



**RENO**  
RESILIENCE

CITY OF RENO

# SUSTAINABILITY & CLIMATE ACTION PLAN

2019-2025



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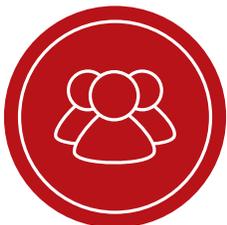
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## LETTER FROM MAYOR

*Hillary Schieve*

On behalf of the entire Reno City Council, it is my pleasure to introduce you to our 2019 Sustainability and Climate Action Plan — the first plan of its kind produced by the City of Reno. In this comprehensive action plan, you will read about our continued commitment to reduce climate pollution while improving the quality of life for all residents.

While we have a great deal of work ahead of us and much more to accomplish in the sustainability arena, we are proud to say that, in 2017 we became a Certified 3-STAR Community. This is just a start, and we will continue to measure our progress toward a healthy environment, strong economy and improving the well-being of all our residents.

It is our hope that this action plan will act to reinforce the city's longstanding commitment to green and sustainable development initiatives, and its commitment to reduce climate pollution, improve air quality and enhance resilience to climate change.

These sustainability goals reinforce the citywide goals and policies contained in the updated Master Plan. This Plan also supports the council's three overarching goals: 1) provide for public safety; 2) ensure financial sustainability; and 3) reduce debt. As the fastest-warming city in the U.S., our changing climate is and will continue to pose public safety risks through increased wildfires, drought, and extreme heat. Many of the actions outlined in the plan will contribute to our growing economy, create new green jobs, and increase tax revenues that support city operations and services.

The City of Reno is proud that our credit rating has improved. However, climate impacts pose economic risks for many cities. Moody's will begin to assess a city's commitment to reducing climate pollution and ability to adapt to a changing climate. It will embed climate risks as a key factor in its determination of a local government's credit rating.

The plan also supports city council priorities for the next few years to increase affordable housing and make progress on homelessness, as well as ensuring key actions are reflected in the zoning code update, engaging the development community through incentives, and safeguarding the Truckee River for us and future generations.

We understand that this important work is paramount to our future success as a city and region. Scientists predict that climate change will result in future conditions that are different and less predictable than in the past. This is particularly true for natural hazards, such as drought and flooding that are heavily influenced by weather and other climatic conditions.

We have the potential to change the future of Reno for the better. And we are proud the City of Reno has stepped up with so many other communities across the United States to lead that charge. This plan will help us achieve our mission to create a community that residents are proud to call home.

Our community is a place of natural beauty, and by reducing climate pollution, we are preserving that beauty for the next generation.

**Hillary Schieve**  
City of Reno Mayor







## LETTER FROM

*David Bobzien*

During my four-years of service on the Reno City Council, my goal was to guarantee that every citizen of Reno — no matter where they lived — was able to thrive and succeed. Sustainability is a key part of ensuring that every resident is healthy, lives in a quality neighborhood, and has the opportunity to prosper.

Now, in my new role as the Director of the Nevada Governor's Office of Energy (GOE), the quality of life goal remains unchanged, but applies statewide. The mission of the GOE is to ensure the wise development of Nevada's energy resources in harmony with local economic needs and to position Nevada to lead the nation in renewable energy production, energy conservation, and the exportation of clean energy.

The GOE implements state law; manages energy-related programs; facilitates cooperation between key stakeholders; advises the Governor on energy policy; and collaborates with our local, regional, and federal partners to ensure a reliable and sustainable energy system.

Building on the achievements made by the city over the past several years, this Climate Action Plan sets a long-term vision for a sustainable city across nine focus areas. This vision won't be achieved tomorrow, but the work we begin together today will set

us on the right path. This plan lays out the challenges faced in creating jobs and economic growth, improving health and wellness, increasing equity and opportunity, and preserving and protecting the environment.

The plan acknowledges and addresses the local impacts of the biggest environmental challenge of our generation: climate change. Locally, climate change will make our summers hotter and our winters colder; yet we will see less snowpack and potentially more valley moisture.

By cutting energy waste and investing in renewable energy, we can do our part to reduce these harms. Planning for the changes we know are coming must be a priority for all stakeholders.

Local government alone can't achieve the goals of this plan. Businesses and individuals, state government, schools, and other institutions will all play a role.

I appreciate the opportunity to contribute to this plan and look forward to supporting the progress of the City of Reno as it looks to the future.

**David Bobzien**  
*Director*  
*Nevada Governor's Office of Energy*



# INTRODUCTION

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Lee Molof

Well-focused initiatives on sustainability promise to strengthen Reno's reputation as one of the world's leading cities while the initiatives also improve the day-to-day quality of life for all of the city's residents.

In a community and a world that face grave threats from climate change, sustainability initiatives are of the utmost importance. From simple changes in day-to-day operation of the city government to innovative growth strategies, a commitment to sustainability is critical to the creation of a community all of us are proud to call home.

The Reno City Council has demonstrated its commitment to sustainability and climate action. In 2016, they identified completion of this Sustainability and Climate Action Plan as a priority. The city's residents have strongly supported their elected leaders' commitment.

This Sustainability and Climate Action Plan illuminates the path forward, details the challenges we face and outlines the tactics we will employ as Reno steps forward to provide leadership on climate action. In short, the Sustainability and Climate Action Plan helps the city prioritize resources and investments over the coming years.



## THE THREAT OF CLIMATE CHANGE IS LOCAL AS WELL AS GLOBAL

Reno is growing hotter more quickly than any city in the United States. Our average annual temperature rose more than 7 degrees Fahrenheit over the past 50 years. Last summer, Reno experienced the hottest summer on record and the highest number of 100 plus degree Fahrenheit days. The ten hottest summers on record have occurred over the past 15 years.

Climate change already is blamed for larger, more frequent wildfires — and the smoke they pour into the skies hundreds of miles away. Climate researchers tell us we also can expect smaller snowpacks, droughts that last for multiple years, and dramatic increases in flooding.

Globally, disastrous and uncontrollable climate change threatens food supplies, raises the likelihood of serious epidemics of life-threatening diseases, and poses a risk to millions of people living along seacoasts that may be inundated by rising ocean levels.

Cities are responsible for 75% of the global greenhouse gas emissions that create climate change. This places particular responsibility on cities and their leaders to take action.

## SUSTAINABILITY INITIATIVES WILL STRENGTHEN THE RENO ECONOMY

Focused initiatives on sustainability will protect cornerstones of the Reno-area economy and provide for the creation of new jobs and new economic opportunities.

Climate change currently poses an immediate threat to the tourism and outdoor recreation sectors of the Reno-area economy. Declining snowpacks, rising risks of wildfires and increasing temperatures may diminish the region's appeal to travelers. The issue is sufficiently worrisome that leading players such as Vail Associates (a major ski operator at Lake Tahoe) have launched significant sustainability programs to ensure their long-term economic viability.

But every challenge brings even greater opportunity.

Nevada targeted the clean-energy sector as a cornerstone of its economic development strategy. Reno has a strong position in clean energy, with companies ranging from geothermal operators to manufacturers of electric vehicles (EV), and it's well-positioned to grow these sectors.

Sustainable patterns of development also boost the economy. Cities already are hotbeds of innovation, and we know that innovative thinking is fostered by the chance encounters that are common in walkable, well-designed urban neighborhoods.

Executives in clean-energy industries as well as professionals in technology and knowledge-based industries expect to live and work in cities that have made a commitment to sustainability. Adoption and implementation of a Reno plan for sustainability makes an important statement to these leaders of the new economy. It shows Reno is a forward-thinking city and offers a competitive advantage as cities compete for these innovative companies.

More directly, action on climate change will protect the City of Reno's improved credit rating. In November 2017, Moody's Investors Service began assessing a city's commitment to reducing climate pollution and ability to adapt to a changing climate as a key factor in its determination of a local government's credit rating.



## GLOBAL WARMING OF 1.5 °C

### *A Special Report of the Intergovernmental Panel on Climate Change*

We have only a decade — until 2030 — in which we must take rapid, far-reaching and unprecedented action to stem catastrophic climate change, warns the United Nations Intergovernmental Panel on Climate Change (IPCC).

The Paris Agreement is an international law that aims to keep global warming to 1.5 degrees Celsius, strengthen resilience to the adverse impacts of climate change, and govern finance toward low-carbon and climate-resilience development. Based on its most current three-year scientific assessment on climate change, the IPCC reports that carbon dioxide emissions from human activity would need to decrease 45% by 2030 from 2010 levels to limit global warming to the 1.5 degrees Celsius target.

It will require widespread and innovative changes in energy, industry, buildings, transportation, and cities, as well as alignment and collective efforts in science, technology, politics, and social and economic factors.



City of Reno

## THE LIVES OF RENO FAMILIES WILL BE IMPROVED BY SUSTAINABILITY INITIATIVES

More shade trees along city streets. Walkable neighborhoods that create safety and sense of community. Transit systems that provide easy and convenient access to work, shopping and community amenities. Accessibility to healthy foods that allow families to grow strong.

Sustainability initiatives won't come at a cost to the quality of life that Reno residents treasure. Rather, the initiatives will enhance the lives of residents every day, in ways both great and small.

Most important, perhaps, climate action protects the future of our world to allow our children and grandchildren to enjoy happy and fulfilling lives.

The mayor and city council demonstrated their commitment to sustainability and climate action through recent resolutions that support clean energy and energy efficiency, as well as shared mobility through the bikeshare pilot program.

The Master Plan sets completion of the Sustainability and Climate Action Plan as a priority initiative, one that advances the community's vision for itself and helps to focus the community's efforts.

In 2015, the city council joined the Global Covenant of Mayors on Climate and Energy, a coalition of mayors and city officials committed to reduce local greenhouse gas emissions, enhance resilience to climate change, and track their progress publicly. Reno joins more than 9,000 cities representing more than 750 million people committed to the Global Covenant of Mayors.

The city council established Reno Resilience, the city's sustainability and climate initiative, which conducted a community-wide inventory of greenhouse gases. The published data provides important baseline information for our sustainability programs.

The city government has taken numerous practical steps as well to reduce its impact on the environment, lower its energy bills, and improve quality of life for its residents. These efforts have increased the percentage of the city's energy that comes from renewable sources and have yielded significant energy and financial savings.

## ENGAGING THE COMMUNITY TO CREATE A VISION FOR OUR SHARED FUTURE.

The City of Reno adopted its Master Plan in 2017 following a multi-year, community-based effort to prepare the new Master Plan, known as ReImagine Reno. The process was an opportunity to assess and explore trends and key issues that would influence the city's future, as well as an opportunity to articulate a shared, community-wide vision. The result is a Master Plan that provides a road map for the city as it continues to grow and evolve over the next 20 years. The Master Plan reflects the ideas, values, and desires of the community, aligning these with a range of plans, policies, and initiatives in place or underway in both Reno and the wider region.

Throughout the ReImagine Reno process, participants expressed support for the city's sustainability initiatives and a desire for the Master Plan to take a stronger stance on sustainability. As a result, Master Plan goals and policies address a range of issues key to promoting a more livable and sustainable community—infill and redevelopment, environmental protection, energy and water conservation, local food access, transit, renewable energy, access to social and human services, housing affordability, economic resilience, green buildings, sustainable development practices, and many others.

The Master Plan establishes sustainable design principles

and encourages sustainable development practices in both public and private development. These principles and policies build on the city's longstanding commitment to "green" and its commitment to reduce local greenhouse gas emissions and enhance resilience to climate change.

The Master Plan establishes policy direction for other related plans, both those adopted by regional entities as well as more focused plans adopted by the city. The Sustainability and Climate Action Plan is one of these other plans. The Master Plan defers to the city's Sustainability and Climate Action Plan to establish specific goals and policies to reduce greenhouse gas (GHG) emissions and strengthen climate resilience, and to outline specific actions that the city may take on its own or through partnerships with others to help achieve these goals.

The community also informed development of the Sustainability and Climate Action Plan. The city's Sustainability and Climate Advisory Committee established the priorities outlined in this plan. To identify aspirational, and yet achievable actions, the advisory committee brought together more than 200 community stakeholders representing a diversity of perspectives and expertise to encourage innovation and bring new ideas and best practices to the city.



City of Reno



City of Reno



City of Reno

# SUSTAINABILITY & CLIMATE

## *Priorities*

The Sustainability and Climate Advisory Committee and community stakeholders identified these nine priorities for climate action in Reno:



### **PRIORITY 1**

**LEAD BY EXAMPLE  
- SUSTAINABLE  
CITY OPERATIONS**



### **PRIORITY 6**

**HEALTHY,  
EQUITABLE URBAN  
FOREST**



### **PRIORITY 2**

**TRANSITION  
TO CLEAN,  
RENEWABLE  
ENERGY**



### **PRIORITY 7**

**ACCESS TO  
FRESH, HEALTHY  
FOODS**



### **PRIORITY 3**

**GREEN BUILDING  
IS STANDARD  
PRACTICE**



### **PRIORITY 8**

**SAFEGUARD  
WATER  
RESOURCES**



### **PRIORITY 4**

**CREATE LIVELY,  
LOW-CARBON  
NEIGHBORHOODS**



### **PRIORITY 9**

**STRENGTHEN  
CLIMATE  
RESILIENCE**



### **PRIORITY 5**

**TOWARD ZERO  
WASTE**



# SUSTAINABILITY AND CLIMATE ACTION PLAN

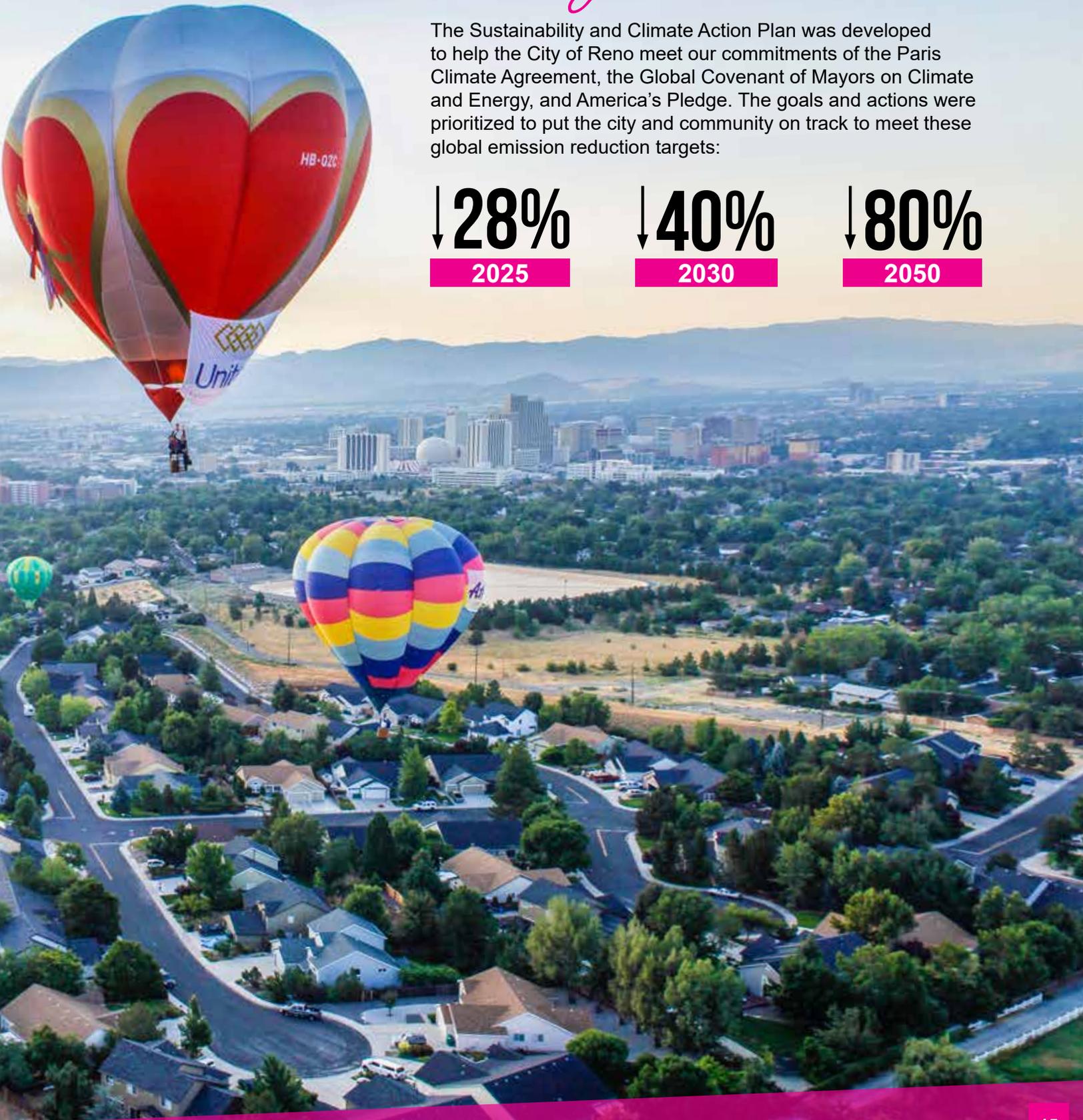
## Goals

The Sustainability and Climate Action Plan was developed to help the City of Reno meet our commitments of the Paris Climate Agreement, the Global Covenant of Mayors on Climate and Energy, and America's Pledge. The goals and actions were prioritized to put the city and community on track to meet these global emission reduction targets:

↓ **28%**  
2025

↓ **40%**  
2030

↓ **80%**  
2050



# GUIDING

## Principles

The Sustainability and Climate Advisory Committee established a set of principles to guide development of the city's sustainability priorities, goals, and actions:

- 1 Instill resilience, protect natural systems and biodiversity, and leverage the benefits of ecosystem services
- 2 Improve quality of life, health and well-being
- 3 Foster innovation, enhance competitiveness, and expand economic prosperity for all
- 4 Celebrate ethnic, cultural and economic diversity
- 5 Ensure equitable allocation of resources and services so all residents benefit from opportunities and participation in the community
- 6 Foster collaboration and partnerships, and engage local businesses and residents in efforts
- 7 Identify aspirational and practical actions with achievable early wins and ambitious long-term goals

*Sustainability means development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*

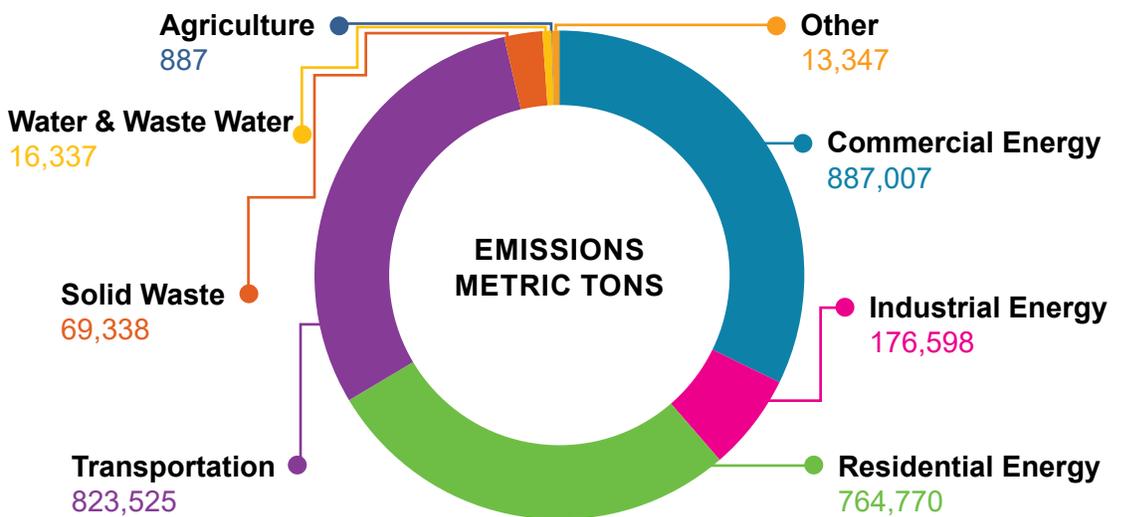
*Resiliency means the ability to endure and recover from stress and shock.*

*Ecosystem Services: Fall under four broad categories — provisioning, regulating, habitat, and culture — and sustain us with food, water and shelter, protect our air quality and buffer us against natural disasters. Ecosystems provide important economic benefits as well. In 2011, ecosystem services globally were valued at \$125 trillion per year, 70% greater than the entire world economy.*



## WE ALREADY ARE TAKING IMPORTANT FIRST STEPS

Reno is on track for reducing climate pollution. The City of Reno partnered with Washoe County Health District, Reno-Tahoe Airport Authority, and University of Nevada, Reno to measure community-wide greenhouse gas emissions. The total carbon emissions dropped significantly from 3.2 million metric tons in 2008 to 2.75 million metric tons in 2014. This translates to a 13.62% drop in total emissions in just six years, or 2.27% per year.

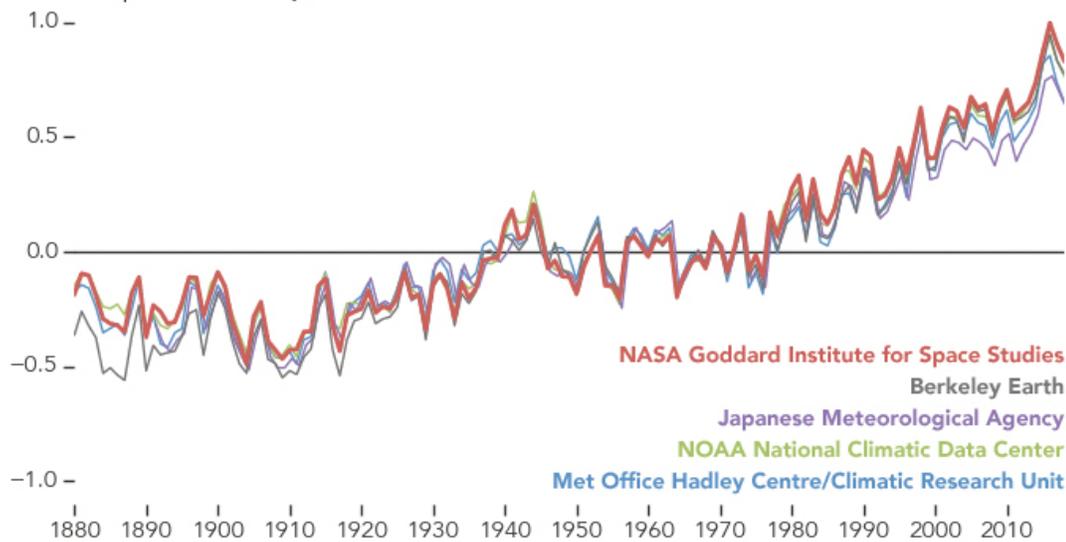


This reduction was achieved primarily through a decrease in electricity produced from coal-fired power plants, an increase in the state's renewable energy portfolio, energy efficiency investments, increased vehicle fuel efficiency standards, and an increase in recycling.

- We are planning a greenhouse gas inventory of government operations and an updated community-wide inventory in Fiscal Year 2019-20 (FY 19-20).
- The City of Reno has been recognized as a Certified 3-STAR Community by STAR Communities, a national framework for communities to measure progress toward a healthy environment, strong economy, and improved well-being of all residents. STAR offers a data-driven approach to assess sustainability efforts.
- The city published its first Sustainability Report to inform residents and businesses of how we are doing, and to learn about the areas where we excel and the opportunities for improvement.
- The city launched the Reno Resilience website, as well as a sustainability blog and social media campaign, to raise awareness about sustainability topics and achievements within our community.
- We launched ReEnergize Reno, an ambitious program to improve the efficiency of commercial, industrial, and multifamily buildings 20% by 2025.
- We adopted an ordinance that requires owners of commercial buildings to benchmark energy and water use and report the data to the city government. Organizations manage what they measure. This provides a way to evaluate a building's energy use over time and determine the magnitude of potential energy savings. Building owners and managers then can make cost-effective operational and capital investment decisions.

## A World of Agreement: Temperatures are Rising

Global Temperature Anomaly (°C)



NASA Earth Observatory

## RESOURCES THAT SHAPED PLAN

In developing this action plan, in addition to recommendations from a diversity of community stakeholders, a number of valuable resources helped to identify high-impact practices that also are achievable in our community, including:

- PATHWAYS TO 100: An Energy Supply Transformation Primer for U.S. Cities, Meister Consulting Group
- The Carbon-Free City Handbook, Rocky Mountain Institute
- Estimating the National Carbon Abatement Potential of City Policies: A Data-driven Approach, National Renewable Energy Laboratory
- Advancing climate ambition: How city-scale actions can contribute to global climate goals, Stockholm Environment Institute
- Focused acceleration: A strategic approach to climate action in cities to 2030, The McKinsey Center for Business and Environment for C40Cities
- Catalyzing Sustainability Impact: A City-Led Process to Invest in High Impact Practices, Urban Sustainability Directors Network

Existing sustainability and climate action plans developed by mid- to large cities across the U.S. also informed the selection of priorities, goals and actions outlined in this plan — from Boise and Salt Lake City to Washington, DC and from St. Louis and Milwaukee to Austin and many more. These cities and their successful efforts to reduce carbon emissions over the past decade and longer lend considerable knowledge and experience to Reno.





