MUNICIPAL SUSTAINABILITY PLAN

HEALTHY SUSTAINABLE COMMUNITY

JUNE 16, 2014

City of Avondale Municipal Sustainability Plan

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Frank Scott, Vice Mayor
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Energy, Environment, and Natural Resources Commission

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Joe Mosca, Committee Member
Pearlette Ramos, Committee Member
Lorenzo Sierra, Committee Member
Chad Smith, Committee Member
Roy Taniguchi, Committee Member
Russell VanLeuven, Committee Member

City Staff

David Fitzhugh, Acting City Manager
Gina Montes, Assistant City Manager

Daniel Culotta, Environmental Program Manager
Paul Lopez, Engineering Plan Review Manager
Tracy Stevens, Development and Engineering Services Director
Charles Andrews, City Engineer

EXECUTIVE SUMMARY

INTRODUCTION

Avondale is rapidly developing. Over the past decade our community has quickly grown from a small town into a leading west Valley city. Additionally, environmental, economic, and social challenges have arisen which require new, systematic ways of thinking for successful progress.

In light of these changes, The City of Avondale recognizes the importance of maintaining a sustainable municipal organization. Sustainability is systematic action that creates economically viable, socially equitable, and ecologically integrated conditions that ensure present and future generations are able to survive and thrive. The City has taken the next step in advancing sustainability by creating this Municipal Sustainability Plan (MSP), which includes actions that affect City employees, policies, practices, facilities, and resources. With this plan, the City now has a process for systematically identifying and seizing sustainability opportunities to create positive outcomes today and in the years ahead.

The MSP has three sections: a current state assessment; a vision of the desired future; and an implementation system for selecting, implementing, monitoring, and adapting actions.

SECTION 1: CURRENT STATE ASSESSMENT

The Current State Assessment (CSA) produced a system-view of the organization and identified actions that contributed to sustainability, and opportunities for improvement. The CSA was created by interviewing staff members, conducting a document and website review, and then arranging the results within 11 sustainability Impact Areas. The table below summarizes the CSA results. Details of the assessment are presented in Chapter 2 and Appendices A and B.

Impact Area	Level of action	Number of actions	Number of mentions
Community & Engagement	Moderate	16	33
Transportation	Low	10	16
Procurement, Materials, & Waste	High/Extensive	20	56
Land Use	Moderate/High	8	11
Buildings & Maintenance	Moderate	7	8
Health & Well-being	Moderate/High	9	15
Ecosystems	Low	7	7
Energy & Climate	High	20	42
Water	High/Extensive	15	18
Air Quality	Moderate/High	7	7
Economy	Moderate	6	7
Totals		**125**	**220**

SECTION 2: VISION AND GOALS

The vision and goals provide long-term guidance for the City's sustainability efforts. Input was gathered and incorporated from staff members, residents, the Energy, Environment, and Natural Resources Commission, City Manager's Office, and City Council through interviews, workshops, informal meetings, and City Council meetings to form the vision and goals. Details of this process are presented in Chapter 3 and Appendix D. The following vision statement and goals will guide the City's sustainability efforts going forward.

Vision Statement

Our organization operates in an environmentally honest and innovative manner that protects the earth and serves generations to come.

Long-term Goals

1. **Foster a safe, healthy, and inspiring work environment.**
2. **Be a champion of, contributor to, and good neighbor within our community.**
3. **Become "net-zero" for water, waste, and greenhouse gas emissions.**
4. **Practice fiscal responsibility, seek both short- and long-term value, and act in the best interest of the public with all economic decisions.**
5. **Create an accessible, multimodal transportation system that enables safe movement and promotes human and environmental health.**
6. **Be resilient by anticipating and preparing for an unknown future.**
7. **Protect, enhance, and utilize ecosystem services to the maximum extent.**
8. **Enable and expect continuous learning, evaluation, improvement, and innovation.**
9. **Be an example of what we want to see for residents and businesses.**

Section 3: Implementation System

The Implementation System took the results of the CSA, compared them to the vision and goals, identified opportunities for improvement, and selected context-specific actions to create the desired outcomes. The Implementation System is an iterative process that will occur on an annual cycle, providing flexible, context-sensitive solutions to move the City forward over time.

The Implementation System is detailed in Chapter 4 and Appendices E and F. The following table summarizes the results of the 2014 Implementation System cycle.

Impact Area	Number of strategies	Number of actions	Number of targets
Community & Engagement	2	9	6
Transportation	5	12	9
Procurement, Materials, & Waste	6	18	8
Land Use	2	3	2
Buildings & Maintenance	3	4	2
Health & Well-being	3	6	2
Ecosystems	4	7	0
Energy & Climate	3	12	7
Water	1	3	4
Air Quality	2	7	4
Economy	1	2	1
Totals	**34**	**90**	**50**

Monitoring

Successful sustainability progress on the will rely on strong monitoring and information sharing. Monitoring information will be collected and assessed frequently to allow for efficient implementation. The Environmental Program Manager, in cooperation with the Sustainability Working Group, will track, compile, and summarize monitoring information for the annual Sustainability Progress Report. After the report is complete, the next Implementation System cycle will begin. The first Sustainability Progress Report, as well as the start of the second implementation cycle, is scheduled for summer of 2015.

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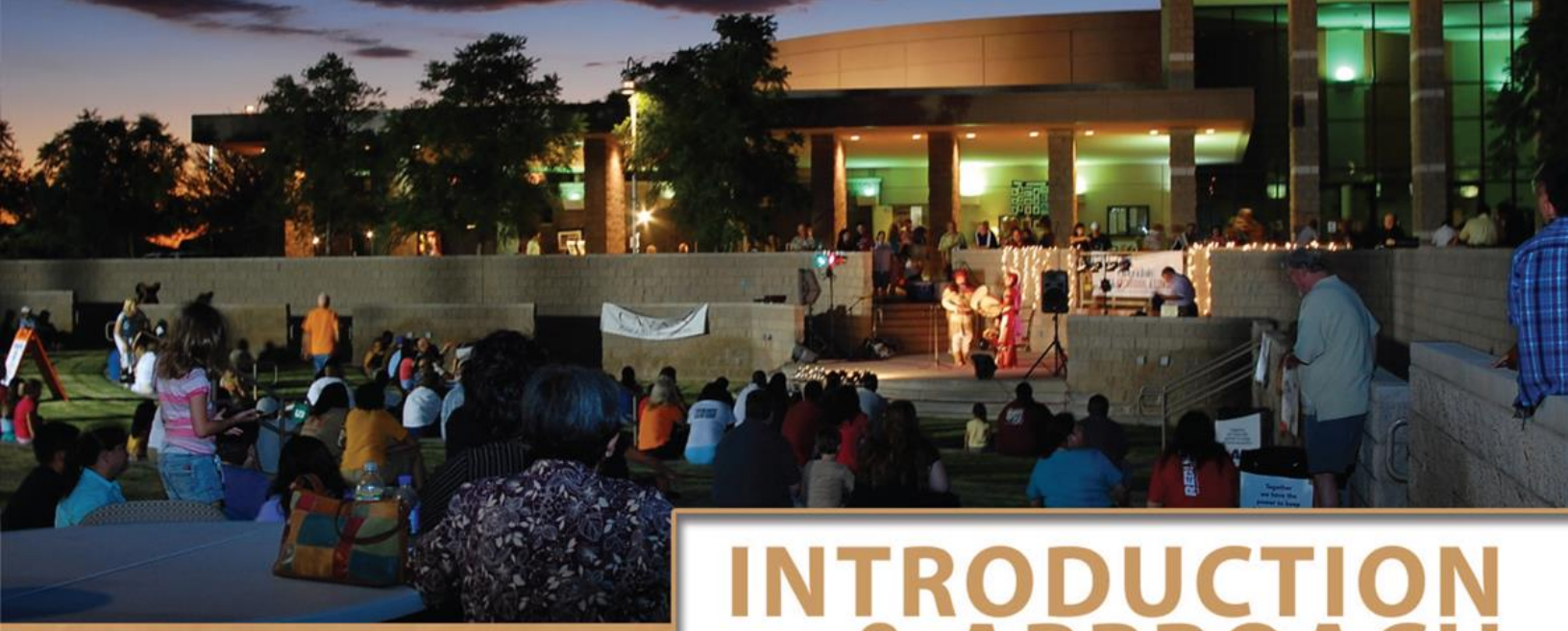


INTRODUCTION & APPROACH

INTRODUCTION

Avondale is rapidly developing. Over the past decade the population has more than doubled, and our community has quickly progressed from a small farming town into a leading west Valley city. With plans for significant growth, Avondale will continue evolving in the years ahead. The City understands that development, if carried out properly, can enhance interconnected social, economic, and environmental systems. Simultaneously, emerging regional and global challenges are impacting these same systems, and the City must be equipped to address them.

In light of these changes, the City of Avondale recognizes the importance of maintaining a sustainable municipal organization. Sustainability is systematic action that creates economically viable, socially equitable, and ecologically integrated conditions that ensure present and future generations can survive and thrive. When sustainability is incorporated into planning and action, the City can help create patterns of behavior and resource use that build a bright, more livable Avondale for today and tomorrow.

For the City, sustainability is not just a set of steps to check off a list. Sustainability is a crosscutting strategic concept that connects all areas of planning and action. Sustainability is a value to be shared; a framework for efficient planning, management, and collaboration; and an opportunity for all to make positive contributions. By using sustainability to turn challenges into opportunities for success, the City can improve operations while improving the environment and quality of life, all while demonstrating a commitment to creating a prosperous community.

Sustainability is not a new concept in Avondale. Themes of environmental protection, responsible resource use, and efficiency have a long history at the City, and sustainability became a specific focus in 2008 with the formation of the Energy, Environment, and Natural Resources Commission (EENRC). The same year the City conducted a greenhouse gas emissions inventory for its internal operations and began implementing energy efficiency policies and retrofits. These were followed by other actions directed at reducing material use and waste. Avondale has codified sustainability in a number of policies and guidelines including the Single Family Design Manual and the 2030 General Plan. The City also adopted the 2012 International Energy Efficiency and Conservation building code to ensure new construction utilizes energy wisely. In late 2012 the City hired its first Environmental Program Manager and formally embarked on creating a comprehensive Municipal Sustainability Plan (MSP).

Sustainability is not easy, nor does it happen automatically. It requires systems thinking, constant innovation, and diligent assessment and adaptation. The City of Avondale believes in doing its part and setting a positive example, and will use the MSP to improve operations and pursue the sustainability-focused 2030 General Plan goals. The MSP includes actions that affect City of Avondale employees, policies, practices, facilities, and resources. Actions that originate within the municipal organization, such as programs and services, are also included. With this Plan the City now has a process for identifying and implementing actions that will create positive outcomes now and in the years ahead.

Guiding Framework

There is no shortage of potential sustainability strategies, and just assessing all the current options could take a lifetime[1]. The City recognized this challenge and created a framework to proactively organize, contextualize, and guide the MSP process.

Principle-based

At the heart of the MSP framework is a principle-based approach. In complex systems like organizations, conditions are always shifting and challenges evolve rapidly. Thus, what is sustainable also changes, and the requirements for sustainability today may not be the same tomorrow. A principle-based approach allows for effective progress by ensuring strategies incorporate a core set of sustainability principles[2], but also have the flexibility to evolve as the organization grows.

Avondale's sustainability principles are as follows[3]. Sustainable conditions are those that *do not*:

1. Require or emit new concentrations of materials from Earth's crust;
2. Require or emit new concentrations of man-made substances;
3. Degrade ecosystem function or productivity; or
4. Systematically undermine anyone's capacity to meet their basic needs, including future generations.

These principles represent ideal conditions; not every action will achieve every principle. However, if the City consistently pursues strategies that incorporate these principles the organization will be on a sustainable path.

Framework elements

An effective action framework also requires a definition of success to organize action. To do this, City staff and members of the broader community collaboratively created a vision and goals that describe the sustainable organization the MSP aims to create. The vision and goals can be considered a "north star" that provides a common direction for future actions.

Staff also conducted a Current State Assessment (CSA) to catalog the organization's current sustainability actions and to identify opportunities for improvement. The completed CSA provided a starting point for strategically selecting strategies to move toward the vision and goals. Staff evaluated numerous actions and selected those that could fulfill the strategies and work within the organization's current context. Strategies and actions were grouped into Impact Areas to coordinate efforts, and included indicators and targets that allow for monitoring and adaptation.

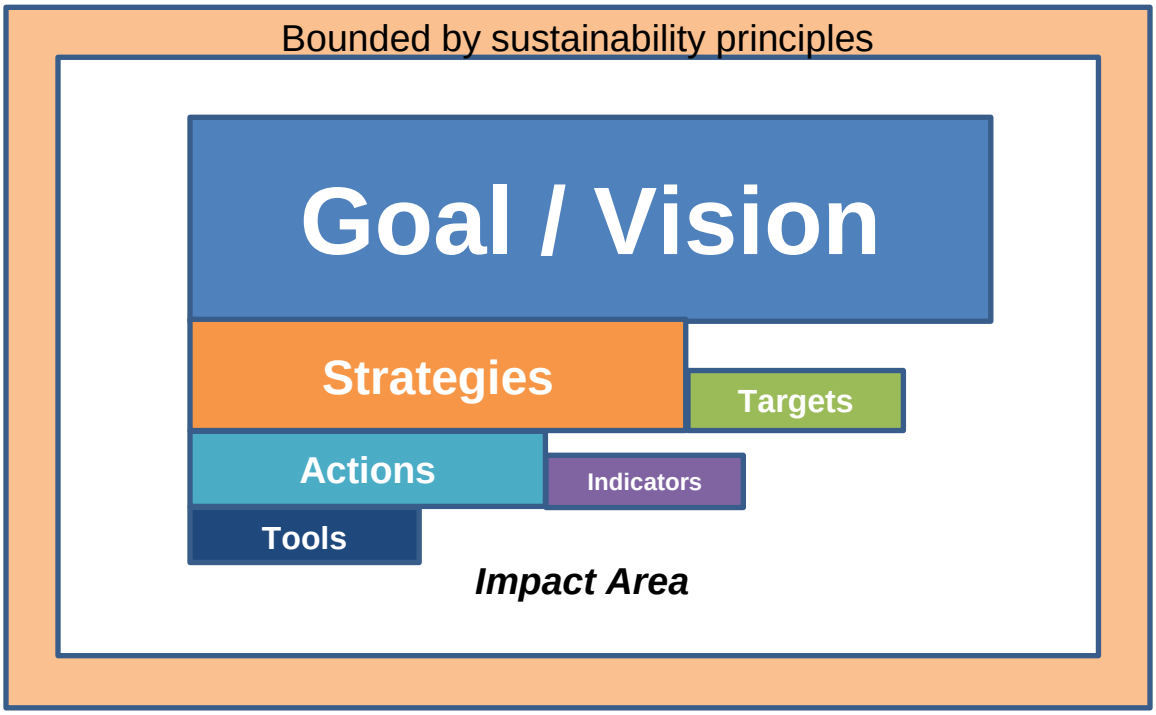
With a systematic process that connects the current state, vision and goals, and implementation strategies, the City knows its efforts today are helping achieve a sustainable tomorrow. Table 1.1 below provides a summary of the framework elements and the Figure 1.1 depicts their relation.

[1] For instance, in 370-pages Jonassen, Canes, and Daigle et al. (2012) recommend 70 strategies for near-term climate change mitigation and adaptation alone, and they acknowledge that these are only a fraction of the total possible actions available for this single sustainability issue.
[2] For examples of sustainability principles, see Gibson, 2006 and Basile et al., 2011.
[3] These principles are adapted from Robért et al, 2002, Basile et al., 2011, and the Natural Step.

Table 1.1. Municipal Sustainability Plan framework elements.

Framework element	Description
Sustainability Principles	Basic parameters that define a sustainable system
Current State Assessment	Systematic assessment of organization sustainability
Vision & Goals	Aspirational picture of success
Impact Area	Sector of the system that strategies and actions impact
Strategy	Distinct plan or policy to move toward the vision/goals
Action	Step or project that helps fulfill a strategy
Tool	Item that helps enable an action
Indicator	Information on the state of a strategy, action, or goal
Target	Specific measure of progress toward a strategy or goal

Figure 1.1. Framework elements in relation to one another.



An analogy of a traveler on a journey can help demonstrate the relationships between the framework components. The traveler's starting point represents the current state. The boundaries of the path represent sustainability principles; they guide where the traveler should and should not go. The destination represents the vision and goals. The different regions the traveler moves through represent the Impact Areas. The multiple paths the traveler takes represent the strategies used to move toward the destination. Each footstep along the journey is like an action, a concerted effort toward fulfilling the strategies. Signs and landmarks along the path represent indicators and targets. The equipment in the traveler's bag represents tools that enable action. When these various elements come together, the traveler can embark on their journey confident that they are well prepared to adjust to the challenges of the road and move with conviction toward their destination.

Core Concepts

All of the City's sustainability efforts will incorporate the following core concepts. Together, the core concepts, principles, and framework components create a platform for long-term learning and success.

1. Systematic

Sustainability uses a systematic approach to understand and act within linked social, economic, and environmental contexts. By understanding and acting systematically, the City can consider potential broad outcomes of actions over time. A systematic approach also helps ensure that actions in one area do not create unintended outcomes in others.

2. Integrated

Sustainability concerns the entire organization. Therefore, it does not make sense to concentrate sustainability actions in a single area. Coordinating sustainability efforts on a project- and goal-basis allows staff to identify opportunities for efficiency and collaboration that may not have been apparent using a departmental approach.

3. Proactive

Taking a reactive approach to sustainability challenges often leads to opportunistic and piecemeal efforts that act as stopgaps rather than creating systematic change. The City will proactively seek out and engage sustainability challenges by creating high-value solutions that provide benefits both now and in the future. The City wants to constantly *improve* situations, not scramble to fix them.

4. Evidence-based

It is increasingly noted that many sustainability actions lack an evidence-based approach[4]. This is in stark contrast to most solution-oriented, systematic practices such as medicine and education[5]. Avondale's sustainability plan will use all available evidence to select actions, and rely on extensive monitoring and evaluation.

5. Upstream-focused

Whenever possible, the City's sustainability actions will focus on upstream drivers. Rather than identifying undesirable outcomes and then mitigating their immediate causes, focus will be placed on upstream drivers that ultimately create undesirable effects, much as doctors aim to treat the underlying cause of a disease rather than its symptoms. Targeting upstream drivers will allow the City to intervene at the root of challenges and create lasting change.

6. Participatory

Sustainability planning often focuses on technology, infrastructure, and resources, but these lack one critical aspect: people. Peoples' behaviors are what ultimately determine whether sustainability is achieved. Buy-in from across the organization is crucial for success, and the City understands that the best way to promote buy-in is to involve stakeholders in all phases of planning and action.

[4] For example, See Dietz et al., 2009.
[5] For more on evidence-based approaches, see Fraser et al., 2009

7. Pragmatic precaution

Many unsustainable conditions are the result of adopting technologies and practices without full consideration of their systematic and long-term consequences. When considering new actions the City will assume they *could* be harmful instead of assuming they *probably* are not, until sufficient evidence is gathered. However, if the majority of evidence suggests that a situation *is* harmful, the City will not wait for "absolute" certainty before taking action to mitigate it.

8. Constant improvement

Sustainability is never "finished", and the City recognizes that as the organization grows and conditions change there will always be new opportunities for improvement. City staff welcome this, and will constantly strive to identify challenges, opportunities, and new knowledge and partnerships that advance toward a sustainable future.

9. Resilient

The future is unknown, and a sustainable organization must be able to adapt to unforeseen shocks and stresses in order to survive. The City understands that resilience is a vital attribute, and will select actions that build preparedness, capacity, reduced vulnerability, and utilize innovative solutions that will help meet future challenges head-on.

10. Diverse and equitable

The City believes that diversity is an asset to be enhanced, and that all members of the system, including present and future generations, ecosystems, and the broader community, deserve equitable resources and treatment. A supportive and diverse City of Avondale contributes to all aspects of sustainability and helps the organization thrive.

Plan Structure

The MSP's structure consists of three components: 1) an analysis of the organization's current state; 2) a vision of the desired future; and 3) a process for selecting, implementing, and evaluating actions[6].

Current State Analysis

The Current State Analysis (CSA) produces a system-view of the entire organization and shows which actions are contributing to sustainability and where opportunities for improvement lie. The CSA provides a baseline, identifies high-priority areas, and highlights "low-hanging" fruit – actions with high impact at relatively low effort – that may have not been apparent before.

Vision and Goals

The vision and goals represent a picture of the desired sustainable City of Avondale organization. The vision provides guidance, and the goals represent what success is considered to be. The vision and goals together provide a common direction for the MSP.

[6] The MSP structure is based on current sustainability research and case studies including Wiek, Withycombe, & Redman, 2011; Robért et al., 2002; Gibson, 2006; Saha & Paterson, 2008; Culotta, 2012; and Basile, Broman, & Robért, 2011.

Implementation System

The Implementation System is the engine of the MSP; it is the process used to identify, select, implement, monitor, evaluate, and adapt context-specific actions that move the organization from the current state toward the vision and goals.

Details of each component are provided in the following chapters and appendices.

CURRENT STATE ASSESSMENT

INTRODUCTION

The *Current State Assessment* (CSA) is the first phase of the MSP. It details the sustainability actions currently taking place across the organization and how they relate to larger sustainability Impact Areas. The CSA provides a basis for understanding where the City is doing well, highlights opportunities for improvement, helps set priorities, and benchmarks the rest of the MSP process. In essence, the CSA shows where the City is starting from, which is necessary for planning where to go.

The CSA also represents the first time all the City's sustainability-related actions have been compiled and viewed together as a system. Undertaking a variety of actions is vital for sustainability, but it is difficult to plan strategically if an understanding of how these actions work together to influence broader outcomes is not apparent. The CSA demonstrates the relationships between actions and provides a foundation for systematic progress.

Approach

To create the CSA the City sought answers from the people who know the organization best: City staff. Thirty-two staff members representing almost every department were interviewed about current sustainability actions and ideas for future improvements[7]. The interviews were supplemented by a document and website review.

Staff arranged the results of these efforts within 11 Impact Areas. It is important to remember that the Impact Areas do not operate independently; they function together as a system to influence the organization's overall sustainability. The Impact Areas are:

Figure 2.1. Municipal Sustainability Plan Impact Areas.

The CSA rated the level of action in each Impact Area as Extensive, High, Moderate, or Low based on the number and types of activities in each area. Note that the number of actions or mentions is not necessarily indicative of the action level within an Impact Area. For example, there may be several small actions with many mentions one Impact Area, but these may have a smaller overall effect on sustainability than one large action in another Impact Area.

[7] A list of the CSA staff interview questions can be found in Appendix A

Results

Staff identified 125 actions that currently contribute to organizational sustainability. This equated to an average of seven sustainability actions identified per interview. The table below summarizes the CSA staff interview results, and a description of each Impact Area, the actions that affect it, and opportunities for improvement follow. Descriptions of each action and their associated Impact Area(s) are in Appendix B. Though each action was placed in a primary Impact Area, the table in Appendix C makes clear that each action has multiple impacts.

Table 2.2. Current State Assessment results.

Impact Area	Level of action	Number of actions	Number of mentions
Community & Engagement	Moderate	16	33
Transportation	Low	10	16
Land Use	Moderate/High	8	11
Procurement, Materials, & Waste	High/Extensive	20	56
Buildings & Maintenance	Moderate	7	8
Health & Well-being	Moderate/High	9	15
Ecosystems	Low	7	7
Energy & Climate	High	20	42
Water	High/Extensive	15	18
Air Quality	Moderate/High	7	7
Economy	Moderate	6	7
Totals		**125**	**220**

Note that a single interviewee could have mentioned several actions within a single Impact Area, which is why the total number of mentions in some Impact Area exceeds the total number of interviewees.

The CSA also identified “Right Now” actions, which are relatively easy or low-cost steps that could be used for quick progress in each Impact Area. In most cases these were incorporated to the Implementation System (Chapter 4).

COMMUNITY AND ENGAGEMENT

Current level of action: Moderate | Total actions: 16 | Total mentions: 33

What it is

Community and Engagement addresses the most important component of sustainability: people. Without broad awareness, understanding, alignment, buy-in, and participation, sustainability plans have little chance of creating long-term improvements. Community and Engagement should seek to create actual behavior change, not just inform, and campaigns should provide venues for discussion, not just one-way information dissemination. Community and Engagement helps create a shared sense-of-place and pride in the organization, surroundings, and future plans. When the City helps foster learning and engagement, all members of the organization can become invested in making a better future for themselves and the City. Community and Engagement is part of all Impact Areas and affects every sustainability principle, and should be a major part of all efforts.

Current actions

The City has several Community and Engagement programs on a variety of sustainability-related topics. Most are geared toward residents and focus on energy efficiency, water conservation, landscaping, finances, child development, and buildings and maintenance. All are available to staff as well. Avondale offers print and electronic information on various topics, and this information (and its presentation) is changed often. Information is available at public buildings, electronically on the City website and social media pages, and on cable Chanel 11. Information is also presented through courses offered by the Neighborhood and Family Services Department at the Care1st Center and the Parks, Recreation, and Libraries Department at the City's two libraries. In these courses residents can learn from and engage with staff and each other around a variety of topics, including home improvement, health, finances, child development, STEM and reading activities, social programs, and skills development for teens and adults. The City reaches tens of thousands of residents and staff each year with its combination of outreach efforts.

The EENRC is very active in researching and advising staff on sustainability topics. This commission is the primary link between citizens and the City organization on sustainability issues, and staff solicits input from the Commission on almost all sustainability-related projects. Additionally, the Commission sets a number of yearly goals and collaborates with staff to achieve them. Many of the goals involve education, awareness, and promotional campaigns.

The City hosts or participates in a number of outreach events where staff distribute information on sustainability-related topics. Events include the Tres Rios Nature & Earth Festival, Resident Appreciation Night, HOA Summits, the HOA Academy, the Citizen Leadership Academy, and City Hall Comes to You. Thousands of residents and visitors attend these events each year.

Internally, departments attempt to foster a culture of awareness and efficiency as well as empower employees to develop new sustainability ideas. Many divisions that work directly on sustainability issues have outreach materials of their own. Staff are encouraged to attend

conferences and workshops to learn about cutting-edge sustainability practices and incorporate them where applicable. The City Manager's Office holds quarterly updates that review the current state and future plans of the organization in order to share information and create alignment. The City Manager's office also holds monthly Employee Connect Meetings where City Managers, leadership, and staff representatives share information and discuss ways to improve the organization. Departments also work together on most projects to increase efficiency and effectiveness.

Opportunities for improvement

The City has a solid foundation for communicating with staff and residents to create a strong sense of community. The next step is to use this capacity to focus on sustainability specifically and make it a central theme of the organization. Sustainability must be viewed as a foundational, core value of the City and all its actions, not a feature that is added when time, money, and convenience allow. If the City demonstrates a commitment to sustainability in all it does, others, both within and outside the organization, will follow suit.

Furthermore, most interviewees strongly conveyed that they wanted to know more about sustainability and how it can not only save money, but also how it improves environmental and human health, increases community and sense-of-place, creates a more resilient organization, and makes the City more competitive in the region. Most were not even aware of the majority of sustainability-related initiatives that already exist at the City. Though there is a widespread desire for this type of information among staff, currently there are few City resources that provide it.

Additionally, educational materials currently focus on individual sustainability actions or areas, but there is no explanation of how these combine to affect larger sustainability outcomes. Most of the City's outreach efforts are one-way, meaning information is provided to the end user but few forums exist for further discussion by staff or residents. Holding more workshops and presentations where information is presented and solutions collaboratively created would be useful. Another option is to form staff working groups that not only learn about sustainability issues, but also educate and motivate others.

Finally, the sustainability website should be improved to act as the online hub for sustainability action and information. Most people use the web as their primary information source, so a well-designed website is vital to communicating new information and opportunities for involvement. Furthermore, since sustainability is a part of every City department, it is crucial to have an information source that allows users to access a variety of topics without having to visit multiple areas of the site.

Right Now actions

- ✓ Make sustainability central to City's culture and brand
- ✓ Form a sustainability working group with departmental representatives
- ✓ Hold a sustainability training and education series
- ✓ Improve the sustainability section of the website
- ✓ Create sustainability-centered outreach materials

TRANSPORTATION

Current level of action: Low | Total actions: 10 | Total mentions: 16

What it is

A strong, multimodal transportation system is vital to creating a sustainable city. In growing urban areas it is critical to think beyond single passenger vehicles and provide adequate, equitable access to resources and recreation via public transit, alternative transportation, and pedestrian options. Additionally, the vast preponderance of scientific evidence indicates that the climate is changing, and fossil-fuel burning vehicles are a major source of the greenhouse gases (GHGs) causing it[8]. Transportation accounted for 28% of US GHG emissions in 2011, and vehicle miles traveled have been on a sharp rise over the past decade[9]. Shifting away from fossil fuel powered vehicles and the urban forms that require them will help mitigate the effects of climate change, which is predicted to have significant impacts in the Southwest[10]. Pedestrian transit modes, such as bicycling and walking, can also have positive health, well-being, economic, and community outcomes. Long-term planning is vital as transportation infrastructure and land use are very durable and create extremely long-term impacts.

Current actions

Avondale offers a moderate amount of public transportation with two Valley Metro bus routes and another small circulator line named the ZOOM. The City commissioned a transportation plan update in 2012 that calls for significant expansion of the transit and bicycle systems over the next 20 years. The City also operates programs like Dial-a-Ride and taxi subsidies that ensure residents with medical conditions or disabilities are able to get to their destinations efficiently. Avondale's major traffic corridors have signals coordinated at a traffic operations center to efficiently move cars as traffic volumes change, which saves time, manpower, fuel costs, wear-and-tear, and GHG emissions.

The City contains 74.5 miles of bike lanes and a number of multi-use trails for recreation and mobility. The City plans to create a Bike, Pedestrian, and Trails Master Plan in the near future to improve connectivity, access, comfort, safety, and recreation opportunities, providing an intelligent pedestrian and bicycle system throughout Avondale.

[8] Kahn Ribeiro, S., Kobayashi, S., Beuthe, M., Gasca, J., Greene D., et al. (2007). Transport and its infrastructure. In B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (Eds.), *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press. Available at http://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch5.html.

[9] For more information see http://www.epa.gov/climatechange/ghgemissions/sources/transportation.html.

[10] Garfin, G. & Franco, G. (2013). Southwest. In J. Melillo, T. N. Richmond, & G. Yohe (Eds.), *Draft National Climate Assessment* (pp. 687-719). Washington D.C.: US Global Change Research Program. Available at http://ncadac.globalchange.gov/download/NCAJan11-2013-publicreviewdraft-chap20-southwest.pdf.

The City completed the first phase of a transit center located ¼ mile south of Interstate 10 on Avondale Boulevard. This center serves as a transit hub for the area and provides park-and-ride services and access to bus rapid-transit, vanpool, carpool, and in the future, light rail. The transit center design also incorporates infrastructure that will make it easy to install electric vehicle chargers in the future. The transit center is located in the freeway corridor that is the focus of a transit-oriented, mixed-use development effort as detailed in the 2030 General Plan and Freeway Corridor Specific Plan. This development will enhance mobility while encouraging sustainable modes of transportation and a healthy urban form. The 2030 General Plan calls for additional areas of dense mixed-use development with pedestrian options and public transit throughout the City.

Avondale is adopting a "complete streets" philosophy that ensures all types of mobility are enabled on roads[11]. This not only includes designing for multi-modal mobility on new streets, but also performing retrofits, "road diets", shading and landscape improvements, and ensuring the overall urban form supports alternative modes of transportation. In addition to street design, staff also incorporates sustainability into maintenance. In 2012 the City resurfaced or maintained 800,000 square yards, or 17%, of paved streets. All surfacing used Tire Rubber Modified Surface Sealant, which incorporated 2,914 used tires that would have otherwise ended up in landfills.

The City has an education and incentive program to encourage employees to carpool or take alternative transportation to and from work, which has proven moderately popular. Avondale was a municipal leader in adopting a "Green Friday" work schedule where the majority of employees work four 10-hour days per week. Employees do not drive to work on Fridays, and this single measure saves thousands of trips and many tons of GHG emissions per year.

Avondale owns and operates 54 passenger vehicles and 155 larger fleet vehicles. The passenger vehicles average 12.5 miles per gallon (mpg), and fleet vehicles average 6.8 mpg. Collectively, Avondale-owned vehicles are driven approximately 1,945,855 miles per year. All City vehicles are fueled by gasoline or diesel, and the City owns one hybrid. Avondale used 112,009 gallons of gasoline and 161,777 gallons of diesel in 2012. The City has GPS units in its vehicles to track routes and also ensure that idle times are not excessive. Divisions that drive often, such as Code Enforcement and Field Operations, plan their trips for time and fuel efficiency.

