.

Figure 17 *Peoria on the Go (POGO) neighborhood circulator, by City of Peoria*

Most importantly, these other cities are creating timelines and target dates to implement new strategies each year. While it may be challenging to create attainable goals with target dates, there are several strategies that a diverse list of U.S. cities employ. Adopting some of these strategies not only advances Peoria's standing transportation goals but is also an opportunity to get the community involved and provide access to underserved communities. Since transportation is intertwined in every urban process, this area of sustainability has a high potential for overall impact.

Expanding readability

Peoria's Transportation section warrants expansion to include some of the successes of the last few years. The **Peoria website** currently hosts much information that could be added to the *SAP3* to provide a baseline for future evaluation. The inclusion of more visual tools within the *SAP3* will also increase readability. City plans that feature more color, graphics, and other graphic design elements are easier to read, making it easier for the reader to obtain information.

Editor's Note

While not specified in the original student content, it was inferred that students were referring to the City of Peoria Transportation webpage (**www.peoriaaz.gov/government/departments/development-and-engineering/transportation**), and its wealth of information that could potentially be implemented in the *SAP3*.

SAP3 could include infographics on GHG statistics, "fast facts," photographs of community members, and a heightened visual approach to provide a greater readability level to various stakeholders. The next plan can also include more implementation specifics for each main goal and subgoal. Additional background information on where Peoria's transportation system, across all modes, currently stands would explain the more detailed goals. Offering a Spanish language edition of the *SAP3*, as L.A. does, can also enhance readability for Peoria stakeholders. Peoria's General Plan, *Plan Peoria AZ 2040*, has many of the same design aspects as *L.A.'s Green New Deal*, which serves as a prime example of how design matters when creating usable public documents.

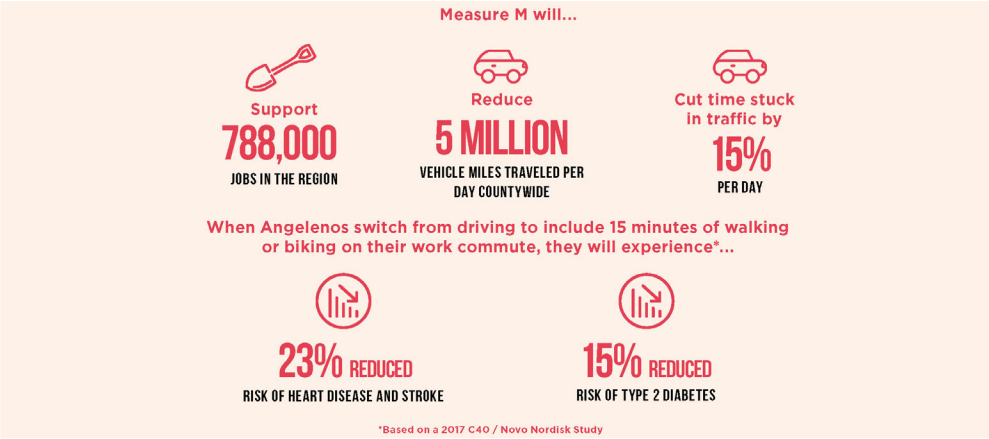

Figure 18 *L.A.'s Green New Deal design elements that help increase readability and accessibility of the document*

Placemaking

Editor's Note

Placemaking is a multi-faceted approach to the planning, design and management of public spaces. Placemaking capitalizes on a local community's assets, inspiration, and potential, with the intention of creating public spaces that promote people's health, happiness, and well-being.

Placemaking can increase livability in Peoria and encourage residents to stay in Peoria, inevitably reducing commute times. It is important to incentivize businesses to reside in Peoria to contribute to the process of placemaking. With more diversity in local businesses, residents will spend most of their time in Peoria through work and recreational activities. The P83 district is a fantastic example of placemaking in the city, as it provides numerous entertainment options for residents and visitors alike. Through proposed commercial parks, the rapidly growing healthcare corridor can flourish.

Editor's Note

Students from the Fall 2019 Project Cities cohort worked with the City of Peoria to conduct a community-wide placemaking survey for residents to provide feedback on their sense of place in three public areas, including the P83 district. Read more about the project at **links.asu.edu/PCPeoriaPlacemaking19F_Report**

Placemaking initiatives and municipal transportation can be planned simultaneously to ensure that transit options are as diverse as the businesses that help make Peoria an enjoyable place to live. Key streets can be target areas for the City to beautify, which is also an opportunity to celebrate the desert.

Xeriscaped paths with native plants and structures to provide optimal shade can be incorporated around the city and along pathways that connect neighborhoods or popular destinations. A network of pedestrian-only paths could be implemented, lined with desert plants or another theme that resonates with Peoria's identity and vision. In a time when increasing numbers of the global population live in urban areas, it will be challenging, and likely rewarding, to establish natural outdoor environments within urban ones. Especially with the economic effort to encourage tourism in Peoria, a greater emphasis on preserving natural green spaces within the city could add placemaking and identity value.

Editor's Note

Past student groups have worked with the City of Peoria to recommend improvements for the Skunk Creek Trail to improve connectivity and recreational opportunities. To view past Skunk Creek reports, visit **links.asu.edu/PCPeoriaSkunkCreek19F_Report** and **links.asu.edu/PCPeoriaSkunkCreek20S_Report**

Many cities turn to Transit-Oriented Development (TOD) or "complete streets" to improve transportation sustainably. Land use and placemaking are also important factors to consider. Peoria could establish attainable targets to complete TOD on specified, high-traffic streets. TOD incorporates many goals, including walkability, multi-modal transit, placemaking, and potential fleet electrification. Like Houston, Peoria could focus on regional transit connectivity and the electrification of the system collaboratively.

Reducing peak hour travel

One of the most significant burdens to any transportation network is the number of vehicles on the roadways during peak travel hours. Like Houston, Peoria can encourage employers to allow flexible start times to spread out the amount of traffic concentrated at one time, and ideally eliminate inefficient rush hour conditions. This type of approach will directly affect auto-emissions and subsequently improve air quality.

Peoria can also encourage individuals to ride bicycles when commuting during peak hours. Many other cities have had success in encouraging a shift toward cycling by providing a "fully connected" bicycle system. A bicycle system would be incomplete without destination bike parking, bike repair stations evenly distributed across the network, and bike paths that provide security and safety to cyclists wanting to travel through areas congested by cars. Peoria could also encourage employers to add showering and changing facilities to their buildings to enhance the system.

Editor's Note

When developing an effective and reliable bicycle system in Arizona, it is important to consider the effects of extreme heat on bicyclist safety and consider mitigation efforts such as frequent water stations and path shading.

Parking & other potential projects

Many of the communities analyzed by students have implemented pricing strategies for parking in downtown areas. One example is Albuquerque's Green Sticker Program. This parking program allows residents to receive "greenhouse gas scores" for their vehicles, which provides qualifying residents access to downtown parking spaces for a discounted annual price. A similar program could help Peoria reach its established goals, as parking pricing is widely considered one of the most effective strategies to divert travel behavior away from single-occupancy vehicles (Christiansen et al., 2017). There are a multitude of ways Peoria can devise a pricing strategy that fits into the city context. Out of all the specific determined strategies, students found that parking pricing seems to have the highest likelihood of creating behavior change on an individual level.

Peoria's parking strategy could also include building codes that require electric vehicle (EV) charging stations. Similar to Albuquerque, Peoria could hire a third party to conduct a siting location study to analyze where EV stations could have the most impact. Peoria can then incentivize businesses within the target areas to include EV charging stations in existing parking lots. As the City of Austin has done, Peoria could also prohibit the construction of new parking lots or determine a proportion of EV charging parking spaces that must be included in all newly constructed parking lots.

Finally, since there is a recently added park-and-ride near Peoria Ave and Grand Ave, adding a Valley Metro light rail line along Grand Avenue is a potential next step that could significantly improve Peoria's connectivity. This proposal has been mentioned in previous municipal transportation plans. The ridership potential of such a massive infrastructure project has likely increased since the last transportation plan and could potentially attract enough ridership to be feasible now. Like Los Angeles, Peoria can also include partnerships in each section of the *SAP3* to highlight the relationships that allow the City to accomplish its sustainability goals. A regional effort to include transit along Grand Avenue may kickstart a regional effort to electrify regional multi-modal transit.

Reflections on Transportation

Students determined that some of Peoria's greatest strengths include its transit programs like Peoria on the Go (POGO), Park and Ride, Dial-a-Ride, and the 2020 Autonomous Shuttle (Figure 19). In the continuous challenge to improve transportation infrastructure sustainably, students recommend hiring a transportation planning expert to take the lead. It may also help Peoria to form a specific transportation task force to work alongside the Green Team in sustainability efforts. The task force could help draft an implementation timeline that focuses on transit-oriented development (TOD), parking pricing, and placemaking, establishing an effective first step toward attaining Peoria's transportation goals. Students considered placemaking a fundamental aspect of transportation planning, as it can benefit walkability and TOD and foster a sense of collaboration among the community. As the nature of transportation planning is often over a 20-year period, a transportation task force could specifically focus on strategies that can be implemented on a 1- to 5-year scale.

