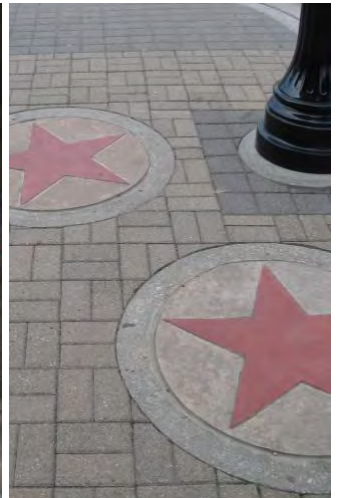


# The City of Tulsa

## DOWNTOWN STREETSCAPE MASTER PLAN



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City of Tulsa

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## INTRODUCTION

### Project Approach

The Downtown Tulsa Streetscape Master Plan summarizes the existing conditions, and important issues, and based on those items, identifies opportunities and constraints. The plan also provides direction for future design opportunities and gives a framework for annual budget spending. The study area for the master plan is described as all City of Tulsa public right-of-way located within the Tulsa Stadium Improvement District. This area is also defined as the area inside the limits of the Tulsa Inner Dispersal Loop.

The process was guided by the Streetscape Planning Subcommittee of the Downtown Coordinating Committee (DCC). The subcommittee is made up of city staff members, as well as citizens with varying backgrounds, that share a common interest in improvement the streetscapes of Downtown Tulsa. Throughout the development of the master plan the DCC subcommittee met with the landscape architects to receive progress updates and provide guidance and information.

This master plan project began with a general inventory and analysis of the entire study area. Based on the analysis of existing conditions, and the recommendations of the DCC, a list of streetscape master plan objectives was created to help guide the process of the project. Base maps were provided by the city planning department showing an inventory of existing streetscape trees and amenities. Existing master plans and project documents were gathered including the Downtown Tulsa Coordination and Linkage Master Plan, the Centennial Walk Master Plan, MTTA Downtown Streetscaping project, and the Brady Arts District Streetscape Summary Report draft. Once all of the recently completed streetscape projects had been identified, along with the future funded and master planned projects, the remaining areas were studied to determine additional potential future streetscape projects.

The existing projects were reviewed to help establish a set of streetscape design templates that can be used to guide the design of future streetscape projects. The templates allow the flexibility to implement unique streetscapes where desired or to simply provide street trees. Preliminary cost estimates were created from these designs to help for future project planning. In addition to new project construction, a list of maintenance items and costs was created.

The DCC provided estimated annual budget numbers to help determine a framework for all future spending. A balance of spending for new tree plantings,

## INTRODUCTION

impact area project installation, and routine maintenance was important to show the City of Tulsa and the DCC are making progress with the available funds, as well as taking care of the existing improvements.

The final step of the master plan was to create a list of policy recommendations that can be used for future streetscape development and maintenance.

### **Streetscape Master Plan Objectives**

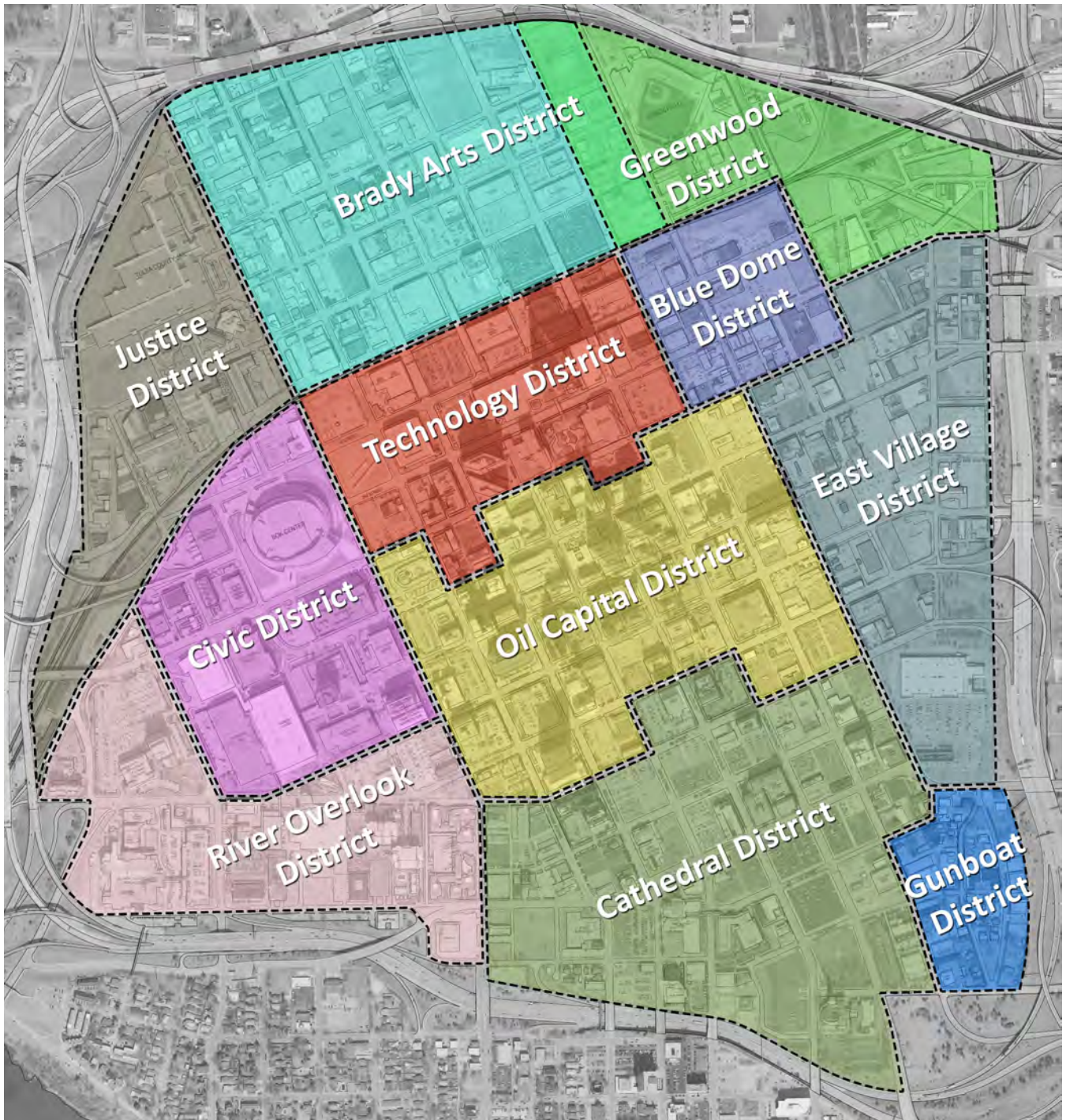
- Identify capital improvement project opportunities and priorities.
- Establish guidelines for streetscape improvements by property owners.
- Identify maintenance requirements and estimated annual cost structure.
- Develop irrigation guidelines.
- Develop tree species and planting standards.
- Provide lighting prototypes and guidelines.
- Identify existing streetscape features and amenities.

### **Study Area Planning Districts**

Various maps and master plans were studied including the Tulsa Downtown Area Master Plan, a map of Existing and Proposed National Historic Districts, Tax Increment Financing District maps, the City of Tulsa Master Wayfinding Program, and the City of Tulsa Vision 2025 plans. These resources were combined with input from the DCC committee members to define 11 planning districts within the study area. These districts provide a guide for future streetscape design projects.

## INTRODUCTION

### District Boundary



## EXISTING CONDITIONS

Most, if not all, of the significant streetscape improvements within the project area, have been implemented during the past 10 years. These existing projects along with funded projects make up the base from which to plan for future improvements.

Four categories of projects are included in the following table and illustration:

1. *Major Existing Streetscapes* - Typically these streetscape projects entailed replacement of walks, new trees, new lighting and furnishings.
2. *Funded Projects* - Projects which have been funded, either publicly or privately and are in the design, bidding or construction phases.
3. *Master Planned Projects* - Are projects for which planning has been accomplished but no funding is available or identified.
4. *Significant Existing Tree Plantings* - Within the study area there are segments of tree plantings that are in good condition and not in particular need of improvement. Typically these segments don't include special paving or other streetscape amenities found in the major streetscape projects.

The locations of parks, potential entry way improvements, planned entry way improvements, and parking lots are shown for reference.



## EXISTING CONDITIONS

Table 1 - Existing Streetscape Improvements

Project Name	General Location
<b>Major Existing Streetscape Projects</b>	
100 West Garage	One square block bounded by Boulder Avenue, 1st Street, Cheyenne Avenue, and 2nd Street
Archer Street	Archer Street (south side) - Detroit Avenue to Boston Avenue, Archer Street - Main Street to Boulder Avenue
Blue Dome	2nd Street - Detroit Avenue to Elgin Avenue, 2nd Street (south side) - half block completed east of Elgin Avenue, Elgin Avenue (west side) - 2nd Street to 1st Street, 1st Street (south side) - Detroit Avenue to Elgin Avenue
BOK	Perimeter of four block area bounded by 3rd Street, Denver Avenue, 1st Street and Frisco Avenue
Boston Avenue	Boston Avenue - 3rd Street to 7th Street
Brady Theater	Boulder Avenue - Brady Avenue to Cameron Street
Centennial Walk 1	3rd Street (north side) - Denver Avenue to Elgin Avenue, 4th Street (south side) - Boulder Avenue to Cincinnati Avenue, 3rd Street (south side) - Detroit Avenue to Elgin Avenue, Elgin Avenue - 2nd Street to 3rd Street
Centennial Walk 2	6th Street - Main Street to Boston Avenue, Main Street - 6th Street to 7th Street
Greenwood Business District	Greenwood Avenue - north of Archer Street to IDL
John Hope Franklin Park	Elgin Avenue (west side) - north of Cameron Street, Detroit Avenue (east side) - north of Cameron Street
Main Street, Phase One	Main Street - 3rd to 4th Streets
Main Street, Phase Two	Main Street - 4th to 6th Streets
MTTA	3rd Street (south side) - Denver Avenue to Detroit Avenue, 4th Street (north side) - Denver Avenue to Detroit Avenue, Cheyenne Avenue - 3rd Street to 4th Street, Boulder Avenue - 3rd Street to 4th Street, Cincinnati Avenue - 3rd Street to 4th Street, Detroit Avenue (west side) - 3rd Street to 4th Street
ONEOK Stadium	Elgin Avenue (east side) - north of Archer Street to IDL, Archer Street (north side) - Elgin Avenue to Greenwood Avenue
TCC Center for Creativity	Boston Avenue (west side) - 9th Street to 10th Street, 9th Street (south side) - half block completed west of Boston Avenue toward Main Street
Williams Cos., Phase One	1st Street - Detroit Avenue to Cincinnati Avenue, 2nd Street - Cincinnati Avenue to Boston Avenue, Cincinnati Avenue - 1st Street to 2nd Street
Williams Cos., Phase Two	2nd Street - Boston Avenue to Boulder Avenue
Williams Cos., Phase Three	Boulder Avenue (east side) - 2nd Street to 1st Street, 1st Street (south side) - Boulder Avenue to Cincinnati Avenue

## EXISTING CONDITIONS

Table 1 continued - Existing Streetscape

Project Name	General Location
<b>Funded Projects</b>	
Boulder Bridge	Boulder Avenue Bridge - Archer Street to 1st Street
Brady Street (Kaiser Foundation)	Brady Street - Boston Avenue to Elgin Avenue, Elgin Avenue - Archer Street to Railroad Tracks, Boston Avenue - Cameron Street to Brady Street, Boston Avenue (east side) - Brady Street to Archer Street, Cincinnati Avenue - Cameron Street to Archer Street, Archer Street (north side) - Boston Avenue to Cincinnati Avenue, Cameron Street (south side) - Boston Avenue to Cincinnati Avenue
KOTV Studios	Boston Avenue (east side) - remaining portion north of Cameron Street, Cincinnati Avenue (west side) - remaining portion north of Cameron Street
10th Street and Elgin Avenue	10th Street and 11th Street - Detroit Avenue to Elgin Avenue, Elgin Avenue - half block north of 11th Street
Fairfield Inn	Main Street (east side) - Brady Street to Archer Street, Brady Street (south side) - half block east of Main Street, Archer Street (north side) - half block east of Main Street
Tribune Lofts 2	Main Street (east side) - Archer Street to Railroad Tracks, Archer Street (south side) - half block east of Main Street
Brady Townhouse Project	Boston Avenue (west side) - half block north of Archer Street, Archer Street (north side) - half block west of Boston Avenue
Riverbend Gardens Apartments	Portion of 11th Street between South Houston Avenue and South Denver Avenue
<b>Master Planned/Unfunded Projects</b>	
Centennial Walk	1st Street (north side) - Boulder Avenue to Cincinnati Avenue, Boulder Avenue (east side) - 2nd Street to 3rd Street, Boulder Avenue - 4th Street to 5th Street, 5th Street - Cheyenne Avenue to one half block east of Boulder Avenue, and Boston Avenue to Cincinnati Avenue, Cincinnati Avenue - 4th Street to 5th Street
Route 66	10th Street - Detroit Avenue west to IDL
TCC Campus	Approximately one-half block in all directions from the intersection of 9th Street and Boston Avenue

## EXISTING CONDITIONS

### Existing Streetscape



## STREETSCAPE PROJECT RECOMMENDATIONS

This master plan addresses two levels of recommendations. The first is determining the overall streetscape needs for the study area to facilitate the selection of capital improvement projects through sales tax and bond issue sources when those become available. The second is to provide a resource for use by the DCC in determining the best use of funds that are available for both improvements and maintenance.

Based on an analysis of existing streetscape conditions, primary facilities, and vehicular routes through the study area a list of various key projects were identified within the study area. The various project types are:

1. Extensive Scope Streetscape Projects - This type of project is primarily limited to streetscape projects being installed with new developments and completion of currently master planned projects. These projects include tree plantings with irrigation, decorative paving, street lighting, decorative pedestrian lighting, benches, trash receptacles and bike racks.
2. Limited Scope Streetscape Projects - Project locations and extent were selected based on areas having the highest traffic usage and visibility. The primary component of these projects is tree plantings with irrigation. The preliminary budget estimates also include sidewalk repair and replacement for up to 15% of each block. This can be used to fix areas that are no longer ADA accessible. If more pavement needs to be replaced to provide an accessible walking surface it is recommended that City of Tulsa maintenance funds be pursued. Several corridors were designated as "Impact Streets" which would be planted with one particular type of tree having a particular unique visual characteristic such as attractive flowers or good fall color. The locations of these streets are shown in the "Impact Streets" illustration.
3. Entry Area Landscape Improvements - Six areas have been identified on the plan for decorative landscaping that could serve as an entry feature to downtown. In addition to being more frequently traveled, these areas have more right-of-way space available for additional landscaping. The design concept for these entries is a flowing planting design that combines ornamental grasses with flowering perennials. In order to reduce maintenance costs, annual plantings were not included in the design. A row of decorative poles with colorful banners would serve as a backdrop to the planting areas and provide a dynamic element movement to the design on windy days. The following pages show design concepts for each of these entry areas.



## STREETSCAPE PROJECT RECOMMENDATIONS

4. **Parking Lot Edges** - All parking lots that are a quarter-block or larger have been identified as areas needing edge screening treatment. Two levels of proposed parking lot screening are shown depending on the amount of screening desired and funding availability. The minimum level consists of tree plantings with irrigation. Trees along parking lot edges would be planted at a closer spacing than other streetscape projects. The second level of screening adds either a low decorative fence with plant materials or a low wall system constructed of precast concrete panels. Both of these options add a significant amount of screening but also significantly increase the cost of construction per block face. Examples of these screening options are shown in this section.
5. **Boston Avenue Pedestrian Bridge** - Landscape improvements are proposed for this important pedestrian passageway. A design concept for this location is shown in this section.

### Streetscape Project Cost Estimates

Cost estimates for the various streetscape projects were calculated differently depending on the type of project. For master planned projects such as the completion of Centennial Walk and Route 66, costs were calculated based on construction bids from previously completed phases. The Brady Arts District streetscape costs were based on estimates provided by the project managers and engineers currently working on the various streetscape design projects in the district. The remaining streetscape project costs were figured by using an average cost per tree planting with irrigation and repairing or replacing up to 15% of the existing sidewalk. For this cost estimate, all parking lot edges that are located along a street identified as a potential streetscape project include costs for the additional level of screening. All other parking lot edges are calculated using only tree plantings with irrigation and minor pavement repair or replacement.

Costs for entry landscape improvement areas and the Boston Avenue pedestrian bridge were calculated based on the amount of plant materials, planting bed preparation and edging, irrigation, and banners shown in the design concept.

All of the proposed project cost estimates are shown at the conclusion of this section.