Opportunities for improvement

All City vehicles require fossil fuels that contribute significantly to air pollution and climate change. Hybrid vehicles are offered by nearly every major car manufacturer and can create significant cost and fuel savings. The City should consider purchasing hybrids to replace existing vehicles when necessary. Alternative-fuel vehicles, namely electric, are rapidly increasing in availability and popularity, and charging infrastructure is becoming more widespread. Electric vehicles would be a viable replacement for the City's administrative passenger vehicles, and the organization should consider investing in electric vehicle charging infrastructure as soon as possible. In the future, the City could plan to replace large fleet and transit vehicles with alternative-fuel options, like electric or compressed natural gas, when the infrastructure and technology are available in the area. A strong first step toward all of these recommendations would be to create a "green" vehicle policy that specifies efficiency expectations, hybrid preference, or alternative-fuel requirements for administrative vehicles.

[11] For an example of Complete Streets guidelines, see NACTO 2013.

In addition to the type of vehicles the City purchases, *how* they are driven can have significant sustainability implications, such as the amount of fuel consumed and subsequently costs and GHG emissions. Avondale should provide training to staff on trip planning and efficient driving habits, and monitor the results via fuel usage and GPS tracking systems that already exist in City vehicles.

The City should continue to apply the complete streets philosophy to all future development, and should consider adopting a policy to officially codify the principles. Avondale should also focus on creating continuity between its existing bike and pedestrian routes to allow for safe travel around the entire City, with special attention to bike and pedestrian mobility corridors. The public transit system should be enhanced as specified in the 2012 Transportation Plan, as currently large portions of the City are underserved. Maintenance activities should continue to incorporate recycled materials and expand this practice wherever possible.

For staff, Avondale should continue to improve its carpooling and alternative transportation programs through greater engagement, incentives, and innovative methods like mobile applications. The City should also consider installing more bike racks at all City buildings so staff and visitors have a secure place to store bicycles. The 2030 General Plan lays out a dense, mixed-use, transit-oriented vision for development in the central portion of the City, and bringing this vision to fruition would not only improve mobility, but also create healthy, vibrant, connected neighborhoods that provide an alternative to the commuting lifestyle.

Right Now actions

- ✓ Install bike racks or secure storage at all City buildings.
- ✓ Create a policy that sets efficiency expectations for fossil-fuel powered vehicles and favors hybrid or alternative-fuel options.
- ✓ Train employees on efficient trip planning and driving habits.
- ✓ Create a Complete Streets Policy and complete the Bicycle, Pedestrian, and Trails Master Plan

PROCUREMENT, MATERIALS, AND WASTE

Current level of action: High/Extensive | Total actions: 20 | Total mentions: 56

What it is

This Impact Area refers to the materials the organization uses and those it exports as waste. Many times this process is linear, with users consuming materials and depositing them into a landfill. Many materials are non-renewable, and are being rapidly depleted without viable replacements. Waste is often collected in massive landfills that could otherwise provide habitat, recreation, or development opportunities. Waste also makes its way into the ecosystem, polluting land, water, air, and wildlife, and can eventually end up in human food and water supplies. However, recycling and repurpose programs for materials and food waste, renewable resources, lifecycle approaches, and sustainable sourcing are becoming more commonplace and help to close the waste process loop.

Current actions

Avondale has made a significant push to reduce its paper use. By converting Council packets, budget reports, plans, studies, and records to electronic formats, and launching pilot tablet program, the City reduced its organization-wide printing in 2012 by almost 800,000 pages. The Development and Engineering Services Department will soon initiate a pilot electronic plan review project, which will further reduce the amount of paper generated through City business. Most interviewees also stated that they use double-sided printing when possible. This not only reduces the amount of waste to be recycled or disposed of, but also the amount of trees and energy required to produce paper.

Single stream recycle bins are in every office and workspace, and the 10-year-old City recycling program accepts almost all materials that are currently recyclable. In 2012 alone the City collected over 4,800 tons of waste for recycling. At City Hall, receptacles are provided for items that are not recyclable in the single stream bins like plastic grocery bags and batteries. The Public Works department offers a number of education and outreach materials promoting recycling, including a recycle bin inspection program, and it holds a number of resident events.

All cleaning and maintenance products used in City buildings are Green Seal-certified to ensure they are safe and sustainable. Facilities staff ensure that building and maintenance materials are disposed of or recycled properly, as some contain hazardous compounds. If feasible, materials are reused or repurposed. Staff also stated that they buy only those office materials that are necessary, and occasionally reuse scrap paper for notes. The City no longer purchases disposable foam coffee cups for use in break rooms and encourages reusable mugs instead.

The Avondale IT department has worked extensively to make their resource-use and waste disposal actions sustainable. The department only purchases Energy Star-certified hardware and maintains a minimum inventory to reduce potential waste. IT follows EPA disposal guidelines, but if electronics still have useful life the City donates them to community partners (the organization has donated over 200 PCs to date).

The Public Works department holds several waste collection events each year, many times in partnership with neighboring communities or organizations. At least one electronic waste collection drive and two household hazardous waste events are held each year, as well as a Christmas tree recycling collection where trees are converted into mulch for use at a local farm.

The Engineering department reuses asphalt millings for a variety of applications, including road base, dust control, paving, and other uses by the Public Works, Streets, and Maintenance groups. Excess millings are recycled for use in future paving applications.

Opportunities for improvement

The City should continue its efforts to reduce paper usage across the organization. Setting double-sided printing as the default could help with this. All departments should assess whether additional processes could be converted to digital formats as well. Scrap paper should be used for notes or other informal applications as much as possible. Though all interviewees were familiar with recycling and paper reduction efforts, few had considered other means for reducing waste or using resources sustainably.

Staff should be encouraged to recycle all possible materials at all times. Tasking the maintenance staff with collecting recycling from offices nightly, like they do with trash, could drive more participation. Facilities management may also consider a policy to not empty office garbage cans until e.g. at least half full, unless significant perishables are present. Currently cans are emptied if there is anything in them at all, leading to a new plastic trash bag being used for even the smallest amount of waste.

The City should consider creating an environmentally-preferable purchasing policy. The company that the City currently purchases office supplies from has numerous offerings that incorporate recycled content and renewable resources, or are non-toxic, more durable, or have other sustainability features. A policy stating that such products should receive preference could significantly improve performance in this Impact Area.

The City may also consider reducing bottled water purchases. Instead, the City could encourage employees to bring reusable containers and provide filling stations at water fountains throughout the building. Staff could also fill reusable containers at the tap. This could save the City money by reducing water purchases, and reduce the amount of energy required to dispose of single-use bottles. Additionally, Avondale could create a Green Office Best Practices program that lists sustainable practices that should be considered while at work. Each department could submit yearly reports on their progress in implementing the program, and ideas for improvements.

Finally, Public Works may consider expanding household hazardous waste and electronic waste collection events, if able. Improper disposal of hazardous items is a leading cause of harmful pollution, and providing more disposal opportunities would likely reduce such occurrences. The City may also consider expanding its collection services to include a full-scale green waste program that provides compost for e.g. municipal properties, or possibly even a revenue source.

Right Now actions

- ✓ Modify trash and recycling pick-up practices
- ✓ Reduce bottled water through filling stations or tap filters
- ✓ Create an environmentally-preferable purchasing policy
- ✓ Make double-sided printing the default
- ✓ Create a Green Office Best Practices program

LAND USE

Current level of action: Moderate/High | Total actions: 8 | Total mentions: 11

What it is

Land use refers to how humans modify the environment to meet their needs. Land use is often thought of as zoning in municipal contexts, and its patterns greatly affect sustainability as they are long-lasting, affect the function of natural processes, and determine how people interact with the built environment. Land use patterns can greatly influence urban heat island (UHI) and water runoff, sense-of-place, transportation, GHG emissions, and health issues. For example, a sprawling, car-dominated area can increase storm water runoff, UHI, GHG emissions, habitat destruction, and health issues in comparison to a more transit-oriented, new-urbanism approach. As such, Land Use is related to several other Impact Areas like Transportation, Ecosystems, Energy and Climate, Economy, and Health and Well-being.

Current actions

Avondale's 2030 General Plan[12] emphasizes areas of transit-oriented, pedestrian-friendly, diverse, and mixed land uses. Widespread use of medium and low density layouts can provide privacy, but also separation, reduced sense-of-community, and a large suburban footprint. The City recognizes the link between land use and ecological, economic, and social well-being and has committed to an evolving urban form that balances low and medium densities with more dense, connected areas. This is an important step, because Avondale still has significant portions of undeveloped land that will provide opportunities to implement smart land use patterns and cement Avondale as a sustainable, progressive city. The 2030 General Plan goes beyond land use specifications for residential and commercial development and includes guidance on open space, recreation areas, and multi-modal mobility as well.

City departments carry the General Plan to fruition by adhering to the zoning ordinance, issuing development guidance like the Single Family Residential Design Guidelines that focus on sustainable design, and integrating innovative "green" solutions wherever possible. The City plans to create a Bike, Pedestrian, and Trails Master Plan to improve current connectivity, and support bicycle and pedestrian land uses in the future. The City also adopted a Public Art Zoning Ordinance that requires commercial developments to include public art in their designs. All public buildings use xeriscaping, and only xeriscaping is allowed in public medians and rights-of-way. The City also plans to develop a Street Tree Master Plan to enhance aesthetics, walkability, and ecosystem services along roadway corridors.

New and re-development projects led by the City integrate sustainable land use practices that enhance pedestrian mobility, promote mixed-use, support ecosystem function, and provide access to transit. City-led development is primarily focused in core areas which preserves open

[12] The Avondale General Plan 2030 Update is available online at http://www.avondale.org/index.aspx?NID=1194.

space along Avondale's fringes. Re-striping projects incorporate bike lanes into existing streets, and a "road diet" is planned for Central Avenue in 2014 that will reduce the number of travel lanes and add bike and pedestrian amenities. This project will provide benefits including traffic calming, multi-modal mobility options, pedestrian safety, enhanced aesthetics, shade, storm water runoff mitigation, and habitat.

Opportunities for improvement

The 2030 General Plan provides strong guidance for sustainable land use, and attention in this Impact Area has been steadily trending upward. The City must now ensure its projects act as examples of the vision it created. New standards and requirements should incorporate progressive specifications for street width, setback, landscaping, open space, connectivity, and mixed use. Furthermore, Avondale should consider creating a sustainable land use standard for City projects. This standard could include specifications for things such as impermeable surface cover, landscaping, storm water management, pedestrian access, building design and orientation, multimodal transportation, and transit amenities. Such a standard would ensure that municipal projects are exemplary of the type of land use the City hopes to see from others, and ensure that sustainable design is incorporated from the outset.

A large portion of the City's current and future sustainable land use strategy relies on xeriscaping and proper tree care. Xeriscaping is designed to mimic the local environment, including the use of native and desert-adapted plants, and requires less maintenance while preserving ecosystem function. However, xeriscaping and the urban forest only function as desired when properly maintained. The City should consider creating a landscaping design and maintenance guide so that staff or contractors responsible for xeriscaped and forested areas are aware of the requirements for healthy systems.

Though this sustainability plan pertains to City operations and actions, land use operates on scale levels beyond City-owned properties. Only by encouraging consistent land use between City, commercial, and residential development can the desired outcomes be achieved. To promote this, the City may consider creating a recognition program for businesses and developments with exemplary land use policies. Award requirements could be based on achieving the City's land use standard suggested above, which would create shared expectations between public and private development.

Right Now actions

- ✓ Create a landscape design and maintenance guide for trees and xeriscaped areas
- ✓ Present awards for exemplary land-use

BUILDINGS AND MAINTENANCE

Current level of action: Moderate | Total actions: 7 | Total mentions: 8

What it is

Considering that structures can have major impact on ecosystem function, and that people spend 90% of their time indoors, buildings can significantly affect sustainability[13]. Buildings accounted for 11% of US GHG emissions in 2011, and their electricity use accounted for 33% of all energy generated[14]. The energy, water, materials, and labor that go into constructing and maintaining buildings influence outcomes ranging from human health to climate change to ecosystem performance. Sustainability considerations in the design and upkeep of buildings are important because buildings are durable, and decisions concerning them often have long-term effects. Well-designed and maintained buildings can also contribute to health, well-being, and sense-of-place. Significant advances in sustainable building options have made actions in this Impact Area more achievable than ever.

Current actions

The City operates 19 buildings. That adds up to approximately 300,000 square feet of floor space where 500+ employees work. A large amount of the City's activity occurs at the Civic Campus that consists of City Hall, the Civic Center Library, Police Station, and City Courts. In 2012 the Civic Campus buildings used 2,446,500-kilowatt hours of electricity for a total of $236,906, which represents a savings of approximately 8% in energy and 7% in costs over 2011. This is a longstanding trend; the City Campus's 2012 energy use was approximately 14% below 2009 levels, and costs were over 8% lower. Avondale's Facilities staff works diligently to maintain comfortable and adequate work conditions in all buildings while also using resources as efficiently as possible. This is evidenced through numerous HVAC management procedures, efficiency upgrades, and energy monitoring and analysis.

The City completed a retrofit of a Historic Avondale building that houses a small-business incubator. Improvements included replacing the HVAC system, install efficient windows, upgrading the lighting, using low-VOC paint, and xeriscaping around the building. Much of this was accomplished leveraging federal grant money, and the improvements have both enhanced the area and helped the building's tenants thrive.

Avondale offers programs to ensure residential buildings are in good condition and up to code. The Neighborhood Focus Program run by Code Enforcement inspects every property in the city at least once per year to ensure compliance with the City Code. The Neighborhood and Family Services department administers the Clean and Lean Program, which maintains the

[13] For more on the affects of buildings on human and environmental health, see the EPA Indoor Air website at http://cfpub.epa.gov/eroe/index.cfm?fuseaction=list.listBySubTopic&ch=46&s=343.
[14] For more information see http://www.epa.gov/climatechange/ghgemissions/sources/commercialresidential.html and http://www.epa.gov/climatechange/ghgemissions/sources/electricity.html

appearance of foreclosed homes to help preserve sense-of-place and property values in neighborhoods affected by the economic downturn.

For new public buildings, the City incorporates green construction techniques, materials, fixtures and features wherever pragmatic. All new City buildings are designed with energy and water efficiency in mind, and include native plants and landscape design. Furthermore, new public buildings are designed to fit with and enhance the community. Avondale also recently renovated a home in an up-and-coming subdivision to include a number of efficiency and health-related features to demonstrate the benefits of sustainable design. The home was sold to a young family who still enjoys it today.

Opportunities for improvement

Sustainable features are included in new public buildings wherever possible, but this is done somewhat *ad hoc* as there is no standard to guide design and construction. The City should consider adopting a standard such as LEED or the International Green Construction Code that new public buildings must achieve. It would not be necessary to obtain certification from these organizations as long as staff is diligent in internal assessments to ensure the requirements are met. Such a standard should go beyond construction materials and functionality and also include requirements to improve health and well-being for those that visit and work in the buildings.

Avondale can further improve the performance of its existing buildings by performing retrocommissions to assess the adequacy of mechanical systems and identify opportunities for improvements. Options for low- or no-cost retrocommission services are available from area utility providers. The City should continue to implement upgrades in lighting, HVAC, insulation, windows, and similar systems to stay current with technological advances and organizational culture. Upgrades should go beyond efficiency and focus on e.g. work environment and employee satisfaction. Upgrades and retrofits that do focus on efficiency should prioritize older buildings, like the Care1st and Community Centers, and those with high frequencies of use, like the Police and Fire stations. Further gains can be made in building performance by promoting behavior changes, such as turning out lights, opening window coverings, and not scheduling obligations on Fridays when most buildings are closed. The organization could also set energy targets along with accountability for reaching them.

Right Now actions

- ✓ Perform retrocommissions
- ✓ Lighting retrofits at the Community Center and Care1st
- ✓ Create sustainable design standard for new public buildings

HEALTH AND WELL-BEING

Current level of action: Moderate/High | Total actions: 9 | Total mentions: 15

What it is

Health and well-being is as vital to sustainability as the environment or economy. This Impact Area refers to human health issues such as exercise and wellness, disease prevention, harmful chemicals, and obesity, but also to things like fostering mental health, pride and satisfaction with the organization, and a sense-of-place within the community. Health and well-being can positively or negatively affect almost all other system components, and by concentrating on people, other areas of the system can be elevated. If actions integrate a strong focus on health and well-being, then their overall sustainability can be improved.

Current actions

The Human Resources department has a number of initiatives to promote employee health and well-being. These include information and programs on fitness, diet, disease prevention, and environmental risks such as heat and ozone exposure. The City also has employee committees, such as the Safety Committee and Employee Morale Booster Association, which seek to improve community and quality of life. There are two fitness centers on the Civic Campus that are available at all hours to promote healthy habits and provide access to fitness equipment regardless of schedule.

Avondale also partners with the Bountiful Baskets organization to provide fresh produce and foods directly to employees at competitive prices. This program, which delivers food to City Hall, emphasizes healthy foods produced as locally as possible, and has organic options. The program also uses minimal packaging and requires participants to take their food in their own containers, which reduces the amount of resources and waste required to run the program.

The Police Department has a separate Wellness Committee to address the unique stresses that come with police work. The Police Department also has a quiet room employees can use to rest between e.g. night shifts and court obligations the next day without having to make multiple trips to work.

The HVAC system allows for facilities managers to bring fresh outside air into circulation in buildings. Managers ensure that the indoor air mix consists of at least 10% fresh outdoor air at all times to improve circulation and reduce stagnation. An indoor air quality assessment is performed annually in all City buildings to ensure that staff and visitors are not exposed to allergens or toxins. To date the assessments have always shown air quality to be excellent. As mentioned previously, maintenance staff is required to use only Green Seal certified products that avoid potentially harmful chemicals and compounds for both humans and ecosystems.

Opportunities for improvement

The City provides information on health and well-being topics to employees and residents, but it offers little information on how different initiatives can work systematically to create even more

desirable outcomes. The City should form a staff sustainability working group and incorporate health and well-being initiatives into their engagement strategies.

Interviewees noted that while there is information available for water-wise landscaping, more information on urban farming would be beneficial. This could take the form of information or classes offered by the City, but could also involve an expansion of the Garden Patch community garden to include additional education and engagement opportunities. Urban farming/gardening is an excellent venue to promote a connection to the local ecosystem, outdoor recreation, knowledge on food and growing techniques, and sense-of-community. An additional step would be to use the food grown in the community garden locally, such as at a school or restaurant.

The City offers information on health and well-being habits in general, but seems to place less emphasis on health and well-being in the workplace. Some interviewees noted that they see little attention paid to how office supplies and pest control materials may affect health. A policy similar to the Green Seal-certified requirement for maintenance supplies could be enacted for office supplies and pest control. The Employee Safety Committee does distribute information on safety in the workplace, but this is only significantly promoted for one month out of the year. An approach that enables the Employee Safety Committee to engage with staff year round, as well as a renewed focus on well-being in the workplace, could lead to increased engagement and new ideas in this Impact Area.

Interviewees noted that work environments could be made more inviting and up-to-date by installing additional plants and artwork. Additionally, some offices and cubicles could be arranged to provide better access to outdoor views. Some interviewees also noted that more open, collaborative, and modern workspaces could boost employee satisfaction and productivity. Feelings of satisfaction and pride toward the work environment can significantly enhance well-being, community, and promote shared commitment to improvement. Improving some work areas in this way could also act as a strategy for employee retention by helping prevent “horizontal” moves to other organizations where benefits and salary may be similar, but the work environment is more inviting.

Right Now actions

- ✓ Further promote and/or expand the Avondale Community Garden
- ✓ Renew focus of Employee Safety Committee to include sustainable health and overall well-being
- ✓ Include human and ecosystem health considerations in pest control policies
- ✓ Incorporate health and well-being activities in the sustainability working group

ECOSYSTEMS

Current level of action: Low | Total actions: 7 | Total mentions: 7

What it is

The Avondale area is known for its striking desert ecosystems. However, ecosystems, i.e. communities of interacting organisms and their physical environment, do not begin just outside the city limits. It is increasingly recognized that ecosystems exist everywhere, from pristine mountainsides to inner city streets. And humans are a major part of them[15]. Ecosystems do more than provide attractive views; they continually produce a number of services, such as air and water filtration, food, cooling, erosion mitigation, raw materials, shelter, and recreation opportunities that are irreplaceable. By understanding the City's place in local ecosystems and designing, maintaining, and educating with ecosystem services in mind, the City can improve other Impact Areas while also preserving and strengthening ecosystems for future generations.

Current actions

Avondale is focusing development on areas primarily within its existing boundaries. This allows the relatively undisturbed ecosystems in undeveloped areas, especially in the southern portion of the City, to continue to function and provide services without modification. Parks and Recreation staff are committed to maximizing outdoor and recreation spaces in Avondale, and they continue to maintain existing resources while creating new opportunities to access nature and open space.

The City offers several landscaping courses and informational materials that promote productive design, native plant species, and whole ecosystem function. Landscaping with native species helps support other native flora and fauna in the area, and promotes healthy ecosystems. Conversely, non-native species often support few native organisms and can even eradicate them. Non-native and invasive species can also harm ecosystem function by inhibiting soil processes or requiring excessive amounts of water. The City demonstrates the ecosystem services and financial benefits of landscaping with native species at many of its public buildings, as well as in the courtyard garden at the Care1st Center.

Avondale is also developing a Street Tree Master Plan to enhance shade, aesthetics, and ecosystem services along its roadway corridors. Trees provide a variety of benefits, including shade, beauty, habitat, pollution filtration, storm water infiltration, wind breaks, UHI mitigation, and increased property values. Expanding and enhancing the urban forest will provide numerous enhancements for the residents, wildlife, and ecosystems throughout the City.

Avondale's Engineering Department manages the City's Stormwater Pollution Prevention Program which aims to reduce the amount of pollution in storm water runoff. Like most municipalities in Arizona, Avondale's storm sewer system is separate from the sanitary sewer. Storm water flows through the system unfiltered before it eventually outfalls at drainages and retention basins where it percolates back into the City's groundwater supply. It is thus vital that

[15] For more on human-ecological relations, see Moran, 2006.

the required measures are taken to prevent pollution and keep storm water as clean as possible.

Opportunities for improvement

The main opportunity for improvement in the Ecosystems area is one of perception. Rather than solely focusing on the aesthetic and recreational benefits of ecosystems the City should work to educate and promote the numerous services they provide as well. An excellent venue for this would be the Baseline and Meridian Wildlife Area (BMWA), where a number of ecosystem services and natural processes can be illustrated along with recreational opportunities. Signs and educational materials detailing ecosystem services could be placed at other parks as well.

New parks and open areas should be designed with ecosystem function in mind. One proposed project would create a riparian park around the City's water recharge basins. This park would contain several educational features as well as provide a venue for birding, wildlife viewing, and other passive recreation opportunities. At its core, the facility would still perform its function as an integral component of Avondale's water cycle by recharging water into the aquifer.

Avondale should consider installing Low Impact Development (LID) and Green Infrastructure (GI) features to manage storm water runoff more naturally and infiltrate flow close to its source. Avondale may also consider integrating LID and GI into a development standard for future development, and could being by creating a LID and rainwater collection demonstration project on a City property.

The City has proposed creating Bike, Pedestrian, and Trails and Street Tree Master Plans, both of which could benefit from incorporating an ecosystems approach. The Bike, Pedestrian, and Trails Master Plan could be used to create linear ecosystem corridors and continuous expanses of habitat. The Street Tree Master Plan could provide a number of services, including temperature and wind reduction, erosion mitigation, UHI mitigation, and habitat in addition to enhancing aesthetics and walkability. An ecosystems approach should be integrated into these plans from the outset in order to maximize the positive benefits to Avondale's ecosystems and residents.

Right Now actions

- ✓ Increase awareness and educational opportunities at BMWA
- ✓ Integrate ecosystems into Bike, Pedestrian, and Trails and Street Tree Master Plans
- ✓ Incorporate LID into new City construction projects
- ✓ Initiate a LID and rainwater collection pilot project

ENERGY AND CLIMATE

Current level of action: High | Total actions: 20 | Total mentions: 42

What it is

Sustainable, readily available energy is required for development and well-being. Since electricity and other fuel sources power the technologies and services the City relies on daily, energy is involved with nearly all Impact Areas. Most energy is produced from non-renewable sources like fossil fuels, which aside from vulnerability of being finite also contribute to climate change via GHG emissions. However, a number of renewable energy sources like solar, wind, and geothermal are quickly becoming viable replacements for their nonrenewable counterparts. Reducing reliance on non-renewable energy not only reduces GHG emissions and vulnerability, but can also reduce costs significantly.

Current actions

Avondale uses energy in a variety of ways, from providing lighting to powering vehicles, machinery, and infrastructure. The City operates over 70 electricity meters and spends over $1.7M each year on approximately 18,000 megawatt hours of electricity. This has made energy efficiency and conservation a long-term priority for the organization. For example, in 2009 the City used 17,200 megawatt hours of energy at a cost of approximately $1.55M, but operated nearly 20 fewer energy meters than it does today. The City is also committed to reducing its climate change impact and strives and to incorporate renewable energy and reduce consumption of non-renewable sources wherever possible.

Most interviewees noted that they turn off lights and computers when not in use. Some even use desk lamps or natural lighting in lieu of more intensive overhead lights. Maintenance staff has been instructed to turn off all lights after they finish their duties. The streetlights in the Civic Campus parking lots, along Civic Center Drive, and in Friendship Park have all been replaced with LED units. LEDs are also used for backlighting on all Civic Campus signage. In order to monitor and evaluate energy efficiency actions the City tracks usage using Energy Star Portfolio Manager at the Civic Campus. Portfolio Manager also allows for comparison with similar buildings, which provides a performance reference and incentive to improve. Possibly the most impactful action is the four-day/10-hour workweek, or “Green Friday” schedule. The Green Friday schedule allows for building systems to be on only four days per week, and because the extra two hours added to the work day are at times with less extreme temperatures, the schedule remains more efficient than a five day week. Additionally, staff only commutes four times per week instead of five, saving significantly on fuel costs and GHG emissions.

The Care1st Center, one of the City’s older buildings, has instituted a number of energy saving measures. The HVAC system was recently replaced to increase efficiency. Additionally, the Center’s data server room has a separate air conditioning unit which allows its more stringent cooling requirements to be managed separately from the rest of the building. Care1st offers many classes for residents, including several that cover energy efficiency. Because classes are held in the evening which requires additional energy and resources, staff closely scrutinizes class schedules and attendance to ensure the most efficient number of courses are offered.

Avondale's Building Department offers a streamlined residential solar permitting process that has some of the lowest fees in the Valley region. Avondale also installed a Solar Demonstration Project on its Civic Center campus that consists of solar panels at the Civic Center Library and interactive educational elements in the Library and City Hall lobbies. The project, which was awarded the Arizona Forward Crescordia Award, is meant to both provide renewable energy and educate visitors.

The IT department has worked diligently to improve the efficiency of the City's computing systems. In addition to keeping the lowest inventory possible, most computers have been switched to virtual desktop models that require less energy than traditional PCs. All hardware the City purchases is Energy Star Certified when available, including monitors. IT is currently reducing the size of its data center by approximately 33%, which in addition to reducing electricity usage will also reduce space and cooling requirements. The IT department even created its own Green IT Plan that includes a number of measures to reduce resources, waste, and energy requirements.

Opportunities for improvement

The largest opportunity in Energy and Climate is again a matter of perspective. Currently nearly all energy-related decisions consider economic factors almost exclusively, with little weight given to variables like climate change, environmental impacts, or renewable energy sources. The City has concentrated on creating an inexpensive and efficient energy system, but not necessarily a sustainable one. By expanding considerations beyond economic costs, more sustainable energy options could come to light. With recent reports suggesting that climate change is on track to create major environmental, social, and economic impacts if GHG mitigation measures are not enacted quickly[16,17],it could be argued that the City has an obligation to its current and future citizens to reduce climate impacts. The City conducted a GHG emissions inventory in 2008 and estimated that the organization produced 9,547 metric tons of equivalent CO2 emissions. However, it was unclear if these emissions were ever taken into account in decision-making, and the GHG inventory has not been updated.

A strong first step would be to move beyond energy efficiency and begin considering renewable options. No matter how much usage is reduced, if energy is derived from non-renewable, GHG emitting sources like coal, or those that create hazardous waste like nuclear, the system cannot truly be sustainable. The next step for Avondale is to incorporate renewable energy sources throughout its entire system not only to reduce costs, but also to decrease environmental, health, and climate impacts. Creating a comprehensive renewables and efficiency strategy, and targeting large energy users like the Water Reclamation Facility, would be an excellent next step. The City could also consider buying green energy or carbon offsets to further reduce reliance on non-renewables.

Several near-term measures could improve this Impact Area. City buildings contain many common areas like conference and break rooms where lights are often left on either unintentionally or for convenience. Installing motion sensors that automatically turn lights off when the room is empty would reduce energy requirements in these rooms. The City could also further educate and incentivize desirable behaviors like turning off lights and electronics, using natural lighting when available, and reducing unnecessary elevator usage. Assigning energy captains to educate staff and enforce policies could improve accountability. Perhaps one of the easiest and most effective actions the City could take is to not schedule events on Green

[16] See International Energy Agency, 2013.
[17] See Garfin, et al. 2013.

Fridays. Though many City services are closed on these days, meetings, work sessions, events, or extra work time is often scheduled. This requires entire building systems to be on for just a few people. Meetings and events should take place Monday through Thursday, with Fridays being used only as a last resort.

The City could also improve its energy system while educating others. The Solar Demonstration Project, which was awarded the Arizona Forward 2013 Crescordia Award for Environmental Education and Communication in the Public Sector, is an excellent example of how the City projects can provide knowledge to residents and businesses. Avondale could complete more highly-visible projects that are exemplary of what the City desires to see in residential and commercial development. Such a project could involve replacing the City's streetlights with efficient LEDs whenever the old lamps expire.

Finally, the City should evaluate energy as a system rather than a series of unrelated endpoints and uses. When all buildings and users are considered, opportunities for improvement become more apparent. To begin, the City should extend its benchmarking and monitoring beyond the Civic Center campus to include all of its meters, including the Water Reclamation Facility. From here priorities can be determined for the entire energy portfolio, not just individual buildings. The City could release periodic energy reports which detail usage, improvements, and ideas for the energy system. This report could also track usage or improvements by building to promote friendly competition and innovation.

Right Now actions

- ✓ Install motion sensors in common areas
- ✓ Do not schedule events on Fridays at buildings on 4/10 schedule
- ✓ Expand energy benchmarking and monitoring to all City properties
- ✓ Update the City's GHG emissions inventory
- ✓ Create a plan to integrate solar at City properties

WATER

Current level of action: High/Extensive | Total actions: 15 | Total mentions: 18

What it is

Water availability is one of the most pressing issues facing the Southwest region. As population and use increase and the climate becomes more arid, obtaining adequate and sustainable water sources will become an even higher priority than they are now. Additionally, a vast amount of energy is required to move water, which means water use also has energy and climate change implications. Determining which water uses and users receive priority, keeping ground supplies free from pollution, ensuring adequate access, and increasing reuse options are all issues that will have to be addressed to ensure water availability for future generations in Arizona.

Current actions

Water has been a major focus area for the City for many years. Water is supplied to Avondale solely from wells that draw from the aquifer. In 2012 Avondale residents and businesses used 14,644 acre feet of potable water, which equates to 143 gallons per capita per day (GpCpD). The aquifer is recharged via a number of sources, including rainwater, surface water, and treated effluent. As the water recharges, it is filtered by percolation through subsurface soil media to such a high quality that some of Avondale's wells require little to no water treatment. The City has set up its recharge facilities very near its wells, so there is a close correlation between recharge and recovery. Avondale recharges a significant amount of water each year, and in 2012 infiltrated approximately 12,000 acre feet to bring the long term storage bank level to approximately 63,000 acre feet. Because of these recharge and banking practices, as well as favorable geography, Avondale has one of the most secure long-term water supplies in the Valley. Avondale also complies with all storm water pollution prevention requirements to help keep runoff clean.

Cognizant that water is a regional challenge, the City is a member of many water conservation organizations that share resources and information. Avondale also has an extensive water website devoted to smart use and conservation, and has instituted a drought ordinance to govern use if water supplies become critically low. The City also requires all new commercial development to submit water conservation plans specific to their activities.

At City facilities, water information is provided on posters, handouts, email, and newsletters. All fixtures at the Civic Center campus and most other City buildings are low-flow with a few being auto-shutoff. The landscaping surrounding City buildings uses drip irrigation or low-flow sprinklers to water primarily desert-adapted plants and xeriscaping.

