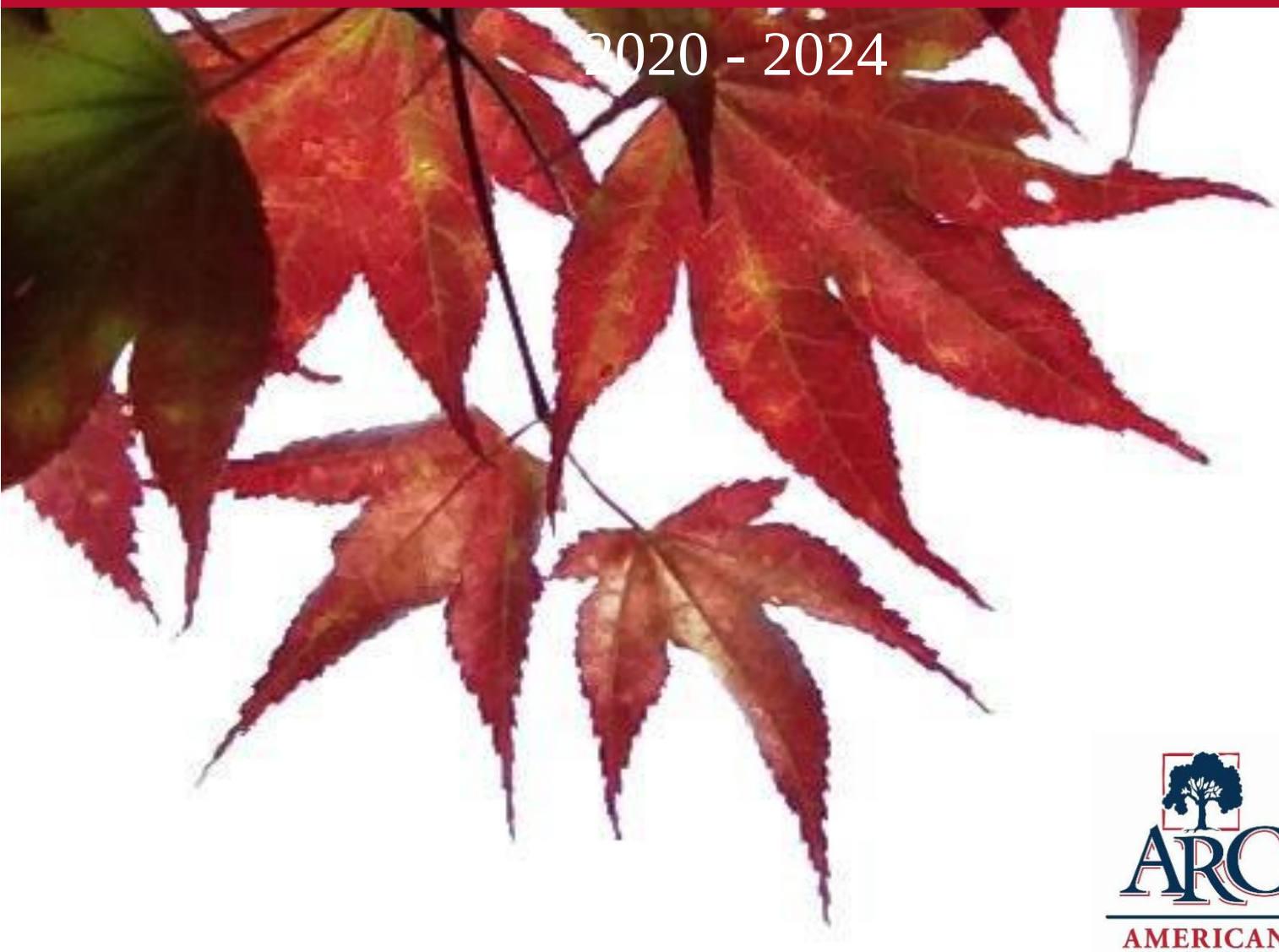
SUSTAINABILITY PLAN

2020 - 2024



AMERICAN RIVER COLLEGE

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INTRODUCTION

This Sustainability Plan is a document intended to provide a framework for integrating sustainability into institutional policy & practice at American River College. ARC has a long history of adopting and implementing sustainable practices; however, the college community is not always aware of these practices. The purpose of this plan is to strengthen and communicate ARC's commitment to sustainability and align efforts with ARC Strategic Goal #4 Vibrancy and Resiliency:

> *The college promotes a culture of innovation, entrepreneurship, **sustainability**, and transparent communication. Proactive, effective, and efficient operational systems and governance and data-informed approaches to planning, decision-making, and resource allocation provide a high level of service to our students, community, and to one another.*

The plan also aligns with Los Rios Board Policy 8370 Waste Reduction and Recycle Program Administration. The charge of the ARC Sustainability Improvement Plan Team was to assess the current state of ARC sustainability efforts, determine future priorities, and recommend an actionable plan for promoting responsible sustainability practices. The team's approach is intended to create a culture of sustainability in which the entire ARC community is aware of, engaged in, and committed to advancing sustainability through education, operations, and community service activities that help protect our environmental resources and create a better quality of life for everyone, now and for generations to come.

