



**CITY OF HENDERSON 2020**

# **SUSTAINABILITY REPORT CARD**





# LETTER FROM THE MAYOR

The City of Henderson has a long tradition of planning for the future, with an unwavering emphasis on achieving our vision of being recognized as America's Premier Community. The future health and prosperity of our community is being shaped by our active citizenry, robust private sector, dedicated public employees, and engaged City leadership. Our strategic priorities that support this vision include community safety, livable communities, economic vitality, quality education, and a high-performing public service.

Henderson is blessed with a beautiful and diverse natural environment in which our residents live, work, learn and play. Maintaining our high quality of life and achieving the goals we have set for the future requires the wise management of natural resources upon which our community depends and protecting the quality of environment enjoyed by our residents and visitors. Clean water, clean air, green spaces and natural areas, effective waste management and efficient transportation options are foundational elements of any successful future we can envision for our community.

Henderson has historically integrated sustainability considerations into our day-to-day operations through our long-term efforts to continually improve the efficiency of our City government and to minimize the costs associated with our operations. It is the way we do business, and the support of our residents and business community has contributed to our success in the following areas and others:

- The City has reduced its estimated CO2 emissions from electricity purchases by 43% from 2005 to 2018.
- The City's total electric usage increased only 11% from 2005 to 2018, despite the City adding a lift station, a police substation, a fire station, a senior center, an aquatics center and jail expansion among other projects.

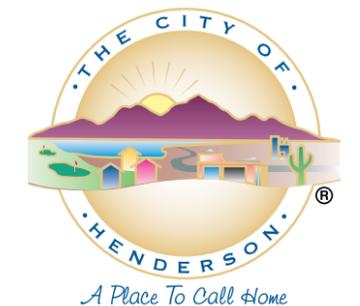
- With the permanent adoption of the City's water conservation regulations and enforcement practices, per capita water usage has decreased from 250 gallons per day in 2012 to 231 in 2019.
- The City of Henderson has been recognized for the last 29 years as a "Tree City", with over 30,000 trees maintained across the community.
- Natural gas consumption by the City has decreased by 35% while the square footage of facilities has doubled.

Measuring and sharing information about our performance as an organization helps us to increase awareness about important sustainability issues and to track the progress of our combined efforts. By striving to make our community more sustainable, we are making it more resilient and better able to successfully manage the changes and overcome the challenges the future will inevitably bring. Our children and grandchildren will enjoy the benefits that accrue from the work we do today.

I am very proud to present the City of Henderson's 2020 Sustainability Report Card and believe that the results presented clearly demonstrate our firm commitment to wise stewardship of resources, both natural and fiscal. My sincere thanks to all who have contributed!

A handwritten signature in black ink that reads "Debra March".

Mayor Debra March  
City of Henderson



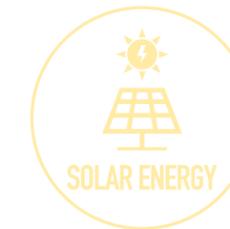


Henderson **reduced** estimated CO<sub>2</sub> emissions from electric purchases by **more than** **40%** from 2005 to 2018.

Analysis shows that the **City reduced its estimated CO<sub>2</sub> emissions** from electric purchases by **43% from 2005 to 2018**. Estimated emissions from electric purchases in 2005 was 66,400 tons, and estimated emissions from electric purchases in **2018 was 37,600 tons**, a reduction of **43%**. This reduction is more than the **26%-28% reduction** target stated by the U.S. in 2014 as part of the lead-up to the Paris Climate Agreement.



HYDROELECTRIC



SOLAR ENERGY



WIND ENERGY

## Henderson Has Transitioned Electric Purchases to Emissions-Free Resources

In 2005, nearly all of the City's electricity purchases were derived from fossil fuel sources. Beginning in 2017, the City added federal hydropower from Hoover Dam to its power supply, bringing carbon-free renewable energy into its portfolio. More recently, the City has negotiated a significant increase in the amount of renewable energy that will be supplied by NV Energy and within the next 4 years this is expected to result in the majority of our energy purchases being from solar, wind and hydro power sources.