## STREETSCAPE PROJECT RECOMMENDATIONS

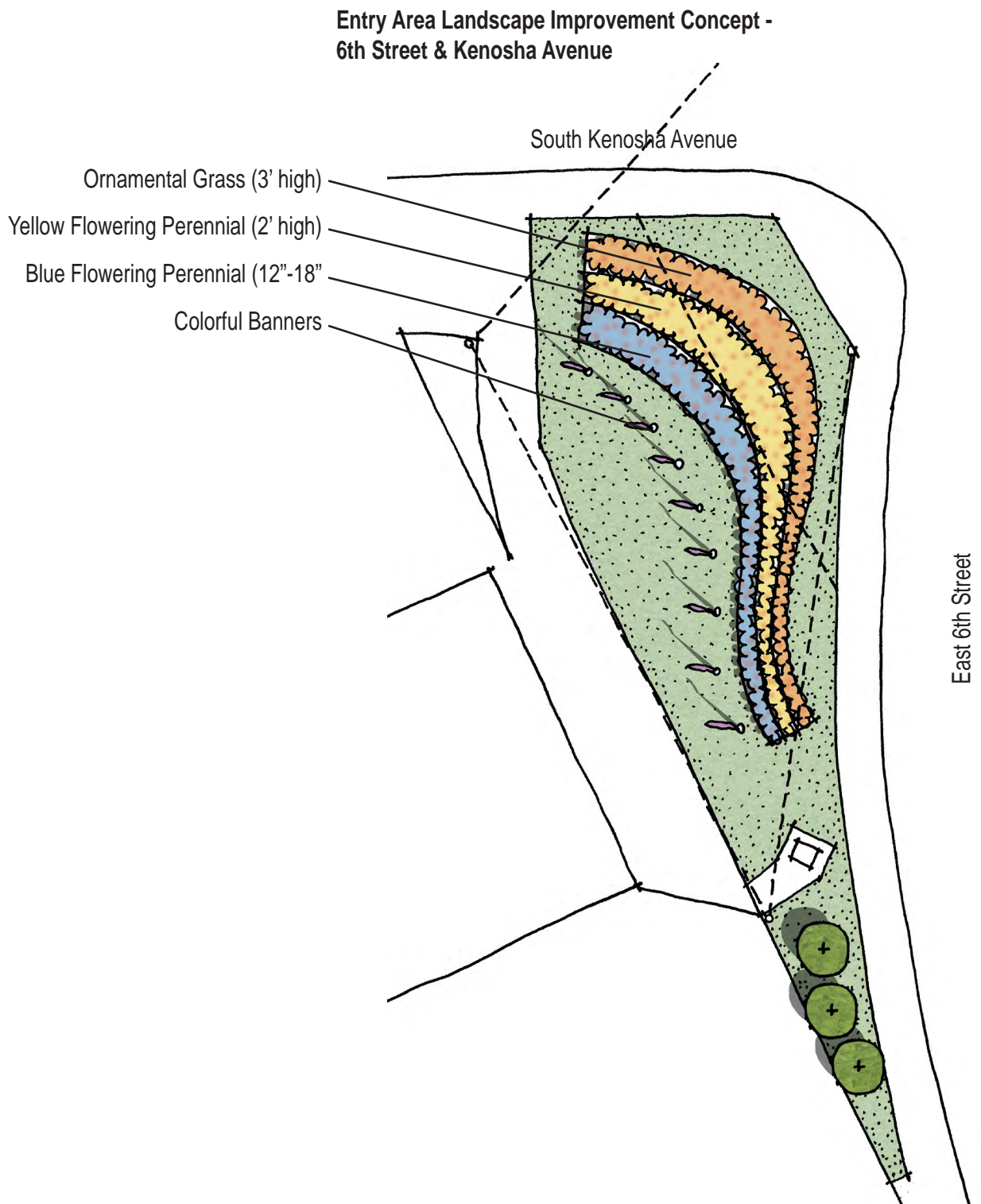


**Limited Scope Streetscape Improvement Project -  
Before Improvements (South Detroit Avenue - Looking North)**



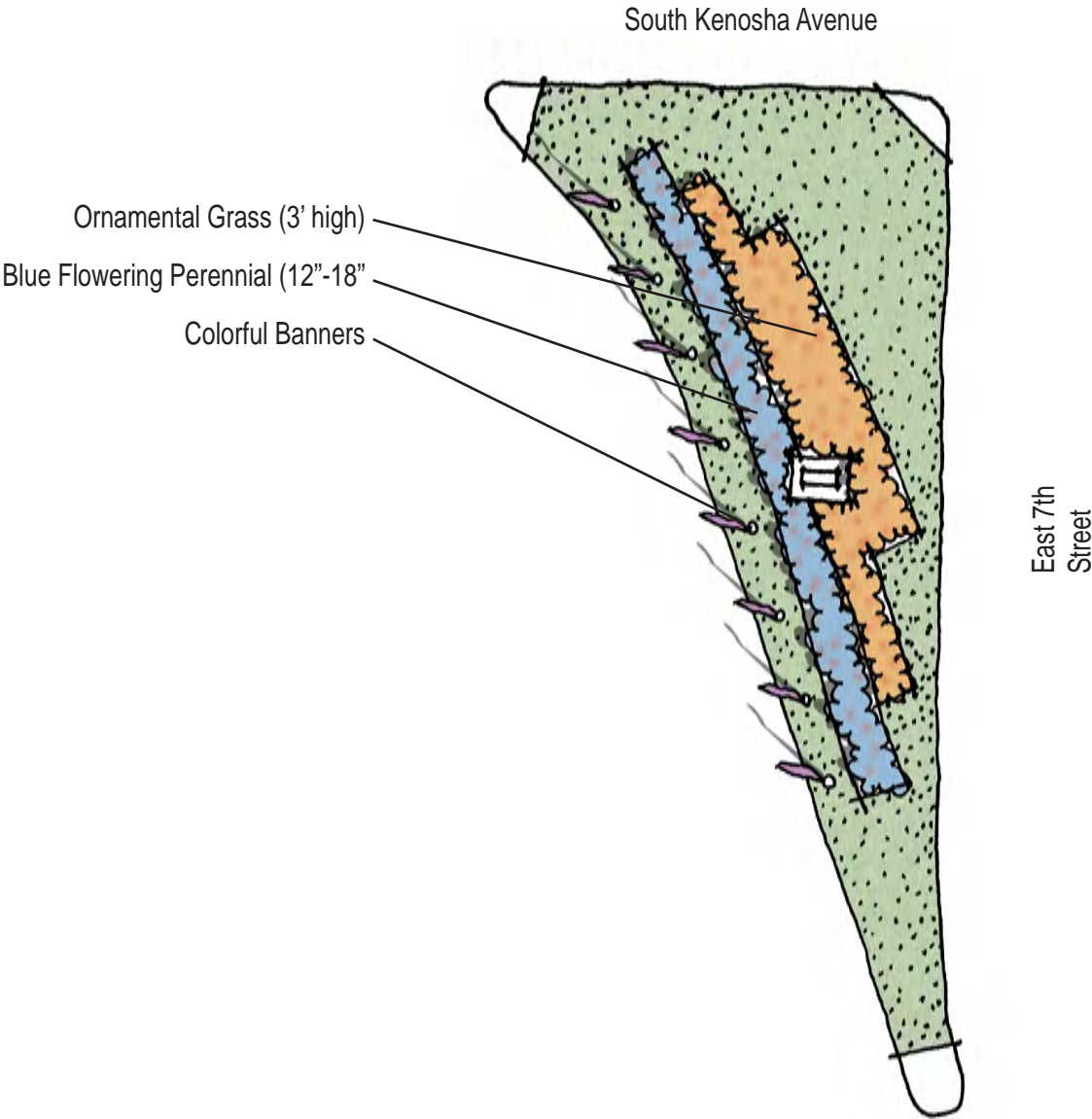
**Limited Scope Streetscape Improvement Project -  
After Improvements (South Detroit Avenue - Looking North)**

## STREETSCAPE PROJECT RECOMMENDATIONS



STREETSCAPE PROJECT RECOMMENDATIONS

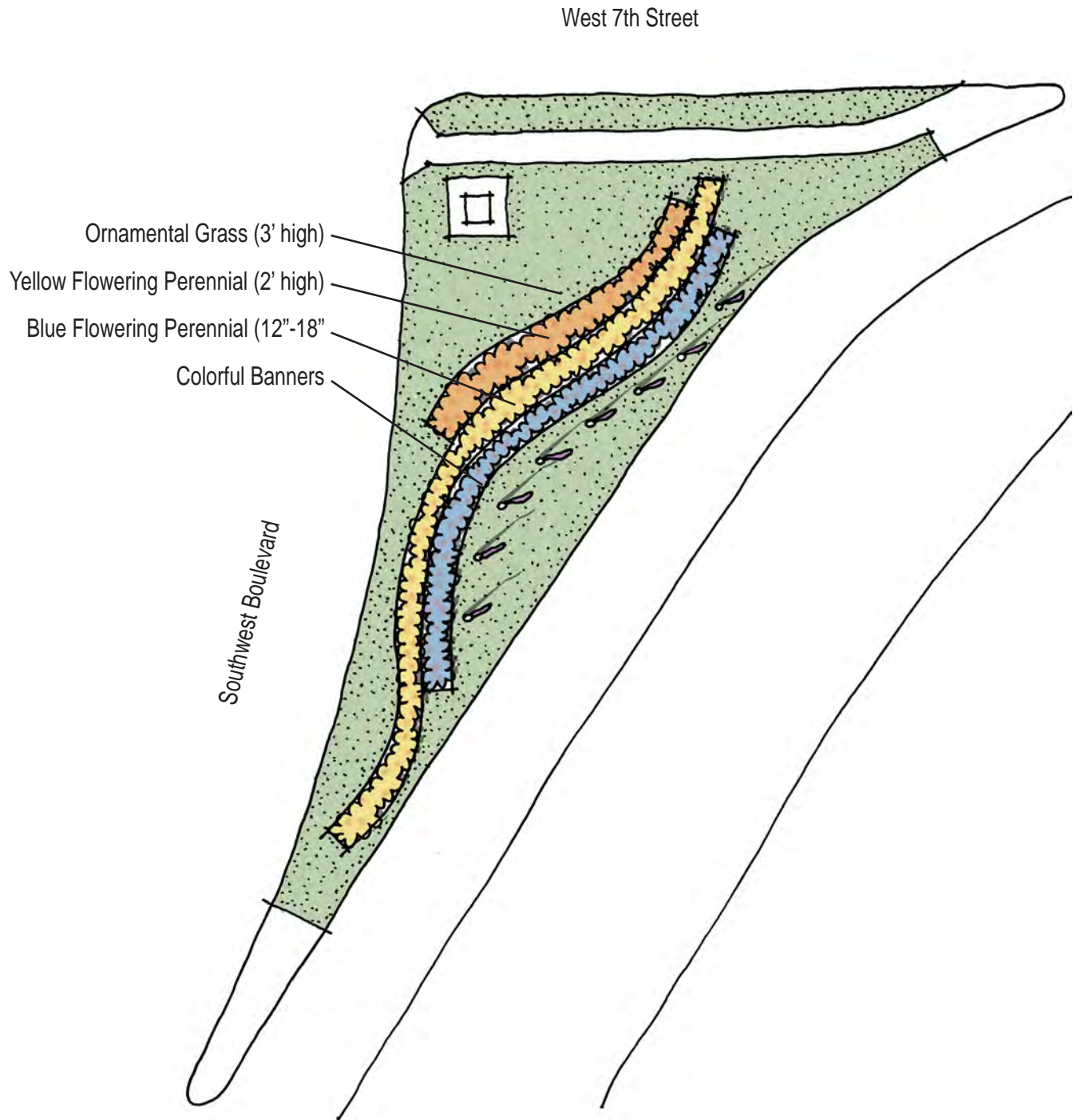
Entry Area Landscape Improvement Concept -  
7th Street & Kenosha Avenue





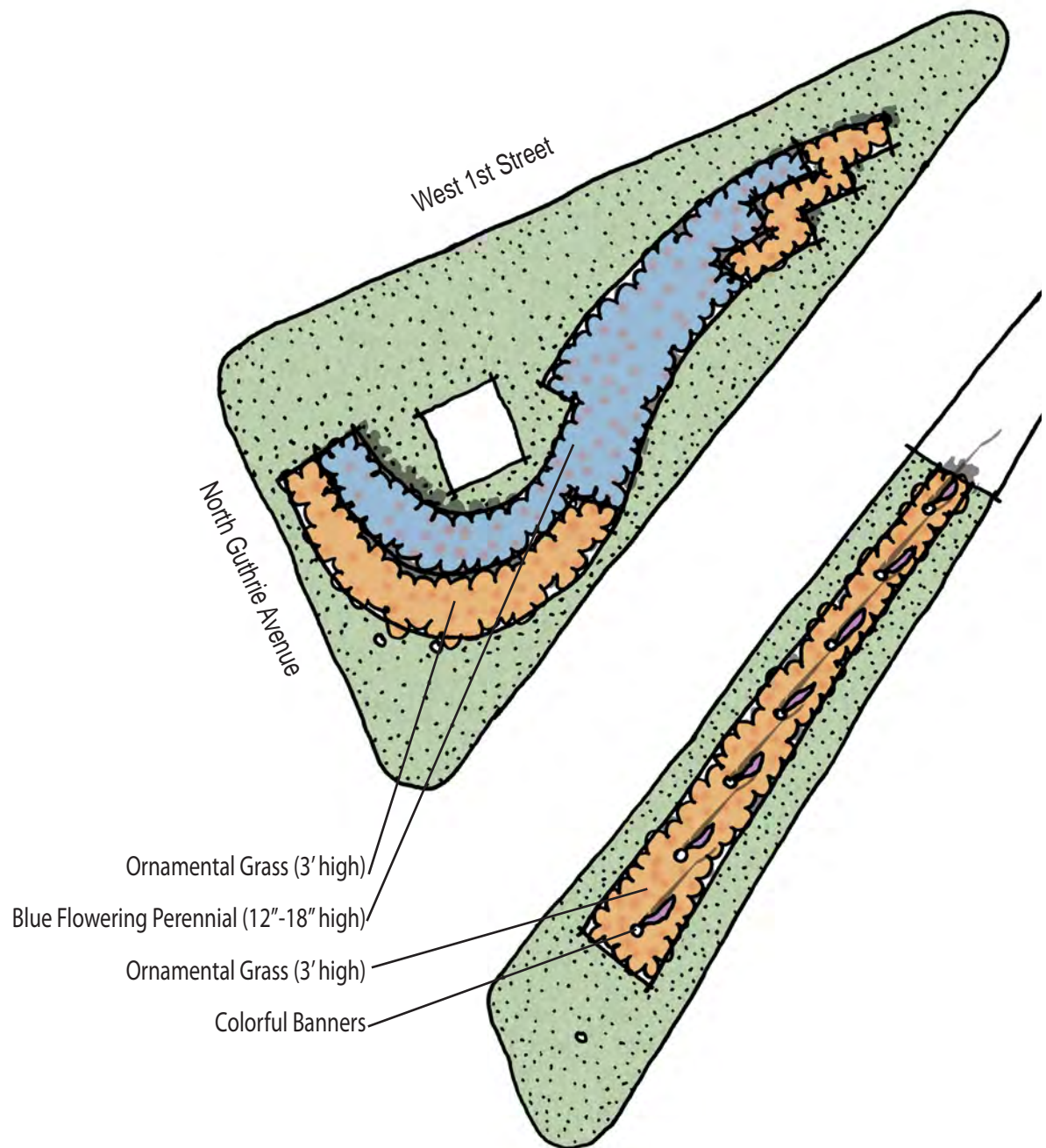
## STREETSCAPE PROJECT RECOMMENDATIONS

### Entry Area Landscape Improvement Concept - 7th Street & Southwest Boulevard



## STREETSCAPE PROJECT RECOMMENDATIONS

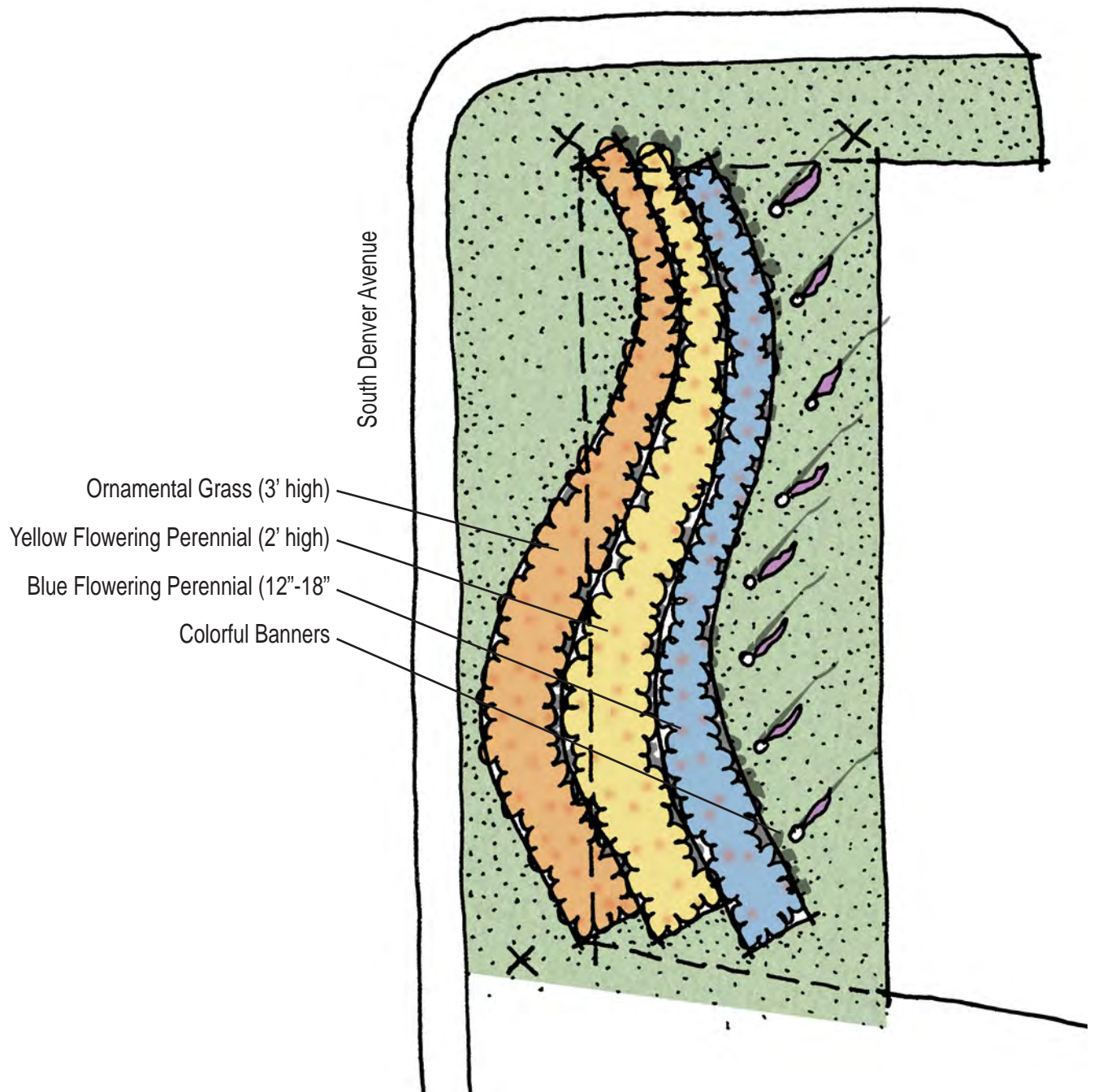
### Entry Area Landscape Improvement Concept - 1st Street & Guthrie Avenue



