

Introduction

(0.1) Please give a general description and introduction to your city including your city's reporting boundary in the table below.

	Administrative boundary	Description of city
City boundary	City / Municipality	Fayetteville is the third largest city in the State of Arkansas, with approximately 88,963 residents. Nestled in the foothills of the Boston Mountains and home to the University of Arkansas, Fayetteville is a community that thrives on education, innovation, and outdoor recreation. As an economic and environmental leader in the State, Fayetteville strives to consistently assess, report on, and improve the projects, programs, and policies that guide our city.

City Details

(0.3) Please provide information about your city's Mayor or equivalent legal representative authority in the table below:

	Leader title	Leader name	Current term end month	Current term end year
Please complete	Mayor	Lioneld Jordan	January	2021

(0.4) Please select the currency used for all financial information disclosed throughout your response.

USD US Dollar

(0.5) Please provide details of your city's current population. Report the population in the year of your reported inventory, if possible.

	Current population	Current population year	Projected population	Projected population year
Please complete	88963	2018	110725	2030

(0.6) Please provide further details about the geography of your city.

	Land area of the city boundary as defined in question 0.1 (in square km)
Please complete	143

Governance and Data Management

Governance

(1.0) Does your city incorporate sustainability goals and targets (e.g. GHG reductions) into the master planning for the city?

Yes

(1.0a) Please detail which goals and targets are incorporated in your city's master plan and describe how these goals are addressed in the table below.

Goal type	How are these goals/targets addressed in the city master plan?
Renewable energy targets	Part of the cities energy action plan is to: achieve 100% local government clean energy by 2030, achieve 50% community wide clean energy by 2030, and achieve 100% community wide clean energy by 2050.
Energy efficiency targets	The buildings sector level goals include: complete periodic feasibility analyses for building energy code updates, achieve 3% annual reduction in overall energy usage in buildings, improve the health, distribution, coverage, and effectiveness of Fayetteville's urban forest.
Emissions reduction targets	The city has two main goals related to reduction of GHG from the transportation sector: reduce per capita vehicle miles travelled to 2010 levels by 2030, and achieve 25% walk, bike, transit mode share by 2027.
Waste management targets	The city of Fayettevilles ambitious waste reduction goal is to: achieve 40% total waste diversion from the landfill by 2027.
Adaptation targets	The city of Fayettevilles will conduct a community wide tree canopy assessment every 5 years. This information will provide options to develop a tree planting program, partnering with residents, business owners, and institutions to reduce urban heat island effect.

(1.1) Has the Mayor or city council committed to climate adaptation and/or mitigation across the geographical area of the city?

Yes

(1.1a) Please select any commitments to climate adaptation and/or mitigation your city has signed and attach evidence.

Name of commitment and attach document

Individual city commitment
 climate mayors doc & sig.PNG
 Screen Shot 2019-07-16 at 9.00.23 AM.png
 Energy Action Plan.pdf

Type of commitment

Both

Comments

The city of Fayetteville has created a detailed Energy Action Plan which adheres to the Paris Climate Accord through the "We Are Still In" agreement.

Name of commitment and attach document

LEED for Cities
 Screen Shot 2019-07-16 at 9.02.58 AM.png

Type of commitment

Both

Comments

After achieving a 3 STAR Community status, the City of Fayetteville will be transitioning to the standards and reporting procedures outlined by LEED for Cities.

Climate Hazards & Vulnerability

Risk and Vulnerability Assessment

(2.0) Has a climate change risk and vulnerability assessment been undertaken for the city area?

Yes

(2.0a) Please select the primary process or methodology used to undertake the risk and vulnerability assessment of your city.

	Primary methodology	Description
Risk assessment methodology	State or region vulnerability and risk assessment methodology	In 2018, the University of Arkansas and City of Fayetteville collaborated to create a Climate Resilience Assessment, which aimed to identify the Northwest Arkansas region's vulnerabilities, strengths, and areas for improvement in terms of sustainability and community resilience. Led by the University of Arkansas Office for Sustainability and the City of Fayetteville Sustainability Department, there were five key stakeholder meetings in the fall of 2018 to start a conversation about climate change and the associated implications for the future success of Fayetteville. The stakeholders came from a variety of organizations including the City, the University of Arkansas, Agricultural extension services, Health Professionals, citizens, and local entrepreneurs. Specifically these stakeholders considered economic vitality and well being, social dynamics, human health, and physical infrastructure.

(2.0b) Please attach and provide details on your climate change risk and vulnerability assessment. Please provide details on the boundary of your assessment, and where this differs from your city's boundary, please provide an explanation.

Publication title and attach the document

Climate Resilience Assessment
2018 UA + CoF Resilience Assessment- V1.pdf

Year of adoption from local government

2018

Web link

<https://www.fayetteville-ar.gov/DocumentCenter/View/18820/UA-and-CoF-Climate-Resilience-Assessment--2018-V6>

Boundary of assessment relative to city boundary (reported in 0.1)

Same – covers entire city and nothing else

Explanation of boundary choice where the assessment boundary differs from the city boundary

Areas/sectors covered by the risk and vulnerability assessment

Water Supply & Sanitation
Food and agriculture
Environment, Biodiversity and Forestry
Industrial
Commercial
Residential
Public health
Community & Culture
Emergency Management
Land use planning
Tourism

Primary author of assessment

Other (University)

Does the assessment identify vulnerable populations?

Yes

Climate Hazards

(2.1) Please list the most significant climate hazards faced by your city and indicate the probability and consequence of these hazards, as well as the expected future change in frequency and intensity. Please also select the most relevant assets or services that are affected by the climate hazard and provide a description of the impact.

Climate Hazards

Extreme Precipitation > Rain storm

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Medium High

Current consequence of hazard

Medium Low

Social impact of hazard overall

Increased demand for public services
Increased risk to already vulnerable populations
Increased resource demand

Future change in frequency

Increasing

Future change in intensity

Increasing

When do you first expect to experience those changes?

Medium-term (2026-2050)

Most relevant assets / services affected overall

Water supply & sanitation
Food & agriculture
Environment, biodiversity, forestry
Residential
Tourism
Society / community & culture
Land use planning

Please identify which vulnerable populations are affected

Children & youth
Elderly
Marginalized groups
Persons with disabilities
Low-income households
Persons living in sub-standard housing

Magnitude of expected future impact

Low

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Potable water supply: Fayetteville relies on water from Beaver Lake that has been purified by the Beaver Water District. High lake levels impact the processes for cleaning water to make it safe for consumption. In addition, City infrastructure: Stormwater infrastructure such as; culverts, drains, inlets and retention structures have been damaged from flooding. Additionally, numerous streets and trails have been flooded and/or washed out causing significant damage to pavement and drains.

Climate Hazards

Flood and sea level rise > Flash / surface flood

Did this hazard significantly impact your city before 2019?

Yes

Current probability of hazard

Medium High

Current consequence of hazard

Medium High

Social impact of hazard overall

Increased demand for public services
Increased risk to already vulnerable populations
Increased resource demand
Population displacement

Future change in frequency

Increasing

Future change in intensity

Increasing

When do you first expect to experience those changes?

Medium-term (2026-2050)

Most relevant assets / services affected overall

Energy
Water supply & sanitation
Transport
Food & agriculture
Environment, biodiversity, forestry
Tourism
Society / community & culture
Emergency services
Land use planning

Please identify which vulnerable populations are affected

Children & youth
Elderly
Marginalized groups
Persons with disabilities
Low-income households
Persons living in sub-standard housing

Magnitude of expected future impact

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Flooding has damaged stream banks, in some cases completely washing away previously established banks. The continual saturation of the land has also led to landslides. Streamside and lowland properties have been flooded, causing massive damage to residential and commercial buildings. This has led to a significant portion of the population in need of housing and care. Concerns have been raised about possible contamination of the drinking water as Beaver Lake swells larger than ever with runoff from surrounding areas. Important structures such as roads and bridges have been and can continue to be damaged which causes disruption in the supply chain, and hurts the local economy. At least one death attributed to extreme flash-flooding in last few years.

Climate Hazards

Water Scarcity > Drought

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Medium High

Current consequence of hazard

Medium High

Social impact of hazard overall

Fluctuating socio-economic conditions
Increased incidence and prevalence of disease and illness
Increased demand for public services
Increased demand for healthcare services
Increased risk to already vulnerable populations
Increased resource demand
Loss of traditional jobs
Migration from rural areas to cities
Loss of tax base to support public services

Future change in frequency

Increasing

Future change in intensity

Increasing

When do you first expect to experience those changes?

