CONCEPT PLAN
FOR THE ONION CREEK GREENWAY

Erythemis Simplicicollis (Eastern Pondhawk)

TRAVIS COUNTY, TEXAS | TRANSPORTATION & NATURAL RESOURCES |

Dragonflies and damselflies are frequently observed on Onion Creek, where their aquatic larvae and nymphs thrive in pools along the way.

participants

- Austin Bergstrom International Airport
- Austin Energy
- Austin Independent School District
- City of Austin Parks and Recreation
- City of Austin Public Works Department
- City of Austin Transportation Department
- City of Austin Water and Wastewater
- Del Valle Independent School District
- Lower Colorado River Authority
- Texas Department of Transportation
- Texas Facilities Commission
- Texas Historical Commission
- Texas Parks and Wildlife Department
- United States Army Corps of Engineers

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project background

In 2005, Travis County voters approved a $62 million parks bond package that included $8.6 million earmarked for developing an Onion Creek Greenway. The 2005 county bond covenant allows the $8.6 million to be spent on parkland open space acquisition and improvements along Onion Creek within the unincorporated areas of Travis County Precinct Four in southeast Travis County. Other County park bonds to be used in the implementation of the Greenway are likewise restricted. Thus the geographic scope of this concept plan is for segments of Onion Creek that are within the unincorporated areas of Precinct Four, that is, between the confluence of Onion Creek and Slaughter Creek at one terminus and between the confluence of Onion Creek and the Colorado River at the other. Within these limits there are segments of Onion Creek that are within the corporate limits of the City of Austin and also within the State's McKinney Falls State Park. Those segments of the Greenway are to be implemented by the City or State. It is envisioned that the Onion Creek Greenway will some day connect with the Slaughter Creek Greenway and continue westward to Loop 1 where it will intersect with "Walk for a Day" trail from Zilker Park to Kyle, Texas.

One of the express purposes of the 2005 Onion Creek park bonds was to "… protect and restore bottomland forests" in the creek corridor so as to help maintain a plentiful supply of clean water and mitigate the impact of floods in the project area.

Participants in the 2005 public discussions also made clear that parkland bought with bond funds had to be accessible for recreational use. Thus, recreational activity nodes and extensive hike and bike trail systems are critical elements of the Greenway plan.

Although the Greenway project was first articulated for the 2005 bond election, Travis County already had park properties in the corridor: Richard Moya Park (south of Austin Bergstrom International Airport) and Southeast Metropolitan Park - developed with 1997 and 2001 bond funds (north of SH 71). Travis County purchased the first land for the Greenway with 2005 bond funds in 2007, using "The Travis County Greenprint for Growth" as one of the guides for identifying high priority parcels for open space preservation and acquisition. The first Greenway development project is slated for completion in 2012. Acquisition of land and park development is on-going and restoration of bottomland forests is underway.

project area

The proposed Onion Creek Greenway is a 21-mile long corridor that extends from Slaughter Creek, east of IH-35, to the confluence of the Colorado River generally following the limits of the Onion Creek floodplain. The Greenway lies within the southeast quadrant of the county, bounded by IH-35 to the west and the Colorado River to the north. Southeast Travis County is 183 square miles – the smallest of the four quadrants. The southeast quadrant has the largest Hispanic population (51%) and the most people living in poverty (19%). Along with the northeastern part of the county, it has the youngest population: more than half of its residents (55%) are 29 years or younger.

As of 2006, approximately 4% of its area (4,500 acres including City of Austin and State of Texas green spaces) is dedicated to green space, a percentage that is approximately the same as the northeast quadrant, but which is far less than what is dedicated in the western part of the county. Approximately 24% of western Travis County is dedicated to green space(a situation due in large part to the preservation of land for endangered species habitat and water quality protection).

Over 80% of Onion Creek runs adjacent to or through publicly owned land, including eleven existing City, County, State and United States Army Corps of Engineers (USACE) Parks, the City of Austin (COA) Lime Sludge Disposal Facility, the Travis County Road and Bridge Yard, the Austin-Bergstrom International Airport (ABIA) property, COA FM 812 Resource Recovery Center (planned to be the Future Austin's Green District) and the South Austin Water Treatment Plant. It passes under US 183, newly constructed SH 130 and SH 71. It crosses both the Austin and Del Valle Independent School Districts and has seven elementary schools, one middle school, two junior high schools and one high school within walking distance.

the big picture

The Onion Creek Greenway project is an exciting one. It is Travis County's first greenway initiative and represents a model for developing greenways along other creeks and rivers in the county. The Onion Creek Greenway is also located in an area of the county that requires, perhaps more than any other area, multi-agency cooperation to reach its fullest potential.

While all greenways have environmental, recreational, social and economic purposes, each has a unique character that is derived from the natural and cultural conditions of its area. In this case, the longtime farming of the area and the bottomland and upland ecosystems provide context and meaning for this project. Although historically farmland, today's southeast Travis County landscape has become increasingly fragmented by encroaching urbanization. It is now a patchwork of residential, commercial, industrial and agricultural land uses that present both opportunities and constraints for the Greenway. Highlights of the Onion Creek Greenway concept plan follow.

TRAILS, TRAILS, TRAILS

Many of the existing City of Austin and Travis County parks on Onion Creek have trails but the network of trails proposed for the Greenway will offer a qualitatively different experience. People will be able to travel long distances, particularly as the trail system develops outside the Greenway. They will be able to hike and bike to parks, transit stations and commercial centers from their homes and work places. They'll move along high bluffs, across steep slopes and through the bottomlands. Users will travel through dense thickets, pecan groves, woods and grasslands, seeing some of the largest cypress, pecan and cottonwood trees in the county. They'll stop along the creek, as it floods or slows to a trickle. Folks will pass by people playing in parks, shop at Michalk's Grocery and El Mercado Farmers Marketing and camp at McKinney Falls State Park. They'll discover historic places and learn about extinct volcanoes and creatures that swam the Paleolithic seas of central Texas.

A GREEN GATEWAY TO THE CITY

The part of the Greenway that SH 130 crosses (between SH 71 and Elroy Road) is notable because it is such a large area that has been disturbed over time. Initially cleared for agriculture, only remnants of the bottomland woods and grasslands that once covered the floodplain are now found along the creek. In more recent times, aggregate mining as well as the construction of SH 130 has further disturbed the area. The current view is not a scenic landscape.

Restoration of this area will certainly have both recreational and environmental value. From a larger perspective, it will also have great value as a significant regional landmark. Once restored, more than 3 miles of SH 130 will either front or pass through wooded areas and grasslands. As it now stands, this is the only substantial green section along what was originally envisioned as the SH 130 Parkway, and will function, in effect, as a green gateway to the City of Austin.

Brushy Creek Regional Trail Crossing
photograph by Sallie Burchett

EL MERCADO

At the intersection of US 183 and Onion Creek, a farmers market – El Mercado – will be established, paying tribute to both the tradition of farming and strong Hispanic presence in this part of the county. The market will support local farmers, providing an outlet for their goods and make it easier for residents to obtain locally grown, fresh foods.

El Mercado will be sited at the Road and Bridge Yard – the former headquarters of the Travis County Precinct Four Road Maintenance operations in this part of the county and will share space with a Greenway trailhead as well as a park maintenance facility and an emergency medical service station. Each use will stimulate interest in the other. People drawn to the market will discover the Greenway – at a location where the abandoned US 183 bridge is incorporated into the trail system where limestone outcrops and large cypress trees grow along the creek. Conversely, trail users will discover the market. As a public market, El Mercado will be a colorful center of community life in southeast Travis County.

Confluence Park
photograph by Joe Gieselman

A PATH TO THE COLORADO RIVER

There is a growing appreciation of the Colorado River as a natural resource. There is also a corresponding demand for public access to the river for recreational use. The Lower Colorado River Authority promotes the Colorado River Trail to encourage public access, boating, and fishing along the 290-mile segment between Longhorn Dam on Lady Bird Lake in Austin to the Gulf Coast of Mexico. The Onion Creek Greenway helps achieve both objectives with the addition of Confluence Park to its system.

The 80 acre Confluence Park fronts the Colorado River, which is a free flowing, wild river east of the Longhorn Dam. It was formed when Onion Creek cut a new channel to the river, separating the parcel from its parent tract. It anchors the Greenway to the river, but is significant for other reasons as well. It is the only park in the county that has a "braided" landscape, a landform in which old creek beds are visible throughout the site. It is also the only park that is composed solely of alluvial soils, making it a potential target for aggregate mining. Public acquisition now protects water resources in this area, as well as the scenic quality of this section of the river.

One by-product of alluvial soils and creek meandering is a gravel "beach" where people can easily access the water and boaters can access the land. The park will be maintained in its primitive state, providing the adventuresome opportunities to hike or boat to the park for primitive camping and enjoying nature…all within a short distance of downtown Austin.

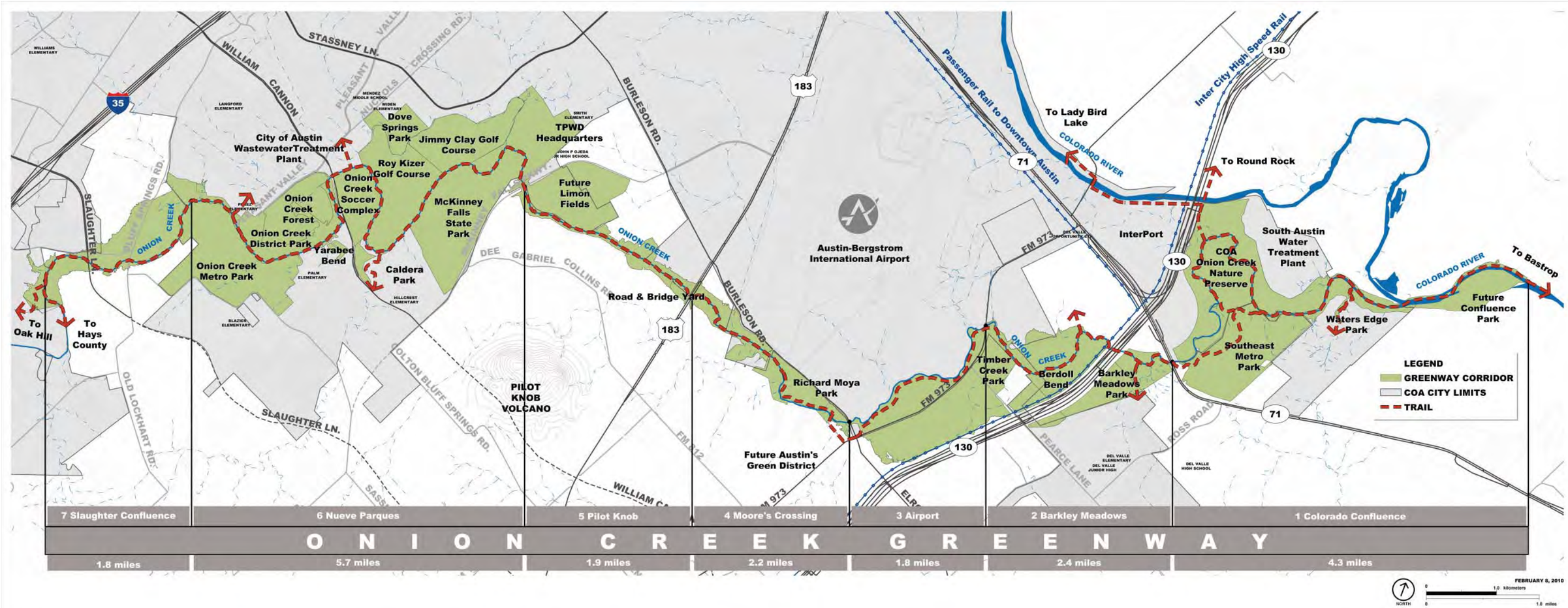

FIGURE 1

Onion Creek Greenway

Source:
State of Texas, Capital Area Council of Governments, City of Austin, Travis County

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values

The Greenway embodies eight (8) values that support community wide goals of social equity, environmental quality and economic vitality. The values are:

- Health and Wellbeing
- Conservation and Restoration
- Recreation
- Connectivity and Transportation
- Preservation
- Education
- Sense of Place
- Economic Development|Redevelopment

1 HEALTH AND WELLBEING

Parks and natural areas support the health and wellbeing of county residents.

As a health and human services provider, Travis County values the physical and psychological benefits associated with an active lifestyle. It is critical to childhood health and is cited as one of the most important factors contributing to successful aging (Centers for Disease Control and Prevention, n.d.). By providing opportunities to recreate outdoors and enjoy nature, the Greenway helps enhance the health and wellbeing of county residents.