Avondale's Water Resources Division maintains a strong education and engagement program, with outreach materials and courses available for all age groups at a variety of locations. The Division offers several materials created specifically for youth, and participates in the University of Arizona Water Education for Teachers program, which incorporates water awareness topics into school curriculums. Water conservation representatives frequent City events, and the City even provides free residential landscape assessments to identify opportunities for water

savings. Avondale also manages a rebate program that can offset the cost of water efficient fixtures and landscaping improvements.

To further aid in recharge activities, Avondale created one of the first engineered wetlands in the Valley, Crystal Gardens, which pretreats the City's SRP surface water allotment before it enters recharge basins. Crystal Gardens also provides important services like recreation, cooling, ecosystem services, and habitat.

Opportunities for improvement

The City has put significant effort into conservation and water security. Avondale should continue these efforts, but also branch out into more innovative strategies that use the rainwater the area does receive as a resource. For instance, the City could install a rainwater collection demonstration project that not only reduces irrigation costs but also shows the principles of water harvesting. The City should also ensure that its ordinances, permitting processes, and regulations do not create barriers to rainwater collection for residents and businesses.

The City can work to integrate Low Impact Development (LID) and Green Infrastructure (GI) projects that use storm water as a resource. Instead of traditional infrastructure that conveys storm water long distances to retention basins or outfalls, LID and GI consist of smaller structures that capture, utilize, and infiltrate storm water near its source[18]. Examples of LID and GI include rain gardens, green roofs, bio swales, and permeable pavement. In addition to enabling a natural water cycle, LID and GI can often provide superior pollution filtration. GI and LID solutions can also be less expensive to install and maintain over the long-term.

The City should continue expanding its water reuse capacity where applicable. Creating the infrastructure for reuse is an excellent example of proactive planning, and now Avondale can take the next steps towards realizing its full reuse potential. However, future reuse applications must be balanced with recharge obligations, costs, and compliance with applicable regulations.

The City should continue its focus on efficiency and conservation by disseminating water information and holding classes for staff as often as practicable. The City should also ensure that all fixtures are low-flow, including in older buildings. Turf should be eliminated from landscaping where possible and replaced with xeriscaping, and low-water-use plants should be utilized in new construction.

Finally, the City organization should benchmark and monitor water use at its meters as it does for energy. This would help identifying opportunities for improvement, and help ensure that overall reduction trends continue over time. Currently there is no active monitoring of water use for the organization, and thus no way to know the effects of conservation measures. Once a baseline is created, the City could consider internal GpCpD targets.

Right Now actions

- ✓ Monitor and benchmark water use at City facilities
- ✓ Launch a Low Impact Development and rainwater collection pilot project
- ✓ Ensure all fixtures in City buildings are water efficient

[18] For more information and examples in the southwest, see MacAdams, 2010.

AIR QUALITY

Current level of action: Moderate/High | Total actions: 7 | Total mentions: 7

What it is

Avondale is located in Maricopa County, which has long been known for high levels of dust and other air pollutants. In fact, the Phoenix area is often surrounded by a "brown cloud" of dust and particulate matter that is held in place by a temperature inversion that usually occurs in the winter months. This leads to high rates of respiratory-related illnesses, including asthma, bronchitis, and inflammation, especially in young and elderly populations. Indoor air quality is equally important. Most people spend the majority of the day indoors, and the products, cleaners, and even construction materials used in buildings can release compounds that degrade indoor air quality. A strong focus on indoor and outdoor air quality is necessary to enhance health and well-being in Avondale.

Current actions

Many Valley cities, including Avondale, have taken extensive actions to curb air pollution, and these efforts have paid off. Though pollution can still be an issue, Particulate Matter less than 10 microns in size (PM 10; comprised mainly of dust) has decreased significantly, and PM 2.5 (comprised mainly of wood smoke and vehicle exhaust) has held steady at moderate to low levels. Actions aimed at a variety of sectors ranging from construction and maintenance to urban planning, landscape design, and behavior change have all contributed to the decrease, and these changes provide benefits in other Impact Areas as well.

Avondale always complies with Maricopa County's "Rule 310", which is a collection of rules aimed at reducing dust pollution. Rule 310 affects a variety of sectors from landscape maintenance to paving and construction, and the City of Avondale complies with, promotes, and enforces all provisions of the rule where applicable. Avondale understands that air quality is created by the actions of many, and distributes information on No Burn Days, air quality issues, pollution forecasts, and action-oriented solutions through print and online channels.

In addition to the emissions that come out of the tailpipe, vehicles can create pollution by knocking dust into the air. The City ensures construction entrances are kept free of dust track-out to help keep roads free of debris and dust. The City also uses vacuum-style street sweepers to reduce the amount of dust that is blown into the air. Probably the most impactful action Avondale has taken is related to paving. Vehicles on unpaved roads can create significant amounts of dust, and even a relatively small amount of unpaved road miles can create major emissions. Avondale has worked to pave all of its roads, and now less than ½ mile total of seldom-used unpaved roads remain within the city limits.

Avondale understands that like many other sustainability issues, air quality is a regional concern. Air pollution created here affects other areas of the Valley, and pollution generated far from Avondale can create health issues for our residents. In an effort to create a regional strategy for air quality, Avondale has joined with several other cities in organizations such as the Maricopa Association of Governments Air Quality Technical Advisory Committee, the Maricopa

County Air Quality Department Cities and Towns Group, and the Clean Air Make More campaign. Through these groups the City is helping make regional advances in air quality that improve health and well-being for all Valley residents.

Indoor air quality is a high priority for the organization as well. The City knows that the ability to keep staff and visitors comfortable and healthy is greatly affected by the products, cleaners, chemicals, and materials used in City buildings. Facilities staff uses no aerosol or scented air fresheners to ensure that workplaces are kept free of allergens and irritants. HVAC settings are managed so that indoor air is continuously circulated and kept at comfortable temperatures. Additionally, the maintenance staff uses only Green Seal Certified cleaning products, which are free of irritants, allergens, or potentially dangerous compounds. The City conducts air quality assessments in civic buildings each year to monitor the health of indoor environments. The results of the assessments have always been favorable.

Opportunities for improvement

Avondale's adherence to the various provisions of Rule 310 mean the City has an adequate to extensive amount of action in most areas pertaining to outdoor air quality. The City should continue to monitor, educate on, and enforce Rule 310 and similar ordinances. Additionally, the City can increase its education and outreach campaigns for No Burn Days, especially around the winter holidays when PM 2.5 pollution is highest. Avondale can increase the type and amount of air quality education available to residents and businesses for all air quality issues as well. Air quality-related health issues are a major concern for citizens and cost taxpayers a substantial amount each year, so an extensive engagement campaign is warranted.

Pertaining to indoor air quality, the City should also ensure that its pest management practices and construction materials do not degrade indoor air quality. Significant effort is put into ensuring that cleaning supplies used in City buildings is safe and environmentally friendly, yet pesticides and materials such as paint can release airborne pollutants that are just as harmful. A pest management and building materials guideline that includes health considerations could be instituted to help ensure that all facets of indoor air quality are taken into account.

Right Now actions

- ✓ Increase outreach around No Burn Days.
- ✓ Increase outreach and education on air pollution effects and prevention.

ECONOMY

Current level of action: Moderate | Total actions: 6 | Total mentions: 7

What it is

A sustainable economy is an important and necessary component in any community. If an area economy cannot sustain itself, its community, and the environment with adequate opportunities, other areas of the system will suffer. In addition, if economic actions do not take environmental and societal concerns into account, they can undermine sustainability as well. Fostering an economy focused on local commerce, clean industries, community involvement, social and environmental responsibility, and innovation will help support a vibrant and sustainable city. Furthermore, a sustainable economy is not solely based on the number of businesses contained in a city, but also a high quality of life, a vibrant and safe urban environment, a skilled workforce, an efficient and multimodal transportation system, distinctive housing, recreational and entertainment opportunities, excellent schools, and a diversified job market.

Current actions

Avondale has taken efforts to promote local businesses through its Shop Avondale campaign. Shop Avondale includes outreach materials and a website where users can learn the benefits of shopping locally, as well as local business locations. The website also links to Local First Arizona, which is an organization that promotes local business across Arizona. The City also plans to increase the number of locally-owned businesses through land use patterns specified in the 2030 General Plan, which calls for areas of higher-density, mixed-use transit-oriented development near the center of the city. These land use patterns will encourage small and local businesses to develop in these areas, which will add to the economically diverse collection of small, medium, and large businesses currently located in Avondale.

Avondale staff take a number of measures to support the local economy as much as possible. Most interviewees noted that they buy materials for meetings and events locally whenever possible, and encourage visitors and other staff members to shop and eat at local establishments. Interviewees noted that if they go out for meals, they usually eat at local “mom-and-pop” establishments instead of franchise chains. Additionally, all office materials used throughout the City organization are purchased from an Arizona-based supply company.

In its pursuit of building a diverse, sustainable local economy, the Economic Development department does not pursue opportunities in “dirty” industries that could increase pollution or other unsustainable practices in the City. Additionally, the City partners with a small business collaboration space named Gangplank located in Historic Avondale. Gangplank is focused on providing innovative and creative companies the resources they need to develop and grow in a collaborative setting.

Opportunities for improvement

From a purchasing standpoint, one of the prime opportunities for the City is to take a more integrated and lifecycle approach, such as the Triple Bottom Line, to valuation of purchases,

rather than selecting products or services based solely on costs. Incorporating and assessing lifecycle costs and benefits, environmental and social impacts, maintenance, and other factors represents a more sustainable purchasing approach. Presently the merit of many projects is derived primarily from upfront costs, with less value given to their long-term savings or payoffs.

Avondale is rapidly growing, but due to this expansion, proximity to a large urban area, and suburban form, many new businesses are franchise and “big box” stores instead of unique local offerings. Though these large retailers are convenient and often necessary to provide the desired access and selection, they do little to build sense-of-place, and only a fraction of the money spent in these establishments stays in Avondale. When possible, economic development should be centered on local, unique establishments that foster a sense of pride in their community and keep dollars in the local economy. More businesses like those in Historic Avondale can help establish such a precedent, and recognizable, highly visible areas like City Center area are prime locations for these types of ventures.

The City could consider creating a “Green Enterprise Zone”, where businesses focused on sustainable products, technology, and services could collaborate and flourish. Such an area would be the first of its kind in the Valley and cement Avondale as a leader in sustainable innovation. In the nearer-term, the City could create a “Green Business” program, which recognizes companies with sustainable practices, and help those who what to improve identify opportunities and resources.

Staff should also continue purchasing office and event materials from local retailers when possible, and should support sustainable product offerings by choosing “green” options when available and practicable. Purchasing could be streamlined by creating a sustainable purchasing policy that offers guidelines and expectations for materials bought for City-use. The City could also require vendors to submit information on their sustainability efforts. Avondale could even add sustainability-related contract language for use in the procurement process.

Right Now actions

- ✓ Green Business program
- ✓ Institute a sustainable purchasing policy
- ✓ Sustainability reporting from Approved Vendor list

DISCUSSION

As demonstrated throughout the CSA, the City has done much to enhance sustainability in many different areas. A benefit of the CSA is that it aggregates these efforts into a comprehensive system that can help prioritize actions and ensure that the entire organization is moving toward sustainability. There are areas in the City's sustainability portfolio that have significant activity, while others have received less attention. The City will use the CSA to prioritize resources and bring low-activity areas up to speed.

The CSA also highlights interconnections between Impact Areas. These connections represent opportunities to align resources, share information, and combine efforts. By breaking from typical departmental "silos", staff can create innovative solutions that achieve high-value results beyond those possible with a purely departmental approach. The next step for fostering collaboration would be to create a working group to identify strategic opportunities.

A number of the City's current sustainability actions are focused downstream. Focusing downstream can create some success, but real change comes by addressing the upstream drivers that cause undesirable downstream outcomes. For example, when considering why energy is expensive and GHG-intensive, one can identify fossil-fuel sources and long transmission runs from centralized power plants. Therefore, by changing those upstream drivers to a clean, decentralized energy source like solar, the City can positively affect all downstream energy outcomes, including costs and emissions.

One of the most effective actions the City can take is to improve its information and knowledge base. Though perfectly complete information should never be a requirement for action, baselines and information systems are crucial for intelligent project selection and adaptation. Creating information systems and baselines should be initial actions in many Impact Areas.

Funding is always a concern with sustainability efforts. Though grants and other awards are sometimes available, finding consistent funding is more challenging. Avondale had the foresight to create the Environmental Fee to provide continuous funding for environmental programs. However, the City often still looks for outside funding first when considering new sustainability actions. Though one-time funding awards have become somewhat of a standard for municipal sustainability projects, such awards fundamentally require a reactive approach as actions are only possible when someone else provides an opportunity. Outside funding can also require aligning with the goals of the funding organization, which may not necessarily correspond with City goals. Resilient in-house funding streams are necessary for sustainability to flourish, and the City should create additional long-term, localized funding for sustainability projects.

A successful MSP will depend on robust monitoring and evaluation that allows for frequent assessment. The City currently tracks fleet statistics and some energy use, but such practices should be extended to all facilities and also include water, materials, purchasing, and GHG emissions. Monitoring and evaluating actions will not only help determine next steps, it will also add to the body of evidence and help others adopt similar actions at speed and scale. Going forward, all actions should include monitoring and evaluation that inform both the individual project and the overall Plan.

Finally, the City must make sustainability a core value of its leadership, culture, and branding. Sustainability is practiced every day in Avondale, but it is rarely talked about, only focused on by a few, and implemented after other obligations are met. In projects, sustainability is often treated

as an add-on rather than a foundational principle. This is evidenced by the number of mentions for each action from the interviews (Appendix C). A few actions were well-known to most interviewees, but the majority were obscure to all but a few.

The City must take sustainability seriously and spread knowledge, awareness, and a shared sense of commitment throughout the organization. Everyone should know that sustainability is an integral part of the organization's identity and a foundational value of all projects and actions. Only when sustainability is made a top priority, a required design element, and necessary in all actions will the City achieve the positive outcomes it desires.

CONCLUSION

This Current State Assessment has, for the first time, provided a comprehensive view of the City's sustainability actions. The assessment provides a baseline and gives an idea of where both success and opportunities for improvement lie. In the near term, this assessment can provide a springboard for framing sustainability as a key feature of Avondale's identity. The City can also begin work on the Right Now actions to make quick improvements and maintain momentum.

VISION & GOALS

INTRODUCTION

Creating a guiding vision and goals is the second phase of the MSP. The vision and goals can be thought of as the desired organization the City hopes to create, and provides a common direction for the MSP efforts. The vision and goals are intentionally broad, aspirational, and unencumbered by the current state. This is because the vision and goals are meant to provide a direction to move toward rather than specific targets to be achieved. By adopting broad, long-term goals, the City created the flexibility to select strategies, actions, and targets that can evolve over time as the organization progresses.

APPROACH

The vision and goals must be shared if they are to act as a comprehensive sustainability guide, and the best way to attain a shared vision is to create it collaboratively. Toward this end the City gathered and incorporated input from key stakeholders such as staff, residents, the EENRC, City Manager's Office, and City Council.

Staff were asked visioning questions during the same interviews as the CSA. Questions inquired about opportunities for near-term improvements as well as long-term visions of success (see Appendix A). In addition, visioning and goals workshops were conducted with the EENRC, City Manager's Office, and City Council. Staff also surveyed residents at the 2013 Resident Appreciation Night on what sustainability areas they thought were important to focus on. Staff then combined all the input into a single working document for review. After receiving feedback, the City of Avondale's sustainability vision statement and goals were finalized during the City Council work session on December 16th, 2013.

The following vision statement and goals will guide the City of Avondale's sustainability efforts going forward. Results of the individual visioning and goal setting exercises are in Appendix D.

VISION STATEMENT

Our organization operates in an environmentally honest and innovative manner that protects the earth and serves generations to come.

GOALS

To realize our Vision, the City of Avondale will:

1. **Foster a safe, healthy, and inspiring work environment.** Our employees are our greatest assets. City policies and practices will create a healthy and supportive space for staff to thrive.
2. **Be a champion of, contributor to, and good neighbor within our community.** Our organization is only as successful as the community it serves. We will always work to elevate, advance, and meaningfully participate with our neighbors in Avondale and beyond.
3. **Become "net-zero" for water, waste, and greenhouse gas emissions.** Sustainable systems do not create waste; they operate in efficient cycles and produce resources. We will balance our consumption with production to become a true net-zero organization.
4. **Practice fiscal responsibility, seek both short- and long-term value, and act in the best interest of the public with all economic decisions.** Many factors contribute to a sustainable economic system. We will use lifecycle accounting, a long-term outlook, and consider environmental, social, and economic factors in financial decisions.
5. **Create an accessible, multimodal transportation system that enables safe movement and promotes human and environmental health.** Mobility is key to all aspects of sustainability. We will create a clean, diverse, and accessible system that allows for safe and efficient movement.
6. **Be resilient by anticipating and preparing for an unknown future.** The future is uncertain. We will enhance our capacity to adapt to future conditions by building resiliency within our organization and our community.
7. **Protect, enhance, and utilize ecosystem services to the maximum extent.** Ecosystems provide essential and irreplaceable services that allow our community to survive and thrive. We understand the value of these services and will enhance them with our actions.
8. **Enable and expect continuous learning, evaluation, improvement, and innovation.** Our organization, city, and the world are constantly changing. Only through consistent improvement can we remain successful and sustainable. We will enable and expect a culture of continuous learning and innovation.
9. **Be an example of what we want to see for residents and businesses.** The City organization will be a leader in sustainability planning and action. Our ongoing achievements will provide an example for others to follow.

The vision and goals form the focal point that MSP strategies and actions can contribute to over time. Because the vision and goals are broad, they allow for shifting focus and priorities without straying from the MSP's overall intent. Priorities, strategies, actions, targets, and indicators will be determined using the Implementation System by comparing the current state to the vision and goals, identifying discrepancies, and determining strategies and actions to address them.

IMPLEMENTATION SYSTEM

INTRODUCTION

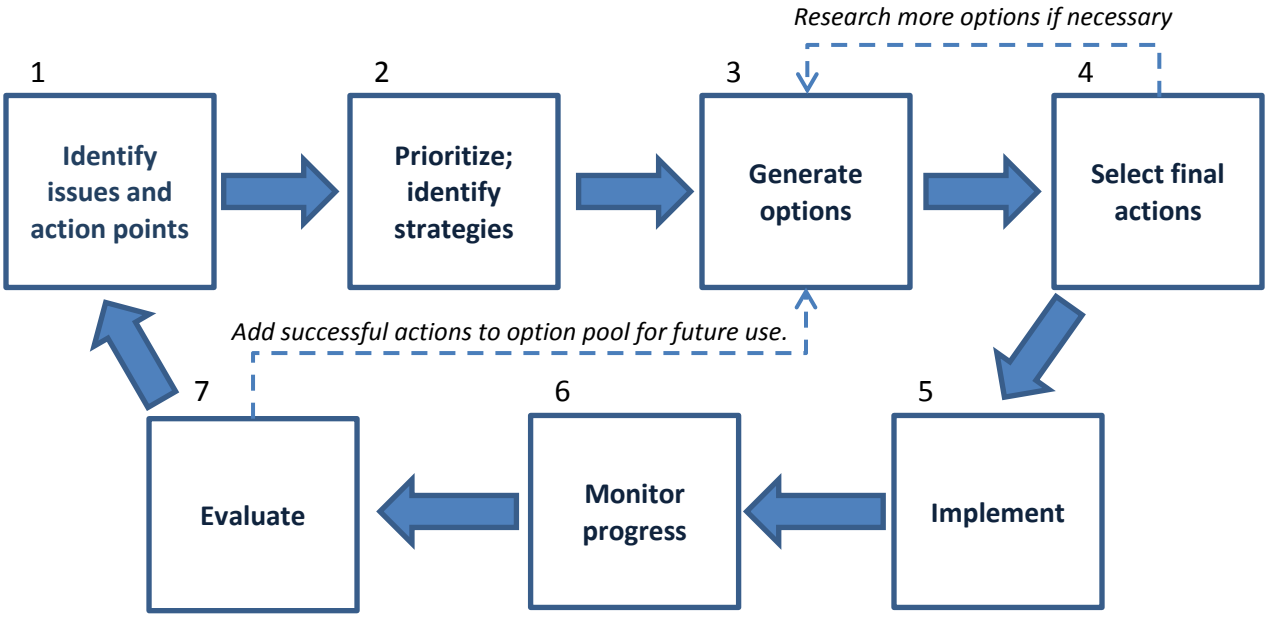
The Implementation System is the third phase of the MSP. It consists of processes to strategically identify, select, implement, evaluate, and adapt actions used to move the organization from the current state toward the vision and goals. The most important aspect of the implementation system is that it allows the City to identify, select, and adapt sustainability actions that work *for Avondale's* current targets, resources, issues, and system constraints. This is vital considering the myriad of potential options, and the context-sensitive nature of sustainable solutions.

The Implementation System takes the results of the CSA, compares them to the vision and goals, identifies issues, and selects strategies and actions (based on current conditions) to pursue the goals. The Implementation System is an iterative process that will occur on an annual cycle. Some elements of the system will be carried cycle-to-cycle; others will be added and removed as progress dictates. The set of actions specified below are the results of the first cycle; many more will follow as targets are achieved, new resources become available, and priorities change.

IMPLEMENTATION SYSTEM PROCESS

The Implementation System process is depicted in Figure 4.1 below and described in the following section[19].

Figure 4.1. The Municipal Sustainability Plan Implementation System process.



[19] The process is based on work by Culotta (2012) and Culotta, Wiek, and Forrest (under review).

Step 1. Identify issues and action points

The first step in the Implementation System involves creating a cause-and-effect system construction to identify negative outcomes (issues) that are barriers to achieving goals, and action points to affect them. This can be thought of as structuring the Current State Assessment. Each Impact Area includes current actions, the upstream drivers that cause them, and their positive and negative outcomes. Staff created system constructions for each Impact Area (Appendix E).

Next, staff identified action points to address issues in ways that pursued the goals. Action points are where users intervene to change outcomes within a system. Identifying effective action points is crucial, as no action can create the desired outcomes if it does not engage the issue in an effective way[20].

Step 2. Prioritize issues and identify strategies

The next step was to prioritize issues to address during this cycle. Time, resources, and opportunities dictate that the City cannot focus on all identified issues in every cycle, but those that are not addressed will be prioritized in subsequent years. That being said, if an opportunity arises to address an issue, staff is always ready to incorporate it.

After the issues were narrowed staff identified basic strategies to address them. Strategies included targets and indicators to measure progress. Targets provide a milestone and usually incorporate a time limit and desirable metric (e.g. 20% reduction by 2020). Indicators provide a comparison between the current and desired states (e.g. number of old vs. number of new).

Step 3. Generate options

With strategies in place, staff identified potential actions to fulfill them. Actions were identified from a variety of sources including academic and professional literature, case studies, and municipal examples. Potential actions could be new, or current practices the City wished to continue. In order to qualify as a potential option, actions had to:

- *Be relevant to the issue, action point, and goals*.
- *Adhere to sustainability principles*[21].
- *Target an identified action point(s).*
- *Have sufficient evidence to evaluate effectiveness and efficiency*.
- *Be generally feasible in Avondale*.

Step 4. Select actions

In this stage final actions were selected from the options based on the following criteria:

- *High effectiveness in addressing the action point.*
- *Demonstrated an ability to produce the desired type of outcomes.*
- *High efficiency, both in costs and operations.*
- *Appropriateness for current local environmental, social, and economic conditions.*
- *Demonstrated a successful funding/financing strategy.*
- *Demonstrated a successful implementation strategy.*

[20] More information on identifying effective action points (also known as intervention points) can be found in Meadows (1999; 2009), McKenzie-Mohr (2012), and Fraser et al. (2009).
[21] Details on sustainability principles can be found in Gasparatos et al., 2008; Gibson, 2006; and Robért et al., 2002.

- *Have an appropriate staff member/department to lead.*
- *Demonstrated a successful strategy for organizing additional administrators/participants.*
- *Demonstrated a successful outreach strategy.*
- *Can or do generate evidence related to program design and overall effectiveness.*

Trade-off rules were also created in order to provide guidance on similar options, compromises, and actions that perform well in some areas but poorly in others. The trade-off rules state that[22]:

1. Trade-offs and compromises should be a last resort. Staff will first work to identify new options or approaches that can eliminate the trade-off at hand.
2. Trade-off decisions must not compromise progress toward the vision and goals.
3. All significant trade-offs must be openly identified, discussed, justified, and agreed upon.
4. The most desirable (or least harmful) option should be chosen in trade-off situations.
5. Only actions that provide neutral or positive benefits for all Impact Areas are permitted.
6. A high rating for one criterion may not compensate for a low rating for another.

Using the above criteria and trade-off rules, staff selected the final actions for this Implementation System cycle.

Step 5. Implement

To implement the actions selected in Step 4, staff determined key participants, highlighted areas for coordination, finalized targets and indicators, identified funding strategies, and plotted basic timelines and milestones. As depicted in Appendix F, all departments are involved in some way in implementing actions.

Step 6. Monitor progress

Monitoring and evaluation are crucial for determining which actions, Impact Areas, and areas of the organization need attention. Targets and indicators were selected to measure the performance of both the individual action and progress toward the overall goals.

Step 7. Evaluate and repeat

Finally, actions will be evaluated and adapted if necessary. The City views actions that do not create the desired outcomes as opportunities to learn and adapt. The Sustainability Working Group, City Manager's Office, EENRC, and City Council will ultimately determine if existing actions should be adapted, continued, or removed. After Step 7 the cycle is repeated.

IMPLEMENTATION SYSTEM RESULTS

The following table summarizes the results of Steps 1-4 of the first Implementation System cycle. The City readily acknowledges that this table is a simplified representation of the system and intentionally omits overlaps between actions and targets for clarity. However, these systematic interdependencies are reflected in implementation, especially where opportunities to leverage efficiencies exist. Basic connections are portrayed in the "Related Impact Areas" columns. Details of the 2014 goals, strategies, actions, targets, involved departments, and indicators can be found in Appendix F.

[22] Trade-off rules were derived primarily from Gibson, 2006.

Table 4.1. 2014 Implementation System Results.

#	Strategy	Action	Additional Impact Areas											Related Targets *All percentage-based targets use a 2013 baseline, unless otherwise noted.	Related Goals
			C&E	T	PMW	LU	B&M	HWB	ECO	E&C	W	AQ	ECN		
Community and Engagement															
1	**Education and training**	Annual staff training on applicable sustainability topics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	• Offer sustainability training to 100% of staff annually • Update Council annually • All departments enrolled in Green Office Program by 2015; 50% Level 2 and 25% Level 3 by 2016; 100% Level 2 and 50% Level 3 by 2020 • Update sustainability website at least quarterly • Submit quarterly update to all staff • Sustainability outreach at 10 of community events (minimum) annually	1, 2, 3, 4, 5, 6, 7, 8, 9
2		Annual Council update on applicable sustainability topics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
3		Staff courses on sustainability-related topics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
4		Sustainability working group	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
5		Green Office Best Practices program	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
6	**Outreach**	Sustainability website content	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
7		Quarterly sustainability newsletter or update	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
8		Annual Sustainability progress report	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
9		Citizen Sustainability Outreach program	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Transportation															
10	**Fuel efficiency**	Green vehicle policy		✓	✓					✓		✓	✓	• Perform lifecycle analysis for all new vehicle purchases by 2016 • Reduce vehicle emissions 10% by 2017; 20% by 2020; and 30% by 2030 • Increase fleet fuel efficiency 4% by 2017; 10% by 2020; and 15% by 2025 • 3% of fleet uses alternative fuels by 2017; 8% by 2020; and 12% by 2025 • Evaluate fleet size, determine reduction targets for 2015 • Increase staff alternative commuting 5% by 2017; 10% by 2020; and 20% by 2023 • All staff receive annual efficient driving and alternative commute training • All City-led development incorporates Complete Streets by 2016 • All applicable developers encouraged to use Complete Streets principles by 2016	1, 2, 3, 4, 5, 6, 7, 8, 9
11		Efficient driving training	✓	✓						✓		✓	✓		
12	**Alternative fuels**	Hybrid and electric administrative vehicles		✓	✓					✓		✓	✓		
13		Plan for alternative fuel large fleet vehicles		✓	✓					✓		✓	✓		
14	**Fleet size**	Phase-out unnecessary administrative vehicles		✓	✓					✓		✓	✓		
15	**Multimodal transportation**	Complete Streets development guidelines	✓	✓		✓		✓	✓	✓	✓				
16		Complete Streets policy for City development		✓	✓	✓		✓	✓	✓	✓				
17		Bicycle, Pedestrian, and Trails Master Plan	✓	✓		✓		✓		✓	✓	✓			
18	**Alternative commuting**	Season-specific alternative commuting promotion	✓	✓				✓		✓		✓	✓		
19		Recognize top alternative commuting employees	✓	✓				✓		✓		✓	✓		
20		Safe cycling on the street course	✓	✓				✓		✓		✓	✓		
21		City of Avondale bike map	✓	✓				✓	✓	✓		✓	✓		
Procurement, Materials, and Waste															
22	**Sustainable purchasing practices**	Sustainable purchasing policy			✓		✓	✓	✓	✓	✓	✓	✓	• Create sustainable standards and guidelines for City purchases • Apply sustainable purchasing guidelines to 50% of applicable purchases by 2016; 100% by 2018 • Train 100% of purchasing staff annually • Inform all vendors of sustainable purchasing policy • Reduce number of prints 5% by 2015; 10% by 2016; and 20% by 2020 • Reduce paper towel orders 5% by 2016; 10% by 2018; 20% by 2020 • Reduce bottled water orders 2% by 2015; 5% by 2018; and 10% by 2020 • All staff receive training on office recycling practices annually	1, 2, 3, 4, 6, 7, 8, 9
23		Sustainability language in applicable contracts			✓								✓		
24		Order tracking and assessment			✓					✓	✓	✓	✓		
25	**Knowledge and awareness**	Sustainable purchasing staff training	✓		✓			✓	✓	✓	✓	✓	✓		
26		Sustainable purchasing vendor outreach	✓		✓								✓		
27	**Print and paper reduction**	Default double-sided printing			✓				✓				✓		
28		Expand tablet program			✓				✓	✓			✓		
29		Electronic plans and forms			✓				✓	✓			✓		
30	**Reuse and upcycling**	Encourage intra-office materials exchange	✓		✓				✓			✓	✓		
31		Identify potential alternative or re-use opportunities	✓		✓		✓		✓	✓		✓	✓		
32		Full-scale green waste program		✓	✓				✓	✓		✓	✓		
33		Scrap paper re-use			✓				✓	✓			✓		
34	**Reduce resource and materials use**	Distribute waste reduction awareness materials			✓		✓		✓	✓			✓		
35		Assess feasibility of installing hand dryers in restrooms			✓		✓								