Medium-term (2026-2050)

Most relevant assets / services affected overall

Water supply & sanitation
Food & agriculture
Waste management

Environment, biodiversity, forestry
Industrial
Commercial
Residential
Tourism
Public health
Emergency services
Land use planning

Please identify which vulnerable populations are affected

Children & youth
Elderly
Marginalized groups
Persons with disabilities
Persons with chronic diseases
Low-income households
Unemployed persons
Persons living in sub-standard housing

Magnitude of expected future impact

Medium

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Following an unusually dry winter and spring in 2018 (only 9 inches of rainfall since January 1st), Fayetteville starts the first week of July with a long-range forecast for hot/dry conditions all month. Local creeks and rivers are either bone dry or have just a trickle of water flowing in them. Beaver Reservoir is at its lowest water level in 35 years with a forecast for record high summer water demand due to lack of rainfall and dry soil conditions. The US Drought Mitigation Center rates the region in Exceptional Drought (D4) with precipitation totals among the lowest 2 percent on record in a broad area of the Ozark/Boston Mountains. If this trend continues the strain on water resources will continue, arguments break out among local governments, and spending power decreases.

Climate Hazards

Extreme hot temperature > Heat wave

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Medium High

Current consequence of hazard

Medium High

Social impact of hazard overall

Increased incidence and prevalence of disease and illness
Increased demand for public services
Increased demand for healthcare services
Increased risk to already vulnerable populations
Increased conflict and/or crime
Increased resource demand

Future change in frequency

Increasing

Future change in intensity

Increasing

When do you first expect to experience those changes?

Medium-term (2026-2050)

Most relevant assets / services affected overall

Energy
Food & agriculture
Environment, biodiversity, forestry
Public health
Emergency services

Please identify which vulnerable populations are affected

Children & youth
Elderly
Persons with disabilities
Low-income households
Persons living in sub-standard housing

Magnitude of expected future impact

Medium

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Climate change leads to higher temperatures and longer, more severe, and more frequent heat waves. Urban areas already suffering from the heat island effect will bear the brunt of these harsher heat events. As population in Fayetteville is projected to increase, the built systems will inevitably increase as well. Heat waves will intensify the heat island effect experienced by Fayetteville's residents.

Climate Hazards

Biological hazards > Insect infestation

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Medium Low

Current consequence of hazard

Medium Low

Social impact of hazard overall

Increased incidence and prevalence of disease and illness
Increased demand for public services
Increased demand for healthcare services
Increased risk to already vulnerable populations

Future change in frequency

Increasing

Future change in intensity

Increasing

When do you first expect to experience those changes?

Medium-term (2026-2050)

Most relevant assets / services affected overall

Food & agriculture
Environment, biodiversity, forestry
Residential
Tourism
Public health
Society / community & culture

Please identify which vulnerable populations are affected

Children & youth
Elderly
Low-income households
Persons living in sub-standard housing

Magnitude of expected future impact

Low

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Warmer temperatures allows for population increase of various insects. In particular ticks have a lengthened transmission season due to earlier onset of higher temperatures in the spring and later onset of cold and frost. This also increases spread of disease carried by ticks and other insects. An example of this is lyme disease. Other insect populations, such as termites, can impact infrastructure. Increases insect population is also accompanied by potential increases in rodents and other pests.

Climate Hazards

Wild fire > Forest fire

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Low

Current consequence of hazard

Medium High

Social impact of hazard overall

Increased demand for public services
Increased risk to already vulnerable populations
Increased resource demand
Population displacement

Future change in frequency

Increasing

Future change in intensity

Increasing

When do you first expect to experience those changes?

Medium-term (2026-2050)

Most relevant assets / services affected overall

Food & agriculture
Environment, biodiversity, forestry
Industrial
Commercial
Residential
Tourism
Public health
Society / community & culture
Emergency services
Land use planning

Please identify which vulnerable populations are affected

Elderly
Low-income households
Persons living in sub-standard housing
Other (Rural communities)

Magnitude of expected future impact

Low

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

With fluctuation in patterns of precipitation and increases in drought conditions, Fayettevilles flora will have periods where is is more dry and shriveled. This allows for periods with higher forest fire risks. Fayetteville depends on its natural enviroment for tourism and other economical advantages. These are all at risk with the prospect of forest fires.

Climate Hazards

Storm and wind > Lightning / thunderstorm

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Medium High

Current consequence of hazard

Low

Social impact of hazard overall

Increased demand for public services
Increased risk to already vulnerable populations

Future change in frequency

Increasing

Future change in intensity

Increasing

When do you first expect to experience those changes?

Medium-term (2026-2050)

Most relevant assets / services affected overall

Energy

Water supply & sanitation

Environment, biodiversity, forestry

Please identify which vulnerable populations are affected

Persons living in sub-standard housing

Other (Homeless)

Magnitude of expected future impact

Low

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

With larger disparities in temperature fluctuation, more extreme weather events can occur. This includes increased precipitation along with thunderstorms in certain times of the year. Lightning can accompany other hazards such as forest fires. This also deters more sustainable forms of transportation such as walking or biking.

Climate Hazards

Storm and wind > Tornado

Did this hazard significantly impact your city before 2019?

No

Current probability of hazard

Medium High

Current consequence of hazard

Medium

Social impact of hazard overall

Increased demand for public services

Increased demand for healthcare services

Increased risk to already vulnerable populations

Increased resource demand

Population displacement

Future change in frequency

Do not know

Future change in intensity

Do not know

When do you first expect to experience those changes?

Medium-term (2026-2050)

Most relevant assets / services affected overall

Water supply & sanitation

Transport

Food & agriculture

Environment, biodiversity, forestry

Industrial

Commercial

Residential

Tourism

Society / community & culture

Emergency services

Please identify which vulnerable populations are affected

Elderly

Low-income households

Persons living in sub-standard housing

Magnitude of expected future impact

Do not know

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

In 2018 the most powerful tornado in Arkansas occurred one county below Washington county. Although the correlation with climate change and tornadoes is still under investigation, it can be concluded that climate change has the ability to intensify and increase severe weather events. Tornadoes can have a destructive impact on any area in a city.

Climate Hazards

Extreme cold temperature > Extreme winter conditions

Did this hazard significantly impact your city before 2019?

Yes

Current probability of hazard

Medium High

Current consequence of hazard

Medium

Social impact of hazard overall

Increased demand for public services
Increased risk to already vulnerable populations
Increased resource demand

Future change in frequency

Increasing

Future change in intensity

Increasing

When do you first expect to experience those changes?

Short-term (by 2025)

Most relevant assets / services affected overall

Energy
Food & agriculture
Environment, biodiversity, forestry
Emergency services
Land use planning

Please identify which vulnerable populations are affected

Elderly
Marginalized groups
Low-income households
Persons living in sub-standard housing

Magnitude of expected future impact

Medium

Please describe the impacts experienced so far, and how you expect the hazard to impact in the future

Fayetteville experiences extreme winter weather fluctuations with historical impacts from significant ice storms. Probability for future winter storms is increasing with an increase in severity. Winter storms likely to be one of the most felt impacts of climate change in the area.

(2.2) Please identify and describe the factors that most greatly affect your city’s ability to adapt to climate change and indicate how those factors either support or challenge this ability.

Factors that affect ability to adapt	Support / Challenge	Please describe the factor and the degree to which it supports or challenges the adaptive capacity of your city
Access to education	Support	The University of Arkansas resides in Fayetteville, and over 47% of Fayetteville residents have a Bachelors degree or higher. This enhances the city's ability to adapt to climate change because the citizens are aware of ways to live more sustainable lifestyles and often times have creative solutions to adapt to any type of climate change.
Political stability	Support	Fayetteville has had the same mayor since 2008. This has allowed for consistent objectives and goals to be layed out and accomplished.
Economic health	Support	Northwest Arkansas is home to J.B. Hunt, Tyson, and Wal-mart. These companies also attract other vendors to the area. Along with the University of Arkansas Fayetteville has substantial employment oppurtunity and a booming economy. These companies also provide money to attract a younger, more specilizeed workforce. This leads to investments into downtowns.
Rapid urbanization	Challenge	Northwest Arkansas is the fastest growing area in Arkansas. This makes urban sprawl more likely as infill infrastructure struggles to keep up. It also makes carbon reduction goals more difficult to obtain, and creates stress on natural resources.
Land use planning	Challenge	With rapid population growth and urbanization it is important to maintain natural ecosystems that mitigate the severity of climate change impacts in the region. Conservation of green space and infrastructure are part of the City's master plan.

Adaptation

Adaptation Actions

(3.0) Please describe the main actions you are taking to reduce the risk to, and vulnerability of, your city’s infrastructure, services, citizens, and businesses from climate change as identified in the Climate Hazards section.