This is particularly important when considering the health needs of children for whom there is a growing incidence of childhood obesity and related "adult" diseases, due in part to sedentary lifestyles. Socio-economic factors and ethnicity also worsen this situation: low-income children have these diseases at higher rates than the general population (Mayo Clinic, 2009), as do minority children (Minority Nurse, 2009). These children also are more likely to depend on public facilities for recreation and access to nature than others. Given the large minority population and number of people living in poverty coupled with the relatively small amount of green space in this part of the county, the Greenway is an especially appropriate development.

The fact that children will have greater access to natural areas in this part of the county is also important because playing in nature has developmental benefits. In his column titled "How to Lick a Slug", published in the New York Times, August 1, 2009, Nicholas Kristof cites two studies. One study of three generations of 9-year-olds found that "…by 1990 the radius from the house in which they were allowed to roam freely was only one-ninth as great as it had been in 1970". Another study found that children could more readily identify Japanese cartoon characters than native animals and plants. In Last Child in the Woods, Richard Louv calls this a "nature deficit disorder", a condition that he links to depression, attention deficit disorder and missed opportunities to stimulate creativity, development of collaborative social skills and an appreciation of the environment that carries into adulthood.

Bottomland Thicket
photograph by Wendy Scaperotta

2 CONSERVATION AND RESTORATION

When we conserve and restore bottomland forests, we protect our water resources.

The major impetus of the Onion Creek Greenway project, and its inclusion in the 2005 parks bond program, is community-wide interest in protecting our water resources. Conserving remnant woods along creeks and restoring bottomland forests are the most effective ways to accomplish this in southeastern Travis County. The wide flood plains found along the creek – much of which has been cleared for agriculture – are the areas targeted for restoration.

The objective of restoration is to establish – as Texas Parks and Wildlife biologist Kelly Bender describes – an "architecture" in which trees are the "rebar" and grasses the "concrete", thereby returning the flood plain to its proper functioning condition (as defined by the U. S. Bureau of Land Management). By establishing a deep, dense root system, the impact of flooding is mitigated, erosion is reduced and stream banks are stabilized. By slowing storm water, runoff is filtered and groundwater is recharged more completely.

3 RECREATION

Provide the recreational opportunities that people want.

Satisfying the recreational needs of a growing population is a primary mission of Travis County. Although there are currently eleven City, County and State parks along the creek that offer various levels of recreational activities – intensive metropolitan parks, moderate district parks and low intensity, neighborhood parks – the Greenway will expand the menu of opportunities significantly. Four new City and County parks with recreational opportunities are planned for the corridor. An interconnected trail system will be established along its 21-mile length.

A study of local recreational preferences completed by the United States Army Corps of Engineers (USACE) in 2004 provides insight into what people want. Walking, running, jogging, bicycling, picnicking, using playgrounds and visiting nature and outdoor education centers are all "top ten outdoor recreational activities" for the Austin metropolitan area that will be accommodated along the Greenway.

The popularity of an extensive trail system is reinforced by the USACE study which found that walking is the single-most popular recreational activity in the area: 81% of the respondents cited this as an activity in which they participate. To "Run, jog, walk on roads or sidewalks" was ranked in the top ten activities (out of 60) for having both the "…highest average expected number of participants per household" (i.e., many people in a household do it) and "…the most participants" overall.

The County also wants to ensure that the recreational needs of the young, Hispanic population most immediately served by the Greenway are satisfied. With respect to this population, the USACE study found that being Hispanic

correlates strongly to being interested in **many** recreational activities – picnicking, using playgrounds and spray parks, fishing, using sport courts and fields, tent camping and skate boarding. Being Hispanic also correlates strongly with interest "to commute by bike to work and school" and using "a trail system linking things like parks, recreation centers, etc". Thus the challenge is to provide **many** different types of recreational opportunities to serve the **many** interests of the community.

Enviromania Camper
photograph by Wendy Scaperotta

4 CONNECTIVITY AND TRANSPORTATION

Making connections.

Transportation is a key function of the Greenway. A 21-mile, continuous, grade-separated, all-weather surfaced, primary hike and bike trail will provide a pathway for bicyclists and pedestrians to travel from their home to work, school, transit centers, the airport, and recreational areas along the corridor, thereby serving the needs of the larger inter-modal transportation system. The Capital Area Metropolitan Planning Organization Mobility 2030 Plan asserts that pedestrian and bicycle trips "…play an important role in the regional transportation system…by allowing people to get to many of their destinations without affecting the vehicle capacity of the regional road network. Providing reasonable opportunities for residents of the region to walk or bicycle for shorter trips benefits the overall regional transportation system, and is critical to meeting goals related to congestion management, air quality, and social equity..."

The Onion Creek Greenway is also part of a larger system of existing and planned Greenways that span the entire metropolitan area. Most of the developed Greenways, such as Shoal Creek, Barton Creek, Brushy Creek, and portions of Walnut Creek and Gilleland Creek, are within urbanized areas. There are other riparian corridors within the urbanizing area that are being assembled for Greenways. These include the lower sections of Walnut Creek, Gilleland Creek and Slaughter Creek, the Zilker Park-to-Kyle trail and Onion Creek. Within a decade it could be possible to walk or ride a bicycle from downtown Austin to Kyle or to Manor, or from Oak Hill to Del Valle, and in three decades, from Austin to Bastrop along the Colorado River. The Austin Metropolitan Trails Council conceptualizes 70 Greenway corridors totaling over 400 miles in length ("Greenways and Trails: A Vision for Greater Austin").

Palm Elementary School Connectivity Opportunity to Onion Creek

5 PRESERVATION

Original 1884 Historic Iron Congress Avenue Bridge relocated to Onion Creek at Richard Moya Park
photograph by Sallie Burchett

Preserving our cultural and natural roots enriches our lives.

Knowing our natural and cultural roots enriches our appreciation of who we are and where we live. The Greenway, by preserving and highlighting traces of our past, provides opportunities to learn about our heritage and cultural identity. Users will cross historic bridges and culverts, pass historic buildings, view geologic formations and learn about the ancient flora and fauna of the area.

Although many built and natural features along the Greenway may not qualify technically as historic or culturally significant features, they nevertheless have value as what Randall Arendt calls "places of the heart". These are features that make a community special – views of creeks, hills, vernacular architecture, sacred trees – that are sometimes "…too obvious or too subtle to be noticed until they are gone" (Arendt, 1994). The offbeat Michalk Grocery Store or the pecan groves at the corner of FM 973 and Pearce Lane are such places. Another spot is the creek near the old SH 71 low water bridge where for decades the Onion Creek Primitive Baptist Church and other Black Baptist Churches in eastern Travis County baptized their members. The Greenway is both a means for preserving "places of the heart" and building new ones for Travis County.

6 EDUCATION

Camp Enviromania Creepy Crawler
photograph by Travis County Transportation & Natural Resources

Our parks and natural areas are learning laboratories.

The Greenway provides an open air laboratory for education in the natural science, geology, archeology and Texas history. There are seven elementary schools, one middle school, two junior high schools and one high school within walking distance of the Onion Creek Greenway. They fall within the Austin and Del Valle Independent School Districts. More schools will be built as residential areas are developed.

Travis County first partnered with TreeFolks, Inc. and Del Valle's Popham Elementary School to create an orchard-vineyard-berry patch-community garden at the County's Southeast Metropolitan Park on Onion Creek. It was envisioned as a learning center for organic gardening and forestry. In the context of a broader sustainable food policy, Travis County plans to use its park facilities to educate constituents about locally-grown food supplies by expanding its community gardens and orchards, creating a venue for a farmers market, and partnering with schools to educate children about the importance of diet and exercise in their well being. The Onion Creek hike and bike trail itself will be constructed in part by American Youthworks, a charter school for at-risk high school-age men and women who will earn their GED and learn life and job skills.

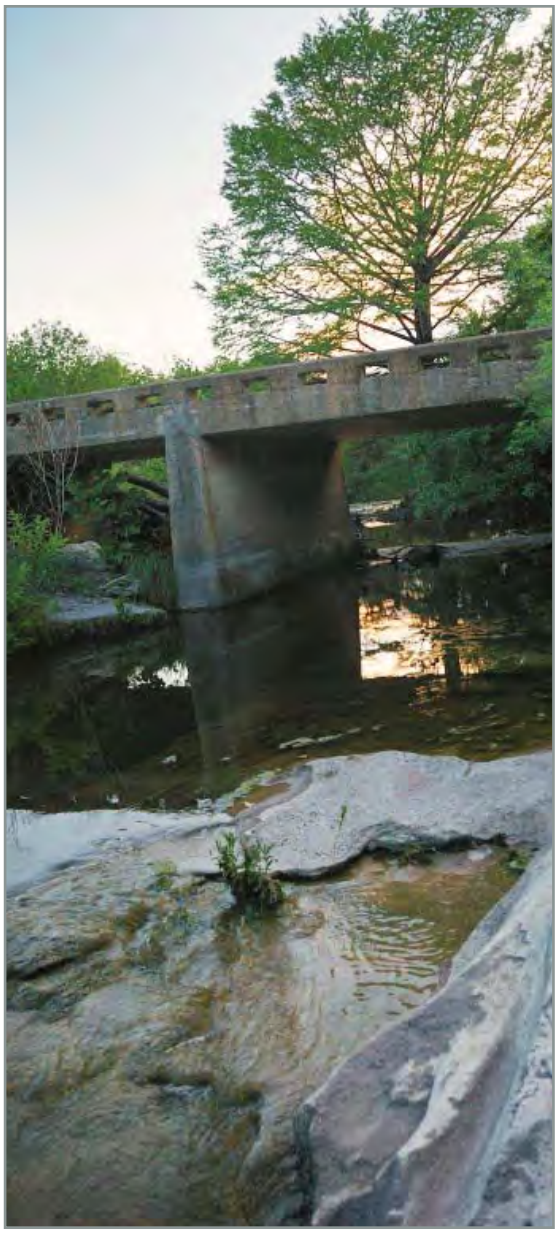
7 SENSE OF PLACE

Develop a strong "sense of place".

"Sense of place" is a positive perception of a geographic area, and reflects an attachment to a particular site or region that is both intensely personal and a community shared experience. The Greeks called it "genius loci", the "spirit of a place". It arises from respect for both nature and human concerns: natural resources are protected and the built environment is physically and psychologically comfortable. Sites with a strong sense of place are often inspirational and express the personality and values of a people.

As a greenway, landscape contributes greatly to our perception of the place. It is critical that scenic areas – primarily found along the creek – are preserved and areas disturbed by mining and road construction, are restored to a more natural condition. The fact that the type of landscape being preserved and restored is the same type preferred by people is fortuitous. Research shows that the "…presence of water or large trees in a scene has consistently been found to be strong predictors of landscape preference", and that people tend to prefer savanna-like environments – open areas, scattered trees, water and uniform grassiness – to other natural environments…"(Wolf and Bardwell, n.d.).

An area that has more than its fair share of landfills, public utilities and major road construction – and far less publicly owned green space than other parts of the county – southeast Travis County will benefit greatly from the Onion Creek Greenway. It builds on site specific natural and cultural attributes of the land and will be a place that is unique to southeast Travis County.



Old 183 Bridge & Pilot Knob Outcroppings at El Mercado Farmers Market
Photograph by Sallie Burchett

8 ECONOMIC DEVELOPMENT/REDEVELOPMENT

Help support the economic vitality of our community.

A Greenway itself creates economic value. A study by Dr. John Crompton, Department of Recreation, Park and Tourism Sciences at Texas A&M University shows that greenways enhance the value of the property adjoining the greenway as much as 20%. Many homeowners who own lots within golf course communities don't golf, but they pay a premium for a view of the fairways. Greenways have the same effect. Integrated with well designed private developments, a greenway can enhance the livability of a residential area and the attractiveness of a commercial center.

A greenway coupled with other major public investments can create a positive economic climate. The Onion Creek Greenway, the Austin-Bergstrom International Airport, State Highway 130, a new campus of 9,000 State employees, all linked to downtown Austin by an urban rail line creates synergy that will attract significant private investments and collectively transform the character of southeast Travis County.

The Greenway will also be a catalyst for the redevelopment of Austin along Onion Creek. Old rock quarries now being used by the City for lime sludge disposal, once filled, can be converted into sports fields for recreation. The vacated County Road and Bridge yard can be converted into a trail head park and Farmer's Market, as well as serve as a County/City park maintenance facility.

The borrow pits excavated for fill materials in the construction of SH 130, now filled with water, will serve as fishing ponds and wildlife wetlands within the county's green spaces. The closed City landfill on FM 812 adjacent to Onion Creek is planned to become a Green District with a recycling center, community center, recreational areas, gardens and renewable resources demonstration areas. The Michalk Country Store can become the anchor of a rejuvenated Moore's Crossing Historical District. Flood-prone subdivisions are being converted into parks. These redevelopments help to bolster a positive economic climate for the area.

