



# *Bridges for All*

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Professional Project  
04/06/2023

**OUUDS**

The University of Oklahoma Urban Design Studio







BLUE DOME DISTRICT





THE UNIVERSITY OF OKLAHOMA  
GRADUATE COLLEGE

*“BRIDGES FOR ALL”*

A PROFESSIONAL PROJECT

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

MASTER OF URBAN DESIGN

By

SOUJANYA MALLA

Norman, Oklahoma

2023

*BRIDGES FOR ALL*



A PROFESSIONAL PROJECT APPROVED FOR THE

URBAN DESIGN STUDIO

CHRISTOPHER C. GIBBS

COLLEGE OF ARCHITECTURE

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## **ACKNOWLEDGMENT**

*I would like to acknowledge and express my heartfelt gratitude to **Brian Kurtz** (President & CEO) at Downtown Tulsa Partnership for this opportunity and my professor **Shawn Schaefer**, who made this work possible. His direction and guidance guided me through all phases of writing my project. I'd also want to thank my **Committee Members** for making my defense a delightful experience, as well as for your insightful remarks and recommendations.*

*During all this time for the unconditional love, constant support and guidance, I would like to thank my family **Uday Kumar Malla & Sridevi Malla** for constant source of inspiration. and all my peers who did incredible projects themselves, in specific **Courtney Graham** and **Roshita Taylor**.*

*In the end I would like to thank **Urban Design Studio**, University of Oklahoma for providing me with the opportunity to work on this Project.*



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# INTRODUCTION

Meetings were held every month according to the project partners schedule to discuss and share updates

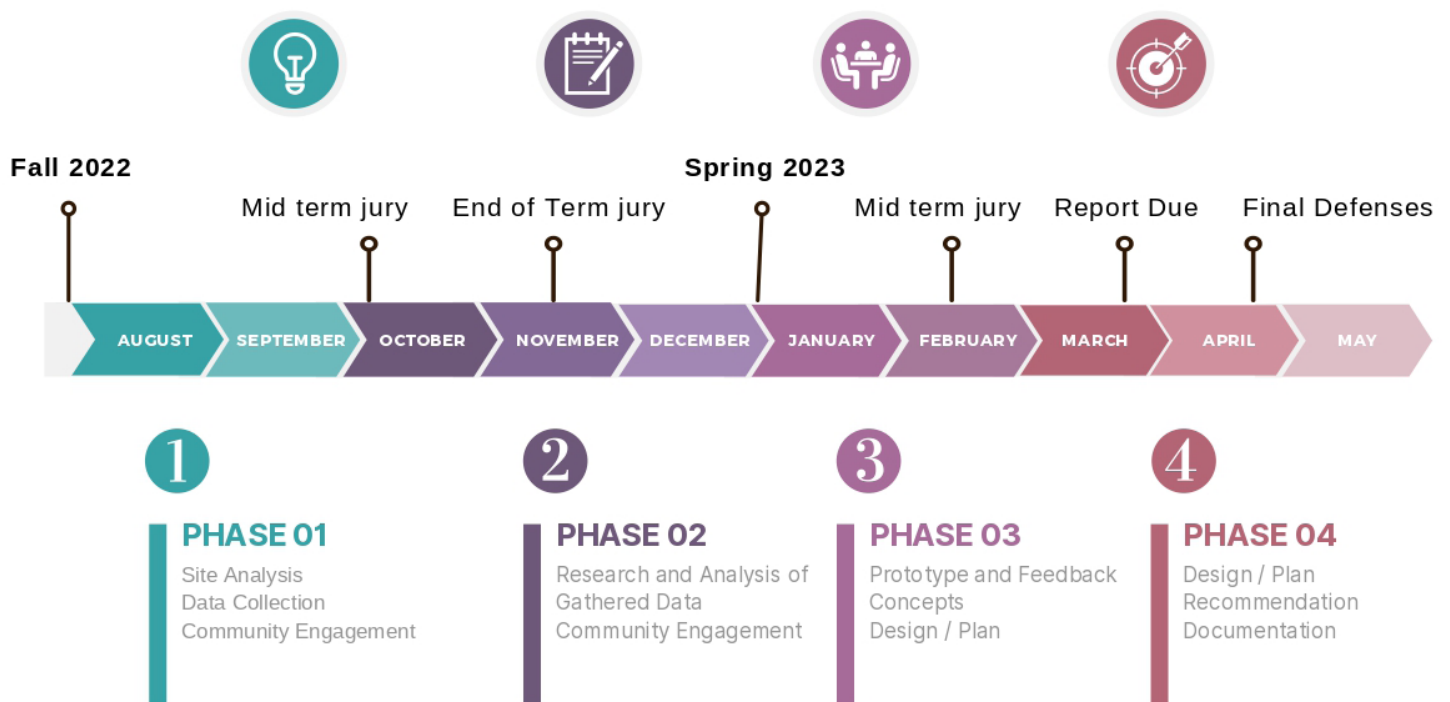
## How we got Involved

I am working on the design of inclusive streets to improve the Access and Linkages, retrofit the region making it extra walkable/ bike-able, creating a secure multi-modal railroad crossings which are comfortable for the users and residents in the area.

The project addresses the railroad crossings (Detroit Avenue, Cincinnati Avenue, Main Street, and Boulder Avenue) in Tulsa Downtown. Brian Kurtz (President & CEO) at Downtown Tulsa Partnership came to the OU Urban Design Studio and shared their his for the railroad crossing bridges, which are huge barriers between the Downtown districts.

The core focus group are Brian Kurtz (President & CEO) at Downtown Tulsa Partnership, Emily Scott (Director of Planning & Vitality at Downtown Tulsa Partnership), Mitch Drummond (Chairman of INCOG's Bicycle Pedestrian Advisory Committee, BPAC), Paulina Baeza (Principal Planner/Strategic Planning at INCOG), Sam Extance (Destination Districts Manager at INCOG), John Tankard (Senior Planner/Comprehensive Planning at INCOG), and Jane Ziegler (Transportation Planner/Bicycle & Pedestrian Coordinator at INCOG)

## Project Schedule



### Phase 1 - Research and Urban Site Analysis

- I collected and analyzed data gathered from the historical and technical sources, which helped me make base drawings and 3D models.

### Phase 2 - Community Engagement and Analysis of Gathered Data

- A Visual preference activity was promoted in the businesses in Downtown. This assisted me in better understanding community opinions so that I could provide something special and local to the project.

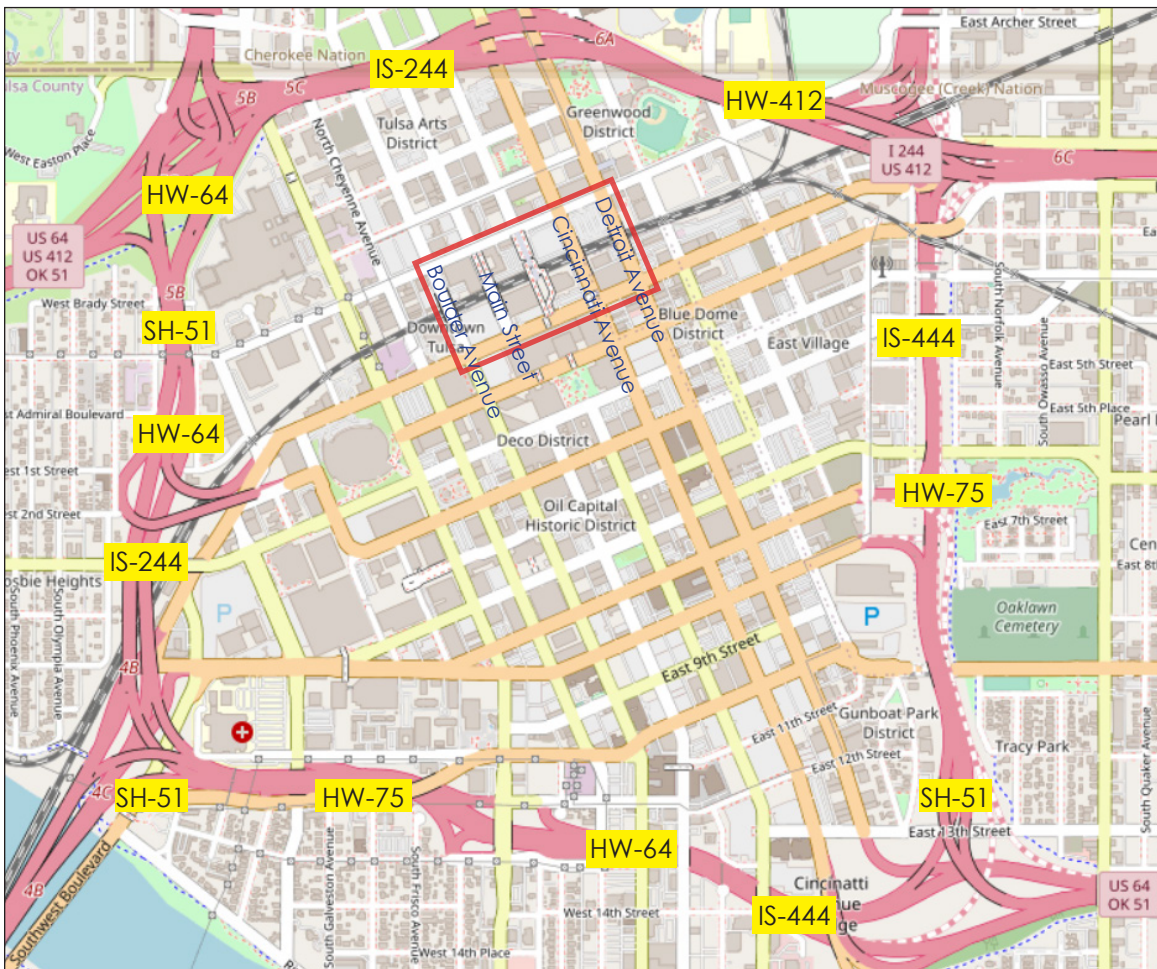
Case studies were selected with these criteria: streetscape, slope elevation, traffic calming, pedestrian safety, and comfort.

### Phase 3 - Prototype and Feedback

- I explored a few possibilities of urban design ideas for the overpasses and some of the surrounding urban elements in the area and came up with conceptual designs for the bridges and shared them with the partners to get their feedback.

### Phase 4 - Final Design and Documentation

- I completed a final design proposal considering the community and partner feedback.
- Documented report of all my findings, research, evaluation, designs and viable implementation strategies for the project.



Project location



Fig 1: Downtown Tulsa  
Source: Open Street Map



# SITE ANALYSIS AND RESEARCH

## First Impressions

In order to understand the area better, I started collecting the background data relevant to the area. I also went on a walking tour over the bridges guided by Emily Scott and John Tankard on 26th August, 2022. They shared some ideas and information about upcoming events. We walked down the Boston Ave and Detroit Avenue.

These are my first impressions:

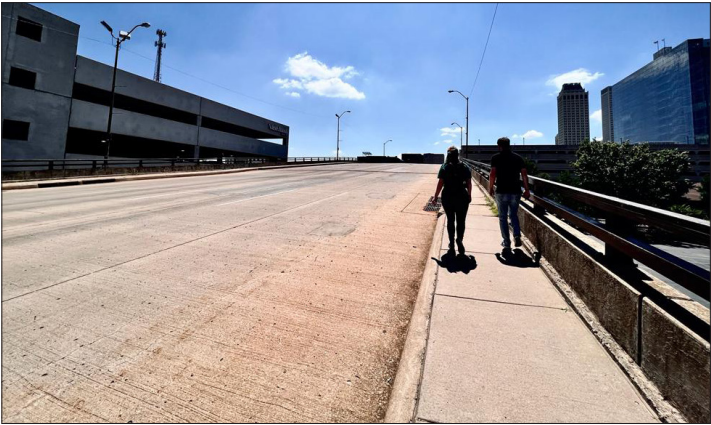
- Streets seem dangerous to cross due to the lack of visibility on the opposite side of the bridge. Sidewalks are too small and underutilized for more than two people strolling together, and there is no shade or landings, which does not fulfill ADA regulations.
- Pedestrians and cyclists find the area uninviting. Railings can become quite hot on a sunny day. The crosswalks have faded or decayed.
- Detroit Avenue and Cincinnati Avenue have standard and old street lights.
- Vehicles do not check both directions before entering a one-way street since all traffic comes from one direction. Even though the speed restriction is 25mph, automobiles are being driven at speeds of up to 40mph. This puts pedestrians at danger since they are not spotted until a disagreement is near.
- Cincinnati Avenue, with its connection to the Gathering Place, could be the most significant street of the project.
- Existing Tulsa Transit bus lines on Archer Street (Pine/Memorial) and 1st (Express route and South Peoria) give an alternative to driving to the railway crossings.



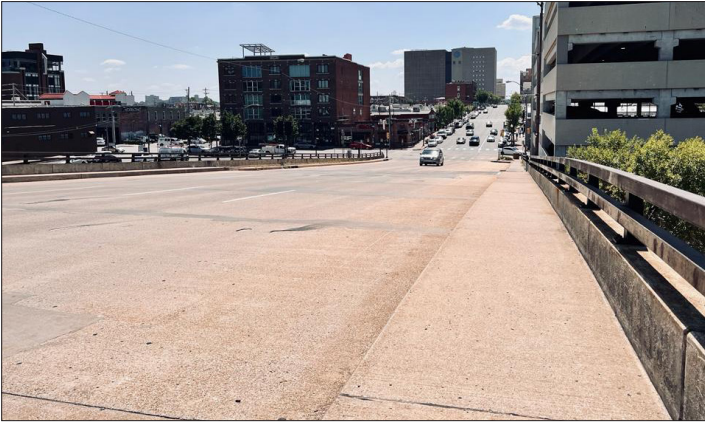




Lack of shade on the bridges



Sidewalks on Detroit Ave



Lack of dedicated bike lanes on the bridges



Speeding of cars up to 40 mph



Public parking lot beside Detroit Ave



View of railway corridor from the crossings



Uncomfortable elevation of the bridges



Deterioration on the bridges



## SITE ANALYSIS AND RESEARCH

### History of the Site

In 1882, the St. Louis and San Francisco railroad extended its line to Tulsa to serve the cattle business<sup>1</sup>. The first railway corridor extends along the west bank of the Arkansas River from 23rd Street and Jackson Avenue, northwest past the O.S.U. Medical Center, and then northeast and across the river to through downtown past the O.S.U. Tulsa Campus. Union Depot started with 36 trains per day. It was built in 1931 on the site of buildings destroyed during the Tulsa Race Massacre and used until passenger service was discontinued in 1967. Direct access was via the Boston and Cincinnati Avenue bridges. White passengers entered the segregated depot from the West and passengers of color entered from the east<sup>2</sup>. An enclosed, elevated concourse extended north over five platform tracks with stairs that led down to the passenger platforms. Today the concourse and stairs leading out and down to the tracks are gone.<sup>3</sup>

Bridges & Underpasses - During the Great Depression, work crews lowered the Frisco tracks from Cincinnati to Cheyenne and built five north-south bridges over the tracks and an underpass beneath the tracks at Denver Ave to ease traffic blockages due to heavy railroad traffic<sup>4</sup>. The distance between these overpasses is a block or 300 feet. The downtown “quiet zone” took effect in February 2010 after the city installed special gates at five intersections nullifying the legal requirement for train conductors to blow their horns and the proposal is to make all the intersections quiet<sup>5</sup>.

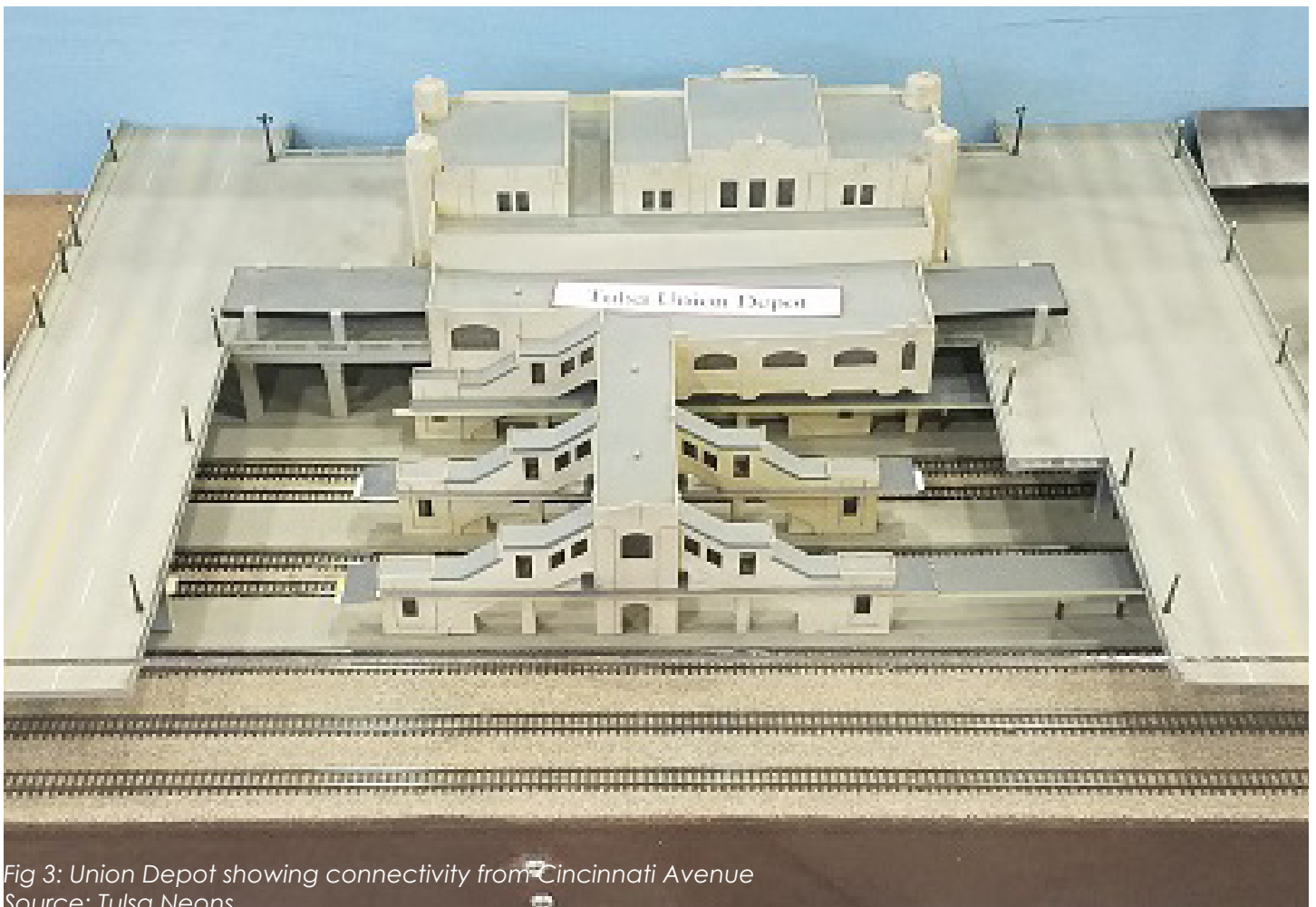


Fig 3: Union Depot showing connectivity from Cincinnati Avenue  
Source: Tulsa Neons

The study area is zoned under Central Business District (CBD). There used to be many tram connections throughout the city center. In July 1906, Tulsa began streetcar service. By the end of the year, Main Street, Third Street, and Fifth Street were all serviced<sup>6</sup>.

**Cincinnati Avenue:** Assemblyman Jack Henderson has drafted an ordinance to rename Cincinnati Avenue, which stretches about 11 miles into downtown, to Martin Luther King Jr<sup>7</sup>. Critics, including inner-city businesses and churches, complained that the street name change would confuse the customers of inner-city businesses, so the council dropped the idea. Henderson came back in 2011 with a compromise that would halt the renaming at the railroad track because it was the south boundary of the Greenwood District, a community historic district that was destroyed in the 1921 Race Massacre.



Fig 4: Aero View of Downtown Tulsa, 1918 (before Union Depot)

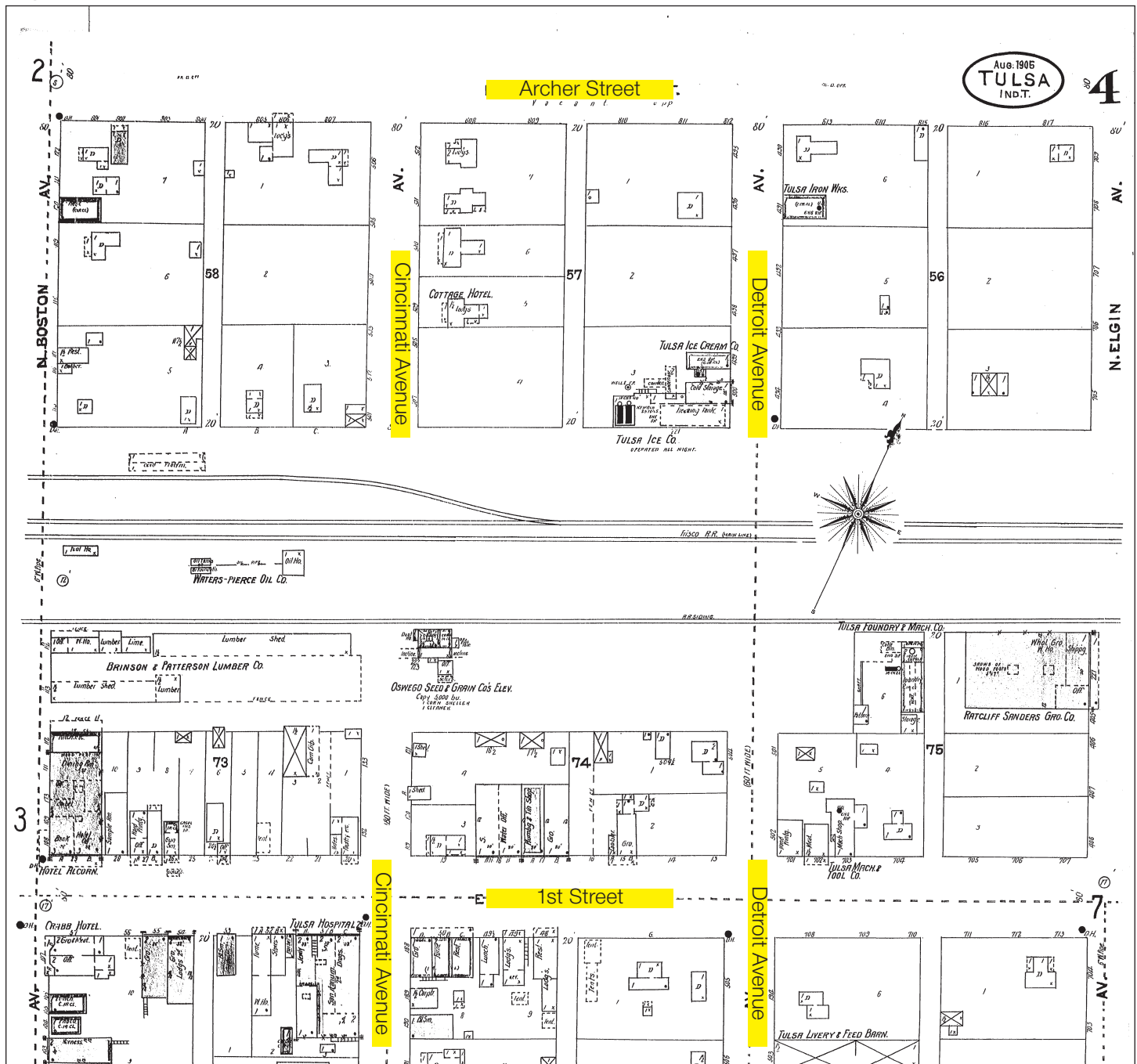
Source: Tulsa Library; drawn by T. M. Fowler; Oklahoma Historical Society Research Division



# SITE ANALYSIS AND RESEARCH

To know more about the history of railroad passes I studied Sanborn maps from early 1900 through 1940. The Sanborn map collection contains detailed maps of Oklahoma cities dating from the late 1800s through the mid-1900s. The maps were produced to assist fire insurance companies in determining their overall liability in metropolitan regions around the United States. Street names, street and sidewalk lengths, property borders, building use and physical attributes, house and block numbers, pipelines, railroads, wells, dumps, and other elements are visible. You can magnify and zoom in on certain areas, as well as overlay maps from various years.

