School of Sustainability
Arizona State University

Master of Sustainability Solutions (MSUS)

Capstone Projects

Spring 2025

Project Inventory

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Sponsor and Student Expectations:

MSUS Project Sponsors/Partners Agree to:
Commit to a minimum of 10 – 12 hours to the project per semester, including:

- Meet with students (in-person or via Zoom) during the first week of the term to describe the project and the project's needs
- At least three meetings with the student team, one of which one should occur the *first week of the term,* one at the midpoint*,* and one towards the end for the final presentation
- Respond via email to the student team's queries
- Provide feedback on the student team's final products and attend their 10-minute presentation

MSUS Student Teams Agree to:

- Be respectful of the project sponsor/partners' time
- Work independently
- Have one student team representative who will be project sponsor/partner's point of contact
- Invest significant effort to assess the project sponsor/partner's problem
- Utilize sponsor feedback to improve the deliverable
- Deliver a final product that responds to the project sponsor/partner's needs

ASU KEEP Repository for Reports
All ASU capstone projects are intended to be preserved in the ASU Library system, referred to as KEEP (https://keep.lib.asu.edu/). KEEP preserves scholarship produced by ASU faculty, staff, and students. Your team's report is intended to be kept in KEEP. Thus, please know:

- Toward the end of the project your team will need to request your partner's signature on an electronic document, granting permission to store the report in the KEEP system.
- We want our project partners to feel comfortable sharing information with you and to be confident that we can protect their confidential or competitive information as needed.
- If any parts of the report need to be redacted, perhaps due to proprietary information being included, please discuss that with your project partner during the project. Project partners can control what goes into the KEEP system and if certain items need to be redacted, you may clarify those items with your partner during the KEEP signature collection/permission process.

Project Partner
Cafetal Coffee & Familia

Project Name
Sustainability Practices for Cafetal Coffee and Community

Organization's Website
Cafetal.coffee

Organization's Location
777 S College Ave #101
Tempe, AZ 85281

Project Partner's Contact Information
Nikki Ramirez, Owner, (480)-417-0706, info@cafetal.coffee
Sebastian Ramirez, Owner, (720)-227-5302, info@cafetal.coffee

Project Keywords
Recycling and Composting, Sustainability for Small Businesses, Reducing Paper and PET Cup Waste via Standardization of Reusable Cups, Energy Audits, Solar Energy, Energy Reduction

Project Introduction and Background
Cafetal Coffee is a fair-trade coffee shop in Tempe, with deep roots in Colombia. The company is committed to sustainability in all aspects of its operations. In Tempe, however, despite leasing its business location from ASU, Cafetal has found that recycling and composting are not readily available. Further, elimination of single use plastics remains difficult because of reliance on to-go orders. Cafetal Coffee would like this capstone project team to investigate the hurdles to recycling and composting and establish a road map to access more sustainable waste streams. This capstone project can also innovate for sustainability by assessing the feasibility and design of a standardized reusable cup initiative among Tempe-based shops.

Cafetal Coffee's roots go several generations deep, hearkening back to a mountain in Santa Barbara, Colombia. More than 60 years ago, co-founder Sebastian Ramirez's great-grandfather aspired to improve the coffee industry, which was a relatively new market in Colombia at that time. His farm inspired a dedicated family of coffee lovers who continue to source their coffee from that same mountain. Now, Sebastian and his wife Nikki continue the family's legacy with their fair-trade coffee shop in Tempe, Arizona located near the ASU campus.

Cafetal Coffee is devoted to serving the community amazing coffee that is grown, handpicked, and roasted with passion by our family. As a small business with strong ties to the Ramirez family's well-established coffee plantation, Cafetal Coffee forges a lasting connection among farmers, baristas, and customers — bringing the rich traditions of the cafetal to Tempe.

Every year, we travel to Colombia during the harvest season to improve farm processes and handpick the best coffee to bring to our shop and other local businesses through our wholesale program. The rest of the year, we manage our coffee shop with sustainable, fair practices, and we enjoy amazing conversations with our broad variety of customers, from local workers and students to tourists and foreigners. We've seen firsthand how coffee unites people, and we're honored to be able to support our community and local economy with the best-quality coffee.

With that being said, our family operates under the most respected sustainable practices in Colombia. The farm is Rainforest Certified and it focuses on environmental sustainability, social equity, and economic viability. Owners, Jorge & Maria Ramirez, must meet rigorous standards for conservation and fair labor practices. They focus on water quality and conservation, composting of cascara (the fruit peeled off around the coffee bean) to name a couple. With their incredible commitment to sustainability on the farm it is important that we at Cafetal continue the sustainable efforts.