36	**Reduce resource and material use continued**	Assess feasibility of installing bottle filling stations			✓		✓	✓	✓							
37		Provide reusable water bottles	✓		✓			✓	✓	✓			✓			
		Plastic bag pet waste program	✓		✓			✓	✓	✓			✓			
38	**Recycling**	Office recycling training and outreach	✓		✓			✓	✓		✓					
39		Evaluate alternative office waste collection practices			✓		✓		✓	✓						
Land Use																
40	**Sustainable development**	Enforce 2030 General Plan requirements		✓		✓	✓	✓	✓			✓		• Maintain density requirements set forth in General Plan • Recognize three examples of exceptional sustainable development by 2017	2, 3, 4, 5, 6, 7, 8, 9	
41		Research and adapt TOD best practice examples		✓		✓	✓	✓	✓			✓				
42	**Knowledge and awareness**	Sustainable development recognition	✓	✓		✓	✓	✓	✓	✓	✓	✓				
Buildings and Maintenance																
43	**Sustainable development**	Sustainable Building standard for City development		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	• Create a Sustainable Building standard for City construction • All new City buildings adhere to Sustainable Building standard by 2016 • All applicable City facilities use Integrated Pest Management by 2016	1, 2, 3, 4, 6, 7, 8, 9	
44	**Existing building efficiency**	Perform building retrocommissions					✓			✓	✓	✓	✓			
45		Reduce Friday building use	✓	✓			✓			✓			✓			
46	**Pest management**	Integrated Pest Management program			✓	✓	✓	✓	✓			✓	✓			
Health and Well-being																
47	**Sustainable design**	Evaluate potential indoor air quality upgrades					✓	✓				✓	✓	• All staff participate in at least one health and well-being program by 2016 • 80% of workspaces have a view of outdoors or nature (real or artificial) by 2017	1, 2, 5, 6, 7, 8, 9	
48		Evaluate potential comfort upgrades					✓	✓					✓			
49		Increase views of nature	✓				✓	✓	✓				✓			
50	**Knowledge and awareness**	Continue to improve staff health and well-being programs	✓					✓					✓			
51	**Ecotourism and recreation**	Expand education and recreation opportunities at the BMWA	✓					✓	✓				✓			
52		Expand outreach for Avondale outdoor recreation activities	✓					✓	✓				✓			
53	**Food access**	Additional community garden	✓			✓	✓	✓	✓				✓			
Ecosystems																
54	**Sustainable development**	Street Tree Master Plan		✓		✓		✓	✓	✓			✓		1, 2, 3, 4, 5, 6, 7, 8, 9	
55	**Landscaping**	Tree and xeriscaping maintenance guidelines	✓			✓	✓		✓		✓		✓			
56	**Ecotourism and recreation**	Create a riparian park at the recharge facility	✓			✓		✓	✓		✓					
57		Investigate other potential eco-tourism development sites	✓			✓		✓	✓		✓					
58	**Storm water management**	Rainwater collection and Low Impact Development pilot	✓			✓	✓		✓		✓					
59		Storm water pollution prevention training					✓	✓	✓		✓	✓				
60		Impervious surface reduction program				✓	✓	✓	✓		✓		✓			
Energy and climate																
61	**Energy efficiency**	Electricity benchmarking for all meters					✓			✓				• Reduce overall GHG emissions 5% by 2017; 10% by 2020; 25% by 2025 • All electricity meters monitored and benchmarked by 2015 • All applicable purchases meet Energy Star or equivalent by 2016 • Reduce City's total electricity usage 3% by 2018; 8% by 2022; 13% by 2023	1, 2, 3, 5, 6, 7, 8, 9	
62		Energy-efficient equipment purchases			✓					✓			✓			
63		Identify energy efficiency equipment and building retrofits			✓		✓			✓			✓			
64		Streetlight upgrade program		✓	✓			✓		✓			✓			
65		Incorporate energy efficiency in WRF master planning					✓			✓	✓		✓			
66	**Renewable energy**	Expand solar on Civic Center campus				✓	✓			✓			✓			

67	**Renewable energy continued**	Comprehensive solar plan for additional City sites				✓				✓	✓		✓	Energy and Climate targets continued. • Renewables provide 1% of City's energy by 2016; 10% by 2020; 20% by 2025 • Reduce office building energy use 2% by 2016, 5% by 2020, and 10% by 2025 • Update GHG emissions inventory biannually	
68		Incorporate solar in WRF master planning				✓	✓			✓	✓		✓		
69		Investigate other renewable options for City applications				✓				✓	✓				
70	**Knowledge and awareness**	Energy website content	✓					✓		✓	✓		✓		
71		Expand energy-related information programs	✓	✓				✓		✓	✓		✓		
72		GHG emissions inventory	✓	✓	✓		✓			✓	✓				
Water															
73	**Water efficiency**	Water benchmarking for all meters					✓				✓			• All water meters monitored and benchmarked by 2015 • All applicable purchases meet WaterSense or equivalent by 2016 • Achieve and maintain water demand and credit parity by 2018 • Reduce office building water use 2% by 2016; 4% by 2020, and 8% by 2025	1, 2, 3, 4, 6, 7, 8, 9
74		Water-efficient equipment purchases			✓				✓	✓	✓		✓		
75		Identify water efficiency equipment and building retrofits			✓		✓			✓	✓		✓		
76															
Air quality															
77	**Knowledge and awareness**	Expand air quality content for social and print media	✓	✓				✓				✓		• Create and update action-oriented air quality outreach content • Update PM 2.5, PM 10, ozone website content at least quarterly • Place air quality content in at least 2 RAVE publications per year • Ensure all applicable special/seasonal events complete a dust control plan	1, 2, 4, 6, 7, 8, 9
78		No-Burn Day notifications	✓					✓	✓			✓			
79		High Pollution Advisory Day notifications	✓	✓				✓				✓			
80		Air quality website content	✓	✓				✓				✓			
81	**Particulate matter mitigation**	Special event dust control plans	✓			✓		✓				✓			
82		Adhere to dust control rules and good housekeeping practices		✓			✓	✓	✓		✓	✓			
83		Mitigate and maintain unpaved surfaces for dust		✓		✓	✓	✓	✓			✓			
Economy															
84	**Sustainable business climate**	Avondale Green Business program	✓		✓		✓	✓	✓	✓	✓	✓	✓	• Enroll 10 businesses in the Avondale Green Business program by 2016 • Reduce commercial vacancies 15% by 2018 • Develop 5% of available infill sites by 2020 • Develop 5% of City Center area by 2020 • Infill 20% of existing subdivisions by 2018 • Increase employment opportunities 5% by 2018	2, 4, 6, 7, 8, 9
85		Historic Avondale Development Toolkit	✓			✓	✓	✓	✓	✓			✓		
86		Promote and support local businesses	✓				✓	✓					✓		
87		Expand businesses and opportunities	✓	✓				✓					✓		
88	**Job and workforce development**	Promote and expand entrepreneurship	✓					✓					✓		
89		Support education and training opportunities	✓					✓		✓			✓		
90		Enable and promote home ownership	✓			✓	✓	✓	✓	✓	✓	✓	✓		

NEXT STEPS AND PRIORITIES

The next steps are to convene the Sustainability Working Group and plan for implementation within the departments identified in Appendix F. Priority will be given to actions that involve multiple departments, and that require assessments, benchmarking, or the creation of standards and guidelines. The Sustainability Working Group will be headed by the Environmental Program Manager and will have at least one representative from each department. The group will meet quarterly. The Sustainability Working Group will review progress on the MSP actions, collaborate to identify solutions and efficiencies, and provide input for Steps 1-4 in subsequent Implementation System cycles.

MONITORING AND REPORTING

Successful progress on the targets, strategies, and actions will rely on strong monitoring and information sharing. Monitoring will be managed by the Environmental Program Manager in close coordination with the Sustainability Working Group. Monitoring information will be gathered and evaluated as applicable to efficiently assess the need for adaptation. Furthermore, staff providing monitoring information will give feedback on how indicators are functioning, and if others may work better.

The Environmental Program Manager will track, compile, and summarize monitoring information for the annual Sustainability Progress Report, which will be presented to City Council. This report will provide a summary of the City's progress on the MSP, highlight successes and difficulties, and preview plans for the coming year. The first Sustainability Progress Report will be presented to Council in 2015.

The results of the Sustainability Progress Report will be the basis for the next Implementation System cycle, where The Environmental Program Manager, Sustainability Working Group, EENRC, and City Council will determine if targets, strategies, and actions should be added, adapted, or discontinued based on past performance and current conditions.

In five years (2019) the City will perform an audit of the entire MSP system – including the current state, major issues and opportunities, and goals – and adapt them if necessary.

CONCLUSION

With the results of the first Implementation System cycle the City of Avondale Municipal Sustainability Plan is complete. However, this does not mean the City's work is finished, just like sustainability is never "done". The Plan at its core creates a framework for moving toward the vision and goals over time. There will always be new opportunities, resources, priorities, and developments that will require proactive adaption of actions to maintain progress. The City relishes this opportunity as it provides space to continually make the organization, community, and world more sustainable. As a municipal organization, there is no greater goal than this.

Sustainability is only possible through collaboration, and the City of Avondale would like to recognize all the leadership, staff, organizations, and individuals who provided valuable input for the MSP. If you have questions about the Plan, or would like to know how you can get involved, please contact the City at 623-333-4000.

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APPENDICES

APPENDIX A – STAFF SUSTAINABILITY PLAN INTERVIEW QUESTIONS

These questions were used to guide staff interviews on the present and future sustainability actions within the City organization. Interview results were recorded and processed into individual actions within Impact Areas. No staff were individually identified in any portion of Avondale' Municipal Sustainability Plan.

1. What actions do *you* and *your department* currently do to:
    a. save energy
    b. save water
    c. save resources
    d. eliminate waste
    e. reduce air pollution and GHG emissions
    f. promote healthy habits
    g. educate employees on sustainability issues
    h. empower and enable employees to take sustainability actions
    i. protect wildlife and ecosystems
    j. support the local economy
    k. promote clean industries and companies

2. What sustainability actions do you feel the City *should* be doing, but currently is *not*?

3. What, to you, are the *most important aspects* of sustainability for the City to incorporate in its internal actions?

4. Describe your idea of a sustainable City of Avondale organization in 2075. This can be as broad, detailed, short, or lengthy as you wish, and it does not necessarily have to relate to current conditions. Please answer the question by completing the following statement: *In the future, a sustainable City of Avondale organization is* _____*.*

APPENDIX B – CURRENT STATE SUSTAINABILITY ACTION DESCRIPTIONS

COMMUNITY AND ENGAGEMENT

Employee Empowerment – Staff feels empowered and enabled to take sustainability actions and suggest new ideas to supervisors. Most interviewees felt empowered to suggest new ideas, but some mentioned that they were not always confident any follow-up or changes would result from their suggestions.

- Additional Impact Areas:
- Lead Department: All

Culture of efficiency – Staff are aware of actions that contribute to efficient energy and resource use and practice them often. Many interviewees noted that though they practice efficiency daily, they did not believe their peers did the same.

- Additional Impact Areas: Transportation, Procurement, Materials, and Waste, Buildings and Maintenance, Energy and Climate, Water, Economy
- Lead department: All

Public information and education materials – Sustainability events, information, and tips are distributed to the public via the RAVE Review (Avondale's quarterly newsletter), public events, community partners, social media, and in the sustainability section of the City's website.

- Additional Impact Areas: Transportation, Land Use, Buildings and Maintenance, Health and Well-being, Ecosystems, Energy and Climate, Water, Air Quality, Economy Lead department: Community Relations and Public Affairs

Healthy Homes initiative – This educational program, offered to residents and employees through the Care1st Center, takes a holistic approach to healthy homes by covering topics related to energy and water efficiency, safe and healthy home products, financial sustainability, and environmental health.

- Additional Impact Areas: Procurement, Resources, and Waste, Buildings and Maintenance, Health and Well-being, Energy and Climate, Water, Air Quality, Economy
- Lead department: Neighborhood and Family Services

Public health and well-being classes – The Care1st Center offers classes to the public that focus on health, well-being, efficiency, and financial sustainability.

- Additional Impact Areas: Buildings and Maintenance, Health and Well-being, Energy and Climate, Water, Economy
- Lead Department: Neighborhood and Family Services

Shade tree program – In partnership with APS, the Care1st Center offers a class on the efficiency, quality of life, and environmental benefits of planting shade trees, and how to do so

successfully. Shade trees not only reduced the energy required to cool homes and improve neighborhood appearance, they also provide access to nature and habitat.

- Additional Impact Areas: Land Use, Buildings and Maintenance, Ecosystems, Energy and Climate, Air Quality, Economy
- Lead department: Neighborhood and Family Services

Home rehabilitation program – The City offers home rehabilitation, mainly in older and lower-income neighborhoods, which provides home improvements focused on health, safety, and efficiency.

- Additional Impact Areas: Procurement, Materials, and Waste, Buildings and Maintenance, Health and Well-being, Energy and Climate, Water, Economy Lead department: Neighborhood and Family Services

Tres Rios Nature & Earth Festival – The Tres Rios Nature & Earth Festival is a two-day annual event that educates attendees on the ecology, history, and recreation opportunities in the Baseline and Meridian Wildlife Area. Several organizations are represented at the festival, and visitors are treated to a variety of information, demonstrations, activities, food, and entertainment each day. This is one of the most highly attended events in the City.

- Additional Impact Areas: Procurement, Materials, and Waste, Land Use, Health and Well-being, Ecosystems, Energy and Climate, Water, Air Quality, Economy
- Lead department: Parks, Recreation, and Libraries

Outreach events – The City hosts or participates in numerous outreach events where it distributes sustainability-related information and engages with attendees. Events include Resident Appreciation Night, HOA Summits, the HOA Academy, the Citizen Leadership Academy, and City Hall Comes to You. Thousands of residents and visitors attend the event each year.

- Additional Impact Areas: Procurement, Materials, and Waste, Land Use, Health and Well-being, Ecosystems, Energy and Climate, Water, Air Quality, Economy
- Lead department: All

Sustainability webpage – The City has a sustainability section of its website where it presents sustainability events, information, tips, and plans. This page is small, but there are plans to expand it significantly in the near future.

- Additional Impact Areas: All
- Lead department: Engineering and Development Services

Interdepartmental collaboration – City departments work together to design, implement, and market various sustainability-related campaigns and projects to improve efficiency, effectiveness, and reach. Interviewees noted that while this is common, the collaboration process could be improved.

- Additional Impact Areas: All
- Lead department: All

Incorporate sustainability concepts and practices – Staff is encouraged to attend conferences and workshops on sustainability topics and integrate them into the zoning ordinance, city code, or other guides when appropriate. Interviewees mentioned that while receiving education was fairly common, achieving buy-in to incorporate the concepts into practice was often difficult.

- Additional Impact Areas: Transportation, Land Use, Buildings and Maintenance, Health and Well-being, Ecosystems, Energy and Climate, Water, Air Quality, Economy
- Lead department: All

Employee Connect meetings – These regular meetings between City Management, leadership, and employee representatives provide a venue for information exchange and discussion on how the organization can improve its culture, working conditions, practices, events, etc. for the benefit of all.

- Additional Impact Areas: Health and Well-being
- Lead department: City Manager's Office

Partnerships with NGOs and community groups – When appropriate, departments partner with NGO and community groups to help extend reach and leverage resources for sustainability-related programs and projects, especially those with community involvement.

- Additional Impact Areas: All
- Lead department: All

Income tax assistance program – The City offers an income tax assistance program where qualifying residents can receive help preparing their taxes.

- Additional Impact Areas: Economy
- Lead department: Neighborhood and Family Services

Collaborate with neighboring communities – The City collaborates with neighboring communities on events that benefit residents in the broader west valley area. This allows for greater reach and participation, as well as efficient use of resources.

- Additional Impact Areas: Economy
- Lead department: All

TRANSPORTATION

Employee carpooling – Employees are encouraged and incentivized to carpool to work. Several employees take advantage of carpooling, but considering the number of employees who drive to work participation could be greater.

- Additional Impact Areas: Energy and Climate, Air Quality, Economy
- Lead department: Community Relations and Public Affairs

Trip reduction program – The City provides information and incentives to employees to reduce the number of trips to and from work via alternative or public transportation options, or carpooling.

- Additional Impact Areas: Community and Engagement, Energy and Climate, Economy
- Lead department: Community Relations and Public Affairs

Coordinated code response and inspections – Code Enforcement coordinates complaint response and inspections via a smartphone-based case management application. This saves time, fuel costs, and vehicle wear, as well as pollution and environmental impacts. Additionally, because the entire system is electronic, paper usage has been significantly reduced.

- Additional Impact Areas: Procurement, Materials, and Waste, Energy and Climate, Air Quality, Economy
- Lead department: Code Enforcement

ZOOM bus service – The City has a smaller circulator bus service called the ZOOM which runs throughout several popular and high-traffic areas of Avondale. The ZOOM provides increased access and availability to areas where other Valley Metro bus routes do not.

- Additional Impact Areas: Energy and Climate, Air Quality, Economy
- Lead department: Community Relations and Public Affairs

Bicycle, Pedestrian, and Trails Master Plan – The City is currently creating a Bicycle, Pedestrian, and Trails Master Plan to improve connectivity, recreation opportunities, safety, access, and comfort in order to enable safe and efficient pedestrian and bicycle travel throughout Avondale.

- Additional Impact Areas: Land Use, Health and Well-being, Ecosystems, Energy and Climate, Air Quality, Economy
- Lead department: Development Services

Transportation center – The City is building a transportation center that will create access to Phoenix and areas beyond through several transit modes. The transportation center is part of the transit-oriented, mixed-use development concentrated in the Interstate 10 and Avondale Boulevard area. Initially the transit center will be a hub for bus routes, and is planned to eventually include light rail.

- Additional Impact Areas: Land Use, Health and Well-being, Energy and Climate, Air Quality, Economy
- Lead department: Development Services and Engineering

Dial-A-Ride program – This program is available through Valley Metro to residents with disabilities who cannot access Valley Metro bus routes. Residents are able to call and be picked up anywhere in the service area for a small fee.

- Additional Impact Areas: Health and Well-being, Energy and Climate, Economy
- Lead department: Community Relations and Public Affairs

Coordinated traffic timing on major roads – The City's Traffic Division coordinates traffic timing on major roads during peak times in order to increase traveling efficiency. By automating systems and improving traffic flow, this program also reduces fuel costs, GHG emissions, and operating costs.

- Additional Impact Areas: Health and Well-being, Energy and Climate, Air Quality, Economy
- Lead department: Traffic

Taxi subsidy program – This program provides a subsidy of up to $15 per taxi ride to residents who require frequent medical-related trips.

- Additional Impact Areas: Health and Well-being, Economy
- Lead department: Community Relations and Public Affairs

Valley Metro bus service – The regional transportation organization, Valley Metro, operates two bus routes that service the Avondale area. Considering the City's size and rate of growth, the number and coverage of routes needs to be expanded for adequate service.

- Additional Impact Areas: Energy and Climate, Air Quality, Economy
- Lead department: Community Relations and Public Affairs

Sustainable surfacing materials – In 2012 the City resurfaced or maintained 800,000 square yards, or 17%, of its road surfaces. The City used Tire Rubber Modified Surface Sealant to accomplish this, which incorporates used tires. This program resulted in 2,194 tires being diverted from the landfill.

- Additional Impact Areas: Procurement, Materials, and Waste, Ecosystems
- Lead department: Engineering

PROCUREMENT, MATERIALS, AND WASTE

Recycling – Avondale has an extensive single-stream recycling program that accepts nearly all common recyclable items. Recycle bins are available to every house and are placed in every office and throughout common areas in City buildings. Plastic grocery bag receptacles are available in the City Hall and Library lobbies. Battery collections are also carried out periodically for staff in City Hall.

- Additional Impact Areas: Ecosystems, Energy and Climate, Economy
- Lead department: Public Works

Reduced paper usage – All City departments have made efforts to reduce their paper usage, which cuts down on purchasing costs, resources used, and the amount thrown away or recycled. The majority of budgetary reports and council packets have been made electronic, which saves at least ten thousand of sheets of paper per month. A successful tablet pilot program was launched for supervisors. Nearly all Code Enforcement case records are now electronic. The MyAvondale smartphone app provides citizens with a convenient way to report concerns to the City electronically. Almost all interviewees stated they printed and used paper as little as possible.

- Additional Impact Areas: Ecosystems, Energy and Climate, Economy
- Lead department: All

Double-sided printing – When printing is necessary, staff uses double-sided printing options wherever appropriate. This reduces the amount of trees needed to produce the paper, the amount of money spent on paper, and the eventual volume of waste.

- Additional Impact Areas: Ecosystems, Energy and Climate, Economy
- Lead department: All

Eliminated foam cups – The City previously provided disposable foam coffee cups in break rooms. The organization eliminated this practice in order to reduce costs, the amount of resources used to make cups, and the amount of waste produced. Employees now use reusable coffee cups.

- Additional Impact Areas: Ecosystems, Energy and Climate, Economy
- Lead department: All

Household Hazardous Waste collection events – Avondale partners with neighboring communities at least twice a year to hold household hazardous waste collection events, where residents can bring waste not accepted by typical trash and recycling services for proper disposal.

- Additional Impact Areas: Health and Well-being, Ecosystems
- Lead department: Public Works

Properly dispose of hazardous waste materials – Some of the materials in the City's buildings, such as florescent light bulbs, are considered hazardous waste when they exhaust their useful life. Such materials are always disposed of properly, and many are recycled using approved methods.

- Additional Impact Areas: Buildings and Maintenance, Health and Well-being, Ecosystems, Air Quality, Economy
- Lead department: Facilities

Donate used electronics – Rather that dispose of computers and other electronics that still have useful life, the City donates them to community and educational partners.

- Additional Impact Areas: Transportation, Procurement, Materials, and Waste, Health and Well-being, Ecosystems, Economy
- Lead department: Information Technology

Donate or recycle public works equipment – When equipment like pumps are upgraded, Public Works donates the old equipment to municipalities in need. If donation is not an option, the equipment is properly recycled.

- Additional Impact Areas: Procurement, Materials, and Waste, Ecosystems, Energy and Climate, Water, Economy
- Lead department: Public Works

Green Seal certified cleaning products – All cleaning products and materials used in City builds are Green Seal Certified. Green Seal standards are created in a stakeholder-driven, transparent manner, and use a lifecycle approach to ensure products and companies are environmentally and socially sustainable.

- Additional Impact Areas: Buildings and Maintenance, Health and Well-being, Ecosystems, Energy and Climate, Water, Air Quality, Economy
- Lead department: Facilities

Recycle scrap metal locally – When the City has scrap metal products to recycle, it sends them to a recycler in Avondale. Recycling metal reduces landfill waste, but using a local recycler also reduces the amount of transportation required, which cuts GHG emissions, traffic on the roads, and shipping costs.

- Additional Impact Areas: Transportation, Ecosystems, Energy and Climate, Air Quality, Economy
- Lead department: Public Works

Online and electronic outreach – The City is focusing on online and electronic distribution channels for community engagement. The Community Relations and Public Affairs department has found that online and electronic media channels are more effective, and greatly reduce the amount of paper required to distribute information.

- Additional Impact Areas: Ecosystems, Energy and Climate, Economy
- Lead department: Community Relations and Public Affairs

Avoid excess office supplies – Departments at the City avoid purchasing office supplies beyond what is required. This reduces costs, transportation related to shipping, unused materials, and excess resources.

- Additional Impact Areas: Transportation, Energy and Climate, Economy
- Lead department: All

Christmas tree recycling program – Near the end of each year the City partners with area businesses to provide Christmas tree recycling services. Christmas trees are collected and turned into compost for use at a local egg farm. Processing the trees into useful material not

only improves local agriculture, it also reduces landfill space, costs, and emissions associated with traditional disposal.

- Additional Impact Areas: Transportation, Energy and Climate, Ecosystems, Economy
- Lead department: Public Works

Recycling and waste education program – Residents receive information on what to recycle and how to correctly place bins for pick-up. Residents who recycle correctly receive a sticker on their bin, which helps spread proper recycling practices through neighborhood social networks.

- Additional Impact Areas: Community and Engagement, Transportation, Ecosystems, Energy and Climate, Economy
- Lead department: Public Works

MyAvondale app – The MyAvondale mobile app allows residents and staff to reduce paper usage by allowing complaints and concerns to be submitted electronically. Each incident is then routed to the correct department for efficient follow-up. Code Enforcement has an additional smartphone-based case management system for addressing complaints, which further reduces paper usage.

- Additional Impact Areas: Transportation, Energy and Climate, Economy
- Lead department: Community Relations and Public Affairs

Electronic waste collection events – Avondale partners with neighboring cities at least twice per year to hold electronic waste collection events. These events allow residents to properly dispose of personal electronics that if discarded incorrectly could leach harmful compounds into the environment.

- Additional Impact Areas: Health and Well-being, Ecosystems
- Lead department: Public Works

Reuse paper – Though not widespread, some departments reuse flyers and single-sided (non-confidential) documents for sign-in sheets, note pads, or other uses. This reduces the amount of waste that could eventually make its way into landfills, and reduces costs.

- Additional Impact Areas: Ecosystems, Economy
- Lead department: All

Minimize inventory – The IT Department constantly works to minimize electronic hardware inventory, including the use of an aggressive 1.15 PCs per employee policy. This ensures that the City does not purchase excess hardware, enhances energy efficiency, avoids unnecessary disposal fees, and reduces environmental impacts.

- Additional Impact Areas: Health and Well-being, Energy and Climate, Economy
- Lead department: Information Technology

Reuse asphalt millings – The City Engineering and Building divisions reuse asphalt millings for road base, dust control, road and ally paving, and other streets, maintenance, and Public Works tasks. Millings are also recycled for use in future paving applications.

- Additional Impact Areas: Transportation, Energy and Climate, Water, Air Quality, Economy
- Lead department: Engineering

Safe electronics disposal policy – Avondale's IT Department has a stringent disposal policy which states that all electronics must be disposed of or recycled according to EPA guidelines. This policy ensures that dangerous compounds do not enter the environment where they can harm humans and ecosystems.

- Additional Impact Areas: Health and Well-being, Ecosystems
- Lead department: Information Technology

LAND USE

Public building landscaping – The landscaping around Avondale's public buildings is primarily xeriscaped and low water-use. City Hall has an interpretive garden with native plant species and signs with their common and scientific names. The Civic Center campus manages the little turf it has conservatively, with only one area that requires over-seeding. All of these measures reduce the amount of fertilizer and chemicals, water, energy, fuel, costs, and labor required, and provide habitat for native flora and fauna.

- Additional Impact Areas: Community and Engagement, Procurement, Materials, and Waste, Ecosystems, Energy and Climate, Water, Economy
- Lead department: Facilities

Redevelopment emphasizes sustainable design – Several City-led redevelopment projects have emphasized sustainable design in order to provide examples for others, demonstrate Avondale's commitment to sustainability, and create a stronger sense-of-place.

- Additional Impact Areas: Community and Engagement, Procurement, Materials, and Waste, Ecosystems, Energy and Climate, Water, Economy
- Lead department: Neighborhood and Family Services, Development Services and Engineering

2030 General Plan – Avondale's 2030 General Plan focuses on dense, mixed-use, transit-oriented, and sustainable development in the City's central areas. The plan also specifies the protection and enhancement of natural areas and open space.

- Additional Impact Areas: Transportation, Health and Well-being, Ecosystems, Energy and Climate, Water, Economy
- Lead department: All

Complete streets – Avondale has adopted a "complete streets" philosophy for all future development. Complete streets enable all forms of transportation, including transit, bicycles, and pedestrian, and create a comfortable, attractive environment for users. Complete streets also include ecologically integrated landscaping and storm water management that enhance ecosystem function and reduce runoff pollution and UHI.

- Additional Impact Areas: Transportation, Land Use, Health and Well-being, Ecosystems, Water, Air Quality, Economy
- Lead department: All

Xeriscaping in public spaces – Public spaces like medians and Right-of-Way are required to have xeriscaping and low water-use plants, and are forbidden to contain turf. This reduces maintenance costs and demonstrates the City's commitment to sustainable development.

- Additional Impact Areas: Procurement, Materials, and Waste, Ecosystems, Energy and Climate, Water, Economy
- Lead department: Engineering

Single Family Residential Design Manual – Avondale's recently updated design manual for single family homes incorporates many sustainable land use features, complete streets,

efficient homes built with sustainable materials, pedestrian-friendly neighborhood designs, xeriscaping, and green infrastructure.

- Additional Impact Areas: Community and Engagement, Transportation, Procurement, Materials, and Waste, Land Use, Buildings and Maintenance, Health and Well-being, Ecosystems, Energy and Climate, Water, Air Quality, Economy
- Lead department: Engineering and Development Services

Road diets – A number of Avondale's existing roads have more than adequate footprints to accommodate present and projected traffic levels. Roads with surplus space are restriped to include bike lanes, or have lanes removed to incorporate landscaping, separate bike and multiuse paths, and traffic calming features in their existing footprint.

- Additional Impact Areas: Transportation, Land Use, Health and Well-being, Ecosystems, Water, Air Quality, Economy
- Lead department: Engineering

Public Art zoning ordinance – The Avondale Zoning Ordinance specifies that all new large businesses which build facilities in the city are required to incorporate public art into their projects. Art enhances the appearance, appeal, and well-being of the city and its residents.

- Additional Impact Areas: Community and engagement, Health and well-being, Economy
- Lead department: Development Services

BUILDINGS AND MAINTENANCE

HVAC management – The Facilities Manager employs an HVAC management plan that maximizes efficiency while still maintaining thermal comfort in City buildings. This often involves careful balancing of outside and chilled air, zone control, and temperature parameter settings.

- Additional Impact Areas: Health and Well-being, Energy and Climate, Water, Economy
- Lead department: Facilities

Model Eco-friendly home – the City built an eco-friendly model home in a recovering neighborhood to stimulate growth and demonstrate the potential of sustainable design. The home included features such as solar panels, efficient fixtures, and sustainable building materials. The City recently completed and additional sustainable building project in the heart of its downtown revitalization district.

- Additional Impact Areas: Procurement, Materials, and Waste, Land Use, Health and Well-being, Ecosystems, Energy and Climate, Water, Economy
- Lead department: Neighborhood and Family Services

Neighborhood Focus Program – Code Enforcement inspects every property at least once per year in the Neighborhood Focus Program. This ensures that all structures and properties are safe and clean, and that any deficiencies can be rectified before more major issues arise. Routes for these routine inspections are planned with time and fuel efficiency in mind.

- Additional Impact Areas: Community and Engagement, Health and Well-being, Ecosystems, Energy and Climate, Water, Economy
- Lead department: Neighborhood and Family Services

Gangplank Retrofit – The City installed sustainable and efficient retrofits at its building that houses a business incubator in historic Avondale. Improvements included a new HVAC system, efficient windows and lighting, low VOC paint, and xeriscaping.

- Additional Impact Areas: Procurement, Materials, and Waste, Land Use, Health and Well-being, Ecosystems, Energy and Climate, Water, Air Quality, Economy
- Lead department: Engineering and Facilities

Clean and Lean program – The Clean and Lean program helps maintain the exterior of foreclosed homes. This helps maintain property values within the neighborhood and in many cases can help homes sell more quickly. Keeping properties in good repair is crucial for community vitality.

- Additional Impact Areas: Buildings and Maintenance, Health and Well-being, Economy
- Lead department:

Civic Center campus efficiency upgrades – Buildings on the Civic Center campus have seen numerous efficiency upgrades, including lighting, HVAC, IT, and power management. The City constantly scans for new opportunities for efficiency improvements to reduce its energy use, GHG emissions, and costs.

- Additional Impact Areas: Energy and Climate, Economy
- Lead department: Facilities

HEALTH AND WELL-BEING

Health and safety HR initiatives – The Human Resources department offers a number of programs that promote and incentivize healthy, safe, and active lifestyles for City staff. These programs often combine educational information with incentives or competitions, and emphasize preventative measures.

- Additional Impact Areas: Community and Engagement, Economy
- Lead department: Human Resources

Fitness rooms – City Hall and the Police Station have fitness rooms that are open to all staff. The City Hall fitness room is accessible 24 hours per day, encouraging staff to exercise and maintain healthy habits whenever it fits their schedules.

- Additional Impact Areas: Economy
- Lead department: Human Resources

Bountiful Baskets Program – This program, in partnership with an NGO, gives employees access to fresh, seasonal foods delivered to the workplace with minimal packaging and at competitive prices. Bountiful Baskets buys food from local growers when possible, and also offers all-organic options.

- Additional Impact Areas: Procurement, Materials, and Waste, Ecosystems, Energy and Climate, Economy
- Lead department: Community Relations and Public Affairs

Police Wellness Committee – The Police Department recognizes the health impacts that can come from stressful work environments, and is committed to keeping its staff health and happy. Toward this end the department has created a wellness committee that provides tips and options for healthy living and work habits.

- Additional Impact Areas: Community and Engagement, Economy
- Lead department: Police

Police quiet room – The Police Department provides a quiet room for rest and relaxation. This helps staff with irregular schedules get the rest they need without having to drive between home and work while tired. This also helps reduce the number of trips to and from the Station.

- Additional Impact Areas: Community and Engagement, Transportation, Energy and Climate, Economy
- Lead department: Police

Outdoor recreation and activity programs – The Parks and Recreation department offers a number of outdoor recreation and activity programs for all age groups. These programs range from guided nature hikes to vigorous physical activity, and are designed to increase the use and enjoyment of Avondale's outdoor resources.

- Additional Impact Areas: Community and Engagement, Ecosystems, Economy
- Lead department: Parks & Recreation

Bicycle, Pedestrian, and Trails Master Plan – The Bicycle, Pedestrian, and Trails Master Plan will create several new trails and improve connectivity throughout the city. Such trails will provide increased access to nature, expand recreation opportunities, and grow the network of options for non-vehicular travel.

- Additional Impact Areas: Community and Engagement, Transportation, Ecosystems, Economy
- Lead department: Parks & Recreation

Friendship Park redesign – Avondale's largest and most heavily-used park, Friendship Park, is being updated to increase recreation and enjoyment opportunities, improve access, and expand the amount of green space in the City.

- Additional Impact Areas: Community and Engagement, Land Use, Buildings and Maintenance, Ecosystems, Water, Economy
- Lead department: Parks & Recreation; Development Services and Engineering

10% outside air – The Facilities division ensures that the Civic Center buildings have at least 10% outside air flowing inside at all times. This ensures that indoor air is kept fresh and well-circulated. During cooler periods, it can also provide free air conditioning.

