

Module: Introduction

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0.1

Introduction

Please give a general description and introduction to your city.

Chartered in 1839 as the capital of the Republic of Texas, Austin became the state capital when Texas was admitted to the Union in 1846 as the twenty-eighth state. Austin is now the fourth largest city in the state and the fifteenth most populous city in the nation with total resident count of 790,390.

Austin is in Travis County with a population of 1,024,266. The Austin-San Marcos Metropolitan Statistical Area includes Bastrop, Caldwell, Hays, Travis, and Williamson Counties.

Located in the Central Texas Hill Country, Austin is approximately 230 miles from Mexico and less than 200 miles from 3 of the 10 largest U.S. cities (192 miles from Dallas to its north, 79 miles from San Antonio to its south, and 162 miles from Houston to its southeast).

Austin averages 300 days of sunshine each year and about 33.78 inches of rainfall. It rarely snows in Austin.

The City of Austin has a council-manager form of government. The City Council comprises seven Council Members, including the Mayor. Council Members are elected at-large for staggered three-year terms.

0.2

Emissions Accounting Choice

Please indicate which GHG measurement inventories you are disclosing.

Module: Governance

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1.0

Please describe the process by which the city reviews its progress and manages overall responsibility for climate change

The Austin Climate Protection Program, which is run by the Office of Sustainability and lies within the City Manager's office, develops the annual city operational GHG inventory and reports on progress towards our goals to City Council. Additionally, all City Departments have individual Climate Protection Plans and performance measures.

1.1

Do you provide incentives for individual (or departmental) management of climate change issues, including the attainment of GHG reduction targets?

Yes

1.1a

Please complete the table.

Who is entitled to benefit from these incentives?	The type of incentives	Comment
Heads of departments	Other: Budget Allocation	Departmental Carbon footprinting goals are included in our annual budget / performance process. Progress towards goals are assessed and incorporated into future budget decisions

2.0

Do current and/or anticipated effects of climate change present significant physical risks to your city?

Yes

2.0a

Please list and describe the effects of climate change which you expect to experience in your city, together with anticipated timescales.

Effects of climate change	Level of risk	Anticipated timescale in years	Comment (please comment with particular reference to the impact on the following sectors: Buildings, Water, Waste, Transport, Energy, Communications / Telecommunications, Human Health, Other)
More hot days	Serious	Short-term	Weather related deaths and injury from heat. Decrease in air quality during heat waves. Increased risk for Fire.
More intense droughts	Serious	Current	Increased chance of fires decreased access to potable water decreased access to proper nutrition stressed food banks, soup kitchens
Increased average annual rainfall	Serious	Medium-term	Potential increased storm water/flooding Disrupted mobility for emergency services Disabled infrastructure (storm/sewer) Insufficient clean water
More hot days	Serious	Medium-term	Consistently high energy bills Insufficient AC units for vulnerable communities Increase carbon emissions Potential for more house fires caused by stressed electric systems
Reduced average annual rainfall	Serious	Medium-term	Increase in waterborne diseases Concentrations of toxins in the water system increased sedimentation in the water system Increased demand for potable water Policy conflict between tree and water resource management Decreasing water infiltration Decreasing aquifer recharge Decreasing field operations Increase erosion from flooding and dead plants
More frequent heatwaves	Serious	Medium-term	increase sensitivity to fire Heat waves trigger nuisances between land uses Loss of tree cover Increase in jobless rate for climate related population influx Increase cases of mold after flooding Increase in asthma for vulnerable communities Increase in amount of emergency room visits due to heat wave
Reduced	Serious	Long-term	Aquifer depletion: Decreased supply Increase in population puts stressor on all water systems Loss of

Effects of climate change	Level of risk	Anticipated timescale in years	Comment (please comment with particular reference to the impact on the following sectors: Buildings, Water, Waste, Transport, Energy, Communications / Telecommunications, Human Health, Other)
average annual rainfall			vegetation caused by lack of water: more erosion

2.0b

Please explain why the anticipated physical effects of climate change present no significant risk to your city.

2.1

Please describe any compounding factors that may worsen the physical effects of climate change in your city.

Energy

In the future Austin Energy will face increased demand for uninterrupted and affordable energy. Austin's climate is projected to experience longer droughts and heat waves, which will make it difficult for residents to cool homes and buildings continuously, and put vulnerable segments of our community at risk. Weather-related disasters are also projected to increase, leading to a higher rate of downed electrical lines and potential service interruptions.

Water

A growing population and spreading development pattern will place greater demands on the water system. With population growth, the life cycle of the water, including capturing, treating, distributing, discharge and reclaiming water, will consume an increasing amount of energy. More energy and infrastructure will also be required to handle increased stormwater flows. Heavier storms will increase the severity of floods, potentially damaging infrastructure, and stressing the water treatment system.

Climate change will likely make it more difficult to provide constant clean water for residents. Depleting water sources will negatively impact pricing with the potential need to transport water from farther away. Longer and hotter droughts will diminish the availability of potable water by decreasing water reserves and increasing evaporation.

Resource Management

As the climate continues to change, how we think about materials will have to adapt. Materials will need to get places faster; Austin will need potable water, medicine and building materials after weather related emergencies. How and where these materials originate will invariably impact how quickly residents will have access to necessary supplies. Over the long term, landfills will need attention to ensure that heavy rainfall and long heat waves do not compromise the safety of buried waste.