Climate hazards

Extreme hot temperature > Heat wave

Action

Tree planting and/or creation of green space

Action title

Right Tree, Right Place

Status of action

Operation

Co-benefit area

- Enhanced resilience
- Enhanced climate change adaptation
- Reduced GHG emissions
- Improved resource efficiency (e.g. food, water, energy)
- Social community and labour improvements
- Improved resource quality (e.g. air, water)
- Resource conservation (e.g. soil, water)
- Ecosystem preservation and biodiversity improvement

Action description and implementation progress

Increasing awareness of utility-focused programming through joint outreach of utility services and urban forestry campaigns. Municipal urban foresters mitigate tree loss through permitting process of new land developments and land improvements.

Finance status

Total cost of the project

0

Total cost provided by the local government

0

Primary fund source

Local

Web link

<https://www.fayetteville-ar.gov/339/Urban-Forestry>

Climate hazards

Flood and sea level rise > Flash / surface flood

Action

Storm water capture systems

Action title

Implementation of Storm Water Management

Status of action

Operation

Co-benefit area

Enhanced resilience

Disaster preparedness

Enhanced climate change adaptation

Improved resource efficiency (e.g. food, water, energy)

Improved resource quality (e.g. air, water)

Improved resource security (e.g. food, water, energy)

Ecosystem preservation and biodiversity improvement

Improved access to and quality of mobility services and infrastructure

Action description and implementation progress

Installing low impact development features which encourage stormwater capture in high risk flood areas to reduce flooding impacts and recharge the groundwater supply. Cost associated with this project will not be finalized until August 1, 2019.

Finance status

Feasibility undertaken

Total cost of the project

Total cost provided by the local government

Primary fund source

Local

Web link

<https://www.fayetteville-ar.gov/3328/Flood-Management-and-Water-Quality-Fundi>

Climate hazards

Wild fire > Forest fire

Action

Community engagement/education

Action title

Wildfire Prevention Plan and Burn Ban Communication Strategy

Status of action

Pre-implementation

Co-benefit area

Disaster preparedness

Social community and labour improvements

Shift to more sustainable behaviours

Improved access to data for informed decision-making

Action description and implementation progress

Utilizing existing "Code Red" systems to ensure all residents are notified during drought events, while also amplifying community engagement.

Finance status

Finance secured

Total cost of the project

19900

Total cost provided by the local government

19900

Primary fund source

Local

Web link

<http://www.fayetteville-ar.gov/1735/Alerts-Notifications>

Climate hazards

Extreme hot temperature > Heat wave

Action

Heat mapping and thermal imaging

Action title

Urban Heat island effect mapping

Status of action

Implementation

Co-benefit area

Improved access to data for informed decision-making

Action description and implementation progress

Conduct an assessment to determine heat island mitigation feature distribution across the city to identify locations with disproportionate heat island effects. This is coupled a tree canopy assessment conducted every five years.

Finance status

Feasibility undertaken

Total cost of the project**Total cost provided by the local government****Primary fund source**

Please select

Web link**Climate hazards**

Extreme hot temperature > Heat wave

Action

Projects and policies targeted at those most vulnerable

Action title

Affordable Energy alternatives

Status of action

Operation

Co-benefit area

Enhanced resilience

Reduced GHG emissions

Improved resource efficiency (e.g. food, water, energy)

Social inclusion, social justice

Social community and labour improvements

Shift to more sustainable behaviours

Action description and implementation progress

A program that connects low income renters and homeowners with utility sponsored programs to reduce their energy cost.

Finance status

Finance secured

Total cost of the project

491326.49

Total cost provided by the local government

0

Primary fund source

Public-private partnership

Web link

<https://www.ozarksecc.com/complete-energy-audit-program>

Climate hazards

Extreme hot temperature > Heat wave

Action

Green roofs/walls

Action title

Green Roof Incentive

Status of action

Pre-implementation

Co-benefit area

Disaster Risk Reduction
Enhanced resilience
Enhanced climate change adaptation
Reduced GHG emissions
Improved resource efficiency (e.g. food, water, energy)
Improved resource quality (e.g. air, water)
Ecosystem preservation and biodiversity improvement
Shift to more sustainable behaviours

Action description and implementation progress

Encourage green roofs and green walls, on new and existing buildings.

Finance status

Pre-feasibility study status

Total cost of the project

0

Total cost provided by the local government

0

Primary fund source

Please select

Web link

Climate hazards

Extreme hot temperature > Heat wave

Action

Diversifying power/energy supply

Action title

Cooperation with local electric providers

Status of action

Operation

Co-benefit area

Enhanced climate change adaptation
Reduced GHG emissions
Improved access to data for informed decision-making

Action description and implementation progress

Continue to advocate for increasing SWEPCO and Ozarks electric clean energy portfolio as a percentage of the electric energy

produced. Support SWEPCO's 810 megawatt wind project before the Arkansas public service commission.

Finance status

Feasibility undertaken

Total cost of the project

0

Total cost provided by the local government

0

Primary fund source

Please select

Web link

Climate hazards

Storm and wind > Tornado

Action

Crisis management including warning and evacuation systems

Action title

Tornado Emergency Alerts and Awareness

Status of action

Operation

Co-benefit area

Disaster preparedness

Action description and implementation progress

The city of Fayetteville uses "Code Red" to send weather and emergency alerts by text, and also utilizes a siren system that warns when there is evidence based by radar that a tornado is imminent or occurring.

Finance status

Finance secured

Total cost of the project

19900

Total cost provided by the local government

19900

Primary fund source

Local

Web link

<http://www.fayetteville-ar.gov/1735/Alerts-Notifications>

Climate hazards

Mass movement > Insect infestation

Action

Testing/vaccination programmes for vector-borne disease

Action title

Tick Collection Program

Status of action

Operation

Co-benefit area

Improved public health

Ecosystem preservation and biodiversity improvement

Improved access to data for informed decision-making

Action description and implementation progress

University of Arkansas researchers handed out tick-collection kits to citizens so that they could research various infections caused by the local tick population. This creates a better understanding of how to handle the rapid tick population increase that Northwest

Arkansas is facing.

Finance status

Please select

Total cost of the project

Total cost provided by the local government

0

Primary fund source

Please select

Web link

<https://www.uaex.edu/farm-ranch/special-programs/arkansas-tick-project.aspx>

Climate hazards

Water Scarcity > Drought

Action

Water use restrictions and standards

Action title

Filter-to-Waste and Solids Processing Improvements Project

Status of action

Operation

Co-benefit area

Disaster Risk Reduction

Enhanced resilience

Disaster preparedness

Improved resource efficiency (e.g. food, water, energy)

Improved resource quality (e.g. air, water)

Action description and implementation progress

The Beaver Watershed District's mission is to serve our customers' needs by providing high quality drinking water that meets or exceeds all regulatory requirements and is economically priced consistent with our quality standards. In 2018, the Filter-to-Waste (FTW) and Solids Processing Improvements Project got underway. The cost estimate for the project is \$4.8 million. The project is now more than halfway complete and is adding a recovery basin, piping, pumps, and other appurtenances to capture the FTW stream and recycle it to the head of the plant. In addition to this project being a sustainable solution, removing the FTW stream from the solids processing facility will significantly extend the useful life of BWD's existing assets, delaying capital costs for the expansion of that facility. Designed by Black & Veatch with Construction Management-at-Risk services provided by Crossland Heavy Contractors, the project is currently within budget and projected to be complete ahead of schedule.

Finance status

Finance secured

Total cost of the project

4800000

Total cost provided by the local government

0

Primary fund source

Public-private partnership

Web link

<https://www.bwdh2o.org/about/master-plan/>

Climate hazards

Flood and sea level rise > Flash / surface flood

Action

Economic diversification measures

Action title

Workforce Development Plan

Status of action

Pre-implementation

Co-benefit area

Enhanced resilience

Enhanced climate change adaptation

Social community and labour improvements

Job creation

Action description and implementation progress

Fayetteville recognizes that with sea level rise there will be climate refugees. This area will most likely attract large portions of this population that is required to move inland. We have several programs ,such as our workforce development plan, that are designed to bolster the economy and provide room for this potential growth.

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government**

30000

Primary fund source

Local

Web link

<https://www.fayetteville-ar.gov/3438/Workforce-Development-Plan>

Adaptation Planning

(3.1) Does your city council have a published plan that addresses climate change adaptation?

Yes

(3.1a) Please provide more information on your plan that addresses climate change adaptation and attach the document. Please provide details on the boundary of your plan, and where this differs from your city's boundary, please provide an explanation.

Publication title and attach the document

Energy Action Plan

Energy Action Plan.pdf

Areas covered by adaptation plan

Energy

Transport (Mobility)

Building and Infrastructure

Spatial Planning

Agriculture and Forestry

Water

Waste

Public Health and Safety

Year of adoption from local government

2018

Boundary of plan relative to city boundary (reported in 0.1)

Same - covers entire city and nothing else

If the city boundary is different from the plan boundary, please explain why and any areas/other cities excluded or included

Stage of implementation

Plan in implementation

Type of plan

Standalone

Has your local government assessed the synergies, trade-offs, and co-benefits, if any, of the main mitigation and adaptation actions you identified?