- Additional Impact Areas: Buildings and Maintenance, Energy and Climate, Air Quality, Economy
- Lead department: Facilities

ECOSYSTEMS

Focus on redevelopment – Avondale focuses on infilling or revitalizing areas that are currently developed, rather than impacting undisturbed ecosystems in undeveloped areas.

- Additional Impact Areas: Land Use
- Lead department: Neighborhood and Family Services

Promote native plants – The City provides educational materials and classes for residents which promote the ecological, financial, and efficiency benefits of native and low-water use landscaping.

- Additional Impact Areas: Community and Engagement, Land Use, Water, Economy
- Lead department: Water Resources

Low-water plants for commercial development – the Zoning Ordinance requires new commercial developments to install plants only from the Arizona Department of Water Resources' Low Water Use/Drought Tolerant Plant List. Many of these plants are native species and support overall ecosystem health.

- Additional Impact Areas: Land Use, Water, Economy
- Lead department: Engineering and Development Services

Tree and Shade Master Plan – The City is creating a Tree and Shade Master Plan to create a strategy for urban forest development. Trees provide many benefits in the city, including shade, beauty, habitat, pollution filtration, storm water infiltration, wind breaks, UHI mitigation, and increased property values.

- Additional Impact Areas: Land Use, Health and Well-being, Energy and Climate, Water, Air Quality, Economy
- Lead department: Development Services

Landscaping for wildlife class – the Water Resources division holds a class on landscaping for wildlife, which emphasizes the use and placement of native species to support numerous indigenous plants, animals, and insects. Not only does this support local ecosystem function, it also provides enjoyment and well-being by providing increased exposure to wildlife and nature.

- Additional Impact Areas: Land Use, Health and Well-being, Water, Economy
- Lead department: Water Resources

Care1st courtyard garden – The Care1st Community Center has a courtyard garden that contains native plant species and a solar-powered water feature. This garden provides access to nature and a place for Care1st visitors to relax, as well as an education venue for learning about gardening, renewable energy, and native plant species.

- Additional Impact Areas: Community and Engagement, Health and Well-being, Energy and Climate, Water, Economy
- Lead department: Neighborhood and Family Services

Stormwater Pollution Prevention Program – Avondale has an extensive stormwater pollution prevention program that contains planning, behavioral, and physical measures to

reduce the pollutant loads conveyed by storm water. Since storm water infiltrates into groundwater supplies and Avondale's water is drawn solely from wells, reducing pollution is vital for treatment costs, water availability, and human health.

- Additional Impact Areas: Community and Engagement, Health and Well-being, Land Use, Water, Economy
- Lead department: Engineering and Development Services

ENERGY AND CLIMATE

Lighting management – Staff uses energy conservation practices with lighting. This includes keeping lights off in common areas when not in use, turning off office lights at night, and even placing signs in break rooms that remind users to turn lights off. Interviewees noted that these practices could be more widespread.

- Additional Impact Areas: Community and Engagement, Economy
- Lead department: All

Computer power management – Staff either shuts down computers or sets them to go into sleep mode at the end of each work day to save energy and wear.

- Additional Impact Areas: Economy
- Lead department: All

Green Friday work schedule – Except for emergency services, City operations are on a Monday-Thursday, 10-hour per day schedule. Because employees are only in buildings four days per week, commuting is reduced, as well as the energy and water required when compared to a more common Monday-Friday schedule.

- Additional Impact Areas: Transportation, Materials and Waste, Buildings and Maintenance, Water, Air Quality, Economy
- Lead department: All

Low and natural lighting – Some departments use low or natural lighting, which reduces the amount of energy required while still providing adequate work conditions.

- Additional Impact Areas: Economy
- Lead department: All

Green cleaning practices – The cleaning staff is instructed to turn off lights after completing their evening tasks.

- Additional Impact Areas: Health and Well-being, Air Quality, Economy
- Lead department: Facilities

LED lighting – LED lighting is more energy efficient and produces less waste than incandescent and compact florescent bulbs. Avondale has employed a number of LED lighting solutions with more planned for the future. To date the City has installed LED street lights in the Civic campus parking lots, Friendship Park parking lot, the American Sports Center, the City Center III Transportation Center, and along Civic Center drive. The City has also converted the backlighting for building signs on the Civic campus to LEDs.

- Additional Impact Areas: Materials and Waste, Economy
- Lead department: Facilities

Inexpensive solar permitting – The Engineering and Development Services Department charges one of the lowest fees in the Valley for solar permits. Residents can quickly and easily receive a solar permit for the price of $40.00 for most residential systems.

- Additional Impact Areas: Buildings and Maintenance, Economy

- Lead department: Engineering and Development Services

Care1st HVAC replacement – The air conditioning unit was recently replaced at the Care1st Community Center to improve performance, thermal comfort, and energy efficiency.

- Additional Impact Areas: Buildings and Maintenance, Economy
- Lead department: Facilities

Efficient public class schedule – The Care1st Community Center offers numerous classes on a variety of topics. Staff at the Center works to schedule courses at the most convenient times and according to demand so that effort, energy, resources, and course materials are directed into fewer, more highly-attended courses rather than more numerous classes with low participation.

- Additional Impact Areas: Community and Engagement, Materials and Waste, Buildings and Maintenance, Water, Economy
- Lead department: Neighborhood and Family Services

Efficient lighting upgrades – The lighting in most civic buildings has been upgraded to T8 bulbs, which are significantly more efficient that the T12 bulbs they replaced. They also last longer, creating less waste and requiring fewer resources and expenditures for proper disposal.

- Additional Impact Areas: Buildings and Maintenance, Economy
- Lead department: Facilities

Server virtualization – The IT department has downsized their physical server requirements by 30%, significantly reducing the materials, maintenance, energy, cooling, and disposal costs associated with these large hardware units.

- Additional Impact Areas: Materials and Waste, Buildings and Maintenance, Economy
- Lead department: Information Technology

Virtual desktops – They City uses smaller virtual desktop units connected to a central network rather than individual desktop PCs. This reduces the energy and costs associated with maintaining and replacing computers.

- Additional Impact Areas: Materials and Waste, Economy
- Lead department: Information Technology

Energy Star certified hardware – All electronic hardware, including computers, monitors, copiers and printers, servers, and other electronics are Energy Star certified.

- Additional Impact Areas: Economy
- Lead department: Information Technology

Data center space reduction – As servers are virtualized, IT also downsized the space needed to house Avondale's data center. This significantly decreases the cooling necessary to maintain the equipment at its proper temperature.

- Additional Impact Areas: Buildings and Maintenance, Economy
- Lead department: Information Technology

Separate server room AC unit – The Care1st Community Center's server is housed in a separate part of the building that has its own air conditioning unit. This allows the server to be cooled without requiring the air conditioning to run in the rest of the building.

- Additional Impact Areas: Buildings and Maintenance, Economy

- Lead department: Facilities

Solar Demonstration Project – The award-winning Solar Demonstration Project shows Civic Campus visitors how solar electricity systems work, what they should consider when planning for solar, and next steps for going solar themselves.

- Additional Impact Areas: Community and Engagement, Land Use
- Lead department: Engineering

Green IT plan – The IT department has created a plan to reduce the materials, waste, and energy used to support the City's technology needs. This represents the first sustainability-related plan a City department has made on their own. IT's efforts have led to significant reductions in energy and costs across the City organization.

- Additional Impact Areas: Community and Engagement, Materials and Waste, Buildings and Maintenance, Economy
- Lead department: Information Technology

LED traffic signals – Almost all of Avondale's traffic signals use LED lighting. These signals use less energy and last significantly longer than the traditional bulbs they replaced. LED signals also offer increased visibility which enhances safety.

- Additional Impact Areas: Transportation, Health and Well-being, Economy
- Lead department: Traffic

Energy monitoring – The City monitors its energy usage to identify problems that may be leading to waste. Avondale is also entered in an energy contest where City buildings are compared to similar ones in the Valley over the course of 2013.

- Additional Impact Areas: Community and Engagement, Buildings and Maintenance, Economy
- Lead department: Engineering

WATER

Low flow fixtures – There are low-flow and auto shut-off fixtures in the restrooms of the Civic campus buildings. These ensure water savings, and also aid in health and sanitation.

- Additional Impact Areas: Health and Well-being, Economy
- Lead department: Facilities

Rebate program – The water resources department manages a rebate program that provides incentives for residents to purchase low-water fixtures and appliances for their home, and replace turf with xeriscaping to curb outdoor water use.

- Additional Impact Areas: Energy and Climate, Economy
- Lead department: Water Resources

Water conservation programs for youth – The City frequently provides classroom presentations and community events for students and youth focused on water information, issues, and conservation.

- Additional Impact Areas: Ecosystems, Water
- Lead department: Water Resources

Water Education for Teachers program – This program, provided by the University of Arizona and City of Avondale, provides teachers information on the water cycle, water delivery systems, and Arizona water issues. Teachers then integrate this into the classroom using a designed curriculum.

- Additional Impact Areas: Ecosystems, Energy and Climate, Water
- Lead department: Water Resources

Water education – The Water Resources Department provides a variety of water-specific classes, information, and education materials in print and online. These are widely distributed in public buildings and to community partners.

- Additional Impact Areas: Land use, Ecosystems, Energy and Climate, Water
- Lead department: Water Resources

Member of water conservation organizations – The City is a member of Water Use it Wisely and the Arizona Municipal Water Users Association, which are regional awareness and education organizations that provide resources on area water issues.

- Additional Impact Areas: Ecosystems, Water
- Lead department: Water Resources

Water website – The water resources department has a website that focuses on water issues and conservation. The information is wide-ranging, including topics such as efficient home fixtures and water-smart landscaping.

- Additional Impact Areas: Water, Economy
- Lead department: Water Resources

Landscaping classes – The Water Resources department offers landscaping classes to the public that promote xeriscaping and smart water use. Participants are given plant, layout, and irrigation suggestions based on several landscape themes.

- Additional Impact Areas: Water, Economy
- Lead department: Water Resources

Drip irrigation at Civic buildings – All civic buildings, which primarily have xeriscaping, have drip irrigation systems that are much more water efficient than traditional sprinkler systems.

- Additional Impact Areas: Land Use, Ecosystems, Economy
- Lead department: Facilities

Robust water security plan – Due to a robust water plan and favorable geography, Avondale has one of the most secure water resources in the Valley. Additionally, the City recharges water near the same location as draws it from. The City currently has approximately 60,000 acre feet of water banked, which represents approximately a 4-5 year water supply in reserve.

- Additional Impact Areas: Land Use, Energy and Climate, Economy
- Lead department: Water Resources

Water reclamation – Currently the City recharges its reclaimed water for indirect potable use. Water reuse will continue to be a component of Avondale's water future, and the City plans to increase reuse in different locations in the coming years**.** According to current plans, at build-out the City could have 10,000 acre-feet of reclaimed water reuse per year.

- Additional Impact Areas: Energy and Climate, Economy
- Lead department: Water Resources

Landscaping consultations – The Avondale Water Resources department provides landscaping consultations and outdoor water audits to residents at no costs. Residents can initiate the process in an effort to reduce bills or improve the appearance of their home. Residents can choose from several landscaping themes, all of which have distinct water-saving features.

- Additional Impact Areas: Community and Engagement, Land Use, Ecosystems, Energy and Climate, Economy
- Lead department: Water Resources

Drought ordinance – The City has a drought ordinance that uses successive stages to implement water-saving measures depending on the severity and duration of drought conditions. This plan is intended to create the minimum amount of disturbance while still protecting Avondale's resources and residents during times of low water supply.

- Additional Impact Areas: Community and Engagement, Land Use, Buildings and Maintenance, Ecosystems, Energy and Climate, Economy
- Lead department: Water Resources

Commercial water conservation plans – All new commercial buildings must submit water conservation plans for both indoor and outdoor use. Such plans are important as commercial and industrial users can be some of the largest individual consumers of water in the City.

- Additional Impact Areas: Land Use, Buildings and Maintenance, Ecosystems, Energy and Climate, Economy
- Lead department: Engineering and Development Services

Constructed wetland treatment area – Avondale has constructed treatment area that mimics natural treatment processes found in wetlands. This 72-acre area treats surface water as it flows through several cells before entering the City's recharge facility, where it percolates back into the groundwater supply. Not only does this area treat water without the use of harsh chemicals or expensive equipment, it also acts as a community resource and wildlife habitat.

- Additional Impact Areas: Ecosystems, Energy and Climate, Economy
- Lead department: Water Resources

AIR QUALITY

Comply with Rule 310 for dust abatement – The Maricopa County Air Quality Department administers "Rule 310", which governs dust generating activities ranging from leaf blowers to paving and construction. The Rule aims to reduce PM-10 in Maricopa County's air. Avondale abides by all PM-10 rules, and alerts the County when enforcement measures are necessary.

- Additional Impact Areas: Procurement, Materials, and Waste, Land Use, Buildings and Maintenance, Health and Well-being, Ecosystems, Energy and Climate
- Lead department: Development Services and Engineering

Annual interior air quality analysis – Each year Facilities conducts and indoor air quality assessment in City Hall to ensure the air is clean and healthy. Each year the analysis has shown air quality to be satisfactory or higher.

- Additional Impact Areas: Buildings and Maintenance, Health and Well-being
- Lead department: Facilities

No air fresheners – Avondale's maintenance staff uses no air fresheners or scented cleaning products in an effort to ensure staff and visitors are not exposed to airborne allergens or irritants.

- Additional Impact Areas: Procurement, Materials, and Waste, Buildings and Maintenance, Health and Well-being, Economy
- Lead department: Facilities

Vacuum-style street sweepers – Public Works utilizes vacuum-style street sweepers to clean City streets. Street sweeping itself reduces the amount of dust pollution by removing it from streets, and vacuum-style sweepers reduce the amount if dust kicked into the air during sweeping operations.

- Additional Impact Areas: Health and Well-being
- Lead department: Public Works

Road paving – Avondale has paved the majority of his roads, with less than ½ a mile of unpaved roads reaming in the city limits. Paved roads significantly reduce dust emissions from vehicle traffic.

- Additional Impact Areas: Transportation, Procurement, Materials, and Waste, Health and Well-being
- Lead department: Development Services and Engineering

Member of air quality organizations – Avondale is a member of the Maricopa Association of Governments Air Quality Technical Advisory Committee, Maricopa County Air Quality Department Cities and Towns group, and The Clean Air Make More campaign, all of which are regional groups dedicated to spreading information, awareness, and resources for improving air quality in the region.

- Additional Impact Areas: Community and Engagement
- Lead department: All

Community outreach for no burn days – The City places information and awareness articles in the RAVE, City website, and other channels to inform the public when no burn days are in effect. No burn days, which are issued by the County, are vital in maintaining air quality in the area, maintaining safe PM-2.5 standards, and protecting health in and around Avondale.

- Additional Impact Areas: Community and Engagement, Energy and Climate
- Lead department: Community Relations & Public Affairs

ECONOMY

Buy meeting materials locally – Whenever outside food or materials are required, staff obtains these form local retailers whenever possible. This keeps money within the local economy and helps bolster local businesses.

- Additional Impact Areas: Community and Engagement, Transportation, Energy and Climate, Air Quality
- Lead department: All

Do not pursue "dirty" industries – Avondale's Economic Development department is committed to growing a strong and diverse local economy, but they do not seek potential tenants that could create high amounts of pollution, ecosystem degradation, or social inequity.

- Additional Impact Areas: Land Use, Health and Well-being, Energy and Climate, Air Quality
- Lead department: Economic Development

Shop Avondale campaign – The Shop Avondale campaign, administered by Economic Development, educates residents on the benefits of shopping locally, and highlights local businesses in Avondale. The campaign has outreach materials and a webpage that includes a directory of local businesses.

- Additional Impact Areas: Community and Engagement, Transportation, Energy and Climate, Air Quality
- Lead department: Economic Development

Eat locally – Many employees noted that they eat locally when going out for lunch or other meals. This keeps money within the Avondale economy and helps support local businesses.

- Additional Impact Areas: Community and Engagement, Transportation, Energy and Climate, Air Quality
- Lead department: All

Office materials from Arizona company – The City purchases its office materials from an Arizona-based retailer. This reduces transportation related to shipping, and the retailer also provides a variety of sustainability information on their products, making it easy to select sustainable options.

- Additional Impact Areas: Community and Engagement, Transportation, Energy and Climate
- Lead department: All

Encourage shopping at local establishments – When the City hosts visitors for events, meetings, or other business, it encourages them to eat, shop, and stay at local establishments. This keeps money within the local economy and helps promote community.

- Additional Impact Areas: Community and Engagement, Transportation, Energy and Climate, Air Quality
- Lead department: All

APPENDIX C – CURRENT STATE SUSTAINABILITY ACTIONS SUMMARY TABLE

#	Mentions	Action	Community and Engagement	Transportation	Procurement, Materials, & Waste	Land Use	Buildings and Maintenance	Health and Well-being	Ecosystems	Energy and Climate	Water	Air Quality	Economy
Community and Engagement													
1	7	Public information and education materials	✓									✓	
2	4	Employee empowerment	✓										
3	4	Culture of efficiency	✓	✓	✓		✓			✓	✓		✓
4	4	Healthy home initiative	✓		✓		✓	✓		✓	✓	✓	✓
5	2	Public health and wellness classes	✓				✓	✓		✓	✓		✓
6	2	Shade Tree Program	✓			✓	✓		✓	✓		✓	✓
7	1	Home rehabilitation program	✓		✓		✓	✓		✓	✓		✓
8	1	Tres Rios Nature & Earth Festival	✓		✓	✓		✓	✓	✓	✓	✓	✓
9	1	Outreach events	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	1	Interdepartmental collaboration	✓										
11	1	Incorporate sustainability concepts and practices	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	1	Employee Connect meetings	✓										
13	1	Partnerships with NGOs and community groups	✓										
14	1	Sustainability webpage	✓										
15	1	Income tax preparation program	✓										✓
16	1	Collaborate with neighboring communities	✓										✓
Transportation													
17	3	Employee carpooling		✓						✓		✓	✓
18	3	Trip reduction program	✓	✓						✓		✓	✓
19	2	Coordinate code response and inspections		✓	✓					✓			✓
20	2	Zoom bus service		✓						✓		✓	✓

21	1	Bike and pedestrian Master Plan		✓		✓		✓	✓	✓		✓	✓
22	1	Transportation center		✓		✓		✓		✓		✓	✓
23	1	Valley Metro bus service		✓						✓		✓	✓
24	1	Dial-a-Ride program		✓				✓					✓
25	1	Coordinated traffic timing plan on major roads		✓				✓		✓		✓	✓
26	1	Taxi subsidy program		✓				✓		✓			
Procurement, Materials, and Waste													
27	19	Recycling			✓				✓	✓			✓
28	10	Reduced paper usage			✓				✓	✓			✓
29	7	Double-sided printing			✓				✓	✓			✓
30	2	Eliminated foam cups			✓				✓				✓
31	2	Household Hazardous Waste collection events			✓			✓	✓				
32	2	Properly dispose of hazardous waste materials			✓		✓	✓	✓			✓	✓
33	1	Donate used electronics	✓	✓	✓			✓	✓	✓			✓
34	1	Donate or recycle public works equipment			✓				✓	✓	✓		✓
35	1	Green Seal Certified cleaning products			✓		✓	✓	✓	✓	✓	✓	✓
36	1	Recycle scrap metal locally		✓	✓				✓	✓		✓	✓
37	1	Online and electronic outreach			✓				✓	✓			✓
38	1	Avoid excess office supplies		✓	✓					✓			✓
39	1	Christmas tree recycling program		✓	✓				✓	✓			✓
40	1	Recycling and waste education program	✓	✓	✓				✓	✓			✓
41	1	MyAvondale app	✓	✓	✓					✓			✓
42	1	Electronic waste collection events			✓			✓	✓				
43	1	Reuse paper			✓				✓				✓
44	1	Minimize inventory			✓					✓			✓
45	1	Reuse asphalt millings		✓	✓					✓	✓	✓	✓
46	1	Safe electronics disposal policy			✓			✓	✓				
Land Use													
47	3	Public building landscaping	✓		✓	✓			✓	✓	✓		✓
48	2	Redevelopment emphasizes sustainable design	✓		✓	✓	✓		✓	✓	✓		✓
49	1	General Plan 2030 update				✓							
50	1	Complete streets		✓		✓		✓	✓		✓	✓	
51	1	Xeriscaping in public spaces			✓	✓			✓	✓	✓		✓

52	1	Single Family Residential Design Manual	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
53	1	Road diets		✓		✓		✓	✓		✓	✓	
54	1	Public Art zoning ordinance	✓			✓		✓					✓
Buildings and Maintenance													
55	2	HVAC management					✓			✓	✓		✓
56	1	Model eco-friendly home	✓		✓	✓	✓	✓	✓	✓	✓		✓
57	1	Neighborhood Focus Program	✓				✓	✓	✓	✓	✓		✓
58	1	Green features in new public buildings			✓	✓	✓	✓	✓	✓	✓		✓
59	1	Clean and Lean Program					✓						✓
60	1	Civic Center campus efficiency upgrades					✓			✓			✓
Health and Well-being													
61	4	Health and safety HR initiatives	✓					✓					✓
62	2	Fitness rooms						✓					✓
63	2	Bountiful Baskets Program			✓			✓	✓	✓			✓
64	2	Outdoor recreation and activity programs	✓					✓	✓				✓
65	1	Trails master plan	✓	✓				✓	✓				✓
66	1	Friendship Park redesign	✓			✓	✓	✓	✓		✓		✓
67	1	Police Wellness Committee	✓					✓					✓
68	1	Police quiet room	✓	✓				✓		✓			✓
69	1	10% outside air					✓	✓		✓		✓	
Ecosystems													
70	1	Focus on redevelopment				✓			✓				
71	1	Promote native plants	✓			✓			✓		✓		✓
72	1	low-water plants for commercial development				✓			✓		✓		✓
73	1	Landscaping for wildlife class	✓			✓		✓	✓		✓		✓
74	1	Tree and shade master plan				✓		✓	✓	✓	✓	✓	✓
75	1	Care1st courtyard garden	✓			✓		✓	✓	✓	✓		✓
76	1	Stormwater Pollution Prevention Program	✓					✓	✓		✓		✓
Energy and Climate													
77	8	Lighting management								✓			✓
78	7	Computer power management								✓			✓
79	5	Green Friday work schedule		✓	✓		✓			✓	✓	✓	✓
80	3	Low or natural lighting								✓			✓
81	3	LED lighting			✓			✓		✓			✓
82	2	Green cleaning practices						✓		✓		✓	✓

83	1	Inexpensive solar permitting					✓			✓			✓
84	1	Adopted 2012 IEEC			✓		✓			✓			✓
85	1	Care1st HVAC replacement					✓			✓			✓
86	1	Efficient public class schedule	✓		✓		✓			✓	✓		✓
87	1	Efficient lighting upgrades					✓			✓			✓
88	1	Server virtualization			✓		✓			✓			✓
89	1	Virtual desktops			✓					✓			✓
90	1	Energy Star certified hardware								✓			✓
91	1	Data center space reduction					✓			✓			✓
92	1	Separate server room AC unit					✓			✓			✓
93	1	Solar Demonstration Project	✓			✓				✓			
94	1	Green IT plan	✓		✓		✓			✓			✓
95	1	LED traffic lights		✓				✓		✓			✓
96	1	Energy monitoring	✓				✓			✓			✓
Water													
97	2	Low flow fixtures									✓		✓
98	2	Rebate program								✓	✓		✓
99	2	Water conservation programs for youth	✓						✓		✓		
100	1	Water Education for Teachers Program	✓						✓		✓		
101	1	Water education programs and materials	✓			✓			✓	✓	✓		✓
102	1	Member of water conservation organizations	✓						✓		✓		
103	1	Water website	✓								✓		✓
104	1	Landscaping classes	✓								✓		✓
105	1	Drip irrigation system at civic buildings				✓			✓		✓		✓
106	1	Robust water security plan				✓					✓		✓
107	1	Water reclamation								✓	✓		✓
108	1	Landscaping consultations	✓			✓			✓	✓	✓		✓
109	1	Drought ordinance	✓			✓	✓		✓	✓	✓		✓
110	1	Commercial water conservation plans				✓			✓		✓		
111	1	Constructed wetland treatment area							✓	✓	✓		✓
Air Quality													
112	1	Comply with Rule 310 for dust abatement			✓	✓	✓	✓	✓	✓		✓	
113	1	Annual interior air quality analysis					✓	✓				✓	
114	1	No air fresheners			✓		✓	✓				✓	✓

115	1	Vacuum-style street sweepers						✓				✓	
116	1	Road paving		✓	✓			✓				✓	
117	1	Member of air quality organizations	✓									✓	
118	1	Community outreach for no burn days	✓							✓		✓	
Economy													
119	2	Buy meeting materials locally	✓	✓						✓		✓	✓
120	1	Do not pursue "dirty" industries				✓		✓	✓			✓	✓
121	1	Shop Avondale campaign	✓	✓						✓		✓	✓
122	1	Eat locally	✓	✓						✓		✓	✓
123	1	Office materials from Arizona company	✓	✓						✓			✓
124	1	Encourage shopping at local establishments	✓	✓						✓		✓	✓

APPENDIX D – VISIONING AND GOAL SETTING PARTICIPATORY ACTIVITY RESULTS

To create a shared vision and long-term goals, staff conducted participatory exercises with the following stakeholder groups:

- City staff
- EENRC
- Residents
- City Manager's Office
- City Council

Activities included staff interviews, workshops with the EENRC, City Manager's Office, and City Council, and resident surveys. The results of the individual activities are presented below. The final results of the visioning and goal setting exercises are found in Chapter 3.

Staff Interviews

Staff input on the organization's sustainability vision and goals was gathered during the same interviews as the Current State Assessment. Interview questions can be found in Appendix A. 32 staff members were interviewed and averaged three suggestions each. The interview results are summarized in the table below and presented in detail on the following pages.

Table 6.2. Vision and Goals staff interview results summary.

Impact Area	Number of actions	Number of mentions
Community & Engagement	9	18
Transportation	6	25
Procurement, Materials, & Waste	6	8
Land Use	3	7
Buildings & Maintenance	2	3
Health & Well-being	3	7
Ecosystems	2	4
Energy & Climate	5	11
Water	3	5
Air Quality	1	2
Economy	4	4
Totals	**44**	**94**

Summary of staff interview results

Staff attention was primarily focused on transportation. Many respondents desired safe multimodal transportation options other than automobiles for travel to, from, and between City facilities. Respondents also desired more public transit and pedestrian-oriented development. Staff also wanted a more progressive, innovative organization that concentrates on sustainability engagement and outreach. The third most popular area was Energy and Climate, with focus on renewable energy. Mentions were spread relatively evenly over the remaining eight Impact Areas.

Table 6.3. Vision and Goals staff interview results.

#	Mentions	Desire	Community and Engagement	Transportation	Procurement, Materials, & Waste	Land Use	Buildings and Maintenance	Health and Well-being	Ecosystems	Energy and Climate	Water	Air Quality	Economy
Community and Engagement													
1	4	Make the City organization more innovative and nimble	✓										
2	3	Make sustainability central to the organization's culture and function	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	3	Work to attract a diversity of residents	✓										
4	2	Make sustainability central to the City brand and outside perception	✓										
5	2	Create a sustainability education and information center	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	1	Increase collaboration and communication between departments	✓										
7	1	Use City facilities and public spaces as sustainability "flagships"	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	1	Incentive desirable sustainability behaviors	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	1	Increase transparency and open discussion within the organization	✓										
Transportation													
10	11	Expand multimodal options to improve connectivity and access		✓		✓		✓		✓		✓	✓
11	5	Expand public transit service and options		✓		✓				✓		✓	✓
12	4	Use alternative fuels for all City and transit vehicles		✓						✓		✓	✓
13	2	Create connected pedestrian paths in Avondale and to other cities	✓	✓		✓		✓		✓		✓	✓
14	2	Increase telecommuting options for employees		✓				✓		✓	✓	✓	✓
15	1	Share and administrative vehicle pool with neighboring cities	✓	✓			✓	✓		✓		✓	✓

Procurement, Materials, and Waste													
16	2	Optimize trash & recycling pick-up for efficiency & participation	✓		✓				✓	✓		✓	✓
17	2	Minimize physical resource requirements in City organization			✓		✓		✓	✓	✓		✓
18	1	Minimize the use of asphalt and other impervious covers		✓	✓	✓		✓	✓	✓	✓	✓	✓
19	1	Maximize revenues from recycling			✓				✓	✓			✓
20	1	Implement a sustainable procurement and disposal policy	✓		✓		✓	✓		✓			✓
21	1	Institute a green waste/composting program	✓	✓	✓				✓	✓			✓
Land Use													
22	3	Evolve zoning ordinance to ease innovation and sustainable improvements	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
23	3	Create parks that are shared public spaces that better integrate ecosystems	✓			✓	✓	✓	✓		✓		
24	1	Create walkable, mixed use neighborhoods	✓	✓		✓	✓	✓		✓		✓	
Buildings and Maintenance													
25	2	Make City buildings more attractive and inviting	✓		✓	✓	✓	✓		✓	✓		
26	1	Focus energy projects on library and communication centers					✓			✓	✓		✓
Health and Well-being													
27	3	Improve City buildings to promote sustainability, health, and happiness	✓		✓	✓	✓	✓		✓	✓		
28	3	Take actions that combat urban heat island and improve health and comfort	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
29	1	Focus on healthy employees	✓					✓					✓
Ecosystems													
30	3	Highlight and expand ecosystem education and engagement	✓						✓				
31	1	Integrate functional vegetation and natural areas into new development				✓		✓	✓	✓	✓		✓
Energy and Climate													
32	6	Incorporate renewable energy wherever possible				✓				✓			✓
33	2	Have zero emissions (net zero) City government operations	✓	✓	✓		✓			✓	✓		✓

34	1	Better use of technology for efficiency and sustainability	✓		✓				✓	✓			✓
35	1	Increase efficiency in City buildings	✓				✓			✓			✓
36	1	Incorporate cool roofs and surfaces in all City buildings					✓	✓	✓	✓	✓		✓
Water													
37	3	Incorporate more water efficiency and reuse				✓	✓			✓	✓		✓
38	1	Collaborate with other cities to improve water infrastructure	✓								✓		✓
39	1	Address the energy/water nexus	✓			✓	✓			✓	✓		✓
Air Quality													
40	2	Improve air quality in the city to improve health	✓	✓				✓				✓	✓
Economy													
41	1	Be recognized as a center for progressive and clean industries	✓		✓				✓	✓			✓
42	1	Keep more Avondale citizens working in Avondale		✓				✓		✓		✓	✓
43	1	Invest and spend based on long-term outcomes, not short term costs	✓		✓		✓						✓
44	1	Implement innovative funding strategies for sustainability projects											✓

ENERGY, ENVIRONMENT, AND NATURAL RESOURCES COMMISSION WORKSHOPS

Staff also held two workshops in September and October 2013 with the Energy, Environment, and Natural Resources Commission (EENRC) to gather input on where citizens believe the City organization should focus its long term sustainability efforts.

During the workshops Commission Members learned about sustainability and the goals of the visioning process, and discussed what the City organization's vision and goals should look like. At the end of the October meeting the Commission agreed on the following:

Vision Statement

We will operate our organization in healthy, fair, and innovative way that helps create a thriving, prosperous community in harmony with the desert environment we live within. Our organization will serve as an example of the future we want to see, and we will always strive to improve for ourselves, the world we live in now, and the generations of tomorrow.

Long-Term Goals

1. **Foster a safe, healthy, fair, and inspiring work environment.**
2. **Be a champion of, contributor to, and good neighbor within our community.**
3. **Become net-zero for energy, water, waste, and greenhouse gas emissions.**
4. **Create an accessible, multimodal transportation system that allows safe movement to and between facilities with minimal impact to human or environmental health.**
5. **Be resilient by anticipating and preparing for future stresses and unanticipated shocks.**
6. **Protect, enhance, and utilize ecosystem services to the maximum extent.**
7. **Enable and expect continuous learning, evaluation, improvement, and innovation.**
8. **Be an example of what we want to see for residents and businesses.**

RESIDENT SURVEYS

Residents were surveyed during the 2013 Resident Appreciation Night about what sustainability areas they thought the City should focus on. Though responses were limited, residents provided useful input that was incorporated into the visioning and goal setting process. The results are summarized in the following table.

Table 6.4. Vision and Goals resident survey results.