# Focused acceleration:

A strategic approach to climate  
action in cities to 2030





## IMPLEMENT, MONITOR AND REPORT

The City of Reno Sustainability & Climate Division will require additional resources to implement the actions outlined in this plan, coordinate city efforts, foster strategic partnerships, engage the community, and to measure, monitor and report progress.

Over the past two years, the city did benefit from a grant and contributions through the City Energy Project and corporate sponsors that supported a City Energy Advisor 1.0 FTE and \$100,000 in program funds. This resource helped to expand green building and energy efficiency in the commercial building sector. This temporary position became permanent July 1, 2019.

In addition to an increase in city resources, grants and contributions can be sought to augment the resources allocated by the city and programs like AmeriCorps can help increase staff capacity at a very low cost to the city.

## IMPLEMENTATION ACTIONS

- 1. Allocate adequate resources to begin to make incremental progress toward plan priorities.**
- 2. Establish a cross-departmental Sustainability and Climate Team to build capacity, create agency-specific work plans, and coordinate efforts.**
- 3. Monitor and report progress annually to the city council and community.**

## RELATED MASTER PLAN POLICIES

**8.1a: Institutionalize the Master Plan:** Incorporate the guiding principles, goals, policies, and implementation strategies adopted as part of the Master Plan into City budgeting (including CIP) and decision-making at all levels to promote consistency and continuity as elected officials and staff change over time.

**8.1b: Plan Monitoring:** Provide ongoing monitoring and periodic reporting—ideally annually—of progress made toward the implementation of the Master Plan.

**8.2a: Roles and Responsibilities:** Establish clear roles and responsibilities for City staff, elected officials, boards and commissions, and participants.

**8.2c: City Staff Recommendations:** Utilize City staff's assessment of conformity and alignment with the Master Plan as a key consideration in decision-making to enhance transparency.

**8.6a: State Legislation:** Engage with state representatives and advocate for legislation that provides more opportunities for municipalities to employ new or different financial tools to support growth and development, fund education, and address other issues.

**8.6b: City as Convener:** Champion efforts to bring together diverse groups of stakeholders on issues of mutual significance.

**8.6c: Partnerships:** Explore opportunities to partner with public, private, and non-profit organizations to leverage available resources and promote innovation.

## MOVING FORWARD

The City of Reno has the power to influence or affect change through city operations, policies, programs, incentives, regulations, services, government relations, and education and outreach. The city also has influence over other agencies and can convene stakeholders to collaborate on initiatives. And the city's education and outreach can encourage local businesses and residents to take action.

Moving forward requires strong leadership from the mayor and city council, as well as the city manager, department directors, and staff. The actions in this plan range from no- and low-cost solutions to initiatives that require more significant investments in staff and financial resources. To make progress, all departments and employees need to contribute to this effort. The community also has a role through engagement by businesses and residents, as well as strategic partnerships with regional agencies, state government, and institutions.

Establishing the plan through a stakeholder process ensures this plan provides a common agenda shared by city departments, outside organizations and community members. The plan advances shared goals through a structured, collaborative effort that leverages the collective impact of all our efforts. Collective impact is a way of aligning actions and investments for greater impact. It requires a common understanding, shared vision for change and a coordinated approach to solutions with agreed-upon actions.

Communications will be essential to the city's efforts. A well-crafted communications strategy will articulate and activate the Reno Resilience brand and provide a common voice for elected officials, staff and partners. It will improve the visibility of city-led initiatives and ensure key messages are disseminated and reinforced across communications channels. Communications will build understanding, engage businesses, institutions and residents, and inspire participation.

## ACCOUNTABILITY & TRANSPARENCY

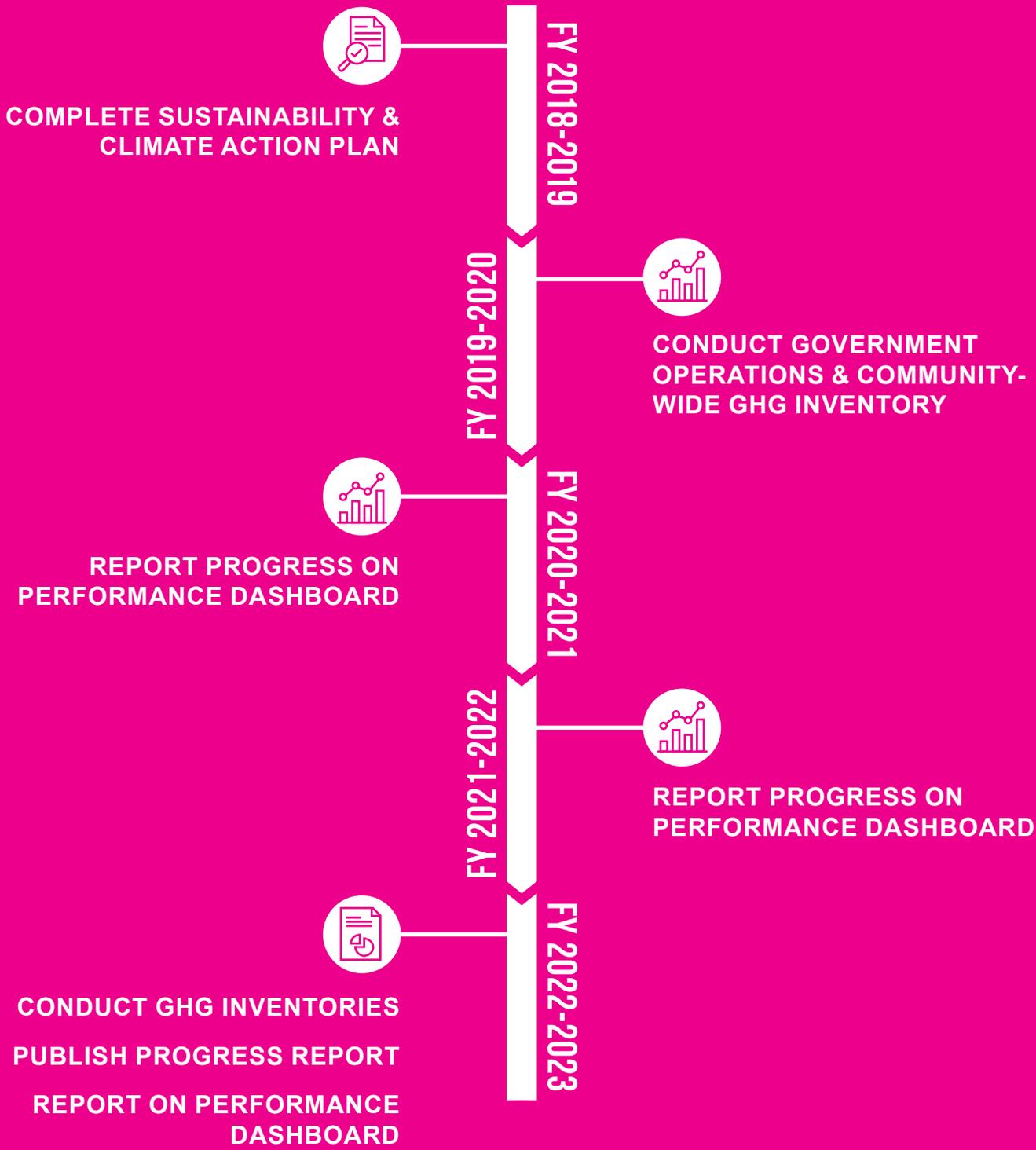
This plan is dynamic. As the city makes progress and learns from successes and challenges, new and innovative actions will emerge. The plan will evolve through updates on a three to five-year cycle. Implementing this plan requires a long-term commitment from elected officials, executive leadership and staff.

The city will monitor and report progress toward the nine priorities. The relevant performance measures will provide direct feedback and identify trends over time. The measures will utilize reliable data that is readily available and neither costly nor burdensome to collect. Performance measures also provide useful information that supports decision-making by the city and its partners.

Annual reporting will occur through a performance dashboard, and every three years the city will publish a formal progress report. Additionally, the city will quantify emission reductions by conducting a government operations greenhouse gas (GHG) emissions inventory and community-wide inventory on three-year cycle starting in FY 19-20.

Progress reports will be presented annually to the City Council. The reports will highlight successes, as well as the challenges of implementing specific actions. They will include recommendations for overcoming challenges, or new actions for furthering progress. Progress will also be shared with strategic partners, regional and state agencies, institutions, businesses, and the community as a whole.

# THREE YEAR MONITORING & REPORTING CYCLE



## IMPLEMENTATION MATRIX KEY

The implementation matrix offers a quick reference to the priorities and actions, identifies the lead agency responsible for implementing each action, provides a time frame for implementation, and offers an assessment of the degree of staff and funding resources that will be required.

## LEAD AGENCY KEY

|      |  |
|------|--|
| CAO  | City Attorney's Office                 |
| NS   | Neighborhood Services                  |
| CD   | Community Development                  |
| F    | Finance                                |
| HR   | Human Resources                        |
| IT   | Information Technology                 |
| LR   | Legislative Relations                  |
| PRCS | Parks, Recreation & Community Services |
| PW   | Public Works                           |
| RTC  | RTC Washoe County                      |
| RFD  | Reno Fire Department                   |
| SC   | Sustainability & Climate Division      |
| TMWA | Truckee Meadows Water Authority        |
| WCHD | Washoe County Health District          |

## TIME FRAME

Anticipated time frames for completion of the actions are listed as: Early Win, Mid-Term, and Long-Term. An action may be implemented sooner if the opportunity to do so arises (e.g., grant funding becomes available) or as community priorities change.

**Early Win:** Actions Achieved in FY 19-20

**Mid-Term:** Actions Achieved in 1-3 years

**Long-Term:** Actions Achieved by 2025-2030

## STAFF & FUNDING NEED

**Low:** Can be accomplished with existing staff and less than \$10,000 in program funds

**Medium:** Requires percentage of new position and \$10,000-\$50,000

**High:** Requires 1.0 FTE or more and greater than \$50,000

| LEAD AGENCY | TIME FRAME                           | YEARS | STAFF NEED              | FUNDS NEED              | CO-BENEFITS          |
|-------------|--------------------------------------|-------|-------------------------|-------------------------|----------------------|
|             | EARLY WIN<br>1-3 YEARS<br>3-10 YEARS |       | LOW<br>MODERATE<br>HIGH | LOW<br>MODERATE<br>HIGH | SAVINGS/<br>REVENUES |



## PRIORITY 1: LEAD BY EXAMPLE - SUSTAINABLE CITY OPERATIONS

|      |  |      |            |      |       |       |    |
|------|--|------|------------|------|-------|-------|----|
| 1.1  | Reduce energy and water use in city facilities 20% by 2025 from the 2014 baseline.   | PW   | 3-10 years | 1-7  | ■ ■ ■ | ■ ■ ■ | \$ |
| 1.2  | Benchmark and report energy and water use of city properties.  | SC   | Early win  | 1    | ■ ■ ■ | ■ ■ ■ | \$ |
| 1.3  | City capital projects to achieve at minimum LEED Silver certification for new construction, and strive to achieve green building certification on renovation projects. | PW   | 1-3        | 1-3  | ■ ■ ■ | ■ ■ ■ | \$ |
| 1.4  | Demonstrate and promote high-efficiency technologies for heating, cooling and hot water, or net-zero energy building, on city-funded capital projects.                 | SC   | 1-3 years  | 2-4  | ■ ■ ■ | ■ ■ ■ | \$ |
| 1.5  | Reduce city fleet carbon emissions 28% by 2025.  | PW   | 3-10 years | 1-7  | ■ ■ ■ | ■ ■ ■ | \$ |
| 1.6  | Encourage adoption of EVs by installing EV-charging infrastructure at high-use city facilities and strategic locations in the public right-of-way.                     | PW   | Early win  | 1-4  | ■ ■ ■ | ■ ■ ■ |    |
| 1.7  | Implement an employee commute-trip-reduction program, survey employees on commute modes, and establish a goal for reducing drive-alone commutes.                       | HR   | Early win  | 1    | ■ ■ ■ | ■ ■ ■ |    |
| 1.8  | Achieve an overall 50% recycling rate by 2025 from city operations, and construction and demolition projects.  | SC   | 1-3 years  | 1-7  | ■ ■ ■ | ■ ■ ■ | \$ |
| 1.9  | Adopt sustainable purchasing policies and practices across all departments.  | F    | Early win  | 1-3  | ■ ■ ■ | ■ ■ ■ |    |
| 1.10 | Identify opportunities to implement innovative and sustainable practices on site and infrastructure projects, such as LID and green infrastructure.                    | PW   | 1-3 years  | 1-7  | ■ ■ ■ | ■ ■ ■ |    |
| 1.11 | Ensure fair investments in tree-canopy coverage in parks and the public right-of-way.  | PRCS | 3-10 years | 1-11 | ■ ■ ■ | ■ ■ ■ |    |
| 1.12 | Collaborate on implementation of the One Truckee River Management Plan and track and report actions implemented and resources invested.                                | PW   | 3-10 years | 1-11 | ■ ■ ■ | ■ ■ ■ |    |
| 1.13 | Consider climate impacts and integrate climate resilience into city planning, services, projects, and investments, and report resilience projects annually.            | SC   | 3-10 years | 1-11 | ■ ■ ■ | ■ ■ ■ | \$ |

| LEAD AGENCY | TIME FRAME                           | YEARS | STAFF NEED              | FUNDS NEED              | CO-BENEFITS          |
|-------------|--------------------------------------|-------|-------------------------|-------------------------|----------------------|
|             | EARLY WIN<br>1-3 YEARS<br>3-10 YEARS |       | LOW<br>MODERATE<br>HIGH | LOW<br>MODERATE<br>HIGH | SAVINGS/<br>REVENUES |



## PRIORITY 2 TRANSITION TO CLEAN, RENEWABLE ENERGY

|     |  |    |            |     |         |         |    |
|-----|--|----|------------|-----|---------|---------|----|
| 2.1 | Meet 50% of electricity needs for city facilities, infrastructure and streetlights from renewable energy by 2020 and 100% by 2025. | SC | Early win  | 1   | ■ ■ ■ ■ | ■ ■ ■ ■ |    |
| 2.2 | Convert 90% of streetlights to high-efficiency LED fixtures by 2025.   | SC | 3-10 years | 0-7 | ■ ■ ■ ■ | ■ ■ ■ ■ | \$ |
| 2.3 | Increase distributed renewable energy generation 15% by 2025 and encourage energy storage.   | SC | 3-10 years | 0-7 | ■ ■ ■ ■ | ■ ■ ■ ■ |    |
| 2.4 | Expand solar, energy storage and EV charging infrastructure.   | SC | 1-3 years  | 0-7 | ■ ■ ■ ■ | ■ ■ ■ ■ |    |



## PRIORITY 3: GREEN BUILDING IS STANDARD PRACTICE

|     |  |    |            |     |         |         |  |
|-----|--|----|------------|-----|---------|---------|--|
| 3.1 | Increase energy code compliance rates.   | CD | 1-3 years  | 2-4 | ■ ■ ■ ■ | ■ ■ ■ ■ |  |
| 3.2 | Expand ReEnergize Reno.  | SC | Early win  | 1-5 | ■ ■ ■ ■ | ■ ■ ■ ■ |  |
| 3.3 | Implement building energy benchmarking and transparency policy for large commercial and multifamily buildings.                     | SC | Early win  | 1   | ■ ■ ■ ■ | ■ ■ ■ ■ |  |
| 3.4 | Increase communications and expand industry education.   | SC | 1-3 years  | 1-7 | ■ ■ ■ ■ | ■ ■ ■ ■ |  |
| 3.5 | Make green building standard practice by 2025, and encourage stretch energy standard and net zero energy buildings.                | SC | 3-10 years | 1-7 | ■ ■ ■ ■ | ■ ■ ■ ■ |  |
| 3.6 | Host a building electrification demonstration to promote high-efficiency electric technologies for heating, cooling and hot water. | SC | 1-3 years  | 2-3 | ■ ■ ■ ■ | ■ ■ ■ ■ |  |



## PRIORITY 4: CREATE LIVELY, LOW-CARBON NEIGHBORHOODS

|     |  |    |            |      |         |         |    |
|-----|--|----|------------|------|---------|---------|----|
| 4.1 | Create vibrant, walkable centers that host a mix of uses, and feature lively public spaces that facilitate social interaction. | CD | 3-10 years | 1-11 | ■ ■ ■ ■ | ■ ■ ■ ■ | \$ |
| 4.2 | Encourage infill development within designated regional, neighborhood and employment centers and corridors.                    | CD | 1-3 years  | 1-3  | ■ ■ ■ ■ | ■ ■ ■ ■ | \$ |
| 4.3 | Adopt a Comprehensive Regional Housing Strategy.   | CD | Early win  | 1-11 | ■ ■ ■ ■ | ■ ■ ■ ■ |    |
| 4.4 | Partner with RTC to reduce single-occupant vehicle commutes.   | SC | 1-3 years  | 1-11 | ■ ■ ■ ■ | ■ ■ ■ ■ |    |
| 4.5 | Collaborate with RTC on a regional EV infrastructure plan and adopt policies to accelerate EV adoption in the community.       | SC | 1-3 years  | 1-2  | ■ ■ ■ ■ | ■ ■ ■ ■ |    |





| LEAD AGENCY | TIME FRAME                           | YEARS | STAFF NEED              | FUNDS NEED              | CO-BENEFITS          |
|-------------|--------------------------------------|-------|-------------------------|-------------------------|----------------------|
|             | EARLY WIN<br>1-3 YEARS<br>3-10 YEARS |       | LOW<br>MODERATE<br>HIGH | LOW<br>MODERATE<br>HIGH | SAVINGS/<br>REVENUES |



### PRIORITY 4: CREATE LIVELY, LOW-CARBON NEIGHBORHOODS (CONT.)

|     |  |    |            |     |  |  |  |
|-----|--|----|------------|-----|--|--|--|
| 4.6 | Expand use of shared, micro-mobility alternatives.                       | SC | 1-3 years  | 1-2 |  |  |  |
| 4.7 | Engage residents and businesses in campaign to reduce vehicle emissions. | SC | 3-10 years | 1-7 |  |  |  |



### PRIORITY 5: TOWARD ZERO WASTE

|     |  |    |            |     |  |  |    |
|-----|--|----|------------|-----|--|--|----|
| 5.1 | Develop a Toward Zero Waste plan.  | SC | 1-3 years  | 1   |  |  |    |
| 5.2 | Increase the number of single-family, multifamily and commercial buildings that subscribe to recycling services. | SC | 1-2 years  | 1-3 |  |  | \$ |
| 5.3 | Implement a construction and demolition waste recycling program.   | SC | 1-3 years  | 1-2 |  |  | \$ |
| 5.4 | Compost green waste and food waste.  | SC | 1-3 years  | 1-3 |  |  | \$ |
| 5.5 | Expand local recycling infrastructure for processing waste into feedstock materials or new products.             | SC | 3-10 years | 2-4 |  |  |    |
| 5.6 | Develop a plan to reduce litter and illegal dumping.   | SC | Early win  | 1   |  |  | \$ |
| 5.7 | Improve communications about waste reduction and recycling to residents and businesses.                          | SC | 1-3 years  | 1-7 |  |  |    |



### PRIORITY 6: HEALTHY, EQUITABLE URBAN FOREST

|     |   |      |           |     |  |  |    |
|-----|---|------|-----------|-----|--|--|----|
| 6.1 | Develop an implementation plan to guide tree-planting activities throughout the city. | PRCS | 1-3 years | 1-3 |  |  |    |
| 6.2 | Expand the ReLEAF Reno public/private partnership.                                    | PRCS | 1-3 years | 1-3 |  |  | \$ |
| 6.3 | Develop an urban forestry volunteer service program.                                  | PRCS | 1-3 years | 1-3 |  |  |    |
| 6.4 | Adopt best practices in tree planting specifications and preservation.                | PRCS | Early win | 1   |  |  |    |
| 6.5 | Encourage best practices in tree care and preservation.                               | PRCS | 1-3 years | 2-3 |  |  |    |
| 6.6 | Collaborate with regional partners to update recommended tree list.                   | PRCS | Early win | 1   |  |  |    |



### PRIORITY 7: ACCESS TO FRESH, HEALTHY FOODS

|     |  |      |           |     |  |  |  |
|-----|--|------|-----------|-----|--|--|--|
| 7.1 | Collaborate with regional partners to expand acceptance of SNAP/EBT/WIC and senior food assistance benefits. | WCHD | 1-3 years | 1-3 |  |  |  |
| 7.2 | Encourage development of grocery stores in underserved communities.  | CD   | 1-3 years | 1-3 |  |  |  |

| LEAD AGENCY | TIME FRAME                           | YEARS | STAFF NEED              | FUNDS NEED              | CO-BENEFITS          |
|-------------|--------------------------------------|-------|-------------------------|-------------------------|----------------------|
|             | EARLY WIN<br>1-3 YEARS<br>3-10 YEARS |       | LOW<br>MODERATE<br>HIGH | LOW<br>MODERATE<br>HIGH | SAVINGS/<br>REVENUES |



### PRIORITY 7: ACCESS TO FRESH, HEALTHY FOODS (CONT.)

|     |   |    |            |      |   |  |  |
|-----|---|----|------------|------|---|--|--|
| 7.3 | Facilitate urban farms, community gardens, farmers markets, community-supported agriculture, raising of farm animals, greenhouses and hoop houses, and food recovery. | SC | 1-3 years  | 1-4  | <span style="color: green;">■</span> <span style="color: green;">■</span> <span style="color: gray;">■</span> | <span style="color: green;">■</span> <span style="color: green;">■</span> <span style="color: gray;">■</span>  |  |
| 7.4 | Provide support to farmers and ranchers seeking to preserve working lands.  | SC | 3-10 years | 1-11 | <span style="color: green;">■</span> <span style="color: green;">■</span> <span style="color: gray;">■</span> | <span style="color: green;">■</span> <span style="color: green;">■</span> <span style="color: green;">■</span> |  |
| 7.5 | Encourage expansion of direct farm-to-consumer sales.   | SC | 1-3 years  | 2-4  | <span style="color: green;">■</span> <span style="color: green;">■</span> <span style="color: gray;">■</span> | <span style="color: green;">■</span> <span style="color: gray;">■</span> <span style="color: gray;">■</span>   |  |



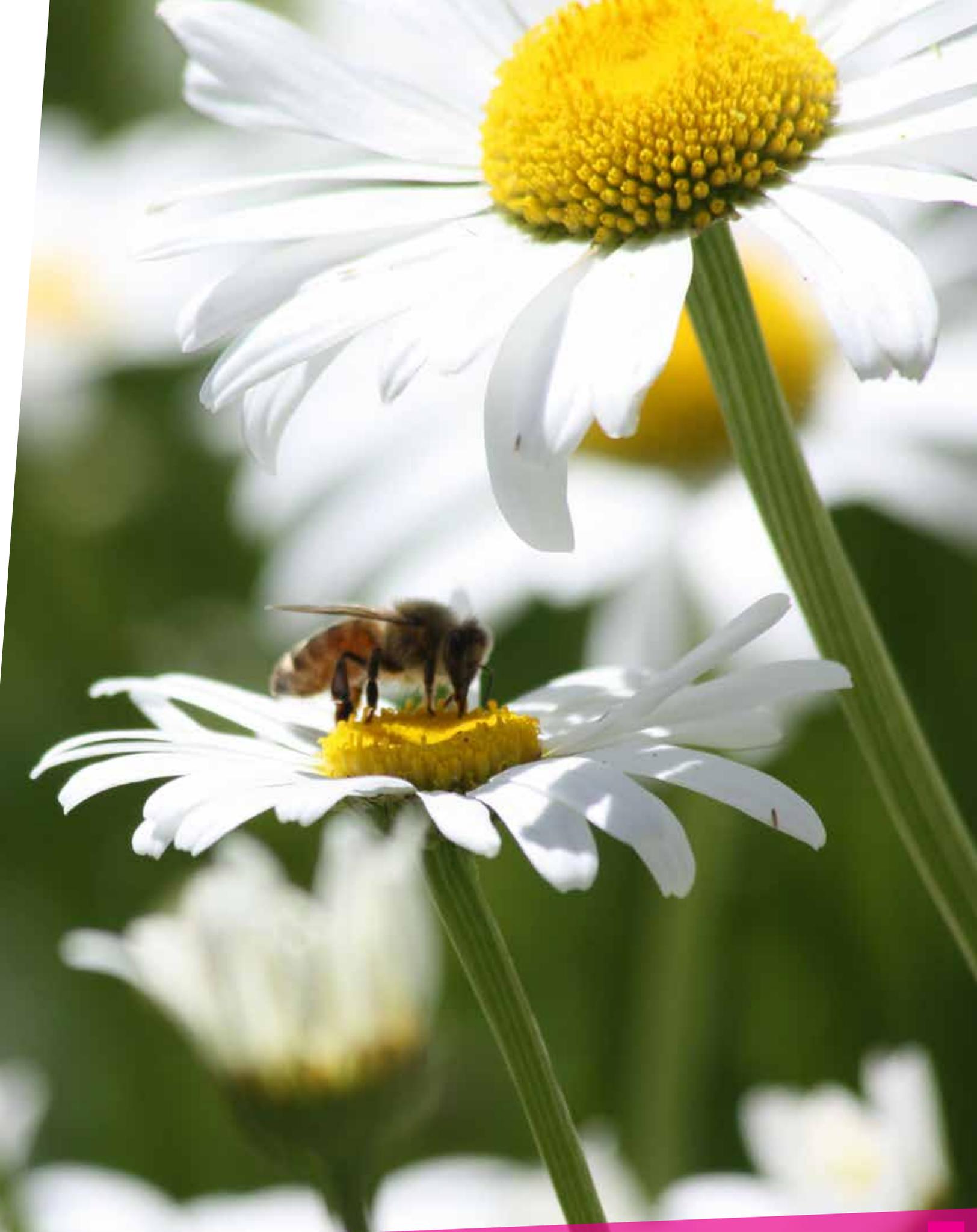
### PRIORITY 8: SAFEGUARD WATER RESOURCES

|     |   |      |            |     |   |  |    |
|-----|---|------|------------|-----|---|--|----|
| 8.1 | Protect sources of water supply and promote responsible water use in partnership with Truckee Meadows Water Authority.  | TMWA | Early win  | 1-3 | <span style="color: green;">■</span> <span style="color: gray;">■</span> <span style="color: gray;">■</span>  | <span style="color: green;">■</span> <span style="color: gray;">■</span> <span style="color: gray;">■</span>   |    |
| 8.2 | Support One Truckee River to protect the health of the river, improve access for residents and visitors, create an engaged community, and ensure collaborative management of the river. | PRCS | 3-10 years | 0-7 | <span style="color: green;">■</span> <span style="color: green;">■</span> <span style="color: gray;">■</span> | <span style="color: green;">■</span> <span style="color: green;">■</span> <span style="color: green;">■</span> |    |
| 8.3 | Promote LID, green infrastructure and sustainable site development that replicate natural hydrology to manage significant storm events.   | PW   | 3-10 years | 0-7 | <span style="color: green;">■</span> <span style="color: gray;">■</span> <span style="color: gray;">■</span>  | <span style="color: green;">■</span> <span style="color: green;">■</span> <span style="color: gray;">■</span>  |    |
| 8.4 | Expand beneficial use of wastewater.  | PW   | 3-10 years | 0-7 | <span style="color: green;">■</span> <span style="color: gray;">■</span> <span style="color: gray;">■</span>  | <span style="color: green;">■</span> <span style="color: green;">■</span> <span style="color: green;">■</span> | \$ |
| 8.5 | Showcase and recognize leadership in conservation and sustainable site practices.   | SC   | 1-3 years  | 1-3 | <span style="color: green;">■</span> <span style="color: gray;">■</span> <span style="color: gray;">■</span>  | <span style="color: green;">■</span> <span style="color: gray;">■</span> <span style="color: gray;">■</span>   |    |



### PRIORITY 9: STRENGTHEN CLIMATE RESILIENCE

|     |  |    |            |     |   |   |    |
|-----|--|----|------------|-----|---|---|----|
| 9.1 | Assess climate-related risks and develop a regional climate resilience plan. | SC | 1-3 years  | 2-4 | <span style="color: orange;">■</span> <span style="color: gray;">■</span> <span style="color: gray;">■</span> | <span style="color: orange;">■</span> <span style="color: orange;">■</span> <span style="color: orange;">■</span> | \$ |
| 9.2 | Educate, engage and motivate the community to enhance resilience.            | SC | 3-10 years | 4-7 | <span style="color: orange;">■</span> <span style="color: gray;">■</span> <span style="color: gray;">■</span> | <span style="color: orange;">■</span> <span style="color: orange;">■</span> <span style="color: gray;">■</span>   |    |







Atlantis Casino Resort Spa (ReEnergize Reno Participant)

## THE COMMUNITY HAS SET AN *Ambitious Goal*

It is attainable, but it demands timely adoption of a plan, adequate resources for implementation, and support from all levels of city government to carry out actions.