Pflugerville Farmers Market
photograph by Whitney Proffitt

a rich heritage

In the 1820's Travis County had its first permanent Anglo American settlement in the southeast quadrant where the fertile black prairie promised the best farming and crops. The Mexican government had just approved Stephen F. Austin's request for a third Texas Colony by way of granting the Empresario Contract Land Grant.

The colonists settled around Onion Creek where they farmed, hunted and traded. One particularly attractive place to cross Onion Creek for the settlers is now known as Moore's Crossing. Nathaniel and Thomas Moore arrived in Texas around 1820. Thomas Moore's son, Robert J. Moore, is credited with establishing a community in this location. The area provided fertile farming opportunities and quickly became a rural agricultural settlement.

While farm work was the primary livelihood for nearly all in the area, community life focused around the activities of church and school, for which Onion Creek provided the backdrop. Members of the local black Baptist churches used Onion Creek as a gathering place for services and week-long revivals. Baptisms were performed in the cool water of the creek. Though they had no written music or hymnals, the congregation members sang songs that echoed along the banks of Onion Creek.

Another of the area's first colonists was Thomas F. McKinney, the namesake for McKinney Falls State Park. His settlement became his home where he bred race horses with his own stable and private track. Remnants of his home, stone fences and the first flour mill in the area built with slave labor remain in the State Park.

Despite the influx of settlers and the establishment of nearby government entities in their midst, fear of Indian attacks prevailed among rural settlers well into the 1840's. Travis County organized the county into four military beats so that residents could better monitor Indian activities in their area. The threat was still present in 1844 when Thomas A. Moore became the overseer of "beat three" or southeast Travis County.

The ancestors of the Moores occupied a single farmstead, the Wallace-Burleson-Moore farmstead. Also known as Colonel Moore's cabin, the farmstead represents contributions of each family from two distinct eras. The Wallace-Burleson era represents a more stable and prosperous agricultural time dependent on slave labor in the years preceding the Civil War. The Wallace-Burleson-Moore farmstead residence was post war transition to landlord-tenant and share crop practices, the agricultural foundation of the late19th and early 20th century central Texas. While in need of repair, Moore's cabin remains a physical representation of both eras of the county. The farmstead is located on the Austin Bergstrom International Airport (ABIA) property south of Onion Creek.

By 1925 the Moores, Wallaces, and Burlesons had left Moore's Crossing. It was no longer an economic center as better roads and affordable transportation made it easier for tenant farmers to travel to Del Valle or Austin. The community store is now owned and run by the Michalk family and is open for business today.

The original Onion Creek crossing for US Highway 183 still remains after the road was realigned and a new bridge was built in the later half of the 20th century. The water crossing is adjacent to the existing Travis County Road and Bridge Yard.

Santiago Del Valle Grant Texas Historic Marker in McKinney Falls State Park
photograph by Sallie Burchett

Wallace-Burleson-Moore Farmstead Outbuilding on ABIA Site photograph by Sallie Burchett

Another historically significant bridge crosses Onion Creek between Richard Moya Park and Moore's Crossing. In 1915, three of six spans from the 1884 iron Congress Avenue Bridge were removed from storage and used to construct a bridge at this location. The bridge was damaged by a flood and washed away that same year. The remaining three sections were installed and reinforced with concrete piers in 1922. In 1980, 58 years later, the County converted the bridge to a pedestrian crossing due to further destabilization as a result of age. The bridge is in the approximate location of the original Onion Creek Crossing used by the pioneers. The bridge is now a registered Texas Historic Landmark and an important link both physically and figuratively.

Old Highway 71 Barrel Arch Culvert Crossing
photograph by Joe Gieselman

Two historic Old Bastrop Highway structures are also found at Barkley Meadows. The Old Bastrop Road Crossing at Onion Creek was slated to be National Registered Historic Place by the National Park Service in 1995. The concrete bridge built by the Uneeda Bridge Company in 1914 represented the "good roads" movement of the early 20th century. Unfortunately the bridge was destroyed by a landowner before formal designation occurred (only the piers for the bridge remain). The other structure in the park is a concrete barrel arch culvert crossing a tributary roughly 200 feet east of the creek. Like the bridge, the culvert is historically significant as it represents and invokes the feeling of an early travel way.

As the years have progressed, Austin has expanded, inevitably changing the physical character of the Onion Creek area. Paved roads and highways, modern housing developments, and commercial enterprises have begun to cover much of the formerly pastoral landscape, and few families in the area live on traditional farms. Large tracts of open land and even several buildings, however, still remain as tangible links to the area's 19th and early 20th century history. The McKinney ruins, Colonel Moore's Cabin, the Old 183 Bridge, the Old Congress Avenue Bridge, Moore's Crossing and the Old Highway 71 Barrel Arch Culvert are remnants of an important rural community. The features symbolize the lives and aspirations of Travis County's original pioneers.

the land

LAND FORMS

Onion Creek flows from its headwaters north of Dripping Springs to its confluence with the Colorado River, approximately eight miles downstream of Lady Bird Lake. It crosses the geologic transition zone from the Texas Hill Country and Edwards Aquifer, to the west, to the Coastal Plains and Blackland Prairies, to the east. It is a landscape of terraces and flood plains.

These characteristic land forms are seen along the 21-mile section of the Onion Creek Greenway. Flowing from the Slaughter Confluence, the creek crosses a broad floodplain at its western end, and then enters the terraced drops of McKinney Falls State Park. Downstream, it moves through the narrowest section of the Greenway which has steep bluffs rising as much as 120 feet above the creek. The height of the creek bank continues to drop as the Greenway continues towards Moore's Crossing, at which point the flood plain broadens dramatically at the Austin Bergstrom International Airport, Timber Creek Park, Berdoll Bend, Barkley Meadows and a large part of the Confluence sections of the Greenway.

GEOLOGY

One of the most interesting geologic features of the Greenway is Pilot Knob, an extinct volcano visible from Dee Gabriel Collins Road. It is actually a cluster of small volcanoes – eroded to small rounded hills – with a diameter of about 2 miles. The volcanic eruption is dated to 77 to 83 million years ago, during the late Cretaceous period when this part of Texas was a shallow, sub-tropical sea. The skeleton of the Mosasaurus maximus – a sharp toothed marine reptile that swam in these warm waters during the late Cretaceous period – was found along Onion Creek and is now on display at the Texas Memorial Museum in Austin.

The underlying geology is evident along the Greenway, particularly at McKinney Falls State Park. While the upper massive gray limestone is seafloor sedimentation, the lower layer of the falls is associated with volcanic activity, and contains ash and rock fragments from the exploding volcano. Volcanic ash beds are also found near the intersection of Marble Creek and Onion Creek on land that is to be dedicated in the near future as City of Austin parkland.

ALLUVIAL SOILS

One consequence of the creek slowing as it reaches the rolling contours of the coastal plains is that sediments are dropped and alluvial deposits of silt, sand and gravel are formed. The largest area of deposition in the Greenway is between FM 973 and SH 130, in the Airport and Barkley Meadow sections.

Kevin M. Anderson, Coordinator of Austin Water Utility's Center for Environmental Research [CER] at Hornsby Bend, tells a compelling story about the bottomlands and their rich alluvial soils. Whereas the bottomlands were once covered by extensive forests, with European settlement, the trees were harvested for timber and land cleared for farming. Although no longer plowed and planted with row crops – because of the loss of fertility from over a century of farming – much of this land is still used for agricultural purposes – grazing and hay production. Market forces are at work, however, making it more economically feasible to mine the aggregate than use it for food production or bottomland forest conservation.

McKinney Falls
photograph by Sallie Burchett

WATER

Because the trail system will be of concrete construction, floodplain impacts will generally be limited to loss of access during high-water events and post-flood debris removal from the trail. A review of terrain data and flood flow water surface elevations indicates that the Berdoll Tract borrow pit fills and discharges at the north end. The potential for spill into the borrow pit along the western boundary is limited. To support the trail alignment decision process, profiles were developed for the Greenway corridor indicating water surface elevation, left and right top of bank land elevations and creek flow line elevation. If trail construction includes any new creek crossing bridge structures, floodplain impacts of the structure will need to be taken into consideration during design.

EROSION

Creek erosion from meandering across the flood plain is expected, forming steep "cutbanks" along some of the bends, but excessive erosion is not normal. As the watershed is developed and riparian vegetation is replaced by paving, erosion is worsened. The trend to manipulate the floodplain (developers are channelizing the creek so they may develop more of their sites) may also exacerbate this situation.

Creek erosion hazard issues are significant at the four (4) primary locations of concern shown in Figure 2 on Onion Creek. Care must be taken in the layout of the trail alignment in consideration of the active erosion hazard areas, particularly at the high bluff locations. The City of Austin recommends a trail setback of 4 horizontal feet to each vertical foot (4:1) from the bottom to the top of the bank in the hazard zones. This rule of thumb is based on general soil conditions of alluvial stream banks in the Austin area. Even outside the setback, trail construction inside this zone may still be subject to loss due to slope failure.

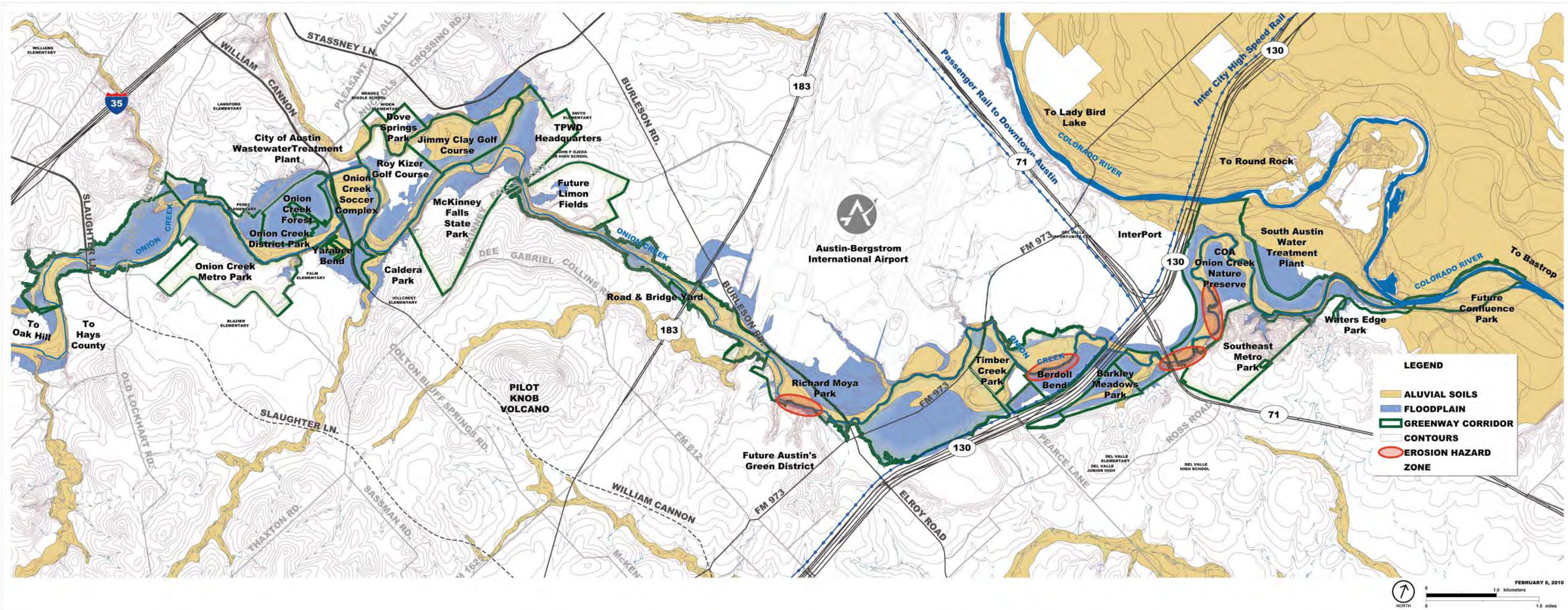


FIGURE 2

The Land

Source:
State of Texas, Capital Area Council of Governments, City of Austin, Travis County

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VEGETATION

The land along the Greenway has been disturbed by farming, mining, road construction, and development to such an extent that there is far less intact native vegetation along the Greenway today than in pre-settlement times. Only remnants of the Bottomland Forests, that once covered large portions of the Onion Creek flood plain, are still found along the creek. Native vegetation associated with riparian wetlands, creek banks, gravel bars and upland and field edge zones are also found. Only small, fragmented, Bottomland Prairies areas remain.