Figure 19 *An autonomous shuttle in Helsinki, Finland, similar to the Robo Ride service in Peoria which circulates riders to key points in the City*

Recommendations for Transportation

- Create cohesive transportation development plans by bringing together various stakeholders to inform land use and planning decisions.
- Encourage planners to innovate transportation planning efforts by considering the complexity and intersectionality inherent to transportation planning via a coordinated inter-departmental approach.
- Prioritize the enhancement of transportation access and mobility equity through the implementation of Transit-Oriented Development (TOD) and placemaking that engages the community.
- Identify target streets to begin implementing TOD and invite local artists or the community members to collaborate on public art placemaking initiatives such as murals.
- Motivate local employers to incentivize transit-use or allow flex start time to reduce automobile rush hour conditions.
- Adopt pricing for parking strategies to discourage the use of personal vehicles when possible and encourage the use of public transit.
- Reduce the availability of parking spaces to encourage public transit use.
- Include information on greenhouse gas (GHG) emissions and other automobile-related pollution.
- Construct wildlife corridors under or over roads where wildlife crossings are common.
- Track transportation planning progress by using tools such as timelines, target dates, and next steps.
- Improve readability and comprehension for various stakeholders by providing transportation planning details, such as “fast facts” and implementation strategies.
- Improve document readability by adding effective design elements such as infographics, photographs, and sidebars.
- Integrate land use planning and transportation planning into the *SAP3*.
- Develop and disseminate English and Spanish versions of the *SAP3* to increase its reach and impact.
- Relocate the three objectives about fuel efficiency, alternative fuel, and transportation infrastructure found under the Recycling and Waste Reduction section to the Goals subsection under Transportation.

RECYCLING AND WASTE REDUCTION

"Purchasing items with recycled content and selecting products that last longer are common ways to reduce waste. Peoria is committed to reducing the use of disposable products/systems and expanding our city-wide recycling program" (City of Peoria, Sustainability Action Plan 2.0, 2017).

Benchmarking case studies

Austin, Texas

The City of Austin has created Austin's Material Marketplace, which aims to connect manufacturers, recyclers, and entrepreneurs to utilize waste and convert it into marketable products. Austin offers many locations where residents can purchase donated recycled products, subsequently extending the products' lifecycle and preventing waste from entering landfills. **The Austin Materials Marketplace** started in 2014 and has since diverted over 948,000 pounds of waste from landfills and created almost $648,000 in revenue. The City also provides cash incentives to commercial businesses that want to participate in potential waste reduction practices to help achieve the City's 2040 zero waste goal (City of Austin, 2017).

Editor's Note
The editing team could not verify this data or identify its source.

Boulder, Colorado

The City of Boulder implemented a Zero Waste Strategy to achieve an 85% diversion rate by 2025. Since the introduction of this program, relevant metrics and performance indicators can be found on the city website. This part of the website includes recycling, landfill, and composting figures for every year since the program's implementation in 2005. These metrics are an excellent resource for tracking the successes and potential improvements that can be made to the existing strategy. In 2017, commercial recycling became mandatory in Boulder. The recycling figures online reflect this change in an upward trajectory in recycling and composting in the city. The rise in waste diversion is due to commercial recycling becoming mandatory in the city for all businesses. Additionally, composting provides twice as many jobs as landfill jobs (Boulder County, 2018).

Flagstaff, Arizona

The City of Flagstaff is working on optimizing its recycling and recovery systems through its *Rethink Waste* and *Solid Waste Plan* documents. From a municipal standpoint, they would like to decrease waste in city operations. Conversely, from a community perspective, they would like to decrease per capita waste generation by increasing community participation in recycling and waste reduction events. To encourage recycling and waste management efforts, the City is looking into the feasibility of implementing a pay-as-you-throw rate structure (Figure 20). Additionally, the City wants to incentivize and grow partnerships with groups to promote a "reuse and repair economy" (City of Flagstaff, 2017).

Los Angeles, California

Pay-as-you-throw rate structures, such as the Save Money and Recycle Tempe (SMART) program, incentivize household waste reduction by offering smaller bins and discounting pickup services based on a household's waste production.

Figure 20 *Pay-as-you-throw visualization adapted from Project Cities and SOS 321 student collaborative infographic, developed in Spring 2020*

The City of Los Angeles is focused on becoming the first largest zero-waste city in the U.S., with goals to reach a 90% landfill diversion rate and reduce greenhouse gas (GHG) emissions to 42% by 2025. The City plans to do this by increasing the proportion of waste products and recyclables being repurposed and reused, keeping organic waste out of landfills, and reducing municipal solid waste. A primary goal within *L.A.'s Green New Deal* is concerned with tackling food waste (City of Los Angeles, 2019a).

Pima County, Arizona

Pima County is prioritizing the reduction of landfill waste to reduce GHG emissions as a significant target within its *Sustainable Action Plan for County Operations*. The County aims to reduce carbon emissions from solid waste generation by 10% and reduce waste in landfills by 20%. Pima County incorporates waste reduction education on a municipal level by implementing paperless systems, internal reuse of equipment and materials, and efficient printing practices (Pima County, 2018).

Portland, Oregon

Editor's Note
Products can earn an ENERGY STAR qualification if they meet a series of energy-efficient criteria. EPEAT is a globally recognized eco-label, specifically for products and services from the technology sector.

In Portland's *Sustainable Procurement Policy*, the City approaches procurement decisions with both environmental and social impacts in mind, along with traditional fiscal concerns. Portland increased their green spending in fiscal year 2017-2018 by purchasing office electronics that are either **ENERGY STAR** qualified or **Electronic Product Environmental Assessment Tool** (EPEAT) registered. This resulted in a total of $169,656 in electricity cost savings, reduced GHG emissions by over 990 metric tons CO2 equivalent, and accumulated 1.66 million kWh in energy savings during the 2017-18 fiscal year (City of Portland, n.d.). The city was able to measure these savings by using the EPA's Environmental Electronics Benefits Calculator (EEBC) for computers, EPA's EEBC for imaging equipment, and the Green Electronics Council EPEAT Benefits Calculator for mobile phones.

Portland also committed 74% of their paper purchases to paper that was composed of 100% post-consumer waste (PCW), and 24% to paper products that contained 30-50% PCW. As a result, the city saved 1,511 trees and reduced CO2 equivalent emissions by 296 metric tons. Portland used the Environmental Paper Network Paper Calculator to measure the environmental impact of their paper purchases (City of Portland, n.d.).

Paper Type	Uncoated Freesheet
Quantity	1 U.S. Short Tons
% Recycled	0%
Wood Use	4.0 U.S. short tons
Total Energy	25.5 million BTUs
GHG	18,000 pounds CO_2 equiv.

Figure 21 *Sample results from the Environmental Paper Network Paper Calculator, showing just a few of the environmental implications that come with only 1 U.S. short ton of plain copy paper*

Providence, Rhode Island

The City of Providence seeks to implement a zero-waste strategy by 2023. Rhode Island's landfill is expected to exceed capacity by 2024, which can lead to an increase in waste disposal costs. However, 32% of the state's landfill is food waste and other organic materials which can alternatively be composted, saving significant space in the landfill (City of Providence, 2019).

Sacramento, California

The City of Sacramento has a *Sustainable Purchasing Policy* in place. Some of the following standards are considered by the City of Sacramento when determining whether a product is sustainable to purchase, or has environmentally preferable attributes (City of Sacramento, 2010).

Select *Sacramento Purchasing Policy* standards
Is the product biobased?
Is the product biodegradable?
Is the product compostable?
Does the product contain recycled content?
Does the product come in reduced packaging?
Does the product contribute to reduced greenhouse gas emissions?
What is the product's resource efficiency?
Minimization of virgin material used in product or service life cycle
Maximization of recycled materials used in product or service life cycle
Reuse of existing products or material in product or service life cycle
Buying locally to reduce emissions and transportation costs

The City of Sacramento also uses the "Waste Wizard", a helpful online tool which further educates residents on proper waste disposal methods.

San Francisco, California

The City of San Francisco is working towards avoiding the creation of waste by purchasing reusable products and products made from recycled materials. The City also wants to reduce landfill dependence by maintaining a higher recycling rate. Incorporating the "Fantastic 3" program, where the garbage bin is the smallest size compared to that of the composting and recycling bins, is another step toward reducing residential landfill contributions. San Francisco appears to be continually monitoring its city-wide waste behavior to determine what areas need more help (City of San Francisco, 2016).

Tempe, Arizona

The City of Tempe aims to divert 40% of waste from the landfill and achieve cumulative composting usage of 2,000 yards. Tempe's most significant recycling and waste management initiative is the Save Money and Recycle Tempe program (SMART). The SMART program allows Tempe residents to select a smaller trash bin to save more money, and in the process, residents generate less trash and recycle more. The SMART program is a great way to divert waste from landfills and promote better recycling habits among residents. However, due to Peoria's 32% higher homeownership rate, the City could see even better recycling rates, diverting greater amounts of waste from landfills and saving homeowners money over time (City of Tempe, 2019).

Editor's Note
Students are referencing green procurement, the purchasing of products and services that have a reduced impact on the environment and health.

Analysis & discussion

Objectives listed under the City of Peoria's *SAP2* include increasing recycling throughout the community, decreasing the overall amount of waste to be disposed of in landfills, and **developing procurement guidelines** for sustainable purchasing practices. The City wants to improve the fuel efficiency of municipal vehicles by using alternative fuels or fuel efficient technologies and providing incentives for the use of low emission, high efficiency, alternative fuel, or electric vehicles. Additionally, the City looks to require the construction of efficient and environmentally responsible infrastructure

Opportunities recognized from benchmarking case studies

Peoria is actively working to increase recycling efforts throughout the community. This growth is evident in the city's persistence to educate its residents on appropriate waste disposal methods through its online presence, the *Sustain & Gain* magazine, and Sustainable University courses.

Although the City provides these resources, not all residents will utilize them. To further incentivize residents to reduce waste, Peoria can design a program like the City of Flagstaff's pay-as-you-throw rate structure, the City of Tempe's SMART program, or the City of San Francisco's "Fantastic 3" program. These programs can potentially decrease residential waste, encourage better waste disposal behaviors, and help decrease costs for residents and the city. Additionally, Peoria should consider developing an online tool for residents on their website, similar to the City of Sacramento's "Waste Wizard," as an educational resource for residents to learn proper waste disposal methods. Implementing this type of online tool on Peoria's website can help residents educate themselves on better recycling practices and improve recycling behavior within communities.

