

Colorado River Corridor Plan

A Sustainable Future

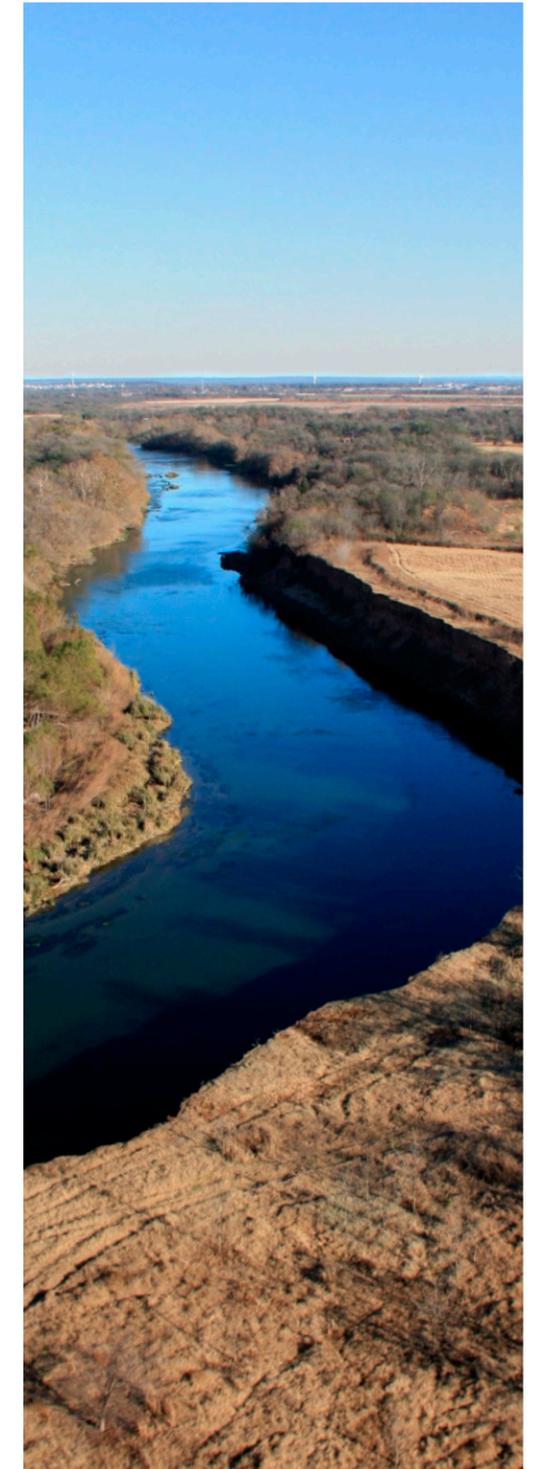




Photo credit: Bosse & Pharis

Colorado River foreground, looking west towards downtown Austin, Dec 2010

COLORADO RIVER CORRIDOR PLAN



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*For more information about the Colorado River Corridor, read "Discovering the Colorado: A Vision for the Austin-Bastrop River Corridor". This report was prepared by the Austin-Bastrop River Corridor Partnership (ABRCP) and can be found at:
<http://www.ci.austin.tx.us/water/downloads/coloradofinal2.pdf>*

EXECUTIVE SUMMARY

Colorado River Corridor Plan Background

The purpose of the Colorado River Corridor Plan (Corridor Plan) is to coordinate regional and local planning to facilitate the preservation and enhancement of the many valuable environmental, economic, recreational, and cultural resources of this region over the next 25 years. The Plan includes objectives for improved protection of local bio-diversity, preservation and restoration of floodplains and natural areas; the creation of parks, open spaces and greenways; enhancement of Corridor quality of life through the long-term reclamation of mined sites; and enhancement of mobility through capital project development and new transportation alternatives.

Plan implementation requires intergovernmental cooperation since multiple government entities are responsible for the various aspects of transportation, natural resource conservation and environmental protection in the Corridor. The Corridor Plan is designed to improve collaboration at the regional and local level, and to enhance public understanding of the valuable resources of the Colorado River within eastern Travis County.

Study Area

The study area covers over 30,565 acres on a 32-mile stretch of the Colorado River in eastern Travis County, bounded by US 183 on the west, the Travis-Bastrop County line on the east, FM 969 on the north and SH 71 on the south.

Existing Land Use

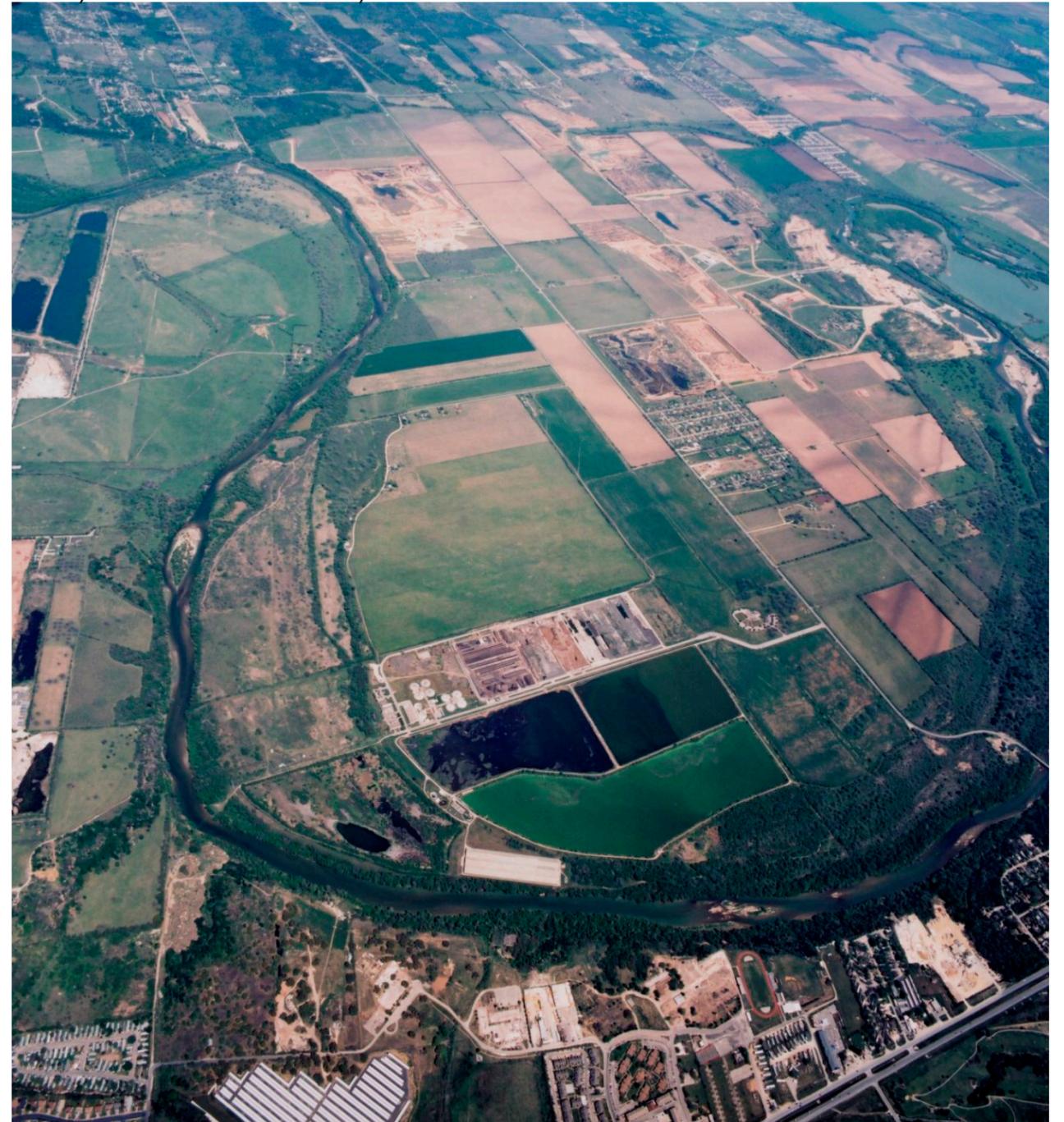
The Corridor is comprised of land uses based on the 2008 City of Austin Planning and Development Review Department's land use inventory and the 2010 Travis County Appraisal District property category codes in the unincorporated region of the study area.

LAND USE		
	Residential	2,927 Ac 9.6 %
	Commercial	1,227 Ac 4.0 %
	Civic/Institutional	1,802 Ac 5.9 %
	Ag/Rural/Undeveloped	14,738 Ac 48.2 %
	Recreation and Natural Areas	989 Ac 3.2 %
	Mining	6,549 Ac 21.4 %
	ROW & Colorado River	2,333 Ac 7.6 %

Public Involvement

Travis County, the City of Austin (COA) and the Lower Colorado River Authority (LCRA) have partnered in the development of this plan. The project team sought to identify priorities, concerns of stakeholders

Hornsby Bend - The Austin Water Utility Center for Environmental Research



and opportunities to proactively address these issues in the Colorado River Corridor.

The project was kicked off with a public meeting on December 7, 2010 at the Travis County East Service Center during which participants were asked to provide input on future development of the area and to discuss stormwater, water supply, transportation and environmental issues. The following topics were identified as issues of concern by the community:

- Implement environmental monitoring stations in residential neighborhoods.
- Demands on roads, schools, water and wastewater systems were increasing cost to homeowners.
- Preserve the community's rich culture and discourage suburbia development.
- Create a partnership to clean up the unsightly abandoned mines along SH 130 and FM 969.
- Roadway flooding: isolation of home sites and preventing access for emergency vehicles.

The comments from the residents ranged from their desire to have more housing options in the area but they also wanted to maintain some of the low density that currently exists; however, they expressed how important it was for them to have the freedom to develop their property as they see fit. They would like the neighborhood to be safer and to see more children and parents walking to the Hornsby-Dunlap Elementary School and Dailey Middle School. They would like to see the redevelopment of legacy mines to include recreational opportunities that are accessible to the public and have the traffic corridors in the area to be free of blighted mining sites.

A follow up open house was held on September 22, 2011 at Dailey Middle School. Approximately 50 property owners, interested parties and staff attended the meeting. The meeting provided the opportunity for the public to comment on the draft CRCP, and to speak with project representatives from Travis County, the City of Austin and the LCRA.

Plan Elements

The foundation of the Corridor Plan is the analysis of the following key elements:

- Land Use,
- Water Quality and Water Supply,
- Transportation, and
- Parks and Land Conservation.

Issues addressed within this plan include land use compatibility and transition of land use from mining to post mining uses, water resource management and protection, transportation and traffic safety, neighborhood connectivity, and parks, greenway systems and intensity of public use.

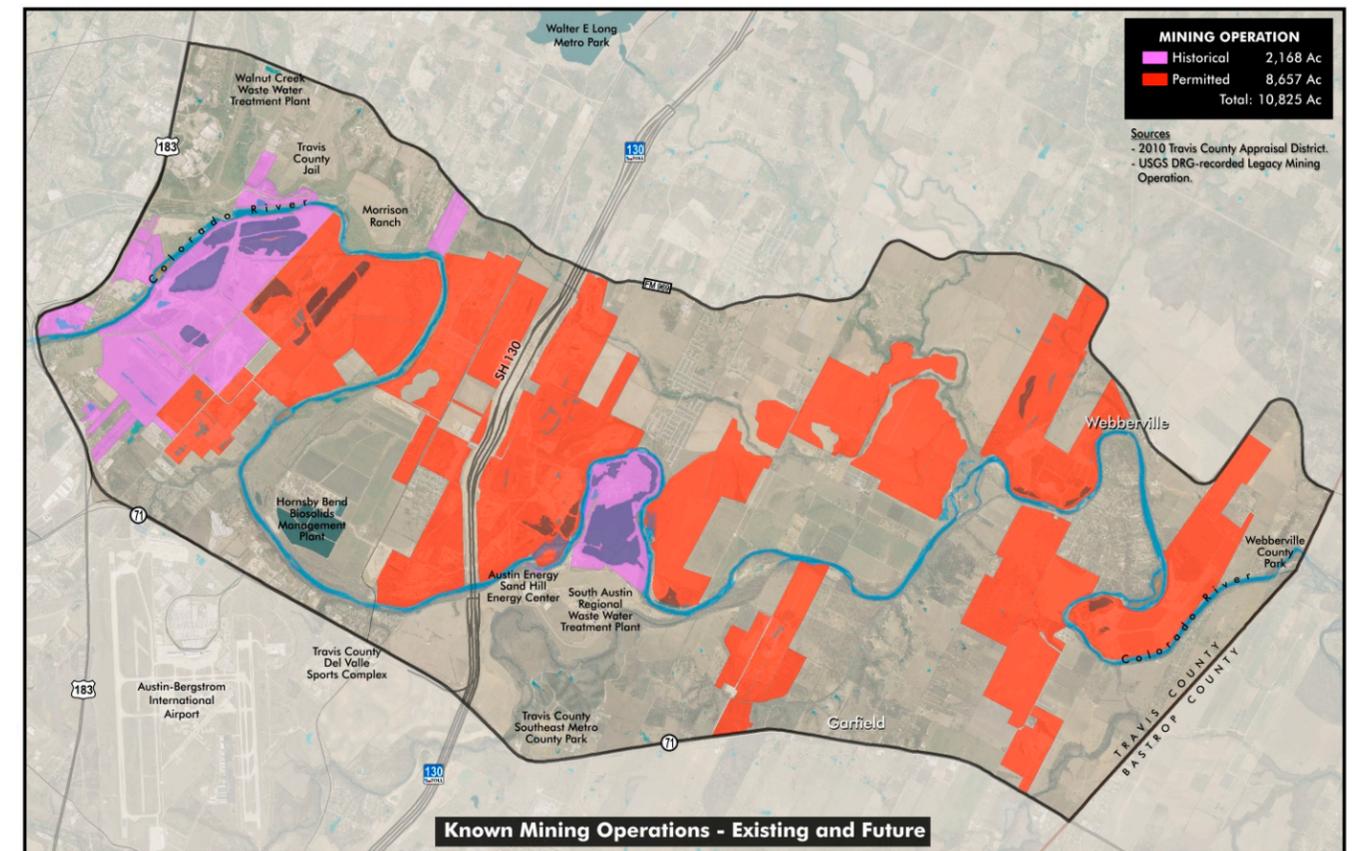
2010 Land Use

The Corridor consists of approximately 30,565 acres. Roughly 2,927 acres, 9.6 percent of the land area are currently identified as residential use. The area is experiencing an increase in residential development; however, the number of residential housing units is relatively small in comparison to other parts of the county. Approximately 14,738 acres, 48.2 percent of the study area are currently being utilized for agriculture and farm/ranch activity or are undeveloped and 1,227 acres, 4.0 percent, are identified as commercial land use. The Travis Central Appraisal District (TCAD) does not list mining operations within a specific land use category; however, approximately 6,549 acres of active and inactive mining operations were identified.

Mining Issues

Increased development and mining operations occurring in rural areas spurred Travis County to consider development impacts on the rural lands and the quality of life. Specifically, the Corridor Plan identifies some of the critical issues facing the study area. Objectives to achieve the goals are located in the Implementation Strategies, Section 8 of the Corridor Plan. Each of the objectives detailed in the full plan is accompanied by action items (tools, policies and steps to implementation) and a time frame for accomplishing each objective.

The study group understands that mining companies not only excavate materials for off-site construction, but are also interested in the long-term potential for the mined land tracts. Once the mining operations are completed, the land may be re-purposed for new community uses. Large areas



of the Corridor can thus transition from mining uses to future urbanized areas made up of schools, neighborhoods, and associated businesses and services, all integrated into a network of parks, greenbelts and farmland. The design and implementation of these multifaceted systems of transportation form a major challenge and opportunity for the Corridor.

Travis County has the authority to promote the health, safety, and general welfare of the community. However, state law limits the County's land use and zoning authority. Therefore, it is important to have strong relationships and a shared set of planning objectives with other authorities, including municipal and local governments.

Water Quality and Water Supply

Surface Water Quality - The Texas Commission on Environmental Quality (TCEQ) surface water quality standards for the Colorado River downstream from Longhorn Dam establish an “exceptional” aquatic life use for the river, meaning the aquatic system has the capability to support a highly diverse and abundant assemblage of fish and other aquatic life. While this use is considered as attained, TCEQ identifies concerns that this exceptional use could be threatened. The chief threat is urbanization, which has resulted in negative impacts to the surface water quality in the Colorado River and in other creeks and streams in the Corridor, including:

- Pollutant discharges from treated effluent from sewage treatment facilities,
- Increased quantity and decreased quality of stormwater runoff,
- Illicit discharges of pollutants and toxins,
- Overflows of untreated sewage,
- Improperly managed animal waste,
- Encroachment, alteration, and degradation of stream channels,
- Loss of size and natural condition of riparian areas, and
- Introduction of exotic species.

Groundwater Quality - Groundwater within the Corridor comes primarily from the Colorado River alluvial aquifer. Only limited data from studies or monitoring is available about this resource, primarily a single 1994 Austin Water Utility study of the quality of ground water at the Hornsby Bend Wastewater

Sludge Treatment Facility. This study indicated that concentrations in excess of EPA drinking water maximum contaminate levels of nitrate-nitrogen and fecal coli forms were found in wells throughout the facility. Concerns regarding groundwater quality in the Corridor include:

- Lack of systematic monitoring and water quality and quantity data for area wells,
- Lack of hydrological studies of area groundwater,
- Extent and severity of excessive nitrate-nitrogen in the aquifer,
- Lack of a coordinating Groundwater District, and
- Lack of local studies on the impact of aggregate mining on water quality.

Surface Water Supply – The LCRA is the wholesale raw water provider in the Corridor. The City of Austin, Hornsby Bend, Manville Water Supply Corporation (WSC), and Garfield WSC are the largest retail water providers. Nearly the entire Corridor is within Certified Water Service areas. Private water wells are numerous. The City of Austin and Hornsby Bend Utility Co. are the largest retail wastewater providers; however, existing wastewater infrastructure is limited east of SH 130. Critical issues regarding water and wastewater service include:

- Securing capital for water supply infrastructure to support the growing and expanding urban population in the Corridor will likely raise the cost of drinking water,
- Capital expenditures are necessary for non-potable, reclaimed wastewater infrastructure from area wastewater treatment plants to support turf and crop irrigation,
- Agricultural irrigation may not be cost-effective when droughts occur, and
- Long-term water planning should consider the advantages and disadvantages of supplying water from multiple and smaller utilities versus larger, more regionally-based utilities.

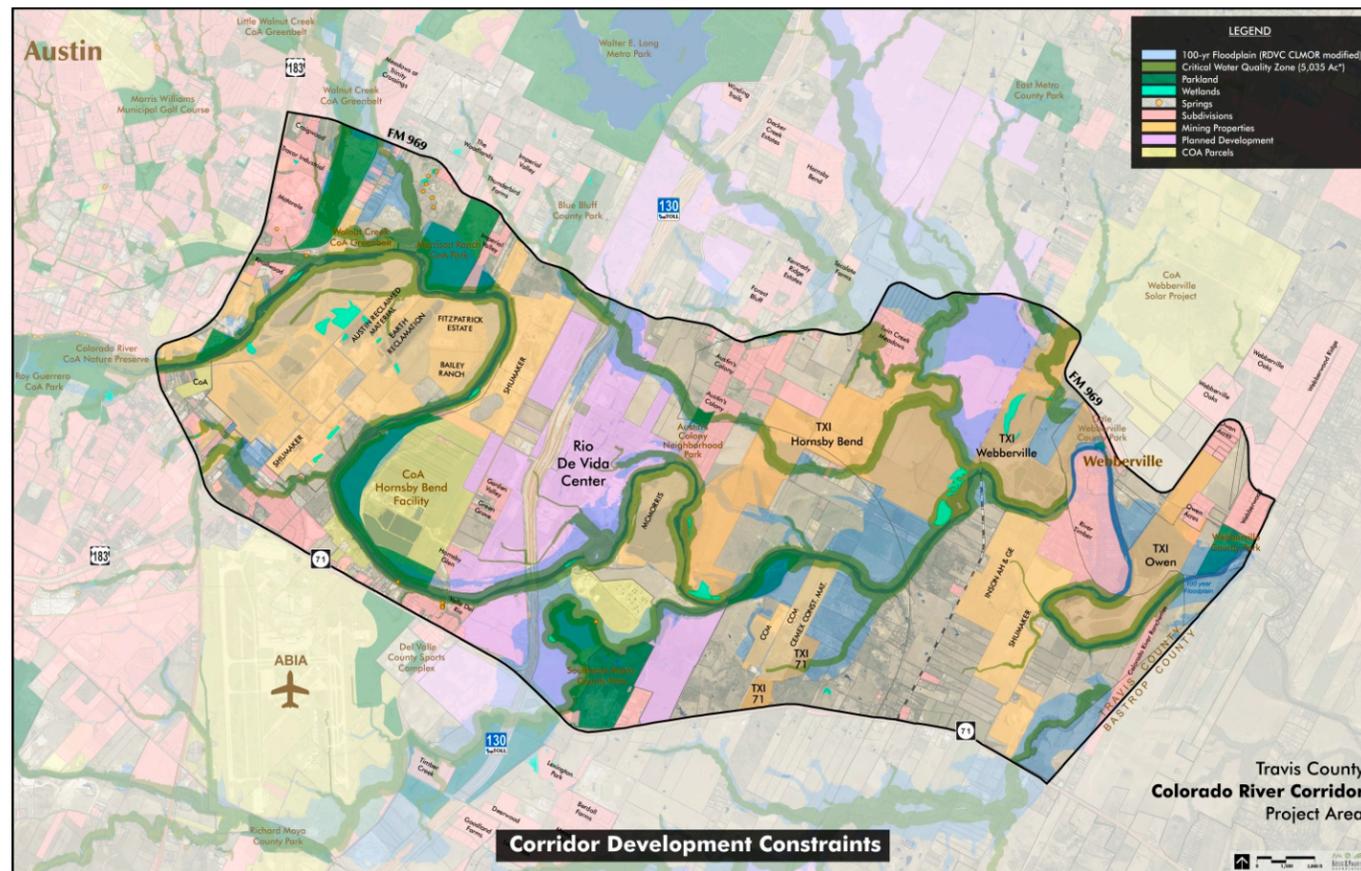
Transportation

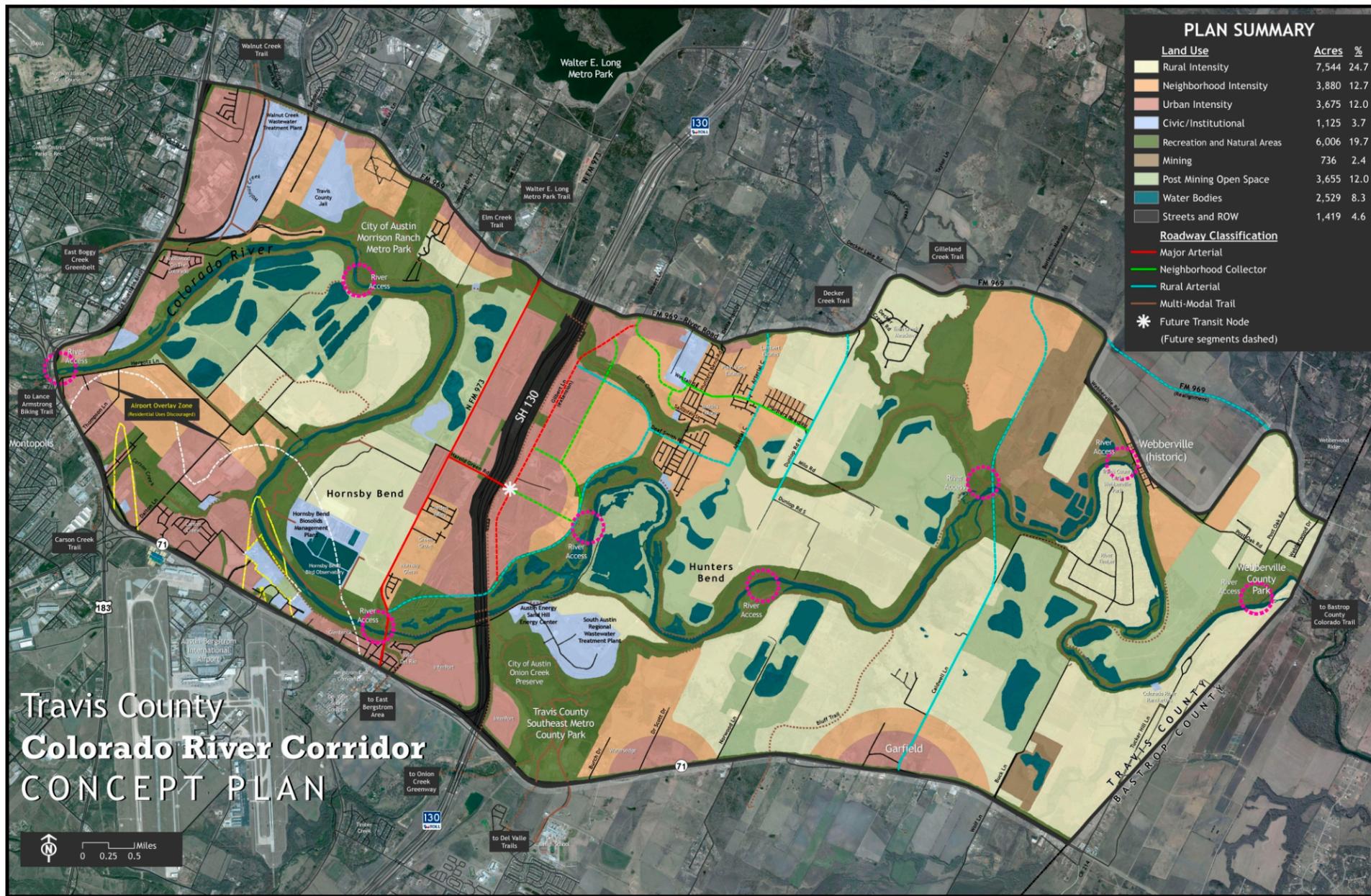
The Corridor is evolving from primarily agricultural and gravel mining land uses to areas of urban, suburban and rural residential. Significant population growth over the past decade has intensified the demand for new transportation improvements. Resulting growth has led to more traffic congestion, and increasing travel times within the Corridor. Residential areas, most notably Austin's Colony, have developed with limited mobility options which have created safety, environmental and economic impacts for local residents.

The Corridor Plan acknowledges that mobility issues will not be solved solely by building new roadways. Alternative modes of transportation, such as facilities for bikes, pedestrians and transit, are needed in addition to roadway improvements and an expansion of existing roadway networks. New design alternatives are needed within the Corridor that take advantage of the Corridor's rural character, help minimize environmental impacts and enhance the quality of life for Corridor residents.

Issues related to mobility include:

- The Capital Area Metropolitan Planning Organization (CAMPO) 2035 transportation forecast shows limited growth in population and employment in its recent plan update. However, recent proposed development plans within the Corridor suggest much higher population and employment numbers than the CAMPO forecast, resulting in the need for a more robustly





Parks and Land Conservation

Travis County and the City of Austin have approximately 1,200 acres of parkland on the Colorado River and its tributaries that form the foundation of a corridor-wide park system centered on waterways (see Concept Plan below). The challenge to building a more comprehensive system that meets the needs of the growing population is acquiring land before it is slated for development or aggregate mining. The County and City will continue to employ strategies for timely acquisition of parkland that have worked in the past: fee simple acquisition, parkland dedication by ordinance, and landowner donation. Both are exploring improved creek protections that will strengthen opportunities for greenway systems.

A County's initiative to build greenways along Onion Creek and Gilleland creeks was launched in 2005 with voter-approved bond funds and is continuing with funds approved by voters in the 2011 bond election. Additionally, the City is incorporating new parkland into the area's greenway system.

Furthermore, Travis County has initiated a program to conserve land through conservation easements that may benefit the corridor. Texas Senate Bill 1044 was passed in the 82nd Legislature Regular Session granting counties the authority to finance the acquisition of conservation easements. This program has been funded with \$8.3 million that was approved by voters in the 2011 bond referendum. Easements will be purchased to protect water resources, working farms and ranches, wildlife habitat, scenic views, and other natural and cultural resources.

planned transportation network for proposed future development.

- Transportation improvements are needed to address environmental and man-made constraints that currently pose barriers to Corridor connectivity, such as the Colorado River.
- New transportation alternatives, such as facilities for bikes, pedestrians and transit are needed to provide alternatives for work and recreational trips and for low-income residents impacted by high transportation costs.
- Design of new transportation infrastructure should capitalize on and protect the outstanding environmental features in the Corridor.
- Capital improvement projects will compete for scarce funding sources which will require local jurisdictions to identify the most beneficial cost-effective improvements for mobility.

The Concept Plan

The Colorado River Corridor Concept Plan presents a vision of an orderly transition between urban areas, neighborhoods, rural lands, and natural areas. It is a plan that accommodates new development while also protecting the character and environmental quality of the corridor.

Urban areas in the Concept Plan are sited along major highways – SH 130, SH 71, FM 973, and FM 969 – and are adjacent to neighborhoods. This relationship in which urban-intensity land abuts neighborhoods is consistent with CAMPO's "activity centers" concept: activity centers are more intensely developed than the surroundings; are a mix of employment, housing, and retail; are pedestrian-oriented with many destinations within walking distance; and are connected to surrounding neighborhoods and the region by a range of transportation options. With most new development concentrated in activity centers, large tracts of rural land are preserved. Reclaimed mining lands are also part of the inventory of undeveloped lands in the corridor.

Transportation networks in the Concept Plan propose new multi-modal mobility opportunities that currently do not exist within the Corridor. Roadways that accommodate bikes lanes and sidewalks and a regional trails network are proposed to seamlessly move motorists, cyclists and pedestrians throughout the Corridor. It is envisioned that transit will be fully integrated within the Corridor and have connectivity to the Austin Bergstrom International Airport and the City of Austin's future Urban Rail stations. Congested roadways are planned to be improved and new connectivity created. FM 969 will become a focal parkway providing mobility as well as highlighting the visual character of the Colorado

River Corridor. Other arterials will front along greenways to take advantage of the rural visual character that defines the Corridor. New connectivity is also highlighted in the Concept Plan, especially from residential areas east of SH 130. For example, new connections from Austin's Colony to FM 973 are provided as well as a new regional arterial that crosses the Colorado River connecting FM 969 with SH 71.

The envisioned corridor-wide parks and greenway system – centered on the Colorado River, Onion Creek, Gilleland Creek, and other smaller creeks – weaves together developed and undeveloped lands. The intent is to provide the growing population of the corridor with opportunities to enjoy recreational and natural resources close to where they live and to mitigate the environmental impacts of increased impervious cover in watersheds. Recreational facilities will be built at destination parks; boat ramps will be constructed at FM 973 and SH 130 river crossings and at the confluence of Onion Creek with the Colorado River; and long distance hike and bike trails will be developed along the length of the linear greenways. The large portions of the parks and greenway system maintained as natural areas will be scenic places where wildlife thrives. Bottomland woods, grasslands, and wetlands will also serve to capture and filter stormwater, recharge ground water, and mitigate flood damage.

GOALS AND OBJECTIVES

The following Goals and Objectives provide a framework for the tools, policies, and implementation strategies of the Corridor Plan, as well as describe the underlying assumptions inherent in the Corridor Concept Plan Map.

The Corridor Concept plan and goals should:

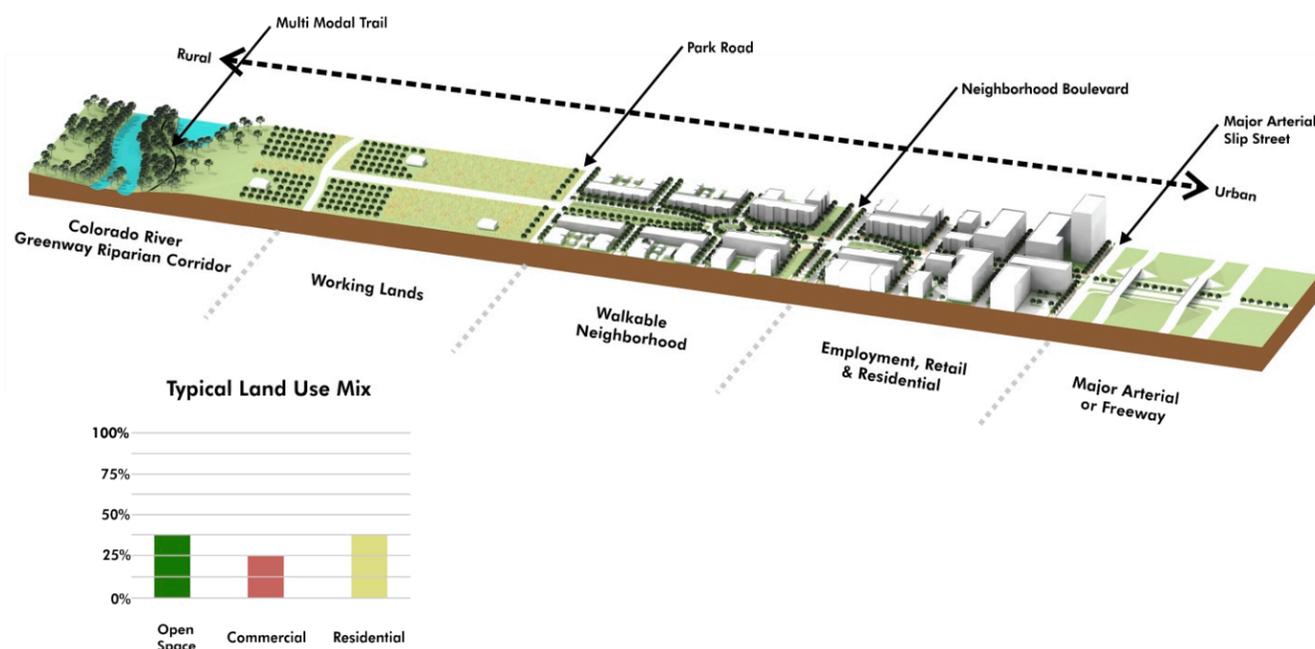
- Establish a unified concept across jurisdictional boundaries, while recognizing different Corridor development contexts (e.g., urban versus rural);
- Consider the range of social, economic, and environmental issues;
- Reflect existing roadway designations (e.g., functional class, access management category, truck route, scenic byway);
- Reflect existing policy documents such as local comprehensive plans and statewide and regional transportation plans;
- Incorporate and reflect current public input about how local residents view their communities and the transportation corridor; and
- Recognize the needs of those who may not be well-represented within the Corridor planning process, such as through travelers from outside the study corridor or visitors.

GOAL 1: Conserve and Protect Natural Resources

Protecting natural systems is critical to human, plant, and animal health and well-being. The concept of natural community planning calls for the protection of natural communities and habitats. Local governments are working to protect habitats from both a regulatory standpoint and incentives for private landowners. Both public and private sectors participate in land stewardship that can protect and manage natural resources. The following objectives support this goal.

- Protect and manage natural areas.

SCHEMATIC COMPLETE TRANSECT



- Protect and manage water quality.
- Integrate floodplain management with natural area preservation.
- Enhance conservation of limited ground and surface water supplies.

GOAL 2: Improve Quality of Life

Quality of life is an essential consideration in a person's decision to live in a community or a business' decision to locate there. In order to attract new residents as well as make the corridor desirable for those already living there, there is a need to provide an attractive physical environment for residents and visitors, as well as provide necessary services and facilities. The following objectives support this goal.

2.1 Parks and Greenways

- Create a park system that is accessible to and meets needs of residents
- Develop a system of parks and greenways within the corridor.
- Enhance economic viability through creation of parks and greenways.
- Implement sustainable methods through the system of parks and greenway infrastructure.
- Develop the park and green space as a foundation of community development.
- Create an economic climate that enhances the viability of working lands and rural character.

2.2 Corridor Pattern and Design

- Provide for a physical environment that reflects the time honored tradition of civic commitment to high quality and lasting public works.
- Protect and enhance the cultural and scenic resources.
- Strengthen Corridor connections at multiple levels to establish regional identity and foster neighborhoods.
- Support various school initiatives to maintain viable and safe school sites.

2.3 Health, Safety, and Welfare

- Provide for safe and effective access for life safety services.
- Enhance the flood management system to provide better protection and preserve assets.
- Enhance air quality.
- Minimize and manage ambient noise and light.
- Enhance availability of potable water and wastewater treatment.
- Advance energy conservation.
- Instill community resiliency.
- Provide fair and equitable regulatory environment.

GOAL 3: Provide Improved Mobility and Transportation Choices.

Transportation has and will continue to have a profound impact on the Corridor. Various travel modes not only respond to growth, they can also be a primary determinant to the patterns of growth and land use. Transportation investments can determine where and how we live.

Roads have a significant impact on the quality of the corridor. Roads can make up the majority of our public spaces. In some communities, roads and related infrastructure occupy more land than

parks and greenspace. Therefore, we must plan and design our transportation system with consideration for those who live with it as well as those who use it. The following objectives support this goal.

3.1 Mobility

- Provide for efficient and safe highways and roadways.
- Improve mobility, connectivity and access of people and goods.
- Reduce congestion.
- Provide cost-effective opportunities in the development of transportation facilities.
- Provide a multi-use trail network that improves mobility as well as supports recreational opportunities.

3.2 Bicycles and Pedestrians

- Provide a connected network of non-motorized transportation facilities connected to local and regional destinations.
- Provide for safe and efficient connections throughout the Corridor.
- Provide transportation facilities that encourage bicycle and pedestrian usage.

3.3 Transit

- Provide for public transit services that improve affordable and accessible transportation alternatives.
- Encourage transit oriented development within Corridor activity centers.
- Identify and implement strategies to take advantage of new transit opportunities and connections within the Corridor.

Based on various factors, including ease of implementation, agencies involved, and funding availability, the project team identified priority focus areas. Objectives to achieve the goals are found in the Implementation Strategies section. Each of the objectives detailed is accompanied by tools, policies and strategies and a time frame for accomplishing each objective.

The Corridor Plan was developed in response to the need for a comprehensive plan that provides a vision and a framework for a positive long-range future for the Colorado River Corridor. At its heart, any plan for this area needs to acknowledge its unique and exemplary geographical and historic role for Austin and Travis County. This Plan is a first step. It will require periodic updates to account for changing community and resource protection needs and strategies as indicated by new information or research. And, finally, it is hoped that this Corridor Plan will also be of direct assistance to the City of Austin's Imagine Austin Comprehensive Plan, which shares common goals for the Colorado River Corridor.

Introduction 1



COLORADO RIVER CORRIDOR PLAN

What is the Colorado River Corridor Plan?

The Colorado River Corridor Plan represents a collaborative effort by Travis County and the City of Austin (COA), with technical assistance from the Lower Colorado River Authority (LCRA), to reach across jurisdictional boundaries in effort to comprehensively plan the long range future of the Colorado River Corridor (referred to herein as the “Corridor”). Land use, regulatory authority, water resources, transportation, parks and land conservation issues are addressed in this plan.

Why Prepare the Colorado River Corridor Plan?

Residents' concerns about the impact of development and aggregate mining on their quality of life in the Corridor have prompted the County, City officials and LCRA staff to explore ways in which they can influence the long term land use character of the area. The Colorado River Corridor Plan was developed for this reason. The plan establishes goals and associated action items for providing residents with the community services they desire and optimize the environmental, cultural, recreational and economic potential of the corridor. As such, the Colorado River Corridor Plan communicates the values and intentions of the respective partners and helps ensure continuity in policy application and capital improvement project expenditures within and across jurisdictions.

Plan Intent

The intent of this plan is to leverage the respective roles of the County, City and LCRA to achieve shared, long range goals for the Colorado River Corridor. More specifically, the plan will serve the following purposes:

- Identify opportunities and constraints affecting land use patterns,
- Evaluate potential for orderly and compatible land use transitions over 25 years,
- Articulate shared goals and objectives,
- Illustrate a conceptual plan for achieving goals and objectives,
- Recommend standards and protocols for mining and reclamation,
- Recommend standards for restoring bottomland woodlands and grasslands,
- Propose policy initiatives and implementation strategies,
- Clarify the respective roles of the County, City, and LCRA in implementation, and
- Identify gaps in jurisdictional authority.

Study Area

The study area covers approximately 30,565 acres in eastern Travis County, centered on a 32-mile stretch of the Colorado River. It is bounded by US 183 on the west and the Travis/Bastrop county line on the east; its northern boundary is FM 969 and the southern is SH 71. It is estimated that 12,350 people live within its limits.¹ Although a less densely populated part of the county, the Corridor's population has grown by approximately 20 percent since 2000, with much of this growth occurring in the Austin's Colony development.

¹ CAMPO 2035

² Discovering the Colorado: A Vision for the Austin-Bastrop River Corridor

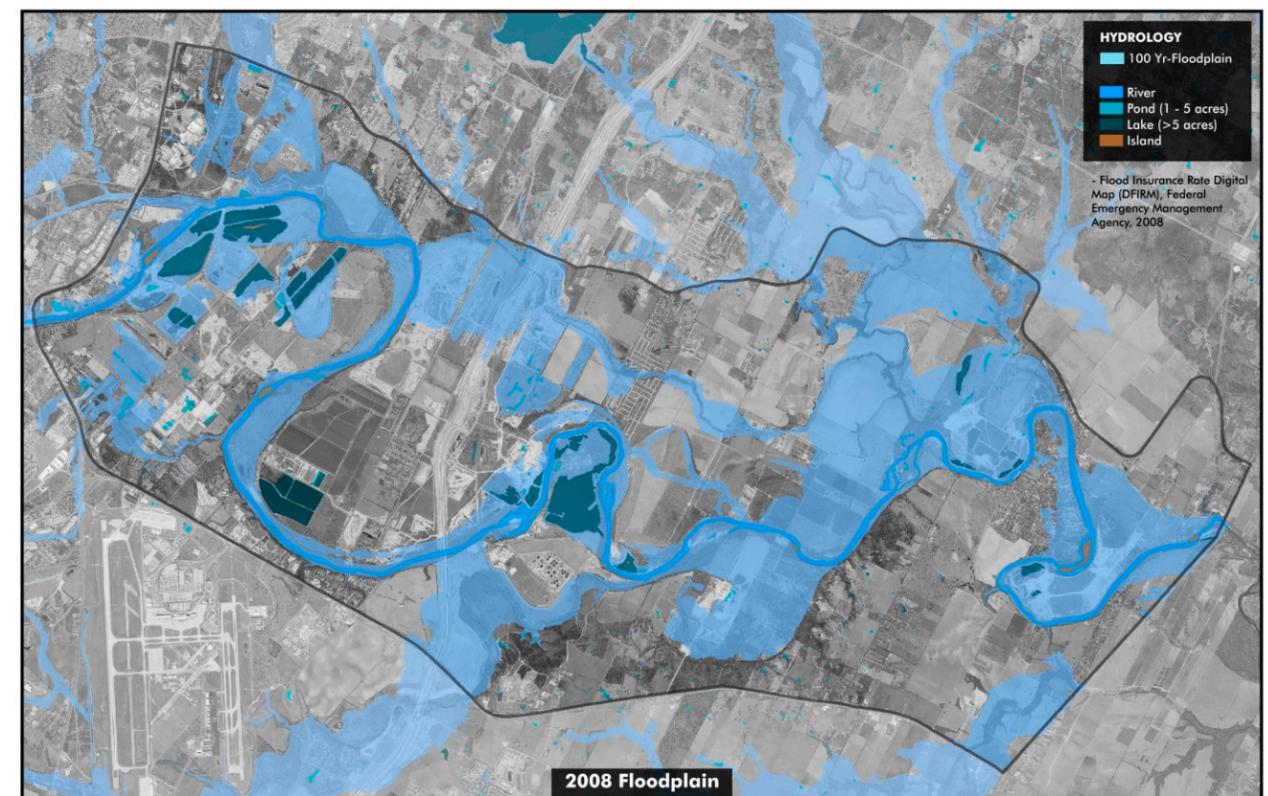
³ Discovering the Colorado: A Vision for the Austin-Bastrop River Corridor

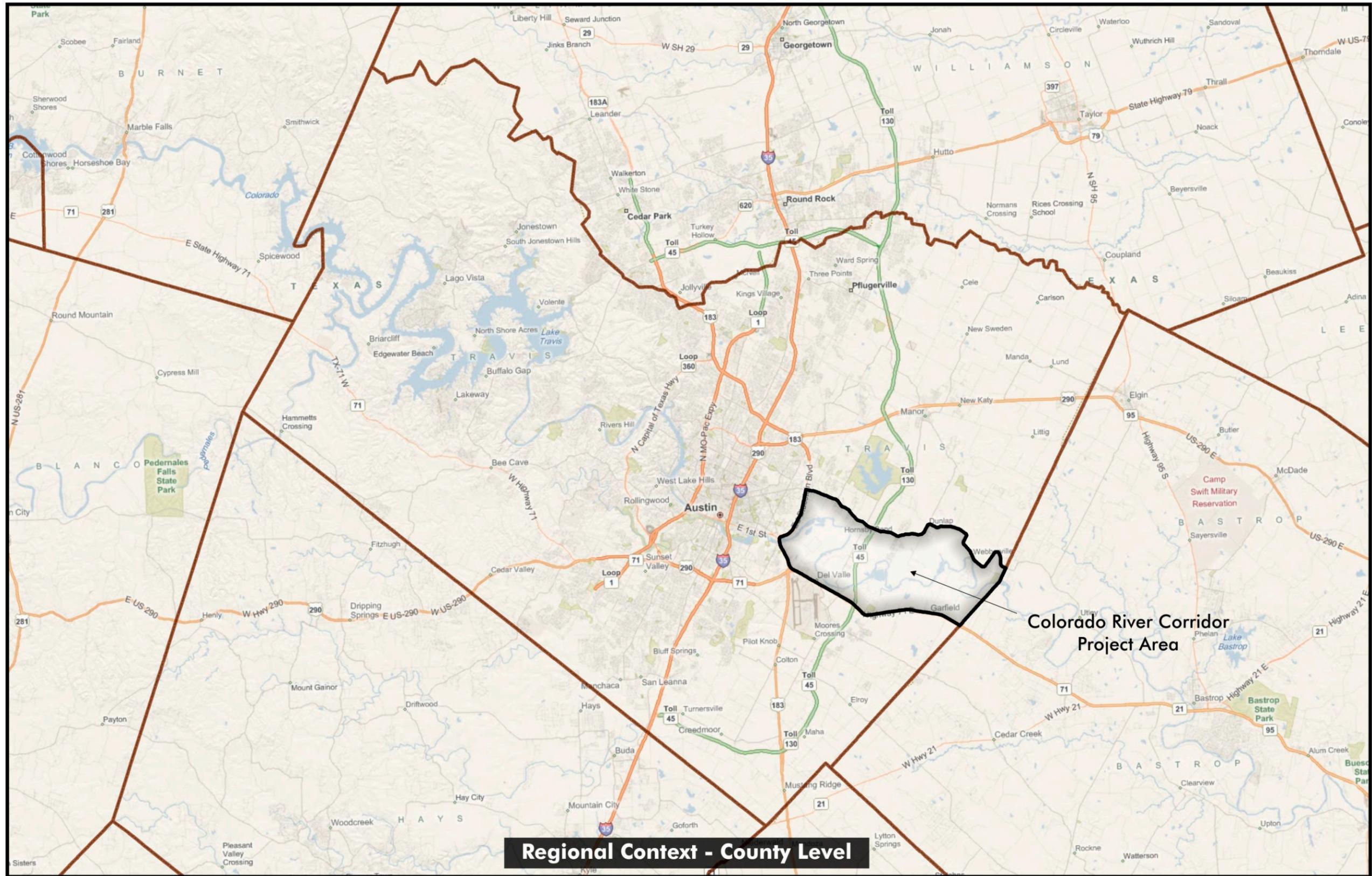
⁴ Discovering the Colorado: A Vision for the Austin-Bastrop River Corridor

As with most of eastern Travis County, the land in the Corridor has historically been used for agriculture, beginning in 1832 when Stephen F. Austin first brought settlers – including members of the Hornsby, Gilleland, and Wilbarger families – to “Austin's Little Colony.” The rich “...alluvial 'bottomlands', that promised agricultural success, the stands of timber along the river, and the abundance of wild game...” attracted them to the area.² By the end of the 1800s, the river corridor was dominated by agriculture and only a thin remnant of the great forest that once stood in the bottomlands was found along the river and the “ryegrass prairies” found in forest openings were gone.³ Today, just as the forests and grasslands gave way to agriculture, farming is giving way to aggregate mining: nearly one-third of the corridor – approximately 10,825 acres – is now dedicated to extracting sand and gravel.

As the 2008 floodplain map clearly shows, a large part of the study area (about 13,000 acres or 43 percent) lies in the 100-year floodplain, and therein lays its attractiveness for aggregate mining. Over the millennia, as the river meandered between older, upland terraces, it deposited silt, sand and gravel to depths from a few feet to several hundred feet depending on the underlying geology. Today these alluvial sand and gravel deposits near the river are extracted from a depth of twenty to thirty feet below the surface.⁴

In addition to the commercial value, the corridor has ecological, recreational, and cultural value: although disturbed, the bottomlands still mitigate the impact of storm water and filter and recharge groundwater; the river is still a place where people boat, fish and enjoy nature; the land is still farmed; and the Village of Webberville – once known as “Hell's Half Acre” – still stands at the site of a historic river crossing and steamboat landing.





Land Use 2



EXISTING LAND USE

Existing Conditions

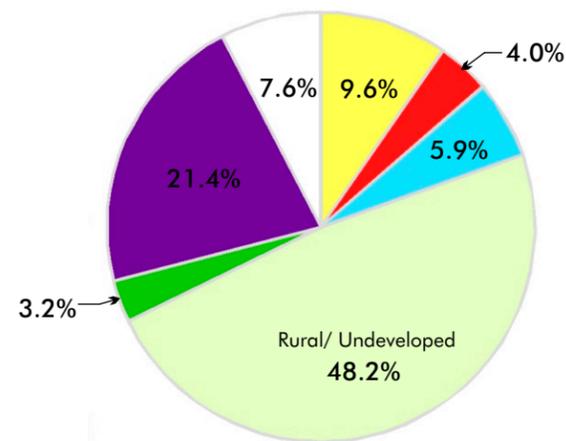
This section of the Plan provides a summary of the existing land use along the Colorado River Corridor and trends in land use development that have been occurring over the previous 10 years and may continue into the future. The data was provided by the Travis County Appraisal District (TCAD) and is composed of an inventory of existing land uses based on Texas Property Tax Assistance Division (PTAD) property category codes.