By the year 2025, only six years from now, we want to reduce greenhouse gas emission in Reno by 28% from 2008 levels – that is our first priority. By 2050, we have targeted an 80% reduction.

Here is how we will reach these ambitious goals:

1. We will operate with a clear, optimistic vision of the benefits of our Sustainability and Climate Action Plan. We will be motivated by our commitment to create a community all our residents are proud to call home.
2. We will be leaders. The city government will lead by example — whether it is the city council establishing a sweeping policy

goal or a staff member who identifies an incremental improvement in daily operations. We will not ask others to do anything that we would not do ourselves.

3. We will focus on high-impact actions. We will leverage the expertise in our community to take the big steps that bring big results. And we will move as quickly as possible.

4. We will work collaboratively and draw on the knowledge of our community to create strong partnerships that deliver results. We recognize that the city cannot do this on its own.

5. We will remain committed, every day, to ensuring that Reno plays its part in climate action.



# 1 | LEAD BY EXAMPLE - SUSTAINABLE CITY OPERATIONS

# GOALS

**28%**

**2025**

**LOWER CARBON  
EMISSIONS FROM  
CITY OPERATIONS**

**40%**

**2030**

**LOWER CARBON  
EMISSIONS FROM  
CITY OPERATIONS**

City of Reno

## CURRENT SNAPSHOT

The City of Reno government can accelerate sustainability and climate action through its own sustainable operations as a corporation, employer, service provider, and owner of land, facilities and infrastructure. City policies and investments have long-term impacts. When the city builds new roads, for example, decisions about the streetscape and street trees have significant impacts on the health and well-being of nearby residents.

It's simple: Leading by example is an investment in Reno's future. It builds trust about the city's intentions, and it influences the perceptions and actions of others.

The Reno City Council passed a number of resolutions in recent years to begin to tackle climate change and move forward.

The city will not be the first agency in our region to promote sustainable operations. RTC adopted its sustainability policy in 2011, established integrated sustainability as a guiding principle in its 2040 Regional Transportation Plan, and adopted its RTC Sustainability Plan, which addresses sustainable operations, in 2017. (RTC earned Silver-level recognition from the American Public Transportation Association for its plan and achievements.) The Reno-Tahoe Airport Authority, University of Nevada, Washoe County School District, Carson City School District, City of Las Vegas, and Clark County also have implemented sustainable-operations policies or programs.

## ACTIONS TO REACH *Goals*

1. Reduce energy and water use in city facilities 20% by 2025 from the 2014 baseline.
2. Benchmark and report energy and water use of city properties.
3. City capital projects to achieve at minimum LEED Silver certification for new construction and strive to achieve green building certification on renovation projects.
4. Demonstrate and promote high-efficiency technologies for heating, cooling and hot water, or net-zero energy building, on city-funded capital projects.
5. Reduce city fleet carbon emissions 28% by 2025.
6. Encourage adoption of EVs by installing EV-charging infrastructure at high-use city facilities and strategic locations in the public right-of-way.
7. Implement an employee commute-trip-reduction program, survey employees on commute modes, and establish a goal for reducing drive-alone commutes.
8. Achieve an overall 50% recycling rate by 2025 from city operations, and construction and demolition projects.

9. Adopt sustainable purchasing policies and practices across all departments.

10. Identify opportunities to implement innovative and sustainable practices on site and infrastructure projects, such as LID and green infrastructure.

11. Ensure fair investments in tree-canopy coverage in parks and the public right-of-way.

12. Collaborate on implementation of the One Truckee River Management Plan and track and report actions implemented and resources invested.

13. Consider climate impacts and integrate climate resilience into city planning, services, projects, and investments, and report resilience projects annually.

### MEASURING PROGRESS

- Decline in carbon emissions from city operations
- Decline in energy and water use
- Rise in recycling rate



# BENEFITS

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## ENVIRONMENT

Improves air quality, reduces carbon emissions, conserves natural resources, and protects the Truckee River watershed.



## ECONOMY

Delivers long-term savings through sound investments, stimulates growth in local green markets and encourages clean-energy economy.



## EQUITY

Improves equitable distribution of city resources, and prioritizes underserved communities most in need.



## HEALTH & SAFETY

Strengthens resilience against climate risks and hazards, and demonstrates commitment to the health and well-being of employees as well as residents and visitors.



## MOVING FORWARD

**Sustainable operation is common practice for local governments.** *Mayors Leading the Way on Climate: How Cities Large and Small are Taking Action*, a 2018 survey conducted by the U.S. Conference of Mayors and Center for Climate and Energy Solutions, found the majority of responding cities lead by example. Two-thirds of cities confirmed they have policies and programs in place for tracking and reducing greenhouse gas emissions while reducing operating costs. The steps they've taken involve energy efficiency, renewable energy, green building, green-vehicle procurement, public EV charging stations, and environmental purchasing.

In fact, because leading by example is so important, the U.S. Conference of Mayors, National League of Cities, and ICMA each provide tools, resources and case studies to support cities' efforts to integrate sustainability across operations, investments and services. The City of Reno can learn and build on the sustainable operations plans of similar cities to ease implementation of best practices.

In 2009-2010, the city's former green team identified more than 30 actions and policies for reducing carbon emissions from city operations and community-wide. Actions also were identified to improve overall environmental outcomes, while generating operational savings. However, the recession hampered the city's ability to move forward on many of the actions, such as implementing a green-building policy for city-funded facilities, establishing environmental procurement policies, and providing preferred parking to employees who carpool or drive hybrid, electric and alternative-fuel vehicles.

The city was able to implement a few large projects with funding through the American Recovery and Reinvestment Act, conservation bonds, grants and utility incentives. The city conducted a financial-grade energy and water audit across 48 facilities and investigated renewable energy opportunities. The completed energy efficiency and renewable energy projects reduced municipal building energy use by 37%, providing cumulative savings of more than \$4 million.

## RELATED MASTER PLAN POLICIES

**2.5a: Green Building and Sustainable Neighborhood Development:** Promote and incentivize green building and sustainable neighborhood development that reflects best practice and industry standards for new development, major renovation, adaptive reuse, and revitalization projects at all scales.

**2.5C: Drought Tolerant Landscaping.** Require landscaping which utilizes drought tolerant plant materials, efficient irrigation, incorporates soil amendments to support plant health and resiliency, and other low water usage practices.

**2.5I: Integrated Pest Management.** Minimize the use of herbicide and neonicotinoid pesticides in favor of physical weed removal and other best management practices. Where their use is necessary, ensure proper notification is provided.

**8.5E: Sustainable Government Operations:** Continue to implement policies and programs to reduce greenhouse gas emissions, conserve energy and water, and procure environmentally responsible products and materials in government operations.

**8.5B: Emerging Technology:** Proactively explore and implement emerging technologies and best practices to monitor City service delivery and facilities needs. Also explore and implement opportunities to incorporate emerging technologies as a means of informing, educating, and interacting with citizens.

**5.4A: Trip-Reduction Programs:** Support and increase awareness of programs that encourage use of alternative forms of transportation and would result in decreased vehicle trips and miles traveled within the city and contribute to improved regional air quality, such as, but not limited to: Carpooling and alternative work schedules for City of Reno employees; RTC's Smart Trips program.

## RELATED STAR COMMUNITIES METRICS

**Local Government Greenhouse Gas Emissions.** Demonstrate incremental progress towards achieving a 28% reduction by 2025 and/or an 80% reduction by 2050 in local government greenhouse gas (GHG) emissions.

**Local Government Energy Efficiency.** Demonstrate local government building-stock energy use intensity is below the regional aggregated energy use intensity per building type and demonstrate a 10% decrease in local government-owned public infrastructure energy use.

**Local Government Water Conservation.** Demonstrate a 10% decrease in local government-owned public water use.

Participation of all city departments is necessary to successfully advance a comprehensive sustainable operations plan.

**More recently, the Facilities Division implemented low-cost lighting retrofits in the Corp Yard, City Hall and City Hall Parking Garage.** These projects are reducing energy use and saving money. The parking garage lighting retrofit saves over 20% on energy bills.

The Facilities Division also is “tuning-up” fire stations, the Evelyn Mount Northeast Community Center and the Northeast Pool testing and adjusting building systems to ensure that fundamental systems deliver functional and efficient performance. The city estimated energy cost savings of more than 10% annually. The project goals also include enhancing occupant health and comfort, which is particularly important in fire stations where Reno’s fire fighters reside while on duty. To help cover the cost of this retro-commissioning project, the city received a grant from the Nevada Governor’s Office of Energy.

Reno is nestled on the eastern slope of the Sierra Nevada Mountains with a semi-arid climate. On average, the city receives 7.4” of precipitation annually. Because water in our region is a limited resource, responsible water use is essential.

**The city has already met its 2014 stated goal of 20% reduction in municipal water use** according to an undergraduate research study conducted at the University of Nevada, Reno in 2018. The city uses 36 million gallons of water annually for operations, down from 44 million gallons in 2014. With this success, it’s important to consider that 2014 was a year where the city saw unusually high water use.

The increase in water use may have been due to multiple variables, but drought during that year was most likely the greatest contributing factor. Most of the city’s water usage is for irrigation of parks and playfields with consumption peaking during the summer months.

Since the early 2000s, PRCS has made improvements to reduce water use in city parks and landscaped rights-of-way. These improvements include changing landscape designs and maintenance practices, limiting turf in new parks, installing a central irrigation control system and weather station to manage irrigation scheduling based on weather conditions, converting to non-potable systems, upgrading irrigation systems and conducting water audits and soil tests in problem areas. And to address times of drought, staff developed a proposed Water Management and Drought Response Plan to guide future water-reduction efforts.

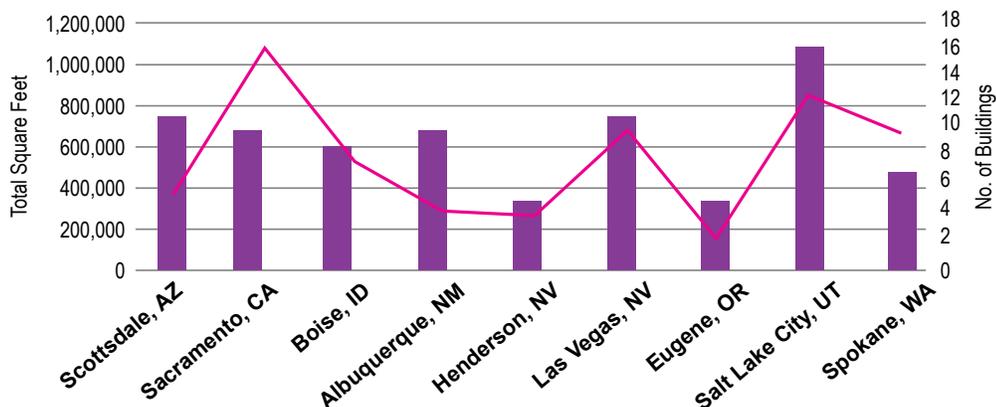
**Green building is standard practice for local governments across the nation.**

There are nearly 500 local-government green building policies across 40 states and the District of Columbia. Policies range from requirements for municipal buildings to incentives or requirements for private sector buildings. For example, Salt Lake City adopted an ordinance in 2006 requiring municipal buildings to achieve LEED certification, as well as any building funded by the city through grants, loans, or tax breaks.

In Nevada, Henderson, Las Vegas and North Las Vegas each have a green building policy in place. The U.S. Green Building Council reports 2,644 local-government LEED certified projects totaling nearly 300 million square feet.

**Local Government LEED Buildings**

■ No. LEED Buildings  
 — Total SF LEED Buildings









**The Fleet Management division recently purchased the city's first EVs and installed four EV charging stations in the City Hall Parking Garage.** There were challenges that arose with both the EV procurement process and the operations of the EV charging stations that need to be resolved. Help may be found by participating in Climate Mayors Electric Vehicle Purchasing Collaborative, which leverages the purchasing power of over 400 cities to drive down the costs for EVs and charging stations. NV Energy also offers incentives for EV charging stations to reduce the cost of installation. And the Nevada Governor's Office of Energy published *Electrifying: Nevada's 21st Century Transportation System*, a roadmap for transportation electrification in Nevada.

To further reduce fleet emissions, the city will need to evaluate a range of strategies. Best practices include an anti-idling policy for city vehicles, applying technology solutions such as telematics, and reviewing fire-dispatch protocols.

In the past, the city tracked use of fuel, natural gas, electricity and renewable energy to measure greenhouse gas emissions from municipal operations. While this generated useful information, there is a need to apply a standardized methodology and calculations used by cities through the U.S. and abroad. The city plans to conduct a greenhouse gas inventory of government operations using the *Local Government Operations Protocol* offered through The Climate Registry.

National frameworks help improve the sustainability of site and infrastructure projects. The Sustainable Sites Initiative – developed by the American Society of Landscape Architects, The Lady Bird Johnson Wildflower Center at the University of Texas at Austin, and the United States Botanic Garden – set a national standard for land development and landscapes. Envision is a sustainable infrastructure framework developed by the American Public Works Association, American Society of Civil Engineers, and the American Council of Engineering Companies. The framework provides guidance and performance metrics on the planning, design and construction of sustainable and resilient infrastructure projects.

# SUSTAINABLE OPERATIONS SAVING MONEY AND

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## *The Environment*

In the high desert, the very sustainability of life depends on clean water. The Truckee Meadows Water Reclamation Facility (TMWRF) plays a critical role as it restores wastewater and returns clean water to the Truckee River or for uses in irrigating farms and landscapes — and it does its work with a clear focus on sustainable operations.

Owned jointly by the City of Reno and the City of Sparks, TMWRF can treat nearly 40 million gallons of wastewater per day. As the facility at the east edge of the metropolitan area recycles millions of gallons of water from customers in Reno, Sparks, Sun Valley and Washoe County every day, the leadership and staff of TMWRF continue to deepen their commitment to a sustainable future.

TMWRF uses sophisticated technology to generate electricity that meets a substantial portion of the needs of the facility. The cogeneration technology captures methane gas created during the treatment of wastewater. The methane then fuels a generator that produces about 35% of the electricity needed by TMWRF. At the same time, the technology produces enough hot water to meet all of the facility's process-heating needs.

The focus on sustainability has produced significant financial results, saving more than \$315,000 a year. The environmental benefits are equally noteworthy. The clean energy produced by the cogeneration system is enough to meet the needs of 359 homes each year. The use of once-waste methane is just as beneficial as removing 855 cars from the road.

The environment benefits, too, when the facility mines phosphorus and small amounts of nitrogen and other nutrients from wastewater and processes them into a plant fertilizer. It produces about 2,000 pounds of fertilizer pellets daily, selling them to a Canadian company that markets them to farmers and homeowners as "Crystal Green."

As they work toward their goal of net-zero energy use at TMWRF, its staff members also have focused on reduced energy consumption. An energy audit conducted with the assistance of Ameresco Inc. identified lighting upgrades, replacement of outdated equipment and operational efficiencies. Between those improvements and the new cogeneration technology, TMWRF recorded 45% energy savings.

Further enhancements of sustainable operation may be on the way.

The City of Reno — which also operates the smaller Stead Water Reclamation Facility — is one of the partners in the Nevada Water Innovation Campus spearheaded by the University of Nevada, Reno. Among the research undertaken by that initiative is evaluation of systems to reduce even further the amount of dissolved organic nitrogen contained in water after it's treated by TMWRF. Researchers also are studying advanced filtration technology that would allow use of treated wastewater to recharge underground aquifers.







# 2 | TRANSITION TO CLEAN, RENEWABLE ENERGY

# RENEWABLE ENERGY

*Goals*

**100%**

**2025**

**CITY  
OPERATIONS**

**50%**

**2030**

**CITYWIDE**

**80%**

**2050**

**CITYWIDE**

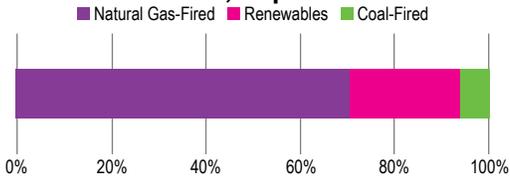
## CURRENT SNAPSHOT

The City of Reno generates renewable energy that meets 10% of annual electricity needs used for city operations. In 2009, the Reno City Council approved energy-conservation and renewable-energy investments totaling nearly \$20 million, funded through utility rebates and federal grants and bonds made available through the American Recovery and Reinvestment Act (ARRA).

The city installed 10 solar projects and eight wind turbines adding 1.9 million kilowatt-hours to the city's existing solar generation of 366,250 kWh and 14,620 kWh of wind-energy generation respectively. Over the past few years, two systems have been decommissioned: a solar array damaged by nearby baseball fields and a wind turbine that did not withstand high winds.

NV Energy (NVE) exceeds Nevada's Renewable Portfolio Standard. In 1997, the Nevada Legislature adopted a Renewable Portfolio Standard (RPS) of 25% by 2025. For eight consecutive years, NVE exceeded the annual goal requirement, reaching 23.8% in 2017.

**Nevada Net Electricity Generation by Source, Sept. 2018**



NVE's rates are some of the lowest rates in the nation, and 51 renewable energy projects contribute to low rates, including geothermal, solar, hydroelectric, biomass or methane gas facilities, and one large wind farm. In 2017, Nevada ranked second in the nation for electricity generated from geothermal sources and fourth for utility-scale solar generation.

NVE has a long way to go to convert streetlights to LED. Many cities have converted streetlights to LED fixtures as a way to save energy and maintenance costs. Communities find that LED bulbs can also reduce light pollution. In Reno, NVE owns more than 80% of the streetlights, and their current conversion plans will take up to 15 years to complete.

The Public Works Department has converted nearly 75% of city-owned streetlights to LED as bulbs needed replacement. In 2006, Public Works also retrofitted more than 6,000 traffic signals to LED lamps. The projected reduction in energy use for the traffic signal retrofit was 793,635 KWh per year, and the energy and maintenance cost savings were \$123,913 per year with a simple payback in 3.2 years.

**Converted to LED**



**75%**

**Street Lights**



**100%**

**Traffic Lights**

# ACTIONS TO REACH

*Goals*

**1. Meet 50% of electricity needs for city facilities, infrastructure and streetlights from renewable energy by 2020 and 100% by 2025.**

Purchase renewable energy to provide electricity to city-owned and occupied buildings.

**2. Convert 90% of streetlights to high-efficiency LED fixtures by 2025.**

Evaluate the cost / benefits of completing the LED streetlight conversion by 2025 in collaboration with NVE.

**3. Increase distributed renewable energy generation 15% by 2025 and encourage energy storage.**

Work with stakeholders to develop incentives that encourage renewable energy generation such as simplification of zoning regulations, streamlined permits, guideline development for small systems, and technical assistance.

**4. Expand solar, energy storage and EV charging infrastructure.**

Develop guidelines and specifications for solar, energy storage and electric vehicle charging readiness and requirements in new construction and major renovation projects.

**MEASURING PROGRESS**

- Rise in renewable energy for city operations
- Rise in streetlights converted to LED
- Rise in local, distributed renewable energy

# BENEFITS

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## ENVIRONMENT

Reduces air pollution and carbon emissions from fossil fuel burning and transportation of fuels into Nevada.



## ECONOMY

Keeps more money in Nevada's economy, increases investment in innovative businesses, creates green jobs, and generates tax revenues.



## EQUITY

Ensures customers stable and affordable energy costs, and improves health outcomes for vulnerable populations.



## HEALTH & SAFETY

Improves health and well-being by reducing incidences of cardiovascular and respiratory disease including asthma.

## RELATED MASTER PLAN POLICIES

**2.5E: Renewable Energy:** Promote the continued development of renewable and distributed energy systems including solar, wind and geothermal energy resources within the SOI and ensure that, when feasible, utilize existing corridors for the transmission of electric generating plants. Demonstrate a commitment to the development of renewable energy generation including the transmission infrastructure originating from renewable energy generation sources.

**SD.7: Solar Access:** Where possible, orient the layout of homes, streets, and public spaces in new neighborhoods to support the use of passive solar to heat homes and reduce snow and ice buildup on neighborhood streets, as well as to maximize property owners' ability to take advantage of solar energy.

**SD.10: Energy Facilities:** Where possible, incorporate infrastructure and other design considerations necessary to support the use of renewable energy and other forms of energy generation, such as district heating or cooling systems.

**SD.24: Renewable Energy:** Incorporate systems or technologies, where appropriate, for the generation of renewable energy to offset the energy consumption of the building including solar, micro-hydro, wind, and geothermal.

**SD.28: Electric Vehicle Charging Stations:** Provide dedicated infrastructure such as recharging stations and/ or designated parking areas for electric vehicles, hybrid vehicles, and other types of "green" vehicles.

## RELATED STAR COMMUNITIES METRICS

**Electrical Energy Supply:** Demonstrate that the community's electric utility is in compliance with RPS requirements and document the portion from renewable energy sources.

**Green Power:** Demonstrate that local government, businesses, and residents collectively use green power in amounts that meet or exceed the EPA's Green Power Community usage requirements.





## THE STATE'S ROLE

The Nevada Legislature has created laws that encourage investment in renewable energy through net-metering systems, incentives for renewable energy, and EV infrastructure. The Legislature also established a renewable portfolio standard requiring 25% of utility-supplied electricity to come from renewable energy or gains in energy efficiency by 2025.

In 2016, the Governor's New Energy Industry Task Force recommended policies and initiatives designed to encourage investments in renewable energy and energy efficiency. While the governor introduced a few of the initiatives as bills during the 2017 legislative session, many were not carried forward.

In 2018, Nevada voters passed Ballot Measure 6, which will increase the state's renewable portfolio standard to 50% by 2030. In 2019, the legislature passed a bill, which was signed into law by the governor, that increased the state's renewable portfolio standard to 50% by 2030 and 100% by 2050.