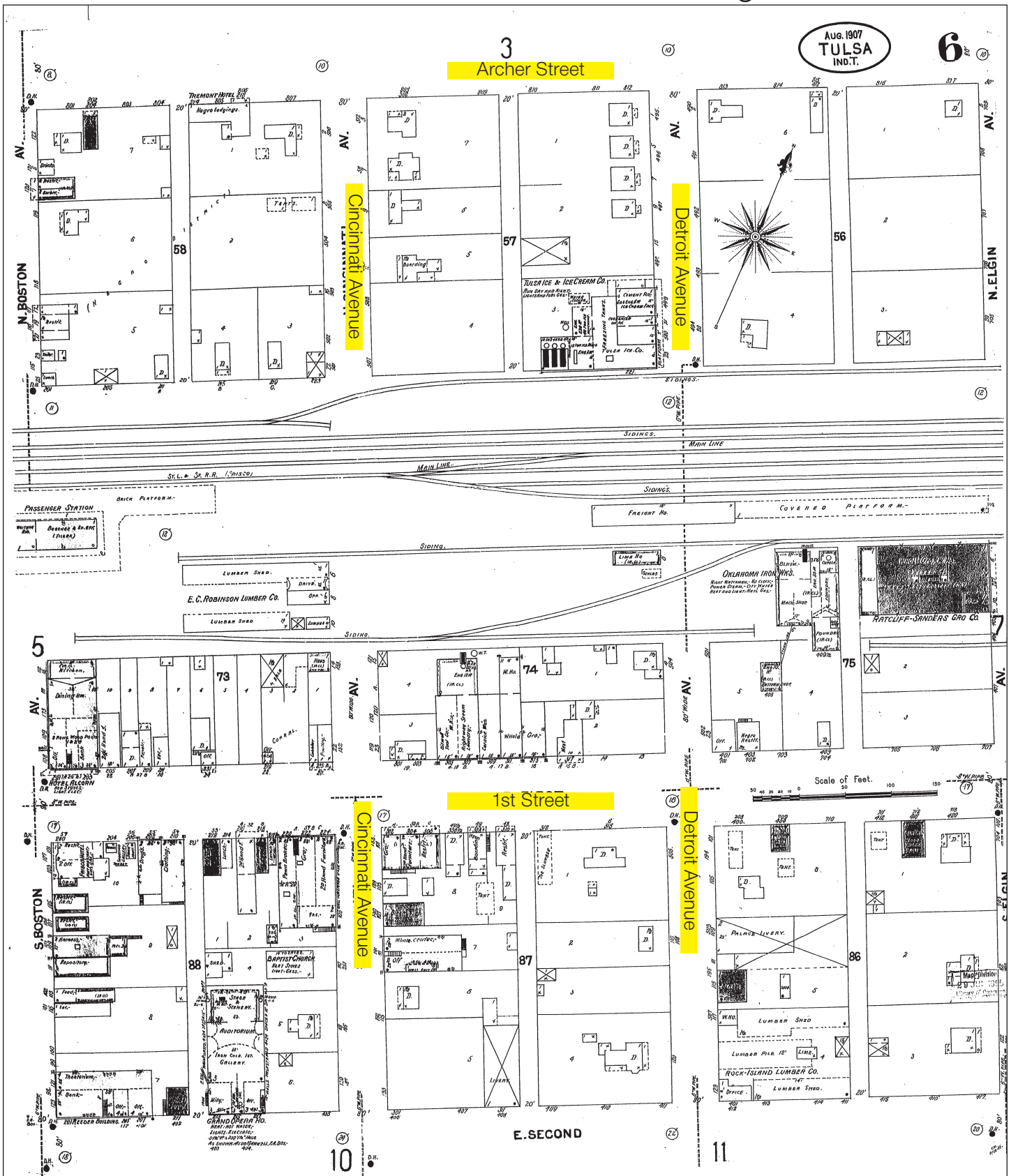
Fig 5: Railroad in 1906



This is the year when train transit in Tulsa began to gain prominence. This year, you can see railway tracks starting to go through Downtown.

Source: Sanborn Maps

Fig 6: Railroad in 1907



Later, as train travel became increasingly popular, the number of railway tracks expanded, causing traffic congestion and prompting the idea of connecting neighborhoods to free vehicular movement.

Source: Sanborn Maps



Fig 7: Railroad between 1915-1939

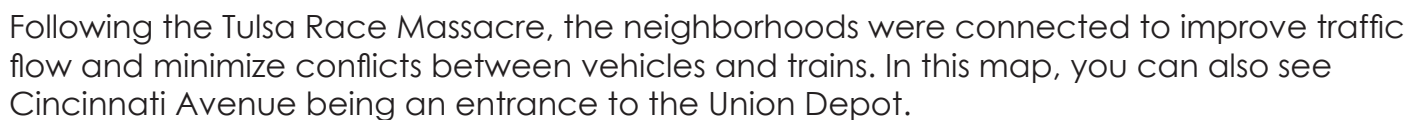




Fig 8: Boston Avenue in 1931 looking North  
Source: Tulsa Historical Society



Fig 9: View of Boston Avenue  
Source: Tulsa Historical Society



Fig 10: View under the railroad crossings with railway track  
Source: Tulsa Historical Society

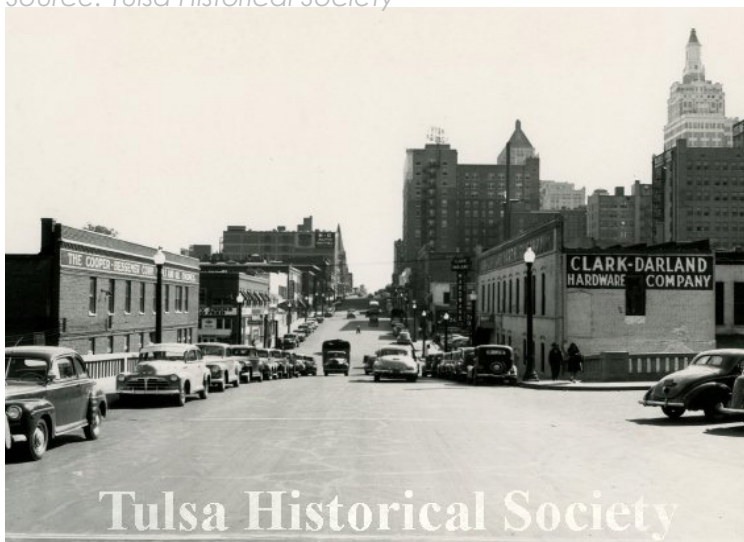


Fig 11: Cincinnati Avenue in 1948 looking South  
Source: Tulsa Historical Society



Fig 12: Trolley No.72  
Source: Tulsa Historical Society





View of space under the Cincinnati Avenue Bridge



View of space under the Boulder Avenue Bridge



View of space under the Main Street



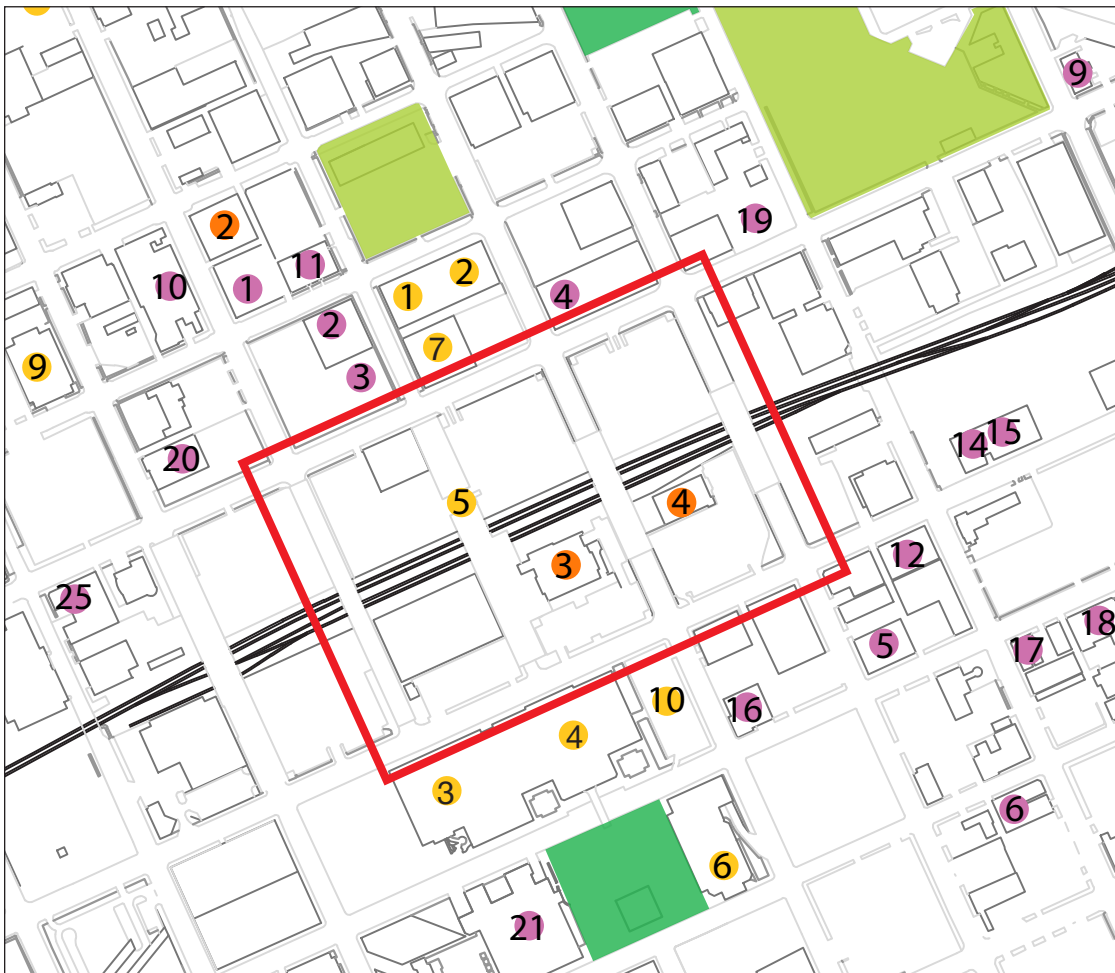
View of space under the Main Street



View of space under the Detroit Avenue



# SITE ANALYSIS AND RESEARCH



## POINTS OF INTEREST

- 1 Woody Guthrie center
- 2 Bob Dylan center
- 3 BOK center
- 5 Center of the universe
- 6 Tulsa performing arts center
- 7 Archer Building
- 9 Tulsa Theater
- 10 Tulsa city hall

## EATING AND DINING

- 1 Bull in the Alley
- 2 Amelia's
- 3 Basque
- 4 Lone Wolf
- 5 La Tertulia
- 6 Juniper
- 9 Fat Guy's
- 10 Chimera Cafe
- 11 Valkyrie
- 12 Vintage
- 14 McNellie's
- 15 Albert G's
- 16 Peacemaker Lobster
- 17 Dilly Diner
- 18 JINYA Ramen Bar
- 19 Topeca Coffee
- 20 Sisserou's Caribbean
- 21 Daily Grill
- 23 NEFF Brewing
- 24 GOAT Bar & Restaurant
- 25 Welltown Brewing

## OTHER LANDMARKS

- 1 Criminal Justice Center
- 2 AHAA
- 3 Jazz Hall of Fame
- 4 Deborah Brown Community School

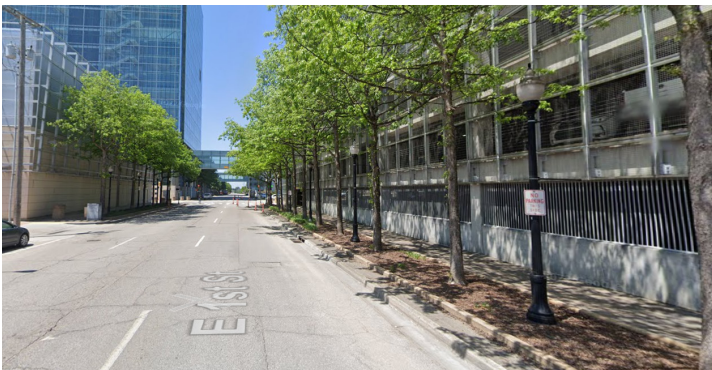


Fig 13: Existing Streetscape at E1st Street



Fig 14: Intersection at Cincinnati & East 1st Street



Fig 15: Existing Streetscape at Archer Street  
Source: Google Maps



Fig 16: Existing Dedicated Bike Lane at Cincinnati Avenue  
Source: Google Maps



# SITE ANALYSIS AND RESEARCH

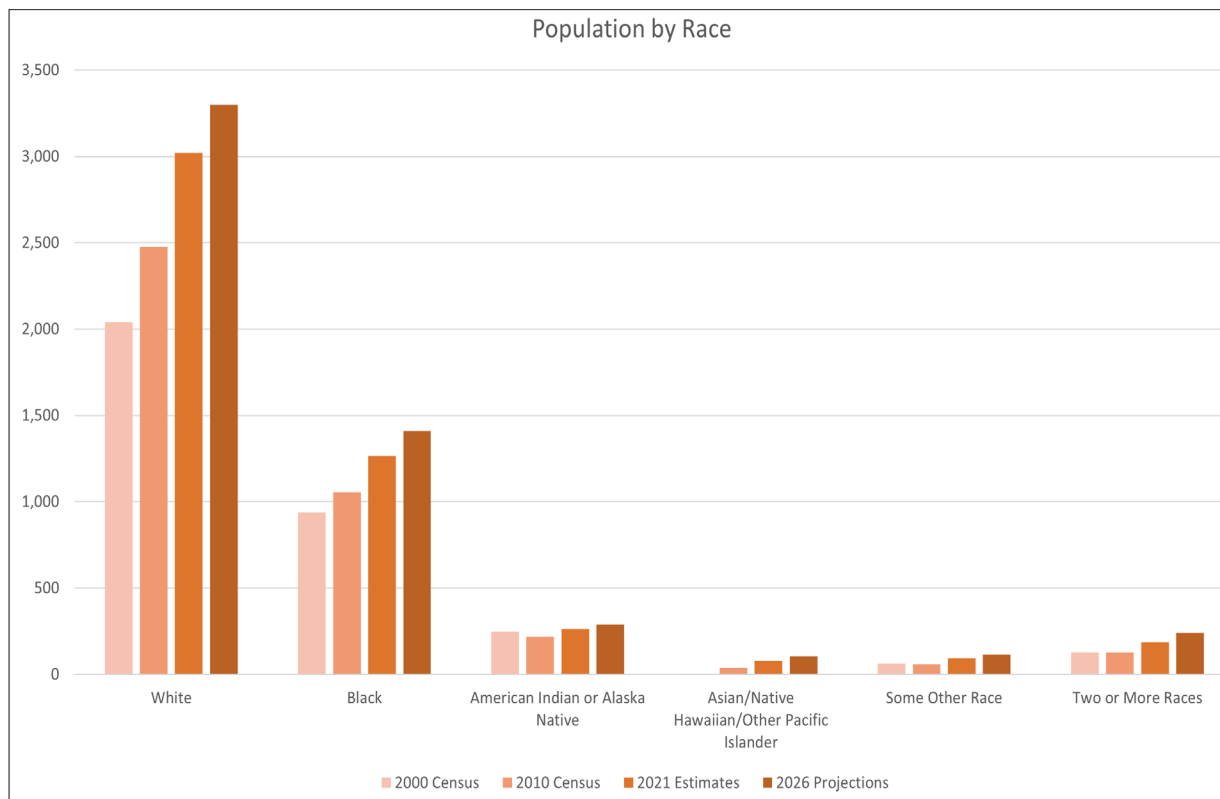
## Demographics

After visiting the site, I began gathering demographic and other information about the Tulsa area and downtown to better understand users. The study area is zoned Central Business District (CBD). There used to be many tram connections throughout the city center. In July 1906, Tulsa began streetcar service. By the end of the year, Main Street, Third Street, and Fifth Street were all serviced. I summarized the data in an infographic extracted from the Gale Complete Demographic Report. Data includes US Census Bureau tracts for 2000, 2010, and 2021.

From the diagram below:

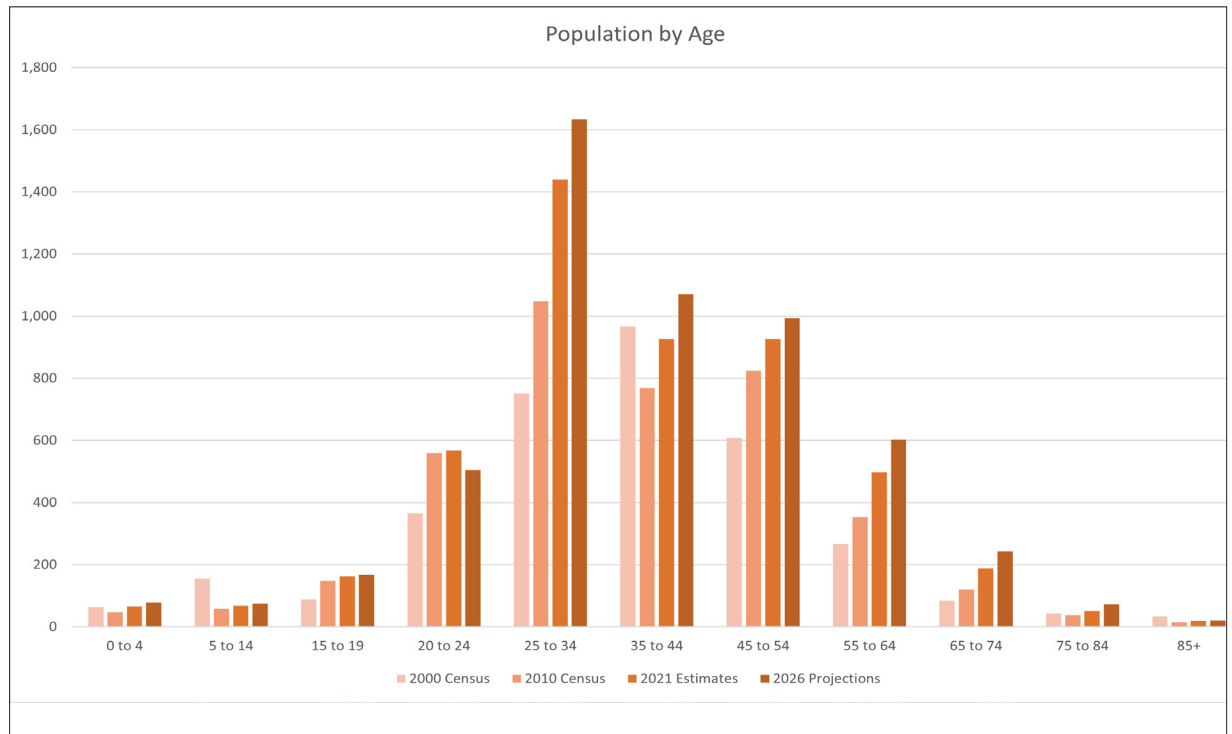
- The charts show the census of people living in Downtown. The largest age group in the region is between 25-34 years old, or young professionals who are likely to be the main users commuting on the bridge, justifying the purpose of providing them with inter-modal options. Children and the elderly are comparatively on a small scale. Which means we have more population growth in the coming years who might use the overpasses at some point.
- There are good job opportunities in the area. Employment figures show more employment in the central areas, which means many people are crossing the bridge at some point. Looking at the spikes, there is growth opportunity to make people more rooted to Downtown and not just work and leave.
- Car ownership per household continues to increase every decade. Every household in the area has at least one.