Extreme weather events can have devastating effect on life and property. During extreme weather events such as floods, tornados, and hurricanes, materials are sometimes turned into projectiles and can create more damage than the storm itself. Heat waves can also make materials toxic. When exposed to longer durations of heat, interior finishes can off-gas causing unsafe indoor air quality. Material management is intrinsically connected to climate change. For example, weather related disasters are often quantified by estimated cost of property damaged.

Transportation

Climate change may increase the number of large hurricanes traversing the Gulf of Mexico. If Galveston, New Orleans, or Houston are in the path of a large hurricane, the Central Texas region can expect to see an influx of evacuees.

2.2

Do you consider that the physical impacts of climate change could threaten the ability of businesses to operate successfully in your city?

Yes

2.2a

Please explain the reasoning behind your response.

Human Health

Having a healthy and vibrant community is one of the things that distinguishes Austin and makes it a desirable place to live. A changing climate can impact the health of our community in a variety of ways and we need to take steps to protect the health of our community and prepare for the impacts of climate change if we want that to continue to be true in the future.

With many climate change projections, the extreme heat, drought, and wildfires during the summer of 2011 will be less of an exceptional event and become more common in the future. Longer and/or more intense extreme heat events and more intense storms that lead to increased flooding will likely affect human health in our community.

Potential public health impacts include: air pollution-related effects, increases in allergies, and changes in the extent and range of infectious water and vector born diseases.

Climate change impacts will not affect all segments of our community equally. Some groups within our community are more vulnerable or at greater risk when it comes to extreme weather and climate change impacts. The very old, very young, homeless, socially or economically disadvantaged or isolated populations a likely more vulnerable to these climate related impacts.

Transportation

Second only to the state of Utah, Texas is currently experiencing a very high birth rate. Compounded by an aging baby-boomer population and an increasingly sharp edge of affluence, demands on transportation types will change drastically over the next 20 years. Large portions of the population will not be willing or able to drive

a car. During heat waves and other weather related emergencies, large portions of the population might not have the ability to independently reach needed resources such as cooling stations, grocery stores and emergency services.

Roadway material

Long term transportation policy is vital to creating resilient communities. Roads account for a large portion of impervious surfaces in the Austin region. Black asphalt absorbs heat and can intensify the negative impact of heat waves. It will also be subject to additional heat stress which could compromise road quality as temperatures increase. In addition, petroleum from the roads can leach into the creeks and streams potentially contaminate our drinking water.

Water and human health impacts

After a natural disaster has passed and immediate response crews have left, other health related issues may arise. Flooding increases the risk of waterborne diseases when drinking water becomes contaminated. Diseases like cholera affect children and the elderly who drink more water per body weight or have less resilient immune systems. Short term flooding also increases the chances for mosquito-borne diseases in vulnerable communities. Longer droughts and heat waves trigger respiratory diseases related to increased airborne particulate matter and ground level ozone.

Drought

Climate change will affect long-term ecological issues related water. Prolonged droughts have the potential to increase desertification in Central Texas landscape as well as limit water availability.

2.3

Please describe the process or methodology you used to evaluate the physical risks to your city.

Internal Process

Summer 2011 in Austin was the hottest and driest on record, and the wildfires that resulted from those conditions were the worst seen in this area. 2011 was enough of an outlier that the extremes we experienced actually exceeded what the downscaled models of temperature and precipitation changes are predicting for 2050, with temperature increases of 2.5-4 deg F (compared to 2011's 5.5) and precipitation changes of +/- 1-2 inches (compared to 2011's -6 inches). Regardless of what 2011 means for the climate models, it did give us some hand-on experience with living and working under new climate extremes.

There are a few dedicated staff members who push the issues internally. At a recent interdepartmental meeting, staff asked a member of each city department to identify how the recent drought has affected their day to day operations. The facilitators listed answers as either a short term issue or a longer term issue. The facilitators then asked the participants to identify departments that have similar issues and see if the participants are willing to work together to tackle related issues.

For now, climate change risk is being handled department by department with coordination through the Office of Sustainability. A larger more robust effort is planned for the future.

2.4

Does your city face any regulatory, social, or other risks that you wish to detail? If so, please use the text box provided.

The City of Austin not only operates city government (police, fire, public works, parks, etc.) but also owns a municipal power utility (Austin Energy) and water utility (Austin Water). The normal in Central Texas includes high temperatures in the summer of over 100 degrees Fahrenheit, freezing temperatures in the winter, regular droughts, and rainfall events over 6 inches are not uncommon. The normal in Austin begins to prepare us for future risks; however, due to increasing population, the risks to Austin call for a city wide coordinated response to disasters as well as future planning within city departments and utilities.

Regulatory Risks: The City of Austin's local government operations do not include large emissions point sources and would likely not be directly regulated. However, we emit greenhouse gases from fleet vehicles and buildings, and regulation costs would be passed down and affect our city budget. Austin Energy likely faces the largest risk of regulation due to climate change. The city owns a portion of a coal fired power plant, plus two natural gas fired power plants. If state, federal, or global regulation on CO2 were to begin, we would face compliance costs associated with our power generation. Currently Austin Energy has voluntary goals of 35% renewable energy generation and 800 MW of energy efficiency by 2020 and City Operations are striving for carbon neutrality by 2020, both of which help to mitigate future regulatory risks.

