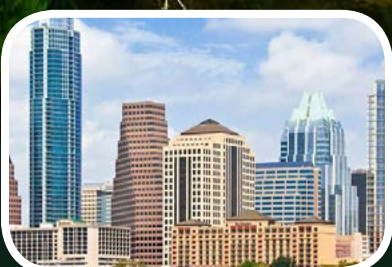


The City of Austin State of Our Environment

Report



2014



Prepared for
City Council

Mayor
Steve Adler

Mayor Pro Tem
Kathie Tovo, District 9

Council Members
Ora Houston, District 1
Delia Garza, District 2
Sabino "Pio" Renteria, District 3
Gregorio "Greg" Casar, District 4
Ann Kitchen, District 5
Don Zimmerman, District 6
Leslie Pool, District 7
Ellen Troxclair, District 8
Sheri Gallo, District 10

City Manager
Marc Ott

Prepared by
Chuck Lesniak, Environmental Officer
Watershed Protection Department
April 2015

With special thanks to the following people for their help in creating this report:

Austin Transportation

Pharr Andrews
Cari Buetow

Austin Water

Tina Bui
Sherri Kuhl
Amanda Ross
Kevin Thuesen

Watershed Protection

Brent Bellinger
Nathan Bendik
Mary-Love Bigony
Andrew Clamann
Jessica Coronado
Nico Hauwert
Chris Herrington
Aaron Hicks
David Johns

Kristin Pipkin
Abel Porras
Aaron Richter
Mateo Scoggins
Jessica Wilson
Erin Wood

Office of Sustainability

Lucia Athens
Zach Baumer
Amy Petri

Planning and Development Review

Leah Haynie
Daniel Krenzelok
Keith Mars
Jason Traweek

Cover Photo
Marc Opperman

Table of Contents

Resources 4

Foreword 5

Creeks 6

Lakes and Rivers 9

Aquifers 12

Urban Forest 15

Open Space and Habitat 18

Air Quality 21

Resources

Environmental Portal

www.austintexas.gov/environment

- Energy
- Green Building
- Zero Waste
- Water
- Climate Protection
- Nature
- Get Involved

Imagine Austin Comprehensive Plan

www.austintexas.gov/imagineaustin

Sustainability Portal

www.austintexas.gov/sustainability

What is Sustainability?

Sustainability means **finding a balance** among three sets of goals:

1. Prosperity and jobs
2. Conservation and the environment
3. Community health, equity, and cultural vitality.

It means taking positive, proactive steps to protect quality of life now, and for future generations.

SUSTAINABILITY



Foreword

2014 State of the Environment Report – Climate Intro

The State of the Environment Report provides details about the condition of many different aspects of our environment, as well as efforts to protect it. As the climate in Texas has begun changing, it has contributed to various environmental impacts such as:

- During the summer of 2011, Austin had 90 days with temperatures of at least 100°F.
- The entire region is in the midst of a hydrologically unprecedented drought that has severely depleted our sole water source.
- Wildfires destroyed homes and 32,000 acres of forest surrounding Bastrop in 2011.
- The Halloween flood of 2013 caused extensive damage to homes and businesses around Onion Creek and displaced many residents.

These and other changes are consistent with trends across the United States and around the world that have been attributed to human-induced climate change.

Earlier this year, the Office of Sustainability hired ATMOS Research, led by renowned climate scientist Dr. Katherine Hayhoe from Texas Tech University, to conduct climate modeling for Central Texas using the same methodology used in the 2014 National Climate Assessment. A summary of the results follows:

- Increases in annual and seasonal average temperatures, with more days over 100°F and more nights over 80°F
- More frequent high temperature extremes of over 110°F

Welcome to the State of Our Environment Report for the year

2014! Once again much of the public discussion about the environment has been centered on how much water we have today and how much we'll have tomorrow. While Austin had more of a normal rainfall year the Highland Lakes remained at or near historic lows and water availability is critical to the health of streams, lakes, springs, and aquifers as well as our region's economic health. So while much of our environmental focus is often on water quality we also need a strong focus on water quantity as well.

In these pages I think you'll see that the City of Austin has been very busy working to improve our local creeks with restoration projects that range from large like the Shoal Creek/Pease Park project to

- Little change in annual average precipitation, but more frequent extreme precipitation, with more days of 2 inches or more in rainfall and increased durations of extreme rainfall
- A slight increase in the number of dry days per year
- Persistent drought conditions in summer due to hotter weather

These changes have the potential to negatively impact our environment in the following ways:

- Vegetation, tree and ecosystem loss
- Groundwater and surface water quality impacts caused by diminished stream, spring and river flows or increased debris from flooding
- Decreased water supply availability
- Reduced air quality with associated negative health effects

The City of Austin is moving in the right direction with many plans underway to reduce greenhouse gas emissions, improve air quality, increase water efficiency and expand use of reclaimed water, protect and maintain Austin's urban forest, and reduce the threats posed by wildfires and floods. The State of the Environment Report is a critical means of tracking our progress, and I applaud the ongoing efforts of City staff experts to report this important information.

Lucia Athens, Chief Sustainability Officer



small, such as neighborhood scale stream riparian restoration. This work is improving the water quality and quantity in these creeks as well as improving the aesthetics and public enjoyment of these areas.

The report also covers air quality, sustainability, and many other environmental issues important to Austinites. I encourage you to take advantage of the many links to reports, studies, and other detailed information that will enable you to "drill" down into the broader discussions contained in the report.

This is your City and your environment. Take a few minutes to learn more about it and how your tax dollars are working for you to make Austin's environment healthy and vibrant.

Chuck Lesniak, Environmental Officer



Creeks

Importance

Creeks flow into our drinking water reservoirs, are critical habitat for aquatic life, and provide recreational opportunities for people. The health of Austin's creeks and the riparian areas adjacent to them is a direct measure of our success in managing land resources and protecting the environmental health of our community.

Goals

One of the City's broad environmental goals is to protect and improve the quality of water in our creeks. A specific goal of the Watershed Protection Department is to maintain or achieve Environmental Integrity Index scores of "good" or better in all monitored creeks.

Imagine Austin

Policies

- Protect and improve the water quality of the city's creeks, lakes, and aquifers for use and the support of aquatic life.
- Reduce pollution in all creeks from stormwater runoff, overflow, and other non-point sources.
- Enhance the protection of creeks and floodplains to preserve environmentally sensitive areas and improve the quality of water entering the Colorado River through regional planning and improved coordination.

Priority Actions

- Restore trees and vegetation along degraded waterways, especially in eastern watersheds.
- Incentivize and promote low-impact development designs and techniques on private land that preserve key environmental features, reduce runoff and the use of potable water for plantings, and increase stormwater infiltration.

Challenges and Responses

Ongoing

Encroachment by development, loss of bank vegetation, increased impervious cover (with associated increases in stormwater runoff), leaking wastewater infrastructure, uncollected pet waste, and improper fertilizer use all result in degradation of water quality. These threats can result in creeks that are not safe for human contact, are choked with nuisance aquatic plants, have unstable eroding stream banks, and have low dissolved oxygen levels that negatively impact aquatic life. The Watershed Protection Department and its partners address these problems through a combination of solutions including public education, regulations, programs, restoring riparian areas, controlling invasive plants, and capital improvement projects. Learn more at austintexas.gov/watershed



This Year

Specific City actions and challenges related to creek health in 2014 included:

- The Watershed Protection Department held nine public stakeholder meetings in 2014 to discuss topics related to green stormwater infrastructure, including the beneficial use of stormwater to promote infiltration and water conservation. Staff will conduct additional stakeholder meetings in 2015 to evaluate and refine a draft proposal as part of the CodeNEXT revision of the Land Development Code.
- Even highly treated wastewater causes significant adverse water quality impacts when discharged directly into high quality Hill Country streams west of Austin. The City of Dripping Springs is considering a new wastewater discharge to Onion Creek, upstream of the Barton Springs Recharge Zone. City of Austin staff, in cooperation with downstream landowners, are working to develop and evaluate alternatives to a wastewater discharge that would meet Dripping Springs' needs to accommodate growth while protecting the existing water quality of Onion Creek.



Figure 1. Photos of Onion Creek near the location of the proposed Dripping Springs wastewater discharge.

- The persistence of baseflow in creeks is a critical factor affecting the health of Austin's aquatic ecosystems. Increasing impervious cover can result in larger floods during storms and less baseflow in creeks after rainfall ends. Watershed Protection Department staff developed a new index describing the permanence of flow in Austin creeks based on long-term monitoring data. This new index has already proven to be an extremely useful tool in helping to explain observed patterns in aquatic biological data. Read more about the index here: austintexas.gov/watershed_protection/publications/document.cfm?id=213560
- Riparian zones are the areas of land adjacent to creeks. When functioning properly riparian zones provide significant human health benefits, prevent erosion, and improve water quality. The City of Austin works with

non-profit partners and citizen volunteers to restore degraded riparian areas around Austin. More information about the benefits of healthy riparian zones with diverse and abundant vegetation can be found in this 2014 report: austintexas.gov/watershed_protection/publications/document.cfm?id=213558 To learn how you can help improve Austin's creeks, visit: austintexas.gov/creekside

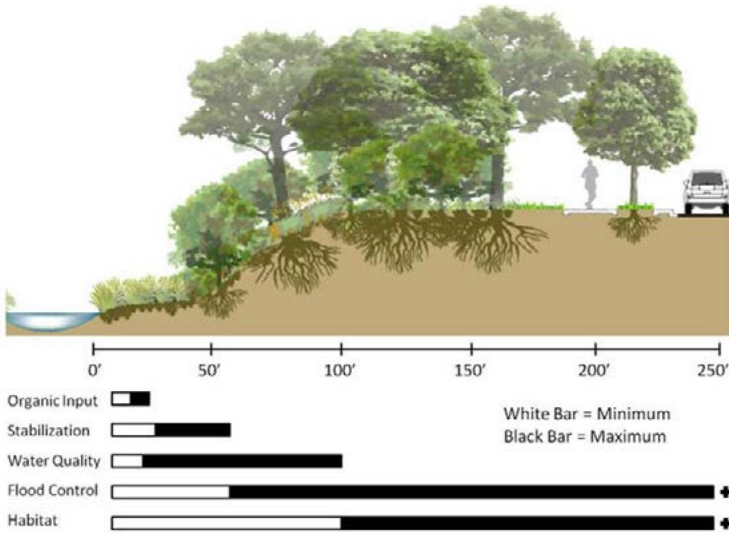


Figure 2. Benefits provided by riparian zones increase with width.

- Engineered structures to capture and treat stormwater runoff from impervious areas are important tools Austin uses to protect water quality in creeks. The Watershed Protection Department developed equations that relate the size of rainfall events to the concentration of pollutants in runoff. Read more here: austintexas.gov/watershed_protection/publications/document.cfm?id=214826. This information was used to develop a new interactive tool for engineers to use in the design of stormwater treatment facilities that protect water quality and comply with City of Austin regulations. For more information, visit: austintexas.gov/department/stormwater-management



Figure 3. The rain garden outside of One Texas Center is an example of an engineered water quality control.