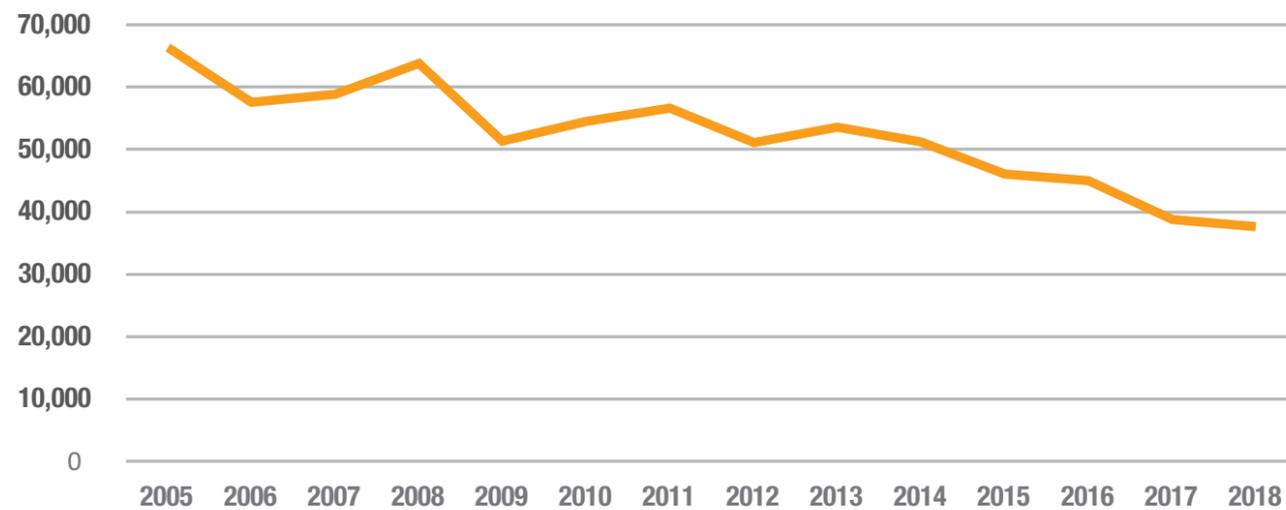
## Reduction in Electric Usage From Energy-Efficiency Projects

The City has pursued several energy-efficiency projects between 2005 and 2018. These projects have the dual benefit of reducing the City's total electric cost and reducing carbon dioxide emissions because of less total electricity being purchased. The City's total electric usage increased only 11% from 2005 to 2018, despite the City adding a lift station, a police substation, a fire station, a senior center, an aquatics center, and jail expansion, among other projects.

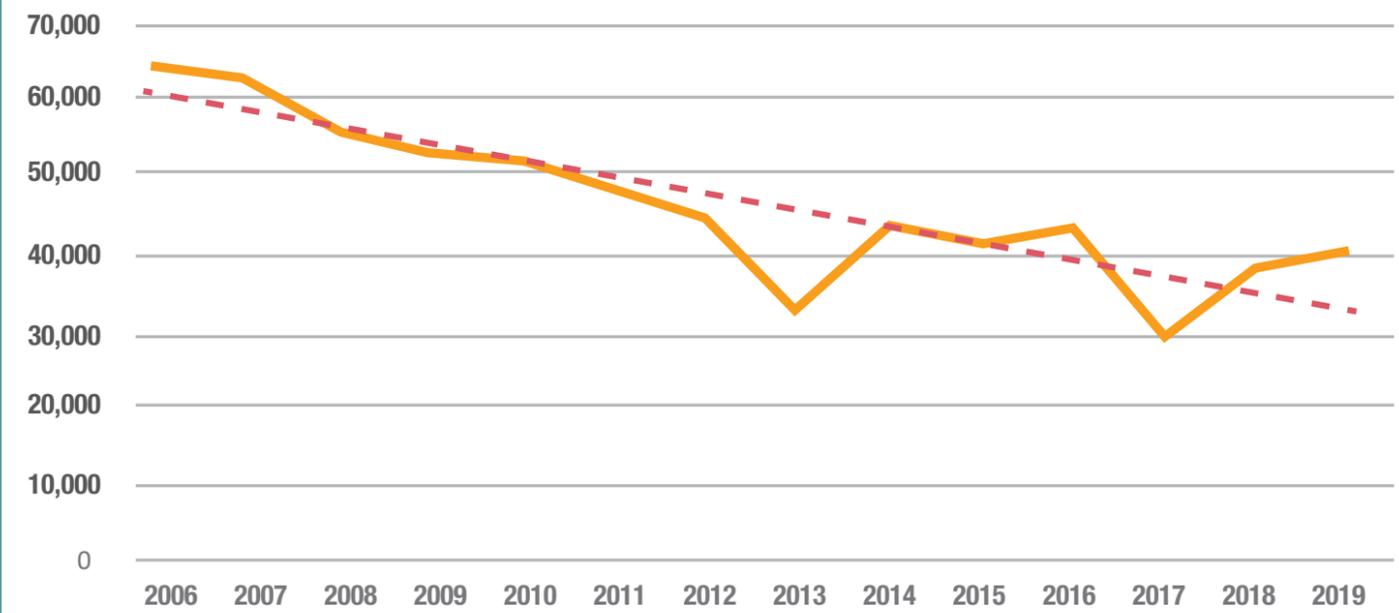
## Decarbonization of Nevada's Power Portfolio