The governor, Nevada Legislature, and Public Utility Commission have roles in helping to achieve our transition to clean, renewable energy. The recommendations can be revisited, and new initiatives considered, including:

- Increase energy efficiency incentives for the commercial and industrial sectors.
- Create new incentives for the residential sector.
- Enable clean, distributed energy generation and micro-grid systems.
- Enable community renewable energy projects to provide equal access to clean energy benefits.
- Provide incentives for EV and infrastructure.

## FEDERAL LEADERSHIP

Encourage federal representatives to support a carbon fee and dividend that taxes greenhouse gas emissions, and returns the revenues to American households through a dividend.

## MOVING FORWARD

**While the cost for renewable energy is coming down, there is an incremental cost to purchase renewable energy.** For the past three years, the city met with NVE to explore purchasing renewable energy for city operations' electricity use through NVE's Green Energy Choice program. The incremental cost went from nearly \$95,000 annually in 2017 to \$38,000 in 2019. The city can further lower the cost by reducing energy demand through energy efficiency and strategically-located distributed energy systems.

**Investing in renewable energy keeps money in the state's economy.** While Nevada is a leader in geothermal and solar energy resources, 87% of Nevada's energy in 2016 was imported in the form of coal, natural gas and other fossil fuels, the main source of Nevada's carbon emissions. Importing fossil fuels for energy generation erodes air quality as the fuels are burned to generate energy.

Imported energy means that more than \$1.4 billion spent on natural gas and coal leaves the state economy each year as "leakage," reducing the economic resources available to expand existing or invest in new, innovative companies. When money stays in local economies, people and businesses earn more and spend more in their community. This "multiplier effect" results with each dollar circulating within the local economy longer and generating greater prosperity within the community.

**Creating new renewable energy resources is an economic development opportunity that creates jobs.**

The renewable energy sector is projected to grow twice as fast as other occupations in the U.S. Wind and solar jobs will be the fastest growing job sectors from 2016 to 2026. Investments in renewable energy can add thousands of jobs to Nevada. When the rooftop solar industry was in full gear through 2015, 161 companies employed more than 5,900 people across the state.

In 2017, the cost to produce renewable energy was less expensive than natural gas. The average cost of solar, wind and geothermal energy was less than half that of coal.



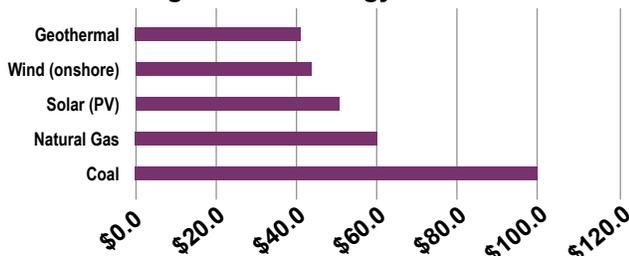
**LED streetlight conversion saves energy and money.** In 2013, the City of Las Vegas replaced 42,000 high-pressure sodium streetlights with LED light fixtures. The anticipated savings were \$2 million per year in energy and maintenance costs, with a return on investment in less than eight years.

In 2018, the City of Austin installed 13,000 LED streetlight fixtures. The project will reduce annual electricity use by 4 million kWh and avoid 2,683 tons of carbon emissions. The energy-saving streetlight project also automated 56,000 LED streetlights and ensured they were Dark Sky compliant to reduce light pollution.

**LED streetlights enhance safety.** In 2011, the Linden-Grove community worked with city leaders to improve safety at Yori Park. The city replaced the 175 watt metal-halide fixtures with vandal-resistant fixtures that also feature motion sensors to increase light levels when needed.

The project cost was \$30,000 with projected energy and maintenance cost savings of 60% each year. The LED fixtures and motion sensors have also deterred crime and improved safety. The LEDway luminaires used received the stamp of approval from the International Dark Sky Association in reducing light pollution.

**2017 Average Cost of Energy in North America**



2017 Average Cost of Energy in North America per MWh: U.S. Energy Information Administration







NV Energy

## NV ENERGY LEADS

# *Clean Energy Transition*

With the defeat of Ballot Initiative 3 in 2018, NVE can move forward with plans to build six new solar projects that will generate 1,001 megawatts of clean, renewable energy. The Public Utility Commission approved its plan, as well as adding 100 MW of energy storage. The Integrated Resource Plan approved in December 2018 also moved up the date for retiring one unit at the coal-fired North Valmy Generating Station.

These investments will support NVE in achieving its goal to double renewable energy production by 2023, and set a long-term goal of transitioning to 100% renewable energy. The \$2 billion investment will also benefit Nevada's economy, creating more than 1,700 construction jobs and nearly 80 permanent jobs.

NVE also offers programs and incentives that support customers in generating their own renewable energy or transitioning to electric vehicles. They have helped to finance more than 20,000 rooftop solar installations at homes, schools, civic buildings, nonprofits and businesses.

Residential customers can choose to pay a small premium for renewable energy to meet their electricity needs through the Northern NV Green Energy Choice Program. Commercial customers who use more than 1 MW of electricity annually can also purchase either 50% or 100% of their energy through renewable resources.







# 3 | GREEN BUILDING IS STANDARD PRACTICE

# GOALS

25%

2025

PROJECT  
STARTS GREEN  
BUILDING  
CERTIFIED

25%

2030

ENERGY  
SAVINGS,  
EXISTING  
BUILDINGS

80%

2050

PROJECTS  
NET ZERO  
ENERGY

Vance Fox Photography, Sierra Nevada Job Corps Center Cafeteria, LEED Silver 2018

## CURRENT SNAPSHOT

**Reno's newer buildings are at least 30% more efficient than buildings constructed before 2012.** In 2012, the city adopted the 2009 International Energy Conservation Code (IECC), and in 2016, it adopted the 2012 IECC. Together, these updates resulted in the largest increase in efficiency gains in the history of the IECC, an increase of more than 30% in new residential and commercial construction. With the recent adoption of the 2018 IECC, we can expect a modest increase in efficiency of an additional 3-5% in new buildings.

**The city is expanding the market for energy efficiency through pioneering programs.** Two-thirds of Reno's climate pollution comes from the energy we use in buildings. That is why the city applied in 2016 for a grant to tackle energy waste in Reno's largest buildings.



Reno received the grant from the City Energy Project and became one of 20 pioneering cities helping to shape high-impact energy policies and programs. Here is what we accomplished:

- Joined the U.S. Department of Energy’s Better Buildings Challenge committing to reduce energy and water use 20% in 10 years across 51 city-owned facilities.
- Launched ReEnergize Reno, a community-wide Better Buildings Challenge and recruited 131 buildings and 8 million square feet to the program.
- Hosted 22 monthly education events attended by nearly 900 professionals, equipping them with knowledge to improve building performance and expand green building.
- Launched Reno’s Green Building Awards program to recognize improved building performance and leadership in green building.
- Introduced a building benchmarking and transparency ordinance developed through a robust stakeholder process to improve efficiency of Reno’s largest buildings.
- Established a Commercial Property Assessed Clean Energy (C-PACE) financing program to increase investments in energy efficiency and renewable energy.

Nevada has ranked among the top 10 states for green building three times since 2010. The 465 LEED certified buildings in Nevada represent more than 135 million square feet. But fewer than 10% are located here in Washoe County.

Reno lags behind other major and secondary markets in green building. Washoe County is home to 43 LEED-certified buildings representing 10.5 million square feet of commercial, institutional and government space. This number is well below the national average. The Boise metropolitan area, has nearly twice the number of LEED buildings. The Salt Lake City area, boasts 212 LEED certified buildings representing nearly 20 million square feet.



## ACTIONS TO REACH *Goals*

### 1. Increase energy code compliance rates.

Implement a code compliance process that clarifies the roles and responsibilities of each party, from applicant to building inspector; improves education and outreach; utilizes compliance tools; and streamlines the compliance and enforcement process.

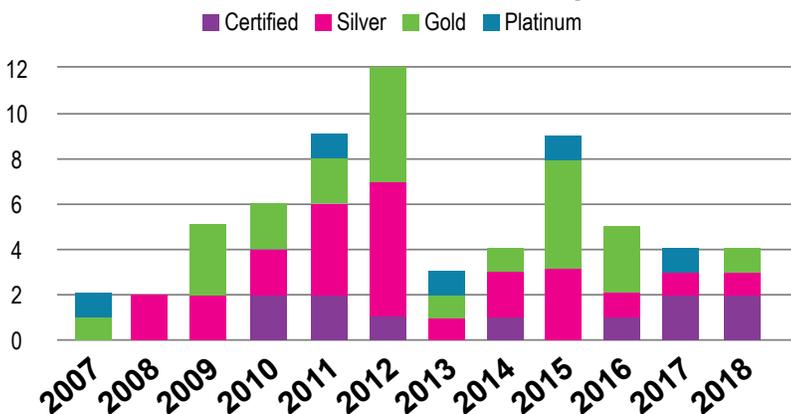
### 2. Expand ReEnergize Reno.

Continue support of our voluntary, community-wide Better Buildings Challenge by encouraging commercial, industrial and multifamily buildings to participate and support efforts to reduce energy and water use 20% by 2025 through education, technical assistance, and recognition.

### 3. Implement building energy benchmarking and transparency policy for large commercial and multifamily buildings.

Support implementation with information delivered through website; notification, tracking and enforcement process; outreach, education, and technical support; showcasing local success stories; quality assurance / quality control and data verification; and regular reporting to evaluate impacts.

**LEED Certifications Reno-Sparks**



#### 4. Increase communications and expand industry education.

Educate, engage and inspire target audiences through a multi-year communications campaign designed to raise awareness and collaborate with partners to deliver a comprehensive education program designed to increase knowledge and expertise.

#### 5. Make green building standard practice by 2025, and encourage stretch energy standard and net zero energy buildings.

Collaborate with stakeholders to develop market incentives that encourage adoption of green building, the 20% stretch energy standard, and zero net energy buildings in all sectors.

#### 6. Host a building electrification demonstration to promote high-efficiency electric technologies for heating, cooling and hot water.

Engage partners to secure funding, design and implement a demonstration program, and encourage participation through outreach, education, technical assistance, and awards to recognize leaders.

### MEASURING PROGRESS

- Rise in certified green buildings
- Decline in existing building energy use
- Rise in net zero energy buildings

## BENEFITS



### ENVIRONMENT

Reduces energy use, lowers air pollution and carbon emissions, uses natural resources more efficiently, and enhances natural systems.



### ECONOMY

Improves property values, generates higher tax revenues, saves businesses and residents money, and creates green jobs.



### EQUITY

Reduces the financial burden of utility costs on low-income communities.



### HEALTH & SAFETY

Improves health and well-being through better indoor environmental quality and outdoor air quality.

## RELATED MASTER PLAN POLICIES

### **2.5A: Green Building and Sustainable Neighborhood Development:**

**Development:** Promote and incentivize green building and green neighborhood development that reflects best practice and industry standards for new development, major renovation, adaptive reuse, and revitalization projects at all scales.

### **2.5G: Energy and Water**

**Conservation:** Promote energy and water conservation programs, and encourage behaviors and the use of products and materials that maximize energy and water efficiency in the construction of new buildings and the adaptive reuse of existing buildings.

### **4.3A: Retention of Existing Housing Stock:**

**Encourage** ongoing maintenance and promote reinvestment and improvements in established neighborhoods for both owner- and renter-occupied units. Work with property owners, residents, Neighborhood Advisory Boards, and non-profit organizations as appropriate to bring substandard housing and vacant lots into compliance with City codes, improve the energy efficiency of older homes, and improve overall conditions.

**SD.23: Energy Efficiency:** Where possible, incorporate energy saving and energy efficient building designs, appliances, systems, and other building components that help to improve energy efficiency and lower energy consumption. Look to resources such as the ASHRAE Advanced Energy Design Guide, ENERGY STAR, and other similar programs.

## RELATED STAR COMMUNITIES METRICS

### **Green and Energy Certified Building**

**Stock:** Demonstrate that 5% or more of commercial and industrial building and residential units certified through comprehensive green building or energy programs.

**Energy Use:** Demonstrate incremental progress towards achieving an 80% reduction by 2050 in energy use within specific residential, commercial, and industrial sectors.





## THE STATE'S ROLE

In 2005, the Nevada Legislature passed a tax incentive for commercial buildings that achieve green building certification. Another law required all state-funded buildings be LEED-certified or equivalent, and required at least two buildings to serve as demonstration projects. This bill was repealed in 2007 before it went into effect. Then in 2009, a new law required the State Public Works Board to adopt standards for the efficient use of water and energy, or green building standards, in state-owned and operated buildings. The board elected to adopt minimal goals – meet industry standards for energy efficiency, exceed water efficiency standards by 20%, and recycle 50% of construction waste.

Today, 29 states have in place rigorous green building requirements for state projects. Most of the western states have policies in place, including Washington, Oregon, California, Utah, Arizona, New Mexico, Montana, Colorado, and Hawaii. This puts Nevada at a market disadvantage. New strategies to consider are:

- Extension of green building tax incentives to multifamily and affordable housing projects.
- Required LEED certification or equivalent for state projects and projects that receive state funding, including K-12 and higher education.
- Support from the Governor's Office of Energy for local government programs designed to expand energy efficiency and green building.
- Strengthened green building policies in Nevada's Qualified Allocation Plans for low-income housing, reflective of best practice in the majority of U.S. states.

## MOVING FORWARD

**Energy efficiency is Nevada's cheapest source to meet an increase in demand.** A 22% cut in energy use would provide an estimated \$3.4 billion in savings to households and business while creating 4,680 new jobs in trade, installation, professional services, manufacturing, engineering, and research. It would also reduce carbon emissions by 4.4 million metric tons—equivalent to taking 870,000 passenger vehicles off the road.

**Energy code compliance is one of the most cost effective strategies for achieving energy efficiency gains and associated cost savings.** A high compliance rate is achievable and can improve building energy performance by as much as 15%. For residents, that can translate to \$300 savings each year. For all new construction, a dollar spent on the incremental costs for meeting the energy code and enforcement returns \$6 in energy savings. In most communities, these benefits are lost due to the lack of enforcement. The city can ensure the energy codes are effective by implementing a code compliance process that incorporates education and outreach, and other strategies.

**Buildings that benchmark energy performance save energy and money** – and the investments extend to the community. Every dollar spent on energy efficiency multiplies to \$2.23 spent in the local economy. Building benchmarking provides a way to evaluate the building performance over time, compare to similar buildings, and identify opportunities for savings. Benchmarking policies are resulting in reduced energy use from 3-8% in two to four years, with projected overall savings of 10-15%. It can also help the city and local utilities to better identify and develop programs and financial tools that focus on the areas of the market with the greatest opportunities for efficiency savings.

**C-PACE enabling legislation has stimulated \$521 million in investments in energy efficiency and renewable energy projects across 30 states.** In 2017, Nevada passed C-PACE legislation designed to increase project financing available to industrial, commercial and multifamily properties. Unlike a conventional loan, borrowers pay the costs back through a voluntary special assessment. C-PACE allows for longer-term financing and for the transfer of the repayment obligation to the next owner.

**Green buildings help keep our businesses competitive.** LEED certified buildings use 25% less energy and generate 33% lower carbon emissions.

They also lower operating costs 13% for new construction and 8.5% for existing buildings, and increase building value 10.9% for new construction and 6.8% for existing buildings. Their owners also report 27% higher occupant satisfaction, improved occupant health, increased worker productivity, and reduced absenteeism. These are important contributions to profitability. It also explains why 41% of commercial space in America's 30 largest office markets are ENERGY STAR or LEED certified.

While most industry professionals in Reno believe green buildings cost more, studies show that green buildings are achievable at minimal to no additional costs for new construction when the team utilizes an integrated design process. Incremental costs for major renovations are 2-4% on average, with a return on investment within three years—the time it takes to recoup added costs. More importantly, the initial construction costs represent only 2% of the 30-year costs of the building.

Owners of ENERGY STAR certified buildings experience 9.5% higher occupancy rates and 2.5% higher rental rates than conventional buildings. The buildings also had a higher likelihood of lease renewal, rent for \$2-\$3 more per square foot, and provide rent concessions to tenants that are 35% lower than conventional buildings.

**From 2015-2018 LEED-Certified Buildings were estimated to have as much as...**

**\$1.2 BILLION**  
In Energy Savings

**\$149.5 MILLION**  
In Water Savings

**\$54.2 MILLION**  
In Waste Savings

**\$715.3 MILLION**  
In Maintenance Savings

Source: 2015 Green Building Economic Study



**WIDE AVENUE**  
modern marketing for gaming properties

the glenn group

Wallington Street





In Nevada, the expected cumulative impact of the green building sector from 2015-2018 was 200,000 jobs that generated \$11.33 billion in wages, and contributed close to \$17 billion to the state GDP.

Nationally, residential green building is growing exponentially as well. As of January 2019, there were more than 162,000 green homes certified through the National Green Building Standard (NGBS). This number will continue to grow as the majority of single-family and multifamily builders and remodelers in a nationwide survey reported that green homes are easier to market and that consumers are willing to pay a price-premium for green construction. This is no surprise as Millennials made up the largest percent of homebuyers in 2017 and are willing to pay extra for green homes.

Di Loreto Homes of Reno is the only NGBS Green Certified builder in Nevada. They have built 287 NGBS-certified single-family homes, with more than 43 homes awaiting certification. Di Loreto Homes also was recognized as a NGBS Green Partners of Excellence in 2013, 2015, 2016, and 2017.

**Green affordable housing supports low-income families through lower utility costs and healthier homes.**

Enterprise Green Communities is the nation's leading green building framework for affordable housing projects. The program is supported by 550 housing organizations across the U.S., and has been implemented in 38,000 homes for low-income families. On average, certification costs range from 2-2.5% more than conventional building. However, lifetime utility savings exceed the increase in capital investment with payback in less than 6 years. While there are no Enterprise Green Communities projects in Nevada, by comparison there are 45 certified affordable housing projects in Utah.



Reno-Sparks Convention & Visitors Authority, ReEnergize Reno Participant

**REENERGIZE RENO  
HELPING TO BUILD  
CLEAN ENERGY  
ECONOMY**

In 2017, the city launched ReEnergize Reno. Reno City Councilmember David Bobzien described the program as a community effort to reduce climate pollution. "The investments we make in building efficiency will help to create jobs and generate savings that can be spent in our local economy," Bobzien said.

The city challenged leading corporate and university executives, state and local government leaders, building owners, and multifamily housing developers to join this ambitious program. Participants commit to reduce building energy and water use 20% by 2025.

Leaders who have taken up the challenge represent Airport Gardens, Atlantis Casino Resort Spa, Coral Academy of Science, JCPenney Logistics Center, Lawlor Events Center, Method Art Corp. Magnolia Office Building, Nevada Highway Patrol Northern Command, Reno-Sparks Convention Center, The Glenn Group, YUnion student housing, Washoe County School District, and others.





UNR, Great Basin Hall

## UNR STUDENT HOUSING *Goes Green*

In August 2018, the University of Nevada, Reno welcomed more than 3,600 freshmen. Many live in the newest dormitory on campus: Great Basin Hall. The dorm replaces White Pine Hall and increases occupancy of the building to 400 from its previous 100.

The dormitory designed by Reno-based architecture firm Van Woert Bigotti Architecture and constructed by CORE Construction, is on track for achieving LEED Gold certification. The team also hired Brightworks Sustainability to help with the LEED process. Great Basin Hall will join the ranks of other LEED-certified buildings on campus like Peavine Hall (Gold, 2015), Nevada Living Learning Community (Silver, 2012), and Marguerite Wattis Petersen Athletic Academic Center (Silver, 2008). These buildings meet the intent of the university's Sustainable Building Policy and its goal to achieve LEED Gold certification for new construction.

Great Basin Hall incorporates energy and water saving systems, such as LED lighting, natural daylighting to reduce the need for interior lighting during the day, energy-efficient windows, and low-flow water fixtures. It also features recycled building materials.

YUnion Student Living, while not owned by the university, is another new, LEED certified student housing project. Energy efficient windows and kitchen appliances, programmable thermostats and lighting, on-site recycling, a carpool and ride-share program, bum-a-bike program, low-flow water fixtures, drought-tolerant landscaping, and green cleaning program encompass the eco-friendly lifestyle offered.

Developed by The Dinerstein Companies (TDC), this project is one of more than 20 LEED certified projects built by TDC since 2011. The company is committed to achieve LEED Silver certification or higher on 100% of its projects.



# 4 | CREATE LIVELY, LOW-CARBON NEIGHBORHOODS

# GOALS

25%

2025

INFILL  
DEVELOPMENT

10%

2025

ANNUAL  
AFFORDABLE  
HOUSING  
STARTS

40%

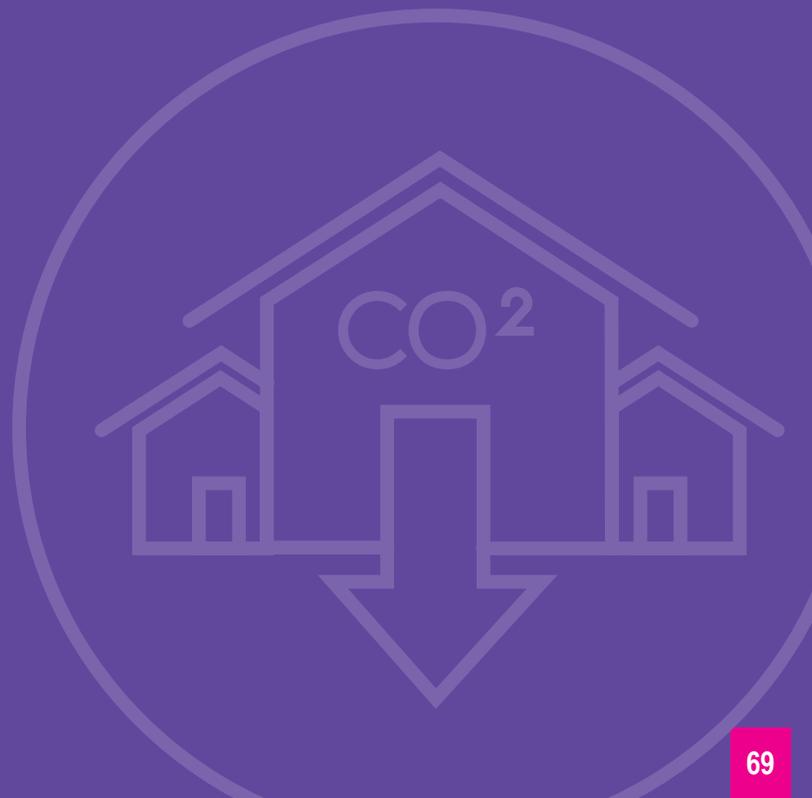
2030

LOW-CARBON  
COMMUTERS  
OR NON-SOV

City of Reno, Midtown

## CURRENT SNAPSHOT

**Reno continues to grow at the outer edges and foothills.** The city's previous Master Plan, the Great City Plan, encouraged development of compact, mixed-use neighborhoods and infill development. These strategies ranged from adoption of mixed-use zoning and redevelopment incentives to removal of regulatory barriers to infill development and redevelopment along the city's designated urban and suburban corridors. The city also made capital investments in redevelopment districts to support new development. Other strategies encouraged a broader range of non-auto-oriented land uses, increased allowed building height, reduced parking requirements, streamlined development review process, and replaced suburban-type



landscape requirements with requirements for street trees, larger sidewalks and enhanced pedestrian amenities.

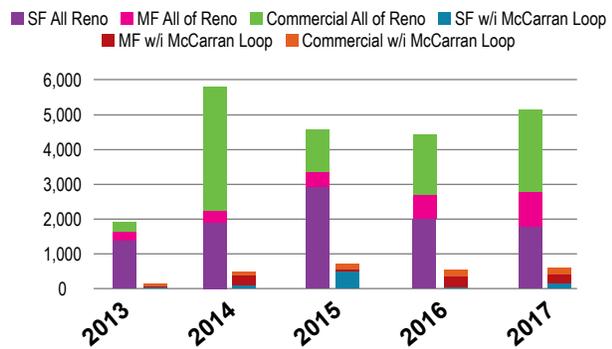
The City of Reno also initiated establishment of The Truckee Meadows Services Area (TMSA) to limit the outward expansion of suburban development and direct more growth to infill areas. The TMSA has been successful in limiting growth within the designated area. Since 2000, 97.6% of growth has occurred within the TMSA, and since 2012 that rate increased to 98.5%.

TMSA was adopted in conjunction with the “Centers and Corridors” concept in the 2002 Truckee Meadows Regional Plan. This concept identified priority areas for infill development. At that time, based on growth assumptions the regional plan also allocated 25% of new growth to regional centers and transportation corridors. RTC and other service providers were then required to update their plans to address that level of growth in designated areas. Together, the TMSA, growth allocation, and plan updates resulted in increased public expenditures that supported infill development through improvements, including bus rapid transit, bike lanes, complete streets, and more.

Over the last 20 years, the city has also incrementally strengthened its environmental ordinances. These ordinances, captured in Chapter 18.12 of Reno’s Land Development Code, address hillside developments, wetlands and stream environments, major drainageways, tree protection, flood hazard areas, and more.