PROJECT TEAM

Cheryl Sears, Director of Administrative Services (Lead)
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SUMMARY OF RECOMMENDATIONS

Focus Area	Recommendations
Leadership	Institutionalize a sustainability program, establish an Office of Sustainability, and increase funding for sustainability activities
Communication	Develop a communication plan for public relations and events and outreach around sustainability
Built Environment	Evaluate and enhance sustainable practices in current and future built environment, design new buildings to meet GSA and LEED sustainable design criteria, advocate for sustainable policies and practices, and operational and maintenance practices of existing and future environments
Food	Transition to environmentally friendly foodservice products and materials, influence our community and foodservice vendors, increase composting, and advocate for sustainable policies.
Academics	Organizational/leadership/faculty training, curriculum, making connections, in (and beyond!) the classroom, and hiring practices.
Transportation, Energy, & Climate	Assess and enhance climate control practices, support ARC community and the student population, electrify campus fleet, public transportation infrastructure, and improve campus infrastructure to meet current and future demands
Landscape & Biotic Environment	Increase the use of native plants, effective landscape management, and collaboration and restoration of native areas project.
Waste Management	Continue current efforts to recycle, reduce, and reuse, continue building on our commitment, and create policies and collaborate with California Community Colleges.
Water	Reduce potable water consumption, modification of delivery systems, and increase access to clean water.

WHAT IS SUSTAINABILITY?

Sustainability is often defined as using, developing, and protecting resources at a rate and manner that provides for the ability to meet the needs of the present generation without compromising the ability of future generations to meet their own needs. The recognition that there are negative consequences from previous and current human activities (as well as financial costs) has spurred higher education to begin to implement practices, which reduce or mitigate such consequences. As a responsible member of the world community and an institution of learning, American River College is pursuing a commitment to environmental stewardship through the development and institutionalization of a sustainability plan.

REGULATORY ENVIRONMENT

California state and the world views climate change as the greatest single threat to human civilization. Climate change will affect our natural world and will affect every community and every single individual. Communities around the world will experience increased health risk, limited access to resources, shifting migration patterns due to natural disasters, overcrowding, displacement, and an overall bleak outlook for the future. Disproportionately impacted communities will experience the effects of climate much sooner than communities that have access to more resources. To address climate change, California implemented regulations aimed at curtailing greenhouse gas emissions via the Global Warming Solutions Act of 2006 (AB-32), Assembly Bill 1493 (The Pavley Bill), AB 1826 Mandatory Organics Recycling, HR 4184 Food Recovery Act, and more (see appendix A for a summary of climate regulations). As an institution of higher learning, we must seek to disseminate and educate the public about climate change and actively engage in reducing our impacts on the environment.

ARC SUSTAINABILITY VISION

At American River College, we envision a future where sustainability is the guiding influence for all of our work internal and external of the college. We are committed to fostering a culture that engages in sustainable practices through program development, campus-wide efforts, and promoting sustainability accomplishments and work of staff, faculty, and students. We aim to research, create, and implement solutions for a more sustainable, equitable and just environment. As an institution of higher learning, we strive to ensure that staff, students, and faculty understand the interconnectedness of the environment, social systems, and economics and the role each of us plays in creating a sustainable, equitable and just future. We envision that our students will become ambassadors of sustainability while at ARC and beyond. We will engage with vendors that embody sustainability to provide services or goods to ARC. We will encourage and support student, staff, or faculty-led sustainability programs and initiatives, and continue to support those taking action today for a better tomorrow. By working with all stakeholders, we strive to help ARC create and make a sustainable future for us and support our global community's effort for a sustainable future.

MISSION

The mission of the ARC Sustainability Improvement Plan Team is to foster the creation of a culture around sustainability in which the entire ARC community is aware of, engaged in, and committed to advancing sustainability, environmental and social justice, and equity through education, operations, and community service activities to create a better quality of life for everyone, now and for generations to come.

FOCUS AREA

FOCUS AREA 1: LEADERSHIP

Sustainability Objective: Identify campus leaders such as students, administration, faculty, staff, and community members who will engage in a meaningful way in managing, implementing, maintaining, and developing sustainable efforts for the present and future.

Background: Assessment and Accomplishments

As of plan creation, ARC does not have an official channel to coordinate sustainability efforts. Sustainability efforts are isolated or led by individual faculty, staff or student, and therefore, have very little impact on the overall campus. There is a lack of active messaging and recognition of sustainability efforts across the campus and community. Successful sustainability programs are centralized with support from leadership, staff, faculty, and student government. Despite the lack of centralization, ARC has hosted many events surrounding sustainability or Earth Day through the efforts of employees and students who have a passion for sustainability. Faculty and staff are also actively engaged in promoting sustainable practices and are actively streamlining workflow processes to reduce waste and environmental impact.

Recommendation	Suggested Activities and Comments	Timeline
Institutionalize a Sustainability Program	▪ Create a centralized sustainability program with substantial student involvement and/or leadership that can engage in outreach, education, and hosting sustainability events ▪ Grow the program to encompass staff, faculty, and a representative ▪ Foster a community of sustainability leaders ▪ Create bridge discussion and host events around sustainable practices ▪ Actively advertise sustainable practices across ARC and within the community	0-5 years
Office of Sustainability (OOS)	▪ The office will serve the campus by planning, integrating, and interfacing sustainability practices and programs into campus operations, curriculum, staff, and student body ▪ Assign personnel to operate and coordinate the activities of the OOS ▪ Coordinates sustainability practices and events with the ARC community and outside vendors ▪ Serve as a repository of knowledge for institutional practices ▪ Evaluates sustainability plans and programs, make changes, and provides recommendations to leadership	0-5 years
Increase Funding for Sustainability Activities	▪ Apply for grants and other funding sources to grow sustainability, to empower and fund student efforts to create and lead sustainable programs, and fund community participation	0-7 years

FOCUS AREA

FOCUS AREA 2: COMMUNICATION

Sustainability Objective: To increase the visibility of sustainability and educate our internal and external stakeholders to promote a culture of sustainability through active messaging to student, faculty, staff, and the community at large.