The power portfolio in Nevada, like much of the country, has been transitioning towards more renewables such as solar and wind, and away from conventional resources such as coal. This transition is evidenced in the significant decrease in CO<sub>2</sub> emissions per megawatt-hour (MWh) for the State of Nevada, which dropped from 1,423 pounds per MWh in 2005 to 777 pounds per MWh in 2018.

**Estimated City of Henderson Carbon Dioxide Emissions Related to Electric Purchases (in Tons) 2005 to 2018**



**City of Henderson - Southwest Gas Expenditures**

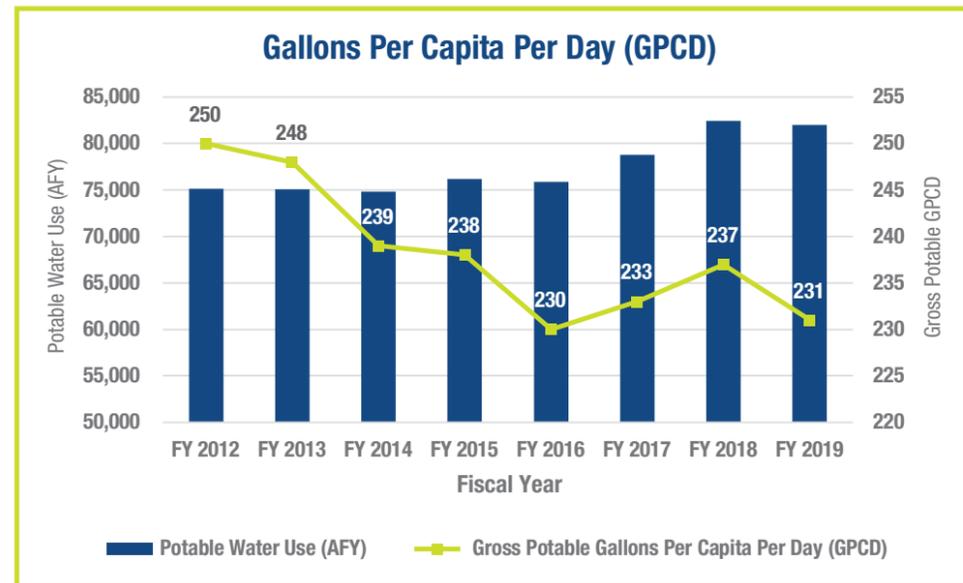


# WATER CONSERVATION

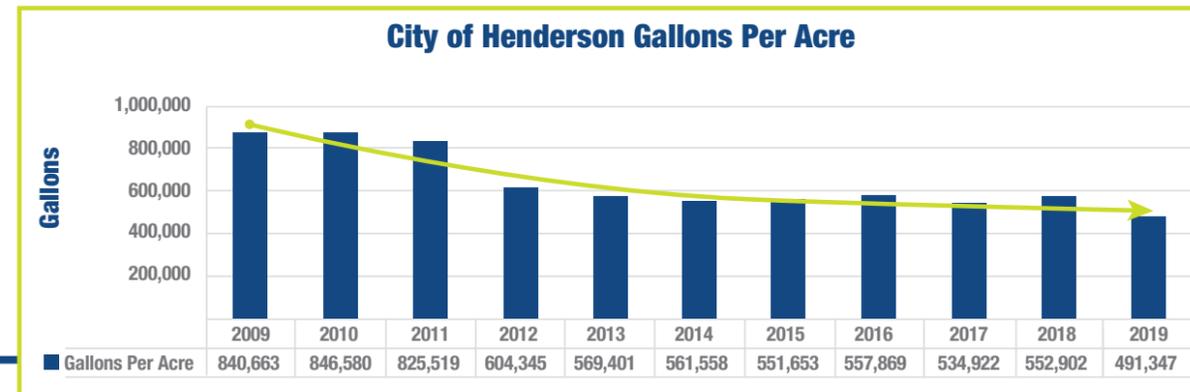
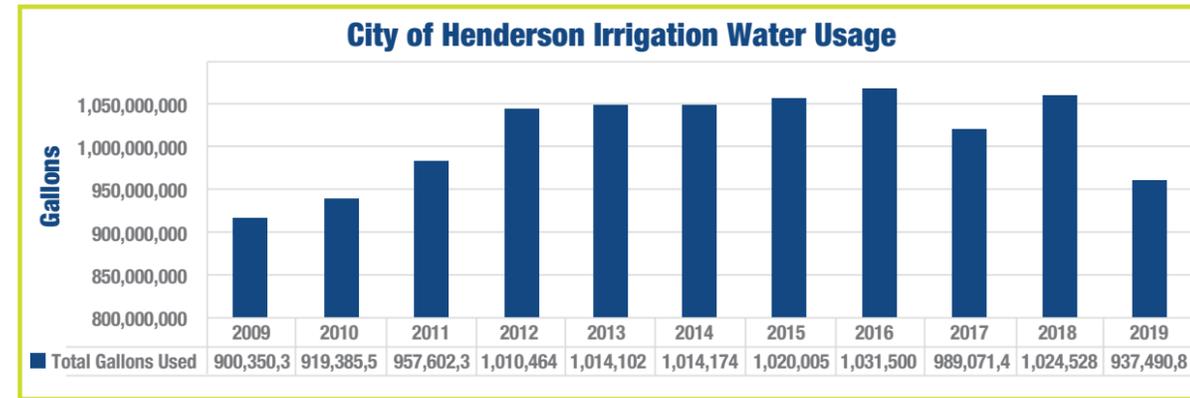
The Department of Utility Services Conservation Team continues its water-saving efforts by monitoring adherence to regional landscape watering restrictions, responding to water-waste cases, and continuing customer outreach and education. **The Southern Nevada Water Authority's successful Water Smart Landscapes program** offers a rebate for applicants who remove grass and replace it with desert landscaping. Since 2012, the City of Henderson has converted approximately **5,700,000 square feet of grass, saving over 316 million gallons of water.**

**“That’s enough grass to cover more than 99 football fields and enough water saved to fill 479 Olympic-size swimming pools.”