An evaluation of the Corridor's current land use and development patterns is the initial step in formulation of goals and a vision for future growth patterns. Such an analysis includes reviewing the existing land uses, the amount and location of each use and how much vacant land is available in the study area for future development. Table 2.1-Existing Land Use identifies the existing land uses and the acreage and percentage of each use.

The study area consists of approximately 30,565 acres, which includes 2,333 acres of right-of-way (ROW) and Colorado River. Roughly 2,927 acres, 9.6 percent of the land area, are currently identified as residential use. The area is experiencing an increase in residential development; however, the number of residential housing units is relatively small in comparison to other parts of the County. Approximately 14,738 acres, 48.2 percent of the study area, are currently being utilized for agriculture and farm/ranch activity or is undeveloped. Nearly 1,227 acres, 4 percent, are identified as commercial land use, and 6,549 acres, 21.4 percent, are classified as mining. The team was able to identify that mines are currently being operated on approximately 6,549 acres, including 2,193 acres of inactive mining operations. Table 2-1 Existing Land Use provides an overview of the current land use distribution in the study area.

Table 2-1. Existing land use.

LAND USE		
	Residential	2,927 Ac 9.6 %
	Commercial	1,227 Ac 4.0 %
	Civic/Institutional	1,802 Ac 5.9 %
	Ag/Rural/Undeveloped	14,738 Ac 48.2 %
	Recreation and Natural Areas	989 Ac 3.2 %
	Mining	6,549 Ac 21.4 %
	ROW & Colorado River	2,333 Ac 7.6 %



The Corridor begins inside the City of Austin's extra-territorial jurisdiction limits and continues to south of Webberville, about 40 miles below the Longhorn Dam, extending northwest to southeast. The river banks are lined with sycamore, willow and elm trees as well as native grasses and small brush plants. A wide variety of wildlife, including deer, beavers, raccoons, squirrels, armadillos, reptiles, birds and many others can be seen along the banks. The river itself is home to many species of aquatic plants that provide habitat and cover for a variety of fish and amphibians that populate this section of the Colorado River.

Regulatory Framework

The jurisdictions within the corridor include the City of Austin, the Village of Webberville, Travis County, and the State of Texas. Both the County and the cities have shared authority in the extra-territorial jurisdiction. With the federal control of environmental concerns, basic policy is laid down by the federal government, but administration of environmental programs has been delegated to the State in most cases. The control of land use, both rural and urban, has continued under the State or has been delegated to local jurisdictions.

Travis County, as a subdivision of the state, has limited authority as specified in the Texas Local Government Code. The specific authority includes approval of subdivision platting and setting standards for public roadways associated with subdivisions. Travis County also has authority in all unincorporated areas of the corridor as the floodplain administrator, overseeing approximately 13,000 Acres (2008 FEMA). Travis County implements this authority by review of all development proposals to ensure that the integrity and capacity of floodplains are not compromised.

In addition to this limited land use authority, Travis County has defined responsibilities under the federal Clean Water Act (CWA) and Texas Water Code to control pollutant discharges. In accordance with a CWA permit, Travis County has implemented requirements for the management of storm water associated with urbanized land use, including requirements to eliminate or reduce the discharge of pollutants from construction sites and industrial facilities and to ensure permanent best management practices (BMPs) are in place to capture and treat storm water in completed subdivisions or commercial sites.

The City of Austin and Travis County formed a single office for review and approval of residential subdivision proposals. They have approved a joint development code and executed an inter-local agreement to implement this joint regulatory function. An inter-local agreement on storm water management is nearing completion and approval to better establish roles and responsibilities between the City and the County for the joint protection of waterways and management of stormwater in the extra-territorial jurisdiction.

City land use authority can be achieved through limited purpose annexation or development agreements (with property owners' consent but no service obligations) or full purpose annexation (with service obligations but does not require property owners' consent).

During the first public meeting for the Colorado River Corridor, concerns were raised about how increased development accompanying major transportation projects, mining operations and growth from Austin and Bastrop might contribute to the loss of rural character, water quality and riparian

habitats.

Participants questioned whether current regulations are adequate and consistent among jurisdictions and whether voluntary measures are sufficient to address the more undesirable impacts of growth. As a result of growth and development, issues such as the potential for increased flood damage and downstream storm water impacts are a major concern for the local residents. There is recognition that all types of building (homes, roads, businesses, etc.) depend on the availability of sand and gravel resources, but that mining near the river raises concerns about the effects on water quality.

Mine restoration, however, can create opportunities for new wetland and pond resources when mineral resource removal is complete. There is a need to balance the sand and gravel industry's needs with the public's and the river's needs.

Opportunities and Constraints

Mining Reclamation

The City of Austin has existing reclamation standards for aggregate mining and rock quarrying in the Pollutant Attenuation Plan rule (Section 1.3.4 of the Environmental Criteria Manual). In place since 2005, the standards require that clean backfill be used, that the side slopes be contoured to 3:1 and that the disturbed areas be re-vegetated. Fiscal surety must be posted to ensure that re-vegetation occurs. Presently, there are no initiatives to update the Pollutant Attenuation Plan rule. Under consideration for a future rule update is the requirement to have a professional engineer establish performance standards for reclamation and to verify that those performance standards are met. The City of Austin's environmental inspectors periodically inspect active aggregate mining facilities to ensure compliance with approved site plans. Under the Pollutant Attenuation Plan rule, the environmental inspectors have the authority to require verification testing of backfill and to review file records of backfill load certificates.

Travis County established interim water quality protection standards in 2005 for areas of the county outside of all municipal extra-territorial jurisdictions. Notably, only a small sliver of the Colorado River Corridor area (near the Bastrop County line) is outside of the extra-territorial jurisdictions. In 2009, the Texas Legislature and Governor acted to establish more explicit water quality protection authority for Travis County in Local Government Code Chapter 573. Under this authority and a 2012 deadline required by the TCEQ's storm water general permit, Travis County is proceeding to develop new water quality protection regulations. The regulations would supersede the interim requirements and to include as the scope all areas of County jurisdiction, including areas within City extra-territorial jurisdictions. The regulations would establish requirements for mine and quarry post-mining reclamation, fiscal surety to ensure re-vegetation, setbacks from waterways and sensitive environmental features and standards for management of storm water generated at mining sites. Travis County is considering the City of Austin requirements with an aim towards expanding consistent standards, but is also considering requirements of other jurisdictions.

Statewide, there do not appear to be any legislative initiatives to establish reclamation standards for aggregate extraction or quarrying. Currently, there are rules for a specific portion of the Brazos River known as the John Graves Scenic Riverway. Title 30, TAC Chapter 311, Subchapter H regulates

quarrying activities only in this scenic river way. TCEQ does not have any plans to develop regulations and rules that would apply statewide. The Texas Concrete and Aggregate Association (TCAA) does not have any initiative for establishing voluntary reclamation standards.

Post-Mining Land Use

Over the next five years it is anticipated that over half the acreage currently allocated to resource extraction will transition to alternate land uses. Over the next 25 years it is anticipated that mining will be isolated to the TXI Webberville site along FM 969 and the Shumaker site along SH 71 (areas in red on map below). Open space and agricultural land uses will most likely be the dominant forms of reclamation for most mining properties in the Corridor. These uses may include lakes, ponds, wetlands, waterfowl habitat, flood storage, hay fields, farming, livestock pastures, greenbelt connections, trails, fishing areas, etc. (See Appendix B - Wetland Mitigation Banks)

Of the approximately 10,825 acres currently dedicated to mining, very few of these holdings are located outside of the 100-year floodplain and therefore few of these sites have commercial redevelopment opportunities. It is estimated that currently 5,781 acres are actively being mined with an additional 2,851 acres permitted in the future and 2,193 acres having been previously mined. The TXI SH-130 site is proposed to transition to a 2,100-acre mixed-use project with approximately 1,000 acres of development and 1,100 acres of open space. Another area for redevelopment is the "Dog's Head" area north of Austin-Bergstrom International Airport (ABIA). Transportation issues, land fragmentation and the ABIA noise contour overlays are some issues that will make this area difficult to redevelop.

Impact of Aggregate Mining on Residential Development

The potential conflict between mining and residential uses (noise, traffic, air quality, visual impacts, etc.) is likely to continue as increased residential development and mining activity are planned within the Corridor. The opportunity to plan the necessary and orderly progression of these non-compatible land uses is also a challenge. Mining areas have been identified to support nearby development. Once depleted, a post-mining phase of the life cycle should allow for the orderly transition of land uses around and within the mining areas. Plans are being considered to reduce truck traffic, mitigate visual impacts and establish baseline environmental monitoring conditions against which planners can evaluate future affects.

City of Austin Annexation Plans

Objectives such as improving neighborhood connectivity, encouraging cluster development and reducing corridor sprawl along roadways may be best achieved using the City's land use authority, but the City does not currently have any areas within the Corridor scheduled for annexation. The City, however, may consider annexation of areas with potential for development that are contiguous to the city limits where city services can be provided. The most recent annexation was the Water's Edge Development off SH 71 south of the river.

County Land Use Authority

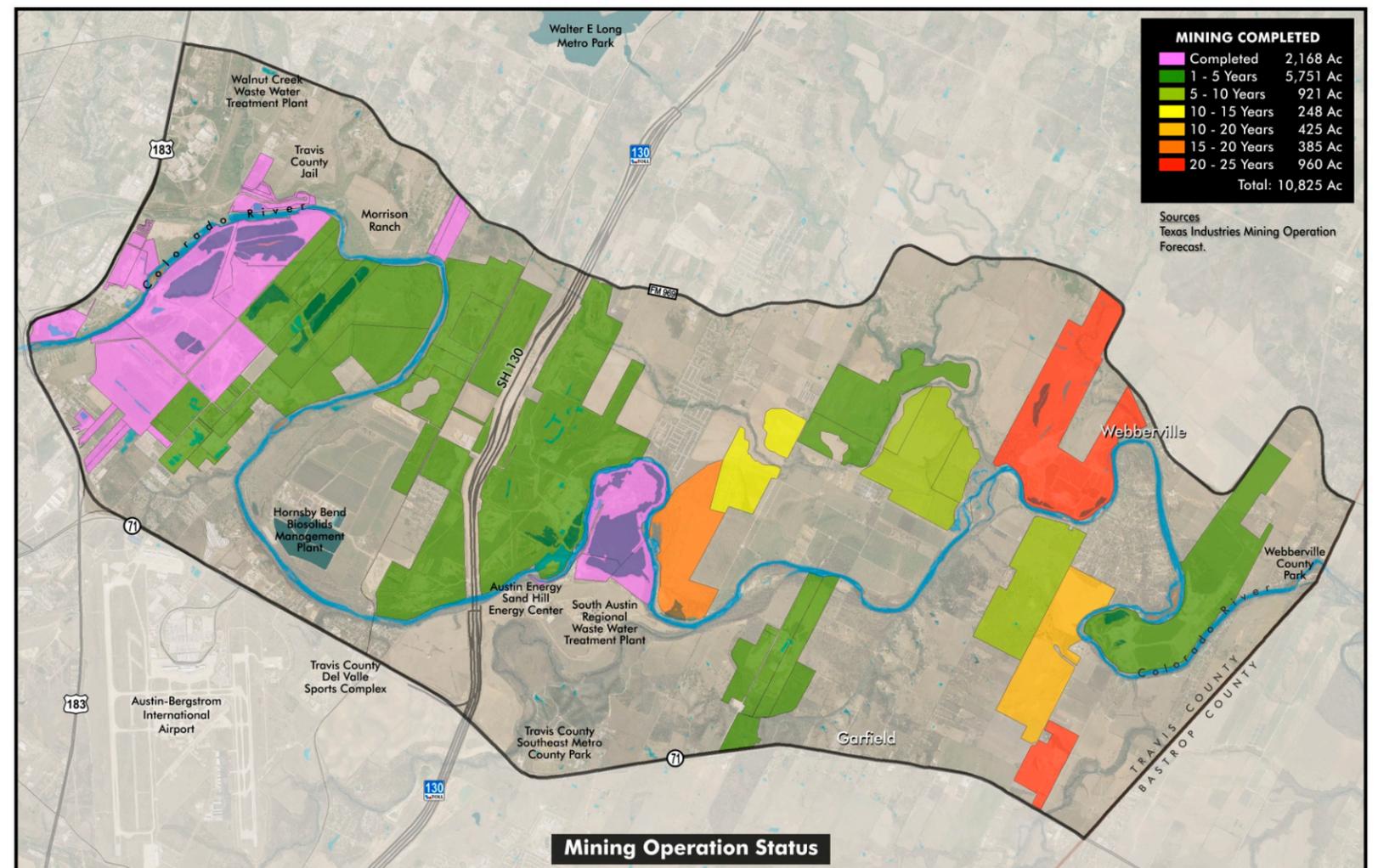
There is a strong interest of the County and other rapidly urbanizing Texas counties to obtain explicit authority to enforce land use regulations and to implement zoning and/or setback requirements to protect land owners from incompatible adjacent land uses. Greater control

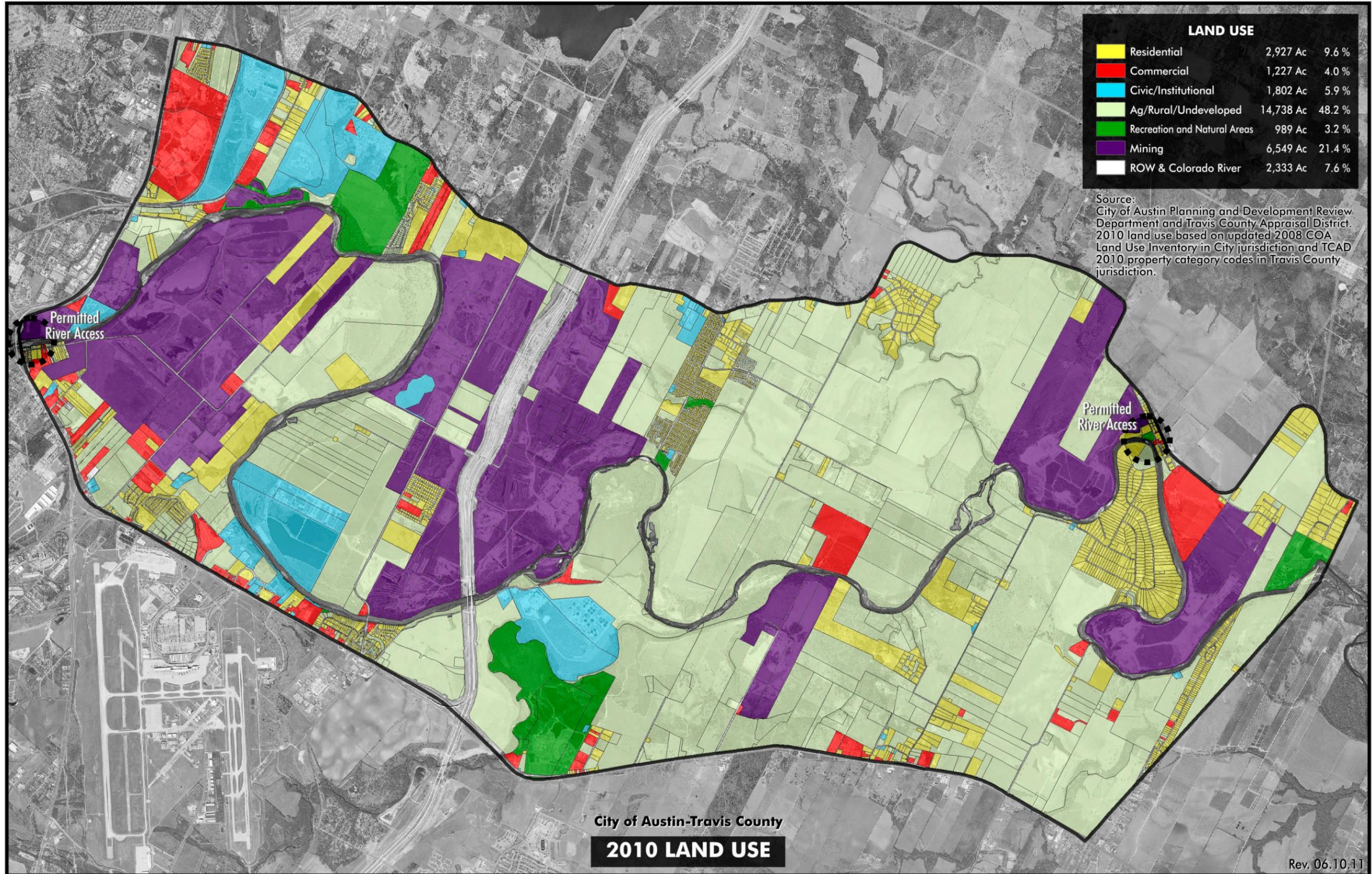
would require legislation to be passed by the Texas Legislature and approved by the Governor.

Public Facilities

There is a strong linkage between new development and the provision of public facilities services, efficient land use, and the delivery of other vital government services. Public facilities include arterial stormwater management systems, emergency services such as police and fire, solid waste disposal facilities and public school facilities.

While this document does not include guidance about future public facilities that are listed above, it does recognize the importance to ensure the availability of public facilities and the adequacy of those facilities including acceptable levels of service as the area develops. The quantity of public facilities that is needed to meet the needs of future growth shall be determined for each public facility when such need is determined. Identify and define types of public facilities, establish standards for levels of service for each such public facility, and determine what quantity of additional public facilities is needed in order to achieve and maintain the standards.





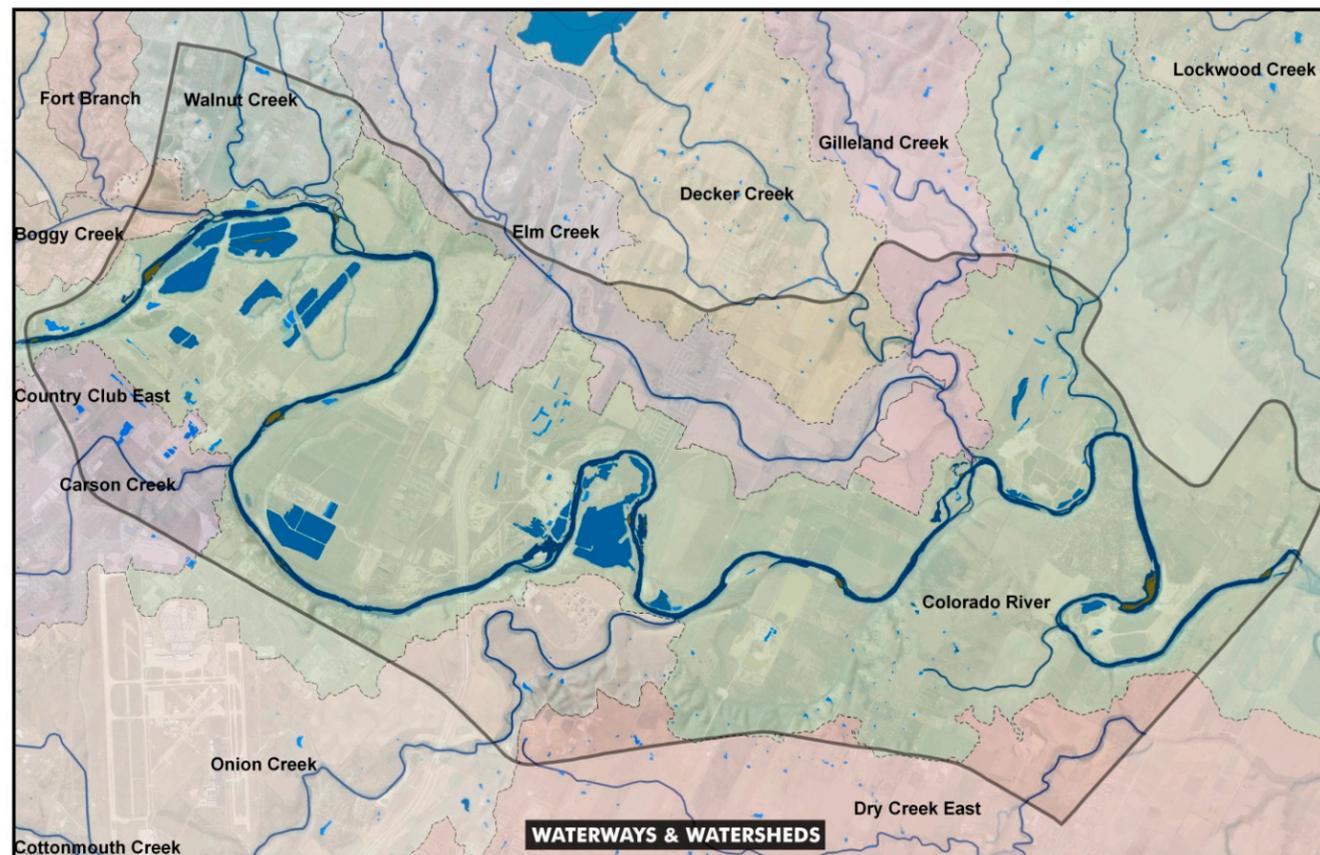
Water Quality 3



SURFACE WATER QUALITY

Existing Conditions

The water quality standards for the segment of the Colorado River occurring below Longhorn Dam (considered by TCEQ as Segment 1428) establish an “exceptional” aquatic life use for the river, meaning that aquatic habitats exhibit outstanding natural variability, exceptional assemblages of aquatic species, abundant species that are sensitive to pollution, and exceptionally high diversity and species richness. An aquatic life use of “high” is established for both Walnut Creek and Gilleland Creek, reflecting the attainability of high quality aquatic life. The high category is the predominant, most typical classification of aquatic systems by TCEQ. These standards set a quality for these water bodies with the goal to provide the habitat characteristics for aquatic species no longer locally present or now rare to rebound and return. The TCEQ also establishes statewide standards for the protection of human health that limit the concentration of disease-causing bacteria, contaminants, and toxic substances in surface water.



Opportunities and Constraints

Impact of Urbanization

The TCEQ, through implementation of the federal Clean Water Act, has primary responsibility over setting the water quality standards for the Colorado River and its tributaries in the Corridor. TCEQ partners with local jurisdictions, including the LCRA and City of Austin, to conduct ongoing, routine

monitoring of water quality and to assess the results of the monitoring to determine if the water quality standards are being attained. When a reach of a stream or river does not attain one or more water quality standard, it is considered impaired. The State of Texas will then take one or more of the following actions to address the data results: 1) additional data collection may ensue, in order to verify the water quality conditions; 2) it may be determined that the water quality standard is not appropriate and a process will follow to revise the standard to the site-specific use of the waterway initially considered impaired; and 3) restoration actions are undertaken to establish a limit and curtail the load of the pollutant that can be discharged. When a reach of a stream or river is identified as a concern, it does not automatically trigger any of these three actions, but it does raise some awareness that a pollutant level is either approaching a level that would exceed a standard or there may not be a numeric standard established. Restoration is formally adopted in a plan called a Total Maximum Daily Load Implementation plan or TMDL I-Plan.

There are several potential impacts to water quality in the Corridor. Nearly all of the impacts are associated with the urbanizing trend of the Austin metropolitan area. Among them are:

- Pollutant discharges of treated effluent from sewage treatment facilities,
- Storm water runoff from urban, resource extraction, and agricultural areas of all kinds,
- Unmanaged or illicit discharges of pollutants and toxins from industrial, institutional, and commercial operations or households,
- Overflows of untreated sewage from collection lines, lift stations, and septic tank drainfields, and
- Improperly managed pet or animal waste.

In addition to pollutant discharges, other changes to the landscape may negatively influence surface water quality:

- Physical alteration of stream channels,
- Diversion of natural flowing surface waters for municipal and irrigation use,
- Alteration of the natural variability of stream flow regimes due to upstream impoundments,
- Reduction or elimination of riparian corridors,
- Scouring of stream beds during storm events, and
- Introduction of exotic species of aquatic flora and fauna.

Sewage Treatment Discharges

In recognition of the threats to water quality from sewage treatment facility discharges and the exceptional water resource that the Colorado River is, the Texas Water Commission (now TCEQ) also established a Colorado River Watershed Rule to require advanced secondary treatment for discharges into the Colorado River and even more stringent treatment that includes phosphorus removal for wastewater discharges to tributaries of the Colorado River below Longhorn Dam. Affected discharges of relevance to the Corridor include those into the Onion Creek, Gilleland Creek, and Walnut Creek watersheds.

The standard limits for discharge into this segment of the Colorado and tributaries currently do not include any limits on total nitrogen, only ammonia nitrogen. This does not address the potential for nitrogen limited tributaries to experience algae blooms which contribute to water quality and ecological problems in the immediate receiving waters and cumulative impacts in the Colorado. Phosphorous limits are set at 1 mg/L when present which also may not be sufficient to avoid algae blooms especially in

smaller tributaries and in the Colorado River Corridor Study area under conditions of low release from Longhorn Dam. Standard permit limits can be addressed through changes in TCEQ water quality standards for nutrients that are currently under development, or through implementation of Total maximum Daily Loads (TMDLs).

Assessment of Water Quality

In 2010, the TCEQ adopted its most recent statewide assessment of water quality and submitted it to U.S. Environmental Protection Agency for approval. The report includes assessment of surface waters in the Corridor based on monitoring, sampling, and analyses accomplished. Overall, most assessed uses and standards are fully supported.

The Colorado River between Longhorn Dam and the confluence with Walnut Creek is impaired and exceeds the standard for E. coli bacteria, an indication that the water may be unsuitable for swimming. The Colorado River below the confluence of Walnut Creek to the Bastrop County line attains the standards for plant nutrients like nitrate and ortho-phosphate, but TCEQ indicates it is concerned with the levels as being close to failing standards. There is also a concern that the macrobenthic and fish communities in the Colorado River below Gilleland Creek are nearing non-attainment of the exceptional aquatic life use standard.

Walnut Creek achieves all of the standards that have been assessed, except that the uppermost reach, upstream of Mopac in northwest Austin, is impaired due to elevated E. coli bacteria. The remaining reaches, downstream of Mopac to the Colorado River, also exhibit elevated E. coli, but only at a level of concern short of being considered impaired.

Gilleland Creek, in the reach downstream from Taylor Lane to the Colorado River, is also impaired due to elevated E. coli bacteria. Additionally, the TCEQ is concerned that plant nutrients like nitrate and ortho-phosphate are elevated, but at a level short of being considered impaired.

The TCEQ has not yet established numeric standards for nutrient constituents. However, it has been the practice of TCEQ to identify water bodies with nutrient concerns, as has also been used to describe some conditions in the Corridor. It is not likely that these concerns will result in additional actions by the TCEQ to address the causes and sources of these nutrient concerns. Recently, considerable focus has been on freshwater mussels as indicators of water quality conditions. Additionally, Texas Parks and Wildlife Department has placed many mussel species on the state threatened list and the U.S. Fish and Wildlife Service is considering adding five central Texas candidate mussel species for listing as threatened or endangered. Urbanization and resulting changes in hydrology and sediment composition are the primary factors limiting mussel abundance and diversity in the central Texas area including the study area. These changes have resulted in a shift to more tolerant, generalist freshwater mussel taxa. Surveys of the Colorado have been conducted in the study area to locate extant mussel beds and quantify if adequate recruitment is occurring for recolonization of nearby tributaries. Follow-up measures may be required if endangered.

Water Quality Restoration

In all but one of these cases, continued monitoring and evaluation of these problems are predicted to help planners determine sources of pollution problems that can result in restoration through a TMDL I-Plan or by other means. In one case, however, a TMDL I-Plan has already been established for Gilleland Creek. The TMDL I-Plan was prepared and adopted on February 9, 2011 by TCEQ with the extensive

input and commitments from local jurisdictions and interested citizens. Among the solutions now scheduled for implementation include stepped up enforcement to stop discharges of raw sewage from failing septic tank systems and setting stringent effluent quality standards for E. coli in the permits for sewage treatment facilities that discharge to Gilleland Creek. The City of Austin and Travis County have committed to expanding setback distances between water courses and development in unprotected headwater areas of the watershed. By means of overland flow, the undisturbed vegetation in such stream buffers will facilitate die off and reduction of bacteria and sediment out of storm water before it flows into Gilleland Creek. Current stream COA 200 foot buffers for water quality and bank erosion protection are not as extensive and protective in the Corridor as in some other areas of Travis County or the City of Austin. The City of Pflugerville and volunteers are conducting public education and undertaking efforts to reduce pet waste in areas close to Gilleland Creek.

Complementing the TCEQ assessments, the City of Austin has established a monitoring program for several of the smaller streams of local importance. The City of Austin has developed an Environmental Integrity Index (known as the EII, see <http://www.austintexas.gov/department/environmental-integrity-index>) which assesses water quality, aquatic life, aquatic habitat, aesthetics and sediment quality in the Elm, Decker, Gilleland, Onion, Carson, Walnut and Boggy creek watersheds on a rotating, biennial basis. Based on comparison of the most recent EII scores, out of the 50 assessed watersheds citywide, Onion Creek ranked in the top three best watersheds for overall quality while the other Corridor watersheds generally fell in the middle (rankings ranged from 12 thru 28 out of 50 assessed watersheds). Nutrient enrichment from wastewater effluent in the Gilleland and Harris Branch watersheds is one of the most significant concerns in Corridor tributaries.



Summary of Critical Issues

- Water quality degradation has resulted from urbanization.
- Future growth or proliferation of sewage treatment facilities alters the hydrology and quality of streams in the Corridor.
- Established monitoring shows emerging water quality issues that need attention.
- Local governments and private individuals need to fully implement the Gilleland Creek TMDL I-Plan to restore water quality in Gilleland Creek.
- City of Austin and Travis County permitting and inspection programs should continue and be increased to oversee development so that stormwater and other discharges reduce or eliminate impacts to water quality.

GROUND WATER QUALITY

Existing Conditions

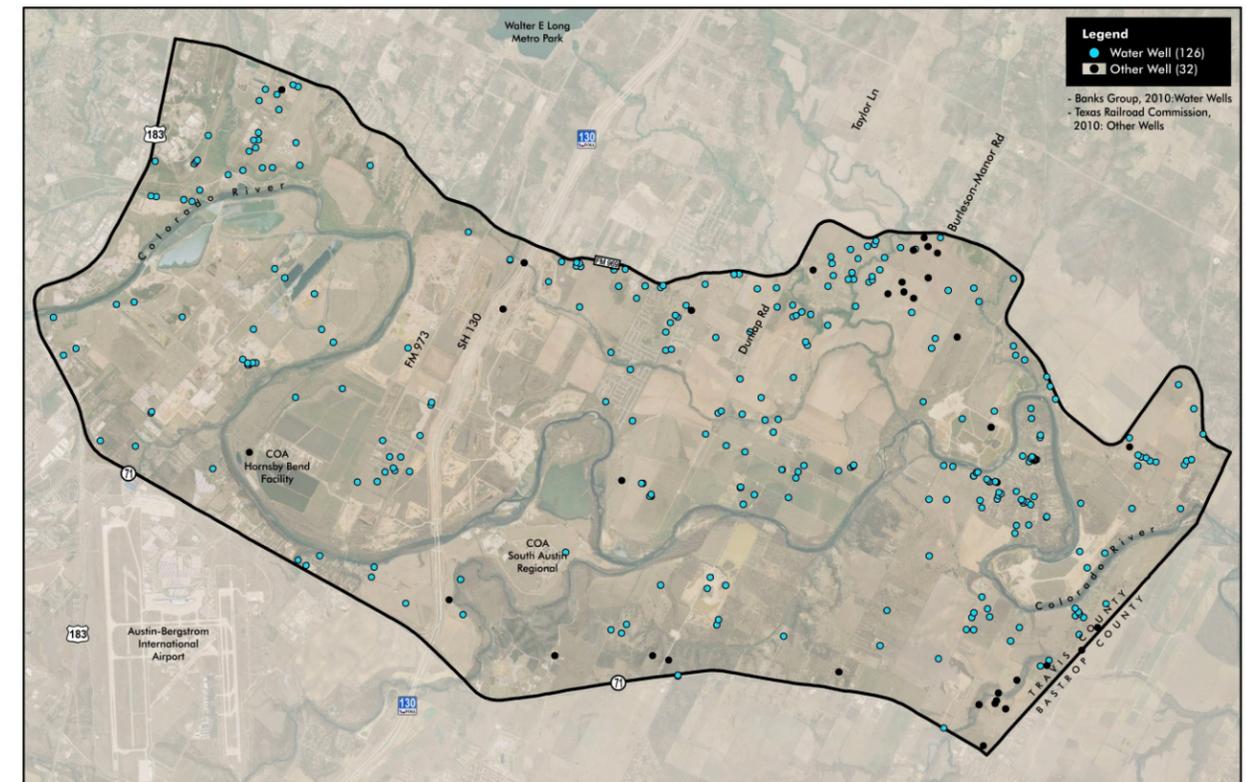
The Colorado River alluvial aquifer is not defined by the Texas Water Development Board (TWDB) as either a major or minor aquifer and therefore lacks the prominence that results in study or monitoring by state agencies. Readily available data to comprehensively describe the quality of groundwater from the aquifer are lacking. A general discussion and data are available in a 1983 publication from the Texas Department of Water Resources, including a delineation of the aquifer.⁵ This generally corresponds to the geology as mapped by Garner and Young.⁶ Additional unpublished data are available from studies conducted by students from The University of Texas at Austin.

There have been few formal or published scientific studies to characterize the quality of groundwater from the aquifer. The Austin Water Utility commissioned a 1994 study conducted by hydrogeologic consultants that examined and characterized the quality of groundwater at its Hornsby Bend wastewater sludge treatment facility. Among the conclusions were that several chemical constituents including aluminum, iron, fluoride, and manganese exceed concentrations that raise aesthetic concerns (non-health related concerns) that could adversely affect taste, odor, or plumbing fixtures (staining). The report concluded that these conditions were noted up-gradient and not associated with operations of the site.⁷

Of more significant importance, the report indicates that concentrations of nitrate-nitrogen and fecal coliform bacteria were elevated in wells throughout the Hornsby Bend facility. Additional water quality and water level data in the study area may be available from the Texas Water Development Board well sampling, although a complete assessment of these data over the period of record has not been compiled. Recently a study of hydrogeology and elevated ammonia and nitrate levels in wells around the Hornsby Bend site has been initiated through the University of Texas (Markovich et. al). Preliminary results indicate that "Both ammonia and nitrate contamination at Hornsby Bend are potentially related to legacy contamination from past agricultural activities. Levels of both nitrate-nitrogen and fecal coliform bacteria are in excess of drinking water maximum contaminant levels (MCLs) established by the US Environmental Protection Agency (USEPA)." The report suggests treatment lagoons for wastewater at the site may be a source of these conditions. Excessive nitrate is a known toxicant that affects the health of infants. Groundwater normally flows in a radial pattern from higher elevations at the Hornsby Bend site towards the Colorado River but flows sub-parallel to the river's flow during wet

weather. Recently, renewed interest has occurred with respect to elevated ammonia and nitrates in monitoring wells at the Hornsby Bend facility (Markovich et. al). In response, Austin Water Utility is undertaking an assessment of its liquid stream management processes at the facility through including a water, sludge, and soil sampling and analysis program. This study should inform the City as to any changes that may be needed to address concerns about groundwater quality.

It is also known from discussions with residents in the area that some private wells in the Corridor near Hunters Bend Road exhibit elevated concentrations of nitrate-nitrogen that approach or even exceed the MCL of 10 mg/l. Outside of the Hornsby Bend facility, other probable sources of nitrate contamination include past fertilizing practices related to crop production and use of septic tank systems for sewage disposal in the Corridor area. Electrical resistivity surveys reveal large channels of sand and gravels incised into underlying Taylor Clay that provide high permeability conduits for groundwater flow. (Markovich et. al) Hydrology of the study area affecting pollutant transport has been investigated through water level monitoring, water chemistry, and dye studies indicating rapid response of alluvial aquifer to precipitation events and stage levels in the Colorado (Hibbs and Sharp, 1992).



Opportunities and Constraints

As a component of the CRCP, it is recommended that available data be gathered from private and public groundwater well owners. Data on groundwater quality is collected by Public Drinking Water

suppliers under the requirements of the federal Safe Drinking Water Act. Some regulatory permits require groundwater monitoring and it is likely that some well owners have data logs. Together, available data may help planners better understand the extent and severity of the nitrate issue.

In 2005, TCEQ evaluated whether areas of the Corridor north of the Colorado River should be designated as a Priority Groundwater Management Area (PGMA). A PGMA designation would reflect a conclusion that groundwater resources are insufficient to supply the present or future water demands of a geographical area. If designated as a PGMA, State law requires that a Groundwater Conservation District (GCD) be established. A GCD would result in permitting of new non-exempt groundwater wells, regulate spacing of wells to prevent interference on nearby wells, and would conduct research to assess the quality and quantity of the resource. However, in the report (footnote 8) TCEQ concludes a PGMA not be designated because future water demands are expected to be satisfied by expansion of water utilities from surface water sources.

A GCD can be established without designation as a PGMA, so long as there is public support to vote in favor of it and accept the modest taxation increase necessary to fund the district. In the recent past, Travis County has investigated whether a GCD should be established. Meetings and discussions with citizens and existing retail public water providers have been undertaken. It was concluded that there is not the necessary public or institutional support for establishing a GCD. Given the future expansion of surface water sources in the Corridor to replace or supplement groundwater withdrawals from the Colorado River alluvial aquifer, and given the small quantity of this resource, a GCD may not be a viable recommendation. Instead, it may be more appropriate to focus local investment and resources in a program for funding research and assessment of the Colorado River alluvial aquifer. The initiative could focus on assessment of water quantities reliably available for pumping and to determine the extent of water quality degradation due to elevated nitrate-nitrogen in the groundwater.

Summary of Critical Issues

- Lack of a systematic monitoring network of wells.
- Lack of fundamental hydrogeological studies to determine such factors as:
 - Porosity, permeability, and saturated thickness variations,
 - Recharge and discharge from the aquifer,
 - Effects of droughts and floods on this system,
 - Pumping history and expected future water extractions, and
 - Effects on the aquifer from surface alterations and land use changes.
- Extent and severity of excessive nitrate-nitrogen in the aquifer is not well known.
- Private well owners do not need to test the quality of their water or comply with drinking water quality requirements.
- Establish a program to fund research on the quality or water supply limitations of the aquifer.
- No local studies on the impact of aggregate mining on water quality.

⁵ Brune, Gunnar, and Duffin, G. L. 1983. Occurrence, Availability, and Quality of Groundwater in Travis County, Texas: Texas Department of Water Resources Report 276. 219 p.

⁶ Garner, L. E., and Young, K. P. 1976. Environmental Geology of the Austin Area: an Aid to Urban Planning: The University of Texas at Austin Bureau of Economic Geology Report of Investigations 86. 39 p.

⁷ Preliminary Engineering and Environmental Considerations Report, City of Austin Hornsby Bend Ground-Water Monitoring Well System Improvements (C.I.P. #455-237-8134). RMT/Jones & Neuse, Inc. December, 1994.

⁸ Markovich, Katherine, K. Befus, R. Forster, D. Reyes, M Robertson, and J. Sharp. 2011 Hydrogeology of an alluvial aquifer system with high levels of nitrate and ammonia. 2011 Geological Society of America Annual Meeting. Minneapolis, MN . (9-12 October 2011). Paper No. 187-8.

⁹ Hibbs, B.J. and J.M. Sharp Jr. 1992. Hydrodynamics of the bank storage effect – an integrated tracer and modeling study. 1992 Geological Society of America Annual Meeting. Cincinnati, OH (26-29 October 1992). Journal Volume 24:7.

Water Supply 4



SURFACE WATER SUPPLY

Existing Conditions

Water Certificates of Convenience and Necessity (CCN): There are seven water CCN's in the Corridor.

The largest water providers are the City of Austin, Hornsby Bend, Manville WSC and Garfield WSC. Of these providers, two primarily obtain water from surface water sources. The City of Austin obtains drinking water from storage in Lake Travis and Hornsby Bend diverts water from the Colorado River. The rest are groundwater-based retail providers. Water infrastructure east of SH-130 is limited to support future development without substantial upgrades. Private water wells in the Corridor are numerous and the ability to quantify the exact number and location of these wells is limited due to the lack of permits and age of these wells. However, much data does exist and the Wells map on page 19 depicts the wells in the Corridor.

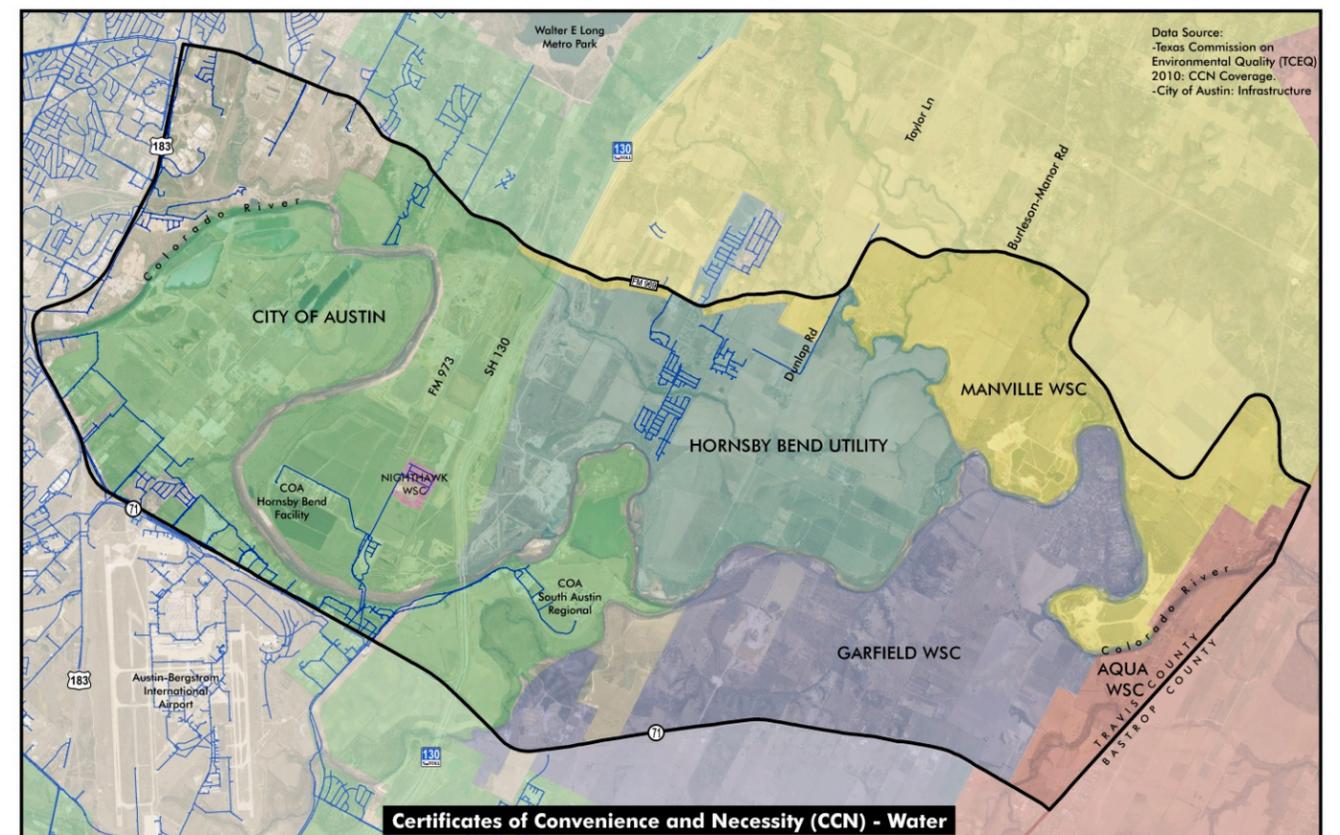
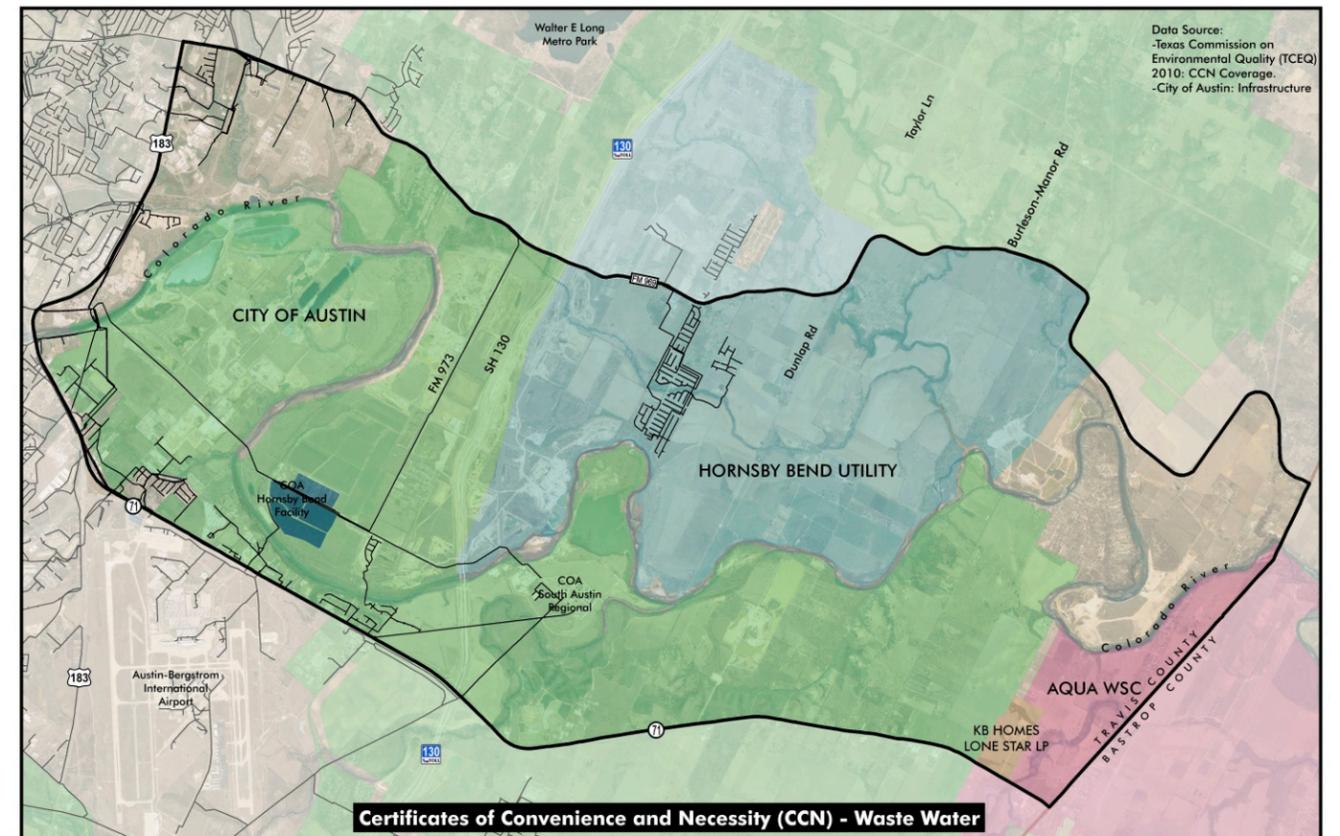
LCRA Raw Water Provider: LCRA is a wholesale raw water provider in the Corridor. There are currently seven raw water intakes in this stretch of the river diverting untreated river water to:

- Capital Aggregates industrial wash plant,
- City of Pflugerville raw water intake,
- Austin Energy Decker power plant,
- Austin Energy Sand Hill power plant,
- Bastrop Energy power plant,
- Travis County Southeast Metro Park, and
- Potts tree farm.

Municipal Utility Districts (MUDs): The Rio de Vida Planning and Improvement District No. 1 is currently the only MUD or other public utility district within the Corridor. This MUD was established to help facilitate post-mine reclamation as mixed-use development and open space creation within the 2,130-acre TXI Green site along SH 130.

Existing Austin Water Utility Service

West of SH 130 the Austin Water Utility (AWU) provides water service to much of the developed land with water mains generally following the existing roadways. The study area west of SH 130 is either within the City's full purpose City limits or the Austin Water Certificate of Convenience and Necessity (CCN) boundary. Water service within this area falls within AWU's Central Pressure Zone (PZ) service area. Currently potable water from both the Ullrich Water Treatment Plant and the Davis Water Treatment Plant are distributed into the Central PZ. Existing COA wastewater collection system infrastructure is generally located west of SH 130, with limited extension east of SH 130 south of the Colorado River, including the South Austin Regional Wastewater Treatment Plant. East of SH 130 the City of Austin (COA) currently has limited water and wastewater infrastructure. Much of the area east of SH 130 is within the water and wastewater CCN providers other than the City of Austin. The City of Austin water CCN east of SH 130 is on the south side of the Colorado River near SH 130 (see the Certificates of Convenience and Necessity (CCN) - Water map). East of SH 130 the City's wastewater CCN extends south of the river and extends east to within just over a mile from the eastern boundary of the Corridor project area.



Currently reclaimed water is pumped from the South Austin Regional (SAR) Wastewater Treatment Plant west to serve customers west of SAR including the Roy Kizer and Jimmy Clay golf courses.

Future Austin Water Utility Service

Water and wastewater improvements east of SH 130 within the Austin Water service area will require significant additions to both the water distribution system and wastewater collection system. Approximately 93 percent of the project study area falls within the COA full purpose or ETJ limits, with the exception of the Webberville city limits. Other entities' water CCNs and wastewater CCNs encompass much of the areas east of SH 130.

Conceptual COA water transmission mains have been planned to extend east along FM 969, north-south paralleling SH 130, as well as east of FM 973 along SH 71 but will be contingent on future development in the area. Conceptual COA wastewater main extensions into the area are currently envisioned along SH 71 east to the SH 130 corridor. Ongoing negotiations with different developments could extend these utilities further east within the limits of the City's service area. Future infrastructure improvements typically require a COA service extension request to extend the existing infrastructure or some other funding mechanism.

Additional reclaimed water system improvements are planned west of SAR to incorporate the Austin-Bergstrom International Airport and the City's Hornsby Bend Bio-solids facility and areas east of US Highway 183.

Wastewater Certificate of Convenience and Necessity (CCN): There are five wastewater CCNs in the Corridor.