The City of Peoria appears to be monitoring resident waste generation and consumption behaviors by collecting data from the Materials Recovery Facility to track their progress towards decreasing waste. Furthermore, there is a quantitative tracking method in place within the city to measure progress on recycling contributions. Collection trucks are weighed before unloading the collected recyclables. Tracking these weights help indicate if recycling or waste generation is increasing. There are also contamination checks and tags that indicate the quality of the collected waste. According to city comparison analysis, there was an emphasis in many city plans on tackling food waste through composting initiatives.

Although Peoria does not have strict regulations for landfill usage, according to a spring 2020 interview with Peoria's Public Works Director, Kevin Burke, there is tremendous potential for implementing a composting program, much like the City of Providence, Rhode Island. Despite it being too early to implement city-wide composting initiatives, Peoria should encourage more composting at the residential level. It is also recommended that Peoria promote their existing service of converting old waste bins into residential composting bins free of charge. Initiating compost participation on a residential level can facilitate a simpler transition into future city-wide composting initiatives. Peoria could also explore partnerships that can collaborate to use solid waste and recycled materials as marketable commodities. For example, the City of Austin's Materials Marketplace that helps connect the city to potential partners. The City of Peoria could develop a similar online platform to create an opportunity for businesses to purchase raw materials or waste from the City.

Procurement

Peoria has a Materials Management department that tracks procurement regarding recyclable materials and equipment. This department will work collaboratively with the city's "Green Team" to track procurement methods and other sustainability projects within Peoria. The 2009 *SAP* tackled procurement guidelines for sustainable purchasing practices by increasing the use of green office supplies to reduce material waste; this helped the city save $124,380 (City of Peoria, 2009). There is uncertainty about whether Peoria has continued to implement these procurement guidelines. However, it is recommended that the City follow these guidelines to help reduce waste and lower costs.

Similarly, Pima County has implemented paperless systems, company take-back programs, internal reuse of equipment and materials, and efficient printing practices. Peoria can observe the success of Pima County's structure and increase its use of environmentally preferable products and services where feasible. Portland and Sacramento have solidified guidelines for their procurement departments to determine what items will have greater economic and environmental value. These cities consider a product's ENERGY STAR qualifications, EPEAT registration, amount of post-consumer waste, biodegradability, compostability, and energy efficiency during purchasing decisions. Portland has also illustrated the positive financial and environmental impacts of its procurement practices with interesting visuals (Figure 22). Peoria could include similar graphics in their reports by calculating their financial savings, emissions reduced, and energy usage through online services such as the EPA's Environmental Electronics Benefits Calculator (EEBC) for computers, mobile phones, and imaging equipment, and the Environmental Paper Network's paper calculator.

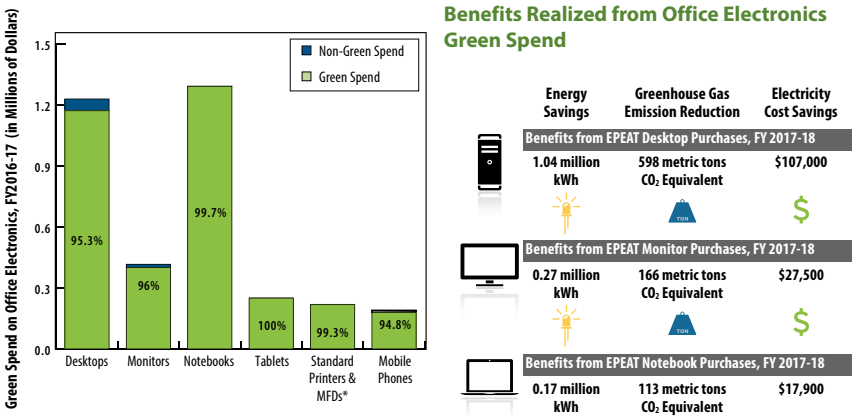

Figure 22 *Sample graphics from Portland's Green Spend Snapshot showing interesting and clear ways to represent their procurement data*

Solid waste

The Maricopa Association of Governments (MAG) released *Solid Waste Best Practices in the MAG Region* in 2012. The report includes best practices to reduce waste in communities such as Avondale, Chandler, Gilbert, Glendale, Goodyear, Litchfield Park, Maricopa County, Mesa, Phoenix, Queen Creek, Scottsdale, Tempe, and Wickenburg. This report could be a valuable resource to Peoria as it includes project descriptions, associated costs and budgets, changes since project implementation, and key performance indicators (KPIs). Some notable KPIs in the plan included reducing solid waste tipping fee expenses, total pounds of material collected, percent of materials recycled, citizen satisfaction surveys, landfill diversion, and cost savings. Peoria can reference these KPIs to establish goals per their objectives and track their progress as they implement existing or new projects (MAG, 2012).

Figure 23 *Key recommendations compiled by students in the Recycling and Waste Management group, designed by Project Cities*

Reflections on Recycling and Waste Reduction

Currently, the City of Peoria is actively trying to promote more responsible consumption and recycling behaviors within the community to reduce waste generation. To do this, Peoria is utilizing its *Sustain & Gain* magazine and specific courses offered through the Sustainable U program to reach citizens and educate them on the importance of these practices. By implementing projects that can potentially reduce costs associated with waste generation and disposal, Peoria provides an incentive to its residents that will hopefully encourage them to willingly adhere to reducing the amount of waste they generate. It may be especially helpful for Peoria to consider developing its own sustainable purchasing guidelines. Although Peoria has a Materials Management department that keeps track of procurement regarding recyclable materials and equipment, Peoria could benefit from adding sustainable purchasing guidelines by increasing city use of environmentally preferable products and services where feasible.

Recommendations for Recycling and Waste Reduction

- Encourage residential composting by increasing awareness of composting options and providing additional outlets for residential compost. Specific suggestions include:
    - Share helpful information with residents, such as a list of local composting facilities or local farmers who accept donated compostable materials, encouraging residential composting by those who may not otherwise have a personal need to compost.
    - Offer additional outlets to residents who don't have a personal use for compost, such as city collection, uses the compost for municipal projects. This allows more residents to start composting and increases the amount of organic waste diverted from landfills.
    - Advertise Peoria's repurposed compost bin service to all residents to raise awareness that compost bins made from old waste collection bins can be requested from Peoria at no charge.
- Adopt strategies that utilize incentives as a tool to motivate residents to reduce waste generation and practice better recycling habits.
- Provide residents with information on green procurement to encourage responsible purchasing at the residential level.

- Facilitate municipal green procurement by examining emissions reduced, money saved, and reduced energy usage data from items the City purchases.
- Establish clearer indications of what Peoria deems a "green purchase," which can include any specific eco-certifications, qualifications, or material composition requirements.
- Develop and share an infographic targeted towards Peoria residents, such as the example displayed on page 65, that depicts top strategies residents can practice to reduce waste generation or repurpose some of their waste items.
- Amend Peoria City Code Sec. 22-10-E, which suspends a resident's recycling privileges after three accounts of placing non-recyclable items in their recycling container. This practice is contradictory to the City's increasing recycling goals.
- Track municipal goals and objectives with key performance indicators (KPIs) such as total pounds of material collected, percent of materials recycled or repurposed, citizen satisfaction surveys, landfill diversion, and cost savings.
- Create and include more charts, graphs, and visuals throughout the *SAP3* to help illustrate the financial and environmental benefits of municipal green procurement practices.
- Relocate the three objectives about fuel efficiency, alternative fuel, and transportation infrastructure to the transportation section as they better align with the topic of transportation.

WATER RESOURCES

"In the arid southwest, water is one of the most precious resources. Managing water supplies and usage will help ensure long-term water resources for Peoria's current and future residents" (City of Peoria, Sustainability Action Plan 2.0, 2017).

Editor's Note
Reclaimed water undergoes purifying treatment so that wastewater, water that has been contaminated by human use, can be utilized for other uses, such as urban irrigation, agriculture, and more.

Benchmarking case studies

Flagstaff, Arizona

The City of Flagstaff offers rebates for toilet replacement, installing a rainwater harvesting tank, low water landscape design, grass lawn removal, and high-efficiency showerheads and sink aerators. The City of Flagstaff's water conservation program has helped customers reduce their water usage by 50% (City of Flagstaff, *Rebate Programs*, n.d.). Flagstaff does not have a city-specific drought response and recovery act but does fall under Arizona's statewide general plan. Flagstaff also recycles about 30% of its water, while the other 70% is treated and discharged into the Rio de Flag Wash. About 20% of Flagstaff's total water supply comes from **reclaimed water** used for various projects such as recharging the aquifer, irrigation, roadside landscaping, and park water services (City of Flagstaff, *Water Services*, n.d.).

Irvine, California

The Irvine Ranch Water District met 25% of their water demands by using recycled water. The district uses recycled water for multiple purposes, including groundwater recharge, landscape irrigation, and water storage. The reclaimed water is highly regulated and is processed through four different treatments:

Irvine reclaimed water treatment process
Primary treatment, in which large solids are removed
Secondary treatment, in which bacteria are used to remove approximately 90% to 95% of remaining solids
Tertiary treatment, in which a combination of membrane bioreactor filtration and ultraviolet light disinfection is used to destroy bacteria, viruses, and other pathogens
Advanced tertiary treatment, in which filtration or reverse osmosis is used to duplicate and accelerate nature's purifying system

Following these treatments, the processed water can be safely used in natural reservoirs, on golf courses, and ice-skating rinks (Irvine Ranch Water District, n.d.).