**

Protecting and conserving natural resources is a Citywide strategy and, through focused efforts on water conservation, we continue to work towards reversing the trend of increasing per capita water consumption. With the permanent adoption of the City’s water conservation regulations and enforcement practices we have managed to decrease the gross potable gallons per capita per day from **250 in 2012 to 231 in 2019.**



Residential water usage. Graph included with data from 2012.



# WATER CONSERVATION

## Public Spaces Conservation & Water Usage

- Approximately 2 million square feet of turf has been removed by the City of Henderson since 2003. Water savings = **110 million gallons.**
- The City completed fescue turf to hybrid Bermuda turf conversion at 10 parks and sports fields in 2019. Water Savings = **22.4 million gallons.**



# DEVELOPMENT



## Sustainable Development & Building Codes

This initiative is intended to promote sustainable development within the City of Henderson by creating incentives for:

- Compact, mixed-use development patterns.
- Encouraging solar and other alternative energy sources.
- Promoting alternative means of transportation like bicycling and walking that can improve community health while helping reduce air pollution.
- Protecting trees that absorb greenhouse gases and reduce storm water runoff and pollutants.
- Encouraging water-efficient landscaping and protecting water resources.

## Building Codes: Water Conservation & Efficiency

- Adoption of EPA WaterSense Program into City's plumbing code.
- Increased all requirements for water efficiency.