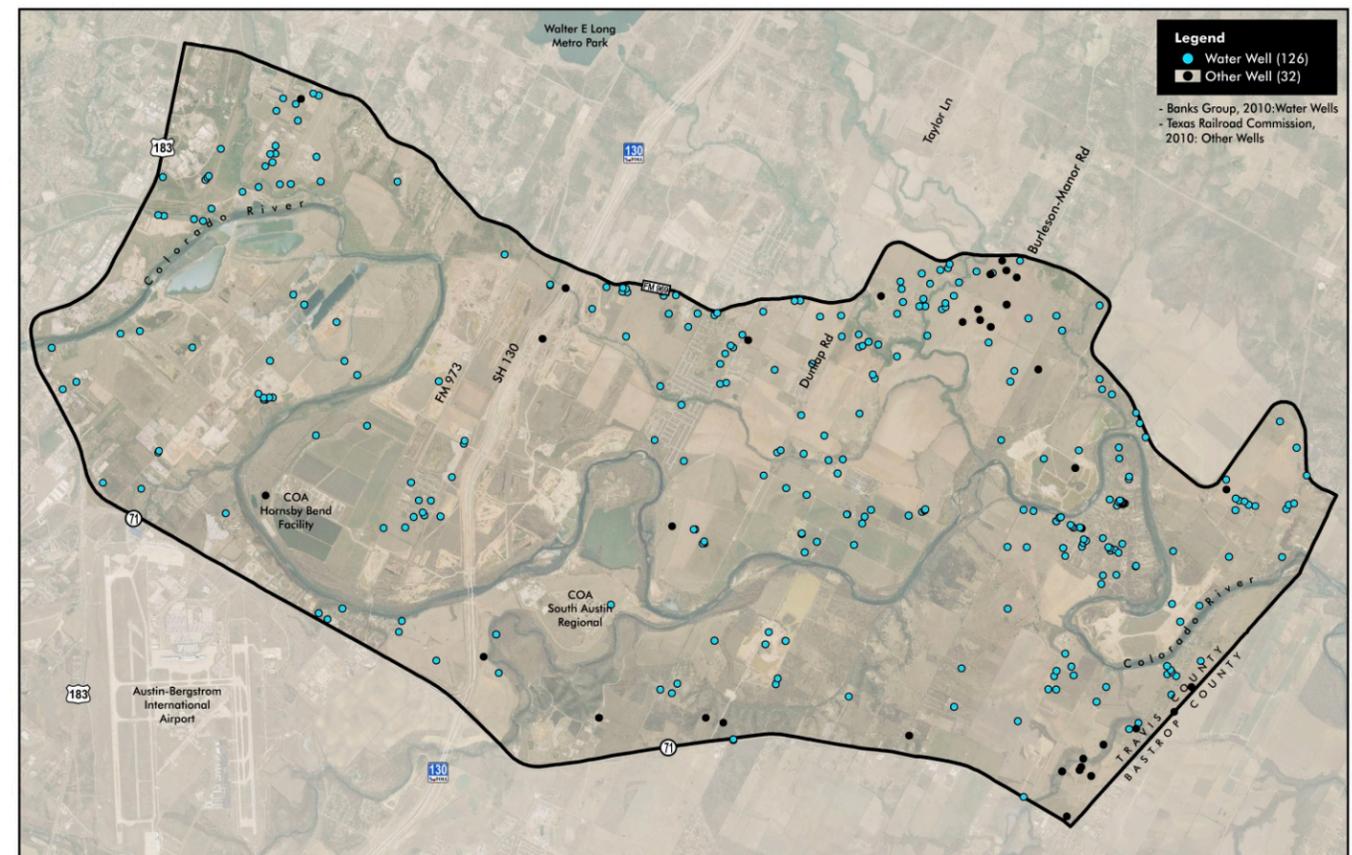
The largest wastewater providers are the City of Austin and the Hornsby Bend Utility Company, owned by Southwest Water Supply Corporation (WSC). The City of Austin has three wastewater plants in the Corridor, with the South Austin Regional Plant being the most centrally located, and potentially having the largest capacity of the three to handle future growth. Existing wastewater infrastructure is limited east of SH 130 due to the lack of an existing collection system in that area (see the Certificates of Convenience and Necessity (CCN) – Wastewater map).

Opportunities and Constraints

Nearly all the Colorado River Corridor is within certificated water service areas. This framework provides for the distribution of a safe and adequate supply of drinking water for residential and most commercial uses. The State of Texas Water Plan does not predict a shortage of water to meet the growing demands of population for the Corridor. Advantages of the corridor area include readily available and highly treated wastewater effluent for future reclamation and non-potable uses. There are two water supply planning processes in progress for the lower Colorado River basin. One is a statewide effort led by the Texas Water Development Board. Region K covers most of the Colorado River Basin. The second effort is being led by LCRA focusing on the lower Colorado River basin. The Water Supply Resource Plan developed by LCRA with stakeholder input is a planning document that includes water supply options to respond to the basins water needs over the next 90 years. More information on these efforts can be obtained from the TWDB and LCRA respectively.

Summary of Critical Issues

- Infrastructure capital expenditures for water supply will be needed to support the growing and expanding urban population in the Corridor.
- Infrastructure capital expenditures would be necessary for water supply of non-potable reclaimed wastewater to support turf and other irrigation needs from major sewage treatment facilities in the Corridor.
- Agricultural irrigation may not be cost effective when droughts occur.
- Long term water planning needs to consider the economy of scale in terms of supplying water from multiple and smaller utilities versus larger, more regionally-based utilities.



GROUND WATER SUPPLY

Existing Conditions

Geology and Ground Water: The surface strata over much of the Corridor consist of terrace deposits and stream or river alluvium, ranging in age from Pleistocene to Recent. The terrace deposits consist of sand, gravel, and clay, sometimes cemented with calcium carbonate. They occur at higher elevations than the more recent floodplain deposits. Thin sheets of gravel and sand representing old terraces are often found on ridges, called high gravel deposits. Stream or river alluvium is composed of up to 60 feet of unconsolidated material, chiefly gravel, sand, and silt. Underlying the terrace and alluvial strata is the Cretaceous-aged Navarro and Taylor Groups, massive beds of shale, siltstone, marl, and chalk with clay.¹⁰

The principal source of usable groundwater in the Corridor area is from the Colorado River alluvium and terrace deposits. This aquifer produces small to very large quantities of fresh to slightly saline ground water. The total effective annual recharge to the aquifer in Travis County is 6,000 acre-feet, principally from rainfall on the outcrop and tributary streams. The stage of the Colorado River is in constant contact with the aquifer and influences groundwater elevations and movement of groundwater through the alluvium.

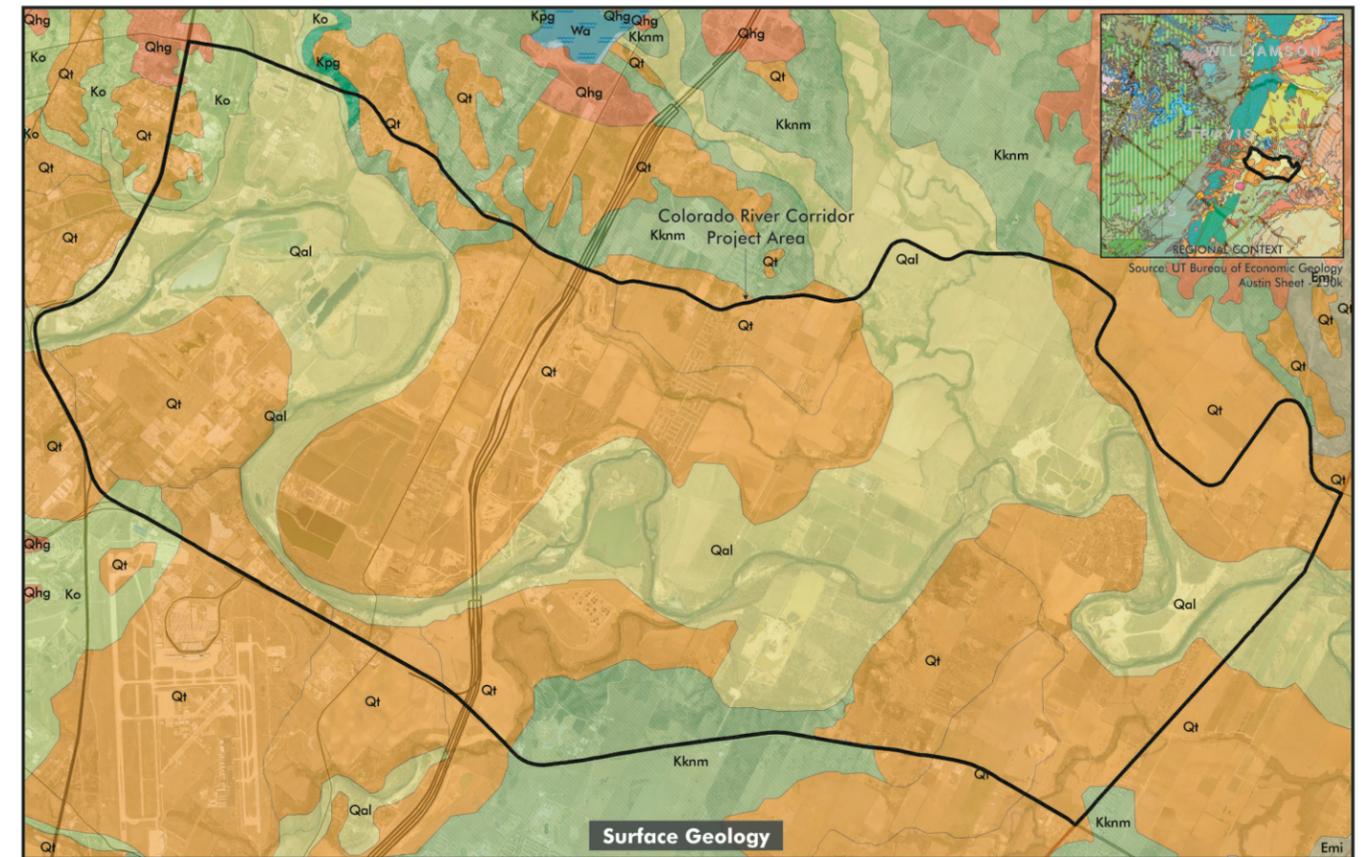
The Navarro and Taylor Groups can produce small quantities of groundwater, particularly in the weathered surface layers where fractures and shrink/swell cracking of the clay-rich surface occurs and conveys water into thin sand layers. Historically, many wells placed into these formations have since been abandoned due to unreliability.

Opportunities and Constraints

TCEQ estimated a constant annual withdrawal of groundwater from the terrace and alluvial aquifer as 5,553 acre-feet currently and into the future, recognizing the finite capacity of the system and a continued trend in the Corridor for drinking water needs to be met through surface water based distribution systems provided by water utilities. Approximately 66 percent of the groundwater withdrawn is for public drinking water supply with the remainder supplying private domestic wells, agricultural uses, and mining.¹¹ As a part of implementation, planners could look at the viability of projects to enhance aquifer recharge.

Summary of Critical Issues

- Groundwater supplies in the Corridor are greatly limited
- No groundwater conservation district (GCD) or similar authority is currently established to manage this limited resource.



¹⁰ This section summarizes information from Brune, Gunnar and Duffin, Gail L. June, 1983. Report 276: Occurrence, Availability, and Quality of Ground Water in Travis County, Texas. TDWR.

¹¹ Bereche, Abiy K. 2005. Updated Evaluation for the Williamson, Burnet, and Northern Travis Counties Priority

Transportation 5



Population- The preferred demographic scenario included in the CAMPO 2035 Plan assumes that the Centers concept (a development scenario that targets planning and investment into the development of a connected regional network of higher density, mixed use activity centers) will be implemented by the 5-county region for which it was developed. The following data is from the demographic forecast that was used in the development of the CAMPO 2035 Plan.

In the previous decade, Travis County's new population has occurred in low density single family development located beyond the existing City of Austin urban area. This type of growth is expected to continue and is expected to occur within the Corridor, see (Table 5-1, Population History and Forecast.) Within the Corridor, the current forecast shows an increase of approximately 7,500 persons from 2010 to 2035. Travis County and the Corridor within the same period show nearly the same increase in growth with the Corridor's increase a little greater than the County as a whole.

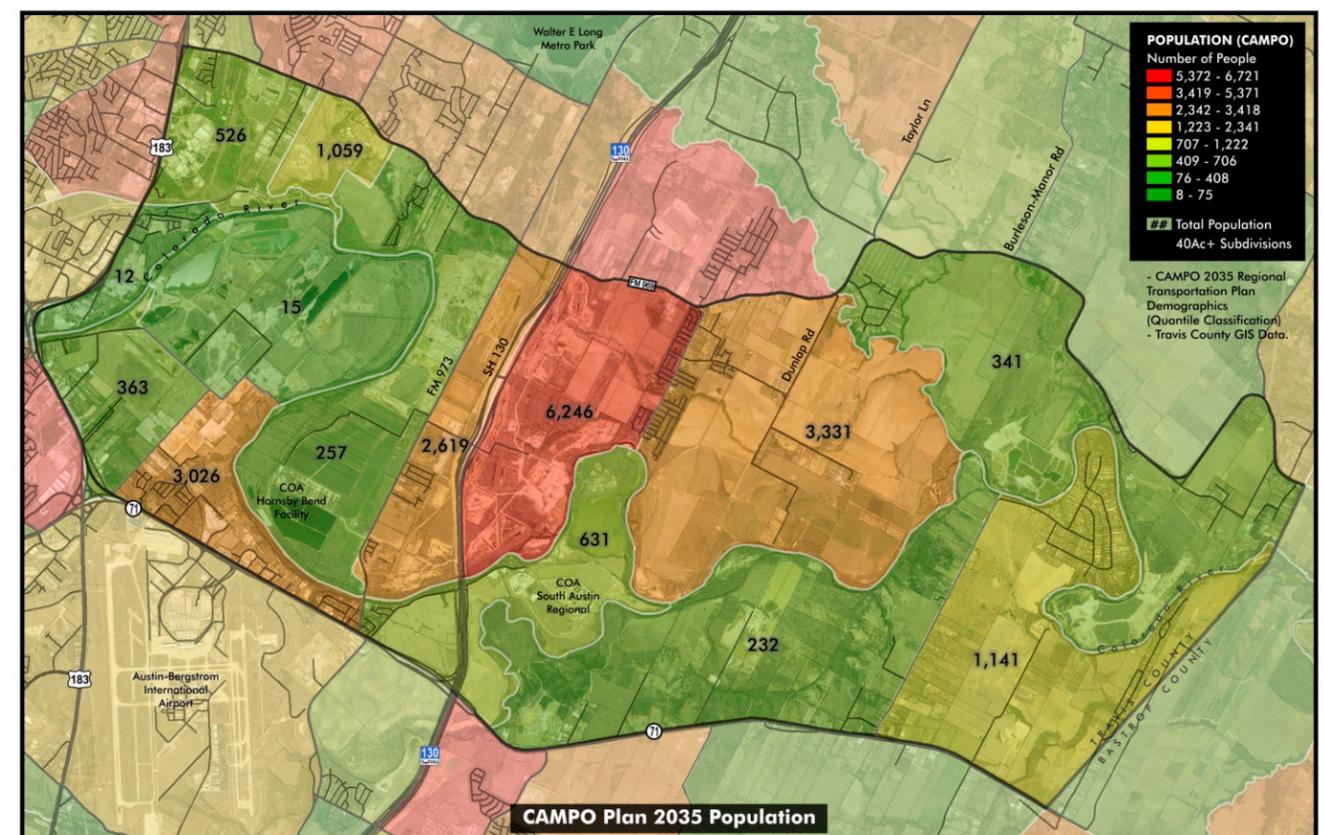
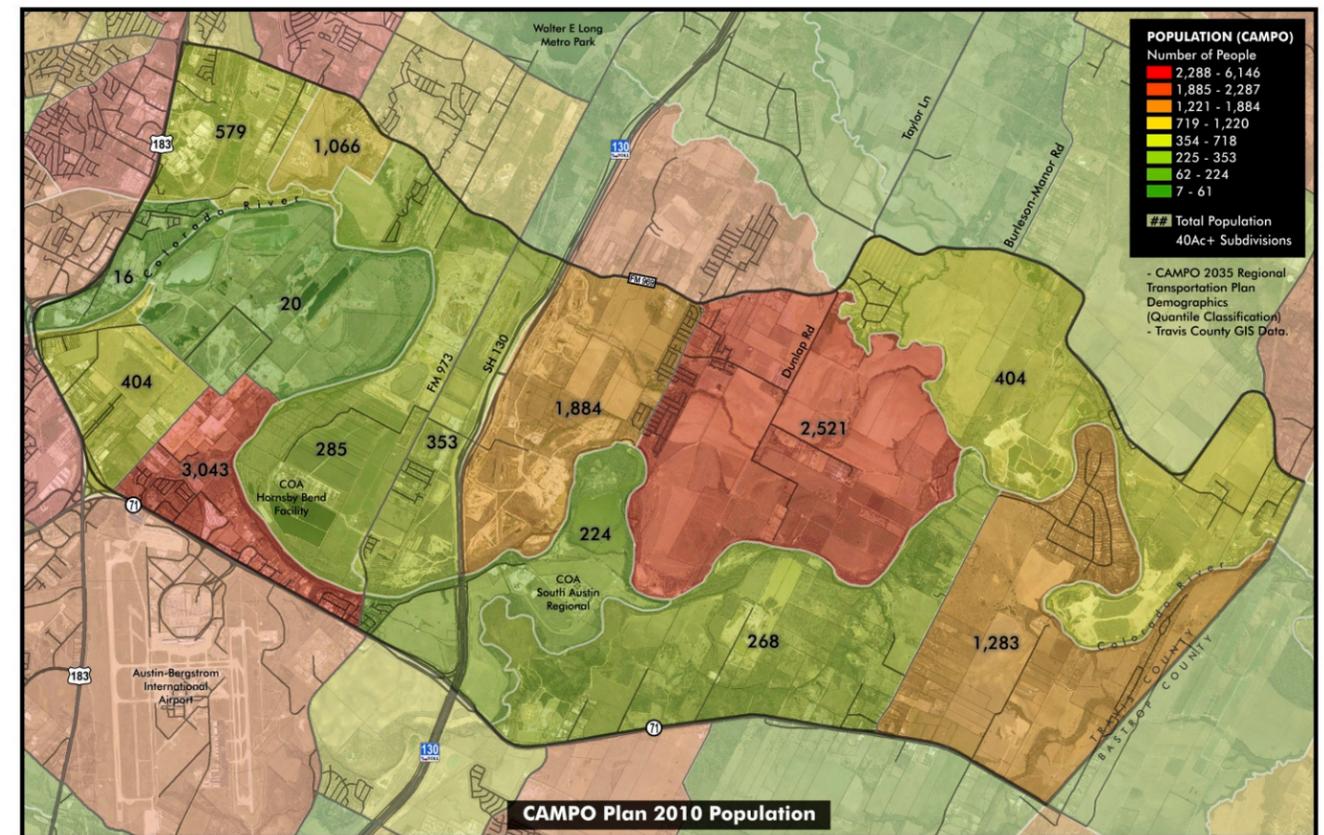
Table 5-1. Population History and Forecast.

	2000 Census	2010 Census	2015	2035	% Increase 2010-2035
Travis County	812,280	1,024,266	1,105,000	1,555,300	51.9%
Corridor	NA	12,350	NA	19,799	60.3%

Source: CAMPO 2035 Regional Transportation Plan, May 24, 2010.

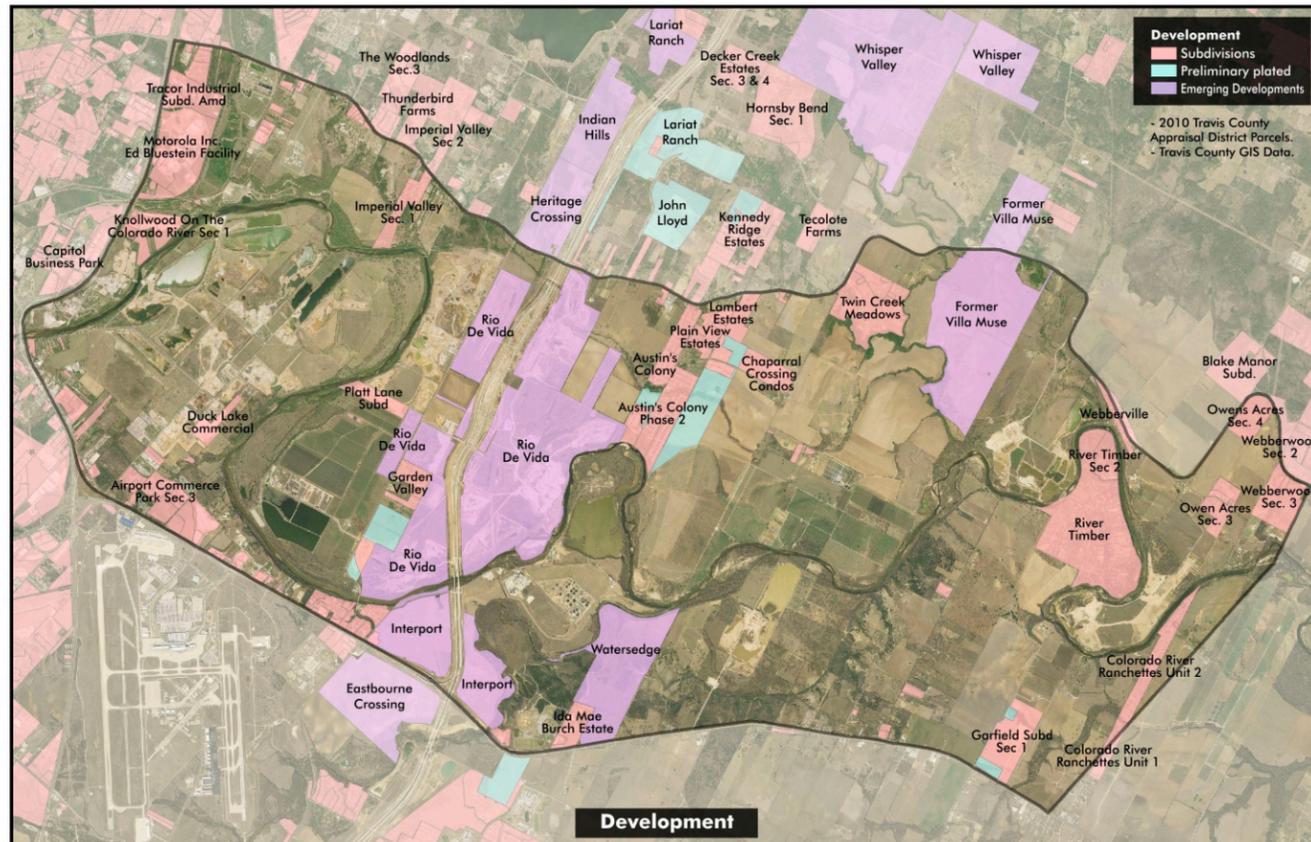
The CAMPO population forecast shows most of the population growth in the Corridor centering along SH 130 and FM 973. A portion of Austin's Colony and areas to the east show very limited and in some cases a decline in population by 2035. While the demographic forecast is based on a CAMPO Centers Scenario, it is expected that continued population growth will occur throughout the Corridor above what is shown in the forecast. Also, recent plans for development along FM 973 and SH 130 have shown more intense development than what is in the current forecast. Emerging developments outside the Corridor to the north, such as Whisper Valley, former Villa Muse and Indian Hills will also affect service levels on existing roads such as FM 969 and FM 973. With this under forecasting of population, it is expected that additional transportation improvements will need to be identified and planned within this area of the Corridor.

The United States Census Department's 2010 population numbers for Travis County show that Travis County grew by 26.1 percent from 812,280 persons in 2000 to 1,024,266 in 2010, making Travis County the fastest-growing county among the five most populous counties in Texas.



EXISTING TRANSPORTATION SYSTEM

The Corridor has experienced a large amount of growth over the past decade. This growth has led to increased traffic, which has led to congestion, increased travel times, and other associated consequences (i.e. conflicts with other modes). As the Corridor continues to grow and urbanize, transportation providers will be tasked to provide for new mobility opportunities that will affect the Corridor's surrounding economy and quality of life. While infrastructure opportunities will be provided through responses to need, other improvements will be identified to provide and reinforce a balanced multi-modal transportation approach within the Corridor.



The following is an inventory of the conditions of the existing transportation system that include transportation providers, demographic forecasts, functional classifications, major roadway inventory, constraint identification, safety issues including modal conflicts and public transit issues. The Colorado River Corridor will require a well planned and coordinated multi-modal system that allows for new transportation opportunities that do not currently exist or are very limited within the present Corridor. Those opportunities, including current planned transportation improvements, as well as the constraints are also examined.

Existing Conditions

Transportation Providers in the Corridor

Six transportation agency partners provide services within the Corridor: Texas Department of Transportation (TxDOT), Capital Metropolitan Transportation Authority (CapMetro), Capital Area Rural Transportation System (CARTS), Travis County, City of Austin and the Village of Webberville.

TxDOT- The Texas Department of Transportation is the State agency responsible for construction and maintenance of all interstate highways, U.S. highways, state highways, ranch-to-market (RM) and farm-to-market (FM) roads. The State is divided into 25 districts that oversee the design, location, construction and maintenance of area transportation systems. The Corridor lies within the Austin District which is comprised of 11 Central Texas counties.

CapMetro- The Capital Metropolitan Transportation Authority provides public transit services to areas that include the City of Austin, various cities within Travis County, and the unincorporated area within Travis County Precinct Two. Capital Metro is supported by a 1 percent sales tax, levied in the communities that it serves. Membership in the Authority must be approved by voters within each jurisdiction. Currently, the area of the Corridor outside the incorporated limits of the City of Austin is not served by CapMetro.

CARTS- The Capital Area Rural Transportation System was formed through interlocal agreement by nine county governments, including Travis County. CARTS provide transportation services for each of the 169 communities it serves. CARTS provides advance reservation, shared-ride van service within the Corridor using mini-buses and vans providing service to the general public, elderly and disabled paratransit service. Within Travis County and the Corridor, service frequency ranges from numerous times a day to once a month.

Local Jurisdiction Transportation Providers- The City of Austin, Travis County and the Village of Webberville provide local transportation services within the Corridor. These jurisdictions provide infrastructure improvements such as additional capacity, pedestrian and bicycle improvements and right-of-way and facility maintenance.

Transportation System Demographic Forecast

The Corridor is evolving from primarily agricultural and gravel mining land uses to areas of urban, suburban and rural residential development. With this change, populations have been increasing within the Corridor.

Employment- For the next 25 years, employment growth for the five-county region is expected to increase at a moderate rate. CAMPO projects that “the economy will continue to produce new jobs and that the employment base of the 5-county area will increase by 135 percent to 1.64 million jobs by 2035.”

Travis County's employment percentage increase from 2010 to 2035 is lower at 65 percent. However, 63 percent of the region's 1.64 million jobs will be within Travis County, continuing to make the County and Austin the region's major employment center. While the region and County have moderate employment growth rates, the CAMPO employment forecast for the Corridor shows significant growth at 177 percent, (see Table 5-2, Employment History and Forecast.) By 2035, approximately 11,400 additional jobs will be located in the Corridor than existed in 2010.

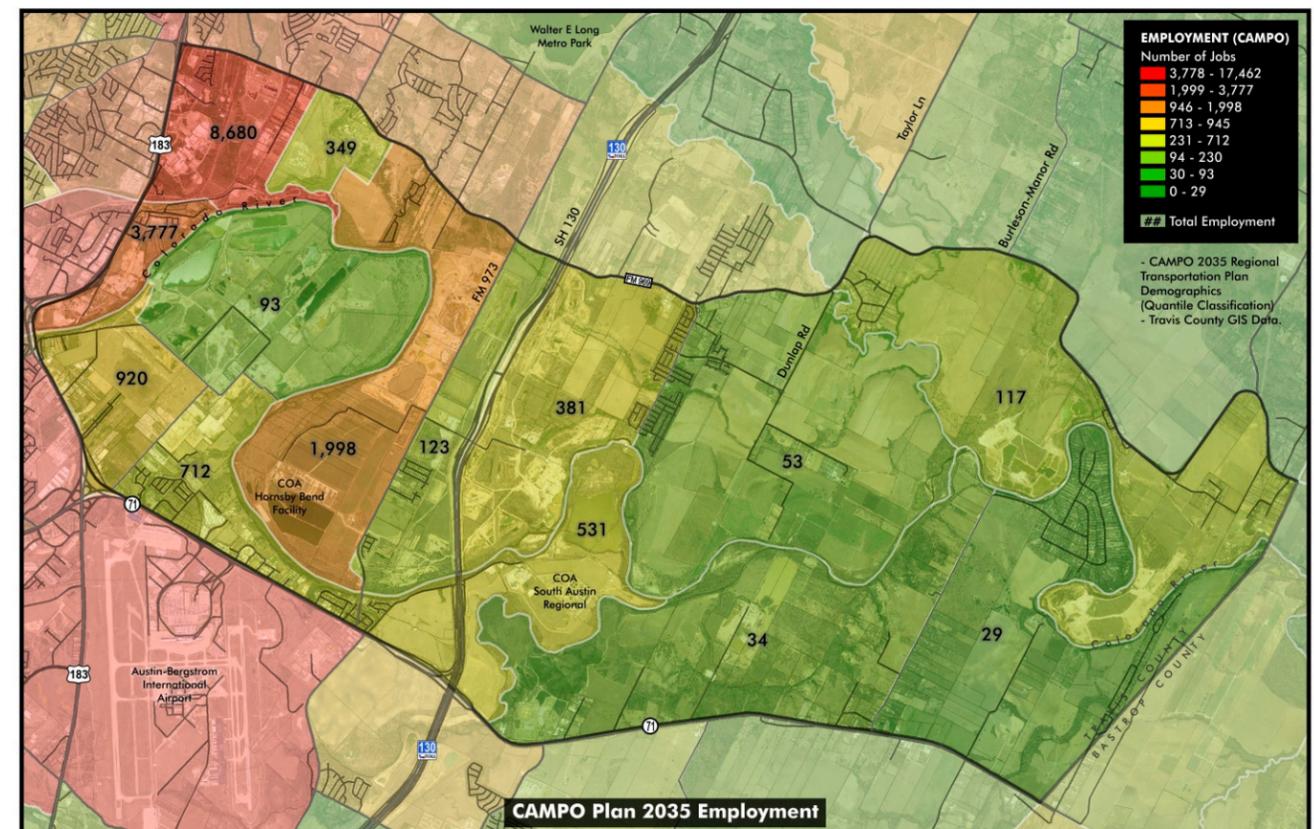
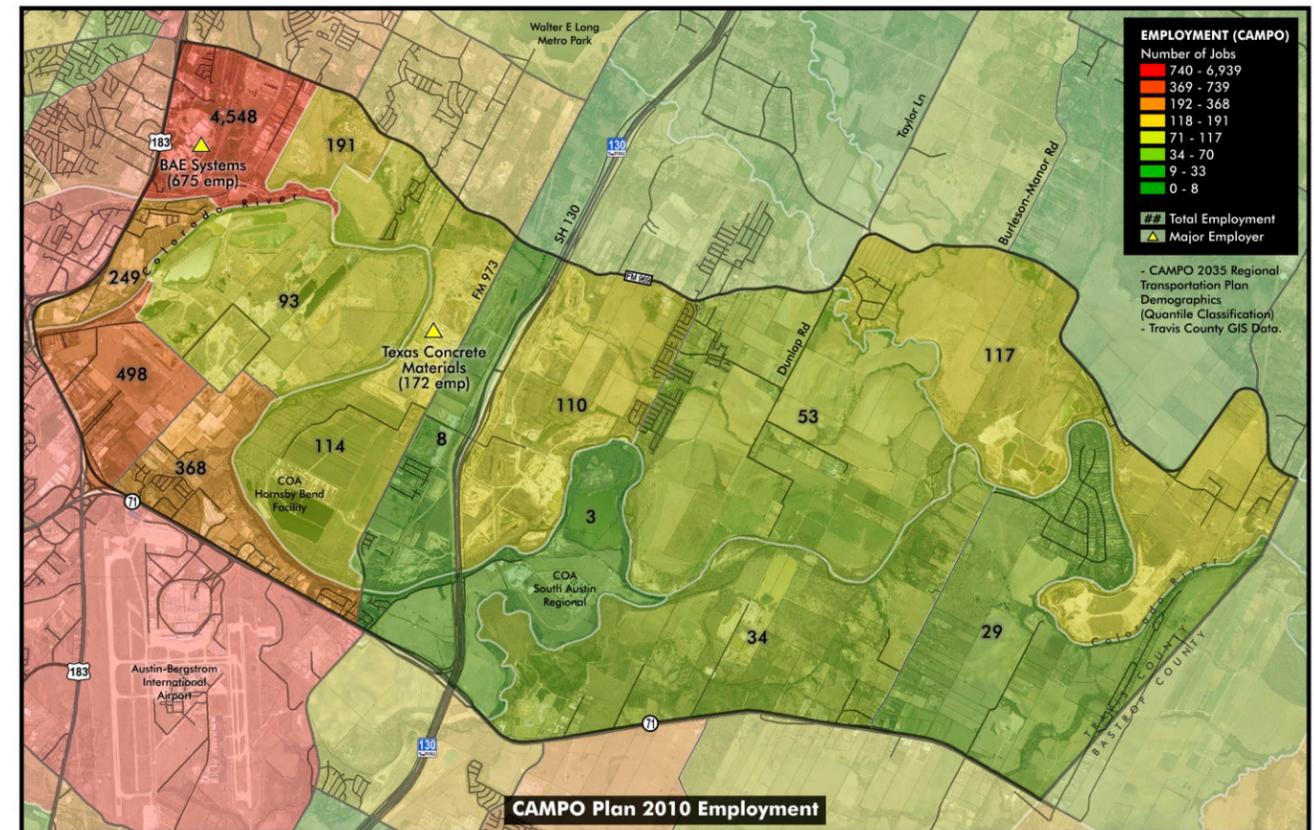
Table 5-2. Employment History and Forecast.

	2005	2010	2015	2025	2035	% Increase 2010-2035
Travis County	536,900	622,050	707,200	843,500	1,026,500	65.0%
Corridor	NA	6,415	NA	NA	17,797	177.4%

Source: CAMPO 2035 Regional Transportation Plan, May 24, 2010.

While job growth is projected in the Corridor, the forecast shows 95 percent of the existing jobs occurring west of SH 130. By 2035, that percentage only drops to 94 percent. It is expected the eastern Corridor will see more job growth than that shown in the CAMPO forecast since it is expected that mixed use developments will develop east of SH 130 and at nodes along FM 969 and SH 71 East. As with the population forecast, it is expected that more intense development along the SH 130 corridor will bring more employment than is currently forecasted by CAMPO.

With the potential under estimation of future population and employment growth mainly along SH 130 and FM 973 and areas in the eastern portion of the Corridor, it becomes even more important to provide increased future mobility to, from and through the Corridor.





- State Highway 71 East (SH 71 E) provides major east/west access through southern Travis County and the City of Austin. The highway provides the major access to the entrance of the Austin-Bergstrom International Airport (ABIA). Within the Corridor, the highway is classified as 4-lane divided major arterial with no bike lanes or sidewalks.
- State Highway 130 (SH 130) is a tollway from Interstate 35 (I-35) in Georgetown to US 183 and SH 45 SE at Mustang Ridge. Portions south of Mustang Ridge are now under construction; when completed in 2012, SH 130 will run in a 91-mile corridor east of the City of Austin terminating at I-10 in Seguin. Within the Corridor the highway is classified as a 4-lane divided toll parkway with no bike lanes or sidewalks.

Major arterials move relatively large volumes of traffic at high speeds (typically 40-45 mph) with limited conflicts from side streets and adjacent properties. Minor arterials, while similar to major arterials, typically have lower speeds (less than 40 mph), less capacity, and more direct access to adjacent properties.

- FM 969 forms the northern boundary of the Corridor. The roadway is mostly a rural, 2-lane, State-maintained roadway that travels east/west paralleling the Colorado River. The road begins as an urban 4-lane roadway through Austin and continues eastward, where it transitions to 2-lanes east of SH 130. The road has no bike lanes or sidewalks within the Corridor.
- FM 973 is a rural, 2-lane, State maintained roadway that bisects the Corridor and provides north/south access in eastern Travis County. The roadway exists as a 2-lane, undivided section between the City of Taylor in Williamson County to its terminus at US 183 South in southeastern Travis County. The roadway has no bike lanes or sidewalks.
- Dunlap Road is a 2-lane, rural arterial maintained by Travis County connecting FM 969 to mining operations near the Colorado River. The roadway has a mix of residential traffic as well as heavy truck traffic. The Travis County arterial is classified as a two lane, minor arterial with no bike lanes and sidewalks.

Collector and local roadways complete the hierarchy of the functional classification system. Collectors provide access from neighborhoods to the arterial street system, while local roadways are typically the residential streets that access individual neighborhoods.

- Hunters Bend Road/Austin's Colony Boulevard (Austin's Colony Park to FM 969) is a 2-lane collector that is the main access for the Austin Colony subdivision. The roadway runs north/south from the Austin's Colony Park to FM 969. Currently significant delays are associated with this road regarding school drop-offs at the existing Hornsby-Dunlap Elementary School and Dailey Middle School. Sidewalks exist along most of the roadway from Plain View Drive to Hartsmith Drive.
- Hunters Bend Road (Westall Street to N. Dunlap Road) is a 2-lane collector that provides access from Austin's Colony Boulevard to N. Dunlap Road. Sidewalks exist from Plain View Drive to McBay Lane. "No Through Truck" signs posted between Austin's Colony Boulevard and N. Dunlap Road restrict truck traffic from entering Austin's Colony subdivision.

Functional Classification

Most of the Corridor is defined as rural roadways that provide limited transportation capacity for the area. With continued population and employment growth, there will be continued and increased demand on the existing transportation system. How this demand affects the people living and commuting through the Corridor will depend on how well an efficient and safe multi-modal transportation network hierarchy is defined and developed. As identified in the Functional Classification Map, a hierarchy of roads does not currently exist within the Corridor.

Roadways are typically defined through functions related to capacity, speed, mobility and level of access. Higher functional classifications such as arterials allow for higher travel capacities and speeds but have limited access. Lower functional classifications provide lower travel capacities and speeds with more opportunities of access to adjacent property.

Freeways, expressways and highways are considered the highest functional classification. This classification moves large traffic volumes at high speeds with limited access and may include grade-separated intersections. The Corridor is bounded by two major regional highways (US 183 South and SH 71 East) and is bisected by a controlled access, tolled parkway (SH 130).

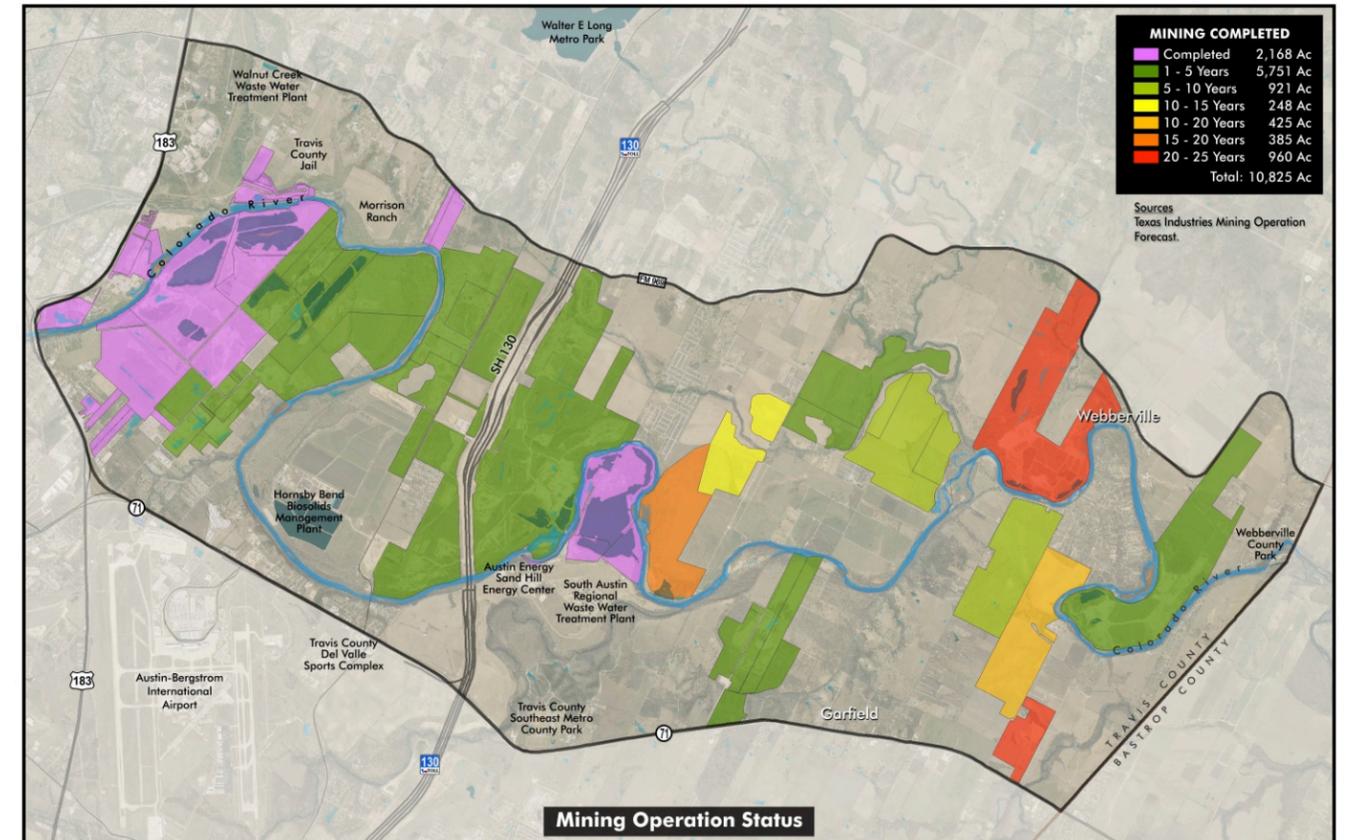
- US 183 South (US 183 S) is a limited access, US highway providing major access in the region from the communities of Leander and Cedar Park in Williamson County, bisecting Austin and continuing on to Lockhart and Luling in Caldwell County. Within the Corridor, the highway is mostly classified as a 6-lane divided major arterial with no bike lanes or sidewalks.

- Harold Green Road (FM 973 to terminus east of SH 130) is a 2-lane collector that has significant truck traffic accessing mining operations. Within the Corridor, it is the only available crossing point under SH 130 occurring between FM 969 and SH 71. There are no bike lanes or sidewalks.
- Caldwell Lane (SH 71 to River Timber Drive) is a 2-lane collector that provides connectivity to SH 71 for the River Timber subdivision and adjacent properties along the roadway. No sidewalks or bike lanes exist along the roadway.

Natural and Man-made Barriers

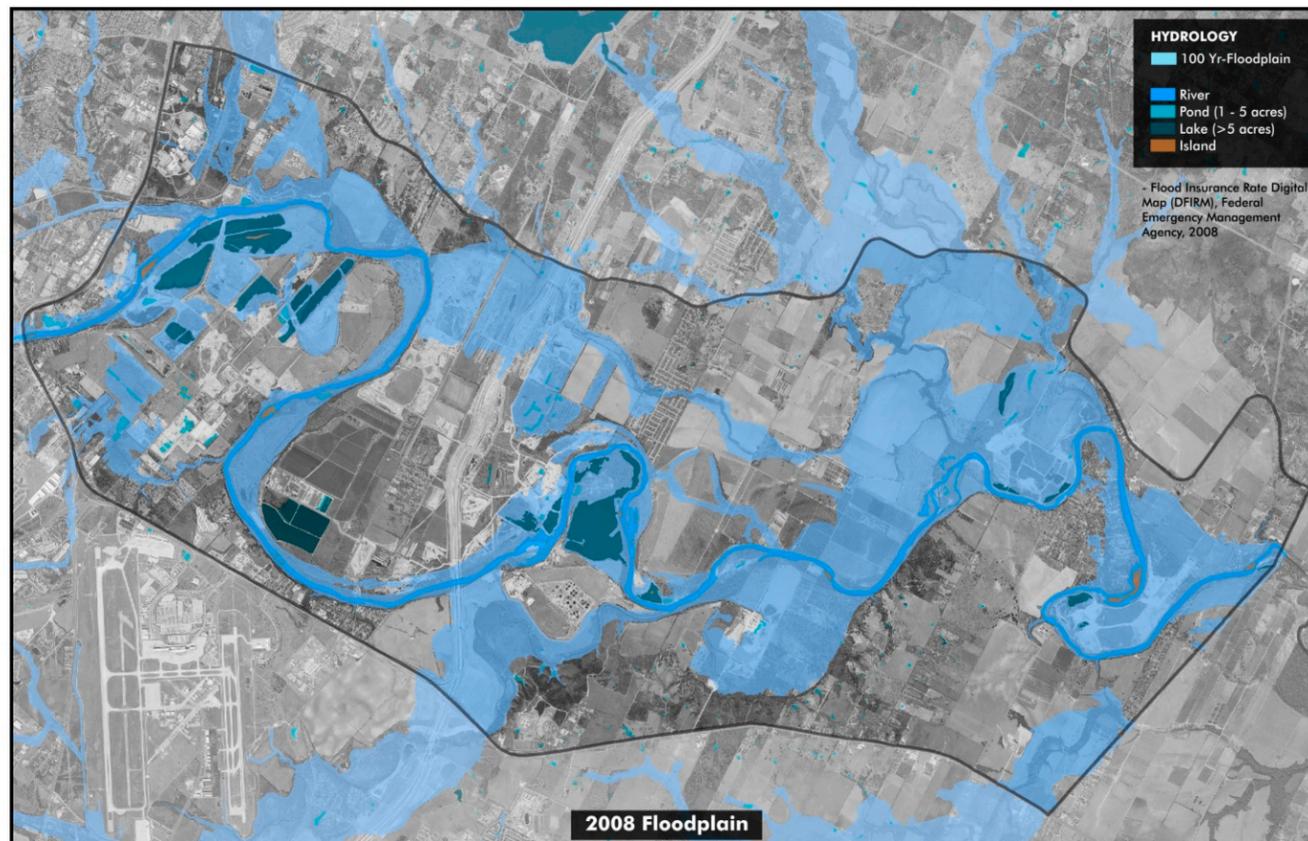
The Corridor faces several challenges in regard to providing for a safe and efficient multimodal transportation network. Many of these issues are inherent with the land and geography; their impacts on planned transportation facilities can be lessened if they are identified and actions are taken to mitigate those impacts.

- **Colorado River and 100-year Floodplains** - Connectivity problems are associated with temporary natural barriers and are hard to address and eliminate. While the Colorado River provides numerous benefits to the region, it does provide cost barriers to making transportation improvements within the Corridor. The costs of constructing new crossings can be prohibitive and, at the least, limited. Additionally, the Corridor is characterized by broad floodplains (Onion Creek, Elm Creek, Gilleland Creek, and Decker Creek) that create barriers to providing continuous through access. Again, providing bridge structures that bisect these floodplains



makes connectivity extremely difficult and costly.

- **Mining Pits** - Locations of construction materials underlying the surface in this corridor also limit the ability to provide for continuous connectivity. Since many of these areas will be mined with the potential of leaving deep pits behind, obstacles are created that are cost prohibitive to remove or cross.
- **SH 130** - The tollway provides limited frontage and ability to cross, making connectivity with FM 973 and US 183 difficult. Currently, the only location to cross under SH 130 between SH 71 East and FM 969 is at Harold Green Road.



Inadequate Road Capacity

Little additional capacity has been added within the Corridor in the last decade. The Corridor's rural 2-lane roads create several transportation challenges, including inadequate capacity, lack of adequate connectivity to higher capacity systems, and traffic congestion. In the past, roadways on the State's system were constructed, operated and maintained by the State with some participation by local jurisdictions to acquire right-of-way. In recent years, the responsibility to provide improvements to some of the State's local system roadways is falling to local jurisdictions which have also felt increased pressure to provide infrastructure improvements with dwindling revenue sources. Below are capacity and access issues that residents and staff have identified within the Corridor:

- Bottleneck development - poorly planned subdivisions,
- Lack of east/west roadways that connect to major thoroughfares. SH 71 East and FM 969 provide only east/west connections to City of Austin's urban core and are becoming increasingly congested,
- Limited ingress and egress opportunities from the Austin's Colony subdivision have caused peak hour travel time delays,
- Safety issues are related to motorists and pedestrian interaction in Austin's Colony neighborhood,
- FM 969 experiences congestion during the morning commute east of Hunters Bend Road,
- Lack of north/south roadways and bridges over the Colorado River, and
- Truck traffic from the mining project exacerbates the inadequate road capacity. This negatively affects local residents and commuters by contributing to traffic congestion and extended travel times.

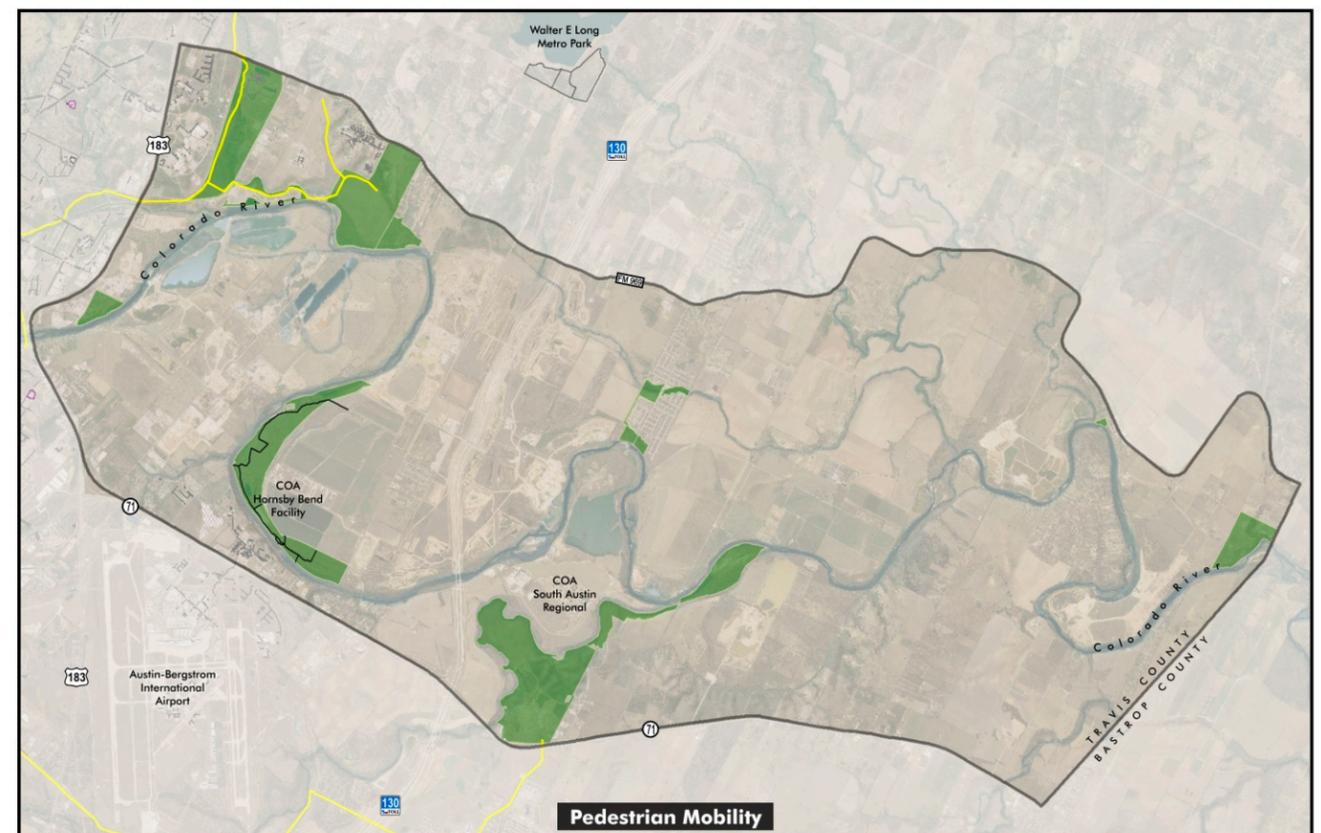
Safety

Road safety is a key focus to improve mobility on rural roads. A national statistic found that 56 percent of highway deaths occur on rural roads. Two lane rural roads cannot safely carry the heavy trucks and commercial vehicles used to transport freight.