More recently, over the five-year period 2013-2017, 4,729 single-family and 186 multifamily projects were built in Reno. Of these, only 602 single-family and 32 multifamily projects were located within the McCarran Loop representing less than 8% of the total square footage for single-family development and 35% of multifamily development. Less than 7% of the 9.24 million square feet of commercial development occurred within the McCarran Loop during the same period.

### SF of Development in All Reno & Within McCarran Loop



**Affordable housing is out of reach for the majority of Reno families.** In 2018, the median home price in Reno reached an all-time high of \$400,000. It’s not surprising. New companies are locating to the region, existing businesses are expanding, new jobs are being created at twice the national rate, and skilled workers are moving here. New housing starts haven’t kept up with the growth, and housing developers are building products for higher income earners.

Most households can’t afford a \$400,000 home. Nearly 40% of households are considered low-income households making 80% or less of the area median income (AMI), about \$42,000 annually. Another 20% of residents fall in the middle-income category earning 80-120% of AMI, from \$42,000 - \$63,000 annually.



**Providing housing for low-income residents is a priority for the Reno City Council.** To encourage development of affordable housing for very low-income residents, the city has or plans to transfer land to the Community Housing Land Trust managed by the Community Foundation of Western Nevada and other affordable housing providers. Five properties were identified totaling 8.4 acres that can accommodate nearly 300 new housing units.

Two projects are underway and a third project has been proposed - all offering innovative solutions. The Village on Sage Street offers 224 dorm-style rooms under 100 square feet made from pre-fabricated modular buildings. The residents will share bathrooms, laundry, meeting and recreation spaces, and outdoor gathering areas.

Located on an adjacent site, Hope Springs will soon be open with 30 units, each less than 100 square feet. Hope Springs will provide transitional housing and services to people living on the streets. A third project proposed, the I-Gen Complex, would create an Intergenerational community for very low-income seniors and students. The units will be made from shipping containers converted to 320 square feet of living spaces that include a kitchen, bathroom and laundry appliances.

**Reno is a car-dependent city.** RTC is investing in transportation infrastructure to provide residents with more transportation choices. In 2018, the alternative mode share on transportation corridors was 35% on 4th Street and Prater Way and 26.2% on Virginia Street. There was an increase in vehicle miles traveled from 2010 to 2015, as well as an increase in pedestrian, bicyclist, and vehicular fatalities.

While there are a few walkable neighborhoods in Reno, the citywide Walk Score is 38 out of 100, the Transit Score is 29 and the Bike Score is 47. This means that most commute-to-work trips and errands require a car.



# BENEFITS

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## ENVIRONMENT

Reducing auto dependence improves air quality and reduces climate pollution, and green streets and neighborhoods strengthen resilience to climate impacts.



## ECONOMY

Lower housing and transportation costs frees up financial resources that are spent in the local economy, creates jobs and generates tax revenues.



## EQUITY

Provides affordable housing and transportation options, and better access to jobs and services.



## HEALTH & SAFETY

Transit-oriented and walkable neighborhoods increases physical activity and reduces the risk of health disease, obesity, and diabetes.



# ACTIONS TO REACH

## Goals

### **1. Create vibrant, walkable centers that host a mix of uses, and feature lively public spaces that facilitate social interaction.**

Develop design standards and regulations that foster a more predictable and high-quality design outcome for the public realm and buildings in designated regional, neighborhood and employment centers and corridors.

### **2. Encourage infill development within designated regional, neighborhood and employment centers and corridors.**

Work with stakeholders to develop incentives that address market barriers.

### **3. Adopt a Comprehensive Regional Housing Strategy.**

Encourage new residential developments and multifamily projects to provide affordable housing units, and develop incentives such as density bonuses, approval through administrative or design review board, simplification of zoning regulations, streamlined permits, and reduced fees.

### **4. Partner with RTC Washoe to reduce single-occupant vehicle commutes.**

Support RTC plans to improve public transit, build complete streets, provide safe pedestrian and bicycle infrastructure, and encourage Smart Trip programs.

### **5. Collaborate with RTC on a regional EV infrastructure plan and adopt policies to accelerate EV adoption in the community.**

Leverage existing city assets such as streetlights and parking to expand EV charging at convenient locations, and require EV readiness or charging in new construction and major renovations.

### **6. Expand use of shared, micro-mobility alternatives.**

Develop regulations for the safe use of shared mobility devices such as electric scooters.

### **7. Engage residents and businesses in campaign to reduce vehicle emissions.**

Educate, engage and inspire residents and businesses through a multi-year communications campaign on a range of actions, including anti-idling, alternative commute modes, shared mobility, and electric vehicles.

## MEASURING PROGRESS

- Rise in infill development in designated areas
- Rise in affordable housing units
- Rise in low-carbon commutes

## THE STATE'S ROLE

Global Green USA, a national non-profit dedicated to advancing new policies that build sustainable and resilient communities and affordable housing, ranks the greenest states for low-income housing. In the 2017 Qualified Allocation Plans (QAP) Analysis, Nevada received a B-, placing below 29 other states.

The Governor's Office of Energy released a report that identified legislative and executive policies that can accelerate adoption of EVs and electric transportation solutions.

New strategies can be considered, including:

- Strengthen QAP criteria for Smart Growth and Transit-Oriented Communities.
- Review and implement policies to accelerate EV adoption and electric transportation solutions.





## RELATED MASTER PLAN POLICIES

### 3.4a: Transportation

**Options:** Support educational campaigns designed to increase awareness and usage of alternative transportation options when traveling to or from Downtown.

### 4.1c: Affordable and Workforce Housing Strategy:

Develop a targeted housing strategy to facilitate and incentivize the creation of affordable housing units for low-income residents and attainable housing for the city's workforce.

### 4.4a: Walkable Centers:

Support the development of walkable community/neighborhood centers that provide a variety of services and amenities to the immediate area, expand housing options, and/or provide live-work opportunities.

### 5.1c: Bicycle and Pedestrian Plan:

Collaborate with RTC on the implementation of and periodic updates to the Bicycle & Pedestrian Plan. Continue to prioritize projects designed to address "missing links" in the system and improve the accessibility of underserved neighborhoods.

### 5.1d: Complete Streets Master Plan:

Collaborate with RTC and other regional stakeholders on the implementation of and periodic updates to the Complete Streets Master Plan.

### 5.4a: Trip-Reduction

**Programs:** Support and increase awareness of programs that encourage use of alternative forms of transportation and would result in decreased vehicle trips and miles traveled, such as: RTC's Smart Trips program; Tailored trip-reduction strategies developed with major employers or other substantial generators or attractors of traffic.

### 5.4e: Bikeways and Supporting Facilities:

Encourage bikeways as part of a coordinated trip reduction program. Encourage the integration of bicycle parking, lockers and shower facilities, and other facilities as part of new development/redevelopment to encourage the use of bicycles for commuting.

### SD.28: Electric Vehicle

**Charging Stations:** Provide dedicated infrastructure such as recharging stations and/or designated parking areas for electric vehicles, hybrid vehicles, and other types of "green" vehicles.

## RELATED STAR COMMUNITIES METRICS

### Compact and Complete

**Communities:** Concentrate development in compact, human-scaled, walkable centers and neighborhoods that connect to public transit, offer diverse uses and services, and provide housing options for families of all income levels.

**Infill Development:** Focus growth and redevelopment in infill areas to reduce sprawl and demonstrate at least 51% of new residential and non-residential development occurred in locally designated infill and redevelopment areas.

### Affordable Housing

**Production:** Achieve targets for creation of new subsidized affordable housing starts identified in a locally adopted comprehensive housing strategy, or at a minimum rate of 5% with no net loss.

### Transportation Choices:

Promote diverse transportation modes, including walking, biking, and public transit, that are safe, low-cost, and reduce vehicle miles traveled to reduce drive alone journey-to-work trips to 60%.





## MOVING FORWARD

**More people want to live in walkable neighborhoods**, at least half of Americans and an even higher percentage of Millennials. Millennials make up 25% of Reno's population, and that number is growing. The lifestyle and opportunities in innovation and technology companies are attracting Millennials, who comprise 45% of the people moving to Reno. There is a disconnect between the type of neighborhoods and housing Millennials want and what is available.

Compact, mixed-use neighborhoods connected by transit and multimodal infrastructure offer greater economic opportunities because of proximity to jobs. People who live in these neighborhoods spend less on transportation and more on leisure activities. The neighborhoods are often safer because there are more eyes on the streets, and healthier because people get out and walk more.

Nevada's obesity rate is nearly 27%. Neighborhoods that promote physical activity help prevent obesity and promote health. Land-use and development policies can support active lifestyles, as well as investments in sidewalks, parks, bicycle lanes and safe streets.

**Cities are hotbeds of innovation.** Recent research proves that cities not only drive innovation, but cities are where unconventional and disruptive innovation occurs. Density, diversity, and urban design are elemental to spurring innovation. Density and good urban design, with walkable and mixed-use neighborhoods, provide opportunities for chance encounters. When people from diverse backgrounds — diverse in knowledge, types of employment, cultures, and perspectives — make connections, the clash and melding of ideas foster innovation.

**Compact development will save hundreds of millions of dollars** in infrastructure costs. The Truckee Meadows Regional Planning Agency (TMRPA) estimated that \$780 million can be saved in road, sewer and water infrastructure if 25% of forecasted housing is developed within the McCarran loop. These resources are better spent on amenities that improve livability and enhance quality of life, such as parks, bike paths and public safety.

**The City of Reno Master Plan adopted in 2017 reflects the community's brightest vision for the future and serves as the city's roadmap as it grows and evolves.** The community-based effort to prepare the Master Plan, known as ReImagine Reno, proved to be the city's largest engagement effort with more than 9,000 participants joining together to articulate a community-wide vision for the future. The vision and values were translated into guiding principles, goals, policies, and implementation strategies that make up the Master Plan.

To ensure that the Master Plan is helping the city to progress toward the community's vision, and to maintain transparency in implementation the city established a plan monitoring process and performance measures. The measures track progress toward the guiding principles and goals over time.

**Master Plan goals and policies are already having a positive effect in moving toward the community's vision.** Over the past two years, the valuation of building permits for new construction within infill and redevelopment priority areas more than doubled, from 5% and \$31 million in 2017 to 10% and nearly \$72 million in 2018.

The TMRPA and Truckee Meadows Healthy Communities Initiative lead a regional effort to create a regional housing affordability strategy so that "All residents of the Truckee Meadows

have access to a continuum of safe, accessible, and affordable housing options in neighborhoods that offer access to opportunity and a high quality of life.” The strategy recommends best practices and policies proven to increase investment in affordable housing, including inclusionary zoning, land trust, and development incentives.

The study found that 38% of households in the region are cost burdened, meaning they pay more than 30% of household income on housing. With housing and transportation costs combined, 63% of households are cost burdened – spending more than 45% of annual income, the amount considered “affordable.” In fact, the average Reno household spends more than \$12,000 each year on transportation.

### **In Reno, housing affordability is improving.**

From 2016 to 2017, households that paid more than 30% of annual income on housing costs dropped from 37% to 33%. A number of factors are contributing to housing affordability. Residents and families are benefiting from job growth. This growth is leading to an increase in median household incomes, a decline in the unemployment rate, and a decline in the poverty level.

An increase in the number of new housing units, as well as greater housing diversity is also contributing to housing affordability. In 2017 and 2018, 4,195 new dwelling units were constructed. Developers are responding to market demand by building more multifamily units, condominium and townhouses. In 2016, single-family housing dominated the market comprising 72% of all new homes. In 2018, single-family construction represented 35% of new homes, whereas multifamily units, condos and townhomes comprised 65% of the market. This shift in housing diversity aligns with Master Plan goals and policies that aim to create a range of housing options that meet the needs of residents, today and in the future.

**Density makes public transit effective.** The City of Reno can play an important role in reducing passenger vehicle use and promoting transit ridership. The Reno Master Plan outlines the policies needed to increase density in regional, neighborhood, and employment centers.

**More people are taking alternatives to single-occupant vehicles (SOV) for commuting to work.** From 2016 to 2017, the number of SOV commutes dropped from 79.6% to 75.8%. RTC

is investing in high capacity transit to improve speed, reliability and user experience along two Bus Rapid Transit (BRT) lines through designated transit-oriented corridors. However, a lack of density in some areas prohibits expansion of efficient transit services. RTC can help to catalyze investments in compact, mixed-use neighborhoods by increasing investment in Complete Streets. RTC’s Complete Streets plan identifies centers and corridors where new investments will create a safe environment for pedestrians, bicyclists, motorists, and transit riders of all ages and abilities.

Bicycle and pedestrian infrastructure will also encourage people to leave their cars behind. RTC has built 230 miles of on-street bike facilities and 86 miles of off-street facilities in Reno. The comprehensive Bicycle & Pedestrian Master Plan identifies and prioritizes 339 additional miles of sidewalk and 116 miles of bicycle facilities to be constructed by 2040.

EVs are the future. RTC has made significant progress toward its goal of operating a fully electric, zero emissions fleet on its RTC RIDE fixed-route service by 2040. RTC was one of the first transit providers in the nation to operate a zero emissions route.

Government can accelerate purchase of EVs by expanding EV charging infrastructure accessible to the public and encouraging others to invest in charging infrastructure. The state can also create programs that encourage residents and businesses to transition to EV. There is an opportunity to reduce carbon emissions from passenger vehicle use by 5% or more if just 10% of all passenger vehicles were EVs, and charging infrastructure was accessible.









RTC Washoe

# RTC HELPS TO CREATE

# *Lively Neighborhoods*

Good urban design depends on smart transportation options to get residents to work, to school and to their daily errands.

RTC of Washoe County works closely with land-use planners, private developers and economic-development experts to create lively community design that encourages use of public transportation, bicycle and walking. RTC, in turn, ensures that safe, sustainable and efficient transportation infrastructure is in place, and the agency provides leadership in educating the community about options other than travel in single-occupant vehicles.

RTC's goal is continued reduction of the number of miles that Reno-area residents travel by car each day — the figure stood at an average of 22.96 miles per day at last count — and it's using a variety of tactics to reach that goal.

The city has supported RTC's development of Bus Rapid Transit (BRT) service along the Virginia Street corridor from UNR to the Meadowood Mall, and the city worked closely with RTC to create the all electric Lincoln Line BRT service on the East 4th Street corridor as well.

Technology-savvy bus riders use the Token Transit mobile app to pay their fares, and they use the NextBus app for real-time information about bus arrivals.

The RTC VANPOOL program, a significant component of the RTC Trip Reduction program, is a successful approach to reduce single occupant vehicle (SOV) traffic on area roads. Employers such as Tesla, eBay and PPG Industries team with RTC to offer more than 150 vanpools.

RTC engineers design major roadway projects such as the SouthEast Connector to meet the needs of bicyclists and pedestrians as well as drivers. And the agency works closely with school officials to ensure that students can safely walk to school.

The transportation agency keeps a close eye on future trends, as well. RTC's sustainability plan guides investments to improve the health and economic competitiveness of the region. Anticipating the growth in EVs has encouraged RTC to collaborate with the City of Reno and others to create a regional EV infrastructure plan that will spur their adoption in the community.



# 5 | TOWARD ZERO WASTE

# GOALS

50%

2025

RECYCLING  
RATE

75%

2040

RECYCLING  
RATE

0%

2050

ZERO  
WASTE

Waste Management

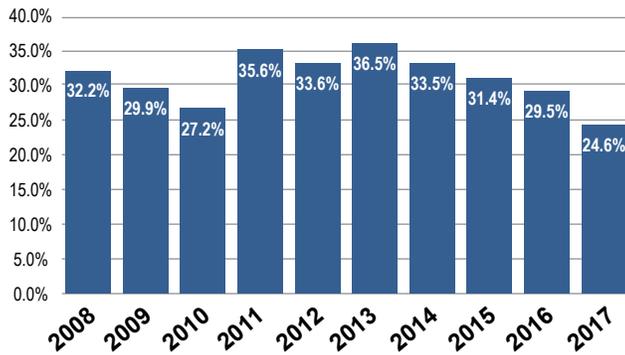
## CURRENT SNAPSHOT

**Waste generation is high.** Washoe County generates 8.1 pounds of waste per person per day, nearly double the national average of 5.9 pounds. Waste generation was relatively stable from 2009 through 2015, but as more people moved to the region, it increased to over 1 million tons in 2018 from 650,000 tons.

**Recycling is slow to catch on.** In 1991, the Nevada State Legislature adopted a recycling goal of 25%. After 26 years, the state recycling rate is 21% and Washoe County's rate is 24.5% (down from a high of 36.5% in 2013), both well below the national rate of 34.3%.



## Washoe County Recycling Rate



Source: Nevada Department of Environmental Protection

**Recycling of construction and demolition waste (C&D) is low.** Washoe County recycles 32% of C&D, compared with a national estimated rate of 70%, which supports 28,000 jobs and contributes nearly \$20 billion to the U.S. economy.

**Single stream recycling helps, but isn't perfect.** The city implemented single-stream recycling in 2014, simplifying disposal, collection, and sorting. Today, 75% of residential customers and 35% of commercial customers voluntarily recycle.



75%

Residential



35%

Commercial

Waste Management (WM) opened the Recycling Center in 2017 that uses equipment to separate cardboard and glass and pull out contamination. While single-stream recycling is convenient for customers, there is a high level of contamination - 25% of what we put in our recycling carts cannot be recycled. Contamination limits the ability to sell materials for use in manufacturing new products.

**Litter and illegal dumping cost our community millions of dollars.** Illegal dumping is a crime, a safety issue, a fire hazard, damaging to the environment, and costly to taxpayers. The city receives nearly 200 complaints about illegal dumping annually and spends over \$500,000 in staff time and equipment to clean up litter and garbage from our parks, open space and public rights-of-way, diverting resources from more critical needs. In addition, it is not just a city problem. The Washoe County Sheriff's Office responds to 100 complaints annually, and the Washoe County Health District received 250 complaints in 2015.





# BENEFITS

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## ENVIRONMENT

Conserves natural resources, protects wildlife and habitat, beautifies urban and natural landscapes, improves air quality, and reduces climate pollution.



## ECONOMY

Creates new local businesses and green jobs in recycling and manufacturing that contribute to the local economy and generates tax revenues.



## EQUITY

Helps sustain the environment for future generations, and reducing litter improves perceptions of well-being and safety.



## HEALTH & SAFETY

Eliminating illegal dumping reduces risk of fire hazard and personal injury; recycling reduces air, land and water pollution.

# ACTIONS TO REACH

## Goals

### 1. Develop a Toward Zero Waste plan.

Collaborate with stakeholders to develop a strategy for reducing waste, increasing recycling and reuse, creating local markets for recycled materials, and eliminating litter and illegal dumping.

### 2. Increase the number of single-family, multifamily and commercial buildings that subscribe to recycling services.

Encourage recycling on all properties, and require newly constructed commercial and multifamily buildings to provide space to accommodate recycling bins and collection services.

### 3. Implement a construction and demolition waste recycling program.

Explore the feasibility of expanding the C&D recycling infrastructure and markets for materials, develop tools and resources that facilitate recycling, and require waste management plans.

### 4. Compost green waste and food waste.

Work with stakeholders to assess the feasibility of green- and food-waste curbside collection for composting or use as feedstock in manufacturing and waste-to-energy facilities.

### 5. Expand local recycling infrastructure for processing waste into feedstock materials or new products.

Work with stakeholders and economic development agencies to identify high-value materials that can be diverted from the waste stream by matching feedstocks with industries to identify business opportunities.

### 6. Develop a plan to reduce litter and illegal dumping.

Work with the regional Illegal Dumping Task Force to develop an aggressive plan to reduce litter and illegal dumping.

### 7. Improve communications about waste reduction and recycling to residents and businesses.

Educate, engage and inspire residents and businesses through a multi-year communications campaign across all channels.

## MEASURING PROGRESS

- Decline in municipal solid waste (MSW) and C&D
- Rise in MSW and C&D recycling
- Decline in litter and illegal dumping complaints and waste collected

## THE STATE'S ROLE

In 1991, the Nevada State Legislature established a 25% recycling goal. Over the years, modifications addressed recycling in public buildings and encouraged recycling in commercial and multifamily buildings.

In 2011, the Nevada Legislative Counsel Bureau recommended strategies for increasing recycling and increasing the goal from 25% to 40%. Strategies focused on single-stream recycling, requirements for recycling containers at multifamily complexes, support for C&D recycling, and increased penalties for illegal dumping. New strategies can be considered, including:

- Provide financial and technical assistance to local governments
- Add the recycling sector as a new opportunity in the state's economic development strategy
- Improve quality of data through standardized industry reporting requirements





## RELATED MASTER PLAN POLICIES

**2.5H: Waste Reduction/ Recycling:** Continue to support efforts and programs that reduce the amount of solid waste entering the waste stream.

**SD.20: Solid Waste Facilities:** Provide on-site facilities to support recycling, the disposal of potentially hazardous wastes (such as e-waste), and/or composting.

**SD.25: Recycle Building Materials:** Recycle or reuse debris; strive to use building materials that are sustainably sourced, recycled, or reused.

## RELATED STAR COMMUNITIES METRICS

**Total Solid Waste:** Demonstrate progress towards achieving a 100% reduction by 2050 in total solid waste generated within the jurisdiction that is disposed of via landfill, waste-to-energy facility, or incinerator.

**Recycling Rate:** Achieve a solid waste recycling rate of 40% or greater.

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SOAR



## MOVING FORWARD

**MSW results from inefficient use of resources.** Every resident and business in Reno generates solid waste each day. We fill garbage bins with food waste, yard and garden trimmings, packaging, leftover materials from manufacturing, and products that have reached their useful life. The path to zero waste includes waste reduction and redirecting waste materials to better uses.

Recycling, a daily activity for more than 100 million Americans, diverts waste from landfills, protects the environment, stimulates the local economy, saves resources, prevents pollution, and supports public health.

**Construction and demolition generates large volumes of waste.** More than 500 million tons of C&D waste is generated each year in the U.S. – more than twice the amount of MSW. C&D materials – including steel, wood, drywall, concrete, asphalt, and shingles – can easily be captured for processing and reuse in new products.

**Landfills release potent greenhouse gases.** Most Washoe County waste ends up at the Lockwood Regional Landfill. When organic materials such as food waste, yard trimmings, wood waste, and paper break down, the process produces carbon dioxide and methane, an even more potent greenhouse gas. Methane is highly effective at trapping heat in the atmosphere, which increases global temperatures.

**The waste we generate also contributes to litter and illegal dumping.** We have all seen the images of plastic pollution choking the oceans. Litter and illegal dumping are real problems in our community as well. It affects our sense of well-being and safety, contributes to blight, diminishes enjoyment of nature, and kills plants and animals.

Litter and illegal dumping are deliberate – 43% of Americans admit to littering and 81% surveyed say their littering is intentional. We spend more than \$11.5 billion in the U.S. each year to clean up litter alone.

**A change in behaviors and new systems are needed to achieve zero waste**—behaviors that prevent waste and reduce consumption; systems that expand material reuse, recycling and composting; and investments that generate waste-to-energy in ways that do not release climate pollution.

**High value materials are dumped in the landfill.** In 2018, Washoe County Health District conducted a waste-composition study at the Stead, Incline and Sage transfer stations and found opportunities to recycle and reuse materials. More than 40% of MSW is comprised of organic materials that can easily be recycled into compost. A feasibility study can examine the costs and benefits of attracting investment in local composting and expansion of collection services to incorporate green and food waste.

more than **40%** of MSW can be recycled into compost



**15.3%**

**Yard Waste**



**22.6%**

**Food Waste**



**3.4%**

**Clean Wood Waste**

**An important step is localizing the circular economy.** Recycling is an integrated process, often referred to as the “circular economy,” involving collection, sorting, processing, and manufacturing. Without this infrastructure, recycling is often cost-prohibitive because the cost for transporting materials can far exceed the cost to landfill.

In 2018, China’s rejection of U.S. recyclables makes it even more important to establish local markets for materials. More recycling

infrastructure—facilities that separate, recover, process and use recycled materials—conserves resources and reduces climate pollution while increasing tax revenues and driving economic development. Cities with recycling rates of 75% or greater have local markets, and the potential exists to divert more than 90% of MSW and C&D.

**Recycling is an economic development opportunity.** Recycling creates at least nine times more jobs than landfilling or incineration. In 2016, the EPA reported that recycling and reuse provides 1.25 million jobs, whereas landfilling and incineration provide 250,000 jobs. Recycling and reuse generated annual payrolls of nearly \$37 billion and more than \$236 billion in annual revenues.



**More education is needed.** A recent survey of residents and businesses found they are uncertain what waste can be recycled and what waste contaminates recycling carts. WM publishes its Recycling Guide for waste that can be recycled through the city's single-stream recycling program. The guide also highlights the common mistakes and materials that contaminate recycling. Keep Truckee Meadows Beautiful (KTMB) provides its Recycling Guide for materials that can be recycled outside of single-stream recycling, such as electronics and tires. KTMB also spearheads recycling events, such as the Christmas Tree Recycling Program.

**Volunteers make a difference.** KTMB recruits over 4,000 volunteers a year to help with large-scale cleanup events like the Truckee River Cleanup Day, Great Community Cleanup, and year-round Adopt-A-Spot programs. Over the past 10 years, KTMB has worked with volunteers to collect nearly 1,000 tons of litter and garbage. KTMB also hosts an annual litter survey and assigns a litter index to each neighborhood. In many neighborhoods, litter is a visible part of our urban and open space landscapes. To learn more visit: <https://ktmb.org/our-work/clean-ups/>.