Fig 17: Chart showing Downtown-Tulsa Demographics by Ethnicity from 2000-2021



Source: On the Map

Fig 18: Chart showing Downtown-Tulsa Population by Age



Source: On the Map

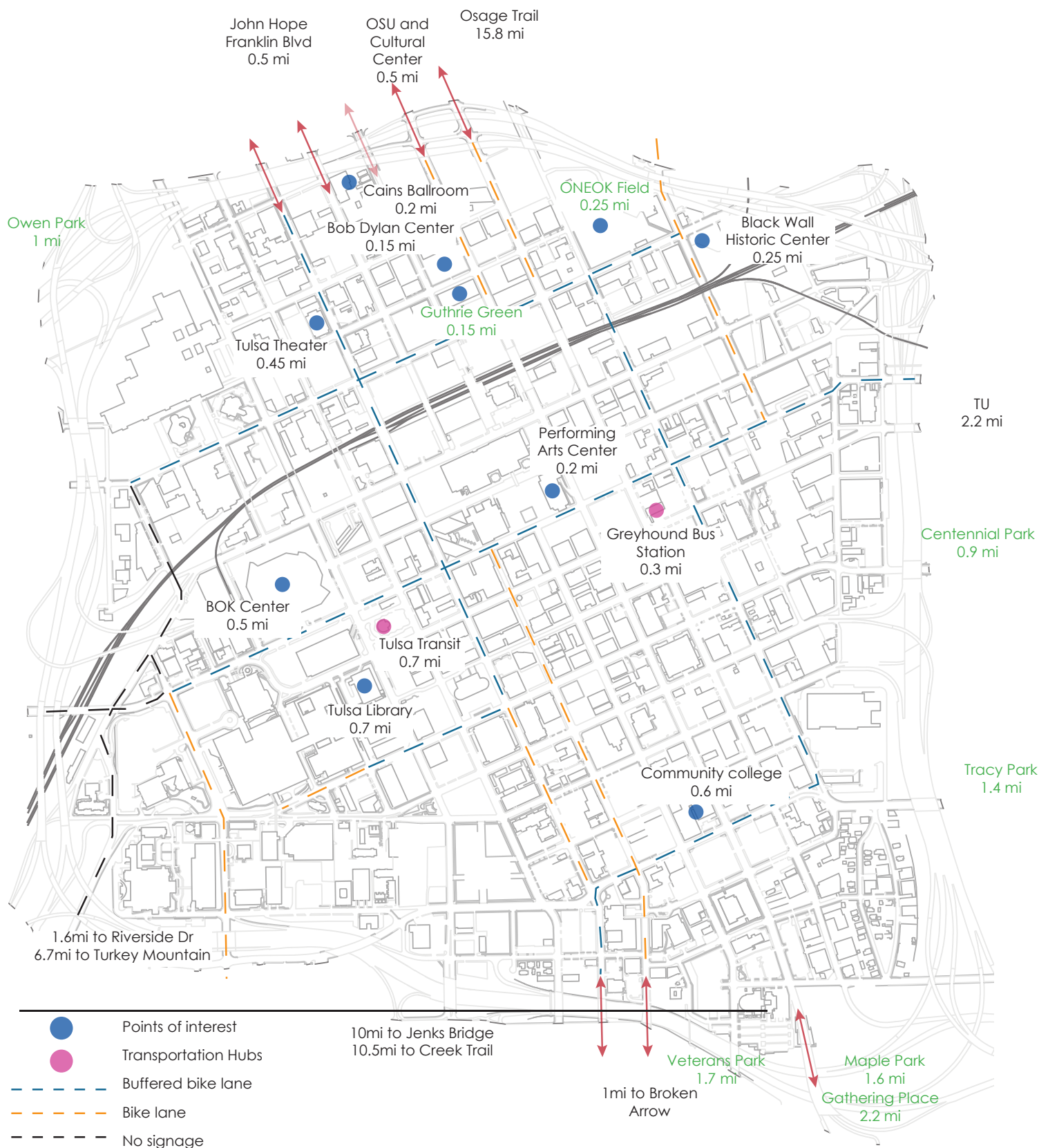
Fig 19: Chart showing Downtown-Tulsa Vehicles available from 2000-2026 projections



Source: On the Map

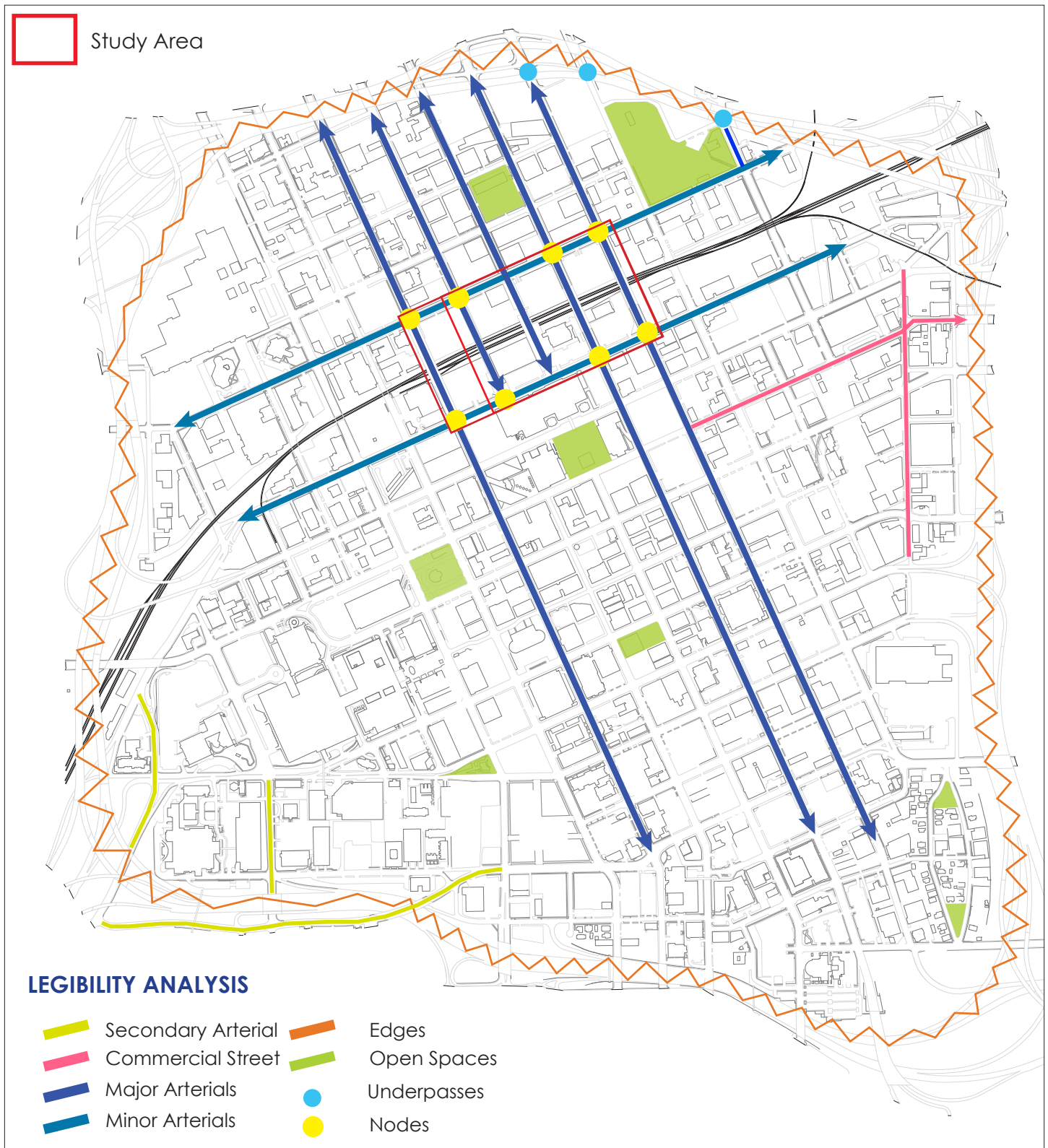


# DESTINATION MAP



This map shows the destinations and their distances that are around the railroad overpasses

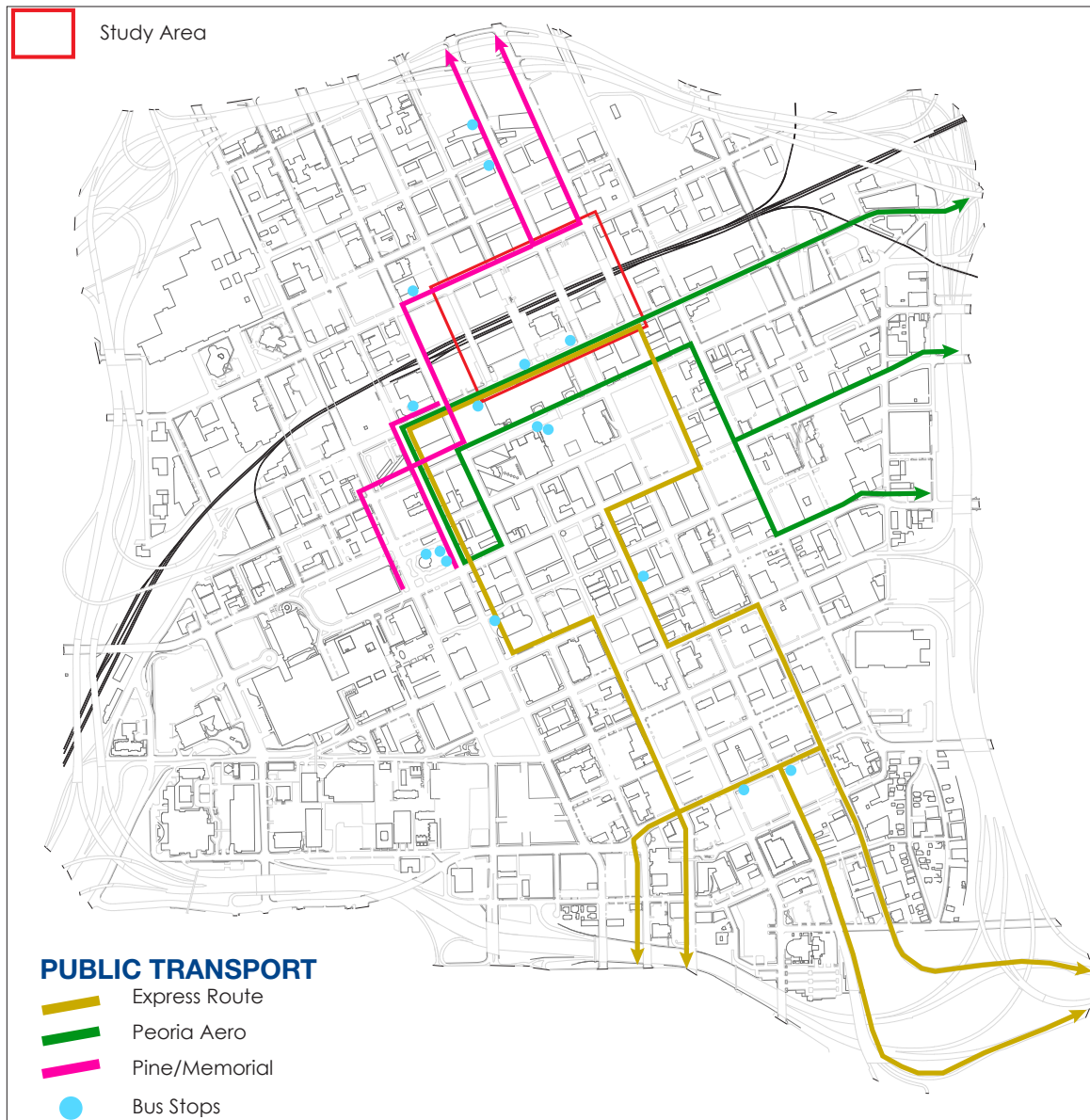
X-Rays are drawings that are analyzed from above in the plan. I examined legibility analysis, building types, parking, streets, transportation, and open space. This helps discover key elements that were not initially visible and significant information that is essential to the design approach by researching characteristics in isolation.



Legibility Analysis showing Nodes, Arterials and Edges



## URBAN X-RAYS



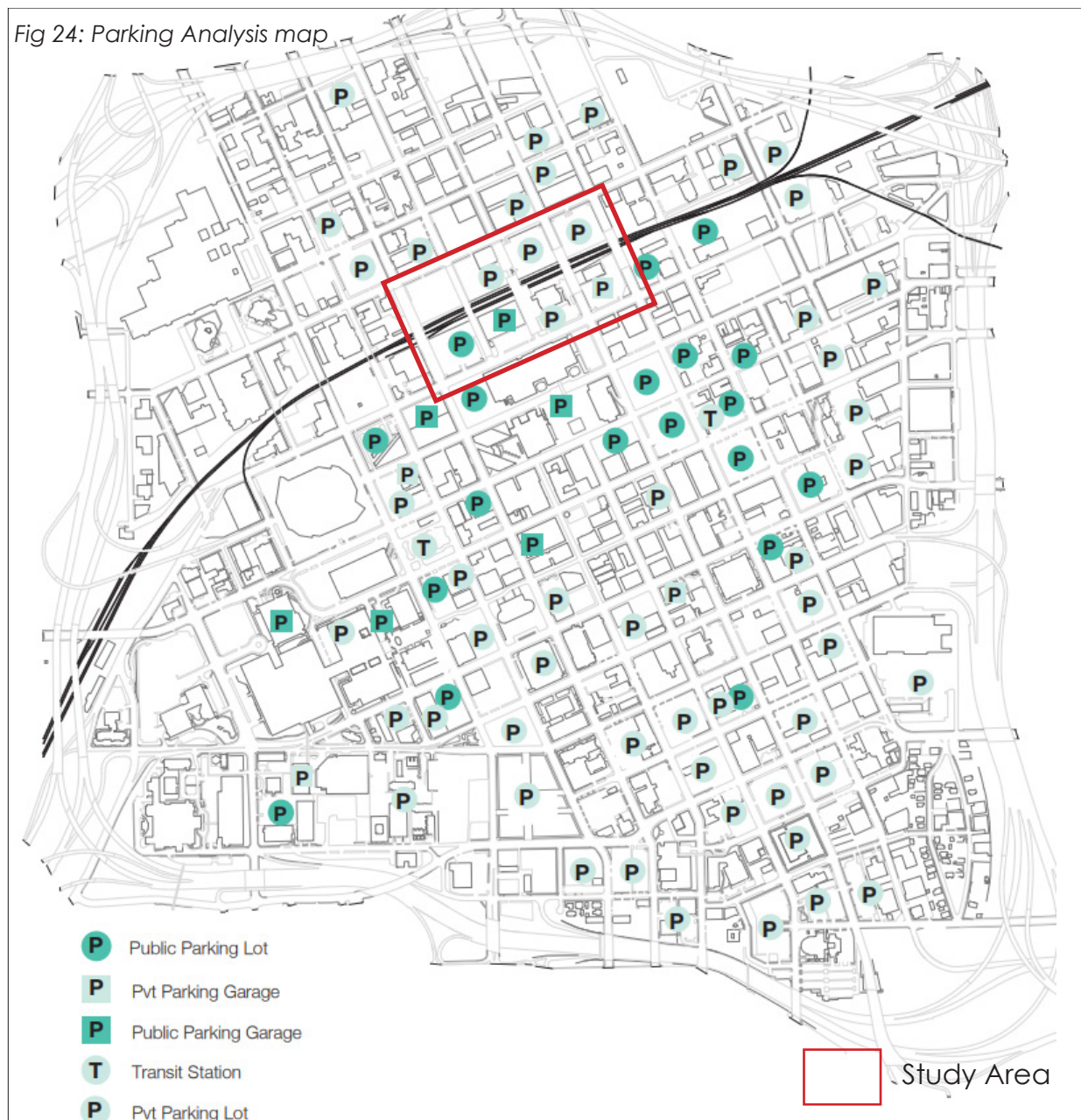
Access to Cincinnati is from Archer and Detroit is from 1st Street. A left-turn lane is provided on Detroit Avenue, increasing intersection distance and taking up a lane that could have been used for on-street parking or a bike lane or wider sidewalk.

There are existing bus route services that Tulsa Transit provides via Archer Street and 1st which provides an alternative to car ownership to reach the railway crossings.



This map shows that there are more off-street parking lots in Downtown than there are on-street parking spots. You will need access to enter and park because a majority of these locations near train crossings are privately owned. If you reside in the city, you might be familiar with the garages. However, you may want additional on-street parking if you are a tourist or only need parking for a short period of time.

Fig 24: Parking Analysis map



### Traffic Counts as of 2021:

Boulder: 2,034 (4 lanes)

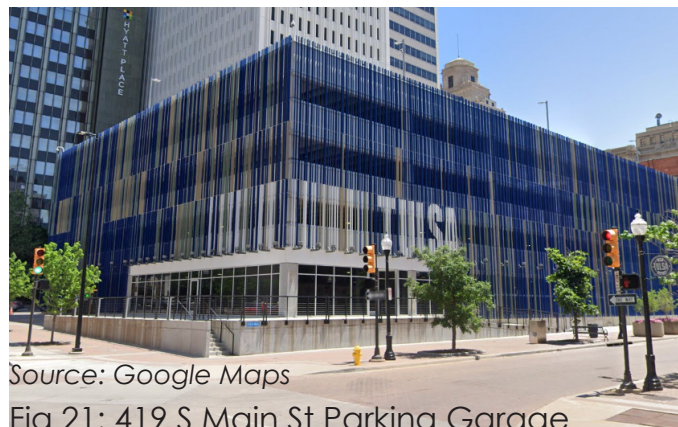
Main: 1,519 (4 lanes)

Cincinnati/MLK: 4,357 (4 lanes)

Detroit: 3,812 (4 lanes)

These are estimates for all directions of travel across the bridges. According to the counts, the numbers are incredibly low given the amount of available lanes. Cutting down to two driving lanes would still be sufficient for the traffic counts we have, even if the counts double later on.

Source: Ty Simmons, GISP, INCOG



Source: Google Maps

Fig 21: 419 S Main St Parking Garage



# EXISTING MASTER PLANS

I studied existing plans to understand what they have recommended for the railroad overpasses. They usually contain vision, goals, objectives, policies, actions and guidelines based on planning initiatives, community engagement and existing features of a region. A small area plan (SAP) is a long-term plan, similar to a comprehensive plan, that is implemented to smaller parts of a city to address particular concerns in that area.

## DOWNTOWN AREA MASTER PLAN

Takeaways include: (Adopted in 2010)

- Bicycle/Pedestrian corridor along south edge of BNSF railroad (through downtown connecting the Midland Valley Trail back to the river at 11th Street and Riverside Drive).
- Turning circle at Cincinnati/Detroit Avenues north of the IDL (provides park access, and facilitates Cincinnati/Detroit "two-way" traffic flow).
- New green space on ½ block south of Jazz Hall of Fame on 1st Street (land owned by Williams Companies).
- Mixed-use building between Boston and Cincinnati Parking Lot (Owned by BOK).

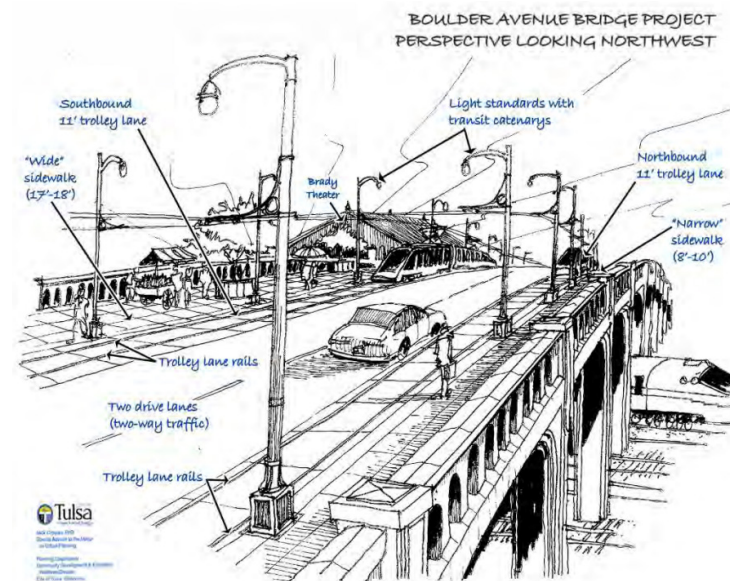


Fig 22: Boulder Avenue conceptual sketch

### Boulder Bridge Concept (Bridge Level)

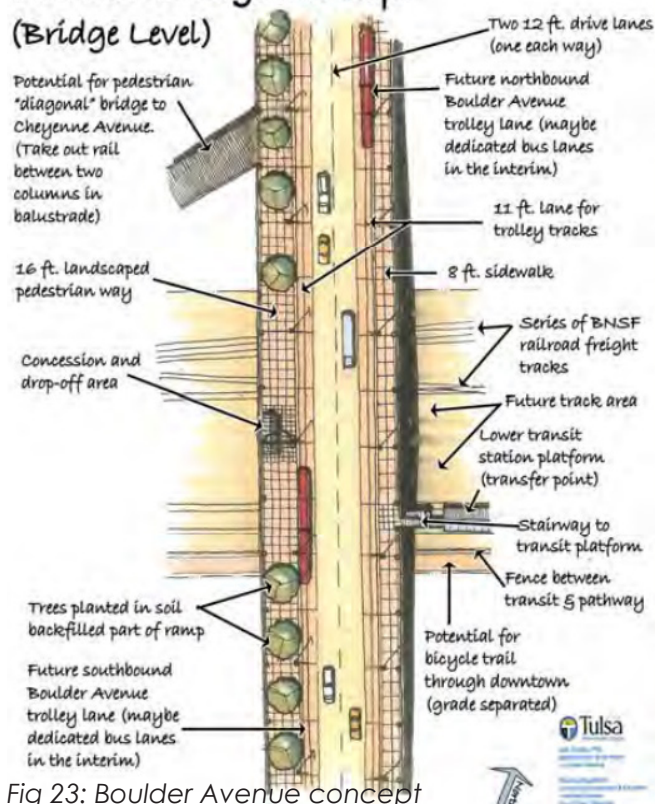


Fig 23: Boulder Avenue concept

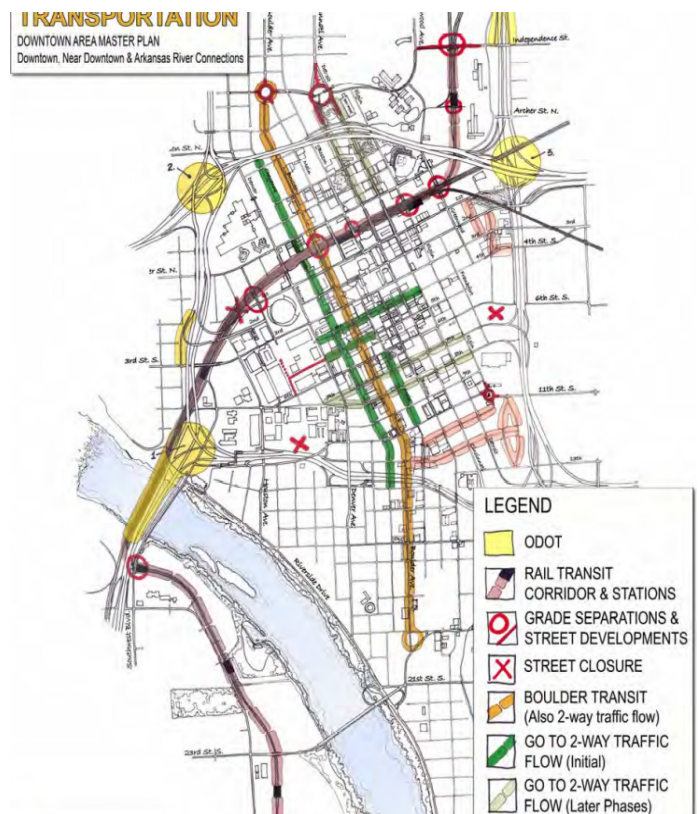


Fig 24: Downtown transportation concept



# ARTS DISTRICT SMALL AREA PLAN

Takeaways include: (August 2012)