- In anticipation of the shift to geographic representation for the new City Council, the Watershed Protection Department created profiles for the ten City Council districts in 2014. Each district profile summarizes the characteristics of the watersheds within the district and provides an overview of flooding, erosion, and water quality problems. The profiles discuss past, current, and upcoming solutions as well. The individual profiles are supplemented by a Citywide Profile that provides a brief introduction to Austin's watersheds and the City's efforts to reduce the impacts of flooding, erosion, and water pollution. The Citywide Profile also provides a comparison of important metrics across the ten City Council districts, including impervious cover, land use, and creek health. Learn more about the watershed characteristics of your district here: austintexas.gov/department/watershed-protection-council-district-profiles
- Environmental monitoring staff with the Watershed Protection Department published a number of new scientific reports in 2014. There are now more than 415 technical reports generated by City scientists and engineers available in our online, searchable database. Visit this website to read more about Austin's water resources: austintexas.gov/watershed_protection/publications/default.cfm

Status and Trends

- Despite constantly increasing pressure from Austin's growing population, the quality of Austin's creeks has not markedly declined since the inception of Austin's protective water quality ordinances. This achievement underscores the importance of preventative measures in maintaining water quality. The City monitors creek health using the Environmental Integrity Index (EII). The EII assesses water quality, sediment toxicity, contact recreation, aquatic life, physical integrity, and aesthetics through direct field sampling. Using the EII, the City monitors 50 watersheds across Austin on a rotating two-year cycle. EII information is used to track the long-term health of creeks and prioritize areas for specific projects. More information on the EII is available here: austintexas.gov/department/environmental-integrity-index
- The overall EII score is a comprehensive reflection of the health of Austin's creeks. It can be used to identify where problems occur (Figure 4) and may be used to track the success of Austin's water quality protection efforts over time (Figure 5). Approximately 55 percent of the watersheds assessed in 2013 and 2014 maintained "good" or better overall EII scores. Most watersheds in the urban downtown area and some watersheds in eastern Austin yielded depressed EII scores of "fair" or "marginal".

Current Environmental Integrity Index Score

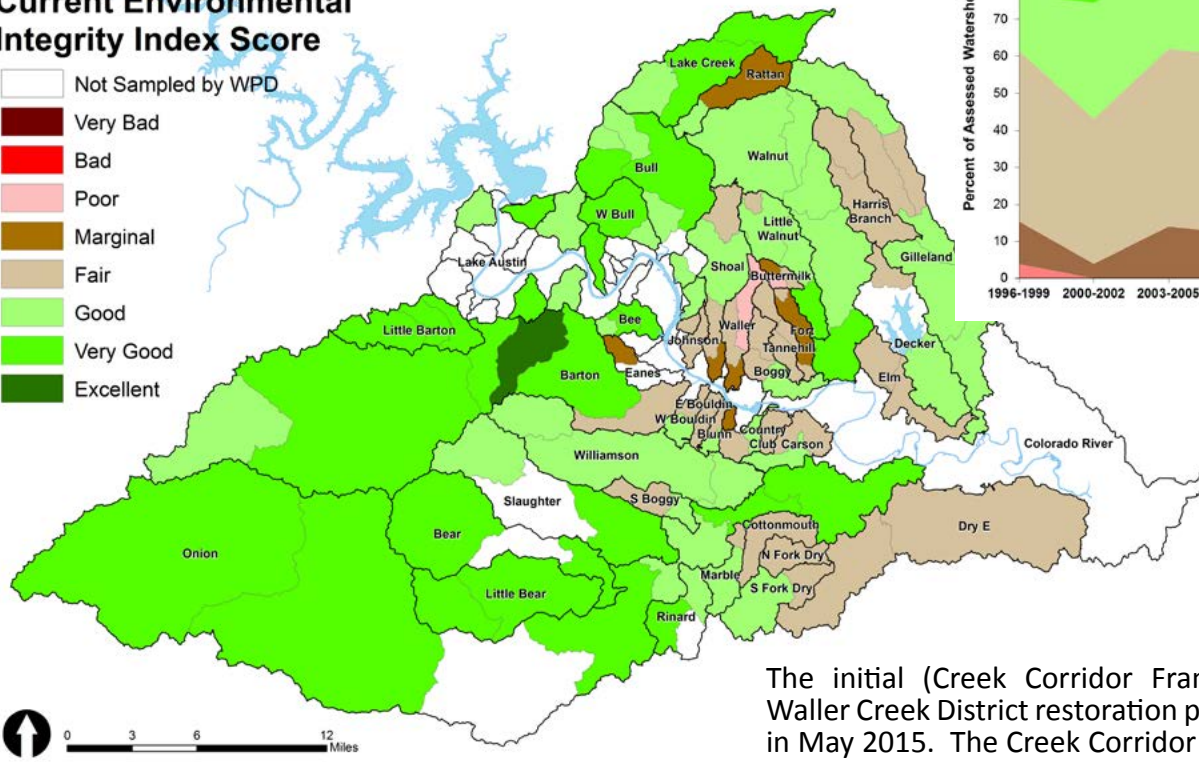


Figure 4. Current Environmental Integrity Index score by sampling area (2013-2014).

Annual Focus

Waller Creek runs through the oldest and arguably most famous parts of Austin, including the University of Texas and downtown Austin. It is the poster child for urban creek degradation and is at the same time venerated and infamous, a place where citizens and visitors to Austin might have their best and worst memories. It is also prime real estate, and after decades of political and environmental pressure, is currently undergoing a radical transformation. Through a combination of a massive flood bypass tunnel (\$150 million) and a comprehensive surface corridor restoration (\$50+ million in future spending), lower Waller Creek — 1.5 miles from the mouth at Lady Bird Lake to Waterloo Park — is getting a lot of attention.

First proposed in the 1980s and the subject of rigorous planning and design, the Waller Creek Tunnel broke ground in 2011, followed by the formation of the Waller Creek Conservancy (WCC) that same year. The synergy of the Watershed Protection Department and the WCC in moving the larger vision of Lower Waller Creek into the public eye has been notable, resulting in a design competition that secured Michael Van Valkenburgh Associates as lead architects for the surface expression of the Lower Waller District.

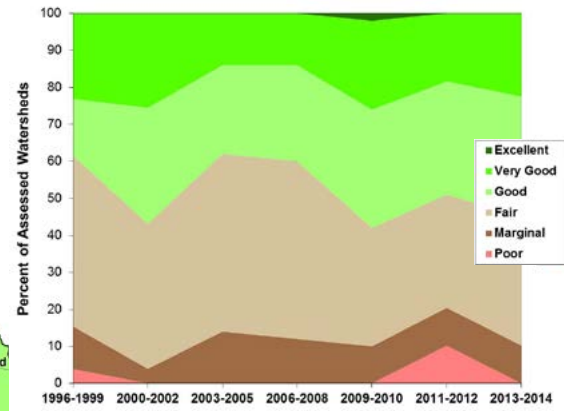


Figure 5. Change in Environmental Integrity Index Scores citywide over time.

The initial (Creek Corridor Framework) phase of the Waller Creek District restoration project will be completed in May 2015. The Creek Corridor Framework will provide schematic level drawings for the public infrastructure improvements in the District. Most design attention will be placed on the “String of Parks” that defines the public interaction spaces, but the trail that integrates the entire corridor has been a major focus to date. The plan’s stream restoration components include extensive aquatic habitat and floodplain connectivity as well as riparian and storm-water treatments throughout the entire district (Figure 6)

The collaboration between the City of Austin, the Waller Creek Conservancy, and the community along Lower Waller Creek has the ability to change the way Austin thinks of urban creeks and may well be the best example we have yet of bringing together environmental, commercial, and design excellence.



Figure 6. A cross section demonstrating the Waller District design approach, which includes instream habitat improvements, green stormwater methods, riparian restoration integrated with public access, and educational opportunities.

Lakes and Rivers



Importance

Austin has four lakes—Lake Austin, Lady Bird Lake, Lake Travis, and Lake Walter E. Long (also known as Decker Lake). All of the lakes are located along or drain to the Colorado River, which continues free-flowing downstream of Longhorn Dam in East Austin. Lake Austin has been the sole source of drinking water for Austin. However, a new water treatment plant was completed in 2014 that withdraws water from Lake Travis. All of the lakes in the Austin area are regionally important recreation resources and provide critical habitat for fish and wildlife. Lake Long also provides cooling water for an Austin Energy power plant. The lakes are the primary receiving waters for stormwater runoff from urban areas, and pollutants can collect in lake sediments for long periods of time.

Goals

The Watershed Protection Department’s three main goals for lakes are to maintain water quality, manage invasive plants, and control the amount of trash. Specifically, Austin Lake Index scores should be “good” (64) or higher and invasive plants should not impair recreation. The Texas Commission on Environmental Quality (TCEQ) surface water quality standards for the Colorado River downstream from Longhorn Dam establish an “exceptional” aquatic life use for the river, meaning the aquatic system has the capability to support a highly diverse and abundant assemblage of fish and other aquatic life.

Imagine Austin

Policies

- Protect and improve the water quality of the city’s creeks, lakes, and aquifers for use and the support of aquatic life.
- Protect the public water supply and the health and safety of users.

- Foster the use of creeks and lakes for public recreation and enjoyment in a manner that maintains their natural character.
- Plan for and adapt to increased drought, severe weather, and other potential impacts of climate change on the water supply.

Challenges and Responses

Ongoing

Increasing nutrient concentrations change the composition and quantity of nuisance algae. As algae increase, lakes become less clear and dissolved oxygen can be reduced. This places stress on aquatic life and can increase water treatment costs. In Lake Long, wastewater effluent treated by Austin Water may also increase algae because the intake to fill the lake from the Colorado River is 2.5 miles downstream of the wastewater treatment plant outfall.

In addition to algae, invasive aquatic plants, toxic pollutants, and trash are ongoing problems. Invasive vegetation alters natural habitat and reduces recreational opportunities. Toxic pollutants can accumulate in sediments at the bottom of the lakes. The City collects more than 100 tons of trash and debris each year from Lady Bird Lake. Drought negatively impacts the lakes, reducing the flow through the lake and increasing temperatures. Drought may result in increased aquatic plant growth, which also negatively impacts recreation.

This Year

- Hydrilla is a rapidly growing invasive aquatic plant that is managed with lake drawdowns and stocking of sterile Asian grass carp, which preferentially eat Hydrilla. In 2012, Hydrilla reached a historic high, covering more than 580 acres of Lake Austin. In August 2013, an additional 9,000 sterile Asian grass carp were added to the lake. No Hydrilla was observed during the September 2013 Texas Parks and Wildlife survey of Lake Austin. Although Hydrilla will return, stocking appropriate rates of grass carp has now been demonstrated to be a successful control strategy (Figure 1). For more information on Hydrilla infestation on Lake Austin, visit www.austintexas.gov/hydrilla

Acres of Lake Austin covered by Hydrilla and Number of Asian Grass Carp Added

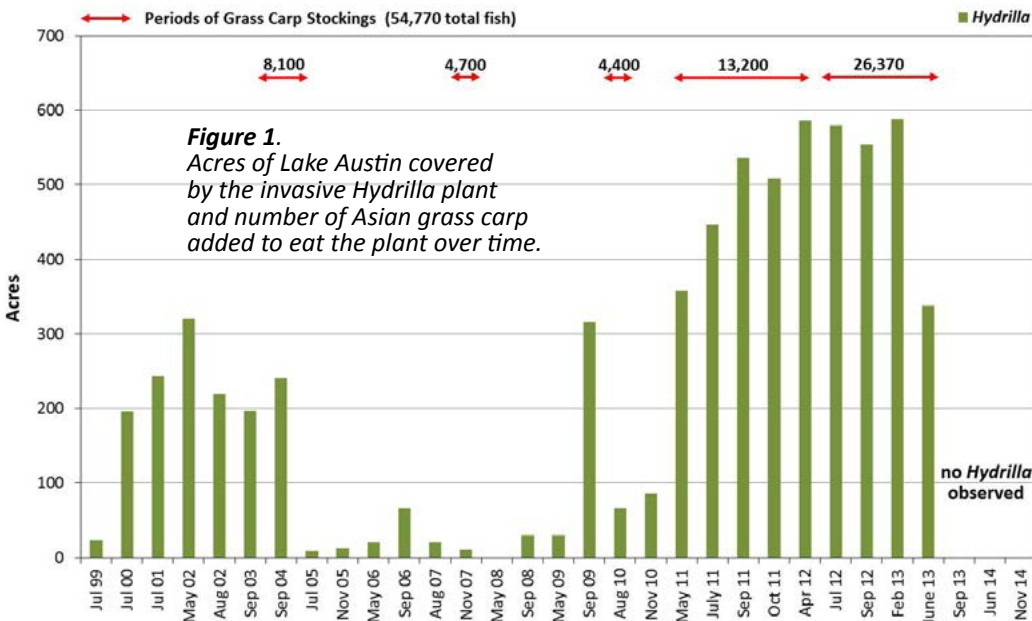


Figure 1.
Acres of Lake Austin covered by the invasive Hydrilla plant and number of Asian grass carp added to eat the plant over time.