Las Vegas, Nevada

Nevada has a comprehensive *Drought Response Plan*, with one of its greatest strengths arising from the delineation between different forms of droughts (State of Nevada, 2012). Avoiding use of the term "drought" loosely is critical because each type of drought influences the actions needed to be taken. Meteorological drought is the definition Peoria primarily uses. Although meteorological drought is extremely important, it remains a narrow focus that permits cities to state there is no water scarcity, despite the city being in a drought. Agricultural drought primarily revolves around the short-term focus of precipitation and available water. Nevada defines socioeconomic drought as the inequalities in water distribution that can lead to a particular group of people experiencing a drought, even when the city as a whole is not. Finally, hydrological drought is focused on the amounts of surface water resources. This accounts for surface water levels in the face of increased temperatures and reduced precipitation. Las Vegas also uses reclaimed water for irrigation in golf courses, parks, and to recharge Lake Mead.

Figure 24 *The largest reservoir in the United States, man-made Lake Mead lies at the top of Colorado River in Nevada and Arizona*

Los Angeles, California

The City of Los Angeles plans to have 100% of its wastewater recycled by 2035, which is a major step to reduce reliance on imported water. Currently, only 1% of L.A.'s total water supply comes from the direct use of reclaimed water. The reclaimed water is currently used for industrial uses, landscape irrigation, car washes, and groundwater replenishment (City of Los Angeles Mayor's Office, 2019).

San Francisco, California

According to the San Francisco *Strategic Plan*, the City plans to use its reclaimed water for groundwater replenishment, aquatic habitat creation or enhancement, and fisheries protection through greater flows in streams. In addition to the plans for reclaimed water, the *Strategic Plan* also includes a substantial section on community water conservation. It explains how the local community can use rooftop gardens to consume less water than commercial farms. This concept also brings the community together and allows people to access fresh produce (City of San Francisco, 2017).

The San Francisco Water Department mentions the City offers plumbing fixture replacement rebates, washer rebates, and GosolarSF rebates (San Francisco Water Department, n.d). According to the City, San Francisco's water conservation program has helped customers reduce their water usage and conserve water overall.

Tempe, Arizona

The City of Tempe uses its reclaimed water for various purposes, such as cooling water at the Palo Verde Nuclear generating station, irrigation, riparian habitat projects, and refilling Tempe Town Lake. Tempe also has additional plans to use reclaimed water for underground storage and credits at the Agua Fria Linear Groundwater Recharge Project in the future (City of Tempe, 2012).

Analysis & discussion

The City of Peoria stands by the quote: “In Peoria, water conservation is a way of life.”

Peoria protects and preserves its water supply through aquifer recharge, use of reclaimed water for non-potable sites, planning and building reliable water infrastructure, and creating rebate programs and free classes to incentivize public actions. The City’s water customers have reduced water consumption by an average of 15%, about 20,400 gallons per household per year (City of Peoria, *Water Services,* n.d.).

Peoria has similar initiatives, goals, and plans set in place in comparison to other climate action plans. However, the *SAP3* has the opportunity to create more definitive key performance indicators (KPIs) and targets. KPIs such as the tracking of water usage per capita can help track total potable water usage and reclaimed water usage. This information can help the public understand how each individual and their community meet the goals set in place. Ongoing evaluation of water consumption, city facilities, and infrastructure can help improve water supply conservation.

Reclaimed water

Peoria's direct use of reclaimed water is at 3% of its total water supply, which is above the state average in Arizona of 2%. It is also larger than some of the previously mentioned cities, such as Los Angeles, where only 1% of its total water supply comes from direct use of reclaimed water. On the other hand, the 3% usage rate still lags behind some cities leading the way in water conservation, such as Irvine Ranch Water District, which meets 25% of its water demands by using reclaimed water. Peoria could launch educational programs similar to those in Singapore or Perth, Australia, which teach residents the benefits of reclaimed water, and destigmatize the idea that reclaimed water is not safe to drink or be included in the drinking water supply (Woo, 2016).

Cities with more advanced reclaimed water allocation plans, such as Tempe, may also help guide the *SAP3*. Tempe uses its reclaimed water to recharge Tempe Town Lake, used for water storage and urban fishing, although it is not considered safe for swimming. Similarly, New York City uses nearby wetlands as a natural water reclamation facility. Implementing a similar plan could save Peoria the cost of building a new water reclamation facility, and its subsequent energy costs (New York State, n.d.). Phoenix provides another relevant example, as water from the municipal wastewater treatment plant is pumped to the Tres Rios wetlands where the plants and animals can use what they need before the water is discharged back into the Salt River (City of Phoenix, n.d.).

Water rebates

Peoria already offers helpful water rebates for high-efficiency toilets, smart irrigation controllers, and xeriscaping programs (City of Peoria, *Water Services,* n.d.). However, the City could benefit from establishing additional rebates that encourage homeowners to install rainwater harvesting tanks. Peoria could also offer a class that encourages residents to purchase rain barrels or conserve more water. For example, the City could host more community workshops that educate the public on how to save water, lower their monthly water bill, and replace appliances in their home that waste the most water.

Water accessibility

Water accessibility is an important sustainability focus point for Peoria. The City currently provides water to most of its citizens but is still working to improve its infrastructure. Peoria can consider several ideas for the *SAP3* that are focused on awareness, communication, and water assistance, to improve said infrastructure.

Awareness

Peoria Support is a human services organization that is part of the Peoria Community Assistance Department. Peoria Support can help people of lower-income brackets, or those experiencing homelessness understand how water is treated and delivered, by coordinating with the Water Department for an Awareness Services Seminar (City of Peoria, *Water Services,* n.d.). The Awareness Services Seminar would ideally make water resources a more relatable topic for the general public (City of Peoria, *Water Services,* n.d.).

Providing more information about the seminars in the water resources section of the *SAP3* can help them become more accessible to lower-income residents. This distinct focus on the community can be seen in Baltimore, Maryland, and other major cities outlined in the previous case study section. A sustainability report that is more accessible to the general public can help keep communities updated (City of Flagstaff, 2017). A strong emphasis on the community can also help lower-income people feel more secure about water resource decisions.

Communication

Including a more detailed analysis of Peoria's water rebate program in the *SAP3* can help make the program more accessible to the public. The City can also create a section for the water rebate program in its official newsletter, social media posting, and other public communication channels. The Peoria Reporter is a free app that can be used to report water-related incidents. Expanding the app to include more information on water resources could also be beneficial. Using the Peoria Reporter app would also be an easier way for low-income communities to digitally report water incidents. The app could also be included in the *SAP3* as a resource.

Water assistance

Though Peoria's water assistance program, AQUA, no longer operates in-house, there is still the Community Action Program (CAP), which provides low-income families with water assistance (City of Peoria, *Water Services,* n.d.). CAP helps low-income families pay bills, fix water leakages, and lower their energy bills. The City of Peoria could expand this program and create more funding for it through tax dollars or subsides. Peoria can also elaborate on capital improvement programs that support residents with their own groundwater from wells in the *SAP3*. The City could also follow Flagstaff's lead and create a more specific sustainable purchasing manual to increase cost-effectiveness for their community members, which could also be added as a section to the *SAP3* (City of Flagstaff, 2017).

Overall, Peoria's water resources section has a thorough base but can improve its awareness, communication, and water assistance factors. Following the examples of Baltimore, Maryland, and Flagstaff, Arizona, Peoria can develop a detailed report that brings the community closer together through improved water accessibility.

Drought response and recovery

Peoria's existing *Drought Management Plan* (*DMP*) is one of the few active plans from the benchmarking case studies. This is a tremendous strength and should be alluded to explicitly in the *SAP3* because both documents' values align well with each other. Including an updated *Drought Management Plan* in the *SAP3* would acknowledge the unique climate conditions Peoria exists within and would enhance the water resource section of the plan.

Peoria's *DMP* outlines six measures that can be taken in the case of a drought or water scarcity. The City states there is no current problem; however, some measures should be implemented right now to prevent a more severe drought from occurring (City of Peoria, 2017b). Water theft prevention will create strict restrictions on all unpermitted usages of water resources. A water-use restriction plan that ensures all resources and hardships are shared equitably and that the public is continually kept up to date on the current drought status.

Editor's Note
Connecticut's enforcement mechanisms include an escalating scale of fines, court appearances, and in extreme cases even water curtailment incurred for violations of drought restriction policies.

Peoria would likely benefit from an enforcement mechanism like the one Connecticut has in place (Connecticut Water Planning Council, 2018). This enforcement can encourage municipalities to conserve and enact restrictions in the case of extreme water scarcity. Peoria's *DMP* does not explicitly account for future temperature increases. Further research could be done to make water predictions more accurate. There is a scientific consensus that the state of Arizona will have dramatic temperature increases and decreased precipitation, so even if Peoria does not currently have a shortage of water, considering the future potential would be beneficial.

Reflections on Water Resources

Peoria's *DMP* has potential to grow in terms of water conservation, water rebates, reclaimed water use, water accessibility, and drought response and recovery. Peoria could benefit greatly from implementing key performance indicators (KPIs) to track water usage per capita throughout the community. This would help Peoria understand its current water situation and develop an informed plan for what needs to change. Peoria's citizens would also benefit from having a water rebate class, potentially offered through Sustainable U, which would explain the current water situation and encourage citizens to be more water conscious.

Another Peoria goal is finding ways to efficiently collect and treat wastewater to save on energy costs. Students suggest utilizing natural or artificial wetlands in the final stages of wastewater treatment and storage because of the great wildlife benefits. As for **drought response and recovery**, the students felt that Peoria would benefit from incorporating more resident-facing information on drought response and recovery plans. Adding to the existing *DMP* would benefit Peoria by putting all government officials and citizens on the same page regarding the next action steps and recovery. Students suggest beginning with education by informing citizens on different types of droughts and highlighting how equitable water is maintained across Peoria during a drought.