	Impact Areas and percentage of favorable responses										
Survey question	Community & Engagement	Transportation	Procurement, Materials, & Waste	Land use	Buildings & Maintenance	Health & Well-being	Ecosystems	Energy & Climate	Water	Air Quality	Economy
In general, what do you think are the most important aspects of sustainability?	50 %	33 %	17 %	50 %	33 %	17 %	17 %	33 %	33 %	33 %	0%
What are the most important aspects of sustainability that the City organization should focus on?	33 %	17 %	17 %	17 %	17 %	17 %	0%	0%	33 %	33 %	17 %
What are the most important aspects of sustainability for us to focus on in Avondale as a whole?	66 %	17 %	17 %	17 %	33 %	33 %	17 %	17 %	33 %	33 %	17 %
Sample responses											
What are the most sustainable aspects of our city?	Our communities			Farms, new businesses			Transportation				
What are the least sustainable aspects of our city?	Providing good resources for the community and have better communication skills. I think that the police are doing a good job but if they were more involved with "certain" communities it could be stronger.			Other neighborhoods that look very run down.							

Resident survey responses on City sustainability efforts

CITY MANAGER'S OFFICE WORKSHOPS

Two Visioning and Goals workshops were held with the City Manager's Office in October and December of 2013. Workshops were attended by the City Manager, Assistant City Managers, department leaders, and staff.

In the first workshop participants were presented with information on sustainability and the MSP, the results of the Current State Assessment, and compiled input from City staff, residents, and the EENRC on the MSP vision and goals. Participants gave input on the vision and goals, and where they would like the direction of the City organization's sustainability efforts to move. Specifically, participants suggested changes in word choice, and requested a goal be added that acknowledges the need for fiscal responsibility in a sustainable organization. Staff took this input and incorporated it into a final version of the MSP vision and goals for review.

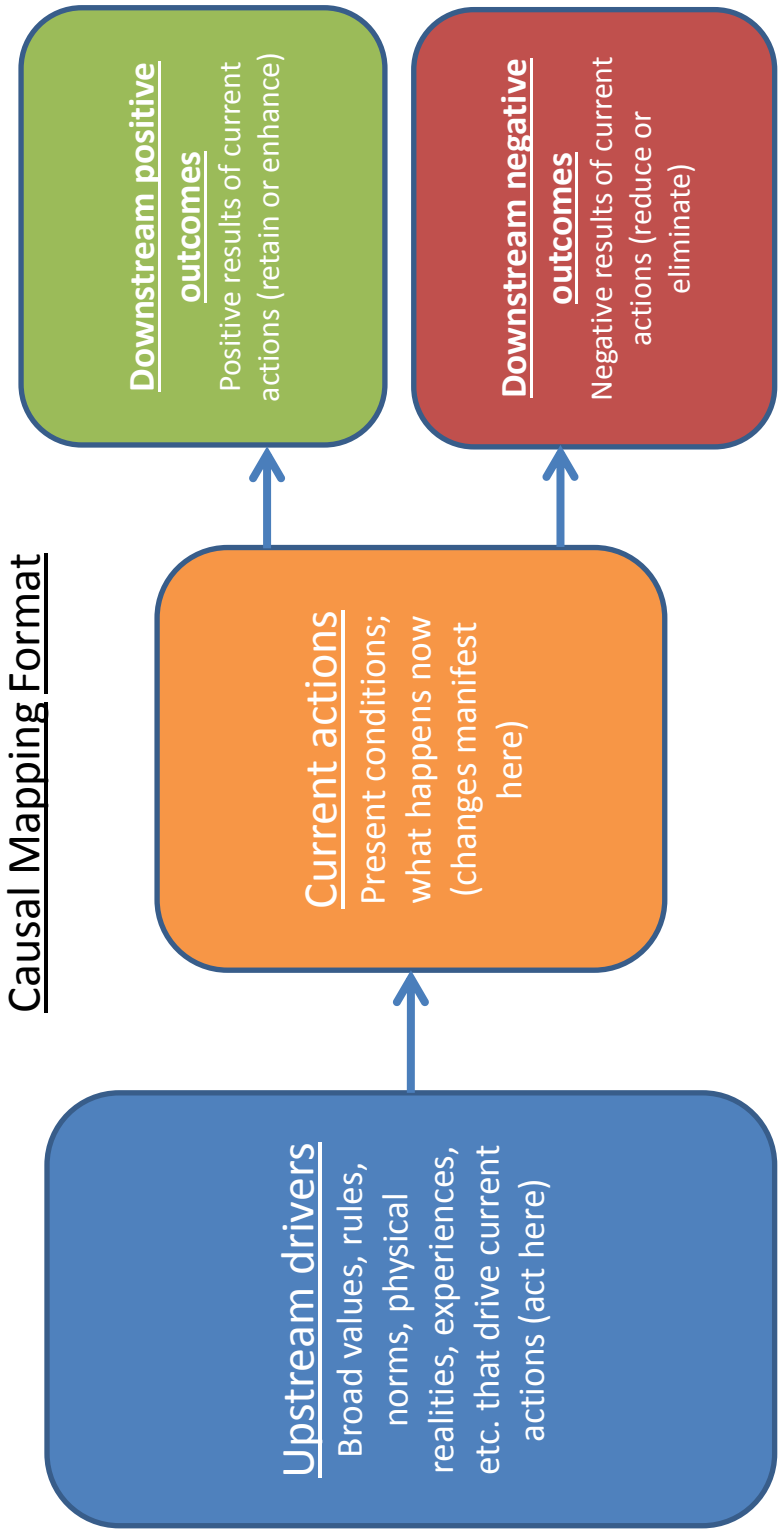
In the second workshop, the participants reviewed the revised goals and suggested no further changes. They also discussed next steps in the planning processes, and how the Implementation System would function in relation to the goals and vision.

City Council Work Session

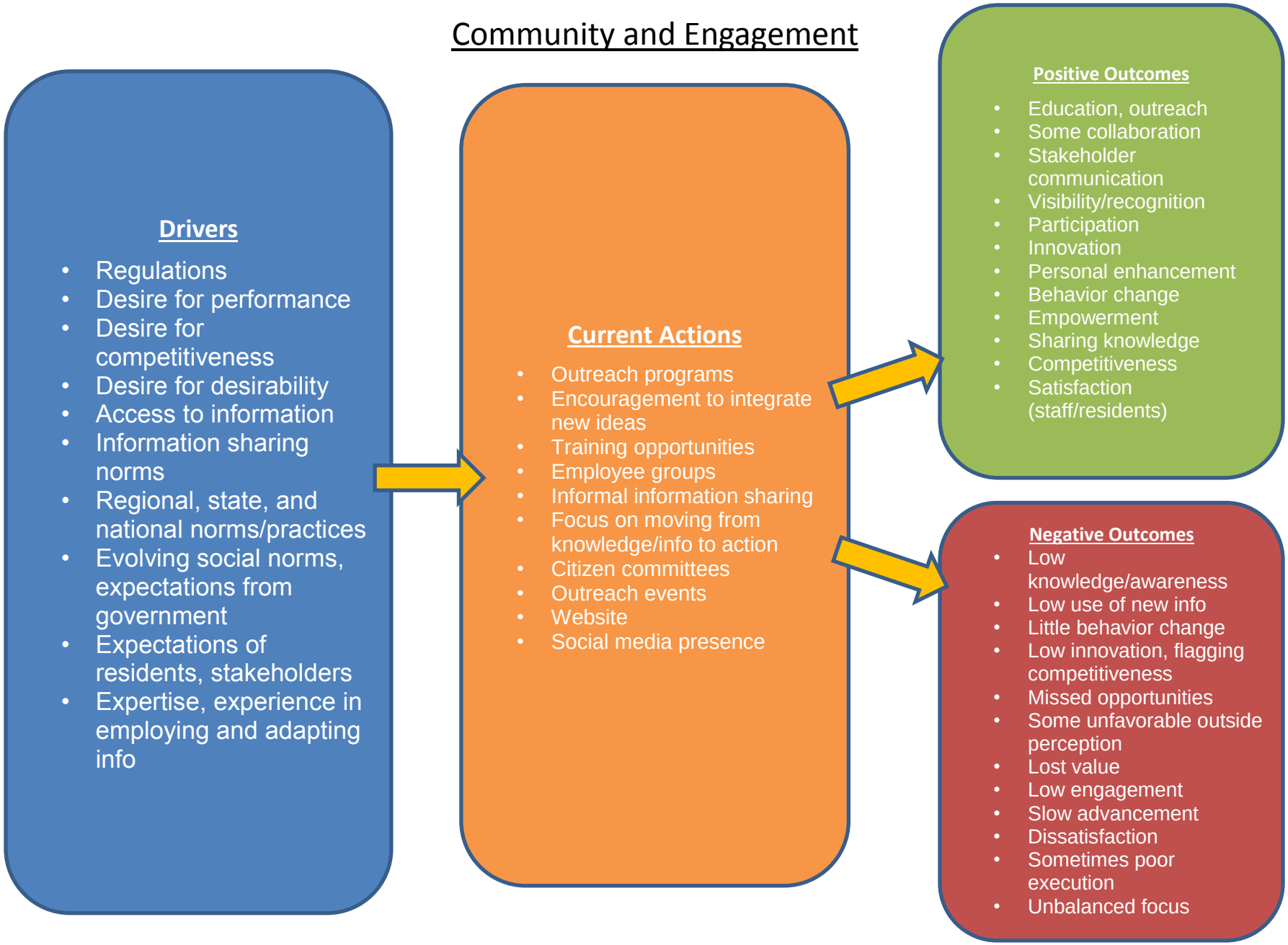
On December 16th, 2013, the Environmental Program Manager presented the results of the visioning and goals process to City Council in a work session. The Council was presented with the MSP framework, the results of the CSA for reference, and the draft vision and goals for review and input. Council members commented on the wording of some of the goals, specifically regarding triple bottom line considerations in Goal 4 and the definition of ecosystems and ecosystem services in Goal 7. Council wanted to ensure the goals were clear to readers so that the intentions of past administrations were not misunderstood in the future. The Council also inquired how various strategies and actions could be used to pursue some of the loftier goals, such as Goal 3, both in the short and long term.

At the close of the work session the Council suggested making changes to the goal wording to improve clarity, but overall was satisfied with the goals and vision, and the input given by stakeholders throughout the process.

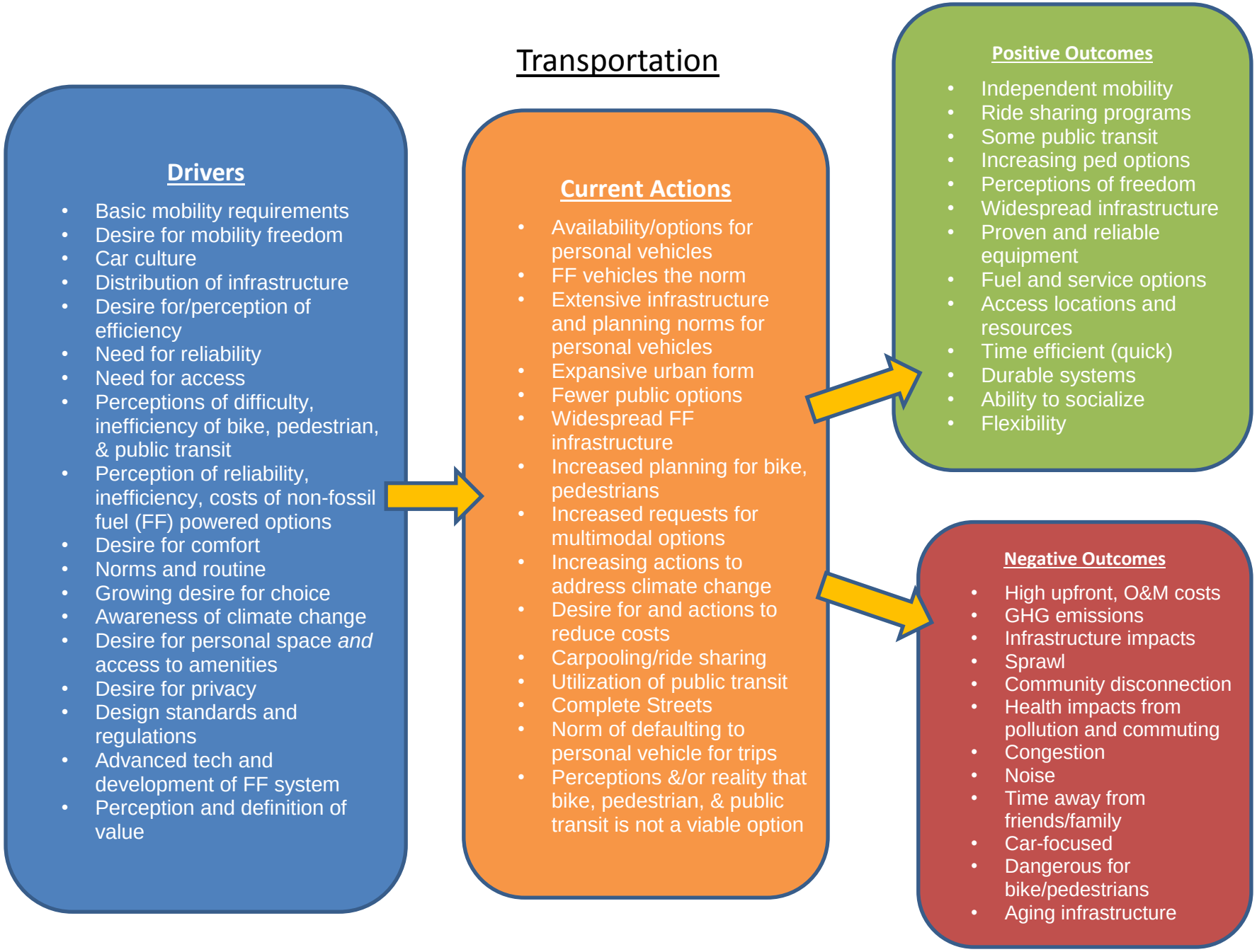
APPENDIX E – IMPACT AREA CAUSE-AND-EFFECT SYSTEM CONSTRUCTION



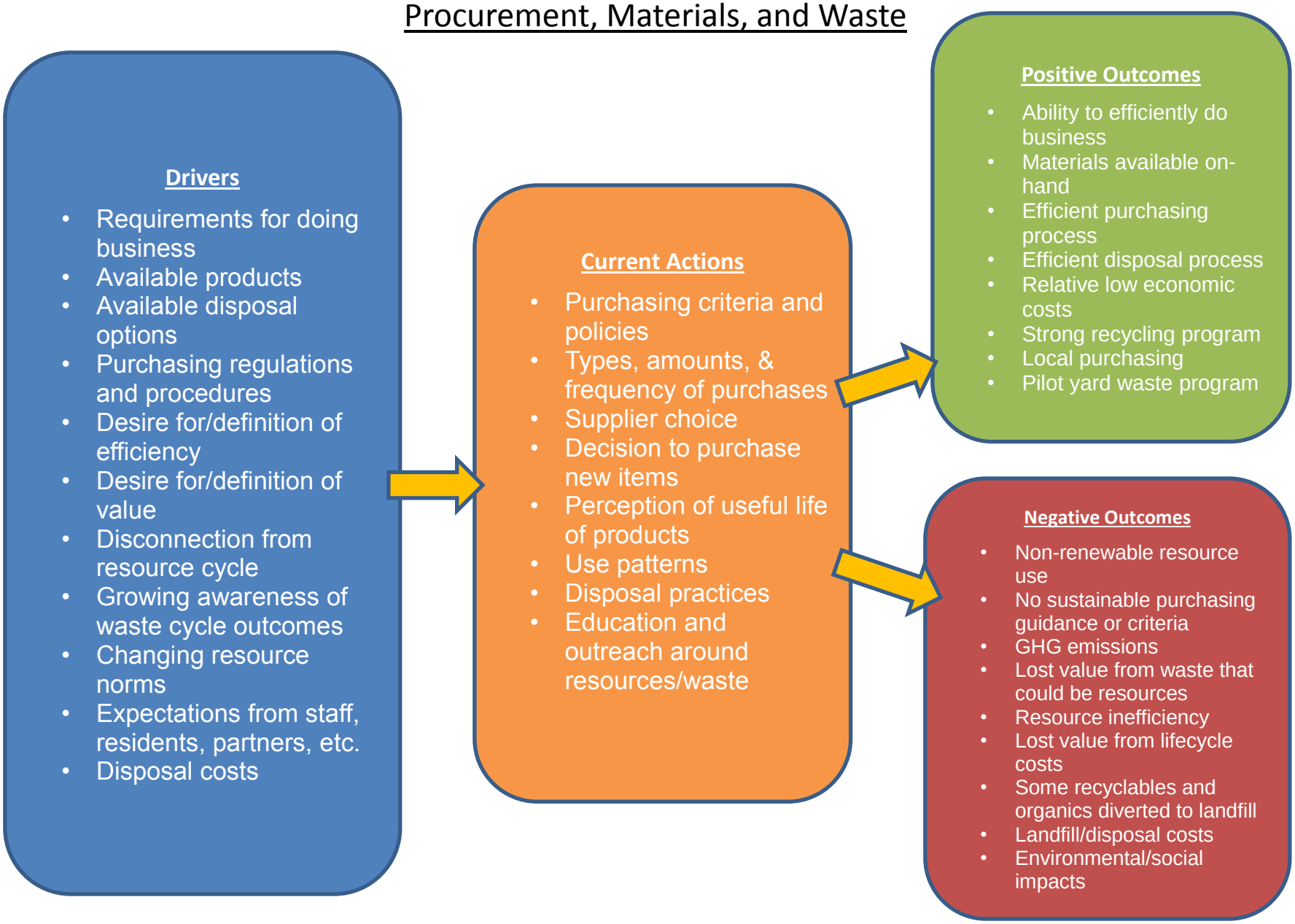
Community and Engagement



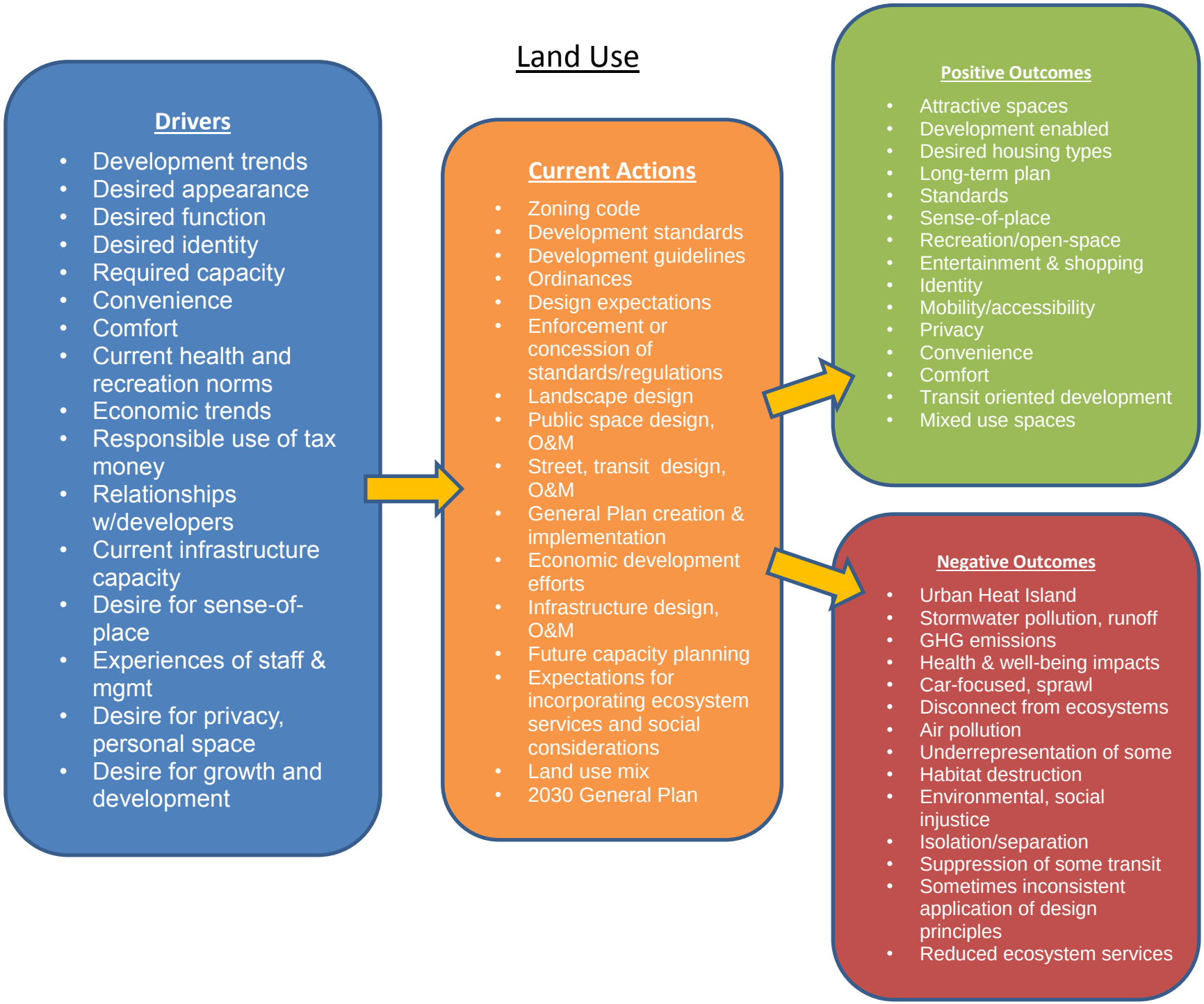
Transportation



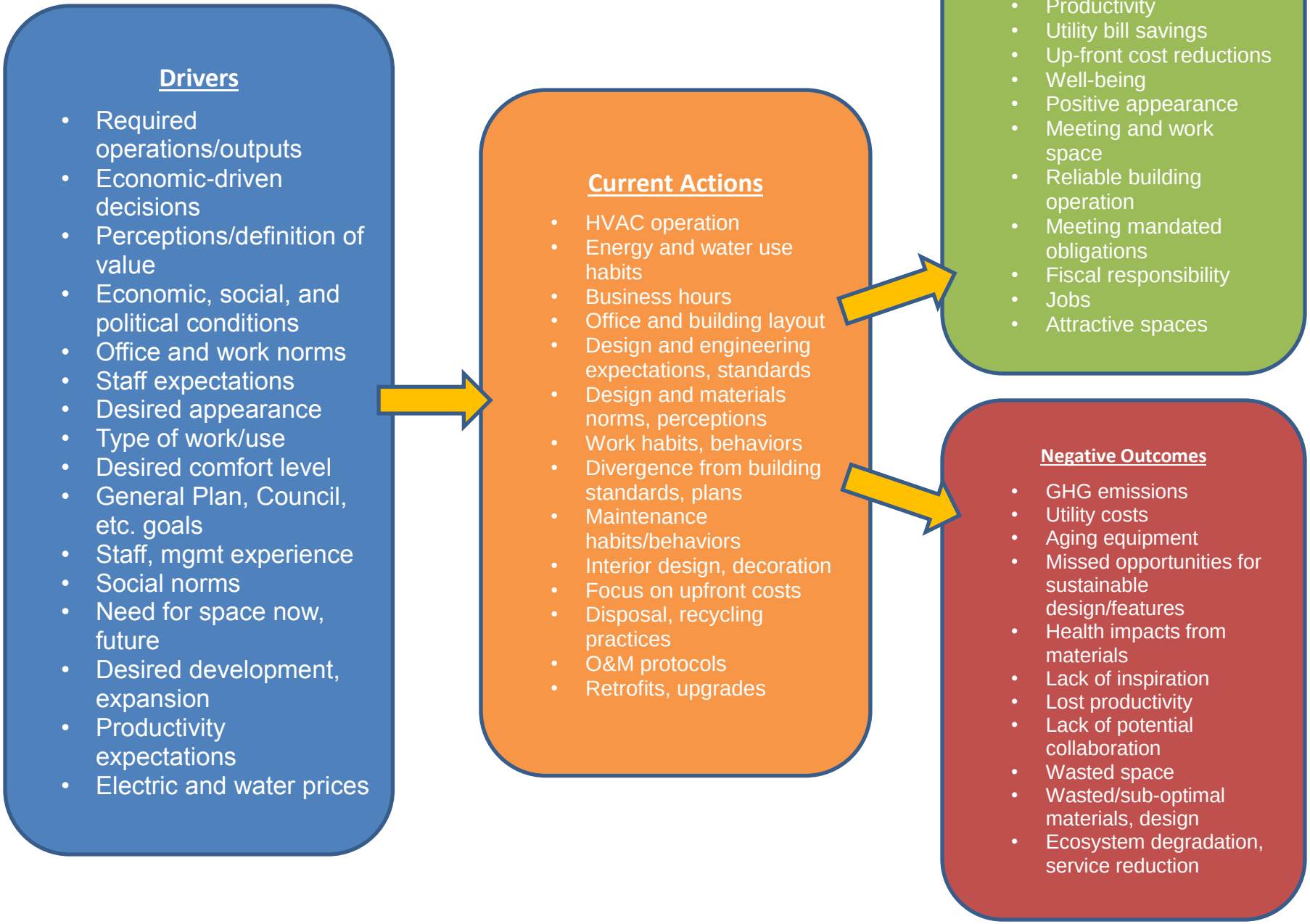
Procurement, Materials, and Waste



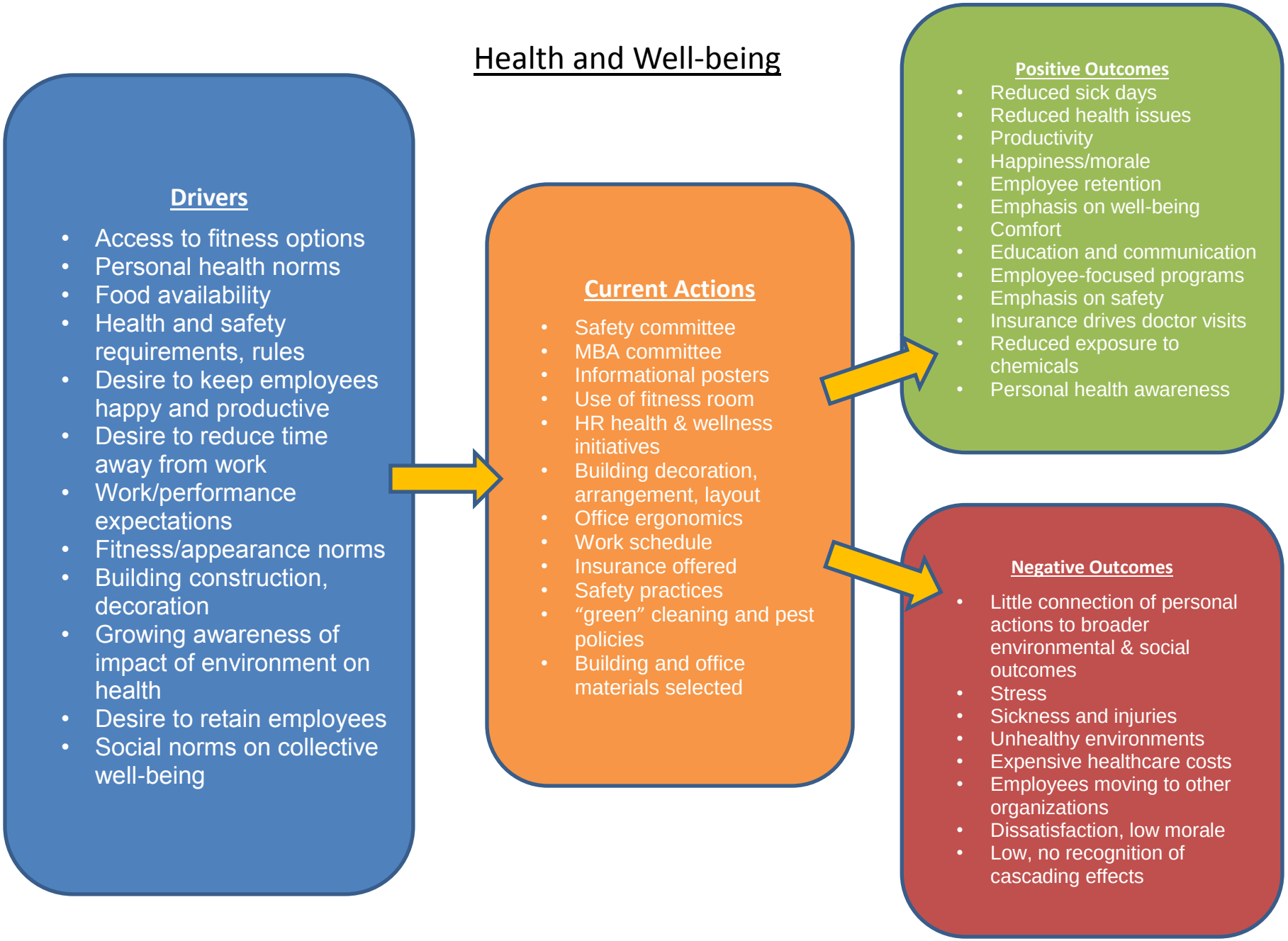
Land Use


Drivers
Development trends
Desired appearance
Desired function
Desired identity
Required capacity
Convenience
Comfort
Current health and recreation norms
Economic trends
Responsible use of tax money
Relationships w/developers
Current infrastructure capacity
Desire for sense-of-place
Experiences of staff & mgmt
Desire for privacy, personal space
Desire for growth and development
Current Actions
Zoning code
Development standards
Development guidelines
Ordinances
Design expectations
Enforcement or concession of standards/regulations
Landscape design
Public space design, O&M
Street, transit design, O&M
General Plan creation & implementation
Economic development efforts
Infrastructure design, O&M
Future capacity planning
Expectations for incorporating ecosystem services and social considerations
Land use mix
2030 General Plan
Positive Outcomes
Attractive spaces
Development enabled
Desired housing types
Long-term plan
Standards
Sense-of-place
Recreation/open-space
Entertainment & shopping
Identity
Mobility/accessibility
Privacy
Convenience
Comfort
Transit oriented development
Mixed use spaces
Negative Outcomes
Urban Heat Island
Stormwater pollution, runoff
GHG emissions
Health & well-being impacts
Car-focused, sprawl
Disconnect from ecosystems
Air pollution
Underrepresentation of some
Habitat destruction
Environmental, social injustice
Isolation/separation
Suppression of some transit
Sometimes inconsistent application of design principles
Reduced ecosystem services