Yes

Comment or describe the synergies, trade-offs, and co-benefits of this interaction

This plan benefits and encompasses a wide range of stakeholders in the area. Multiple categories and initiatives are addressed in this plan, and almost all include the benefits of implementing the various strategies. 1. Maintain clean air, water, and soil, building a City where every citizen (present and future) can experience a naturally beautiful, healthy, and sustainable Fayetteville 2. Create jobs and build capacity in new sectors while enabling local businesses to be more resource efficient, more profitable, and more competitive in a global market 3. Create more energy efficient homes and businesses, giving all citizens greater financial security and flexibility 4. Address public health threats from pollution, food insecurity, natural disasters, and changing weather patterns, particularly for our most vulnerable and at-risk populations 5. Lead the South in energy independence and efficiency by developing local, equitable, and cost-effective solutions to our energy needs 6. Develop a culture of innovation where value is compounded and waste is minimized 7. Lead conversation about climate change and determine how to effectively address current and future effects in Northwest Arkansas, connecting on shared values of conservation and innovation 8. Build a legacy of stewardship, demonstrating the financial and social feasibility of a clean energy future This plan will outline the City's strategy for achieving these goals through the primary mechanism of reducing carbon pollution through four sectors: reducing overall energy use, diverting waste from landfills, shifting toward clean energy production, and reducing transportation-related emissions. By taking action together and adopting this Energy Action Plan, we can preserve a clean, healthy, beautiful future for Fayetteville.

Primary author of plan

Relevant city department

Description of the stakeholder engagement processes

Sustainability staff enlisted a group of stakeholders to guide the development of the Energy Action Plan. Representatives were included from the fields of engineering, development, electric and gas utility management, environmental law, philosophy, economics, energy conservation, energy efficiency, solar energy design and installation, and facilities management. City staff and this stakeholder group assessed the implications, implementation options, policy repercussions, and GHG ramifications of a host of different energy-related strategies. The stakeholder group met in March and July of 2017 to discuss technical implications of implementing actions and achieving outcomes. The stakeholder group was also involved through ongoing email correspondence and feedback mechanisms including surveys and interviews. This group acted as a sounding board for decision making and the prioritization of implementable actions.

Web link

http://www.fayetteville-ar.gov/DocumentCenter/View/14807/Energy-Action-Plan_Final-Draft-?bidId=

Adaptation Goals

(3.2) Please describe the main goals of your city's adaptation efforts and the metrics / KPIs for each goal.

Adaptation goal

Meet the Kyoto Protocol, and achieve 80% reduction in GHG emissions

Target year

2050

Metrics / indicators

A reduction of emissions in transportation, energy supply, buildings, and waste

Percentage of target achieved so far

0.42

Does this target align with a requirement from a higher level of government?

No

Adaptation goal

Achieve 100% local government clean energy

Target year

2030

Metrics / indicators

Continue to internally gather data for local government emissions specifically

Percentage of target achieved so far

16

Does this target align with a requirement from a higher level of government?

No

Adaptation goal

Achieve 25% bike/walk/transit mode share

Target year

2030

Metrics / indicators

Increase the amount of individuals that choose to bike, walk, or take public transportation in an attempt to reduce transportation emissions.

Percentage of target achieved so far

22

Does this target align with a requirement from a higher level of government?

No

Adaptation goal

Achieve 40% total waste diversion from the landfill

Target year

2027

Metrics / indicators

Encouraging various ways to expand and utilize waste diversion. Such as increases in recycling or composting.

Percentage of target achieved so far

18.5

Does this target align with a requirement from a higher level of government?

No

City-wide GHG Emissions Data

(4.0) Does your city have a city-wide emissions inventory to report?

Yes

(4.1) Please state the dates of the accounting year or 12-month period for which you are reporting your latest city-wide GHG emissions inventory.

	From	To
Accounting year dates	January 1 2018	December 31 2018

(4.2) Please indicate the category that best describes the boundary of your city-wide GHG emissions inventory.

	Boundary of inventory relative to city boundary (reported in 0.1)	Excluded sources / areas	Explanation of boundary choice where the inventory boundary differs from the city boundary (include inventory boundary, GDP and population)
Please explain	Same – covers entire city and nothing else		

(4.3) Please give the name of the primary protocol, standard, or methodology you have used to calculate your city's city-wide GHG emissions.

	Primary protocol	Comment
Emissions methodology	U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)	

(4.4) Which gases are included in your city-wide emissions inventory? Select all that apply.

CO2

(4.5) Please attach your city-wide inventory in Excel or other spreadsheet format and provide additional details on the inventory calculation methods in the table below.

Emissions inventory format

Custom or older GPC format

Document title and attachment

Community Wide Inventory-CURRENT
Community Wide Inventory-CURRENT.xlsx

Emissions factors used

IPCC

Global Warming Potential (select relevant IPCC Assessment Report)

IPCC 5th AR (2013)

Please select which additional sectors are included in the inventory

Please select

Population in inventory year

88963

Overall Level of confidence

Medium

Comment on level of confidence

Data retrieved came directly from utility companies and ICLEI resources were used to ensure proper methodology was used but we are only able to include the 5 minimum sources: Electric, Gas, waste, water movement, and VMT. We also had to use certain defaults (such as the Default vehicle mix and the default municipal solid waste Emissions Factor) as we do not have specific data in those areas.

(4.6c) Please provide a breakdown of your GHG emissions by scope. Where values are not available, please use the comment field to indicate the reason why.

City-wide emissions

Scope 1 emissions excluding emissions from grid-supplied energy generation

516975

Level of confidence

Medium

Scope 1 emissions from grid-supplied energy generation within the city boundary

0

Level of confidence

High

Calculated Total Scope 1 emissions

516975

Total Scope 1 emissions - please ensure this matches the calculated total above

516975

Level of confidence

Medium

Total Scope 2 emissions

920888

Level of confidence

Medium

Calculated total Scope 1 + Scope 2 emissions

1437863

Total (Scope 1 + Scope 2) emissions - please ensure this matches the total calculated field above

1437863

Level of confidence

Medium

Total Scope 3 emissions

0

Level of confidence

Low

Unable to capture data for scope 3 at this time due to limited data sharing and limited staff capacity. Will add to goals for future GHG inventories.

(4.6e) Where it will facilitate a greater understanding of your city-wide emissions, please provide a breakdown of these emissions by the US Community Protocol sources.

US Community Protocol Sources	Sector	Scope	Emissions (metric tonnes CO2e)
Built environment	Stationary energy (buildings)	Scope 2	920886.7
Transportation and other mobile sources	Road	Scope 1	413371.8
Solid waste	Waste	Scope 1	91495.7
Solid waste	Wastewater	Scope 1	12108.4

(4.8) Please indicate if your city-wide emissions have increased, decreased, or stayed the same since your last emissions inventory, and describe why.

	Change in emissions	Primary reason for change	Please explain and quantify changes in emissions
Please explain	Increased	Increased energy/electricity consumption	Increase in residential natural gas use was the main driver in emissions increase. While all categories saw an increase in emissions between 2-5%, natural gas saw an increase of 21%. In natural gas, the industrial, commercial, and government sectors saw an average increase of 5-6% while the residential use of natural gas and corresponding emissions went up by 19%. There were 853 more heating degree days in 2018 compared to 2017. Extreme temperature swings in 2018 and colder winter temperatures in the region demanded more energy for heating and is the main driver of increased emissions city-wide.

(4.9) Does your city have a consumption-based inventory to measure emissions from consumption of goods and services by your residents?

	Response	Provide an overview and attach your consumption-based inventory if relevant
Please complete	Not intending to undertake	Currently do not have the resources to devote to this scope.

City-wide external verification

(4.11) Has the city-wide GHG emissions data you are currently reporting been externally verified or audited in part or in whole?

Intending to undertake in the next 2 years

(4.11b) Please explain why your city-wide emissions inventory is not verified and describe any plans to verify your city-wide emissions in the future.

	Reason	Comments
Please explain	Data is internally verified	Sustainability staff enlisted a group of stakeholders to guide the development of the energy action plan. Representatives were included from the fields of engineering, development, electric and gas utility management, environmental law, philosophy, economics, energy conservation, energy efficiency, solar energy design and installation, and facilities management. City staff and this stakeholder group assessed the implications, implementation options, policy repercussions, and GHG ramifications of a host of different energy-related strategies. The stakeholder group met in March and July of 2017 to discuss technical implications of implementing actions and achieving outcomes. The stakeholder group was also involved through ongoing email correspondence and feedback mechanisms including surveys and interviews. This group acted as a sounding board for decision making and the prioritization of implementable actions. City staff internally validates the emissions data from utility companies by cross referencing data to create yearly aggregates.