The mix of local traffic, commuting traffic and truck traffic is another major challenge within the Corridor. Currently, truck traffic in the area is restricted to Dunlap Road since there are "no through truck" restrictions on Hunters Bend Road between Dunlap Road and Austin's Colony Boulevard. However, there is no alternative for truck traffic occurring along FM 969.

Bicycle and Pedestrian Existing Conditions

Safety of bicycle and pedestrian modes is another important focus in the Corridor. Historically, transportation and land use planning have focused on the automobile as the primary mode of travel. Bicycling and walking as effective forms of transportation in the Corridor are very limited. Given the forecast for population growth, flat terrain, and mild weather, conditions exist for bicycle and pedestrian modes to be viable means of transportation for daily and recreational trips; however, distances may not be suitable. Currently, parks, schools and greenways have limited or no facilities. Limited sidewalks exist along Hunters Bend Road providing access to Dailey Middle School and Hornsby Elementary School.



Public Transit

Much of the Corridor is outside the service area for Capital Metro. Small portions along US 183 and SH 71 do fall within the CapMetro service area and are currently served by CapMetro bus service. Low-density and long travel distances make developing and operating conventional bus and rail systems financially challenging. The Corridor can be described as an automobile-centered transportation system that leaves many residents with limited options.

Transportation costs create a barrier for many: U.S. households earning \$20,000 to \$35,000 and living far from employment centers spend approximately 37 percent of their income on transportation, while the average U.S. household spends about 18 percent of its income on transportation. The more a household spends on transportation, the less it has left over for food, medical expenses, childcare, housing and other essential costs.

Source: The Transportation Prescription: Bold new ideas for transportation reform in America, jointly published by Policy Link and Prevention Institute.

Opportunities and Constraints

New transportation investments in infrastructure will bring multi-modal opportunities that support the vision of the residents living within the Corridor. Envisioned are alternative modes of transportation which include a network of pedestrian and bicycle trails, transit and roadway improvements that alleviate traffic congestion mixing improved multi-modal functionality of the transportation network with the preservation of the environment and rural character within the Corridor. The following are transportation opportunities and constraints that have been identified within the Corridor.

Improve Connectivity of Modes and Between Modes

North/South and East/West Connectivity- Opportunities will be sought that support regional multi-modal connectivity as well as internal connectivity within the Corridor. New infrastructure will be limited by the ability to design around or fund expensive solutions to constraints such as former mining sites and floodplains.

Improve Hierarchy of Transportation System

Improved collector opportunities are needed that provide adequate access between neighborhoods, schools and to arterials that can relieve traffic congestion.

Improve Multi-modal Transportation Systems and Connectivity to Other Modes

New transportation alternatives such as improved bicycle and pedestrian pathways and public transit opportunities can create profound impacts within a region. These systems can help define patterns of growth and land uses and provide linkages to growth areas or activity centers. By connecting and providing multi-modal opportunities that link development, scarce transportation revenues are maximized on projects that create connectivity while helping improve the region's air quality of life.

Improve Safety along Arterials and Collectors

Opportunities to improve safety can be provided through less costly traffic management techniques

and safety improvements. Efforts to create better roads can range from low cost improvements, like road signage and median barriers, to higher-cost improvements, such as reducing dangerous curves or adding capacity.

Improve Public Transit Opportunities

The location of Austin-Bergstrom International Airport and the proximity to future mixed use development occurring in the Corridor provide opportunities to improve transit service. In order to gain additional CapMetro service, population/employment must be high enough to trigger incorporation into the service area. Providing a transit facility near SH 130/Harold Green Rd. that could serve as a connection to the proposed Urban Rail at ABIA would benefit the Corridor.

Balance Transportation Needs and Improvements with the Environment

Provide for multi-modal transportation projects to either create or improve conditions that can increase mobility while protecting the natural environment.

- Opportunities exist to provide multi-use trail connections to existing open space through parks and greenways in the Corridor
- With the addition of alternative transportation options (buses, public transit, bikes, walking, car share/vanpool/ride share, and working from home), air quality benefits are achieved
- Context sensitive design opportunities for new infrastructure exist within the Corridor that allow improved traveling experiences, such as parkways that front along greenways, scenic corridors along major arterials, and signature bridges
- Increased land use authority allowing counties to regulate land use could minimize traffic impacts by mixing uses that eliminate vehicle trips on major arterials within the Corridor

Transportation Funding Constraints

All opportunities to provide for new facilities and improvements will be met by increased competition for scarce funding resources. Many of these funding sources will be used to meet continuing maintenance needs of existing infrastructure. Stretched budgets will require local jurisdictions to seek alternative funding sources to provide for new infrastructure and to be able to prioritize improvements that are most cost effective.

Options are being discussed locally to close the gap in funding. One is raising the gas tax; TxDOT has estimated that raising the fuel tax, doubling the cost of vehicle registration, indexing the fuel tax to the consumer price index would raise \$77 billion over 20 years. Statewide needs over the same 20-year period have been estimated at nearly \$490 billion. Other options to increase funding include a local option sales tax, a vehicle miles traveled fee in lieu of a fuel tax increase, the creation of transportation reinvestment zones, and toll roads or private investment projects.

Current Planned Improvements in the Corridor

CAMPO 2035 Plan - In 2010, the Capital Area Metropolitan Planning Organization completed its regional transportation plan known as the CAMPO 2035 Regional Transportation Plan. This plan is a comprehensive, coordinated regional plan that incorporates planning efforts through 2035. The report indicates that projected growth throughout the region will significantly increase traffic congestion. The plan was developed using a centers concept, which targets investment into the development of a connected regional network of higher density, mixed use activity centers. Currently, CAMPO has allocated 50 percent of its federal Surface Transportation Program (STP) funds into development of projects that support the concept. The current CAMPO recommended projects for the next 25 years within the Corridor are as follows:

Arterial Improvements

TxDOT Short Term (0 to 10 years)

- FM 973 Bridge Replacement and Expansion - Construct replacement 6-lane bridge and approaches (1.2 miles north of the Colorado River to SH 71). Project will be initially striped as a 4-lane divided roadway. Let Year: 2012.
- SH 71 (E) - Engineering, ROW acquisition, utility relocation, and construction of grade separation at Riverside Drive and elimination of Signal at Thornberry Drive from just west of Riverside Drive to Presidential Boulevard. Let Year: 2014.
- US 183 (S) - Construct 6-lane turnpike with 3-lane non-tolled frontage roads in each direction from Springdale Road to Patton Avenue. Let year: 2015.
- SH 71 (E) - Reconstruct existing 4-lane rural arterial to 6-lane urban arterial with overpass at FM 973 from ABIA entrance to SH 130. Let Year: 2015.

TxDOT Long Term (15 to 25 years)

- FM 973 - Reconstruction of 2 and 4-lane roadway to a 6-lane divided roadway (Harold Green Drive to Pearce Lane). Let Year: 2026.

TxDOT/Travis County Short Term (0 to 10 years)

- FM 969 - Expand roadway to a 4-lane major arterial divided from FM 3177 to Hunters Bend Road. Pass through financing project, Travis County and TxDOT. Let Year: To be determined.

TxDOT Medium Term (10 to 15 years)

- FM 969 - Expand remaining roadway to a 4-lane major arterial divided from US 183 to Webberville. Let Year: 2020-2025.

Travis County Medium Term (10 to 15 years)

- Burleson Manor Road - New 2-lane minor arterial from FM 969 to SH 71 (E) (including bridge construction). Let Year: 2020-2025.

Public Transit Improvements Un-sponsored

Medium Term (10 to 15 years)

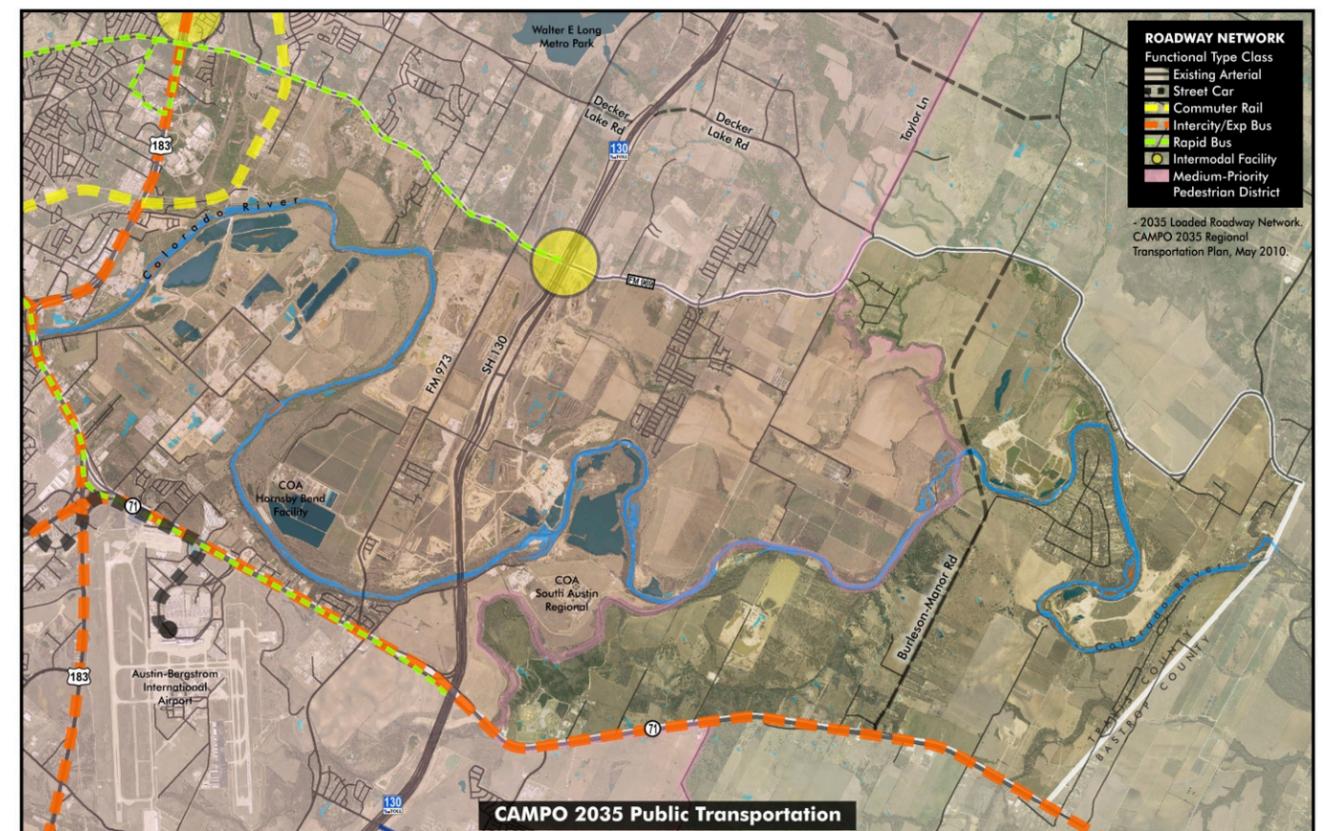
- Southeast Bus Only Lanes - Create Bus Only/High Capacity Lane in East Seventh/US 183 (S)/SH 71 (E) Corridor from Brazos Street to SH 130. Let Year: 2020-2025.

Long Term (15 to 25 years)

- FM 969 - Create Bus Only/High Capacity Lane from Lamar/US 290 to SH 130/FM 969. Let Year: 2026-2035.

CAMPO 2035 Illustrative List

The CAMPO Illustrative List is a part of CAMPO's current long range transportation plan and is used by Travis County as a transportation planning tool in the land development process. While the Illustrative List projects are not included in the financially constrained list, they would be considered for inclusion if additional funding were identified, thereby allowing the use of federal funds. The Illustrative List allows the County to request from developer's participation in right-of-way acquisition and in the construction of arterials in the land development process. Projects within the Corridor identified in the Illustrative List are:



Arterial Improvements Travis County

- Arterial B (Gilbert Ln.) (FM 969 – Harold Green Rd.) - Construct new 2-lane minor arterial.
- Arterial C (Deaf Smith Blvd. – FM 969) - Construct new 2-lane minor arterial.
- Deaf Smith Blvd. (Arterial C - Northbound frontage of SH 130) - Construct new 2-lane minor arterial.
- Dunlap Road (Dunlap Road S – FM 969) - Widen to 4-lane divided arterial.

Collector Improvements Travis County Short Term (0 to 10 years)

- Gilbert Road Extension (Hunters Bend Rd – FM 969) - Construct 2-lane collector. Let Year: 2013
- Sandifer Street Extension (Extend to Gilbert Rd Extension) - Construct 2-lane collector. Let Year: 2013

Austin Bicycle Master Plan 2009-Non-motorized Transportation City of Austin and Travis County

The trails listed below are included in the 2009 Austin Bicycle Master Plan. The opportunity to create an extensive trail system exists due to the City of Austin water quality buffer zones and extensive floodplains that exist in the Corridor.

- Onion Creek Greenway (Route 963)
- ABIA Connector Trail (Route 923)
- Colorado River Trail (Route 912)
- South Boggy Creek Greenway (Route 976)
- Williamson Creek Greenway (Route 974)

Summary of Critical Issues

The Colorado River Corridor over the past decade has continued to see increased development activity. With this growth, increased traffic has led to congestion, increased travel times, and traffic safety issues. An improved transportation system for the Corridor will require a well planned and coordinated multi-modal system that allows for new transportation opportunities that do not currently exist or are very limited. To provide for a balanced transportation system, it is important to continuously assess the existing system and identify the opportunities and the constraints that can increase the quality of life of the residents that commute from and through the Corridor.

- Continued growth in the Corridor and region will cause increased congestion, safety conflicts and environmental impacts.
- Environmental constraints and man-made barriers that increase infrastructure costs require increased attention to mitigate costs as well as losses in connectivity.
- Inadequate capacity of the rural road system will require a hierarchy in roadway classification to develop an efficient system.
- New transportation alternatives, such as facilities for bikes, pedestrians and transit are needed to provide for alternatives for work and recreational trips and for low income residents that are severely impacted related to transportation costs.
- Opportunities to provide for new transportation infrastructure and new design considerations must be developed to take advantage of the environmental features in the Corridor.
- Projects will compete for scarce funding sources which will require local jurisdictions to identify the

- most beneficial improvements related to mobility that are cost-effective.
- Low density and long travel distances.

Parks and Land Conservation 6



PARKS AND LAND CONSERVATION

This section discusses both those lands that are dedicated for public use or conserved for the public good to protect natural resources, working farms and ranches, wildlife habitat, community character, or scenic landscapes. Sometimes these missions overlap: parks include lands worthy of conservation and conservation lands may allow public access. This section does not address rare and endangered species habitat.

Existing Conditions

Travis County and the City of Austin have nine parks in the Corridor totaling 1,222 acres. Many of these are relatively new. Since 1997, Travis County, drawing from approximately \$23 million of voter-approved park bond funds that have been ear-marked for Corridor improvements, has added 400 acres of parkland and built many new recreational facilities in parks falling within the limits of the Corridor. The City has also made substantial investments: since 1997, the City Parks & Recreation Department has invested approximately \$8,432,000 within the corridor in land acquisitions. The parks, all of which are sited on the Colorado River or one of its tributaries, have a strong natural resource base, provide opportunities for youth and adult athletic activities, and form the foundations of an extensive greenway system. Travis County is also starting to incorporate interpretive facilities – such as the forthcoming mosasaur-themed playground at Southeast Metropolitan Park (SEMP) – in its Corridor park system. All land that has been acquired for conservation reasons in the Corridor has been done so as part of the park systems.¹⁰ Parkland will be obtained through parkland dedication, landowner donations, conservation easements and fee-simple acquisition.

Travis County's Role: Travis County's historic role as a park provider in the Corridor centered on Little Webberville and Webberville parks and was to provide places to picnic and access the river. Starting in 1997, however, Travis County built one of its first metropolitan parks - Southeast Metro Park (SEMP) - to meet demand for sports facilities in the growing Del Valle area and protect more than 100 acres of steeply sloped woodlands along Onion Creek. In 2005, the County's role expanded again with its initiative to build greenways along creeks in eastern Travis County for recreational and ecological purposes. The Onion Creek greenway is its top priority and the Gilleland Creek greenway, its second. This initiative is continuing with funds approved by voters for this purpose in the 2011 bond election. As a matter of policy, Travis County acquires land, builds, and maintains facilities but does not offer recreational programs, nor does it build or manage neighborhood parks.

¹⁰ Although neither parkland nor a land conservation area, the City of Austin's Hornsby Bend Biosolids Management Plant is regularly open to the public. Managed to encourage wildlife because of the diverse habitat found along its 3.5 miles on the Colorado River, it is nationally known as one of the best birding sites in Texas – harboring over 370 species of birds and an abundance of other wildlife. The site is, also, a destination on the TPWD Heart of Texas Wildlife tourism trail.

City of Austin's Role: The Parks and Recreation Department's (PARD) vision is to preserve the natural character of the Colorado River Corridor and to provide public access to the river for passive and active recreation. In PARD's Long Range Plan land acquisition along the Colorado River Corridor is a high priority. The citizens of Austin have invested heavily in the growth and development of the Lady Bird Lake Corridor, just west of the study area, as well as the parkland acquired within the last 25 years east of U.S. 183 with the passage of various bond initiatives. Most recently, PARD has acquired over 600 acres within the study area with the hopes of developing public access to the river, creating a trail system, and possibly some active recreation. PARD has also worked closely with Travis County Parks in their planning efforts to connect the county parks system with other City of Austin parkland along Onion Creek.

Table 6-1. Colorado River Corridor Parkland and Facility Inventory.

	Acres	Boat Launch	Fishing Pier	Picnic Facilities	Playgrounds	Hiking Trails	Multi-use Trails	Soccer Fields	Ball Fields	Basketball Courts	Volleyball courts
Travis County											
Blue Bluff Park*	80										
Confluence Park*	100										
Little Webberville Park	6	v		v	v						
Southeast Metro Park (SEMP)	299		v	v	v	v	v	v	v	v	
Webberville Park	135	v	v	v	v			v	v	v	v
City of Austin											
Colorado/Walnut Creek Park	100										
Morrison Ranch*	320										
Austin Colony Park	9										
Onion Creek Wildlife Sanctuary (Nature Preserve)	173					v					
Total Acres	1,222										
* Undeveloped											

Opportunities and Constraints

Appreciation of the Corridor's Natural and Cultural Resources Grows

A greater appreciation of the Colorado River Corridor's natural, recreational, and cultural value has taken hold in the Austin metropolitan area. Its beginnings can be traced to 2003 when the Austin-Bastrop River Corridor Partnership (ABRCP) formed to foster dialogue among residents, landowners, business interests, government, and other stakeholders about the future of the Colorado River Corridor. Since then, other programs have focused positive attention on this area:

- Voters approved \$15 million in a County bond referendum in 2005 to acquire parkland and

develop the first phase of the Onion Creek Greenway; and in 2011 approved both \$13.3 million to build the second phase of improvements for the Onion Creek Greenway and \$16.6 million to continue parkland acquisition along Onion Creek and Gilleland Creek,

- ABRCP releases “Discovering the Colorado: A Vision for the Austin-Bastrop River Corridor” in 2006 describing stakeholder interests and the ecology, history, and present day conditions of the Corridor, and
- The Trust for Public Land (TPL) releases “The Travis County Greenprint for Growth” in 2006, identifying eastern Travis County’s floodplains as the largest concentration of high priority land needing to be conserved.

Today, the trend continues with City of Austin’s targeting of eastern floodplains for conservation and protection in their Imagine Austin Comprehensive Plan.

Land Restoration within the Corridor

A critical part of land stewardship is restoration of disturbed and degraded areas in the study areas. In particular, riparian restoration should be conducted through cooperation of public and private parties following a well-developed restoration plan that is supported by the best available research and benchmarked success in similar corridors.

Greenways Serve Multiple Purposes

Travis County decided to develop greenways as part of their park system in eastern Travis because they serve multiple purposes:

- As parkland, greenways are places where people can recreate outdoor. Their linear boundaries accommodate extended trail systems that are popular in the Austin metropolitan area. They connect parks, neighborhoods, schools, and other community centers; and sports and passive recreational facilities can be sited along their length.
- There is currently little public land in the Corridor that is predominantly in a natural state. So the large swaths of the greenways that are to be maintained as natural areas will provide people living in this part of the county the opportunity to enjoy nature close-to-home. Because floodplains define the length and breadth of these greenways, the natural areas will consist initially of existing undisturbed bottomlands along the river and creeks. As the land is managed to enhance its natural function, the bottomland woods and grasslands that covered the land before Europeans began harvesting lumber and clearing the land for agriculture in the 1800s will be restored. These areas will become habitat for wildlife as well.
- The scenic quality of the area will be greatly enhanced as the woods and grasslands return. Greenways are visual amenities that people may enjoy when they visit parks, drive past, or live nearby.
- By protecting riparian zones and bringing disturbed bottomlands to their proper functioning condition, important ecosystem services are improved. The impact of storm water is mitigated, surface water is filtered, and groundwater recharged (see Appendix A: Bottomland Restoration for more information about the importance of riparian zones).

Leveraging Public Investments

Public investments in Corridor greenways can be leveraged in two significant ways: 1) connect public land to privately-owned, City-required Critical Water Quality Zones (CWQZs) along waterways. These total approximately 5,000 acres in the Corridor and have the potential to connect to other metropolitan trails such as the Lady Bird Lake Trail; and 2) work with developers to incorporate dedicated parkland into the greenway system. Sometimes, because developers appreciate the value of having access to greenways as an amenity for their subdivision, they offer larger tracts of land than required by the parkland dedication ordinance.

Travis County Conservation Easement Programs

Travis County has initiated a program to conserve land through conservation easements that may benefit the corridor. Texas Senate Bill 1044 was passed in the 82nd Legislature Regular Session granting counties the authority to finance the acquisition of conservation easements. The County executed its first conservation agreement soon after, and has kicked off a land conservation initiative with \$8.3 million allocated for this purpose in the 2011 bond package that was approved by voters in November 2011.

Summary of Critical Issues

- Perhaps the most critical issue relative to building a park system that is centered on the creeks and river in the Corridor is acquiring parkland before it is slated for development or mining. Obtaining funds for parkland acquisition, as well as building park facilities, is the biggest obstacle to accomplishing this goal.
- Once parkland with bottomlands is acquired, protection or restoration of the riparian zone ecosystem services is a major objective. For this purpose, land management plans need to be prepared and operation and maintenance (O&M) funds dedicated to this initiative.
- In addition to obtaining capital to purchase parkland, funds for the ongoing O&M of an expanded park system need to be allocated to this purpose (Whereas the county is responsible for maintaining parks, it is in the interest of the County to have other parties manage land conservation easements).
- Development of a restoration plan for the corridor to address disturbed riparian areas with the objective of maximizing ecological, hydrological, public use and water quality functions in the study area should be pursued through a public-private partnership.



Corridor Plans 7



CONCEPT PLAN AND GOALS FOR THE CORRIDOR

The process of establishing a concept plan and goals provides an opportunity for stakeholders to learn about key opportunities and constraints and to discuss the core function(s) of the Corridor. The Corridor serves multiple functions. The suggested goals and actions acknowledge the need to balance competing desires, as different strategies may be appropriate according to context (e.g., rural versus urban/village).

The Corridor Plan (see page 40) provides a vision of desired future conditions within the Corridor – from both a land use and a transportation perspective. The goals and objectives outlined below, along with the implementation strategies in Section 8 support the Plan and lay out desired long-range outcomes to be achieved.

The initial set of goals for the Corridor Plan that were established by the advisory group served as the starting point for this activity, which involved developing consensus across a broader set of stakeholders.

The Corridor concept plan and goals should:

- Establish a unified concept across jurisdictional boundaries, while recognizing different corridor development contexts (e.g., urban versus rural);
- Consider the range of social, economic, and environmental issues;
- Reflect existing roadway designations (e.g., functional class, access management category, truck route, scenic byway);
- Reflect existing policy documents such as local comprehensive plans and statewide and regional transportation plans;
- Incorporate and reflect current public input about how local residents view their communities and the transportation corridor; and
- Recognize the needs of those who may not be well-represented within the Corridor planning process, such as through travelers from outside the study area or visitors.

The concept plan and goals statements are supplemented by graphics and maps showing the roadway context (urban, transitional, rural) and growth policy areas (e.g., village conservation areas, designated growth centers, rural conservation areas), as well as by illustrations of typical development patterns and roadway cross-sections specific to these areas (See page 39).

GOAL 1: Conserve and Protect Natural Resources

Protecting natural systems is critical to human, plant, and animal health and well-being. The concept of natural community planning calls for the protection of natural communities and habitats. Local governments are working to protect habitats from both a regulatory standpoint but just as important from reasonable incentives for private landowners. Both public and private sectors participate in land stewardship that can protect and manage natural resources. The following objectives support this goal.



1. Protect and restore natural areas.
2. Protect and restore water quality.
3. Integrate floodplain management with natural area preservation.
4. Enhance conservation of limited ground and surface water supplies.

GOAL 2: Improve Quality of Life

Quality of life is an essential consideration in a person's decision to live in a community or a business' decision to locate there. In order to attract new residents as well as make the corridor livable for those already residing there, an attractive physical environment and necessary services and facilities need to be provided. The following objectives support this goal.

Parks and Greenways

1. Build a park system that is accessible and meets residents' needs.
2. Develop a comprehensive, interconnected system of parks and greenways within the Corridor.
3. Enhance economic viability of parks and greenways.
4. Support sustainable operation and management of parks and greenways.
5. Develop the park and green space as a foundation in community development.

Corridor Pattern and Design

1. Build high quality structures and public spaces in the time honored tradition of civic commitment to lasting public works.
2. Protect and enhance cultural and scenic resources.
3. Establish regional, village, and neighborhood identities.
4. Support school initiatives to maintain viable and safe school sites.

Health, Safety, and Welfare

1. Provide for safe and effective access for life safety services.
2. Develop a flood management strategy that provides better protection and preserves assets.
3. Enhance air quality.
4. Minimize and manage ambient noise and light.
5. Enhance availability of potable water and wastewater treatment.
6. Advance energy conservation.
7. Instill community resiliency.
8. Provide fair and equitable regulatory environment.

GOAL 3: Provide Improved Mobility and Transportation Choices.

Transportation has and will have a profound impact on the Corridor. Various travel modes not only respond to growth, they can also be a primary determinant to the patterns of growth and land use. Transportation investments can determine where and how we live.

Roads have a significant impact on the quality of the Corridor. Roads can make up the majority of our public spaces. In some communities, roads and related infrastructure occupy more land than parks

and greenspace. Therefore, we must plan and design our transportation system with consideration for those who live with it as well as those who use it. The following objectives support this goal.

Mobility

1. Provide for efficient and safe highways and roadways.
2. Improve connectivity and access of people and goods.
3. Reduce congestion.
4. Provide cost-effective opportunities in the development of transportation facilities.

Bicycles and Pedestrians

1. Provide a connected network of non-motorized transportation facilities connected to local and regional destinations.
2. Provide a multi-use trail network that improves mobility as well as supports recreational opportunities.
3. Provide for safe and efficient connections throughout the Corridor.
4. Transportation facilities should be designed to encourage bicycle and pedestrian usage.

Transit

1. Provide for public transit services that improve affordable and accessible transportation alternatives.
2. Encourage transit oriented development within Corridor activity centers.
3. Identify and implement strategies to take advantage of opportunities for new transit opportunities and connections within the corridor.





What does the Corridor look like in the future?

The Corridor Concept Plan is envisioned to maintain a rural, agricultural character while still allowing for the planned growth expected to occur over the next 25 years. In achieving this goal, high density growth would occur closer to the city limits in the western half of the Corridor and along major transportation corridors, but would scale down in density near the river and the county line to a more rural/ agrarian lifestyle in the eastern half.

Large areas of the Corridor would be used as working lands, providing food for the table, hay for livestock, growing grounds for nurseries and natural resources that the region needs to sustain itself. People living in this area would continue to enjoy a suburban-rural way of life. Rural roadway setbacks along FM 969 would help preserve the visual character of the Corridor as one drives into the city.



Residential communities emerge as you move closer to the city and away from the river. Housing types for all stages of life would be found in close proximity to neighborhood parks with multi-modal trails leading to the Colorado River and shopping. Schools and civic support services would be embedded within the heart of the community and supported by the residents living in the community. Tree lined streets would be designed for people and cars with generous sidewalks and on-street parking.

Along major transportation corridors people from throughout the region would have the opportunity to work, shop and live. The visual clutter of parking lots, utilities and stand alone buildings would be instead replaced with an interconnected system of streets, sidewalks and parks that define a more urban setting as you move closer to downtown Austin.



How to Use the Concept Plan

While not intended as a regulatory code, the concept plan is a guide for the form and intensity of future development in the Corridor and is organized around “intensity zones.” These intensity zone classifications are further explained in the following section. There are three major intensity zones in the Corridor: **Rural, Neighborhood and Urban**. For every intensity zone there is also an applicable conceptual development transect and associated street sections. The transects and street sections may work together in many different combinations and scenarios depending upon where the growth is located in the Corridor. For instance, an urban transect may adjoin a rural transect with a rural roadway type intersecting them. The transects and street sections illustrate the conceptual form development may take. Appendix D, at the end of this



booklet, includes an illustration of a complete transect depicting all three intensity zone scenarios.

Future roadway alignments/upgrades and greenways are also illustrated in the concept plan. Roadway alignments are classified by type and further classified by the intensity zone they fall within. Multi-modal trail expansions are also illustrated and proposed connections to existing parks and open spaces are suggested. In many cases streets and trails work in concert to move pedestrians and cyclists throughout the Corridor. Full size copies of the conceptual transect models and street sections can also be found in Appendix D.

Description of Intensity Zone classifications and Definitions

Rural Intensity

Working lands of farms, ranches, orchards and resource extraction that support land-based livelihoods and rural ways of life. Environmentally significant land, waterways and natural habitat are also found in these areas and should be protected when encountered. Rural residential densities are typically one dwelling unit per 2 acres or more.

Neighborhood Intensity

Neighborhoods are the basic building block of development within the Corridor. They are scaled upon a 1/4 mile walking radius and contain a mix of uses that include residential, neighborhood retail/ office, civic, and recreation. Typical residential uses include single-family homes, duplexes and townhomes at densities of 4 to 10 dwelling units per acre.

Urban Intensity

Areas along high traffic roadways with mass transit opportunities that have development potential to accommodate large business and retail uses. These areas should include a variety of residential uses/ recreation opportunities and are encouraged to provide a place for office and retail that would not be compatible in a neighborhood setting. Typical residential densities are from 12-40 units per acre.

Airport Overlay Zone

Land that lays within the City of Austin Airport Controlled Compatible Land Use Area (Chapter 25-13-41, City of Austin Land Development Code). Residential uses are prohibited in zones A0-1, A0-2 and restricted in zone A0-3 (Ch. 25-13-44).

Civic/Institutional

Land owned or controlled by the county, city or other governmental entity

including waste water treatment plants and power generation plants operated by these entities. Does not include recreation and open space.

Colorado River

Greenway

Corridors of land that connect people and places together and that generally follow linear natural features, such as rivers and streams, or manmade systems, such as abandoned railroad beds and utility corridors. Greenways protect natural habitats, improve water quality and mitigate the effects of flooding in floodplain areas. Most greenways contain trails, which enhance existing recreational opportunities, provide routes for alternative transportation, and improve the overall quality of life in an area.¹¹

Mining

Mining or resource extraction is primarily limited to sand and gravel pits that have been mined or are in the process of being mined are controlled by mining interests.

Multi-Modal Trail

Improved or unimproved trails that are designed for cyclist, pedestrian and equestrian use and are typically found within greenways or along transportation corridors. Trails may be designed for one specific multi-modal use or multiple concurrent uses.

Post Mining Open Space

Land that has been mined that is now open space. Uses can include wetlands, terrestrial & aquatic habitat, agricultural uses, orchards and other open space uses.

Recreation and Natural Areas

Public or privately accessible land dedicated to natural habitat, recreational parks, greenways, agriculture, lakes, etc.

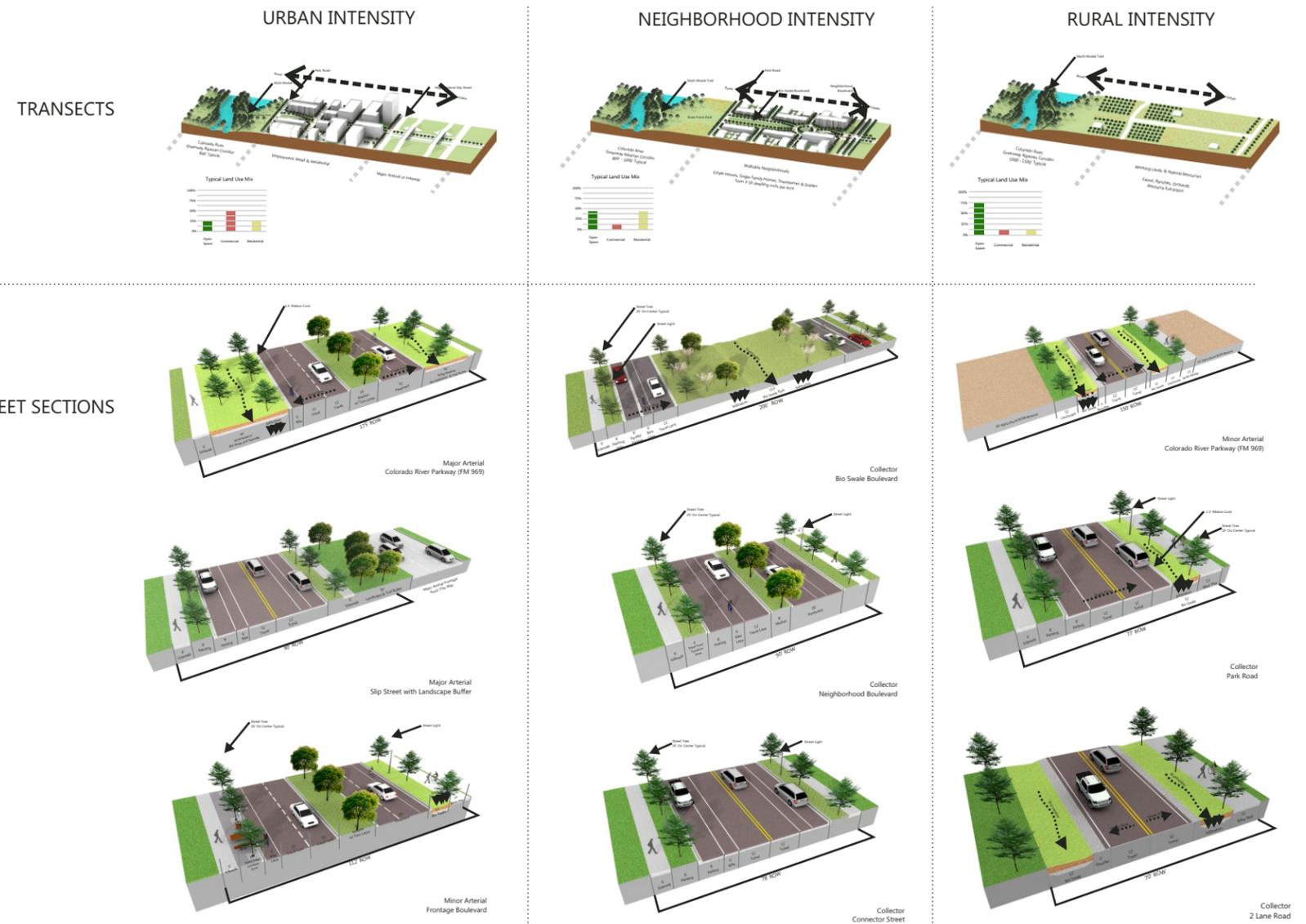
Streets and ROW

Existing and future roadways, railways, utility corridors, and other rights of way.

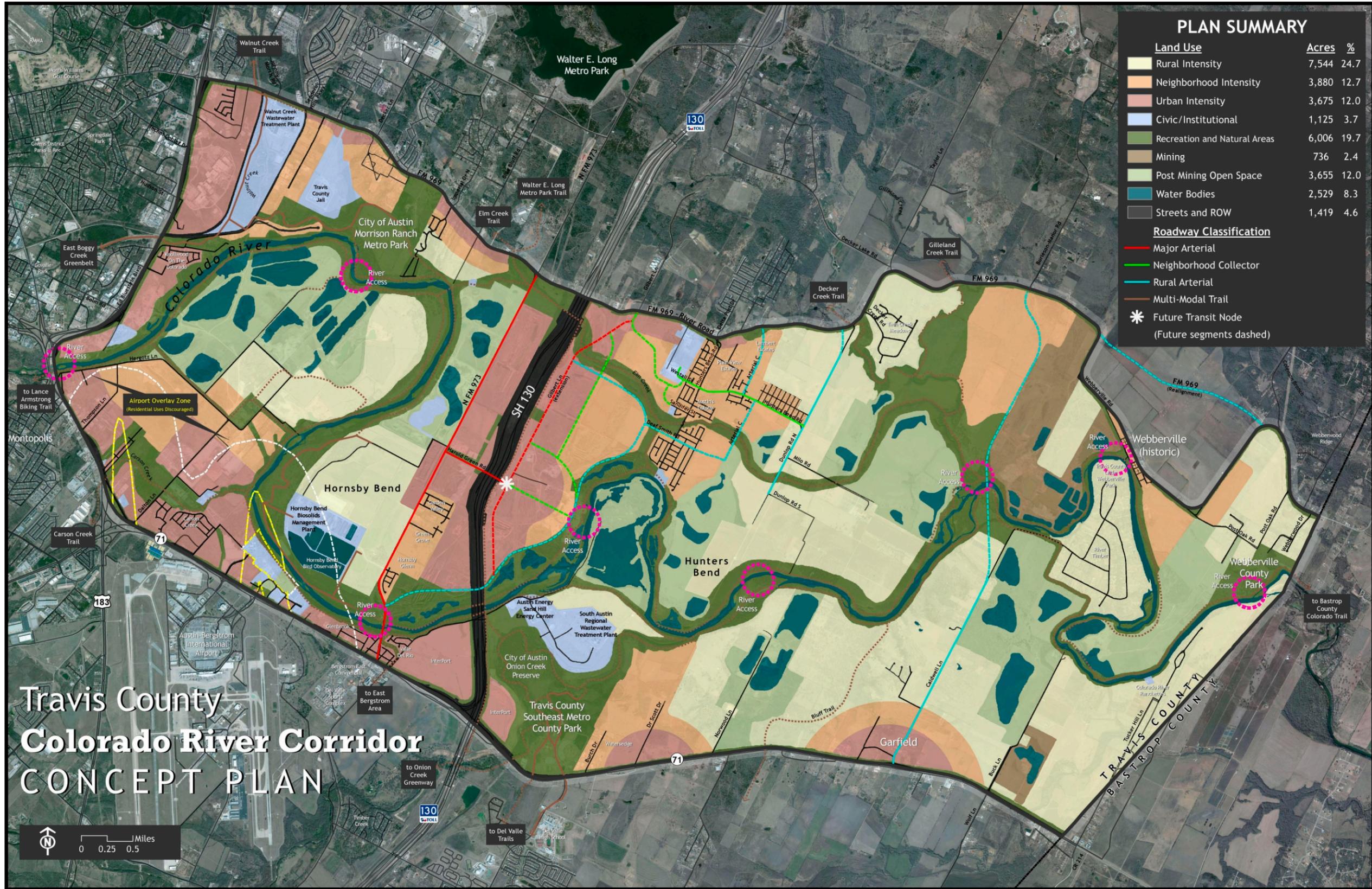
Water Bodies

Areas of legacy mining that are now lakes, wetlands, etc.

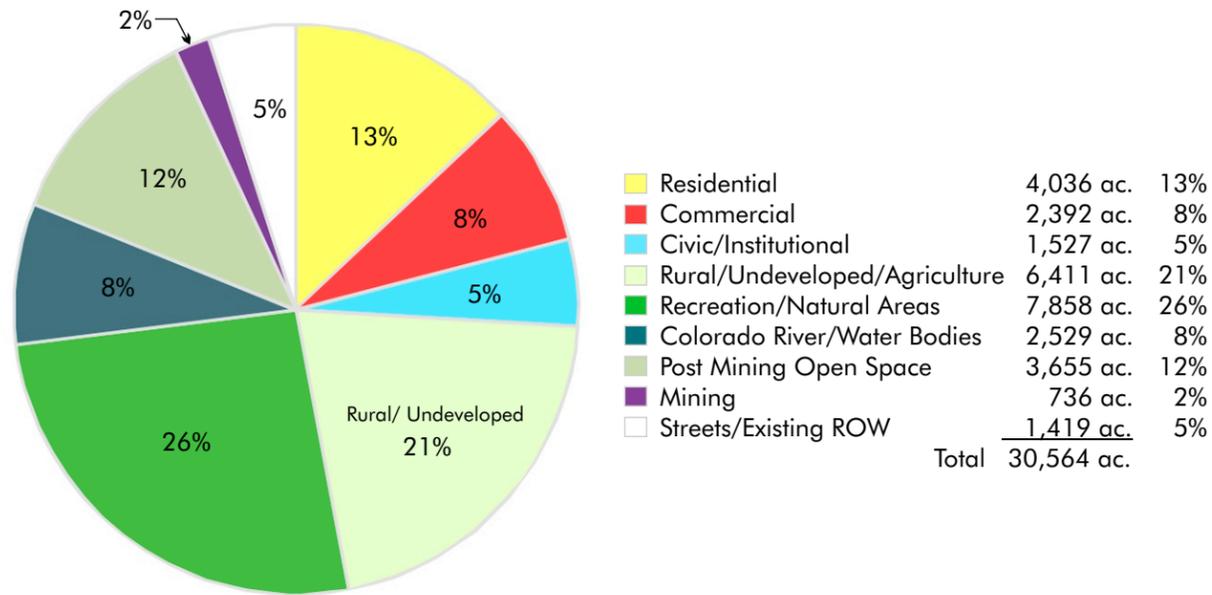
INTENSITY ZONES AND STREET SECTIONS SUMMARY (See Appendix D for enlargements)



¹¹ Flink, Chuck, <http://www.greenways.com/greenwaydefinition.html>

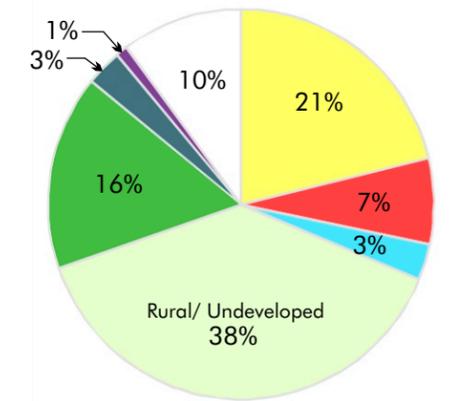


Corridor Concept Land Use Projection



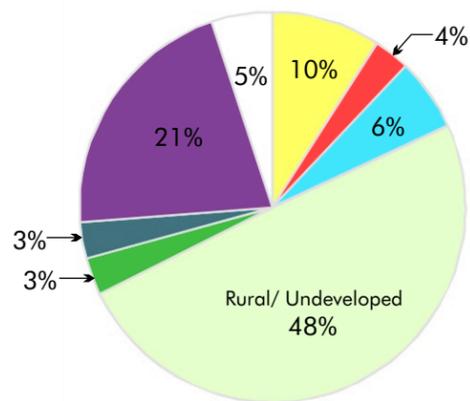
Charts below are for comparison purposes only:

Austin City-Wide 2008 Land Use*



Category	Percentage
Residential	21%
Commercial	7%
Civic/Institutional	3%
Rural/Undeveloped/Agriculture	38%
Recreation/Natural Areas	16%
Colorado River/Water Bodies	3%
Post Mining Open Space	N/A
Mining	1%
Streets/Existing ROW	10%

2010 Corridor Land Use



Category	Percentage
Residential	10%
Commercial	4%
Civic/Institutional	6%
Rural/Undeveloped/Agriculture	48%
Recreation/Natural Areas	3%
Colorado River/Water Bodies	3%
Post Mining Open Space	N/A
Mining	21%
Streets/Existing ROW	5%

* Source: Imagine Austin

Corridor Intensity Zone Projected Build-Out

URBAN INTENSITY ZONE		Percentage of Development	Acres	Units	New Residents	Potential Workers	Bldg Square Feet	New Jobs
Open Space	Agriculture/ Farming	5%	183.75 ac.				7968.20	
	Recreation/ Natural Areas	20%	735.00 ac.					
	Open Space Subtotal	25%	183.75 ac.					
Residential	Condo/ Townhomes 12 du/acre	15%	551.25 ac.	6,615	14,553	8,732		
	Urban Apartments 40 du/acre	10%	367.50 ac.	14,700	25,725	15,435		
	Residential Subtotal	25%	918.75 ac.	21,315	40,278	24,167		
Commercial	Retail	10%	367.50 ac.				16,008,300	32,017
	Office/ R&D	20%	735.00 ac.				38,419,920	48,025
	Light Industrial	15%	551.25 ac.				10,085,229	12,607
	Civic/ Institutional	5%	183.75 ac.				4,802,490	6,003
	Employment Subtotal	50%	1837.50 ac.				69,323,907	98,651
GRAND TOTAL		100%	3675.00 ac.	21,315	40,278	24,167	69,323,907	98,651
NEIGHBORHOOD INTENSITY ZONE		Percentage of Development	Acres	Units	New Residents	Potential Workers	Bldg Square Feet	New Jobs
Open Space	Agriculture/ Farming	20%	751.20 ac.					
	Recreation/ Natural Areas	20%	751.20 ac.					
	Open Space Subtotal	40%	30.05 ac.					
Residential	Single Family 4 du/acre	16%	600.96 ac.	2,404	5,769	3,462		
	Single Family Small Lot 8 du/acre	18%	676.08 ac.	5,409	12,981	7,788		
	Condo/ Townhomes 12 du/acre	14%	525.84 ac.	6,310	13,882	8,329		
	Residential Subtotal	48%	1802.88 ac.	14,123	32,632	19,579		
Commercial	Retail	3%	112.68 ac.				2,454,170	4,908
	Office/ R&D	2%	75.12 ac.				1,570,669	1,963
	Light Industrial	3%	112.68 ac.				1,178,002	1,473
	Civic/ Institutional	4%	150.24 ac.				1,963,336	2,454
	Employment Subtotal	12%	450.72 ac.				7,166,178	10,798
GRAND TOTAL		100%	3756.00 ac.	14,123	32,632	19,579	7,166,178	10,798
RURAL INTENSITY ZONE		Percentage of Development	Acres	Units	New Residents	Potential Workers	Bldg Square Feet	New Jobs
Rural/ Agriculture	1 unit per 50 acre	75%	5742.00 ac.	115			12,506,076	287
Residential	1 unit per 1 acre	6%	459.36 ac.	459	1,102	661		
	1 unit per 10 acre	6%	459.36 ac.	46	110	66		
	1 unit per 20 acre	6%	459.36 ac.	23	55	33		
	Residential Subtotal	18%	1378.08 ac.	643	1,213	728		
Commercial	Retail	2%	153.12 ac.				1,667,477	3,335
	Office/ R&D	2%	153.12 ac.				2,000,972	2,501
	Light Industrial	2%	153.12 ac.				800,389	1,000
	Civic/ Institutional	1%	76.56 ac.				500,243	625
	Employment Subtotal	7%	535.92 ac.				17,475,157	7,749
GRAND TOTAL		100%	7656.00 ac.	643	1,213	728	17,475,157	7,749
ALL INTENSITY ZONES		Percentage of Development	Acres	Units	New Residents	Potential Workers	Bldg Square Feet	New Jobs
TOTAL ALL INTENSITY ZONES		100%	15,087.00 ac.	36,081	74,123	44,474	93,965,242	117,199

SAND AND GRAVEL MINING IN THE CORRIDOR

As the City of Austin continues to grow, so will its need for reliable sources of construction materials that are critical to sustain that growth. Sand and gravel mining operations in particular will continue to provide materials to build roads, hospitals, schools, homes, etc. Having this resource in close proximity to our region ensures that it is both available and affordable, while also enabling us to meet many of the sustainability goals for locally sourced materials. Sand and gravel mining is not new to the area, and has been an important part of the area and the city since early settlement. There are many examples of former quarries and mines in Austin that are now parks and residential areas. Zilker Park, Tarrytown Park, and Hornsby Bend are just a few of the many examples of former mining sites that are now well-known features of the Austin community.