## STREETSCAPE PROJECT RECOMMENDATIONS

### Entry Area Landscape Improvement Concept - 12th Street & Denver Avenue

West 12th Street





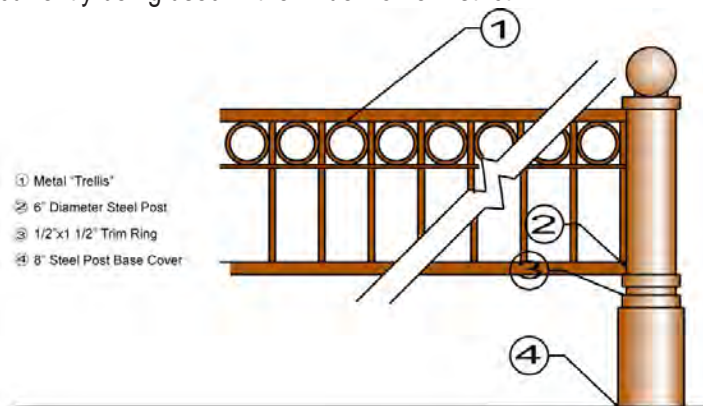
## STREETSCAPE PROJECT RECOMMENDATIONS



Decorative Fence Screening in Blue Dome

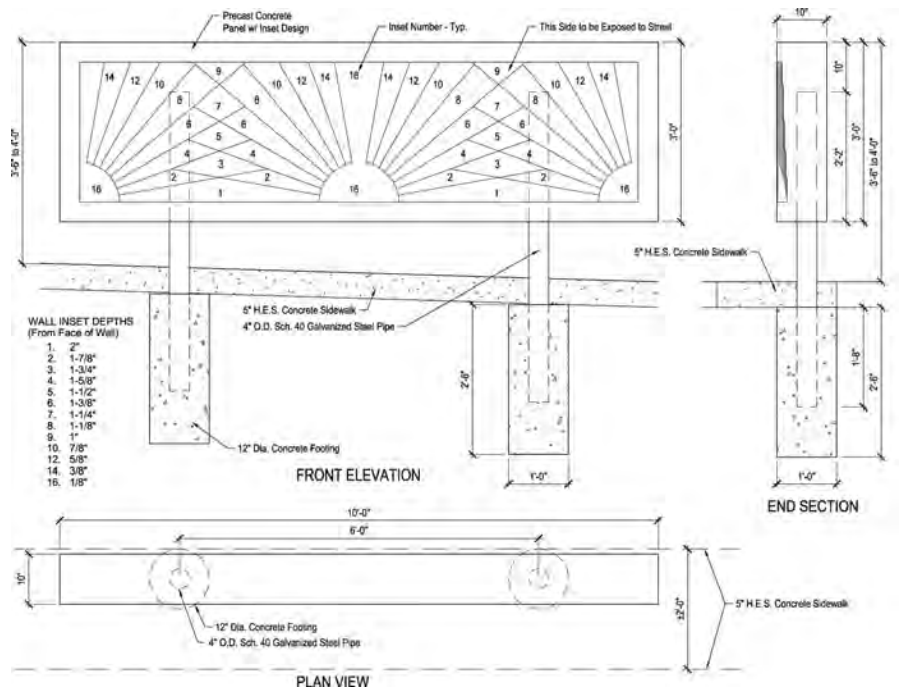
### Parking Lot Screening Technique #1:

**Decorative Fence** In the example below a short decorative metal fence would be accompanied by a small strip of plantable area below it. this style of fence is currently being used in the Blue Dome District.



### Parking Lot Screening Technique #2: Precast Concrete Panels

The precast concrete panels range in height from 3'-6\"/>





## STREETSCAPE PROJECT RECOMMENDATIONS



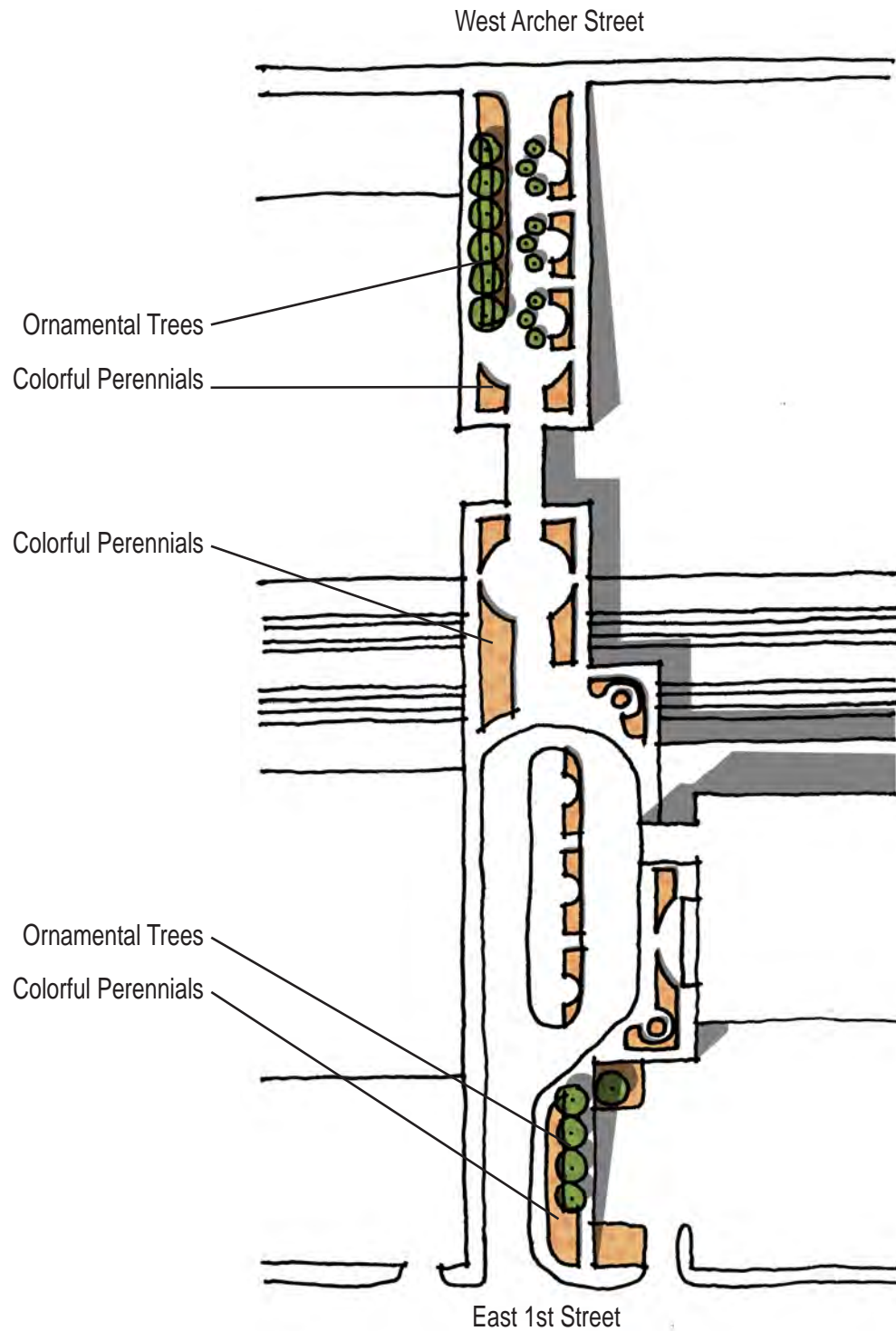
**Parking Lot Screening Improvement Project -  
Before Improvements (2nd Street & Cincinnati Avenue - Looking Southeast)**



**Parking Lot Screening Improvement Project -  
After Improvements (2nd Street & Cincinnati Avenue - Looking Southeast)**

## STREETSCAPE PROJECT RECOMMENDATIONS

### Landscape Improvement Concept - Boston Avenue Pedestrian Bridge







## STREETSCAPE PROJECT RECOMMENDATIONS

Table 2: Streetscape Project Cost Estimate

<b>Extensive Streetscape Projects</b>	<b>Length (LF)</b>	<b>Total Project Cost</b>
Centennial Walk Completion	3,750	\$2,437,500
Route 66	4,800	\$2,640,000
Brady District Streetscapes	5,400	\$2,970,000
<b>Total</b>		<b>\$8,047,500</b>

*Note: Limited Streetscape Project cost estimates include funding for 15% of existing pavement replacement. Funding for additional parking lot precast wall panel shielding is included for all parking lots located within these project boundaries.*

<b>Limited Streetscape Projects</b>	<b>Length (LF)</b>	<b>Total Project Cost*</b>
Detroit Avenue	8,520	\$1,048,048
Denver Avenue	9,280	\$1,020,596
Elgin Avenue	900	\$94,268
1st Street	3,800	\$404,524
6th Street	10,275	\$919,668
2nd Street	3,200	\$404,524
Archer Avenue Sports Connection	5,340	\$446,108
3rd Street & Houston Avenue	4,200	\$446,108
Cincinnati Avenue	1,050	\$46,024
East Village Boundary	2,100	\$262,012
<b>Total</b>		<b>\$5,091,880</b>

\*Including wall shielding for all parking lots located within project

*Note: Remaining parking lot edges do not include funding for additional shielding. These costs are only for trees, irrigation, and 15% of existing pavement replacement.*

<b>Parking Lot Screening**</b>	<b>Length (LF)</b>	<b>Total Project Cost</b>
Parking Lot Screening (no shield)	20,100	<b>\$1,907,892</b>
Parking Lot Screening (wall shield)	19,200	\$4,922,892
Parking Lot Screening (fence shield)	19,200	\$3,262,464

\*\*Remaining parking lots not included in previously identified projects

<b>Entry &amp; Special Area Landscaping</b>	<b>Total Project Cost</b>
6th Street & Kenosha Avenue	\$24,843
7th Street & Kenosha Avenue	\$14,090
7th Street & Southwest Boulevard	\$25,904
1st Street & Guthrie Avenue	\$28,346
12th Street & Denver Avenue	\$43,381
Boston Avenue Pedestrian Bridge	\$89,910
<b>Total</b>	<b>\$226,474</b>

**Streetscape Projects Grand Total** **\$15,273,746**

STREETSCAPE PROJECT RECOMMENDATIONS



## STREETSCAPE DESIGN TEMPLATES

The design of a particular block of streetscape will vary within the different districts of the study area. Some of these streetscape designs are based on previously completed projects such as the Blue Dome District and the design for Centennial Walk within the Technology District and Oil Capital Districts. The Route 66 design is a variation of previous Route 66 streetscape projects.

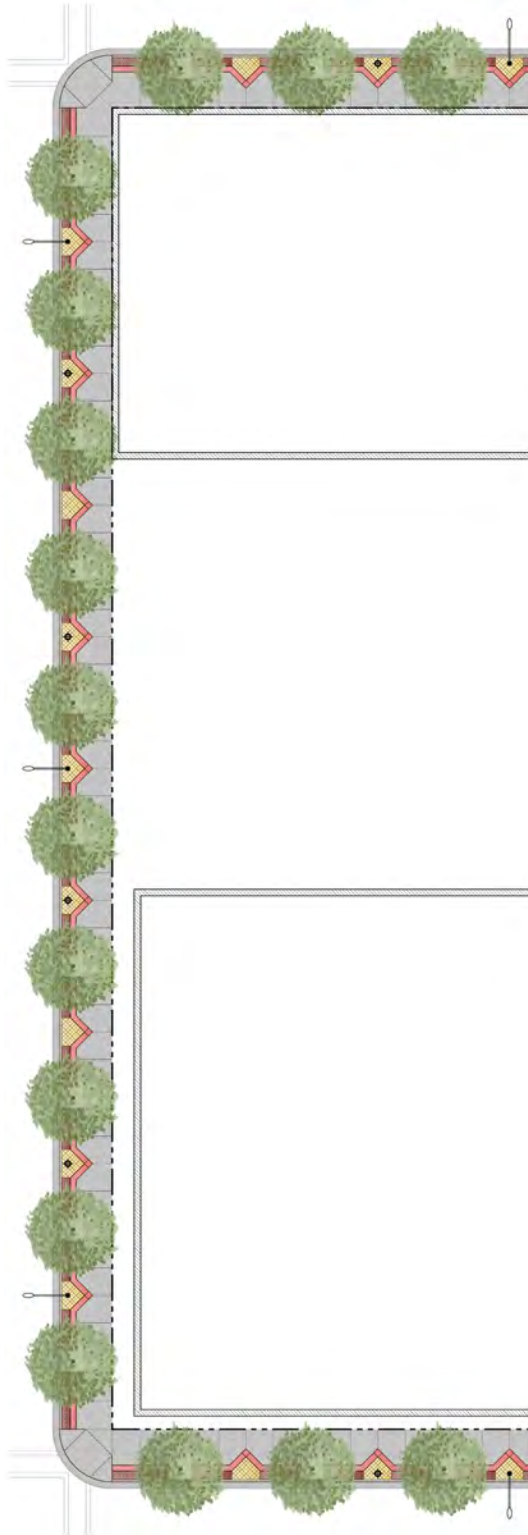
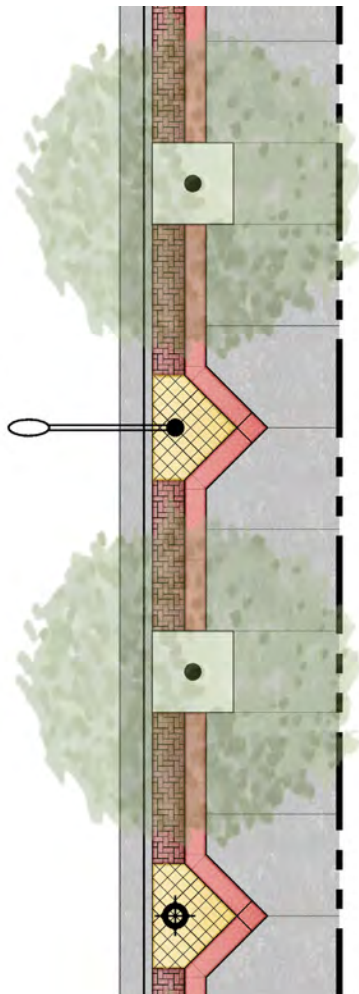
The streetscape designs for the Brady Arts District were developed for various projects in the district including ONEOK Field, John Hope Franklin Memorial Park, and Brady Square. There are several options for streetscapes within the Brady Arts District depending on the project budget and the opportunity for on-street parking. Level A designs use brick pavers for the entire sidewalk area. Level B designs use brick paver accent strips and the remainder of the sidewalk is concrete. Level C designs use concrete sidewalks only. Tree grates are used for plantings adjacent to parallel parking or no on-street parking. Landscaped islands for trees are used in areas where on-street angle parking is used. These various combinations give property owners a variety of streetscape options to choose from.

The final streetscape design templates can be used within any of the districts. The parking lot edge design should be used in all locations where an entire block face of parking needs to be screened. This design has the tightest spacing of trees and has room to incorporate a short screen fence or precast panels to block views into the parking lot while still providing room for pedestrians to travel through the lot. The limited scope streetscape template provides a design that can be used for any streetscape within the study area. This design can be used on projects that include full pavement replacement or it can be used on existing sidewalks for adding tree wells. The tree lawn design can be used for projects where less pavement and more landscape area is desired.

## STREETSCAPE DESIGN TEMPLATES

### *BLUE DOME DISTRICT*

- Street trees planted at 30' on center in 5'x5' square planters.
- Decorative pedestrian lights at 60' on center.
- 2-3 overhead vehicular lights per block face.
- 2' wide concrete paver band and 1' wide colored concrete band abuts back of curb.
- Special Route 66 or Centennial Walk pavers can easily be incorporated into the design at the peak of the 1' wide concrete band.