- Extreme drought continues to impact the quality and quantity of water in area lakes (see annual focus for more information about the drought). The Lower Colorado River Authority continued to curtail the amount of water released from Austin’s lakes for downstream agricultural uses in order to protect Austin’s drinking water supply. The low flow through Lake Austin contributes to increases in the frequency of blooms of microscopic algae, which contribute to unpleasant taste and odor in drinking water. Record number of days with blooms of microscopic blue-green plankton (also known as cyanobacteria) in Lake Austin continued to be observed in 2014, which was the second-worst year since observations began in 1992 (Figure 2).

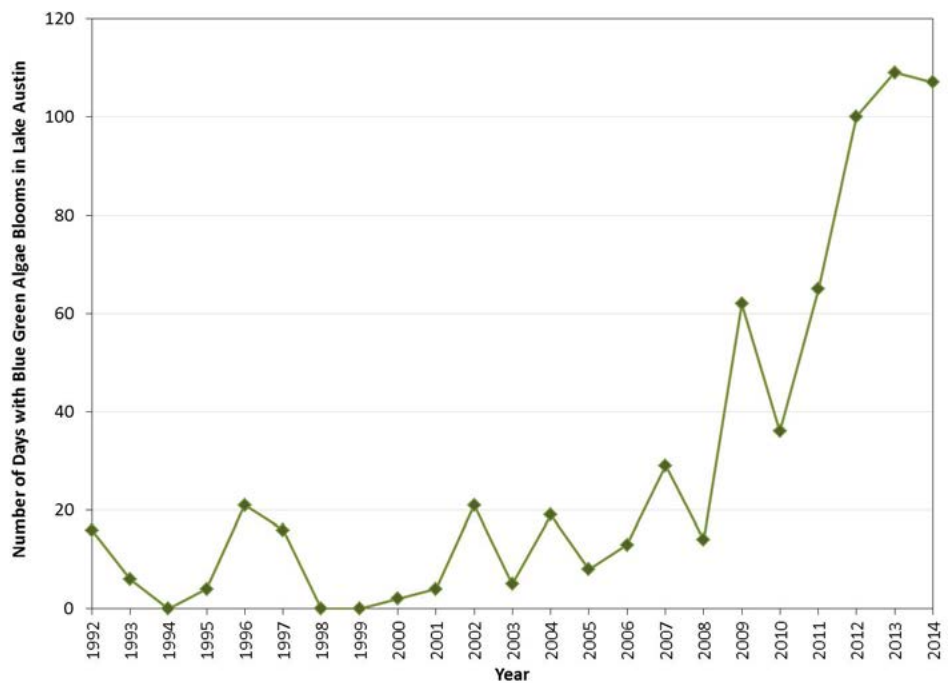


Figure 2. Number of days in which microscopic nuisance blue-green algae blooms occurred in Lake Austin by year.

- A lack of rooted aquatic plants, also known as macrophytes, in Lake Austin has temporarily impacted the fishery in the lake, resulting in some “skinny” largemouth bass (Figure 3a). Grass carp have eaten most of the macrophytes, reducing habitat and food for other fish. As the grass carp die naturally, aquatic plants will return and the fishery will be restored. Texas Parks and Wildlife (TPWD) conducted a survey and scored 114 bass in 2014. The average score was 82 out of 100 possible points for the lake. Values between 75 and 95 are acceptable and TPWD has set 85 as their target benchmark. The minimal amount of vegetation has also resulted in bass being more widely disbursed throughout the entire lake making them harder to catch, rather than being concentrated in the upper reaches as has been observed previously. Fish in Lady Bird Lake do not appear to be similarly affected (Figure 3b), and a healthy population of native aquatic plants continues to be observed.



Figure 3. (a) “Skinny” largemouth bass caught in Lake Austin. (b) Massive freshwater drum fish caught in Lady Bird Lake.

- In response to the Lake Austin Task Force, the Austin City Council adopted new regulations for development and boat docks on Lake Austin to address the continuing increase in the frequency and complexity of lakeshore development (Figure 4). These regulations include several new provisions to protect the lake’s shoreline. A new zoning overlay was also created to limit development from encroaching too close to the lakeshore. The Watershed Protection Department has hired a new Environmental Program Coordinator to coordinate management of the lake and help respond to citizen questions. Learn more about the code amendments that were adopted in June 2014 here: www.austintexas.gov/departments/lake-austin-development-code-revisions
- The Watershed Protection Department installed 2,140 feet of coir logs along the shoreline of Lake Austin at publicly-managed properties. Made from natural coconut husk fibers, the coir logs hold sediment in place and allow native plants to grow, protecting the shoreline from erosion as a result of excessive boat waves and improving water clarity (Figure 5). The coir logs will slowly biodegrade but the plants will remain as a permanent natural shoreline protection. After five years of monitoring, a pilot study initiated in 2009 has shown coir logs to

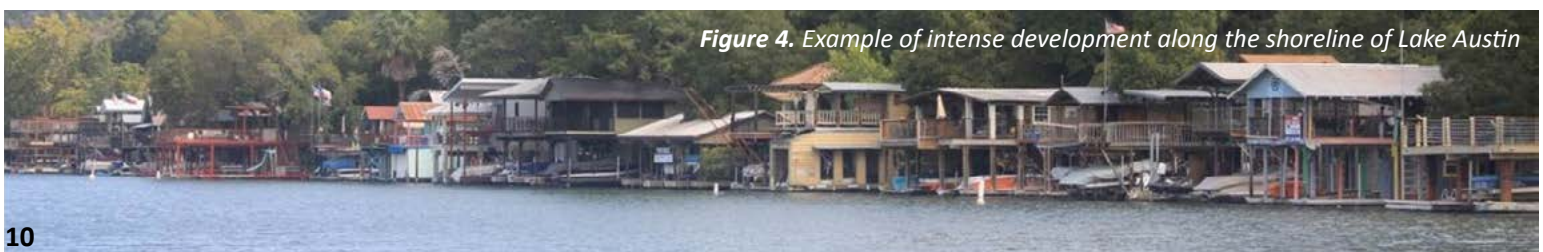


Figure 4. Example of intense development along the shoreline of Lake Austin

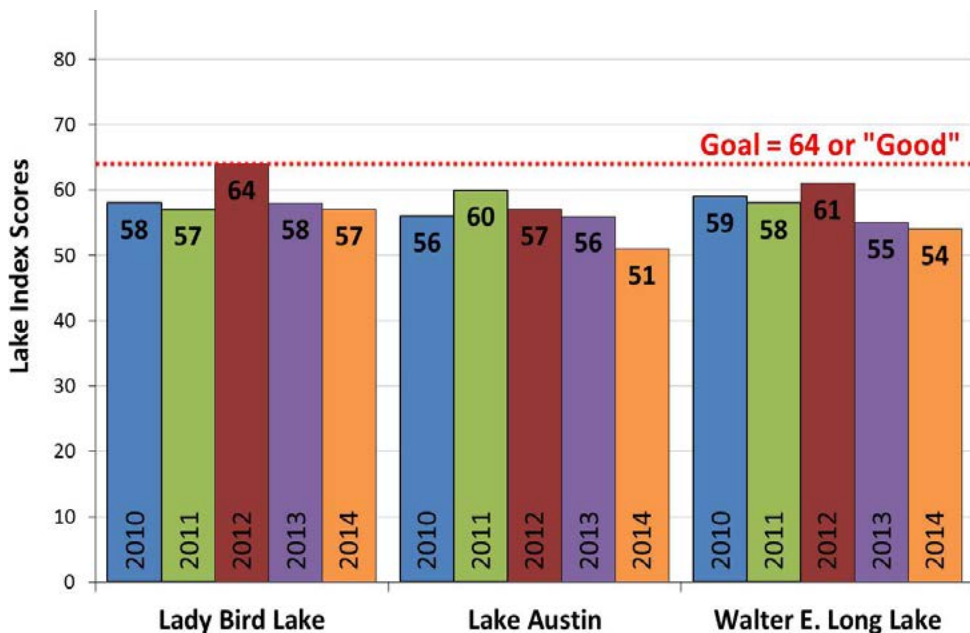
be extremely effective to not only dissipate energy from boat waves and thus prevent erosion, but also to actually regain shoreline previously lost from wave action. Learn more here: austintexas.gov/content/1361/FAQ/31165



Figure 5. (a) Coir log and plants after initial installation in Lake Austin. (b) Same location five years later with abundant plants and restored shoreline.

Status and Trends

Since 2010, three area lakes have been monitored as part of Austin’s Lake Index (ALI). The ALI includes annual monitoring and assessment of aquatic habitat, insects, water quality, sediment quality, invasive vegetation, and floating algae. Higher ALI scores indicate better water quality. All three lakes yielded lower ALI scores in 2014 than in 2013 and scored in the “fair” range (Figure 6), most likely due to the ongoing extreme drought (see annual focus). Read more about the specific water quality issues affecting the ALI score for Austin lakes at: austintexas.gov/austinlakes



- Potential use of Walter E. Long Lake (Decker Lake) as enhanced off-channel storage for water supply augmentation.
- Installation of a floating pump intake barge below Tom Miller Dam and a transmission main to pump water from Lady Bird Lake into the Ullrich Water Treatment Plant to allow the capture of inflows into Lady Bird Lake when not required for use downstream.
- An indirect potable reuse project whereby a portion of the effluent from the South Austin Regional Wastewater Treatment Plant (SAR) would be discharged into Lady Bird Lake to then be withdrawn via the intake barge mentioned above. The Task Force recommended this be considered for deep emergency drought conditions of 400,000 acre feet or less of combined storage.
- The spreading of treated wastewater from SAR into an infiltration basin. Water would then recharge into the Colorado Alluvium and be recaptured in alluvial wells along the river to be pumped to the water treatment plant.

Learn more about the drought at www.austintexas.gov/department/drought-update.

Figure 6. Overall lake index scores for Lake Austin, Lake Long, and Lady Bird Lake from years 2010 through 2014. 100 is the best score and 0 is the worst. The ALI goal is to score 64 or better.

Annual Focus

Despite sporadic heavy rainstorms in the Austin area in 2014, Central Texas continues to endure an extreme drought rivaling the worst in the state’s recorded history. Inflows to lakes Travis and Buchanan, our region’s water supply reservoirs, have been at record lows. In early April 2015, the lakes combined were 37 percent full.

For the vast majority of time since September 2011, Austin has been in one-day-per-week watering restrictions through the implementation of Stage 2 of its Drought Contingency Plan. These drought response efforts and on-going water conservation programs have saved a total of at least 160,000 acre-feet of water since September 2011.

