Diamonds in the Rough

Utilization of Open Space in the Mingo Creek Floodplain Project

The University of Oklahoma TULSA SCHUSTERMAN CENTER

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CHED community health and environmental design studio

The University of Oklahoma
Graduate College

Diamonds in the Rough:
Utilization of Open Space in the
Mingo Creek Floodplain Project

A Professional Project
submitted to the Graduate Faculty
in partial fulfillment of the requirements for the degree of

Master of Science in Architectural Urban Studies

By
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Tulsa, Oklahoma
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Approved for the Urban Design Studio
of
The College of Architecture

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Acknoledgements:

Be it known that the following individuals during the course of my study, through personal sacrifice, selflessness, and without measurable reward, bestowed the support and understanding without which my graduation would not have been possible. I honor and recognize the confidence, devotion, guidance and assistance generously given by each of them in helping me obtain this important milestone in my life.

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Tom & Suzy Walker - Family

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Table of Contents:

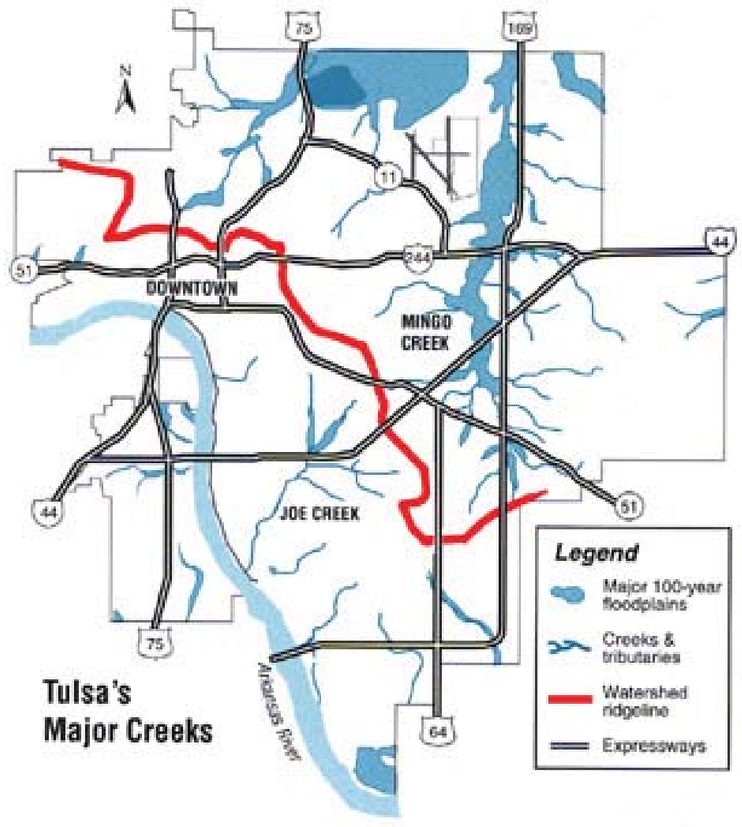
Due to the rapid expansion of housing into the eastern portions of the City of Tulsa during the1970's though the early 1980's, there was little time to plan for flood control around Mingo Creek and its tributaries. Channeling was created to maximize the amount of land available to housing developers. Warning sign's appeared in the 1960's and 1970's that the flood control system of the day was not adequate to support such the large amount of run off from improvises surfaces. It was not until Memorial Day,1984 did a drastic event take place.

In the late evening hours of May 27th 1984, a weather front had moved into the Tulsa, Oklahoma area bringing with it some much needed rain. As those who lived in Tulsa fell asleep to the sound of rain on the roof tops, they could not expect what would come. In the early morning of May 28th, people living within the Mingo Valley Basin were awoken by the sound of sirens going off, jumping out of bed to find their feet knee deep in water. The creek had swelled and flooded into neighborhoods. In a matter of hours a stalled rain front caused the Mingo Creek to become Mingo Lake.

On Memorial Day, 14 people were killed, 288 people injured, with damages totaling over 1.8 billion (in 20120 dollars). Swift response for future flood defense was demanded by the citizens of Tulsa.

The Tulsa District Army Corps of Engineers built 23 detention and retention structures along the Mingo Creek and its tributaries. Additional such structures were built by the city and new housing developments. In addition, areas of wetland have been set aside for natural use. This has created 3,745 acres of open space. Nearly six square miles within the sixty two square mile basin became quickly available for restricted recreational use. Nearly all the newly constructed detention/retention structures were labeled park space by the City of Tulsa. In the early construction, designs for baseball fields, football fields, soccer fields, playgrounds, picnic tables, and miles of running track were to be created within the new walls created by the structures. Unfortunately little of these proposed improvements were to come into existence.

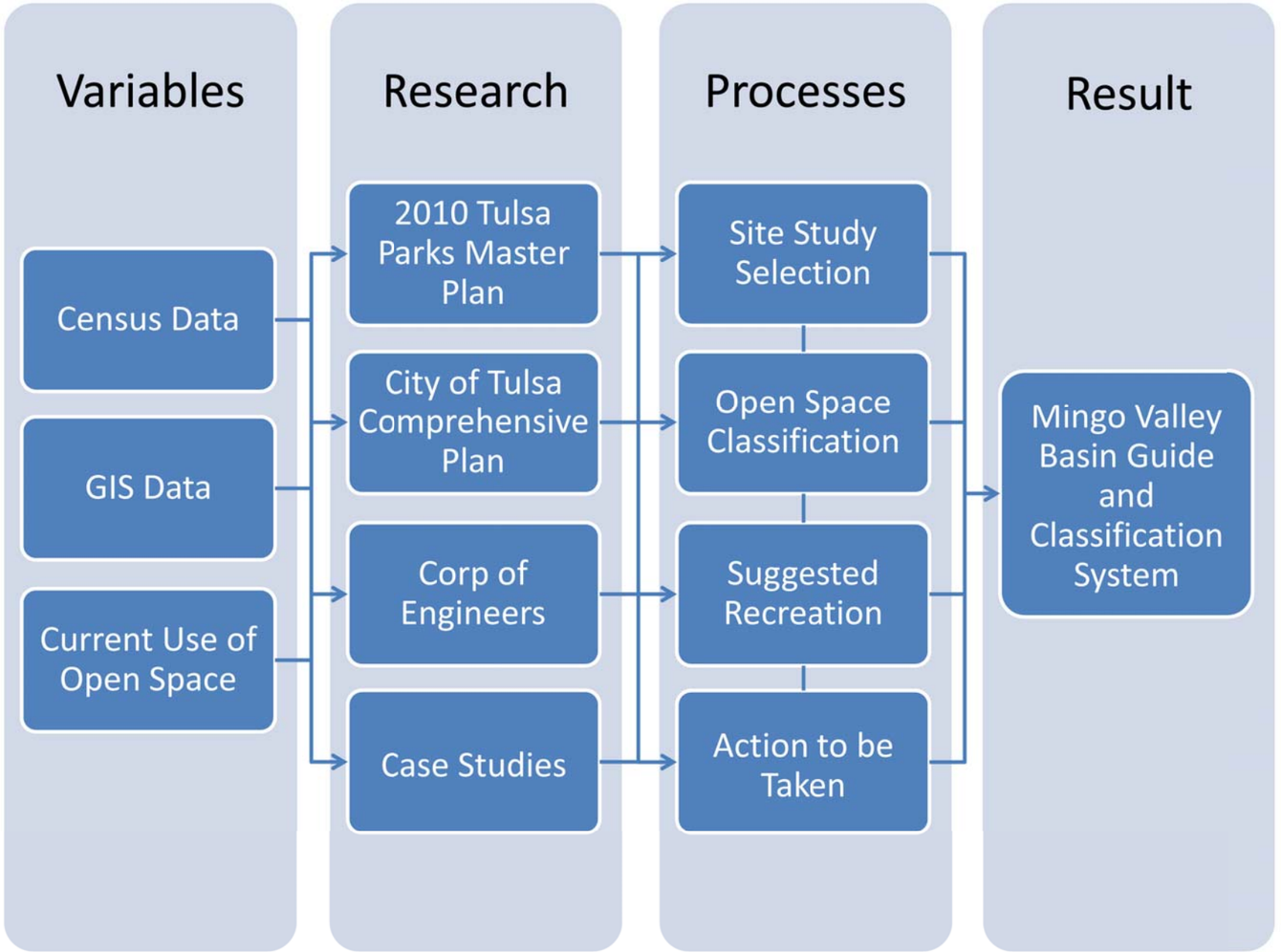
Out of the 44 parks in the Mingo Valley Basin, only 15% are outside the floodplain. The remainders of the parks have had few improvements beyond a very limited number of soccer fields, running tracks, and trails, nowhere near the design level. This creates dead zones of activity where open space could be utilized to its fullest for the betterment of the community and the City of Tulsa.



1984 Memorial Day Flood Map
http://www.tulsaworld.com/news/article.aspx?subjectid=11&articleid=20090524_11_A13_Thepow525438

Mingo Road - 1984 Memorial Day Flood
http://www.tulsaworld.com/news/article.aspx?subjectid=11&articleid=20090524_11_A13_Thepow525438

Road Damage - 1984 Memorial Day Flood
http://www.tulsaworld.com/news/article.aspx?subjectid=11&articleid=20090524_11_A13_Thepow525438



Project Flow Chart

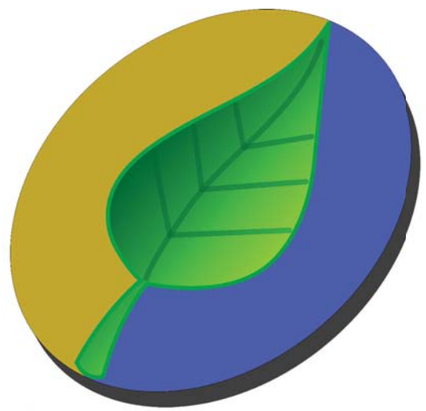
The goal of this project is to create an urban design plan for the open spaces created by the Tulsa District Army Corps of Engineers in order to use the space to the full needs of the community without detracting from the main purpose of the facilities as a part of the flood control system along Mingo Creek and its tributaries. The research methods used includes historical research, review of the 2010 Tulsa Parks and Recreation Master Plan and the City of Tulsa Comprehensive Plan (PlaniTulsa), case studies, community demographics, statistical data, GIS data mapping, recent recorded water activity, and current utilization evaluation of over 150 detention, retention, and natural space sites within the study area.

Objectives:

- To create an urban design plan for the open spaces created by the Mingo Valley Project
- Use park master plans, city comprehensive plans and case studies to support a design plan
- Identify stages, modifications, and produce a new policy guide
- Ascertain implementation strategies and funding sources
- Provided the Tulsa Parks a guide for future development within the identified open spaces

Goals:

- Use the flood control network of detention and retention basins to their fullest potential
- Provide outlets to promote outdoor exercise and utility
- Quick reference on location of parks and park signage
- Provide adequate trails and connectivity to each park
- Create multipurpose fields for a range of sports
- Promote art and culture
- Provide a space or outdoor community activity
- Provide locations to support all three facets of life: Live, Work, & Play



August 2011	• Review Documentation • Finalize Study Objective and Make Needed Revisions to Study • Begin Research	**January 2012**	• Define Site Selection Criteria • Begin Site Selection Review
September 2011	• Design Search Map for Site Photos • Start Photo Survey • Case Study Search and Review • Creation of Objective, Goals, and Methodology	**February 2012**	• Select Sites for Recommendations • Select Suitable Recommendations for Sites
October 2011	• Frist Jury Presentation • Continue GIS Mapping • Continue Research • Begin Initial GIS Mapping	**March 2012**	• Third Jury Presentation • Begin Work on Poster Design • Begin Work on Professional Project Book
November 2011	• Begin Documenting all Detention, Retention, and Natural Space in the Mingo Valley Basin • Begin Demographic Research	**April 2012**	• Compile Study Data • Present Poster to AAAS- SWARM • Complete Site Recommendations • Submission of Rough Draft of Professional Project Book • Final Jury Presentation
December 2011	• Second Jury Presentation • Continue Documenting all Detention, Retention, and Natural Space in the Mingo Valley Basin • Search and Selection of Icons or Other Representative Items	**May 2012**	• Submission of Book to the OU-Tulsa Library

The 2010 Tulsa Parks and Recreation Master Plan was created to meet the needs of the residents of Tulsa to sustain and improve the systems assets. The plan was created through both interactions with citizens, elected officials, staff, and committees, to enhance the services provided.

Tulsa Parks manages 135 parks covering over 6,000 acres including but not limited to theaters, golf courses, museums, swimming pools, sports facilities, playgrounds, tennis courts, water parks, skate parks, picnic areas, and over 20 community centers (Parks 2009).

A vision statement was created out of the planning process: "Tulsa will be known as a city that celebrates and preserves green space and beautiful environments, and enjoys outstanding recreational opportunities supporting the health and well-being of its citizens" (Parks 2009).

The study implemented doorknob and online surveys. Eight thousand surveys were mailed at random throughout the city. An additional one thousand surveys were delivered door to door. Respondents were able to submit their forms by mail or via the internet using a onetime only username and password. One thousand three hundred and six surveys were submitted representing a "very good response rate over all (Parks 2009).

The survey divided the city into four areas, North Tulsa, Midtown, East Tulsa, and South Tulsa. East Tulsa was found to be the smallest of the divisions. It was found that it generally had the lowest levels of Tulsa Parks facilities and programs (Parks 2009).

East Tulsa residents indicated that safety and security were their primary concern when using the park facilities. They also showed concern in needed improvements, more restrooms, programs, new facilities, user fees, maintenance, and customer service (Parks 2009).

East Tulsa residents showed more than any other survey area that outdoor facilities, trails and trail connections were in dire need of maintenance or creation, roughly 61%. Additionally playgrounds, community gathering spaces, amphitheaters, restrooms, athletic fields, dog parks, skate parks, and disk golf courses were highest on their list of priorities (Parks 2009).

In programing the residents of East Tulsa wanted Tulsa Parks to provide or assist in providing special events, adult athletic leagues, fitness programs, family programs, and cultural/arts programs. More than the other surveyed areas, East Tulsa residents stressed environmental education a top Priority (Parks 2009).

The survey showed East Tulsa had the lowest level of service in:

- Walkable Access to All Components
- Neighborhood Access to Indoor Facilities
- Neighborhood Access to Trails
- Neighborhood Access to Aquatics
- Access to Multipurpose Fields
- Access to Playgrounds

TULSA PARKS

http://behance.vo.llnwd.net/profiles2/94778/projects/

McClure Park

Central Park
http://upload.wikimedia.org/wikipedia/commons/thumb/f/fe/

In 2010, the City of Tulsa adopted a new comprehensive plan, PLANiTULSA. A comprehensive plan dictates public policy in terms of areas land use, transportation, housing, economic development, and recreation. It usually covers large geographic areas and a long-term time span. PLANiTULSA was a "once-in-a-generation opportunity" to design the future of Tulsa for the next 30 years (Planittulsa 2010). In 2009, Tulsans participated in the plan through several feedback processes including open meetings, workshops, and surveys. More than 5,500 responded though a city-wide survey on four separate scenarios. The four different scenarios were:

A. Trends Continue - Depicted the continuation of current growth and development trends, placing many new homes outside the city and a diminished role for down town.
B. Main Streets – Placed new growth along the city's existing corridors and downtown, creating a city of more vibrant main streets.
C. New Centers – Placed new growth in new complete communities and neighborhoods on vacant land inside the city.
D. Centered City – Concentrated growth around down town and along the city's inner corridors.

The survey showed Tulsans were in strong support of Centered City, New Centers, and Main Streets and a poor support for Trends Continue. The "vision" for the new Comprehensive Plan was shaped around these values. The five focus areas centered on Land Use, Economic Development, Transportation, Housing, and Parks, Trails and Open Space (Planitulsa 2010). The six goals for the city of Tulsa from PLANiTULSA were to have:

- A vibrant and dynamic economy
- The ability to attract and retain young people
- An effective transportation system
- A range of housing choices
- Emphasis on preserving the environment and increasing sustainability
- A commitment to transparent, equitable decision-making

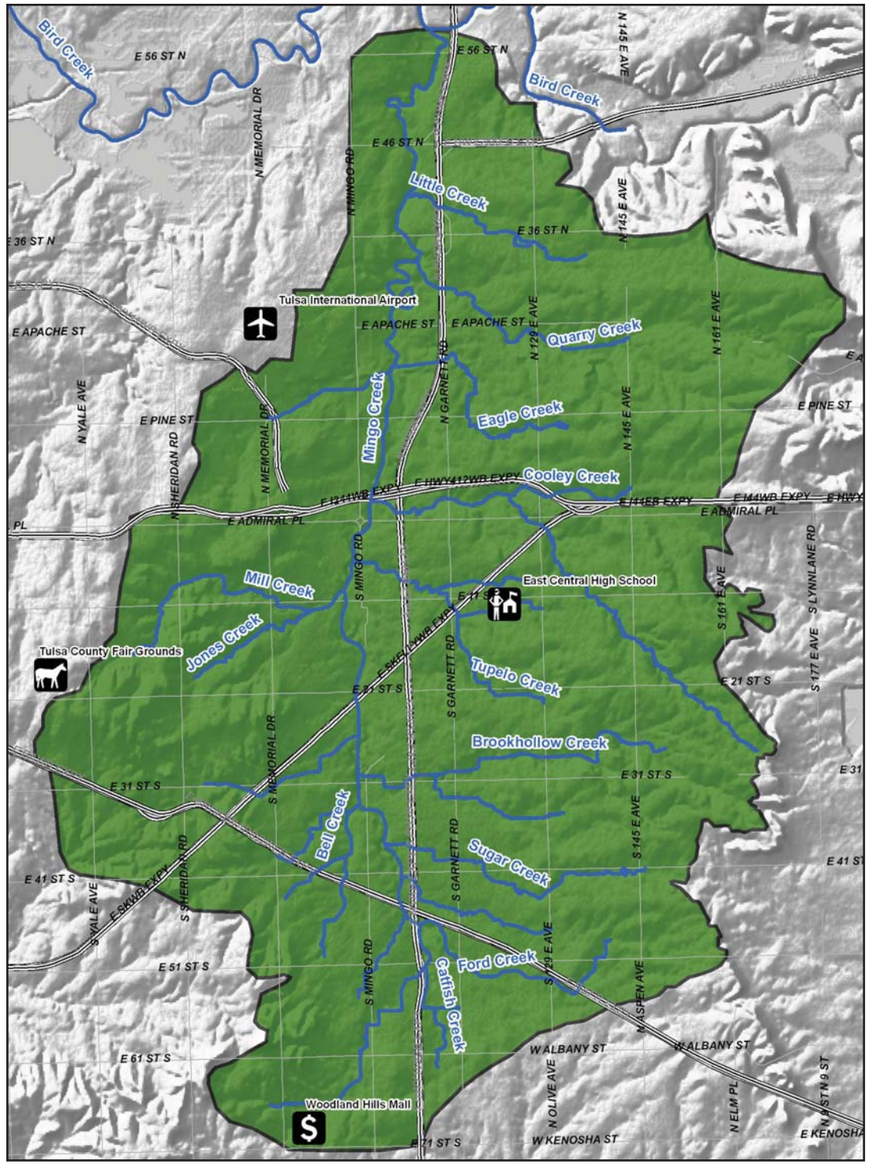
With the new Comprehensive Plan, five new land use categories were created: Downtown, Corridors, Center, New and Existing Residential Neighborhoods, and Employment Areas. Downtown focuses on the Central Business District. Corridors focus on main street and mixed-use corridors with average households between eight and nine. Centers focus on Neighborhood Centers and Town Centers with household average between five and fourteen. New and Existing Residential Neighborhoods continue and grow with an average household size of four. Employment Areas are structured around a job saturation rate of 19 jobs per acre of land (Planitulsa 2010).