Although reduced in area, the Bottomland Forests that remain along the creek are high quality. Mature canopy trees include the following species:

- bald cypress
- sycamore
- live oak
- bur oak
- pecan
- cedar elm
- hackberry

In the understory grow:

- rough leaf dogwood
- false indigo
- Texas persimmon
- redbud, yaupon
- elderberry

Onion Creek visitors will find these varieties on the ground and climbing trees:

- Mustang grapes
- Virginia creeper
- ryegrass,
- inland seaoats,
- turk's cap
- poison ivy

Inland seaoats, little and bushy bluestem, eastern gamagrass, Indian grass, Texas bluegrass, and Purple three-awn grow in bottomland prairies. Willows, baccharis, southern wild rice, switchgrass, cattails,and giant ragweed are found along river banks and gravel bars. Southern wildrice, switchgrass, cattails, horsetail, rushes, and sedges are species that grow in riparian wetlands. Post oak, blackjack oak, eastern red cedar, mesquite, palo verde, western soapberry and toothache tree grow in upland and field edge zones.

WILDLIFE

While land use changes impact habitat negatively, there is nevertheless a diversity of wildlife in the Greenway corridor. It is an important stopover for migrant songbirds, wintering raptors, and dragonflies (found around creeks and wetlands because their larvae or nymphs are aquatic and appreciated as valuable predators of mosquitoes) are frequently observed along the creek. Shallow, fast moving riffles with cobble-gravel substrate and deep, low velocity pools are the dominant aquatic habitat types in the creek and support diverse biotic communities. Reptiles and amphibians are abundant, and mammals that are drawn to the creek for food and water include deer, raccoons, opossums, skunks, armadillos, and small rodent species. Further study will determine the extent to which predators such as coyotes, foxes, bobcats, et cetera are in the area.

Big Bluestem

Indiangrass

Little Bluestem

Gayfeather

Spikerush

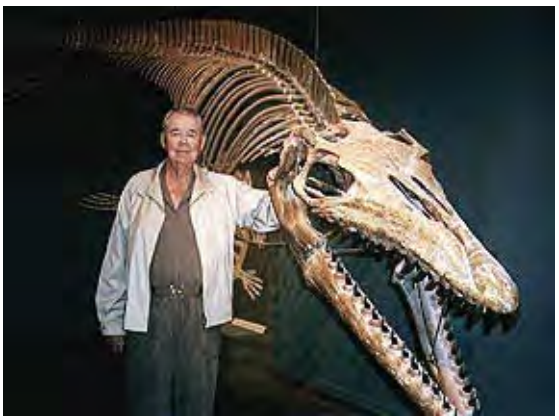
Switchgrass

Known Wildlife on Onion Creek - Dickcissel

a closer look

The Onion Creek Greenway Vision is illustrated below. Highlights of this vision, starting at the Colorado River and moving upstream, follow.

Colorado Confluence Beach
photograph by Joe Gieselman



Mosasaur Skeleton Found in Onion Creek and Discoverer Clyde Inkins
Texas Memorial Museum

Olson Meadows on Brushy Creek Regional Trail
photograph by Sallie Burchett

SEGMENT 1 COLORADO CONFLUENCE

Confluence Park: This is the only undeveloped park in the Greenway, and is one of the few parks on the Colorado River. The site will not be developed, so people will have a natural area where they can hike, picnic, camp, and boat. The primitive trail to the site starts at Watersedge Park, and boaters on the Colorado River will be able to come ashore at a gravel beach in the park.

Watersedge Park: This is both a neighborhood park serving the Watersedge subdivision, and a trailhead for the larger community. It will have a play area, hike and bike trail, restroom, and small-boat ramp at the confluence of the creek and river.

Onion Creek Preserve: This City of Austin preserve is creek bottomland that is part of their park system. It is immediately adjacent to the County's Southeast Metropolitan Park and will have a nature trail off the primary trail as well as interpretive facilities.

Mosasaur Playground: The Mosasaur playground is an exciting addition to Southeast Metropolitan Park. It is to be a place where children will learn about this exotic Paleolithic creature through play. A replicated skeleton of the Mosasaur that was found in the creek, immediately south of the State Highway 71 crossing and on display at the University of Texas, will be incorporated into the playground. The Mosasaur and other Paleolithic topics will be interpreted for adults to enjoy as well as children.

SEGMENT 2 BARKLEY MEADOWS

Trails to Rails: Urban passenger rail service is proposed for the State Highway 71 corridor. By connecting to this station, the Greenway trail serves multi-modal transportation objectives. This is particularly beneficial once the Future State Campus or similar mixed use complex is constructed.

Barkley Meadows: Barkley Meadows will have passive recreational facilities centered on the woods, pecan groves, fields, pond, creek, and historic road and bridge structures. Texas Parks and Wildlife Department (TPWD) awarded a $1 million Outdoor Recreation Grant to the county in 2009 for the first phase of improvements that include picnic areas and pavilion, fishing pier, hike and bike, nature, and interpretive trails, and an open play area (scheduled for completion 2012). Restoration of the bottomland woods and grasslands – to mitigate the impact of SH 130 construction – is also being initiated. A veloway will also be constructed that winds through the restored natural areas.

Berdoll Bend: This park has both an ambitious restoration of bottomland woods and grasses program and development of recreational facilities. As with the Barkley tract, most of this land was disturbed by construction of SH 130 when many large pecan trees were cleared and a large retention pond was built. The spine hike and bike trail will pass through this park.

Onion Creek Greenway Vision

Travis County, Texas

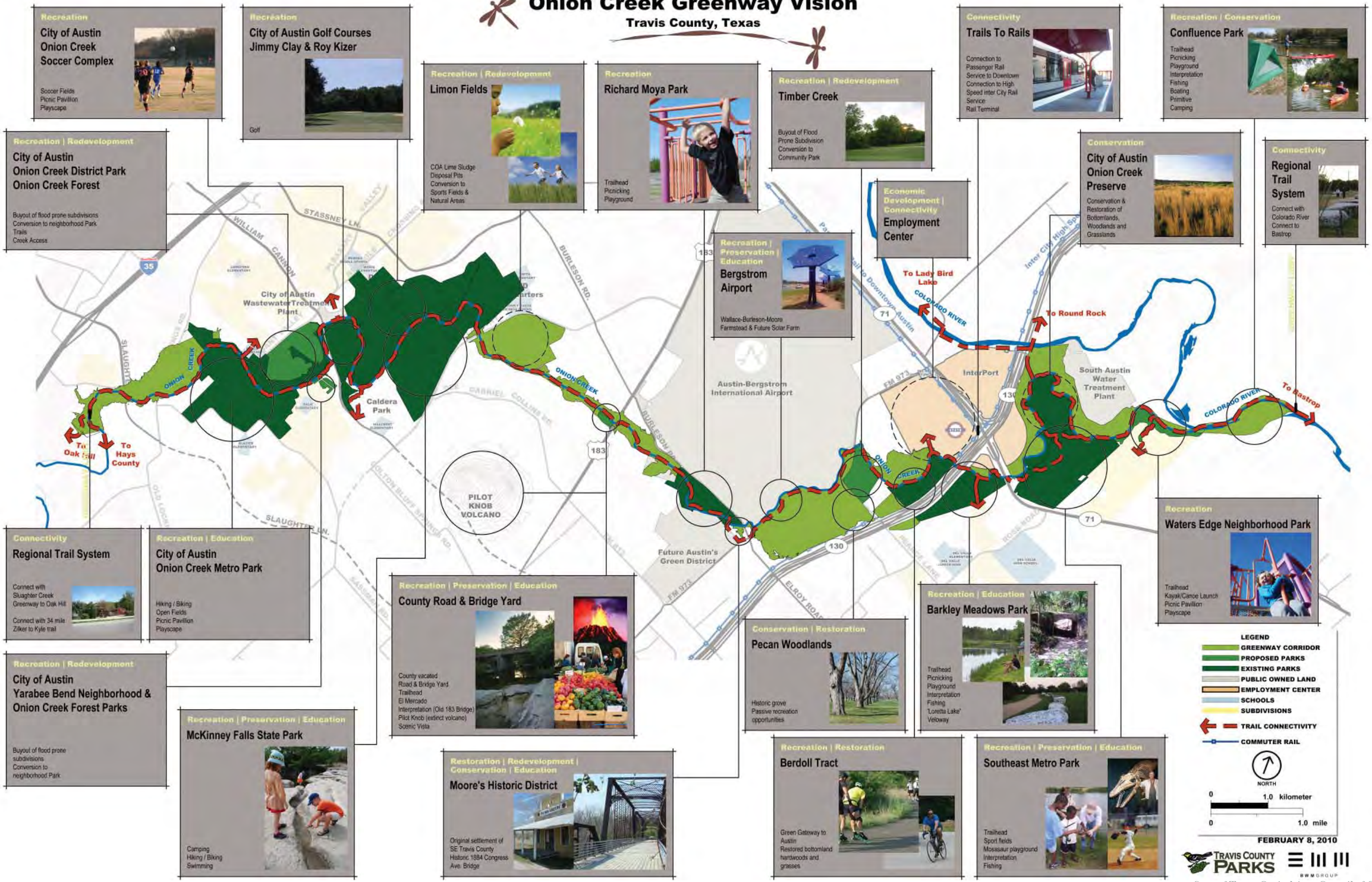


FIGURE 3

Source: State of Texas, Capital Area Council of Governments, City of Austin, Travis County

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Trail Segment	Location (Jurisdiction) ■ Existing □ Planned	High Intensity											Medium Intensity																Low Intensity								
		Tournament Ball Fields	Practice Ball Fields	Large Performance Amphitheater	Youth Campground	Events Pavillion/Group	Equestrian Trails	Golf Course	Dog Off-Leash Area	Playscape	Water Play	Park Office/Maintenance	Small Performance Amphitheater	Tennis Courts	Basketball Courts	Volleyball	Pick Up Ball Fields	Boat Launch	Restrooms	Trail Heads	Multi-Use Trail	Parking/Staging	Picnic Area	Camping	Restroom/Showers	Bicycle/Rollerblade Park	Historic Interpretation Area	Educational Center	Fishing	Seating	Garden/Orchard	Public Art	Wildlife and Nature Observation	Envir. Education/ Interpretation	Open Nature and Habitat Preserve	Closed Nature and Habitat Preserve	Restoration
1 Colorado Confluence	Confluence Park (Travis County)																				□			□					□				□					□
	Waters Edge Park (Travis County)									□								□	□	□	□								□								
	Southeast Metropolitan Park (Travis County)	■	■		■	■				■		■							■	■	■	■	■				□		■	■	■	□	■		■		
	Onion Creek Nature Preserve Austin)																				□															■	■
2 Barkley Meadows	Barkley Meadows Park (Travis County)					□				□							□		□	□	□	□	□			□	□		□	□	□		□	□	□		□
	Berdoll Tract																				□	□				□			□		□				□		□
	Timber Creek Park (Travis County)					□				□		□			□	□	□		□	□	□	□	□							□	□				□		□
3 Airport	Austin Bergstrom International Airport																				□										□			□			
	Wallace-Burleson-Moore Farmstead																				□						□										
4 Moore's Crossing	Moore's Crossing Historic District (N/A)																				□						□			□							
	Historic Congress Avenue Bridge (Travis County)																				□						■										
	Richard Moya Park (Travis County)	■	■			■				■		■			■	■	■		■	■	■	■	■														
	Austin Energy Solar Farm (Austin)																				□																
	Austin's Green District (Austin)																											□						□			
5 Pilot Knob	Road and Bridge Yard/El Mercado (Travis County)					□						■							□	□	□	□	□														
	Old 183 Bridge (Travis County)																				□						□										
	Pilot Knob (N/A)																										□							□			
	Lime Sludge Disposal Facility (Austin)		□														□		□	□	□	□														□	□
6 Nueve Parques	McKinney Falls State Park -1- (TPWD)				■	■				■		■							■	■	■		■	■	■		■	■		■			■	■			
	Jimmy Clay Municpal Golf Course -2- (Austin)							■											■		□	■															
	Roy Kizer Municpal Golf Course -3- (Austin)							■											■		□	■															
	Dove Springs Park -4- (Austin)		■			■					■			■	■	■			■		■	■	■														
	Caldera Municpal Park -5- (Austin)																				■		■							■							
	Marble Creek Greenbelt (Austin)																				□																
	Onion Creek Soccer Complex -6- (Austin)	■	■																		□	■															
	Williamson Creek Greenbelt																				□																
	Yarabee Bend & Onion Creek Forest Park -7- (Austin)						■														□																
	Onion Creek Municipal District Park -8- (Austin)								■										■		□																
	Onion Creek Municipal Metropolitan Park -9- (Austin)	□	□																		□																
7 Slaughter Confluence	Parkside at Slaughter Sub. Pocket Parks (Private)									■										□	□																
	Slaughter Creek Confluence (Austin)																				□																

FIGURE 4

Recreation Intensity and Environmental Impact Levels

Source:
Site Surveys, City of Austin Website, Travis County Transportation & Natural Resources