Historical emissions inventories

(4.12) Please provide details on any historical and base year city-wide emissions inventories your city has, in order to allow assessment of targets in the table below.

Inventory date from

January 1 2010

Inventory date to

December 31 2010

Scopes / boundary covered

Total emissions

Scope 1 (direct)

Scope 2 (indirect)

Previous emissions (metric tonnes CO2e)

1443934

Is this inventory used as the base year inventory?

Yes

Methodology

U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)

File name and attach your inventory

Community Wide Inventory-CURRENT
Community Wide Inventory-CURRENT.xlsx

Comments

We have been using the same database to calculate GHG emissions starting from our base year of 2010 on.

Inventory date from

January 1 2010

Inventory date to

December 31 2010

Scopes / boundary covered

Total emissions
Scope 1 (direct)
Scope 2 (indirect)

Previous emissions (metric tonnes CO2e)

1443934.03

Is this inventory used as the base year inventory?

Yes

Methodology

U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)

File name and attach your inventory

Community Wide Inventory- CURRENT
Community Wide Inventory-CURRENT.xlsx

Comments

We have been using the same database to calculate GHG emissions starting from our base year of 2010 on.

Inventory date from

January 1 2011

Inventory date to

December 31 2011

Scopes / boundary covered

Total emissions
Scope 1 (direct)

Previous emissions (metric tonnes CO2e)

1418790.8

Is this inventory used as the base year inventory?

No

Methodology

U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)

File name and attach your inventory

Community Wide Inventory- CURRENT
Community Wide Inventory-CURRENT.xlsx

Comments

We have been using the same database to calculate GHG emissions starting from our base year of 2010 on.

Inventory date from

January 1 2012

Inventory date to

December 31 2012

Scopes / boundary covered

Total emissions
Scope 1 (direct)
Scope 2 (indirect)

Previous emissions (metric tonnes CO2e)

1440581.6

Is this inventory used as the base year inventory?

No

Methodology

U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)

File name and attach your inventory

Community Wide Inventory- CURRENT
Community Wide Inventory-CURRENT.xlsx

Comments

We have been using the same database to calculate GHG emissions starting from our base year of 2010 on.

Inventory date from

January 1 2013

Inventory date to

December 31 2013

Scopes / boundary covered

Total emissions
Scope 1 (direct)
Scope 2 (indirect)

Previous emissions (metric tonnes CO2e)

1478330.9

Is this inventory used as the base year inventory?

No

Methodology

U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)

File name and attach your inventory

Community Wide Inventory- CURRENT
Community Wide Inventory-CURRENT.xlsx

Comments

We have been using the same database to calculate GHG emissions starting from our base year of 2010 on.

Inventory date from

January 1 2014

Inventory date to

December 31 2014

Scopes / boundary covered

Total emissions
Scope 1 (direct)
Scope 2 (indirect)

Previous emissions (metric tonnes CO2e)

1507830.2

Is this inventory used as the base year inventory?

No

Methodology

U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)

File name and attach your inventory

Community Wide Inventory- CURRENT

Comments

We have been using the same database to calculate GHG emissions starting from our base year of 2010 on.

Inventory date from

January 1 2015

Inventory date to

December 31 2015

Scopes / boundary covered

Total emissions
Scope 1 (direct)
Scope 2 (indirect)

Previous emissions (metric tonnes CO2e)

1485672

Is this inventory used as the base year inventory?

No

Methodology

U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)

File name and attach your inventory

Community Wide Inventory- CURRENT
Community Wide Inventory-CURRENT.xlsx

Comments

We have been using the same database to calculate GHG emissions starting from our base year of 2010 on.

Inventory date from

January 1 2016

Inventory date to

December 31 2016

Scopes / boundary covered

Total emissions
Scope 1 (direct)
Scope 2 (indirect)

Previous emissions (metric tonnes CO2e)

1473223

Is this inventory used as the base year inventory?

No

Methodology

U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)

File name and attach your inventory

Community Wide Inventory- CURRENT
Community Wide Inventory-CURRENT.xlsx

Comments

We have been using the same database to calculate GHG emissions starting from our base year of 2010 on.

Inventory date from

January 1 2017

Inventory date to

December 31 2017

Scopes / boundary covered

Total emissions
Scope 1 (direct)

Scope 2 (indirect)

Previous emissions (metric tonnes CO2e)

1348003

Is this inventory used as the base year inventory?

No

Methodology

U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI)

File name and attach your inventory

Community Wide Inventory- CURRENT

Community Wide Inventory-CURRENT.xlsx

Comments

We have been using the same database to calculate GHG emissions starting from our base year of 2010 on.

Re-stating previous emissions inventories

(4.13) Since your last submission, have you needed to recalculate any past city-wide GHG emission inventories previously reported to CDP?

No

Emissions Reduction

Mitigation Target setting

(5.0) Do you have a GHG emissions reduction target in place at the city-wide level? Select all that apply.

Base year emissions (absolute) target

(5.0a) Please provide details of your total city-wide base year emissions reduction (absolute) target. In addition, you may add rows to provide details of your sector-specific targets, by providing the base year emissions specific to that target.

Sector

All emissions sources included in city inventory

Where sources differ from the inventory, identify and explain these additions / exclusions

Boundary of target relative to city boundary (reported in 0.1)

Same – covers entire city and nothing else

Base year

2010

Year of target implementation

2017

Base year emissions (metric tonnes CO2e)

1443934

Percentage reduction target

80

Target year

2050

Target year absolute emissions (metric tonnes CO2e)

282807

Percentage of target achieved so far

0.42

Does this target align with the global 1.5 - 2 °C pathway set out in the Paris Agreement?

Yes - 2 °C

Please indicate to which sector(s) the target applies

Energy industry
Heating and cooling supply
Commercial buildings
Residential buildings
Public facility
Industrial facilities
Transport
Water

Does this target align to a requirement from a higher level of sub-national government

Do not know

Please describe your target. If your country has an NDC and your city's target is less ambitious than the NDC, please explain why.

The draft Energy Action Plan is calling for a 3% GHG reduction every year with an overall GHG reduction of 80% by the year 2050.

(5.1) Please describe how the target(s) reported above align with the global 1.5 - 2 °C pathway set out in the Paris agreement.

These targets are derived from the goals set by the 1992 Kyoto Protocol and the 2015 Paris Agreement, at which leaders from around the globe committed to reducing greenhouse gas emissions in an effort to halt and reverse the planet's rapidly changing climate.

Fayetteville's Energy Action Plan accepts the IPCC conclusions regarding changing global climate and offers an integrated response to

pro-actively reduce our emissions while adapting to existing changes in climate and weather patterns.

Sustainability is a term derived from the concept of balance and continuation in nature. In its broadest sense, sustainability explores how to improve systems so that their component functions can run continuously on their own.

Mitigation Actions

(5.4) Describe the anticipated outcomes of the most impactful mitigation actions your city is currently undertaking; the total cost of the action and how much is being funded by the local government.

Mitigation action

Buildings > Building performance rating and reporting

Action title

Energy and Water Implications for Infrastructure

Means of implementation

Infrastructure development
Assessment and evaluation activities
Monitor activities
Development and implementation of action plan
Policy and regulation

Implementation status

Operation

Estimated emissions reduction (metric tonnes CO2e)

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Please select

Co-benefit area

Enhanced resilience
Reduced GHG emissions
Improved resource efficiency (e.g. food, water, energy)
Greening the economy
Improved resource quality (e.g. air, water)
Improved access to and quality of mobility services and infrastructure
Shift to more sustainable behaviours
Improved access to data for informed decision-making

Action description

Requirement for public infrastructure and facility managers consider energy and water consumption implications for new or upgraded infrastructure investments.

Finance status

Please select

Total cost of the project**Total cost provided by the local government****Primary fund source**

Please select

Web link to action website**Name of the stakeholder group**

<Not Applicable>

Role in the GCC program

<Not Applicable>

Name of the engagement activities

<Not Applicable>

Aim of the engagement activities

<Not Applicable>

Attach reference document

<Not Applicable>

Mitigation action

Buildings > On-site renewable energy generation

Action title

Wastewater Treatment Facility Solar Array Project

Means of implementation

Infrastructure development

Development and implementation of action plan

Implementation status

Implementation complete

Estimated emissions reduction (metric tonnes CO2e)

10416.25

Energy savings (MWh)**Renewable energy production (MWh)**

18300

Timescale of reduction / savings / energy production

Per year

Co-benefit area

Enhanced climate change adaptation

Reduced GHG emissions

Greening the economy

Improved resource quality (e.g. air, water)

Shift to more sustainable behaviours

Action description

Arkansas' largest solar farm will be built on Fayetteville's two wastewater treatment plants and provide power to them as well. The Solar Array Project expected to raise clean energy consumption by city facilities to 72 percent and save the city \$6 million over the next 20 years.