In Summer 2014, the City Council-appointed Austin Water Resource Planning Task Force recommended a variety of demand- and supply-side strategies, and development of an integrated water resources plan. Project planning for the integrated water resources plan and implementation of the recommendations is underway. This includes implementation of demand-side strategies that enhance watering restrictions and conservation regulations, and the creation of a new staff team to bolster leak detection efforts. On the supply side, work has been completed on short-term strategies that enhance efficiency by improving the strategic operations of Lake Long and the Longhorn Dam gates. Work is also underway to prepare for public outreach to discuss possible variation in the level of Lake Austin in non-peak recreational months if combined storage in lakes Travis and Buchanan falls below 600,000 acre-feet so water can be captured in rain events.

Feasibility and engineering analyses for four supply-side strategies recommended by the Task Force for implementation and/or further study have begun, and are estimated to be complete in 2015. The four projects being studied in these analyses are:

Aquifers



Importance

The Barton Springs Segment of the Edwards Aquifer is the sole source of drinking water for approximately 60,000 Central Texans. It also provides flow at Barton Springs, which is critical to the habitat of the endangered Barton Springs and Austin Blind Salamanders. Barton Springs is also an iconic recreational resource for Austin, drawing hundreds of thousands of visitors annually and providing more than \$1.5 million in revenue for the Austin Parks and Recreation Department. In northern Austin, small springs discharging from the Northern Edwards Aquifer provide critical habitat for the Jollyville Plateau Salamander, designated by the U.S. Fish and Wildlife Service as a threatened species.

Goals

The principal goal of the Watershed Protection Department for the Edwards Aquifer is to preserve the integrity of the contributing and recharge zones in order to protect water quality and aquifer recharge and to maintain habitat for endangered salamander populations.

Imagine Austin

Policies

- Protect and improve the water quality of the city's creeks, lakes, and aquifers for use and the support of aquatic life.
- Maintain or enhance the existing rate of recharge in the Edwards Aquifer.
- Conserve Austin's natural resources systems by limiting development in sensitive environmental areas, including the Edwards Aquifer, its contributing and recharge zones, and endangered species habitat.

Priority Action

- Expand and strengthen water quality regulations to achieve non-degradation and protect recharge zones, floodplains, creeks and their headwaters, and other environmentally sensitive areas, including increased buffers and setbacks, restricted land uses with significant spill risks in sensitive environmental areas, and changes in allowed impervious cover.

Challenges and Responses

Ongoing

Aquatic salamanders require adequate levels of dissolved oxygen to survive and thrive. Pumping from the aquifer reduces flow and dissolved oxygen in Barton Springs, especially during drought. Development over the aquifer's recharge and contributing zones threatens the quality of water recharging the aquifer, which may in turn negatively affect salamanders.

Barton Springs flow and dissolved oxygen directly affect the habitat and populations of the Barton Springs Salamander and the Austin Blind Salamander. Dissolved oxygen concentrations less than 5 milligrams per liter (mg/L) are of particular concern. When Barton Springs flow is less than 40 cubic feet per second, significant water quality changes become evident. When flow is below 30 cubic feet per second, Barton Springs salamanders are negatively affected by the decrease in dissolved oxygen (Figure 1).

This Year

- The Jollyville Transmission Main, constructed to carry water from the new water treatment plant near Lake Travis to the reservoir at Hwy 183 and McNeil Road, was completed in summer 2014. Excavation of the 6.6-mile-long tunnel and four associated shafts was closely monitored due to the proximity of springs and the threatened Jollyville Plateau Salamander. No significant environment impacts were identified during extensive

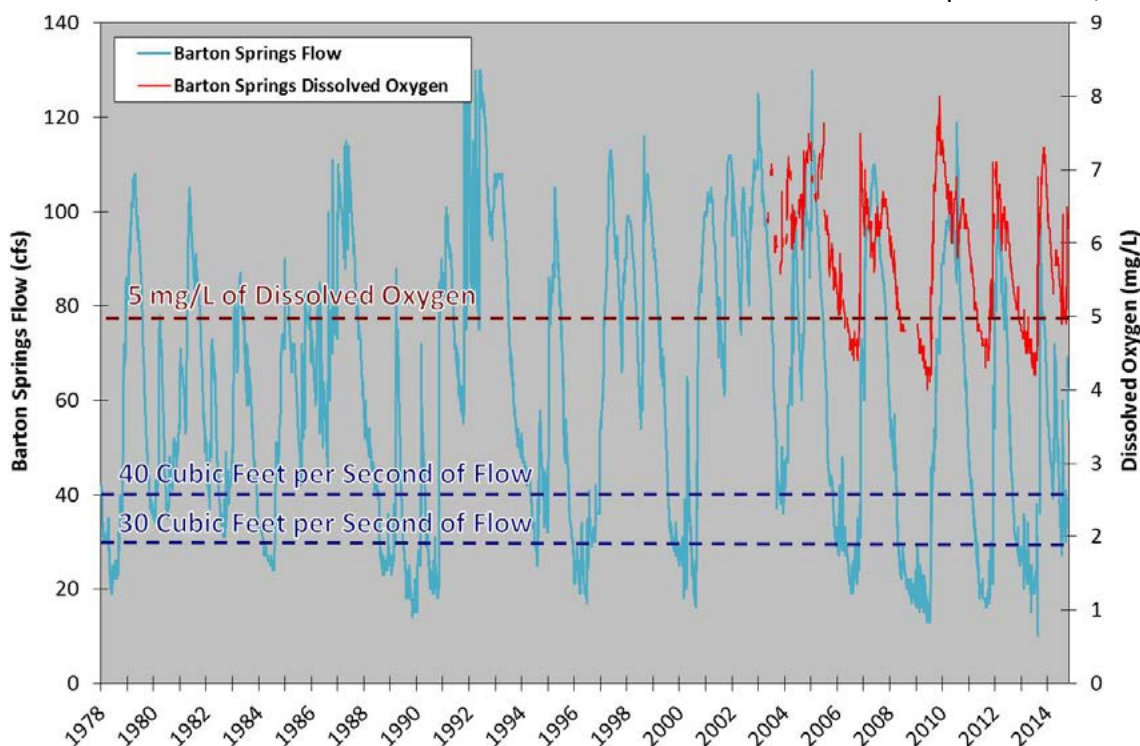


Figure 1. Barton Springs flow and dissolved oxygen over time.



Figure 2. Schematic design of the new Eliza Spring stream through the Barton Springs grounds on the north side near the concession area.

monitoring. The shaft backfill included low-permeability layers to help preserve groundwater flow paths. Post-construction monitoring will be complete in spring 2015. Learn more at: www.austintexas.gov/department/water-treatment-plant-4

- SH 45 Southwest is proposed to cross over one of the longest and deepest Balcones Canyonlands Conservation Plan federal permit caves, Flint Ridge Cave. In order to better understand how surface water reaches cave drips, which the cave ecosystem relies on, a subsurface study of Flint Ridge was initiated in February 2014 by the Watershed Protection Department with funding from Austin Transportation Department and assistance from Austin Water's Wildland Conservation Division. Monitoring stations set up in Flint Ridge and Tabor Crevice Caves will help determine if surface features are source areas for the cave drips and if the highway ROW is within the area contributing to the cave drips. A report is expected to be completed by summer 2015.
- Two dye traces were conducted in 2014 on the Balcones Canyonlands Preserve to document water sources for springs containing the threatened Jollyville Plateau Salamander. In both cases, dyes were poured into creek water where creek flow ceased up to 1,000 feet upstream of springs. Dyes were detected in the springs within hours of dye entering the creeks. This documented that the water source for these springs is surface water, partly originating in developed uplands at the top of the canyons, which flows into the canyons, sinks underground, and flows through shallow alluvial sediment to re-emerge in the springs. This result illustrates the need for water quality protection to preserve these unique ecosystems.
- In December 2014, the Austin City Council approved purchase of a 49-acre tract of land south of the Lady Bird Johnson Wildflower Center. This tract is located along the proposed SH 45 Southwest roadway and represents a significant missing link in the existing land holdings of the Water Quality Protection Lands (WQPL). This property is an undeveloped oak/juniper woodland with several known caves that will now be protected in perpetuity to benefit Barton Springs. The

purchase of this tract exhausts all of the remaining open space bond funding available. www.austintexas.gov/department/water-quality-protection-land

- The City of Austin initiated a capital project in 2013 to increase the amount of Barton Springs Salamander habitat by daylighting the outlet pipe from Eliza Spring. The current outlet pipe, which flows from Eliza Spring into the Barton Springs bypass tunnel, is collapsing and infiltrated by tree roots. The project will permanently uncover and remove the pipe located on the north side of Barton Springs Pool. The design for the new stream was completed in 2014 (Figure 2), and the project is planned to start construction in fall 2015. Learn more about the project here: www.austintexas.gov/department/eliza-spring-daylighting
- For the first time, Watershed Protection Department biologists began photographically identifying all individual Barton Springs Salamanders at Eliza Spring in 2014. Color patterns on their heads enable tracking individual salamanders over time (Figure 3). Initial results indicate that salamanders may move from surface habitat into and out of subsurface habitat within the aquifer much more frequently than previously assumed, perhaps even on a daily basis.

Status and Trends

The City, in cooperation with the United States Geological Survey (USGS), monitors the flow of Barton Springs using automated instruments that take measurements every 15 minutes. Since monitoring began in 1978, the average daily discharge is 62 cubic feet per second (cfs) with a maximum estimated discharge in December 1991 of 130 cfs following heavy winter rains and a minimum discharge of 13 cfs during the drought of 2009. Flows at Barton Springs are still driven primarily by rainfall, but pumping of water from the aquifer negatively impacts Barton Springs flow. Measurement of spring discharge assists in endangered species management at Barton Springs Pool and is used by the Barton Springs/Edwards Aquifer Conservation District to help determine drought status. Access data from the USGS here: waterdata.usgs.gov/tx/nwis/inventory/?site_no=08155500&agency_cd=USGS&



Figure 3. Close-up of color patterns on the head of a Barton Springs Salamander from Eliza Spring.

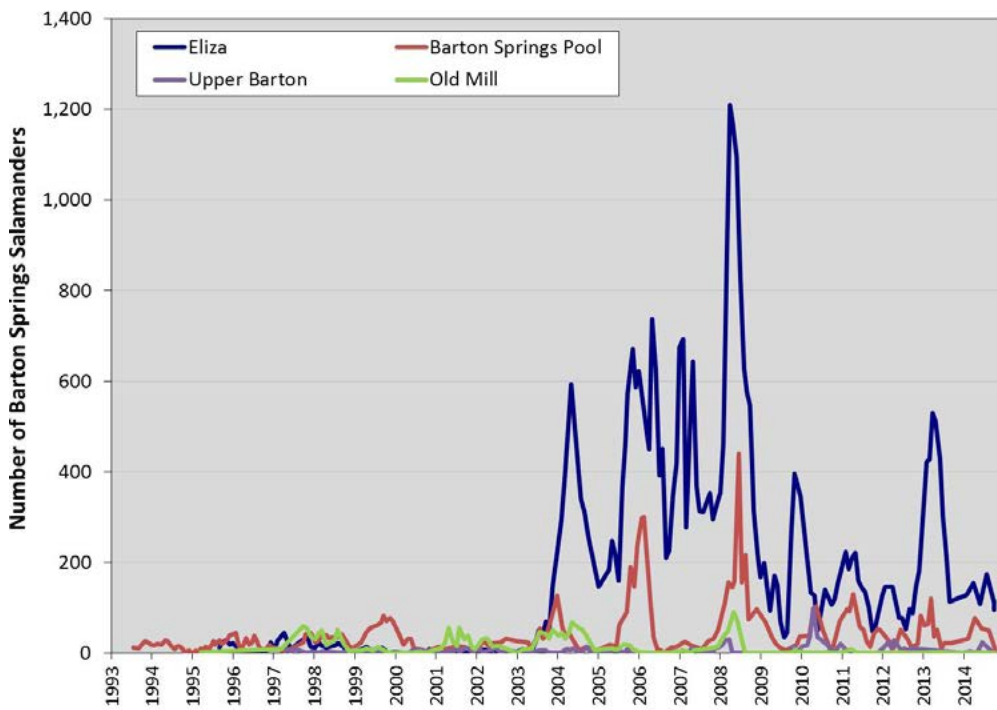


Figure 4. Barton Springs Salamander counts from Barton Springs Pool, Eliza Spring, Old Mill Spring, and Upper Barton Springs. Upper Barton Spring was dry for most of 2013.