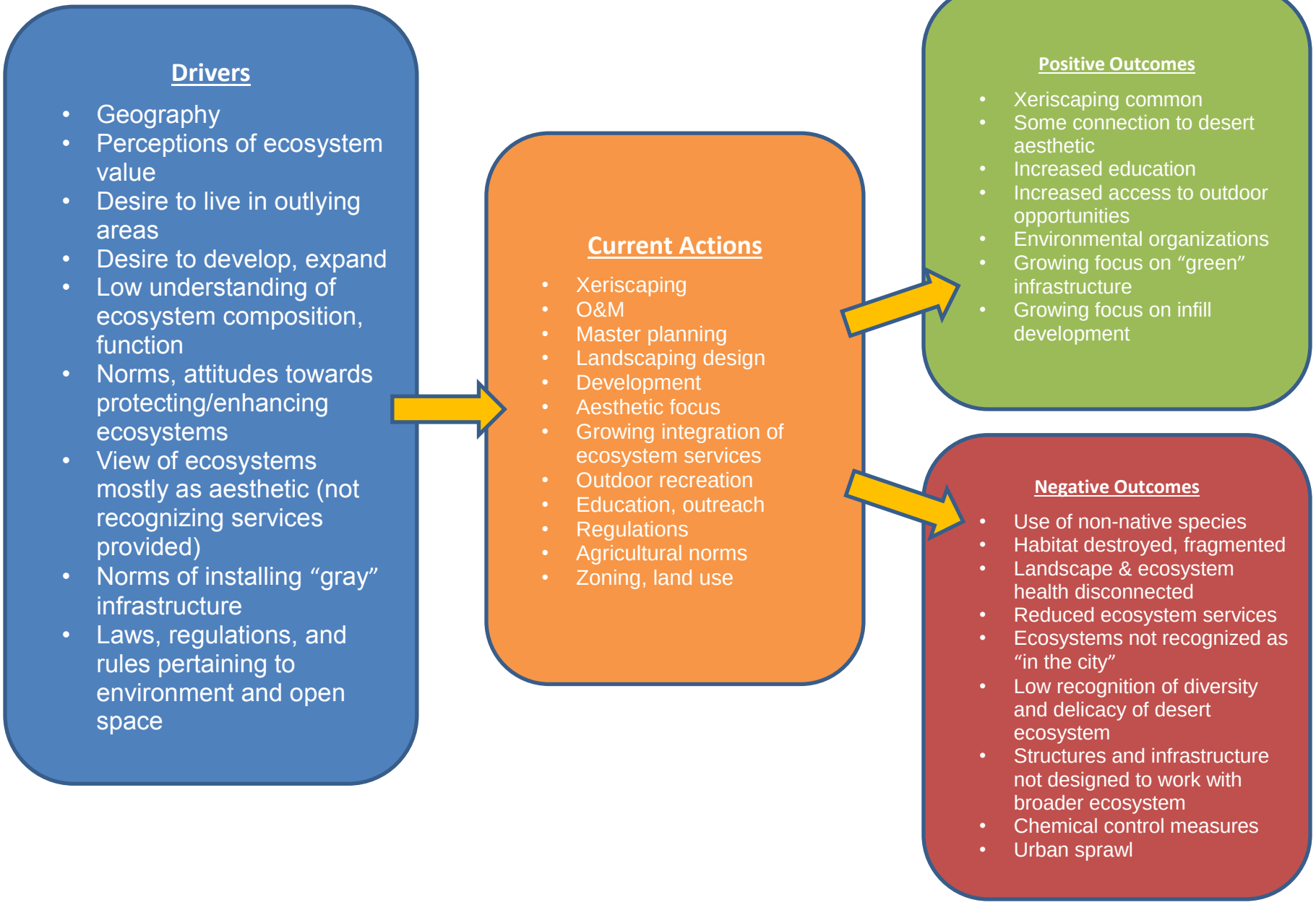
Buildings and Maintenance



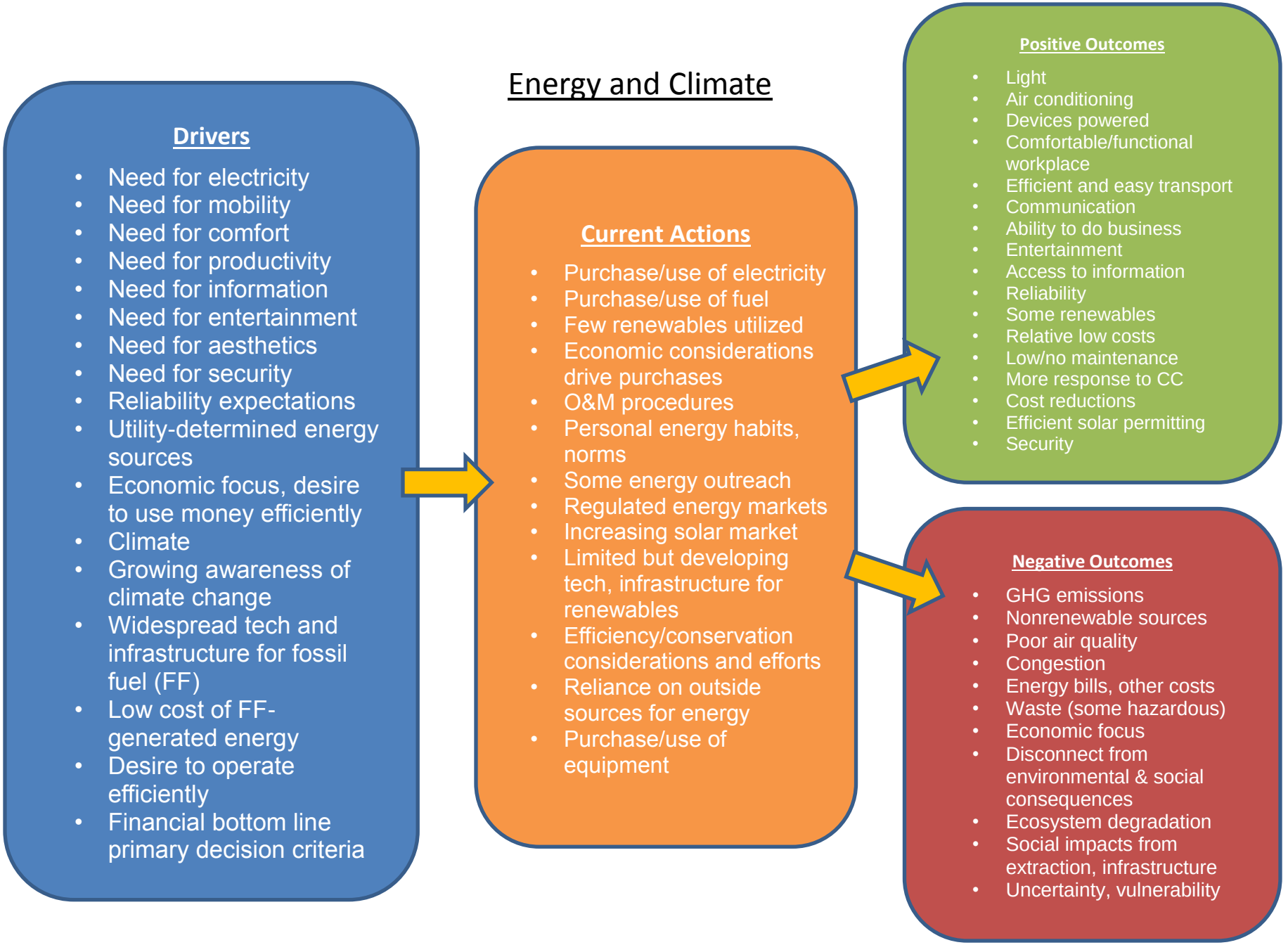
Health and Well-being



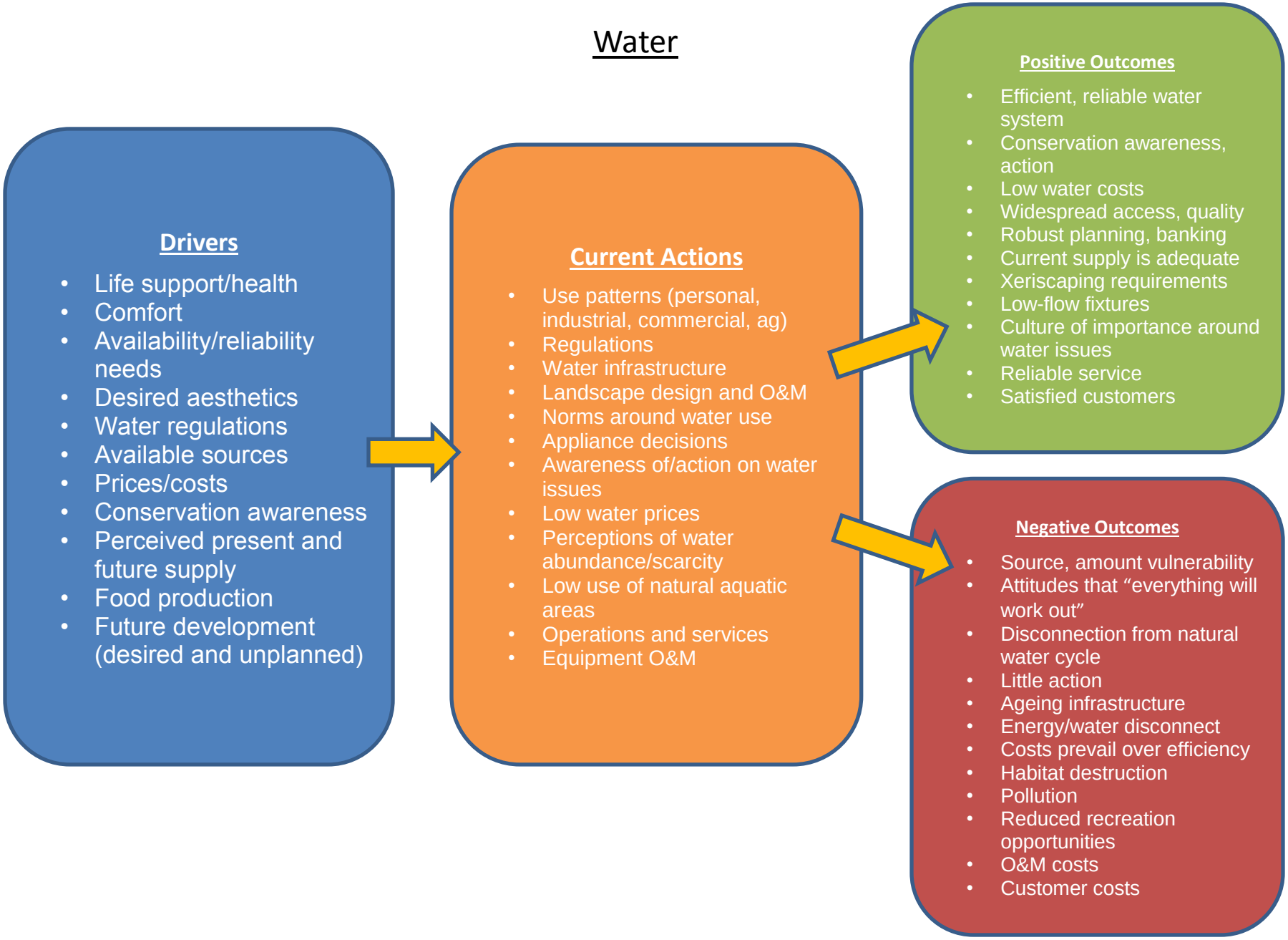
Ecosystems


Drivers
Geography
Perceptions of ecosystem value
Desire to live in outlying areas
Desire to develop, expand
Low understanding of ecosystem composition, function
Norms, attitudes towards protecting/enhancing ecosystems
View of ecosystems mostly as aesthetic (not recognizing services provided)
Norms of installing "gray" infrastructure
Laws, regulations, and rules pertaining to environment and open space
Current Actions
Xeriscaping
O&M
Master planning
Landscaping design
Development
Aesthetic focus
Growing integration of ecosystem services
Outdoor recreation
Education, outreach
Regulations
Agricultural norms
Zoning, land use
Positive Outcomes
Xeriscaping common
Some connection to desert aesthetic
Increased education
Increased access to outdoor opportunities
Environmental organizations
Growing focus on "green" infrastructure
Growing focus on infill development
Negative Outcomes
Use of non-native species
Habitat destroyed, fragmented
Landscape & ecosystem health disconnected
Reduced ecosystem services
Ecosystems not recognized as "in the city"
Low recognition of diversity and delicacy of desert ecosystem
Structures and infrastructure not designed to work with broader ecosystem
Chemical control measures
Urban sprawl

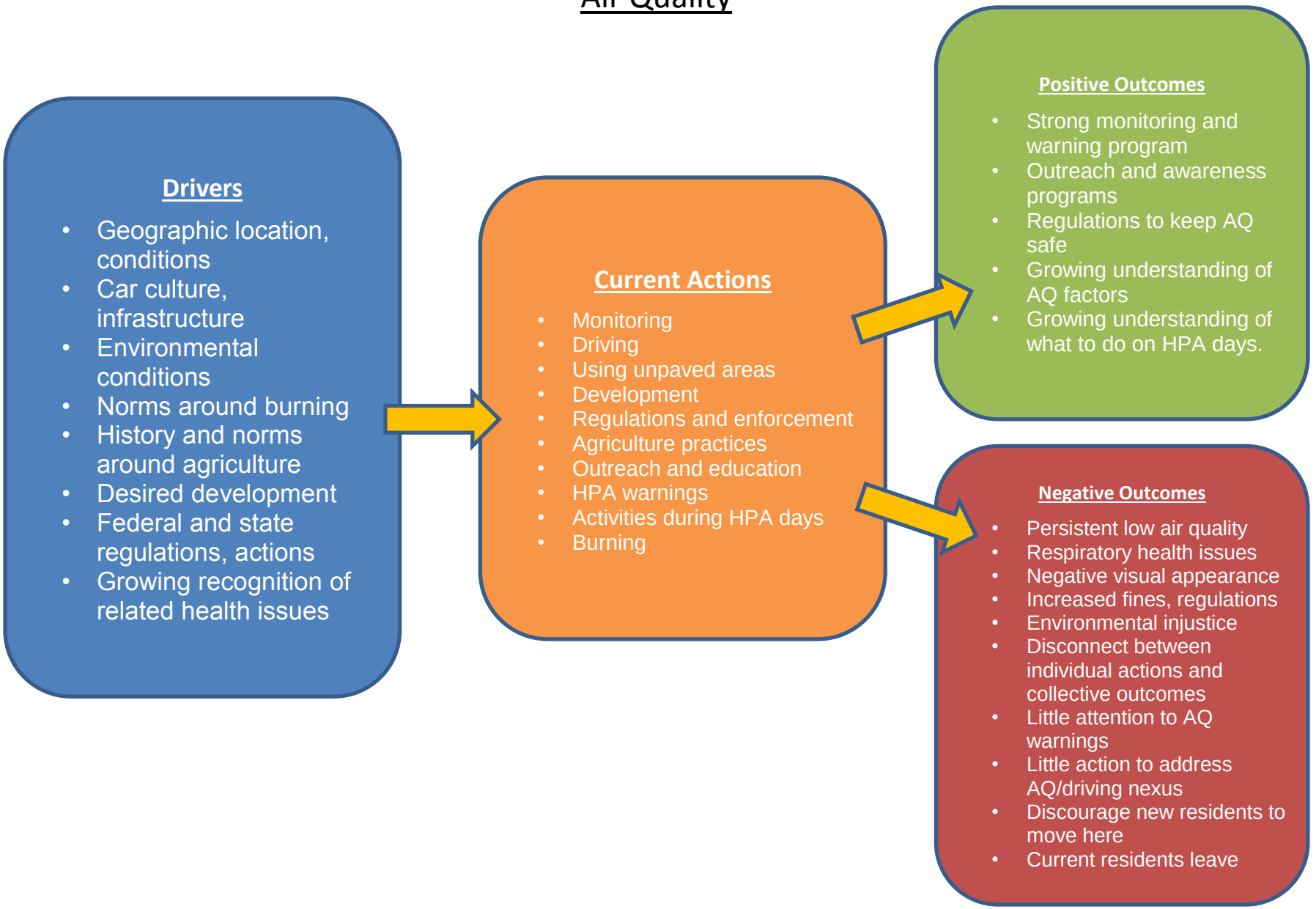
Energy and Climate



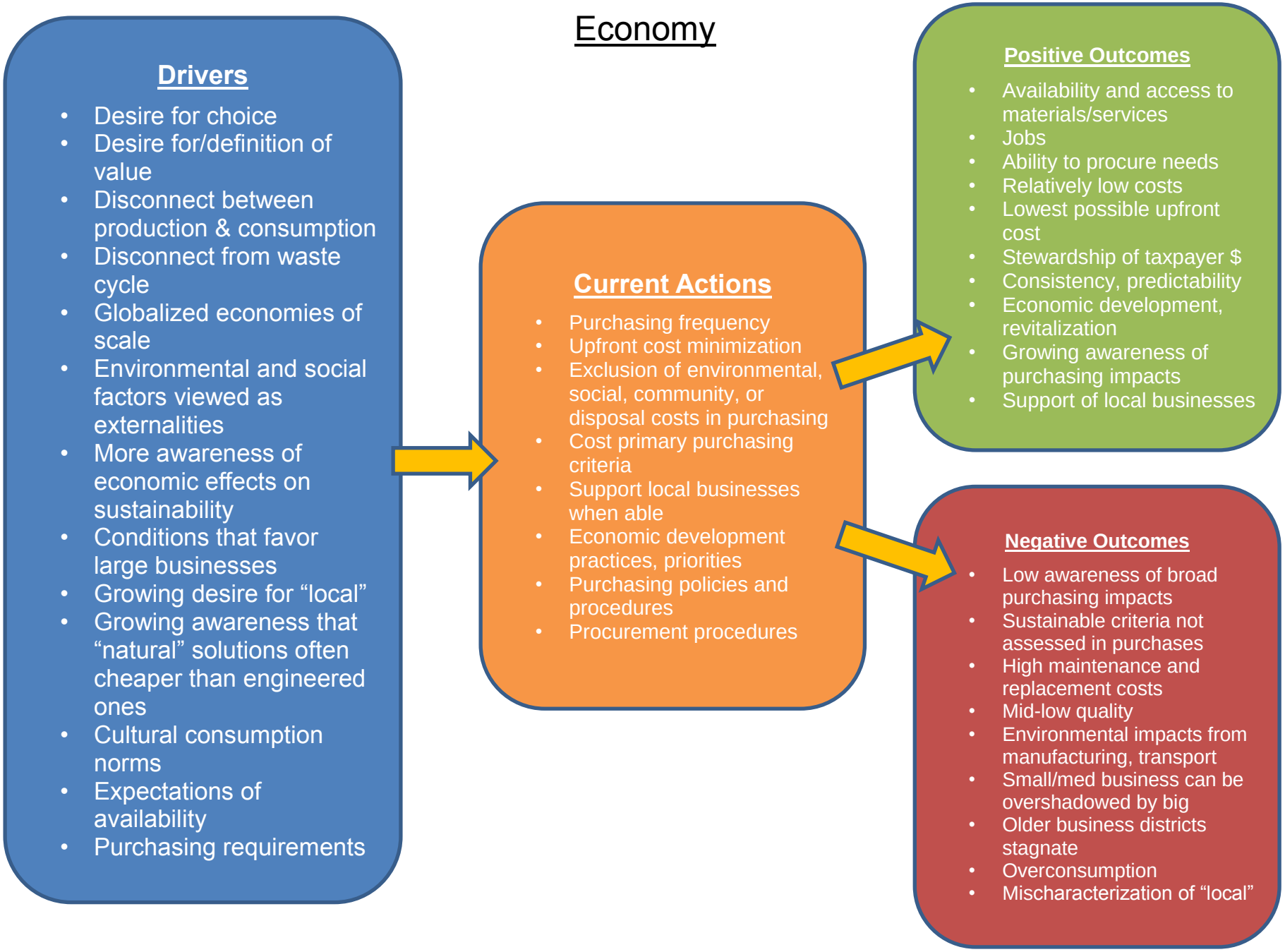
Water


Drivers
Life support/health
Comfort
Availability/reliability needs
Desired aesthetics
Water regulations
Available sources
Prices/costs
Conservation awareness
Perceived present and future supply
Food production
Future development (desired and unplanned)
Current Actions
Use patterns (personal, industrial, commercial, ag)
Regulations
Water infrastructure
Landscape design and O&M
Norms around water use
Appliance decisions
Awareness of/action on water issues
Low water prices
Perceptions of water abundance/scarcity
Low use of natural aquatic areas
Operations and services
Equipment O&M
Positive Outcomes
Efficient, reliable water system
Conservation awareness, action
Low water costs
Widespread access, quality
Robust planning, banking
Current supply is adequate
Xeriscaping requirements
Low-flow fixtures
Culture of importance around water issues
Reliable service
Satisfied customers
Negative Outcomes
Source, amount vulnerability
Attitudes that "everything will work out"
Disconnection from natural water cycle
Little action
Ageing infrastructure
Energy/water disconnect
Costs prevail over efficiency
Habitat destruction
Pollution
Reduced recreation opportunities
O&M costs
Customer costs

Air Quality


Drivers
Geographic location, conditions
Car culture, infrastructure
Environmental conditions
Norms around burning
History and norms around agriculture
Desired development
Federal and state regulations, actions
Growing recognition of related health issues
Current Actions
Monitoring
Driving
Using unpaved areas
Development
Regulations and enforcement
Agriculture practices
Outreach and education
HPA warnings
Activities during HPA days
Burning
Positive Outcomes
Strong monitoring and warning program
Outreach and awareness programs
Regulations to keep AQ safe
Growing understanding of AQ factors
Growing understanding of what to do on HPA days.
Negative Outcomes
Persistent low air quality
Respiratory health issues
Negative visual appearance
Increased fines, regulations
Environmental injustice
Disconnect between individual actions and collective outcomes
Little attention to AQ warnings
Little action to address AQ/driving nexus
Discourage new residents to move here
Current residents leave

Economy


Drivers
Desire for choice
Desire for/definition of value
Disconnect between production & consumption
Disconnect from waste cycle
Globalized economies of scale
Environmental and social factors viewed as externalities
More awareness of economic effects on sustainability
Conditions that favor large businesses
Growing desire for "local"
Growing awareness that "natural" solutions often cheaper than engineered ones
Cultural consumption norms
Expectations of availability
Purchasing requirements
Current Actions
Purchasing frequency
Upfront cost minimization
Exclusion of environmental, social, community, or disposal costs in purchasing
Cost primary purchasing criteria
Support local businesses when able
Economic development practices, priorities
Purchasing policies and procedures
Procurement procedures
Positive Outcomes
Availability and access to materials/services
Jobs
Ability to procure needs
Relatively low costs
Lowest possible upfront cost
Stewardship of taxpayer $
Consistency, predictability
Economic development, revitalization
Growing awareness of purchasing impacts
Support of local businesses
Negative Outcomes
Low awareness of broad purchasing impacts
Sustainable criteria not assessed in purchases
High maintenance and replacement costs
Mid-low quality
Environmental impacts from manufacturing, transport
Small/med business can be overshadowed by big
Older business districts stagnate
Overconsumption
Mischaracterization of "local"

APPENDIX F – 2014 IMPLEMENTATION SYSTEM CYCLE RESULTS

Note that all targets involving percentage changes are based on a 2013 baseline, unless otherwise note.

COMMUNITY AND ENGAGEMENT

Community and Engagement is key to addressing all issues, including GHG emissions and other pollution, fuel and maintenance costs, lacking or disconnected mobility options, lack of sustainability considerations in purchases, overconsumption, lack of sustainable building design and construction, urban heat island, linear resource processes, reduced ecosystem services, creating community and sense-of-place, and health and well-being issues. Addressing these issues using the strategies and actions below will help pursue all nine of the Goals.

Community and Engagement targets:

- Offer sustainability training to 100% of staff annually
- Update City Council on sustainability progress annually
- All departments enrolled in Green Office Program by 2015; 50% Level 2 by and 25% Level 3 by 2016; 100% Level 2 and 50% Level 3 by 2020
- Update sustainability website at least quarterly
- Submit quarterly sustainability update or newsletter to all staff
- Sustainability outreach at at least 10 community events annually

Related Impact Areas:

- Transportation
- Procurement, Materials, and Waste
- Land Use
- Buildings and Maintenance
- Health and Well-being
- Ecosystems
- Energy and Climate
- Water
- Air Quality
- Economy

Strategies, actions, indicators, and departments involved:

Education and training

Education and training are cornerstones of sustainable change. This strategy provides information and tools to understand and act on identified issues. It is also important to ensure education and training happen in an engaging and supportive manner that promotes action.

Annual staff training on applicable sustainability topics – Training for staff on applicable sustainability topics should occur in a way that brings to light relevant issues, provides actionable solutions, and illustrates the systematic nature of sustainability.

Indicators:
Number of training opportunities
Number of staff trained
Number of topics covered

Departments involved: Development and Engineering Services, Human Resources Community Relations and Public Affairs

Annual City Council information and update – At least annually the City Council shall be updated on the progress of the Sustainability Plan, and be provided information on how other decisions may affect the City's sustainability efforts.

Indicators:
Date of Council presentation(s)
Topics covered

Departments involved: Development and Engineering Services

Staff voluntary courses and workshops – Staff indicated that they would like the City to offer more informational courses on sustainability topics. Not only will this increase staff's knowledge base, but also may help the organization identify future MSP actions.

Indicators:
Number of workshops provided
Number of topics covered
Attendance

Departments involved: Development and Engineering Services, Human Resources

Sustainability working group – Representatives from City departments will convene a Sustainability Working Group that will meet quarterly to assess progress, collaborate, discuss successes and barriers, and select future MSP actions.

Indicator:
Annual working group survey

Departments involved: All

Green Office Best Practice program – Many activities occur every day in City offices that affect the organization's sustainability. By providing information, guidelines, and outreach materials with different levels of sustainable action, departments can easily incorporate best practices, tailor their efforts, and set goals for improvement.

Indicators:
Participation rates
Award levels by department

Departments involved: All

Outreach

Outreach actions allow us to spread knowledge, provide updates, and get others involved. Increasing buy-in and participation both within the organization and community is vital, as sustainability relies on collective action to create successful outcomes.

Create and update sustainability website content – the City website is a "one stop shop" for City information, so creating and maintaining and informative, up-to-date sustainability page is foundational for outreach.

Indicators:
Number of page views
Number of unique visitors
Number of updates

Departments involved: Development and Engineering Services, Community Relations and Public Affairs

Quarterly staff sustainability newsletter – Keeping staff informed of new information, tips, stories, and progress related to the City's sustainability efforts will increase visibility and be an important component of outreach and engagement.

Indicators:
Distribution
Annual follow-up survey

Departments involved: Development and Engineering Services

Annual Municipal Sustainability Plan progress report – The annual MSP progress report will give a summary of the previous years' activities, information from indicators, progress toward the targets and goals, and plans for the next Implementation System cycle. The update will be available to staff and the public.

Indicators:
Completion of annual progress report
Number and type of outreach channels where the report is available

Departments involved: Development and Engineering Services

Citizen Sustainability Outreach program – There are many ways the City will engage with citizens on sustainability. These include semi-annual landscape workshops and HHW collections events, and annual events such as HOA Academies, the Citizen's Leadership Academy, Care1st classes, and Resident Appreciation Night where in-person instruction and discussion can take place. Ongoing outreach and content scheduled across various media channels will play a vital role in this action as well.

Indicators:
Number of topics covered
Number of events where information was provided
Number of attendees
Number of new outreach materials produced
Distribution by media type

Departments involved: Development and Engineering Services, Community Relations and Public Affairs Neighborhood and Family Services, Public Works

TRANSPORTATION

The primary Transportation issues addressed in the 2014 Implementation cycle include GHG emissions and other pollution, fuel and maintenance costs, lacking or disconnected mobility options, lack of sustainability considerations in purchases, and health and well-being issues. Addressing these issues using the strategies and actions below will help us pursue all nine of the Goals.

Transportation targets:

- Perform lifecycle costs and emissions analysis for all new vehicle purchases by 2016
- Reduce vehicle emissions by 10% by 2017, 20% by 2020, and 30% by 2030
- Increase fleet fuel efficiency by 4% by 2017, 10% by 2020, and 15% by 2025
- 3% of fleet uses alternative fuels by 2017; 8% by 2020; 12% by 2025
- Evaluate fleet size, determine targets for 2015
- Increase staff alternative commuting by 5% by 2017, 10% by 2020, and 20% by 2023
- All staff receive annual efficient driving and alternative commuting training
- All City-led development incorporates Complete Streets principles by 2016
- All applicable developers encouraged to use Complete Streets principles by 2016

Related Impact Areas:

- Community and Engagement
- Procurement, Materials, and Waste
- Land Use
- Health and Well-being
- Ecosystems
- Energy and Climate
- Water
- Air Quality
- Economy

Strategies, actions, and indicators:

Fuel efficiency

Fuel efficiency of City vehicles has major implications for GHG emissions, costs, and waste. Over the long term, improving fuel efficiency will not only save the City money, but also improve the resiliency of the organization, create a healthier city, and set an example for others to follow.

Green vehicle policy – This policy will provide efficiency and emissions expectations, purchasing and lifecycle analysis guidance, and reporting guidelines in order to reduce costs, GHG emissions, and other unsustainable aspects of the City's vehicle fleet.

Indicators:
Average fuel efficiency
Average vehicle emissions
Average vehicle lifecycle costs

Departments involved: Fleet Services, Development and Engineering Services, Finance

Efficient driving training – This training will provide staff the knowledge and tools to drive efficiently and reduce the costs, emissions, and maintenance impacts of City vehicles.

Indicators:
Average annual MPG for existing vehicles
% staff trained annually

Departments involved: Fleet Services, Development and Engineering Services, Community Relations and Public Affairs

Alternative fuels

In addition to improving fuel efficiency, incorporating alternative fuels (preferably renewable) can further reduce the fleet's GHG emissions, costs, and help drive the shift away from fossil fuel sources.

Purchase hybrid and electric administrative vehicles – Hybrid and electric vehicles are widely available, competitive in cost, and supported by an expanding infrastructure. Using hybrid and electric administrative vehicles can improve on efficiency and costs without sacrificing performance.

Indicator:
Number of City alternative fuel vehicles

Departments involved: Fleet Services, Development and Engineering Services

Plan to convert larger vehicles to alternative fuels – Large fleet vehicles create the greatest impacts. Infrastructure is currently lacking, but completing a plan to utilize alternative fuels in larger fleet vehicles in the future will move us closer to achieving the targets.

Departments involved: Fleet Services, Development and Engineering Services

Fleet size

Having the right number of vehicles is as important as their efficiency. By optimizing the number of vehicles maintained in the fleet, the City not only ensures fuel use and GHG emissions are as low as possible, but also that maintenance hours, parking space, costs, and accounting duties are optimized.

Identify and phase-out unnecessary administrative vehicles – In conjunction with the Green vehicle policy, the City will study the fleet size to determine if any vehicles can be repurposed or eliminated.

Indicator:
Number of administrative vehicles

Departments involved: Fleet Services

Multimodal transportation

Ensuring many transportation options are available is vital to a sustainable city. Actions in this strategy will help staff and residents utilize pedestrian, bicycle, public transit, and personal vehicle transportation throughout Avondale.

Complete Streets development guidelines – These guidelines will outline the Complete Streets aspects the City desires to see in new development.

Indicator:
Number of guidelines distributed

Departments involved: Development and Engineering Services

Complete Streets policy for City development – This policy will outline the required Complete Streets aspects that all City-led development must incorporate going forward.

Indicator:
% City projects that incorporate City Complete Streets standard

Departments involved: Development and Engineering Services

Bicycle, Pedestrian, and Trails Master Plan – Completing the Bicycle, Pedestrian, and Trails Master Plan will help identify and improve corridors, connectivity, and multimodal options transportation for path users.

Departments involved: Parks and Recreation, Development and Engineering Services

Alternative commuting

Staff commuting contributes significantly to the City's overall GHG emissions profile. Promoting alternative commuting methods can not only reduce emissions, but also save staff money and improve health and well-being.

Season-specific alternative commuting information – Different alternative commuting options are more comfortable at different times of the year. Promoting options seasonally can increase interest and provide motivation to try alternative commuting.

Indicator:
Number of alternative commuting employees

Departments involved: Community Relations and Public Affairs

Recognize top alternative commuting employees and departments – Introducing friendly competition and recognizing top performers within departments and across the organization can help convince others to make the switch to alternative commuting.

Indicator:
Number of alternative commuting employees
Number of awards

Departments involved: Community Relations and Public Affairs

Safe cycling on the street course – Providing a course on safe cycling can help bicyclists ride correctly and confidently on properly-marked streets. In turn, they will be more likely to utilize bicycles for transportation.

Indicators:
Number of attendees
Follow-up survey

Departments involved: Community Relations and Public Affairs, Development and Engineering Services

City of Avondale bike map – A map of the city's cycling facilities will help commuters plan safe, efficient routes and promote cycling in Avondale.

Indicators:
Number of maps distributed

Departments involved: Community Relations and Public Affairs, Development and Engineering Services

PROCUREMENT, MATERIALS, AND WASTE

The primary Procurement, Materials, and Waste issues addressed in the 2014 Implementation cycle are a lack of sustainability considerations in purchases, utility and fuel costs, overconsumption, health and well-being impacts, GHG emissions and other pollution, and linear resource processes. The strategies and actions below will address these issues and pursue Goals 1-4 and 6-9.

Procurement, Materials, and Waste targets:

- Create sustainable standards and guidelines for City purchases
- Sustainable purchasing guidelines applied to 50% of applicable purchases by 2016, 100% by 2018
- Inform all applicable vendors of the City's sustainable purchasing policies
- Train 100% of staff involved in purchasing annually
- Reduce amount of prints by 5% by 2015, 10% by 2016, and 20% by 2020 (2013 baseline)
- Reduce paper towel orders 5% by 2016; 10% by 2018; 20% by 2020 (2013 baseline)
- Reduce bottled water orders by 2% in 2015; 5% by 2018; and 10% in 2020 (2013 baseline)
- 100% of departments enrolled in Green Office Program by 2015, 50% Level 2 by and 25% Level 3 by 2016; 100% Level 2 and 50% Level 3 by 2020

Related Impact Areas:

- Community and Engagement
- Transportation
- Buildings and Maintenance
- Health and Well-being
- Ecosystems
- Energy and Climate
- Water
- Air Quality
- Economy

Strategies, actions, and indicators:

Sustainable purchasing practices

The types of materials purchased have significant effects on resources, ecosystems, health and well-being, costs, and waste processes. Implementing sustainable purchasing practices will ensure that sustainability is considered in buying decisions, and that departments are aligned in their efforts to increase sustainability across the organization.

Sustainable purchasing policy – This policy will provide guidelines and expectations for purchasing applicable items and ensure that the most sustainable options are considered whenever possible.

