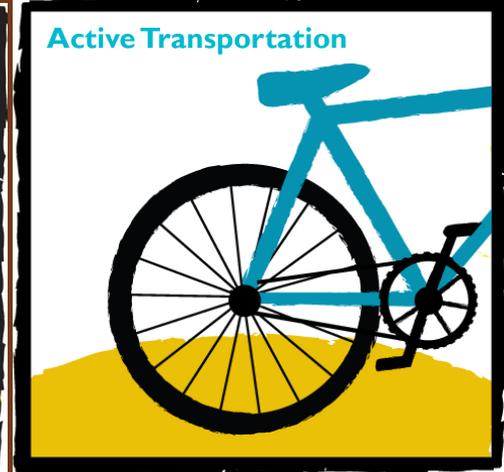
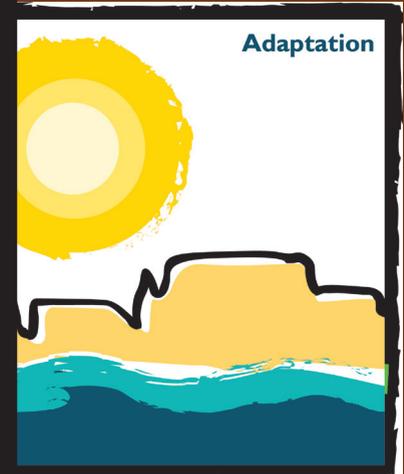


CITY OF  
**MOAB**  
UTAH

10-Year  
Sustainability  
Plan

**Executive Summary**



## Letter from the Sustainability Director

Moab has a long history of promoting sustainable practices through numerous resolutions, ordinances, plans, projects and internal policies. The 2019 Sustainability Action Plan outlines the goals, schedule, and strategies that will help put the community on a long-term sustainable path. Incremental change, minimizing negative environmental and social impacts is no longer a viable option, if Moab hopes to reach existing, new and revised goals.

During my first year at the City, I have concentrated my efforts on water and energy conservation efforts and establishing baseline data so that we can set and track measureable goals. Unfortunately, in spite of setting a 20% energy reduction goal in 2008, the energy consumption use has increased by 34% over the last 17 years. Given that the scale of change we seek is immense and our impact has steadily increased, new strategies, resources and engagement are critical.

Buildings can account for between 40% and 75% of community-level greenhouse gas emissions in Utah. Given that many impactful and cost-effective opportunities exist to reduce energy use (and associated greenhouse gases) in buildings, and that reducing energy consumption is typically the lowest cost strategy to reducing emissions and dramatically decreasing energy consumption among buildings, that is where most of my time has been spent so that we can create a 100% renewable electricity system. As community-wide electricity consumption is reduced, the amount of renewable electricity needed by the community is also lowered, making it easier to achieve a 100% renewable electricity scenario.

Beyond the prodigious role that the build environment plays, sustainability efforts need to address resilience, carbon neutrality, watershed health, community vitality, regeneration and triple bottom line thinking (i.e., social, economic and environmental). In order for the goals to be more than words in a City Plan, Council and citizens will need to dedicate substantial time and resources to educate, assist and support the priority strategies. See Appendix A for recommendations.

This quote from Paul Hawkins succinctly summarizes the main intent of our work: “Leave the world better than you found it, take no more than you need, try not to harm life or the environment, make amends if you do.” The plan content is a reflection of input from numerous business and community members to identify actions that will increase efficiency and resiliency because:

- Economic health, social inclusion, and environmental quality are mutually interdependent.
- Policy choices have long-term cost effectiveness.
- Organizational and community awareness, responsibility, participation, and education are key elements of sustainability.
- Local actions have regional, national, and global implications.

Within this document are recommendations to augment existing goals, and metrics, because how we acquire energy and how efficiently we use resources will determine, if Moab can achieve transformational change and protect the world-class environment we call home.

Sustainably yours,

*Dr. Rosemarie Russo*

# Goals

The following new and revised goals are recommended. Goals in italics are new or revised goals.

## **Goal #1: Sustainability, Adaptation and Mitigation**

Reduction of community greenhouse gases by at least 80% by 2040, including a reduction of at least 50% by 2032; and **ultimately achieving carbon neutrality for the municipal organization**. This reduction will be relative to a 2016 community emissions baseline, including emissions from energy use and transportation.