Background: Assessment and Accomplishments

ARC does not have an official social media presence or channel to interface with the public or the ARC community on sustainability. To improve visibility and education around climate change and sustainable practices, ARC needs to engage the public via media outlets, social media, public outreach, and events.

Recommendation	Suggested Activities and Comments	Timeline
Public Relations (PR)	▪ Develop a public relations campaign highlighting public transportation accessibility, water and energy conservation, zero waste initiative, and climate ▪ Develop and use mobile applications, media outlets, and social media to connect the ARC community to engage the community in sustainable practices ▪ Have dedicated PR personnel established in the Office of Sustainability ▪ Create educational messaging, brochures, and advertisements around the campus and community to learn about sustainability ▪ Create a campus interactive map that enables the ARC community to view building status and energy usage information	0-7 years
Events and Outreach	▪ Host sustainable events that educate the public on topics such as climate change, zero waste initiative, recycle and reuse, etc. ▪ Invite guest speakers to events hosted by ARC ▪ Emphasize ARC's sustainable initiatives via our outreach programs with high schools ▪ Build a website around sustainability that provides resources to faculty, staff, and students	0-5 years

FOCUS AREA 3: BUILT ENVIRONMENT

Sustainability Objective: Build and design spaces and facilities that serve the community, students, and staff by considering present and future impacts and demands. These spaces and facilities are sustainable, creates engagement, incorporates biomimicry, and educates the public while promoting equity, justice, and inclusion.

Background: Assessment and Accomplishments

American River College (ARC) is the oldest campus in the Los Rios Community College District with the most aged buildings that were not designed to meet GSA and US Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) standards. Many buildings on ARC campus such

FOCUS AREA

as the Bill J. Priest Administration building was built in 1957. The age of the buildings on the campus poses some difficult maintenance and remodeling problems that limit the buildings from becoming LEED certified. The ARC campus provides a great opportunity to incorporate modern sustainable design features that will enable the campus to meet our current and future demands.

New buildings, such as the Diane J. Bryant STEM Innovation Center, are designed to be more sustainable than baseline requirements. ARC has invested in upgrading the hydronic lines to be more efficient in delivering cooling and heating to current and new buildings. The project will reduce energy consumption and improve heating efficiency while reducing environmental impact.

Recommendation	Suggested Activities and Comments	Timeline
Evaluate and Enhance Sustainable Practices in Current and Future Built Environment	▪ Evaluate and determine the most feasible and economical approach to sustainable building modernization ▪ Install and retrofit lighting systems with LED lights in current and future buildings ▪ Use natural lighting and biomimicry in new construction for illumination and ventilation system to reduce energy load and cooling system demands ▪ Implement a campus-wide energy and water monitoring system to determine overall campus usage and on-demand intervention	0-5 years
Adopt GSA and LEED sustainable design criteria	See next page for details	0-10 years
Advocate for sustainable policies and practices	▪ Advocate for policies and practices to build new facilities to meet US Green Building Council (USGBC) LEED Silver certification, at a minimum, while striving for LEED Gold and platinum certification ▪ Renovated facilities should be built to meet LEED Silver certification if the renovation significantly changes the structure or cooling systems of the building ▪ Avoid maladaptation and increase building resilience and climate preparedness through thoughtful design	0-7 years
Operational and Maintenance Practices	▪ Use biodegradable, resource-efficient, and janitorial and occupant safe cleaning products such as products bearing the EPAs Design for the Environment (DfE) products ▪ Provide training to facility managers and maintenance staff in sustainable building principles and practices ▪ Implement a comprehensive maintenance program to ensure efficient operations of building design features ▪ Implement integrated pest management (IPM) practices to reduce pesticide and herbicide use ▪ Conduct regular energy audits and building occupant surveys	0-5 years

FOCUS AREA

GSA and LEED Sustainable Design

Optimize Site Potential
A new building will impact the ecosystem, landscape, transportation, and energy use. Thoughtful design consideration and environmental impact should be a key feature of the design and build process.

Minimize Non-renewable Energy Consumption
New buildings should be built to LEED Gold or Platinum standards to reduce the impact of non-renewable energy sources by increasing efficiency, and maximizing renewable energy use, and energy independence.

Environmentally Sound Products
Materials used in new buildings should be considered based on their environmental impact. Materials used should address global warming, resource depletion, upstream pollution, life-cycle and reuse, and environmental toxicity. These considerations should reduce the impact on the environment, human health, improve worker safety, reduce disposal costs, and liabilities.

Water Protection and Conservation
Buildings fundamentally change the ecological and hydrological function of the land which can lead to loss of watersheds and affect water run-off. Sustainable building practices should minimize the effect of impervious cover and seek to engineer water efficiency in the design by reusing or recycling water for onsite use.

Enhance Indoor Environmental Quality (IEQ)
There are significant benefits to engineering an indoor environment that contributes to occupant health, comfort, and productivity. The design should incorporate natural lighting when possible, appropriate ventilation, moisture control, and acoustics. Materials that emit high-volatile organic compounds (VOCs) should be avoided. The air quality system should be designed to accommodate environmental changes that degrade air quality such as smoke generated from wildfires.

Optimize Operational and Maintenance Practices
Buildings operators and maintenance personnel should be consulted in the design and development phase of a building. This participatory practice will lead to better designs that contribute to improved working environments, productivity, reduction of energy waste and cost, and prevention of system failures. Personnel involved in building maintenance should receive training on how to operate and maintain complex modern building systems. This approach will ensure that the building operates as designed.