BOWMAN





**The city receives nearly 200 complaints about illegal dumping each year and spends more \$500,000 each year in staff resources and equipment alone to clean up litter and illegal dumping.** Public Works and Parks, Recreation and Community Services have more pressing maintenance needs that can be addressed if new sources of revenues are identified to pay for the cost of cleaning up litter and illegal dumping.

Reno can take an approach that many U.S. cities are embracing—hire the homeless to pick up litter. This strategy helps cities address two problems—helping homeless people get back on their feet by paying an hourly salary, providing medical insurance, and offering life-skills training, while at the same time cleaning parks and open space, downtown areas, and neighborhoods. A cost-effective model may be expansion of the Reno Works program and contracts with local non-profits to administer the program, bringing together community assistance organizations with environmental organizations dedicated to addressing littering and illegal dumping.

**Residents are willing to pay more to eliminate illegal dumping.** A 2010 survey conducted by the University of Nevada, Reno in conjunction with Keep Truckee Meadows Beautiful found:

- 69% of respondents have seen illegal dump sites
- 31% witnessed an act of illegal dumping
- 75% rated eliminating illegal dumping as important
- 83% willing to report illegal dumping, but only 15% aware of the reporting hotline
- 78% willing to pay a fee to pay of \$3.78 per year for cleaning up illegal dump sites
- 71% willing to pay \$3.89 per year for increased law enforcement and prosecution

Litter and illegal dumping is a community-wide issue, and the cost to address this problem should be shared by the community as a whole.



# WASTE MANAGEMENT REDUCING

## *Carbon Emissions*

The city's solid waste and recycling franchise agreement with WM facilitated a transition to single-stream recycling, brought a new recycling processing facility to the community, added household hazardous waste events, and initiated WM's transition to a compressed natural gas (CNG) fleet. CNG, a cleaner burning fuel, emits less air pollution and carbon emissions.

In the three years after single-stream recycling was initiated in 2014, Reno recycled 64,037 tons of paper, plastic, metal, glass, e-waste and food waste, avoiding 154,156 metric tons of carbon pollution. Our recycling efforts are equivalent to saving enough electricity to power 15,066 homes each year, and saved enough timber resources to produce more than 8 million sheets of paper.

Twice a year, WM hosts household hazardous waste (HHW) drop-off events that are free to local residents for the first 50 pounds and \$1 per pound thereafter. Events in 2017 and 2018 resulted in processing 141,324 pounds of HHW.

WM set a goal to reduce carbon emissions from its fleet 45% from 2010 to 2038. Transitioning to the quieter CNG-powered trucks contributes toward that goal. From 2014 to 2018, WM purchased 67 CNG trucks to serve Reno, with plans to order 8 - 10 more per year from 2020 - 2025. By the end of 2019, the CNG fleet will grow to 83 trucks. Every diesel truck replaced with CNG reduces carbon emissions by 14 metric tons each year. In Reno, that means

a reduction of 784 metric tons in 2017, 1,162 by 2020, and 1,302 by 2025.

Efficient logistics and reduction of idling effectively reduce carbon emissions from fleet operations. More efficient routes means fewer miles traveled, translating into reduced fuel consumption and associated emissions. Since 2017, WM's Service Delivery Optimization (SDO) initiative has streamlined routes and their anti-idling program has reduced fuel consumption.

To reduce methane emissions, WM built a gas-to-energy power plant at the Lockwood Regional Landfill. The plant's generators produce 3.2 MW of electricity, enough renewable energy to power over 1,800 homes. Since 2014, WM has captured almost half of the methane generated from decomposition of trash, saving 21,285 metric tons of climate pollution.

WM also invests in innovative companies that transform waste materials into higher value products such as Fulcrum, which processes MSW supplied by WM into an engineered feedstock. The feedstock is eventually refined into low-carbon jet and diesel fuels. Construction of Fulcrum's first plant near Reno will be completed in 2020. The facility will convert 175,000 tons of MSW to 10.5 million gallons of transportation fuel each year. The \$280 million capital investment will create 500 construction jobs, 120 green jobs, and 1,000 indirect jobs.



# 6 | HEALTHY, EQUITABLE URBAN FOREST

# GOALS

10%

2036

URBAN TREE  
CANOPY

100%

2040

FAIR  
DISTRIBUTION  
OF TREES

City of Reno, Riverside Park

## CURRENT SNAPSHOT

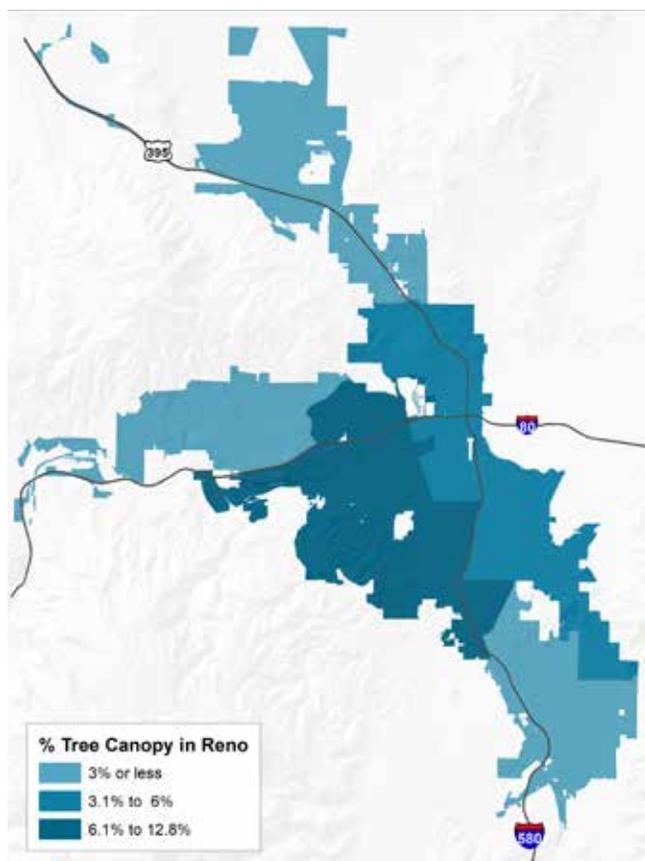
In 1982, Reno became the first city in Nevada to earn Tree City USA designation. While still recognized as a Tree City USA, Reno's canopy coverage is low. American Forests recommends 15% canopy cover as a baseline for desert cities. In 2012, an Urban Tree Canopy Assessment was completed for the Truckee Meadows region with a grant from the Nevada Division of Forestry and U.S. Forest Service. Reno's canopy measured in at 5.2%, far below the recommended baseline.



Urban forests are vital to the health and well-being of our community. Trees have a positive effect on human behavior, traffic patterns, crime rates, air quality, storm-water runoff, and property values. Reno’s urban forest provides more than \$20 million in annual stormwater and air pollution benefits. Trees also provide shade during hot summers, help to block chilling winds in winter, provide visual buffers and soften buildings and structures, and provide habitat for birds and wildlife.

Trees are not distributed equitably throughout the community. Tree canopy cover by ward ranges from 1.2% to 12.8%. The Old Southwest and Old Northwest neighborhoods have double to five times the canopy cover of other neighborhoods. The age of these older neighborhoods is an underlying factor of the canopy coverage. However, a strong correlation also exists between socio-economic factors and canopy coverage—higher-income neighborhoods have significantly higher canopy coverage.

**Percent Tree Canopy by Neighborhood**



# ACTIONS TO REACH *Goals*

## 1. Develop an implementation plan to guide tree-planting activities throughout the city.

Identify suitable tree-planting areas, develop achievable targets for smaller sub-areas, and prioritize tree-planting locations based on Reno’s canopy coverage and tree inventory to guide fair allocation of resources throughout the city.

## 2. Expand the ReLEAF Reno public/private partnership.

Explore opportunities to establish an endowment, expand community support for maintaining and enhancing the city’s tree canopy, provide incentives to plant and maintain trees on private property.

## 3. Develop an urban forestry volunteer service program.

Establish an urban forestry volunteer service program, provide education and training, and manage tree care, stewardship, and planting projects.

## 4. Adopt best practices in tree planting specifications and preservation.

Integrate the Urban Forestry Plan into the Title 18, Article 12 update and incorporate international best-practice specifications and requirements for tree protection and preservation. Increase compliance and enforcement of regulations.

## 5. Encourage best practices in tree care and preservation.

Provide education and training and create technical resources for tree care professionals and residents.

## 6. Collaborate with regional partners to update recommended tree list.

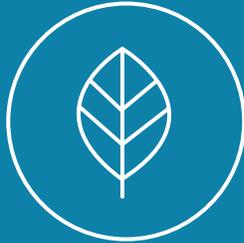
Update the recommended tree list to ensure the city is using a range of species that are well adapted to the climate and conditions and contribute to a healthy and diverse tree canopy.

## MEASURING PROGRESS

- Rise in urban tree canopy coverage
- Rise in equitable distribution of tree canopy

# BENEFITS

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## ENVIRONMENT

Improves air and water quality, absorbs carbon dioxide, reduces storm-water runoff, lowers ambient temperatures, and provides habitat for wildlife.



## ECONOMY

Attracts businesses and supports tourism, increases retail sales, improves property values, and reduces heating and cooling costs.



## EQUITY

Equitable distribution ensures all residents enjoy the benefits provided by trees, improves neighborhood character, and provides cooling relief during summer.



## HEALTH & SAFETY

Trees reduce stress, enhance quality of life, improve perceptions of safety, and contribute toward traffic calming.





## RELATED MASTER PLAN POLICIES

**7.7A: Urban Forestry Management Plan:** Support implementation of goals, objectives, and action items defined by the City's Urban Forestry Management Plan.

**7.7B: Tree Installation, Retention, and Replacement:** Support the retention of healthy, mature trees and the incorporation of new trees in public and private spaces as part of public improvement projects, new development, infill / redevelopment, and major renovations. Establish criteria for the replacement of mature trees in instances where retention is not feasible due to location, site constraints, or other factors.

**7.7C: Water Conservation & Resilience:** Continue to promote the use of species that have reduced watering needs once established and that have an increased likelihood of surviving and thriving amidst the periods of extreme drought and harsh temperature changes.

**7.7D: Community Partnerships:** Promote community partnerships and expand educational opportunities to emphasize the benefits of the urban forest.

**C-NC.4: Tree Canopy:** Provide and/or maintain detached sidewalks with parkways and street trees to enhance the character of neighborhood corridors; increase the comfort, safety, and enjoyment of pedestrians and bicyclists; and reduce the heat island effect.

## RELATED STAR COMMUNITIES METRICS

**Create or Enhance Forestry Programs:** Increase the jurisdiction's tree canopy through active planting, care, and management.

**Green Infrastructure and Heat Island Mitigation Distribution:** Demonstrate that 85% of the population lives within a reasonable distance from a heat island mitigation feature such as localized cooling through tree canopy cover.





## THE STATE'S ROLE

The Nevada Division of Forestry (NDF) is an important partner in the City of Reno's efforts to expand the urban forest canopy. The NDF offers technical assistance and grants that may be applicable to the city's goals. Further initiatives may include:

- Increased investment in local government programs to increase the urban forest canopy.
- Collaboration with local governments to secure federal funding to expand the Forest Nurseries program to reduce the cost of trees for urban forestry programs.
- Support local efforts to create urban forestry volunteer service programs.
- Ensure Nevada Department of Transportation infrastructure projects contribute toward local tree canopy goals, and implement best practice in landscaping specifications and maintenance.
- Provisions in conservation bonds for investment in urban forestry.

## MOVING FORWARD

**Urban forestry is the art, science, and technology of managing trees and natural systems in and around urban areas for the health and well-being of communities.** Urban forests sometimes are called “green infrastructure” to emphasize the value trees have as public assets, a value similar to buildings, roads, bridges, streetlights, and sewer systems. Like any infrastructure, trees require regular care and maintenance to ensure that they do not decline prematurely, remain safe, and provide maximum return on investment. Unlike other infrastructure, trees appreciate in value over time. The bigger they are, the greater the benefits they provide.

**The City of Reno’s Urban Forestry program is the oldest in the state of Nevada.** Members of the Urban Forestry Commission work with city staff to maintain trees in parks and along street rights-of-way, and to expand the urban forest. In 2016, staff and the Commission developed Reno’s Urban Forestry Management Plan. The 2012 Urban Tree Canopy Assessment helped to inform the goals and activities.

The plan established a goal to double Reno’s urban forest canopy to 10% in 20 years, or by 2036. It will take a community effort to reach that goal by planting 130,000 new trees throughout Reno. The city has already made progress by integrating the goals and objectives of the Urban Forestry Management Plan into the updated Master Plan. The next steps are to review, update, and modify tree planting specifications and retention requirements as part of the Annexation and Land Development Code update, and to adopt landscaping standards for public street projects, with a focus on major streets and gateways.

To meet this challenge, the city must also find new resources to support its Urban Forestry program to expand tree planting, care and preservation activities. The city will need to create more opportunities for the community to participate in tree-planting efforts in spaces such as parks, open space, and public rights-of-way.

The public must also embrace this goal because 71% of the available planting locations are on residential property while less than 8% is on public lands, so education and outreach to the community will be critical to success.

Neighborhoods with poor tree-canopy coverage are denied the benefits trees provide. Increasing canopy coverage takes years to decades because

new trees need time to grow and develop a mature canopy. In the coming years, neighborhoods with younger tree-canopy coverage and those that receive new trees will begin to see the benefits trees provide, benefits that including lower ambient temperatures, increased property values, lower rates of childhood asthma, reduced crime, and a better quality of life.

Another challenge to the city’s urban forestry program is that existing trees are often watered inconsistently in low-income neighborhoods and areas with a high number of renters. In Reno, the majority of households are renters and 43% of all households are cost-burdened, meaning they pay more than what is considered affordable for housing and transportation costs combined. These property owners or renters may not be aware of tree watering needs or simply see it as an additional cost. City crews must then spend time removing street trees that die due to lack of water. This reduces the tree canopy and diverts resources from preventative care and tree planting.

To expand the tree canopy on both public and private property, the city will need to evaluate current policies. Education and outreach is also needed to engage the community and raise awareness about the nominal cost of planting and caring for trees, and the range benefits trees provide to residents and neighborhoods.









In 2016, the City launched ReLEAF Reno to preserve and expand Reno's urban forest. This program engages the community to help expand the urban forest through tree planting events. The program also aims to engage residents, businesses and community organizations to help expand the urban forest in one of three ways:

1. Donate to the city's ReLEAF program, which provides funds for the city to plant and maintain trees.
2. Maintain the health of street trees and trees on private property through proper watering and care.
3. Pledge to plant a new tree on private property and provide watering and care to keep trees healthy.

Since 2016, the community has contributed \$7,320 to ReLEAF Reno. The average cost of planting a 2 to 2.5-caliper tree is about \$225, so the contributions will help to plant 33 new trees in Reno. The city's annual tree planting budget is \$40,000, enough to plant 178 trees. In 2018, through ReLEAF Reno, the city's Urban Forestry Program, and community partnerships the city was able to plant a total of 432 trees (we also lost 35 trees).

Many communities have turned to volunteer service programs to expand and care for urban forests. Reno cannot achieve our goal without the participation of residents and businesses who plant and nurture trees on public and private properties. Public lands and rights-of-way represent only about 5% of the overall possible planting area within the city, whereas residential zoned properties comprise 66% and commercial and industrial properties comprise 14%.

Service programs provide education to youth and residents on tree care, pruning, and planting. Volunteers also plant trees. For example, the Tree Tenders Program in the Philadelphia area trained over 3,000 residents, who then helped to plant nearly 300,000 trees from 2007 to 2015.

Many of the urban-forest challenges arise from poor communication between stakeholders. Educating companies, architects, and homeowners about proper tree care and maintenance is essential to preserve and enhance our tree canopy.

**Only about 189 acres of suitable tree planting areas are available on property owned by the city**, including facilities, parks, and street rights-of-way. The city must prioritize areas for tree planting and create design standards that promote tree growth and health. The standards must take into consideration the stress that urban areas have on trees. Urban soils are often compacted and low in nutrients, water sources are limited, and ambient temperatures are higher.

Downtown trees are often planted in small tree boxes without sufficient soil volume, and with tree grates and tree cages that damage trees as they mature. Improved design standards and specifications will help to expand the urban forest canopy, and tree preservation practices support the long-term health of trees.

The city invests more than \$2 per capita on planting and caring for trees in parks and along streets every year, which yields two to five times that investment in benefits to the community. We need to know that our trees are receiving the best care available from industry professionals. The Urban Forester works with local tree-care and landscape companies and nurseries, and issues permits for the pruning, removal, and planting of trees within street right-of way, parks, and other city properties. To ensure that the people who plant and care for trees have the highest credentials, the city can work with local and state partners and the International Society of Arboriculture to provide an arborist training and technical assistance program, as well as continuing education for certified arborists.



City of Reno, ReLeaf Reno

# RELEAF RENO BUILDS COMMUNITY THROUGH

## *Tree Planting*

Enhancing the urban forest canopy in Reno requires the combined efforts of the city government, community fundraising, committed volunteers and homeowners who are mindful of the value of trees.

That's exactly the combination created by ReLEAF Reno, an ambitious initiative spearheaded by the City of Reno's Urban Forestry Commission.

Barely more than 5% of the city is shaded by the canopy of the urban forest today, and ReLEAF Reno works hard to increase the environmental, financial and psychological benefits provided by widespread tree-planting.

Since the initiative was launched on Arbor Day in 2016, residents have donated cash to finance tree plantings by ReLEAF Reno. Groups such as Rotary International (which works to increase tree plantings worldwide) and the Church of Jesus Christ of Latter-day Saints have volunteered to plant trees at locations such as

Dodson Elementary School in southeast Reno. And hundreds of homeowners have committed themselves to protecting the trees on their properties and planting new trees.

ReLEAF Reno has proven to be an effective tool, too, in building community support for a thriving canopy of trees in residential and business neighborhoods.

The program has helped residents understand the ways that trees capture carbon dioxide, a major contributor to global warming. Reno's urban forest provides an estimated \$21 million a year in economic benefits as it reduces air pollution and captures stormwater runoff.

Residents have learned too, that trees reduce heating and cooling costs by as much as 25% while improving property values. In fact, established trees are estimated to add 10 to 20% to the value of residential and business properties.

Not least, ReLEAF Reno draws attention to the powerful psychological benefits of trees, which provide homes for birds and wildlife, lessen noise and glare and feed the soul by the reduction of stress.





# 7 | ACCESS TO FRESH, HEALTHY FOOD

# GOALS

50%

2025

GROWTH IN  
HEALTHY  
FOOD ACCESS

25%

2025

GROWTH IN  
LOCAL FOOD  
ASSETS

0%

2030

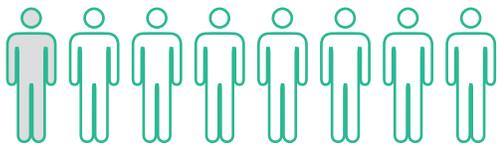
ZERO  
HUNGER

Lattin Farms

## CURRENT SNAPSHOT

**The food system contributes 20-30% of global climate pollution.** Emissions stem from fertilizer production, agriculture, processing and packaging, cold storage and distribution, sales, and food waste. Cities that expand urban agriculture and direct farm-to-consumer sales play an important role in the transition to a low-carbon food system. Cities also reduce food waste through composting and food-recovery programs.

**Food security is increasing in Washoe County.** Residents who are food secure have the money or assistance to purchase affordable, nutritious food. In 2015, 87% of county residents were food secure. However, only 78% of county children were food secure. Statewide, 1 in 8 people and 1 in 5 children struggle with hunger. Children and seniors disproportionately experience food insecurity.



**1 IN 8**

**People in Nevada  
Struggles with Hunger**

**Access to fresh, healthy foods has increased**, but only 17% of residents live within a walkable quarter-mile of a healthful retail food outlet such as a grocery store or farmers market. From 2014 to 2016, the number of grocery stores in Reno increased from 37 to 51, and the percentage of residents living within a quarter-mile of grocery stores increased from 12.3% to 16.8%.

**The local food movement is gaining momentum in Truckee Meadows.** The number of Community Sponsored Agriculture (CSA) programs and farmers markets established in Reno has increased. As of 2014, there were six documented community gardens, 14 school gardens, nine farmers market sites, 115 local food product suppliers, and six CSA providers in Washoe County.





# BENEFITS

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## ENVIRONMENT

Preserves farmland, genetic diversity and wildlife habitat, reduces food miles and food waste to lower carbon emissions.



## ECONOMY

Expands local food commerce, increases farm profits, leads to the creation of new products, creates green jobs, and generates tax revenues.



## EQUITY

Builds social capital and community cohesion, creates inclusion through culturally diverse foods, and supports family-run farm businesses.



## HEALTH & SAFETY

Increases access to fresh, healthy foods, and improves diet and nutrition.

# ACTIONS TO REACH

## Goals

### **1. Collaborate with regional partners to expand acceptance of SNAP/EBT/WIC and senior food assistance benefits.**

Support and expand expansion of food assistance benefits, and require farmers market organizers to accept food assistance benefits.

### **2. Encourage development of grocery stores in underserved communities.**

Encourage grocery store development in “food deserts” and explore opportunities to connect organizations with the Healthy Food Financing Initiative.

### **3. Facilitate urban farms, community gardens, farmers markets, community-supported agriculture, raising of farm animals, greenhouses and hoop houses, and food recovery.**

Amend zoning and land-use regulations to increase access to land, streamline licenses and permits, reduce fees, and provide technical assistance for urban farms and community gardens in parks, neighborhoods, blighted lots, and other locations. Incentivize incorporation of community gardens in planned residential developments. Support food-recovery.

### **4. Provide support to farmers and ranchers seeking to preserve working lands.**

Develop resources, provide technical assistance, and establish partnerships that maximize federal, state and local resources to purchase working lands and open spaces or preserve lands through conservation easements.

### **5. Encourage expansion of direct farm-to-consumer sales.**

Establish a food sovereignty coalition — including agencies such as TMWA and the Washoe County Assessor — to study, identify and implement sensible and achievable codes, policies and requirements that eliminate barriers and reduce costs for urban farms and community gardens and expand local control of food grown, processed, and sold directly to consumers.

## MEASURING PROGRESS

- Decline in food insecurity
- Decline in food deserts
- Rise in local food assets



## THE STATE'S ROLE

The Nevada Legislature has approved provisions for cottage food operations, farm-to-fork events, and establishment of school garden programs. State law allows cities and counties to establish urban agriculture zones, and developers can earn points toward Low Income Housing Tax Credits if a development includes a community garden space.

A 2012 assessment of community needs throughout Nevada found that food security was the most critical issue. In 2014, the governor established by executive order the Council on Food Security. During the 78th legislative session three bills were passed and approved by the governor addressing food insecurity. The 80th Legislature created the Council on Food Security in statute as well as the Food for People, Not Landfills Program, both of which are approved by the Governor. Further initiatives may include:

- Increase meal reimbursement rates to create parity between child and senior meal programs.
- Adopt a state goal for food recovery.
- Eliminate regulatory barriers to local food sector, and create laws that support growth.





## RELATED MASTER PLAN POLICIES

### 6.5A: Local Food

**Production:** Allow community gardens, demonstration gardens, small-scale agriculture, community supported agriculture, and the raising of some animals for food purposes to expand food production within Reno and throughout the region. Explore the feasibility of integrating community gardens and/or fruit and nut trees into parks, neighborhoods, or other locations where irrigation can be provided using existing facilities and a formal maintenance agreement can be established.

### 6.5B: Food Sales and

**Processing:** Remove barriers to the sale, processing, and distribution of fresh, locally-grown foods at all scales.

### 6.5C: Food Access:

Coordinate with schools, food banks, local farmers, health and human services, and others in region to expand access to healthy foods.

### 6.5D: Food Security:

Work with regional partners on initiatives to increase awareness of available local, state, and federal food aid programs; improve food security of local families/individuals; and build resiliency of region's food system.

**6.5E: Education:** Support educational opportunities that teach residents about healthy eating habits, nutrition, food production, food waste reduction, gardening, gleaning, and other related topics.

**6.5G: Working Lands:** Support efforts to retain and continue to operate existing urban farms, as well as to use lands planned for other uses for food production where viable.

## RELATED STAR COMMUNITIES METRICS

### Infill & Redevelopment:

Support temporary, creative neighborhood uses for vacant properties and greyfields such as farmers markets, community gardens, and food truck pods.

### Food Security & Assistance:

Demonstrate an increase over the past 3 years in the percentage of people who are food secure.

### Access to Healthful Food:

Demonstrate an increase over the past 3 years in the percentage of residents within a walkable quarter mile of a healthful retail food outlet.

### Working Lands Protection:

Demonstrate an increase in the acreage of working lands in the jurisdiction, or no net loss of working lands within 5 miles of the jurisdictional boundaries.

### Working Lands Production:

Demonstrate an increase over the past 3 years in the production of goods from local working lands, or an increase over the past 3 years in sales from goods produced on local working lands.

### Certified Management

**Practices:** Increase the percentage of working lands that use certified management practices for a locally selected industry over time.