Participants in the city-wide workshops produced over 200 maps representing their vision of Tulsa's future. The only survey question directly addressing the topic of parks and open space asked what would make it easy for them to access parks, the river and open space. They answered that a "Centered City" followed by "New Centers" would be the best scenario (Planitulsa 2010).

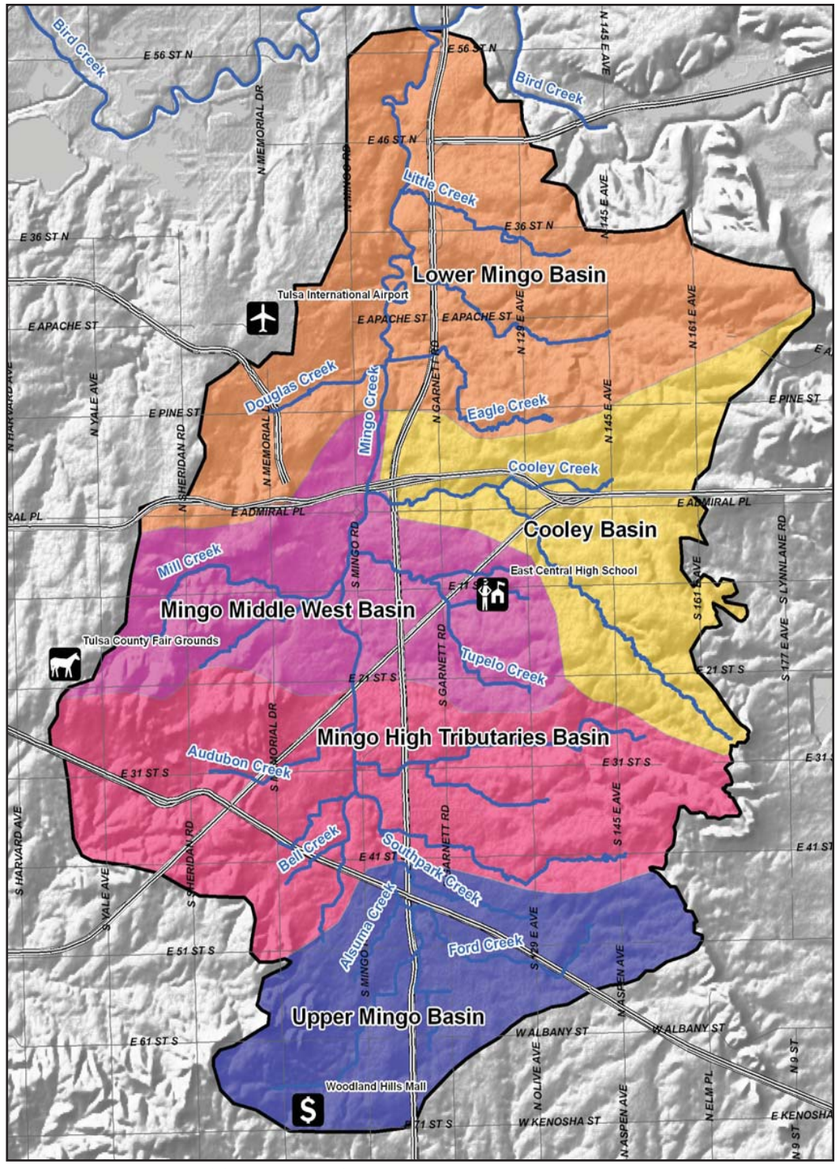
PLANiTULSA relied heavily on the Tulsa Parks 2010 Master Plan Survey for most of its data and proposed planning. Most pages in this section of the plan is nearly a direct copy from the Tulsa Parks Master Plan. Where PLANiTULSA does contribute is for the Arkansas River. It is viewed as a "vital lifeline through the city of Tulsa." PLANiTULSA emphasizes to the point of neglecting other park land areas(Planitulsa 2010).

PLANiTULSA Planning Workshop
http://www.planitulsa.org/files/

http://www.planitulsa.org/files/



Mingo Valley Basin



Mingo Valley Sub-Basins

This map shows The Mingo Valley Basin is situated in Tulsa County with the greatest portion in the City of Tulsa. To the east of the basin are the cities of Catoosa and Fair Oaks. To the west are the Tulsa International Airport, Tulsa County Fairgrounds, and midtown Tulsa. To the North is the City of Owasso. To the south are the cities of Broken Arrow and Bixby with a portion of south Tulsa between them. The total area of the Mingo Creek Basin is about 63 square miles.

Mingo Creek flows from the South to the North, unusual for a creek in the State of Oklahoma. This map shows the Mingo Valley Basin is comprised of five sub-basins in order of highest to lowest point are the Upper Mingo Basin, Mingo High Tributaries Basin, Mingo Middle West Basin, Colley Basin, and the Lower Mingo Basin. The Upper Mingo Basin comprised of Alsuma Creek and South Park Creek. Mingo High Tributaries Basin is comprised of Bell Creek, Sugar Creek, and Brookhollow Creek. The Mingo Middle West Basin is comprised of Mill Creek and Tupelo Creek. The Cooley Basin is comprised of both Cooley Creek and the longer Cooley Creek Tributary. The Lower Mingo Basin is comprised of Douglas Creek, Eagle Creek, Quarry Creek, and Little Creek. The creeks in the Upper Mingo Basin form the beginnings of Mingo Creek, while the lower creeks add to the Mingo making it larger as it flows north.

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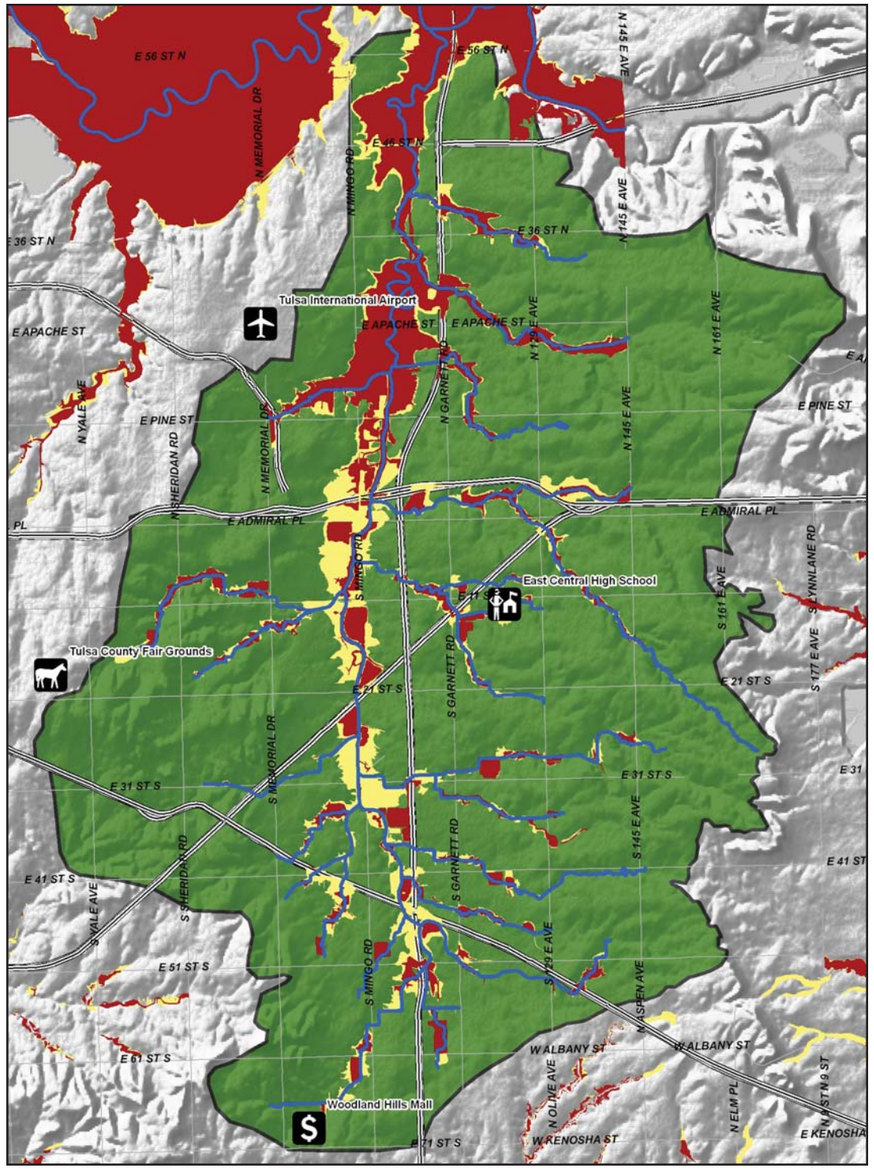
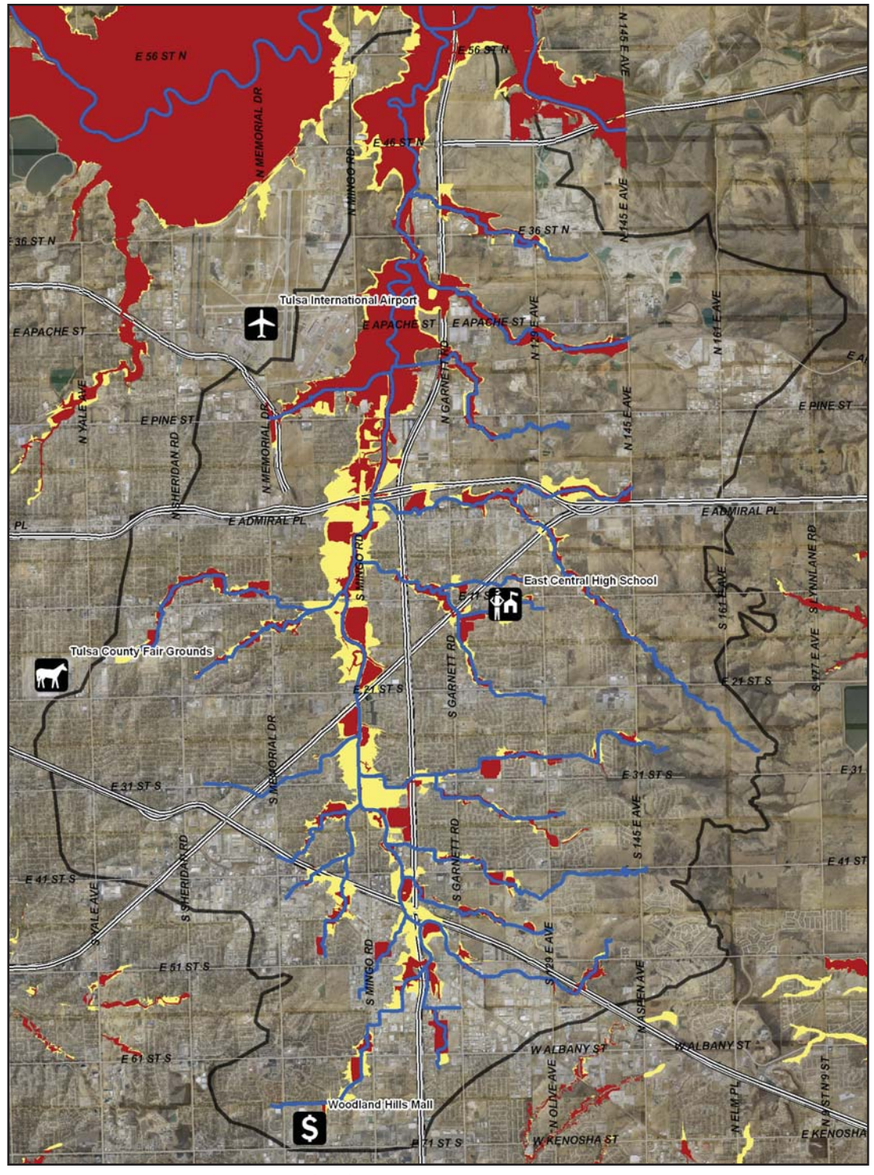
1" = 1.25 Miles



Mingo Basin Floodplain



City Overlay of the Mingo Basin Floodplain

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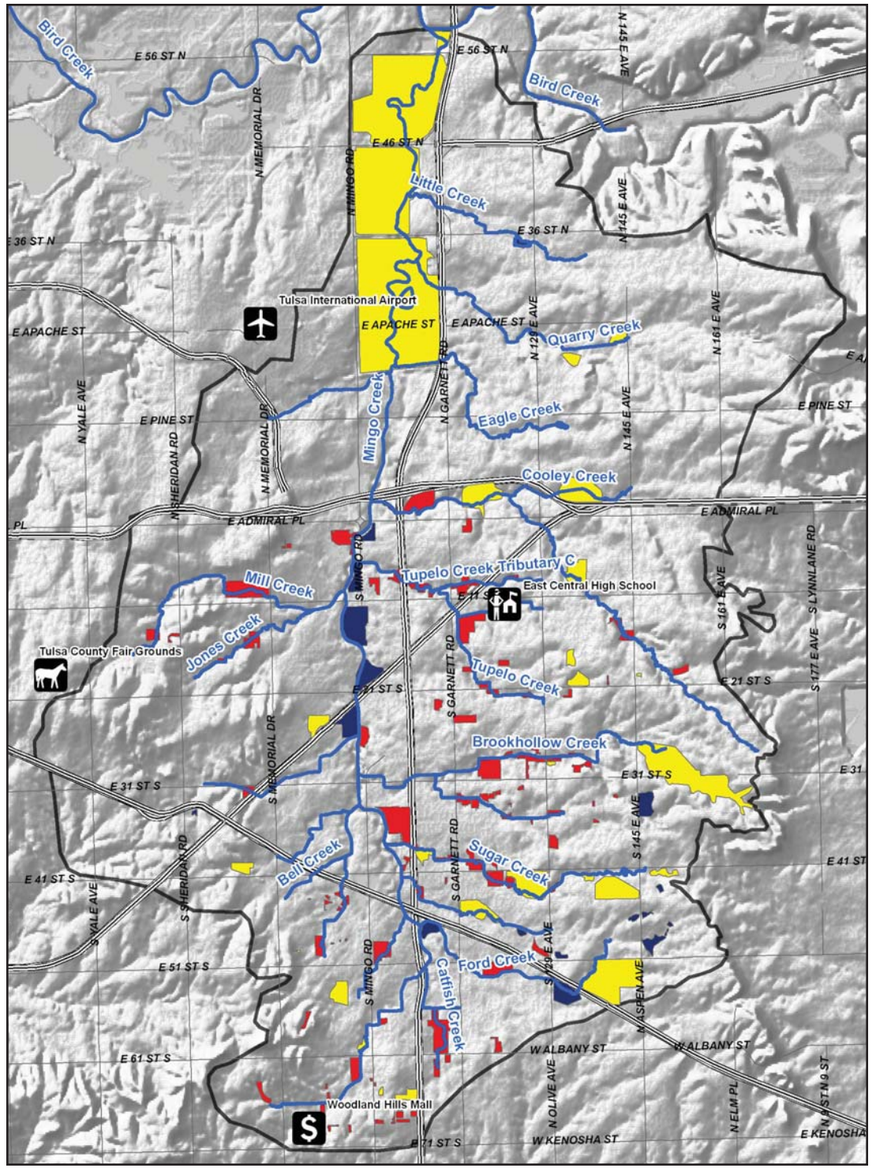
1" = 1.25 Miles

This map shows both the 100 year in red and the 500 year floodplain in yellow. The largest are of flooding is located outside the basin to the Northwest around Bird Creek. But within the basin, Mingo Creek nearly follows Mingo Road the entire length of the floodplain. As the creek grows larger on its way to empty into Bird Creek, its flow grows in magnitude and possible flooding increases. Note that a number of unnatural shapes, mostly in a square pattern are located along the Mingo Creek. These are the locations of Retention and Detention basins along the creek.

This map also shows both the 100 year in red and the 500 year floodplain in yellow, but with an under of the city. Due to the expansion of the city eastward, the creek has become surrounded on all sides.