FOCUS AREA 4: FOOD

Sustainability Objective: Create a regional closed loop food system that includes criteria for all purchasing, food preparation and service, presentation, cleaning and waste disposal, equipment and supplies, facility design, and renovation and utilities.

Background: Assessment and Accomplishments

ARC provides food services via contracted vendors and via The Oak Cafe. Biodegradable straws are used in The Oak Cafe Bakery and dining room. The Oak Café is a culinary program offered by Fine and Applied Arts, which focuses on student training in the food industry. Contracted vendors via the student center, bookstore, and other vending sources located around the campus provide food services to the general campus.

FOCUS AREA

The student center is the main generator of food waste and waste associated with food such as straws, napkins, plastics, containers, etc. Currently, Starbucks donates coffee grinds for garden use, which reduces the amount of garbage by weight going to the landfill.

Recommendation	Suggested Activities and Comments	Timeline
Transition to environmentally friendly foodservice products and materials	▪ Replace all to go products (e.g. forks and cups) to environmentally friendly options such as washable dishes or biodegradable utensils ▪ Replace all non-reusable and non-compostable materials used in the food dining services to reusable, compostable, and landfill friendly materials ▪ Collaborate with vendors that provide food services or beverages on the ARC campus to adopt ARC sustainable practice	0-3 years
Influence our community and food service vendors	▪ Communicate and share our framework for creating a sustainable food system with other schools, universities, and communities ▪ Influence manufacturers and distributors of natural and organic food products to provide in bulk or utilize recyclable packaging or biodegradable materials ▪ ARC cafeteria should adopt the seasonality of foods	0-5 years
Increase composting	▪ Develop a food composting program ▪ Collaborate with campus operations and waste management to find sites or vessels for composting all biodegradable waste	0-5 years
Advocate for sustainable policies	▪ Develop a framework to sustain student involvement in food sustainability ▪ Collaborate with organizations that promote sustainable education covering topics such as sustainable farming and living ▪ Support and build out a sustainable framework with our vendors ▪ Require that at least 50% of food should be sourced locally to support local farms and businesses	0-3 years

FOCUS AREA 5: ACADEMICS

Sustainability Objective: To develop an interactive, iterative, and reflective framework that supports the development, assessment, and sharing of information and best practices related to sustainability, climate change, and environmental/social justice in the academic setting.

Background: Assessment and Accomplishments

Although there are some programs and courses that explicitly focus on sustainability, climate change, and environmental conservation, ARC does not emphasize these themes throughout its academic programs. Faculty typically have the closest connection to our students, and so have the opportunity and obligation to be leaders and communicators and to form an important bridge between our students and other faculty,

campus staff, and administration.

Recommendation	Suggested Activities and Comments	Timeline
Organizational/ leadership/faculty training	▪ ARC sign on to the Talloires Declaration (University Leaders for a Sustainable Future), American College and University Presidents' Climate Commitment (+ other institutional commitments?) ▪ Identify faculty (individual or team) sustainability leader for each academic division on campus ▪ Promote/fund faculty information exchange opportunities (including site visits) with other higher education institutions ▪ Create and maintain website/clearinghouse with relevant, current information related to sustainability, environmental conservation, and social justice ▪ Provide materials pertinent to these themes that can be used by faculty across the disciplines, including materials tailored to particular courses/departments ▪ Develop small grant programs to fund faculty research related to sustainability, environmental conservation, and social justice ▪ Create professional development activities on best practices, current science, how to infuse sustainability throughout the curriculum, etc.	0-5 years
Curriculum	▪ Propose GE requirement/elective, e.g., "Sustainable living"	0-5 years
Making connections	▪ Link teaching to campus operations/grounds: campus interactive map (see UCSC "living lab") with e.g., creek restoration area, native plant gardens, NATR classrooms, HORT greenhouses, sustainability office, composting/recycling, centers, bicycle areas, etc. ▪ Find ways to support and integrate student activities across departments/divisions, e.g., biodiesel, aquaponics, solar PV, sustainable horticulture, environmental conservation ▪ Mobilize (and perhaps consolidate, if there is interest) the student groups, ECOS, and Climate Action ▪ Ramp up efforts in the community—e.g., Creek Week, Earth Day ▪ Development and implementation of regular "Environment, Social Justice and Sustainability" speaker series	0-3 years
In (and beyond!) the classroom	▪ Develop and disseminate a statement of the role of faculty, its importance, and expectations/accountability ▪ Develop and disseminate "checklist" for sustainable practices in the classroom ▪ Encouragement of students to promote change through simple everyday actions such as bringing their own water bottle/bowl/utensils to the cafeteria ▪ Recruit students to get involved with peer	0-5 years

	activities/education/design of signage	
Hiring Practices	▪ Incorporate questions surrounding interest or experience with sustainability into the interview process on campus	0-5 years

FOCUS AREA 6: TRANSPORTATION, ENERGY, AND CLIMATE

Sustainability Objective: To reduce non-renewable energy consumption, greenhouse gas emissions, and the depletion of natural resources by adopting appropriate technology, behavioral approaches, management, conservation and strategic procurement of energy resources

Background: Assessment and Accomplishments

To address the effects of climate change and be a proactive citizen of Earth, ARC is doing its part in reducing its reliance on fossil fuels and embracing sustainable technologies. Many areas on campus still rely on fossil fuels and there are gaps in our understanding of building energy utilization. However, ARC has invested in many technologies to reduce energy consumption such as motion-activated lighting in buildings and occupancy thermostats that control the demand for air conditioning and heat. All of the energy used by ARC comes from renewable sources reducing the demand for fossil fuels. The most effective way to reduce environmental impact and reduce greenhouse emissions generated via commuting is to adopt public transportation. Public transportation enables disproportionately impacted communities to access resources, reduce traffic congestion on highways and streets, preserve open spaces, and enable our communities to be mobile and healthy. ARC's Oak Café promotes environmental stewardship by purchasing produce from local farms thereby reducing emission generated by long-distance transportation of produce.