Annual Focus

The Blowing Sink Research Management Area is a City of Austin nature preserve that is part of the Balcones Canyonlands Conservation Plan (BCCP) for the preservation of rare cave species. The site contains five significant caves. Blowing Sink Cave can be traversed more than 240 feet deep to the water table of the Edwards Aquifer where rare aquatic life is found. The Blowing Sink tract also recharges a tremendous amount of water for the aquifer, which can arrive at Barton Springs within two days with little natural filtration. The site was acquired by the City of Austin in 2000. Old wooden structures around the cave openings rotted over time and allowed sediment to be transported into the cave openings, causing a public safety threat, damaging city lands, and obstructing recharge to the aquifer.

In 2013, a project by the Watershed Protection Department began to restore these karst features. The project was also supported by preserve management staff, rangers, and foresters from Parks and Recreation, Balcones Canyonlands Preserve staff from Austin Water, and geotechnical and structural engineers from the Public Works Department.

A team of cave specialists manually excavated sediment from the five caves. Beginning in November 2013, contractors excavated the sinkhole entrances for the caves and constructed concrete chimneys to keep sediment and people out of the caves.

In October 2014 the caves were secured with gates and Watershed Protection Field Operations staff backfilled the sinks with coarse rock filter media. Landscape restoration and fencing will complete the project.

The City also closely monitors the water quality of Barton Springs, as well as habitat conditions and populations of the Barton Springs Salamander and the Austin Blind Salamander. Due to City efforts to protect and improve habitat, the population of the Barton Springs Salamander has significantly improved since it was listed as an endangered species in 1997. Low counts of Barton Springs Salamanders in surface habitats relative to historic highs were observed again in 2014 (Figure 4).

Jollyville Plateau Salamander population counts at the surface springs in northern Austin are a direct representation of the health of the species and are strongly affected by the flow of the springs in which they live. Many springs in the Bull Creek watershed stopped flowing in 2011 because of the extreme drought, although salamander populations increased through 2014 with the return of springflow as a result of localized rainfall (Figure 5). Learn more about salamander protection efforts: austintexas.gov/departments/salamanders

Franklin, Site 349

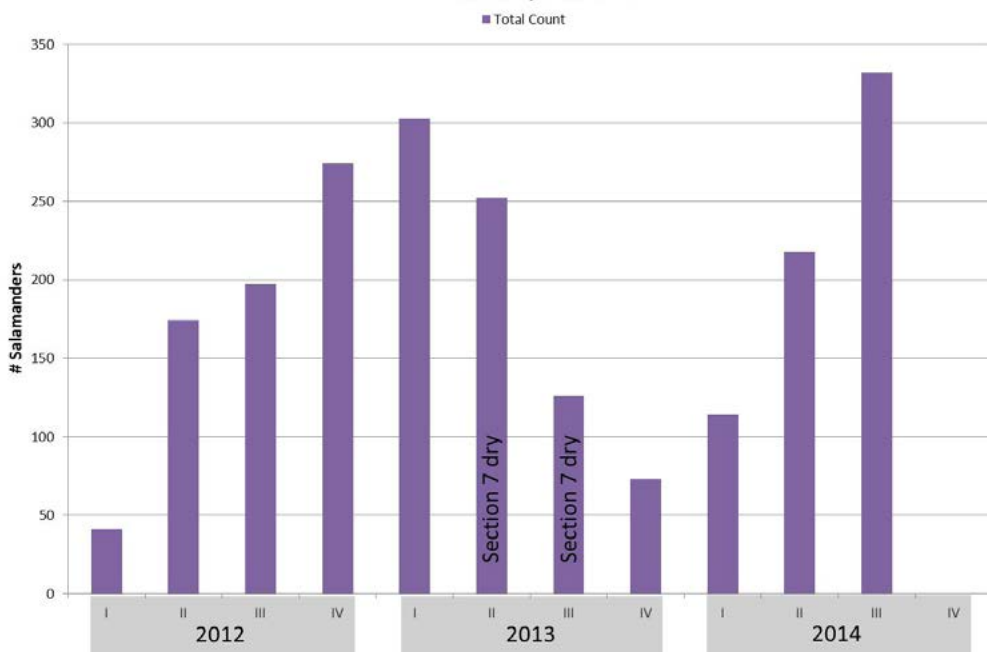


Figure 5. Jollyville Plateau Salamander population counts at one representative Bull Creek monitoring site. The site is divided into multiple sections when conducting population surveys. Data from the fourth survey of 2014 is still being processed.

Figure 3. (a) Brian Cowan, geologist for Zara Environmental documenting Sinky Dinky Cave in 2012. Unstable sediment collapsed into the 20-foot-deep cave presenting a public safety threat. (b) Sinky Dinky Cave in October 2014 after restoration, but prior to landscape revegetation



Urban Forest



Importance

Austin’s urban forest provides social, ecological, and economic benefits to the community and enhances the quality of life for Austin residents. Recognizing Austin’s urban forest as an asset and an important part of the City’s infrastructure, City policy and practices aim to preserve, maintain, and replace individual trees with the goal of a sustainable urban forest. A thriving, healthy urban forest is a reflection of the City’s ability to preserve individual trees and vegetation communities, restore or repair degraded lands, protect lands for their environmental services, manage and educate about tree diseases, encourage the removal of non-native, invasive species, and replant trees and vegetation.

Goals

The primary goals for the City’s urban forest management are to (1) ensure public well-being and safety; and (2) enhance the benefits of the urban forest through preservation, care, maintenance, and replenishment of the urban forest. The Imagine Austin Comprehensive Plan serves as the guide for making Austin vibrant, livable, and connected with the urban forest.

Imagine Austin

Policies

- Maintain and increase Austin’s urban forest as a key component of the green infrastructure network.
- Integrate green infrastructure elements such as the urban forest, gardens, green buildings, stormwater treatment and infiltration facilities, and green streets into the urban design of the city through “green” development practices and regulations.

Priority Action

- Create an urban forest plan that identifies tree canopy goals, establishes a budget, and presents implementation measures.

Resources:

City of Austin Tree Portal:
www.austintexas.gov/treeportal
 City Arborist:
www.austintexas.gov/trees
 Urban Forestry Program website:
www.austinurbanforestry.org

Challenges and Responses

Ongoing

Austin’s urban forest is increasingly challenged by a changing climate, development pressure and changing land use patterns as well as urban stressors such as soil compaction, invasive species, and competition for space. Interdepartmental coordination, tree preservation regulations, comprehensive planning, and communication with the community regarding tree regulation and management are areas of continued focus.

Austin’s Urban Forest Plan

A Master Plan for Public Property

A comprehensive approach to a healthy urban forest

Policy Element Categories

- 1) PROTECTION AND PRESERVATION
- 2) SUSTAINABLE URBAN FOREST
- 3) PLANTING, CARE, AND MAINTENANCE
- 4) URBAN FOREST MANAGEMENT FRAMEWORK
- 5) PLANNING AND DESIGN
- 6) EDUCATION AND OUTREACH

www.austinurbanforestry.org

Figure 1. Policy element categories from Austin’s Urban Forest, A Master Plan for Public Property.

This Year

- The City of Austin received a Tree City USA designation for the 22nd straight year by the Arbor Day Foundation and a ‘growth’ award for going above and beyond.
- As part of Land Use Review, staff reviewed 372 commercial site plans and 243 subdivisions, 2,916 tree permits, and averaged more than 490 tree inspections per month.
- 340 commercial and parkland site plans were reviewed for impacts to public trees, and more than 4,700 work orders were completed.
- Staff reviewed 847 tree permits for heritage trees and more than 111 site plans and 41 subdivision plans for compliance with the heritage tree ordinance. Greater than 95 percent of all healthy heritage trees were preserved in the development review process.
- City Arborist grant program issued \$124,554 for tree care, oak wilt treatment, tree planting, urban forest planning, and tree transplanting.
- Staff performed a soil volume study to improve growing conditions for urban trees.
- Austin Urban Forest Plan: A Master Plan for Public Property was adopted by Austin City Council on March 6, 2014. Implementation of the Plan is in progress, including development of Austin-specific Standards of Care for

trees and vegetation, Departmental Plans, and an Urban Forest Report Card.

- A Gap Analysis of the public urban forest was completed per City Council Resolution 20130627-070 on July 16, 2014. The Level of Service (LOS) Gap was identified as \$12.6 million with a directive to create a plan to close the LOS Gap in five years. To increase effectiveness of the City Manager-appointed and Code-Mandated position, the Urban Forester and staff were transferred to the Planning and Development Review Department.
- 1,736 trees were removed from public property, but with the help of nonprofit partners and more than 2,682 volunteer hours, 6,251 containerized trees and 9,443 seedlings were planted.
- The Cemetery Master Plan includes a comprehensive tree inventory for all City-owned cemeteries. PARD Urban Forestry Program began a phased removal of dead trees and implementation of tree planting, care, and maintenance plans for each cemetery.
- There is continued support of green infrastructure education efforts including the Urban Forest Stewards training, The Treebune, a monthly newsletter with 889 subscribers, and a Grow Green informational video series on tree care and maintenance. Planting programs include annual park plantings, Austin’s Arbor Day, Austin Community Trees, NeighborWoods, and Grow Zones

(riparian seedling plantings).

- The City’s first proactive tree maintenance program was established as a result of Council’s budget increase for the Urban Forestry Program in 2013. Preventative tree care is prioritized in order to reduce dead or high-risk trees that pose a public safety risk on parkland. More than 16 parks have received proactive treatment to date.
- The Urban Forestry Program facilitated more than \$370,364 in funding (or equivalent) from donations, volunteer work days, and community partnerships, including \$142,260 in donations of tree care.
- Urban Forestry and City Arborist program collaborated to train 198 Parks and Recreation staff on tree protection during their daily work. There was a 91.4% increase in knowledge surveyed.
- The Community Wildfire Protection Plan was adopted by City Council in October of 2014. Implementation of priority recommendations are being undertaken through a City of Austin - Travis County Wildfire Coalition.

Interdepartmental

Coordination between departments continues through the Interdepartmental Tree Working Group and the Imagine Austin Green Infrastructure Priority Program. Related interdepartmental working groups include Green Streets, Public Land Management, and CodeNext.