Legend

- 100 Year Floodplain
- 500 Year Floodplain
- Mingo Valley Basin
- Waterways



Detention, Retention, and Natural Space in the Mingo Basin

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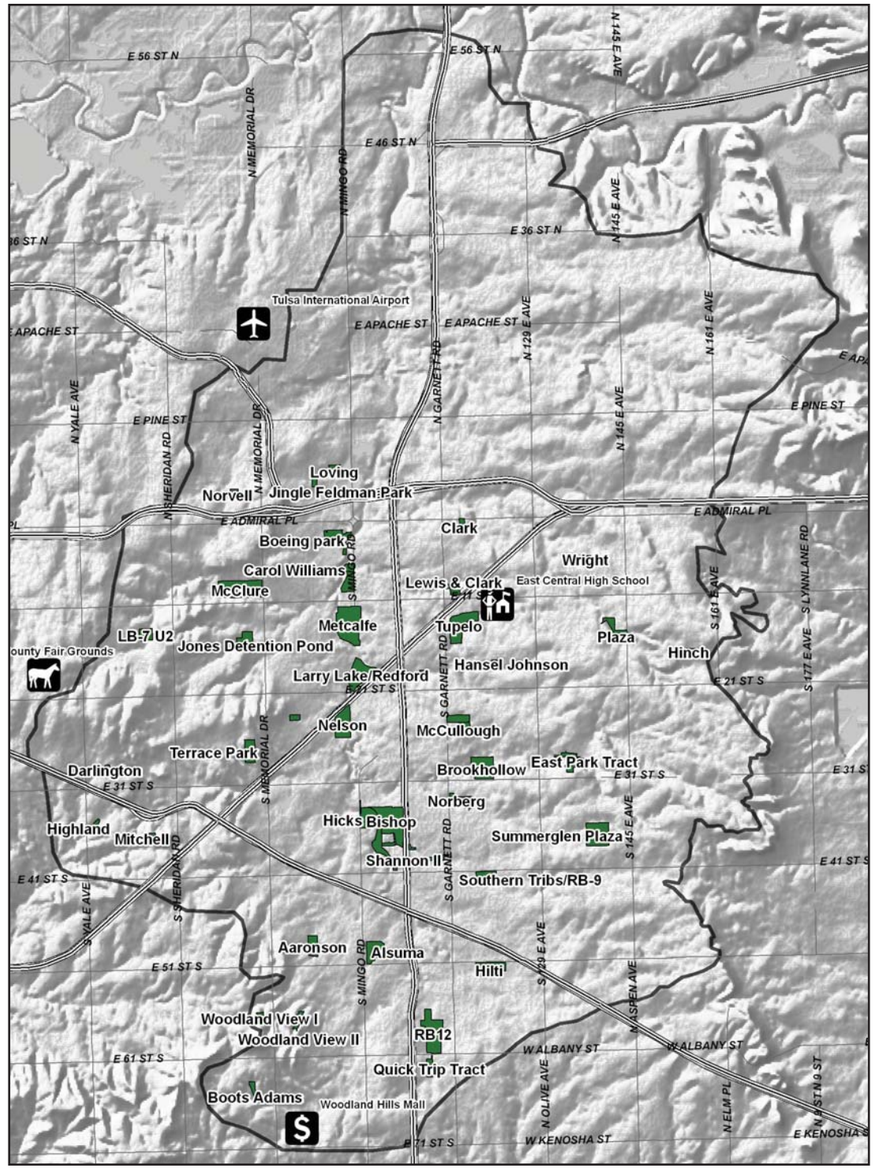
1" = 1.25 Miles



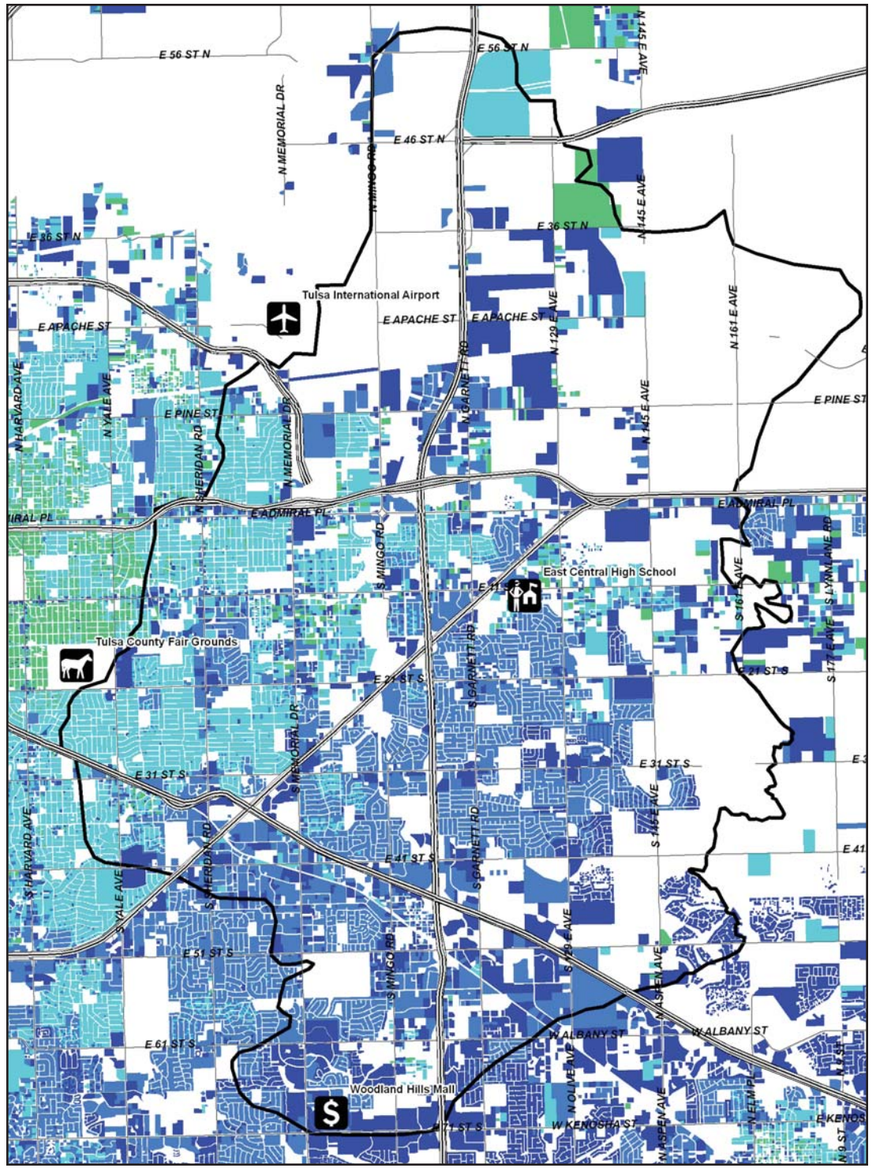
Mingo Valley Parks

Legend

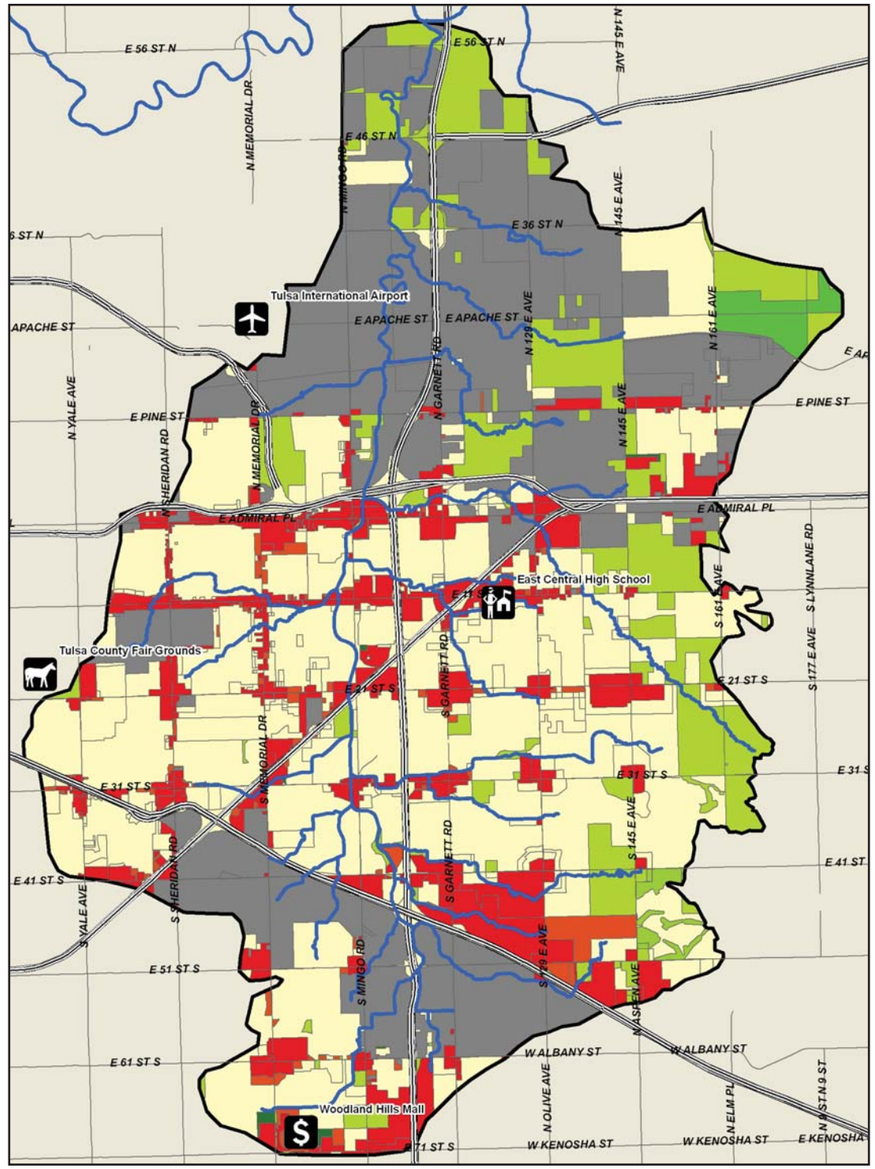
- Retention Basin
- Detention Basin
- Natural Space
- Waterway
- Parks

This map shows Detention Basins, Retention Basins, and Natural Floodway Spaces located within the Mingo Basin. A Detention Basin is a dry area of land surrounded by levees where extra stormwater is stored for a temporary amount of time until the water level drops with in the flooding channel (in this case Mingo Creek) slowly and safely drains away (Brays 2012). Retention Basins also store water in much the same way as Detention Basins, but allows for a portion of the water remain indefinitely (Brays 2012). Natural Floodways Space are natural formations of land where stormwater runoff can be reabsorbed though the soil or filtered through natural dry/wetlands (Open 2012). There are over 150 locations throughout the system totaling 3,744 acres or 5.9 square miles. These areas make up about 10% of the basin.

Within the Mingo Valley Basin are a total of 43 parks. The parks cover an area of 830 acres, or roughly 1.30 square miles. Some of these parks include swimming pools, sports fields, playgrounds, tennis courts, water playgrounds, picnic shelters, community centers, fitness facilities, gymnasiums, meeting rooms, and other attractions (Tulsa Parks 2009).



Year to Date Buildout



Zoning

The far left map shows the march eastward as the city expanded. Between the 1960's and 1980's a large growth of new housing was built around the Mingo Creek.

The second map shows the current zoning ordinances in place for the City of Tulsa. The Mingo Creek touches each of these zoning types.

Year to Date Built Legend

- 1800's - 1940
- 1940 - 1960
- 1960 - 1980
- 1980 - 2010

Zoning Legend

- Agricultural
- Open Space
- Residential
- Office
- Commercial
- 1960 - 1980
- Industrial

N

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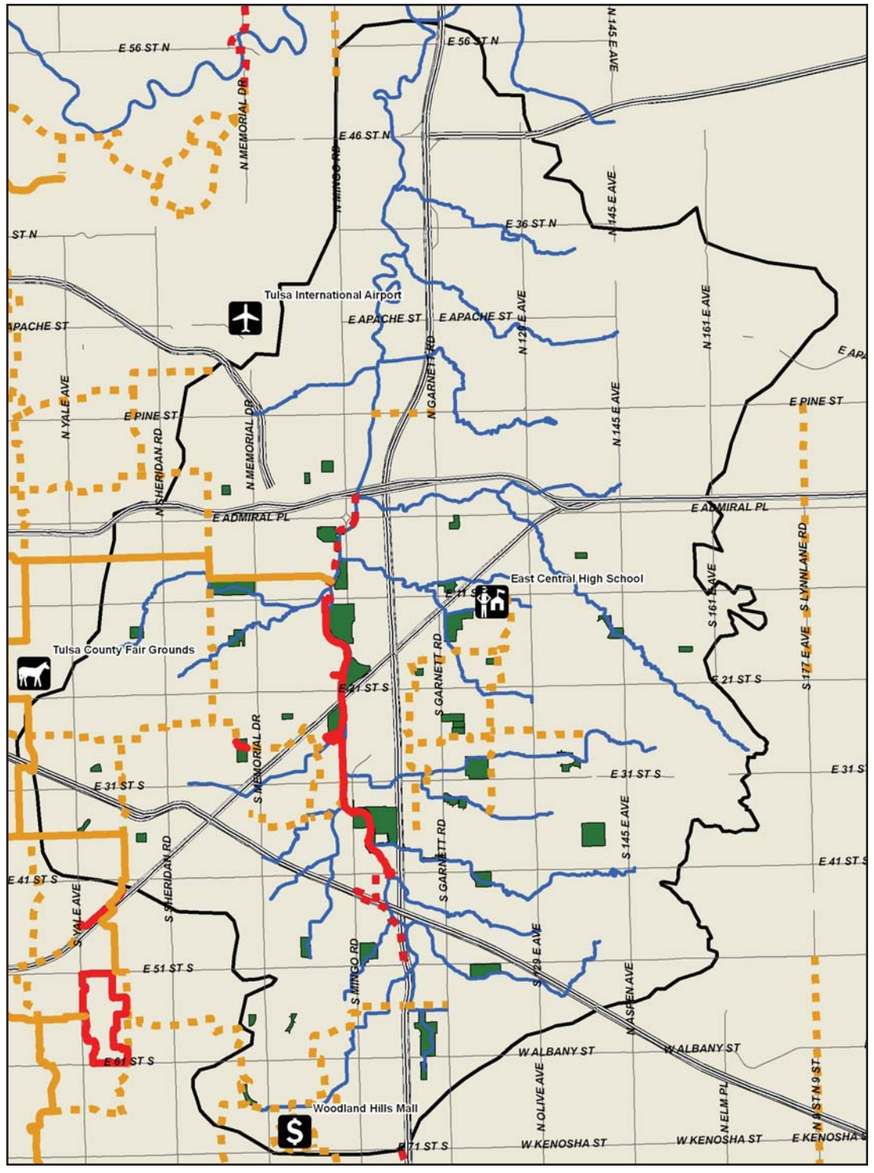
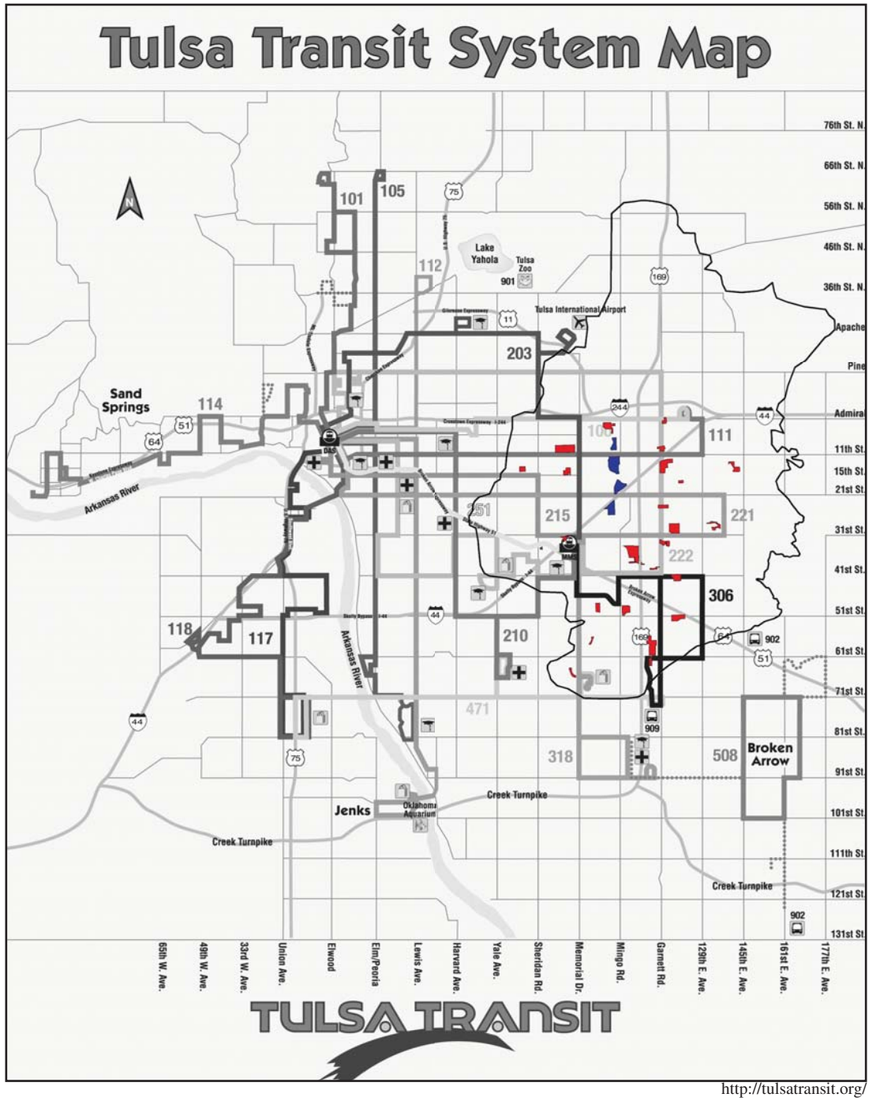


Trails



http://tulsatransit.org/

Tulsa Transit

The City of Tulsa has made strides to continue to grow its network of trails & bicycle systems. Included are multimode trails that accommodate walkers, joggers, and bicyclist. In addition, bike only trials and future development of trails are shown.

While a number of the detention/retention parks are on or near the Tulsa Transit bus system, most individuals do not know that the parks are there (Parks 2009).