Cafetal recently received its "Green Certification" with the help of Local First through the City of Tempe. We do all we can to be a green business with the resources we have, yet we have some hurdles that keep us from the most fundamental levels of sustainability practices: recycling and composting.

We are looking to find ways to recycle as well as effectively compost our food scraps. We not only hope to find a way to do so for our coffee shop but also for the strip of businesses surrounding us leased by ASU and ultimately the City of Tempe as a whole. Recycling used to be available roughly 6 years ago (when we started our business). Local First has informed us that the City of Tempe has a lot of hurdles when it comes to their solid waste division. Recycling is too expensive because of the lack of education/awareness of what can be recycled and how to do it properly. A potential research project involves investigating this issue in Tempe to see if a recycling pilot for all of the businesses makes sense.

As far as composting, all restaurant businesses have a plethora of food scraps daily which could be composted and picked up by local non-profits or re-used in community gardens/farms. The issues include 1) educating workers/civilians on what can be composted and 2) who will collect the compost? Will businesses compost if they have to

pay for it to be picked up? Are there local farmers or compost centers that can pick up the compost for free? The project would mean exploring what it will take to get ASU to allow all of these businesses to compost. If ASU doesn't have the capacity to collect the compost, Local First Arizona can provide composting through R. City via a pilot perhaps with 0 cost to the businesses to start.

At Cafetal we are also inspired by the standardization of reusable cups amongst coffee shops as seen in Melbourne, Australia. Another aspect of this project involves looking into how to adopt a similar system in Tempe so that the use of single-use cups can be significantly reduced.

Recent Efforts and Activities Underway

Cafetal received its “Green Business” Certification this summer 2024. Some of our small projects since then have included:

- Giving away free spent coffee grounds to local businesses, customers, and community gardens to avoid going to landfill
- Collecting scraps from leftover foods/tea to bring to our home residence to compost (we were unsuccessful in partnering with Recycle City as ASU did not have a space to put a compost bin). Local First can provide composting through R. City through a pilot perhaps with 0 cost to the businesses to start if ASU is unable to provide bins
- Buying from local suppliers and farm-direct suppliers
- Cutting middle-men out of supply chain for buying coffee as we buy direct from our farm and other partnering families in Colombian regions
- Collaborating with Local First through the City of Tempe to work on our recycling, compost and energy goals

Sustainability Questions

Questions to explore or guide project research

1. How do ASU’s values and sustainability objectives align with its ability to implement those objectives for its tenants and stakeholders?
2. On recycling: What are the barriers to recycling at ASU and in Tempe? Can those barriers be overcome?
3. On composting: How can we make composting available to our strip of businesses on College Ave? To other ASU-owned properties? To the city?
4. How do we educate workers and the public about what can be properly composted?
5. Who will pick up the compost? Will businesses have to pay for the service? Is there a way for a farm or non-profit to take the compost so businesses are not charged?

6. On standardization: How can we model the system in Melbourne to standardize reusable cups from coffee shop to coffee shop? What consumer values need to be present in order to make such a program successful? What kind of enabling environment needs to be present, such as local laws and regulations?

Anticipated Deliverables

1. Systems analysis of recycling and composting at Cafetal Coffee, taking into account the full system that Cafetal is part of. This includes ASU as the landlord, and could be meaningful to other businesses which also lease from ASU.
    a. Identify key barriers to recycling and composting, and potential leverage points to achieve change
    b. Identify potential collaborators and service providers
    c. Analyze the costs involved with either bringing in external service providers or creating a working system out of available resources

2. Create a roadmap for Cafetal to begin recycling and composting. Ideally this roadmap will be scalable so that other businesses who lease from ASU can recycle and compost

3. Feasibility study of a standardized reusable cup initiative among coffee shops in the Tempe area.
    a. Gauge demand and interest among coffee shops/restaurants and consumers
    b. Investigate the operational considerations that would need to be addressed in order to share reuseable cups among multiple vendors
    c. If determined to be feasible, outline aspects of a standardized reusable cup program among participating shops in the Tempe area

Project Partner
Blue Planet Systems

Project Name
Pre-Feasibility Study for Sustainable Solutions in Southwest Opportunity Zones

Organization's Website
https://www.blueplanetsystems.com/; Blue Planet Video Explainer

Organization's Location
Los Gatos, CA

Project Partner's Contact Information
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Email: jong@blueplanetsystems.com

Project Keywords
Tribal partnerships, sustainability, environmental resilience, Blue Planet Systems, carbon capture & utilization technology, Arizona, California, and Western Region

Project Introduction and Background
Blue Planet Systems specializes in cutting-edge carbon capture and utilization technology, which converts CO_2 emissions into sustainable building materials like concrete. This capstone project aims to conduct a pre-feasibility study focused on Opportunity Zones in Arizona, Nevada, and Utah. These areas are uniquely positioned to benefit from Blue Planet's technology due to tax incentives, economic development potential, and environmental remediation needs. A secondary focus will explore opportunities within minority communities in the region, aligning with goals of sustainable development, agency, and cultural preservation.