- Alter Detroit and Cincinnati to become two-way streets with signaling and traffic calming
- Provide angle-parking on one side and parallel parking on one side of Cincinnati Avenue and Detroit Avenue
- Streetscape on all the bridges
- A full block park between Boston and Cincinnati.
- New LED lighting, Bioswales and the reuse of run-off water for irrigation on the bridges will help reduce water usage and contribute to cleaner groundwater.
- Develop Underpasses



Fig 25: Downtown-Wide Proposals

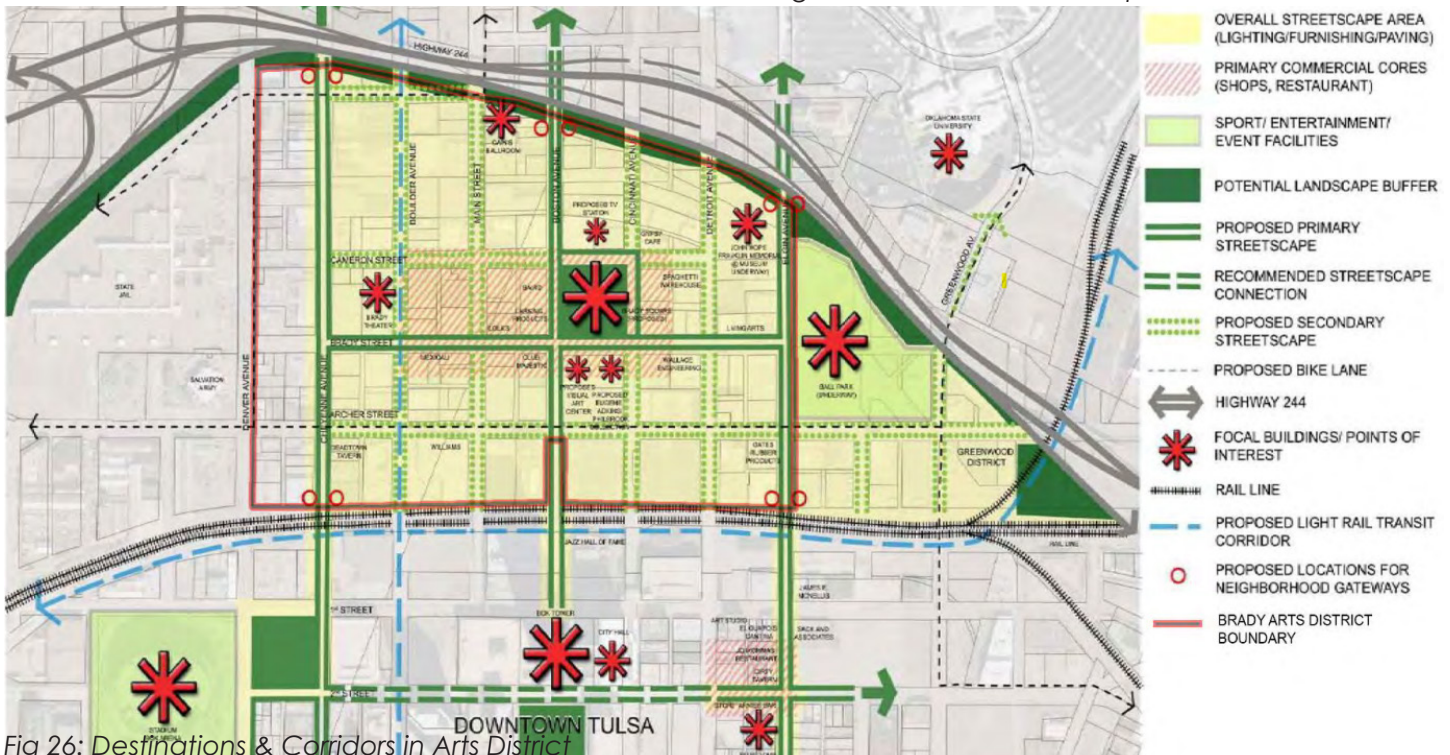


Fig 26: Destinations & Corridors in Arts District



## DOWNTOWN TULSA WALKABILITY ANALYSIS

Takeaways include: (Adopted in 2018)

By: SPECK & ASSOCIATES LLC with Nelson\Nygaard Consulting Associates, Inc.

This study aims to significantly improve the city's physical features, growth, and movement.

- Alter one-way streets to become two-way streets
- North of Archer, M.L.K. Jr. Boulevard and Detroit Avenue restriped to include bike lanes. West of Cincinnati Avenue, it is wide enough to hold two cycle tracks<sup>8</sup>.
- Pushbuttons at the intersections of Cincinnati and Detroit eventually be removed and made always walkable.
- Reducing drive lanes to 10 feet wide.

 Study Area

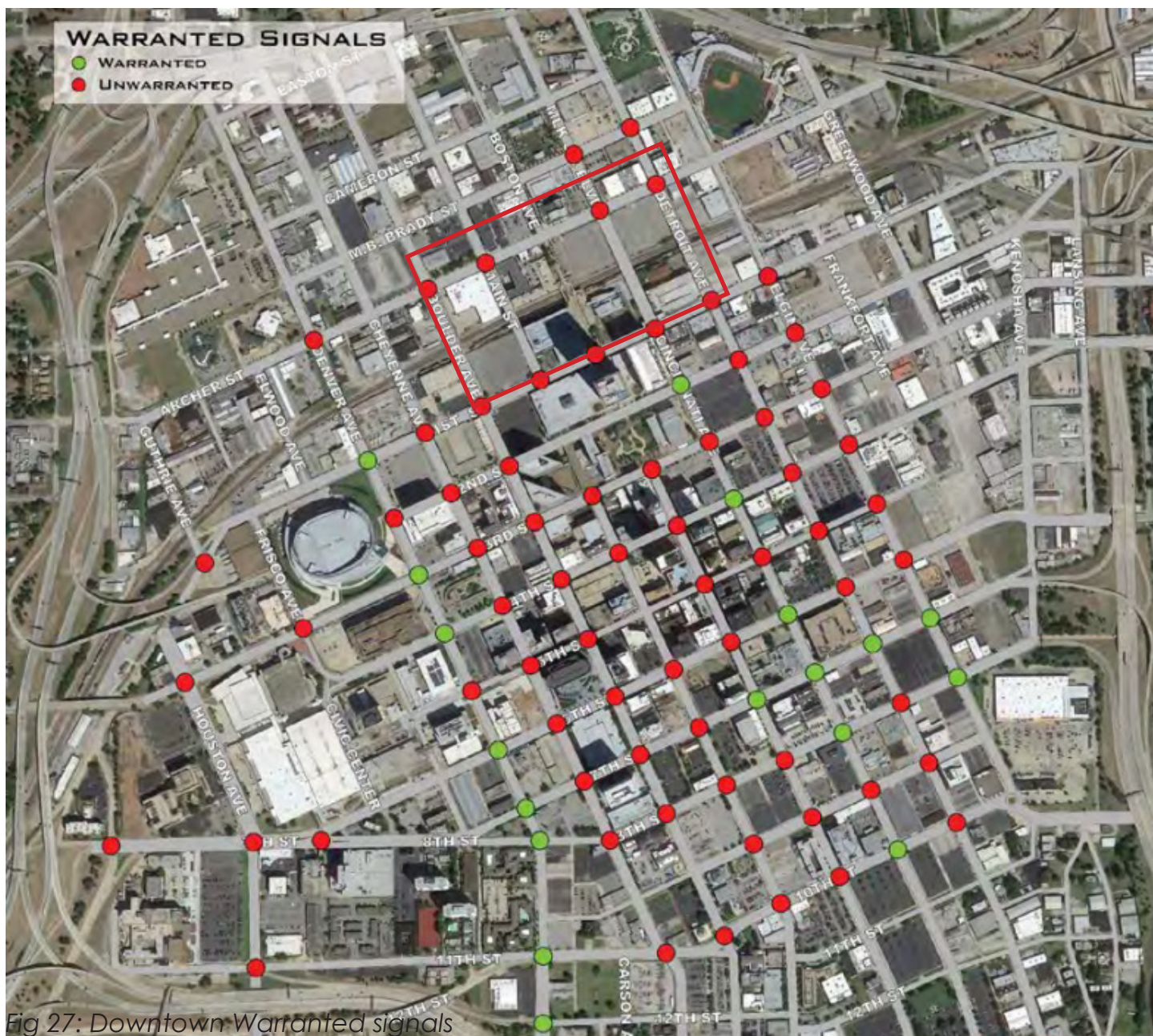


Fig 27: Downtown Warranted signals

This map shows that many intersections that were previously not suitable for all-way stop signs become eligible for signal elimination when street networks are appropriately designed to accommodate traffic loads and one-way streets are converted to two-way traffic.

# DOWNTOWN TULSA WALKABILITY ANALYSIS

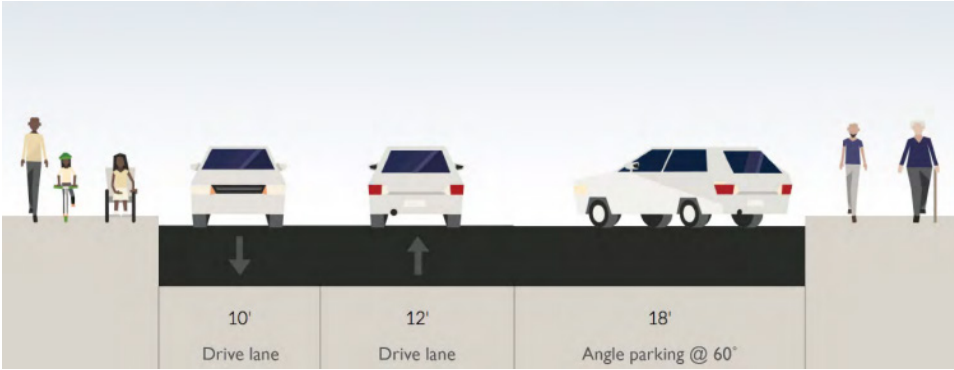


Fig 28: Recommendation for Main Street

Two driving lanes with a back-in parking lane @ 60° angle against the east curb

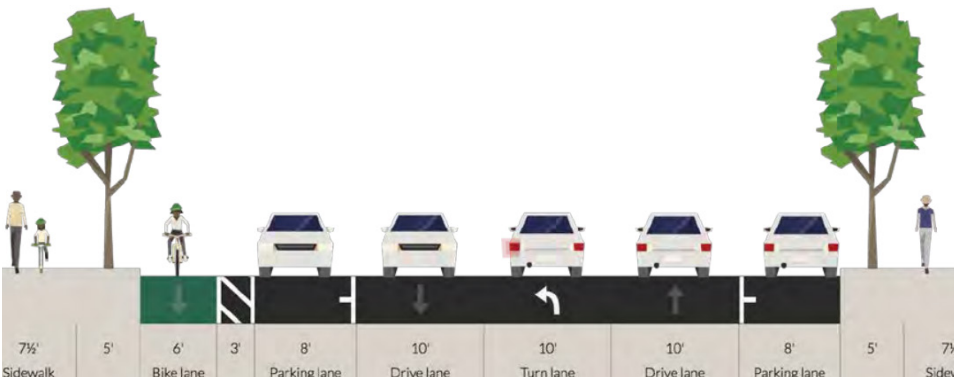


Fig 29: Recommendation for Boulder Ave

Two driving lanes flanked by a back-in parking lane @ 45° angle on the east curb and a southbound buffered bike lane protected by a parallel parking lane.

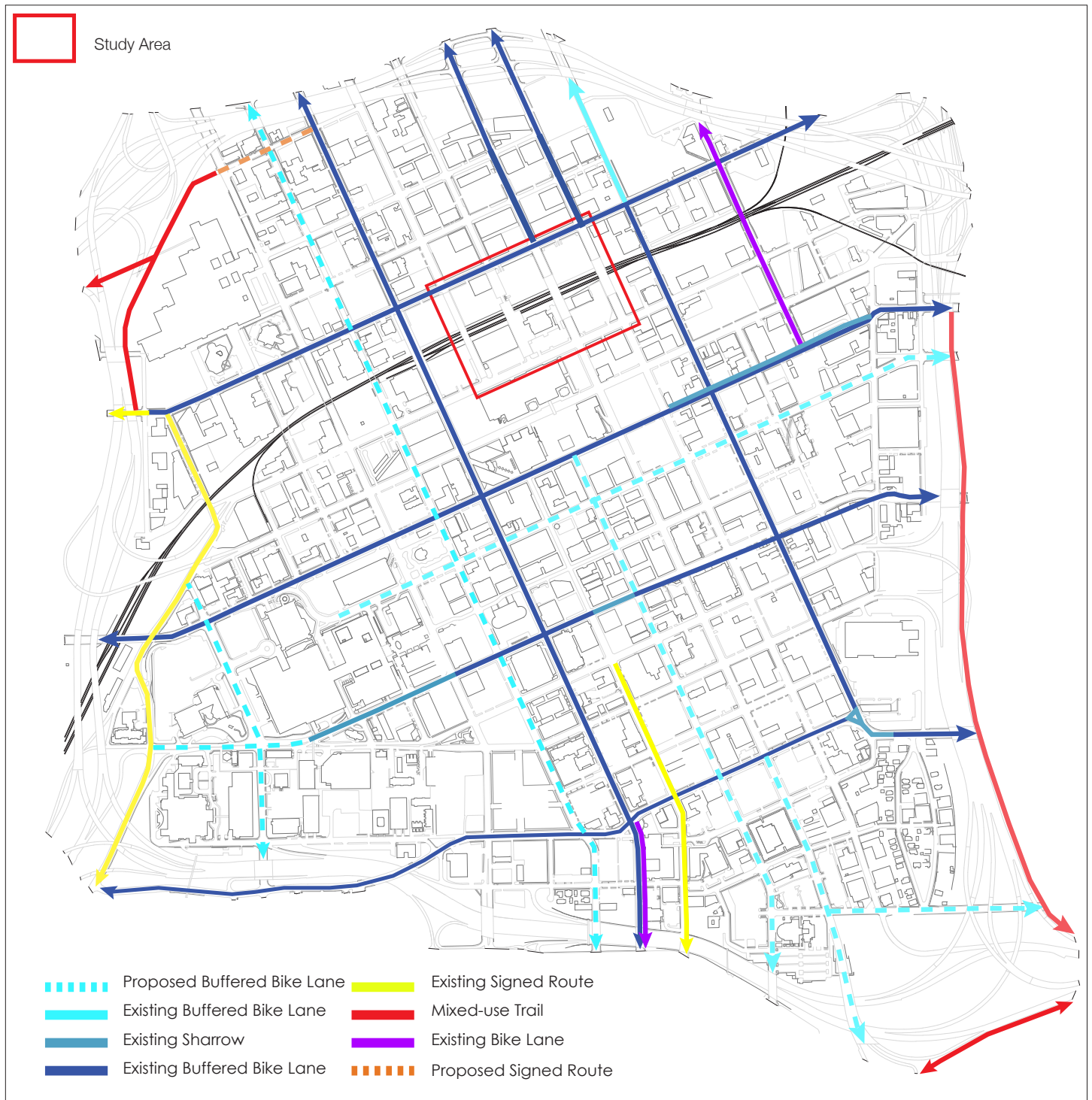


Fig 30: Recommendation for Cincinnati/Detroit

Two southbound driving lanes flanked by two back-in parking lanes @ 60° angle.



# GO PLAN



The GO Plan provides an in-depth regional plan for pedestrian and bicycle improvements, connectivity to the existing regional trail network and identifies potential solutions to allow people to access destinations using walking or bicycling modes.

This plan shows the potential for bike connectivity, but it also highlights the lack of bike lanes on Main Street. Bike lanes on Cincinnati Avenue, and Detroit Avenue ends at Archer Street. Boulder Avenue has a bike lane with a buffer in the north and a sharrow in the south.

# KIRKPATRICK HEIGHTS PLAN

The master plan process is facilitated by the City of Tulsa, Tulsa Authority for Economic Opportunity (TAEO), and Tulsa Development Authority (TDA) in coordination (September 2022). Three unique publicly owned potential sites in North Tulsa's Kirkpatrick Heights/ Greenwood neighborhood, comprising 56 acres of property, are the focus of the planning process.

Takeaways include:

- Realign and redesign MLK Jr. Blvd to function as an attractive multi-modal, gateway corridor connecting downtown and North Tulsa.
- Redesign and reroute Martin Luther King Jr. Boulevard as a two-way boulevard which can include a center landscape median, enhanced pedestrian crossings, and placemaking elements
- The new Greenwood Tram is planned to connect the area to neighboring communities and assets. The plan improves transportation options through a grid of small blocks (average 350-400 feet long)
- Streetscape on all bridges

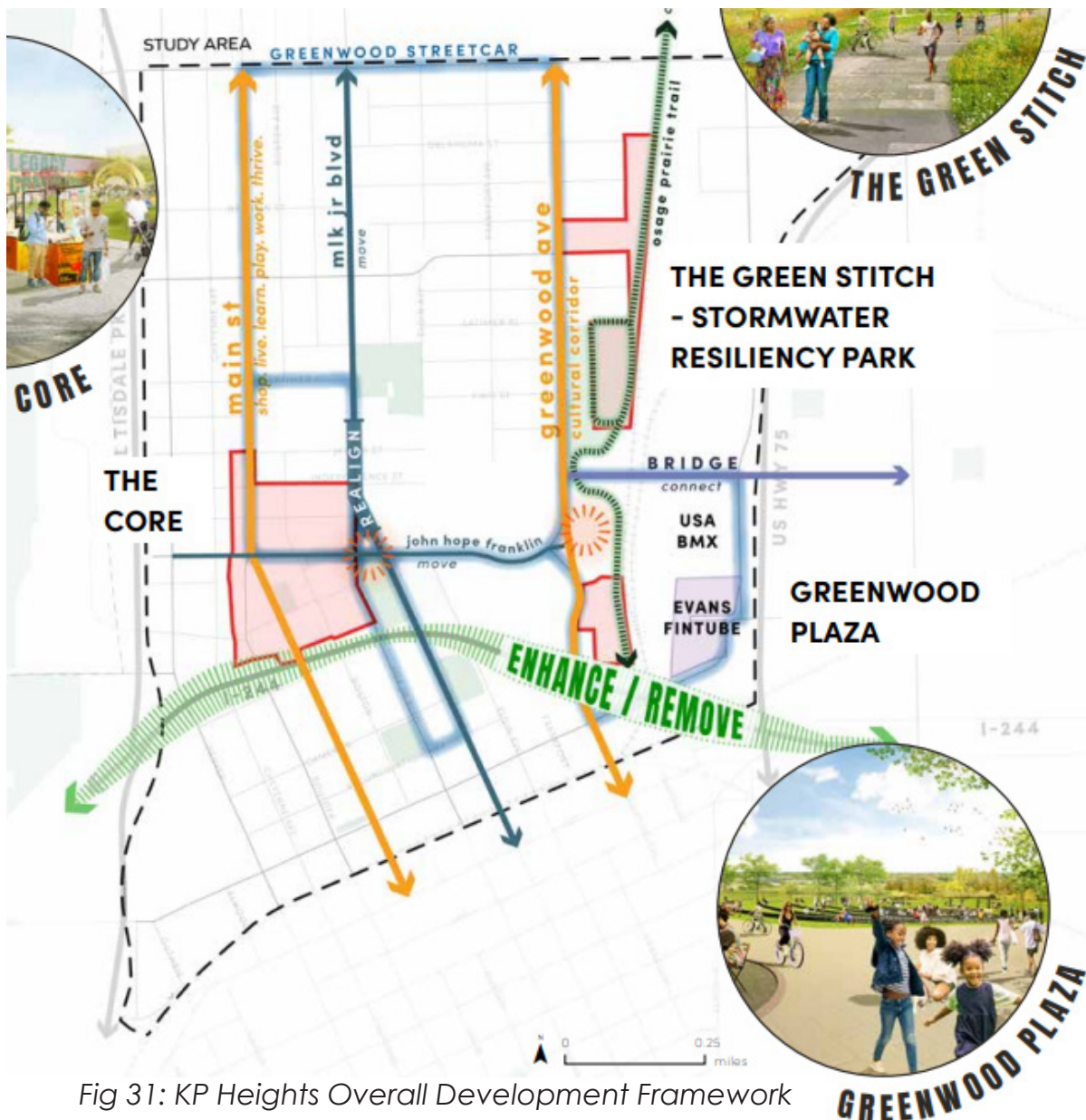


Fig 31: KP Heights Overall Development Framework



# CENTER OF THE UNIVERSE

“Re-imagining the Center of the Universe : A visitor destination, whisper chamber and acoustic anomaly.”

## Pedestrian Walkway

The Center of the Universe Plaza and Boston Avenue Bridge are being repaired and renovated as part of a public-private partnership called Re-imagining the Center of the Universe, which is being directed by the Downtown Tulsa Partnership and the City of Tulsa, among other partners. A restricted maintenance reserve fund will be established as part of this project to guarantee that financing is available for capital repair and maintenance in the future. The pedestrian plaza will be upgraded with new walkways, lighting, planting, public art, and other features. In order to develop a redesign of the bridge that brings everything wonderful and distinctive about the bridge forward into an enhanced, improved design, they have been engaging the community and working with design firm MKSK Studios.

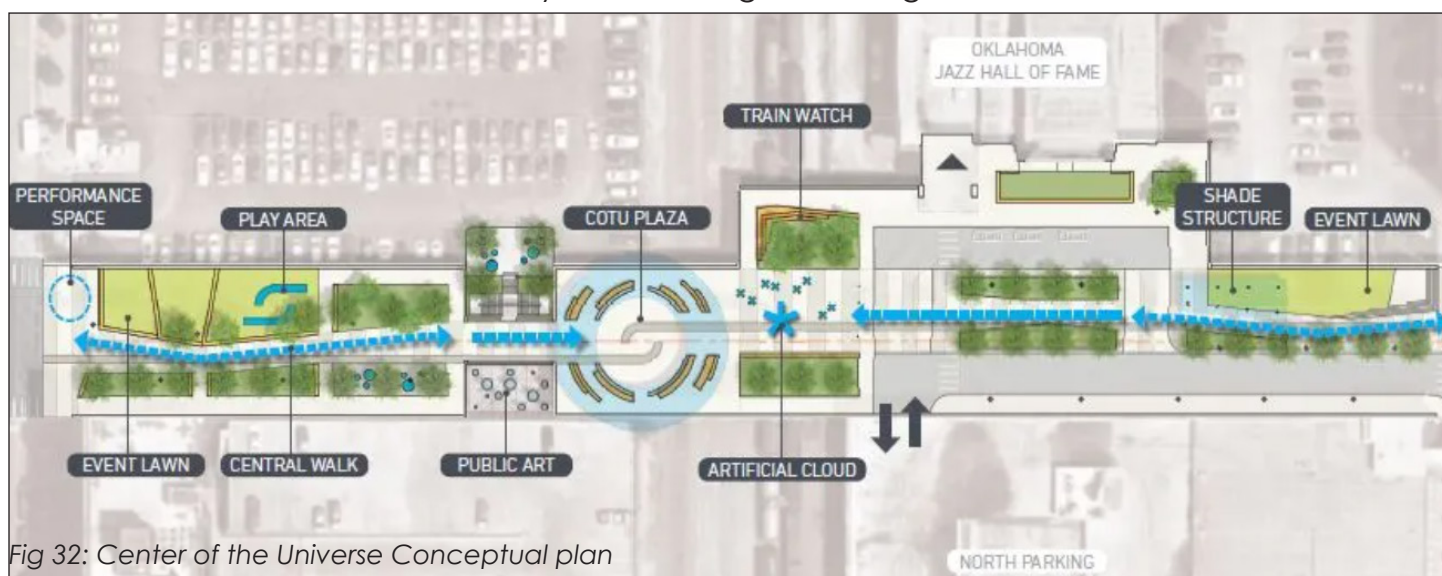


Fig 32: Center of the Universe Conceptual plan



Fig 33: Center of the Universe Conceptual view

## CONCEPT PLAN



# CASE STUDIES

Case studies made it easier for me to see how the designs were implemented and how they function now. Case studies also help me figure out whether or not my ideas are practicable with respect to railroad crossings.