Physical Risks: The City of Austin faces many physical risks from climate change. First, increased heat during our already hot summers provides substantial risk to all populations. The physical risk of longer droughts have always been a risk for Texas, but with growing populations, the increased demand for drinking water as well as risk from wildfire to homes, businesses and agriculture is very real. Finally, the risk of increased intensity of rain events could be a major problem. Austin has experience many intense rain events that cause flooding and increases in this area are even more of a risk.

Social Risks: All physical risks from drought, flooding, extreme heat and cold have the potential to affect local populations. All portions of our city contain watersheds and associated creeks that are prone to flooding. In addition, our entire city is at risk to drought since we rely on surface water reservoirs that may dry up during extended periods of drought. Our city contains hilly areas with rolling forests that are prone to wildfire. Our city contains lower income families that are at higher risk to extreme temperatures. Finally, Austin is located near the Texas Mexico border as well as the gulf coast. In the event of a major drought, hurricane, or natural disaster in our region, refugees from other areas may move to Austin for protection and assistance.

3.0

Does climate change present any economic opportunities for your city?

Yes

3.0a

Please indicate the opportunities and describe how the city is positioning itself to take advantage of them.

Economic Opportunity	Describe how the city is maximizing this opportunity
Improved efficiency of operations	Increased focus on reducing energy and fuel costs through reducing ghg emissions.
Green jobs	Drive for green jobs through city programs.
Development of new business industries (e.g. clean tech)	Economic Growth department teaming with Chamber of Commerce and University of Texas to attract employers.
Increased attention to other environmental concerns	By reudcing ghg emissions and better managing water resources, we will also have cleaner creeks, less air pollution, and other ancillary benefits.

3.0b

Why not?

3.1

Please describe any other opportunities (e.g. social or physical) that climate change presents for your city.

Warmer average temperatures could reduce the risk of freezing temperatures, causing negative effects on agriculture and our population. While increased intensity of rainfall events could produce negative impacts, they do more effectively fill reservoirs (the Highland Lakes, Lake Travis specifically) which the Austin area relies on for drinking water. Austin already has a long growing season and an attractive climate, much increase in current high temperatures would not be beneficial.

LGO1.0

Please state the dates of the accounting year or 12-month period for which you are reporting a GHG measurement inventory for your local government operations.

Fri 01 Jan 2010 - Fri 31 Dec 2010

LGO1.1

Please indicate the category that best describes the boundary of your municipal GHG emissions inventory.

Companies, entities or departments over which operational control is exercised

LGO1.2

Please indicate which of the following major sources of emissions are included in your GHG emissions inventory.

Source of emissions	Status
Airport(s)	Included
Buildings	Included
Buses	Not Included
Electricity generation	Not Included
Electricity transmission and distribution	Not Included
Employee commuting	Not Included
Incineration of waste	Not Included
Landfills	Included

Source of emissions	Status
Local trains	Not Included
Maritime port	Not Included
Municipal vehicle fleet	Included
Regional trains	Not Included
Roads / highways	Not Included
Street lighting and traffic signals	Included
Subway / underground	Not Included
Thermal energy	Not Included
Waste collection	Included
Wastewater treatment	Included
Water supply	Included

LGO1.3

Please give the name of the primary protocol, standard or methodology you have used to calculate GHG emissions.

Local Government Operations Protocol (ICLEI/The Climate Registry/California Climate Action Registry/California Air Resources Board)

LGO1.3a

Please explain your methodology, including protocols used and methods of calculation.

The City of Austin's primary GHG reporting methodology is based on The Climate Registry's Local Government Operations Protocol and the General Reporting Protocol. We report the City's GHG emission inventory to The Climate Registry annually. This inventory does not include Austin Energy's power generation and delivery emissions. Austin Energy mandatorily reports this information separately to the EPA.

LGO1.4

Please give the total amount of fuel (in energy units) that your local government has consumed this year.

Fuel	Amount	Energy units
Natural gas	1033288	kWh
Distillate fuel oil No 2	1303214	kWh
Motor gasoline	72192987.6	kWh
Distillate fuel oil No 2	28783301	kWh
Biodiesels	64327586	kWh
Other: Ethanol	2641834.1	kWh
Propane	36352.4	GJ
Natural gas	8635.9	kWh

LGO1.5

How much electricity, heat, steam, and cooling (in energy units) has your local government purchased for its own consumption during the reporting year?

Type	Amount	Energy units
Electricity	410483689	kWh

LGO1.6

Please provide total GHG emissions for your local government's operations, in metric tonnes CO₂e.

449980.15

LGO1.7

If applicable, please provide the following GHG emissions.

Total Scope 1 activity in metric tonnes CO2e emitted	Total Scope 2 activity in metric tonnes CO2e emitted
187580.37	258032

LGO1.8

Do you measure Scope 3 emissions?

No

LGO1.9

Please provide more detail about how you measure Scope 3 emissions, including total Scope 3 emissions in metric tonnes CO2e. If you do not measure Scope 3 emissions, please explain why not and detail your plans to do so in the future, if any.