The project will evaluate site readiness, community alignment, and funding opportunities to create a roadmap for deploying Blue Planet's technology in these critical areas.

Relevance to Opportunity Zones and Tribal Communities:
Opportunity Zones in the Southwest present an excellent platform for sustainable development, with creative finance and tax incentives attracting investment in

economically distressed areas. By targeting these zones, Blue Planet can drive local economic growth, reduce emissions, improve workforce development initiatives, and support infrastructure development. Minority communities also stand to benefit from this technology, aligning environmental stewardship with job creation and economic independence. The pre-feasibility study will explore how Blue Planet's solutions can deliver environmental, social, and financial value to these regions.

Objectives:

- **Conduct a pre-feasibility study** in key Opportunity Zones across Arizona, Nevada, and Utah to evaluate site readiness for carbon capture technology deployment.
- **Assess community needs** and alignment of Blue Planet's technology with economic and sustainability goals in minority communities.
- **Identify funding opportunities** for creative financing, including federal grants, state initiatives, and private investments tailored to Opportunity Zones and minority communities.
- **Develop a scalable collaboration framework** for future projects in Opportunity Zones and with tribal nations.
- **Explore collaboration opportunities** with organizations like the **Southwest Sustainability Innovation Engine (SWSIE)** and other regional sustainability initiatives to strengthen partnerships and funding strategies.
- **Provide actionable recommendations** for implementing Blue Planet's technology to maximize economic and environmental benefits.

Recent Efforts and Activities Underway

- Initial discussions with the Salt River Pima-Maricopa Community for the Clarkdale Slag & Cement Project in Arizona.
- Analysis of potential project sites in Nevada and Utah to assess infrastructure and emission source proximity.
- Pre-feasibility studies with tribes such as the Puyallup in Washington, offering insights for Southwest applications.
- Engagement with ASU stakeholders to align Blue Planet's projects with institutional sustainability goals.

Sustainability Questions

Questions to explore or guide project research

1. Which Opportunity Zones in Arizona, Nevada, or Utah have the necessary infrastructure, resources, geomass, and proximity to emissions (CO_2) sources to adopt Blue Planet's technology?
2. How can Blue Planet's solutions drive economic and environmental benefits in these regions?

3. What funding mechanisms can support technology deployment in Opportunity Zones and minority communities?
4. How can Blue Planet effectively collaborate with organizations like SWSIE to accelerate project development?
5. What best practices can ensure successful implementation and long-term sustainability of these projects?

Anticipated Deliverables

1. Pre-Feasibility Study Report: Detailed evaluation of site readiness in selected Opportunity Zones, including community needs and alignment with Blue Planet's technology.
2. Funding Strategy Assessment: Identification of funding opportunities and creative financing mechanisms for Opportunity Zones and minority communities.
3. Collaboration Framework for Stakeholders: Recommendations for building partnerships and securing commitments from local stakeholders, including SWSIE and similar organizations.
4. Scalable Action Plan: A roadmap for expanding carbon capture initiatives to other Opportunity Zones and minority communities in the future.

Project Partner
City of Tempe

Project Name
Food Action Plan Roadmap for the City of Tempe

Organization's Website
https://www.tempe.gov/

Organization's Location
Tempe, Arizona

Project Partner's Contact Information
Helene Tack, Helene_Tack@tempe.gov

Project Keywords
Food security, urban food planning, local government, community organizing, capacity assessment, sustainable food systems

Project Introduction
The City of Tempe is seeking assistance to develop a food action plan roadmap. This project will review past successes/failures in food action planning, assess internal city resources and external collaborators needed to complete the work, identify grants available for funding food action planning, analyze Tempe's place in the regional food system, and design an outline and strategies for completing a food action plan for the City of Tempe. The team will work with City of Tempe employees to understand human and financial capacity within the government. An additional review of broader stakeholders in the community will follow to assess synergies for future projects. The core piece of the roadmap will involve connecting food planning initiatives to city priorities and existing projects. The end product will be a report outlining a timeline for the completion of a food action plan, who to involve, available resources, and impact areas.