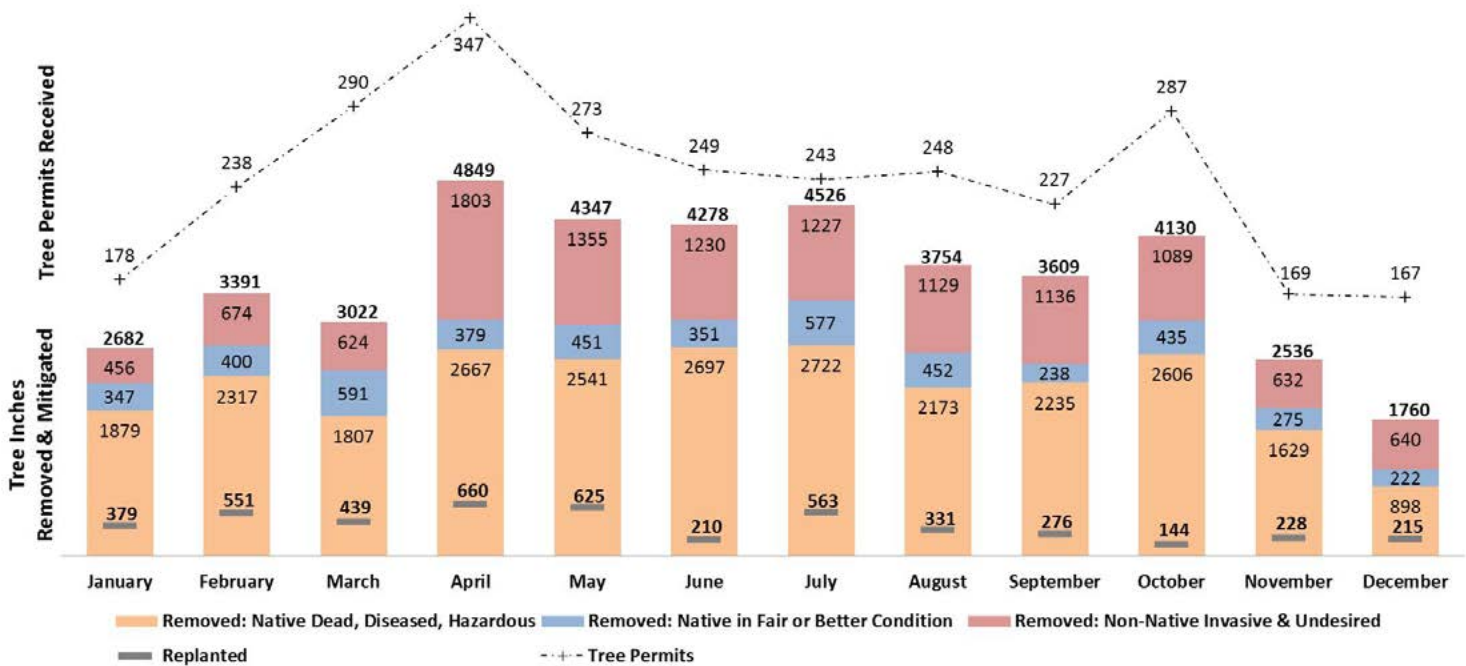


Figure 2. Tree permit data for 2014.

Status and Trends

Development activity has increased for all tree-related permitting. Single-family home development, multi-family, and commercial development have all increased on an annual basis since 2010.

An iTree Eco assessment (software provided by U.S. Forest Service) was used to evaluate the economic and ecological benefits of Austin’s public trees. The assessment resulted in an estimate of more than 7 million trees on public property with 38% canopy cover and an annual value exceeding \$10.6 million each year, including:

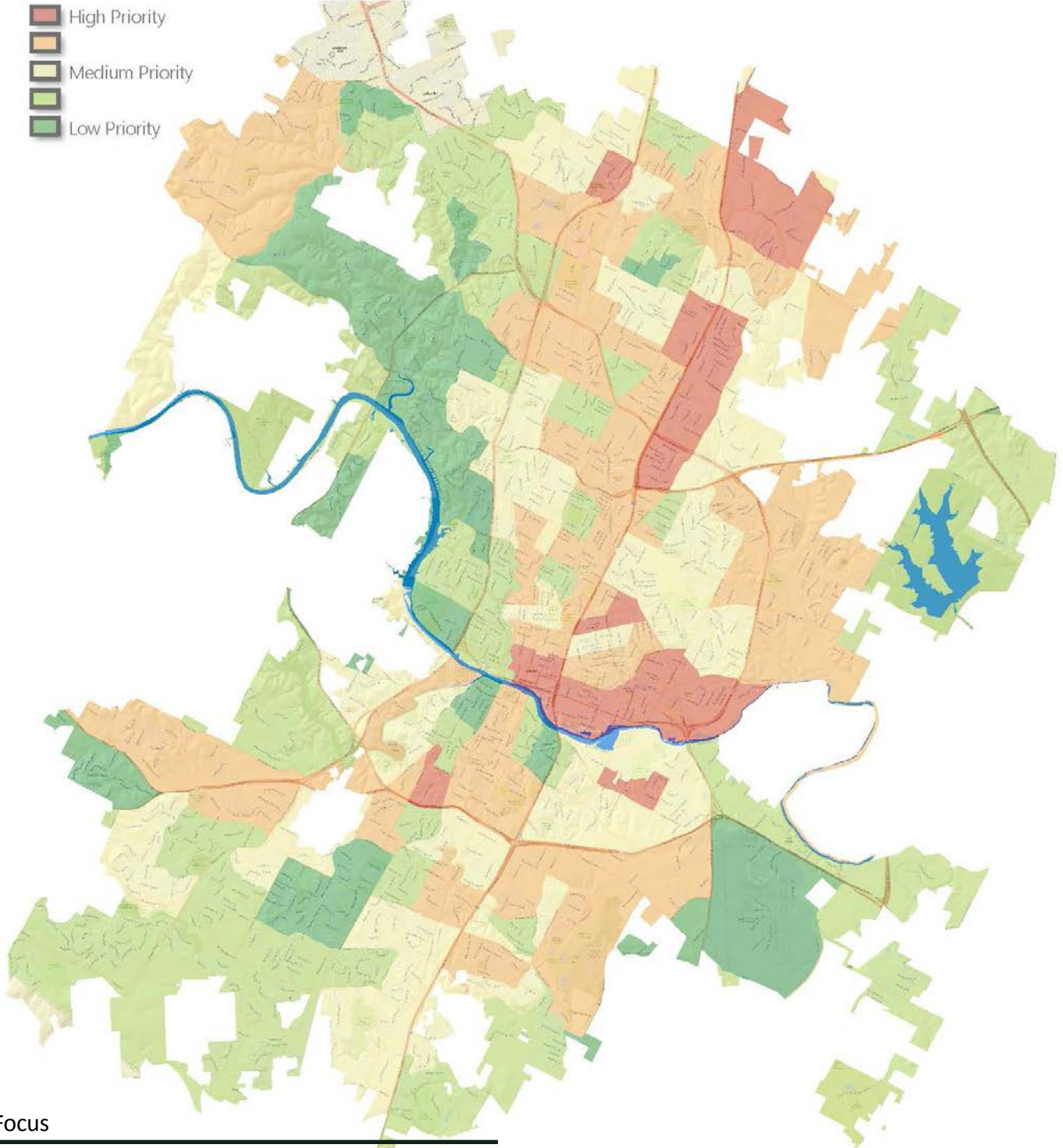
- Pollution removal: 781 metric tons/year (\$4.17 million/year);
- Carbon storage in existing trees: 467,000 metric tons (\$36.7 million);
- Avoided runoff: 1,105,000 cubic meters/year;
- Building energy savings: \$721 thousand/year; and
- Avoided carbon emissions: \$97.2 thousand/year.

The Urban Forest Inventory and Analysis (UFIA) Program of the U.S. Forest Service completed Austin’s data collection in summer 2014 for public and private property. The final report is due in spring 2015.

Austin's Urban Forest

Tree Planting Prioritization Map

Figure 3. City of Austin Tree Planting Prioritization Map.



Annual Focus

The Urban Forestry Program's Tree Planting Prioritization serves as a decision support tool for prioritizing tree planting areas citywide. The tool uses Geographic Information Systems (GIS) and various datasets to identify which areas should theoretically receive tree plantings in the near future. The prioritization provides a tree-centric roadmap for furthering Imagine Austin's core principle to "integrate nature into the city" and supports implementation policies adopted in the Austin Urban Forest Plan.

Prioritization is based on the following eight broad categories: 1) public health and safety, 2) air quality, 3) environmental

justice, 4) water quality, 5) critical places, 6) forest replenishment, 7) forest preservation and development impacts, and 8) urban heat island. These eight categories were determined by programmatic interests and academic research. Within each category exists a set of individual factors (31 total) to determine where the City should plant trees. In the following map, U.S. Census tracts are scored based on planting factors like population density, available planting space, and presence of existing tree canopy. Parks and other public spaces are then chosen for planting based on their priority score, public demand, and local knowledge.

Open Space and Habitat



Importance

Austin Water's Wildland Conservation Division (referred to as Wildland) manages natural areas to improve our water quantity and quality, endangered species habitat, and quality of life. Continued growth is in Austin's future, and the City is carefully planning to help preserve clean air, clean water, and natural areas through Wildland.

Goals

The Wildland Division encompasses two programs: Balcones Canyonlands Preserve (BCP) and Water Quality Protection Lands (WQPL). The primary goal of the BCP is to protect and enhance the habitat of endangered and rare species as mitigation for development in western Travis County. WQPL's goal is to produce the optimal level of high quality water to recharge the Barton Springs segment of the Edwards Aquifer by managing protected land to restore prairie-savanna ecosystems and healthy riparian corridors.

Imagine Austin

Vision

- Our open spaces and preserves shape city planning, reduce infrastructure costs, and provide us with recreation, clean air and water, local food, cooler temperatures, and biodiversity.

Policies

- Permanently preserve areas of greatest environmental and agricultural value.
- Expand the amount of permanently protected natural and environmentally sensitive areas for use as open space and passive recreational areas.

Priority Action

- Expand the City of Austin's acquisition of environmentally significant land, conservation easements, and/or development rights for the protection of sensitive areas, including floodplains, riparian areas, wetlands, prairies, land that supports recharge of the Edwards Aquifer, wildlife habitat and corridors, bottomland forests and priority woodlands, critical environmental features, and agricultural land.

Challenges and Responses

Ongoing

While Austin's Wildland appears to be left alone, they are in fact managed to achieve specific, mandated goals for the property. These undeveloped lands function every day to provide clean and needed water for our community, provide habitat for endangered wildlife, and enhance air quality

Wildland Conservation Division Status*

275 perimeter miles
 41,909 total acres
 28,309 acres of Water Quality Protection Lands (WQPL)
 13,600 acres of Balcones Canyonlands Preserve (BCP)

* including conservation easements and dual managed tracts

This Year

- Wildland properties include more than 13 miles of trails. An interactive map added online this year allows the public to enjoy access to these lands. Guided hikes are offered on many of the properties without public access. Visit: austintexas.gov/departments/wildland-maps

Wildland staff and partners conducted prescribed burns on 1,000 acres of the WQPL in 2014.



The City of Austin is a leader in the nation when it comes to prescribed burns. Prescribed burns safely mimic the natural fire cycle and maintain fire-resilient landscapes for the benefit of people, water, and wildlife.

www.austintexas.gov/rxfire



Endangered species monitoring included banding 152 golden-cheeked warblers of which 28 were nestling or chicks in the fourth year of an intensive monitoring study.

In 2014 volunteers donated over 4,500 hours to Wildland, a cost savings value of \$100,000. Visit www.austintexas.gov/wildlandevents to register for an upcoming hike or to volunteer.



Status and Trends

In the early 1990s development in the Austin area was stalled due to the federal regulations guarding the habitat of the newly-listed endangered species. The creation of the Balcones Canyonlands Conservation Plan (BCCP) and system of preserves it created, Balcones Canyonlands Preserve (BCP), is a locally implemented solution to federal regulation. This was the first multi-regional, multi-species permit issued by the U.S. Fish and Wildlife Service.