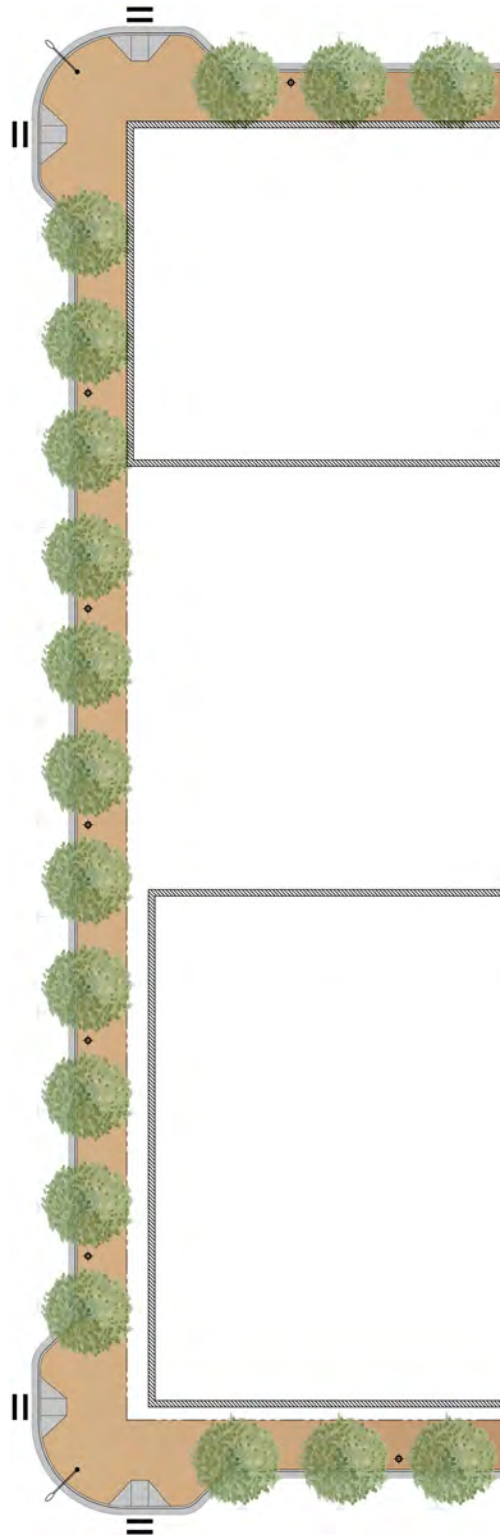
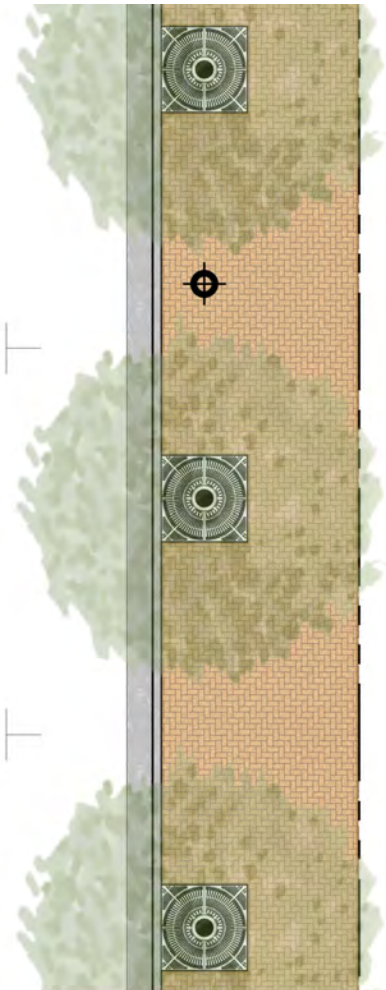




## STREETSCAPE DESIGN TEMPLATES

### *BRADY ARTS DISTRICT - LEVEL A W/ PARALLEL PARKING*

- Street trees planted at 25' on center in 5'x5' square planters with tree grates.
- Decorative pedestrian lights at 50' on center.
- 1 overhead vehicular light at each block corner.
- Brick paving on entire sidewalk.
- On-street parking shall meet all city requirements.

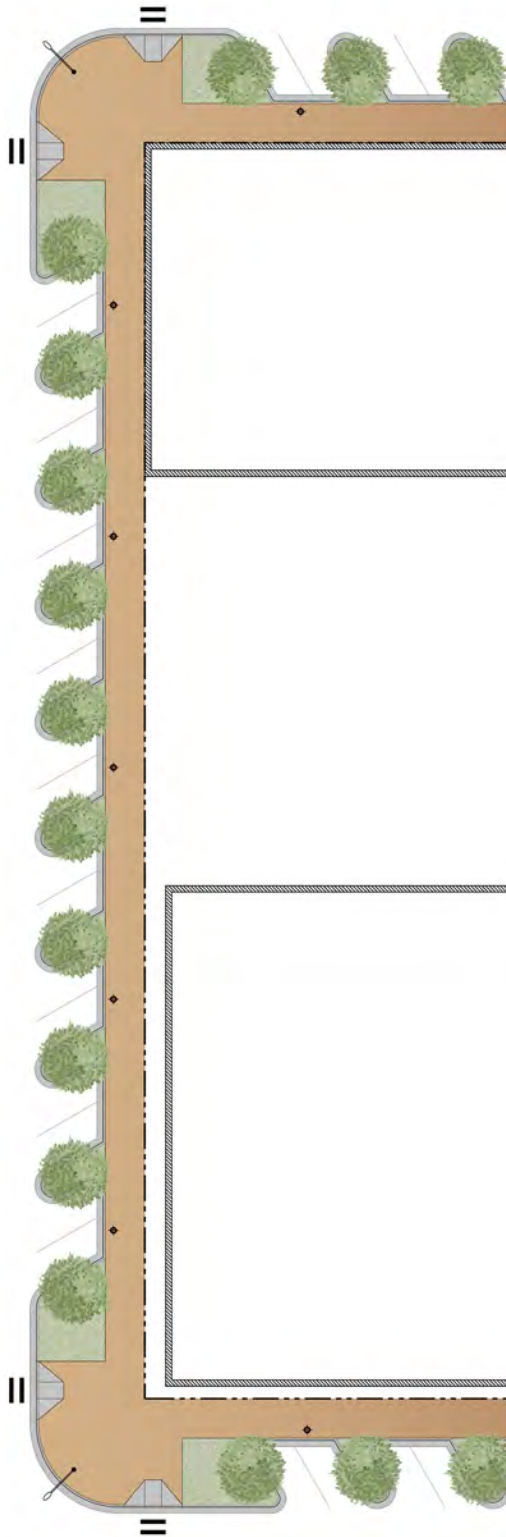
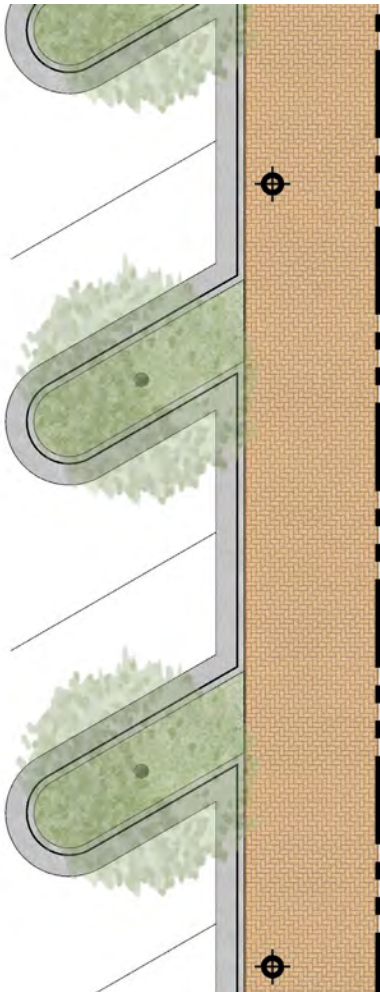




## STREETSCAPE DESIGN TEMPLATES

### *BRADY ARTS DISTRICT - LEVEL A W/ 60 DEGREE ANGLE PARKING*

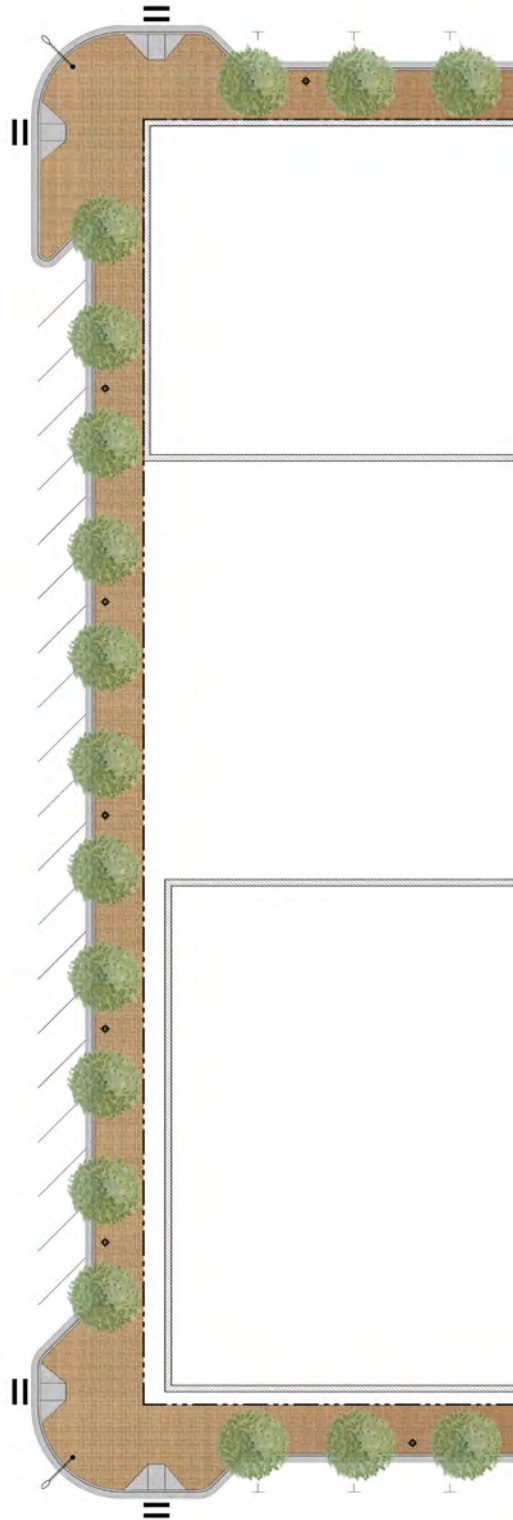
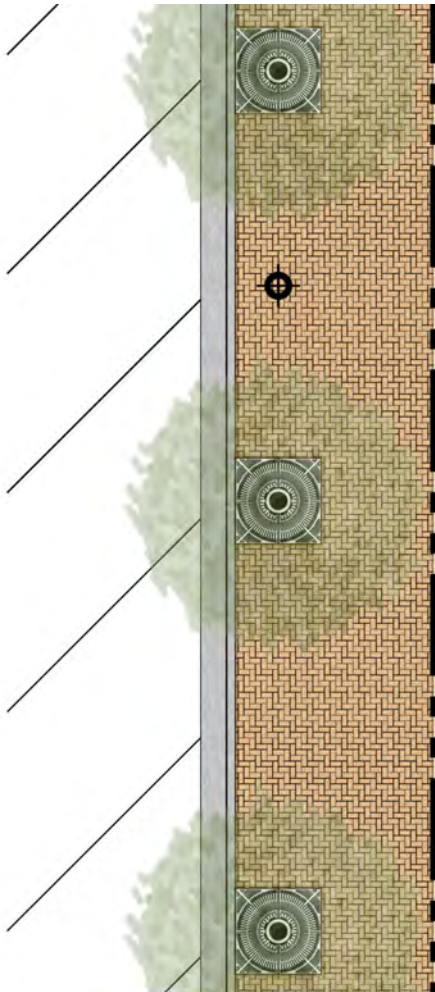
- 2 angle parking stalls per bay with 6' wide landscape island separating bays.
- Street trees planted in landscape islands (approximately 27' on center).
- Decorative pedestrian lights at 55' on center.
- 1 overhead vehicular light at each block corner.
- Brick paving on entire sidewalk.
- On-street parking shall meet all city requirements.



## STREETSCAPE DESIGN TEMPLATES

### *BRADY ARTS DISTRICT - LEVEL A W/ 45 DEGREE ANGLE PARKING*

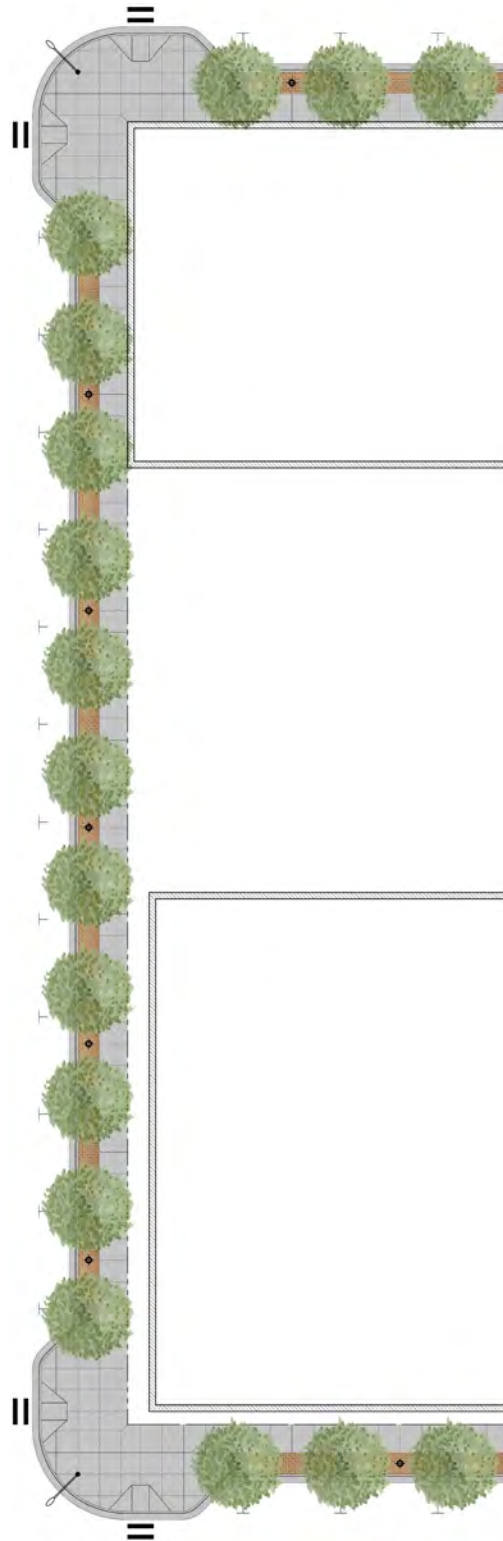
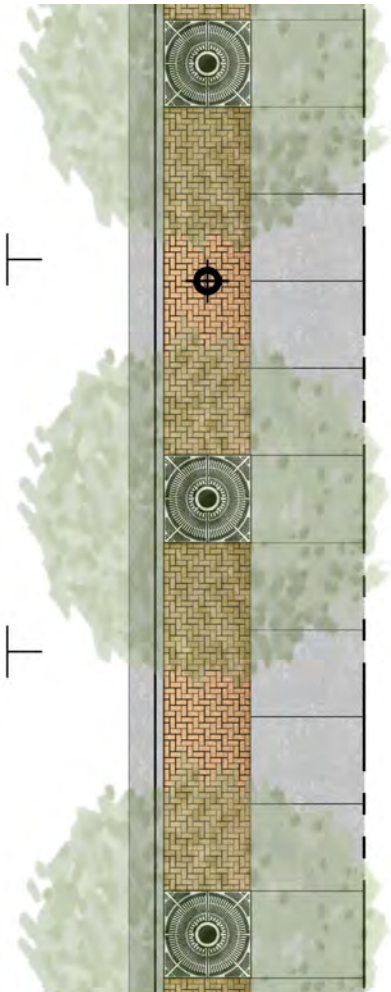
- Street trees planted at 25' on center in 5'x5' square planters with tree grates.
- Decorative pedestrian lights at 50' on center.
- 1 overhead vehicular light at each block corner.
- Brick paving on entire sidewalk.
- On-street parking shall meet all city requirements.



## STREETSCAPE DESIGN TEMPLATES

### *BRADY ARTS DISTRICT - LEVEL B W/ PARALLEL PARKING*

- Street trees planted at 25' on center in 5'x5' square planters with tree grates.
- Decorative pedestrian lights at 50' on center.
- 1 overhead vehicular light at each block corner.
- 5' wide brick paver strip adjacent to back of curb, aligned with tree grates.
- Concrete paving for remainder of sidewalk.
- On-street parking shall meet all city requirements.