Editor's Note

Peoria is in the process of developing a drought recovery and response plan. Past Project Cities students have contributed to messaging and strategy through its "Engaging Residents in Water Conservation Practices" report, available at **links.asu.edu/PCPeoriaWaterConservation19F_Report**

Recommendations for Water Resources

- Include a section in the *SAP3* on how stakeholders can engage in sustainable planning. This section could spotlight an individual who can help stakeholders get involved and include information about sustainable stakeholder engagement conferences.
- Investigate the potential impacts of drought and drought response on the safety of low-income residents.
- Communicate specific actions that homeowners can take to save water, such as low plumbing fixtures and xeriscape landscaping principles.
- Invest more resources in helping people learn about water accessibility.
- Launch educational programs that destigmatize the idea that reclaimed water is not safe to drink.
- Disseminate more information about reclaimed water. Raising awareness around reclaimed water could expand reclaimed water use and reduce the cost of collecting and treating wastewater.
- Expand on the water rebate program to make it more accessible and subsequently reduce water consumption across multiple categories.
- Expand municipal use of reclaimed water into other projects such as restoration of degraded natural water systems around Peoria.
- Evaluate water resource metrics by including water quality results, reclaimed water consumption rates, key performance indicators, climate change statistics, and data on water rebate usage.
- Identify more efficient methods for collecting and treating wastewater to save on energy and cost.
- Include more visual tools in the *SAP3* to engage readers with the material. Suggestions include infographics illustrating how water flows through Peoria's water system, where it comes from, how it is used, and how it is reclaimed, and visualized data and statistics to help people become more informed on water usage, water quality, and other factors that are a part of the Peoria water system.

MUNICIPAL FACILITIES AND ENERGY

"Public buildings and facilities need to incorporate sustainable features to optimize their usefulness and public benefit. Peoria is committed to developing standards and practices to make city buildings more efficient" (City of Peoria, Sustainability Action Plan 2.0, 2017).

Benchmarking case studies

Avondale, Arizona

The Energy section of Avondale's *Municipal Sustainability Plan* (*MSP*) states that the City would like to "incorporate renewable energy and reduce consumption of non-renewable sources wherever possible" (City of Avondale, 2014). Avondale's municipal centers also implement energy-efficient practices, such as turning off lights and computers when not in use, and have replaced streetlights with LED units. Avondale also mentions the next step is to, "incorporate renewable energy sources throughout its entire system not only to reduce costs, but also to decrease environmental, health, and climate impacts" (City of Avondale, 2014).

Baltimore, Maryland

The City of Baltimore has a very fluid and effective manner for presenting the *2019 Baltimore Sustainability Plan*. Everything is organized into different sections, such as Human-made Systems, Economy, and Climate and Resilience. Baltimore's energy information is presented as a subsection under the Climate and Resilience header. Each subsection is further broken down into the following format: Big Picture, Relation to Baltimore, and Strategies and Action, where the City lists each strategy and respective actions to be taken. The plan also lists how the City intends to measure successes at the end of each section. Baltimore emphasizes a desire to "expand awareness of and funding models for energy efficiency and renewable energy" (City of Baltimore, 2019, p.82), highlighting that Peoria is on the right track in pursuing such an endeavor. A key takeaway from the *2019 Baltimore Sustainability Plan* is that it is very easy to emphasize certain points under the topic of "Energy," which is broader than "Municipal Facilities," allowing for more information to be listed and tied to other areas in the plan.

Las Vegas, Nevada

Sustainability planning for the City of Las Vegas appears less cohesive, as recent updates have only been included online, rather than incorporated into an updated plan document. Regarding energy, the City of Las Vegas already highlights receiving "100% of the energy it needs from renewable sources" (City of Las Vegas, 2019). This seemed very steep due to the city's obvious high energy consumption. Further research showed specifically that, "Las Vegas's city government is… powered by 100% renewable energy" (Rapier, 2016). This distinction illustrates the importance of wording and phrasing within city documents. Some interesting things being done in Las Vegas that may apply to Peoria include net-metered solar covered parking and a three-megawatt solar plant at the city's Water Pollution Control Facility (City of Las Vegas, 2019).

Figure 25 *An example of solar covered parking, which provides the dual benefits of generating solar power while also shading vehicles*

Los Angeles, California

Los Angeles dedicated a significant portion of *L.A.'s Green New Deal* to renewable energy with clear targets, deadlines, and corresponding goals structured into the document framework. *L.A.'s Green New Deal* is a great example of setting milestones, such as aiming for 100% renewable energy by 2045. A key takeaway from its design is that imagery can be very assistive in document readability. Structure and specificity also help drive everything forward.

Pima County, Arizona

Pima County highlights energy information under the Carbon section of its *Sustainability Action Plan for County Operations* (*SAPCO*). The County highlights goals, core areas, and benefits of implementation for each section of the *SAPCO*. The Carbon section's core areas include buildings, facilities, wastewater treatment, vehicle fleet, and solid waste generation (Pima County, 2018, p.19). Peoria is on a similar track, emphasizing these points in the *SAP2*. Some key takeaways from the *SAPCO* include the level of specificity and formatting. For example, each goal includes specific targets, performance measures, and recommended implementation strategies.

Tempe, Arizona

The City of Tempe's *Climate Action Plan* is largely focused on transportation and energy. The Letter from the Mayor included at the beginning of the document highlights municipal energy goals, such as achieving "carbon neutrality in municipal operations by 2050, with a strategy of using 100% renewable electricity sources by 2035" (City of Tempe, 2019). Tempe also plans to eliminate over-reliance on nonrenewable energy sources by working with utility companies that offer clean and renewable energy options. Tempe also highlights creating a sustainability platform that provides information to businesses on energy-efficient programs and adds solar electric vehicle charging stations around the community through the journey of becoming a more energy-efficient city. Tempe highlights the benefits of proposed Resilient Energy Hubs by explaining that "Resilient Energy Hubs that run on stored solar energy will keep residents safe during heat and storm-related emergencies" (City of Tempe, 2019).

Washington, D.C.

The *Sustainable DC 2.0 Plan* is very comprehensive and detail-oriented. Main points are broken down and organized similarly to the *2019 Baltimore Sustainability Plan*. Following an overview of the sector and some interesting facts, the *Sustainable DC 2.0 Plan* delves into goals, targets, and baselines. It also includes a timeframe for each goal, a listing of who is leading the front, and any partners involved. The document strongly highlights building efficiency and a transition to renewables. An interesting takeaway is the goal to "expand the use of renewable sources of heating and cooling" (District of Columbia, 2018). While this may refer more to energy efficiency of buildings, it highlights that D.C. is pursuing as many sources as possible regarding renewables.

Analysis & discussion

In Peoria's *SAP2*, a multitude of crucial topics were addressed. As deduced from the benchmarking case studies, several cities list "Energy" as a separate category in their sustainability plans. Most of the studied reports followed a structured and detail-oriented format throughout the entirety of their sections. The *SAP2* is organized and fluid, but more specificity and detail of certain points may be helpful. The *2019 Baltimore Sustainability Plan* offers a great model for organizational structure; the document follows a set structure, presenting the issue, establishing its importance or effects on the city, and finally diving into goals and actions to be taken. Peoria's *SAP2* also lists goals, but perhaps adopting an organizational strategy similar to Baltimore's would help Peoria further specify its goals while aiding in readability and comprehension for the average citizen.

Municipal facilities

Although this student group shifted the main topic from Municipal Facilities to Energy, the group understands this section is still important to the City of Peoria and went forward with analyzing applicable municipal facilities points from other cities. Given that Peoria aims to increase energy efficiency in city facilities through the requirement of "LEED silver certification or higher" (City of Peoria, 2017), there is a solid grounding for this section of the plan. One relevant method mentioned in Pima County's *SAPCO* is to "improve employee energy conservation practices" (Pima County, 2018). Educating employees on the importance of energy conservation or supplying signage in city-owned buildings for light fixtures and other intervention points would be a good method to include in Peoria's *SAP3*. In the interest of educating businesses, the Tempe's *Climate Action Plan* mentions creating a sustainability platform, which would be "a website that provides information to businesses on energy efficiency programs" (City of Tempe, 2019). Providing access to resources that help businesses become more energy-efficient would be encouraging to businesses around Peoria.

Concerning program-oriented goals, *L.A.'s Green New Deal* lists a goal to "invest $100 million in energy efficiency programs to renters and affordable housing customers" (City of Los Angeles, 2019). While Peoria might not be ready to commit such a large amount of money, the idea of expanding a program to renters may fit nicely into the *SAP3*. Finally, the *Sustainable DC 2.0 Plan* emphasizes a desire to "rehabilitate public housing to be energy and water efficient, [and] equipped to meet net-zero energy standards" (District of Columbia, 2018).

Peoria's *SAP2* lists a similar goal for its facilities, and broadening it to the public housing sector could hold an even larger impact. The City of Peoria's sustainability planning is off to a great start, and incorporating some of these ideas into *SAP3* may also strengthen its mission.

Water treatment facilities

The City of Peoria lists its largest energy consumer to be municipal water treatment facilities; in response, students analyzed what can be done in the realm of energy for said plants. The City of Las Vegas lists the presence of "a three-megawatt solar plant at the city's Water Pollution Control Facility" (City of Las Vegas, 2019). This indicates the City is on the best course of action, given the statements on their website. Solar energy is optimal in Arizona, and Peoria might make a heavy impact by implementing a solar farm on or near their facilities. Suppose these facilities generate their own energy and only pull from the grid when necessary. In that case, the City of Peoria could see a great impact on their plant-generated energy use and emissions. Peoria has also expressed a desire to conduct a greenhouse gas emissions inventory; perhaps the water treatment plants (and any other energy-intensive facilities) be included and audited as well.

Renewable energy

Tempe's *Climate Action Plan* mentions the goal to become less dependent on non-renewable sources through the creation of "resilient energy hubs." This is an idea Peoria may want to consider as it aids in resiliency. Although Peoria currently has little control regarding its energy mix, an idea from the *2019 Baltimore Sustainability Plan* is to develop a solar job program to create jobs. Baltimore aims to own their plant and intends to "expand solar job training programs, and job placement opportunities to train and employ the unemployed and underemployed; [and] require that city government renewable energy projects either use trainees in these programs or hire program graduates" (City of Baltimore, 2019).