Background
Before the Industrial Revolution food was a central part of urban life, embedded into city centers through markets and trading. However, at the turn of the 20th century, as food systems made the shift to a global scale, food integration into cities weakened (Bricas & Conaré, 2019). Instead, the design of cities gave way to focus on land use, housing, and transportation (Pothukuchi & Kaufman, 2000). Since then urban planning has been part of the source of redlining and yellowlining, limited healthy food options for poorer

communities, cultural biases, creation of food apartheids, and other food disparities (Agyeman, 2021).

Looking at Arizona specifically, the challenges of historical negligence of food in planning emerge. In 2023, retail food price inflation in Phoenix increased by 4.6%, one of the sharpest increases in the country (USDA, 2023). In Maricopa County, 9.2% of residents are food insecure (Tempe Independent, 2024). In a survey of the Escalante, Alege, and Victory Acres neighborhoods 53% of participants voiced they worry about running out of money for food and 45% didn't have enough money to buy the food that they need (Unlimited Potential, 2023). In the future discourse around water use, increasing temperatures, rises in population, and other environmental, economic and social stressors only stand to exacerbate issues. All of this is a sustainability challenge faced by the City of Tempe.

Recent Efforts and Activities Underway

Luckily, Phoenix, Tempe, and other valley metro municipalities and organizations have been actively working to address these issues in recent years. Phoenix released the first food action plan for a city in Arizona in 2020 and has met several of the goals in this plan. In 2022, the City of Tempe published a Climate Action Plan which has influenced the city's current work on sustainable food systems (Kay, et. al. 2022). This year the Maricopa County Board of Supervisors voted to give $500,000 to the Arizona Food Bank Network to address food insecurity (Tempe Independent, 2024). In the valley, indoor farming and urban agriculture are on the rise through organizations formed in recent years such as OnePointOne, True Garden, Spaces of Opportunity, and Clark Park Community Garden, and through private gardening. Food systems education is also growing with examples like the formation of the Swette Center for Sustainable Food Systems in 2018 and the Maricopa County Cooperative Extension Urban Ag Production, Small-Scale, Beginner Farmer Program. Additionally, there are many organizations including St. Mary’s Food Bank, Tempe Community Action Agency, Arizona Sustainability Alliance (AZDA), TigerMountain Foundation, Healthful Schools Coalition, and more working to improve the food systems of Tempe and beyond.

In 2022, the City of Tempe received an Office of Urban Agriculture and Innovative Production planning grant through the USDA. This formed a partnership with the Swette Center, Unlimited Potential, Arizona Sustainability Alliance, and other groups to plan what urban agriculture could look like in the city to address its challenges, starting with five neighborhood-driven urban agriculture pilot projects. Currently, the city is using deliverables from that grant to craft narratives to secure funding for the implementation of urban agriculture initiatives.

Because this work is still in its preliminary stages, the City of Tempe is seeking additional direction as it begins to scale its urban agriculture and local food efforts beyond the Northeast Tempe area. Specifically, the City of Tempe is seeking insight on the resources, objectives, and implementation strategies – as a precursor to a full food action plan – needed to address the community's challenges and create a resilient food system. Now is the time to start this meaningful work for the city and its residents, leveraging emerging partnerships and the current momentum around sustainable food systems to begin a city-wide planning process. Food action plans are important policy documents that counteract urban planning's lack of focus on food and instead center it as a priority for enhancing food and nutrition security, economic mobility, and community wellbeing. They address various aspects of food systems, including production, processing, distribution, consumption, and waste management. Cities can embed local values such as sustainability, food justice, community engagement, and more into the planning process to yield a report reflective of city needs. Many cities across the United States have created food action plans including Phoenix, Los Angeles, and other municipalities in the Southwest. These plans typically include a review of city food needs, goals, and projects to address challenges, strategic initiatives, and a timeline for completion.

Sustainability Questions

Questions to explore or guide project research

1. What is the value of food planning for building sustainable cities?

2. How does historical social or economic development influence food or nutrition insecurity patterns?

3. How can we learn from past food action planning and Tempe initiatives to leverage their successes and learn from challenges for a future City of Tempe Food Action plan?