LGO1.11

Where it will facilitate a greater understanding of your government emissions, please provide a breakdown of these emissions by department, facility, greenhouse gas (CO2, CH4, N2O etc) or by any other classification system used in your city.

Department / Facility / GHG / Other	Type	Emissions (Metric Tonnes CO2e)
Total Greenhouse Gas Emissions from Stationary, Mobile, Process, and Fugitive combustion	Scope 1	187580.37
Total Greenhouse Gas Emissions from Purchased Electricity	Scope 2	258032.16
Total Biogenic Emissions from Mobile combustion	Other: Biogenic	4367.62

LGO1.12

Please provide any further details about your process for collecting and managing GHG emissions data.

The City of Austin has developed an Inventory Management Plan that outlines our reporting boundaries, emission factors, data collection, and protocol methodologies.

Page: Local Government - External Verification

LGO1.13

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

Yes

LGO1.13a

Please provide any other relevant information about the emissions verification process.

The City of Austin's 2010 GHG Inventory has been verified by Ruby Canyon Engineering.

Attachments

https://www.cdproject.net/Sites/2012/84/1184/CDP_Cities_2012/Shared_Documents/Attachments/CDPCities2012/LocalGovernment-ExternalVerification/2010-11-02-TCR-Verification-Statement-Form_City_of_Austin_2_29_12.pdf

Module: Emissions - Community

Page: Community - Date and Boundary

C1.0

Please state the dates of the accounting year or 12-month period for which you are reporting a GHG measurement inventory for your community.

Fri 01 Jan 2010 - Fri 31 Dec 2010

C1.1

Please indicate the category that best describes the boundary of your community GHG emissions inventory.

Other: Greater Austin area to Include all of Travis County, Texas

Page: Community - GHG Emissions Data

C1.2

Please give the name of the primary protocol, standard or methodology you have used to calculate GHG emissions.

Other: Draft Community-Scale GHG Emissions Accounting and Reporting Protocol (ICLEI)

C1.3

Please explain your methodology, including use of additional protocol, and methods of calculation.

Community inventory includes draft framework provided by 2011 Draft Reporting Protocol from ICLEI. Community inventory also references emission factors from The Climate Registry Local Government Operations Protocol and Utility specific emission factors.

C1.4

Please detail total emissions for your community, in metric tonnes CO2e.

14926864

C1.5

If applicable, please provide a breakdown of your GHG emissions by scope.

Total Scope 1 activity in metric tonnes CO2e emitted	Total Scope 2 activity in metric tonnes CO2e emitted
7794880	7131984

C1.6

Where it will facilitate a greater understanding of your community's emissions, please provide a breakdown of these emissions by end user (buildings, water, waste, transport), economic sector (residential, commercial, industrial, institutional), IPCC sector (stationary combustion, mobile combustion, industrial processes, waste), greenhouse gas (CO2, CH4, N2O etc.) or any other classification system used in your city.

End user / Economic sector / IPCC sector / GHG / Other	Emissions (metric tonnes CO2e)
Buildings/Energy/CO2, CH4, N2O	7747509
Water/Process/CH4, N2O	32187
Transport/Mobile Combustion/CO2, CH4, N2O	5434619
Waste/Landfill/CH4	1712549

C1.7

Please give the total amount of fuel (in energy units) consumed in your city during the reporting year.

Fuel	Amount	Energy Units
Natural gas	12207.94	TJ

C1.8

How much electricity, heat, steam, and cooling (in energy units) has been consumed by your city during the reporting year?

Type	Amount	Energy Units
Electricity	14031732.91	MWh

C1.9

Please provide a breakdown of fuel use and emissions by source as defined in the Global Protocol for Community GHG Inventories.

Emissions Source	Energy/Activity Fuel Type	Fuel consumed/Electricity used/Other energy activity measure	Energy Units	Emissions Metric Tonnes CO2e	Type
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C1.11

Do you measure Scope 3 emissions?

No

C1.12

Please provide more detail about how you measure Scope 3 emissions, including total Scope 3 emissions in metric tonnes CO2e. If you do not measure Scope 3 emissions, please explain why not and detail your plans to do so in the future, if any.

C1.13

Please provide the following measures of emissions intensity for your community, as appropriate.

Annual emissions per person (emissions per capita)	Annual emissions per sq. kilometer	Other measures of emissions intensity
14.57		

C1.14

Please provide any further details about your process for collecting and managing GHG emissions data.

C1.15

Has the GHG data you reported been externally verified or audited in part or in whole?

No

C1.15a

Please provide any other relevant information about the emissions verification process.

Further Information

A large amount of the Community Inventory data includes modelled data and estimates. We are continuing to search for a suitable protocol to follow as well as improve on our data collection practices.

Module: Strategy

Page: GHG Emissions Reduction - Local Government Operations

4.0

Do you have a GHG emissions reduction target in place for your city government operations?

Yes

4.0a

Please provide details of your reduction target.

Baseline year	Percentage reduction target	GHG sources to which the target applies	Target date	Comment
2007	100%		2020	

4.0b

Please explain why you do not have an emissions reduction target.

4.1

What activities are you undertaking to reduce your emissions in your local government operations?