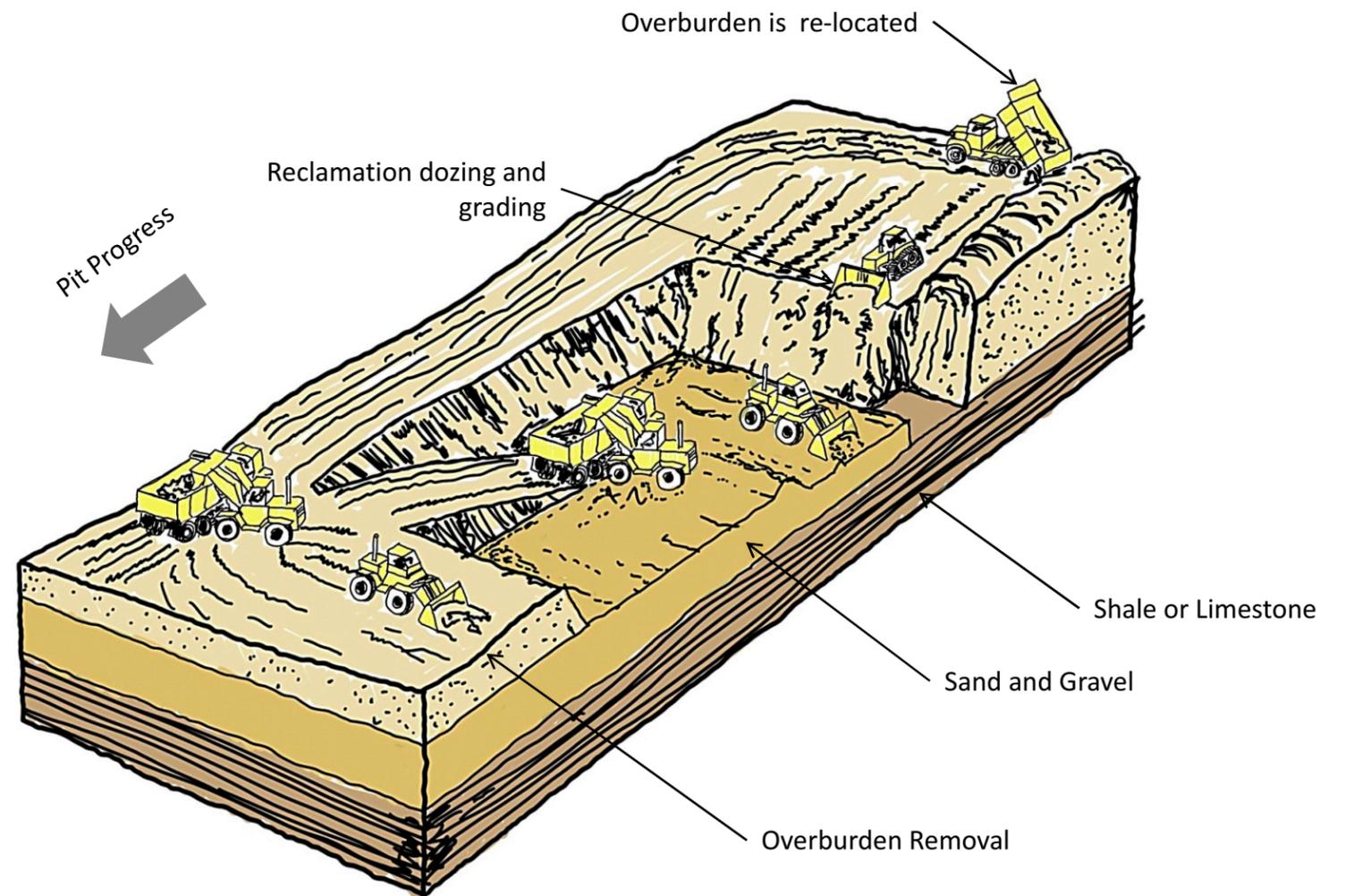
Simply put, mining is only a temporary use of the land. Because of this, it is in the best interest of mining companies to conduct their operations in a manner that conserves the resource being recovered as well as maximizes the post-mine value of the land. Many of the same land uses that occurred on the land prior to mining can and do occur on the land after mining. The anticipated future use of any site, and especially mining sites should be made with an eye toward future opportunities in the region and optimizing specific site opportunities. Reclamation planning is most effective when the regional objectives are clear and beneficial reuses are identified before any mining takes place. A beneficial use reclamation plan provides a vision of the property that mining companies, neighbors and regulators can all work together to achieve. Beneficial reuse for sand and gravel mining may include agriculture, grazing, commercial, residential, recreation, lakes, ponds, wetlands, wildlife habitat or other natural or forested areas.

Many examples of integrating reclamation planning with mining operations and ultimately the end-use in mind are put into practice today. Concurrent reclamation can incorporate enhancements and improvements to the site grading for post-mining use, which otherwise might not have been feasible. As illustrated in the map below, concurrent reclamation re-grades the mining areas to the nearest approximate original contour or elevation consistent with a planned post-mining beneficial reuse and eliminates high walls, and spoil piles so that the land “blends” in with the surrounding area.

Contrasting to this more sustainable technique, drag line mining, which creates spoil piles and unnatural land contours, is an older technique for mining which makes reclamation more difficult and can require greater efforts to achieve the same results as the more contemporary practices used in the corridor today. Many of the spoil piles in the corridor have been the result of the legacy of this mining practice. Steps have been taken that address unstable sites with local regulations that require letters of credit or performance bonds as financial assurance that agreed upon slopes, re-vegetation and site stabilization goals have been met before a mining company closes a mining operation.

Today's mining techniques integrate a number of factors that meet a wide range of goals. While it is critical to provide this fast-growing region with a reliable source of quality materials that are close to the marketplace, techniques such as concurrent reclamation and end of mine use planning allow the other aspects of these natural resources to be managed in a way that continues to benefit the environment, and ultimately leads to a thriving Colorado River corridor that will benefit many generations of Austin's citizens in the years to come.

CONCURRENT RECLAMATION, NEW TECHNOLOGY



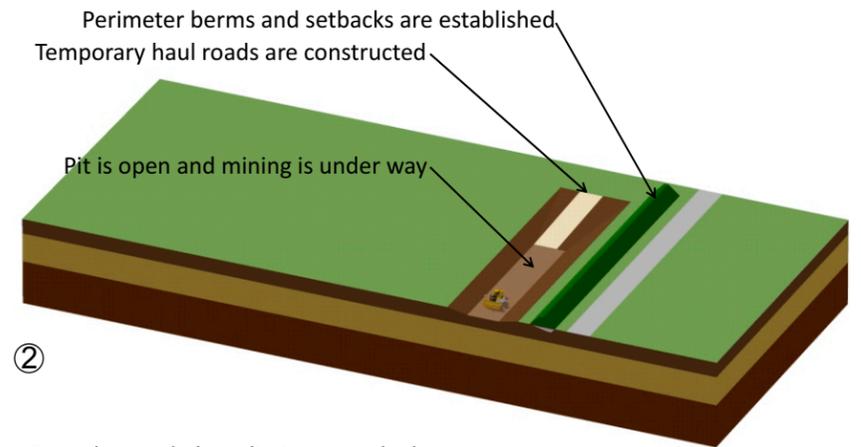
CONCURRENT RECLAMATION PROCESS

Market demand drives the velocity of sand and gravel mining thereby impacting the speed at which concurrent mining and reclamation occurs for any given site. It is not uncommon for mining to last for 20-30 years, depending on tract size. By utilizing concurrent reclamation, the delivery of a reclaimed site can be sped up. Concurrent reclamation also helps to mitigate many of the perceived negative visual effects associated with an open pit.



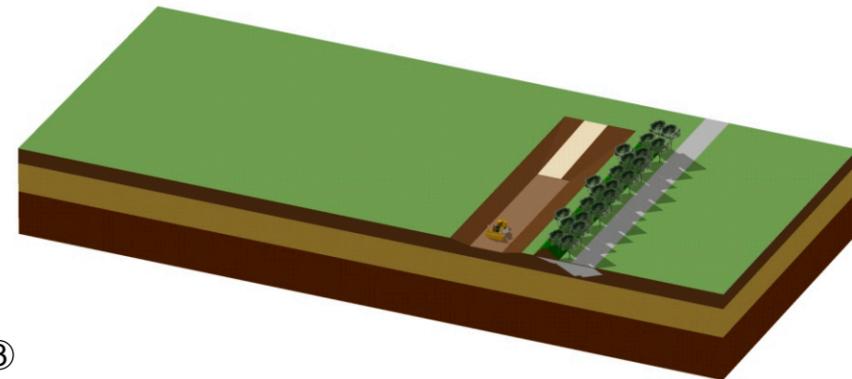
①

- Prior to site work extensive site evaluation
- Site reuse planning, environmental protection and buffering design are completed and approved by local, state and federal authorities



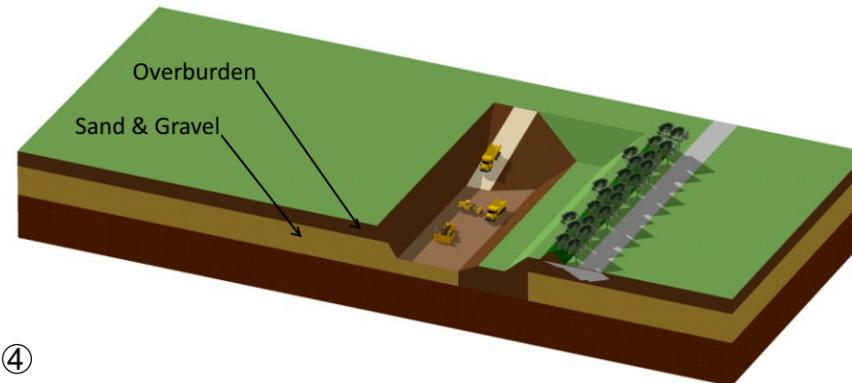
②

- Boundary and phase limits are staked
- Overburden is relocated and used temporarily for site work and berms



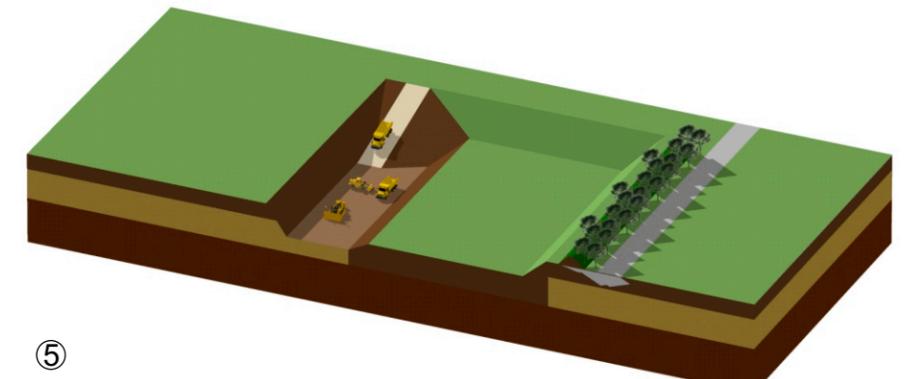
③

- Berms are designed for a variety of uses depending upon the adjacent property
- Pit isolation and screening are most common uses of temporary berms
- Trees may or may not be planted. If trees are planted, type and sizes are typically selected for their ability to adapt to the site conditions



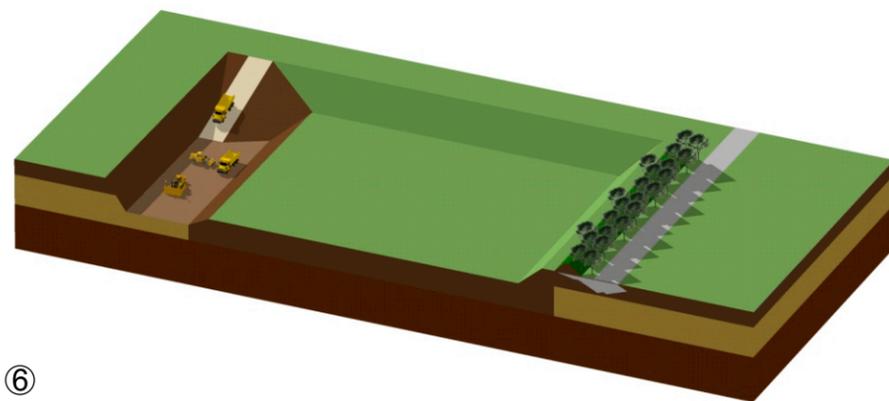
④

- Aggregate material is mined for uses off site
- The beginning of the pit will be filled with overburden from adjacent areas
- Much effort is made to conserve energy and make clean product



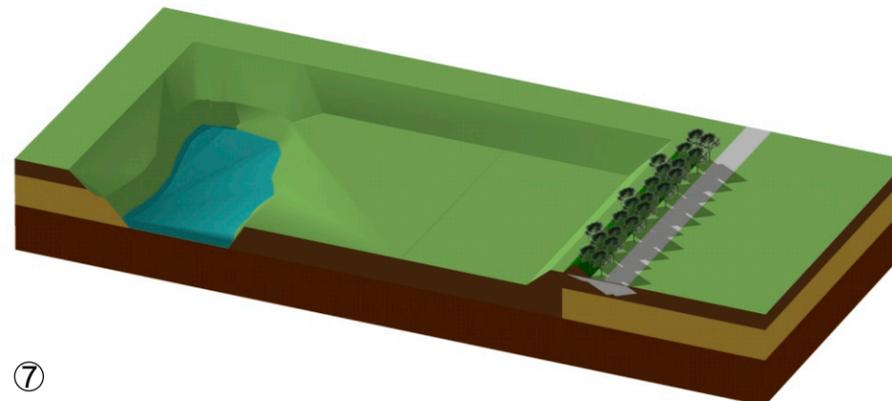
⑤

- Overburden is hauled to fill in mined areas of the pit
- Rough contours for after-mine beneficial uses will be placed as needed



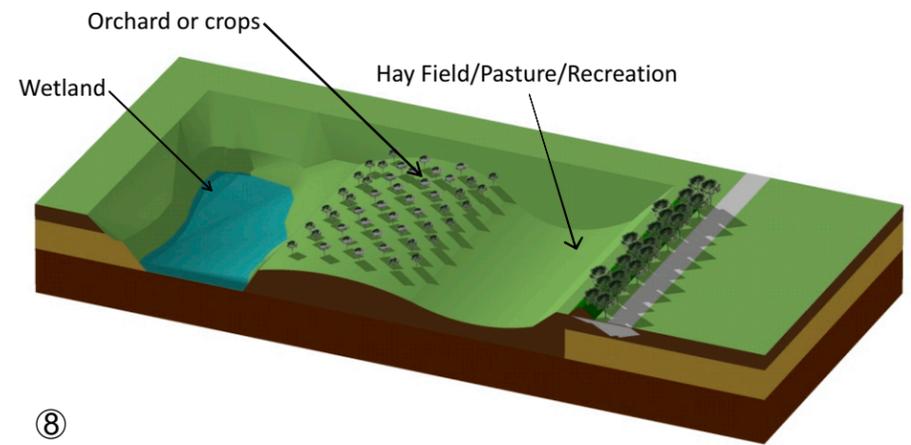
⑥

- Site slopes are graded to support after mine uses



⑦

- When grading is complete cover crops can be planted concurrently after pit progressed



⑧

- Reclaimed Pit

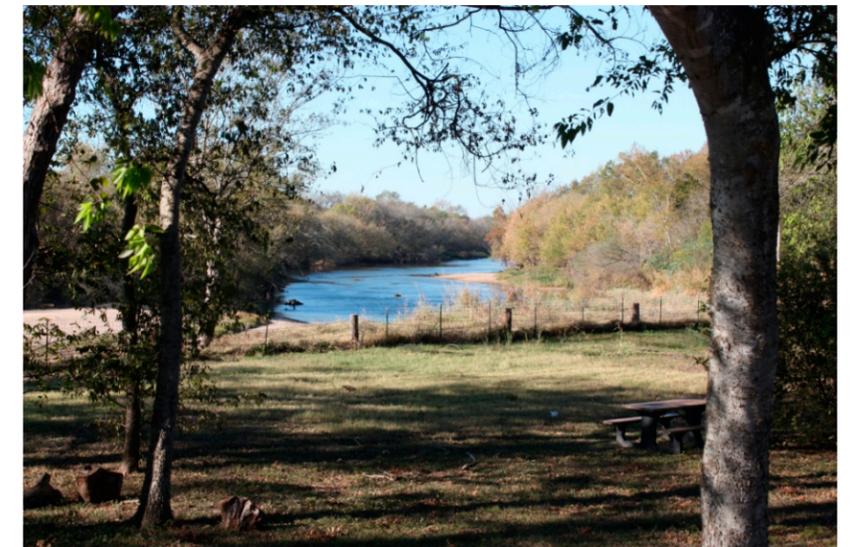
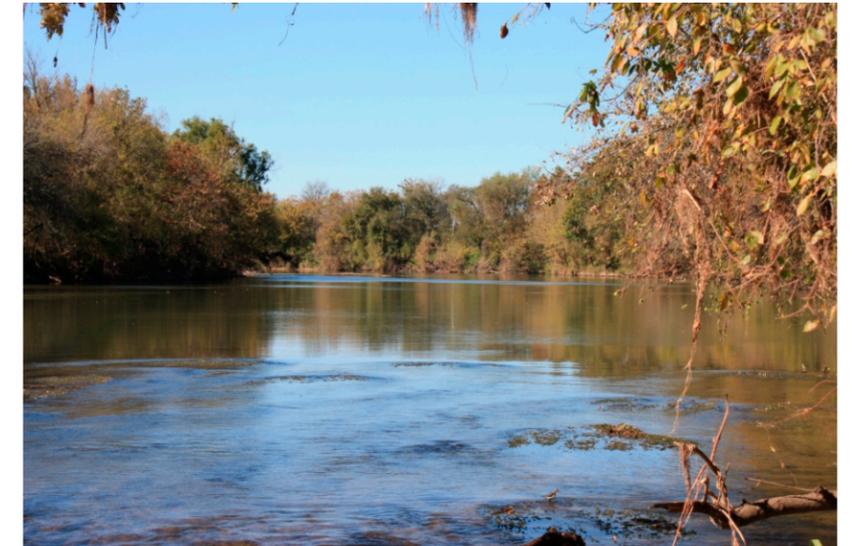
Implementation Strategies 8



Colorado River Corridor Plan Implementation Strategies

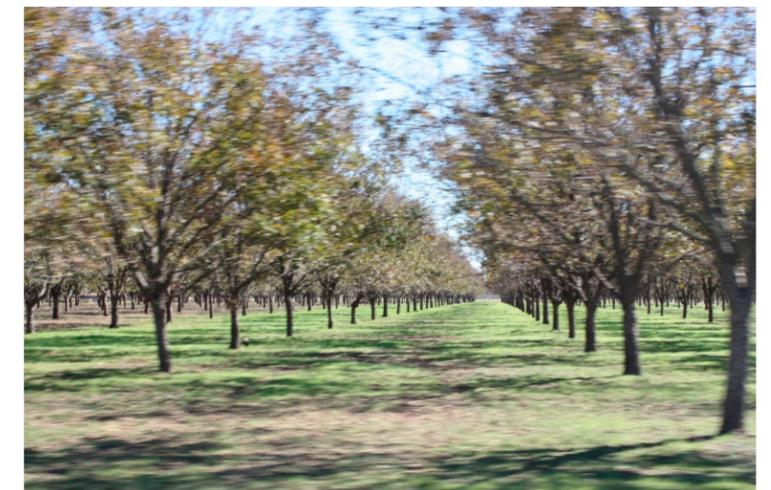
GOAL 1: CONSERVE AND PROTECT NATURAL RESOURCES

OBJECTIVES	TOOLS, POLICIES AND IMPLEMENTATION STRATEGIES	TIMEFRAME (YR)
Protect and restore natural areas	Encourage natural area protection through development incentives such as density bonuses and transfers of development rights.	<5
	Develop a restoration plan for the corridor addressing disturbed riparian areas with the objective of maximizing ecological, hydrological, public use and water quality functions in the study area through a public-private partnership.	<5
	Incorporate superior natural area protections into Municipal Utility District (MUD) and Public Improvement District (PID) agreements.	<5
	Implement County acquisition of conservation easements on private land.	<5
	Foster public/private funding opportunities for natural area preservation and restoration.	<5
	Acquire exemplary natural areas such as bottomland forests for permanent protection using bond monies.	<2
	Promote efforts by volunteers and organizations to restore natural areas, such as reestablishing native plants on acquired tracts of land.	<5
Protect and restore water quality	Fully implement urban stormwater regulations to reduce and eliminate pollutants discharged in runoff through oversight of development, using regulatory changes, inspections, and enforcement processes.	<5
	Improve and optimize collaboration between City of Austin and Travis County on stormwater management and development review programs, such as through inter-local agreements.	<5
	Increase surface water monitoring to better characterize sources and nature of elevated nutrients and bacteria.	<5
	Determine the extent and severity of elevated nitrates found in groundwater by reviewing existing, available data and by providing incentives and funding support for research to assess the problem.	6-10
	Continue collection of biological data to assess the integrity of the fish and macrobenthic community in the Colorado River and key tributaries.	<2
	Promote more optimal locations for wastewater treatment facilities through regionalization and use of post-effluent polishing treatment units.	6-10
	Increase the use of reclaimed wastewater effluent to divert and reduce nutrient and other pollutant loads into the Colorado River.	6-10
	Develop a Watershed Protection Plan or Total Maximum Daily Load (TMDL) to address pollutant discharges into the Colorado River and Walnut Creek (major urban tributary to the Colorado River).	6-10
	Establish of stream setbacks in headwater areas.	<2
	Continue to coordinate with TCEQ and USEPA to prioritize federal and state programs to address impaired waters in the Corridor.	<5
Fully implement the Gilleland Creek TMDL Implementation Plan through septic system oversight.	<5	
Integrate floodplain/riparian management with natural area preservation	Restrict and minimize modification of the historical 100-year floodplain.	<5
	Require mitigation to compensate for floodplain modifications.	<5
	Coordinate funds used for floodplain buyouts with funds available for natural area purchases to maximize flood management and preservation objectives.	6-10
Enhance conservation of limited ground and surface water supplies	Step up enforcement against residential and commercial water consumers not following utility guidelines and drought-related restrictions.	<5
	Expand the use of reclaimed wastewater effluent to replace turf irrigation and other consumption using potable water.	6-10



GOAL 2: IMPROVE QUALITY OF LIFE

OBJECTIVES	TOOLS, POLICIES AND IMPLEMENTATION STRATEGIES	TIMEFRAME (YR)
PARKS AND GREENWAYS		
Build a park system that is accessible and meets residents needs	Develop priorities for park system funding with community involvement.	<2
	Explore ways to encourage community involvement in beautification and improvement of neighborhood parks and greenways.	<5
	Provide opportunities in parks for both active and passive recreation and social gatherings.	<2
	Meet the recreational needs of people of various physical abilities.	On-going
Develop a comprehensive interconnected system of parks and greenways within the corridor	Establish greenway links between parks, schools, neighborhoods, jobs, and shopping.	<5
	Encourage greenway development within a one-half mile walk of neighborhoods.	<5
	Use public/private partnerships to build park and greenway systems.	<5
	Explore the help of non-profit organizations to secure public parks and greenways.	5-10
Enhance economic viability of parks and greenways	Encourage park investments to enhance neighborhoods including CAMPO centers where growth is anticipated.	5-20
	Consider special districts (MUD, TIF, PID, etc.) for park and greenway development and long term maintenance.	<2
	Make effective use of public/private funds by combining parks and greenways, stormwater management, flood control and other forms of built infrastructure.	5-10
	Develop recommendations for park and greenway phasing over the next fifteen years and beyond through the Parks Master Plan process.	<5
Implement and support sustainable operations and maintenance of parks and greenways	Use energy saving and water conserving technologies in designing parks and recreation facilities.	<5
	Design sports fields for multiple uses.	<2
	Prepare land management plans for natural areas in corridor parks.	5-10
	Collect and plant native seeds/seedlings	5-15
	Incentivize private sector to restore bottomlands as part of development.	5-15
	Confine irrigation systems to high intensity use sports fields, using water-wise methods.	<2
Develop parks and green spaces as a foundation of community development	Incorporate the City of Austin’s Critical Water Quality Zones into the park system as passive recreational corridors.	10-20
	Acquire parks and greenways in a timely manner before opportunities are lost.	<2
	Shape growth patterns and provide community identity with public access to stream valleys and terrace ridges.	5-20
	Provide a park acquisition element as part of annexation analyses and delivery of services documentation.	5-15
	Provide opportunities for the community to vote for funding of land acquisition of critical lands along the river.	5-15



OBJECTIVES	TOOLS, POLICIES AND IMPLEMENTATION STRATEGIES	TIMEFRAME (YR)
PARKS AND GREENWAYS		
Create an economic climate that enhances the viability of working lands and rural character	Promote the use of conservation easements to preserve key/critical land for open space, wildlife habitat, water quality, and working lands where appropriate, and organizing these areas into a regional network to the extent possible	10-20
	Encourage the dialogue and ongoing public discussion of how to identify significant public and/or private funds for rural land preservation	<2
	Work with land trusts to purchase particularly sensitive areas to protect them from development	5-20
	Cultivate economic development strategies that rely on traditional rural landscapes. Agritourism and ecotourism.	5-15
	Promote rural products in urban areas and support other urban rural links	Ongoing
	Integrate rural lands and corridor neighborhoods. Priority funding areas to incentivize 'Centers growth'. Encourage rural home clustering and conservation subdivisions.	5-15

OBJECTIVES	TOOLS, POLICIES AND IMPLEMENTATIONS	TIMEFRAME (YR)
CORRIDOR CHARACTER		
Build high quality structures and public spaces in the time-honored tradition of civic commitment to lasting public works	Develop and fund place specific architectural/landscape design style that is identifiable in all aspects of the public realm.	5-20
	Support art and creative use of public spaces.	5-15
	Use road right-of-ways to create community identity.	5-15
Protect and enhance the cultural and scenic resources	Encourage private sector to provide access along the river.	5-20
	Evaluate City and County Ordinances for resource protection.	<5
	Leverage flood management measure to maximize greenways.	5-20
	Establish guidelines for maintaining views to the river.	5-10
	Establish tree canopies along roadways for overarching affect.	5-15
	Eliminate environmental hazards in neighborhoods, preserving quality and livability.	5-25
	Promote the preservation and reuse of historic resources and cultural landscapes.	<5
Establish regional, village, and neighborhood identities	Support a strong identifiable commercial center such as transit-oriented development (TOD).	5-20
	Integrate various land uses to support public transit.	5-20
	Establish a strong East/West natural corridor to link areas visually.	5-10
	Advocate the clean-up, reclamation, and re-use of legacy mines for beneficial uses.	<2
	Develop analytical and educational tools to inform future planning and design decisions to insure continuous improvement and educate the community about the potential of restorative community building.	<5
	Develop strategic policy documents to accommodate growth in a geographic framework of Activity Centers, Landscaped Corridors, and Greenways.	<2
	Develop a neighborhood form that promotes security from crime, and is it perceived as safe. Streets are made safe for children and other users (e.g., traffic calming, other measures).	<5
	Support a vibrant cohesive Activity Center along SH 130 that diversifies the urban fabric, reconnects east and west, and accommodates key civic, business, and cultural resources.	5-10
	Encourage locally-based agriculture providing a nearby source of fresh food.	5-15
	Cultivate economic development associated with traditional rural landscapes (farming, ranching, orchards, food processing, framers markets, and scenic tours).	5-15
	The roadways should provide interesting visual experiences, vistas, natural features, native vegetation, or other qualities.	5-15
	Encourage resident's contributions to community activities.	5-20
	Maintain a web presence to communicate corridor activities.	<2
Support various school initiatives to maintain viable and safe	Provide sidewalks and pathways to link residents and the schools.	<5
	Provide appropriate traffic controls and staff to assist with the safety of pedestrians and bicyclist crossings.	<5
	Establish parks in conjunction with school site acquisitions or expansions, enabling shared use of parking and recreation facilities.	5-10
	Collaborate with schools in meeting neighborhood recreational needs, including use of gymnasiums and fields for recreation leagues and as sites for cooperative maintenance and programming.	<5



OBJECTIVES	TOOLS, POLICIES AND IMPLEMENTATION STRATEGIES	TIMEFRAME (YR)
HEALTH, SAFETY AND WELFARE		
Provide for safe and effective access for life safety services	Reduce the number of low water vehicular crossings.	5-20
	Develop strategies to minimize response time and reduce harm to humans, property and the environment.	5-20
	Reduce pedestrian and bicycle driveway conflicts.	5-10
Develop a flood management strategy that provides better protection and preserve assets	Develop release warning systems.	<5
	Install river level gauges.	<5
	Develop crest predictions and warning systems.	5-10
Enhance air quality	Foster and promote walkable development.	<5
	Encourage private sector use of best available technology where possible to improve air quality.	<5
	Encourage site planning and construction techniques that reduce pollution such as concurrent reclamation of mining lands.	<5
	Minimize the area of site disturbance at any one time by phasing construction.	<5
Minimize and manage ambient noise and light	Encourage private sector use of best available technology where possible to improve noise abatement	<5
	Encourage site planning and construction techniques that reduce noise and light pollution.	5-10
Enhance availability of potable water and wastewater treatment	Support the establishment of centralized, public water treatment/distribution and wastewater collection/treatment systems.	<5
Advance energy conservation	Seek renewable energy and conservation solutions to meet energy requirements.	5-20
	Encourage the efficient use of resources and reduce greenhouse gas emissions from industrial, agricultural and farming processes.	<5
	Reduce vehicular use and travel times by supporting plans for mixed land use development.	5-10
Instill community resiliency	Help residents and institutions prepare for flood disruptions and respond timely, creatively and effectively.	5-20
Provide fair and equitable regulatory environment	Ensure that development guidelines and building codes consider community and site context, improve ecological integrity, are based on life cycle costing, foster social equity, and reward innovation.	5-20



GOAL 3: PROVIDE IMPROVED MOBILITY AND TRANSPORTATION CHOICES

OBJECTIVES	TOOLS, POLICIES AND IMPLEMENTATION STRATEGIES	TIMEFRAME (YR)
MOBILITY		
Provide for efficient and safe highways and roadways	Efficiency	
	Provide a transportation system that provides efficient and acceptable levels of service for forecast population and employment.	On-going
	Develop a multimodal transportation system seamlessly connected with all transportation modes to increase transportation corridor person-carrying capacity.	On-going
	Reduce vehicle trip length and travel time by eliminating gaps in the existing transportation network.	On-going
	Implement operational transportation solutions in the existing transportation network before providing added capacity projects.	On-going
	Optimize traffic signal spacing at 1 mile intervals.	On-going
	Safety	
	Identify and seek funding to improve high accident locations.	On-going
	Require existing and future arterials to accommodate bicycle and pedestrian facilities.	<5
	Require private sector to provide for pedestrian and bicycle infrastructure along collector roadways.	<5
	Designate specific arterial streets as truck routes.	<5
	Encourage private sector freight movement and trucking companies to work with public agency staff to develop route alternatives.	<5
	Separate truck traffic from incompatible land uses, especially around schools, residential development, and civic areas.	<5
	Improve mobility, connectivity and access of people and goods	Provide connectivity, minimum block lengths and multiple access into neighborhoods to enhance public safety.
Research and develop standards and guidelines that provide for access control, including at a minimum dual access to all developments.		<5
Develop a comprehensive network of connected arterials and collectors that allow for alternative routes of travel.		On-going
Improve regional connectivity across barriers created by flood plain and mining lands, where financial feasibility and minimal environment impact are demonstrated.		On-going
Provide additional north/south mobility and connectivity over the Colorado River by completing the Burleson Manor Road river crossing and arterial expansion.		10-20
Improve and plan for a coordinated and seamless public transportation system. One that provides connectivity between the roadway system and future urban rail, bus rapid transit, fixed route bus and rural transit service.		6-10
Ensure that all roads are constructed to the property line, so that future extension of roadways between subdivisions is coordinated in a continuous fashion unless severe physical constraints restrict their placement.	<5	



OBJECTIVES	TOOLS, POLICIES AND IMPLEMENTATION STRATEGIES	TIMEFRAME (YR)
Reduce congestion and improve air quality	Improve identified congested roadways (such as FM 969 and Hunters Bend Road) by adding capacity through new lanes or additional access.	6-10
	Revive CAMPO Centers Concept map to reflect proposed location of Rio de Vida development.	<2
	Provide public sector incentives for successful development of Activity Centers within the Corridor.	<5
	Ensure that development intensity and associated travel demand adheres to the current and funded road classification standards.	On-going
	Consider use of parallel alternative routes to reduce volumes on any one street and to minimize travel lanes.	<5
	Provide alternative design standard that allow for neighborhood roadway networks in grid patterns to minimize trip length, encourage walking and bicycling, and use of other alternative travel routes and transit modes.	<5
	Encourage mixed use Activity Centers that provide residential and commercial land uses to allow live and work opportunities through the use of master plans, PUDs and other site-specific plans that encourage greater residential densities, greater employment intensities, and a more fine grained mix of uses within Activity Centers.	<5
	Allow for additional development intensity in activity centers in exchange for provision of public amenities that support the activity center.	<5
	Implement conservation development ordinances that allow development to cluster away from environmental features on a site.	On-going
	Site municipal buildings, schools, and other publicly funded civic facilities within Activity Centers.	On-going
Preserve environmental, scenic, aesthetic, historic, and natural resource values	Develop cross sections for different functional classifications of roadways that are more sensitive to natural resources and incorporate context sensitive design solutions. The design and construction of the transportation system will reflect the future land use pattern found in the Land Use Element of the Corridor Plan.	<2
	Develop "Colorado River Parkway" design guidelines to be used along FM 969, creating a scenic and aesthetic facility throughout the Corridor. (See "Colorado River Corridor Parkway" in Appendix D).	<2
	Provide alternative design standard for arterials that border greenways by abutting arterials up to greenway limits. (See Roadway Design Standards in Appendix D: Concept Plan Models).	<2
	Provide for a transportation system of arterials, collectors, bike lanes, sidewalks and trails that incorporate appropriate design standards relating to varied transects. (See Appendix D: Concept Plan Models).	<2
	Develop guidelines based on early public involvement opportunities that can be used to establish signature bridges and gateways to define the Corridor's character.	On-going
	Avoid environmentally sensitive areas such as floodplains and wetlands where possible, and minimize/mitigate impacts associated with necessary crossings.	On-going
	Utilize the streetscape to establish a "character" within Activity Centers, neighborhoods, scenic arterials, and gateways.	On-going



OBJECTIVES	TOOLS, POLICIES AND IMPLEMENTATION STRATEGIES	TIMEFRAME (YR)
Provide cost-effective opportunities in the development of transportation facilities	Require developers to donate rights-of-way for future expansion or extension of arterials and locations for transit facilities.	On-going
	Seek to provide less costly operational improvements (turn lanes, traffic signal coordination, etc) before making added capacity improvements to existing roadways.	On-going
	Coordinate with transportation agencies (CAMPO, TXDoT, CapMetro, CTRMA, and CARTs), cities and Travis County to develop new funding strategies and leverage dollars for transportation facility improvements.	On-going
	Encourage cost sharing opportunities such as public-private partnerships for new transportation infrastructure.	On-going
	Promote the concurrency of transportation and land use planning, especially when major development is anticipated.	<5
	Maintain a coordinated process for all land review that includes transportation and environmental planning in conjunction with the appropriate planning, advisory, or regulatory entities.	On-going
	Use economic development incentives, tax abatements, and other means to encourage development that provides high quality jobs within Activity Centers.	<5
	Implement Tax Increment Finance Districts, Public Improvement Districts, and other innovative finance mechanisms to support infrastructure and public amenities within developing Activity Centers	<5

BICYCLES AND PEDESTRIANS

Provide a connected network of non-motorized transportation facilities connecting to local and regional destinations	Support the Activity Center concept emphasizing high density, multi use development that maximizes opportunities for bicycle and pedestrian trips rather than vehicle trips.	<5
	Support Activity Centers that encourage pedestrian and bicycle trips between uses and to transit connections.	<5
	Construct bicycle and pedestrian improvements when providing for additional or new capacity along highways and arterials.	On-going
Provide a multi-use trail network that improves mobility as well as supports recreational opportunities	Provide opportunities for people to bike and walk in their neighborhoods for recreation as well as commuting.	On-going
Provide for safe and efficient connections throughout the corridor	Provide design alternatives that separate bicycle and pedestrians facilities from vehicular traffic. (see Roadway Design Standards in Appendix D: Concept Plan Models).	<5
	All sidewalks should accommodate pedestrians with disabilities.	On-going
	In new subdivisions that lack connectivity to the area roadway system, subdivisions should connect to a continuous multi-use trail system.	<5
	Provide grade separated crossings for multi-use trails at major arterials, state system roads and highways.	6-10
Design transportation facilities to encourage bicycle and pedestrian usage	Design streets to accommodate safe and secure environments, but not at the expense of accessibility and openness.	On-going
	Design streets as the public spaces of the Corridor that create comfortable and interesting environments for pedestrians to live, to work, and to play.	<5
	Reconstruct streets connecting to Activity Centers to be more transit, bicycle, and pedestrian friendly.	<5

OBJECTIVES	TOOLS, POLICIES AND IMPLEMENTATION STRATEGIES	TIMEFRAME (YR)
TRANSIT		
Provide for public transit services that improve affordable and accessible transportation alternatives	Seek opportunities to expand transit facilities outside incorporated area.	<5
	Improve and plan for a coordinated and seamless public transportation system. Emphasize connectivity between the roadways system and future urban rail, bus rapid transit, fixed route bus and rural transit service.	6-10
	Insure that low income and minority populations and the elderly have multi-modal travel opportunities by targeting environmental justice census tracts as priority areas for transportation improvements and multimodal facilities.	On-going
Encourage transit oriented development within corridor activity centers	Support transit oriented development that has a mix of land uses and density that will support transit services.	<5
Identify and implement strategies to take advantage of new transit opportunities and connections within the corridor	Identify and resolve constraints to make intermodal connections.	On-going
	Plan for a multi-modal transit center within activity centers that connects to area urban rail plans. Facilitate connectivity between fixed routes, rapid bus, and taxi, and car-pool needs coupled with adequate bicycle and pedestrian access.	<5
	Design arterials and collectors to accommodate transit facilities included in the region's Capital Area Metropolitan Planning Organization's long range transportation plan.	On-going

Appendices 9



Appendix A: Bottomland Restoration

Corridor “bottomlands” consist of creek and river riparian zones, wetlands, and floodplains—unique areas which form transitional zones between land and water. They have historically featured dense hardwood forests and deep alluvial soils, home for plants and animals of both terrestrial and aquatic ecosystems. From the perspective of watershed function, riparian areas are the most important part since they are the buffer between the uplands and the stream channel. In proper functioning condition, these areas provide the following irreplaceable ecosystem services:

- **Hydrological services:** water storage in the riparian “sponge” of plant roots and soil; water quality improvement as water is filtered through the riparian soils and vegetation; flood attenuation as the riparian area slows, filters, and absorbs flood waters; flow stabilization as the riparian area releases water to maintain baseflow of the river or absorbs water when the river flows are high; and groundwater recharge and discharge as the riparian area contributes to the alluvial aquifer along the Colorado River.
- **Biological services:** breeding habitat for Texas aquatic and terrestrial organisms; shading over the river and streams to reduce water temperature and provide enhanced habitat for aquatic life like fish and amphibians; wildlife corridors for linking Texas bioregions; and critical migratory habitat for North American birds and butterflies.
- **Geological services:** erosion control along the river channel as riparian vegetation “armors” the river banks against erosion, protecting both the river and our coastal bays and estuaries against sediment.

Most bottomlands have been extensively modified and their dense tree canopy largely removed compared with their original, historic condition. A soils map of the Corridor helps to delineate the potential extent of the riparian forest that once covered the bottomlands. The soils of the alluvial plain trace the boundaries of the lost riparian forest. Today, along most of the river, only a thin strip of riparian vegetation remains, as shown in the NRCS Soils Unit and Tree Canopy map. The direct and visually obvious correlation in the physical location of alluvial deposits, wetlands, springs, waterfowl habitat, creek erosion hazard areas, and so forth in the 100-year floodplain indicates a need to manage, preserve and protect the land from over development in these areas.

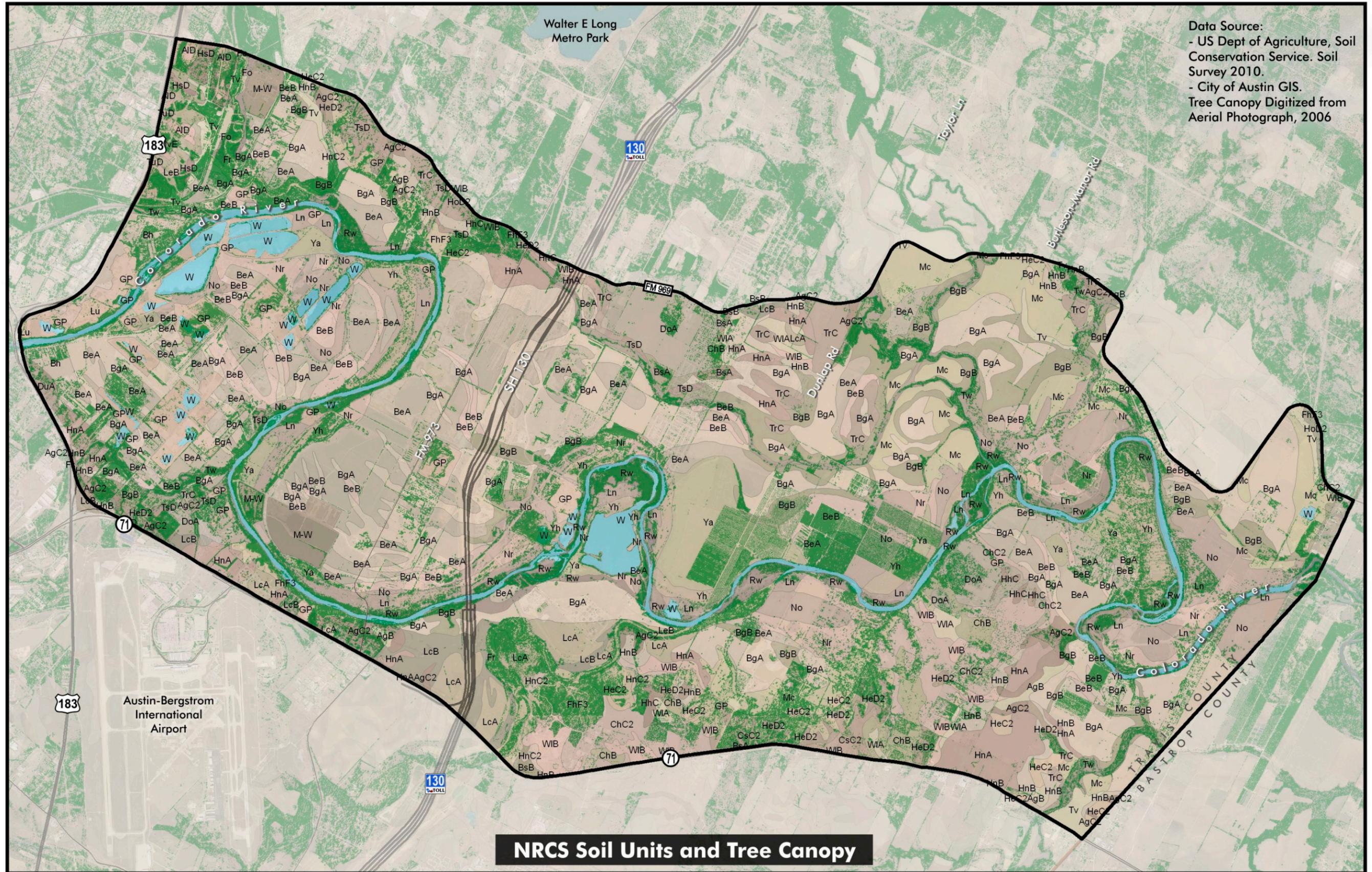
Restoration opportunities for these bottomlands are many and would serve numerous positive community benefits, including recreation and tourism, increased property values, and significant improvement in the diminished ecological services listed above. Floodplain reclamation and modification standards need to be considered [proposed?] for the Corridor that retain and restore the integrity of in stream channel stability, protect riparian areas, and minimize long-term modification of the physical and biological characteristics of such areas.

The majority of restoration work will logically be on the mining properties once mining activity is completed. These landscapes are substantially altered from their original condition, with changes to topography (lakes and pits), soils (original topsoils removed), and vegetation (usually no vegetation remaining). Restoration would require that all three of these factors be addressed. The City of Austin's Pollutant Attenuation Plan (PAP) rules in its Environmental Criteria Manual (ECM section 1.3.4) provide this type of guidance. Additional measures could also be considered. Key considerations include:

- **Backfill Material Type.** TCEQ requires that all backfill placed in pits be inert (30 TAC 330.2 (61)) and essentially insoluble (30 TAC 335.521 (d)) to avoid contamination of the underlying

groundwater. Hazardous materials must not be permitted as they are not only toxic but pose special risks due to bottomland properties being located near or below the water table.

- **Backfill Material Compaction.** Mining pits must be backfilled in a suitable manner that will not lead to future problems with differential settlement and preservation or development of soils for vegetative restoration. Backfill must be compacted from the bottom of the pit to within 5 feet of the final grade. The plan must state the method of compaction.
- **Backfill Slopes.** Backfill slopes must be restored to no more than a 3-to-1 (horizontal-to-vertical) slope to prevent sloughing and to provide a safe walking surface for humans, livestock, etc.
- **Soils.** Providing healthy soils for revegetation after years of mining is both a challenge and essential to the success of future restored vegetation. Topsoil is removed at the outset of mining and is frequently sold and transported offsite. The material below is typically inert, orange clayey sand; although this is sometimes sold as “soil,” it does not have the organic composition or microbial community to support vegetation unless mixed with more organic material. The City of Austin's PAP allows for the development of soil. (Some area mining operations have experimented with mixing in vegetation clippings, for example.) The PAP calls for soils with similar in pH, organic carbon content, aggregation, cation exchange capacity, nutrients and microbial community to native, undisturbed soils within the county.
- **Revegetation.** The City of Austin PAP requires that fiscal surety be posted to ensure that revegetation occurs. As noted above, soil quality and suitable topography (grading) are also key to the success of revegetation. The U.S. Department of Agriculture has voluntary guidelines that encourage restoration of native grasses and address soil requirements. The U.S. Army Corps of Engineers also issued a regulatory guidance letter for constructing wetlands and migratory fowl habitat (both are referenced in ECM 1.3.4).
- **Future Considerations.** Future restoration rules should consider a requirement to have a licensed, professional engineer establish performance standards for reclamation and to verify that those performance standards are met. Additional requirements should also be developed to describe the methods used to determine if compaction for the backfill material has been achieved. These methods must follow current best engineering practices.



Data Source:
 - US Dept of Agriculture, Soil Conservation Service. Soil Survey 2010.
 - City of Austin GIS.
 Tree Canopy Digitized from Aerial Photograph, 2006

Appendix B: Mitigation Banks

What is a Mitigation Bank?

A mitigation bank is a wetland, stream, or other aquatic resource area that has been restored, established, enhanced, or preserved for the purpose of providing compensation for unavoidable impacts to aquatic resources permitted under Section 404 of the federal Clean Water Act.

- In Texas, the US Army Corps of Engineers (USACE) is the primary regulatory authority for mitigation banks; USEPA also has some oversight authority.
- Mitigation banks have four distinct components:
 1. the bank site where the acreage is restored, enhanced, or preserved.
 2. the bank instrument: the formal agreement between the bank owner and USACE establishing liability, performance standards, management, monitoring requirements, and the terms of bank credit approval.
 3. An Interagency Review Team that provides regulatory oversight.
 4. the geographic area in which permitted impacts can be compensated for at a given bank.
- The value of a bank is defined in compensatory mitigation credits. The bank instrument identifies the number of credits available for sale and requires the use of ecological assessment techniques to certify that those credits provide the required ecological functions.
- Mitigation banks are a form of third-party compensatory mitigation, in which the responsibility for implementation and success is assumed by a third-party other than the permittee (the person who received the 404 permit allowing an adverse impact in the first place).
- Since mitigation banking is the most reliable form of compensation, the use of banks is a preferred form of mitigation.
- Successful wetland mitigation requires agreement among USACE and the project proponents on size, type, timeline, required and desired functions, management, funding and oversight.
- Management of any mitigation wetland by a responsible party is important to ensure its success.
- Mitigation banks are subject to significant federal oversight that provides assurances that management and wetland success will be a top priority.

Created vs. Restored Wetland Banks

- Preference should be given to restored wetlands over created wetlands because they are more likely to re-establish required and desired functions.
- Wetlands created out of upland need more complex design, construction, and management to establish and maintain required and desired functions.
- Pre-construction credits may be necessary to establish a bank. Federal policy may allow up to 30% of the wetland mitigation bank credits to be sold before restoration
- Not all of the remaining 70% of the credit should be sold until the wetland has developed the required functions. This may take from 10 to 25 years.
- Substantial pre-construction credit should be limited to restoration rather than creation projects because of their higher likelihood of reaching functional equivalence.
- Before the credits from a banked wetland may be sold, an evaluation of wetland functionality is required.
- Created wetlands have a higher likelihood of failure to meet functional standards than restored wetlands. This is largely due to the greater scientific and technical challenges that wetland creation possesses.

- Restored wetlands have an advantage when there are remnant features of the former wetland such as hydric soils, hydrology, seed banks, and roots.
- Establishing a functional hydrologic regime for a created wetland may be simpler than creating other functions. For instance, wetland grasses may take from 1 to 5+ seasons to become established and habitat for swamp dwelling animals that require a closed tree canopy could take decades to develop.