4. How can we grow environmental, human, and financial capacity to support food action planning?

Anticipated Deliverables

All of the deliverables will be completed with an understanding of how they could be used in grant narratives to fund the completion of a food action plan. The team will identify specific grants the City of Tempe could apply to and set the team up for success to use the work beyond the capstone project. As follows is a list of deliverables from this project:

1. ***Landscape Analysis: past food action planning successes/failures and funding opportunities***
    - Evaluate past food action plans in the Southwest United States and comparable cities
    - Review what cities pledged to accomplish, what was effectively completed, and what failed
    - Identify how cities funded food action planning and implementation of the plan
2. ***Internal Analysis of the City of Tempe Government***
    - Review internal city structure to understand who could support food action planning including but not limited to:
        - Community Services Department
        - Community Development Department
        - The Office of Diversity, Equity and Inclusion
        - Community Health and Human Services
        - Economic Development Department
        - Office of Sustainability and Resilience
        - Tempe Boards and Commissions
    - Develop a questionnaire for the city officials
    - Conduct semi-directed Interviews of officials from departments to understand their work and capacity
    - Thematic analysis of the interview content
    - Assess existing City of Tempe initiatives
        - Grow Local Tempe and recent LFPP grant from the USDA
    - Review Tempe's budget and assess financial capacity
3. ***Analysis of External Collaborators***
    - Review what existing businesses, schools, non-profits, neighboring municipalities, and other organizations are working on related to sustainable food systems in the City of Tempe
    - Create a directory of what and how these groups could support a food action plan
        - This builds upon the Tempe Community Food Map and Urban Agriculture Education Plan
    - Assess how the City of Tempe could partner with the City of Phoenix for regional food systems planning
        - The City of Phoenix is redoing its Food Action Plan starting January 2025. The team will meet with Phoenix's Food Systems Program Coordinator.
4. **S*trategic Roadmap for Completing a Tempe Food Action Plan***

- Write a report incorporating a Tempe food action plan roadmap and strategies for carrying out the work
    - Outline potential projects for a food action plan
    - Include a proposal for participatory governance and community engagement on what should be included in a food action plan
- Identify what needs the food action plan would be fulfilling and goals for the work. These should be evaluated against the Tempe Performance Measures.
- List funding, capacity, and other resources available and needed to support the completion of a food action plan
    - Look at the low-hanging fruit and what tasks will cost

5. ***Present Research to the City of Tempe Sustainability & Resilience Commission***

- Share a 20-minute presentation covering completed deliverables
- Receive feedback on findings and strategies
- Incorporate feedback into the final report

Project Partner
City of Chandler & ASU Project Cities

Project Name
Advancing Sustainable Landscape Management Strategies at Chuparosa Park

Organization's Website
https://www.chandleraz.gov/explore/chandler-recreation
https://globalfutures.asu.edu/project-cities/

Organization's Location
Chandler, Arizona; office locations vary between City Hall and off-site locations
Project Cities office is WCPH 390 Area

Project Partner's Contact Information
Julia Davis, Senior Program Manager, Project Cities, Sustainable Cities Network, Global Futures Laboratory, Arizona State University, julia.k.davis@asu.edu

John Sefton, Director, Community Services Department, City of Chandler, John.Sefton@chandleraz.gov

Corey Povar, Assistant Director of Parks and Recreation, Community Services Department, City of Chandler, corey.povar@chandleraz.gov

Project Keywords
Sustainable landscape management, communication, education, stakeholder engagement

Project Introduction and Background
The City of Chandler, located in the southeastern Phoenix Metropolitan Area, is a thriving community of innovation seeking to plan a sustainable future for its residents, businesses, and visitors. With an increasing interest in advancing sustainability initiatives, particularly around water use and conservation, the Parks & Recreation Division of the Community Services Department is interested in advancing sustainable landscape management best practices throughout the City's more than 60 parks across 1,500 acres. To advance these efforts, a team of Master of Sustainability Solutions (MSUS) students will collaborate with the City of Chandler through the ASU Project Cities program to identify, develop, and propose sustainable landscape management design elements, communication and messaging strategies and materials, and

impactful educational programming opportunities at Chuparosa Park. As Chuparosa Park is a 28-acre park in southeast Chandler with ample opportunities for revegetation and revitalization, the park will serve as a case study to inform future efforts to improve community engagement and buy-in around the adoption of sustainable landscape management throughout the City.