Trail Legend

- Built Multimode Trail
- Bike Trail
- Future Trail

Tulsa Transit Legend

- Retention Basin
- Detention Basin
- Mingo Valley Basin
- Bus Routes

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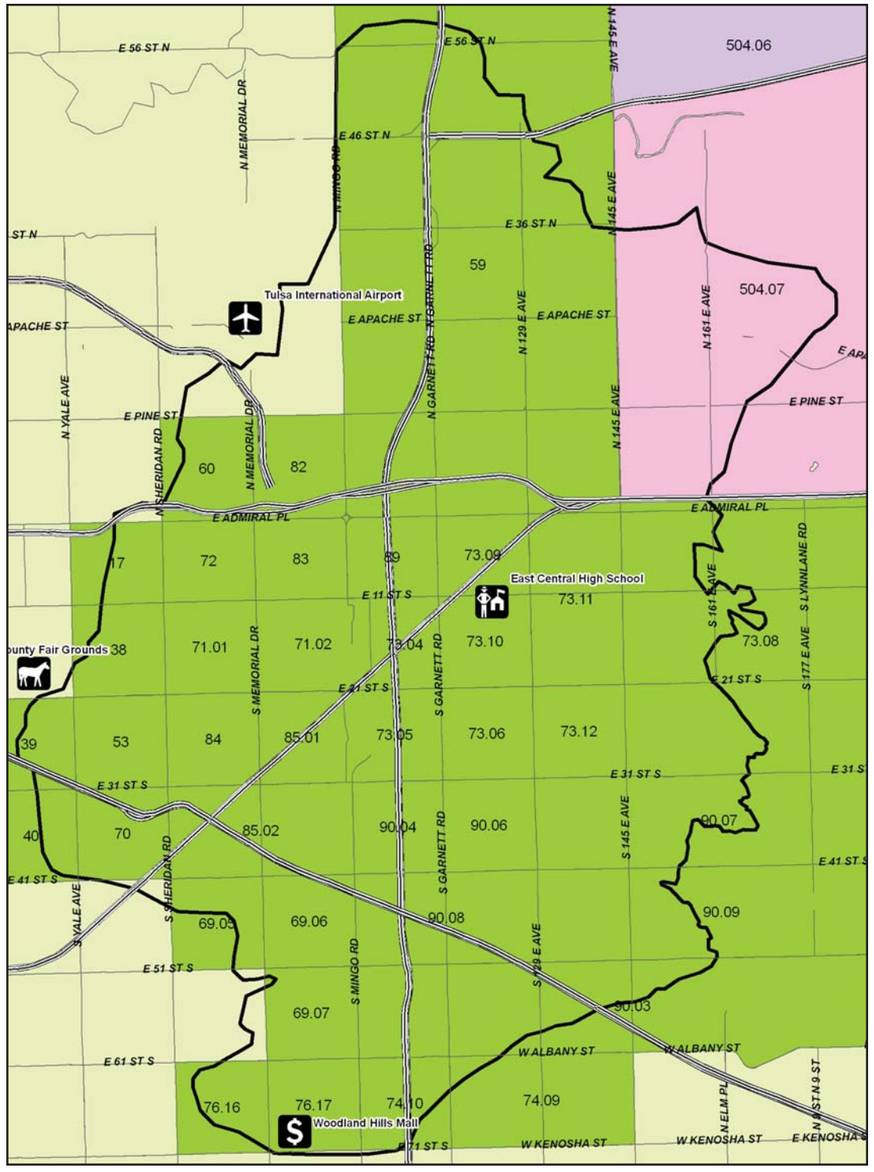
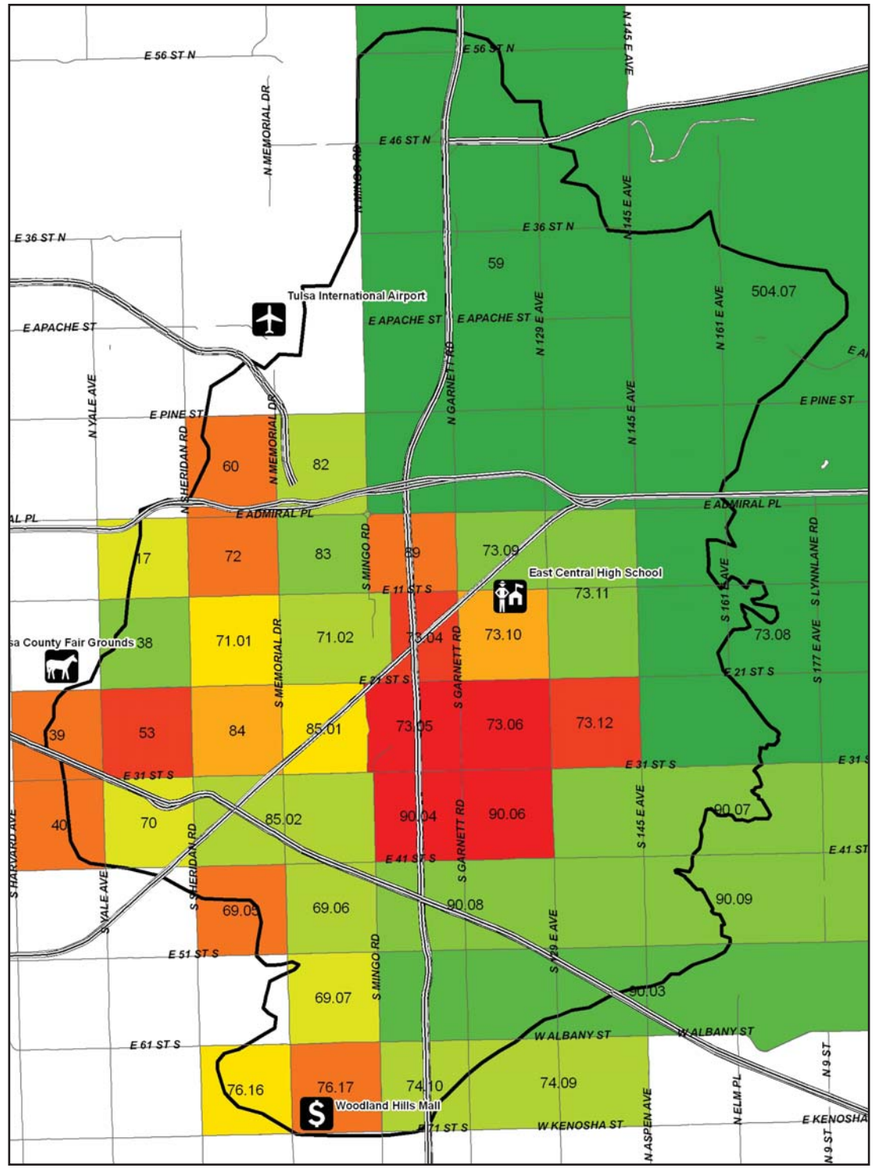
1" = 1.25 Miles



Census Tracks



Population Density

To gather census data for the study area, thirty eight census tracks were used to target the population. On the far left map shows the census tracks used both in Tulsa County and in Rogers County.

The data gathered provide the opportunity to do a Population Density calculation showing the various levels of population equally compared to larger census tracks. The areas along the Highway 169 corridor between twenty-first and forty-first have high concentration of population.

Census Tracks Legend

- Tulsa County
- Rogers County
- Unused Study Area

Population Density Legend

- Very Low
- Low
- Medium
- Medium High
- High
- Very High

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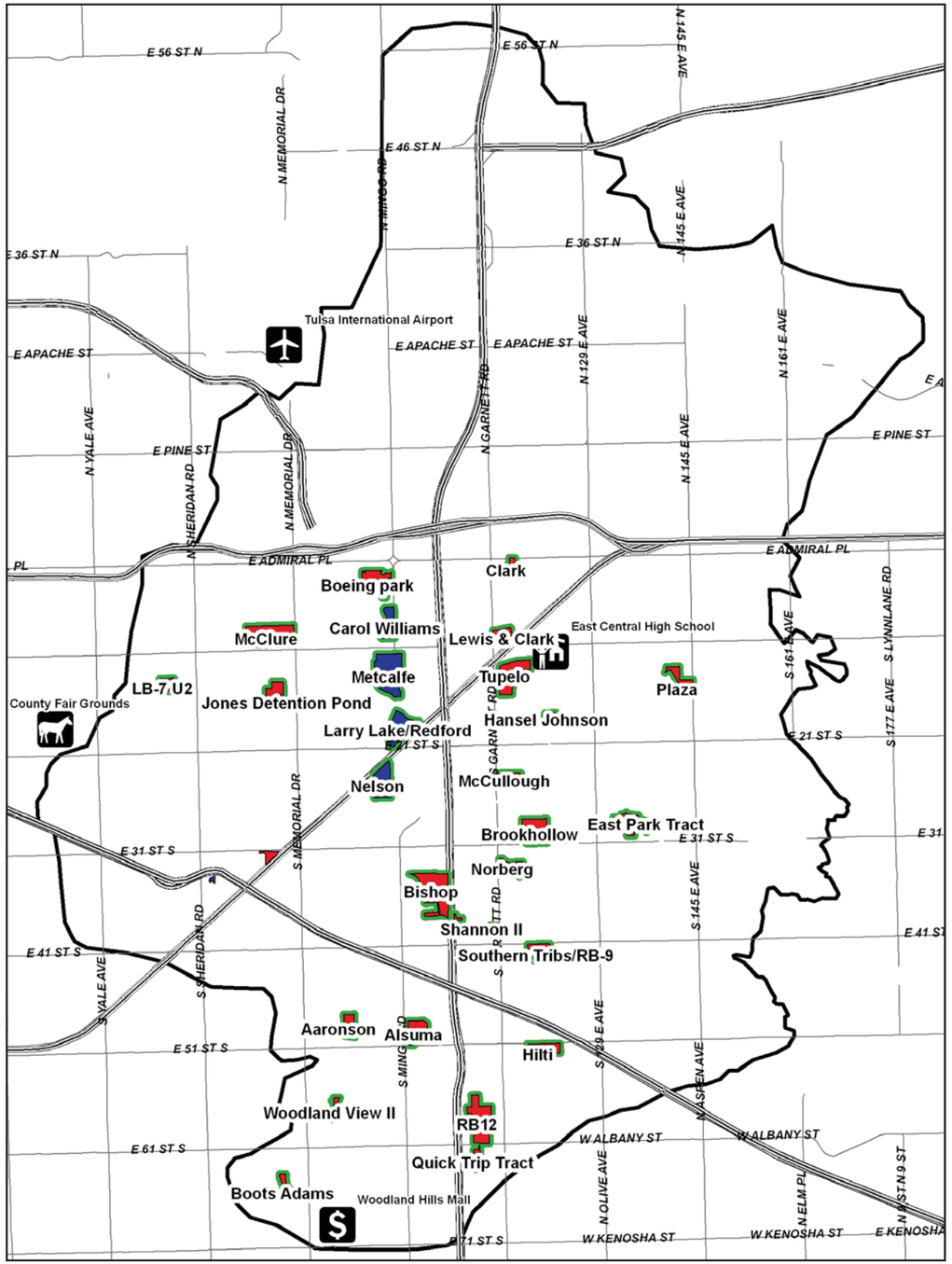
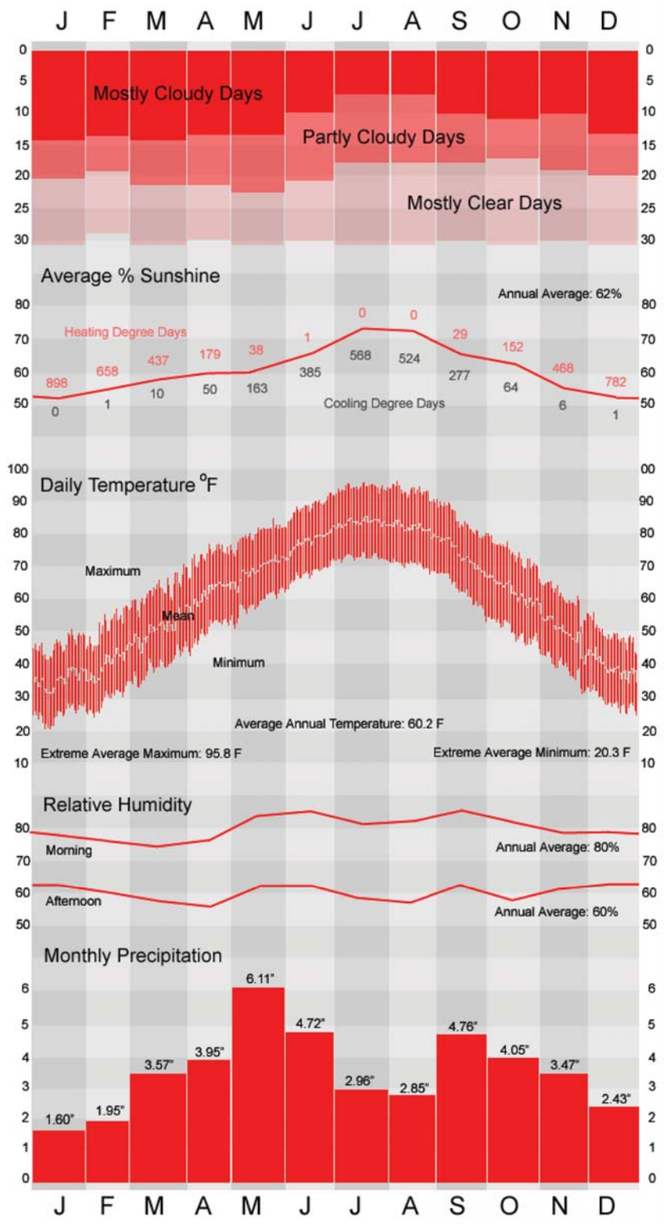
1" = 1.25 Miles

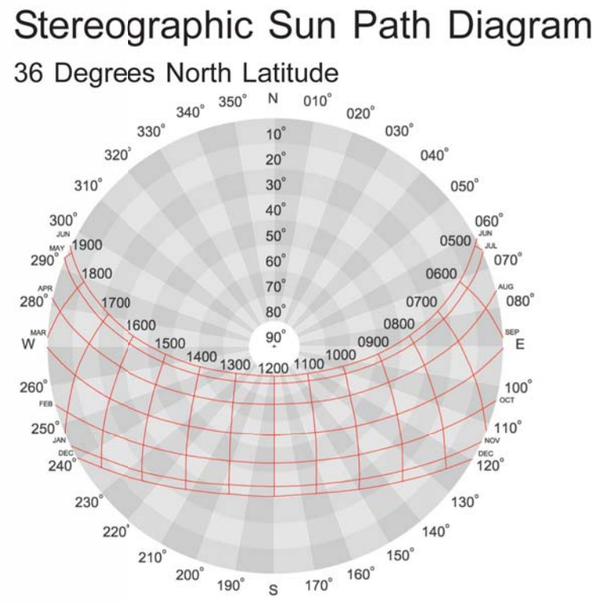


N
1" = 1 Mile

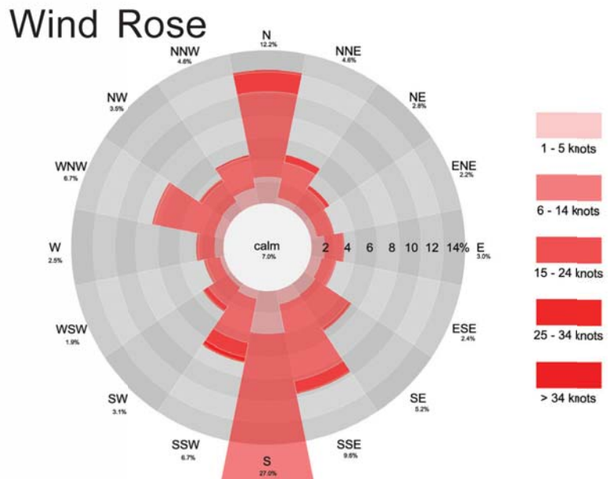
The adjacent map displays detention and retention facilities that are also identified as parks. There are 28 detention / retention parks making up 652 acres (Central Park in New York City, NY has a total of 830 acres) or about 1 square mile. The 15 remaining city parks not located within a floodplain consist of 177 acres or 0.28 square miles. The detention / retention parks make up 79% while the remaining parks make up 21%. With exception of 4 (Bishop, McClure, Alsuma, & Hilti), most detention / retention parks are in a passive state. Example of passive recreations are walking, jogging, picnicking, and lounging. Active recreation is things like basketball, baseball, volleyball, soccer, and other sports (Daniels 2005).



Climatic data obtained from the climatic record book webpage last updated on July 6, 2004 and maintained by the National Weather Service - Tulsa Office at: http://www.srh.noaa.gov/



Stereographic sun path diagram adapted from a diagram prepared by Victor Olgay, AIA on page 803, Architectural Graphic Standards, Tenth Edition, by Ramsey/Sleeper, John Ray Hoke, Jr. FAIA, Editor, John Wiley and Sons, New York: 2000.



Annual prevailing wind summary created with wind frequency analysis data provided by National Weather Service - Tulsa Office meteorologist, Steve Amburn on

"The city of Tulsa lies along the Arkansas River at an elevation of 700 feet above sea level. The surrounding terrain is gently rolling. At a latitude of 36 degrees, Tulsa is far enough north to escape the long period of heat in summer, yet far enough south to miss the extreme cold of winter. The inuence of warm moist air from the Gulf of Mexico is often noted, due to the high humidity, but the climate is essentially continental characterized by raid changes in temperature. Generally the winter months are mild. Temperatures occasionally fall below zero but only last a very short time. Temperatures of 100 degrees or higher are often experienced from late July to early September, but are usually accompanied by low relative humidity and a good southerly breeze. The fall season is long with a great number of pleasant, sunny days and cool, bracing nights. Rainfall is ample for most agricultural pursuits and is distributed favorably throughout the year. Spring is the wettest season, having an abundance of rain in the form of showers and thunderstorms. The steady rains of fall are a contrast to the spring and summer showers and provide a good supply of moisture and more ideal conditions for the growth of winter grains and pastures. The greatest amounts of snow are received in January and early March. The snow is usually light and only remains on the ground for brief periods. The average date of the last 32 degree temperature occurrence is late March and the average date of the rst 32 degree occurrence is early November. The average growing season is 216 days. The Tulsa area is occasionally subjected to large hail and violent windstorms which occur mostly during the spring and early summer, although occurrences have been noted throughout the year. Prevailing surface winds are southerly during most of the year. Heavy fogs are infrequent. Sunshine is abundant."