Finance status

Finance secured

Total cost of the project

23000000

Total cost provided by the local government

716000

Primary fund source

Public-private partnership

Web link to action website

<http://www.fayetteville-ar.gov/3536/Solar-Array-Project>

Name of the stakeholder group

<Not Applicable>

Role in the GCC program

<Not Applicable>

Name of the engagement activities

<Not Applicable>

Aim of the engagement activities

<Not Applicable>

Attach reference document

<Not Applicable>

Mitigation action

Private Transport > Improve fuel economy and reduce CO2 from motorized vehicles

Action title

Electric Vehicle Charging Stations

Means of implementation

Infrastructure development

Development and implementation of action plan

Sustainable public procurement

Implementation status

Pre-implementation

Estimated emissions reduction (metric tonnes CO2e)**Energy savings (MWh)****Renewable energy production (MWh)****Timescale of reduction / savings / energy production**

Please select

Co-benefit area

Reduced GHG emissions

Greening the economy

Improved resource quality (e.g. air, water)

Improved access to and quality of mobility services and infrastructure

Shift to more sustainable behaviours

Action description

Install public use electric vehicle fueling stations on city owned properties and encourage public use alternative charging stations at publicly accessible locations across the city.

Finance status

Please select

Total cost of the project

120000

Total cost provided by the local government

55000

Primary fund source

(Sub)national

Web link to action website

<https://www.adeg.state.ar.us/air/planning/vw/pdfs/final--bmp-amended-june-2019.pdf>

Name of the stakeholder group

<Not Applicable>

Role in the GCC program

<Not Applicable>

Name of the engagement activities

<Not Applicable>

Aim of the engagement activities

<Not Applicable>

Attach reference document

<Not Applicable>

Mitigation action

Outdoor Lighting > LED / CFL / other luminaire technologies

Action title

LED Streetlight Technology

Means of implementation

Infrastructure development

Development and implementation of action plan

Sustainable public procurement

Implementation status

Implementation

Estimated emissions reduction (metric tonnes CO2e)**Energy savings (MWh)****Renewable energy production (MWh)****Timescale of reduction / savings / energy production**

Please select

Co-benefit area

Reduced GHG emissions

Improved resource efficiency (e.g. food, water, energy)

Social community and labour improvements

Improved resource quality (e.g. air, water)

Improved access to and quality of mobility services and infrastructure

Shift to more sustainable behaviours

Action description

Advocate for 100% LED street lights by 2030 through collaboration with utility providers.

Finance status

Finance secured

Total cost of the project**Total cost provided by the local government****Primary fund source**

Local

Web link to action website**Name of the stakeholder group**

<Not Applicable>

Role in the GCC program

<Not Applicable>

Name of the engagement activities

<Not Applicable>

Aim of the engagement activities

<Not Applicable>

Attach reference document

<Not Applicable>

Mitigation action

Community-Scale Development > Compact cities

Action title

Infill Strategy

Means of implementation

Infrastructure development
Policy and regulation

Implementation status

Implementation

Estimated emissions reduction (metric tonnes CO2e)

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Please select

Co-benefit area

Enhanced resilience
Poverty reduction / eradication
Social inclusion, social justice
Social community and labour improvements
Ecosystem preservation and biodiversity improvement
Improved access to and quality of mobility services and infrastructure
Shift to more sustainable behaviours
Improved access to data for informed decision-making

Action description

The city of Fayetteville prioritizes infill develop through the initiatives of the Willow Bend Affordable Housing Development, downtown revitalization, and alternate transportation infrastructure such as bike trails. All infill initiatives are community focused and aimed to collectively reduce the city's GHG emissions while creating an equitable social atmosphere.

Finance status

Please select

Total cost of the project

Total cost provided by the local government

Primary fund source

Please select

Web link to action website

Name of the stakeholder group

<Not Applicable>

Role in the GCC program

<Not Applicable>

Name of the engagement activities

<Not Applicable>

Aim of the engagement activities

<Not Applicable>

Attach reference document

<Not Applicable>

Mitigation action

Action title

Veoride

Means of implementation

Education

Implementation status

Operation

Estimated emissions reduction (metric tonnes CO2e)

Energy savings (MWh)

Renewable energy production (MWh)

Timescale of reduction / savings / energy production

Please select

Co-benefit area

Reduced GHG emissions

Improved resource quality (e.g. air, water)

Action description

The City of Fayetteville and University of Arkansas both have contracts with Veoride. This is a bike share program designed to decrease GHG emissions and increase use of the existing bike infrastructure.

Finance status

Please select

Total cost of the project

Total cost provided by the local government

20000

Primary fund source

Public-private partnership

Web link to action website

<https://www.fayetteville-ar.gov/3489/VeoRide-Bike-Share>

Name of the stakeholder group

<Not Applicable>

Role in the GCC program

<Not Applicable>

Name of the engagement activities

<Not Applicable>

Aim of the engagement activities

<Not Applicable>

Attach reference document

<Not Applicable>

Mitigation Planning

(5.5) Does your city have a climate change mitigation or energy access plan for reducing city-wide GHG emissions?

Yes

Energy Action Plan was adopted in by our city council in 2018

(5.5a) Please attach your city's climate change mitigation plan below. If your city has both action and energy access plans, please make sure to attach all relevant documents below.

Publication title and attach document

Energy Action Plan
Energy Action Plan.pdf

Year of adoption from local government

2018

Web link

https://www.fayetteville-ar.gov/DocumentCenter/View/14807/Energy-Action-Plan_Final-Draft-?bidId=

Areas covered by action plan

Energy
Transport (Mobility)
Building and Infrastructure
Spatial Planning
Agriculture and Forestry
Water
Waste
Social Services

Boundary of plan relative to city boundary (reported in 0.1)

Same – covers entire city and nothing else

If the city boundary is different from the plan boundary, please explain why and any areas/other cities excluded or included

Stage of implementation

Plan in implementation

Has your local government assessed the synergies, trade-offs, and co-benefits, if any, of the main mitigation and adaptation actions you identified?

Yes

Comment or describe the synergies, trade-offs, and co-benefits of this interaction

• Energy efficiency upgrades often have very quick return on investment, allowing small investments by home and business owners to realize substantial long-term savings. • Reducing overall vehicle miles traveled (by switching to more public transportation, biking, and walking) cuts down on maintenance and repair costs for roads and streets. These are tax-payer funded expenses and reducing vehicle miles allows for tax dollars to be allocated to more sustainable projects. • A diversified and green energy supply reduces water pollution, improving the quality of the waterways that are at the heart of recreational and outdoor adventure activities in Arkansas⁶. • Reduced waste and increased recycling cuts down on the need for raw material mining in a wide variety of sectors. Recycled materials such as plastics, paper, cardboard, steel, and aluminum reduce the demand for these raw resources to be extracted, clear-cut, or mined. Retrofitting existing buildings with energy efficient features provides economic, health, and social benefits for residents. Energy efficiency efforts are especially impactful for our low-to-moderate-income residents who benefit from a higher degree of physical comfort, air quality improvements, and financial savings which can go towards more important life expenses like healthcare and food. Improved occupant comfort and lower energy burden can improve equitable outcomes across a variety of social indicators. • Active transportation provides residents with clean, healthy and equitable transportation choices. Residents with limited means are disproportionately impacted when they do not have access to a robust and inter-connected system of trails and sidewalks. While strong active transportation networks provide all of us a place to exercise, meet, and travel, they also provide key commuting corridors for many residents. • The creation of clean, sustainable renewable energy sources provides redundancy in our electricity transmission system. Redundancy reduces stress on operations and creates reliable systems, even in the case of emergencies and natural disasters. • Development of lower-carbon systems helps to spur innovation, creative problem solving, and economic diversification. A strong spirit of discovery is not only useful but necessary as we work to pursue a more equitable and sustainable world.

Has there been a stakeholder engagement plan to develop the plan?

Sustainability staff enlisted a group of stakeholders to guide the development of the Energy Action Plan. Representatives were included from the fields of engineering, development, electric and gas utility management, environmental law, philosophy, economics, energy conservation, energy efficiency, solar energy design and installation, and facilities management. City staff and this stakeholder group assessed the implications, implementation options, policy repercussions, and GHG ramifications of a host of different energy-related strategies. The stakeholder group met in March and July of 2017 to discuss technical implications of implementing actions and achieving outcomes. The stakeholder group was also involved through ongoing email correspondence and feedback mechanisms including surveys and interviews. This group acted as a sounding board for decision making and the prioritization of implementable actions. In addition to the external stakeholder group, Sustainability staff met with department representatives from across the City, including staff from Transportation, Fleet, Engineering, Planning, Community Resources, Communications, Accounting, Purchasing, Parks & Recreation, and Urban Forestry. Staff also met with the Environmental Action Committee and the Sustainability Working Group to gather expert input. Feedback and input from each department was collected and integrated into the plan. Staff focused on aligning departmental needs, working to create a plan that did not impose burdens on

staff but rather enabled them to better achieve their goals while meeting the overarching goal of carbon emissions reduction. In addition to these formal feedback groups, the City conducted an online public input survey, gave multiple TV and radio interviews on the plan, and conducted in-person outreach at a variety of events including the StartUp Crawl (where more than 1,200 individuals gathered to explore Fayetteville's booming startup community), a Saturday Farmer's Market in October (estimated 1,500 residents in attendance), a City Council Agenda Session, and a daytime event at the Fayetteville Public Library. Results are available on the following page.