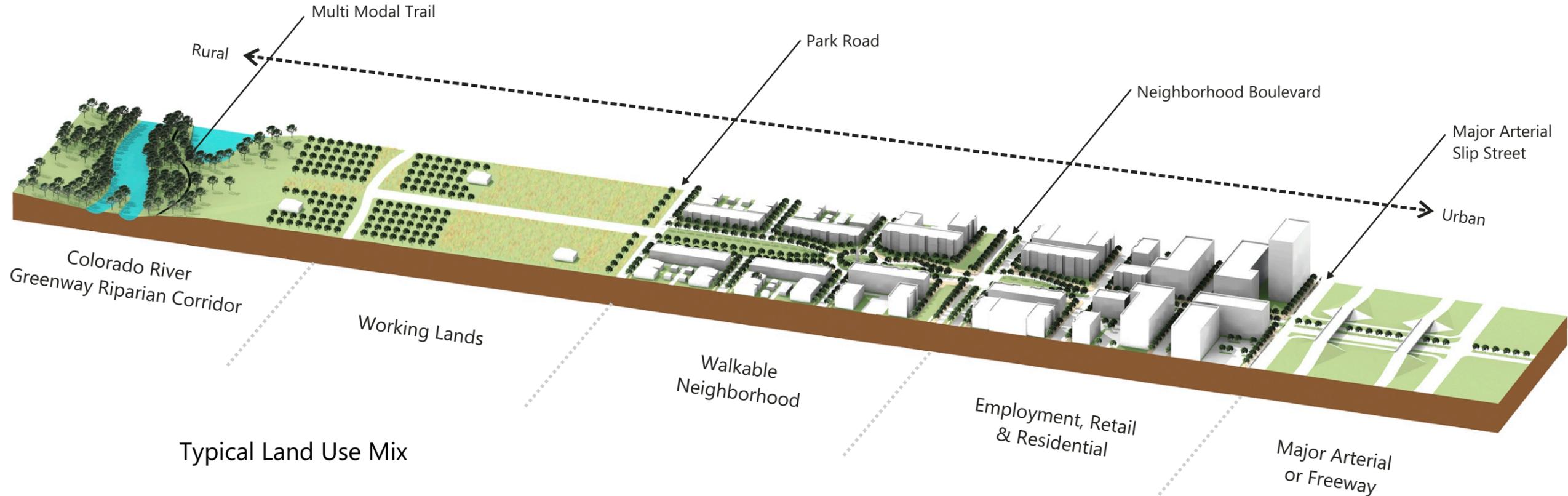
Appendix C: List of Relevant Plans

Several planning initiatives have been or are being completed that include the Colorado River corridor in their study area. They include the following:

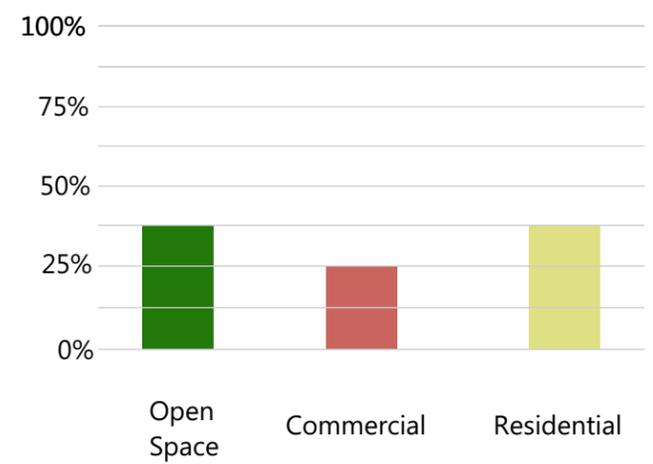
- A Vision for Central Texas, May 2004 (Envision Central Texas)
http://www.envisioncentraltexas.org/resources/ECT_visiondoc.pdf
- Discovering the Colorado, A Vision for the Austin-Bastrop River Corridor, December 2006 (Austin-Bastrop River Corridor Partnership)
<http://ci.austin.tx.us/water/downloads/coloradofinal2.pdf>
- Travis County Parks and Natural Areas Master Plan, May 2006 (Travis County TNR)
http://www.co.travis.tx.us/tnr/parks/press_releases/pos_plan_final.asp
- USACE Recreation Study for the City of Austin and Travis County, Texas, 2004
http://www.responsivemanagement.com/download/reports/USACE_Recreation_Report.pdf
- The Travis County Green Print for Growth, October 2006
<http://www.ci.austin.tx.us/acpp/downloads/greenprint.pdf>
- Imagine Austin Comprehensive Plan for the City of Austin, To Be Completed (Austin City Connection)
<http://www.ci.austin.tx.us/compplan/>
- Capital Area Metropolitan Planning Organization (CAMPO)
<http://www.campotexas.org>
- TWDB Regional Water Planning
<http://www.twdb.state.tx.us/wrpi/rwp/rwp.asp>

Appendix D: Concept Plan Models

SCHEMATIC COMPLETE TRANSECT



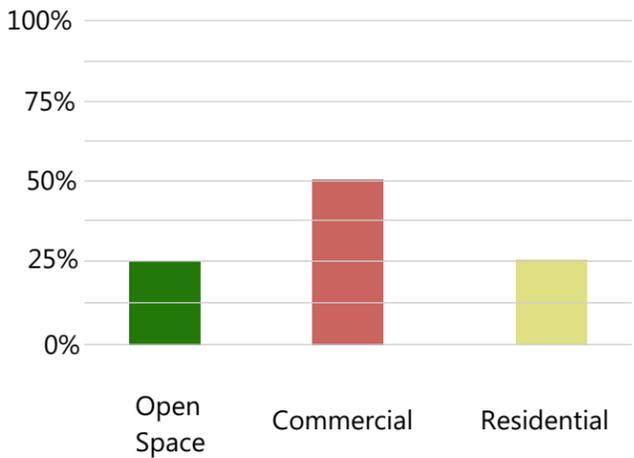
Typical Land Use Mix



URBAN INTENSITY TRANSECT



Typical Land Use Mix

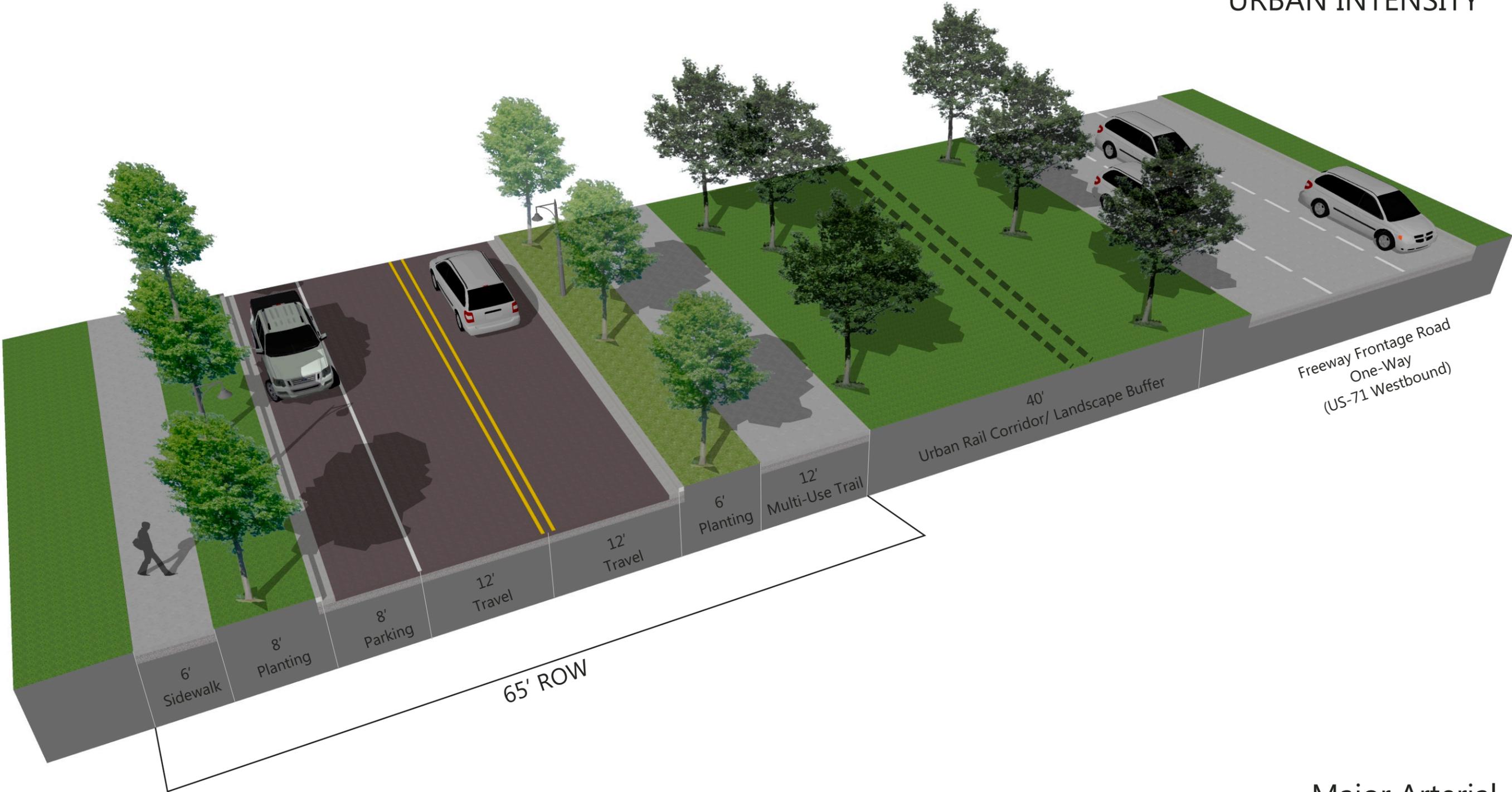


URBAN INTENSITY



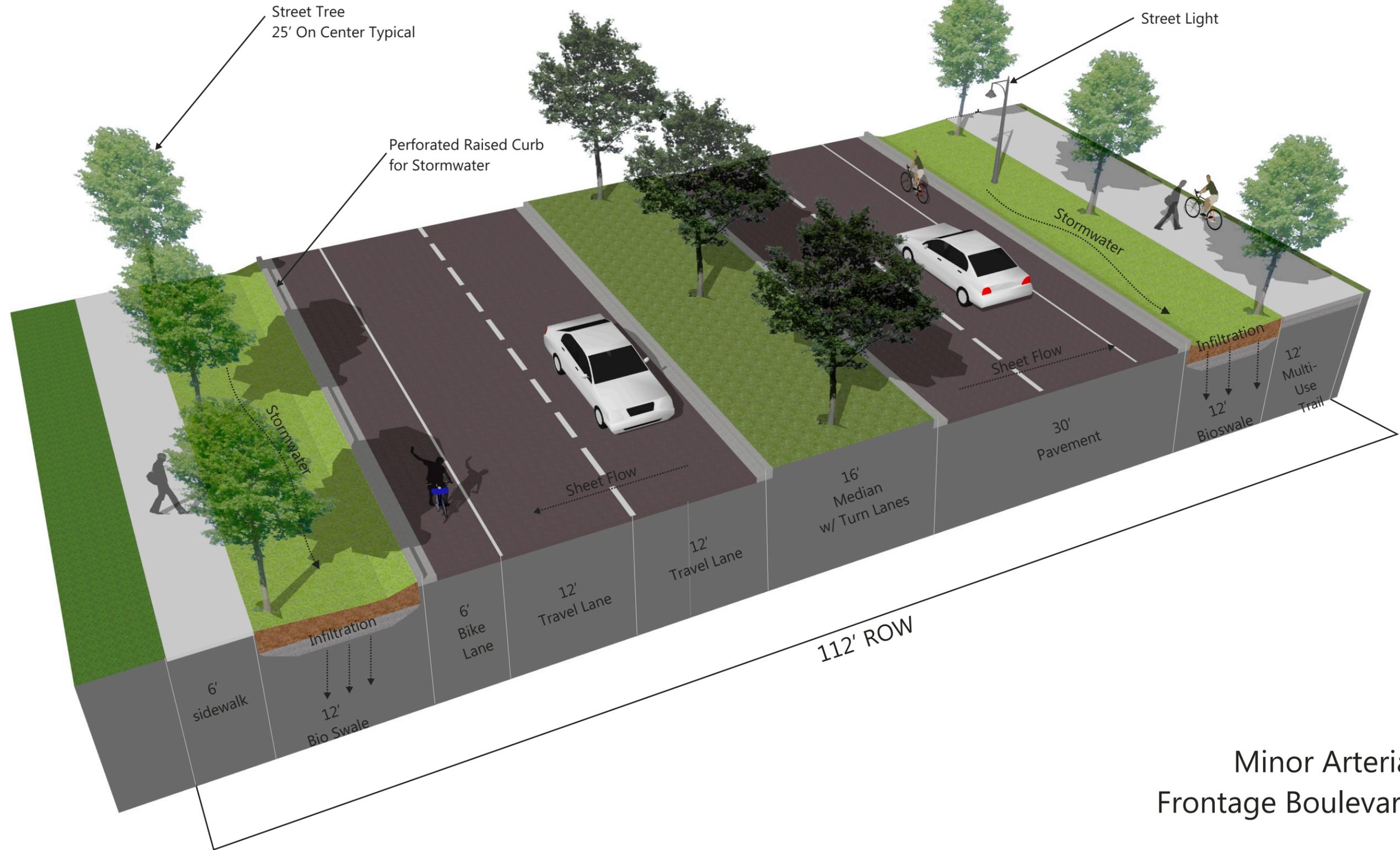
Major Arterial
Colorado River Parkway (FM 969)

URBAN INTENSITY



Major Arterial
Slip Street with Landscape Buffer

URBAN INTENSITY

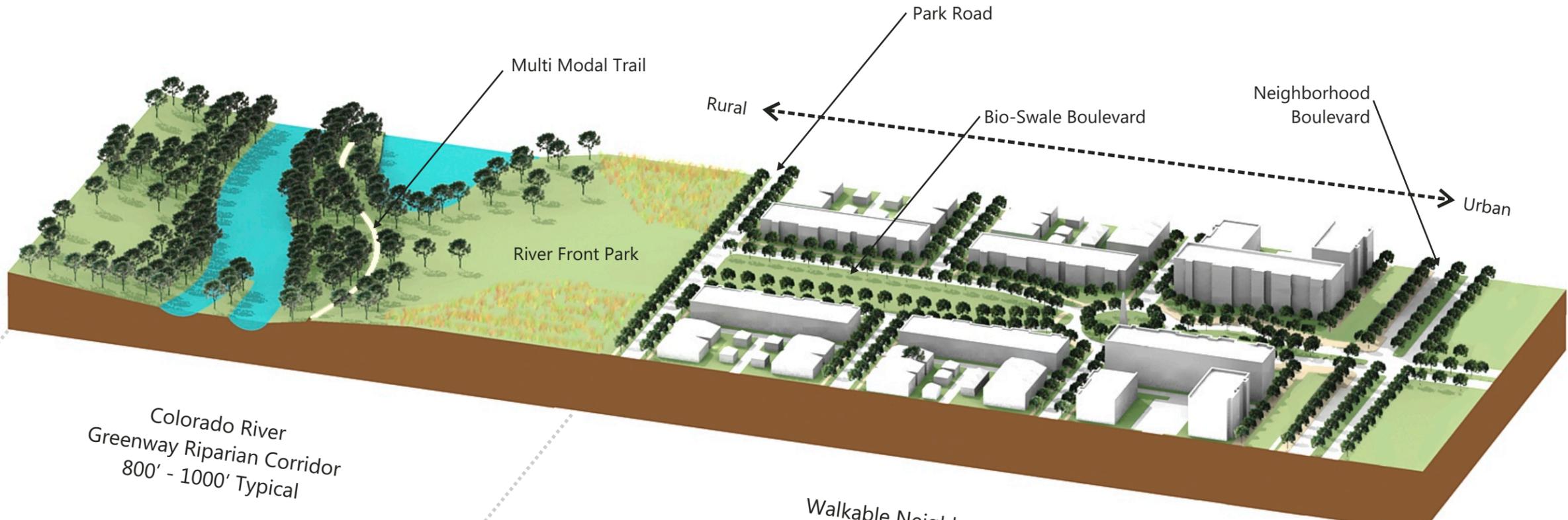


Minor Arterial
Frontage Boulevard

URBAN INTENSITY



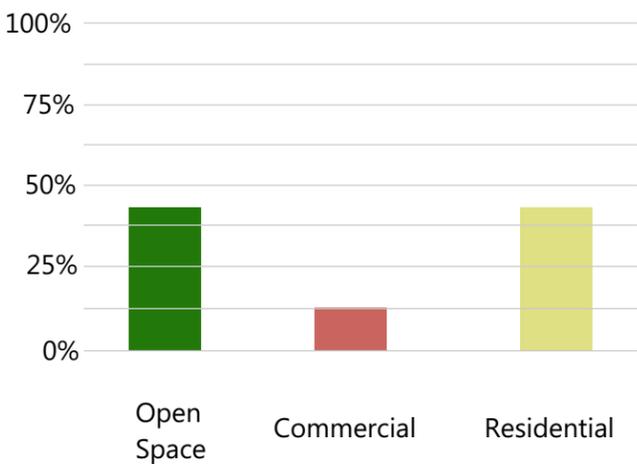
NEIGHBORHOOD INTENSITY TRANSECT



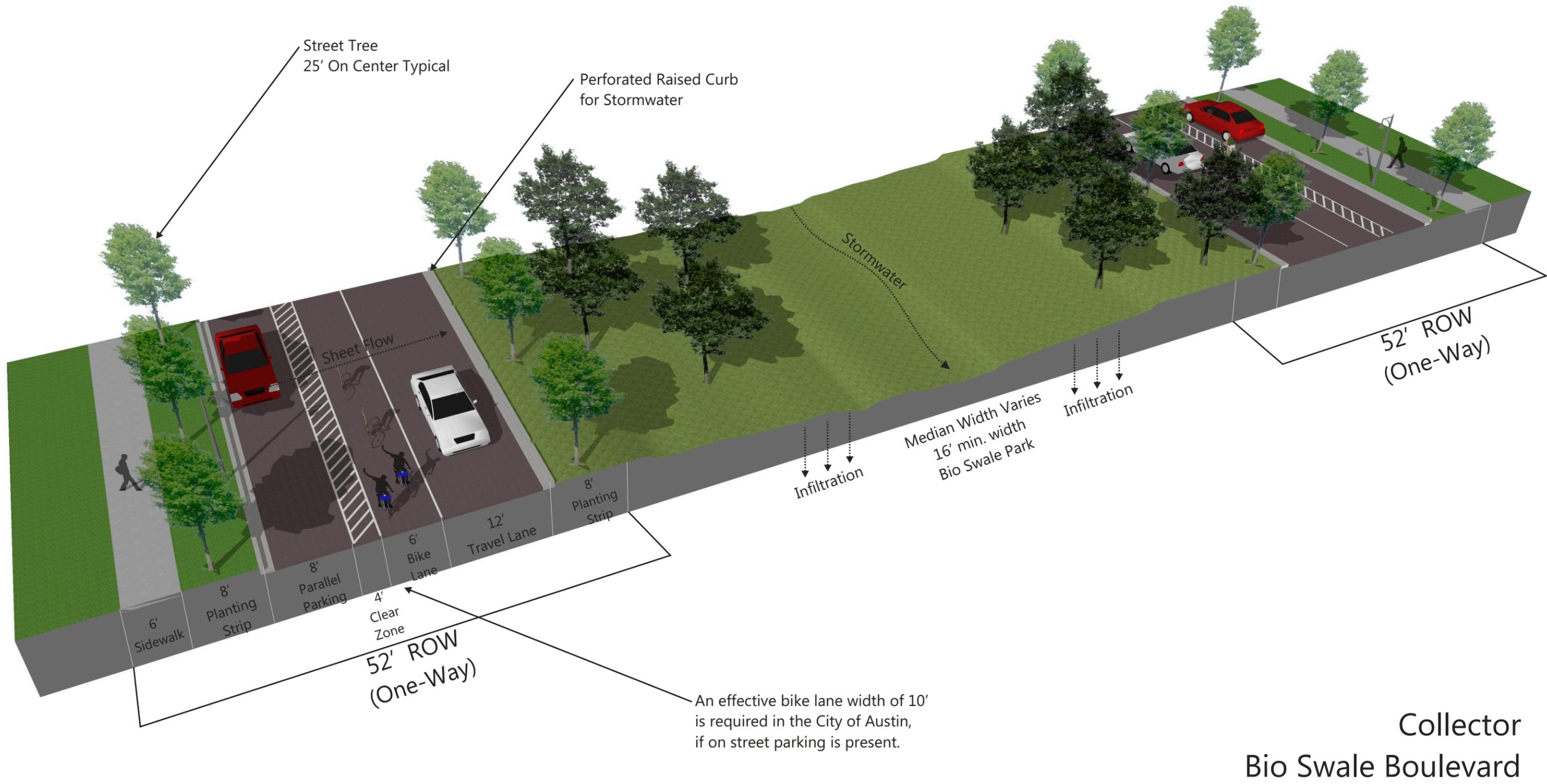
Colorado River
Greenway Riparian Corridor
800' - 1000' Typical

Walkable Neighborhoods
Estate Homes, Single Family Homes, Townhomes & Duplex
from 3-10 dwelling units per acre

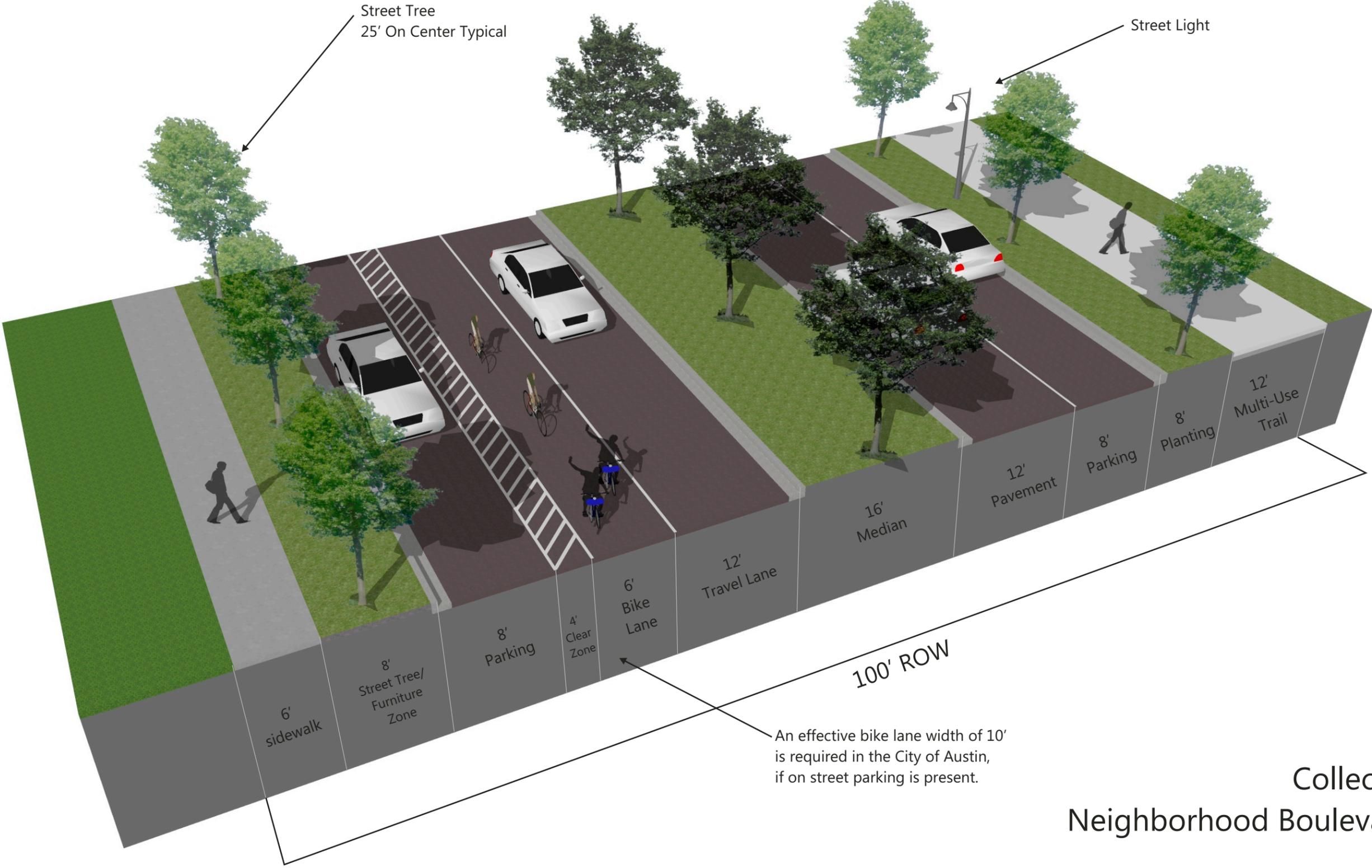
Typical Land Use Mix



NEIGHBORHOOD INTENSITY



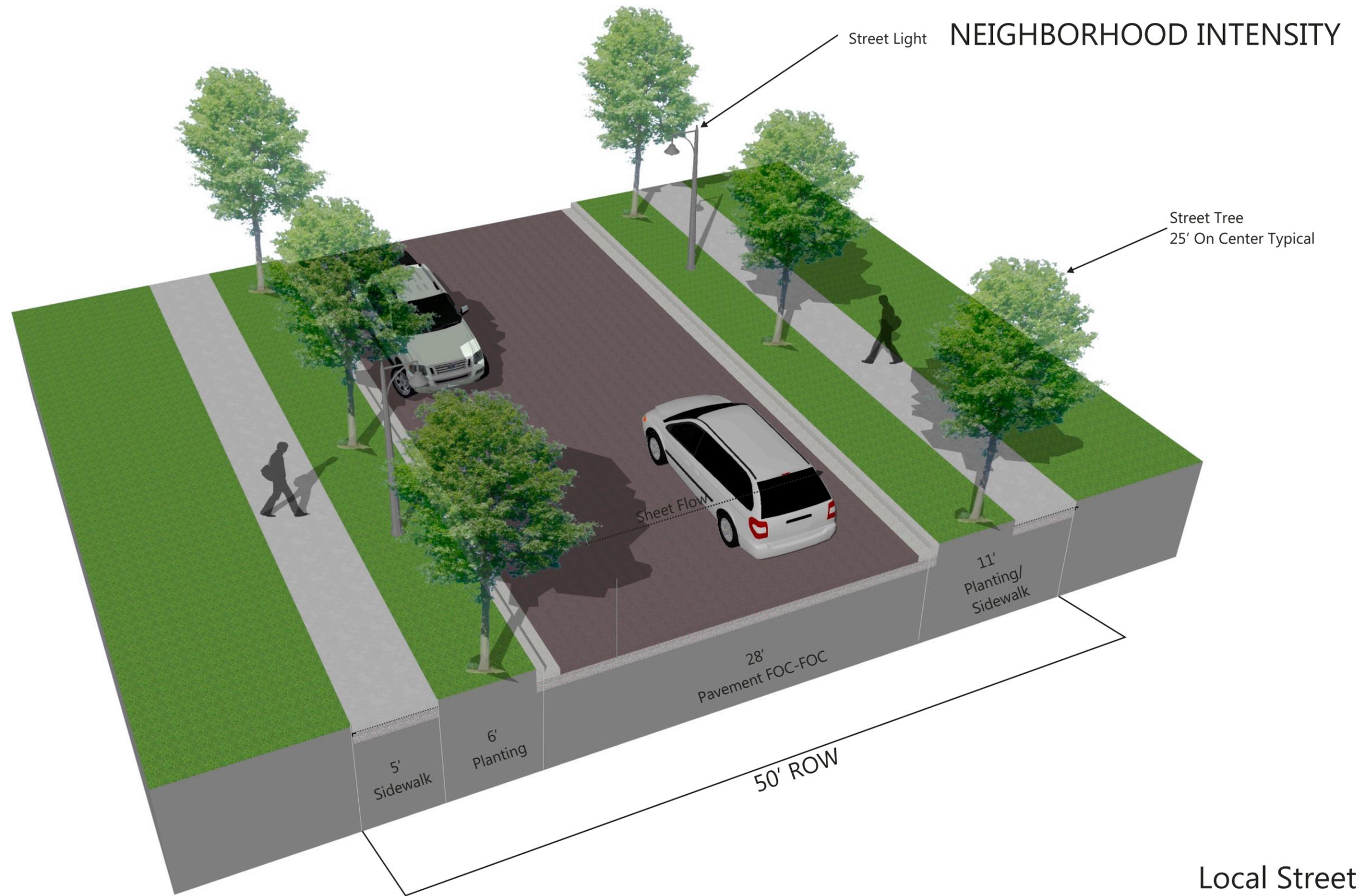
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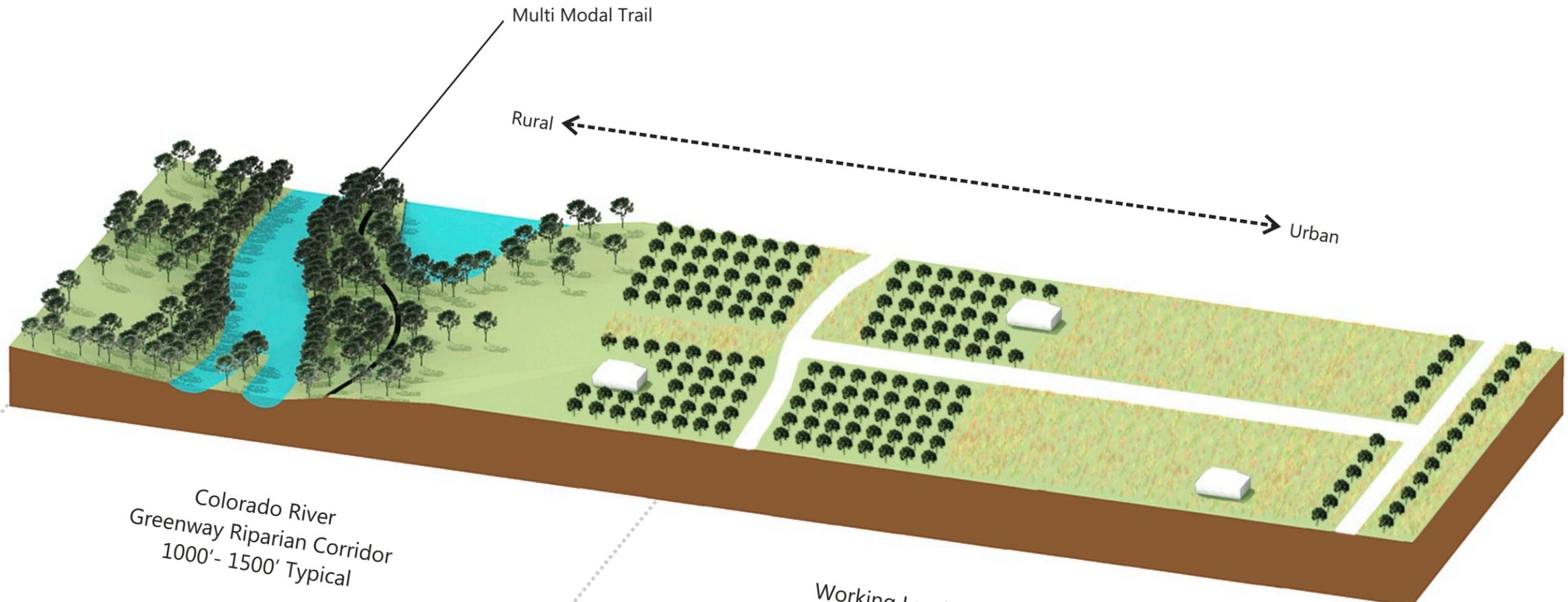
NEIGHBORHOOD INTENSITY



Collector
Connector Street



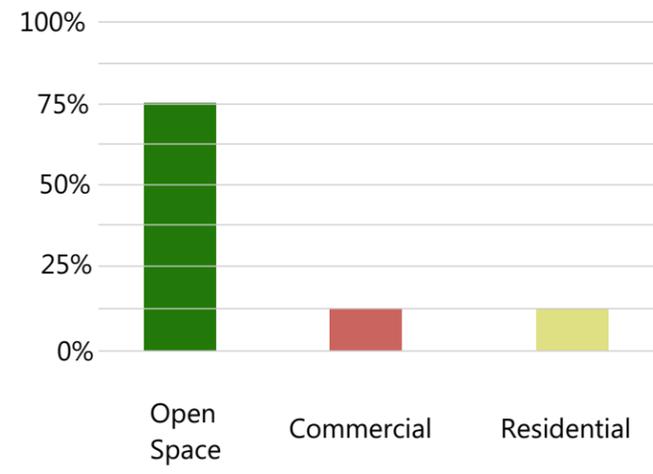
RURAL INTENSITY TRANSECT



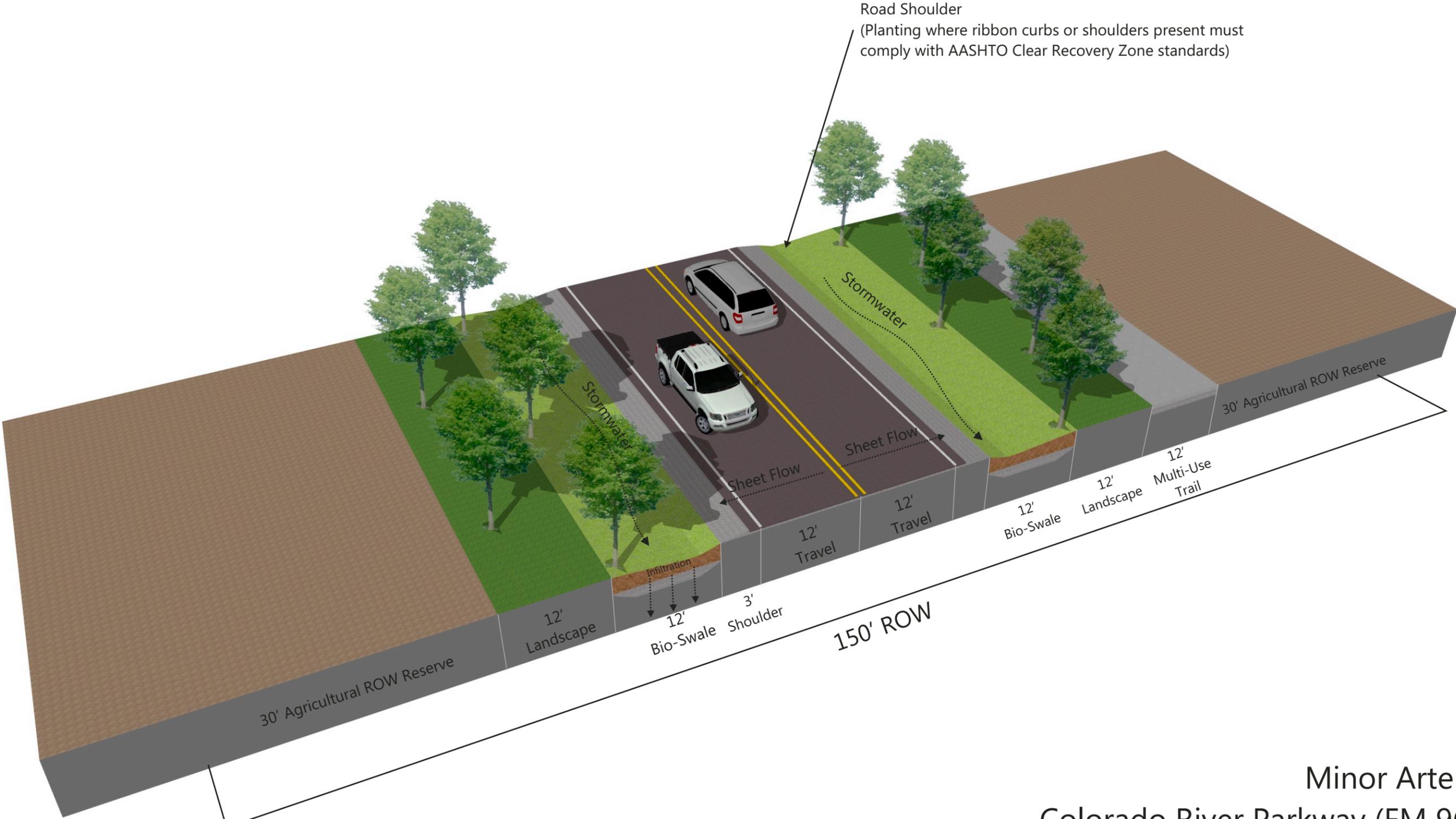
Colorado River
Greenway Riparian Corridor
1000'- 1500' Typical

Working Lands & Natural Resources
Farms, Ranches, Orchards,
Resource Extraction

Typical Land Use Mix

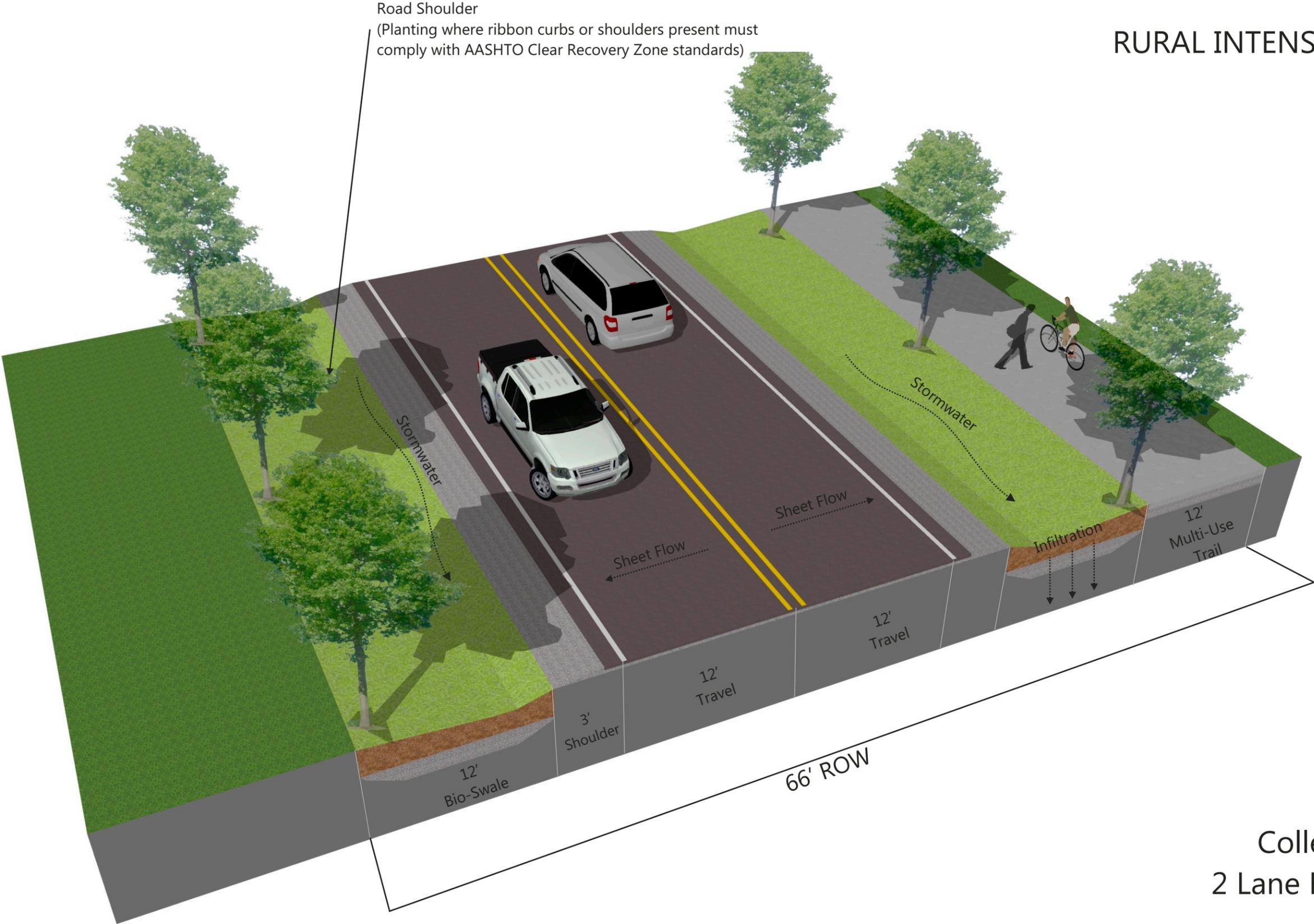


RURAL INTENSITY



Minor Arterial
Colorado River Parkway (FM 969)

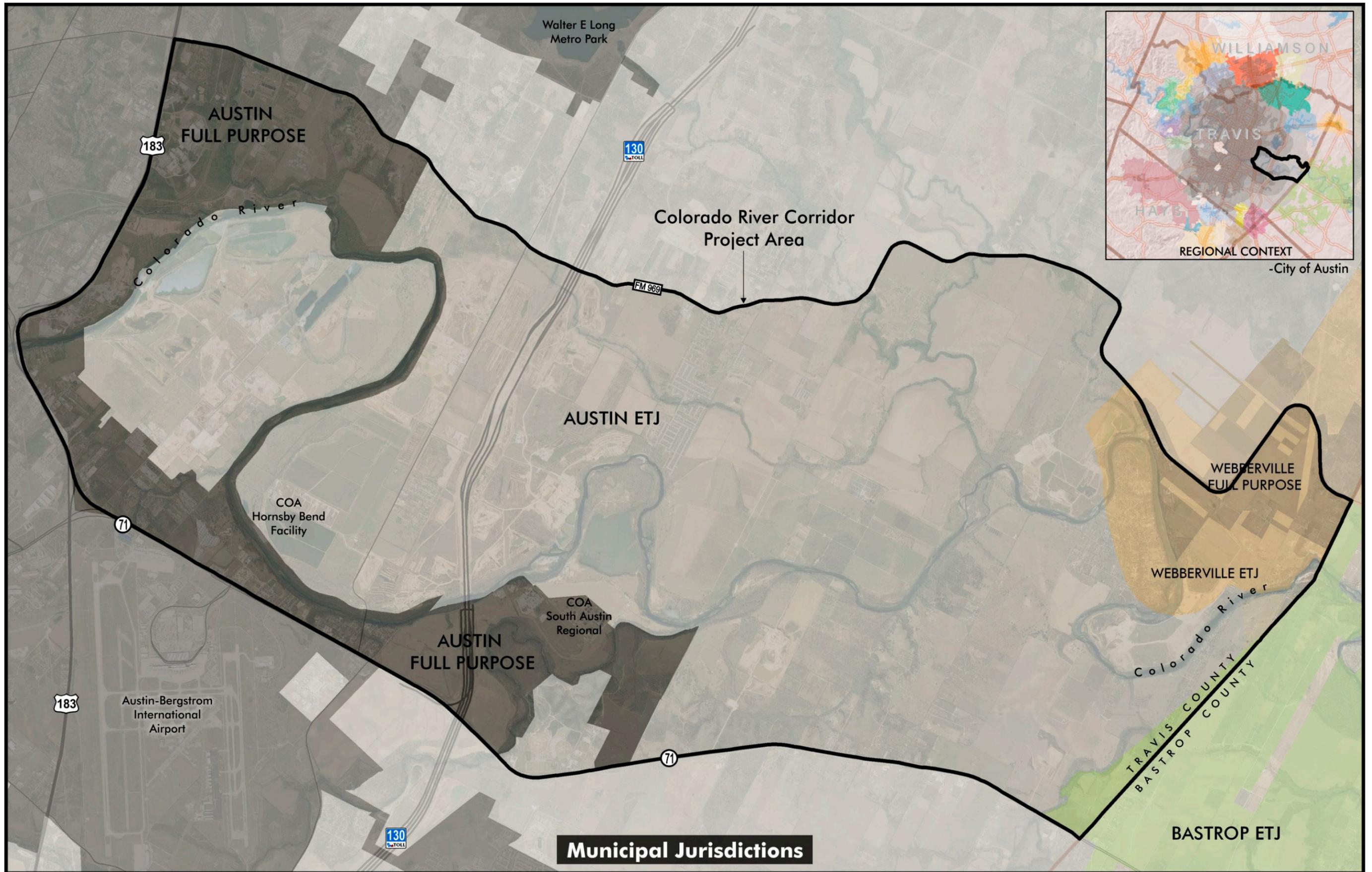
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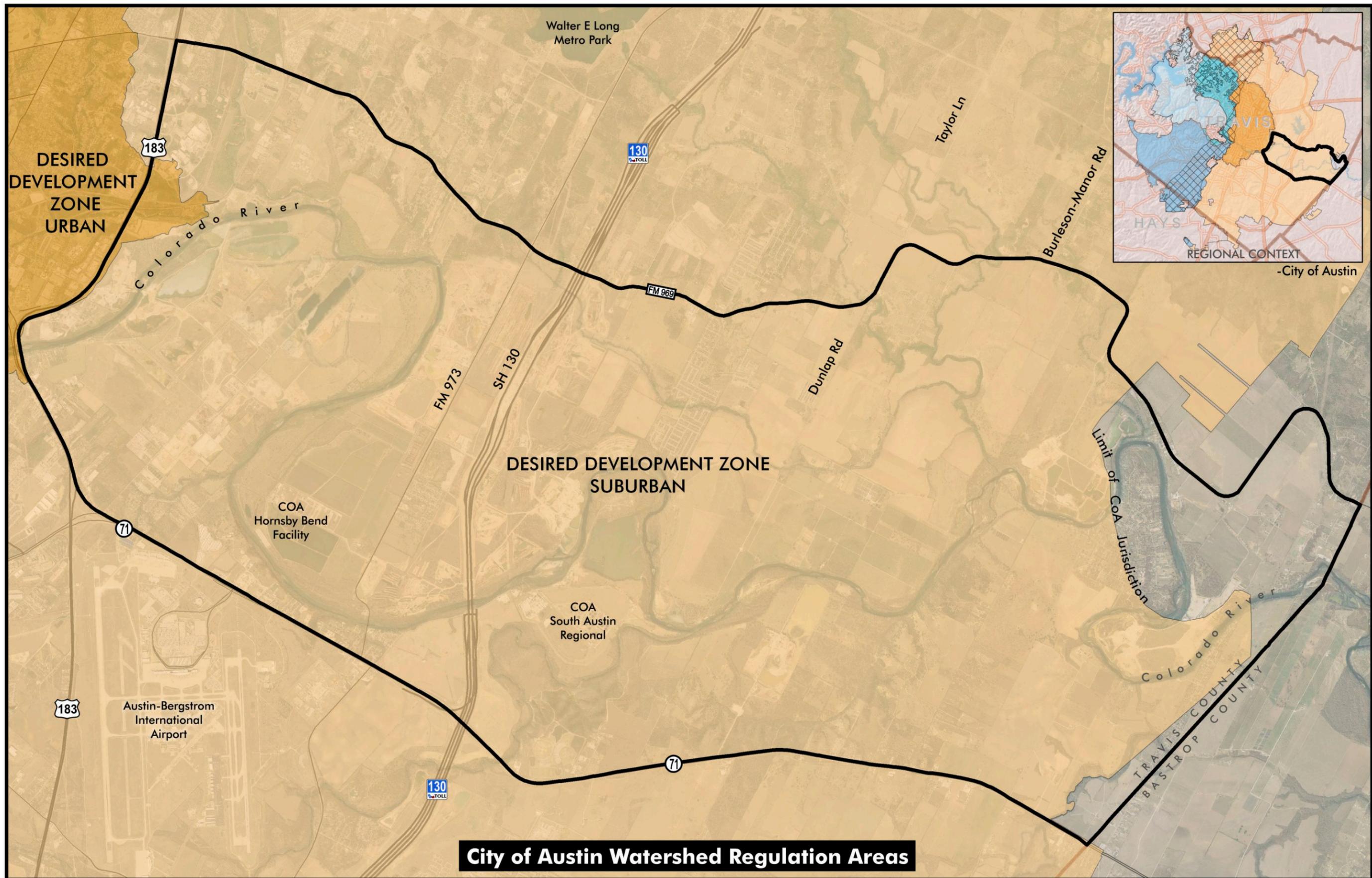


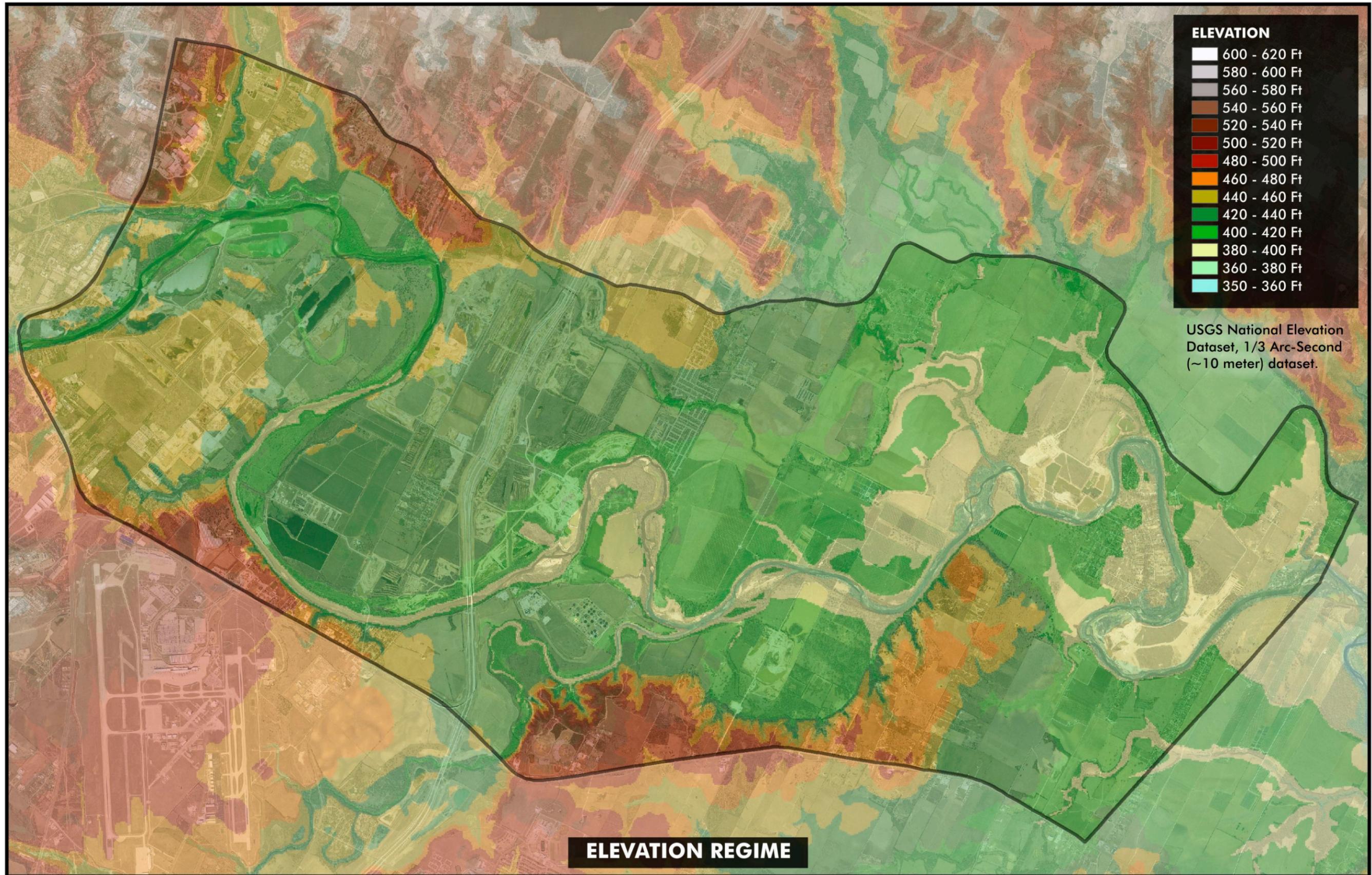
Road Shoulder
(Planting where ribbon curbs or shoulders present must comply with AASHTO Clear Recovery Zone standards)