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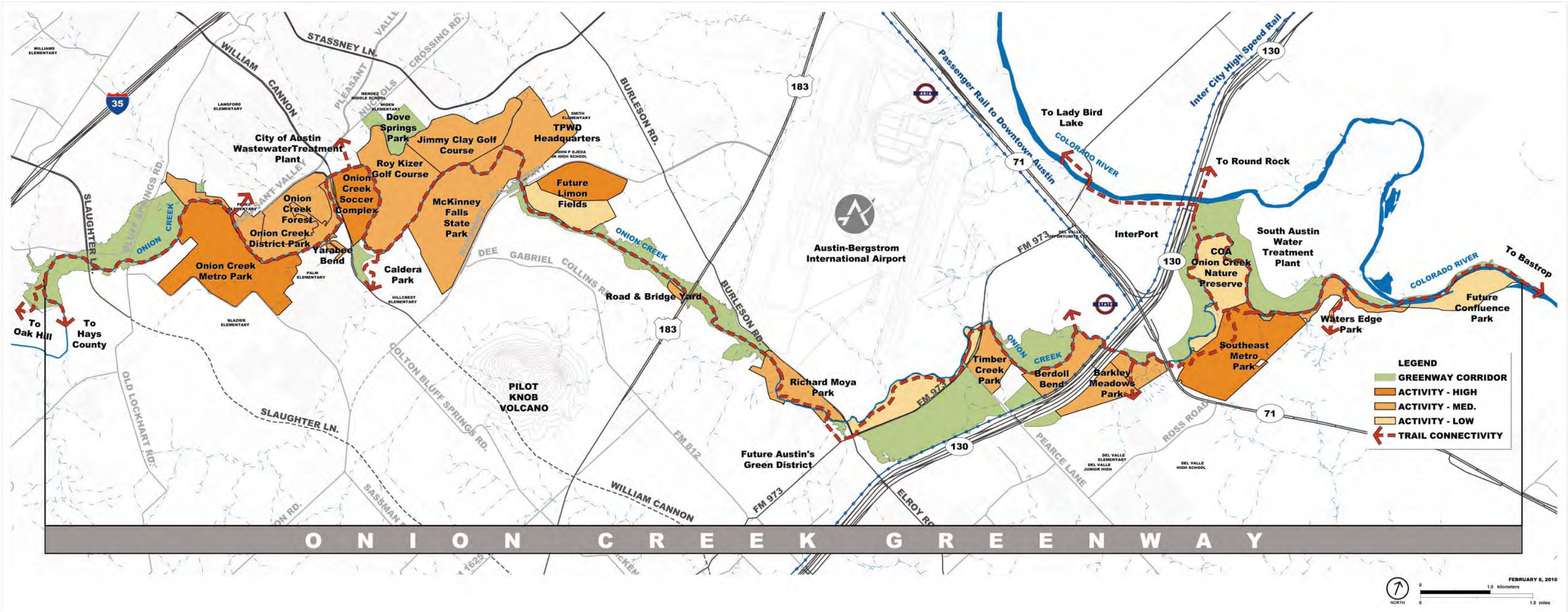

FIGURE 5

Recreation Intensity Levels

Source:
State of Texas, Capital Area Council of Governments, City of Austin, Travis County

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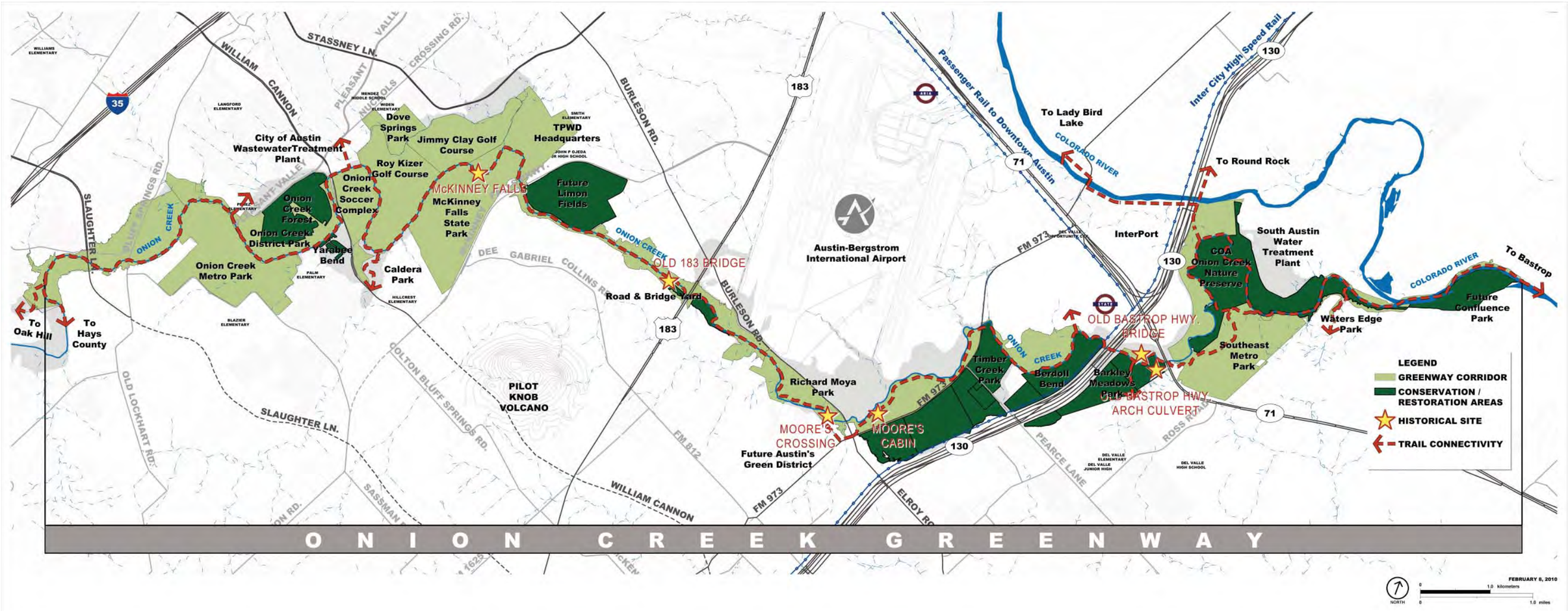

FIGURE 6

Conservation, Restoration and Historic Preservation Areas

Source:
State of Texas, Capital Area Council of Governments, City of Austin, Travis County

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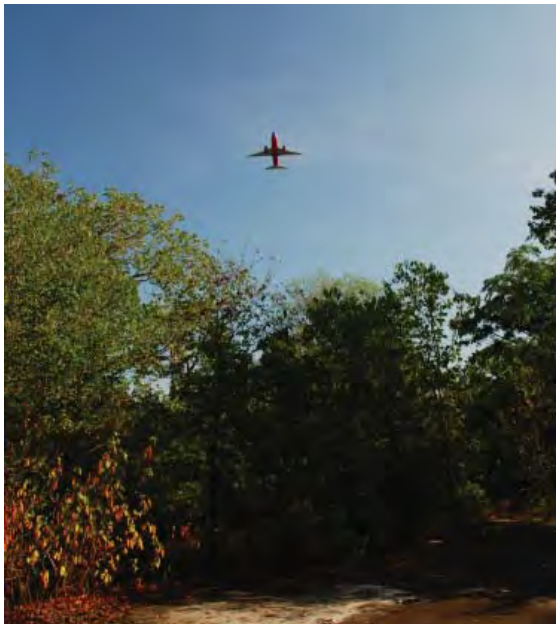
Timber Creek: Traveling west on the trail from Berdoll Bend, trail users reach Timber Creek Park, a jointly developed Travis County and United States Army Corps of Engineers park that will be County-owned and managed. It is part of the Onion Creek Flood Mitigation project on which the two agencies have been collaborating. It involves buying homes in the floodway that have repeatedly been inundated and converting the properties to parkland. Picnic areas and pavilions, basketball courts, sand volleyball courts, playgrounds, trails, restrooms, and maintenance shed will be constructed. A portion of the site will also be restored so bottomland woods mitigate the impact of floods.

Pecan Woods: Pecan Woods, in the southeast corner of FM 973 and Pearce Lane, straddle the Barkley Meadows and Airport segments of the greenway, and is notable as a "place of the heart". It is a savannah landscape with large pecan trees and grasses and marks the intersection of FM 973 and Pearce Lane. Being the only landscape of this type in the Greenway, which is also visible from adjacent roads, makes it a significant visual resource. With this space preserved as a natural area, with the Timber Creek Subdivision on the north side of Pearce Land converted to parkland, and with the airport land maintained as green space, the intersection of Pearce Lane and FM 973 will be a green landmark, a place of the heart in this part of the county.



ABIA Segment
photograph by Sallie Burchett

SEGMENT 3 AIRPORT

Airport Property: When the Austin Bergstrom International Airport (ABIA) was established, residences along FM 973 were bought and demolished. Heavily treed and bounded by Onion Creek to the west, it provides an important link in the trail system: the hike and bike trail can cross green space instead of paralleling the highway. The Wallace-Burleson-Moore farmstead home of early settlers will also be maintained as a historic attraction. This area is part of a broad flood plain that extends across FM 973 to SH 130 that was farmed for more than 100 years and is now being aggregate mined, in part. Un-mined land is targeted for agricultural land preservation or bottomlands restoration.

SEGMENT 4 MOORE'S CROSSING

Moore's Historic District: Moore's Crossing was the center of a farming community in the 1800's that grew up around a creek crossing. It is located at the intersection of Burleson Road and FM 973 and is still a lively place. With cats and peacocks living in peaceful coexistence and Michalk's Grocery open for business in a historic building, it provides plenty of local color. It's also a place where trail users can stop to rest and buy refreshments.

Another feature of Moore's Historic District is the bridge over Onion Creek, just west of Michalk's Grocery that was constructed of spans from the 1884 Congress Avenue Bridge. When Burleson Road was realigned in the 1980's, the County converted the bridge to a pedestrian crossing that is connected to Richard Moya Park's trail system. It is easily incorporated into the larger trail system.

Michalk Grocery
photograph by Sallie Burchett

Volcanic Outcroppings at Old 183 Bridge
photograph by Sallie Burchett

Volcanic Eruption - Representative of Pilot Knob 75 Million Years Ago

McKinney Falls State Park - Upper Falls on Onion Creek
photograph by Sallie Burchett

SEGMENT 5 PILOT KNOB

Road and Bridge Yard: Travis County's Road and Bridge Yard served as headquarters for its road and bridge maintenance in Precinct 4 until 2009. It is the eastern anchor of this trail segment and will be repurposed for the Greenway as a farmers market – El Mercado – and trailhead (a portion will be used for Park Maintenance Operations). More information is provided in "The Big Picture" section above.

Pilot Knob: The Pilot Knob segment of the Greenway takes its name from the nearby extinct volcano. Although not within the bounds of the Greenway, Pilot Knob will nevertheless be interpreted along the Greenway as a significant natural feature of the area.

Lime Sludge Disposal Facility: The City of Austin Lime Sludge Disposal Facility is located at the western end of this segment. Preliminary discussions with the City indicate they are receptive to routing the Greenway trail along the edge of the property. Perhaps more importantly, the 50-year vision for this site is to restore it as a natural area and for park use.

SEGMENT 6: NUEVE PARQUES

Nueve Parques is the most complete segment. It consists of the State of Texas' McKinney Falls State Park and City of Austin's Jimmy Clay and Roy Kizer golf courses and Dove Springs, Caldera Municipal, Onion Creek Soccer Complex, Yarabee Bend, Onion Creek District, and Onion Creek Metropolitan parks. The challenge, however, in this segment is to develop a continuous trail throughout the parks in this area that connect to both the Pilot Knob and Slaughter Confluence segments. Most of this area is surrounded by private homes.

SEGMENT 7: SLAUGHTER CONFLUENCE

The Slaughter Confluence segment extends from Onion Creek Metropolitan Park to the confluence of Onion and Slaughter creeks. As with the Pilot Knob section, coordination with private landowners will be required to build the Greenway in this area, and incorporate four pocket parks into its design.

Travis County owns a 30-foot wide strip of land that meanders along Onion Creek from Old Lockhart Road (Bluff Springs Road) upstream to Rhino Branch at Bradshaw Lane. The strip of land was once used as a road, called "Gin Springs Road", in the early 1900's but was abandoned. The County may use this property for a future hike and bike trail.

design considerations and standards

This section of the Concept Plan details the issues that need to be addressed in the design of the Greenway. The standardization of the Greenway is especially important due to the 21 mile length of the corridor as well as the involvement of multiple jurisdictions, partners, and stakeholders. Each park on the Greenway will be unique with its natural amenities and manmade improvements. However, the standardization of trail types, intersections, traiheads, signage, and identification will result in a seamless, cohesive, linear Greenway.