Indicators:

% Paper purchases with minimum recycled content
% FSC-certified products
% Eco-labeled products

% Energy Star or equivalent certified products

Departments involved: Development and Engineering Services, Finance, Information Technology

Sustainability language in applicable contracts – Appropriate language in contracts will ensure vendors understand the City's sustainability direction. The City may also consider asking vendors to highlight their own sustainability practices.

Indicator:
% of applicable contracts issued with sustainability language

Departments involved: Development and Engineering Services, Finance, Legal

Order tracking and assessment – Understanding what type and how often materials are ordered will allow the City to identify opportunities for efficiency, reduction, and more sustainable options.

Indicator:
Amount and types of administrative materials purchased

Departments involved: Development and Engineering Services, Finance

Knowledge and awareness

Knowledge and awareness of Procurement, Materials, and Waste issues will be crucial for providing the information needed for successful action. This strategy will ensure that the proper information is distributed, discussed, and understood by all those involved with purchasing.

Sustainable purchasing staff training – All applicable staff will be trained on sustainable purchasing guidelines in order to support the sustainable purchasing policy.

Indicator:
% of applicable staff trained

Departments involved: Development and Engineering Services, Human Resources

Sustainable purchasing vendor outreach – Staff will ensure vendors understand the City's sustainable purchasing guidelines via multiple media channels.

Indicators:
Number of outreach materials distributed
Number of vendor inquiries

Departments involved: Development and Engineering Services, Finance, Legal

Print and paper reduction

Paper is one of the most heavily used office materials, and also one of the easiest to reduce. The actions in this strategy will help staff reduce paper use without sacrificing performance.

Default double-sided printing – All applicable printers will be set to default double-sided printing. Users will have the option to switch to single-sided printing if required.

Indicator:
Annual number of prints

Departments involved: Information Technology, Community Relations and Public Affairs

Expand tablet program – The City implemented a successful pilot program that eliminated paper meeting materials by relying on electronic tablets. The City will look into the feasibility of expanding this program.

Indicators:
Number of tablets available for use
Annual use survey
Annual number of prints

Departments involved: Information Technology

Electronic plans and forms – The City currently has some electronic plans and forms, and will convert as many more as possible to electronic format. In addition, the City hopes to expand electronic submittal options for plans and forms.

Indicators:
% of forms available online
% of forms and plans that can be submitted electronically

Departments involved: Development and Engineering Services, Information Technology

Reuse and upcycling

Using materials for their full lifecycle and treating waste as resources are both components of a sustainable resources system. The following actions will help expand reuse and upcycling.

Encourage intra-office materials exchange – Staff already participates in an informal intra-office material exchange via email. Staff will provide guidelines to streamline this process and expand sharing opportunities.

Indicators:
Number of intra-office material exchanges
Estimated cost savings of exchanges

Departments involved: Community Relations and Public Affairs

Identify potential alternative or reuse opportunities – There are always new opportunities to reuse or upcycle materials. Staff will actively work to identify and capitalize on these in the coming year, with special attention to construction and maintenance materials.

Indicators:
Number of opportunities identified
Number of opportunities implemented

Departments involved: Facilities, Development and Engineering Services, Public Works

Full-scale green waste program – The City current operates a pilot green waste program for lawn waste. If favorable, Public Works will use the results of this program to work toward full-scale implementation.

Indicator:
Pounds of green waste collected

Departments involved: Public Works

Scrap paper re-use – Scrap paper is often recycled, but there are many opportunities to reuse it for scratch paper, note pads, and other uses. The City will provide information and examples so that scrap paper can be used again before recycling.

Departments involved: Development and Engineering Services, Community Relations and Public Affairs

Reduce resource and materials use

One of the best Procurement, Materials, and Waste strategies is to reduce the amount of resources used, i.e. promoting efficiency and reducing overconsumption. The actions in this strategy will not only save money, but also reduce GHG emissions from production and transport, and the amount of raw resources extracted, among other benefits.

Distribute waste reduction awareness materials – There are many waste reduction awareness materials and campaigns that staff will investigate and implement where applicable. For example, the City uses paper towels in many of its facilities. "These Come from Trees" stickers are inexpensive and have been shown to reduce paper towel use by up to 29%[23]. Facilities will test stickers in various locations and expand after evaluating the results.

Indicators:
Number of stickers installed
% change in paper towel orders (2013 baseline)

Departments involved: Facilities, Development and Engineering Services, Public Works

Assess feasibility of installing hand dryers in restrooms – Some restrooms in City facilities may be able to accommodate electric hand dryers which could save costs, resources, and waste associated with the paper towels.

Departments involved: Facilities

Assess feasibility fountain bottle filling stations – Many staff members drink bottled water or do not like the taste of the tap water at City facilities. Staff will evaluate retrofitting bottle filling stations into existing water fountains where employees can easily refill reusable bottles.

Departments involved: Facilities

Provide reusable water bottles – Reusable bottles help reduce the number of single-use water bottles consumed, and also encourage employees to drink healthy, low-cost

[23] More information is available at thesecomefromtrees.blogspot.com.

water available at City facilities. Providing reusable water bottles will enable all of these benefits.

Indicators:
Number of bottles distributed
Estimated number of bottled water bottles mitigated
% change in bottled water orders (2013 baseline)

Departments involved: Community Relations and Public Affairs, Development and Engineering Services

Plastic bag pet waste program – Plastic bags deposited for recycling could have additional uses for e.g. pet waste collection. Staff will create receptacles and outreach materials so residents can use recycled plastic bags to collect their pet's waste in City Parks. Bags will be supplied from recycling receptacles, and residents can also add bags of their own. This program not only reduces resource use, but also helps avoid water, stormwater, and health issues.

Indicators:
Number of receptacles installed
Number of receptacle refills

Departments involved: Parks and Recreation

Recycling

Avondale has a strong recycling program. The City will build on this foundation and use the actions below to expand participation and diversion, and optimize collection practices. In the future, staff will continue to identify innovative ways to divert waste from the landfill and back into the resource cycle.

Office recycling training and programs – The City has a recycling diversion rate of 19-20%. Staff will work to increase participation and diversion rates through outreach and other methods, which could also provide insight into improving community-wide diversion.

Indicators:
Pounds of recycling collected from City facilities
Recycling diversion rates from City facilities
Annual employee training effectiveness survey

Departments involved: Facilities, Public Works, Community Relations and Public Affairs

Evaluate alternative office waste collection practices – Recycling participation and diversion rates could be improved by adapting waste collection practices by e.g. emptying desk recycling and garbage bins at the same time, or not changing out garbage bins until at least half full if the waste allows. Staff will evaluate the potential benefits of these and other changes and implement where practicable.

Departments involved: Facilities, Public Works

LAND USE

The primary Land Use issues addressed in the 2014 Implementation cycle are reduced ecosystem services, urban heat island, lack of sustainable building design and construction, some unsystematic development practices, and storm water management. The strategies and actions below will address these issues and help pursue Goals 2-9.

Land Use targets:

- Maintain density requirements set forth in General Plan
- Recognize three examples of exceptional sustainable development by 2017

Related Impact Areas:

- Community and Engagement
- Transportation
- Buildings and Maintenance
- Health and Well-being
- Ecosystems
- Energy and Climate
- Water
- Air Quality

Strategies, actions, and indicators:

Sustainable development

Land use patterns created by development are long-term and have significant implications for the overall sustainability of the city. By taking the actions below to drive sustainable land use patterns, the City is helping ensure that Avondale continues to develop as an example of sustainable urban form.

Enforce General Plan requirements – Ensuring development adheres to the density requirements and land use standards set forth in the General Plan and zoning code will help further a sustainable urban form as Avondale continues to develop.

Indicator:
Annual comparison of proposed density requirements to completed development

Departments involved: Development and Engineering Services

Research and adapt Transit Oriented Development best practices – Transit Oriented Development planning has seen increased implementation across the nation and world. Staff will investigate best practices examples and adapt them for potential use in Avondale's planned Transit Oriented Development areas.

Departments involved: Development and Engineering Services

Knowledge and awareness

Often the broad impacts of land use are not considered during single projects, when it is easy to forget that the city is an interconnected system. By employing a strategy of knowledge and awareness the City hope to highlight and advance the importance of sustainable land use.

Sustainable development recognition – This recognition program will recognize development that creates sustainable land use patterns that align with those advanced by the City. By recognizing the desired type of sustainable development, the City hopes others will follow these examples and incorporate similar elements into their own developments.

Indicators:
Number of awards presented
Number of eligible sites

Departments involved: Development and Engineering Services, Economic Development

BUILDINGS AND MAINTENANCE

The primary Building and Maintenance issues addressed in the 2014 Implementation cycle are lack of sustainable building design and construction, urban heat island, GHG emissions and other pollution, reduced ecosystem services, health and well-being issues, and storm water management. The strategies and actions below will address these issues and help pursue all nine of the Goals.

Buildings and Maintenance targets:

- All new City buildings adhere to Sustainable Building Standard by 2016
- All applicable City facilities utilize Integrated Pest Management by 2016

Related Impact Areas:

- Community and Engagement
- Transportation
- Procurement, Materials, and Waste
- Land Use
- Health and Well-being
- Ecosystems
- Energy and Climate
- Water
- Air Quality
- Economy

Strategies, actions, and indicators:

Sustainable design and construction

Creating sustainable, healthy, and efficient buildings is an important strategy for pursuing the goals. Not only will integrating sustainable design produce desired results from the outset, it can also streamline maintenance and upkeep over the long-term.

Sustainable Building standard for City construction – This standard will provide sustainable design expectations, standards, and guidelines for City projects incorporate.

Indicator:
Number of new buildings that adhere to the Sustainable Building Standard

Departments involved: Development and Engineering Services

Perform building retrocommissions – Many City buildings are 10 or more years old. Preforming retrocommissions on applicable buildings will show if their systems, especially HVAC, lighting, and major equipment, are adequate and preforming as designed, and help identify opportunities for retrofits and savings.

Indicator:
% of applicable City buildings with retrocommissions preformed

Departments involved: Facilities

Reduce Friday building use – Many City offices operate on a Green Friday schedule. However, sometimes special events, additional work, or meetings still take place on

Fridays, and the buildings must be brought online for a relatively small amount of use. The City will work to not schedule activities on Fridays if possible, and will discourage staff from doing so.

Indictor:
Annual number of Fridays that buildings operated

Departments involved: All

Pest management

Pest management methods can have major impacts on maintenance levels and expenditures, as well as health and well-being for staff and ecosystems that interact with buildings on a daily basis. This strategy will promote actions that use preventative and non-toxic measures for pest management.

Integrated Pest Management program – The City has recently taken steps to reduce the use of potentially harmful insecticides at the Civic Center campus. This will be expanded to all applicable facilities, and staff will add other preventative measures and other non-toxic options where appropriate.

Indicators:
Number of facilities with Integrated Pest Management
Number of exemption request
Effectiveness feedback

Departments involved: All

HEALTH AND WELL-BEING

The primary Health and Well-being issues addressed in the 2014 Implementation cycle include GHG emissions and other pollution, lacking or disconnected mobility options, urban heat island, workplace comfort and health, and additional health and well-being issues. The strategies and actions below will address these issues and help pursue Goals 1, 2, and 5-9.

Health and Well-being targets:

- All staff participate in at least one health and well-being program by 2016
- 80% of workspaces have a view of outdoors or nature (real or artificial) by 2017

Related Impact Areas:

- Community and Engagement
- Buildings and Maintenance
- Ecosystems
- Air Quality
- Economy

Strategies, actions, and indicators:

Sustainable design and construction

The way sites and buildings are designed, and the types of materials and equipment used, can have wide-ranging health and well-being impacts. The actions in this strategy will work to enhance physical and mental health of staff, and provide examples of healthy spaces for others.

Evaluate potential indoor air quality upgrades – Indoor air quality is often not considered when discussing workplace health, but items like HVAC systems, building materials, and maintenance practices can influence indoor air quality and the health of building users. The City will identify potential indoor air upgrades, and create an implementation plan for appropriate options.

Indicators:
Number of upgrade opportunities identified
Number of upgrades implemented

Departments involved: Facilities

Evaluate potential comfort upgrades – Comfortable and ergonomic work spaces can enhance staff satisfaction and productivity. The City will identify potential ergonomics upgrades and create an implementation plan for appropriate options.

Indicators:
Number of upgrade opportunities identified
Number of upgrades implemented

Departments involved: Facilities

Increase views of nature – Research has shown that views of nature, whether real or artificial, promote calm and mental well-being[24]. The City will increase the views of nature wherever possible in municipal facilities.

Indicator:
Number of work spaces with views of nature

Departments involved: Facilities

Knowledge and awareness

Knowledge and awareness of what affects health and well-being, and how it can be increased, will help staff and residents identify improvements they can make to enhance personal, organizational, and community sustainability.

Continue to expand staff health and well-being programs – The Human Resources and Neighborhood and Family Services departments offer several health and well-being related courses ranging from physical health and safety to financial management and career advancement. The City will increase these offerings, and provide more information on how health and well-being affects community sustainability.

Indicators:
Number of health and well-being-related offerings
Attendance

Departments involved: Human Resources

Ecotourism and recreation

Recreation in Avondale's numerous outdoor areas not only promotes health and well-being, it can also bring visitors and associated economic activity to the city. The actions below will both promote healthy outdoor habits and bring more people into Avondale to enjoy the city's beautiful natural areas.

Expand education and recreation opportunities at the Baseline and Meridian Wildlife Area (BMWA) – The BMWA is an ecological gem in south Avondale at the confluence of the Salt and Gila Rivers. This desert riparian area offers a number of recreation and educational opportunities, and the City will increase promotion of these through a variety channels.

Indicator:
Number of events in the BMWA

Departments involved: Parks and Recreation, Community Relations and Public Affairs

Expand outreach for outdoor recreation and activities – Avondale has a number of outdoor recreation options available throughout the year. The City will expand outreach for outdoor recreation in order to increase participation and attract additional visitors.

Departments involved: Parks and Recreation, Community Relations and Public Affairs

[24] See Louv, 2012 and Selhub & Logan, 2012 for more information.

Food access

Access to fresh, healthy food can greatly increase health and well-being, especially in areas that have few healthy options to being with. Food access can be coupled with education on nutrition, gardening, ecosystems, and community engagement to increase benefits.

Implement an additional community garden – the City will implement an additional community garden to expand service to additional areas of Avondale. Special consideration will be given to a garden located at the Care1st Resource Center, which could also include gardening, nutrition, resources, and nature educational programming.

Indicator:
Number of community gardens in Avondale

Departments involved: Neighborhood and Family Services, Public Works

ECOSYSTEMS

The primary Ecosystems issues addressed in the 2014 Implementation cycle include reduced ecosystem services, GHG emissions and other pollution, urban heat island, workplace comfort and health, and health and well-being issues. The strategies and actions below will address these issues and help pursue all nine of the Goals.

Ecosystems targets:

- There are no targets related specifically to Ecosystems for 2014.

Related Impact Areas:

- Community and Engagement
- Transportation
- Land Use
- Buildings and Maintenance
- Health and Well-being
- Energy and Climate
- Water
- Air Quality
- Economy

Strategies, actions, and indicators:

Sustainable design and construction

Sustainable design and construction should extend to the surrounding ecosystems. Creating sustainable, healthy, and integrated spaces is necessary in order to work with ecosystems rather than apart from them. Furthermore, including ecosystem services in design and construction can highlight options for savings and unique solutions that may not have been evident in normal design processes.

Street Tree Master Plan – Completing the Tree and Shade Master Plan will further enhance ecosystems throughout the city primarily by expanding services like shade, erosion control, air and water filtration, desirable aesthetics, and habitat.

Departments involved: Development and Engineering Services, Parks and Recreation

Landscaping

Landscaping is one of the main ways City-owned and –maintained properties interact with the broader ecosystem. This strategy will help ensure that City landscaping practices protect and enhance ecosystems, and take advantage of the valuable services they provide.

Tree and xeriscaping maintenance guidelines – The City widely employs xeriscaping, but xeriscaping's effectiveness relies on proper maintenance. The City will create maintenance guidelines to maximize its own landscapes and provide an example for others to follow.

Departments involved: Development and Engineering Services, Code Enforcement, Public Works

Ecotourism and recreation

Avondale's contains many unique ecosystems that can be enhanced through sustainable use and education. Promoting opportunities within natural areas not only helps protect ecosystems, but it could also bring additional visitors and associated economic activity to the City.

Create a riparian park at the recharge facility – Other Valley cities have created environmentally-focused parks at their water recharge facilities. Avondale will work with stakeholders to design a recharge riparian park that focuses on ecosystem and sustainability education, and hands-on activities.

Departments involved: Public Works, Development and Engineering Services, Parks and Recreation

Investigate other potential eco-tourism development sites – Avondale has a number of outdoor resource options that, along with other benefits, can help to provide awareness and education about area ecosystems and attract visitors to enjoy them. The City will investigate other potential sites that could expand eco-tourism and recreation.

Departments involved: Development and Engineering Services, Parks and Recreation, Public Works

Storm water management

Storm water is part of the natural water cycle and should be treated as a resource. Smart storm drain systems infiltrate water close to where it falls and take advantage of natural filtration mechanisms like plants and soil. This strategy will allow us to further enhance the storm water system to work in concert with the broader water cycle.

Rainwater collection and Low Impact Development (LID) pilot – The City hopes to augment retention areas with additional localized storm water management solutions like rainwater collection and rain gardens. This pilot will help determine the feasibility and appropriate applications of such solutions, and serve as an example for others.

Indicators:
Design and building costs of LID versus traditional storm infrastructure
Maintenance costs of LID versus traditional storm infrastructure
Effectiveness of LID versus traditional storm infrastructure

Departments involved: Engineering and Development Services, Public Works

Storm water pollution prevention training – Preventing storm water pollution is one of the best strategies for protecting waterways, groundwater, and desert ecosystems. The City will provide training for all staff on how they can reduce storm water pollution.

Indicator:
Number of staff trained

Departments involved: Development and Engineering Services, Human Resources

Impervious surface reduction program – Impervious surfaces can disrupt the natural water cycle and contribute to urban heat island. The City will create a program to assess and reduce impervious surfaces where appropriate, with special attention to streets and other paved areas.

Indicator:
% change pervious/impervious surfaces

Departments involved: Development and Engineering Services

ENERGY AND CLIMATE

The primary Energy and Climate issues addressed in the 2014 Implementation cycle are GHG emissions and other pollution, utility and fuel costs, UHI, and lack of sustainable building design and construction. The strategies and actions below will help address these issues and pursue Goals 1-3 and 5-9.

Energy and Climate Targets:

- Reduce overall GHG emissions 5% by 2017; 10% by 2020, and 25% by 2025
- All electricity meters monitored and benchmarked by 2015
- All applicable purchases meet Energy Star or equivalent standards by 2016
- Reduce the organization's overall electricity usage 3% by 2018; 8% by 2021; and 13% by 2024
- Renewables provide 1% of the organization's energy by 2016; 5% by 2020; and 15% by 2025
- Reduce office building energy use by 2% in 2016; 5% by 2020; and 10% by 2025
- Update GHG emissions inventory biannually

Related Impact Areas:

- Community and Engagement
- Transportation
- Procurement, Materials, and Waste
- Land Use
- Buildings and Maintenance
- Health and Well-being
- Air Quality
- Economy

Strategies, actions, and indicators:

Energy efficiency

Reducing energy use without compromising performance is a sound strategy for cutting costs, GHG emissions, and unnecessary or outdated equipment, all while pursuing several goals. Some actions involve retrofits or upgrades, but others are simple behavior changes that can have large impacts.

Electricity benchmarking for all meters – Tracking electricity use will help us monitor the effects of other actions. Currently the Civic Center campus electric meters are monitored, but all City-owned meters will be added to the monitoring system and updated monthly.

Indicators:
% meters entered into tracking system
% meters tracked monthly

Departments involved: Facilities, Development and Engineering Services

Energy efficient equipment purchases – Ensuring all equipment purchased is energy efficient is a foundational for creating a low-energy-use organization, and saves on

electricity costs. Energy Star or similar guidelines will be used to qualify purchases wherever applicable.

Indicators:
% of equipment purchased that conforms to Energy Star or equivalent
% all equipment that conforms to Energy Star or equivalent

Departments involved: Information Technology, Facilities, Finance, Development and Engineering Services

Identify energy efficiency equipment and building retrofits – There are always opportunities for upgrades and retrofits to improve energy efficiency. The City will work internally and with organizations to identify and implement energy efficiency upgrades.

Indicators:
Number of retrofit opportunities identified
Number of retrofit opportunities implemented
% energy use reduction compared to estimated reductions

Departments involved: Facilities, Information Technology Development and Engineering Services

Street light upgrade program – The majority of the City's streetlights use High-Pressure Sodium (HPS) bulbs. The City will create a program to assess and replace HSP bulbs with longer-lasting and efficient options, like LED or induction lighting, where applicable.

Indicator:
Number of streetlights upgraded

Departments involved: Development and Engineering Services

Incorporate energy efficiency in Water Reclamation Facility (WRF) master planning – The City is proactively planning for future use at the WRF. Required treatment processes make the WRF the organization's largest energy user, but energy efficiency opportunities are always improving. Energy efficiency considerations will be incorporated into the WRF master planning.

Renewable energy

Renewable energy is a key strategy to a sustainable energy future. These sources are abundant and renewable, and do not emit GHGs and other pollutants. Many renewable options can also reduce energy costs and essentially pay for themselves over time.

Expand solar on Civic Center Campus – The Civic Campus currently houses one solar system, which has proved successful. The City will assess the Campus and identify additional areas with high solar potential.

Indicators:
Number of potential solar sites
Kilowatts of solar installed
Electricity cost savings from solar
GHG emissions reductions from solar

Departments involved: Development and Engineering Services, Facilities

Comprehensive solar plan for additional City sites – When viewed as a system, numerous City properties have potential for solar systems that could significantly reduce reliance non-renewable energy sources. The City will create a comprehensive solar plan that identifies and prioritizes solar installations on municipal properties.

Indicator:
Number of potential solar sites

Departments involved: Development and Engineering Services, Facilities, Public Works

Incorporate solar in WRF master planning – The City is planning for future use at the WRF. With ample space on site, solar could potentially offset a significant portion of the Facility's energy usage. Solar considerations will be incorporated into the WRF master planning process.

Departments involved: Public Works

Investigate other sustainable energy options for City applications – While solar is currently the most popular renewable energy generation source in Arizona, additional options may be viable. The City will explore the feasibility of these options and create a plan for implementation if applicable.

Departments involved: Development and Engineering Services

Knowledge and awareness

Many energy-related actions rely on simple awareness and behavior change that can achieve significant positive results. By enabling information-sharing, discussion, and interaction, the City can advance its sustainable energy goals in the organization and beyond.

Energy website content – Most people get information from web-based sources. The City will provide action-oriented energy efficiency and renewables content on the sustainability website, and provide links to other useful sources.

Indicators:
Number of unique users
Number of page views
User comments

Departments involved: Development and Engineering Services, Community Relations and Public Affairs

Expand energy-related programs – The Neighborhood and Family Services Department incorporates energy-related content in a number of its current programs. The City will expand this practice and focus more on energy efficiency, both in programs offered to residents and those directed toward staff.

Indicators:
Number of offerings
Attendance
Follow-up survey

Departments involved: Neighborhood and Family Services, Development and Engineering Services, Community Relations and Public Affairs, Human Resources

GHG emissions inventory – The MSP contains many goals, issues, targets, strategies, and actions indirectly or directly aimed at reducing GHG emissions, and these require an accurate emissions inventory. The inventory will be completed for a 2013 baseline and updated biannually.

Indicators:
Biannual GHG emissions profile

Departments involved: Development and Engineering Services

WATER

The primary Water issues addressed in the 2014 Implementation System cycle include GHG emissions and other pollution, utility and fuel costs, and lack of sustainable building design and construction. The strategies and actions below will address these issues and help pursue Goals 1-3 and 5-9.

Water targets:

- All water meters monitored and benchmarked by 2015
- All applicable purchases meet WaterSense or equivalent standards by 2016
- Achieve and maintain parity between water demand and credits by 2018
- Reduce office building water use 2% by 2016; 4% by 2020, and 8% by 2025

Related Impact Areas:

- Procurement, Materials, and Waste
- Land Use
- Buildings and Maintenance
- Health and Well-being
- Ecosystems
- Energy and Climate
- Air Quality
- Economy

Strategies, actions, and indicators:

Water efficiency

In desert environments, using water efficiently is a requirement. The actions below will help us use equipment, technology, and behavior to advance a sustainable water system.

Water benchmarking for all meters– Actively monitoring water use will help monitor the effects of the organization's actions and identify opportunities for improvement. All City-owned meters will be monitored and updated monthly.

Indicators:
% of meters entered into tracking system
% meters tracked monthly

Departments involved: Facilities, Development and Engineering Services

Water-efficient equipment purchases – Purchasing equipment that adheres to EPA WaterSense or similar standards will ensure City systems are as efficient as possible, and allow for more impactful behavior changes.

Indicators:
% of new equipment that conforms to WaterSense or equivalent criteria
% all equipment that conforms to WaterSense or equivalent criteria

Departments involved: Facilities, Development and Engineering Services, Public Works, Finance

Identify water efficiency equipment and building retrofits – Staff will work internally and with other organizations to identify water efficiency upgrades and retrofits on City properties to further reduce usage.

Indicators:

Number of retrofit opportunities identified
Number of retrofit opportunities implemented
% water use reduction compared to estimated reductions

Departments involved: Facilities, Development and Engineering Services, Public Works

AIR QUALITY

The primary Air Quality issues addressed in the 2014 Implementation cycle are pollution and health and well-being impacts. The strategies and actions below will address these issues and help pursue Goals 1, 2, 4, and 6-9.

Air Quality targets:

- Create and update air quality content focused on awareness, engagement, and behavior change
- Update PM 2.5, PM 10, and ozone website content quarterly at minimum
- Place air quality content in at least 2 RAVE publications per year
- Ensure 100% of applicable special/seasonal events complete a dust control plan

Related Impact Areas:

- Community and Engagement
- Transportation
- Land Use
- Buildings and Maintenance
- Health and Well-being
- Ecosystems
- Water

Strategies, actions, and indicators:

Knowledge and awareness

Air quality can be heavily influenced by awareness, knowledge, and the actions that these lead to. Expanding knowledge and awareness can provide staff and residents the tools they need to make sustainable air quality choices.

Expanded air quality content for social and print media – Information on how to air quality safety and improvement is available in a variety of mediums. The City will utilize these resources and create more to spread information through a variety of media channels.

Indicators:
Social media comments
Web analytics
RAVE inclusions
RAVE distribution
Print collateral distribution

Departments involved: Development and Engineering Services, Community Relations and Public Affairs

No-Burn Day notifications – It is extremely important for regional air quality (primarily related to PM 2.5) to inform residents when a Maricopa County No Burn Day is in effect. The City will create a procedure to feature No Burn Day notifications prominently via electronic media.

Indicators:
Number of notices in media

Number of violations (obtained from Maricopa County)

Departments involved: Development and Engineering Services, Community Relations and Public Affairs

High Pollution Advisory day notifications – Notifications of High Pollution Advisory Days are important for residents to receive, especially those with health conditions and vulnerable groups like children and the elderly. The City will create a procedure to feature High Pollution Advisory Day and air quality notifications via electronic media.

Indicator:
Number of notifications issued by method

Departments involved: Development and Engineering Services, Community Relations and Public Affairs

Air quality website content – Most people get information from web-based sources. The City will provide action-oriented air quality content on its sustainability website, and provide links to other useful resources.

Indicators:
Number of page views
Number of unique visitors
Number of updates

Departments involved: Development and Engineering Services, Community Relations and Public Affairs

Particulate matter mitigation

Particulate matter (PM) like dust and smoke are the primary pollutants in Valley air, and these are exacerbated by the temperature inversion that often holds PM close to the ground. The actions in this strategy will help reduce PM in Avondale and help keep our air clean and healthy.

Special/seasonal event dust control plans – The City has recently created guidance and a template for dust control plans for applicable special and seasonal events. The City will ensure that all applicable event applicants receive this information and submit dust control plans.

Indicators:
Number of plans submitted
% events that complete plans

Departments involved: Development and Engineering Services

Adhere to dust control rules and good housekeeping practices – The City has a number of “good housekeeping” practices, such as street sweeping, track-out control, and traffic control to control dust and emissions. The City will continue and expand these practices where applicable.

Indicators:
Lane miles street sweeping
Dust-related violations issued by County in Avondale

Departments involved: Public Works, Development and Engineering Services

Mitigate and maintain unpaved surfaces – There are very few City-maintained unpaved roadways. However, staff will assess solutions to mitigate dust emissions from the few that remain, and will maintain other areas by e.g. applying recycled asphalt millings.

Indicator:
Amount unpaved surfaces paved, treated, or maintained

Departments involved: Development and Engineering Services

ECONOMY

The primary Economy issues addressed in the 2014 Implementation System cycle include local business development, GHG emissions and other pollution, utility and fuel costs, and local workforce development and opportunities. The strategies and actions below will address these issues and help pursue all nine of the Goals.

Targets:

- Enroll 10 businesses in the Avondale Green Business program by 2016
- Reduce commercial vacancies 15% by 2018
- Develop 5% of available infill sites by 2020
- Develop 5% of the City Center area by 2020
- Infill 20% of existing subdivisions by 2018
- Increase employment opportunities 5% by 2018

Related Impact Areas:

- Community and Engagement
- Procurement, Materials, and Waste
- Land Use
- Buildings and Maintenance
- Health and Well-being
- Ecosystems
- Energy and Climate
- Water
- Air Quality

Strategies, actions, and indicators:

Sustainable business climate

Supporting local businesses and helping them operate with sustainability in mind will improve the community and help the City pursue its goals. This strategy will provide Avondale's businesses the information and relationships they need to take smart sustainability actions.

Avondale Green Business program – The Avondale Green Business program will recognize businesses' sustainability practices and provide resources for those who wish to add to their current level of action. This program will be important for improving sustainability in Avondale and building positive relationships that will allow for more collaboration in the future.

Indicators:
Number of participants
Number of awards per level

Departments involved: Economic Development, Development and Engineering Services, Neighborhood and Family Services

Historic Avondale Development Toolkit – Historic Avondale is the target of development efforts for many departments. The City will assemble a Historic Avondale Development Toolkit to take advantage of overlaps and efficiencies between these

efforts. The toolkit will address many sustainability topics, and will help attract and maintain local business in Historic Avondale.

Indicators:
Number of times the toolkit is utilized

Departments involved: Economic Development, Development and Engineering Services, Neighborhood and Family Services

Promote and support local businesses – The City understands that residents desire small- to medium-sized businesses that contribute to Avondale's identity and support the local economy. Avondale will expand opportunities for local, independent, and small-to medium-sized businesses through appropriate partnerships, incentives, and support. These activities will include promotion and preservation of Avondale's unique assets, including the City's cultural heritage, natural and historic resources, and creative community.

Indicators:
Annual number of new businesses located in Avondale
Commuting rate

Departments involved: Economic Development

Recruit, train, and expand businesses and opportunities – The City will recruit, train, and expand businesses and opportunities in key economic sectors, including sustainability-focused businesses, in key economic areas, including City Center; the I10 corridor; Historic Avondale; and arts, entertainment, and business districts through targeted investment, incentives, infill, and other revitalization strategies.

Indicators:
Number of jobs in the City
Annual median income
Unemployment rate
Commercial vacancy rate

Departments involved: Economic Development

Job and workforce development

Supporting local businesses and helping them operate with sustainability in mind will improve the community and help the City pursue its goals. This strategy will provide Avondale's businesses the information and relationships they need to take smart sustainability actions.

Promote and expand entrepreneurship – New businesses are an important for growing a sustainable, innovative, and attractive economy. The City will support entrepreneurship through appropriate partnerships, technical assistance, and incentives.

Indicators:
Annual number of new businesses started in Avondale

Departments involved: Economic Development, Neighborhood and Family Services

Collaborate with local education and training institutions – Local institutions such as Estrella Mountain Community College and Gangplank provide vital education and

training for Avondale's workforce. The City will collaborate with such institutions to provide to expand the Avondale's well-educated, well-trained workforce with skills matched to local job opportunities.

Indicators:
Annual number of workforce-related education and training opportunities

Departments involved: Economic Development, Neighborhood and Family Services

Enable and promote home ownership – The City recognizes home ownership as both an economic driver and quality of life enhancement. Avondale will take appropriate actions to promote and enable home ownership for all income levels.

Indicators:
Home vacancy rate
Subdivision vacancy rate
Home ownership rate

Departments involved: Economic Development, Neighborhood and Family Services