## MOVING FORWARD

**Local food systems provide communities with many benefits** for consumers and producers, as well as the environment and local economy. Locally produced foods can increase farm incomes, create new green jobs, and improve access to fresh produce, meats, and dairy products. Nevada is home to over 4,000 farms, and agriculture production contributes \$760 million to the state economy. However, most of the food consumed in Nevada is imported. Expanding the local food sector will reduce leakage of dollars from the community's economy.



**The Food Bank of Northern Nevada provided more than 15 million meals in 2018.** Federal programs to provide assistance to purchase food include the Supplemental Nutrition Assistance Program and WIC, a nutrition program for women, infants, and children. The city can support increased participation in these programs. For example, the city can support farmers market organizers with deploying technology that accepts purchases using SNAP or WIC food assistance dollars.

In 2018, more than \$25 million in food assistance was spent at farmers markets or direct sales from farmers in the U.S.

More than 10,000 seniors in Washoe County are food insecure, raising their susceptibility to chronic disease and mental health problems such as diabetes and depression. SNAP and other benefits are available to seniors, but the U.S. Department of Agriculture (USDA) reports only 42% of eligible seniors take advantage. The city can assist in outreach activities to connect more seniors to the benefits.

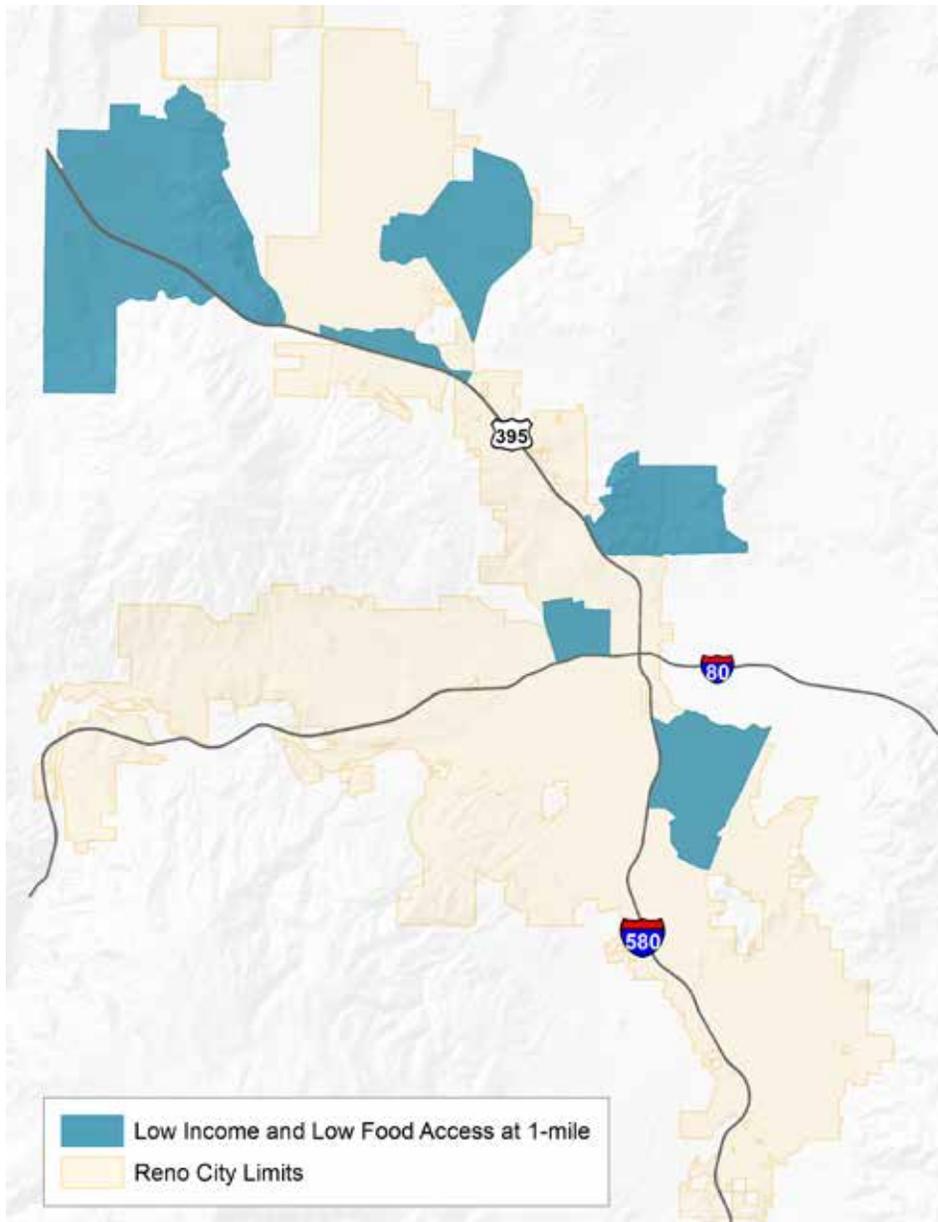
**Households that have access to a grocery store eat more fruits and vegetables and have lower obesity rates.**

Food deserts are areas where a percentage of low-income households are without an automobile and are a mile or more from the nearest grocery store. A number of North Valleys neighborhoods and neighborhoods surrounding the Reno-Tahoe International Airport are food deserts.

Many cities are taking proactive steps to encourage grocery store development in food desert areas through zoning, permitting and financial incentives.

The federal government Healthy Food Financing Initiative, a collaboration between the USDA, Treasury, and Health and Human Services, provides grants, low-interest loans, financial assistance, tax credits, and specialized training and technical assistance to organizations and businesses that are providing healthy food options in underserved communities.

## USDA Food Access Atlas Maps Food Deserts in Reno



**Farmland preservation is more important than ever.** The 40-45 certified farmers in the Truckee Meadows and Carson Valley are at risk as residential and commercial developments encroach upon working lands.

Demand for local foods is increasing. A survey found nearly 80% of consumers want to buy more local food; almost 60% say locally sourced, grown, and made food is important to their buying decision; and more than 50% would pay a premium for local food.

One of the more effective strategies for expanding the local food system is the

increased direct farm-to-consumer sales. The city can bring stakeholders together to create policies that support local food expansion, while protecting health and food safety. Reduced fees, lower water costs, and a streamlined permitting process may be essential to expanding the local food sector. Another consideration is to allow urban agriculture to operate as a home occupation, and permit off- or onsite sale of goods produced by the farm with reasonable restrictions.





Food Bank of Northern Nevada

# THE FOOD BANK OF NORTHERN NEVADA: FIGHTING FOOD INSECURITY

*Since 1983*

Food insecurity, as defined by the USDA, is access by all people at all times to enough food for an active, healthy lifestyle. The face of food insecurity in Washoe County may come as a surprise to most. Many people most readily associate food insecurity with the homeless population. The reality is that more than one in 10 Washoe County residents are food insecure, and of these people, approximately 75% of them live in a household with a full or part-time employed individual. These individuals and families are choosing between buying food and paying their housing and transportation costs, utilities, or purchasing medication.

The Food Bank of Northern Nevada (FBNN) serves residents across northern Nevada, encompassing 14 counties within their service area. Its' vision for the future is, "*Healthy food. Every person. Every day.*" Of the 92,000 people served each month, around

63% reside in Washoe County and more than half are seniors and children. FBNN has been fighting these statistics since the early 1980s. Along with distributing enough food for over 15 million meals annually, the FBNN provides programming and assistance on nutritional education, SNAP outreach and education, school food pantries, the Kids Cafe after school and summer food assistance program, and senior food assistance programs.

One program, *Bridges to a Thriving Nevada*, addresses poverty, the root of food insecurity. By using a three-pronged approach to educating impoverished individuals, this initiative is able to create lasting change resulting in a more sustainable and food secure present and future for Nevada residents.

FBNN works with over 140 partner agencies and direct service programs to fight hunger. FBNN also relies on the generosity of community members that volunteer to help sort and pack food at the distribution center, distribute food in the community, facilitate special events, and more.





# 8 | SAFEGUARD WATER RESOURCES

# GOALS

100%

HIGH-QUALITY  
WATER  
STANDARDS

100%

SOURCE  
WATER  
PROTECTION

25%

2025

MORE GREEN  
INFRASTRUCTURE  
& WATERWAYS  
RESTORATION

City of Reno, Downtown Reno

## CURRENT SNAPSHOT

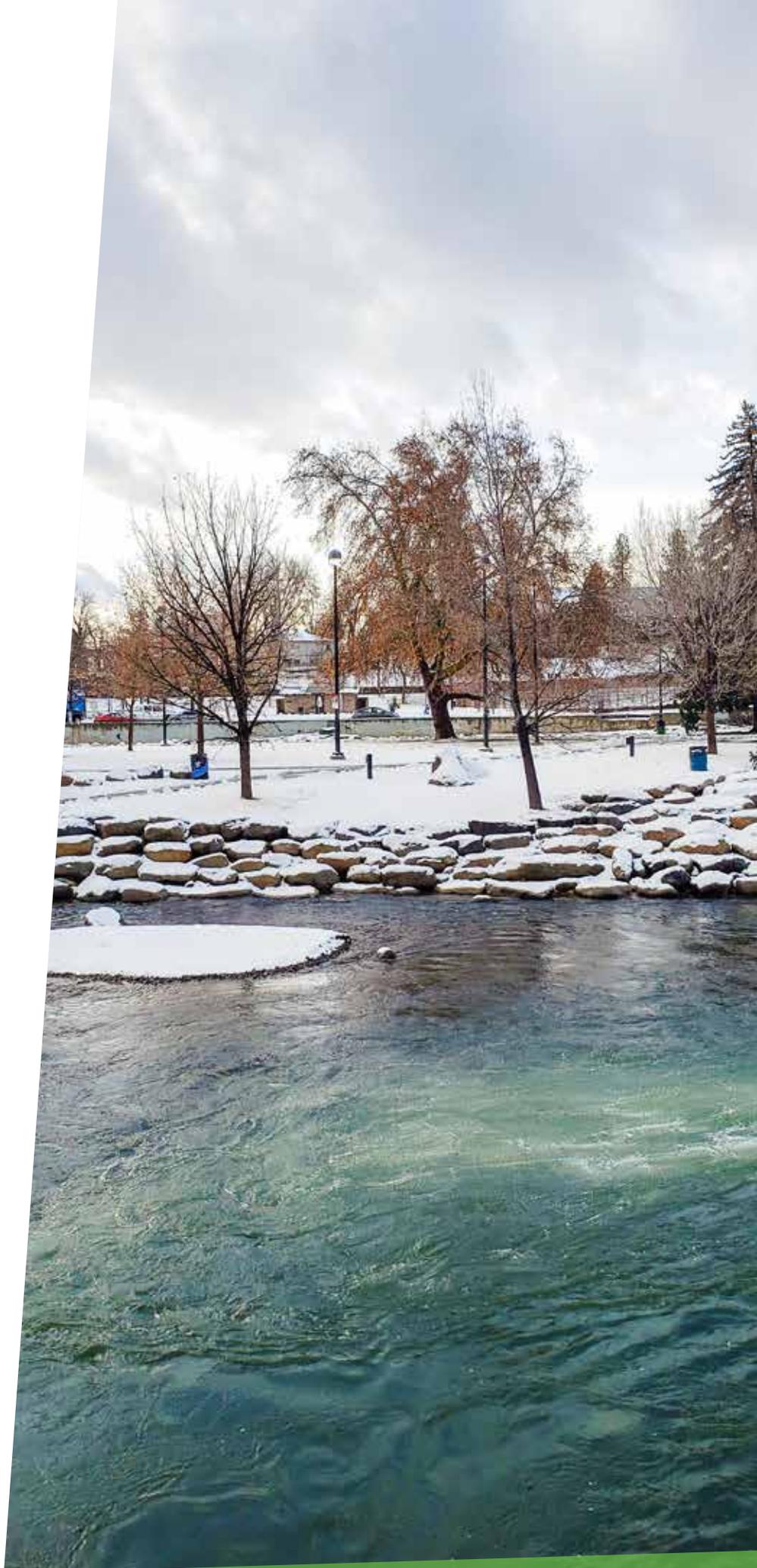
**The Truckee River is our primary source of water** supplied by the Truckee Meadows Water Authority (TMWA). The river flows for 120 miles from Lake Tahoe to Pyramid Lake in the Nevada desert. The river, an irreplaceable natural resource, provides 85% of the region's drinking water and critical habitat for many species of plants and wildlife. The river's water quality is excellent, and TMWA's skilled staff and efficient water treatment ensures our water meets the highest standards.

**TMWA consistently provides high-quality drinking water**, and is one of many organizations contributing to our quality of life. TMWA meets the highest standards set by the U.S. Environmental Protection Agency through the Safe Drinking Water Act. In fact, TMWA is one of only 18 water utilities to receive the President's Award from the Partnership for Safe Water. TMWA also implements best practices for planning and management of our water supply, treatment and delivery systems, water conservation through infrastructure improvements, and education and outreach to its customers.

Besides its rights to Truckee River water, TMWA also owns more than 90 production wells that supply on average 15% of our water from groundwater sources. The city can support TMWA in its efforts to safeguard groundwater or surface water resources. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances from animal or human activity. These substances may include introduced pollutants, such as pesticides, metals, chemicals, and oil, as well as naturally occurring contaminants, such as bacteria and nutrients. These substances can contaminate groundwater wells and surface water sources.

**Clean water does not happen by accident.** Stormwater that runs off homes and buildings, driveways, and streets into the storm drain system goes into our drinking water supplied by the Truckee River and infiltrates into groundwater. The City of Reno, City of Sparks and Washoe County work together to prevent pollutants from entering the Truckee River from the storm sewer system. The Truckee Meadows Stormwater Management Program was designed to ensure the health of local waterways, streams and the Truckee River.

One of the many outcomes of this program was development of the Truckee Meadows Structural Controls Design and Low Impact Development Manual (LID). By following these standards, construction projects and new developments can treat stormwater onsite to reduce runoff and provide landscape features to improve water quality and groundwater recharge. The city demonstrated LID on multiple projects across Reno, including a retrofit of the historical McKinley Arts & Cultural Center building and park.





# BENEFITS

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## ENVIRONMENT

Green infrastructure helps to manage stormwater and enhance climate resilience, and watershed restoration protects habitat, fish and wildlife, and ecosystems.



## ECONOMY

Supports recreation along the river that contributes to the local outdoor industry, creates recreation and outdoor industry jobs, and generates tax revenues.



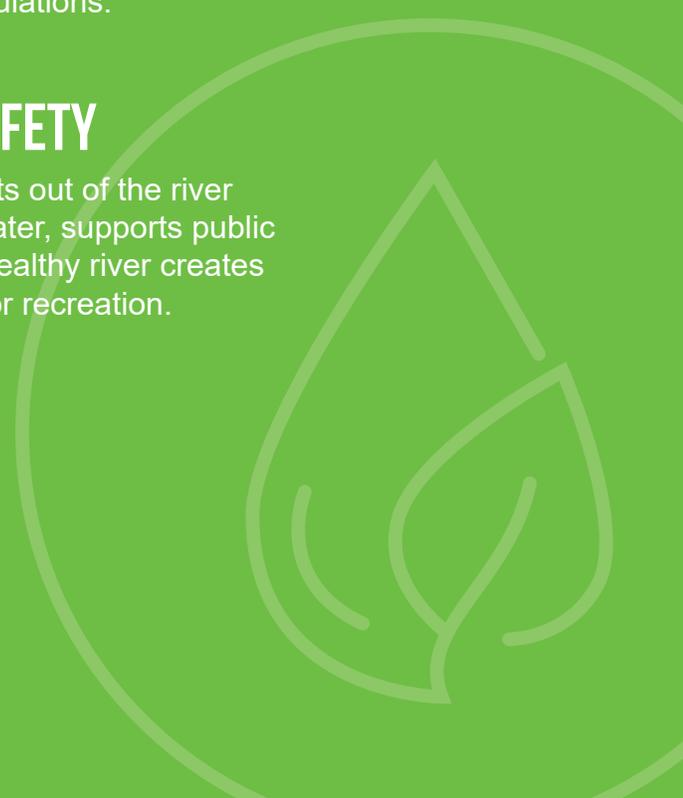
## EQUITY

Ensures customers stable and affordable water costs, and improves health outcomes for vulnerable populations.



## HEALTH & SAFETY

Keeps pollutants out of the river and drinking water, supports public health, and a healthy river creates opportunities for recreation.



# ACTIONS TO REACH

## Goals

### **1. Protect sources of water supply and promote responsible water use in partnership with Truckee Meadows Water Authority.**

Collaborate with TMWA and partners to ensure source water protections are in place through the city's Title 18 update. Support efforts to raise awareness about water conservation and responsible water use, and to communicate consistent messaging through a coordinated education campaign.

### **2. Support One Truckee River to protect the health of the river, improve access for residents and visitors, create an engaged community, and ensure collaborative management of the river.**

Identify One Truckee River goals that may be addressed through the Title 18 update to incorporate best practice for watershed protection, stream and river buffers, and public access. Increase compliance and enforcement of regulations. Provide long-term funding and participate in implementation of the One Truckee River Management Plan.

### **3. Promote LID, green infrastructure and sustainable site development that replicate natural hydrology to manage significant storm events.**

Enforce the Construction Site Best Management Practices Handbook and Truckee Meadows Structural Controls and LID Manual. Encourage use of new,

innovative stormwater management practices to protect water quality and maintain natural hydrological cycles. Conduct cost/benefit study of conventional practices as compared to LID, green infrastructure and sustainable site.

### **4. Expand beneficial use of wastewater.**

Evaluate options for expanding beneficial use of wastewater to handle projected increases in wastewater flows, and to provide an alternative water resource for irrigation, industrial and other allowed uses.

### **5. Showcase and recognize leadership in conservation and sustainable site practices.**

Integrate water conservation and sustainable site management into the annual green building awards program, and recognize leadership through case studies and social media.

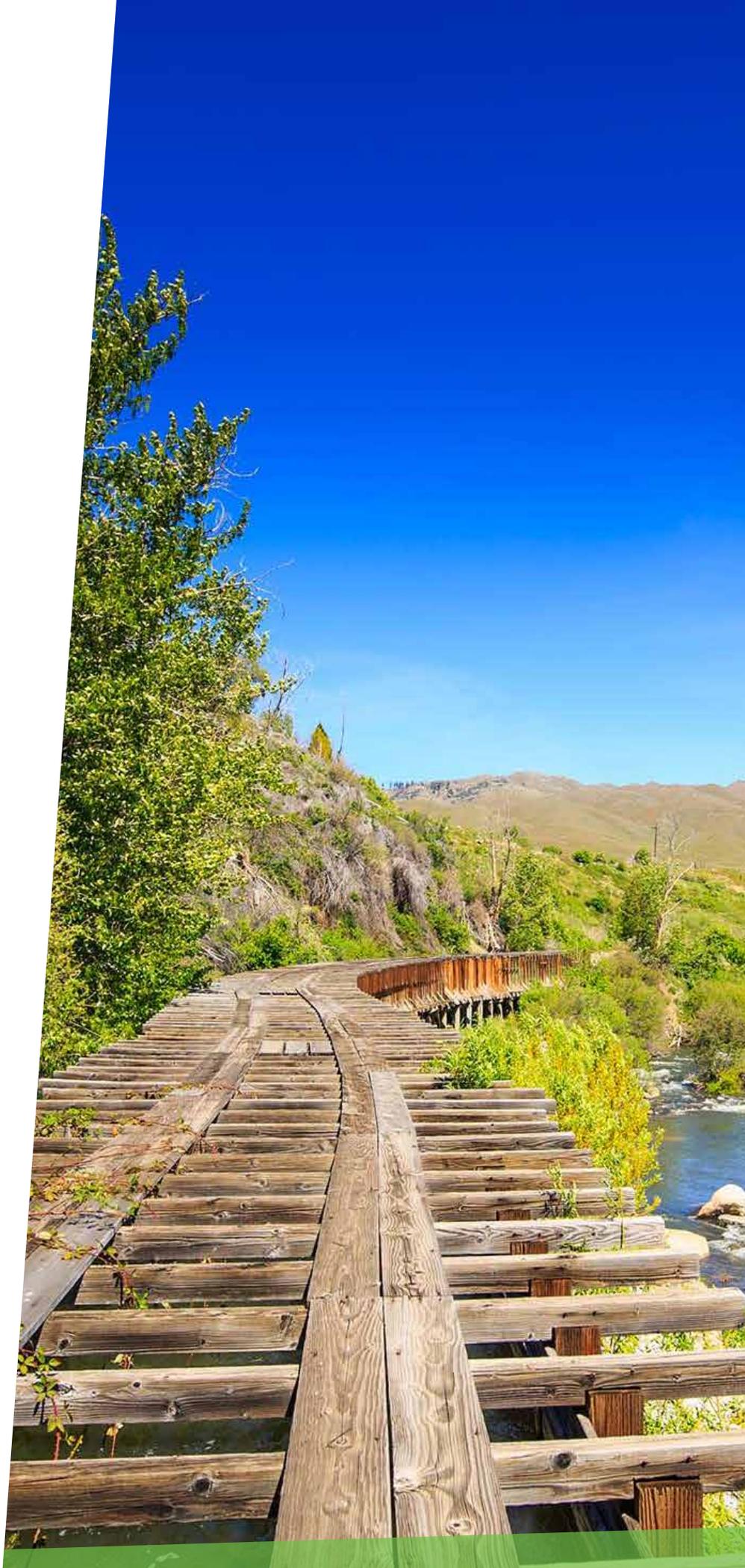
## MEASURING PROGRESS

- Rise in source water protection
- Rise in green infrastructure & waterways restoration



## THE STATE'S ROLE

The Nevada Department of Environmental Protection is leading an effort with counties, regional agencies, and water purveyors to support local efforts to develop Integrated Source Water Protection (ISWP) plans. These plans will address preventable contamination to Nevada's public sources of drinking water, with the primary goal the protection of ground water that is captured in wells and springs. The state can continue to support our community in completing an ISWP Plan.





## RELATED MASTER PLAN POLICIES

**2.4C: Water Supply:** Support the efficient and reliable management of surface water and groundwater resources by promoting TMWA efforts and directives to develop and manage water resources and provide water supply in accordance with its Cooperative Agreement.

**2.4D: Water and Wastewater Operations and Planning:**

Participate in operation and planning decisions affecting water and wastewater systems and in periodic updates to and implementation of the Regional Water Management Plan.

**2.5C: Drought Tolerant Landscaping:**

Require landscaping which utilizes drought tolerant plant materials, efficient irrigation, incorporates soil amendments to support plant health and resiliency, and other low water usage practices.

**2.5D: Treated Effluent:**

Encourage the reuse of treated effluent in new residential, commercial, and municipal developments, where supporting infrastructure exists or is planned, and proposed usage is consistent with the Regional Water Management Plan.

**2.5F: Stormwater Best Management Practices:**

Adopt low impact development (LID) standards for development and promote the use of green infrastructure for stormwater filtration and the reduction of impermeable surfaces on a site.

**7.1D: Hydrologic Resources:**

Protect the quality and functions of significant hydrologic resources and major drainageways.

**7.1E: Major Drainageways:** All major drainageways should be retained, protected, restored, and managed.

## RELATED STAR COMMUNITIES METRICS

**Drinking Water Quality:**

Demonstrate that the community is not in violation of EPA's drinking water rules for chemical and microbial contaminants in water pipes and turbidity.

**Safe Wastewater**

**Management:** Demonstrate that all NPDES permit holders, including publicly owned treatment works (POTWs), are in compliance with Clean Water Act effluent and reporting guidelines.

**Domestic Water Use**

**Per Capita:** Demonstrate achievement of 10% reduction in community domestic water use per capita since 2010.

**Green Stormwater**

**Infrastructure:** Demonstrate that 35% of the jurisdiction's land area has designated green stormwater infrastructure providing bioretention and infiltration services.

**Wetlands, Streams, and**

**Shoreline Buffers:** Achieve no net loss of wetlands, streams, and shoreline buffers.

**Watershed Usability:**

Demonstrate that all non-industrial water bodies are swimmable and fishable during 90% of days in the past year.

## MOVING FORWARD

**We live in a high-desert climate with an average annual rainfall of seven inches per year.** Because water in our region is a precious and limited resource, TMWA encourages responsible water use. TMWA's water conservation program helps customers to save money through a range of technical assistance programs, resources and services. TMWA's efforts to raise awareness and provide educational opportunities for residents has paid off, especially in dry years when the community has consistently stepped up to conserve water. Classes, tours and home visits by a staff of conservation consultants are reinforced through ads, mailings, commercials and social-media.

By joining TMWA as a partner, the city can amplify TMWA communications and build a more informed, actively engaged community equipped to take ownership of its role in managing our precious water resources.

**Protecting groundwater is the best approach to preventing contamination of drinking water.** Existing property uses and new development projects can negatively affect the quality and safety of drinking water. Contaminants come from many sources such as households improperly disposing of common products such as cleaners, waste oil, pet waste, fertilizers and pesticides. Businesses can threaten water quality through improper disposal of chemicals, such as those used by dry cleaners, photo shops, salons, cemeteries, landfills, and petroleum companies.

TMWA is working with the Nevada Department of Environmental Protection (NDEP), Washoe County, the Truckee Meadows Regional Planning Agency, the City of Reno and others to implement better protections that will safeguard public health. The ISWP will protect the land area around the wells that serve as a source of drinking water by preventing

contaminants from reaching the well. The city can support these efforts by incorporating aspects of the ISWP into the Title 18 update.