Recommendation	Suggested Activities and Comments	Timeline
Assess and enhance climate control practices	▪ Establish areas that need year-round climate control and shut down all non-use areas during non-instructional times ▪ Install LED lights in existing and new building projects ▪ Perform building utilization studies to reduce overall campus building energy consumption	0-5 years
Support ARC community and the student population	▪ Install fast DC charging stations in all parking lots ▪ Provide easy to access information to the campus community on energy use and environmental impact	0-5 years
Electrify campus fleet	▪ Electrify campus fleet vehicles used in maintenance or for travel within the district ▪ Explore the feasibility of replacing long-distance fleet vehicles with hybrid or electric	0-7 years
Public transportation infrastructure	▪ Advocate for increase bus routes, bike trails, and light rail ▪ Collaborate with local and state governments to improve public transportation efficiency and operational times for the college ▪ Advocate for contiguous sidewalks around the college ▪ Provide free bus pass to students that meet requirements for transportation assistance	0-10+ years
Improve campus infrastructure to meet	▪ Partner with SMUD to generate solar power ▪ Install charging stations in all parking lots ▪ Collaborate with personal mobility devices vendors ▪ Explore option for carpool	0-7 years

current and future demands	▪ Improve ingress and egress of the campus, particularly for pedestrians and cyclists	

FOCUS AREA 7: LANDSCAPE AND BIOTIC ENVIRONMENT

Sustainability Objective: To increase the biodiversity of campus flora and use native species that are drought tolerant and reduce the dependency on fossil fuels, extracted minerals, pesticides, and potable water.

Background: Assessment and Accomplishments

American River College has received the designation of Tree Campus USA. This reflects ARCs dedication to creating and maintaining green spaces that provide many health and wellness benefits to the ARC community. Green Spaces creates natural shade, creates microclimates, improve air quality, and provides learning spaces. To continue ARCs Tree Campus USA designation, the ARC community must work to embrace green solutions, use native species throughout its landscapes, and seek to enhance native habitats in its periphery.

Recommendation	Suggested Activities and Comments	Timeline
Increase the use of native plants	▪ Replace all landscaping with drought-friendly native plants except where needed for educational purposes ▪ Eliminate the use of pesticides and herbicides to control pests and weeds ▪ Maintain tree Campus USA status ▪ Identify invasive plants and seek removal	0-3 years
Effective landscape management	▪ Implement technology to monitor irrigation systems ▪ Install a system to capture and reuse non-potable water ▪ Reduce overwatering by collecting remote moisture data ▪ Create a map of the campus to identify run-off points to prioritize the repair and replacement of barriers. ▪ Install storm drain fossil pollutant filters to capture pollutants and construct swales to manage stormwater run-off ▪ Assess the feasibility of green roofs for use on campus	0-5 years
Collaboration and restoration	▪ Fund ARC arcade creek restoration project ▪ Collaborate adjacent high schools and colleges/universities to develop and create sustainability projects	0-5 years

FOCUS AREA 8: WASTE MANAGEMENT

Sustainability Objective: To eliminate waste streams on the campus with the eventual goal of a net zero waste campus through implementing “cradle to cradle” processes and practices. ARC strives to reduce the amount of waste leaving the college by implementing on-campus waste management programs and practices.

Background: Assessment and Accomplishments

In 2001, we increased efforts to divert waste from the landfill and created a waste reduction advisory

FOCUS AREA

committee district-wide (R-8371). Assembly Bill 75 mandated all state agencies to provide an annual report showing diverted solid waste from the landfill by 25% by Jan 1, 2002, and divert at least 50% on or after Jan 1, 2004, through source reduction, recycling, and composting activities. This effort includes recycling, reduction and reuse of materials that continues today. The Oak Café uses a tiered waste system. This includes recycling and food waste. The use of these is reviewed in culinary and work experience courses.

ARC waste streams are segregated based on their site of generation

- Green Waste – leaves, branches, grass and clippings
- Wood Waste – clean wood that can be repurposed into other projects
- Recycled Waste – single-stream waste which includes glass, paper,
- plastic, and aluminum. Deskside recycling
- Food Waste – the Oak Café / Hospitality Management & our Cafeteria are separating their pre-consumer food waste to meet AB1826
- Metal Bin – used to collect metal from welding and other generator sources such as renovations and building projects
- Universal Waste – this includes bulbs, batteries, sharps, used E-waste, photography waste, theatre C&D,
- Landfill Waste – Certain wastes are not currently being segregated and may end up in general trash meant for landfill. These include Styrofoam, certain plastics, and other waste brought onto the campus.
- Hazardous Waste
- Construction Waste – Contractors required to provide recycling report on items recycled like asphalt, concrete, metal, wood, and vegetation
- Surplus – Equipment, furniture, and obsolete electronics