Climatological Overview quoted from the National Weather Service Tulsa Oce webpage:
http://www.srh.noaa.gov/tulsa/climate/tulcliover.html

Metcalfe Park, Retention Basin

36° 8’47.23”N 95°52’7.76”W
About East 11th St. & S. Mingo Road

Metcalf Park contains 63 Acers of land and water usage. Concrete and gravel walkways are within and around its perimeter. Their only forms of relaxation are two benches and the natural ground. A bridge connects Metcalf Park with the west bank and Mingo Trail. People arrive by walking, biking, or driving.


Metcalf Pond-View West


Metcalf Pond-View West.


Local Trees-View East


Local Trees-View East


Open Space-View West


Trail-View North


Mingo Creek-View North


Open Space-View West


Open Space-View East

In order to become familiar with the Mingo Valley Basin, photos were taken for what would turn into a photo survey. Over 350 photos of various structures and spaces were taken. The exercise helped to better understand the Mingo Valley Basin.

Detention Basins are dry areas of land surrounded by levees where extra stormwater is stored for a temporary amount of time (Brays 2012).

Retention Basins also store water in much the same way as Detention Basins, but allows for a portion of the water remain indefinitely (Brays 2012).

Natural Floodway Spaces are natural formations of land where stormwater runoff can be reabsorbed though the soil or filtered through natural dry/wetlands (Open 2012).

Redford/Larry Lake Park, Retention Basin

36° 8’12.53”N 95°51’57.25”W
About East 21st Street & I-44

Redford/Larry Lake contains 38 acers of land and water usage. Concrete and gravel walkways are within and around its perimeter. The provided forms of relaxation are two benches and the natural ground. A walkway connects Redfordf Park to Metcalf Park. People arrive by walking, biking, or driving.


Entrance -View West


101st Street East -View North

Welcome Sign -View West


Open Space -View West


Open Space -View Southwest


Larry Lake -View Northwest


Larry Lake -View Northwest


Larry Lake -View Northwest


Open Space -View South


Open Space -View South


Larry Lake -View East


Weir -View West

Brookhollow Park, Detention Basin

36° 7’9.83”N 95°50’33.55”W
About East 31st Steet & South 121st East Ave.

Brookhollow Park contains 38 acers of land usage. A gravel walkway g are within and around its perimeter. The provided forms of relaxation are four benches and the natural ground. People arrive by walking, biking, or driving.


Trail -View East


Open Space -View Northeast


Open Space -View Northeast


Levee Wall -ViewWest


Open Space -View Northeast


Open Space -View East


Open Space -View East


Weir -View Northeast


Open Space -View West


Open Space -View West


Open Space -View Northeast

City Sign -View East

Tupelo Park, Detention Basin

36° 8’33.19”N 95°50’52.39”W

About East 15th Street & South Garnett Rd.

Tupelo Park contains 41 acers of land usage. A gravel walkway g are within and around its perimeter. The provided forms of relaxation are four benches and the natural ground. People arrive by walking or biking.

Tupelo Creek -View Northeast

Tupelo Creek -View Southeast

Property Wall -View East

Bench -View West

Weir -View Northwest

Path -View Northeast

Weir -View West

Drainage Path - View East

Open Space-View South

Open Space-View East

Bridge-View South

Vegetation-View East

RB-12 Park, Detention Basin

36° 4’33.00”N 95°51’23.47”W
About East 61st S. & South Garnett Rd.

RB-12 Park contains 47 acers of land usage. A gravel walkway g are within and around its perimeter. The provided forms of relaxation are four benches and the natural ground. People arrive by walking, or biking.

Sign-View North


Drainage-View East


Trail-View North


Open Space-View North


Drainage-View North


Open Space-View Northeast


Vegetation-View West


Open Space-View Northeast


Open Space-View North


Open Space-View North


Open Space-View North


Open Space-View Easth

Zeledyne Natural Park

36° 4’58.85”N 95°49’52.19”W
About S. 129th Street & HW 51

Zeledyne Natural Park contains 35 acers of land usage. A natural walkway goes around its perimiter. The provided form of relaxation are fishing, two benches and the natural ground. People arrive by walking, or biking. It is located on private land.


Tree line-ViewWest


Pond-View Northeast


Pond-View Northeast


Pond-View Pond


Box Structure-View East

Box Structure-View West


Pond-View West


Solar Powered Observation


Dock Ram-View South


Dock-View South


Pond-View South


Clogged Intake

Lower Mingo Basin Natural Wetland

36°11’29.21”N 95°51’39.63”W
Undefined Location

Lower Mingo Basin consitis of 1690 acers dry and wetland. People can arrive by walking, or biking.


Wetlands-View South


Wetlands-View South


Wetlands-View South


Wetlands-View South


Wetlands-View South

Sewage Pump Station-View South


Sewage Pump Station-View South

Sewage Pump Station-View South


Wetlands-View North


Wetlands-View North


Mingo Creek-View South


Mingo Creek-View South

McClure Park, Detention Basin

36° 9’2.37”N 95°53’29.08”W

About East 7th St. & South Memorial Dr.

McClure Park contains 57 acers of land and water usage. Concrete and gravel walkways are within and around its perimeter. It has multipule forms of relaxation including but not limited to swimming, basketball, baseball, and disk golf. People arrive by walking, biking, or driving.

Mill Creek-View West

Parking Lot-View West

Sign-View West

Ballpark-View West

Bishop Park, Detention Basin

36° 6’40.83”N 95°51’43.30”W

About East 34th St. & South 103rd E. St.

Bishop Park contains 61 acers of land usage. A gravel walkway goes around its perimiter. Its forms of relaxation are soccer benches and natural ground. People can arrive by walking, biking, or driving using it’s parking lot.

Soccer Fields-View South

Soccer Fields-View North

Sign-View South

Soccer Fields-View North

Jones Detention Pond Park, Detention Basin

36° 8’32.36”N 95°53’31.23”W
About East 15th St. & South 79th E. Ave.

Jones Detention Pond Park contains 17 acers of land usage. A gravel walkway g are within and around its perimeter. The provided forms of relaxation are four benches and the natural ground. People arrive by walking, or biking.


Open Space-View South


Open Space-View South


Open Space-View East


Open Space-View East

UB -1, Detention Basin

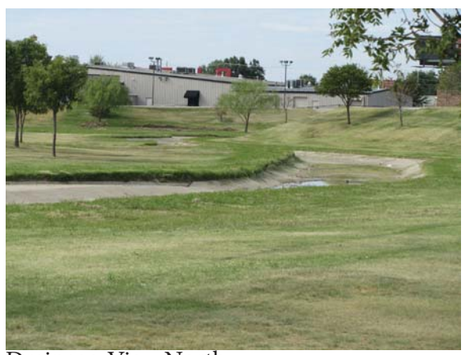
36° 5’59.12”N 95°52’21.93”W
About S. 93rd E. Ave. & HW 51

UB-1 contains 9 acers of land usage. A gravel walkway g are within and around its perimeter. The provided forms of relaxation are four benches and the natural ground. People arrive by walking, or biking.


Drainage-View West


Ramp-View West


Mingo Creek-View South


Drainage-View North

Garden Ridge, Detention Basin

36° 5’41.21”N 95°51’17.43”W
About HW 169 & HW 151

Gardent Ridge contains 15 acers of land and water usage. A gravel walkway g are within and around its perimeter. The provided forms of relaxation are four benches and the natural ground. People arrive by walking, or biking.


Pond-View East


Pond-View West


Trail-View South


Mingo Creek-View West

Quick Trip/Apartment, Detention Basin

36° 5’41.21”N 95°51’17.43”W
About E . 61st South & S. 107th St. East Ave.

Quick Trip/Apartment contains 10 acers of land and water usage. No walkway is available. It serves no recreation use.

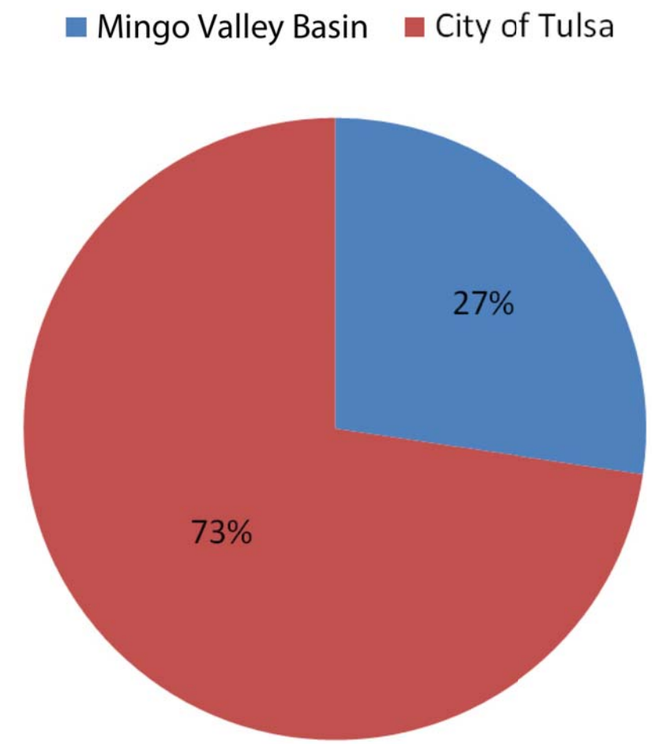

Start of Mingo Creek-View East


Pond-View East


Pond-View South


Pond-View West

Population

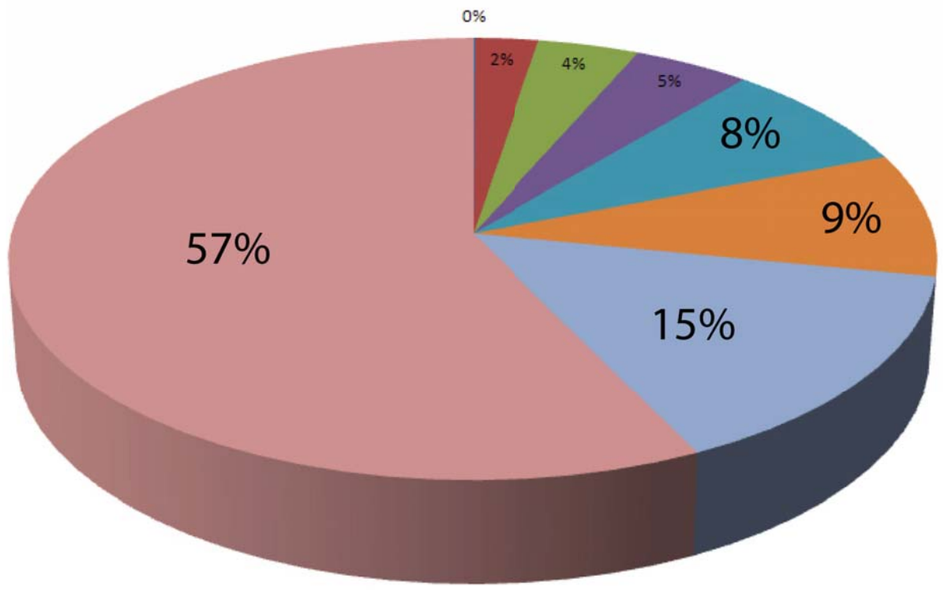


Mingo Valley Basin Population: 147,496

City of Tulsa Population: 391,906

2010 U.S. Census

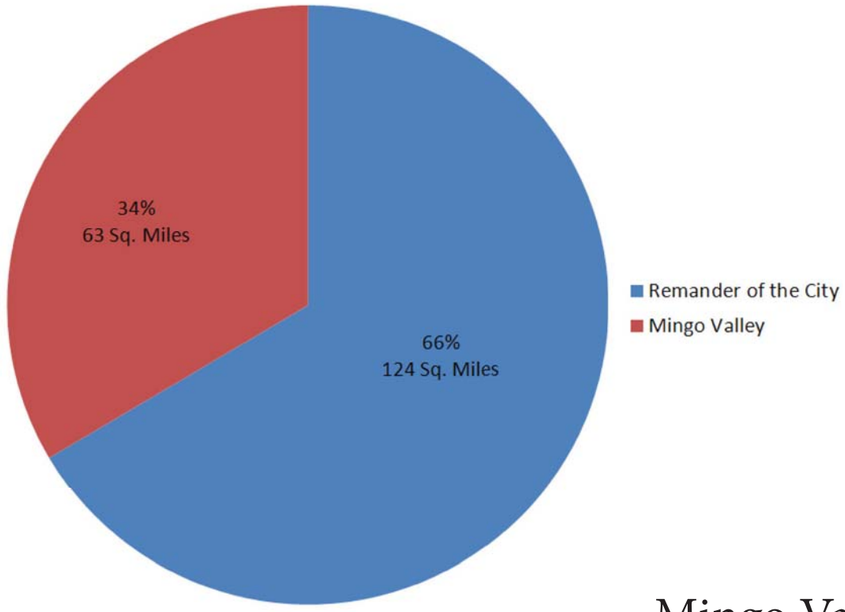
Race & Hispanic or Latino



2010 U.S. Census

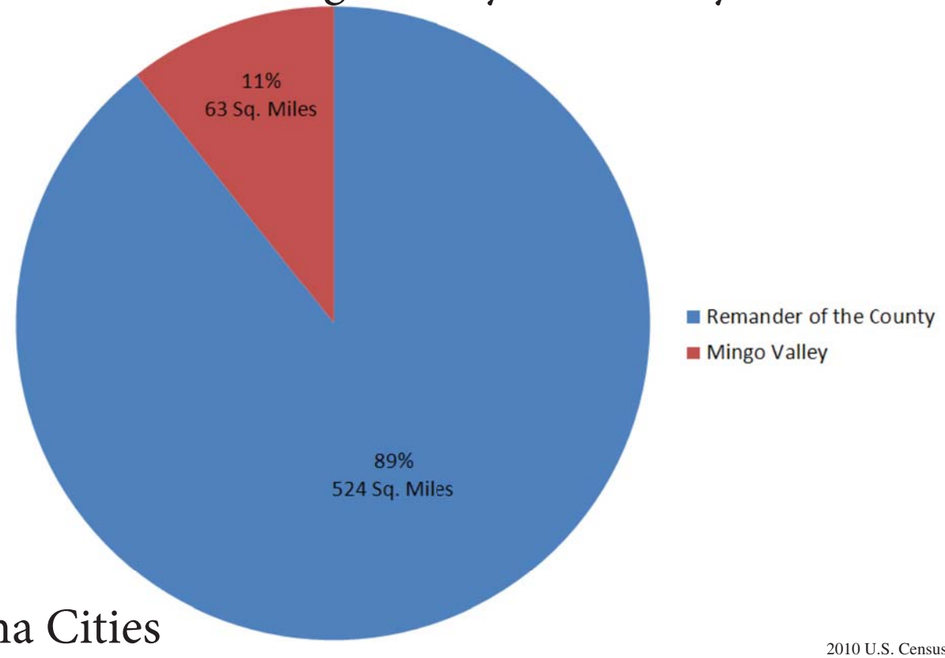
The population that lives within the Mingo Valley Basin is 147,496 or 27% of the total population of the City of Tulsa. The Mingo Valley Basin is a very diverse community having a high Hispanic / Latino population, followed by Black or African American and some other races. Having a strong diverse population makes the Mingo Valley a unique place to live.