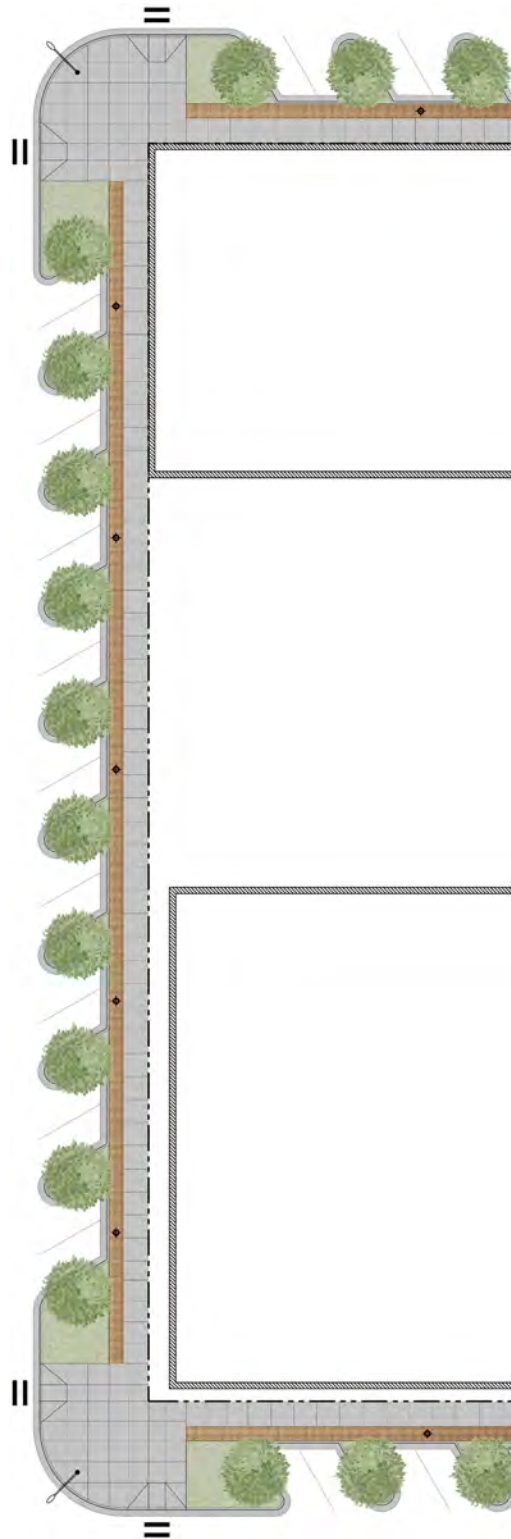
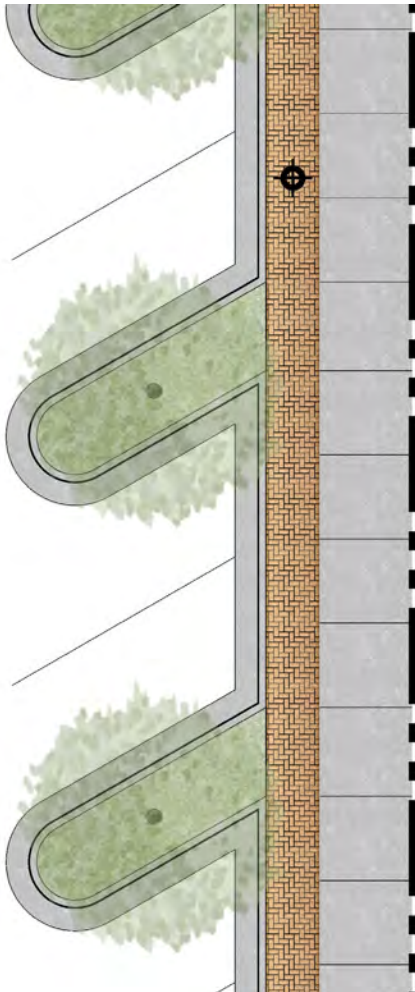




## STREETSCAPE DESIGN TEMPLATES

### *BRADY ARTS DISTRICT - LEVEL B W/ 60 DEGREE ANGLE PARKING*

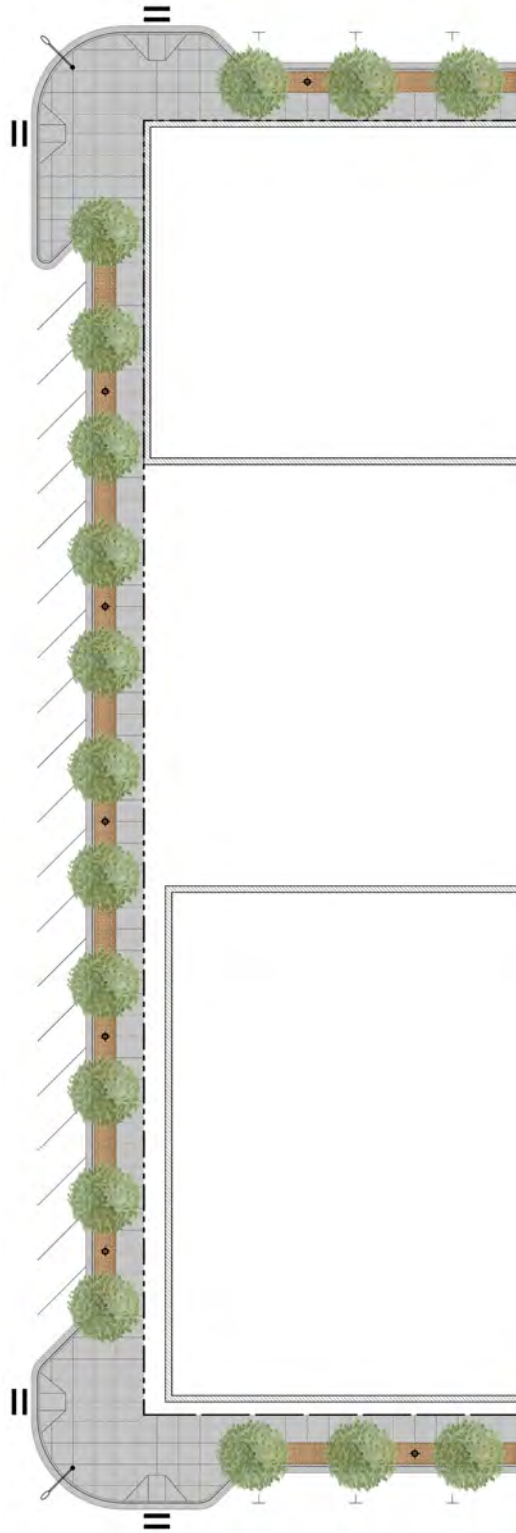
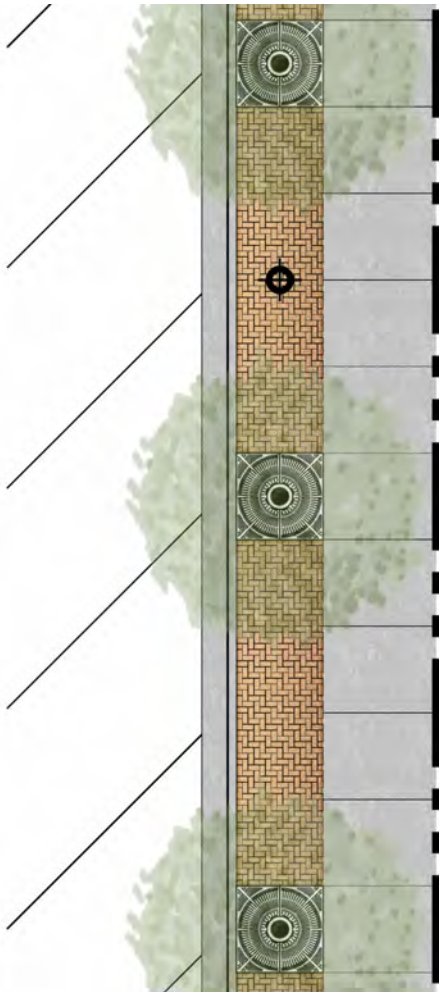
- 2 angle parking stalls per bay with 6' wide landscape island separating bays.
- Street trees planted in landscape islands (approximately 27' on center).
- Decorative pedestrian lights at 55' on center.
- 1 overhead vehicular light at each block corner.
- 3'-6" wide brick paver strip adjacent to back of curb.
- Concrete paving for remainder of sidewalk.
- On-street parking shall meet all city requirements.



## STREETSCAPE DESIGN TEMPLATES

### *BRADY ARTS DISTRICT - LEVEL B W/ 45 DEGREE ANGLE PARKING*

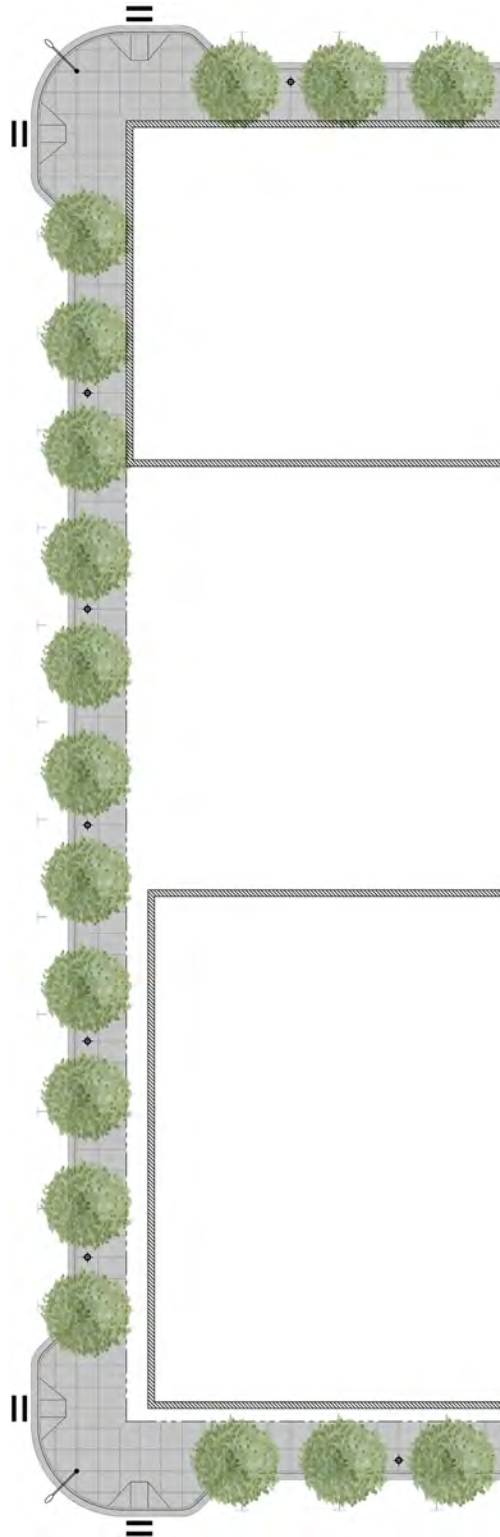
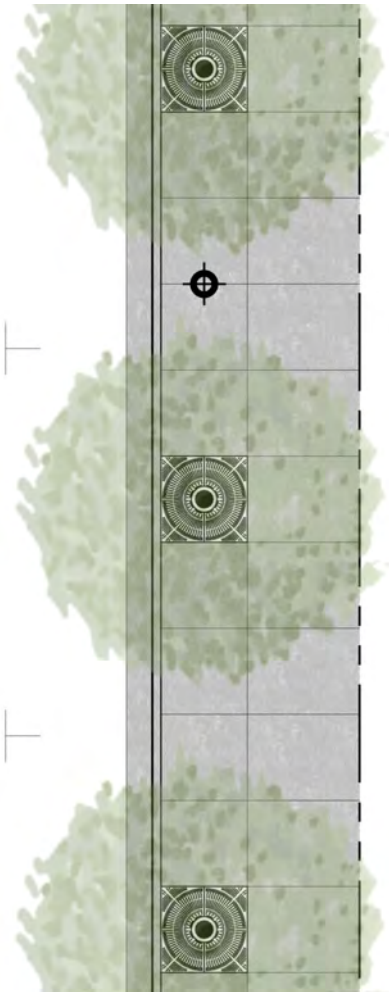
- Street trees planted at 25' on center in 5'x5' square planters with tree grates.
- Decorative pedestrian lights at 50' on center.
- 1 overhead vehicular light at each block corner.
- 5' wide brick paver strip adjacent to back of curb, aligned with tree grates.
- Concrete paving for remainder of sidewalk.
- On-street parking shall meet all city requirements.



## STREETSCAPE DESIGN TEMPLATES

### *BRADY ARTS DISTRICT - LEVEL C W/ PARALLEL PARKING*

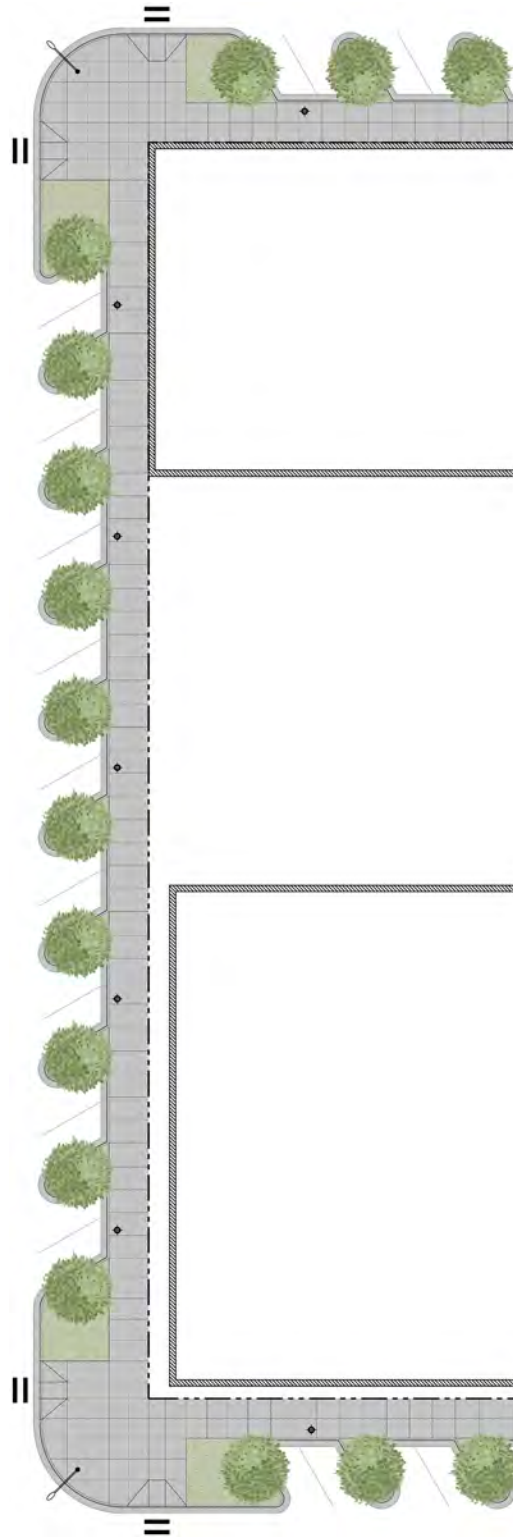
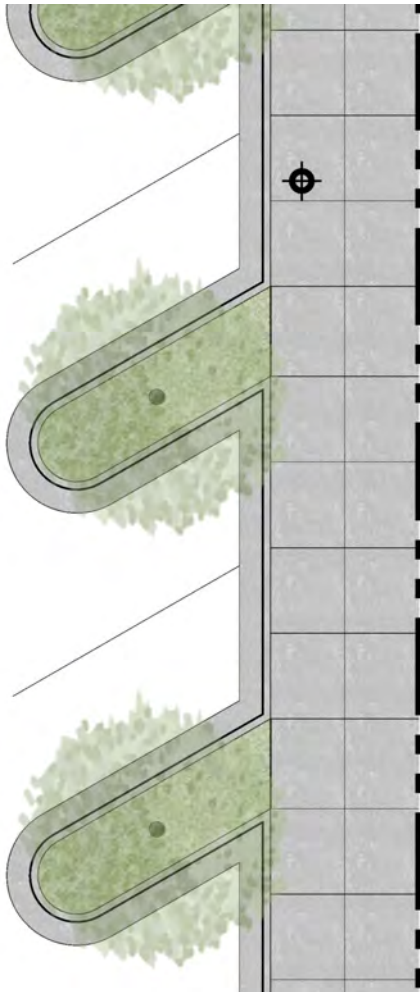
- Street trees planted at 25' on center in 5'x5' square planters with tree grates.
- Decorative pedestrian lights at 50' on center.
- 1 overhead vehicular light at each block corner.
- Concrete paving for entire sidewalk area.
- On-street parking shall meet all city requirements.



## STREETSCAPE DESIGN TEMPLATES

### *BRADY ARTS DISTRICT - LEVEL C W/ 60 DEGREE ANGLE PARKING*

- 2 angle parking stalls per bay with 6' wide landscape island separating bays.
- Street trees planted in landscape islands (approximately 27' on center).
- Decorative pedestrian lights at 55' on center.
- 1 overhead vehicular light at each block corner.
- Concrete paving for entire sidewalk area.
- On-street parking shall meet all city requirements.