Primary author of plan

Dedicated city team

Opportunities

Opportunities

(6.0) Please indicate the opportunities your city has identified as a result of addressing climate change and describe how the city is positioning itself to take advantage of these opportunities.

Opportunity	Describe how the city is maximizing this opportunity
Development of local/sustainable food businesses	The city of Fayetteville is recruiting citizens who would like to develop and urban farm on all, or a portion of land that is currently underutilized by the city.
Development of tourism industry	Fayetteville relies on a strong natural presence for tourism. This includes hiking, biking, and various other outdoor activities. Fayetteville continues to strategically support investment in these economic areas and in the process contributes to sustainable practices.
Development of sustainable transport sector	Fayetteville introduced a bikeshare program, and is exploring other forms of transportation. There has also been investments to make sure all citizens are within 1/2 a mile of our greenway bike trail system. This reduces carbon emissions while also promoting the physical well-being of citizens.
Development of sustainable construction sector	In attempts to reduce the cities carbon footprint infill has been promoted. Focusing on infill creates significant investment in construction near downtown areas. There is also encouragement to build more sustainable houses, and the city advises including more insulation and finding various ways to reduce energy use on the residential and commercial level.
Development of waste management / recycling businesses	In an effort to divert waste the city has increased recycling awareness and have provided ways to compost at home. Composting allows for ways to fertilize local gardens.
Increase opportunities for partnerships	The city of Fayetteville works very closely with the University of Arkansas. This includes publishing a resiliency report and sharing forms of transportation such as buses and bikes.
Increased infrastructure investment	Support ongoing regional campaigns promoting local banking, shopping, eating, and other economic drivers. Infrastructure that promotes infill can contribute to the local economy in a variety of positive ways.

(6.1) Does your city collaborate in voluntary partnership with businesses in your city on sustainability projects?

Yes

(6.1a) Please provide some key examples of how your city collaborates with business in the table below.

Collaboration area	Description of collaboration
Energy	The City of Fayetteville Sustainability Department collaborates with many businesses, non-profits and educational institutions on issues and projects. Examples of some of the organizations include: <ul style="list-style-type: none"> • Property Assessed Clean Energy (PACE): PACE is a creative financing mechanism that allows property owners to borrow money for weatherization, energy efficiency, renewable energy or water conservation improvements to their property. The security of tying the repayment of loans to property tax assessments combined with low default rates allow PACE to offer very low and extremely attractive interest rates for these improvement loans. PACE is a completely voluntary program that enables private investment for the purpose of energy savings. • Recycling Master Plan: The City's Recycling Division has recently completed a Master Recycling Plan that sets a recycling diversion rate of 40% by 2027. This will be accomplished by strengthening our existing residential and commercial recycling programs and developing new programs for food waste composting and construction and demolition waste recovery. The Recycling Division currently works with businesses to increase commercial recycling of commodities like; cardboard, paper, aluminum, steel, glass and a number of plastics. In the future, the Recycling Division will be integral for developing relationships with grocery stores, institutions, restaurants and other food waste producers to develop and operate a food waste collection system. • Greenway Initiative: The City is also a partner with the Fayetteville Chamber of Commerce in their Greenway Initiative which was formed in 2010 to serve as a local green and sustainable business certification program for Chamber members. The Greenway Initiatives Objectives are to: <ol style="list-style-type: none"> 1. Provide affordable and practical sustainability expertise to small businesses and non-profits. 2. Develop guidelines and benchmark tools through a balanced scorecard that is comprehensible and accessible for businesses. 3. Educate and promote a sustainable culture among businesses in the community. 4. Support local businesses so they may flourish in a green economy.
ICT (Information and Communication Technology)	Community resilience is the ability of a community to anticipate, adapt, and flourish in the face of change. The changing climate is predicted to cause unusual and harsh weather conditions worldwide, including in Fayetteville, AR. If unaddressed, these future events will have detrimental impacts on the city and those who call it home. To best assess the strengths, vulnerabilities, and future opportunities necessary for resiliency, the University of Arkansas' Office for Sustainability (OFS) led a collaboration between the City of Fayetteville (CoF) and the University of Arkansas (UA) to develop a Community Resiliency Assessment.
Business and Financial Service	The City of Fayetteville has been instrumental in the implementation and guidance of the "GreenWAY Initiative" created by the local Chamber of Commerce. The GreenWAY Initiative is a program and certification process that identifies, assesses, and certifies businesses to do business the "green way". Its purpose is to assist Chamber businesses to implement best practices for becoming sustainable and efficient businesses. GreenWAY works to bridge the gap between programs such as LEED certification that is often unattainable for small businesses and non-profits due to implementation and upfront cost barriers, while maintaining the necessary third-party certification to provide validity and credibility to a business's green efforts. Through this program, a business is independently audited in six categories: energy, education, people, purchasing, waste, and water. These six categories will examine how the business operates on a daily basis, as well as the efficiency of the building design and potential improvements.
Social Services	The City of Fayetteville actively supports the 7Hills Homeless Shelter. This includes plans for urban farming and other self-sustainable projects.

(6.2) List any emission reduction, adaptation, water related or resilience projects you have planned within your city for which you hope to attract financing and provide details on the estimated costs and status of the project. If your city does not have any relevant projects, please select No relevant projects under Project Area.

Project area

No relevant projects

Project title

Stage of project development

Please select

Status of financing

Please select

Project description

Total cost of project

Total investment cost needed

Local Government Emissions

Local Government Operations GHG Emissions Data

(7.0) Do you have an emissions inventory for your local government operations to report? Reporting a Local Government Operations emissions inventory is optional.

Yes

(7.1) Please state the dates of the accounting year or 12-month period for which you are reporting an emissions inventory for your local government operations.

	From	To
Accounting year dates	January 1 2018	December 31 2018

(7.2) Please indicate the category that best describes the boundary of your local government operations emissions inventory.

Departments, entities or companies over which operational control is exercised

(7.3) Please give the name of the primary protocol, standard, or methodology used to calculate your local government operations emissions inventory and attach your inventory using the attachment function.

	Primary protocol and attach inventory	Comment
Emissions methodology	Local Government Operations Protocol (ICLEI/The Climate Registry/California Climate Action Registry/ California Air Resources Board)	

(7.4) Which gases are included in your emissions inventory? Select all that apply.

CO2

(7.5) Please give the total amount of fuel (refers to Scope 1 emissions) that your local government has consumed this year.

Source	Fuel	Amount	Units	Emissions (tonnes CO2e)
Municipal vehicle fleet	Diesel/Gas oil	1112396	L	3000
Municipal vehicle fleet	Propane	17193	L	25.8
Municipal vehicle fleet	Motor gasoline (petrol)	903699	L	2122

(7.6) Please provide total (Scope 1 + Scope 2) GHG emissions for your local government operations, in metric tonnes CO2e. Scopes are a common categorization method.

Local government emissions breakdown

Total Scope 1 + Scope 2 emissions (metric tonnes CO2e)

23561.8

Total Scope 1 emissions (metric tonnes CO2e)

5148

Total Scope 2 emissions (metric tonnes CO2e)

18413.29

Comment

We included Wastewater Treatment Plant scope 2 emissions here and in our City-wide GHG inventory. We hope by reporting in both locations that these numbers do not get double counted.

(7.7) Do you measure local government Scope 3 emissions?

Intending to undertake in the next 2 years

(7.7b) Please explain why not and detail your plans to do so in the future, if any.

	Reasoning	Explanation
Please explain	Lack of knowledge / capacity	Will work to collect scope 3 data but must convince community/instituional/industry parnters to track and provide data. Also, need more staff time to request and compile information.

(7.8) Please indicate if your local government operations emissions have increased, decreased, or stayed the same since your last emissions inventory, and please describe why.

	Change in emissions	Primary reason for change	Please explain
Please explain	Increased	Increased energy/electricity consumption	Extreme temperature swings created higher energy demands for heating and cooling. Increased fleet fuel use due to the need to address increased services required for a rapidly growing city. Additionally we received more accurate data for 2017 that shows emissions increased from 2017 to 2018. If referencing our 2018 application, that number is now lower.