Land Size - Mingo Valley vs. City of Tulsa



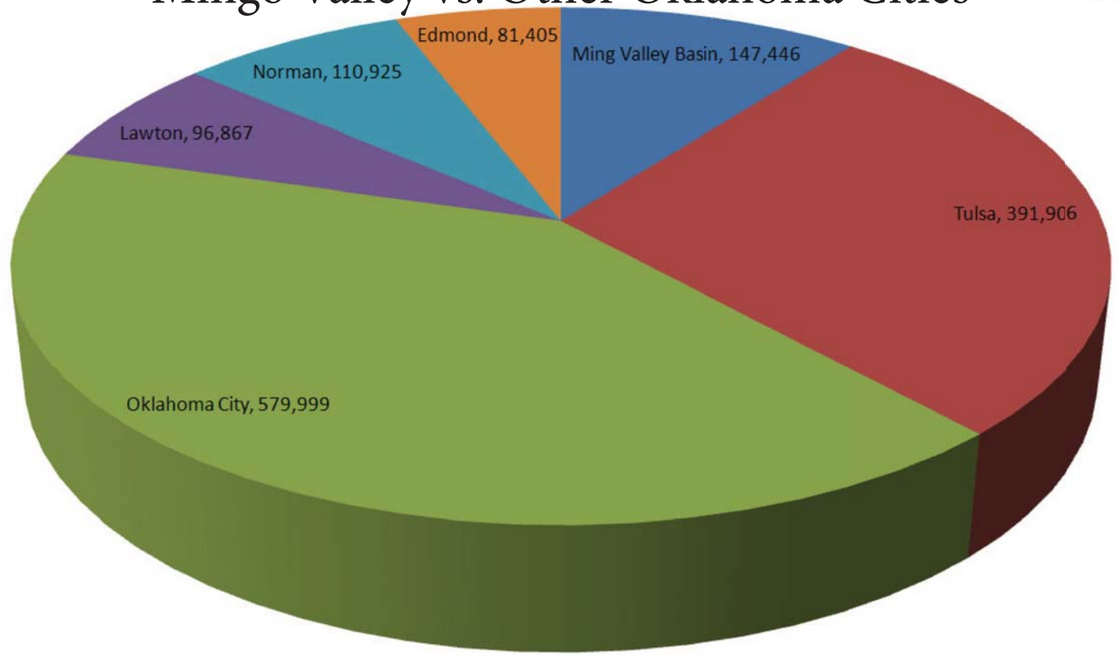
2010 U.S. Census

Land Size - Mingo Valley vs. County of Tulsa



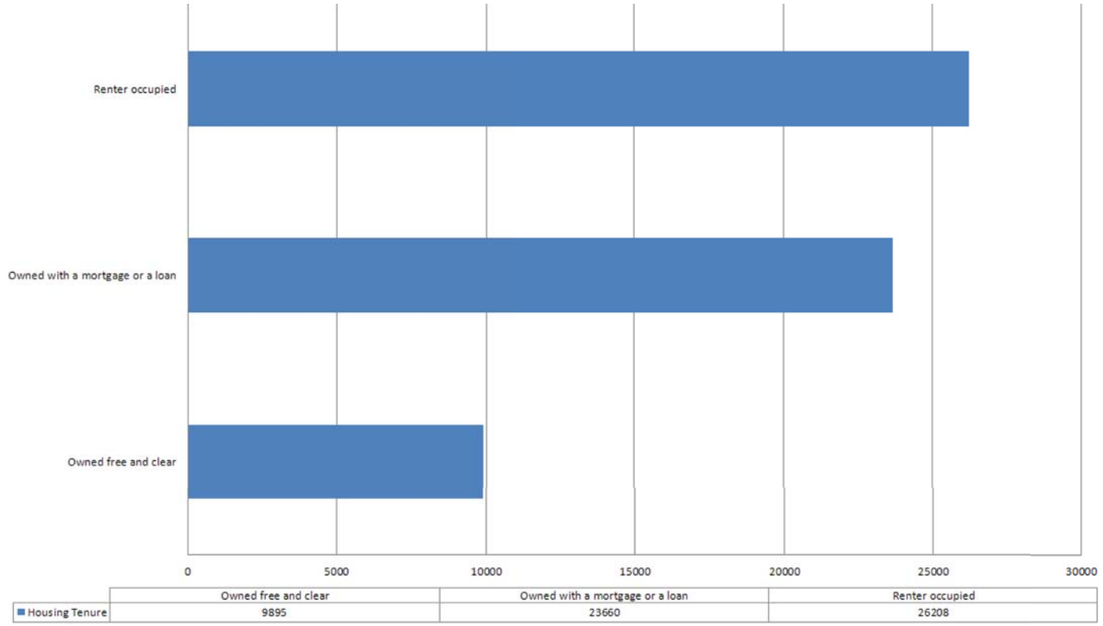
2010 U.S. Census

Mingo Valley vs. Other Oklahoma Cities



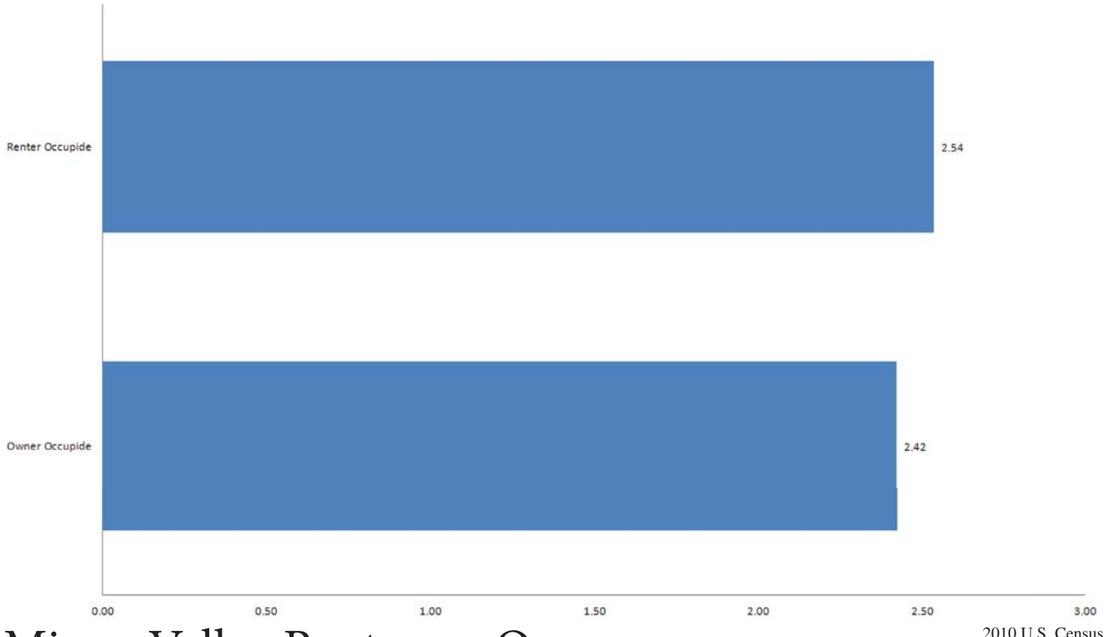
2010 U.S. Census

Land is most commonly associated with wealth. If this is the case, the people who live within the Mingo Valley would be some of the richest in Oklahoma. Taking up 63 square miles of space, Mingo Valley makes up the majority of the city at 34%. Compared to the County it makes up 11%. If the population within the area of the Mingo Valley were compared to the population of other cities within the State of Oklahoma, it would be third largest community surpassing Norman, Lawton, and Edmond.



2010 U.S. Census

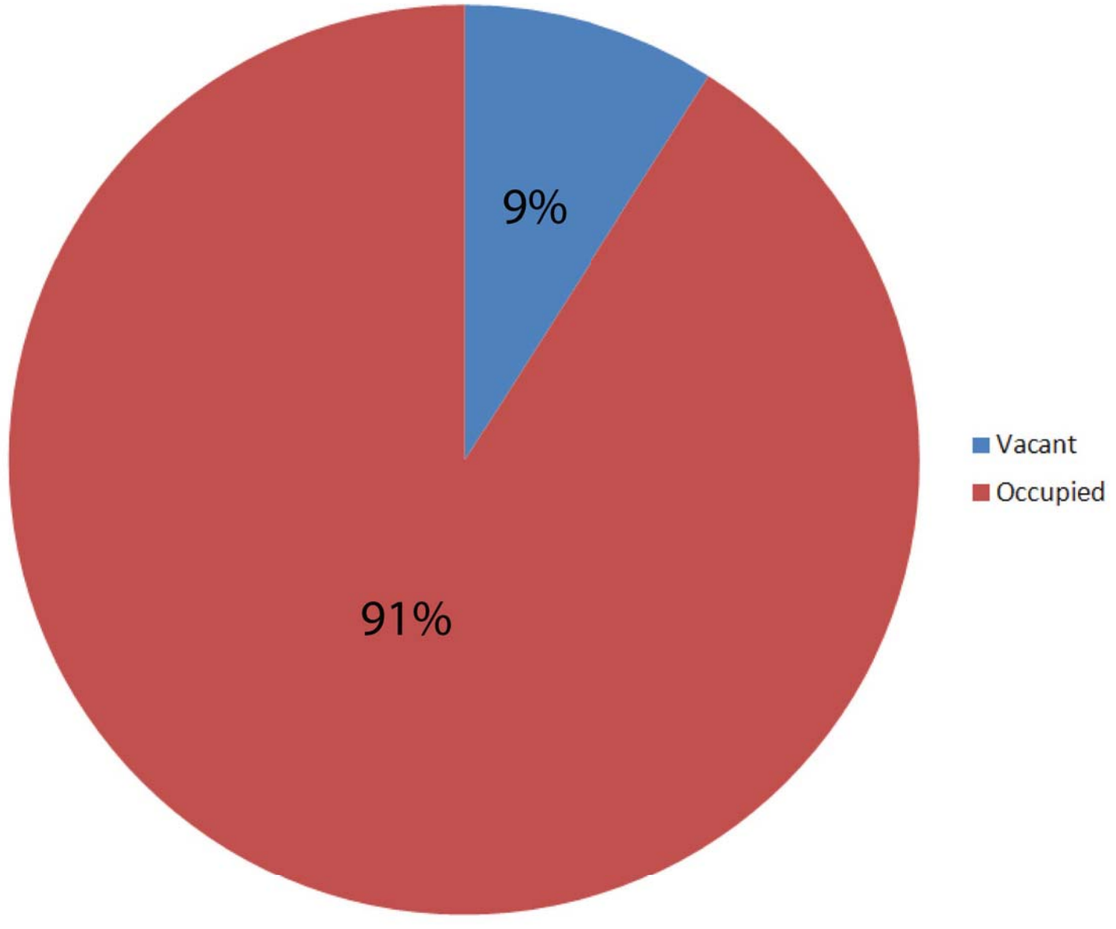
Mingo Valley Housing Tenure



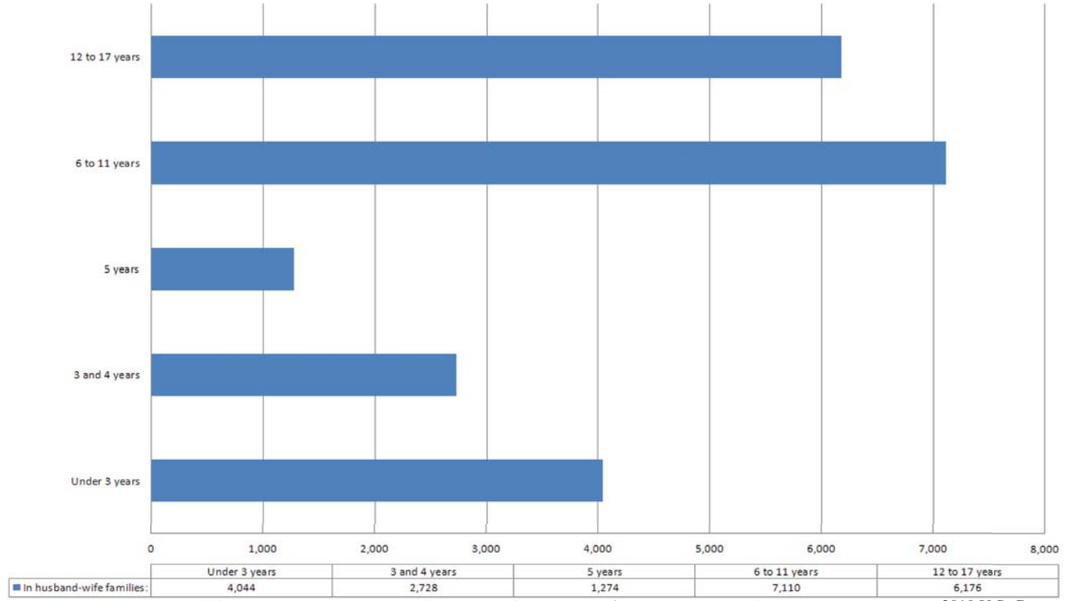
2010 U.S. Census

Mingo Valley Renter vs. Owner

Mingo Valley Vacant vs. Occupied Property



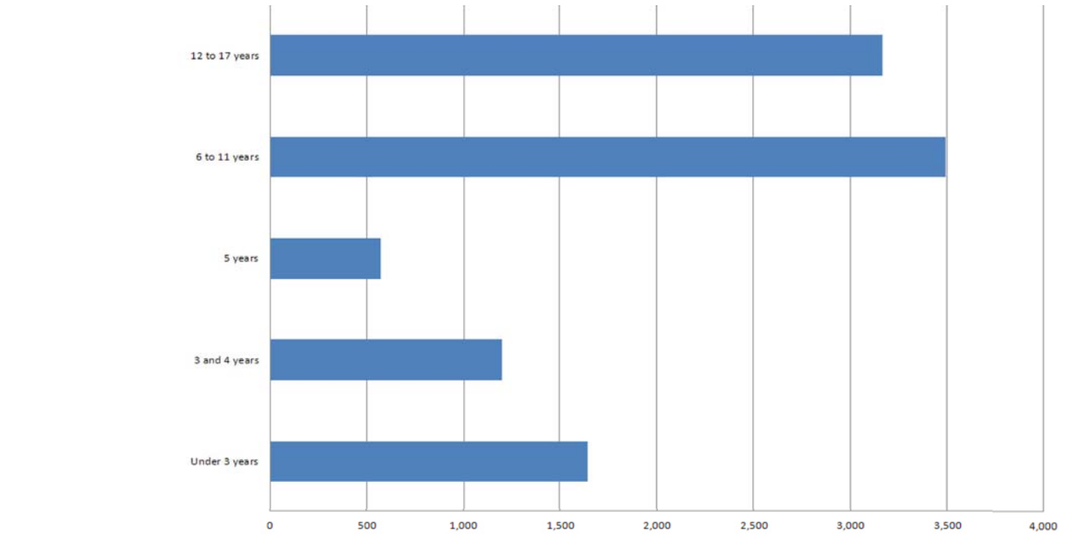
2010 U.S. Census



	Under 3 years	3 and 4 years	5 years	6 to 11 years	12 to 17 years
In husband-wife families:	4,044	2,728	1,274	7,110	6,176

2010 U.S. Census

Mingo Valley In Husband-Wife Familes

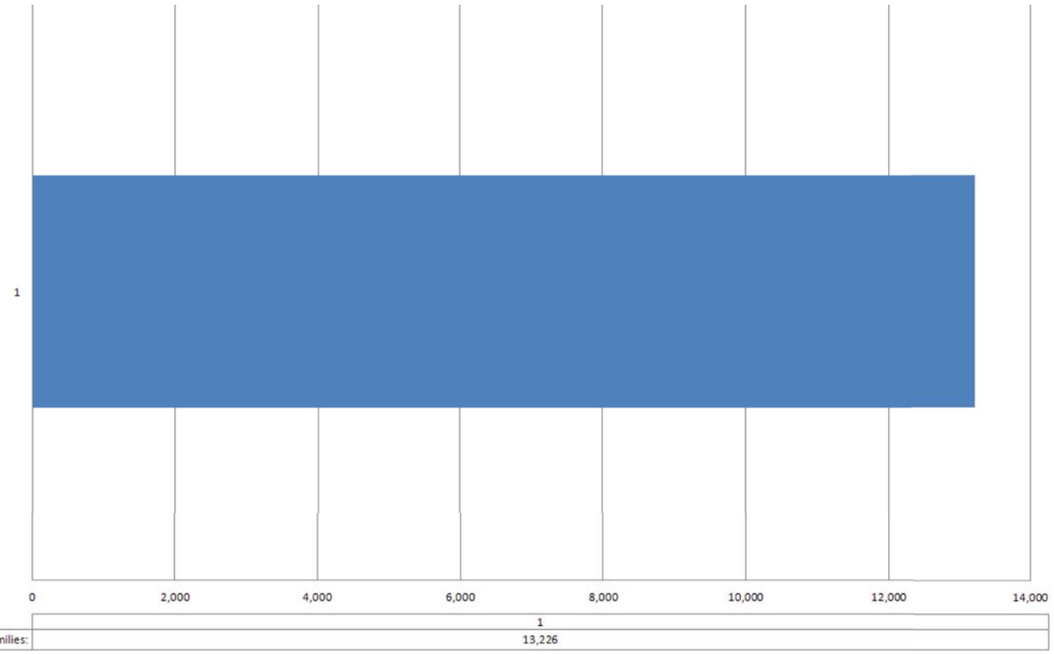


	Under 3 years	3 and 4 years	5 years	6 to 11 years	12 to 17 years
In female householder, no husband present family	1,647	1,202	570	3,492	3,166

2010 U.S. Census

Mingo Valley In Female Only Familes

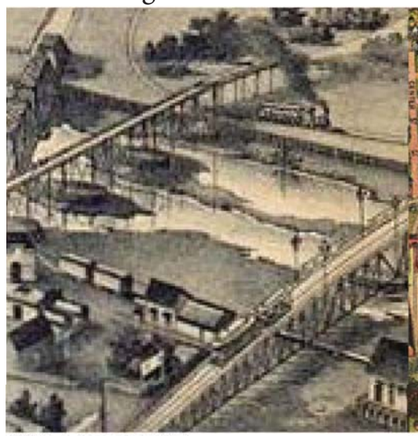
Mingo Valley In Other Familes



	1
In other families:	13,226

2010 U.S. Census

The Los Angeles River Past to Present



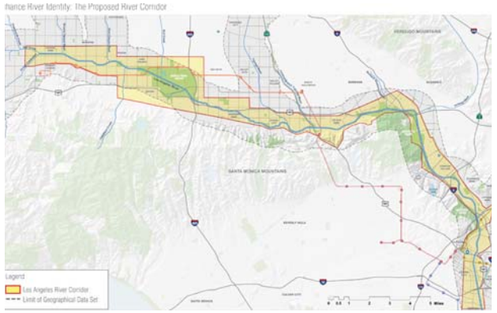
1868 (A. L. Bankcroft and Co.)

1894 (Semi-tropic Homestead Company)

1909 (Birdseye View Publishing Company)

2006 (City of Los Angeles)

http://lariver.org/



In the 1940's the City of Los Angeles channelized the Los Angeles River to promote flood control. By doing so, the United States Army Corps of Engineers lined the fifty-one mile long channel with concrete. The purpose of concrete channelization was to prevent flooding within the city while reducing the damage to the channel itself. In the end it more harm than good. Moderate rainy days made low level flows into fast raging currents while the channel divided neighborhoods and increased industrial building. Like highways and railroads, the back of properties overlooked the river making it an undesired and neglected infrastructure.

Adopted in 2007, the Los Angeles River Revitalization Master Plan targets a thirty-two mile section of the corridor to renew the environmental qualities through ecological and hydrological natural design. Through the redevelopment, the City of Los Angeles is extending the influence into adjacent neighborhoods to reconnect once river divided communities by trails, open space, repurposing vacant land, construction of new flood control basins for new parks and to hold clean stormwater. The citizens will have the opportunity to enjoy the river as sustainable, safe, accessible, and healthy place. It will provide outdoor environmental education and fitness opportunities to communities that currently lake theses opportunities. Lat, the overall hope is the Master Plan will create value by the creation of an attractive place to live and work and a higher quality of life for the residents.