## **Goal # 2: Energy: Electricity & Renewable Energy**

- Transition to 100% for community electricity by 2030.
- Transition to 100% for municipal government operations by 2027 including at least 50% municipal renewable energy by 2024 from the 2016 baseline with at least 10% provided by onsite distributive energy.
- Reduction of electricity demand by 20% by 2032 in City buildings.
- Achieve a 20% Btu/sq. reduction in all City facilities from 2016 baseline levels.

## **Goal #3 – Water**

- Reduce water consumption by 20 percent per capita and 20 percent of outdoor usage of culinary water from the 2016 baseline by 2032.
- Protect quality of surface and groundwater to maintain sole source aquifer designation.

## **Goal #4 – Waste Diversion & Recycling**

Reduce trash by 20 percent per capita and increase diversion rate for community by 20 percent by 2032. Increase participation in City curbside recycling by 20% and decrease waste for residents and commercial customers by 2032; decrease construction debris and waste by 50% by 2024 and increase composting by 20% by 2024.

The 2017 Moab City General Plan promotes using the most cost-effective and environmentally sustainable systems for the disposal, composting, reusing and recycling of resources.

The recycling strategies are to encourage waste reduction. The EPA prioritizes recycling practices according to the following hierarchy: 1. Reduce waste at the source. 2. Reuse and repurpose materials. 3. Recycle.

## **Goal # 5– Fuel/Transportation**

Ensure all community members and tourists have access to multimodal means of commuter travel, to reduce single-occupancy vehicles and support public adoption of electric vehicles by 10% by 2032. Reduce traditional fuel use by 20 percent and total vehicle miles travel (VMT) for community by 20 percent by 2032.

Reduce traditional fuel use by the City's vehicle fleet by 20% by 2032 and reach a 1.5 average vehicle ridership (AVR) by 2032 for city employees.

## **Goal #6 – Education, Outreach & Legislative Indicatives**

Increase sustainable practices throughout the community, the state, and nation. Triple bottom-line analysis (i.e., environmental, economic and social) will be available to all levels of the community—students in grades K-12, college level, and the general public—as well as internal customers (staff). Support sustainable policies at the state and federal level.

## **Goal #7 – Purchasing & Funding**

- Foster a culture of sustainability in the organization and community and advance goals through various funding mechanisms (i.e., Innovation Fund, grants).
- Purchasing decisions shall evaluate products and services that have a reduced impact while maintaining fiscal responsibility.

## **Goal #8– Biodiversity & Forest Canopy**

Achieve a 10% forest canopy density; a 70 native vegetation cover and soil stability on select City property and promote carbon sequestration by restoring and preserving biological soil crusts.

## **Goal #9 – Health, Well-Being & Social Equity**

Ensure that Moab is an inclusive community, where physical and mental health and social wellbeing are accessible to all.

## **Goal #10 - Food**

Promote long-term agricultural stewardship and access to healthy local food.

## Conclusion

This Sustainability Plan is as an important step to ensure the City of Moab's sustainable and vibrant future. Select sections focus on actions that the municipal government and its employees can take in order to make the City a leader in sustainable practices.

The Plan is essential to highlight early successes and identify areas that need additional focus to ensure we accomplish the short term and long term goals. The Plan identifies the recommended revised and new goals and associated benchmarks for the areas that we have data. There are areas that need additional data input and analysis. One such area is our resiliency planning. The City must be prepared for disturbances such as, drought, wildfires, extreme rain events, electricity outages, as well as urban heat island effect. In addition to building upon our successes, integration of climate strategies into master plans needs to be addressed especially in planning and budgetary decisions. A preliminary review of existing plans, programs, studies and ordinances has been conducted. See Appendix L.

Climate change is already affecting Moab and the surrounding region, and its impacts are projected to become much more severe in the coming decades. To minimize harmful impacts and play our part in curbing global carbon pollution, Moab needs to take bold steps to reduce greenhouse gas emissions and build resiliency. This plan lays out a foundation to reduce our emissions and improve our resilience to future impacts of climate change on Moab's environment, infrastructure, and people. The immediate initiatives for 2019 are outlined in Table 5.

The impacts of climate change will have tangible effects on public health and quality of life for residents and visitors. Climate models project that Moab will experience:

- A decrease in winter snowpack;
- Summer water scarcity as temperatures increase;
- More days of extreme heat each year;
- An increase in temperature on the hottest days of the year;
- Additional rainfall during heavy storms; and
- More frequent and severe droughts, heat waves, and wildfires.

In addition to the direct dangers of wildfires, flooding, and extreme weather events made worse by climate change, secondary effects of more extreme temperatures, snowpack declines, and wildfire smoke are significant.