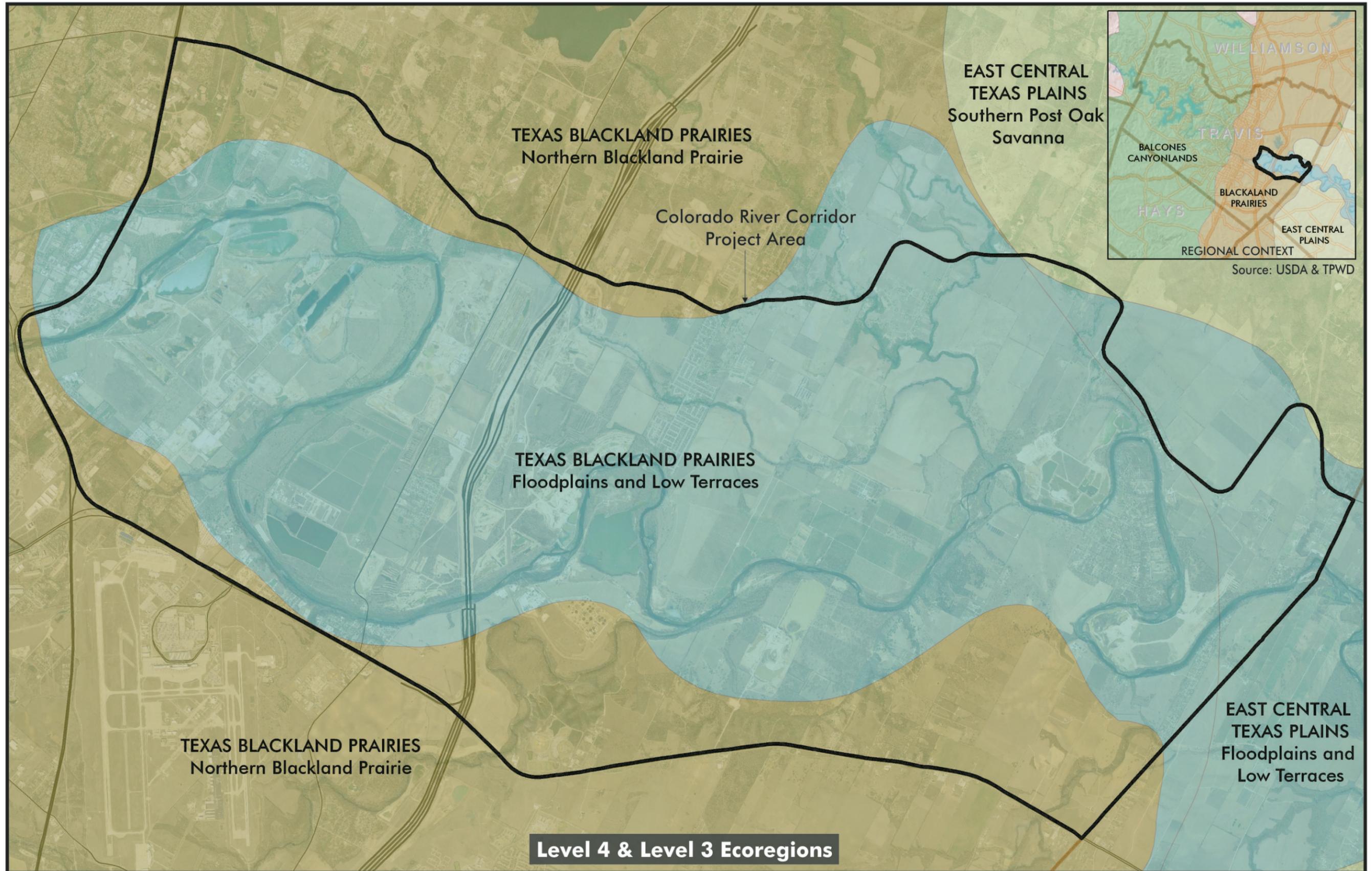
Collector
2 Lane Road

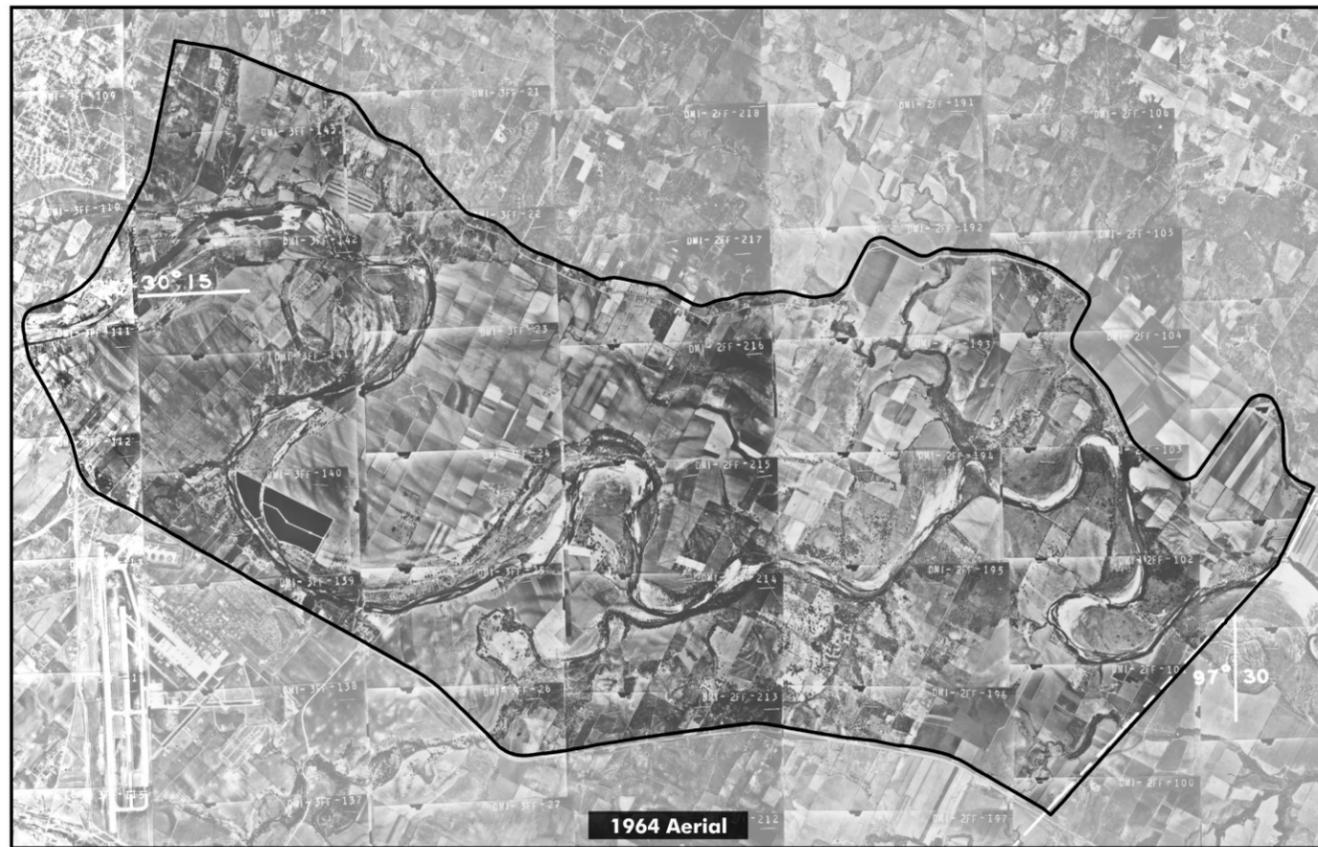
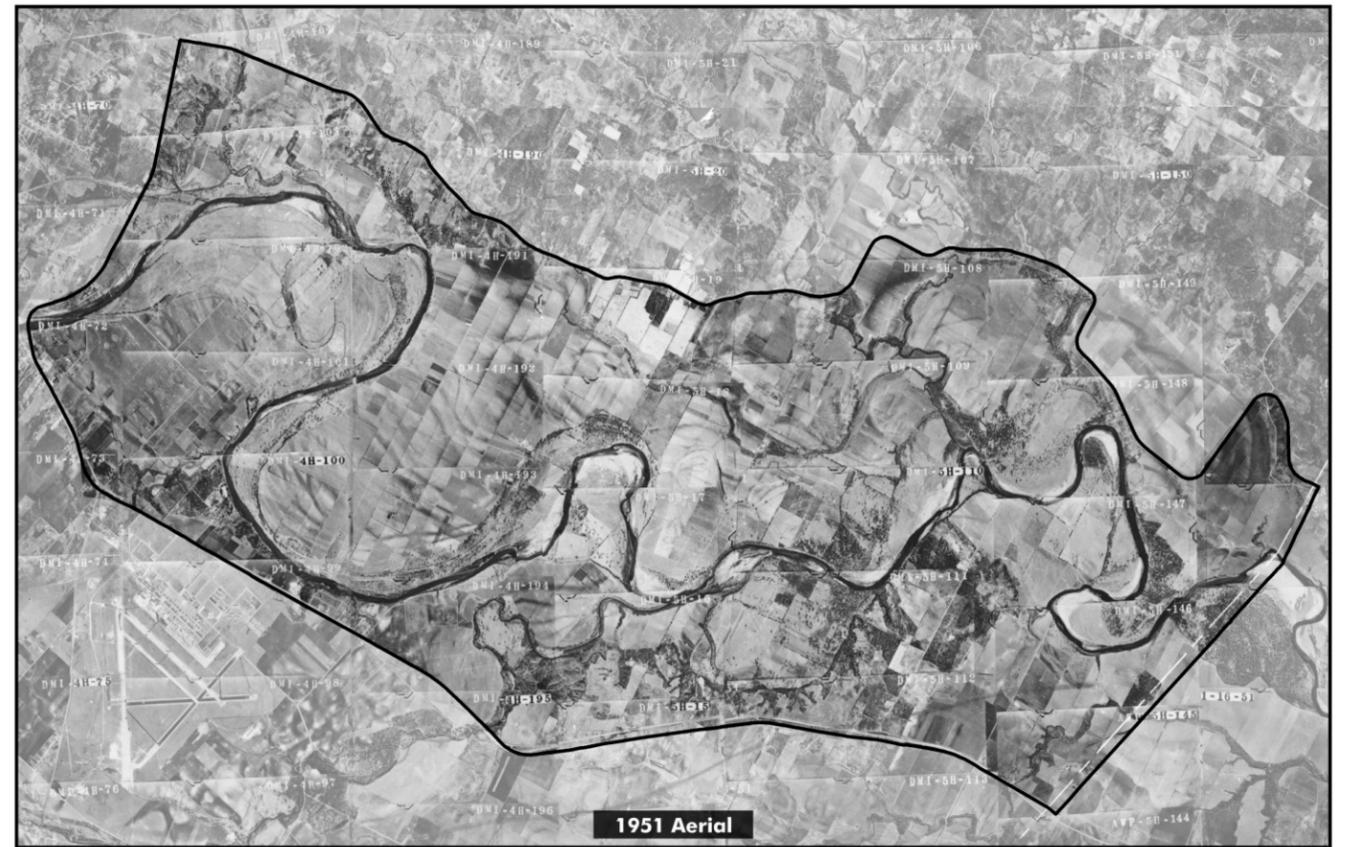
Appendix E: Analysis Maps





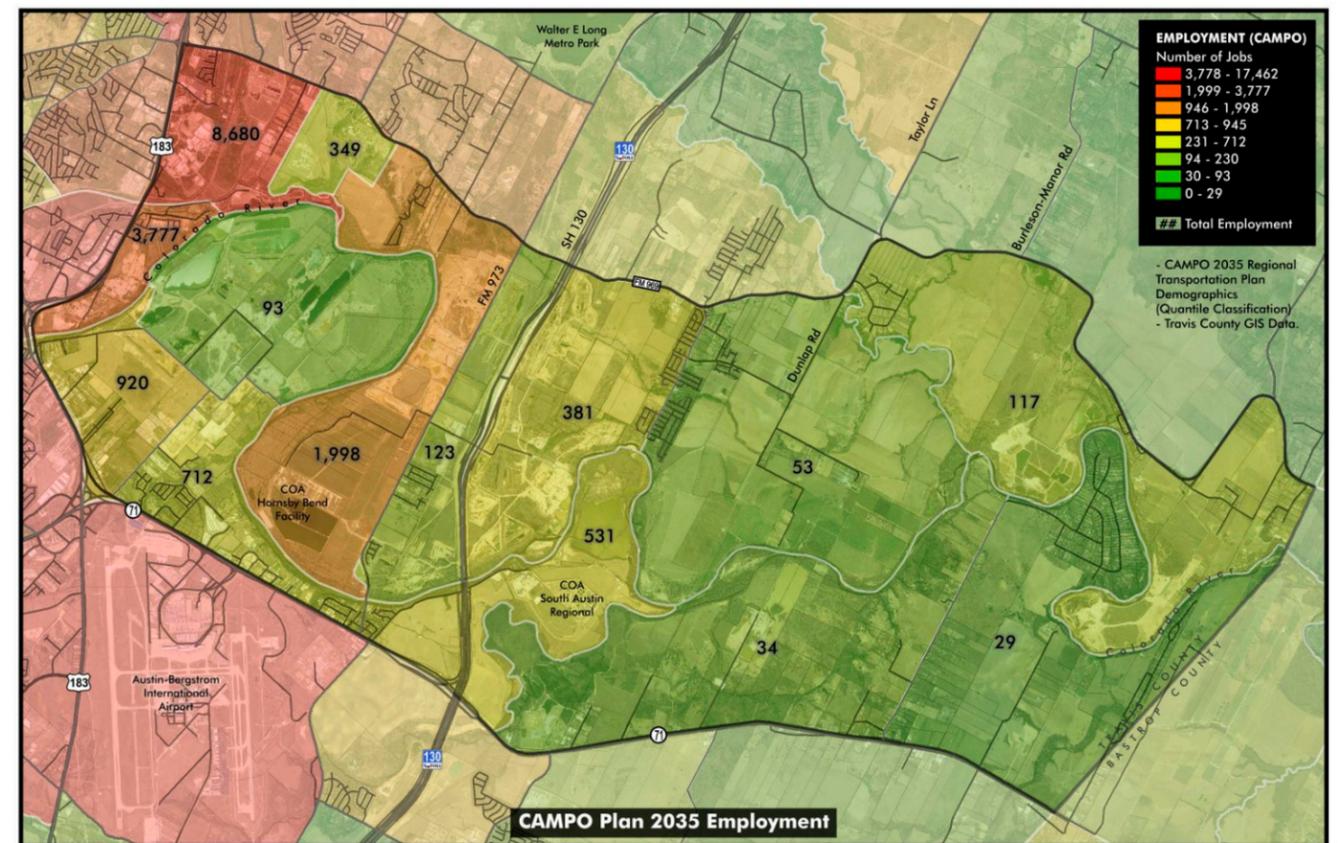
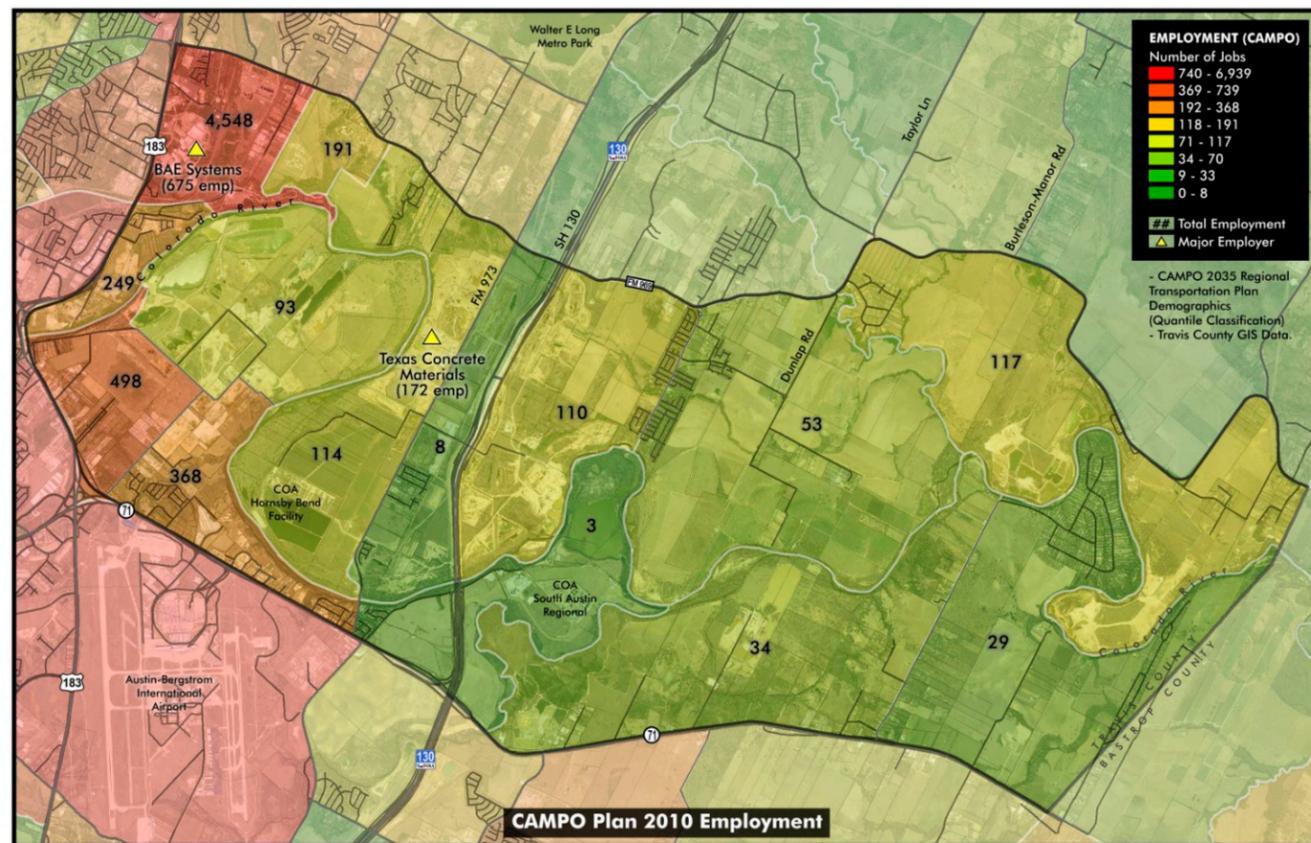
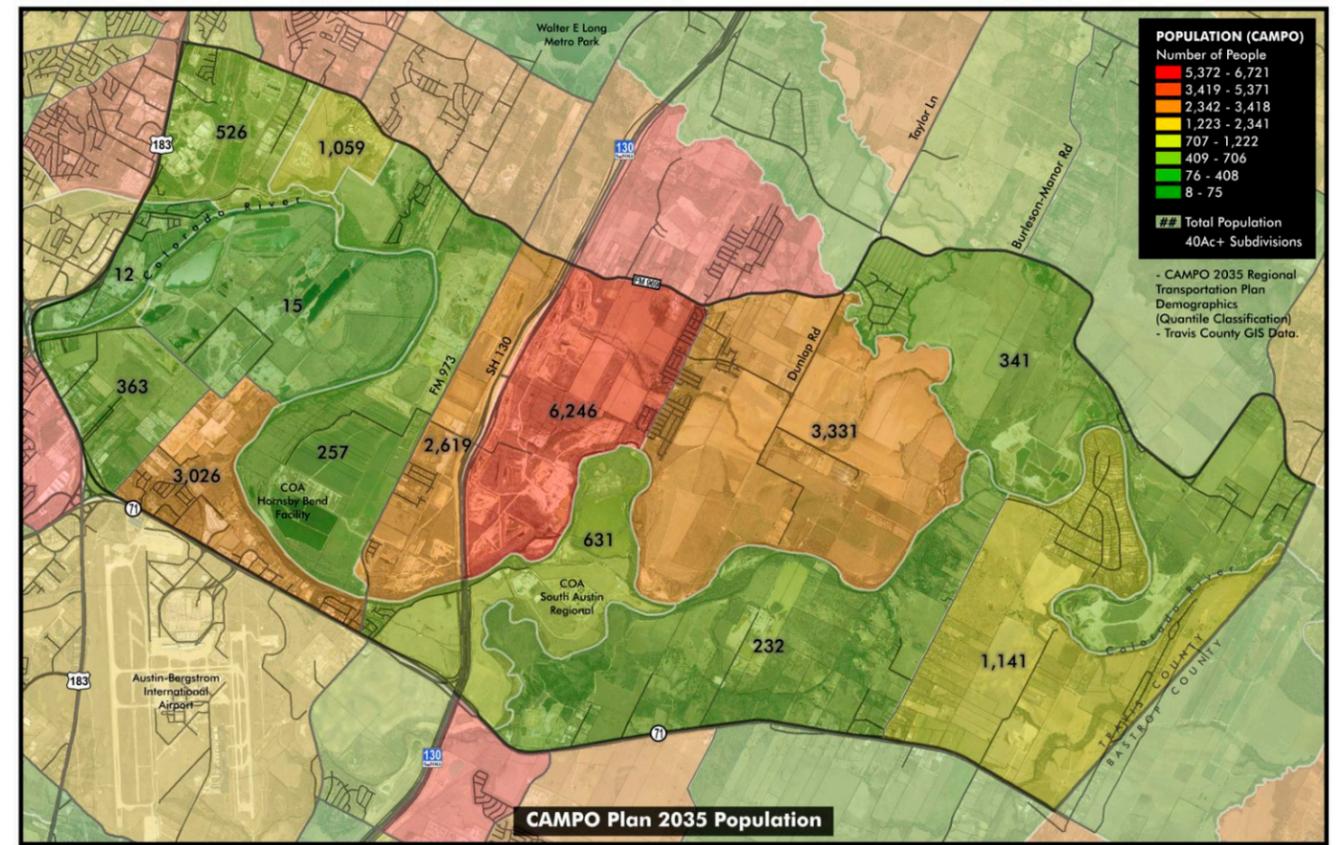
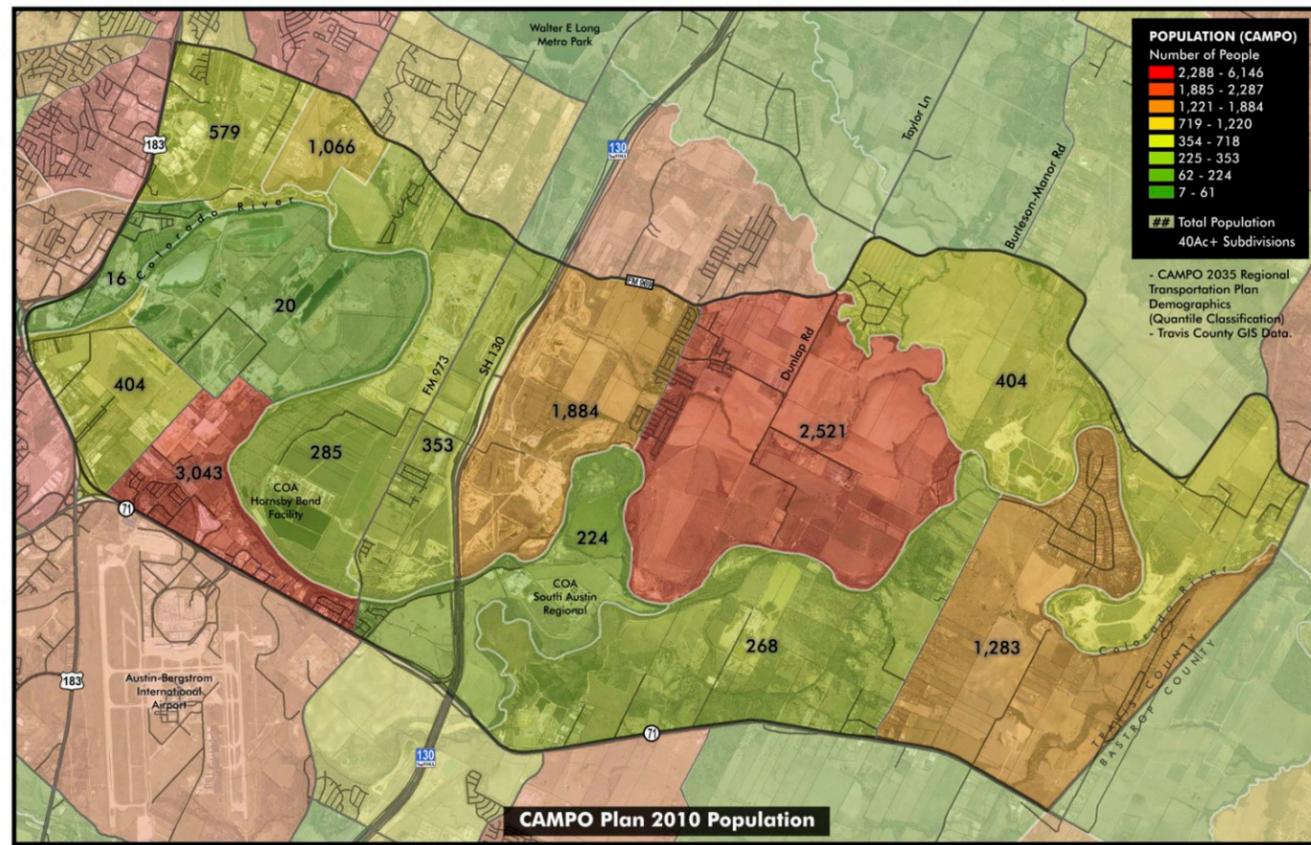






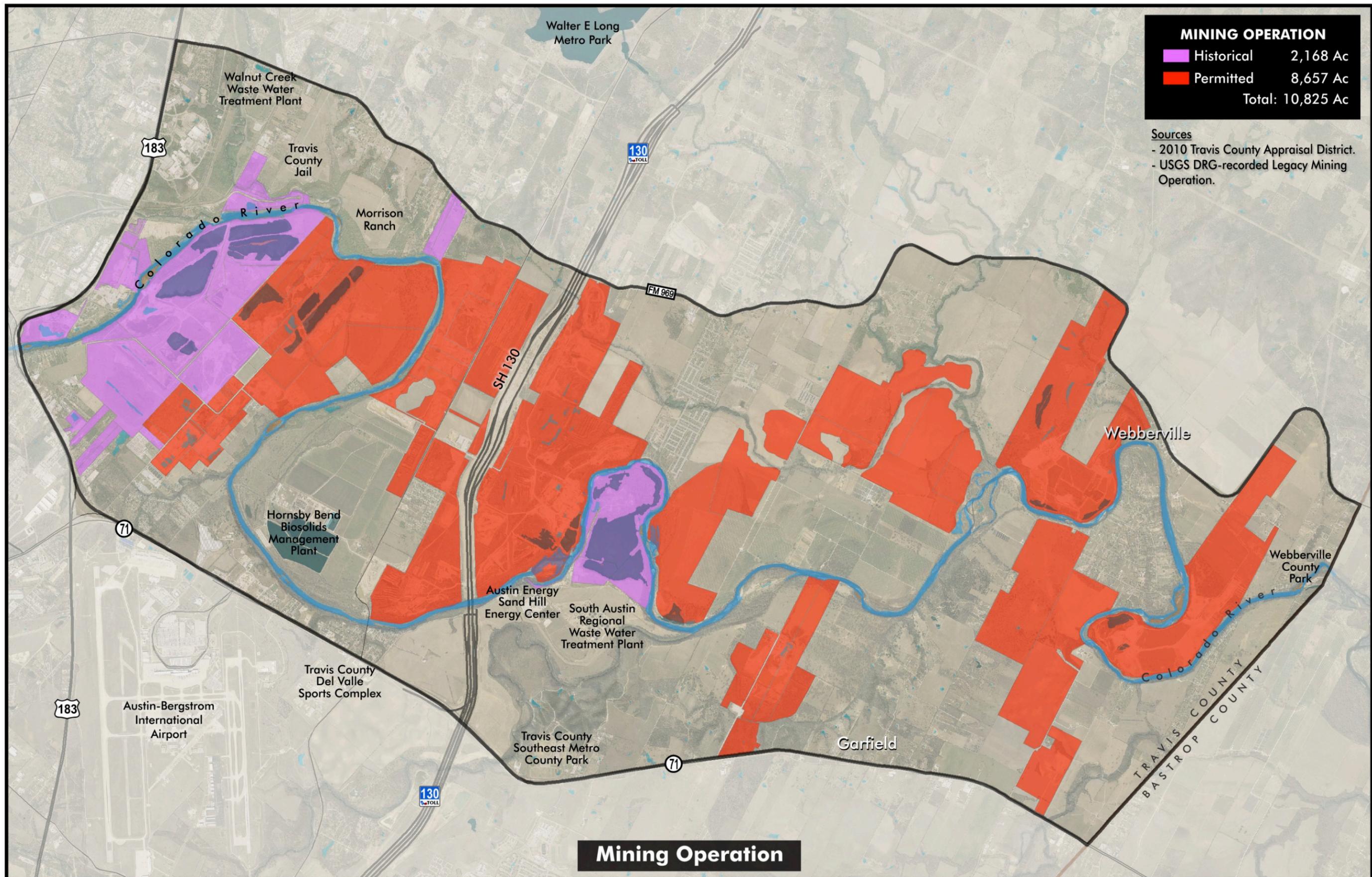


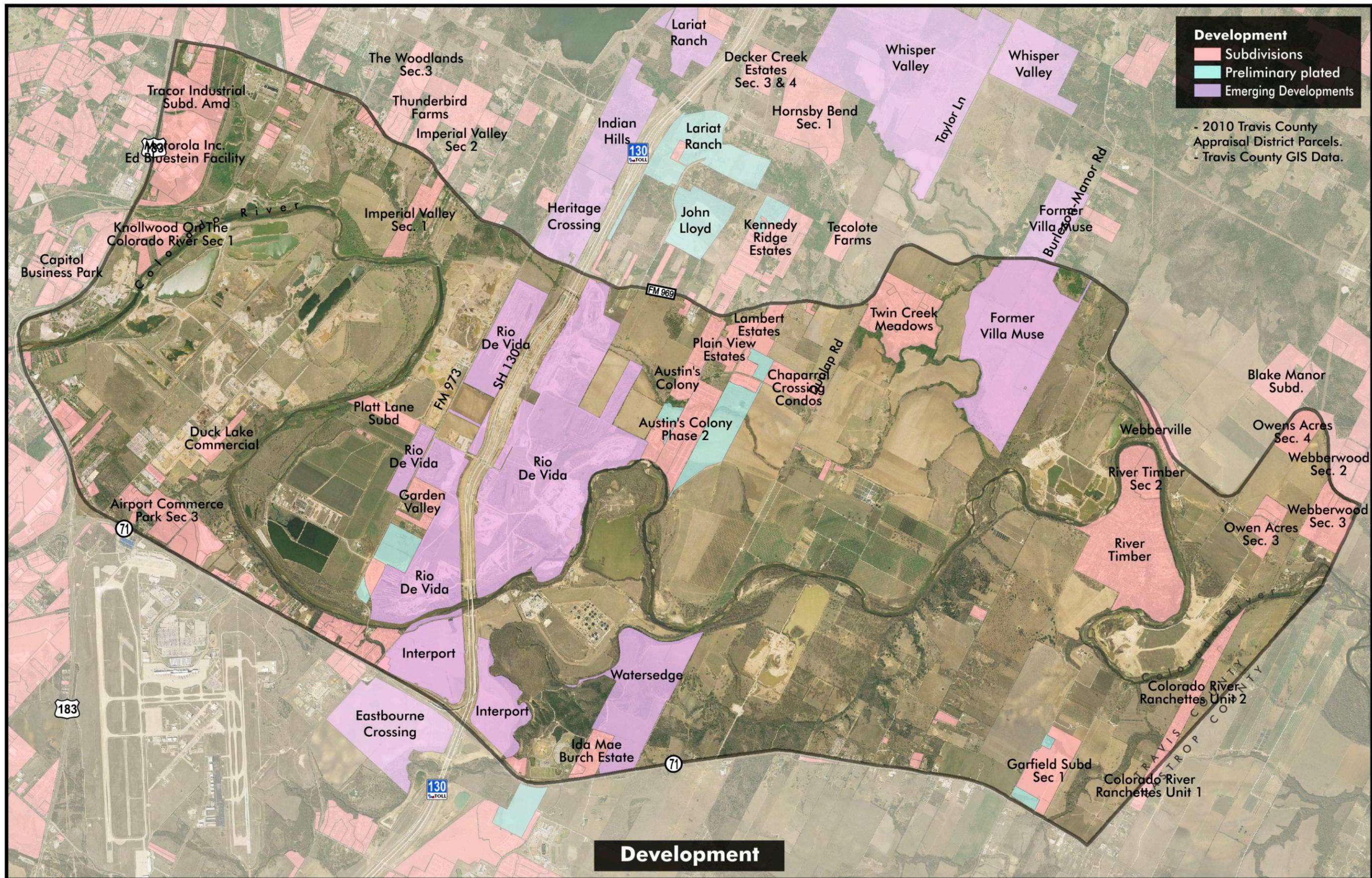


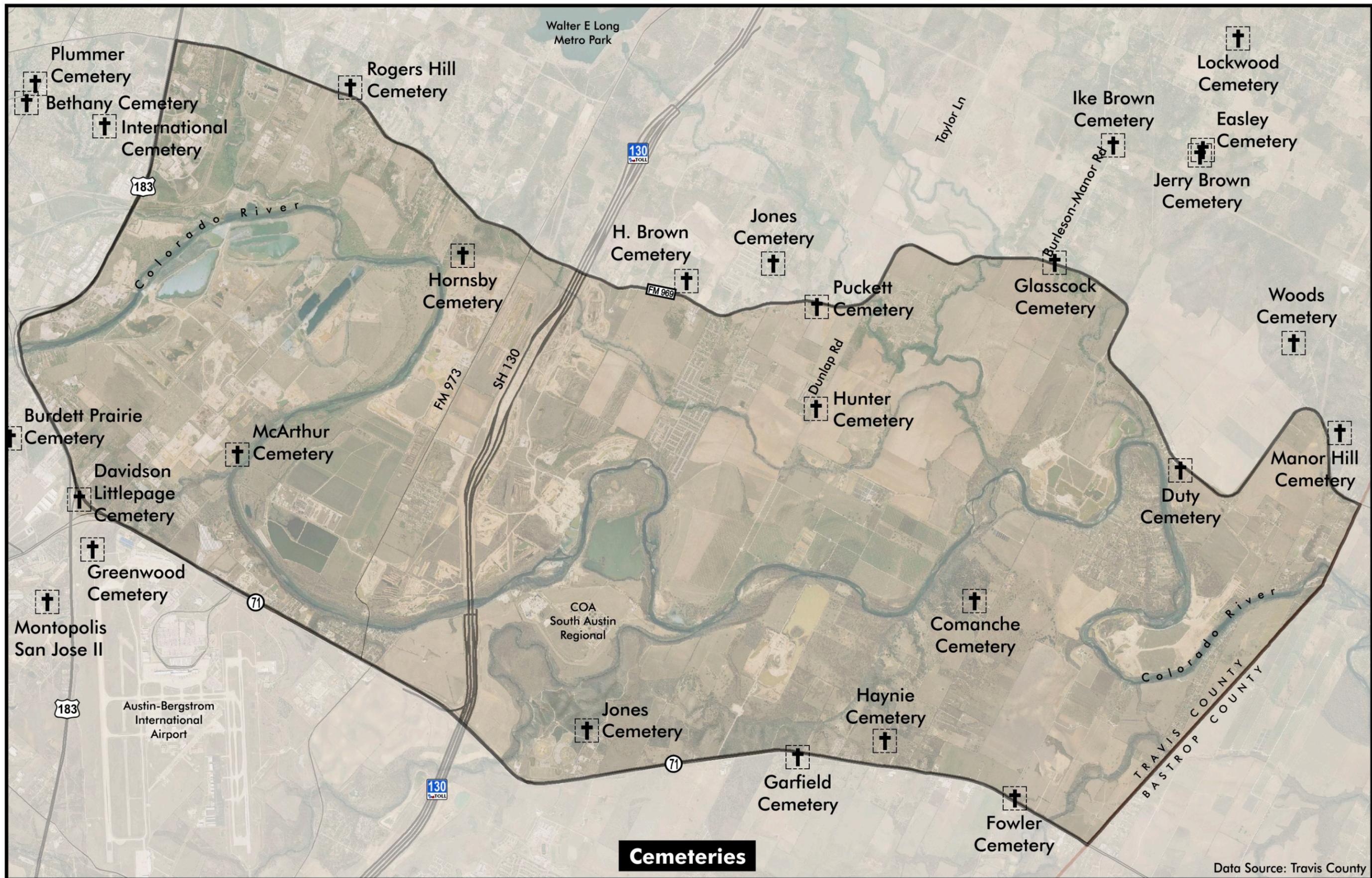


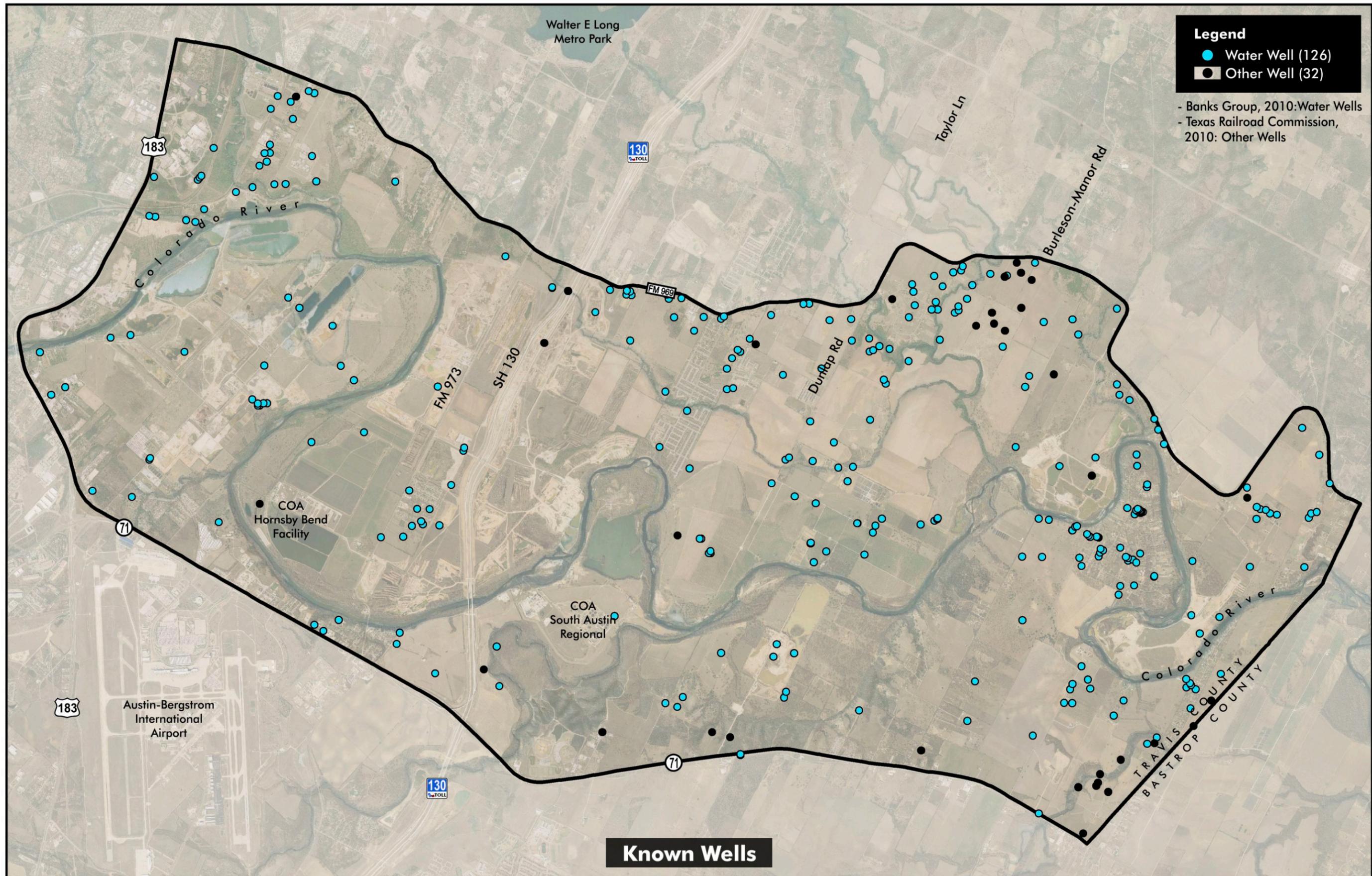




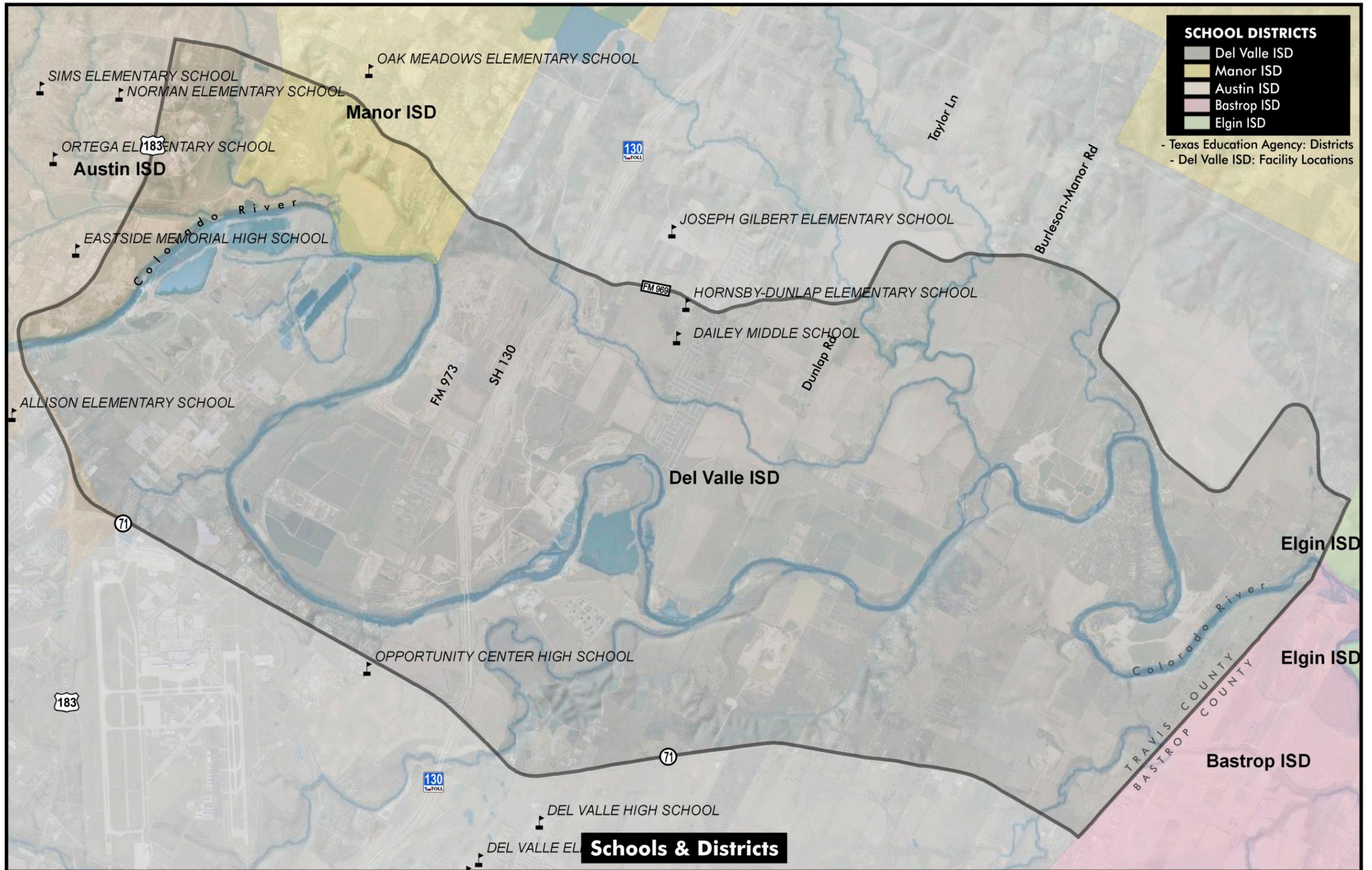


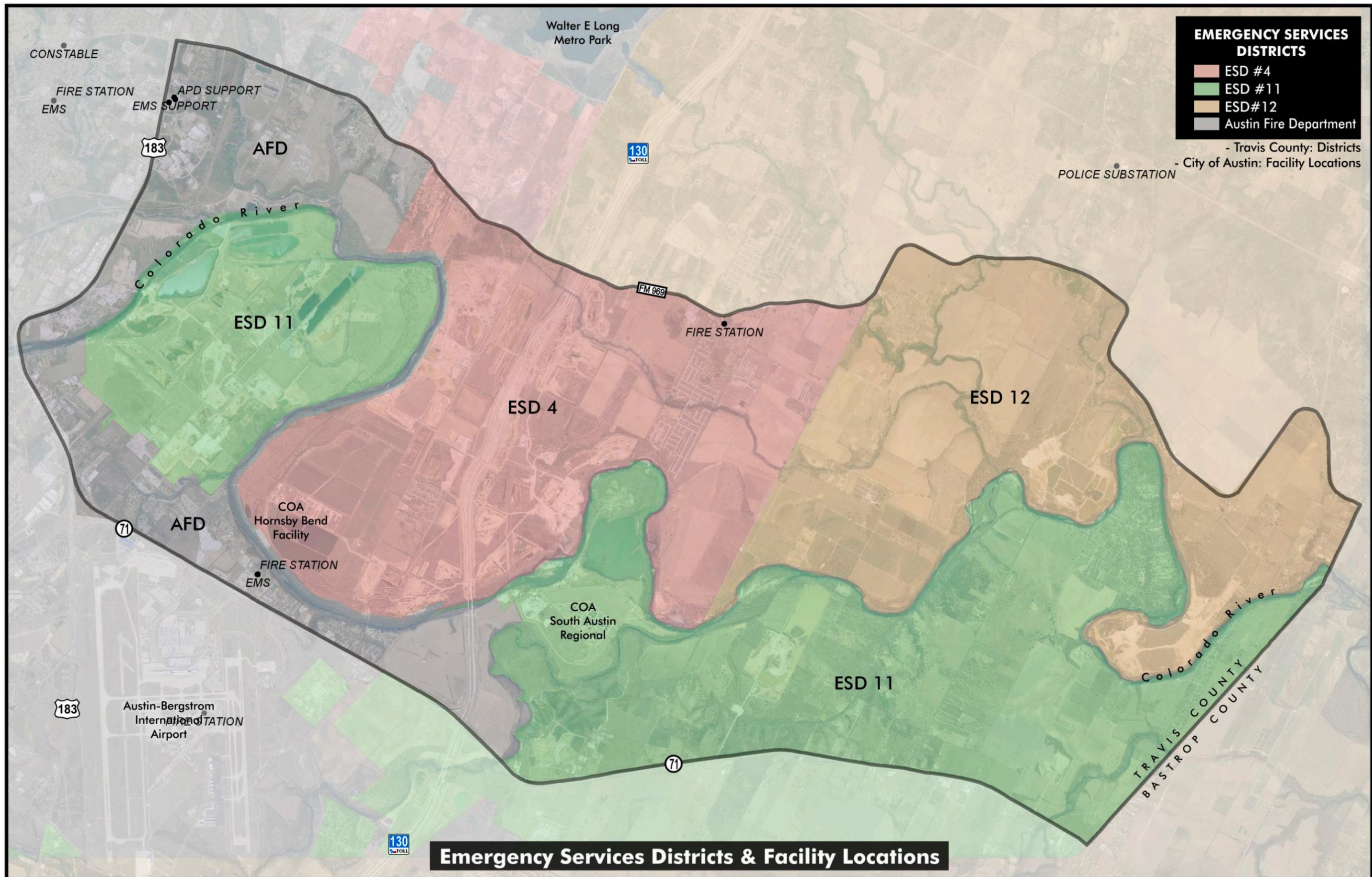




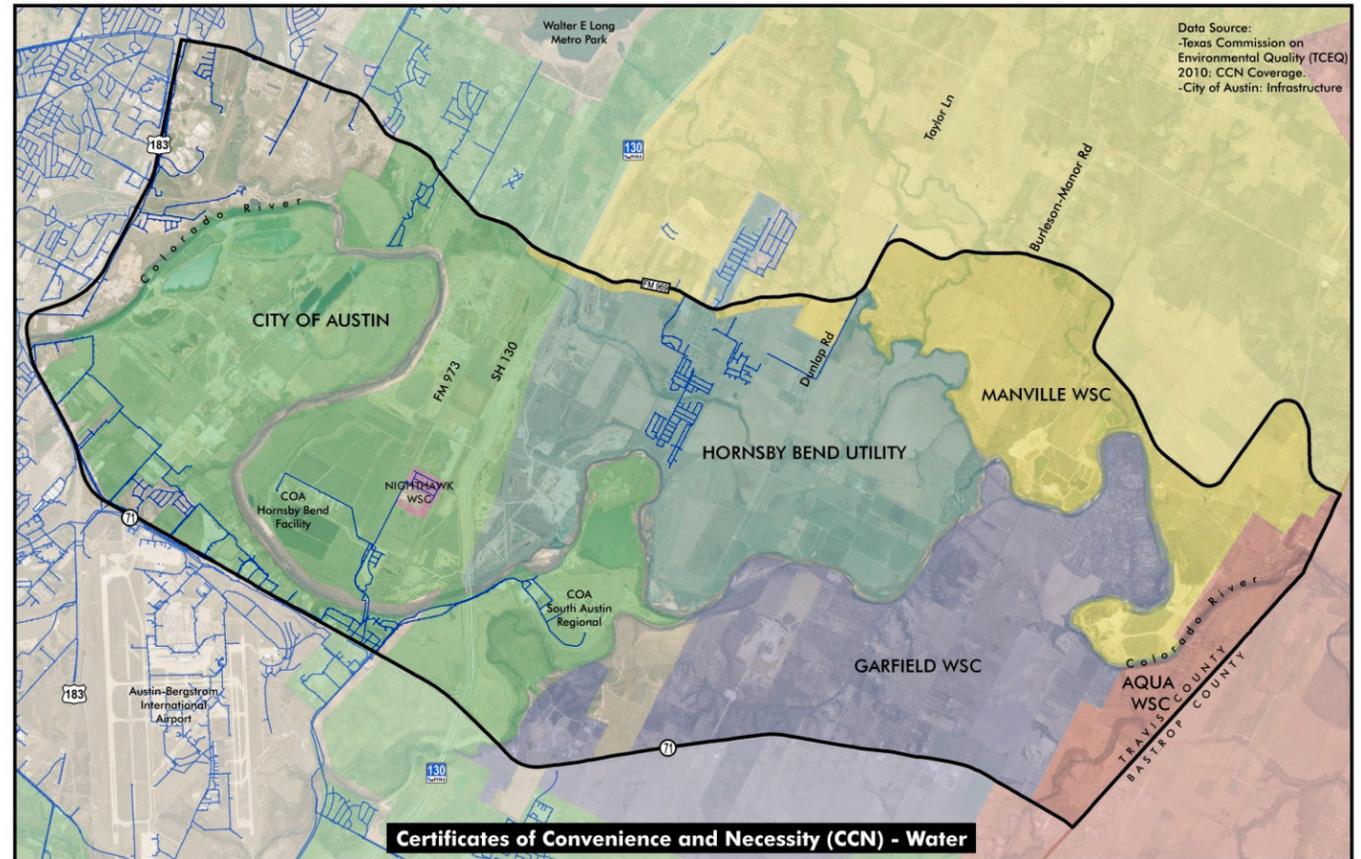
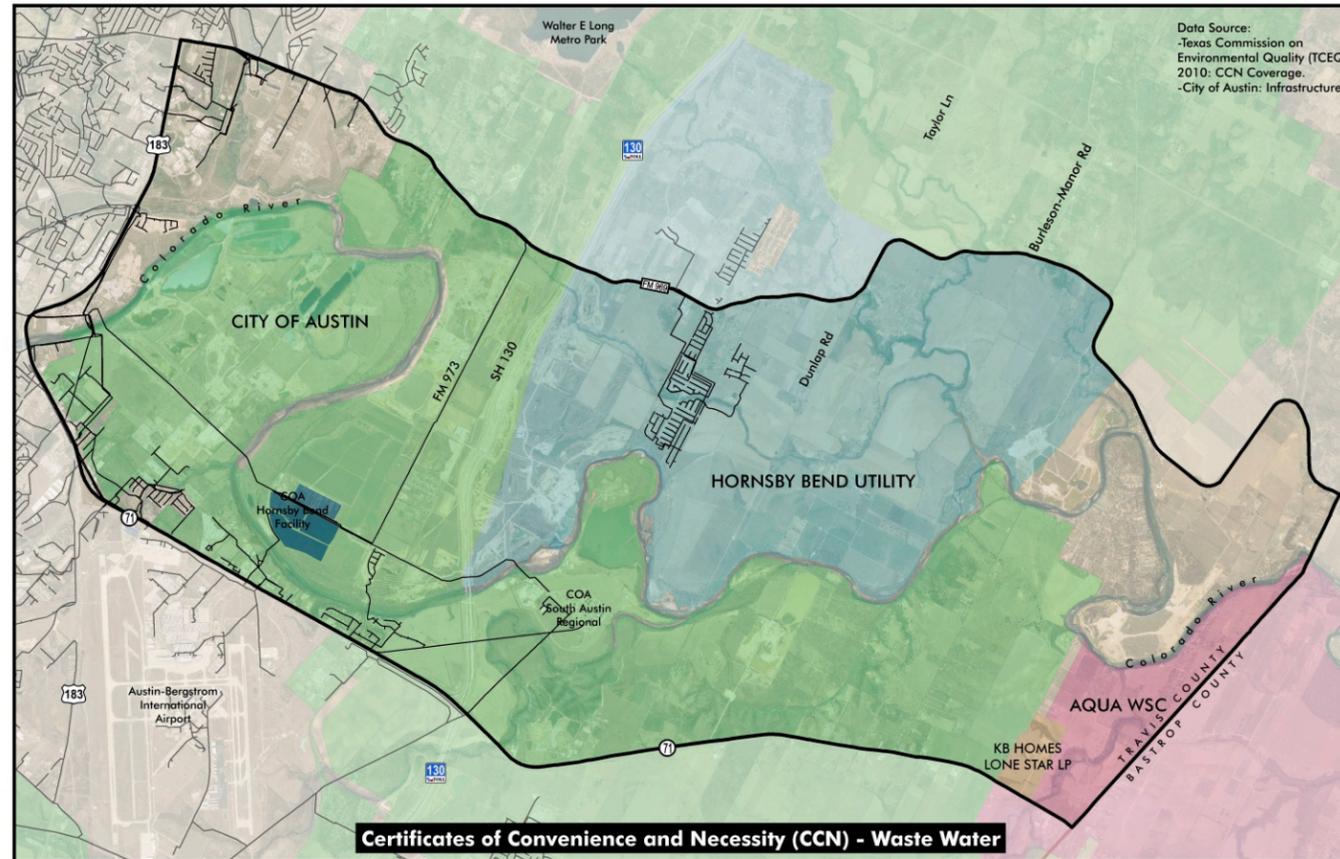