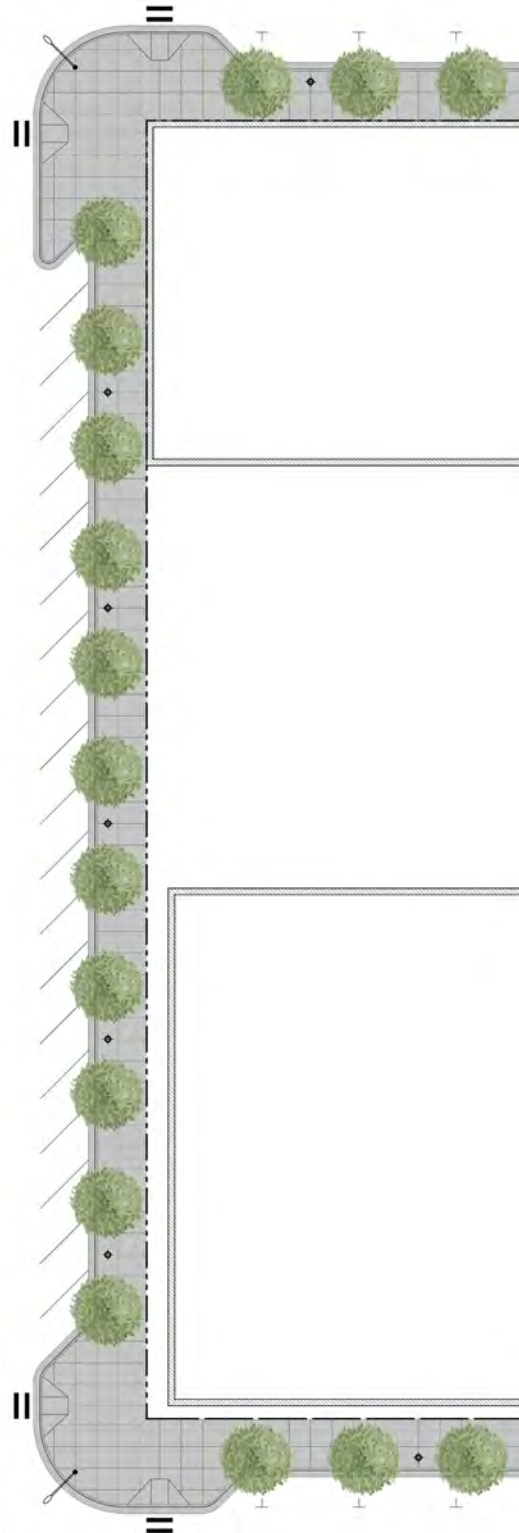
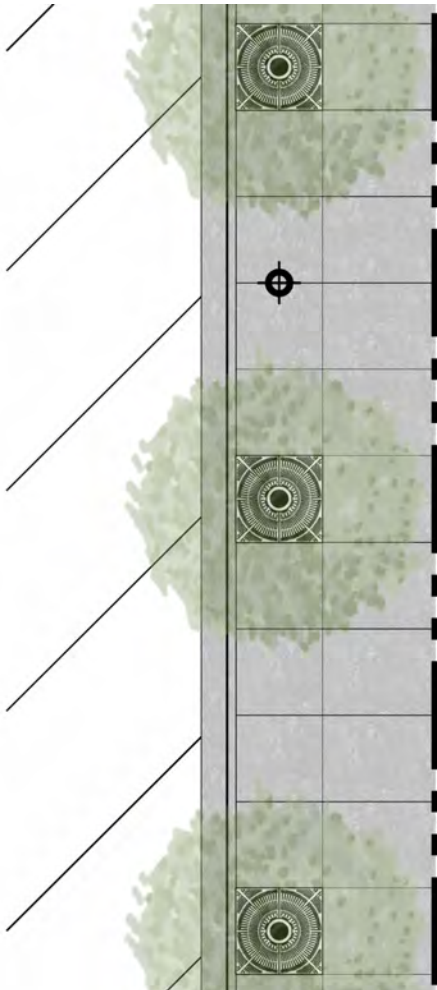




## STREETSCAPE DESIGN TEMPLATES

### *BRADY ARTS DISTRICT - LEVEL C W/ 45 DEGREE ANGLE PARKING*

- Street trees planted at 25' on center in 5'x5' square planters with tree grates.
- Decorative pedestrian lights at 50' on center.
- 1 overhead vehicular light at each block corner.
- Concrete paving for entire sidewalk area.
- On-street parking shall meet all city requirements.

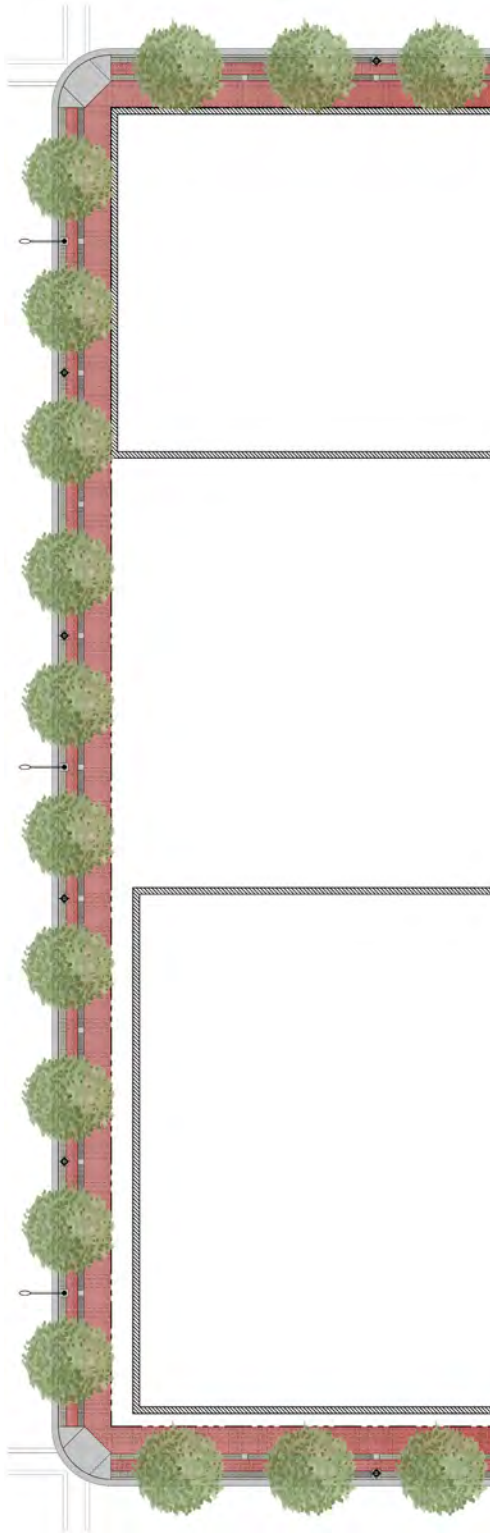
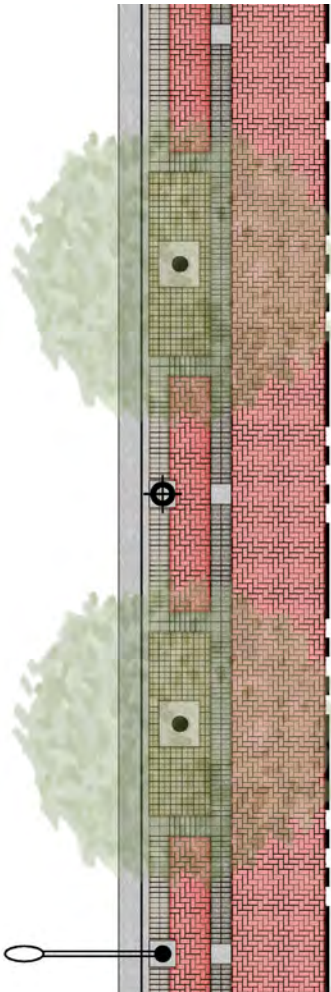




## STREETSCAPE DESIGN TEMPLATES

### *CENTENNIAL WALK - OIL CAPITAL DISTRICT*

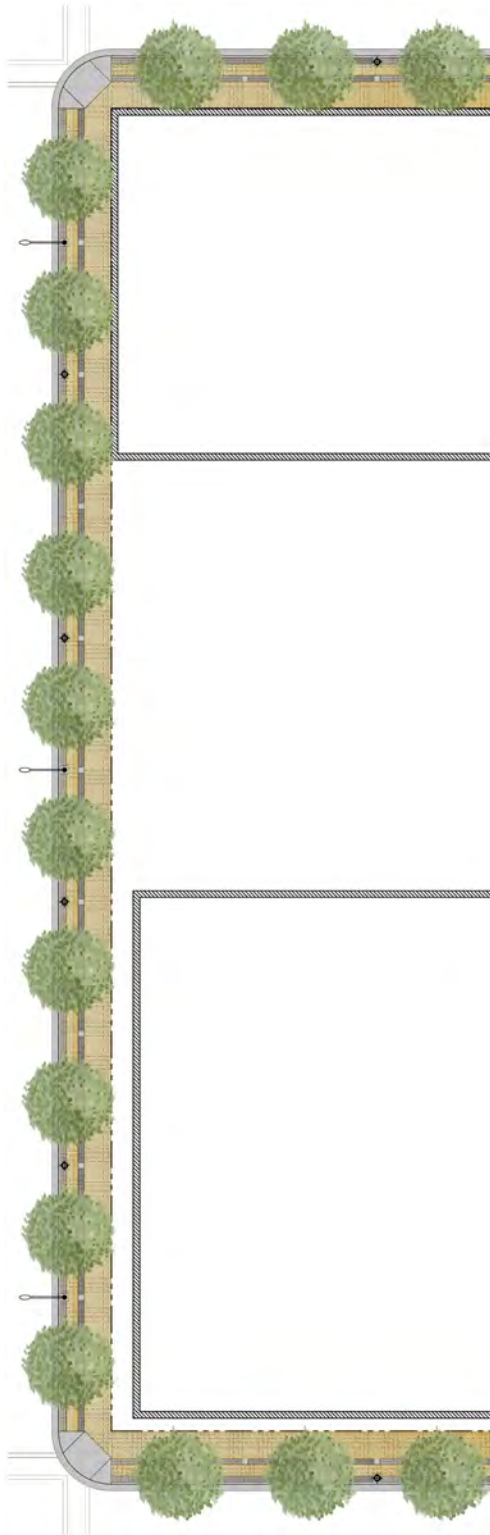
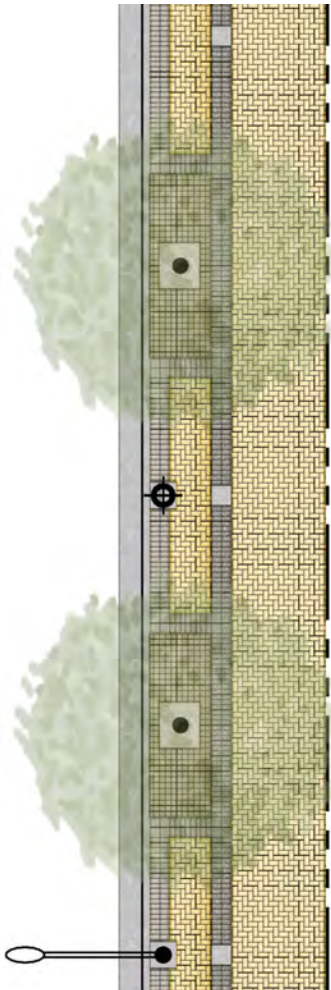
- Street trees planted at 30' on center in 4'x12' rectangular planters with pervious pavers.
- Decorative pedestrian lights at 60' on center.
- 2-3 overhead vehicular lights per block face.
- Charcoal paver bands with Centennial Walk logo pavers centered between tree wells.
- Red pavers for remainder of sidewalk area.



## STREETSCAPE DESIGN TEMPLATES

### *CENTENNIAL WALK - TECHNOLOGY DISTRICT*

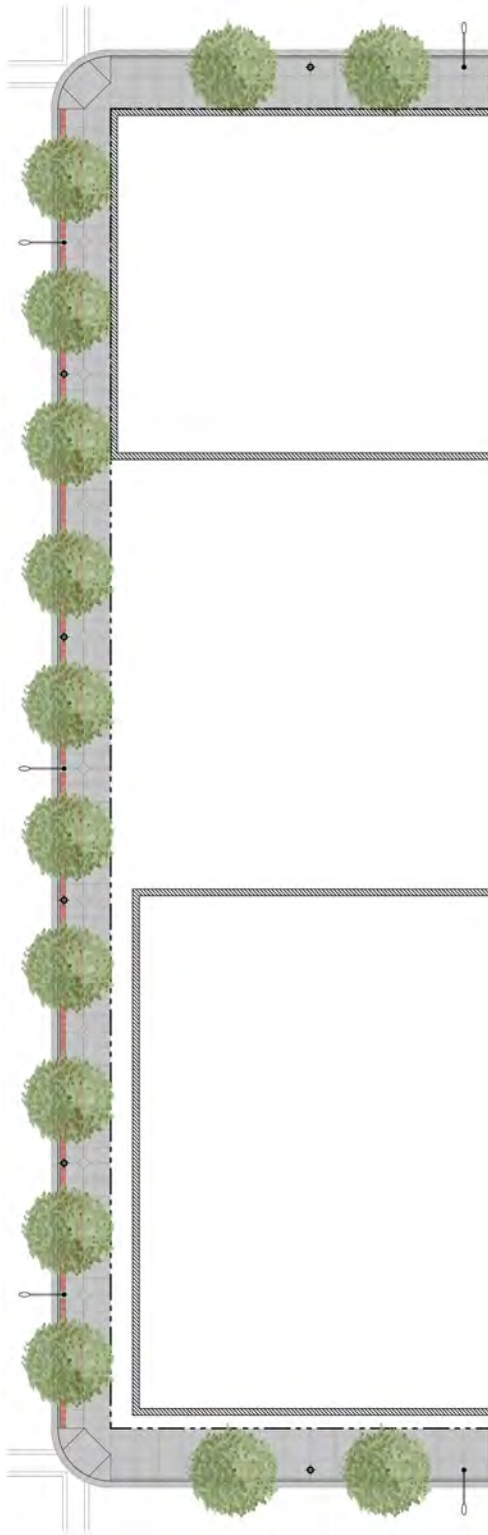
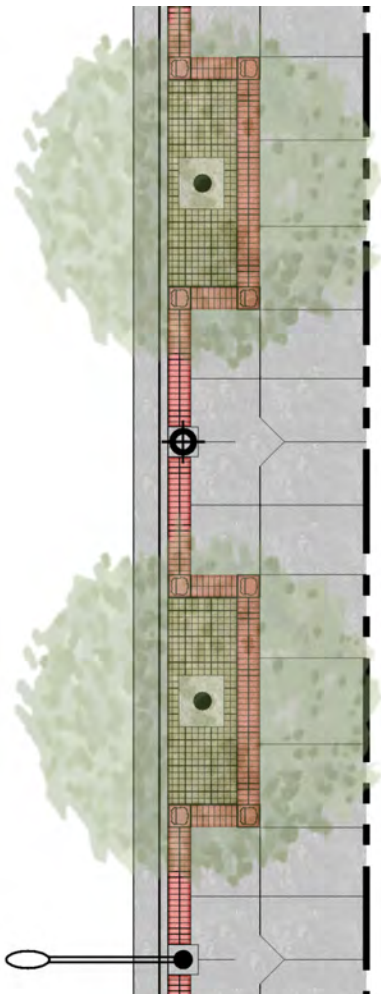
- Street trees planted at 30' on center in 4'x12' rectangular planters with pervious pavers.
- Decorative pedestrian lights at 60' on center.
- 2-3 overhead vehicular lights per block face.
- Charcoal paver bands with Centennial Walk logo pavers centered between tree wells.
- Tan pavers for remainder of sidewalk area.



## STREETSCAPE DESIGN TEMPLATES

### ROUTE 66

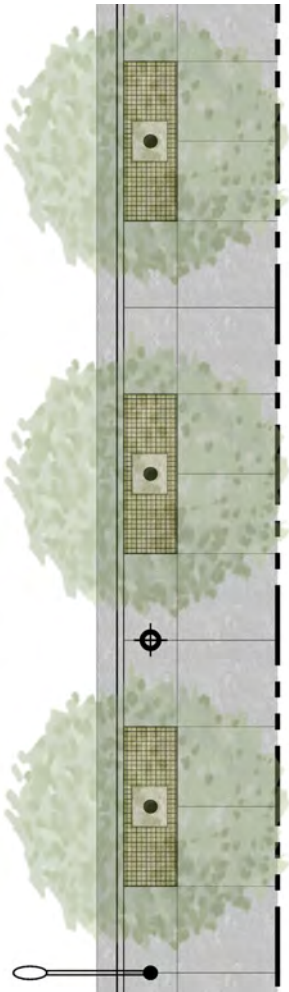
- Street trees planted at 30' on center in 4'x12' rectangular planters with pervious pavers.
- Decorative pedestrian lights at 60' on center.
- 2-3 overhead vehicular lights per block face.
- Stamped and colored concrete band with Route 66 logo pavers abuts curb and tree planters.



## STREETSCAPE DESIGN TEMPLATES

### *PARKING LOT EDGES*

- Street trees planted at 25' on center in 4'x12' rectangular planters with pervious pavers.
- Decorative pedestrian lights at 75' on center.
- 2-3 overhead vehicular lights per block face.
- Concrete sidewalks with control joints aligned with tree wells.