Local Government Emissions Verification

(7.9) Has the GHG emissions data you are currently reporting been externally verified or audited in part or in whole?

Intending to undertake in the next 2 years

(7.9b) Please explain why your local government operations inventory is not verified and describe any future plans for verification.

	Reason	Explanation
Please explain	Data is internally verified	Having established GHG inventory for at least 3 years we now feel ready to find a 3rd party verification in the next couple of years.

Energy

(8.0) Does your city have a renewable energy or electricity target?

Yes

(8.0a) Please provide details of your renewable energy or electricity target and how the city plans to meet those targets.

Scale

City-wide

Energy / electricity types covered by target

All energy consumed (in MWh)

Base year

2010

Total renewable energy / electricity covered by target in base year (in unit specified in column 2)

0

Percentage renewable energy / electricity of total energy or electricity in base year

0

Target year

2050

Total renewable energy / electricity covered by target in target year (in unit specified in column 2)

804341

Percentage renewable energy / electricity of total energy or electricity in target year

100

Percentage of target achieved

22

Plans to meet target (include details on types of energy/electricity)

1. Advocate to increase utility companies renewable energy portfolio (more wind generation) 2. Increase the number of local solar PV installations (offer PACE financing mechanism for local private companies) 3. Advance state level policies that allow 3rd party financing and ownership to expand access to renewable energy development (completed)

Scale

Local government operations

Energy / electricity types covered by target

All electricity produced (in MWh)

Base year

2010

Total renewable energy / electricity covered by target in base year (in unit specified in column 2)

0

Percentage renewable energy / electricity of total energy or electricity in base year

0

Target year

2030

Total renewable energy / electricity covered by target in target year (in unit specified in column 2)

12316

Percentage renewable energy / electricity of total energy or electricity in target year

100

Percentage of target achieved

16

Plans to meet target (include details on types of energy/electricity)

Installing 10MW PV Solar at wastewater treatments plants in 2019. Project near completion. Will bring City government renewable percentage up to 72%

(8.1) Does your city have energy consumption data to report?

Yes

(8.2) Please indicate the energy mix of electricity consumed in your city.

Percent

Coal

34.8

Gas

40.7

Oil

1.9

Nuclear

0

Hydro

3.6

Biomass

1.5

Wind

17.1

Geothermal

0

Solar

0.1

Other sources

0.3

Total - please ensure this equals 100%

100

(8.3) What scale is the energy mix data reported above?

Other (egrid data from EPA for sub-regional level of energy mix for grid supplied energy)

Energy mix is reported at the sub-regional level

(8.5) How much (in MW capacity) renewable energy is installed within the city boundary in the following categories?

	MW capacity	Please describe the scale of the energy source
Renewable district heat/cooling	0	None
Solar PV	10	10MW with 24MWh of battery storage located at the City's wastewater treatment plants.
Solar thermal	0	none
Ground or water source	0	none
Wind	0	none
Other: (please specify)	0	none

(8.6) Does your city have a target to increase energy efficiency?

Yes

(8.6a) Please provide details on your city’s energy efficiency targets.

Scale

Local government operations

Energy efficiency type covered by target

Please select

Base year

Total energy consumed/produced covered by target in base year (in unit specified in column 2)

Target year

Total energy consumed/produced covered by target in target year (in unit specified in column 2)

Percentage of energy efficiency improvement in target year compared to base year levels

Percentage of target achieved

Plans to meet target (include details on types of energy in thermal /electricity)

Please indicate to which energy sector(s) the target applies (Multiple choice)

Please select

Transport

(10.0) Do you have mode share information available to report for the following transport types? Select all that apply.

Passenger transport

Date comes from county-level assessment of passenger transportation mix compiled by the Arkansas Department of Transportation

(10.1) What is the mode share of each transport mode in your city for passenger transport?

	Private motorized transport	Rail/Metro/Tram	Buses (including BRT)	Ferries/ River boats	Walking	Cycling	Taxis or For Hire Vehicles	Other
Please complete	87.9	0	1.6	0	4.4	1.2	0.9	4

(10.5) Please provide the total fleet size and number of vehicle types for the following modes of transport:

	Number of private cars	Number of buses	Number of municipal fleet (excluding buses)	Number of freight vehicles	Number of taxis	Transport Network Companies (e.g. Uber, Lyft) fleet size	Customer-drive carshares (e.g. Car2Go, Drivenow) fleet size
Total fleet size							
Electric							
Hybrid							
Plug in hybrid							
Hydrogen							

Number of vehicles not provided in ARDOT report to the City. Only metric reported is Vehicle Miles Traveled.

(10.7) Do you have a low or zero-emission zone in your city? (i.e. an area that disincentivises fossil fuel vehicles)

No

We don't have a low emissions zone.

Food

(12.0) How many meals per year are served through programs managed by your city? (this includes schools, canteens, hospitals etc.)

(12.4) Does your city have any policies relating to food consumption within your city? If so, please describe the expected outcome of the policy.

	Response	Please describe the expected outcome of the policy
Please complete	Do not know	This data is currently incomplete, we plan to work towards it for reporting next year.

Water Security

Water Supply

(14.0) What are the sources of your city's water supply? Select all that apply.

Surface water

(14.1) Where does the water used to supply your city come from?

From adjacent river basins (by water transfer schemes) outside the city boundary

(14.2) What percentage of your city's population has access to potable water supply service?

100

(14.3) Are you aware of any substantive current or future risks to your city's water supply?

Yes

(14.3a) Please identify the risks to your city's water supply as well as the timescale and level of risk.

Risks	Estimated timescale	Estimated magnitude	Risk description
Increased water stress	Short-term	Serious	The Northwest Arkansas region is fortunate to have a stable water source from Beaver Lake which is controlled by the Army Corp of Engineers. The Beaver Water District supplies the region with potable water from this source. In the long-term the region has a stable water source, however there are short term risks to this water source. Flooding events bring sediment load into the lake which makes water treatment more costly during these times. Significant and prolonged drought would also bring a level of risk if the lake level dropped to the point that the intake valve would need to be positioned at a greater depth.
Increased water demand	Long-term	Serious	The region is reliant on a single drinking water source-Beaver lake. The region is growing significantly.
Declining water quality	Medium-term	Serious	Much of the urbanized area in Northwest Arkansas drains to Beaver Lake. Storm water pollution and runoff are impacting the quality of the water draining into our drinking water source.
Inadequate or ageing infrastructure	Long-term	Serious	Like all cities there is constant maintenance to ensure the city's water infrastructure can handle the needed flow.

Water Supply Management

(14.4) Please select the actions you are taking to reduce the risks to your city's water supply.

Risks

Increased water stress

Adaptation action

Watershed preservation

Status of action

Implementation

Action description and implementation progress

The Beaver Water District has developed a Source Water Protection Plan that lays out goals and strategies for protecting the public health. • Goal 1: Protect Public Health. Strategies include: in-lake monitoring and assessment, emergency response, coliform management, disinfection by-product management and research. • Goal 2: Maintain Water Quality. This is accomplished through tributary monitoring, watershed protection strategies, regulatory compliance and research. • Goal 3: Community Leadership. Strategies include; stakeholder involvement, public awareness, technical and financial assistance, planning and adaptive management. The Beaver Water District adopted his plan in 2012 and approved the creation of a Source Water Protection Fund.

Risks

Declining water quality

Adaptation action

Stormwater management (natural or man-made infrastructure)

Status of action

Operation

Action description and implementation progress

The city has had a Low Impact Development storm water ordinance for about 10 years. Recently the city adopted an updated criteria manual that prescribes LID practices.

Risks

Increased water stress

Adaptation action

Conservation awareness and education

Status of action

Scoping

Action description and implementation progress

Beaver Water District is working on a shared drought plan for the NWA area.

(14.5) Does your city have a publicly available Water Resource Management strategy?

Yes

(14.5a) Please provide more information on your city's public Water Resource Management strategy.

Publication title and attach document

Water Master Plan

Year of adoption from local government

2017

Web link

<https://www.fayetteville-ar.gov/3355/Water-Master-Plan-Update>

Does this strategy include Sanitation services?

No

Stage of implementation

Plan in implementation

Publication title and attach document

2014 Wastewater Collection System Master Plan Update

Year of adoption from local government

2014

Web link

<https://www.fayetteville-ar.gov/DocumentCenter/View/17526/2014-Wastewater-Collection-System-Master-Plan-Update?bidId=>

Does this strategy include Sanitation services?

Yes

Stage of implementation

Plan in implementation

Submit your response

Please provide the following details about the amendments you have made to your CDP response.

What language are you submitting your response in?

English

Please read and accept our Terms and Conditions

I have read and accept the Terms and Conditions

Please confirm how your response should be handled by CDP.

	Public or non-public submission
I am submitting my response	Publicly (recommended)