Goals-

- Revitalize the River
  - -Enhance Flood Storage
  - -Enhance Water Quality
  - -Enable Safe Public Access
  - -Restore a Functional Ecosystem
- Green the Neighborhoods
  - -Create a Continues River Greenway
  - -Connect Neighborhoods to the River
  - -Extend Open Space, Recreation, and Water Quality Features into Neighborhoods
  - -Enhance Rive Identity
  - -Incorporate Public Art Along the River
- Capture Community Opportunities
  - -Make the River the Focus of Activity
  - -Foster Civic Pride
  - -Engage Residents in the Community Planning Process and Consensus Building
  - -Provide Opportunities for Educational and Public Facilities
  - -Celebrate the Cultural Heritage of the River
- Create Value
  - -Improve the Quality of Life
  - -Increase Employment, Housing, and Retail Space Opportunities
  - -Create Environmentally-Sensitive Urban Design and Land Use Opportunities and Guidelines
  - -Focus-Attention on Underused Areas and Disadvantage Communities

http://www.buffalobayou.org/summary.html

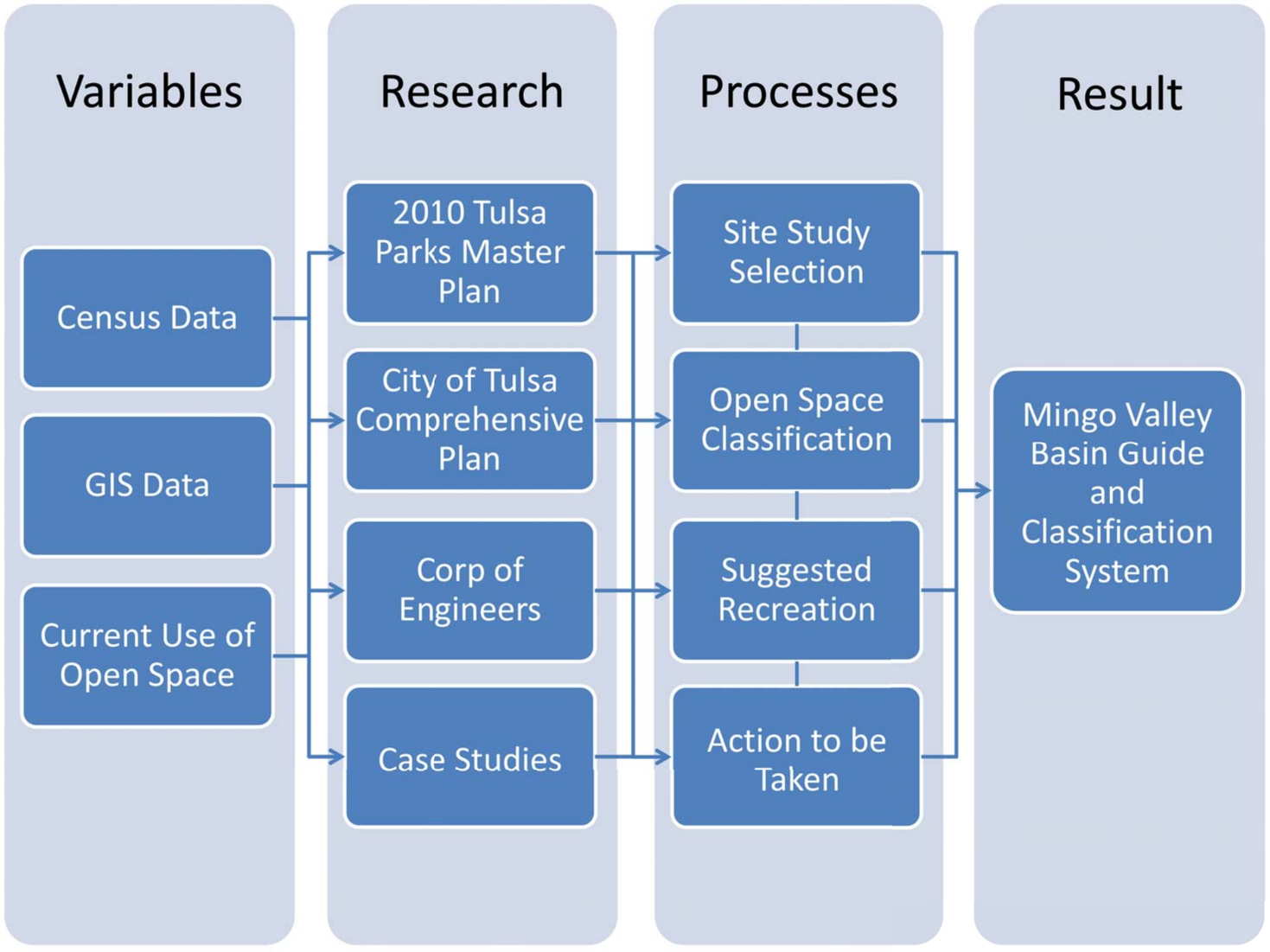
Goals-

- Landscape Plan Project Initiatives
  - -Add 850 acres of new park land to create a linked park system connecting Memorial Park to the Turning Basin
  - -Create Continuous publicly-accessible Bayou bank edges
  - -Integrate landscape amenities and urban design elements with flood management infrastructure
  - -Integrate neighborhoods in the park system through “green Streets”
  - -Connect to metropolitan and regional greenway networks
  - -Build 14 new and expanded boat landings
  - -Offer excursion boat services
- Access and Transportation Plan Project Initiatives
  - -Remove/reconstruct bridges that negatively impede floodwater flow
  - -Upgrade East End boulevards and improve modes of transit along these corridors
  - -Reclaim underutilized roadways to create new urban park space
  - -Improve access to Bayou landings, coordinated with parking provisions
  - -Extend hike and bike trails along both sides of the Bayou
- Environmental Plan Project Initiatives
  - -Create “Green Fingers” to detain, filter and cleanse stormwater
  - -Reduce erosion by stabilizing bayou embankments
  - -Coordinate trash cleanup program
  - -Convert brownfields to parks
  - -Promote the use of low-impact development techniques
  - -Expand and create wildlife habitat areas
  - -Initiate demonstration projects to test long-term impacts of Bayou-related improvements
  - -Develop a regional Eco-Park to expand rehabilitation efforts beyond Buffalo Bayou
- Flood Management Project Initiatives
  - -Improve downtown floodwater flow carried by Buffalo and White Oak bayous by creating supplementary canals
  - -Consolidate bridge crossings to reduce impedance to the flow of floodwater
  - -Increase Buffalo Bayou conveyance capacity along critical reaches, particularly from Allen’s Landing to McKee Street

The City of Houston was founded by the Allen brother in 1836. Buffalo Bayou was essential to Houston’s commerce by providing a shipping way to coastal waters. To continue to build on the success it has with the Bayous current function, the city adopted the Buffalo Bayou Master Plan to create a deeper relationship between city and nature.

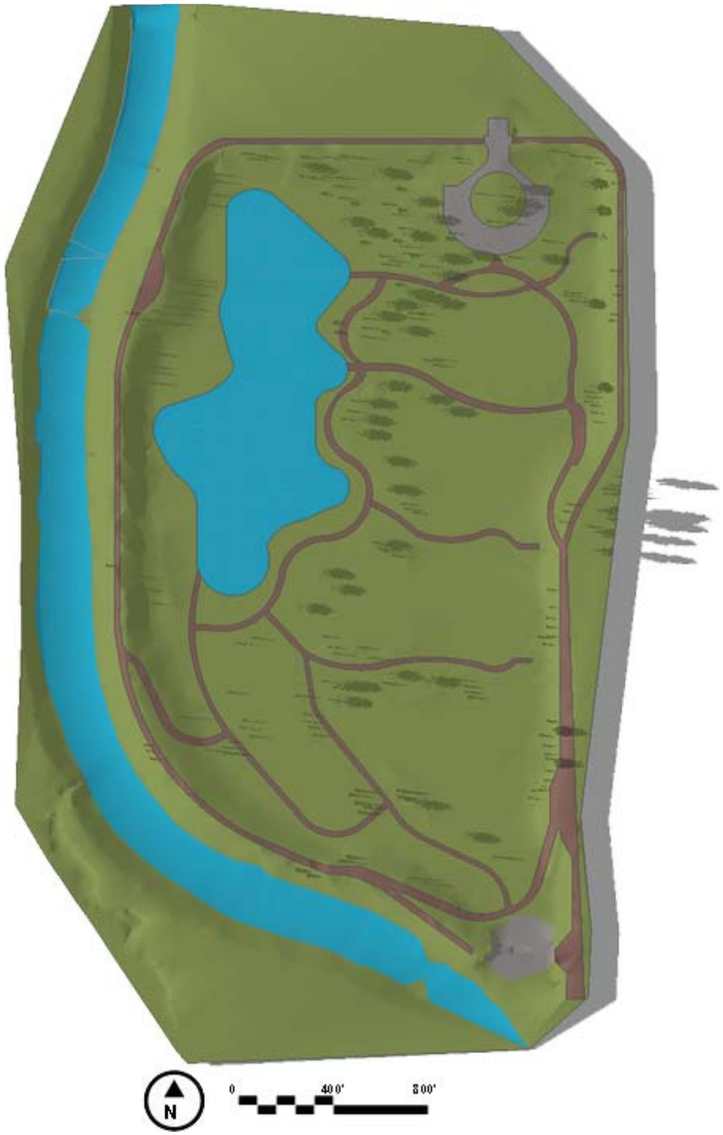
Landscape is urged as the primary resource and key for recreational use. It will provided public access and infrastructure for both land and water activities. The Bayou will become a transportation system connecting east and west sections of the city through both trails, and roadways. To rehabilitate the natural banks and ecosystem, the plan will integrate low impact structures, natural filtration systems and “Eco-Parks. While improving the environmental quality, the project will also increase flood management systems by reducing the amount of bridges, flow pattern, and increase capacity. Expected completion of the project is within the year 2015.

http://www.buffalobayou.org/thumbimages/9-NORT~1.jpg

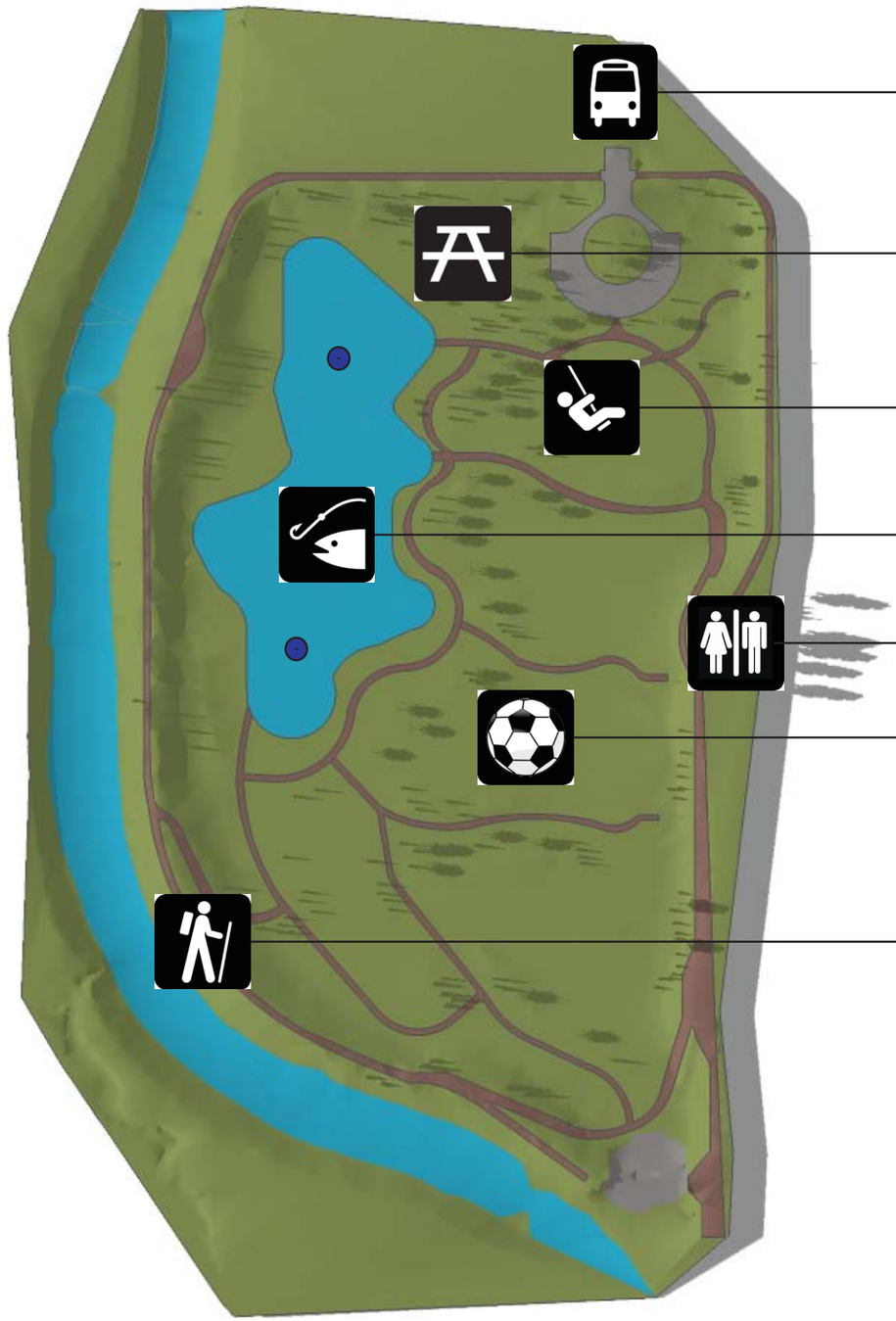


The research methods used includes historical research, review of the 2010 Tulsa Parks and Recreation Master Plan and the City of Tulsa Comprehensive Plan (PlaniTulsa), case studies, community demographics, statistical data, GIS data mapping, recent recorded water activity, and current utilization evaluation of over 150 detention, retention, and natural space sites within the study area.

Once these steps have been followed, three sites within the Mingo Valley Basin were selected to be used as examples for similar facilities that fit their profile. Using the adjacent flowchart, raw data from variables and research were carefully sifted through to select the best possible candidates for site selection that would represent the bulk of the Mingo Valley Basin open space. Along with these icons were used to represent the best function for each location in the open space. These icons simplify the review process and easily displays each usage. With the recommendations complete a full conclusion for all of the Mingo Basin can be formulated.



Metcalf Retention Park is one of the largest parks in the City of Tulsa. At 63 Acers, it provides large grounds of open space. Amenities include Metcalf pond, trails, one picnic table, two benches, and parking lot. Trees are the predominate form of vegetation, though a few verities of tall grass are spread throughout the park. The park has no signage and so it is difficult to find. Without any form of structured recreation, this park is mostly passive providing visitors the opportunity for personal or family relaxation or the option to fish out of its pond.