Today 297 private property owners have been able to develop 14,532 acres of real property in Austin and Travis County through an easy, cost effective mitigation solution by participating in the BCCP. Those improvements carry an assessed value of \$4.5 billion that contribute to city and county taxes.

BCP: Balancing Success



Balcones Canyonlands Preserve is 30,500 acres managed in perpetuity for the conservation of eight endangered species and twenty-seven species of concern for the benefit of all of Austin.

The streamlined process created by the BCCP facilitated development on thousands of acres adding \$4.5 billion in assessed value to the local tax base.

The BCCP is a major economic engine in our community. It assures we are conserving endangered and threatened species and their habitat while we support delivery of valuable ecosystem services that make our communities livable.

Annual Focus

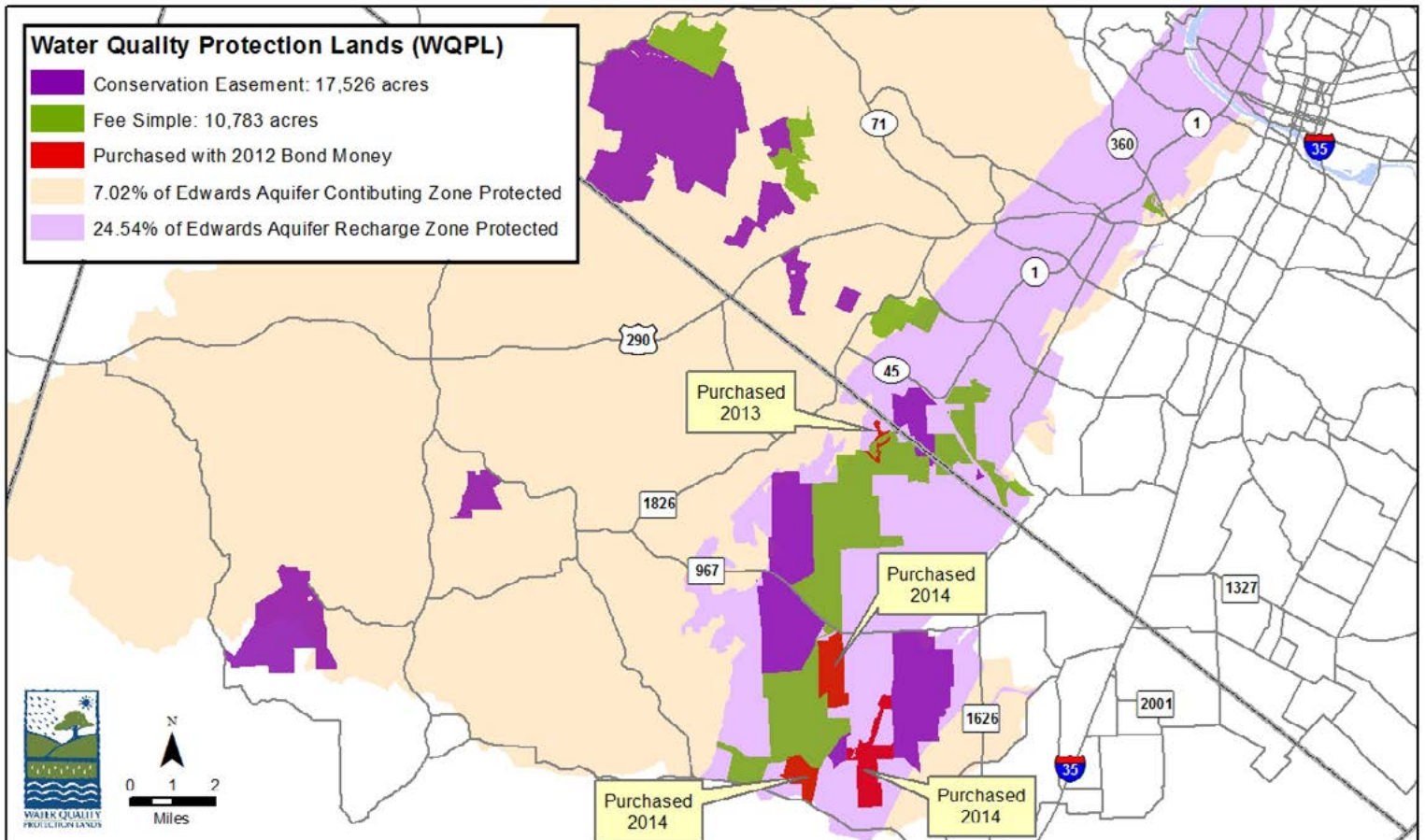
Over the past year, the City has invested nearly all of the \$30 million from the 2012 bond approved by voters for open space acquisition through additions to Austin’s Water Quality Protection Lands. One of these additions is especially critical because it eliminated 1,000 proposed homes and associated wastewater effluent irrigation — the first such proposal at this scale over the Recharge Zone — greatly benefitting the Edwards Aquifer and Barton Springs by removing potential sources of pollutants. The Avaña acquisition, while only 86 acres, was notable for protecting an important stretch of Bear Creek over the recharge zone. Another addition to the WQPL, Ruby Ranch conservation easement, protects Austin’s natural heritage by protecting a working ranch, preserving agricultural uses and significant natural areas, preserving open space, and maintaining and enhancing water quality.

Collectively the Water Quality Protection Lands are now comparable in size to “Central Austin”, the area bound by U.S. 183 on the north, Ben White on the south, IH-35 on the east, and MoPac on the west.

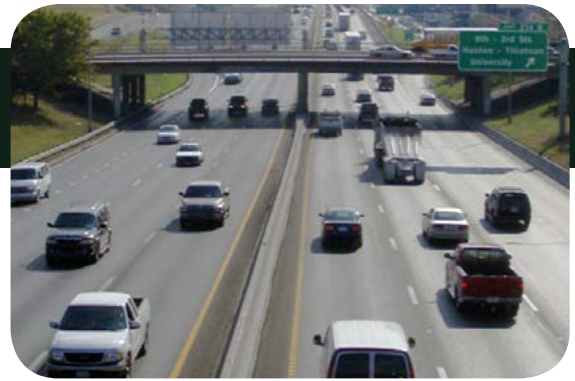


Figure 1. (Right) Onion Creek flowing across the Searcy property, acquired as part of the WQPL in 2014.

Figure 2. (Below) WQPL now protects 28,309 acres and more than 24.5 percent of the recharge zone for Barton Springs



Air Quality



Importance

The primary air quality concern in Austin is ground-level ozone. High ozone levels in Central Texas historically occur most frequently between August and September and between May and June. Elevated ozone levels can have a significant impact on human health. Many individuals experience increased respiratory ailments, with children, the elderly, and those with lung disease, such as asthma sufferers, being especially susceptible. In fact, 1 in 10 children and 1 in 13 adults in Central Texas suffer from asthma, which leads to lost school and work days.

Goals

The City's goal is to promote healthy outdoor air quality for all citizens. The City of Austin Air Quality Program addresses the impact of City operations on air quality. The program also participates in regional efforts to improve air quality throughout Central Texas.

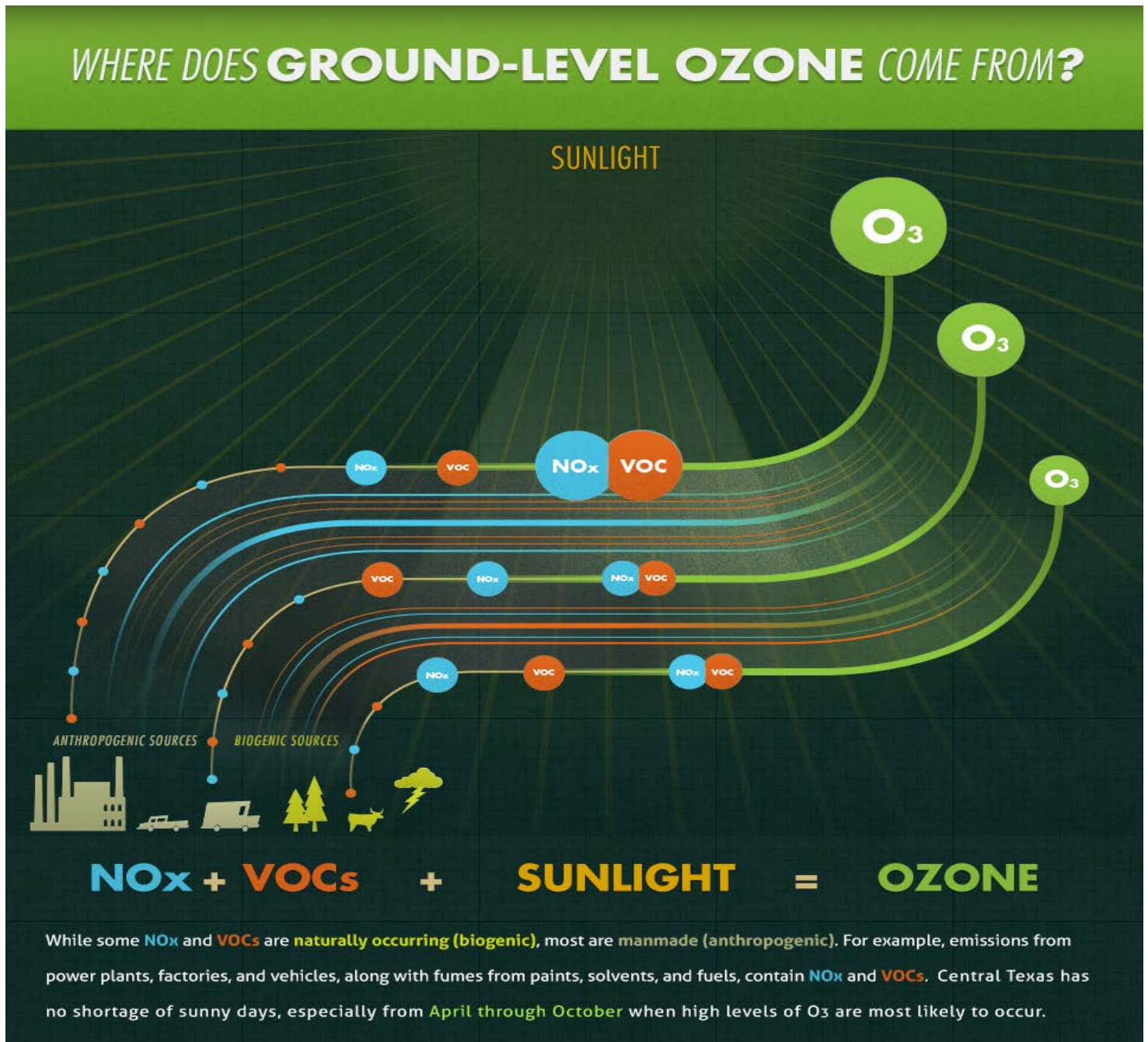


Figure 1. "Where Does Ground-Level Ozone Come From?" graphic provided by Ozone Action Heroes (ozoneactionheroes.com), a part of the Capital Area Metropolitan Planning Organization (CAMPO).

Imagine Austin

Vision

- Public and private sectors work together to improve our air quality and reduce congestion in a collaborative and creative manner.

Policies

- Improve the air quality and reduce greenhouse gas emissions resulting from motor vehicle use, traffic and congestion, industrial sources, and waste.
- Reduce traffic congestion, increase transit use, and encourage alternative transportation modes through such practices as Transportation Demand Management which includes carpooling, flex time work schedules and subsidizing transit costs for employees.