Paddling the Colorado River
photograph by Kevin Anderson

HYDROLOGY

Onion Creek frequently floods, at times so severely that the United States Army Corps of Engineers undertook a flood mitigation study of the creek, determining that repeatedly flooded homes should be bought and converted to parkland. While parks are a more appropriate use of the bottomlands – based on their cost/benefit analysis – the impact of storm water on park facilities is nevertheless an important consideration. The plasticity and highly erodible nature of the soils in the Greenway also need to be considered when designing facilities for inundation.

Specific design considerations include, for example, determining the best type of building materials and facility designs to use to withstand flooding, the most appropriate way to engineer (bio-engineer when feasible) creek bank stability – particularly where a trail has to traverse steep slopes in high scour areas – and the most effective "placement" of restored bottomland forest for mitigating the impact of floods and water quality protection.

EROSION

There are four slope stabilization areas of immediate concern: Richard Moya Park, Berdoll Bend, Southeast Metropolitan Park, and the Onion Creek Nature Preserve.

The bank at Richard Moya park is adjacent to the City of Austin landfill that is currently being decommissioned for the Future Austin Green District. The slope stabilization is a part of this project. The City of Austin expects to complete this project by 2011.

At Berdoll Bend the high bluff on the western side of the tract is essentially vertical with very limited vegetative cover on the bluff face. In some locations, the erosion hazard zone is severe, leaving limited width for the trail outside of the erosion hazard zone. The ridge is composed of alluvial material and slope failure can be anticipated in the future. While it is hard to predict when significant erosion will occur, it will most likely happen during extended wet periods. Construction of engineered stabilization features is costly and trees along the creek side of the ridge would be lost. Another method of protecting the bank is to place large stones in a triangular cross section at the base of the eroding section. This method is called longitudinal-peaked-stone-toe protection or LPSTP. This would limit further erosion at the base, but not protect the ridge from future slope failure.

At Southeast Metropolitan Park the preferred route for bringing the trail up to top of bluff south of SH71 is in an area that has previously suffered slope failure and is becoming revegetated. Further analysis is needed at this location to determine the current condition of the slope. If a stable slope is found, a boardwalk-on-pier construction is acceptable. If stability is a concern, the slope can be cut back and revegetated to establish a stable slope. Utilizing LPSTP is recommended in either case to prevent future landward migration of the toe of slope. An additional erosion concern in the trail area is surface drainage to the top of bluff that is accelerating slope failure. Rerouting local runoff would reduce slope failure and protect the bank.

Another erosion hazard exists where Southeast Metropolitan Park meets the Onion Creek Preserve. The bluff adjacent to the pond embankment is near vertical with limited vegetation. Any additional significant stream bank slope failure at the pond could affect the structural integrity of the pond bank. Stabilization of this area warrants special consideration because of the resource value associated with the pond and associated ecological system. Stabilization may require steadying the ground with mechanically stabilized earth and/or soil anchor tie back construction with stone toe protection referred to as MSE/SA. This more severe and expensive method will protect pond embankment integrity.

MARKET TRENDS

Dr. Gerard Kyle, Department of Recreation, Park and Tourism Sciences at Texas A&M University, completed a market analysis for the Lower Colorado River Authority (LCRA) in 2007 that provides relevant information about future recreational demand and interests. The two key factors that relate to demographic change are: 1) baby boomers, who participate in recreational activities past an older age than their parents, are aging and 2) the Mexican American population is growing.

Each, he says, has implications. An aging population, with a relatively high level of disposable incomes, leads to demand for "…less active outdoor recreational pursuits and facilities (golf, walking, gardening, etc.). Conversely, the Hispanic population is younger and more family-based with children, and typically congregates in larger groups of extended family.

With respect to leisure time, Kyle found that while people may actually have more time for recreating, it is becoming increasingly fragmented. This situation, coupled with often stressful life styles, leads to demand for more regular but briefer recreational experiences close to population centers.

SAFETY AND SECURITY

Public safety and security is of paramount importance to jurisdictions operating and maintaining the Greenway, and needs to be addressed in the design phase of trail development. One strategy for mitigating criminal activity is Crime Prevention Through Environmental Design (CPTED), an approach that is based on psychological research into behavior. Rather than offering specific solutions, CPTED stimulates creative design solutions to crime prevention based on the following principles:

- Natural Surveillance: The trail is designed, wherever possible, so that people on the trail are easily seen by other users, parks staff, and people passing by.
- Natural Access Control: Ingress and egress points are clearly defined, with pavement, structures and landscape delineating legitimate paths of travel. Landscape and structures may be used to limit access elsewhere along the trail, and way finding signs should orient and direct users on designated trails.
- Territoriality and Boundary Definition: Public space is clearly distinguished from private space with structures and landscape so that ownership of the public space for legitimate uses is fostered. Non-exclusionary use of public spaces by different groups also reinforces a sense of ownership, and deters illicit activities.
- Management and Maintenance: Maintaining the trail – keeping it free of litter, regularly trimming vegetation, and quickly repairing damage – is another means of establishing ownership and discouraging criminal behavior. An important design consideration, then, is accommodating maintenance activities in the design of the trail.

Other measures to reduce crime on the Onion Creek Greenway also have design implications. To discourage night-time use, trailheads will be gated and closed at dusk. Travis County Peace Officers will also patrol the trail regularly, particularly sections that are adjacent to residential areas, and police and emergency medical services will be nearby: there is a Travis County Peace Officer residing at the Travis County Southeast Metro Park, a Peace Officer

at McKinney Falls State Park, and Emergency Medical Services (EMS) will be stationed at the El Mercado trailhead.

Another strategy is to expedite emergency response time by providing ¼ mile trail markers that pinpoint locations along the trail. The Capital Area Council of Governments (CAPCOG) can develop a GIS shape file with the respective coordinates and provide this information to 911 responders.

Airport security issues relative to Homeland Security will also be addressed as the project develops. Specific measures will be developed with ABIA to address, for example, how to keep people from crossing the creek to the main part of the airport property. The amount of traffic on the trail will be considered when determining appropriate measures to secure the airport site.

CONNECTIVITY

Every opportunity to connect the Greenway to adjacent residential, commercial, civic and transit developments should be pursued to satisfy demand for this type of access: people want to use trails for walking, jogging, running and bicycling, for both recreational and transportation purposes. Greater connectivity adds value to the Greenway – more people use it – as well as to the connected activity centers, particularly residential subdivisions. Developers now recognize that access to a Greenway is a marketable amenity, and proactively work with park departments to have it in their developments.

ADA ACCESSIBILITY

Although required by federal law, universal design is a community-wide value that drives our commitment to having inclusive outdoor recreation opportunities. Making the Greenway accessible to persons with disabilities is a primary design objective.

Ideally, the entire length and all facilities along the Greenway would be accessible. However, there are some constraints. Steep terrain is the biggest obstacle to making the entire trail accessible. Type of recreational use is potentially another. Certain remote areas of the Greenway, for example, are programmed as primitive areas where little or no improvements will be made.

Trail head parking with accessible facilities should be planned at the termini of accessible standard trail segments. Restrooms, water fountains, picnic areas, fishing piers and other park improvements should be compliant with the Americans with Disabilities Act and include universal design elements. Non-accessible places are the exception and not the rule.

INTERPRETATION

There are many natural and cultural resources along the Greenway (ongoing surveys of the land may reveal more) that need to be protected. Equally important is their interpretation. Freeman Tilden – known as the father of the profession of interpretation who worked extensively with the National Park Service – says that it is through successful interpretation that a relationship between a place or artifact and a visitor is established. Thoughts and feelings are provoked and relationships between things are explained so the audience gains an understanding of the whole and not just a part. When effective, people

Bird Viewing Stand

are stimulated to take an action such as conserving water, using native plants, or learning more local history.

To be successful, interpretation of individual natural and cultural resources on Onion Creek needs to be completed in the context of a comprehensive Greenway-wide plan. By having a unifying theme, interpretation of individual sites can reinforce a narrative that carries an audience from one place to another, and gives greater meaning to each place than they would have as an isolated event. A narrative can be developed about the geology, hydrology and paleontology of the area that connects, for example, Pilot Knob, to the western end of the Greenway, to the Mosasaur found near State Highway 71. A narrative of how the area was settled should also be developed that comprehensively interprets historic sites such as the McKinney Homestead, Moore's Crossing and the Old Bastrop Highway structures. This work should be completed as a multi-agency project.

Olson Meadows
photograph by Brandon Hay

CONSERVATION AND RESTORATION

Recreation is a major design consideration of the Greenway, as is conservation and restoration. Bottomland forests play a critical role in protecting our water resources and mitigating the impact of flooding. Since only remnants of the forests that once covered the bottomlands remain, the design challenge is to restore what was once there: the thickets, gallery forests, pecan groves, and grasslands in the Greenway. Opportunities must be identified and incorporated into site specific designs, as well as acquisition priorities. Reclamation of quarries in the bottomlands should be incorporated into ecosystem restoration of flood plains.

Restoration will be accomplished with passive and active methods. The most passive and long term technique is to allow the natural succession of plants to occur. A more active technique is to stop mowing and grazing strips along existing tree lines so that these areas are spontaneously seeded by adjacent native trees and seedlings are allowed to grow. Lastly, the most proactive restoration technique is to stop mowing or grazing areas for restoration and plant seedlings (preferably grown from seeds collected on site). Appropriate bottomland grasses are also planted, and invasive species removed. Tree Folks will assist the County with this restoration.

SENSE OF PLACE

Building memorable places is a major goal of this project, and needs to be considered in both the overall design of the Greenway and detail design of buildings, park amenities and landscapes along the Greenway.

With respect to overall design, Kevin Lynch discusses, in Image of the City, how people recall their environment. When he asked people to cognitively map their city, they drew and described them in terms of paths, edges, districts, nodes and landmarks. These are the elements that order their environment, make them memorable and that provide a framework for place-making that we can use as we design the Greenway.

Aesthetics choices are another important consideration in place-making. With respect to the built environment, vernacular architecture provides forms, materials and construction techniques as reference points for architectural designs (including park structures and amenities). Energy efficient designs also help shape the architectural aesthetic of the Greenway. Establishing an

architectural theme throughout the Greenway helps brand it as a cohesive, memorable outdoor space.

OPERATION AND MAINTENANCE

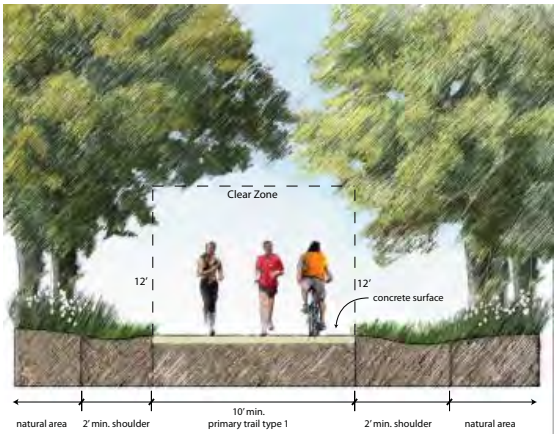
Although aesthetics are important to the overall success of the Greenway, it cannot trump the necessity to design facilities that can be maintained cost effectively. Operation and maintenance (O&M) costs and life cycle capital expenditures should be considered. A properly designed and constructed Greenway will be aesthetically pleasing today and for many tomorrows with minimized operation and maintenance costs. A major O&M challenge is funding the additional staff needed to operate and maintain a larger park system. Both more-of-the-same staff and staff with new skill sets are needed. The ability to implement restoration programs and manage natural areas is an example of the type of talent that needs to be added to the Parks O&M team. Obtaining funds for additional Parks staffing is particularly challenging in the current economic climate. An effective way to ensure proper staffing is to have Park Department staff involved in all phases of the design and engineering process. Their boots-on-the-ground expertise is incorporated into the park development program, conceptual design, design development, and construction documents phases of work.

TRAIL TYPES

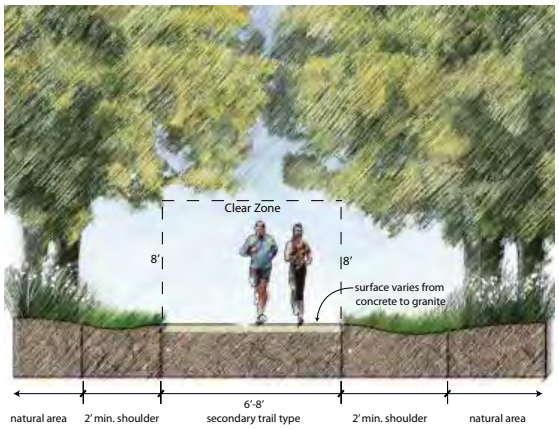
Trails provide the framework of a primary linkage between green spaces and communities within the Onion Creek Greenway system. Trail type standards are important when involving multiple agencies to ensure consistency of image, materials and implementation that provides for the health, safety and welfare of the end users. There are three (3) primary trail types proposed within the Onion Creek Greenway: Type 1 - Primary Hike and Bike, Type 2 - Secondary Hike and Bike, and Type 3 - Primitive and Nature. A fourth trail type exists for Equestrians.