## PROJECT 180, OKC

According to the criteria, this project was selected since it is close to Tulsa and implemented traffic calming strategies. Team OBJ turned one-way streets into two-way streets, which was a major recommendation in this project. So, understanding the effects of conversion was beneficial for my research.

- Reverting a half-one-way street network almost entirely to two-way traffic
- Reduce number of driving lanes to meet anticipated demand
- Double the number of on-street parking spaces
- Introducing an effective network of bike lanes
- Replacing aging curbs and crosswalks
- Planting hundreds of new street trees

Typical street section included: Ten foot lanes, Two-way traffic, Smaller turning radius at intersections, Wider sidewalks, Designated bike lanes, Landscape trees, hardscape benches, trash receptacles, unique signals and signing.



Fig 34: OKC, Sidewalk view  
Source: Project 180, OKC



Fig 35: OKC, Intersection view  
Source: Project 180, OKC



## LONG STREET BRIDGE, COLUMBUS, OHIO

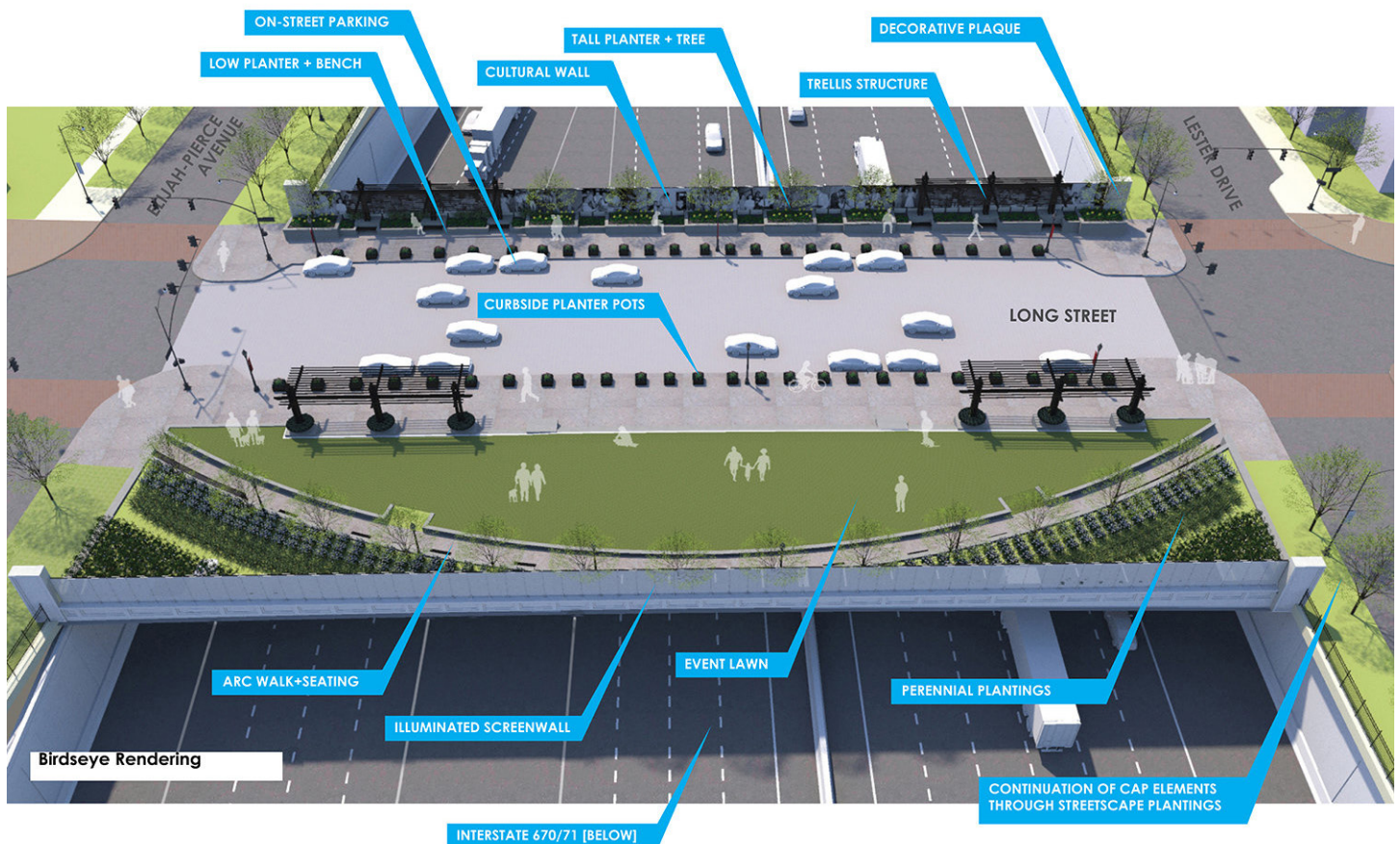
Just like how the railroad acts as a barrier between the downtown neighborhoods, the design of this bridge talks about improving the connections between the downtown and the surrounding neighborhoods across the interstate highway. Each bridge crossing is being individually considered and designed to reflect the unique character of and connections to the surrounding neighborhood areas. They even encouraged on-street parking along with prioritizing pedestrian comfort and safety. Streetscape design includes added bike lanes and landscaping in irrigated planters.

Chris Hermann, Tim Schmalenberger, Jeff Bryan, Chris Kimbrel, Tim Rosenthal, Rachael Harkleroad are the people involved in this design and worked with two local artists to design a cultural art wall that celebrates the history of neighborhoods.



Fig 36: View of Sidewalk with shading devices and planters

Source: MKSK Architects



Source: MKSK Architects

Fig 37: Long Street Bridge street configuration:

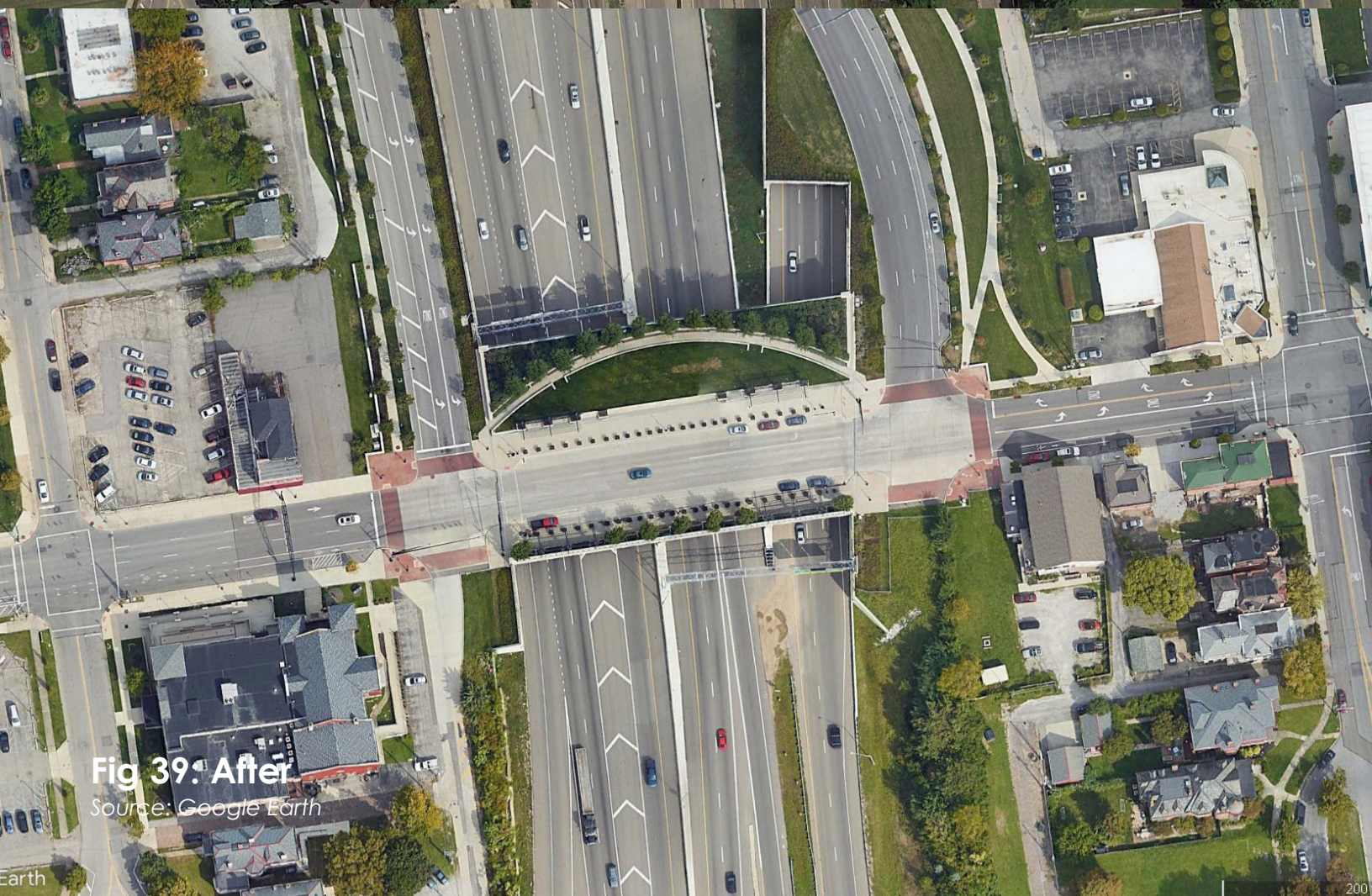
- 55' including parking
- 10' parking parallel both sides
- 10 parking spaces each side
- 5' bike lane
- Paved intersections





**Fig 38: Before**

Source: Google Earth



**Fig 39: After**

Source: Google Earth



## PROSPECT PARK WEST, NY

Based on their road diet approach, which involved reducing the number of lanes to make room for bike lanes and pedestrian facilities, this project was chosen.

### INFERENCES:

Protected bike lanes in both directions were introduced at Prospect Park West in Brooklyn, New York. A 3-lane one-way street was converted to 2-lane, parked cars were pulled 12 feet off the curb, and a bike lane was added to the area created. As a result, the number of cyclists tripled during the week, and the share of speeders in all cars dropped from about 75 percent to less than 17 percent. Interestingly, car traffic and travel times remained nearly the same and there were no negative impacts on nearby roads.

- Loading zones added to offset concerns about double-parking.
- Warning signs created to prevent bicycle-pedestrian conflicts.



Fig 40: Before and After of NYC Road diet implementation



Fig 41: Signal for bicyclists to yield for pedestrians; Photo by Seth Ullman



In Copenhagen, biking is very popular. I choose this case study to learn more about how to make designs more multi-modal and how different modes of transportation contrast with one another in streetscape designs. I learned that bikes and vehicles can share the road by reducing lane widths and using textured surfaces rather than keeping separate lanes to keep them apart. Bicyclists and cars are further protected from one another by the placement of cars between bike lanes and car traffic. Similar to cars and pedestrians, bikers often have their own set of traffic lights at crossings. They typically have a few seconds on the car.



Fig 42: Signal for bicyclists at intersection  
Source: Google Maps



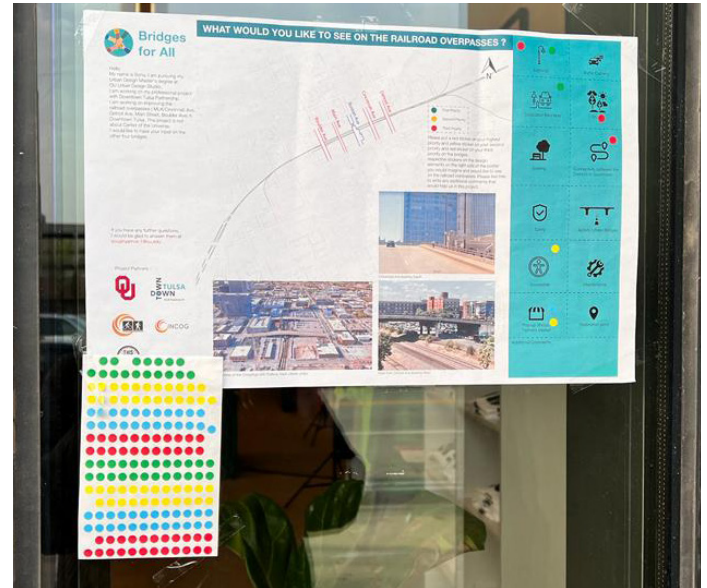
Fig 43: Raised Bike lanes with texture  
Source: Google Maps



# COMMUNITY ENGAGEMENT

I carried out a Community Engagement where I distributed the poster below to a bunch of Downtown businesses in to get input from the community and identify what they would like to see on the railroad overpasses.

I requested that they keep the poster out front of their store for a month, after which I would come and get them. It essentially asked people to get to the poster and put stickers on what they thought should be designed on the bridges in order of priority. The first priority is marked by a green dot, followed by the second priority by a yellow dot, and the third priority by a red dot.



Poster at the Guthrie Green entrance



## Bridges for All

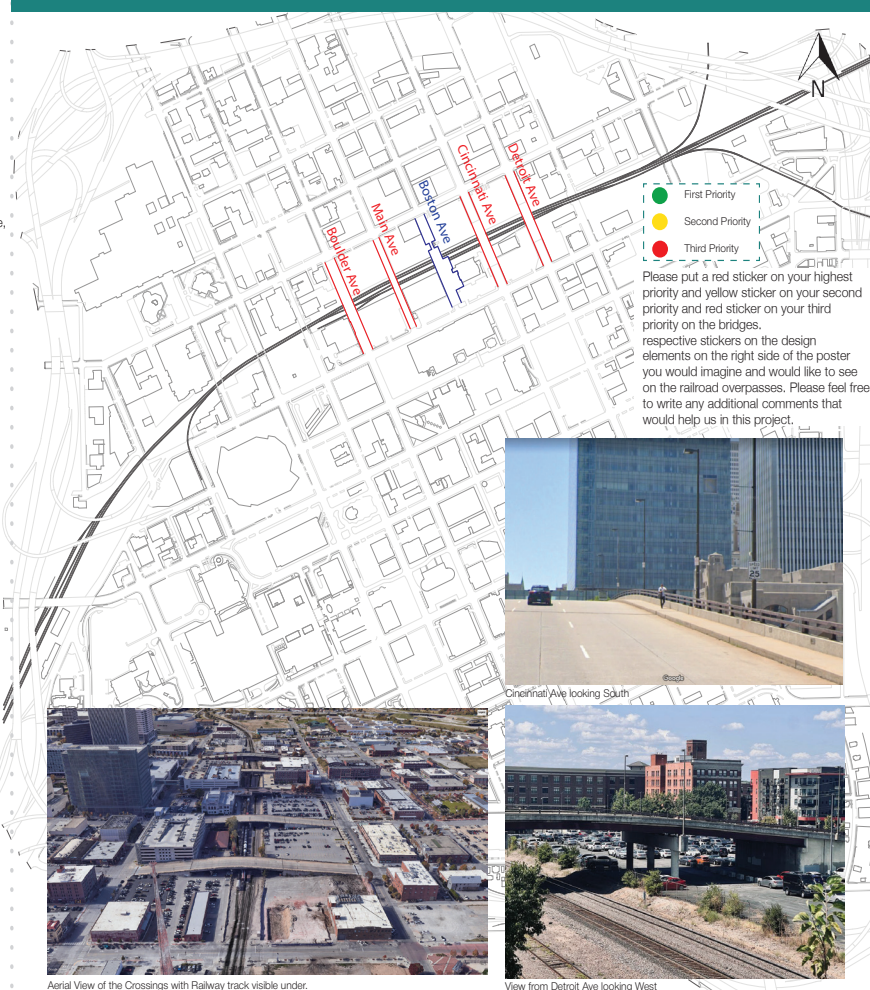
Hello,  
My name is Sonu. I am pursuing my Urban Design Master's degree at OU Urban Design Studio. I am working on my professional project with Downtown Tulsa Partnership. I am working on improving the railroad overpasses (MLK/Cincinnati Ave, Detroit Ave, Main Street, Boulder Ave) in Downtown Tulsa. This project is not about Center of the Universe. I would like to have your input on the other four bridges.

If you have any further questions, I would be glad to answer them at [soujaniamvs-1@ou.edu](mailto:soujaniamvs-1@ou.edu)

Project Partners -

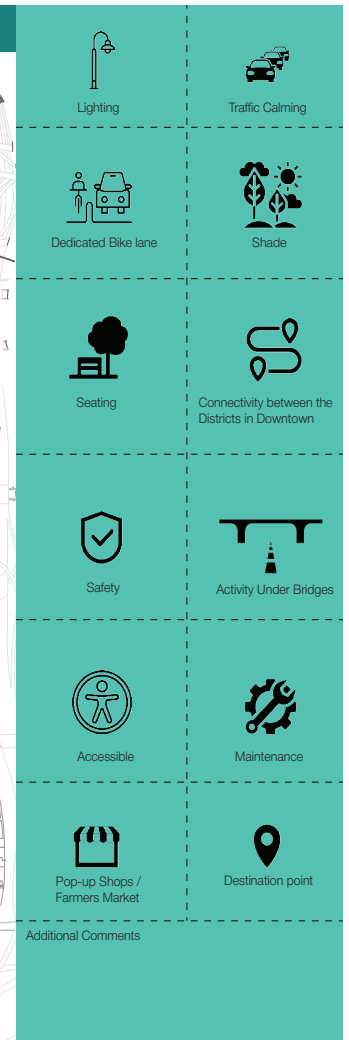


## WHAT WOULD YOU LIKE TO SEE ON THE RAILROAD OVERPASSES ?



Aerial View of the Crossings with Railway track visible under.

View from Detroit Ave looking West



Community Engagement Poster

# COMMUNITY ENGAGEMENT

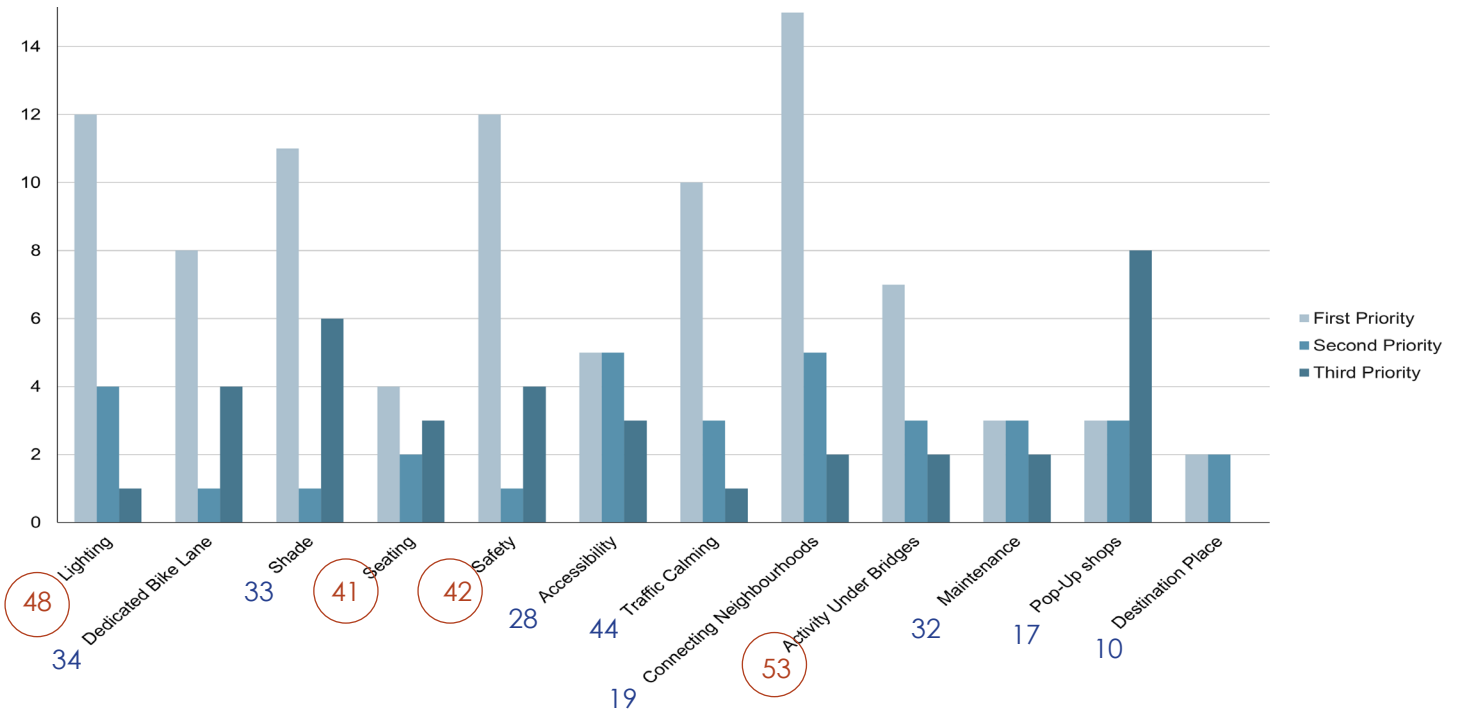
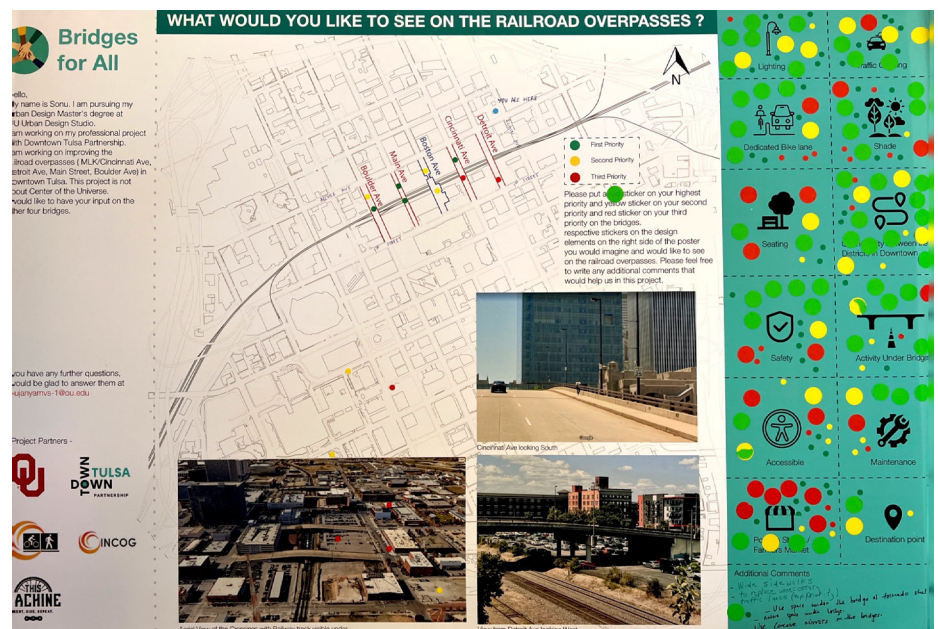


Fig 44: Chart showing results from Community Engagement

To quantify the data we have assigned points to each priority the first priority gets 3 points, the second priority gets 2 and the third priority gets one point. In order to compare them and determine which ones are top priorities for the community. Clearly Connectivity, Lighting, Seating and Safety are the top priorities.