Priority Action

- Maintain a safe and reliable energy system and improve Austin's air quality and lower greenhouse gas emissions through continued review and adoption of alternative fuel sources and energy storage technologies.

Challenges and Responses

The Austin region ended the 2014 ozone season in attainment of the existing ozone standard, with an ozone design value of 69 parts per billion (ppb). Attainment status is a determination of whether the region is in compliance (in attainment) or out of compliance (in nonattainment) with the 2008 federal health-based ozone standard of 75 ppb. The design value is a

statistic that reflects the region's average ozone level. When determining the region's attainment status, the design value is compared against the federal health-based ozone standard.

Figure 2 shows the Austin-Round Rock region's continued success in reducing ozone levels during 2014.

While the continued downward trend in the region's design value is impressive, efforts to improve Austin's air quality must continue. It is expected that the federal health-based ozone standard of 75 ppb may be reduced in the future to 70 ppb or less, which may put the region in nonattainment with the new federal ozone standard.

Ongoing

Central Texas has a history of participation in proactive air quality initiatives with regional partners. The City of Austin will continue to support regional partners in reducing ozone-forming emissions; review and comment on new U.S. Environmental Protection Agency (EPA) ozone standards; and evaluate existing and new measures to improve air quality. As our region's population continues to grow, air quality issues will become increasingly important. The development of regional public awareness and education campaigns to encourage voluntary action to improve air quality is critical. Recognizing the regional nature of air quality, the City is taking an active role in several area initiatives, including:

- Clean Air Coalition, www.capcog.org/divisions/regional-services/clean-air-coalition
- Movability Austin, www.movabilityaustin.org
- Commute Solutions, www.commutesolutions.com
- Clean Air Force of Central Texas



CENTRAL TEXAS 8-HOUR OZONE AVERAGES

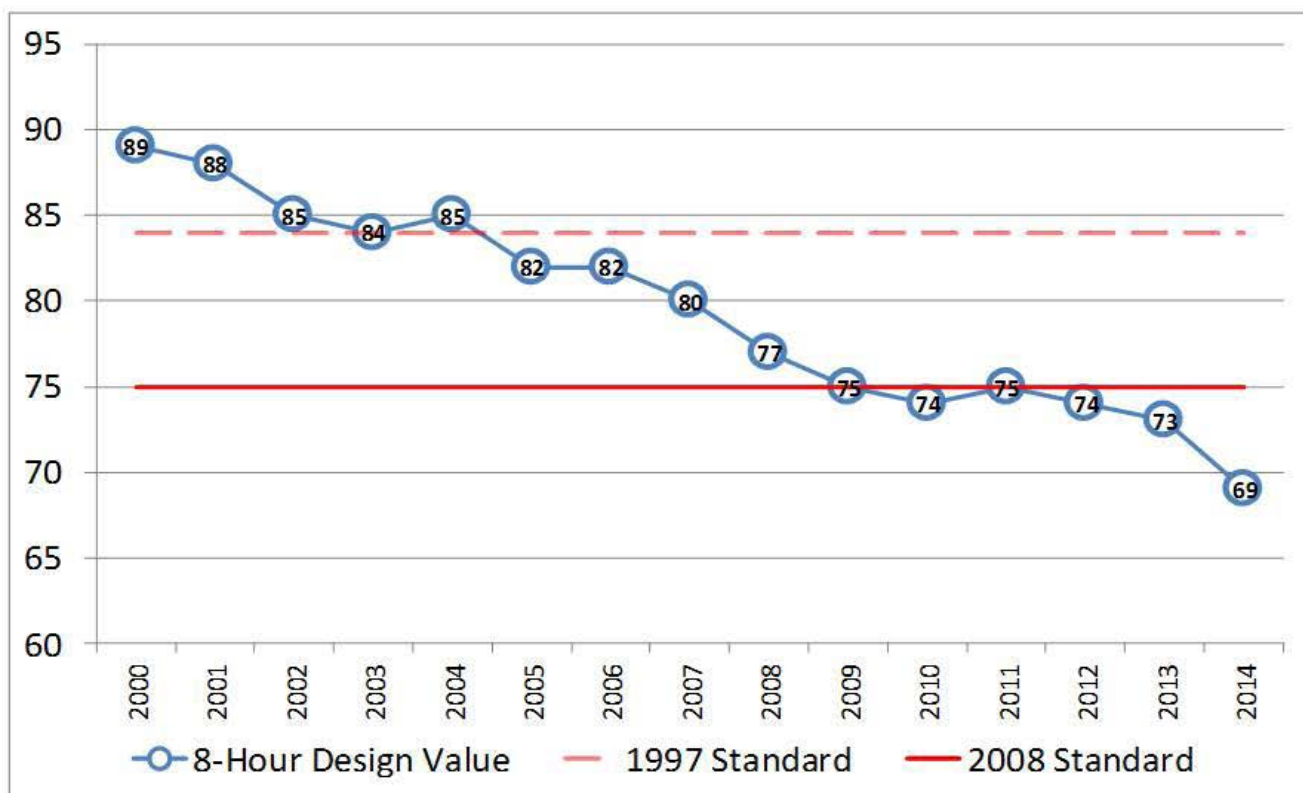
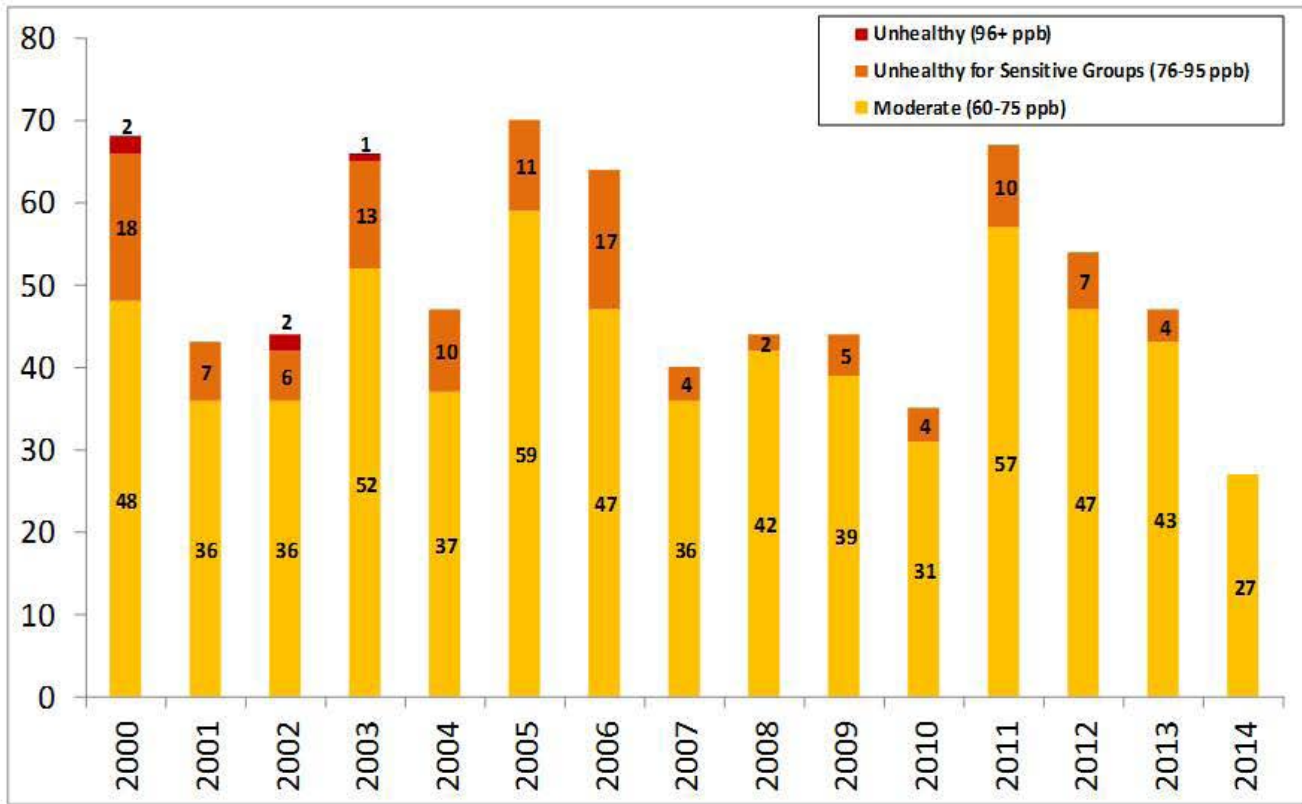


Figure 2. Ozone Design Value Trend for 2000 – 2014, provided by the Capital Area Council of Governments

CENTRAL TEXAS HIGH OZONE DAYS

Figure 3. Number of days with unhealthy 8-Hour Ozone Levels in Austin-Round Rock MSA, provided by the Capital Area Council of Governments.



This Year

The Air Quality Program is committed to educating the City’s employees and residents about the ozone problem and providing them with information that can help improve the air quality of our city. Specifically, Air Quality staff participated on the Clean Air Coalition Advisory Committee’s Outreach and Education Sub-Committee, which engages regional partners to leverage resources in delivery of consistent Air Quality messaging throughout Austin and surrounding communities. Additionally, Air Quality staff participated in the Business Outreach Group led by the Office of Sustainability. The Business Outreach Group focuses its efforts on reaching Austin employers with information about how they can improve their operations through environmental initiatives, such as high-efficiency lighting and water usage, better recycling practices, and educating employees on alternative ways to commute to work. Air Quality staff also completed community outreach throughout the year by distributing information and providing presentations at community events.

Status and Trends

Average ozone levels in the Austin area have been decreasing for more than a decade. The downward trend is almost certainly caused by cleaner emission sources both in Austin and in upwind areas, such as cars and trucks that are equipped with improved emission control systems. The region-wide inspection and maintenance program has also contributed to the reduction of ozone by ensuring that local vehicles are maintained. In 2014, the region experienced a milder than normal summer which contributed to a decrease in Ozone Action Days. Figure 3 provides a comparison with previous years. For the 10th year in a row there were no days designated as unhealthy for all groups. There were no days in 2014

that were unhealthy for sensitive groups. Days with moderate ozone readings totaled 27, which is the lowest number of moderate days ever recorded.

Annual Focus

Since 2002, Austin has been an active member of the Central Texas Clean Air Coalition. In 2014 the Clean Air Coalition was awarded the Clean Air Excellence Award for the implementation of the 8-Hour Ozone Flex Plan that expired on December 31, 2013. On January 1, 2014, the Clean Air Coalition entered into its fourth voluntary plan with the U.S. Environmental Protection Agency under the Ozone Advance Program. Ozone Advance is a collaborative, voluntary effort between the EPA, states, tribes, and local governments to encourage reductions of ground-level ozone, including the ozone precursor emissions of Nitrogen Oxides and Volatile Organic Compounds. Through this voluntary effort Ozone Advance is expected to help areas remain in attainment with the National Ambient Air Quality Standards. The City of Austin has committed to complete more than 30 air emission reduction measures in the plan. Taking voluntary actions now to reduce ozone and precursor emissions through the Ozone Advance Plan is expected to benefit public health while minimizing the region’s regulatory burden. The plan also provides the City with the opportunity to maximize ozone reductions while reaping the additional benefits of reduced carbon emissions, cleaner fleets, and less traffic congestion. This plan will continue through 2018 and will ensure that the City of Austin remains a leader in efforts to improve air quality in Central Texas. More information about the region’s Ozone Advance Plan can be found on the CAPCOG website: www.capcog.org/divisions/regional-services/ozone-advance/



100% Recycled



2014