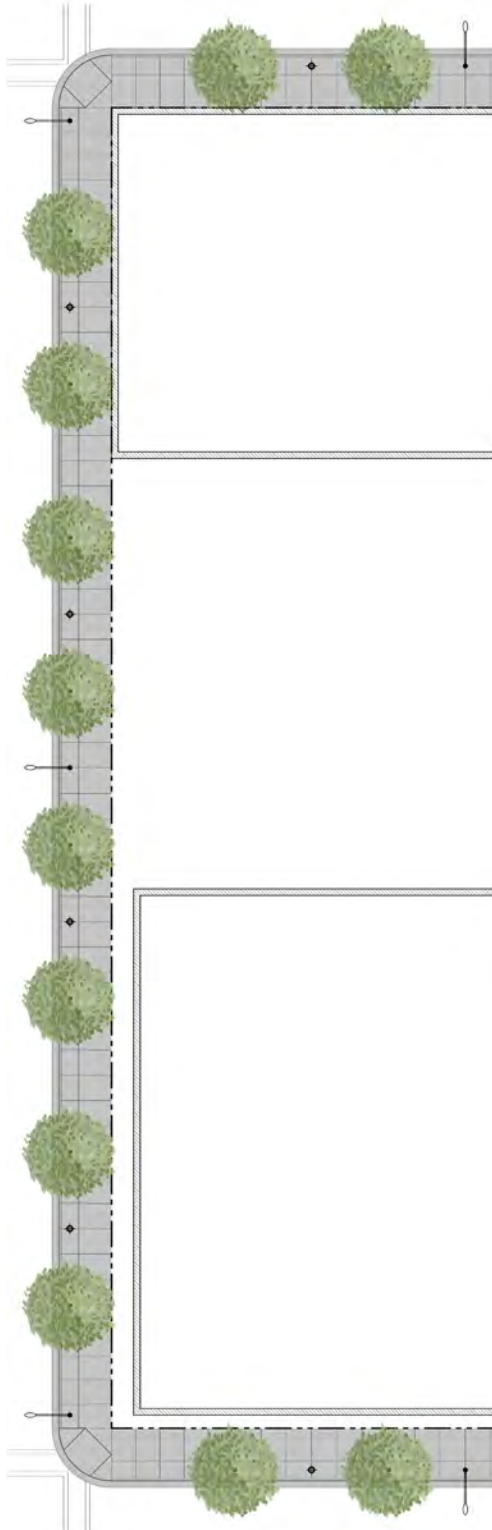
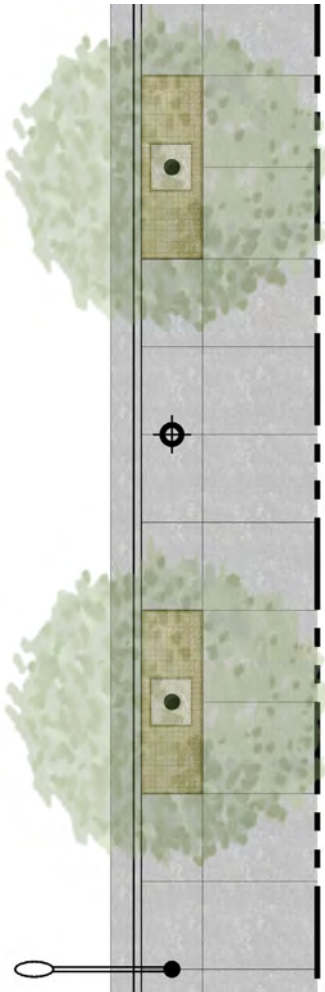




## STREETSCAPE DESIGN TEMPLATES

### LIMITED SCOPE STREETSCAPES

- Street trees planted at 35' on center in 4'x12' rectangular planters with pervious pavers.
- Decorative pedestrian lights at 70' on center.
- 2-3 overhead vehicular lights per block face.
- Concrete sidewalks with control joints aligned with tree wells.

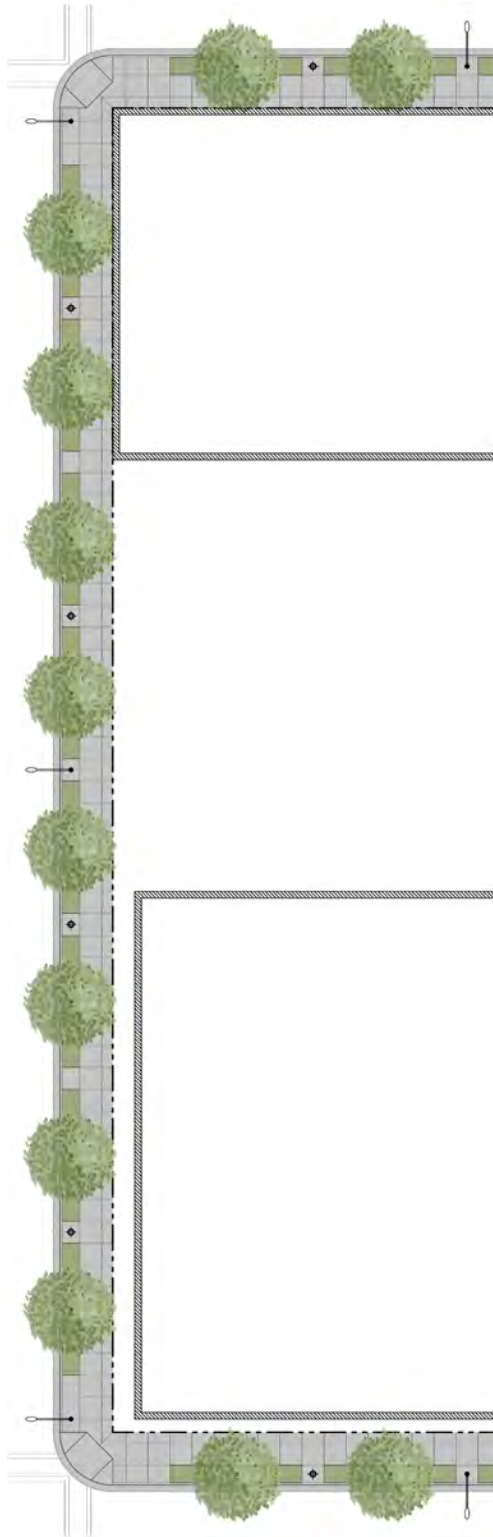
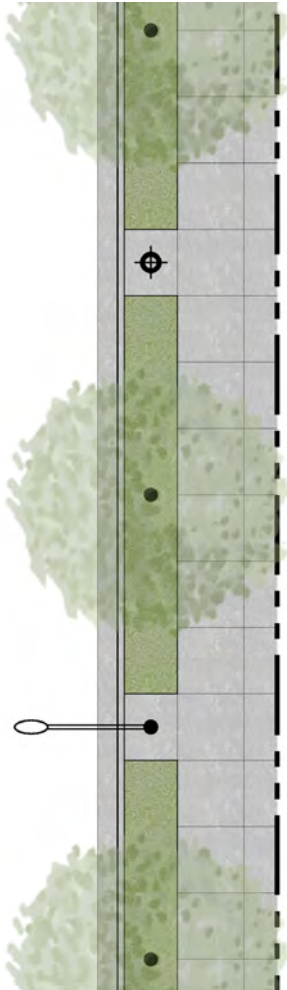




## STREETSCAPE DESIGN TEMPLATES

### TREE LAWNS

- Street trees planted at 35' on center in 4' wide grass lawn strips.
- Decorative pedestrian lights at 70' on center.
- 2-3 overhead vehicular lights per block face.
- Concrete sidewalks with control joints aligned with lawn areas.
- Provide 5' wide concrete strip centered between all trees extending to back of curb.



## IMPLEMENTATION

### Funding Alternatives

There are three potential ways streetscape projects can receive funding for construction and maintenance. This section identifies project priorities, possible funding sources, and annual improvement and maintenance spending recommendations.

1. Capital Improvement Projects (CIP) - All streetscape projects within the study area should be considered for City of Tulsa CIP funding as resources become available. The cost estimate included in the Streetscape Project Recommendations section provides project and cost information for use the CIP funding process. If CIP funding is available, it should be used to complete previously planned projects such as the completion of Centennial Walk, Route 66, and the remaining Brady Streetscape projects. Once these larger projects are completed, CIP funds could be used to improve the remaining projects identified in this master plan as recommended streetscape projects.
2. DCC Annual Budget Funding - The DCC has reserved approximately \$200,000 in the annual budget for new improvements and maintenance. Limited streetscape improvements could be funded using a portion of this annual budget.
3. Kick-Off Project through Private Funding - The DCC has asked that a scenario for an approximately \$500,000 kick-off project be identified in the event that funds can be raised for streetscape improvements. The kick-off project should be mainly used for new improvements to provide as much initial impact as possible to the study area. If there are no available funds for a kick-off project then these improvements will have to be completed using DCC annual budget funding.
4. Tax Increment Finance Districts (TIF) - The State of Oklahoma's Local Development Act, OS 62 § 850-869, signed into law in June 1992, allows for the formation of TIF Districts which capture the increase in tax revenues within a specific area to fund public improvements for a specified amount of time in order to stimulate private reinvestment. Various public improvements can be fully or partially funded including sidewalks, lighting, street furniture, landscape, irrigation systems and other typical public improvements. Several TIF Districts have been established in downtown

## IMPLEMENTATION

Tulsa including; Brady Village, Blue Dome and the Technology District. This tool in combination with other measures could be used to help fund recommendations of this master plan.

### Improvement and Maintenance Scenarios

For the purpose of defining tangible improvement options, three scenarios were developed. Maintenance costs are included in these options and are based on the cost estimate details provided in the Maintenance section.

*Scenario A:* Five year improvement and maintenance plan based on the annual \$200,000 DCC budget. Total available funds for period = \$1,000,000.

*Scenario B:* One year kick-off project with funding from an undefined private source to provide stimulus for streetscaping improvements and to allow improvement efforts to be spread across the study area. Total estimated funds for potential kick-off project = \$500,000.

*Scenario C:* Five year improvement and maintenance plan based on the \$200,000 annual DCC budget combined with one year kick-off project with funding from an undefined private source. Total available DCC funds plus total estimated funds for potential kick-off project = \$1,500,000.

### Determination of Project Priorities

During the planning process, potential streetscape projects were identified and prioritized by the planning team the Streetscape Planning Subcommittee. Table 3 lists these projects from highest to lowest priority.

## IMPLEMENTATION

Table 3: Streetscape Improvement Project Priorities

<b>Recommended Streetscape Projects (highest to lowest)</b>	<b>Priority Ranking</b>
Detroit Avenue	1
Denver Avenue	2
Elgin Avenue	3
1st Street	4
6th Street	5
2nd Street	6
Archer Avenue Sports Connection	7
3rd Street & Houston Avenue	8
Boston Avenue Bridge	9
Cincinnati Avenue	10
Brady District Streetscapes	11
Centennial Walk Completion	12
Route 66	13
East Village Boundary	14



IMPLEMENTATION

Scenario A - Five Year Improvement & Maintenance Plan (DCC)



## IMPLEMENTATION

Table 4: Scenario A Cost Estimate

### Scenario A: 5-Year Cost Estimate (\$1,000,000 max) (based on \$200,000 Annual DCC Budget)

#### Maintenance Costs (Initial & Annual)

Complete Tree Pruning of Existing Trees	\$151,075
Retrofit Irrigation (Boston Ave)	\$22,500
Sandblast Existing Tree Grates	\$7,500
Maintain Entry Plantings	\$133,750
Monitor Irrigation Systems	\$108,800
Cost of Water for Trees	\$7,455
Water Boston Avenue Trees	\$23,125
Remove Litter From Tree Grates (once per year)	\$10,000
Maintain and Water Existing Planter Pots	\$22,000
<b>Total Maintenance Costs</b>	<b>\$486,205</b>

#### Improvement Costs

Entry Area: 12th Street & Denver Avenue	\$43,381
Entry Area: 7th Street & Southwest Boulevard	\$25,904
Entry Area: 6th Street & Kenosha Avenue	\$24,843
Entry Area: 7th Street & Kenosha Avenue	\$14,090
Entry Area: 1st Street & Guthrie Avenue	\$28,346
Denver Avenue (south of 11th Street)	\$46,024
Denver Avenue (7th Street to 8th Street)	\$23,012
Detroit Avenue (south of 11th Street)	\$115,060
Elgin Avenue (1st Street to Railroad Tracks)	\$46,024
2 Parking Lot Screening Blocks (no shield)	\$146,952
<b>Total Improvement Costs</b>	<b>\$513,636</b>

**Scenario A: 5-Year Grand Total** **\$999,841**

IMPLEMENTATION

Scenario B - Kick-Off Project (Private Funds)



## IMPLEMENTATION

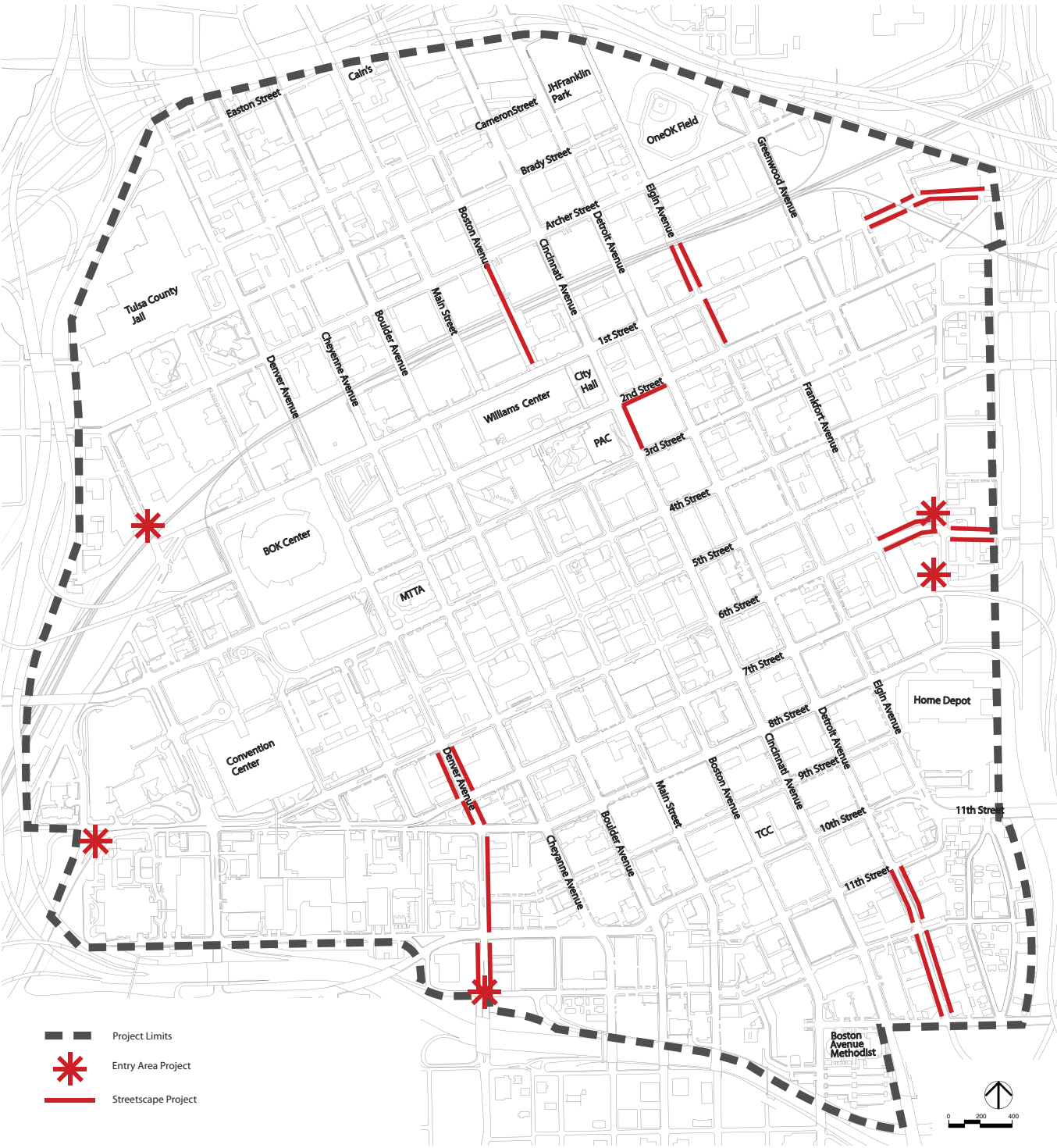
Table 5: Scenario B Cost Estimate

<b>Scenario B: 5-Year Cost Estimate (\$500,000 max) (based on Privately Funded Kick-Off Project)</b>	
<b>Entry &amp; Special Area Landscaping</b>	
12th Street & Denver Avenue	\$43,381
7th Street & Southwest Boulevard	\$25,904
6th Street & Kenosha Avenue	\$24,843
7th Street & Kenosha Avenue	\$14,090
1st Street & Guthrie Avenue	\$28,346
<b>Total Kick-Off Project Costs</b>	<b>\$136,564</b>
<b>Limited Scope Streetscape Projects</b>	
Detroit Avenue (south of 11th Street)	\$115,060
Denver Avenue (south of 11th Street)	\$46,024
Elgin Avenue (1st Street to Railroad Tracks)	\$46,024
<b>Total Kick-Off Project Costs</b>	<b>\$207,108</b>
<b>Parking Lot Screening</b>	
2 Blocks of Parking Lot Screening (with shield)	\$146,952
<b>Total Kick-Off Project Costs</b>	<b>\$146,952</b>
<b>Scenario B: Kick-Off Project Grand Total</b>	<b>\$490,624</b>



IMPLEMENTATION

Scenario C - 5 Year Maintenance & Improvement Plan Plus Kick-Off



## IMPLEMENTATION

Table 6: Scenario C Cost Estimate

**Scenario C: 5-Year Cost Estimate (\$1,500,000 max)  
(based on \$500,000 Kick-Off Project and  
\$200,000 Annual DCC Budget)**

**Maintenance Costs (Initial & Annual)**

Complete Tree Pruning of Existing Trees	\$151,075
Retrofit Irrigation (Boston Ave)	\$22,500
Sandblast Existing Tree Grates	\$7,500
Maintain Entry Plantings	\$133,750
Monitor Irrigation Systems	\$108,800
Cost of Water for Trees	\$7,455
Water Boston Avenue Trees	\$23,125
Remove Litter From Tree Grates (once per year)	\$10,000
Maintain and Water Existing Planter Pots	\$22,000
<b>Total Maintenance Costs</b>	<b>\$486,205</b>

**Kick-Off Project**

Entry Area: 12th Street & Denver Avenue	\$43,381
Entry Area: 7th Street & Southwest Boulevard	\$25,904
Entry Area: 6th Street & Kenosha Avenue	\$24,843
Entry Area: 7th Street & Kenosha Avenue	\$14,090
Entry Area: 1st Street & Guthrie Avenue	\$28,346
Detroit Avenue (south of 11th Street)	\$115,060
Denver Avenue (south of 11th Street)	\$46,024
Elgin Avenue (1st Street to Railroad Tracks)	\$46,024
2 Blocks of Parking Lot Screening (with shield)	\$146,952
<b>Total Kick-Off Project Costs</b>	<b>\$490,624</b>

**Remaining Improvement Costs**

Boston Avenue Pedestrian Bridge	\$89,910
1st Street (east of Hartford Avenue)	\$92,048
6th Street (east of Frankfort Avenue)	\$165,524
Denver Avenue (6th Street to 11th Street)	\$126,485
Elgin Avenue (east side - 1st Street to 2nd Street)	\$48,244
<b>Total Improvement Costs</b>	<b>\$522,211</b>

**Scenario C: 5-Year Grand Total** **\$1,499,040**

## MAINTENANCE

Maintenance costs were evaluated from two perspectives:

1. Initial Maintenance Costs - Several trees in the study area will need to be removed in the next five years. The reasons for removing existing trees vary but mostly include trees that are in poor health, have significant ice storm damage, are causing significant damage to adjacent pavement, or are an undesirable species that could cause future maintenance problems such as Bradford Pears. This category also includes pruning of all of the existing trees in the study area. Trees should be pruned to increase pedestrian safety, by removing branches that could fall and cause harm, and to promote tree health, by removing diseased or infested wood and thinning the crown to increase airflow and encourage trees to develop a strong structure. Pruning will also enhance the natural form and character of trees. All existing tree grates should also be sandblasted back to a natural finish. This will reduce painting costs in the future and allow the tree grates to look consistent throughout downtown. The final item included in initial maintenance costs is retrofitting the existing tree plantings along Boston Avenue with irrigation root watering systems. These systems would not be attached to an irrigation mainline but could be manually filled with water and fertilizer during the course of the summer.
2. Annual Maintenance Costs - These are maintenance costs that will need to be figured into the annual DCC budget. The current budget will not accommodate all of these items but the Implementation section of this master plan provides options for annual spending. This list includes tree pruning (each tree should be pruned once every three years), maintaining special landscape areas, monitoring irrigation systems and providing decorative plantings in existing pots. The cost of water for all street trees is also included in this study, however, meter fees are not included.