The following businesses allowed me to leave a poster on their shops:

- Vast Bank
- Black wall street
- Black wall Historic center
- Guthrie green
- Lone wolf
- Magic city Books
- Tribune Lofts
- Holiday Inn
- The Flats
- Gypsy Coffee house

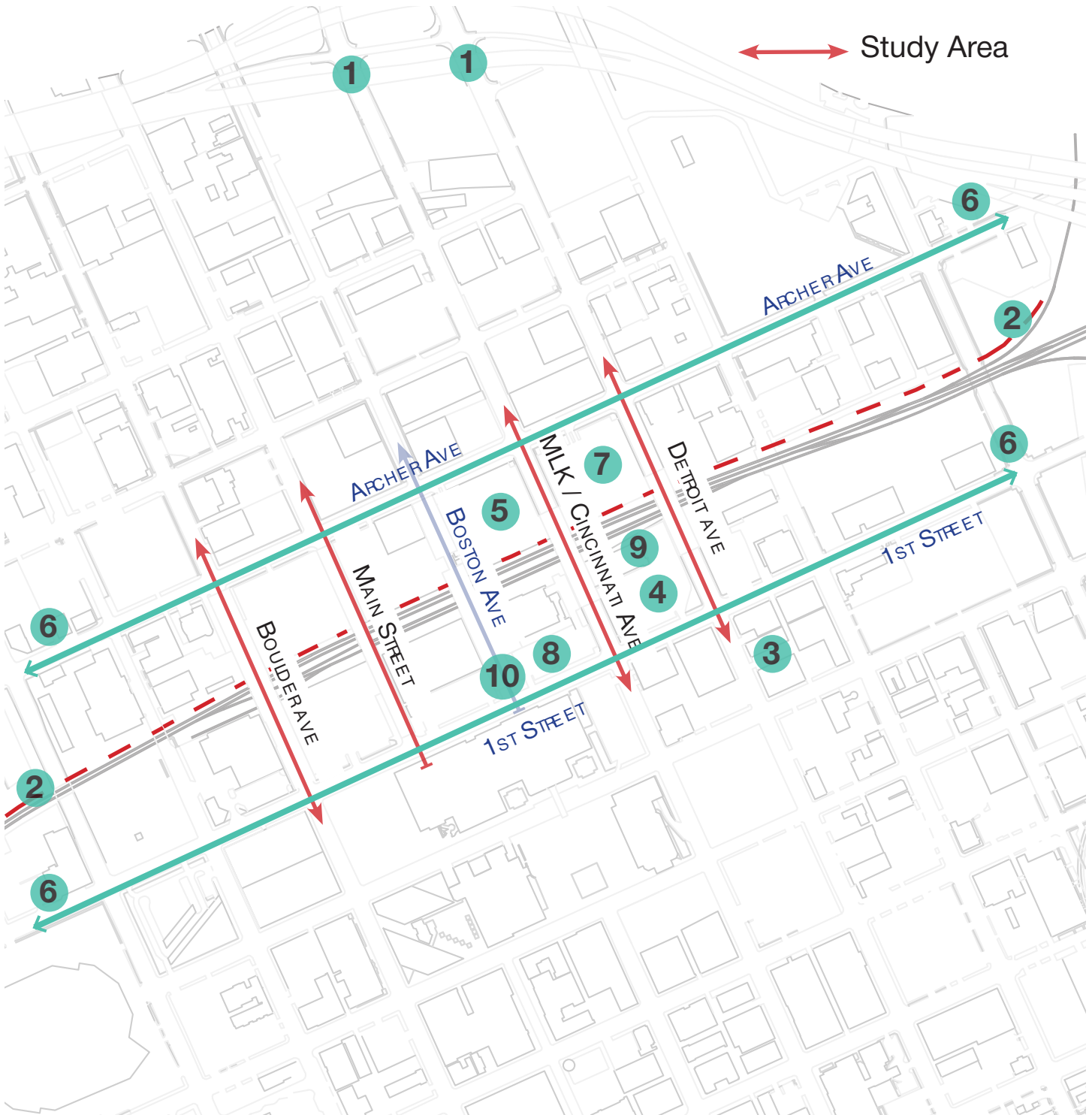


Poster with consolidated stickers



## RELATED DESIGN ELEMENTS

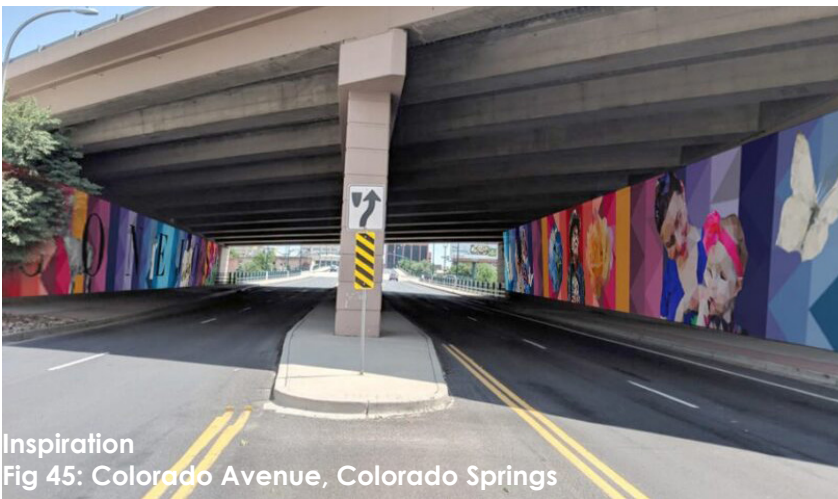
This section discusses the design elements or possible ideas that surrounds railroad overpasses. Both analysis and design apply to this area. Thus, I placed it just before the project's design recommendations.



1. Re-imagining Underpasses
2. Rail to Trail
3. "Dine in Alley"
4. Mural opportunity

5. Convert Parking lot into Mixed-use building
6. Parking lot screening
7. Overlook park
8. "Under the Elevated"

## 1. Re-imagine Underpasses



A simple public art with vibrant color murals and lighting below the IDL underpass makes the space more interesting and pedestrian friendly.

## 2. "Rail to Trail"



The idea is to have a trail loop connection through Downtown along the railroad



### 3. Dine in Alley



Hurts Donut Tulsa, 119 S Detroit Ave



Existing conditions



Inspiration  
Fig 47: Texas Umbrella Alley

A colorful art installation like an Umbrella alley with outdoor seating draws visitors to an underutilized area near Hurts Donut Tulsa.

### 4. Mural Opportunity



Parking Garage on Cincinnati Ave and 1st Street

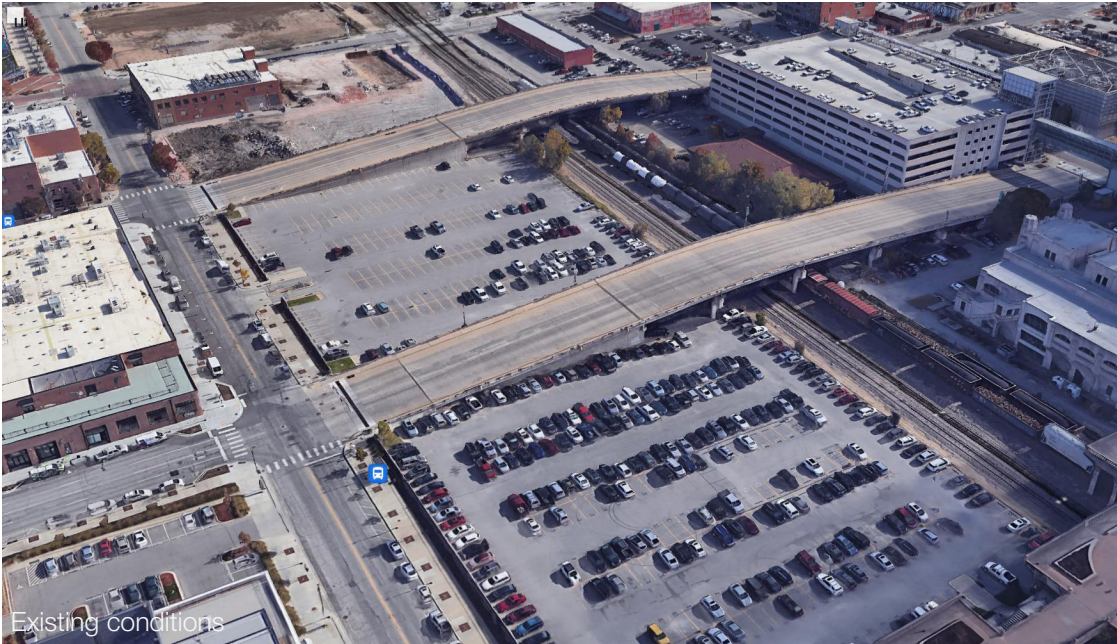


Inspiration  
Fig 48: CPA Lot 25 City Centre Parkade Alberta, Canada

Urge local artists to paint murals on the open parking garage walls so that the wall space can be used to display public art.



## 5. Parking lot to Mixed-use building



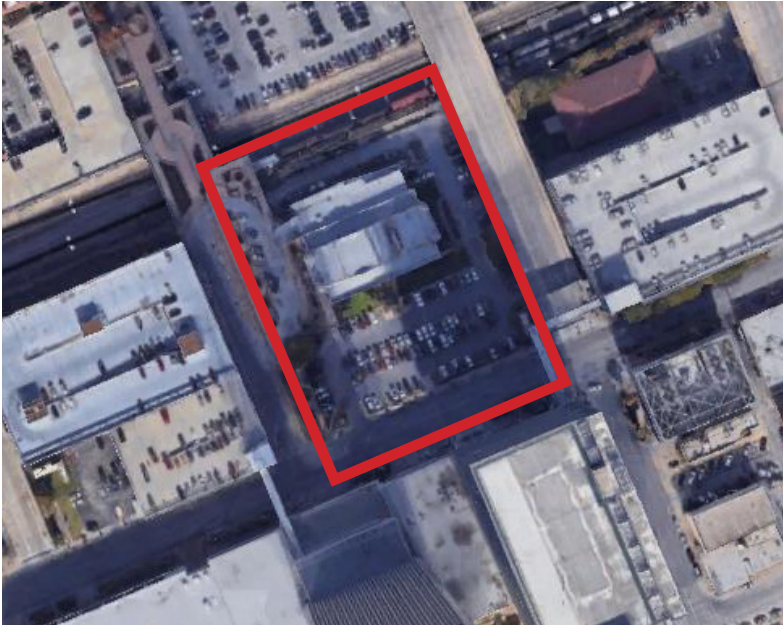
## 6. Parking lot screening



The strategy is to develop mixed-use structures with parking spaces in underutilized parking lots that are now underutilized to house apartments and retail businesses.



## 7. Overlook Park



Existing conditions



Inspiration  
Fig 51: Wissahickon Neighbors Park

The idea is to design a new green space on  $\frac{1}{2}$  block south of Jazz Hall of Fame on 1st Street (land owned by Williams Companies).

## 8. Under the Elevated



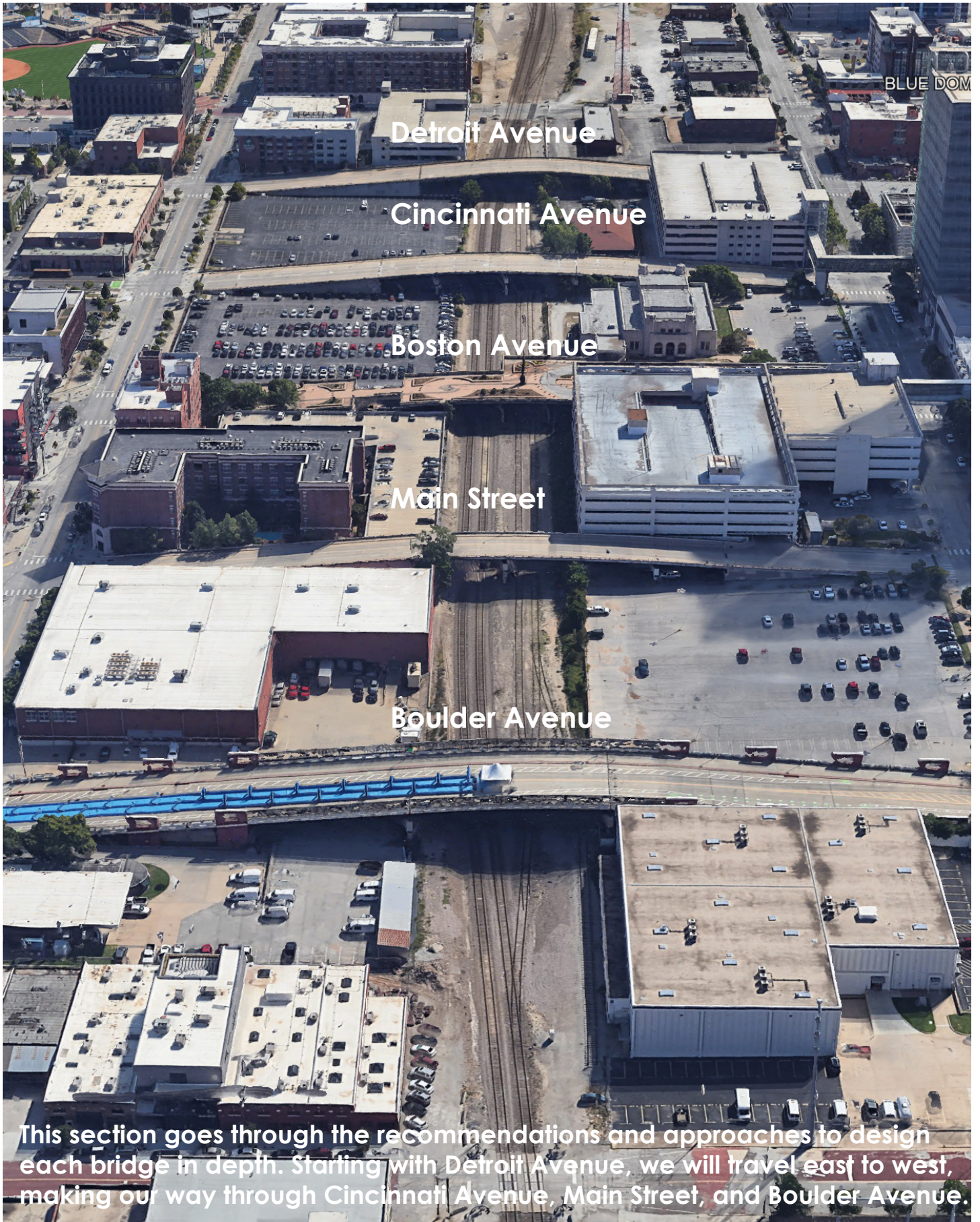
Inspiration  
Fig 52: Victoria "Underline", Melbourne, ASPECT Studios

The idea is to use the space under the bridge as playarea for the school between Boston Avenue and Cincinnati Avenue

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# EXISTING SITE VIEW



This section goes through the recommendations and approaches to design each bridge in depth. Starting with Detroit Avenue, we will travel east to west, making our way through Cincinnati Avenue, Main Street, and Boulder Avenue.



# PROPOSED SITE VIEW





# DESIGN SCENARIOS

These are additional specific recommendations that complement the design scenarios depicted on the following pages

## Recommendations

### 5 Big moves

- Improve Access and Linkages to benefit local residents and workers around the railroad crossings.
- Make better connections to enable walking and biking between destinations Downtown.
- Calm traffic and improve the streetscape to make the bridges multi-modal
- Provide adequate shading and lighting for pedestrians
- Re-imagine the railway corridor.

### General Recommendations

- Bike Racks should be placed near major building or center entrances preferably on Archer and 1st Street. Bike racks that are strategically positioned enhance bicycle mobility while without blocking entrances or pedestrian paths.
- Transit stops should be identified by standard signs that are readable, convey relevant information, and are well maintained. Increase the illumination at transit stops to promote safety and visibility.
- Receptacles must be fastened to the ground. Material should match the appearance and feel of other streetscape components such benches, lighting, railings. Receptacles should not crowd the sidewalk or obstruct pedestrian traffic.
- Bollards can be detachable or retractable to provide greater flexibility when access is required.
- Permeable pavers should be utilized for sidewalks.
- The spacing between two light poles should be roughly 2.5–3 times the height of the pole.
- Road diet makes vehicles more cautious of traffic and nearby users. Utilizing the extra space for pedestrian areas and bike lanes.
- Chicanes decrease vehicle speeds by alternating parking, curb extensions to provide an S-shaped channel of movement.
- Boulder Avenue is suggested for a streetcar lane because it has previously been rehabilitated and is supported by Master

Plans that include a streetcar lane. Suggestions for a streetcar are based on when the streetcar lane connects various areas of interest along the route.

- Other than Boulder Avenue, none of the other bridges—Detroit Avenue, Cincinnati Avenue, and Main Street—have yet undergone rehabilitation, and none of them are currently scheduled to do so yet.
- The space under the bridges is currently used for parking, which is a decent use of the space. It may also be used to store solar lighting equipment and as a tornado shelter.
- As an alternative to raise funds, banners, streetcar stops, and street furniture may be used to promote future events and advertising.
- Work with Tulsa Transit to enhance Streetcar stops by installing stop shelters, replacing signage, and providing updated schedule information.
- Work with ODOT/INCOG to improve pedestrian crossings by repainting crosswalks and changing the timing of vehicular signals following two-way lane conversion.
- Kiosks provide information, direct visitors to plazas, ATMs, commercial areas, parking lots, and other public services, and assist in the movement of people.
- Curb extensions are used at crosswalks to extend the curbs into the street. They intend to reduce traffic congestion by narrowing the street and shortening the distance that people must cross.
- Public facilities such as benches, garbage cans, street lights, signs, pavement patterns, fountains, and gates can all include art.
- For less maintenance purposes put self-watering pots in the planters.
- Bollards help to differentiate between traffic and pedestrian areas. They should be composed of durable materials that complement the rest of the street furniture. They should also contain reflectors to improve visibility at night.
- The protected intersection allows cyclists to make safe, two-stage movements that are in sync with traffic flow. Curb barriers and corner refuge islands keep motor vehicles from intruding on the bike facility when turning.
- Cincinnati Avenue should be renamed Martin Luther King all the way South.
- For tactical events, we may close the bridges or set up the Sunday Farmers Market on Boulder Avenue's wider sidewalk.
- There is potential for development on Archer Street and First Street. The most beneficial course of action would be to create mixed-use linear buildings on Archer and First Street.
- Stormwater grates must be relocated to match with the widened sidewalks on the overpasses.



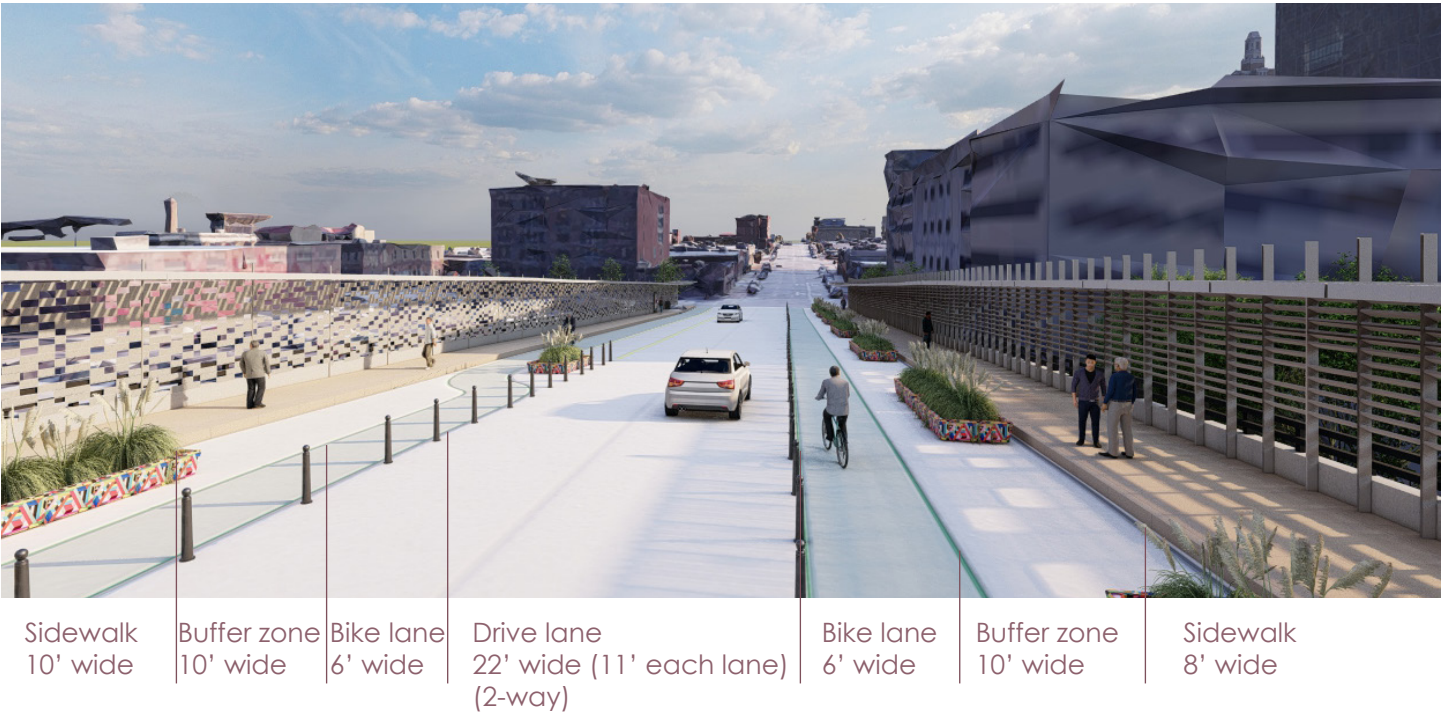
# DESIGN SCENARIOS

Scenario: I'm a tourist cycling from ONEOK Field to Andolini's Pizza for lunch. To get there, I rode my bike along Detroit Avenue. Bollards buffer from oncoming cars. When I climbed to the top, I passed across some great soundscape elements. When I pass through them, they make sounds. I notice the pleasant perfume of the flowers as I cross the bridge. Which makes me want to explore Downtown more on the bike and take my companions out there and ride with them on weekends.