Tulsa Transit Bus Service

New Picnic Tables & Cooking Grills

Playground

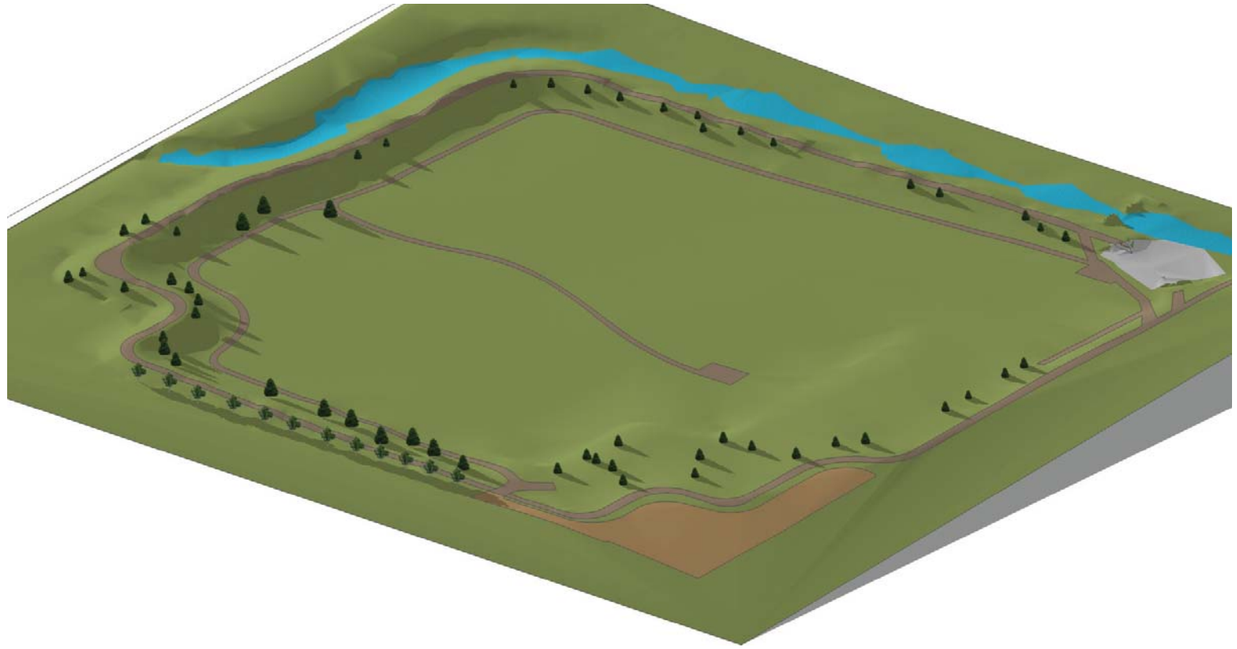
Fishing

Restrooms

Sports Fields

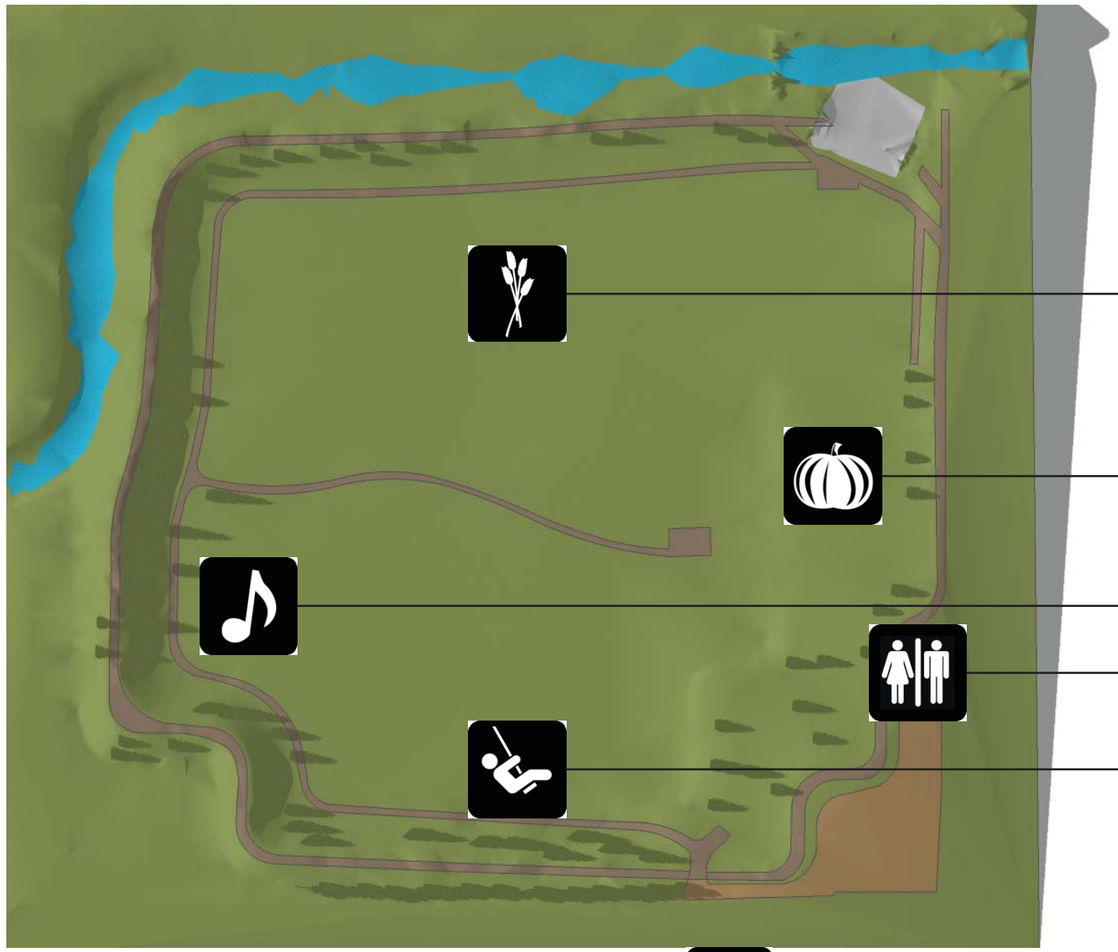
Trails

Based off of research and processes, Metcalf Park needs public transportation provided directly to the park for easy access to all that live within the basin. Within the park, new picnic tables and cooking grills needed to be added to provide enjoyable passive recreation for all citizens. A new playground for children recreation needs to be added for both activity and health benefits. Stocking the pond with fish and adding two water fountains to aerate and provide moment of water for algae and mosquito prevent will add active aquatic use for the community. Low cost and maintenance restrooms need to be added for sustained usage of the park. Sports fields including soccer, football, and baseball will add active use throughout the year. The continued growth and maintenance of the trail system around Metcalf will add to the health benefits and connective for the community.



Brookhollow Detention Park consists of 38 acres of land. It was constructed next to Brookhollow Creek in order to provide as an emergency overflow during flood conditions. Square in shape its weir is located on the northeast corner of the facility. In repeated site visitation, very few individuals use this facility for more than jogging along a track that encircles the park along the levee. Once used for soccer and football practice, this use has long been abandoned leaving only one rusting soccer goal in place. The potential for Brookhollow is considerable considering its direct access to 31st Street East and ample parking. But, due to its current neglect, future growth for usable open space is at a standstill.

Based off of research and processes, Brookhollow Park needs public transportation provided directly to the park for easy access to all that live within the basin. The park would also be an excellent site for Urban Agriculture Study for both local high school and colleges. A community Garden would add food growth, health benefits and community coordination. Noted within the study is the need for an active art seen and so an Amphitheater would provide a form. Low cost and maintenance restrooms need to be added for sustained usage of the park. A new playground for children recreation needs to be added for both activity and health benefits.



Urban Agriculture Study Site

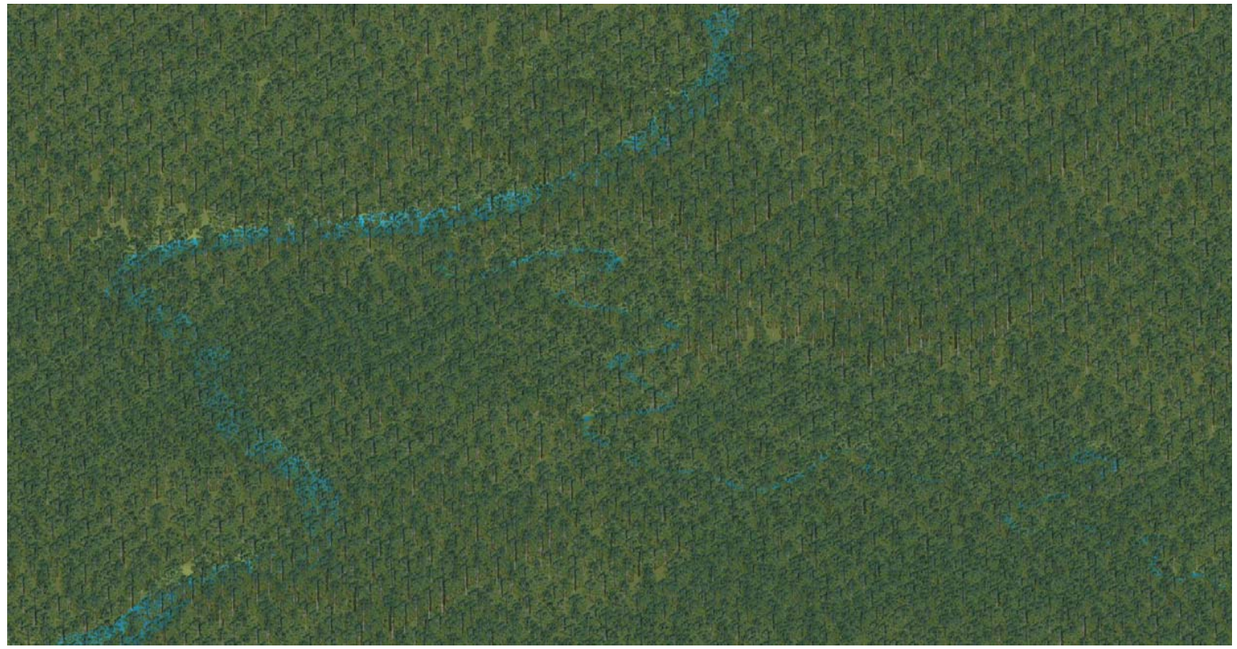
Community Garden

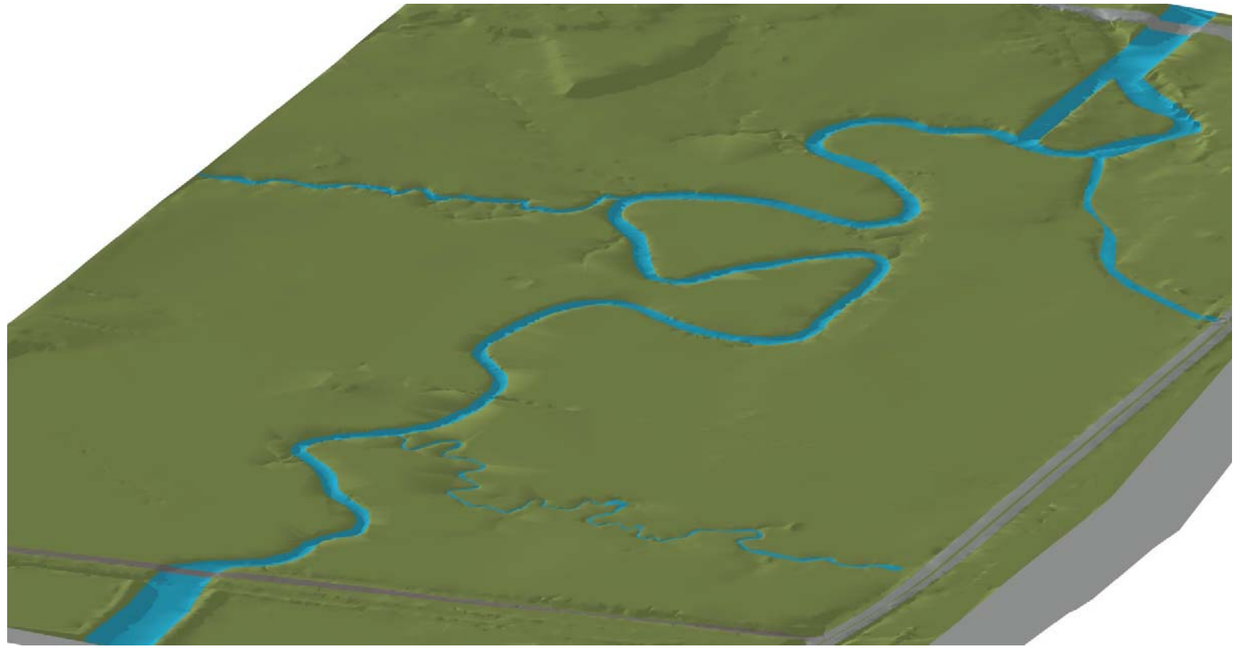
Amphitheater

Restrooms

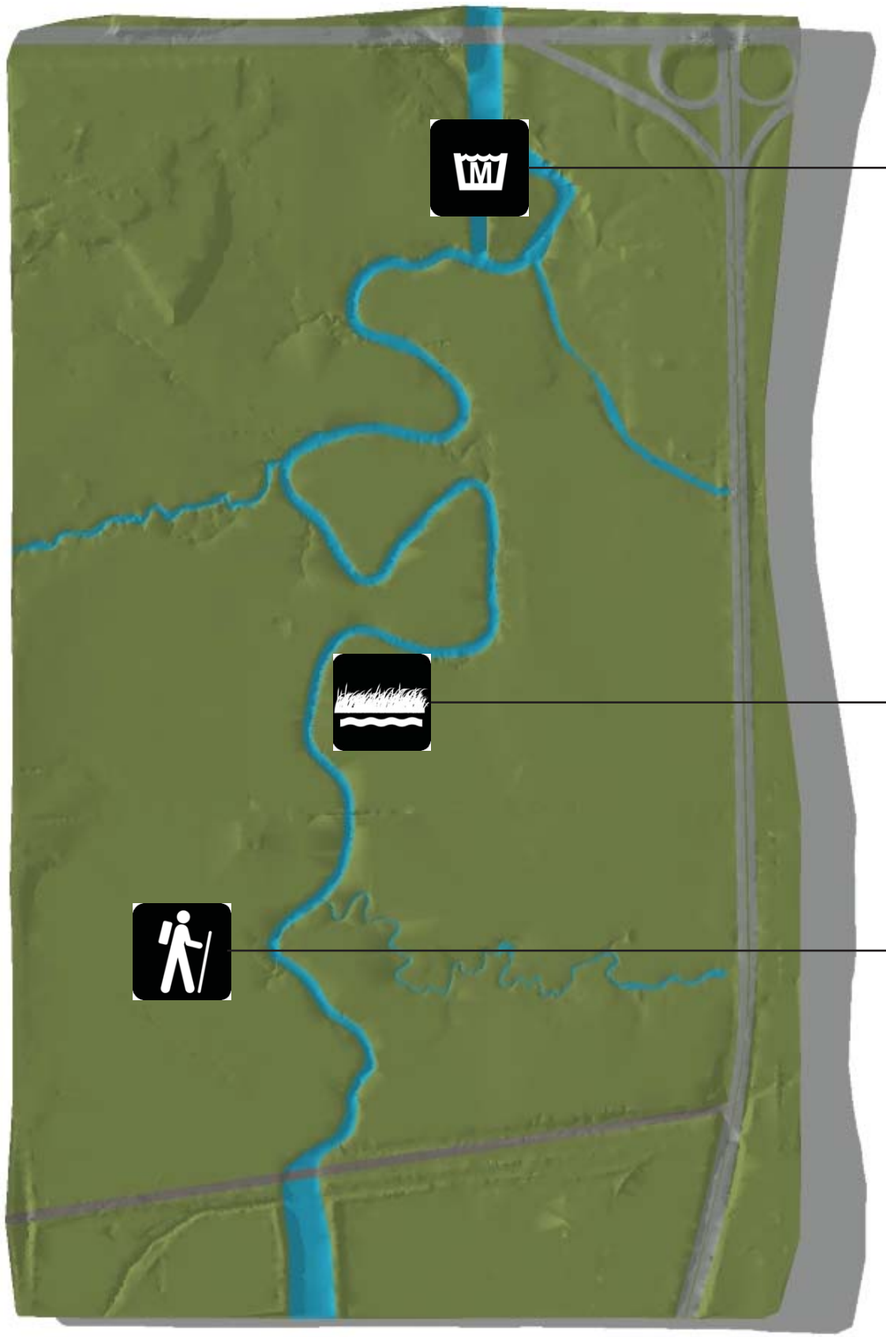
Playground

Tulsa Transit Bus Service





The Lower Mingo Basin wetlands provide an excellent opportunity for flood waters to be naturally filtrated by the nearly four square miles marsh, creek shrubs, and other naturally preserved landscape. Most of this area is inaccessible by means of motor vehicle or bicycle. Only by foot can one go into the natural wetlands of the Mingo Valley. Bound by the Tulsa International Airport to the west, Bird Creek to the north, and Highway 169 to the east it has continued to be a expected barrier to let nature run its course.

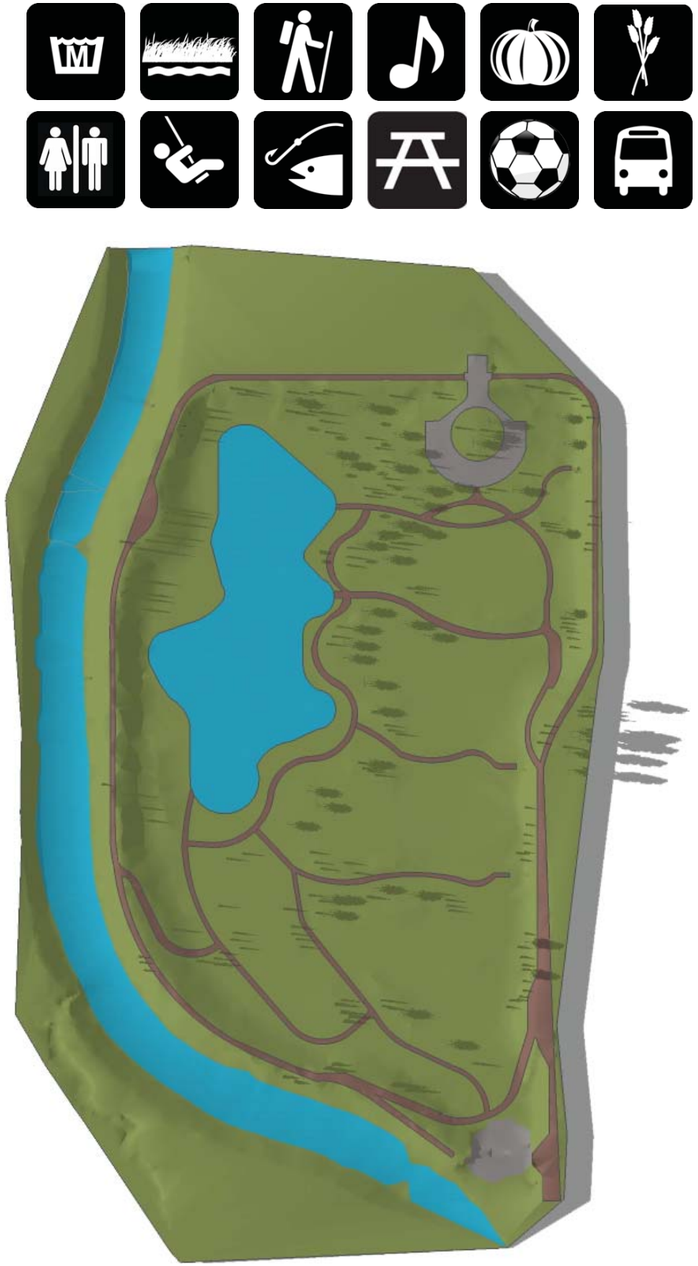


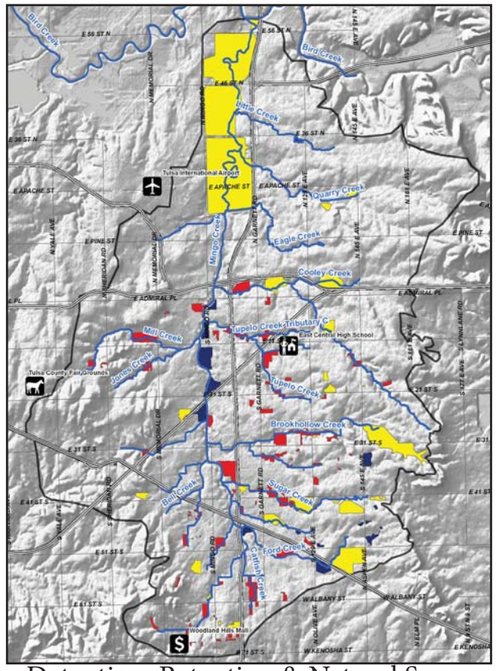
Mingo Creek Flood Control

Natural Filtration System

Nature Trails Where Possible

Based off of research and processes, the Lower Mingo Basin should be left alone for flood control and natural filtration of contaminates the flow into the system dude to improvise surfaces. Nature Trails maybe added to the area where possible as long as it would not impact the ecosystem that is already in place.





Detention, Retention & Natural Space

The recommendations for each research site can be used as an example for their respective type of space. Because of the Mingo Creek and Park Space has to do with riparian, the transfer of park responsibility to Tulsa River Parks is strongly recommended. Just like the Arkansas River provides many forms of healthy and recreation activity, so can the parks in Mingo Creek. Tulsa Rive Parks has had decades of knowledge of working along a water system and would be more experienced in molding the detention, retention, and natural spaces into usable active/passive spaces.

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