**Our community came together to create the One Truckee River Management Plan.** This plan reflects a regional collaboration of private and public agencies with a common goal of protecting the Truckee River ecosystem, wildlife, resources, and recreation. All three jurisdictions, the City of Reno, the City of Sparks and Washoe County, approved this ambitious plan in September 2016. The One Truckee River Management Plan outlines four main goals:

1. Ensure and protect water quality and ecosystem health in the Truckee River.
2. Create and sustain a safe, beautiful and accessible river connecting people and places.
3. Build an aware and engaged community that cares for the river.
4. Ensure the measurable, sustainable and collaborative management of the river for today and into the future.

It's time to begin to implement the plan. Implementation will require commitments from each jurisdiction—staff time, financial resources, new partnerships, and increased collaboration. An example of regional cooperation is the investment of more than \$28 million by the Truckee River Flood Management Authority, The Nature Conservancy and numerous local, state, and federal agencies and non-profit organizations to restore portions of the lower Truckee River ecosystem. More than 450 acres of habitat have been created and more than 8 miles of the river restored. McCarran Ranch was the first section completed, followed by areas at 102 Ranch, Lockwood, Mustang Ranch and below Derby Dam. These projects include reconnecting plants with the river, slowing the water down to allow for the riverine forest to re-grow, providing bank stabilization and nutrient uptake, and recreating a balanced habitat for sensitive species on our lower river.









**Stormwater runoff can affect the health of local waterways, streams and the Truckee River.** The City of Reno, City of Sparks, and Washoe County work together to manage stormwater in a way that reduces pollutants entering the storm sewer system. The region's stormwater pollution prevention program offers a range of public resources, education and training, as well as standards that promote best management practices and LID. The program extends throughout the Truckee River watershed, including tributaries. Through watershed health assessments and water-quality testing, areas for tributary and river restoration have been identified. The city needs a mechanism to fund restoration projects.

Green infrastructure is another tool to protect and improve watershed health and water quality. Green infrastructure can be natural — an interconnected network of waterways, wetlands, woodlands, wildlife habitats, and other natural areas. It also can be man-made systems that mimic natural systems for retention and infiltration of stormwater. Rain gardens, bioswales, porous pavement, and green roofs are examples of engineered systems.

Nevada has a long history of using effluent from wastewater treatment plants for beneficial uses, such as irrigation and industrial processes. Beneficial use of effluent provides a non-potable water source year round. It can improve the water quality of the Truckee River. However, most of the water must be returned to the river to satisfy downstream water rights holders, maintain in-stream flows and protect critical fish habitat.

The city joined the University of Nevada, Reno and regional water resource agencies to form the Nevada Water Innovation Institute. This cooperative program will help the community develop and implement innovative water solutions that address regional needs. One of the innovative projects is exploring advanced water purification technologies and the potential to return purified effluent to the ground to recharge wells. This initiative will help the community to better manage water resources in the future.



City of Reno, Downtown Reno

# ONE TRUCKEE RIVER PROTECTS THE RIVER FOR OUR *Children and Grandchildren*

The Truckee River nourishes the soul, the natural environment and the vibrant life at the heart of our city.

The river belongs to no one.

And yet it belongs to everyone.

The Truckee River's importance to the community is recognized in One Truckee River, an innovative collaboration of public and private partners.

Since 2016, One Truckee River's partners — including the City of Reno, City of Sparks and Washoe County — have worked together to realize a river that flows clean and clear, quenches our thirst, sustains the natural ecology, cultural resources and wildlife along its course and connects residents and visitors to the Truckee River's many opportunities for recreation and regeneration.

It's a big job spearheaded by two local nonprofits — the Nevada Land Trust and Keep Truckee Meadows Beautiful.

The One Truckee River team is closely studying, for example, the quality of the water that flows into the river from storm drains throughout the city. It's working

with existing programs to remove pollutants and improve water quality.

The collaborative effort is working, too, to improve public access to the Truckee River, particularly as the river flows through the urban area from West McCarran Boulevard to Sparks Boulevard. Improvement to pathways is under consideration. Steps to discourage illegal and unruly activity along the river are a priority.

One Truckee River strongly supports, the many efforts already under way to reduce the impact of homeless people who find shelter along the river.

Yet another primary goal of One Truckee River is nurturing the awareness and support of a community that protects and cares for the river — today and in the future. That awareness begins with education, and extends into measurable and sustainable initiatives that protect the river for our children and grandchildren.

Dozens of strategies have been identified to protect and enhance the beauty and future of the Truckee River. With the support of elected leaders across Truckee Meadows for the One Truckee River Management Plan, that vision is becoming reality.





# 9 | STRENGTHEN CLIMATE RESILIENCE



# GOALS

## 3

2025

RESILIENCE  
BUILDING  
PROJECTS

Reno Fire Department

### CURRENT SNAPSHOT

Climate resilience means building the capacity of a community to “bounce back” after climate-related hazardous events such as flooding, wildfire and drought. Enhancing resilience reduces risks associated with climate impacts. Risks affect everyone: city government, businesses and residents. Risks include economic disruptions from property loss, damage to infrastructure or communication assets, increased health and public safety concerns, and population displacement.

As the fastest warming city in the U.S., Reno already experiences the impacts of a changing climate. Over the past 50 years Reno’s average annual temperature has climbed 1.39 degrees Fahrenheit per decade. The impacts of climate change — less snowpack, multi-year droughts, dramatic increases in flooding, and more frequent wildfires — have shaken perspectives and challenged assumptions about our future. Climate change will affect the natural environment and the health and safety of families. It may affect the economic growth that is creating prosperity for Reno businesses and families.

For example, scientists found climate change played a significant role in nearly doubling the land area burned by forest fires in the western U.S. over the past three decades. Warmer temperatures and less spring rainfall increase dryness. More dry vegetation creates more fuel that feeds fires. Researchers found that each degree of warming leads to an exponential increase in wildfire area. The cost for battling wildfires, land area burned and property loss is likely to grow from year to year.

**In 2017, Nevada ranked second among the 50 states in the number of acres burned by wildfires,** and move.org named Nevada the third most dangerous state for wildfires. There were 768 wildfires across Nevada that burned 1,329,289 acres. The Bureau of Land Management alone spent an average of \$52 million annually over the past five years on preparation, wildfire suppression, and wildfire rehabilitation in Nevada. That doesn't account for state or municipal costs. And, Verisk Wildfire Risk Analysis ranked Nevada the 12th most wildfire-prone state in 2017 with 63,500 households — 5% of total households — facing high or extreme risk from wildfire.

Strengthening resilience against wildfires and other climate-related impacts will reduce the damage to ecosystems and critical areas such as sage grouse habitat and will reduce costs for combating hazards, property loss, and public health impacts.





# BENEFITS

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## ENVIRONMENT

Protects critical habitat areas, reduces flood, drought and wildfire impacts, and reduces air quality impacts.



## ECONOMY

Reduces costs for responding to climate-related hazards, property losses and disruptions in the local economy.



## EQUITY

Ensures every resident is more prepared, and protects more-vulnerable residents through the just distribution of resilience building investments.



## HEALTH & SAFETY

Reduces health impacts caused by air pollution and extreme heat by increasing public awareness and preparing residents.

# ACTIONS TO REACH

## Goals

### **1. Assess climate-related risks and develop a regional climate resilience plan.**

Partner with universities, colleges and organizations to identify and map critical climate-related risks, conduct a resilience-needs assessment that identifies vulnerable populations, as well as social, economic, and cultural resources available, investigate options for reducing risks, and prioritize actions and investments for strengthening climate resilience and providing protections for vulnerable populations.

### **2. Educate, engage and motivate the community to enhance resilience.**

Develop and implement a public education and outreach campaign and engage the community to strengthen resilience, at both the individual and regional levels, to improve the community's capacity to respond and adapt to climate-related hazards.

### **MEASURING PROGRESS**

- Rise in resilience to climate-related risks
- Decline in risk and exposure for vulnerable populations

### **THE STATE'S ROLE**

The governor and legislature can support state and local efforts to strengthen climate resilience by directing the Nevada Division of Emergency Management (NDEM) to include climate-change impacts in planning documents and programs. NDEM can coordinate efforts across state agencies to identify climate-related hazards, assess vulnerability and risk, and develop plans for strengthening resilience state-wide. NDEM can also support local governments in developing climate-resilience plans and making investments in projects that help to reduce risk.



## MOVING FORWARD

**Resilience planning will strengthen our capacity to adapt and thrive** no matter what challenges we face from natural and man-made hazards.

In *What Climate Change Means for Nevada*, the National Climate Assessment and EPA paint a grim picture of Reno's future. Higher temperatures will lead to decreased snowpack, shorter skiing and winter sports seasons, and reduced economic activity related to tourism. Because snowpack is our primary source of water, less water will be available for people and industry. Higher temperatures and less water will result in longer and more severe droughts, less water for ranching and farming — one of Nevada's most important industries — and more frequent and intense wildfires that put people and property at risk. The Great Basin's unique ecosystems and landscapes will be at risk. Also at risk will be the health of residents, especially the health of more vulnerable residents — children, seniors, the chronically ill, and the poor.

**Reno's average annual temperature has increased nearly seven degrees over the past 50 years.** The last decade has seen an even more significant increase in temperature. The summer of 2018 marked the hottest summer on record for Reno, surpassing a record set just the previous year. Summertime temperatures broke two other records as the city recorded 56 consecutive days with temperatures 90 degrees or higher, and 20 days with temperatures 100 degrees or higher. Extreme heat creates public health impacts when vulnerable populations, such as the homeless, seniors and low-income residents, don't have air conditioning or other options for relief.

Extreme heat events are projected to increase in magnitude and frequency. Urban areas experience higher increases in temperature than rural areas due to the surfaces that absorb heat, such as roofs and pavement. This is referred to as the "urban heat island effect." The EPA recommends five strategies for reducing the urban heat island effect:

- Trees and vegetation
- Green roofs
- Cool (reflective) roofs
- Cool (reflective) pavements
- Smart growth





City of Reno, Idlewild Park

## RELATED MASTER PLAN POLICIES

**6.2A: Integrated Planning and Decision-Making:** Integrate hazard mitigation and resilience considerations into the plan and development review process and as part of available mapping to increase awareness of the associated risks and costs, and to promote informed decision-making when development is proposed for consideration in high-risk areas. Discourage or mitigate development in areas recognized to be at risk from natural or man-made hazards as described in this section.

**6.2B: Regional Mitigation Planning:** Participate in the implementation of and periodic updates to the Washoe County Regional Hazard Mitigation Plan and collaborate with regional partners to assess climate risk and vulnerabilities and identify areas of increased burden for vulnerable populations.

**6.2J: Resiliency of Infrastructure and Facilities:** Develop mitigation strategies, redundancies, and back-up systems, or consider relocation of city infrastructure and facilities located in high-hazard areas. Where relocation and redundancies are not feasible, seek to upgrade existing and build new infrastructure and facilities designed to withstand a greater degree of stress or damage. Work with regional service and utility providers to ensure their infrastructure and facilities are protected as well.

## RELATED STAR COMMUNITIES METRICS

**Climate Resilience:** Demonstrate a measurable reduction in vulnerability and/or increase in resiliency to three community-wide risks and one at-risk population group.

**Reduce Risk and Exposure:** Demonstrate progress in reducing the risks and exposure to priority environmental justice conditions for priority neighborhoods.

**Community Emergency Management:** Demonstrate that the emergency management community is prepared to manage emergency incidents involving all threats and hazards.

**Location Specific Hazards:** Reduce over time the number of homes below code standards that are located in designated high-risk areas or the percentage of residents living in designated high-risk areas, and reduce over time the critical infrastructure below code standards that is located in designated high-risk areas.

**Full Community Hazards:** Demonstrate a measurable reduction in vulnerability and/or increase in resiliency to existing community-wide hazard threats over time.

**Natural Resource Protection:** Protect, enhance and restore natural ecosystems and cultural landscapes to confer resilience and support clean water and air, food supply, and public safety.





**There is already an increase in wildfires.** RFD works closely with regional and state partners to prepare for and battle wildfires. During the 2017 fire season, the RFD responded to and assisted federal, state and local firefighting agencies with 122 personnel and 25 apparatus to 43 wildland fires in seven states. In 2018, 155 personnel and 24 apparatus respond to 54 wildfires in eight states. RFD also assisted in mitigating two federally declared disasters in 2017 — the January flooding of the Truckee River and spring flooding in the North Valleys — both of which directly affected the citizens of Reno.

The Nevada Division of Forestry (NDF) is an important partner that provides wildfire protection statewide through its Wildland Fire Protection Program. The program helps local governments and residents to reduce the risk of wildfire through education on prevention tactics such as creating defensible space. NDF also reduces fuels that increase wildfire risk, such as cheatgrass and other invasive species. RFD looks to the Wildland Fire Protection Program to provide financial assistance with wildland fire costs and increased suppression resources to help reduce the risk of wildfire in the city.

**The region also will see an increase in the number, size and frequency of rain-on-snow**

**flooding events.** There have been seven major floods in the Truckee Meadows region since 1950: the floods of 1950, 1955, 1963, 1986, 1997, 2005, and 2017. The damage ranged from \$2 million from the 1963 flood to \$650 million and 23 deaths in the 1997 flood. Damage in the last two major floods totaled \$30 million in 2005 and \$3 million in 2017.

In the past decade, the city and regional partners have invested in flood control projects including the Virginia Street Bridge, McCarran Ranch restoration along the Truckee River, and storm-drain improvements. More flood management investments are needed to reduce flooding along the Truckee, as well as along tributaries and in other flood-prone areas.

The 2014 Washoe County Regional Resilience Study assessed changing weather patterns and the range of effects on government services, the health and well-being of residents, natural systems, and the economic security of businesses. Climate-change impacts will affect the local economy and have the potential to compromise infrastructure such as roads and communications. The region will see more poor air-quality days, and ecosystems and critical habitat that supports wildlife will be altered. There will also be human health impacts from increased disease and illnesses to the spread of new vector-borne diseases.

**The National Oceanic and Atmospheric Administration provides a framework for building climate resilience** through the U.S. Climate Resilience Toolkit. This comprehensive planning framework can inform the update of the Regional Disaster Recovery Plan developed by Washoe County, City of Reno, City of Sparks, Pyramid Lake Paiute Tribe, and Reno Sparks Indian Colony to ensure effective, coordinated recovery from a disaster. Resilience planning will require a broader range of stakeholders at the table, and engagement with local universities, colleges and research institutions that can inform the process through the most current, localized research on climate-related impacts.

# EDUCATING AND ENGAGING RESIDENTS A FIRST STEP IN

## *Building Resilience*

Fire and water are the likely manifestations of climate change in the Reno area, but careful planning today can build resilience.

Those findings come from the “Washoe County Regional Resiliency Study” commissioned in 2014 by the county’s Office of Emergency Management & Homeland Security.

The study, which based its recommendations on data researched by The Western Regional Climate Center of the Desert Research Institute, found that the biggest effect of climate change in the Reno area is likely to be more rain and less snow each year. Even though the total amount of precipitation may not change, the region’s water infrastructure has been designed to capture the dependable flow of melting snow. We’re not so well prepared to capture and use rainfall.

A second major impact of climate change, the study found, is likely to be more wildfires. The fire danger will rise as precipitation patterns shift, and spring, summer and autumn months become dryer. More fires, in turn, will bring more bad-air days.

The study provides nearly 90 suggestions to prepare the region to address climate change, and most of the options are fairly simple. Expansion of existing programs — educating residents about the need for water conservation, for instance, or encouraging defensible space around buildings in fire-prone areas — will strengthen the region’s resilience to climate change.

Other suggestions from the study range from steps to discourage development in flood-prone areas to greater emphasis on tree-planting to cool urban areas as temperatures rise.

Look no farther than the new Virginia Street bridge over the Truckee River to see how good planning and careful decision-making can improve the community’s resiliency.

Serious safety and traffic concerns were growing at the old bridge, a 100-year-old structure well past the end of its useful life. But as engineers designed a new structure, they also ensured that the new structure could withstand the sort of major flood that may become more common with climate change. The new bridge is higher than the old bridge, so more water can flow beneath it. Its design doesn’t require a center pier that would allow debris to pile up. Floodwalls on each side protect the structure from erosion.

In most instances, the Washoe County Regional Resiliency Study says, residents and leaders of the community won’t be able to precisely predict the specific changes that will occur as the result of climate change.

A resilient community, the study’s researchers say, is one that unflinchingly keeps climate change in mind and adjusts its plans to provide the flexibility that will be needed to face a wider variety of possibilities in the future.







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City of Reno

This Sustainability and Climate Action Plan was developed through a broad stakeholder process over the course of a year. The City of Reno extends its gratitude to the individuals and organizations that contributed to this effort. It was truly a regional collaboration. These organizations, as with so many other organizations within our community, are helping to create a healthier environment, stronger economy, and improved well-being for all residents throughout the city.

The City's Sustainability and Climate Advisory Committee used a collaborative and consensus-based process to lay the groundwork for development

of the Plan. The Committee established the Priority Goals and Guiding Principles. From this framework, the city invited a range of stakeholders to lend their expertise through a task-force structure.

The city enlisted nearly 200 volunteers representing 100 organizations, including county, regional and state agencies, non-profit organizations, industry associations, universities, utilities, and private corporations, as well as students and residents.

These volunteers brought a diversity of perspectives and expertise and provided

a formidable brain trust for informing the goals and actions identified in this plan. The content of this document is due to the unprecedented efforts and collaboration of these dedicated volunteers, city staff members, student interns, and others. This level of community engagement represented over 1,000 volunteer hours, and built a constituency of supporters and leaders that will help to implement the plan and actions.

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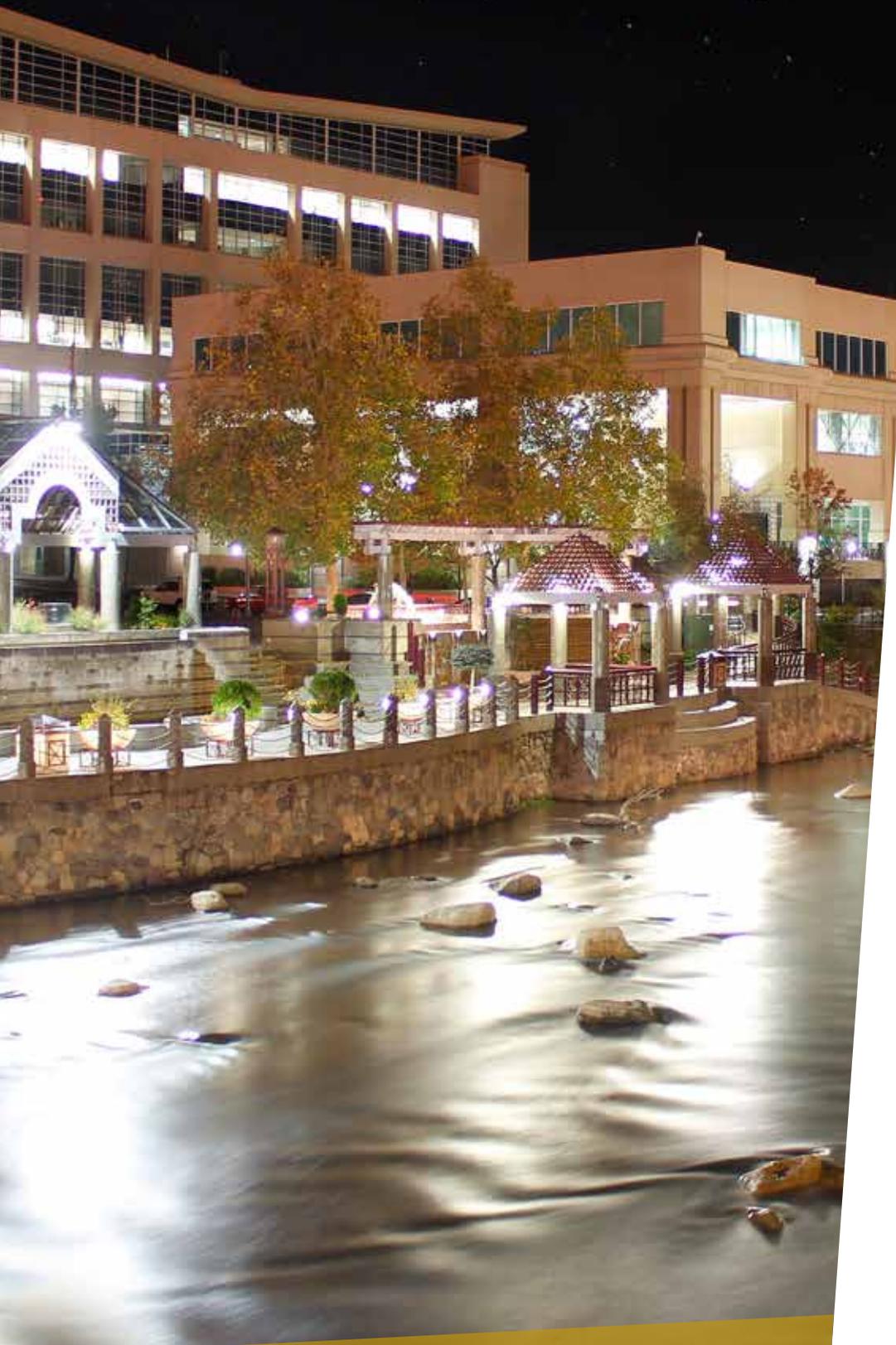
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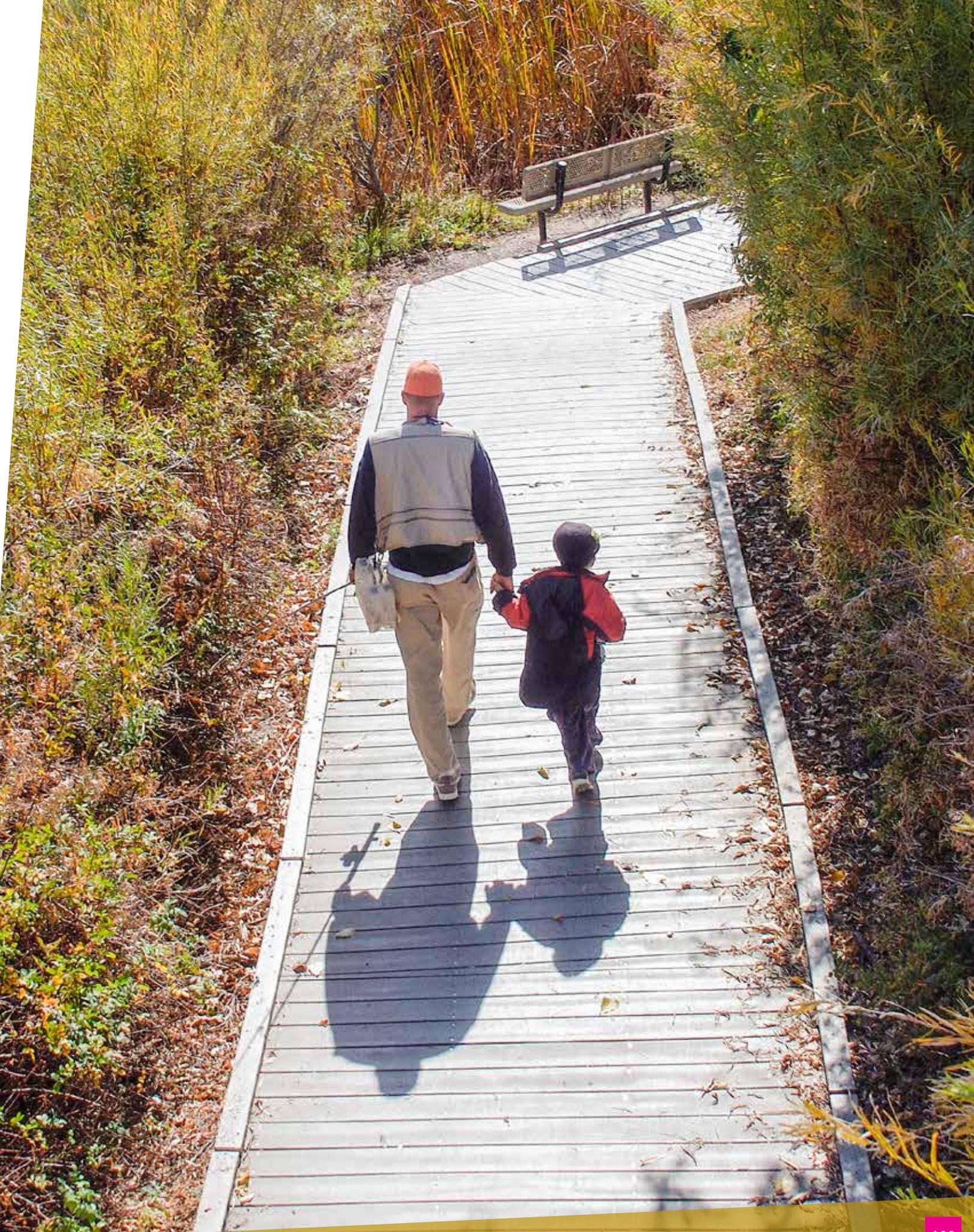
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