Current view of Detroit Avenue (72' wide)



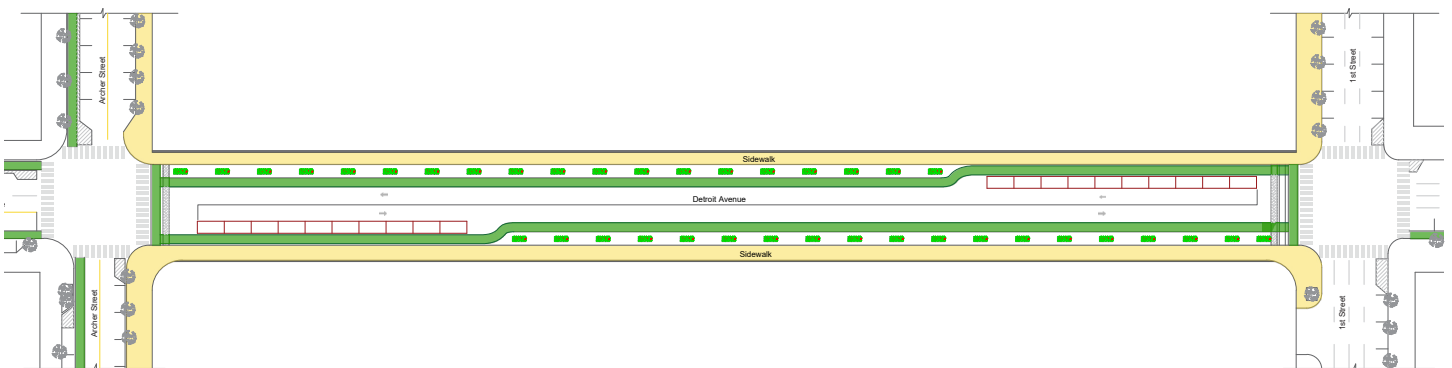
Conceptual view of Detroit Avenue (72' wide)





The Bridge's soundscape pieces are located in the center. These components are a sequence of music-making boxes that trigger music when you walk, jump, roll, or dance pass them. This was created to be accessible to everyone, whether on foot or on wheels: all of the technology is contained within a chain of boxes.

## Layout of the Bridge with intersection at Archer Street and 1st Street



Bollards can be detachable or retractable to provide greater flexibility when access is required with Permeable pavers for sidewalks. Eight Parallel parking spaces on Detroit Avenue. Parking is available on the east end of the bridge if driving north, and on the west side shortly before you exit the bridge if driving south.



# DESIGN SCENARIOS

Scenario: I am a young professional living in Mid-town Tulsa and working at the BOK center. I park my car at the BOK parking lot and walk to the workplace along Cincinnati Avenue. During a hot day, when crossing on the bridge, the shade structures keep me under the shade and create a light pattern on the pavement which is fun to walk on. I wander by the historic murals at night and admire the history of the neighbourhood. Pairing benches and planters together create an inviting area to sit. Re-striping the ends of the bridges maximizes on-street parking and makes it easy for me to park close to the office building. It makes me want to move Downtown and know more about the area.

Current view of Cincinnati Avenue (72' wide)



Sidewalk  
5' wide

Drive lane  
40' wide (10' each lane) (1-way)

Sidewalk  
5' wide

Conceptual view of Cincinnati Avenue (72' wide)



Sidewalk  
10' wide

Buffer zone  
10' wide

Bike lane  
6' wide

Drive lane  
22' wide (11' each lane) (2-way)

Bike lane  
6' wide

Buffer zone  
10' wide

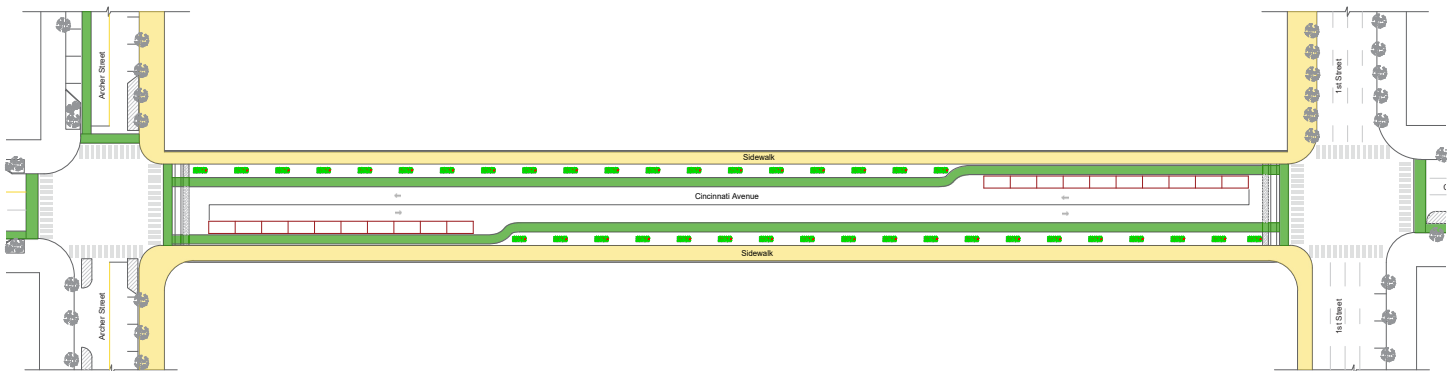
Sidewalk  
8' wide

# CINCINNATI AVENUE



With a layer of fiber glass on top of the louvers, shading devices on the east and west sides of the sidewalk give shade during the day and shelter from rain. Light still passes through the louvers, creating a shadow effect. Mural boards can be used as public art to interpret the neighbourhood's history.

## Layout of the Bridge with intersection at Archer Street and 1st Street



Planters in the Buffer Zone narrow the street visually, lowering traffic speeds. Public art can also be applied to benches and planters. Install self-watering pots in the streets for an instant impact. Eight Parallel parking spaces on Detroit Avenue. Parking is available on the east end of the bridge if driving north, and on the west side shortly before you exit the bridge if driving south.



# DESIGN SCENARIOS

Scenario: As a working mother, I want to provide my kids with as much entertainment on the weekends as I can. While traveling along Main Street, I came across these banners advertising a hockey game taking place at the BOK Center the following weekend. The drive-lane chicane lowers vehicle speeds which also acts as an advantages and provides a better view of the banners so I dont have to zoom over the bridge and other drivers can also see what events are coming up.

Current view of Main Street (52' wide)



Sidewalk  
6' wide

Drive lane  
40' wide (10' each lane) (2-way)

Sidewalk  
6' wide

Conceptual view of Main Street (52' wide)



Sidewalk  
8' wide

Drive lane  
22' wide (11' each lane) (2-way)

Angular parking  
14' wide

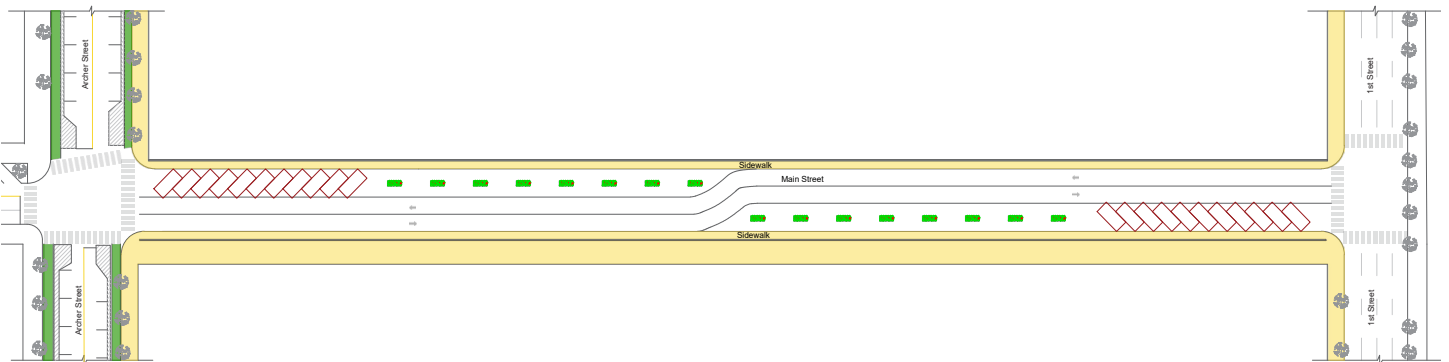
Sidewalk  
8' wide





On-street parking should be provided at both ends of the bridges. Eight back-end angular parking spaces on Main Street. Parking is available on the east end of the bridge if driving north, and on the west side shortly before you exit the bridge if driving south.

## Layout of the Bridge with intersection at Archer Street and 1st Street



Chicanes decrease vehicle speeds by alternating parking, curb extensions to provide an S-shaped channel of movement. As an alternative to raise funds, banners, streetcar stops, and street furniture may be used to promote future events and advertising.



# DESIGN SCENARIOS

Scenario: I'm an elderly woman living in Kirkpatrick Heights neighborhood who wants to go grocery shopping. On Sundays, I visit the Farmers Market on Boulder Avenue. At Hope Franklin Boulevard station, I board the streetcar and ride to the farmers market. I buy all the food I require and board the streetcar once more to return home. I pass the Boulder Avenue artwork and the planters with public art as I walk to get groceries. Having seating available at regular intervals enables me to rest when I'm tired.

Current view of Boulder Avenue (76' wide)



Sidewalk 17' wide	Drive lane 40' wide (2No. 10' wide) (2-way) and a turn lane (10' wide)	Sidewalk 7' wide
----------------------	------------------------------------------------------------------------------	---------------------

Conceptual view of Boulder Avenue (76' wide)



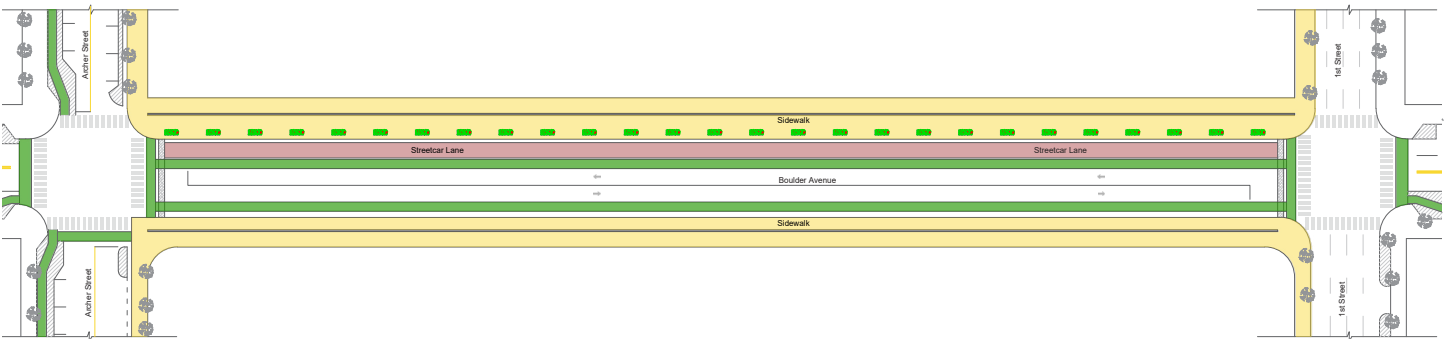
Sidewalk 18' wide	Streetcar Lane 11' wide	Bike lane 6' wide	Drive lane 22' wide (11' each lane) (2-way)	Sidewalk 10' wide
----------------------	----------------------------	----------------------	---------------------------------------------------	----------------------

# BOULDER AVENUE



A streetcar lane with a stop: These stops enable transit vehicles to pick up people without having to depart the lane, saving transit dwell time.

## Layout of the Bridge with intersection at Archer Street and 1st Street

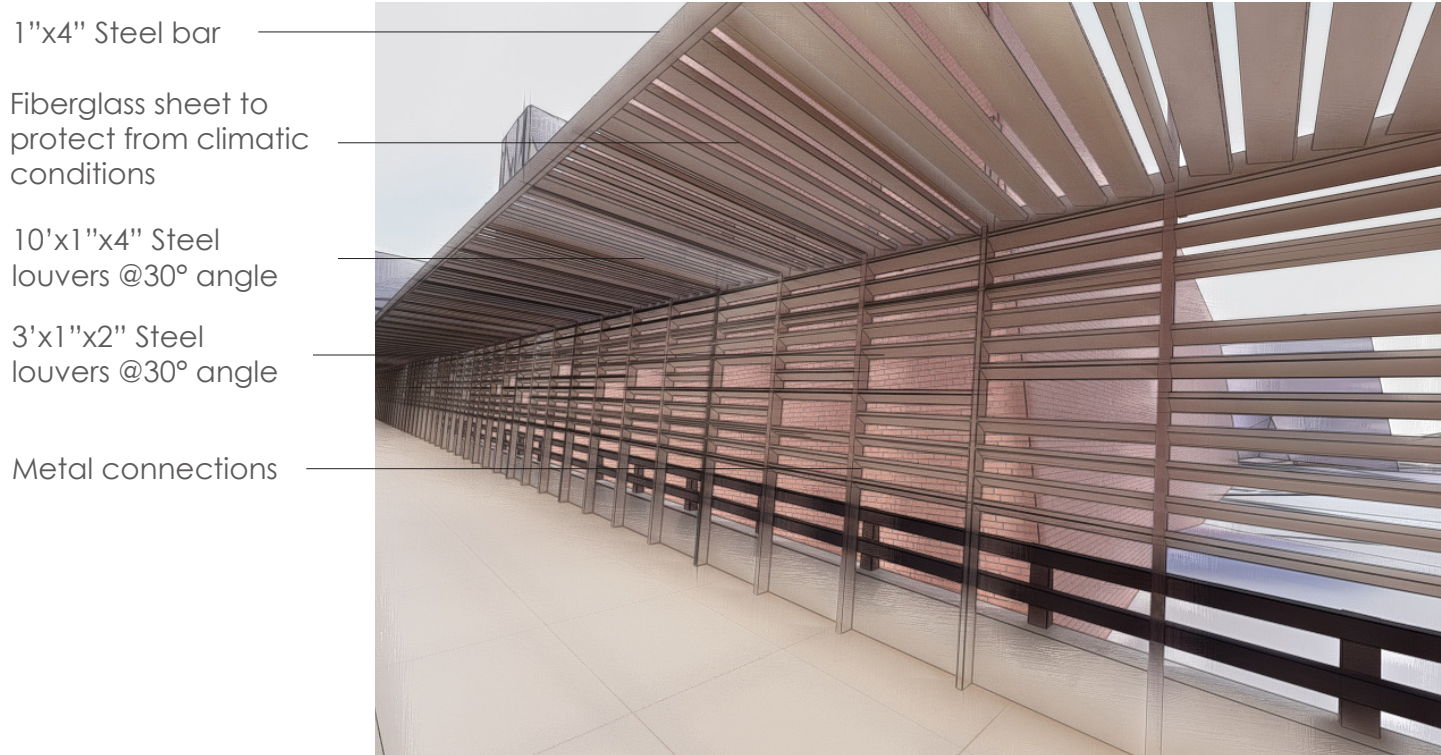


Seating at every regular interval. Benches should be made of non-abrasive materials that can endure cracking, rotting, and sagging to provide comfortable, low-maintenance seating. Boulder Avenue is suggested for a streetcar lane because it has previously been rehabilitated and is supported by Master Plans that include a streetcar lane.

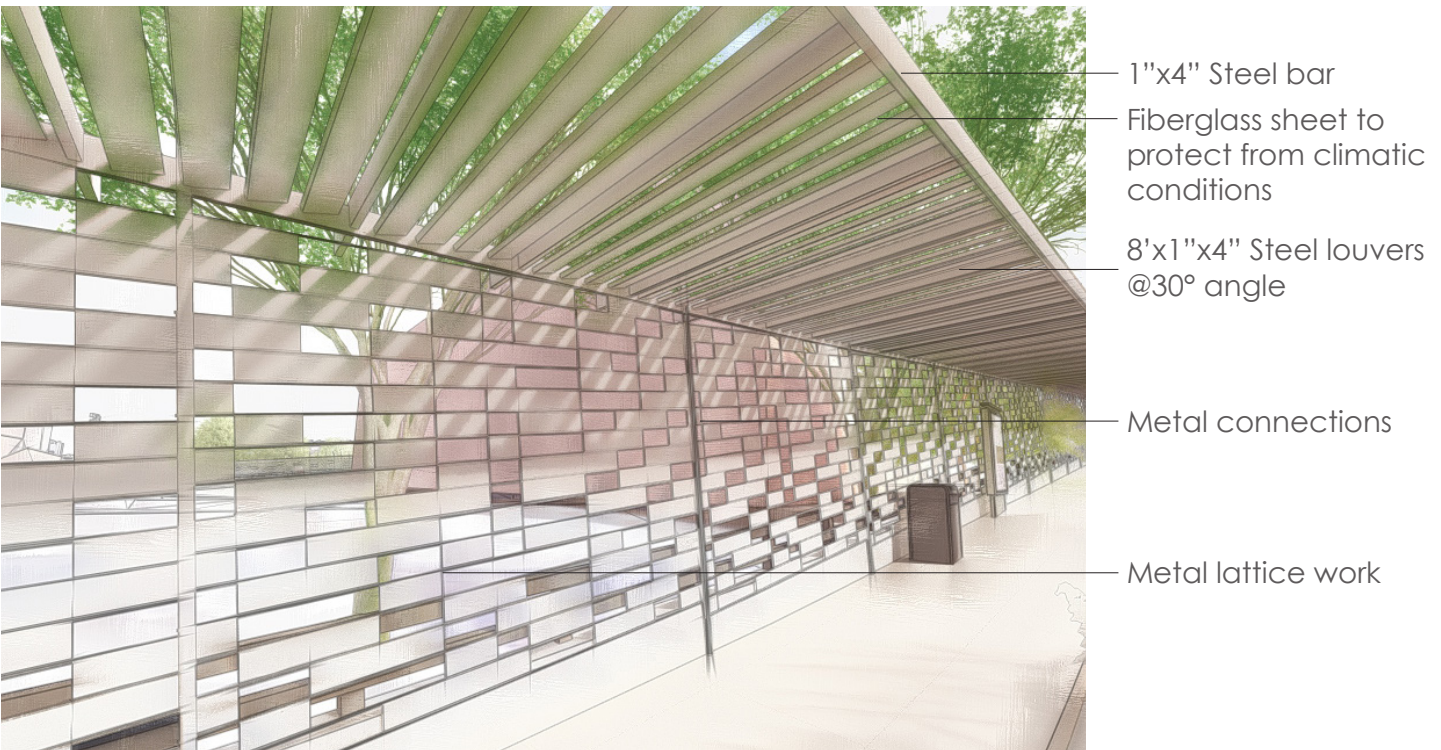


# DESIGN SCENARIOS

## Dimensions

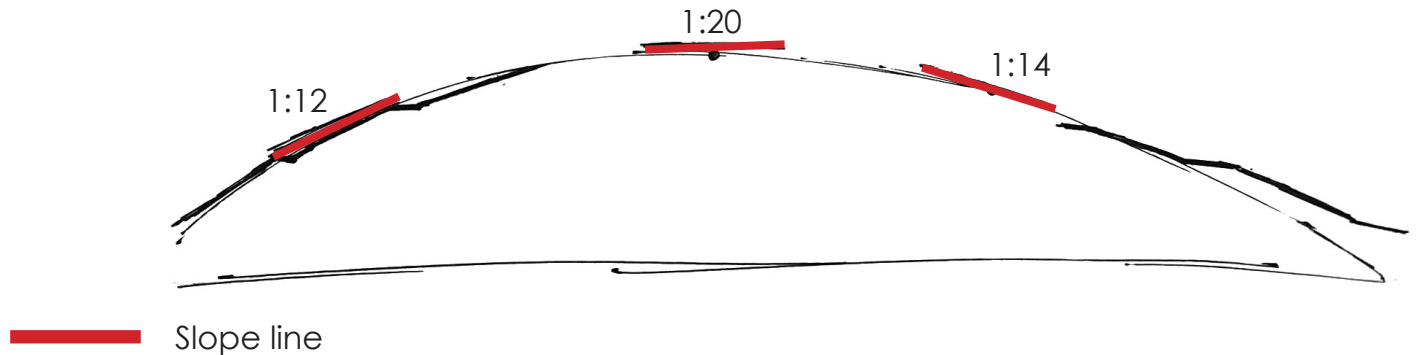


Shading devices on the West side of Sidewalk



Shading devices on the East side of Sidewalk

## ADA strategy



As the elevation of the bridges plays a major role in the design, ADA compliance is a crucial factor to consider. It can be achieved by guiding individuals with disabilities to walk across Boston Avenue, which has less elevation than other Crossings and is a pedestrian-only bridge. Another strategy is to cross over Cheyenne Street since it is an on-grade crossing.

The next best course, is to renovate Detroit Avenue such that there are ramps and landings every 30" of elevation rise. This may be accomplished by considering the Bridge to be made up of three distinct parts, each with a different elevation tangent, and construct ramps accordingly.

Pedestrian ramps are sloped planes that allow persons using wheelchairs and other personal mobility equipment to utilize sidewalk.

For curb ramps and other transitions between pedestrian, vehicle, or shared zones, provide tactile pavement or detectable warning strips.



# DESIGN SCENARIOS

Plant palette: Here are a few alternative plants that are ideal for and survive in Planters. They were picked based on Tulsa's hardiness zone (Zone 7A) and plant characteristics.