Emissions reduction activity	What is the current status of this initiative as it relates to your city?	Which statement best characterizes the type of initiative?	Anticipated emissions reduction over lifetime (metric tonnes CO2e)	Which statement best describes how this initiative is funded or financed?	Comment
Education > climate change-focused curriculum	Currently in-effect at a significant scale across most of the city	Mostly project or program based	None, indirect.	Mostly funded through general municipal funds	
Energy Demand in Buildings > Building codes and standards	Currently in-effect at a significant scale across most of the city	Mostly mandate, regulatory, or policy-driven	large, but not specifically quantified and aggregated	Mostly funded through general municipal funds	
Energy Demand in Buildings > Building performance rating and reporting	Currently in-effect and being piloted	Mostly mandate, regulatory, or policy-driven	City compliance with the Energy Conservation Audit and Disclosure ordinance to rate buildings in EPA portfolio manager	Mostly funded through general municipal funds	
Energy Demand in Buildings > Financing mechanisms for retrofit	Currently in-effect at a significant scale across most of the city	Mostly project or program based	Austin Energy coordinating with departments to retrofit city owned buildings.	Mostly funded through general municipal funds	
Energy Demand in Buildings > Renewable on-Site energy generation	Currently in-effect and being piloted	Mostly project or program based	Over 20 city facilities have onsite renewable energy generation, more planned in the future.	Mostly funded through general municipal funds	
Energy Demand in Buildings > Switching to low-carbon fuels	Currently in-effect at a transformative scale across the entire city	Mostly mandate, regulatory, or policy-driven	Inline with the city wide goal of carbon neutrality, goal to reduce emissions from city vehicle fleet from over 50,000 mt CO2e in baseline to 0 in 2020. Large scale adoption of B20, E85, hybrids, propane, and natural gas	Mostly funded through general municipal funds	
Energy Supply > Clean	Currently in-effect at a	Mostly mandate,	Part of the Climate Protection Resolution for City	Mostly funded	

Emissions reduction activity	What is the current status of this initiative as it relates to your city?	Which statement best characterizes the type of initiative?	Anticipated emissions reduction over lifetime (metric tonnes CO2e)	Which statement best describes how this initiative is funded or financed?	Comment
energy procurement strategies	transformative scale across the entire city	regulatory, or policy-driven	operations to use 100% renewable energy in 2012. The City met this goal, avoiding over 100,000 mtCO2e per year annually going forward. Purchases are made through the Austin Energy GreenChoice program	through general municipal funds	
Outdoor Lighting > LED / CFL / other luminaire technologies	Currently in-effect and being piloted	Mostly project or program based	LED upgrades made in numerous city facilities, indoor and out. CFL and T8,5 upgrades made citywide. Large reductions created, not specifically quantified.	A grant or subsidy was received for this initiative	
Public procurement > Encourage low carbon products	Still under current consideration or awaiting final authorization	Mostly project or program based	In the process of working through upgrading procurement guidelines, no direct emissions reductions realized.	Mostly funded through general municipal funds	
Transport > Infrastructure for non-motorized transport	Currently in-effect and being piloted	Mostly project or program based	The City currently offers bikes to numerous city buildings for daily use by employees as well as encouraging walking through close proximity of buildings.	Mostly funded through general municipal funds	
Transport > Improve fuel economy and reduce CO2 from motorized vehicles	Currently in-effect at a significant scale across most of the city	Mostly mandate, regulatory, or policy-driven	Part of the City 2020 carbon neutral fleet plan. Educating employees and through new vehicle purchases. Emissions reductions aggregated in overall fleet targets.	Mostly funded through general municipal funds	
Transport > Improve the accessibility to public transit systems	Currently in-effect at a significant scale across most of the city	Utilizes incentives and/or disincentives to affect behaviours	The City of Austin offers all employees access to free bus passes for use on city public transportation. Emissions reductions not quantified.	Mostly funded through general municipal funds	
Water > Methane recovery for reuse	Currently in-effect and being piloted	Mostly project or program based	The City recently installed a methane capture and generator set at our biosolids plant. This project was funded by ARRA grant funding. The system is sized at over 500kw and will produce significant ghg reductions.	A grant or subsidy was received for this initiative	
Water > Water recycling or reclamation	Currently in-effect and being piloted	Mostly project or program based	The City currently has numerous effluent reuse lines built, one for instance is installed near our airport where millions of gallons of irrigation water are being saved per year. Indirect emissions reductions not quantified.	Mostly funded through general municipal funds	
Waste > Landfill gas	Currently in-effect and	Mostly mandate,	The city owns a closed landfill that is being regulated	Mostly funded	

Emissions reduction activity	What is the current status of this initiative as it relates to your city?	Which statement best characterizes the type of initiative?	Anticipated emissions reduction over lifetime (metric tonnes CO2e)	Which statement best describes how this initiative is funded or financed?	Comment
capture	being piloted	regulatory, or policy-driven	by the EPA. Landfill gas emissions are collected, flared, and reported to the EPA.	through general municipal funds	
Waste > Recycling or composting collections and/or facilities	Currently in-effect at a significant scale across most of the city	Mostly mandate, regulatory, or policy-driven	The City has recycling containers in every city owned building, indirect GHG emissions reductions have not been quantified.	Mostly funded through general municipal funds	
Waste > Waste prevention policies or programs	Currently in-effect at a significant scale across most of the city	Mostly mandate, regulatory, or policy-driven	The city's resource recovery department not only encourages recycling, but first reuse and reduction in the need for waste and recycling, projects are implemented across city departments.	Mostly funded through general municipal funds	

4.2

Do you engage with city government suppliers on climate change?