- Sensitive and exposed populations like the very young, elderly, those with respiratory illness, and outdoor workers will be at risk from wildfire smoke and heat-related illnesses.
- Plants and wildlife will need to adapt to shifting or diminishing habitats.
- Seasonal and climate-dependent industries such as agriculture, outdoor recreation, and tourism will be threatened under changing conditions.

The urban heat island effect can have serious impacts on public health and quality of life, including causing

Initiative	Resources	Budget	Corresponding Goal(s)
Neighborhood Campaign	Auditors	\$ 4,000.00	Adaptation, Energy Efficiency & Renewables
	Residential Supplies & Equipment	\$ 5,000.00	
Green Team (Interns)	Support - GtG	\$ 2,000.00	Comprehensive
	Data Analysis & Input - Inventory, Benchmarking, Dashboard	\$ 16,200.00	
Shuttle Subsidy	Residential Vouchers	\$ 3,000.00	Active Transport & Equity
NREL Symposium	Engagement	0	Educaiton & Engagement
Innovation Fund	Community Award	\$ 10,000.00	Comprehensive
Mulch Moab	Staff/Truck	\$ 2,000.00	Water
Affordable Homes	Best Management Building Checklist - Well, Green Enterprise, Living Building, LEED	\$ -	Equity
VCAP	Consultants	\$ 1,500.00	Water & Adaptation
Bike/Scooter Share	Contract	\$ 2,500.00	Active Transport
Composting	Green Cones	\$ 2,000.00	Waste Diversion
Composting	Earth Vessel	\$ 6,000.00	Waste Diversion
Recycling	Solar Bellies	\$ 20,000.00	Waste Diversion
Recycling	Infinities/Slim Jim	\$ 3,000.00	Waste Diversion
Solar & Smart Grid Adoption Acceleration	Off-Grid	\$ 2,000.00	Renewable Energy
Solar & Smart Grid Adoption Acceleration	Local Contractor - Geotech Golf Course	\$ 2,000.00	Renewable Energy
Community Gardens	Water/Equipment	\$ 500.00	Local Food
Trainings/Library/Mindful Movies	Staff	500	Educaiton & Engagement
Best Management Practices - Planning	Checklist	200	Educaiton & Engagement
Equipment Rebate	Electric Equipment	0	Health
Trail Connectivity	Coordination	0	Active Transport
Pollinator Gardens	Promotion	0	Health

Table 4: 2019 Strategic Initiatives

heat-related fatalities among elderly or otherwise vulnerable people. The City can reduce this effect by increasing the tree canopy cover in targeted areas that do not currently have adequate shade or air conditioning, as well as promoting and educating citizens about the benefits of shading with trees and building features.

- Offer Incentives for cooling strategies such as cool roofs/pavements and expanded tree canopies.

## Early successes

- 82 Local businesses performed lighting retrofits, exceeding the initial targets.
- The City is in the process of implementing a more robust and convenient recycling program.
- The City's bike-share program kicked off in the fall of 2018 and has stations at 90% of City facilities.
- The City installed bike racks and a bike repair station at Swanny City Park.

## Barriers

- There is no accountability across the organization regarding sustainability (i.e., purchases, hiring, and performance). As such, the Sustainability Director can only encourage managers to adopt new practices. Several departments have expressed an interest in conserving resources, but do not have adequate funding or staff time to implement changes.
- Better load management is critical if the community is to reach its energy goals.
- Enhance sustainability competencies through training.
- Focus on equipment upgrades and rebates to save energy in major building repairs, roofing, and capital improvement projects.

## Recommendations & Opportunities

- Offer bi-annual education and training for staff and the public.
- The wattSmart Technical Team and NREL Advisory Team are examining the costs associated with the new potential energy goals and their contribution to our carbon reduction goal.
- Increase sustainability staff and resources to enter and verify data.
- Minimize obstacles to affordable housing—reducing parking lot requirements, reducing connection and impact fees, piloting compostable toilet systems, requiring solar, greywater and EV ready wiring and infrastructure for buildings over 5,000 square feet.
- Establish the revolving energy fund; this allows funds to be used for City energy efficiency upgrades. The savings from those upgrades are used to pay off the initial investment and re-allocate savings to additional energy efficiency improvements in other City-owned buildings.
- Add additional bike trails, corrals and U-lock bike racks throughout the community.
- Developing an Environmentally Preferential Purchasing (EPP) policy—each department must conserve and utilize existing materials and consistently choose more sustainable new products. This information can be shared with GtG partners and businesses throughout the community.
- Track all street trees planted and removed.
- Expand the current production of renewable energy.