Recent Efforts and Activities Underway

- Past Project Cities efforts with Chandler Parks and Recreation:
    - Project Cities Spring 2024 Sustainable Landscape Management Strategies MUEP Planning Workshop project: https://links.asu.edu/PCChandlerLandscape24S_Report
        - Awarded "Best Student Planning Project" by The Western Planner, 2024
        - ASU News article: https://news.asu.edu/20240920-environment-and-sustainability-asu-students-impact-arizona-communities-through-design
    - Project Cities Fall 2023 Park Equity study with Chandler Parks and Recreation: https://links.asu.edu/PCChandlerParkEquity23F_Report
- After MUEP report was released in Spring 24, City has been incorporating SLM into Parks staff training, working with interns on signage updates, and working on a tree inventory.
- City has a forthcoming Urban Forest Management Plan.

Sustainability Questions

Questions to explore or guide project research

Sustainable Landscape Management

1. Identify and explore best practices for sustainable landscape management in municipal park systems that are regionally appropriate to the Desert Southwest.
2. Develop and propose sustainable landscape management design elements to be considered for adoption in Chuparosa Park, with potential application to other parks throughout the City of Chandler.

Internal and External Messaging

3. Identify and explore best practices and opportunities for strategies and impactful communications and messaging around sustainable landscape management to be shared with Chandler stakeholders, such as municipal leadership and community members.

4. Develop and propose communication and messaging materials to support the advancement and adoption of sustainable landscape management at Chuparosa Park, with potential application to other parks throughout the City of Chandler.

Sustainable Landscaping Education

5. Identify and explore strategies and opportunities for educational programming around advancing sustainable landscape management in municipal park systems.
6. Develop and propose educational programming to support community buy-in around sustainable landscape management in Chuparosa Park, with potential application to other parks throughout the City of Chandler.

Anticipated Deliverables

Written report, including:

1. Background information and literature review of:
    a. Best practices for sustainable landscape management in municipal park systems that are regionally appropriate to the Desert Southwest.
    b. Best practices and opportunities for strategies and impactful communications and messaging around sustainable landscape management to be shared with Chandler stakeholders, such as municipal leadership and community members.
    c. Strategies and opportunities for educational programming around advancing sustainable landscape management in municipal park systems.
2. Sustainable landscape management plans with design elements to be considered for adoption in Chuparosa Park, with potential application to other parks throughout the City of Chandler.
3. Communication and messaging materials to support the advancement and adoption of sustainable landscape management at Chuparosa Park, with potential application to other parks throughout the City of Chandler.
4. Proposed educational programming plans and/or guides to support community buy-in around sustainable landscape management in Chuparosa Park, with potential application to other parks throughout the City of Chandler.

Final presentation(s) sharing the information gathered and plans developed, for the following audience(s):

1. City of Chandler internal staff
2. City of Chandler leadership
3. City of Chandler residents and community members
4. Students may have the opportunity to present to the Chandler Parks and Recreation Division staff, Chandler Parks Board, Chandler Executive Leadership

Team (ELT), and/or a Chandler community group; depending on scheduling and availability in April 2025.

Project Partner
ABM

Project Name
Developing a Best Practice Guide for Sustainable EV Infrastructure On-Campus

Organization's Website
http://www.abm.com

Organization's Location
Tempe, AZ

Project Partner's Contact Information
Brad Tolbert, Vice President, brad.tolbert@abm.com
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Project Keywords
Sustainability, Accessibility, Cost-effectiveness, Electric vehicles, Benchmarking, Campus analysis, Usage patterns, Stakeholder survey, Survey development, Matrix development, Implementation plan, Cost-benefit analysis, Implementation guide, Sustainability initiatives, Strategic planning

Project Introduction and Background
Develop a comprehensive best practice guide to determine the optimal number of EV chargers needed per enrolled student and faculty member on ASU's campus. This project aims to balance accessibility and cost-effectiveness while supporting the growing adoption of electric vehicles. Expected outcomes include a well-researched and practical guide that helps guide the installation of EV chargers on campus; increased awareness and support for sustainability initiatives related to electric vehicles; and a framework that can be adapted for other institutions or future developments in EV infrastructure.

ABM has lengthy sustainability goals that include electrification of college campuses across the country. With the results of this project, ABM will have a practical understanding of how individuals outside of the facilities industry will approach the lack of infrastructure or the current adaptability of large-scale campuses.

Recent Efforts and Activities Underway

ABM is the largest installer of EV chargers in the country. With thousands of units across the country we have been the top choice for commercial and municipal clients to address sustainability goals as well as local/state measures for greener practices. Where ABM has not experienced any significant electrification growth is higher education. As an organization ABM is taking on interns and partnering with our vendor partners to grow the workforce of capable EV charging techs, but there is room for growth and improvement. Our subject matter experts understand how to install, manage, and provide the preventative and reactive maintenance for these stations, however without a deeper understanding of the infrastructure at universities, such as ASU, we will stay stagnant.