Recommendation	Suggested Activities and Comments	Timeline
Continue efforts to reduce, recycle, and reuse	▪ Continue our 2002 efforts of diverting 50% of solid waste from the landfill through recycling, reduction, and reuse of materials ▪ Collect and segregate Styrofoam from general landfill garbage ▪ Conduct a feasibility study of campus run composting program ▪ Add more waste receptacles that encourage proper sorting of waste ▪ Add more explicit signage to receptacles for waste segregation ▪ Create signage and flyers to educate the community about different waste streams	0-5 years
Building on our commitment	▪ Explore and implement clean fuel strategies for generators and campus vehicles ▪ By 2025, reduce campus waste weight by 90% ▪ Reduce procurement waste by utilizing or collaborating with vendors that package items in minimal packaging or packaging are made of recyclable or compostable materials	0-7 years

Create policies and collaborate with California community colleges	▪ Continue to evaluate waste reduction methods ▪ Collaborate with California Community College (CCC) system to implement policies that leverage the CCC financial power in purchasing and selecting vendors ▪ Continue to evaluate vendors environmental practices and encourage new vendors to adopt a sustainability plan ▪ Provide Zero waste training to maintenance and operations staff ▪ Adopt new plastics recycling technology as they become available	0-10 years

FOCUS AREA 9: WATER

Sustainability Objective: Minimize the use of potable water for non-essential operations or where collected water from rain, re-processing, and reuse water can be used without affecting the safety and health of the campus community**.**

Background: Assessment and Accomplishments

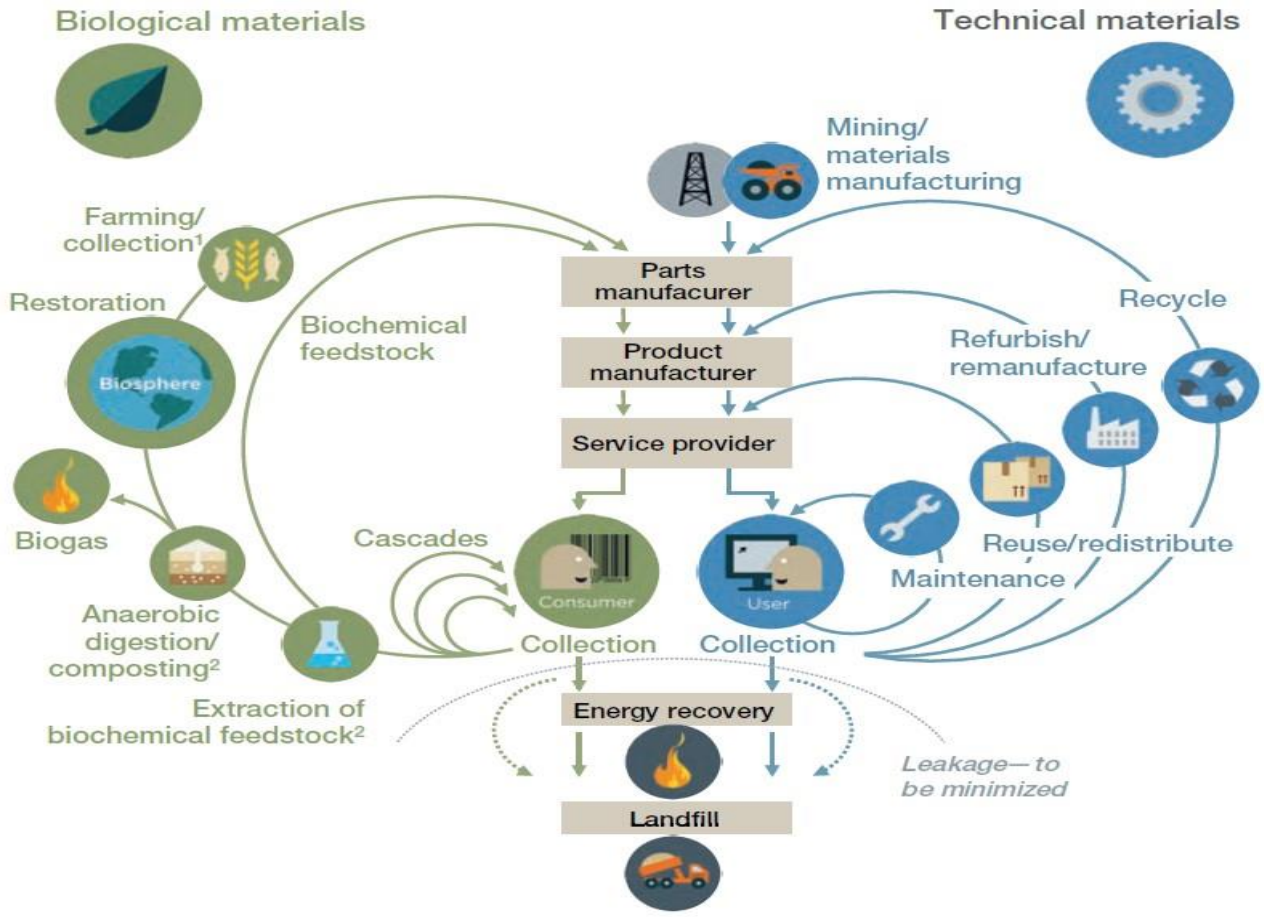
Water is a valuable resource in California given that droughts can last longer due to climate change. The population of California is approximately 40 million and growing which stresses an already venerable water system that has to provide for the population and supports California's farming industry. To alleviate the demand on potable water, ARC installed water stations throughout the campus. These stations have already saved countless plastic bottles. However, the campus is unable to accurately track how the stations are being used with exception to the smart fill station, which tracks water usage. The Oak cafe has filtration systems for the water served in the café reducing the need to buy bottled water. ARC has also invested in efficient flush toilets and under-sink water heaters that deliver instantly hot water reducing water waste.