## Key Indicators and Strategies (2016 - 2019)

Moab is in the process of entering and verifying data for key indicators. Changes in key indicators between baseline and subsequent years:

- Total CO2e emissions — XX% increase
- Scope 1 (direct carbon emissions) — fleets: XX increase and natural gas: XXX % increase
- Scope 2 (energy indirect emissions) — XX% increase
- Scope 3 emissions (gases from waste and recyclables to the landfill and air travel) — XX% increase
- Per sq. ft. CO2e emissions —XX% increase
- Per employee — XX% increase
- Per vehicle emissions — XX% increase
- Percent of electricity generated by clean, renewable energy on-site -- % increase
- Change in tons of waste sent to the landfill — % increase
- Waste diversion — increased from XX% in to XX% in (including office and industrial materials).

## Game Changing Projects

The City of Moab is committed to operating in a manner that lowers its ecological impacts while strengthening its economic and societal leadership — the triple bottom line (TBL). The following projects and challenges had the most significant environmental and/or economic returns. These types of projects result in long-term, fiscally sustainable progress and should be replicated and scaled-up throughout the community. These include load shedding and management; outdoor lighting; retrofits (i.e., high pressure sodium and LEDs); indoor lights (i.e., LEDs and T-5s); and various challenges (i.e., energy and water). The outreach campaigns and the numerous employee and community challenges required relatively low investments. See Table 5.

## Leading By Example

The City organization intends to set an example of sustainability stewardship in managing our operations and being good stewards of taxpayers funds. A few such examples are highlighted below:

- Kudos to Terry Lewis, Patrick Ball, Liz Holland and Patrick Trim for efficiency gains.
- Moab Arts & Recreation Center installed water retention pollinator landscaping.
- The Parks & Recreation Department conducted a lighting audit of the Sun Court and the Moonstone Gallery in order to reduce energy costs. Lifetime materials and maintenance savings are estimated to be \$59,840. The City used Rocky Mountain Power wattSmart Incentives to defray costs.
- The Moab Recreation & Aquatic Center underwent a lighting assessment that yielded estimated savings of \$96,000. Continue to “Lead By Example” through participation in Blue Sky Programming (Figure 12).

Total Number of Vehicles off the Road	
Blue Sky	850
Net Metering	208
wattSmart Residential	40
wattSmart Business	244
<b>Total</b>	<b>1,342</b>

Figure 12. wattSmart Savings Equivalents

## Next Steps

These types of projects have assisted us in surpassing the municipal governments renewable electricity 2020 goals.

- Communicate to staff, residents and tourists actionable items to reduce our impact outlined in Appendix A: Actionable Items and Appendix F.
- Review and implement at least one project identified in Appendix B: Grid and Appendix E: Co-Benefit Analysis annually to systematically address conservation and budget for projects identified in Appendix C: Timeline Gantt Chart and Bikers Sustainability Plan.
- Build upon the projects and processes identified in the Community Energy Plan through the GtG Program and a residential Neighborhood Campaign including additional Blue Sky applications. See Figures below.
- Continue to verify data used for the preliminary Community Baseline Inventory Appendix D and prepare Municipal Baseline Inventory.

	Challenge Savings					
	Environmental			Economic	Social	
	Gallons Saved (Fuel)	kWh Savings	Water Savings (Gallons)	CO2 Avoided lbs	CO2 Avoided MT	
Energy Efficiency Staff				15400	7.7	\$10,710.00 Equity
LED Kits				2900	1.45	\$2,030.00 Equity
Lighting Assessments		851768			0	\$68,141.44 Equity
Superbulb Superbowl				13400	6.7	\$10,360.00 Equity
Bike - May	9			8712	4.356	\$1,170.00 Health
Bike - Sept	38			37966.5	18.98325	\$5,100.00 Health
GtG				6096	3.048	Happiness
40 Gallon Water Challenge - Adults			114975	804.825	0.402413	\$804.00 Happiness
40 Gallon Water Challenge - Kids			73730	516.13	0.258065	\$516.00 Happiness
Local Food			0	0	0	Health
<b>Totals</b>	<b>47</b>		<b>188705</b>	<b>85795.46</b>	<b>42.89773</b>	<b>\$98,831.44</b>

Table 5: Challenge Savings