Yes

4.2a

Please provide details of your engagement with the city government's supply chain.

Engagement with the city supply chain on climate change and ghg reduction is done in varying levels based on departments. Some examples include, IT equipment, Energy Star, LEED certification, recycled content, and renewable energy. City wide coordination and consistency are a future goal.

4.3

Do you have a GHG emissions reduction target in place for your community?

Yes

4.3a

Please provide details of your reduction target.

Baseline year	Percentage reduction target	GHG sources to which the target applies	Target date	Comment
2007	25%		2015	
2007	70%		Other: 2030	

4.3b

Please explain why you do not have an emissions reduction target.

4.4

What activities are you currently undertaking to reduce emissions city-wide?

Emissions reduction activity	What is the current status of this initiative as it relates to your city?	Which statement best characterizes the type of initiative?	Anticipated emissions reduction over lifetime (metric tonnes CO2e)	Which statement best describes how this initiative is funded or financed?	Comment
Transport > Infrastructure for non-motorized transport	Currently in-effect at a significant scale across most of the city	Mostly project or program based	Emission reductions have not been quantified but the city has large amounts of bike lanes, bike parking, and is working to create a downtown bike sharing program.	Mostly funded through general municipal funds	
Urban Land Use > Compact cities	Still under current consideration or awaiting final authorization	Mostly project or program based	The City of Austin is in the process of finalizing and moving to adoption of a new comprehensive plan, called Imagine Austin. The plan would move the community towards a more compact and connected city. Community GHG reductions have been calculated but not measured as the plan has not been implemented yet.	Mostly funded through general municipal funds	
Urban Land Use > Limiting urban sprawl	Still under current consideration or awaiting final authorization	Mostly project or program based	City planning and our new draft comprehensive plan, Imagine Austin includes strategies to reduce sprawl, but has not been implemented. In addition, significant investment has been made in downtown residential development, avoiding sprawl.	Mostly funded through general municipal funds	
Urban Land Use > Urban agriculture	Currently in-effect and being piloted	Mostly mandate, regulatory, or policy-driven	The City of Austin has an urban agriculture coordinator and is working on policies and growth of more small, medium, and large scale urban food growth. Initiatives range from community gardens to multi-acre farms. Emissions reductions have not been quantified	Mostly funded through general municipal funds	
Water > Water recycling or reclamation	Currently in-effect and being piloted	Mostly mandate, regulatory, or policy-driven	The City of Austin is developing an effluent reuse (purple pipe) system, but ghg reductions have not been quantified at this time.	Mostly funded through general municipal funds	
Urban Land Use > Greenspace and/or biodiversity preservation and expansion	Currently in-effect at a transformative scale across the entire city	Mostly mandate, regulatory, or policy-driven	The City has a large network of urban parks, watershed protection lands, and aquifer protection areas. GHG emissions have not been quantified, but these contribute significantly to quality of life in Austin.	Mostly funded through general municipal funds	

Emissions reduction activity	What is the current status of this initiative as it relates to your city?	Which statement best characterizes the type of initiative?	Anticipated emissions reduction over lifetime (metric tonnes CO2e)	Which statement best describes how this initiative is funded or financed?	Comment
Waste > Recycling or composting collections and/or facilities	Currently in-effect at a transformative scale across the entire city	Mostly mandate, regulatory, or policy-driven	Austin Resource Recovery offers single stream recycling to all customers, waste reduction assistance programs, pay as you throw billing, and will soon be offering home green waste / compost collection. This effort is all part of the Austin Zero Waste Plan, GHG reductions have not been specifically quantified	Mostly funded through general municipal funds	
Energy Demand in Buildings > Building performance rating and reporting	Currently in-effect at a significant scale across most of the city	Mostly mandate, regulatory, or policy-driven	The City of Austin has an Energy Conservation Audit and Disclosure ordinance that applies to single family homes, multi-family properties, and commercial properties. The ordinance requires differing levels of audits, measurement, benchmarking and reporting to stakeholders. Reductions are quantified as part of the Austin Energy goal of 800 MW of energy efficiency.	Mostly funded through general municipal funds	
Urban Land Use > Transit oriented development	Currently in-effect and being piloted	Mostly project or program based	The City of Austin, in conjunction with Capital Metro recently added a light rail line that connects the north suburbs to downtown. Transit oriented development was part of this project and will be part of future urban rail programs. GHG reductions have not been quantified	A grant or subsidy was received for this initiative	
Energy Supply > Low or zero carbon energy supply generation	Currently in-effect at a transformative scale across the entire city	Mostly mandate, regulatory, or policy-driven	Austin Energy recently completed power purchase agreements with a 30 MW solar PV power plant, a biomass power plant, and numerous wind power plants. These projects are assisting the utility in meeting their goal of 35% renewable generation by 2020.	Mostly funded through general municipal funds	
Energy Supply > Combined heat and power	Currently in-effect at a significant scale across most of the city	Mostly project or program based	Austin Energy has developed numerous combined heat and power systems across the city to meet demand in new developments. Examples include the Mueller mixed use development and Domain shopping center. GHG reductions have not been quantified.	Mostly funded through general municipal funds	
Energy Demand in Buildings > Energy efficiency/retrofit measures	Currently in-effect at a transformative scale across the entire city	Utilizes incentives and/or disincentives to affect behaviours	Austin Energy offers numerous rebates to residential and commercial customers to incentivize energy efficiency retrofits, including HVAC systems, insulation, lighting, windows, etc. GHG reductions are calculated in terms of	Mostly funded through general municipal	