Editor's Note

Students recommend reviewing the Solar Transition Guide by the Department of Energy, at **www.energy.gov/sites/prod/files/2014/01/f7/47692.pdf** This document features a step-by-step instructional format and may prove to be a valuable resource for the City of Peoria. Solar energy has the dual benefits of offsetting greenhouse gases while creating jobs at the same time.

Editor's Note

Access to sustainable energy in municipal grids is limited by energy providers, which municipalities often have little to no control over. Currently, Peoria's energy comes from APS and SRP, and does not have immediate options for greener offsite generation. This can be further complicated by ROI of inefficient buildings.

Open space

One point in the *SAP2* Municipal Facilities section that seemed important, but did not fit well under the topic of energy, is to protect natural open spaces. It is recommended that Peoria place a stronger emphasis on this subject in the *SAP3*. An entire section of the document could be devoted to Peoria's programs and efforts to protect and preserve Sonoran Desert wildlife and habitat. Small pieces of the topic could be integrated into each existing chapter. Peoria currently features an abundance of wildlife and open space. However, if plans to develop and grow the city continue at the projected pace, there will not be sufficient habitat to sustain the kind of wildlife that calls Peoria home. Rather than lose these precious lives, ecosystems, and ecosystem services to urban sprawl and traffic, Peoria could adjust future city planning with open space conservation and wildlife protection in mind.

Reflections on Municipal Facilities and Energy

The City of Peoria has many options when it comes to increasing its energy efficiency. Peoria's building codes (especially the energy efficiency code) are up-to-date with the international code, and presumably, Peoria will continue to update building codes as new editions are released. The City could also use educational tools and outreach programs (e.g., websites and guidelines) to keep businesses and citizens better informed. Sharing the pros and cons of different products and methods to improve efficiency can help save community members money in the long-term. This will hopefully entice people to make higher efficiency upgrades and transition choices. It is also recommended that Peoria investigate how solar, mainly rooftop solar, can help reduce energy costs and usage in the long term and reduce greenhouse gas emissions. Suppose city leaders take the lead and demonstrate the benefits solar energy can bring. In that case, it could be more widely adopted by businesses and average citizens to help offset individual energy costs and consumption. It was also found that many other cities utilize a "solar-transition guide," usually put forth by their Department of Energy, which details implementing renewables into their energy systems. Peoria's energy sector could benefit greatly by adding a similar guide to its own sustainability planning.

Recommendations for Municipal Facilities and Energy

- Create a section within the *SAP3* that provides stakeholders with the opportunity and instructions to invest in energy efficiency programs.
- Incorporate employee conservation practices into the *SAP3*, such as educating workers on how to make a difference.
- Gather and add relevant data to the *SAP3*, including current data regarding installed solar in Peoria, current data on energy consumption in municipal facilities, and more specific metrics on existing water facilities' energy consumption.
- Investigate building codes and analyze means to implement renewable energy policy within any code updates.
- Display current metrics for the City of Peoria and Arizona's energy mix to best explain the existing energy situation to readers.
- Restructure the Municipal Facilities section under the banner of Energy. A Municipal Facilities subsection may still be applicable; however, many of the existing points appear to fit better under the topic of Energy.
- Include graphics in this section to spark interest among readers and explain points that may be better understood visually. Some suggested graphics to add include a guide on how to implement energy-efficient practices in residences, and interesting facts related to solar and other renewable energy.
- Consider implementing more ongoing deadlines for suggested goals and actions.
- Incorporate formatting aspects from the *2019 Baltimore Sustainability Plan* and *Sustainable DC 2.0 Plan* to increase organization and comprehension.

MANAGEMENT PRACTICES

"Ensure that the city's guiding sustainability principles are included in decision-making processes and operational procedures" (City of Peoria, Sustainability Action Plan 2.0, 2017).

Benchmarking case studies

Honolulu, Hawai'i

While an island city in the middle of the Pacific Ocean may not directly compare to a desert city such as Peoria, Honolulu is still a desert in terms of resource flows. A key aspect of the *Hawai'i 2050 Sustainability Plan* is to develop a more diverse and resilient economy through diversified agriculture, fisheries, biotechnology, film, healthcare, and digital media. The *Hawai'i 2050 Sustainability Plan* states Honolulu can accomplish this by implementing an innovation initiative that targets emerging industries for post-recession growth tracking (State of Hawai'i, 2018).

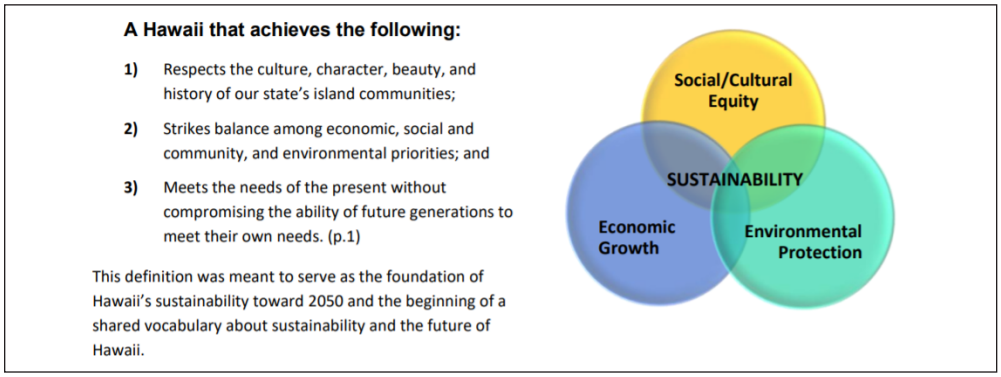

Figure 26 *Excerpt from the Hawai'i 2050 Sustainability Plan, illustrating the state's clear established sustainability definition and visioning*

Las Vegas, Nevada

Las Vegas commissioned *Sustainability: The Las Vegas Approach* in 2009, which is focused on water conservation, energy, and environmental stewardship through public outreach, education, and partnerships (Holmes, 2009). As desert cities, both Peoria and Las Vegas are focused on conserving resources and have developed goals to protect these resources. Las Vegas did not have a specified management section in its report and instead opted to incorporate specific management policies throughout the document. The Sonoran Institute also published a *Growth and Sustainability* document in 2010, which outlines regional sustainability challenges in the Las Vegas Valley (Sonoran Institute, 2010).

Los Angeles, California

In 2015 the mayor of Los Angeles released the *Sustainable City pLAn: Transforming Los Angeles.* The document stated how Mayor Garcetti, Deputy Mayors, and the Chief of Sustainability Officer would successfully complete their goals. To ensure accountability, there will be General Manager (GM) reviews to incorporate progress and outcomes. The *Sustainable City pLAn* includes chief sustainability officers in key departments (City of Los Angeles Mayor's Office, 2015). The mayor himself will be writing reports regularly on how goals are implemented. Another form of management in this case is the use of budget priority setting (City of Los Angeles Mayor's Office, 2015). Los Angeles also has its own Sustainability Team to help progress toward their goals promptly.

Salt Lake City, Utah

The Salt Lake City Sustainability Department was created in 2016, otherwise known as Salt Lake City Green (SLCgreen). Its environmental programs aim to reduce pollution, slow climate change, and conserve resources, among other priorities (Salt Lake City, n.d.). Two divisions exist within the department, Waste & Recycling (W&R) and Energy & Environment (E&E) Divisions. W&R runs multiple programs covering special events, business & multi-family recycling ordinances, construction and demolition, bulk waste programs, and refuse programs (Salt Lake City, n.d.). E&E ensures municipal departments act in accordance with all applicable environmental regulations.

Santa Fe, New Mexico

Santa Fe's *Sustainable Growth Management Plan* (*SGMP*) is a comprehensive plan geared towards sustainable growth management with specific initiatives such as affordable housing and transportation planning; this allows for specific actions to be outlined in the different sections. Santa Fe also has a Planning Division, which has a formal process for citizens to include geographically defined community organizations as part of the *SGMP* (Santa Fe County, 2015).

Scottsdale, Arizona

Scottsdale stood out with its Environmental Quality Advisory Board, a deliberative body that advises on environmental issues, such as Roundup pesticide pollution, through a public process (City of Scottsdale, n.d.). This is something the City of Peoria has yet to implement, as all of its current decision-making practices are internal, and results from such council meetings could lead to critical quantitative and qualitative data. Scottsdale also seems to lead with clearly defining policy proposals by summarizing them in an *Environmental Planning Element*, which is linked to other government documents through reference. A system such as this could help Peoria more easily develop feasible timelines to go with its plan.

Analysis & discussion

Peoria's *SAP2* can come across as being more generalized than other benchmarked documents. The City of Peoria, however, has done a brilliant job of emphasizing sustainability in their management practices compared to the benchmarked plans across other cities. It is recommended that Peoria incorporate some form of benchmarking to ensure adherence to the sustainability goals that are clearly laid out within the *SAP2* and measure the success of what types of policies are being implemented.

Policy and plan analysis

Editor's Note
Students identified and focused on these three areas of impact but it is important to note the necessity for a holistic approach to sustainable policy.

Peoria's General Plan, *Plan Peoria AZ 2040*, demonstrates a good city plan and sustainable policies that all cities should have in their plans. In their research of Peoria's local context, the students felt that **three sustainability policy areas** with the highest potential impact were energy conservation, air quality, and water conservation. All these types of policies are seen in *Plan Peoria AZ 2040*. One policy worth noting related to energy conservation is policy HS-6 on pages 8-13 that encourage green housing construction practices. Another policy pertaining to air quality on pages 8-28 seeks to improve air quality by promoting walking and bicycling by shading hard surfaces. Lastly, the most important kind of policy pertaining to water conservation can be seen on pages 8-25 of the plan, where the City seeks to expand water efficiency and conservation programs in both private and public sectors.