TRAIL TYPE 1 - PRIMARY HIKE AND BIKE TRAIL

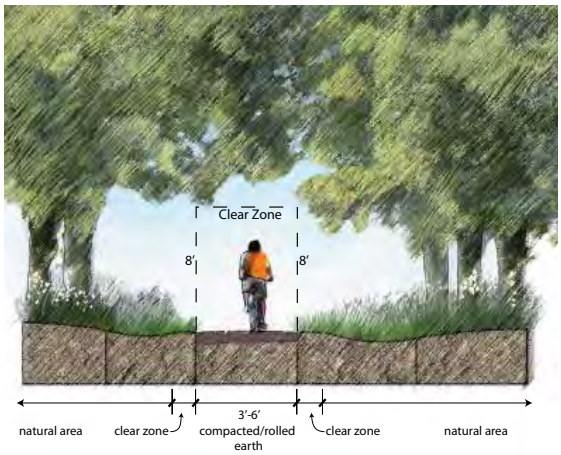
The Onion Creek Greenway links parks, destinations and areas of interest together creating an intricate Greenway trail system. A recreational and alternative transportation corridor is typical of this type of a primary trail. The trail will be a minimum of 10' wide with a concrete surface to comply with the federal safety standards for trail design accommodating a bicycle speed of 20 mph. The primary trail will inevitably wind in and out of the 100 year floodplain and possible active flow areas with proper drainage details. The primary trail will connect key interpretive areas.



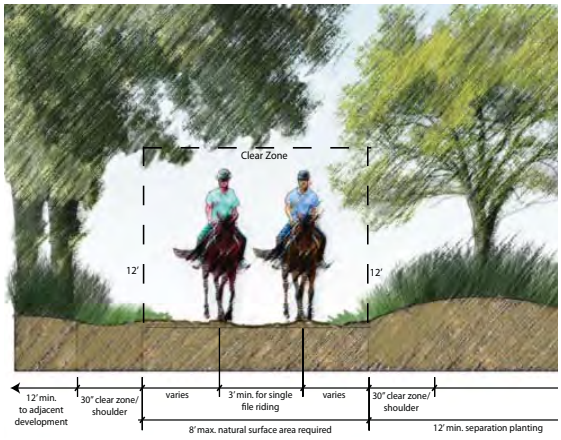
Trail Type 1 (Primary) 10' wide cross-section



Trail Type 2 (Secondary) 8' wide cross-section



Trail Type 3 (Primitive and Nature) 3'-6' wide cross-section



Trail Type 4 (Equestrian) 8' wide cross-section

TRAIL TYPE 2 - SECONDARY HIKE AND BIKE TRAILS

Secondary hike and bike trails are typically present in parks, preserves, and private developments. Secondary trails promote circulation within themselves and connect to primary trails. Surfaces vary depending on use and development but will typically be concrete or crushed granite. This trail ranges from 6'- 8' in width and shall also comply with federal safety trail design standards. Site distances are not as crucial for walking and hiking users. However, connectivity is critical for bicyclists and their interaction with other trail users. This trail type must coordinate linkages to the Onion Creek Greenway primary trail, nature trails, as well as other land uses. Secondary trails will also connect to key interpretive areas.

TRAIL TYPE 3 – PRIMITIVE AND NATURE TRAILS

Primitive and nature trails are prevalent in remote or natural areas where there is desired access to scenic vistas, waters' edges or native plant and animal communities. The Greenway has many of these opportunities to explore nature and discover its remote beauty. Primitive nature trails are typically 3'-6' in width with an optional 2' shoulder on each side and the surface consists of highly compacted and/or rolled earth. This trail type will not serve as a primary access route to key destinations or interpretive areas, as accessibility to them is mandated and better served with the previous two trail types.

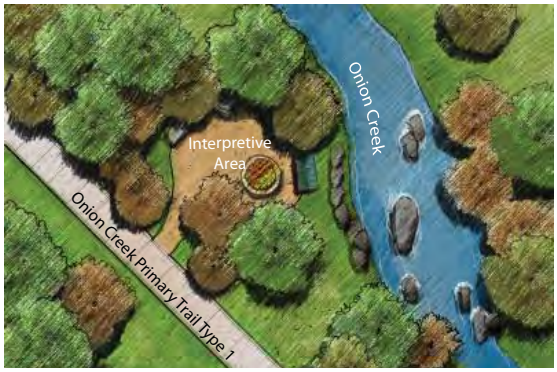
TRAIL TYPE 4 – EQUESTRIAN TRAILS

Bridal Paths, commonly referred to as equestrian trails, will be separate facilities designed on natural surfaces primarily used by horses. Mountain bikers and hikers will at times also utilize these trails. This trail type can run parallel with the Onion Creek multi-use trail but shall never be any closer than 12' to it or any property or structures. Challenge is a part of the horse riding experience and is typically achieved along narrow, serpentine trails that loop back on themselves. Trail widths vary but are no less than 3' wide for single file riding and hard surfaces should be minimized. The trail clear zones shall be no less than 8' wide with 30" horizontal clear zones, free from shrubs and understory growth and all tree overhangs shall be pruned to 12' along the trail. Galloping or running is not typically an essential part of a quality ride. The average speed for horse riding is 3-5 mph and a distance of 5 miles of natural trail is the minimum desired length. A series of trail loops offering 15-25 miles of trails would offer a good day of riding. Staging or unloading areas shall be provided to park trucks and horse trailers for extended periods adjacent to trailheads to reduce the presence of horses among other park facilities. Signage noting trail locations and regulation should be posted in this area.

INTERPRETIVE AREA DESIGN

The role of the Onion Creek Greenway includes its scenic attributes and the story of settling southeast Travis County at the creek crossing. The historic significance dates back 75 million years to the pre-historic times when Pilot Knob erupted and formed the geologic outcroppings that we know today as McKinney Falls. Enhancement of the Onion Creek trail experience, education of the user, and understanding of the site's history, culture and environment are the primary goals of interpretive areas. There are three main types of interpretive areas: environmental, cultural, and historical. Each interpretive area should be located in a safe, convenient, and visible area just beyond the trail, but outside of sensitive areas being identified and interpreted. It is typically necessary to separate the interpretive area from the sensitive areas

being interpreted with physical barriers as people have a natural curiosity and a tendency to want to touch. Keeping the interpretive area at an intimate scale and size helps focus attention on the message being communicated. The surface material of interpretive area should be an accessible surface blending into the context of the environment in which it rests. It is important to provide seating and shade opportunities where space, visibility and space allow.



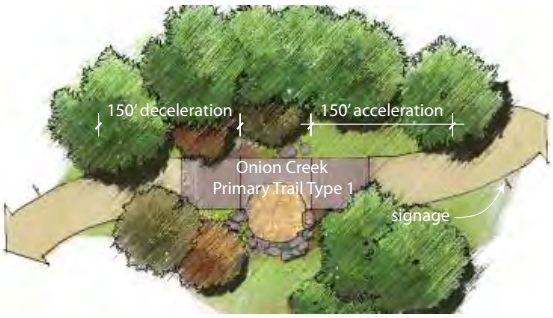
interpretive area design

KEY SPOTS

Key trail spots should be integrated into the trail at points of interest along the Onion Creek Greenway such as creek scenic areas, overlooks, rest stops and trail map markers. Trail maps and guides give users direction. Special overlooks and rest stops can have different forms and materials depending on their function and location. Where conditions allow, a change of surface texture should be incorporated to warn of pedestrian conflicts.

INTERSECTIONS

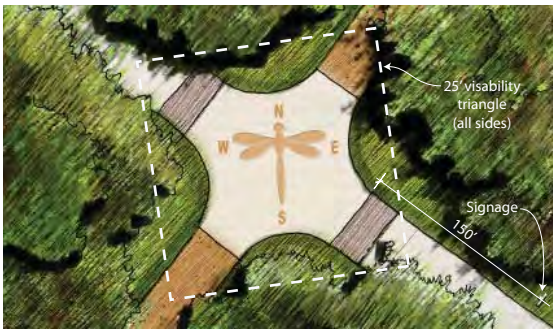
One of the most important and critical elements with trail design and implementation is proper treatment of intersections. The most common error in intersection design is assigning priority to the wrong use. The key to safe and functional intersection treatment is to identify the priority use and provide adequate traffic control for intersecting uses. Typical traffic control devices consist of signage, pavement and trail surface markings and vertical calming devices (speed bumps, rumble strips, bollards, etc.). There are three main intersection conditions identified along the Onion Creek Greenway: trail intersecting trail, trails intersecting waterways and trails intersecting roadways.



key spots

TRAIL INTERSECTING TRAIL

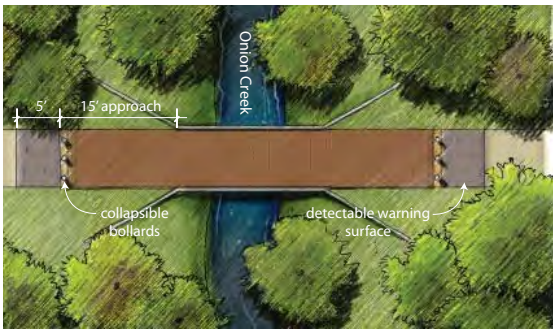
The Onion Creek Greenway system will consist of multiple trail-at-trail intersections among the different trail types. The primary design concern relates to bicyclists and is typically governed by American Association of State Highway and Transportation Officials (AASHTO) standards utilizing a minimum design speed of 20 mph. These intersections will convene at grade in clear and level areas where possible. Primary considerations when designing trail-at-trail intersections are clear visibility, appropriate signage and speed calming devices. Visibility triangles shall have no less than 25' clear of any obstruction ranging from 3' from the ground to 8' in height and are applicable to T-intersections as well as 4 way intersections. At trail-at-trail intersections it is encouraged to preserve significant native trees within the sight distance triangle with adequate pruning to open up visibility within the clear zone.



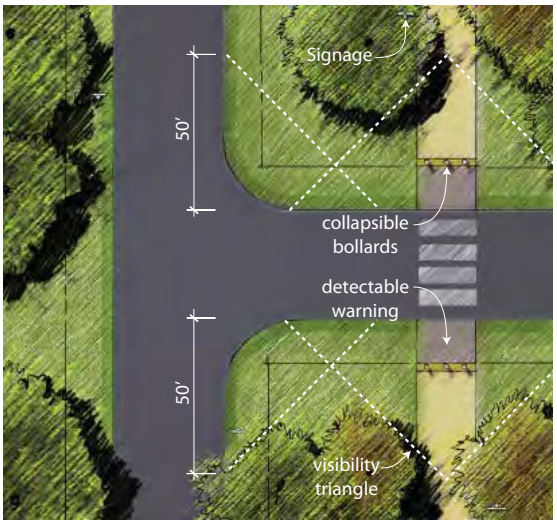
trail intersecting trail

TRAIL INTERSECTING WATERWAY

The Onion Creek Greenway is populated with a significant number of secondary tributaries and confluences that contribute to this large regional drainage basin and present numerous challenges where trails must cross such to continue. Each crossing must be evaluated on a case-by-case basis to obtain the least long-term impact while meeting design and management objectives. Evaluations must include but not be limited to safety, trail type, intended use, accessibility, environmental impact, floodway/floodplain regulatory requirements, aesthetics, convenience and cost. Crossing types may consist of bridges, boardwalks, low water crossing, culverts, or fords.

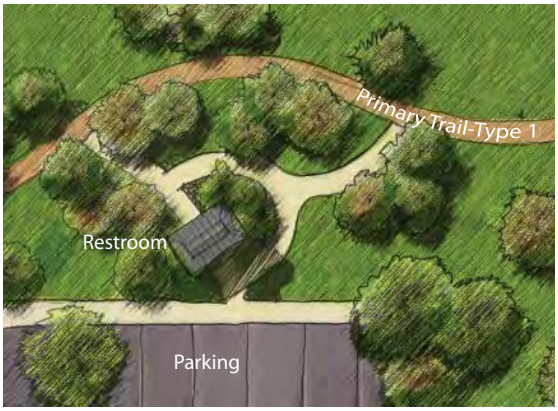


trail intersecting waterway



trail intersecting roadway at grade

trail intersecting roadway underpass



primary trailhead

TRAIL INTERSECTING ROADWAY

Trail at-grade intersections with roads can be very dangerous and must be addressed very carefully to maximize user safety. This care typically results in a very detailed intensive crossing design and is typically regulated by AASHTO standards or any other applicable regulatory authority with a higher degree of design standardization. At-grade intersections with roads should typically be away from the influence of intersections with other roads whenever possible (for example a mid-block road crossing is best). Where trail/road/road intersections are unavoidable it is best to put the trail as close to the actual road/road intersection as possible (ie, put the trail crossing at the pedestrian crosswalk). Where intersections with roads occur it is important that blind corners be eliminated. This is achieved by defining clear zone sight line triangles, and any landscaping is designed to provide unobstructed cross-visibility at all levels above 3'. Again, typical design considerations relate to visibility, signage, speed calming devices and in some cases traffic signalization.