Recommendation	Suggested Activities and Comments	Timeline
Reduce Potable Water Consumption	▪ Assess our current potable water usage ▪ Reduce current potable water usage by 10% ▪ Reduce growth adjusted potable water consumption ▪ Use recycled water in the toilets	0-10 years
Modification of Delivery Systems	▪ Retrofit toilets and urinals in bathrooms to conserve water ▪ Upgrade water drinking stations to filtered water bottle smart refill stations ▪ Implement technology to monitor and manage water usage across the campus ▪ Install real-time meters in all buildings and new construction	0-10 years
Increase Access to Clean Water	▪ Install more smart water refilling stations across campus ▪ Water filling stations provide greater access to fresh clean water to the community	0-3 years

CLOSING THOUGHTS

While each focus area has a singular emphasis, this plan should be viewed in its entirety to work towards the overarching ARC sustainability vision. With that in mind, the project teams offer these final closing thoughts for those involved in future implementation. The pace of climate change will not slow down in the immediate future and our contribution to anthropogenic climate change is clear. As an institution of learning, we must embrace and educate the public, students, and staff in being good stewards of the environment and citizens of Earth. Every individual interaction at our institution has the potential to become an ambassador for sustainability. Every little decision we make about the way we commute, the food we eat, the trash we generate, and more will add up to significant changes. The ideas presented in this plan should be thoroughly considered with respect to our current system and for future planning and development. Adopting a circular economy principle will benefit our college, community, and the environment. It is estimated that 2/3 (66%) of the resources extracted to be used in our economy never makes it into the economy and ends up as waste. The incentives to divert, reuse, and recycle are low which contributes to the loss of resources. The goal of this plan is to create a pathway for ARC to reshape its internal culture and be a beacon for its community and its students.

Conceptual diagram of a circular economy illustrating an industrial restorative design



Courtesy of: world economic forum.org
(http://www3.weforum.org/docs/WEF_ENV_TowardsCircularEconomy_Report_2014.pdf)

APPENDIX A: CALIFORNIA STATE REGULATIONS

SUMMARY OF CALIFORNIA CLIMATE REGULATIONS

Governor's Executive Order # S-03-05

The Governor's Executive Order # S-03-05 establishes greenhouse gas emission reduction targets, creates the Climate Action Team and directs the Secretary of Cal/EPA to coordinate efforts with meeting the targets with the heads of other state agencies. The EO requires the Secretary to report back to the Governor and Legislature bi-annually on progress toward meeting the GHG targets, GHG impacts to California, Mitigation and Adaptation Plans.

Global Warming Solutions Act of 2006 (AB-32)

The Global Warming Solutions Act, or Assembly Bill 32 (AB-32) adopted in 2006, establishes two key requirements regarding climate change reduction measures. The first requires that California GHG emissions be capped at 1990 levels by 2020, and the second establishes an enforcement mechanism for the GHG emissions reduction program with monitoring and reporting implemented by the California Air Resources Board (CARB). In 2008, the Assembly Bill 32 Scoping Plan was released by CARB which describes measures to

implement the requirements set by AB-32. In addition to partnering with local governments to encourage the establishment of regional emission reduction goals and community regulations, the Scoping Plan uses various mechanisms to reduce emissions state-wide, including incentives, direct regulation, and compliance mechanisms. AB-32 includes major GHGs and groups of GHGs as follows:

- Carbon dioxide (CO2)
- Methane (CH4)
- Nitrous Oxide (N2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF6)
- Nitrogen Trifluoride (NF3)

Assembly Bill 1493 (The Pavley Bill)

The "Pavley" bill requires the registry, in consultation with the State Air Resources Board, to adopt procedures and protocols for the reporting and certification of reductions in greenhouse gas emissions from mobile sources for use by the state board in granting the emission reduction credits. This bill requires the state board to develop and adopt, by January 1, 2005, regulations that achieve the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks.

Low Carbon Fuel Standard (LCFS)

The Low Carbon Fuel Standard (LCFS) was established in January 2007 by Executive Order S-01-07 and requires California fuel providers to decrease lifecycle fuel carbon intensity of transportation fuels by 10 percent from 2007 levels by 2020.

California Renewables Portfolio Standard

The California Renewables Portfolio Standard (RPS) was established in 2002 under Senate Bill 1078 and mandated that electrical corporations increase its total procurement of eligible renewable resources by at least

1 percent a year to reach a goal of 20 percent electricity generation from renewable resources. These goals were accelerated in 2006 under Senate Bill 107, which mandated that at least 20 percent of the total electricity sold be generated from renewable resources by the end of 2010. The RPS was further extended in 2008 by Executive Order S-14-08, which requires that 33 percent of total electricity sales be generated from renewable resources by 2020.

Senate Bill 97

Senate Bill 97, passed in 2007, required the Governor's Office of Planning and Research (OPR) to develop and recommend amendments to CEQA Guidelines for addressing GHG emissions related to land use planning. The amendments to CEQA were approved and became effective in March 2010, thereafter requiring all CEQA documentation to include and comply with the new amendments established for addressing greenhouse gas emissions.

Senate Bill 375

Senate Bill 375 was passed in 2008 to reduce GHG emissions caused indirectly by urban sprawl throughout California. The bill offers incentives for local governments to execute planned growth and development patterns around public transportation in addition to revitalizing existing communities. Metropolitan Planning Organizations (MPOs) will work with CARB to reduce vehicle miles traveled by creating sustainable urban plans with a comprehensive focus on housing, transportation, and land use. Urban projects consistent with the MPO's Sustainable Community Strategy (SCS) can bypass the CEQA's GHG emission environmental review. This provides developers with an incentive to comply with local planning strategies which support the State's greater effort for overall emission reduction in the land use and transportation sector.