Peoria used the *Organizational Strategic Plan* (*OSP*) as a tool to connect its municipal government. The *OSP* allows departments to develop particular and related goals, strategies, and performance measures. There are five focus areas, one of which is sustainability. Peoria's strategic goal is to promote sustainability and be a leader in sustainable actions. Objectives to employ include designing and delivering cost-effective services that reduce the impact on the environment, employ management practices that encourage sustainable fiscal decision making, involve the community in sustainable practices, and apply sustainable practices and technologies (City of Peoria, 2010b). Peoria could benefit from creating or implementing a management plan like the *OSP* to help achieve its sustainability goals.

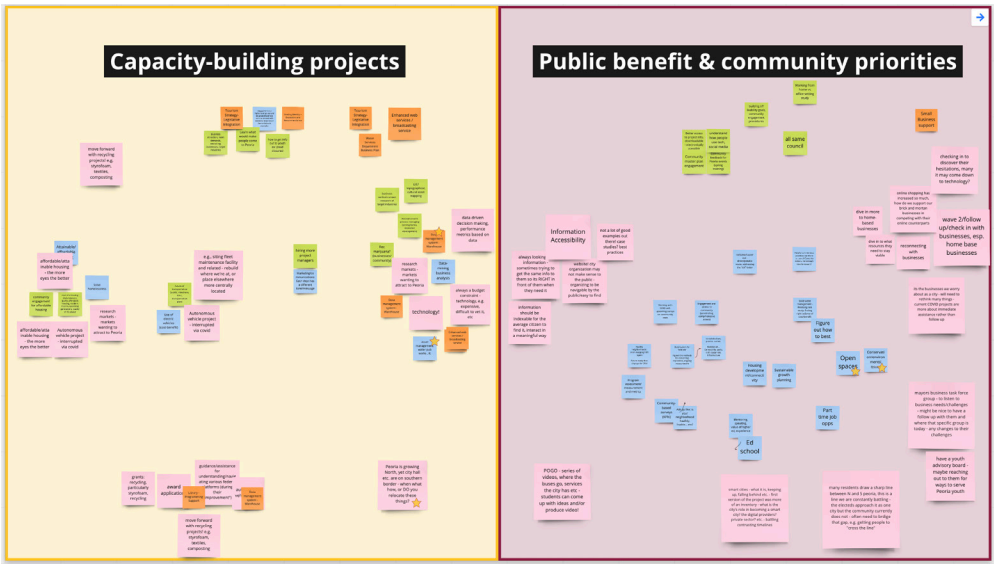

Figure 27 *Miro board screenshot from a Project Cities and City of Peoria fall 2020 project planning session, demonstrating the use of new tools that can help the City move continue to advance sustainability in the face of new challenges (such as during the pandemic)*

Reflections on Management Practices

As other cities have done, Peoria can grow their management practices to adapt to the ever-changing world. Santa Fe provides a great example of operationalizing management practices. This allows the City to focus on developing management practices and gives the public eye an idea of how sustainability practices are implemented. Peoria could follow a similar model to expand on its existing management practices. Peoria is a leader for other cities both in the valley and in the country.

Some city information is difficult to access, and therefore this analysis should not be considered comprehensive. However, it is clear that Peoria already has several aspects in place that pertain to sustainability. A good variety of different sustainable policies already exist in the City's General Plan. These policies range from energy consumption to urban heat island effects alongside many more relevant topics. However, there is more to be said on how well these policies are functioning and aspects that may have been missed or could be further expanded.

In interviews with Peoria's Sustainability and Water Conservation Coordinator, the students reached the conclusion that Peoria is already much farther ahead in terms of sustainability policy than many other cities both in the valley and across the country. Peoria also considers their actions through community evaluations (both through citizens and formerly known STAR Community reports) and tracks how to improve by developing a sustainability scorecard. In 2018, Peoria was the 69th city in the nation to be given a 3-STAR Community Rating based on their progress towards becoming a sustainable city (City of Peoria, 2018). Using a well-known evaluation plan to judge sustainability actions is an effective way to understand where the city currently stands and how to continue improving. Peoria has already done this with its *SAP2* through the STAR report. This STAR evaluation system has merged into the U.S. Green Building Council to develop an expanded LEED certification program now called LEED for Cities and Communities (U.S. Green Building Council, 2016). As a result of this merger, Peoria is already considered a LEED Community, but the city still has the opportunity to enhance this recognition by applying for specific levels within the system, such as Gold or Platinum ratings.

Figure 28 *"Quick Facts" from the LEED Gold Certified Municipal Court Expansion development, by City of Peoria*

Recommendations for Management Practices

- Create methods that allow more stakeholders, such as citizens or small business owners, to get involved in city planning efforts. Suggested efforts include but are not limited to city forums and community events.
- Underneath each main section of the *SAP3*, include a breakdown of several projects that have been or will be implemented within Peoria, a list of individuals in charge of coordinating and implementing certain projects, and detailed information such as metrics the status of the project.
- Continue evaluating Peoria's progress using a third-party system, such as LEED for Cities and Communities (formerly the STAR Community Rating System), to help city planners and managers stay updated on progress without bias.
- Continue establishing the Green Team's role in city management to alleviate pressure from other departments and better facilitate communication.
- Establish goals to measure the successful collaboration between different stakeholders.
- Develop indicators to properly implement sustainability goals promptly (SMART goals).
- Create key indicators to track the progress of sustainability goals within other departments, such as transportation and education, to help departments perform better on third party ratings.
- Add more details to goals and how departments plan on accomplishing each goal to make the *SAP3* more manageable.
- Create management practices sections in all sub-categories to emphasize how key performance indicators are being tracked, the topic's relation on the timeline, and how to properly involve stakeholders.
- Implement more charts, infographics, and clearly defined graphics to help differentiate and clarify the management practices sections in relation to all other aspects.

CONCLUSION

Sustainability is a constantly evolving concept. As a discipline, it must be innovative and continually forward-thinking to assess what can be done now to benefit future generations. The City of Peoria demonstrates an excellent understanding of this concept by updating its *Sustainability Action Plan* every few years. After spending 16 weeks analyzing 23 other municipal sustainability plans, it is clear that Peoria has the potential to be a role model of sustainability for other Arizona cities and towns. Peoria's sustainability accomplishments and awards are undoubtedly impressive, specifically receiving the highest number of Crescordia Awards in one year, more than any city in Arizona. That award alone highlights Peoria's potential and its commitment to bettering the lives and businesses of its citizens.

Figure 29 *Visitors of Peoria's recently opened Paloma Community Park enjoy the views and the fresh air at the city's latest local destination*

Students were delighted to assist Peoria in reviewing the *SAP2* and hope their recommendations, ranging from simple formatting to adding reasonable action steps and metrics, will achieve the goals outlined in the plan. While the current *SAP2* effectively conveys Peoria's commitment to sustainability, this report seeks to showcase Peoria's opportunities to include in its future plan, *SAP3*.

Generally speaking, *SAP2* could benefit from the addition of target deadlines, implementation strategies, and design elements that increase readability and participation from multiple stakeholders. Peoria's next plan, *SAP3*, could also include more details about Peoria to provide context for the specific chapters and establish transparency with its readers. Such details could include the different types of programs in place, relevant data, and existing partnerships. Peoria, a local leader in sustainability is already ahead of the curve on sustainability planning. Now the City can take this role again by producing an exemplary *Sustainability Action Plan* that peer communities will look to for guidance.

Through their thorough analysis of each chapter of the curent *SAP2*, students developed a set of recommendations. These strategic insights intended to bring the document up to speed with modern sustainability requirements and goals and continue to make Peoria a great community. The *SAP3* has the potential to stand as a point of pride for Peoria, by not only helping staff to run a more sustainable city, but also serving as an example for other communities in their own sustainability planning efforts.

Figure 30 *ASU students, faculty, staff, and City of Peoria staff join together for a group photo at the spring 2020 Peoria Kickoff event*

REFERENCES

Austin Materials Marketplace. (n.d.). *Success Stories*. **https://austinmaterialsmarketplace.org/success-stories**

Boulder County, Colorado. (2018). *Environmental Sustainability Plan*. **https://www.bouldercounty.org/environment/sustainability/sustainability-plan/**

Christiansen, P., Engebretsen, Ø., Fearnley, N., & Hanssen, J. (2017). Parking facilities and the built environment: Impacts on travel behaviour. *Transportation Research Part A: Policy and Practice, 95,* 198-206. **https://doi.org/10.1016/j.tra.2016.10.025**

City of Austin. (n.d.). *Zero Waste Business Rebate*. Retrieved April 28, 2020, from **https://austintexas.gov/department/zero-waste-business-rebate**

City of Austin. (2017). *Recycling and Reuse Enterprise Resource Guide.* **https://www.austintexas.gov/sites/default/files/files/Resource_Recovery/REDP-Spring-2017.pdf**

City of Austin. (2019). *Austin Strategic Mobility Plan.* Retrieved from: **https://austintexas.gov/department/austin-strategic-mobility-plan**

City of Avondale. (2014, September 8). *Municipal Sustainability Plan*. **https://www.avondaleaz.gov/home/showdocument?id=2035**

City of Avondale. (2019). *Sustainability Progress Report*. **https://www.avondaleaz.gov/home/showdocument?id=404**

City of Baltimore. (2019). *The 2019 Baltimore Sustainability Plan*. Baltimore Sustainability. **https://www.baltimoresustainability.org/wp-content/uploads/2019/02/Sustainability-Plan_01-30-19-compressed-1.pdf**

City of Flagstaff. (n.d.). *Residential Rebate Programs.* Retrieved March 18, 2020, from **https://www.flagstaff.az.gov/1030/Residential-Rebate-Program**