Emissions reduction activity	What is the current status of this initiative as it relates to your city?	Which statement best characterizes the type of initiative?	Anticipated emissions reduction over lifetime (metric tonnes CO2e)	Which statement best describes how this initiative is funded or financed?	Comment
			MW savings.	funds	
Energy Demand in Buildings > Building codes and standards	Currently in-effect and being piloted	Mostly mandate, regulatory, or policy-driven	The City of Austin has modified its building code to require all new single family homes to be net zero energy capable by 2015.	Not Applicable	

4.5

List any climate change-related projects for which you hope to attract private sector involvement.

The City of Austin is leveraging private sector involvement for multiple climate change related projects. Examples include:

- The City of Austin's green business leaders recognition program
- Austin Energy's Energy Conservation and Audit Disclosure program
- Austin Resource Recovery's Waste Reduction Assistance Program
- Austin Water Utility's 3C Business Challenge
- The Seaholm Power Plan redevelopment project
- The Colony Park Sustainable Development public private partnership
- The Sustainable Places Analytic tool partnership with IBM
- The Imagine Austin comprehensive plan

4.6

Does your city incorporate desired GHG reductions into the master planning for the city?

Yes

4.6a

Please describe the ways that the master plan is designed to reduce GHG emissions.

Greenhouse Gas reductions were connected to all scenarios analyzed in the comprehensive planning process, Imagine Austin. These reductions were taken into account when deciding on the final approach and projects in the plan.

Imagine Austin is really a roadmap for economic, environmental, and social sustainability for the Austin Area. GHG emissions will be reduced in the long term through more efficient transportation, water usage, energy usage, and natural systems. The program has sustainability integrated throughout the plan as displayed in the five guiding principles:

- Grow as a compact, connected city
- Integrate Nature into the city
- Provide paths to prosperity for all
- Develop as an affordable and healthy community
- Sustainably manage water and other environmental resources

The plan also has eight priority programs that more specifically will reduce ghg emissions.

- Improved transportation options for cars, transit, bikes, and walking
- Manage long term water resources
- Education and talented workforce
- Network of parks, trails, waterways, and natural areas
- Affordable housing throughout Austin
- Grow and invest in creative economy
- Develop a healthy Austin program
- An update of city rules for land uses

4.7

Please describe any renewable energy targets or goals and how the city plans to meet those targets.

The City has two primary renewable energy targets that were both set by our City Council in the 2007 Climate Protection Resolution. The first was a goal for City Departmental Operations (offices, police, fire, water, solid waste. etc.) to purchase 100% renewable energy from our municipally owned power utility, Austin Energy, by 2012. This goal was met in the fall of 2011 when all city departments joined the GreenChoice program; purchasing Texas Wind Power renewable energy credits in an amount equal to all electricity used. The second target is for 35% Austin Energy's power to come from renewable sources by 2020. Austin Energy has been implementing a long term generation plan that includes developing renewable resources (solar, wind, and biomass) owned by the utility as well as in the community and purchasing renewable energy in long term power purchase agreements from developers. Austin Energy projects to be at 26% renewable generation by 2013.

Page: Adaptation

4.8

Do you have a plan for increasing your city's resilience to the expected physical effects of climate change?

No

4.8a

Please explain why not and any future arrangements you have to create a plan.

The Office of Sustainability is currently working on draft plan to imbed climate change resiliency into City of Austin operations

4.9

Please describe the actions you are taking to reduce the risk to your city's infrastructure, citizens, and businesses from climate changes as identified in the Risks Module.

Effects of climate change	Actions to reduce vulnerability	What is the current status of this initiative as it relates to your city?	Which statement best characterizes the type of initiative?	Which statement best describes how this initiative is funded or financed?	Comment
More hot days	Crisis management including warning and evacuation systems	Currently in-effect at a significant scale across most of the city	Mostly project or program based	Mostly funded through general municipal funds	
Hotter summers	Air quality initiatives	Currently in-effect at a significant scale across most of the city	Mostly mandate, regulatory, or policy-driven	Mostly funded through general municipal funds	
Increased urban heat island effect	Green roofs	Currently in-effect and being piloted	Mostly project or program based	Mostly funded through general municipal funds	
Increased urban heat island effect	Tree planting and/or creation of green space	Currently in-effect at a significant scale across most of the city	Mostly project or program based	Mostly funded through general municipal funds	
More intense rainfall	Storm water capture systems	Currently in-effect at a significant scale across most of the city	Mostly project or program based	Mostly funded through general municipal funds	
Reduced average annual rainfall	Xeriscapes – low water landscaping design	Currently in-effect and being piloted	Mostly project or program based	Mostly funded through general municipal funds	
More frequent droughts	Water use restrictions	Currently in-effect at a transformative scale across the entire city	Mostly mandate, regulatory, or policy-driven	Mostly funded through general municipal funds	
More intense droughts	Awareness campaign/education to reduce water use	Currently in-effect at a significant scale across most of the city	Mostly project or program based	Mostly funded through general municipal funds	
Increased frequency of large storms	Crisis planning and practice exercises	Currently in-effect at a significant scale across most of the city	Mostly project or program based	Mostly funded through general municipal funds	

4.11

Please describe any other efforts you have undertaken or will undertake to ensure business and operational continuity - for both the city government and the businesses located in your city - in the event of a significant weather-related event.