## Building Codes: Energy Efficiency Improvements

- Adoption of updated IECC Building and Energy codes.
- Increased requirements for energy efficiency.



**Heritage Park Senior Center and Aquatic Center, a LEED Gold building complex, was awarded the 2019 Building Owners and Managers Association's Outstanding Building of the Year award in the Public Assembly Building category.**

# RECYCLING

**Henderson Shines is a free annual community cleanup and recycling event.** Local organizations partner with the City of Henderson to provide a venue for residents to dispose of potentially hazardous items safely and conveniently.

**In 2019, onsite partners included:**

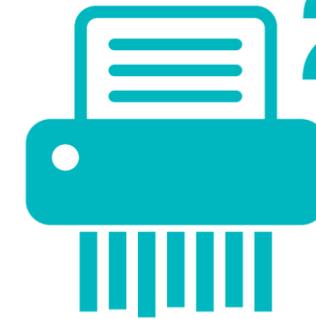
- **Republic Services** collected oil, batteries and paint to be disposed of safely.
- **The Blind Center of Nevada** accepted electronic goods such as computers, cell phones tablets and printers. This service provided residents and the community-at-large with a safe and efficient way to properly dispose of their old electronic devices while removing personal information.
- **Opportunity Village** PaperPros plant-based truck collected sensitive documents and place them in secure bins for transportation to their facility for shredding. Each participant was limited to two Bankers Box-size containers.
- **Opportunity Village Thrift Store** provided a donation truck to collect gently used clothing and household items.
- **The Henderson Police Department** collected unwanted and expired medications.



**The 2019 Henderson Shines community recycling event** collected more than **17,000 pounds** of paint, oil and aerosols for safe disposal. More than **20,000 pounds** of paper were collected and recycled, and **1,000 pounds** of household donations were received. In addition, **54 pounds** of unused or expired medication were disposed by responsible means.



**17,000 POUNDS** paint, oil and aerosols for safe disposal



**20,000+ POUNDS** of paper were collected and recycled



**1,000 POUNDS** of household donations were received



**54 POUNDS** of unused or expired medication

# ARROYO GRANDE TRAINING

Parks and Recreation has created a roll-out plan to add recycling to all park facilities. Arroyo Grande Sports complex was our inaugural facility for this recycling effort. Since then we have added recycling trash cans at all sports complexes and several community parks. Our goal is to provide recycling trash cans at all parks and sports complexes.

To be Premier,  
we are driven  
to be better.

**30%**  
City Building Recycling

**67%**  
City Hall Recycling

- In 1991, the State of Nevada adopted a goal to recycle **25%** of the municipal waste in Nevada. Currently City of Henderson facilities exceed that goal.
- In our strategic planning, the City has adopted a target of increasing recycling at our City facilities by **5% over the next 5 years.**

- The Office of Environmental Services is developing a public outreach program aimed at reaching the amount of contamination in municipal recycling. We are exploring different ways to collaborate with Republic Services to increase awareness of Henderson residents of this problem.

# GREEN SPACES



Green spaces in our City support a healthier lifestyle that includes walking, bicycling, and other outdoor pursuits that help reduce air pollution. In addition, trees and plants in our parks, along our trails, and in other areas of City landscaping absorb greenhouse gases, reduce stormwater runoff and pollutants, protect water resources and reduce the heat island effect caused by man-made surfaces in the City.

The City of Henderson has been recognized for the last **29 years as a “Tree City.”** The honor recognizes Henderson’s commitment to urban forestry. The City has over 30,000 trees on City property with a benefit value of \$60 million (benefit value is the cost of mature replacement tree).

Henderson is working to ensure that all residents live within a 10-minute walk to a City of Henderson park. Since 2003, City of Henderson has increased the number of parks by 29 to a total of **66 parks in 2020.** This resulted in an increase of **1,100 acres of parks and open spaces for residents and visitors to enjoy.**



# GREEN SPACES

## A HEAT ISLAND DESCRIBES BUILT-UP AREAS THAT ARE HOTTER THAN NEARBY RURAL AREAS.

An illustration of a city skyline enclosed within a large, semi-transparent circular bubble. The city features various skyscrapers and buildings in shades of blue, orange, and grey. The background within the bubble is a hazy, yellowish-green, representing the heat island effect. To the right of the bubble, the background shows a rural landscape with green hills, trees, and a snow-capped mountain under a clear blue sky.