When a grade crossing between a trail and a street is not safe or undesirable, a grade separated crossing is a good alternative. In most situations, motorists will cross at grade and the trail will be routed over or under the roadway. However, a good designer will investigate the trail crossing at grade and create an underpass or overpass for motorists factoring terrain, type of trail, road use and funding. As with all trail features, grade separated crossings must be accessible. When an underpass is used, attention must be paid to sight lines and vertical clearance. Good sight lines are necessary for a safe route as well as providing a better sense of security. Proper sight lines should be unobstructed from seated and standing positions. Adequate vertical height should be provided at underpasses to enhance user comfort. This additional height above headroom is referred to as vertical shy distance. At least 10 feet of vertical space is recommended. Direct lighting is not recommended in an effort to not facilitate a false sense of security at night time. Grade separated underpasses are envisioned at SH 71, SH 130, FM 973, US 183, McKinney Falls Parkway, William Cannon Boulevard, Bluff Springs Road, Slaughter Lane and the proposed Pleasant Valley Road extension. An at grade crossing is planned at Burleson Road.

TRAILHEADS

It is necessary throughout the Onion Creek Greenway to provide primary trail access points or trailheads. These trailheads provide parking, restrooms, drinking fountains, gathering spaces, signage and most importantly connection to the Greenway. There are two types of trailheads: primary trailheads and secondary trailheads.

PRIMARY TRAILHEADS

Travis County primary trailheads will be at Southeast Metropolitan Park, Barkley Meadows, Timber Creek Park, Richard Moya Park, and El Mercado. The City of Austin will also establish primary trailheads for the Greenway in their park system. Trailhead amenities will be sited in close proximity to each other and include signage, restrooms, information kiosks, shaded picnic and rest areas, drinking fountains, bike racks, and ample parking. Parking entry drives will be gated to control access to trailheads. Trailheads will be sited away from environmentally sensitive areas.

SECONDARY TRAILHEADS

Secondary trailheads provide access to the trail in various locations along the trail and Greenway system. They are located along the roadside, providing parking and connections to the Onion Creek Greenway. Location of these trailheads are typically provided where space is limited to areas where lower volumes of visitors are expected yet access to the Greenway is needed. Typically, signage, kiosks, seating and a nominal amount of parking are required (ie, 10 parking spaces). Secondary trailheads will link with other land uses like residential neighborhoods and the proposed State Office complex. The exact placement of secondary trailheads will be uncovered in the design phase of each Greenway section.

SIGNAGE AND IDENTIFICATION

Appropriate signage for multi-use trails is for safety, education and enjoyment of the public. Signs inform users of their general location, warn of physical hazards, direct to points of interest and educate about the environment. Good signage is consistent and uniform throughout the trail system to minimize confusion and serves to strengthen the image and identity of the trail itself. When a larger regional trail is developed spanning multiple jurisdictions with multiple partnerships, it is important to establish an iconic image to represent the trail itself and not the individual partners. This gives the trail an identity that is memorable to the public. All signs must be applicable to safety standards, be set back appropriately from the trail or travel way, and be the appropriate scale for trail users. Sign types should be consistent in material, color, and scale in support of a consistent image and brand along the Onion Creek Greenway.

GATEWAY OR ENTRY SIGNAGE

An entry sign primarily directs the user to the entrance of the park or trailhead. The secondary purpose provides a sense of entry for the user when the entrance feature is designed to be a gateway. Features do not need to be elaborate or cost prohibitive. A gateway can be achieved by framing the entrance with existing or new trees, utilizing consistent sign materials and markings accentuated with low maintenance native plants.

TRAIL MARKERS

Trail markers identifying distance and location will be embedded in the concrete trail and be placed no farther than ¼ mile intervals and should have points of beginnings and identified by area or segment to differentiate from other segments along the trail for more accurate locating in case of emergencies. The latitude and longitude of the 1/4 mile locations will be stamped into the concrete for wayfinding, outdoor education and whimsy. Trail maps should be included at trail heads and key trail spots and distributed to the joint City of Austin/Travis County and Bastrop County 911 call centers.

trail markers

KIOSKS

Kiosks are multi-purpose signs that can warn, direct, inform, identify and even regulate activities. Typically a kiosk includes a bulletin board with maps and fliers that can be updated easily. It is important to locate kiosks near parking lots, water fountains and restroom facilities where people will have a reason to start or stop on the trail. Locations should be at primary and secondary trailheads and at primary neighborhood connections to the Greenway. Areas conducive to this type of activity provide an ideal atmosphere for trail users

interpretive signs

to read suggested trail use criteria if they are stated briefly and posted clearly. Informed trail users will more likely behave in a safer and more courteous manner on multi-use trails.

INTERPRETIVE SIGNS

Interpretive signs are best when the entire interpretive area is considered and planned. Just one piece of the interpretive area, the sign informs the reader and identifies the interpretive feature. Like kiosks, the location of the interpretive sign is important to ascertain that trail users see the educational feature. The environmental, cultural and historical element should be presented with quotes, metaphors and/or images to capture the reader's attention and imagination. Professional interpretive content builds a stronger interest and is critical to promoting education and understanding the value of this vital regional resource.

WARNING SIGNS

Warning signs are typically yellow diamond shaped signs with black lettering. Such signs warn of dangerous curves, approaching intersections or any other unusual condition or obstacle that poses a safety threat.

DIRECTIONAL SIGNS

Directional signs tell the trail user which direction to travel by using arrows, directional working (ie, turn left), or other pointing devices. Such signs are especially useful when multiple trails or spin-off trails are encountered and the main trail continues in only one direction.

INFORMATIONAL SIGNS

Information signs provide the trail user with useful and important information. Such signs include "map next left" or "interpretive area" signs. These signs are not regulated and shall be standardized for consistency and aid in supporting the image of the Onion Creek Greenway.

REGULATORY SIGNS

Regulatory signs give instructions for trail use and trail etiquette. These signs are typically rectangular, white and have black lettering. Examples of regulatory signs include speed limits, "no motor vehicles" and "slower traffic keep right" signs. Stop signs, though not black and white, are considered a regulatory sign per regulatory standards.

IDENTIFICATION SIGNS

Identification signs identify trails, parts of trails, parks, key destinations or cross streets/trails. Signs stating trail names should be placed at the beginning of all trails and at all intersections and crossings. Underpasses should have overhead name blades that name the street as well as the block number (ie, 1200 Ross Road). Mid-block crossings should always be marked.

identification signs

action plan

There are three implementation phases for the Greenway: Near, Mid, and Long Term.

NEAR TERM: 2010-2011

TRAVIS COUNTY

- Execute Multiple Use Agreement with the Texas Department of Transportation for the use of SH 130, SH 71, FM 973, and US 183 right of way for recreational uses.
- Design and construct improvements (trails, pavilion, trailhead parking, picnic areas, fishing pier) within Phase 1A: FM 973 to SH 71, including Barkley Meadows Park.
- Design and construct trail within Phase 1B: Southeast Metropolitan Park from SH 71 to Watersedge Park with surplus 2001 park bonds.
- Design and construct improvements (trail, restroom, playscape, canoe/kayak boat launch, and 5-space parking lot within Phase 1C: Watersedge Park with 2005 park bonds specified for that purpose.
- Apply for federal transportation enhancement program funds for trail underpasses at SH 71, FM 973 and US 183 and trail segment between Burleson Road and Moore's Bridge Road within right of way of FM 973.
- Seek federal appropriations to complete buyout and park construction of Timber Creek (United States Army Corps of Engineers).
- Appraise and purchase strategic properties within the Onion Creek corridor until the 2005 parkland/open space bond funds specified for that purpose have been exhausted.
- Execute Interlocal Agreement with the City of Austin for the joint use of the County Satellite Four facility (formerly Road & Bridge Office) on US Highway 183 at Onion Creek for a park maintenance facility and trailhead.
- Scope, cost estimate, and seek 2011 park bonds for parkland open space acquisition and the design and construction of hike and bike trail and trail amenities within the unincorporated areas between US 183 and Slaughter Creek.
- Complete corridor-wide cultural resource assessment.
- Complete corridor-wide interpretive plan.

CITY OF AUSTIN

- Scope, cost estimate, and seek 2010 bonds for the design, construction, and maintenance of a hike and bike trail within the ABIA property.
- Scope, cost estimate, and seek city bond funding for the construction of a hike and bike trail and trail amenities within City properties along Onion Creek, including Onion Creek Metro Park, Onion Creek District Park, Yarabee Bend Park and Onion Creek Forest (USACE flood prone buyout), Onion Creek Sports complex, City W&WW lime sludge disposal site (north of Onion Creek and east of McKinney Falls Parkway).

TEXAS FACILITIES COMMISSION

- Integrate Greenway into design of new State of Texas campus.

UNITED STATES CONGRESS

- Appropriate federal funds for the acquisition of flood prone properties and for the construction of park improvements within the Timber Creek and Yarabee Bend target areas.

TEXAS DEPARTMENT OF TRANSPORTATION

- Design and receive environmental clearance for hike and bike trail within right of way of State Highway 71 expansion project.

MID TERM: 2012-2019

TRAVIS COUNTY

- Design and reconstruct County Satellite Four Road and Bridge yard into trail head parking and construct segment of trail from Old 183 Bridge to Colton Road.
- Design and construct hike and bike trail within Phase VI: Onion Creek Metro Park to Slaughter Creek.

CITY OF AUSTIN

- Construct hike and bike trail within Phase II: ABIA property.
- Design and construct hike and bike trail within Phase III: southern border of Lime Sludge Disposal Pits.
- Design and construct hike and bike trail within Phase IV: McKinney Falls Park to Yarabee Bend Park;
- Design and construct hike and bike trail and park improvements within Phase V: Yarabee Bend Park through Onion Creek District Park and Onion Creek Metro Park.

CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY

- Construct section of hike and bike trail within the right of way of the SH 71 toll road east of Onion Creek.

UNITED STATES ARMY CORPS OF ENGINEERS

- Design and construct park improvements within the Timber Creek and Yarabee Bend target areas.

LONG TERM: 2020-2050

TRAVIS COUNTY

- Design and construct veloway at Barkley Meadows Park.

CITY OF AUSTIN

- Convert three lime sludge filled disposal pits north of Onion Creek and east of McKinney Falls Parkway to parkland with soccer fields and other improvements.

UNITED STATES CONGRESS

- Appropriate federal funds for the acquisition of flood prone properties and for the construction of park improvements within the Timber Creek and Yarabee Bend target areas.

fiscal notes

The Greenway will be implemented over a decade and will involve Federal, State, City, and County funds. The total estimated cost of acquiring additional parkland and constructing trails, trail-related amenities, and park improvements within selected segments is about $24,000,000. The annual cost of operating and maintaining the 21-mile greenway, once completed, is about $300,000 per year. In 2005 Travis County voters authorized $8.4 million in county park bonds for the capital cost of the Onion Creek Greenway within the unincorporated areas of Commissioners Precinct Four. Travis County secured a $1,000,000 park grant from the Texas Parks and Wildlife Department for Segment 2 of the Greenway. In addition, the County will use $2,000,000 in voter authorized bonds from 2001 and 2005 for capital improvements along the greenway in Segment 1. Funds for other projected capital cost and the operations and maintenance of the greenway have not yet been authorized.

Segment		Cost			
No.	**Name**	**Land Acquisition**	**Probable Construction**		**Annual Operatio & Maintenance**
1	Colorado Confluence	$1,000,000	$2,500,000		$55,000
2	Barkley Meadows	$2,000,000	$2,500,000		$40,000
3	Airport	-0-	$500,000	*	$20,000
4	Moore's Crossing	$1,000,000	$800,000	*	$25,000
5	Pilot Knob	$1,000,000	$1,000,000		$30,000
6	Nueve Parques	-0-	$3,000,000		$80,000
7	Slaughter Confluence	$7,000,000	$1,000,000	*	$25,000
	TOTAL GREENWAY	$12,000,000	$11,300,000		$275,000

* Includes probable construction cost of trail and trail-related amenities only; does not include other capital improvements and infrastructure within parks conencted by the Greenway.

appendix

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Native Grass Images: Big Bluestem, Indiangrass Little Bluestem, Gayfeather by Sally and Andy Wasowski. Spikebrush by Hosking Nursery. Switchgrass by Bonnie Harper.

parting shot - Barkley Meadows Pecan Grove photograph by Sallie Burchett