Recently, an Austin Climate Protection Program employee spoke to City of Austin departments about climate adaptation as it relates to Energy, Water Resources, Ecosystems and Wildlife, Agriculture and Forestry, and Human Health. Following the presentation, staff facilitated a discussion on department issues concerning the recent drought and potential hazards related to fires and flooding. Staff expects to continue the discussion with departments.

For some time, The Austin Climate Protection Program has worked with all City departments to develop and implement departmental climate protection plans. Within most individual plans is language that touches on climate change resilience. Each plan was approved and signed by the department director. Although the above measures may have a significant impact in lessening the impact of climate change for future Austinites, the nature of the greenhouse effect is such that impacts already have been and will continue to be felt for the foreseeable future. Therefore, it is paramount that City departments also begin to plan for local adaptation to a changing climate.

Climate preparedness will be based on identified areas of climate vulnerability where the operations of or the services the department provides may be impacted by changing climactic conditions. Adaptation efforts will: focus on increasing resilience to a changing climate; be developed in conjunction with City-wide efforts; and involve coordination with other departments.

If department's mission or services rendered are determined to be affected by climate change, department will designate a Climate Response Coordinator to oversee the department's efforts in preparing for and responding to local climate change impacts. This portion of department Climate Protection Plan will be updated to reflect the department's role in the implementation of a comprehensive City-wide adaptation plan.

Further Information

Diversify energy sources

In 2007, City of Austin Council passed Resolution NO. 20070215-023 which laid out an aggressive plan to diversify Austin Energy's fuel source. The resolution states:

1) a. powering all City facilities with renewable energy by 2012;

Incorporate climate change into energy projections

Austin Energy is investigating the role of water in the ability to continually provide reliable and affordable energy.

Provide affordable energy

The City of Austin's municipally owned energy department, Austin Energy, has completed a "rate review" to secure the utility's financial future and enable it to continue providing clean, affordable, reliable energy and excellent customer service.

Expand energy efficiency programs

Austin Energy's energy efficiency programs and offerings date back to 1982. Combined, they have saved more electricity than the annual output of a 500 megawatt power plant. A 500 megawatt power plant can power 50,000 homes.

Increase on-site renewable energy systems

In 2007, City of Austin Council passed Resolution NO. 20070215-023 which laid out an aggressive plan to diversify Austin Energy's fuel source. The resolution states:

2) b. meeting 30 percent of all energy needs through the use of renewable resources by 2020, including at least 100 MW of solar power;

Do you foresee substantive risks to your city's water supply in the short or long term?

Yes

4.12a

Please identify the risks to your city's water supply as well as the timescale.

Risks	Timescale	Comment
Drought, water shortage	Short-term	
Drought, water shortage and long term population growth	Long-term	

4.12b

Please describe the actions (on the supply and demand side) you are taking to reduce the risks to your city's water supply.

Diversify water sources

The City of Austin is currently constructing Water Treatment Plant 4 (WTP4). WTP4 is an important investment in Austin's future. With a rapid rise in population comes increased demand for clean water; doing nothing, this increased demand will tax an aging water infrastructure. WTP4 will add capacity and reliability, ensuring that Austinites enjoy safe and reliable water service for future generations.

Strengthen flood response

The City of Austin Office of Homeland Security and Emergency Management Operations Plan is considered an all hazards plan. This plan establishes the framework for how disasters are responded to in the City of Austin regardless of initial cause. Because flooding is the most common hazard for the Austin area, the Operations Plan outlines issues and actions for Strengthen flood response

Consider human health impacts

Plan for health risks caused by flooding and changes to water resource availability, with particular attention to vulnerable populations.

Prepare for drought

When preparing water supply projections and strategies, include scenarios with longer and more intense droughts.

Expand water efficiency programs

Water Conservation Code Revision Process - The regional drought has created unprecedented challenges for Austin Water and the residents of Austin. After discussions with the City Manager and City Council, Austin Water is beginning the process of revising the current Water Conservation Code to better align with long-term drought conditions.

Stage 2 Water Restrictions in Effect - To conserve treated drinking water during the ongoing drought in Central Texas, Austin Water Utility implemented Stage 2 Mandatory Watering Restrictions effective Tuesday, September 6, 2011.

Increase on-site water harvesting

Increase programs and education efforts to encourage use of onsite water sources.

Advance green infrastructure

Use green infrastructure best practices to sequester greenhouse gases and reduce stormwater volumes. Expand existing programs in the community that reduce the urban heat island effect.

4.12c

Please explain why you do not consider your city to be exposed to any substantive water-related risk