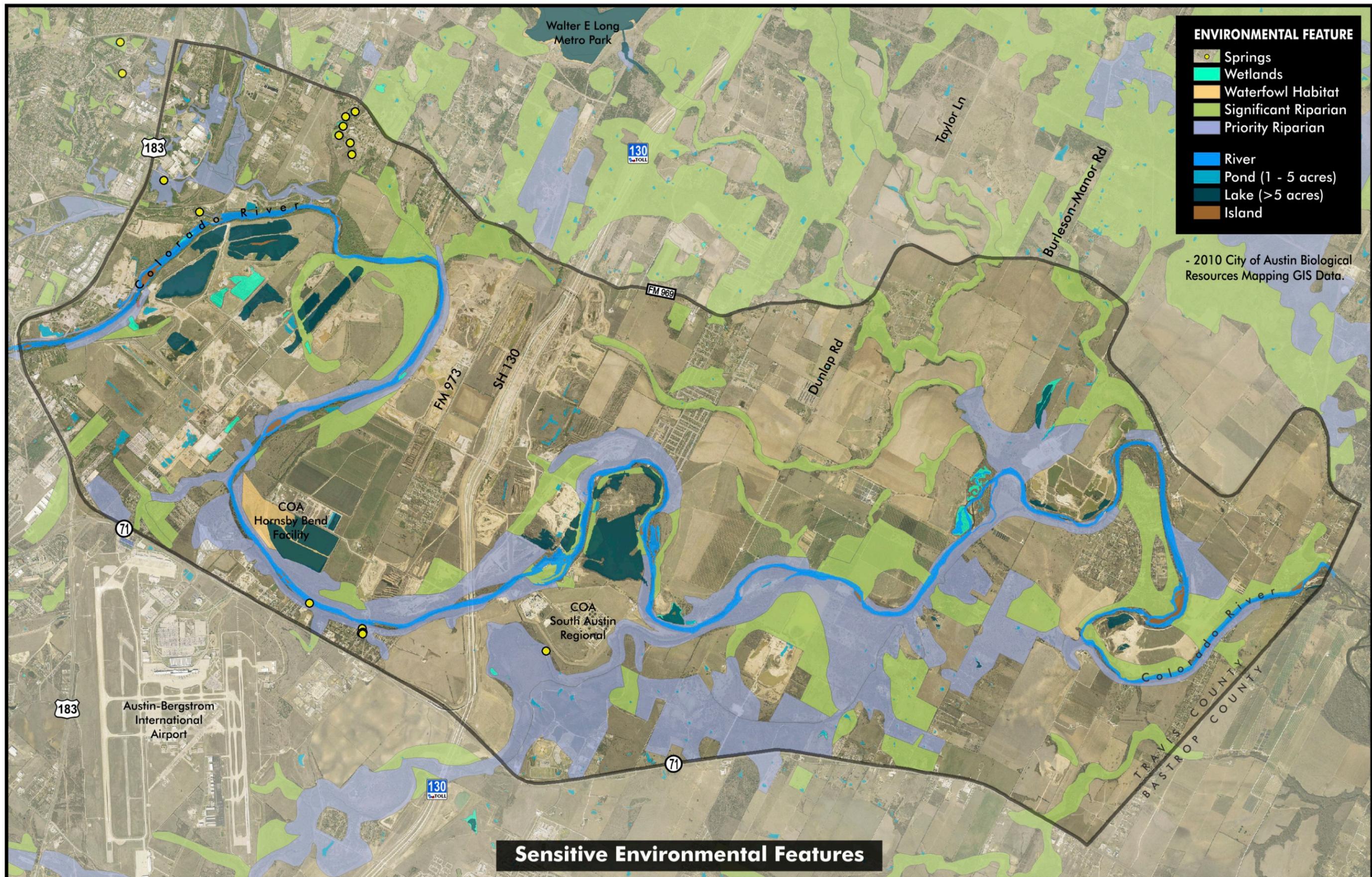








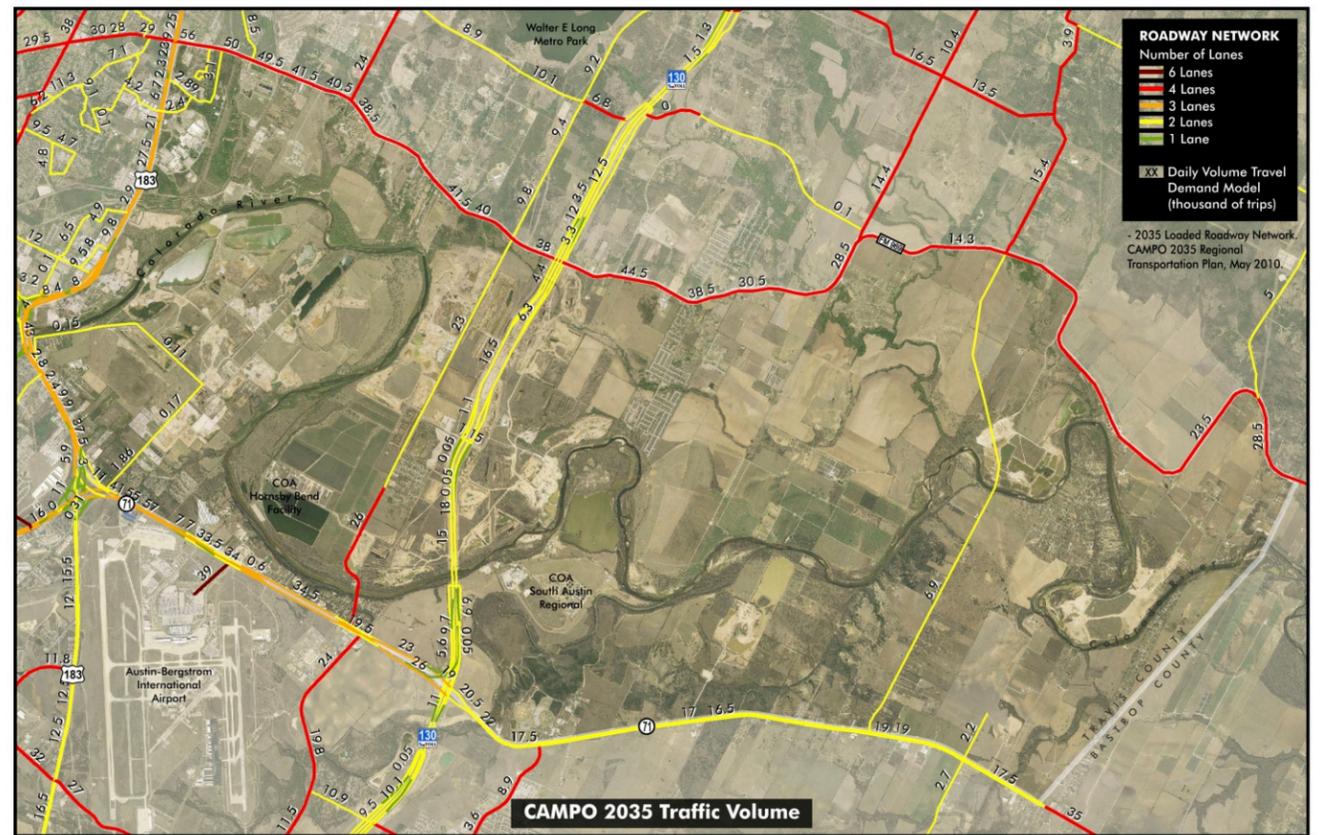
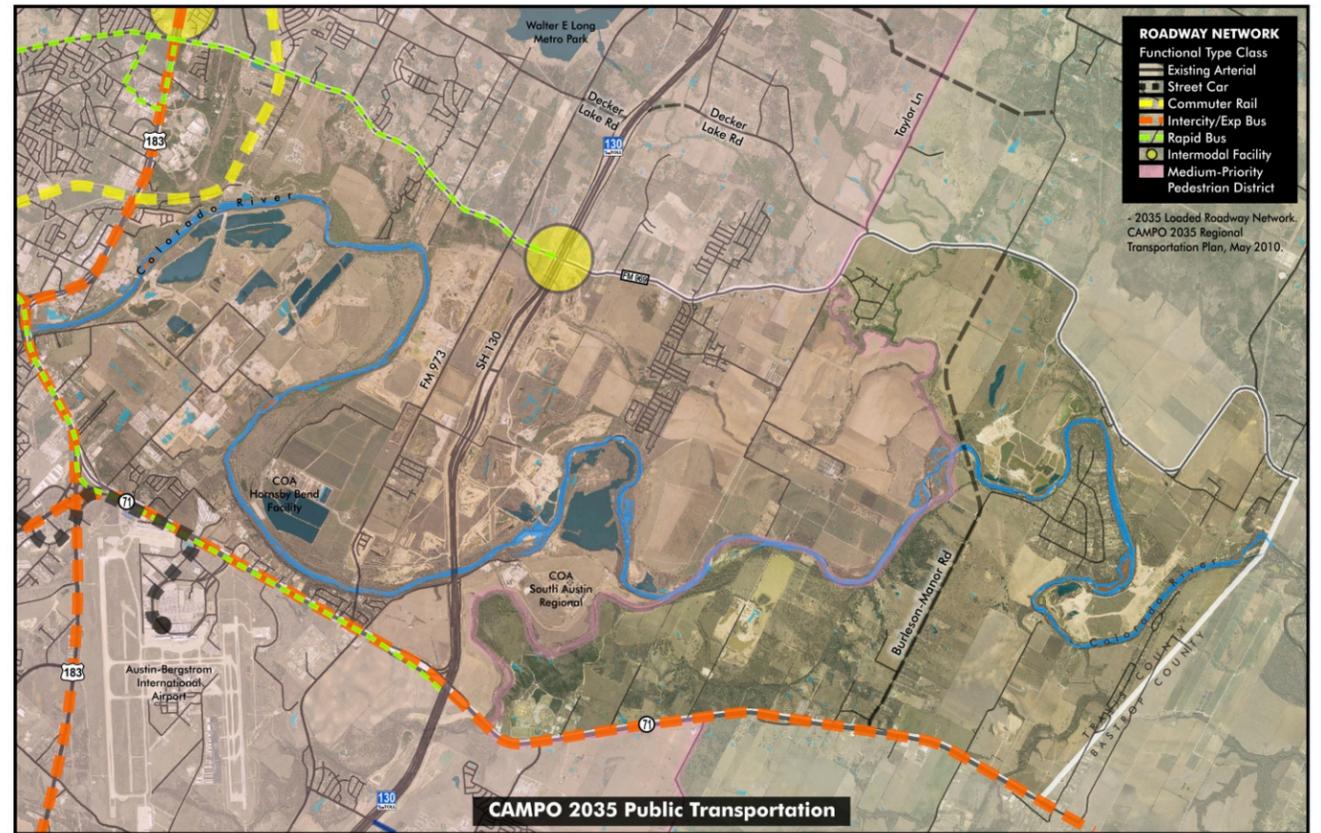
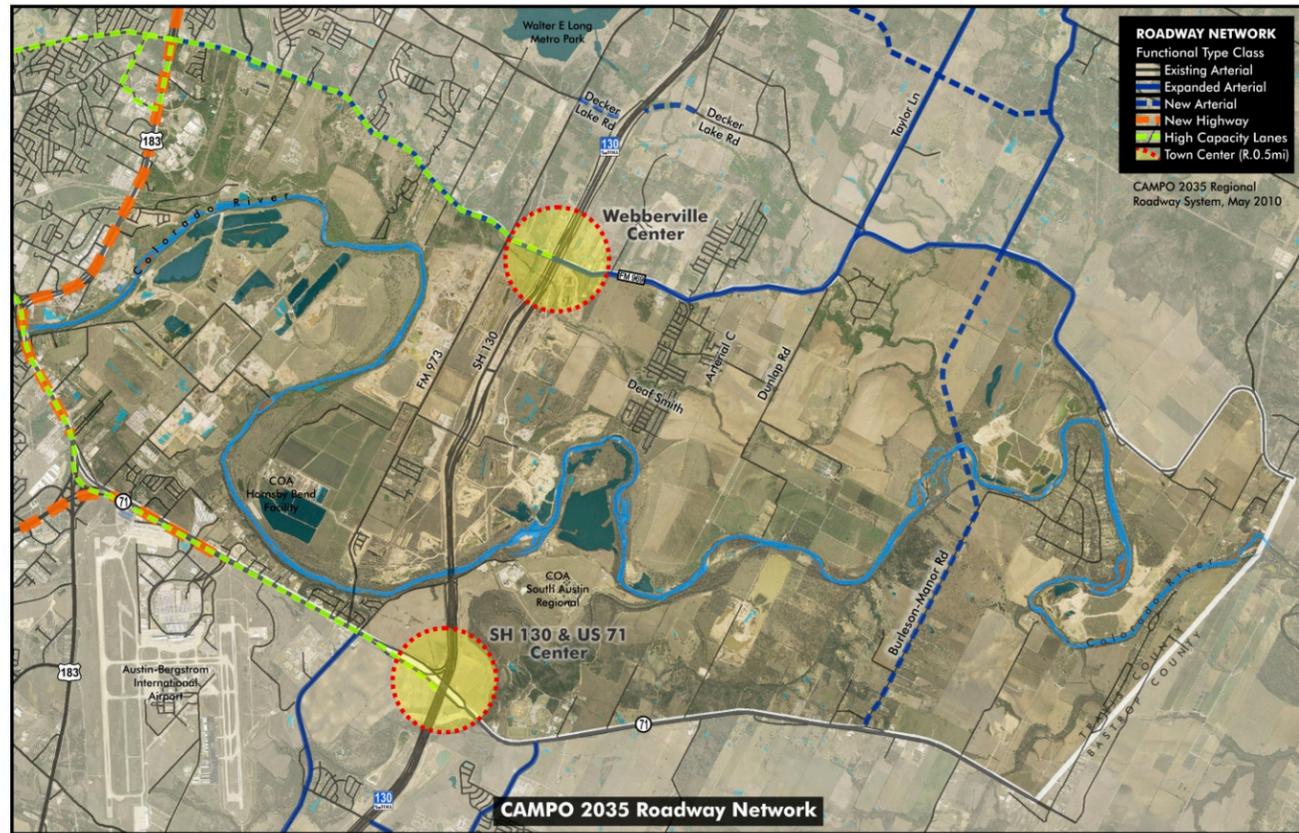












Appendix F: Build-Out Calculations & Methodology

SOCIOECONOMIC BUILD-OUT PROJECTIONS

The following report provides a description of the assumptions and methods used to determine population, housing, and employment projections for the Colorado River Corridor Concept Plan.

Assumptions & Methodology

The projections developed represent a range of estimates for potential population, dwelling units, and employment for the 30,500 Acre Corridor. The concept plan serves as the basis for these projections. A key assumption in understanding the magnitude of these projections is that the projections reflect a theoretical build-out of all areas, rather than what is likely to appear on the ground over the next 20 years.

Land use designations differ among jurisdictions for a variety of reasons including unique physical and geographic characteristics, market forces, and varying community desires. There are no industry standards for population density or building intensity that can be applied to the new land use designations created for the concept Plan. City of Austin GIS data, Travis County Tax Plat data, Envision Central Texas, Travis County Green Print, plans of cities within Central Texas and contemporary planning experience have been used to define the factors below to estimate the future socio-economic environment.

Residential: Population, Dwelling Units & Potential Workers

Land Area in Acres: Land use acreages were derived from the conceptual plan. All calculations were performed in ArcGIS.

DU/AC (net dwelling units per acre): A range of dwelling units per acre were identified. These ranges have been established based on actual product types and account for roads, rights-of ways, detention, easements and public facilities typically found in residential areas such as elementary schools, parks, etc.

Dwelling Units (DU): Dwelling unit projections are estimated by multiplying the number of gross acres by the DU/AC factor for each land use designation. For example, 100 acres of Single Family with a density range of 4 DU/AC would result in a range of 400 DUs.

Average Household Size: Based on US Census data (2000) an average household size for the Austin-San Marcos MSA of 2.4 was established and adjusted based on Residential Land Use.

Single Family: 2.4
 TH/Condo: 2.2
 Apartments: 1.75

Population: Population is determined by multiplying the projected number of dwelling units by the average persons per household factor. For example, 1,000 dwelling units with an average persons per household size of 2.4 would yield 2400 residents.

Participation Rate: Participation rate, the percent of the total population that is either employed or not employed but actively seeking employment. The Bureau of Labor Statistics identifies an employment rate of 50% for the Austin-San Marcos MSA. This number will adjust by 8% to reflect the current unemployment rate for those seeking work for a participation rate of 58%.

Potential Workers: Potential workers are determined by multiplying the total population projected for each residential land use by the participation rate. For instance, a Single Family Medium Density land use that yields a population of 15,000 would, in turn, yield 9000 potential workers (15,000 x .57 = 9000).

Non-Residential: Building Square Footage & Employment

Employment generation for Commercial land uses were calculated using the following method:

Land Area in Acres: Land use acreages were derived from the conceptual plan. All calculations were performed in ArcGIS.

Gross Square Feet: To convert gross acres to gross square feet, gross acres are multiplied by 43,560 SF. For example, 50 gross acres of Office equals 2,178,000 gross square feet.

Floor Area Ratio (FAR): Floor Area Ratio, or FAR, indicates the ratio of gross building square footage permitted on a parcel to net square footage of the parcel. FAR's for Retail, Office, R&D and Civic land uses are identified below.

Note: These are probable FAR's not maximum FAR's allowable.

Land Use	Urban	Neighborhood	Rural
Retail	1:1	0.5:1	0.25:1
Office/ R&D	2:1	0.8:1	0.5:1
Light Industrial	0.7:1	0.4:1	0.2:1
Civic/ Insti.	1:1	0.5:1	0.25:1

Building Square Footage: Building square footage for the land use designations listed in the table above are calculated by multiplying the Net Square Feet of each land use designation by the corresponding FAR. For instance, 20,000 square feet of Retail with an FAR of 1 would yield 20,000 square feet of building space.

Square Feet (SF)/Employee factor: This factor indicates the number of square feet of building space per employee and is used to estimate the number of jobs for a given land use designation. These factors for the commercial land use designations are listed in the table below.

Land Use Designation SF/Employee

Retail	500 sf
Office	300 sf
R&D	800 sf
Civic	500 sf

Employment: Employment for Retail, office, R&D uses is calculated by dividing the total number of building square feet by the SF/Employee factor. For example, 300,000 square feet of commercial office building space would yield 1,000 employees.

Jobs-to-Workers Ratio

The jobs-to-workers ratio is an indicator of the potential employment opportunities for the local labor supply. The ratio is calculated simply by dividing the number of jobs yielded by the employment generating land use designations by the number of potential workers generated by the residential land use designations.

Jobs-to-Housing Ratio

The jobs-to-housing ratio identifies potential imbalances between housing and employment opportunities. The ratio of jobs to housing is estimated by dividing the number of total number of projected jobs by the total number of projected dwelling units.

SOURCES:

Bureau of Labor Statistics
US Census Bureau
Austin Chamber of Commerce

Appendix G: Public Meetings

PUBLIC INVOLVEMENT: COLORADO RIVER CORRIDOR PLAN

Summary of the December 7, 2010 Colorado River Corridor Plan (CRCP) Meeting:

•The method of invitation for the meeting included a project flyer which was distributed by email to more than 630 recipients and posted on the County's web page. A public service flyer was distributed to local businesses and 60 flyers were mailed to surrounding residents who did not have email addresses. The meeting was conducted in an "open house format." Approximately 25 property owners and interested parties attended the meeting. The meeting provided the opportunity for area residents and interested parties to speak directly with project representatives from Travis County, the City of Austin and the Lower Colorado River Authority (LCRA).

A variety of information about the study was on display at the meeting. This information included:

- The study process
- Preliminary project information
- Aerial photographs defining the study area
- Current and proposed roadway level of service maps
- Current and proposed parks and open space maps
- Floodplain, watershed and surface geology maps

Attendees were encouraged to share their thoughts, opinions, and suggestions. Each individual was provided the opportunity to speak directly with county and city representatives prior to and subsequent to the presentation and to complete comment forms. These comment forms were available at a sign-in table. Attendees also had the opportunity to speak with county and city staff before and after the CRCP presentation.

Each comment form included the CRCP project mailing address, email address and project hotline. The comment forms also provided the opportunity for attendees to provide mailing list signup information and the opportunity to evaluate the meeting.

There were numerous comments after the presentation ranging from safety concerns to opposition to more mining operations in the CRCP study area, and only one (1) comment form was returned to staff and one (1) email was sent after the meeting.

A total of 10 individuals provided their comments to staff immediately following staff's presentation. The preliminary master plan was well received overall. Generally the public's most common concerns regarding the CRCP study area were associated with possible impacts to the environment, community, and resulting traffic increases. Much concern was expressed about whether these impacts would be properly addressed throughout the design of the corridor.

Randy Nicholson, TNR Planning Manager, welcomed the residents and then started the meeting with staff introductions and an explanation of the meeting's purpose followed by highlighting the study area, planning objectives and schedule. Staff started the presentation by providing a brief history of the existing and built environment. Staff then proceeded with the Plan's objectives and the opportunities/constraints and the importance of the residents' involvement with the visioning process.

The most common verbal and written comments regarding the study area were associated with potential residential and environmental impacts. The study team will be meeting with the residents again in late January or early February to discuss the public's comments and to determine the planning principles to be considered. A summary of all comments received from the public relative to the CRCP and staff's responses from Travis County Transportation and Natural Resources and City of Austin are presented below.

Public Comment Period

1. The County/City need to have air and environmental monitoring stations in residential neighborhoods i.e. Chaparral Crossing and along the river in close proximity to active mining sites. It would be a conflict of interest if the Texas Industries Incorporated (TXI) planning consultant has any role on the planning team.

a. It is anticipated that groundwater conditions near Chaparral Crossing could be monitored considering the willingness of well owners to allow private property access for monitoring. Air and noise monitoring seek to evaluate human residential receptor areas like this neighborhood. The environmental monitoring of air quality, noise and groundwater will be conducted by a person or firm that is independent of TXI. The City, County and LCRA are funding this monitoring and no funding comes from any private source. The surface water compliance monitoring will be conducted by government employees of Travis County who are funded completely from public funds.

2. The County/City need to have a contingency plan if the environmental monitoring shows a problem.

a. The first goal of the monitoring is to devise an adequate program that can detect changes in pollutant levels with statistical confidence. The second goal is compliance monitoring to ensure TXI fully complies with its authorizations from local government and the State of Texas. Considering the environmental value of this area and the potential impacts on citizens, it is agreed that available enforcement remedies should be swiftly taken to address degradation.

3. The County/City need to have a fair and impartial competitive bid process for the CRCP as well for any and all monitoring or follow-up work. The consultant and/or contractor cannot have been employed in the past or currently working with TXI in any capacity. The consultant and/or contractor needs to provide an affidavit ensuring they haven't worked for TXI directly or as a subcontractor to ensure there isn't a conflict of interest.

a. The environmental monitoring of air quality, noise, and groundwater will be conducted by a person or firm that is independent of TXI. The City, County and LCRA are funding this monitoring and no funding comes from any private source. The selection process includes a public solicitation of bids for the work. Travis County will discuss the question of past relationship with TXI during the selection process. These processes are consistent with all County, State, and Federal competitive procurement requirements.

4. The County/City should consider expanding the study area to include the development north of

FM-969 that will have an impact in the study corridor.

- a. While the boundary chosen to identify the corridor makes use of US-183 South, SH-71 East and FM-969, regional planning information is used in the development of transportation forecasts. Improvements to arterials are forecasted through a regional travel demand model that takes into account population and employment forecasts as well as existing traffic volumes for roads and traffic serial zones that are within and outside of the Colorado River Corridor Plan study area. Forecasts are partly based on current and emerging development forecasts. For example, the Capital Area Metropolitan Planning Organization (CAMPO) 2035 Plan map that was a part of the Town Hall presentation showed future regional arterial projects that provide mobility to a wider region than just the corridor. Another map identified existing and emerging developments in the surrounding corridor. Information from this type of data will be used in the development of concepts for the study.
5. There needs to be a plan for the unsightly legacy mines along SH-130 and FM-969. The County/City need to create a partnership to clean up the legacy mining pits.
 - a. One important objective of the CRCP is to develop a community-based plan for a future use of land with legacy mines. It will be necessary to involve landowners and include the participation of mine companies. Opportunities for privately-funded redevelopment could address this significant issue. Additionally, public and private funding may be able to restore some of these tracts for open space, parklands, or wildlife refuges.
 6. Stormwater ponds which are part of the current and legacy mining operations are breeding grounds for mosquitoes and algae.
 - a. The Austin-Travis County Health and Human Services Department investigates nuisance and contaminant vector complaints. It is recommended that specific issues be referred to them at (512) 972-5600. All landowners are required by state law to abate this type of problem.
 7. Mining operations sediment is polluting the river and impacting commercial recreation and habitat. During heavy rain and when TXI washes down trucks the sludge moves off-site and onto other properties and finally into the river.
 - a. The environmental monitoring phase of the CRCP includes compliance monitoring and sampling of surface water runoff associated with TXI. Additional compliance monitoring activities by local and State agencies are available to ensure compliance and to respond to public complaints. TXI operations are subject to TCEQ permit requirements that limit the pollutant discharges from mining activities. If compliant, a mining operation can significantly limit its impact on water quality.
 8. Mining operations' air borne dust presents health issue.
 - a. The TCEQ is the primary enforcement agency for ensuring compliance with air quality requirements, for evaluating health impacts, and to ensure operations at mines do not cause air pollution or impact nearby citizens. Travis County also required TXI to establish specific measures and practices to curb air pollution (watering roads for dust suppression, truck wash down, etc.). The monitoring phase of the CRCP includes evaluating releases of particulate matter. The plan partners will address an elevation in levels through compliance and

enforcement if necessary.

9. Roadway flooding, isolating home sites, and preventing access for emergency vehicles.
 - a. This area includes the lower portion of Carson, Boggy, and Walnut watersheds. There is roadway flooding in this area ranging from very low to very high, as shown in the attached map. The most significant flooding is on Dalton Drive (Carson), Delwau Lane (Boggy), and MLK (Walnut). The area was not included in the Colorado River watershed preliminary master plan, so roadway flooding in this area would not show up as a potential flood hazard.
10. Roads are regional in nature and require regional solutions.
 - a. Transportation staff is looking at issues, constraints and opportunities at a regional level as well as how these regional projects may be integrated into future plans for the area. Out of this planning study, staff expects that there will be new plans developed in the region for arterials as well as other forms of transportation such as transit and bicycle and pedestrian modes. City and County staff working together will be using other staff resources within other transportation agency providers in the development of this study.
11. Urbanization of the area increasing the cost for existing homeowners. Demands on roads, schools, water and wastewater systems increasing the cost to home/land owners.
 - a. The intent of the CRCP study is to include appropriate land uses, transportation improvements, greenways, and TXI will prepare conceptual plans to determine an appropriate use for their properties after the mining has ceased and incorporate all of these factors into a vision for the area. The preliminary master plan will contain findings that will address important issues such as growth, land use, open space and transportation in order to gain a greater understanding of land use issues and challenges, and to pinpoint more specific strategies to address those issues.
12. Ensure the CRCP website is updated with the maps from the presentation, and make the presentation available through all types of information outlets besides the website.
 - a. The CRCP website has been updated with the maps as well as the PowerPoint presentation.
13. Include an additional map that illustrates the current and proposed mining sites with residential development.
 - a. Staff has created a map that displays the legacy, current and proposed mining sites with residential development. This map is now on the website.
14. The County needs to take an active role to get the word out throughout the whole community to encourage more people who live in the community to be involved in the CRCP.
 - a. Staff will continue to get the word out by publishing public service announcements (PSAs), distributing flyers to local businesses, and sending emails to a list of over 600 people and United States Postal Service (USPS) notices to addresses of over 50 residents in the subject area. Getting out the message needs to be a public/private partnership, and staff hopes the residents who attended the first meeting will stress to their neighbors the importance of participating.

15. Residents are encouraged that the County is looking to plan for the future in the Colorado River study area.
 - a. It is encouraging that residents are participating in the planning process and recognizing the benefits of preserving the rural culture and protecting water resources.
16. Concern that the County/City hired Bosse-Pharis as the consultant for the CRCP because it is a conflict of interest.
 - a. It is appropriate for the consultant to maintain working relationships with the City and County as well as with mining companies. Successful development of the CRCP will depend on cooperation among all the principal interests in the corridor, including the mining companies which own 37 percent of the land and will be essential to the redevelopment of the land that has been mined.
17. Concern that two County staff might have a portion of their salaries paid by TXI.
 - a. Travis County and the City of Austin employees who are working on the CRCP study are paid from public funds and they do not have any prior history of employment or private involvement with TXI.
18. The County/City need to preserve the community's rich culture and discourage suburbia development by providing resources for small farms that provide sustainable food source and provide the residents with alternative agriculture resources. The residents in the study area want to maintain their rural lifestyle.
 - a. County Government has limited authority to regulate land use. The County has some authority regarding how roads are constructed and how drainage is managed. Unfortunately, the County has no authority to enact zoning regulations. Since we don't have zoning regulations, our ability to influence development is typically proven in how we can persuade rather than dictate. One of our means to influence development is through the capital improvements program. We can acquire properties and locate public facilities to encourage preferred development patterns. With the CRCP we can develop a vision of how the community wants this area to look in 30 years and set forth strategies for how government can work with the private sector to get there.
19. Identify legislative issues relating to land use and address them through united front.
 - a. The Travis County Commissioners Court strongly advocates that the Texas Legislature provide growing, urban counties with the planning authority necessary to better control and plan orderly development and compatible land use in unincorporated areas. It is agreed that a united front of the community and local governments should work to obtain the planning tools we need.

Email Responses

1. Part of the groundwater study should be a "comparable base study" to evaluate groundwater quality at an area that has already been mined, compared to an area not mined adjacent to the mined area. Mined areas near Webberville or near FM 973 should be evaluated.
 - a. This suggested scope of work has potential value and should be considered as an additional area of research, if funding and resources can be allocated. The current scope of the environmental monitoring seeks, as a short-term priority, to establish baseline data

- before mining occurs at TXI Hornsby Bend. Noise, air quality, and groundwater will all be monitored.
2. Monitoring in one area near TXI's Hornsby Bend site before and after will not prevent impacts but would only measure impacts too late to correct.
 - a. The commenter's focus is on changes to groundwater and it is agreed that alteration of groundwater quality or flow patterns would be difficult to correct once they occur. On the other hand, a comparable base study might provide a technical basis for changes in law or mining regulation in the long-term but may not be enough of an impetus to change or stop already permitted mining from occurring. It should be noted that evidence of surface water quality or air quality changes, or measured, objectionable noise levels would provide a real-time basis for requiring immediate corrective action by TXI once observed.
3. The constraints analysis should be modified to include the constraints that mining in the Colorado River corridor cause.
 - a. The document will be modified to identify the following as a constraint: "The single-most predominant land use in the corridor is land that has either been mined or is planned to be mined for sand and gravel (37 percent). Mining has led to land transformation from an agricultural use or from undeveloped woodlands and wildlife habitat to mining. To date, very little reclamation and redevelopment of areas mined in the past has occurred, leaving behind extensive acreage in the corridor that is of a degraded quality. Unregulated mining poses threats to air quality from particulate matter caused by land disturbance, material processing, and truck traffic. Mining may have altered patterns of groundwater flow due to mining within water-bearing zones."

Evaluation response

Response to the Transportation Comments: The crossing of the Colorado River may see environmental benefits in reducing vehicle miles of travel thereby helping reduce existing vehicle emissions. Currently, with limited ability to cross the Colorado River, persons within the corridor must use the FM-973 and SH-130 bridges to cross or FM-969 in Bastrop County causing extended travel times going north/south within the corridor. Staff acknowledges these benefits may be negated by additional traffic that will use the crossing; however, as more and more traffic is seen through new developments, an additional crossing of the Colorado River will be necessary.

Current plans for FM-973 have the FM-973 bridge at the Colorado River being relocated and built to a six-lane section with four lanes being striped at opening. The new location will allow better connectivity with FM-973 south of SH-71 East. Additional improvements in the CAMPO plan show a continuation of the FM-973 bridge project as a four-lane divided arterial south to Burlison Road.

Other improvements north of the corridor have FM-973 being reconstructed east of Manor to bypass downtown and connect with existing FM-973 at US-290 East.

Currently, no plans exist to expand FM-973 south of Burlison Road in the F1 area.

Travis County has the authority to regulate truck traffics; however, detailed studies will be needed and alternative routes are required to provide a hierarchy for traffic flows. Transportation staff will review the opportunities to make improvements to truck traffic issues as plans are developed.

The CAMPO 2035 Plan identifies linking high density mixed use activity centers with downtown Austin and between other centers with different modes of transportation. How they are financed and who are the providers have not been established. It is safe to say that how transportation projects are funded and the ability of those providers to serve areas will need additional sources of revenue and authority powers to implement the long range transportation plan. The CAMPO Policy Board took a step in that direction when it earmarked 50 percent of future STP-MM funds (Federal transportation grant dollars) to go towards supporting the development of the centers concept. Additionally, the CAMPO Board retained the long standing 15 percent of STP-MM grant dollars going towards bicycle and pedestrian projects.

PUBLIC INVOLVEMENT: COLORADO RIVER CORRIDOR PLAN

Summary of the September 22, 2011 Colorado River Corridor Plan (CRCP) Public Meeting:

A public service flyer was distributed to local businesses and over 50 flyers were mailed to surrounding residents who did not have email addresses. Large posters 36 inches by 24 inches were hung in area government lobbies and project flyers were distributed by email to more than 650 recipients and posted on the County's webpage.

The open house meeting was held at the Dailey Middle School. The Open House meeting room had display tables with various maps depicting the Lower Colorado Corridor (Plan) study area. The maps illustrated current and proposed roadways and park projects as well as floodplain and watershed maps and the surface geology. The meeting opened with a brief update of staff's involvement. After introductions, residents, business owners and staff were asked to participate in break-out sessions to discuss the plan in greater detail.

After the break-out sessions attendees were encouraged to share their thoughts, opinions, and suggestions by filling out a questionnaire and comment form. These were available at a sign-in table and the public was encouraged to provide written comments before and after the CRCP open house. Each comment form included the CRCP project mailing address, email address and project hotline. The comment forms also provided the opportunity for attendees to provide mailing list signup information and the opportunity to evaluate the meeting.

A summary of all comments received from the public relative to the draft CRCP and staff's responses from Travis County Transportation and Natural Resources and City of Austin are presented below.

Public Comment Period

What are the most critical issues or challenges for the corridor? While participants cite transportation and natural resource-related issues and challenges most often as the most critical for the corridor there are concerns about parks and land conservation as well: participants want to preserve natural corridors as an amenity for future residents in the area, improve Austin's Colony parks, and have "24/7" access to all trails.

1. *Lack of viable park space around Austin's Colony subdivision, especially along the Colorado River. Could the City of Austin or Travis County approach the owners of the "City of Austin Colony Park", Phase III Austin's Colony HOA and Qualico (developers of Austin's Colony RiverCreek HOA) to see if they would sell these parks to them so we can get these (2) parks maintained and improved? "City of Austin Colony Park" on your Plan map is not the correct name - these are 2 different adjacent parks owned by 2 different entities (HOAs) and there is no consistent maintenance and there is a big problem with dumping. These parks could easily be turned into real parks. This section of the river is just beautiful. Connect this park to Harold Green Rd.*
 - a. *Travis County and the City of Austin are committed to building a comprehensive park system in the Colorado River corridor that will connect to the Austin's Colony subdivision. Travis County is currently committed to buying land on Onion Creek, Gilleland Creek, and the Colorado River with 2005 park bond funds, and will continue to buy parkland in this area with County's Proposition 2 funds earmarked for this purpose. The City of Austin's Park label will be corrected.*

What do you like most about the concept plan? Participants cited parks and recreation-related aspects of the CRCP most often when asked what they like most about the plan. They particularly like the proposed expansion of the parks, greenways, and trail systems and improved access to the river for recreation.

1. Concept Plan shows existing trail on County land adjacent to the jail. Is there a trail there?
 - a. There isn't an existing trail on the Travis County jail property. This is a "Proposed Trail". The concept plan will be corrected.

What are some of your concerns? Participants' concerns are varied and listed below.

1. I would like to see this plan include as much transit options as possible. Do we have development nodes with mixed use planned for this area? If so, the developer should include a plan for transit options.
 - a. The CRCP envisions urban intensity nodes near Garfield and SH 71, Watersedge, Interport, Rio de Vida, along SH 71 across from ABIA, along US 183, and FM 969 west of SH 130. Amend plan to show a future transit node in Rio de Vida near SH 130 and Harold Green Blvd. Location would provide future connection to proposed City of Austin Urban Rail node at ABIA.
2. Page 27 of the draft plan - Inadequate Road Capacity Truck traffic from the mining project exacerbates the inadequate road capacity. This negatively affects local residents and commuters by contributing to traffic congestion and extended travel times.
 - a. Staff will include as bullet under Inadequate Road Capacity in Existing Conditions. Also, comment forwarded to Traffic Safety Division of TNR. The Planning Team encourages you to stay involved with all aspects of infrastructure planning within the Corridor area.
3. Page 27 of the draft plan –Safety It must be stressed that truck traffic is dangerous for local resident and commuter traffic on rural roads. The mining activity will contribute to and increase dangerous traffic for local residents and commuters. ****Please note: I have reviewed the "open space acquisition and development agreement" which addresses the two concerns stated above. However, I have additional issues with the aforementioned agreement that I will not address at this time.**
 - a. Page 27 of the draft plan, Under Safety, recommend revision to "The mix of local traffic, commuting traffic and truck traffic is another major challenge within the Corridor."
4. SH 130 ROW has space reserved for a trail. Consider best location for the trail – in the ROW or adjacent to pavement?
 - a. The CRCP Concept Plan accommodates a trail along SH 130 through a portion of the Corridor. Recommend amending the Plan to show the SH 130 trail extending to SH 71 East.

5. In the body of the CRCP there is a section titled Existing Transportation System (p. 22) which contains a map labeled Development. This map shows Subdivisions, Preliminary Plats and Emerging Developments. It would be useful addition to the Concept Plan to have this information included on the base map so that proposed roadways are reflected per previous approvals.
 - a. Recommend change. Agree the Concept Plan should reflect the proposed land use intensity shown on page 22.
6. Having not had the time to study the plan it would be unfair for me to comment on the quality and likes and dislikes. Having skimmed the draft, the one thing that I think may be missing is any plan to preserve any excess water passing through the Corridor by setting land aside for percolation fields or injection wells to recharge the aquifer and not lose any water that is not needed downstream. With the long term forecast or more severe drought into the foreseeable future this should be, in my mind, paramount in the corridor planning.
 - a. Recommend amending p. 20 to include statement: "As a part of implementation, planners could look at the viability of projects to enhance aquifer recharge." The Colorado River Alluvial Aquifer is recharged directly from the underflow of creeks and rivers in the Corridor. The plan's land conservation goal calls for acquisition of land to allow for more natural hydrologic processes that retard water velocity, spreads out flows into natural floodplains, and therefore, results in greater recharge. It also makes sense to analyze other alternatives such as man-made recharge enhancement.
7. What does it mean that Hornsby Bend and COA use surface water, and the rest use groundwater? (Page 18)
 - a. The statement is meant to convey that the COA drinking water source is "primarily" from the Colorado River water storage in Lake Travis and that Hornsby Bend is supplied by diversions of water from the Colorado River. A correction will be made.
8. Austin's Colony Phase V, Section 3 approved unrecorded Final Plat is not shown on the Concept Plan. Our concern is the Concept Plan has a rural arterial roadway running through the Plat without taking into account the approvals currently in place...
 - a. Amend Concept Plan to show the approved unrecorded final plat for Austin's Colony Phase V Section 3. A future rural arterial (Deaf Smith Blvd.) is aligned through this plat. Travis County will be required to negotiate with the owner to amend the unrecorded final plat to accommodate the alignment of the future arterial.
9. Austin's Colony Phase 6-14, approved unrecorded Preliminary Plat is not shown on the Concept Plan. Our concern is the Concept Plan has a rural arterial roadway running through the Plat without taking into account the approvals currently in place...
 - a. Amend Concept Plan to show Future Arterial C as a Rural Arterial (light blue). Amend Concept Plan to show future Arterial C north of Hunters Bend Road offset from Arterial C south of Hunters Bend Road. Alignment of Arterial C south of Hunters Bend Road remains as shown on Concept Plan. Amend Arterial C north of Hunters Bend Road to follow existing Hallday Avenue and extend northward to terminus at FM 969. Travis County will be required to negotiate with the owner Austin's Colony Phases 6A and 6B to accommodate the future alignment of Arterial C north of Hunters Bend Road.
10. A proposed Neighborhood Collector running north and south to FM 969 from the proposed westward extension of Dunlap Rd S. runs through and adjacent existing subdivisions and various platted properties (Austin's Colony Sec 6B, 7B and Chaparral Crossing). While we are in support of the need for this collector, it is our responsibility to point out that it will affect previously approve plans, plats, and site plans. Also, a proposed Neighborhood Collector running north and south to FM 969 from the proposed westward extension of Dunlap Rd S. runs through and adjacent existing subdivisions and various platted properties (Austin's Colony Sec 6B, 7B and Chaparral Crossing). While we are in support of the need for this collector, it is our responsibility to point out that it will affect previously approve plans, plats, and site plans.
 - a. The intent of the CRCP study is to include appropriate land uses, transportation improvements, greenways, and TXI will prepare conceptual plans to determine an appropriate use for their properties after the mining has ceased and incorporate all of these factors into a vision for the area. The preliminary master plan will contain findings that will address important issues such as growth, land use, open space and transportation in order to gain a greater understanding of land use issues and challenges, and to pinpoint more specific strategies to address those issues.
- 11 The Plan reflects a proposed Rural Arterial from Dunlap Rd S. running west through the approved preliminary plan for Austin's Colony Phases 6-13. We are requesting that the alignment be adjusted per the preliminary plan. Further this same Rural Arterial affects the Austin's Colony Phase V, Sec 3.
 - a. Amend Concept Plan to show the approved preliminary plat for Austin's Colony Phases 6, 7, 8, 9, 10, 11, 12 and 13. Amend alignment of Deaf Smith Blvd to reflect alignment in Austin's Colony Phases 9, 10, 11 and 12. Amend Concept Plan to terminate Deaf Smith Blvd. at future Arterial C. Delete section of Deaf Smith Blvd. from Future Arterial C to Dunlap Rd. North. See comment for #162 for alignment through Austin's Colony Phase V Section 3.
12. At the Town Hall meeting on 9/22 ...there was no discussion of the extension of Westall St past Hound Dog Trail. We question the need for this extension as it runs near and parallel to the Austin's Colony Secondary Access Rd to Gilbert Lane. This roadway is included in the 2011 Travis County Bond Election.
 - a. Amend Concept Plan to show current alignment of Austin Colony Secondary Access project that was included in 2011 voter approved bond election. Amend extension of Sandifer Street to parallel Elm Creek flood plain. A roadway parallel to the floodplain visually integrates the greenspace into the neighborhood and puts more eyes on the greenway users which improve safety. Also, amend roadway classification of future Sandifer Street extension from Minor Arterial to Neighborhood Collector (green). With limited options for east/west connectivity to FM 973 and expected high volumes of traffic connecting to work destinations in the Urban Core, Transportation and Natural Resources staff have identified the need to study the use of roundabouts as a traffic safety measure to calm traffic. As plans develop for Rio de Vida, future collector level intersections would offer an opportunity apply this traffic calming technique especially for collector intersections west of Austin's Colony subdivision.

13. In the body of the CRCP there is a section titled Existing Transportation System (p. 22) which contains a map labeled Development. This map shows Subdivisions, Preliminary Plats and Emerging Developments. It would be useful addition to the Concept Plan to have this information included on the base map so that proposed roadways are reflected per previous approvals.
 - a. Recommend change. Agree the Concept Plan should reflect the proposed land use intensity shown on page 22.
14. What fees were paid to Bosse and Associates by TXI?
 - a. Staff is not knowledgeable of the contract scope and fees with these to private entities.
15. What fees were paid to Bosse and Associates by the County?
 - a. Bosse and Associates contract was for \$98,095. Travis County's portion of the contract is \$72,095.
16. What was the relationship of Bosse and TXI during plan preparation?
 - a. Bosse provide analysis and feasibility of redevelopment of existing TXI legacy mining land.
17. Why is the CAMPO Center, which is eligible for future transportation funds located on TXI Property and not near existing residential commercial area at Hunters Bend and FM 969?
 - a. CAMPO policy sets aside 50% of future funds to Centers. The DRAFT plan recommendation is to locate the center along SH 130 between FM 969 and the river. The intensity of uses envision in the Centers concept is not suitable along FM 969 at Hunters Bend. Significant internal connectors and pedestrian/vehicular movements could negatively impact the existing abutting neighbors. Additionally, the Concept Plan encourages the redevelopment of legacy mining rather impacts to undeveloped land areas.

Emails sent to staff since the second open house.

1. Correct maps with regards to land ownership of land shown as parks along the Colorado River at Austin Colony.
 - a. Staff corrected the maps.
2. Concurrent reclamation, is that recommendation part of the Tri-party agreement?
 - a. Staff recommends that the agreement will seek to include concurrent mining concept.
3. How exactly has the draft Plan changed as a result of the citizen input that you discussed in court? I'm not the only one who wants to know.
 - a. Staff recommended changes are found on the web.
4. What services, projects, infrastructure etc. might be denied the people that live in the corridor now if the Campo 2035 Village Center is changed to where Rio de Vida is as per plan dictates.
 - a. Staff is not aware of any services that might be denied. Staff has recommended transit be evaluated to serve the area which generally feasible when higher insensitive of uses and thus users increase.

5. What have the neighbors priority item was accidentally left off the info passed out to the neighborhood meeting been told about this since the priority item was accidentally left off the info passed out to the neighborhood meeting?
 - a. Although the item was inadvertently left off the public meeting handout, the online Draft and all other information has not change until the Court to make changes. The Center relocation remains and has always been a part of the Draft Plan proposal.

FINAL PUBLIC HEARING: COLORADO RIVER CORRIDOR PLAN

The Commissioners Court approved the Colorado River Corridor Plan on May 15, 2012 by an unanimous vote.