Sustainability Questions

Focused questions to address in developing a comprehensive best practice guide for EV chargers on a university campus:

1. Environmental Impact and University Sustainability

- What are the anticipated reductions in greenhouse gas emissions from transitioning to more electric vehicles (EVs) on campus for students and staff?
- How can the integration of EV chargers align with the university's overall sustainability and carbon reduction goals?
- What metrics should be used to evaluate the success of the EV charger installation in contributing to the campus's sustainability objectives?

2. Sustainable Practices

- What best practices can be adopted to ensure that the installation and maintenance of EV chargers are environmentally friendly?
- What strategies can be implemented to utilize renewable energy sources for charging EVs, thereby increasing the sustainability of the charging infrastructure?

3. Accessibility and Equity:

- What considerations should be taken into account to ensure that EV charging infrastructure is equitable and accessible to all campus users, regardless of their physical ability, location, or parking situation?

4.Cost-Effectiveness and Financial Sustainability:

- What are the long-term cost savings associated with the use of EV chargers compared to traditional fuel sources?
- How can the university balance initial investment costs with the anticipated financial benefits of reduced fuel and maintenance expenses?

5. Adoption and Usage Patterns:

- What are the expected adoption rates of electric vehicles among students and faculty, and how can this data inform the number of chargers needed?
- How many faculty and students currently own an EV?
- How many faculty and students are considering buying an EV for their next vehicle?
- How many faculty and students would buy an EV if more EV charging was available on campus?
- How can the university encourage greater adoption of electric vehicles among its community members?

6. Scalability and Future Growth:

- How can a campus EV plan be designed to accommodate future increases in EV adoption and technological advancements?
- What are the potential challenges in scaling the EV charging infrastructure, and how can they be addressed?

7. Educational and Awareness Efforts:

- How can the university increase awareness and support for EV adoption and sustainability initiatives among students and faculty?
- What role can educational programs or campaigns play in promoting the benefits of electric vehicles and sustainable practices?

8. Benchmarking and Best Practices:

- What can be learned from other institutions that have successfully implemented EV charging infrastructure?
- How can the university adopt and adapt best practices from these case studies to fit its specific needs and context?

Anticipated Deliverables

1. **Best Practice Guide**: A clear and comprehensive guide outlining the recommended number of EV chargers per enrolled student/faculty, addressing the above sustainability questions
    a. Present multiple models based on differing potential or likely scenarios
2. **Implementation Guide**: A practical guide for implementing the recommendations, including estimated costs, potential challenges, and strategies for overcoming them.

Project Partner
Walter Productions

Project Name
Implementation of Reusable Cups for Event Spaces/Venues

Organization's Website
https://walterproductions.com/

Organization's Location
702 N 21st Ave, Phoenix, AZ 85009

Project Partner's Contact Information
Elvis Taska; elvis.taska@thewalterhive.org

Project Keywords
Single use cups, sustainable events, food and beverage, waste reduction, carbon footprint, concerts, festivals

Project Introduction and Background
The hospitality industry, particularly bars and restaurants, is facing increasing pressure to adopt sustainable practices and reduce environmental impact. One significant area of concern is the widespread use of single-use plastics, which contribute to pollution and waste management challenges. This project, inspired by the Walter project, aims to explore the feasibility and benefits of shifting from single-use plastics to reusable alternatives such as stainless steel or other durable materials. By focusing on the practical hurdles and solutions related to dishwashing, storage, and staff training, initial costs, etc, this project will hopefully demonstrate how bars and restaurants can achieve a more sustainable and cost-effective operation, at the same time.

Recent Efforts
Environmental Impact
A Fall 2024 Sustainability student team assessed the environmental footprint of Walter's current plastic usage and evaluated potential reductions in waste and emissions from switching to plastic cups

Economic Viability
A Fall 2024 Sustainability student team calculated the projected return on investment (ROI) for transitioning to reusable cups, considering both direct financial benefits and indirect benefits such as enhanced brand reputation.

Washing System Implementation
One of the critical steps in our transition plan is ensuring an efficient and effective washing system. We have identified a state-of-the-art commercial dishwashing system that meets our needs for high volume and quick turnaround times. This system is designed to handle the load of reusable cups while maintaining high standards of cleanliness and hygiene.