The annual mean air temperature of a city with one million people or more can be 2°- 5°F warmer than its natural surroundings because conventional man-made materials used for pavement, roofing and other surfaces tend to reflect less solar energy, absorbing and re-emitting more of the sun's heat. Nighttime temperatures can be up to 22°F higher. Heat island effects increase peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat related illness and mortality, and water pollution.

The City has been working to mitigate heat island effects since 2005, establishing shade trees in all street medians, parkway areas, parking lots, and bike trails. Additionally, other strategies are employed to reduce the effect for roads, sidewalks, courtyards, parking lots and driveways, including:

- Providing shade from open structures such as solar panels, covered parking, walkways, pergolas with the roof materials having a Solar Reflectance Index (SRI) of at least 29. SRI is a measure of a material's ability to reject solar heat and maintain a cooler roof temperatures.
- Using paving materials with an SRI of at least 29.
- Using an open-grid pavement system that has at least 50% pervious area.

# TRANSPORTATION

The City has completed several projects to improve transportation and mobility including:



- 180 miles multiuse trails • 140 miles of striped bike lanes
- More than 800 miles of neighborhood streets are bike friendly within the City of Henderson
- About 82% of the public streets are considered bike friendly

- Transit-oriented development standards developed for Boulder Highway encourage higher-density and mixed-use projects on Boulder Highway, one of the busiest routes in the City of Henderson. Future development and revisions along the corridor will bring a more pedestrian- and bike-friendly street with improved pedestrian safety and access to the bus. The City's goal is to convert some of the center median into center-running transit with shorter crossing distances to get on the bus.
- According to the Department of Transportation, poor traffic signal timing contributes to traffic congestion and delay. Conventional signal systems use pre-programmed, daily signal timing schedules. Adaptive signal control technology adjusts the timing of red, yellow and green lights to accommodate changing traffic patterns and ease traffic congestion. The City, in conjunction with the RTC, has started the first adaptive signal control project in Southern Nevada in Henderson. Both **Eastern Avenue** and **Green Valley Parkway** are being studied for signal controller upgrades and programming that promise to noticeably improve traffic flow. Both projects will be implemented by **late 2020 or early 2021**.
- For fiscal year 2020-2021 the City's goal, in conjunction with the Regional Transportation Commission of Southern Nevada (RTC), is to preserve bus routes. Service intervals were cut back based on COVID-19 related ridership decreases and will increase as warranted by demand. No new routes or services are expected in 2020.



Proposed RTC Boulder Highway improvements. Subject to change.



- The City owns and operates **16 grant-funded Chevrolet Volt plug-in hybrid/gasoline sedans.** These vehicles run on battery power the majority of the time and are routinely driven 700-2,000 miles before requiring the gasoline tank be refilled. The Volts are assigned to various divisions including the City Hall Motor Pool, Mailroom, Development Services Center, Parks and Recreation, and Business License.
- Public Works is currently in the process of researching telematics products for installation in all City fleet vehicles. The telematics data will provide important information including how often City vehicles are used, how far they're driven, how much time they spend idling at stationary locations or in traffic, fuel consumption, vehicle speeds, and active engine fault codes. This data will help Fleet Maintenance and user departments reduce fuel consumption by eliminating unnecessary idling and help to identify engine malfunctions more quickly. Shared data provided by the telematics service will provide important traffic volume data for the Smart Cities initiative.
- Public Works will implement a pilot leasing program which would replace fleet vehicles that have exceeded their expected life cycle, have low fuel economy, are inappropriate for their current use, are costly to repair, and/or have major mechanical and cosmetic issues.
- As one initiative under this program, Public Works will retire up to 150 older ¾-ton diesel-powered pickups that were purchased beginning in the mid-2000s. These trucks are larger and have more towing capacity than is required by the majority of the departments currently operating them. They are also expensive to maintain and repair.

**Leased vehicles will:**

- **Increase overall fleet average fuel economy**
- **Lower emissions**
- **Improve fleet availability**
- **Provide safer vehicles that are more appropriate for the work being performed**
- **Reduce the quantity and cost of major repairs performed by the City Shop**
- **Preserve capital**





*A Place To Call Home*