Fig 53: Abelia grandiflora

Hardiness zone : 6-9  
Height : 3' - 6'  
Spread : 3' - 6'  
Maintenance : Low  
Attracts : Butterflies  
Characteristics : Evergreen  
Water needs : Average



Fig 54: Pampass Grass

Hardiness zone : 8-11  
Height : 6' - 8'  
Spread : 6' - 10'  
Maintenance : Low  
Attracts : Birds  
Characteristics : Dried arrangements all year  
Water needs : Low



Fig 55: Golden jubilee plant

Hardiness zone : 5-9  
Height : 2' - 3'  
Spread : 1' - 2'  
Maintenance : Low  
Attracts : Birds, Butterflies, Hummingbirds  
Characteristics : Cut flowers, Fragrant, showy  
Water needs : Average

Source: Gardenia

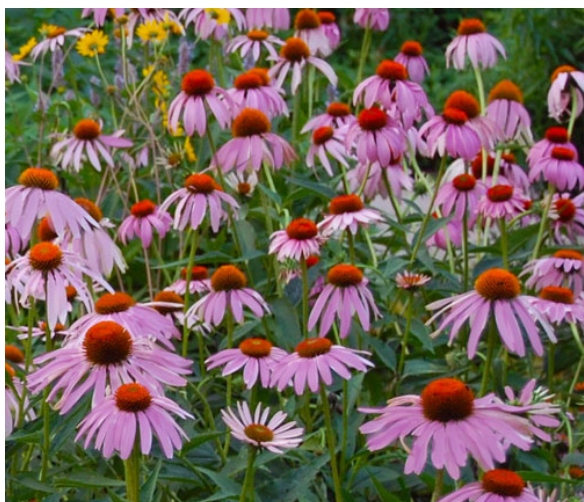


Fig 56: Magnus purple coneflower

Hardiness zone : 3-8  
 Height : 2' - 3'  
 Spread : 1' - 2'  
 Maintenance : Low  
 Attracts : Birds, Butterflies, Hummingbirds  
 Characteristics : Summer  
 Water needs : Low, Average



Fig 57: Appletini Coralbells

Hardiness zone : 4-9  
 Height : 8" - 2'  
 Spread : 1' - 2'  
 Maintenance : Low  
 Attracts : Bees, Butterfly, Hummingbirds  
 Characteristics : Evergreen, Cut flowers, Plant of merit  
 Water needs : Average



Fig 58: Mexican feathergrass

Hardiness zone : 7-11  
 Height : 1' - 2'  
 Spread : 1' - 2'  
 Maintenance : Low  
 Characteristics : Perennial  
 Water needs : Low, Average



# FUNDING AND IMPLEMENTATION

How can we make this happen?

Ultimately, funding of several recommendations will require collaboration and outside funding sources. The following are a series of potential funding sources ranging from Public to Private funds related to Actions or recommendations.

More information about grants can be found at <https://grants.ok.gov>.

Potential Funding Sources:

- EDPIF - Economic Development Public Infrastructure Fund
- STP - Surface Transportation Program
- Government Budgets and Funding
- Local Governments
- Capital budgets
- Operational budgets
- Regional and National Governments
- Grants and capital funding

## Cost Estimates

Interactive soundscape elements	\$
Restriping lanes	\$
Installing bike lanes	\$\$
Bumpouts	\$\$
Benches	\$\$
Parking strategy	\$
Irrigation and Drainage for Planters	\$\$\$
Public Art	\$\$\$
Streetcar Stop	\$\$\$
Planters	\$\$\$
Landscape plants	\$\$\$
Bollards	\$\$\$
ADA ramp	\$\$\$\$
Widening Sidewalks	\$\$\$\$
Lighting	\$\$\$\$
Shading devices	\$\$\$\$\$
Streetcar Lane	\$\$\$\$\$

### Limitation:

This study did not develop detailed estimations. These sources may, but are not obligated to, fund the project. These are design recommendations-based assumptions.

### Key funds:

\$ - 1-1,000  
\$\$ - 1,000-10,000  
\$\$\$ - 10,000-100,000  
\$\$\$\$ - 100,000-1,000,000  
\$\$\$\$\$ - >1,000,000

## FUNDING AND IMPLEMENTATION

Street lane implementation			
Project Type	Short term (0-2yrs)	Long term (2-5yrs)	Funding source
Convert one-way lanes to two-way lanes	✓		City funds, TIF, SS4A, RAISE, TA
Dedicated Bike lanes	✓		TA, RAISE, SS4A
Drainage connection for the Planters		✓	CDBG
Parking strategy	✓		SS4A, TIF, CIP, City Funds, TA
Bumpouts		✓	Improve our Tulsa, SS4A, TIF, RAISE
Installing Streetcar Lane		✓	Improve our Tulsa, CIP, TIF, TA, RAISE
Improve Streetscape			
Project Type	Short term (0-2yrs)	Long term (2-5yrs)	Funding source
Planters	✓		CDBG, Private Funds
Landscape Plants	✓		CDBG, Private Funds
Street furniture	✓		CIP, Private Funds
Way-finding signage	✓		City Funds, DTP
Lighting		✓	TIF, CDBG, STP
Shading devices		✓	CIP, RAISE, CDBG, City Funds
Bollards	✓		NEA, Private Funds
Reflectors for Bollards		✓	NEA, Private Funds
Widening sidewalks		✓	Improve our Tulsa, CIP



# FUNDING AND IMPLEMENTATION

Improve Streetscape			
Project Type	Short term (0-2yrs)	Long term (2-5yrs)	Funding source
ADA ramp		✓	RAISE, CIP, EDPIF
Paving for Sidewalks	✓		City Funds, Improve our Tulsa
Stormwater grates displacement		✓	CDBG, RAISE
Lighting for Shading devices		✓	TIF, CDBG, STP
Signages for vehicles	✓		City Funds
Trash receptacles	✓		Private Funds, DTP
Public Art		✓	Vision Arts, NEA, ODOC, EDPIF
Painted crosswalks	✓		Vision Arts
Advertising	✓		DTP, City Funds, EDPIF

Examples for Tactical Urbanism:

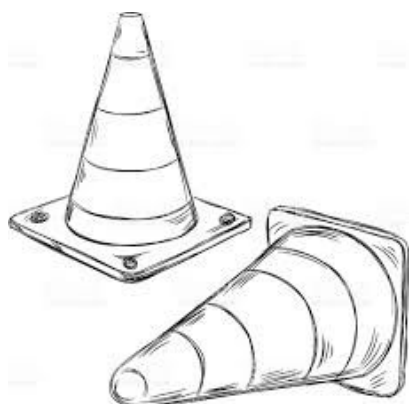


Fig 59: Traffic Cones

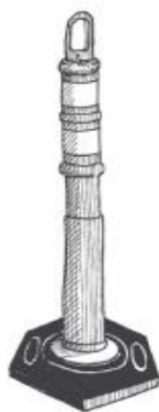


Fig 60: Free standing Delineators

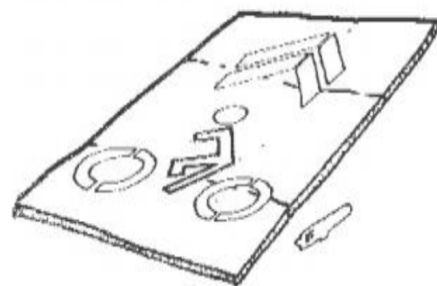


Fig 61: Hand-made stencil

*Source: Tactical Urbanism guide*

# FUNDING AND IMPLEMENTATION

## **VISION Arts:**

It awards funds to 501(c)(3) organizations to support efforts supporting art projects that promote economic growth in Tulsa.

The Tulsa Arts Commission and the City of Tulsa will publicize the announcement and application link via social media, and various arts partners. Prior to the application deadline, the Tulsa Arts Commission will provide three to four seminars to clarify the process and answer potential applicants' questions.

Tulsa Arts Commission was allocated \$2,250,000 over a 15-year cycle to provide yearly arts support, with a total of \$150,000 provided to approved groups each year.

The City will not fund:

1. Fundraising events.
2. Projects or organizations located outside of Tulsa's city limits.
3. Private events that are not open to the general public.
4. Capital outlays, such as real estate acquisition, maintenance, or renovation.
5. Political organizations or activities that advocate for a certain political party, candidate, or issue.

<https://tulsaplanning.org/programs/public-art-programs/vision-arts/>

## **Improve our Tulsa:**

After the \$918.7 million Improve Our Tulsa package, Tulsa voters passed the \$639 million Improve Our Tulsa 2 package in 2019. Tulsans will be able to vote on another Improve Our Tulsa plan in 2023, a four-year package that would support important upgrades to Tulsa's roadways, City buildings, as well as financing for Tulsa's critical housing needs. Mayor G.T. Bynum presented to the Tulsa City Council his Improve Our Tulsa proposal, a \$772 million package that will fund critical improvements to Tulsa's streets, City facilities, and equipment, as well as a \$104.2 million Tulsa Housing Initiative that will help fill a critical housing need in Tulsa.

Important Dates:

March 22, 2023 – Mayor Presents Proposal to Council

TBA April 2023 - Public Meetings

May 24, 2023 - Ballot Language Approval

August 8, 2023 - Election Date

Streets and Transportation: \$279.8 million

Street and bridge repair and rehabilitation projects, and street widening projects

City Facilities: \$249.4 million

Tulsa Performing Arts Center, Tulsa Parks, Public Safety Center, Tulsa Zoo, Citywide Facilities Maintenance, Cox Convention Center, and other projects get funding.

Capital Equipment: \$152.8 million

Tulsa Fire Department fleet, as well as other City vehicles and equipment such as police cars and snowplows.

<https://www.cityoftulsa.org/improve-our-tulsa/about-improve-our-tulsa/>



# FUNDING AND IMPLEMENTATION

## The Transportation Alternatives (TA)

STBG Program supports a wide range of smaller-scale transportation projects, including pedestrian and bicycle facilities, the construction of turnouts, overlooks, and viewing areas, community improvements such as historic preservation and vegetation management, environmental mitigation related to stormwater and habitat connectivity, recreational trails, safe routes to school projects, and vulnerable road projects. Granted length - 12 to 24 months.

Set-Aside Funds for Transportation Options for the Calendar Year

2022: \$1,383,540,438

2023: \$1,411,211,247

2024: \$1,439,435,472

2025: \$1,468,224,182

2026: \$1,497,588,662

Eligible entities:

1. A local government.
2. Regional transportation authority.
3. Transit agency.
4. Natural resource or public land agency.
5. School district, local education agency, or school.
6. Tribal government.
7. Metropolitan planning organization that serves an urbanized area with a population of 200,000 or fewer.
8. Nonprofit entity.
9. Any other local or regional governmental entity with responsibility for or oversight of transportation or recreational trails

[https://www.fhwa.dot.gov/environment/transportation\\_alternatives/guidance/ta\\_guidance\\_2022.pdf](https://www.fhwa.dot.gov/environment/transportation_alternatives/guidance/ta_guidance_2022.pdf)

<https://www.arts.gov/grants/grants-for-arts-projects/program-description>

## Community Development Block Grant Program (CDBG)

CDBG money can be utilized for a number of initiatives, the following are the most common: Acquisition, construction, and installation of public facilities and real property for public ownership and maintenance;

Water and wastewater system improvements;

Street improvements; Park development; Clearance, demolition and removal of buildings and improvements; Gas and electrical system improvements; Removal of architectural barriers which impede accessibility;

Storm water drainage improvements; and, General economic development

[https://www.incog.org//Community\\_Economic\\_Development/commdev\\_comdev.html#forms](https://www.incog.org//Community_Economic_Development/commdev_comdev.html#forms)

# FUNDING AND IMPLEMENTATION

## **National Endowment for the Arts:** Every year

The National Endowment for the Arts (NEA) allocates 40% of its funding to state arts agencies around the country each year.

Eligible candidates:

City or township governments

Nonprofits having a 501(c)(3) status with the IRS, other than institutions of higher education

County governments

Independent school districts

State governments

Public and State controlled institutions of higher education

Special district governments

Native American tribal governments (Federally recognized)

Private institutions of higher education

Applicants may receive cost-share/matching funds ranging from \$10,000 to \$100,000.

Approved local arts agencies eligible for subgrants may seek between \$30,000 and \$150,000 for sub-granting initiatives in the Local Arts Agencies' discipline.

## **SAFE STREETS AND ROADS FOR ALL (SS4A):**

Eligible entities:

- Metropolitan planning organizations;
- Counties, cities, towns, and other special districts that are subdivisions of a State;
- Federally recognized Tribal governments; and
- Partnerships comprised of the entities above.

Improving an extended multimodal network of redesigned highways with segregated bicycle lanes and increased pedestrian crossing safety elements.

Implementing low-cost safety measures including rumble strips, broader edge lines, flashing beacons, and improved signage along high-crash rural roads.

Carrying out speed management initiatives such as traffic calming road design adjustments and establishing suitable speed restrictions for all road users.

Adding safety features including better pedestrian crossings, sidewalks, and more lighting for those who walk, roll, or use mobility assistance equipment.

Tackling alcohol-impaired driving along important corridors through education, outreach, and weekend and holiday sobriety checkpoints.

Implementing adjustments to street design based on culturally competent education and community outreach.

A Notice of Funding Opportunity (NOFO) is expected in the spring of 2022, most likely around May. Awards are likely to be announced around the end of 2022 or early 2023.

\$5-6 billion - Implementation Grant Projects

<https://www.transportation.gov/grants/SS4A>



# FUNDING AND IMPLEMENTATION

## Rebuilding American Infrastructure with Sustainability and Equity

Eligible Applicants for RAISE grants are:

- a unit of local government;
- a public agency or publicly chartered authority established by 1 or more States;
- a special purpose district or public authority with a transportation function, including a port authority;
- a federally recognized Indian Tribe or a consortium of such Indian Tribes;
- a transit agency; and
- a multi-State or multi-jurisdictional group of entities that are separately eligible.

Capital projects including but not limited to:

- highway, bridge, or other road projects eligible under title 23, United States Code;
- public transportation projects eligible under Chapter 53 of Title 49, United States Code;
- passenger and freight rail transportation projects; any other surface transportation infrastructure project that the Secretary considers to be necessary to advance the goals of the program).

The minimum award for capital projects in metropolitan areas is \$5 million. There is no minimum award size for planning projects. The FY2023 Appropriations Act permits up to \$45 million in grant awards. Maximum only applies to the additional \$800 million. With the \$1.5 billion in BIL money, the maximum grant amount is \$25 million.

<https://www.transportation.gov/RAISEgrants/about>

**GKFF** collaborates directly with service providers to build community projects in areas of mutual interest. Program-specific application requirements vary based on the project. GKFF invests in opportunities that are related to its areas of focus, which include early childhood education, social assistance support, civic development projects, and community health programs.

<https://www.gkff.org/>

## Chapman

Applicants must first determine their eligibility by passing a brief eligibility assessment. Second, if you are eligible, fill out and submit the application. Lastly, the Foundation will analyze the submission and do background checks on the organization.

Arts & Culture

Performing Arts

Visual Arts

Civic & Community

Parks, Trails, and Community beautification efforts

Civic enhancement

Grants range from \$1,000 to \$10,000,000. If an application is turned down, the organization must wait at least twelve months from the date of the rejection letter before reapplying.

<https://chapmantrusts.org/about-chapman-foundation/>

# FUNDING AND IMPLEMENTATION

## **Bloomberg**

Supporting public and nonprofit efforts to implement effective road safety laws through funding and technical assistance

Supporting municipal and national governments in designing safer modes of transit, including mass transportation systems, walking infrastructure, and bike routes

Improving infrastructure projects by assessing high-risk roads and recommending safety improvements

<https://www.bloomberg.org/public-health/improving-road-safety/>

## **CIP**

The CIP serves as a guide to guarantee that the assets of the community continue to provide a suitable level of service to its people. The Capital Improvement Plan format follows to the Oklahoma Department of Commerce's criteria for CIPs and makes use of its inventory forms. The CIP is broken into three sections: a five-year timeline for asset upgrade or replacement, asset mapping, and asset classification into five community groups (administration, parks, public safety, streets, and utilities).

## **Tax Increment Finance (TIFS)**

The purpose of Tax Increment Finance (TIFS) funding is to incentivize and attract desired development within key commercial areas. TIF dollars can typically be used for infrastructure, streetscaping, public improvements, land assemblage, and offsetting the cost of development.

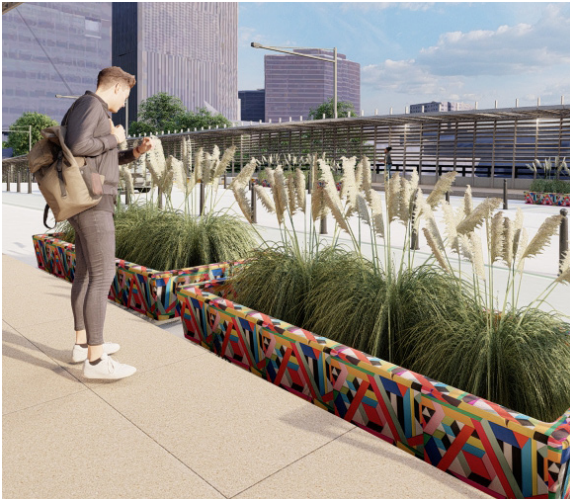
## **Existing Incentives-**

Economic Development Public Infrastructure Fund- The Economic Development Public Infrastructure Fund was established in 2013 as part of the Improve Our Tulsa package. The program provides funding to assist with public infrastructure needs that are related to business retention, expansion, and attraction. The fund includes \$6 million allocated over the life of the program.



## KIT OF PARTS

The design components that are repeated among the four overpasses are listed below in the Kit of parts.



Planters

The best options for the planters are fiberglass or recycled plastic because they are both lightweight, strong, and affordable. Sets of planters are positioned together to break up the continuous visual impression that shading devices create.



Bollards

Steel bollards have the advantage of durability in addition to aesthetic features. Because stainless steel has a high level of corrosion resistance, it can survive the corrosive effects of snow and rain. Additionally, this material is simple to maintain, which may lead to cheaper overall ownership expenses. There are placed along the bike lanes to protect from the cars.



Seating

Seating is provided at every second set of planters on both sides of the bridge. Users won't be pricked or burnt when sitting on these benches since they are composed of galvanized steel and have a thermoplastic surface.

## KIT OF PARTS



Lighting

To make the most of the lighting, it should be extended to the driving lanes. These streetlights are sufficiently tall, and their necks extend to the center of the street. Particularly on Cincinnati Avenue and Detroit Avenue, these are necessary. On Main Street, however, we may use typical, conventional light poles.



Way-finding and trash receptacles

Pictograms, maps, images, and language are all used in these signages to guide users to their intended destination. Many of these terms and symbols are universal, while others are influenced by local languages, cultures, and symbology. These are placed at the intersections where there's more human activity. And the trash receptacles would be made of metal and are screwed to the ground.



Soundscape elements

The Bridge's soundscape pieces are located in the center. These parts have a sturdy exterior to safeguard the inside technology. It is a simple component to make and requires relatively few resources. All of the electronics is kept within a chain of boxes; this was designed to be usable by everyone, whether they are on foot or wheels.



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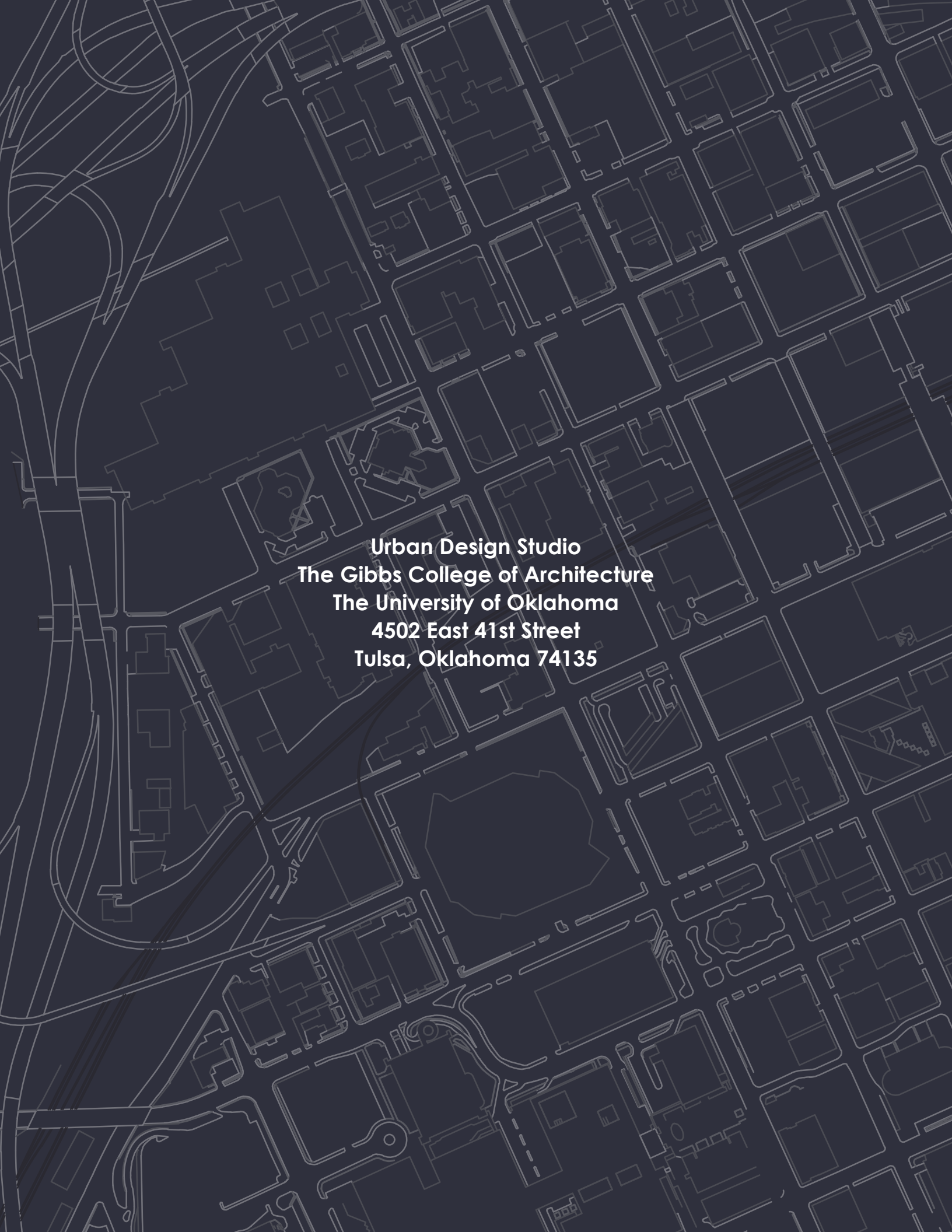
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