Narrowing Down Cup Choices
Selecting the right reusable cup is crucial to our success. After evaluating various options, we have narrowed our choice to a few standout candidates, with the stainless steel Dubliner cup currently leading the pack. The Dubliner cup is known for its durability, ease of cleaning, and stylish design, making it an attractive option for both our operations and our patrons. We are in the final stages of testing and evaluating these cups to ensure they meet our performance and aesthetic standards.

Engaging with Food and Beverage Team
To ensure a smooth transition, we have started in-depth conversations with our Food and Beverage (F&B) team. This includes discussing the new process for using reusable cups, from handling and washing to storing and serving. Our team is evaluating the logistical implications, such as changes in workflow, storage requirements, and potential impacts on service speed and efficiency.

Patron Experience and Communication
Understanding the implications for our patrons is a key focus. We are exploring how the transition to reusable cups will affect the customer experience. This includes considering aspects such as the initial perception of reusable cups, the impact on beverage temperature and taste, and overall customer satisfaction. We are also developing a communication strategy to educate our patrons about the environmental benefits and to encourage their support and cooperation. By involving our customers early in the process, we aim to foster a sense of community and shared responsibility towards sustainability.

Sustainability Questions
As we embark on the transition from single-use plastics to reusable alternatives, it is essential to thoroughly explore various aspects of sustainability to ensure a comprehensive and effective approach. Here are key sustainability questions that will guide our project research:

Operational Challenges

1. What are the logistical challenges associated with washing and storing reusable cups?
    - Assess the capacity and efficiency of the washing system.
    - Determine space requirements for storing clean and dirty cups.
2. How can we ensure the hygiene and safety of reusable cups?
    - Identify best practices for washing and sanitizing reusable cups.
    - Develop protocols to prevent cross-contamination and ensure health standards are met.
2. How will the transition affect workflow and staff responsibilities?
    - Analyze the impact on staff workload and training needs.
    - Explore strategies to streamline operations and maintain service efficiency.

Customer Perception and Engagement

1. How do customers perceive the use of reusable cups?
    - Conduct surveys to gauge customer attitudes and preferences.
    - Identify potential concerns or resistance from patrons.
2. What communication strategies can effectively promote the transition to reusable cups?
    - Develop messaging to highlight the environmental benefits.
    - Design campaigns to educate and engage customers.
2. How can we encourage customer participation and support for our sustainability initiatives?
    - Explore incentives and rewards for customers who embrace reusable cups.
    - Foster a sense of community and shared responsibility.

Regulatory and Compliance

1. What local, state, and federal regulations impact the use of single-use plastics and reusable alternatives?
    - Review current regulations and upcoming legislation.
    - Ensure compliance with all relevant laws and guidelines.
2. How can we stay ahead of regulatory changes and industry trends?
    - Monitor developments in sustainability regulations.
    - Adapt our practices to align with best practices and emerging standards.

Broader Impact and Future Opportunities

1. What are the broader environmental and social benefits of eliminating single-use plastics?
    - Assess contributions to global sustainability goals.
    - Explore positive impacts on local communities and ecosystems.

2. What future opportunities exist for further enhancing sustainability in our operations?
    - Identify additional areas for reducing waste and resource consumption.
    - Explore partnerships with suppliers and other stakeholders to advance sustainability.

By addressing these questions, the project will provide a thorough understanding of the sustainability implications of transitioning to reusable cups. This comprehensive approach will help ensure that our efforts are environmentally sound, economically viable, and socially responsible, paving the way for a successful and sustainable future in the hospitality industry.

Anticipated Deliverables

1. A detailed report with appendices covering topics below and addressing the "sustainability questions" above, as is feasible, and a high impact presentation designed to capture the attention of the Walter Project leadership team
    a. Operational considerations:
        i. Analyze how the new re-usable cup system would be implemented in Walter's spaces. Consider the perspectives of:
            1. Walter's bottom line
            2. Consumers
            3. Front-line event staff
            4. Support staff
            5. A third-party service provider if needed
        ii. An evaluation and recommendation for the most efficient and effective washing solutions for re-usable cups in Walter's spaces
    b. Consumer perception and marketing/branding
        i. Analyze customers perception of the new cups. What aspects contribute to Walter's brand value and what aspects might detract?
        ii. Model a customer experience with a re-usable cup in Walter's space. What pros and cons are experienced?
        iii. Analyze how re-usable cups can contribute value to Walter's brand
        iv. Develop communication strategies for consumer education which can increase goodwill with consumers
    c. Regulatory review regarding single-use plastics in the food and beverage industry
    d. Assessment of opportunities Walter may have to impact the broader ecosystem with the lessons learned from this effort

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