City of Flagstaff. (n.d.). *Water Use and Existing Water Supplies.* Retrieved April 23, 2020, from **https://www.flagstaff.az.gov/3862/Water-Use-and-Existing-Water-Supplies**

City of Flagstaff (2017, February 22). *Strategic Plan FY 2018-2020.* **https://www.flagstaff.az.gov/DocumentCenter/View/57355/Sustainability-Section-2018-2020-Strategic-Plan?bidId=**

City of Houston. (2019). *Houston Climate Action Plan: DRAFT outline of recommendations for public comment*. Green Houston. **http://greenhoustontx.gov/climateactionplan/2019-DRAFT-CAP.pdf**

City of Houston. (2020). *Houston Climate Action Plan.* Green Houston. **http://greenhoustontx.gov/climateactionplan/CAP-April2020.pdf**

City of Las Vegas. (2019). *Sustainability Resources.* Retrieved April 20, 2020, from **https://www.lasvegasnevada.gov/Government/Initiatives/Sustainability/Sustainability-Resources?tab=0**

City of Los Angeles. (2019). *L.A.'s Green New Deal: Sustainable City pLAn.* **https://plan.lamayor.org/sites/default/files/pLAn_2019_final.pdf**

City of Los Angeles Mayor's Office. (2019). *Mayor Garcetti: Los Angeles will recycle 100% of city's wastewater by 2035*. Retrieved April 23, 2020, from **https://www.lamayor.org/mayor-garcetti-los-angeles-will-recycle-100-city's-wastewater-2035**

City of Los Angeles Mayor's Office, Sustainability Team. (2015). *Sustainable City pLAn: Transforming Los Angeles.* LA Progressive. **https://www.laprogressive.com/wp-content/uploads/2015/04/Sustainable-City-pLAn-–-Transforming-Los-Angeles.pdf**

City of Peoria. (n.d.). *General Plan.* Retrieved March 1, 2021, from **https://www.peoriaaz.gov/government/departments/planning-and-zoning/general-plan**

City of Peoria. (n.d.). *Sustainability.* Retrieved February 19, 2021, from **https://www.peoriaaz.gov/residents/about-peoria/sustainability**

City of Peoria. (n.d.). *Water Services*. Retrieved April 18, 2020, from **https://www.peoriaaz.gov/government/departments/water-services**

City of Peoria. (2009). *Sustainability Action Plan.*

City of Peoria. (2010a). *Peoria General Plan: Environmental Resources Element (10)*. **https://www.peoriaaz.gov/Home/ShowDocument?id=1860**

City of Peoria. (2010b). *Organizational Strategic Plan*. **https://icma.org/sites/default/files/301356_OrganizationalStrategicPlanMarch2010.pdf`**

City of Peoria. (2017a). *Sustainability Action Plan 2.0.* **https://www.peoriaaz.gov/home/showdocument?id=4282**

City of Peoria. (2017b, June). *Drought Management Plan*. **https://www.peoriaaz.gov/home/showdocument?id=4208**

City of Peoria. (2018, February 27). *Peoria Achieves a 3-STAR Community Rating*. Retrieved February 21, 2020, from **https://www.peoriaaz.gov/Home/Components/News/News/899/16**

City of Phoenix. (n.d.). *Tres Rios Wetlands.* Retrieved April 26, 2020, from **https://www.phoenix.gov/waterservices/tresrios**

City of Portland. (n.d.). *Green Spend Snapshot FY 2017-18.* **https://www.portlandoregon.gov/brfs/article/730518**

City of Providence. (2017). *Racial and Environmental Justice Committee Application.* **https://www.providenceri.gov/apply-member-racial-environmental-justice-committee-rejc-providence/**

City of Providence. (2019). *The City of Providence's Climate Justice Plan.* **http://www.providenceri.gov/wp-content/uploads/2019/10/Climate-Justice-Plan-Report-FINAL-English.pdf**

City of Sacramento. (2010, February). *Sustainable Purchasing Policy.* **https://www.cityofsacramento.org/-/media/Corporate/Files/Finance/Procurement/sustainability/Sustainable_Purchasing_Policy_SPP.pdf?la=en**

City of San Francisco. (2016, January 6). *Strategic Plan 2016-2021.* **https://www.first5sf.org/wp-content/uploads/2017/12/strategic_plan_2016-2021.pdf**

City of San Francisco. (2017, January). *San Francisco Better Roofs*. Retrieved April 18, 2020, from **https://sfgov.org/sfplanningarchive/san-francisco-better-roofs**

City of San Francisco Water Department. (n.d.). *Rebates and Incentives.* Retrieved February 18, 2020, from **https://sfwater.org/index.aspx?page=129**

City of Santa Fe. (n.d.). *Current Planning.* **https://www.santafenm.gov/current_planning**

City of Santa Fe. (2018, October). *Sustainable Santa Fe 25-Year Plan*. **https://www.santafenm.gov/media/files/Sustainable_SF_Commission/Sustainable%20Santa%20Fe_October_Printsm.pdf**

City of Scottsdale. (n.d.). *General Plan: Environmental planning element.* **https://www.scottsdaleaz.gov/Assets/ScottsdaleAZ/General+Plan/2035/11_EnviroPlanElement.pdf**

City of Scottsdale. (2016). *Community Solid Waste and Recycling Strategic Plan.* **https://www.scottsdaleaz.gov/solid-waste/community-solid-waste-and-recycling-strategic-plan**

City of Tempe. (2012). *Water Resources Plan.* **https://www.tempe.gov/home/showdocument?id=2945**

City of Tempe. (2019). *Climate Action Plan*. **https://www.tempe.gov/home/showpublisheddocument?id=78674**

City of Tucson. (2013). *Plan Tucson.* **https://www.tucsonaz.gov/pdsd/plan-tucson**

Connecticut Water Planning Council Interagency Drought Workgroup (2018, November 6). *Connecticut Drought Preparedness and Response Plan.* State of Connecticut. **https://portal.ct.gov/-/media/Water/Drought/20181106statedroughtplanadopted.pdf**

DATA USA. (2017). *Peoria, AZ.* Retrieved May 01, 2020, from **https://datausa.io/profile/geo/peoria-az/#covid**

District of Columbia. (2018). *Sustainable DC 2.0 Plan.* **https://sustainable.dc.gov/sdc2**

Holmes, R. B. (2009). *Sustainability: The Las Vegas Approach.* Southern Nevada Water Authority. **https://www.niph.go.jp/soshiki/suido/pdf/h21JPUS/abstract/r5-2.pdf**

Irvine Ranch Water District. (n.d.). *Recycled Water.* Retrieved April 26, 2020, from **https://www.irwd.com/services/recycled-water**

Maricopa Association of Governments. (2012, December). *Solid Waste Best Practices In The MAG Region*. **https://www.azmag.gov/portals/0/Documents/SWAC_2013-01-18_Solid-Waste-Best-Practices-in-the-MAG-Region-Dec-2012.pdf**

New York State Department of Environmental Conservation. (n.d.). *Freshwater Wetlands Program*. Retrieved April 23, 2020, from **https://www.dec.ny.gov/lands/4937.html**

Pima County. (2018). *Sustainability Action Plan for County Operations 2018-2025.* **https://webcms.pima.gov/UserFiles/Servers/Server_6/File/Government/Office%20of%20Sustainability%20and%20Conservation/Newsroom/1816%20October/2018-Sustainable-Action-Plan-for-County-Operations.pdf**

Rapier, R. (2016, December 3). *Sorry, Las Vegas Isn't Close to Running Entirely on Renewable Energy.* Forbes. **https://www.forbes.com/sites/rrapier/2016/12/23/sorry-las-vegas-isnt-close-to-running-entirely-on-renewable-energy/?sh=44cf500e3373**

Salt Lake City. (n.d.). *About SLCgreen.* Retrieved March 20, 2020, from **https://www.slc.gov/sustainability/about-slcgreen/**

Salt Lake City. (2015, December). *Sustainable Salt Lake — Plan 2015.* **http://www.slcdocs.com/slcgreen/sustainablesaltlake_plan2015.pdf**

Santa Fe County. (2015). *Sustainable Growth Management Plan.* **https://www.santafecountynm.gov/media/files/SustainableGrowthManagementPlanAdoptedbyResolution2015-155.pdf**

Sonoran Institute. (2010, January). *Growth and Sustainability in the Las Vegas Valley.* **https://sonoraninstitute.org/files/pdf/growth-and-sustainability-in-the-las-vegas-valley-01152010.pdf**

State of Hawai'i. (2018, March 7). *Hawai'i 2050 Sustainability Plan - Ten year measurement update.* **https://files.hawaii.gov/dbedt/op/sustainability/2018_hawaii_2050_measurment_update.pdf**

State of Nevada Division of Water Resources. (2012, April). *State of Nevada Drought Response Plan.* **http://water.nv.gov/programs/planning/StateDroughtResponsePlan2012.pdf**

Stone, B., Hess, J. J., & Frumkin, H. (2010). Urban form and extreme heat events: Are sprawling cities more vulnerable to climate change than compact cities? *Environmental health perspectives*, *118*(10), 1425-1428.

Town of Prescott Valley. (2013). *General Plan 2025 Chapter 7: Environmental Planning and Water Resource Management.* **https://www.pvaz.net/380/General-Plan-2025**

U.S. Census Bureau. (2019). *Selected Economic Characteristics [Data File].* **https://data.census.gov/cedscitable?g=0400000US04_1600000US0454050&tid=ACSDP1Y2019.DP03**

U.S. Green Building Council. (2016, October). *STAR Community Rating System.* Retrieved February 21, 2020, from **https://usgbc-rec.org/star-community-rating-system/**

Woo, M. (2016, January 6). *Why we all need to start drinking toilet water.* BBC Future. Retrieved April 26, 2020, from **https://www.bbc.com/future/article/20160105-why-we-will-all-one-day-drink-recycled-wastewater**

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