Regional Air Pollution Control Districts (APCD) and Air Quality Management Districts (AQMD)

In 1947, the California Air Pollution Control Act was passed and authorized the creation of Air Pollution Control Districts (APCDs) and Air Quality Management Districts (AQMDs) in every county. APCDs and AQMDs are tasked with meeting federal and state air pollution requirements set by the Clean Air Act and can develop regulations to achieve the necessary public health standards, though these regulations need approval from CARB and the US EPA. APCDs and AQMDs have jurisdiction over businesses and stationary sources of emissions and can offer varying levels of outreach, grants, and CEQA review and technical assistance to interested public and private parties. The APCDs and AQMDs do not have the authority to regulate mobile air pollution sources, which is the responsibility of CARB, and must defer to state or federal regulations provided by the California Air Resources Board and the U.S. Environmental Protection Agency.

AB 341

AB 341 aims to reduce greenhouse gas emissions by diverting waste from landfills and to reach California's recycling goal of 75% by the year 2020. Commercial businesses and public entities that generate >4 cubic yards of waste per week must adopt recycling practices. This bill also applies to multifamily residential dwellings.

AB 1826 Mandatory Organics Recycling

Assembly Bill 1826 requires businesses that generate 4 cubic yards or more of organic waste per week to arrange for organic recycling services. AB 1826 applies to business including schools, hospitals, stores,

restaurants, etc. This bill aims to lower greenhouse gas emissions and meet California's emissions goals.

SB 1383
This bill would require the state board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40%, hydrofluorocarbon gases by 40%, and anthropogenic black carbon by 50% below 2013 levels by 2030, as specified.

HR 4184 Food Recovery Act
A comprehensive piece of legislation aimed at reducing food waste and promoting food recovery, in 2015. The Food Recovery Act includes various provisions to encourage farms, groceries, restaurants, and institutions to donate excess food to food recovery nonprofits, along with regulations and funding measures that will raise awareness, encourage composting and anaerobic digestion programs, and reduce wasted food in schools and the federal government.

AB 1219 Good Samaritan Food Donation Act
The Act expands California's goal to reduce food insecurity and mitigate the amount of edible food ending up in landfills contributing to greenhouse gas emission. The bill specify immunity from civil liability related to the donation of food that is fit for human consumption and that has exceeded the labeled shelf life date recommended by the manufacturer, provided, in instances of perishable food, the person that distributes the food to the end recipient makes a good faith evaluation that the food is wholesome.

APPENDIX B: GLOSSARY OF SUSTAINABILITY TERMS

GLOSSARY

1. Anthropogenic – originating in human activity.
2. ARC – American River College.
3. Biodegradable – capable of being degraded by bacteria or other living organisms.
4. Biodiversity – the variety of life that exists in an ecosystem.
5. Biomimicry – systems or materials that are models of biological systems or materials.
6. Closed Loop Food System – a practice that recycles nutrients and organic matter back into the soil from which it came.
7. Contiguous Sidewalks – sidewalks that connect areas that experience foot traffic or improve the flow of foot traffic.
8. Cradle to Cradle – a system in which materials used in a process has a new life in a new or existing process.
9. Disproportionately impacted – A policy or practice that enables one group but negatively affects other groups.
10. Emissions – The production or discharge of something from a process.
11. Environmental justice – The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
12. Environmental stewardship – Responsible use and protection of the natural environment through conservation and sustainable practices.
13. Flora – Refers to plants of a particular region.
14. FTE – Full-time equivalent.
15. Greenhouse gas – Gases that contribute to the greenhouse effect by absorbing or trapping heat within a system.
16. GSA – General Services Administration
17. Hydronic lines – A system of lines that moves circulating water for cooling or heating.
18. LED – Light-emitting diodes
19. LEED – Leadership in Energy and Environmental Design.
20. LEED-certified – A process by which a building is rated based on its energy efficiency, comfort, and overall environmental impact. These ratings range from LEED Platinum, LEED gold, LEED silver, and LEED bronze with LEED Platinum being the highest certification.
21. Maladaptation – refers to designs that required higher energy investment to operate overtime compared to LEED designs and have a high carbon footprint. The design does not positively impact the environment.
22. Native Species – Species that are adapted to the local ecosystem and function as part of the local food chain.
23. Net Zero Waste – Reducing, reusing, and recovering waste streams to convert them to valuable resources with zero solid waste sent to landfills over a year.
24. Non-Renewable Energy – Resources that are consumed but cannot be regenerated after use such as fossil fuel.
25. Open Spaces – Natural environmental spaces that are accessible to the public for recreational use.
26. Renewable Energy – is the energy that is collected from natural sources and is continuously replenished on a human timescale.
27. Reprocessing – To process something again to be reused or used in a different process
28. Reuse Water – Reclaimed or recycled water
29. Seasonality of Foods – refers to the time of year when a given type of food is at its peak.
30. SMUD – Sacramento Municipal Utility District is a community-owned electric utility company providing service more than 1.5 million residents.
31. Sustainability Ambassadors – A program by which an individual can gain education and experience in sustainable practices that translates into real-world impact.
32. Sustainability – Is broadly defined as an approach to using resources in a manner that meets our present needs while considering the environment and the needs of future generations.
33. Swales - Low or hollow place such as a marshy depression between ridges use to manage stormwater runoff, filter pollutants and increase rainwater infiltration.
34. USGBC – United States Green Building Council.
35. VOCs – Volatile organic compounds.
36. Zero waste initiative – is a set of principles focused on waste prevention.