## MAINTENANCE

Table 7: Initial Maintenance Costs

<b>Complete Tree Pruning</b>	<b>Trees</b>	<b>Cost/Tree</b>	<b>Total</b>
1"-6" Caliper	579 x	\$75 =	\$43,425
6"-12" Caliper	143 x	\$100 =	\$14,300
12"-24" Caliper	125 x	\$450 =	\$56,250
24"-36" Caliper	26 x	\$850 =	\$22,100
36"+ Caliper	10 x	\$1,500 =	\$15,000
<b>Total</b>	<b>883</b>		<b>\$151,075</b>

<b>Tree/Stump Removal (with sidewalk repair)</b>	<b>Trees</b>	<b>Cost/Tree</b>	<b>Total</b>
1"-6" Caliper	32 x	\$900 =	\$28,800
6"-12" Caliper	56 x	\$1,000 =	\$56,000
12"-24" Caliper	67 x	\$1,275 =	\$85,425
24"-36" Caliper	13 x	\$1,700 =	\$22,100
36"+ Caliper	2 x	\$2,950 =	\$5,900
<b>Total</b>	<b>170</b>		<b>\$198,225</b>

<b>Retrofit Irrigation (Boston Avenue)</b>	<b>Trees</b>	<b>Cost/Tree</b>	<b>Total</b>
Core Drill Pavers and Add 4 Root Watering Systems per Tree	25 x	\$900 =	\$22,500
<b>Total</b>	<b>25</b>		<b>\$22,500</b>

<b>Sandblast Existing Tree Grates</b>	<b>Grates</b>	<b>Cost/Grate</b>	<b>Total</b>
Remove all paint from existing tree grates, restore to natural finish	50 x	\$150 =	\$7,500
<b>Total</b>	<b>50</b>		<b>\$7,500</b>

**Total Initial Maintenance Costs** **\$371,800**



## MAINTENANCE

**Table 8: Annual Maintenance Costs**

<b>Routine Tree Pruning</b>	<b>Trees</b>	<b>Cost/Tree</b>	<b>Total</b>
1"-6" Caliper	579 x	\$40 =	\$23,160
6"-12" Caliper	143 x	\$50 =	\$7,150
12"-24" Caliper	125 x	\$250 =	\$31,250
24"-36" Caliper	26 x	\$500 =	\$13,000
36"+ Caliper	10 x	\$800 =	\$8,000
Future Tree Plantings	205 x	\$40 =	\$8,200
<b>Total</b>	<b>1,088</b>		<b>\$90,760</b>
Prune Each Tree Every Three Years, Average Yearly Cost		=	<b>\$30,253</b>
<b>Monitor Irrigation Systems</b>	<b>Trees</b>	<b>Cost/Tree</b>	<b>Total</b>
4 Inspections per Year	1,088 x	\$20 =	\$21,760
<b>Total</b>			<b>\$21,760</b>
<b>Tree Grates</b>	<b>Grates</b>	<b>Cost/Grate</b>	<b>Total</b>
Remove Litter Once per Month	300 x	\$40 =	\$12,000
<b>Total</b>	<b>300</b>		<b>\$12,000</b>
<b>Maintain Entry Plantings</b>	<b>Sq. Ft.</b>	<b>Cost/SF</b>	<b>Total</b>
Add mulch as needed, remove weeds, replace dead plants, monitor/repair irrigation system	19,000 x	\$1.25 =	\$23,750
Replace 20 Banners per Year	1	LS	\$3,000
<b>Total</b>			<b>\$26,750</b>
<b>Seasonal or Annual Plantings in Pots</b>	<b>Pots</b>	<b>Cost/Pot</b>	<b>Total</b>
Plant Pots with Annuals (spring & fall), water as needed for year (include plant warranty for plant replacements)	80 x	\$985 =	<b>\$78,800</b>
Plant Pots with Perennials (once every 3 years), water as needed for a year (include plant warranty for plant replacements)	80 x	\$770 =	\$61,600
<b>Cost of Water for Trees</b>	<b>Trees</b>	<b>Cost/Tree</b>	<b>Total</b>
540 Gallons of Water for Each Tree per Year (360 Summer, 180 Winter) @ \$2.53 per 1,000 Gallons	1,088 x	\$1.37 =	\$1,491
Water Boston Avenue Trees 6 Times per Year, Fertilize Trees 2 Times per Year	25 x	\$185 =	\$4,625
<b>Total</b>			<b>\$6,116</b>
<b>Total Annual Maintenance Costs</b>			<b>\$175,679</b>

## **POLICY RECOMMENDATIONS AND GUIDELINES**

The following are recommended policies to aid in future decision making for the design, installation and maintenance of streetscapes in the study area. These guide-lines are general in nature and are intended to provide a framework for the on-going development and refinement of policies.

### **Incorporation Into Tulsa Downtown Area Master Plan**

The Tulsa Downtown Area Master Plan provides recommendations and development strategies for downtown Tulsa. However, it does not go into detail about streetscape development. The final version of the Downtown Tulsa Streetscape Master Plan should be included or adopted as part of the Tulsa Downtown Area Master Plan in order to help plan and guide future streetscape projects and to help identify funding opportunities.

### **Value of Streetscaping** (from Walkable Communities, Inc.)

Facts and figures provided by the U.S. Forest Service and various traffic studies are beginning to show many benefits of urban street trees. A single street tree can return over \$90,000 of direct benefits during it's lifetime. In addition to economic benefits, trees provide aesthetic, social, and natural benefits. Because of these benefits, it is recommended that all downtown streetscapes include tree plantings. Properly placed and spaced urban street trees provide the following benefits:

- Reduced and more appropriate urban traffic speeds.
- Safer walking environments.
- Businesses on treescaped streets show 12% higher income streams.
- Trees absorb the first 30% of most precipitation through their leaves leading to a reduced amount of runoff and drainage infrastructure needed.
- Provide protection from rain, sun, and heat which means greater skin protection.
- Reduced harm from tailpipe emissions and pollutants.
- Lower urban air temperatures.
- Lower harmful ozone levels.
- Convert streets, parking, and walls into more aesthetically pleasing environments.
- Soften and screen necessary street features and utilities.
- Reduce blood pressure and increase overall emotional and psychological health.
- Reduce road rage.
- Add value to adjacent businesses and tax base.
- Longer pavement life.

## POLICY RECOMMENDATIONS AND GUIDELINES



**4'x12' Tree Planter with Pavers**



**Brady Arts District Tree Grate**

### Design Oversight

It is recommended that a representative or representatives of the DCC be permitted to review all proposed streetscapes in the study area, both publicly and privately funded, for the purpose of review and comment. These streetscape guidelines should also be incorporated into the development review process.

### Responsibility for Installation and Maintenance

For all new development abutting a public street, it is recommended that the development owners bear the cost of installing and maintaining the landscaping and irrigation system. For existing streetscapes and new extensive scope streetscape projects involving multiple properties, the DCC will provide maintenance. For all streetscapes the DCC will provide water at no cost to the owners.

### Removal and Replacement of Existing Trees

The removal of existing trees will be required periodically for the protection of life and property. Replacement of removed trees should only be made when a complete block of trees can be planted to permit the efficient installation of irrigation. Before any trees located in the right-of-way are to be removed, a qualified representative of the City shall inspect the tree. Tree stumps should also be removed.

### Tree Planting Guidelines

The recommended tree planting technique is a 4'x12' planter abutting the back of proposed or existing curb with the new tree centered in the planter. The planter would be filled with CU Structural Soil and finished with permeable pavers. This provides a safe walking surface while allowing air and water to reach the tree roots. The pavers can also be removed over time as the size of the tree increases.

For streetscape projects in the Brady Arts District, 5'x5' tree wells are recommended with tree grates equal to East Jordan Ironworks model #8667. All tree grates should be installed with the natural color and finish.

Trees with an upright form and a central leader should be used for streetscape plantings. This allows for pruning and will reduce instances where trees grow

## POLICY RECOMMENDATIONS AND GUIDELINES

into building facades and hang over the vehicular drive lanes. Trees should be pruned with lower limbs raised to the greatest extent possible. The lowest limbs should be approximately six and a half feet above finished grade when planted and raised periodically during the life of the tree.

Where tree planting areas occur in the same location as overhead power lines, species should be selected with a maximum mature height of 25'-30'.

Table 9 shows a list of recommended street trees with advantages and disadvantages for each species.

### Structural Soil (from the Urban Horticultural Institute)

Soils underneath pavement are highly compacted and this can result in poor root growth. Urban trees with roots under pavement grow poorly and only live an average of 7-10 years. Trees that do survive can interfere with the quality of the pavement creating a legal liability. Repairing this pavement damage will usually cause heavy damage to tree roots.

Structural Soil is a designed medium which will meet pavement design criteria while remaining root penetrable and supportive of tree growth. It is recommended that all streetscape projects that receive full pavement replacement be backfilled with an approved amount of Structural Soil. For limited scope streetscape projects, all new tree planters should be backfilled with structural soil to support the permeable pavers in the tree planter.

### Irrigation Guidelines

The recommended irrigation system for all new trees is the Rainbird 4" diameter x 36" deep Root Watering System tubes or approved equal. These are rigid, perforated tubes that can be fitted to traditional irrigation lateral lines or low-volume tubing. The advantages to this system are:

- Water is directed to the root ball and adjacent soil, reducing wasteful runoff.
- No water is sprayed onto adjacent sidewalks, reducing potential for freezing hazards.
- Fertilizer can be added quickly and easily.
- Evaporation and soil erosion is minimized.
- Installs at grade level for an aesthetically pleasing appearance.
- Ready to install out of the box.
- Operates at lower pressures and system operation is easy to check
- System is not visible when in use and can be operated in windy conditions.



Root Watering System Tubes



## POLICY RECOMMENDATIONS AND GUIDELINES

Table 9: Recommended Street Tree Species

	Advantages						Disadvantages		
	Fast growth	Long lived	Adapts to compacted soil conditions	Attractive fall color	Tolerates dry soil conditions	Small leaves minimize debris	Large leaves create more debris	Slow growing	Fruit may be a problem
<b>Small Trees (1)</b>									
Crapemyrtle		●	●	●	●	●			
Shantung Maple		●	●	●	●			●	
Trident Maple		●	●	●	●			●	
<b>Medium to Large Trees</b>									
Autumn Blaze Maple	●		●	●	●				
Bosque Lacebark Elm	●	●	●		●	●			
Chinese Pistache	●	●	●	●	●				●
Green Vase Zelkova		●	●	●	●	●			
Heritage Oak	●	●	●		●				
Legacy Sugar Maple		●	●	●	●			●	
London Plane Tree (2)	●	●	●		●		●		●
Nuttall Oak	●	●		●	●				●
October Glory Red Maple (3)	●	●		●					
Overcup Oak	●	●	●						●
Sawtooth Oak	●	●	●		●				●
Shawnee Brave Bald Cypress	●	●	●		●	●			
Shumard Oak	●	●	●	●	●				●
Swamp White Oak		●	●		●			●	●

1. Tree planting beneath powerlines are limited to small tree varieties.

2. Not for planting in close proximity to buildings. Best in open surroundings.

3. Best planted with some wind protection.

- - Significant Advantage
- - Modest Advantage
- - Significant Disadvantage
- - Modest Disadvantage



Autumn Blaze Maple



Shawnee Brave Bald Cypress

## POLICY RECOMMENDATIONS AND GUIDELINES

### Lighting Guidelines

Vehicular and pedestrian scale lighting should be included in all extensive scope streetscape projects. For all other streetscape projects lighting can be implemented on a project by project basis depending on funding availability. All new lights are recommended to be LED because of their longer life span and higher efficiency ratings. Existing vehicular and pedestrian scale lighting should be converted to LED on a phased basis throughout the study area as funding is available.

For all districts, except the Brady Arts District, the style of vehicular and decorative acorn lighting should be similar to the images shown below. The Brady Arts District projects are currently using the following lights by Dynamic Lighting Solutions:

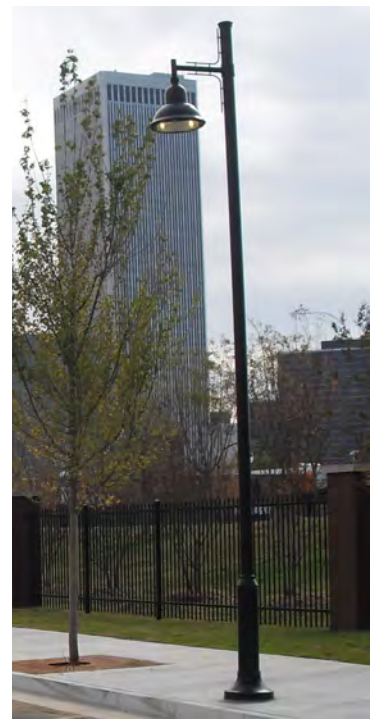
- 15' Pole with Dome Style Fixture and Banner Brackets, 90W-T5 LED Luminaire, Type V
- 15' Pole with Dome Style Fixture, 90W-T5 LED Luminaire, Type V
- 22' Pole with Dome Style Fixture, 90W-T5 LED Luminaire, Type V - Flat Glass with Lens



**Vehicular Lighting**



**Decorative Acorn Lighting**



**Brady Arts District Lighting**



## POLICY RECOMMENDATIONS AND GUIDELINES



**Trash Container**

### Furnishings Guidelines

Furnishings such as benches, trash containers, and bike racks should be included in all extensive scope streetscape projects. For all other streetscape projects furnishings can be implemented on a project by project basis depending on funding availability. All furnishings should be secured to the pavement and should be placed so that they do not interfere with pedestrian or vehicular circulation.

New furnishings for streetscape projects should match the style and character of existing furnishings in the study area. The Brady Arts District projects have established a list of standard furnishings for streetscape projects in the district:

- Bench (with back) by Sitescapes - #CV1-1001-6' with Intermediate Armrest (black)
- Bench (backless) by Sitescapes - #CV1-1101-6' with Intermediate Armrest (black)



**Brady Arts District Benches**



**Main Street Benches**

## APPENDIX

**Table A: Cost Estimates for Extensive Scope Streetscape Projects**

<b>Extensive Scope Streetscape Projects</b>			
Centennial Walk	Cost per Linear Foot	=	<b>\$650</b>
Route 66	Cost per Linear Foot	=	<b>\$550</b>
Blue Dome District	Cost per Linear Foot	=	<b>\$510</b>
Brady Arts District Level A	Cost per Linear Foot	=	<b>\$675</b>
Brady Arts District Level B	Cost per Linear Foot	=	<b>\$625</b>
Brady Arts District Level C	Cost per Linear Foot	=	<b>\$550</b>

**Table B: Cost Estimates for Limited Scope Streetscape Projects**

<b>Limited Scope Streetscape Project (for typical 300' block face)</b>				
<b>Sidewalk Repair (for 15% of block)</b>				
Pavement Removal	460 SF @	\$1.70	=	\$782
Pavement Replacement	460 SF @	\$8.90	=	\$4,094
<b>Total Sidewalk Repair Cost</b>				<b>\$4,876</b>
<b>Tree Planting (for one 4'x12' planter)</b>				
Pavement Removal	48 SF @	\$1.70	=	\$82
3" Caliper Tree	1 EA @	\$800.00	=	\$800
Permeable Pavers	40 SF @	\$15.00	=	\$600
Structural Soil (3' depth)	144 CF @	\$2.85	=	\$410
Total for One Tree with Planter				\$1,892
<b>Total Tree Planting Cost (8 trees per block)</b>				<b>\$15,136</b>
<b>Irrigation</b>				
Irrigation per Block	1 EA @	\$3,000	=	\$3,000
<b>Total Irrigation Cost</b>				<b>\$3,000</b>
<b>Total for 1 Block of Limited Scope Streetscape</b>			=	<b>\$23,012</b>



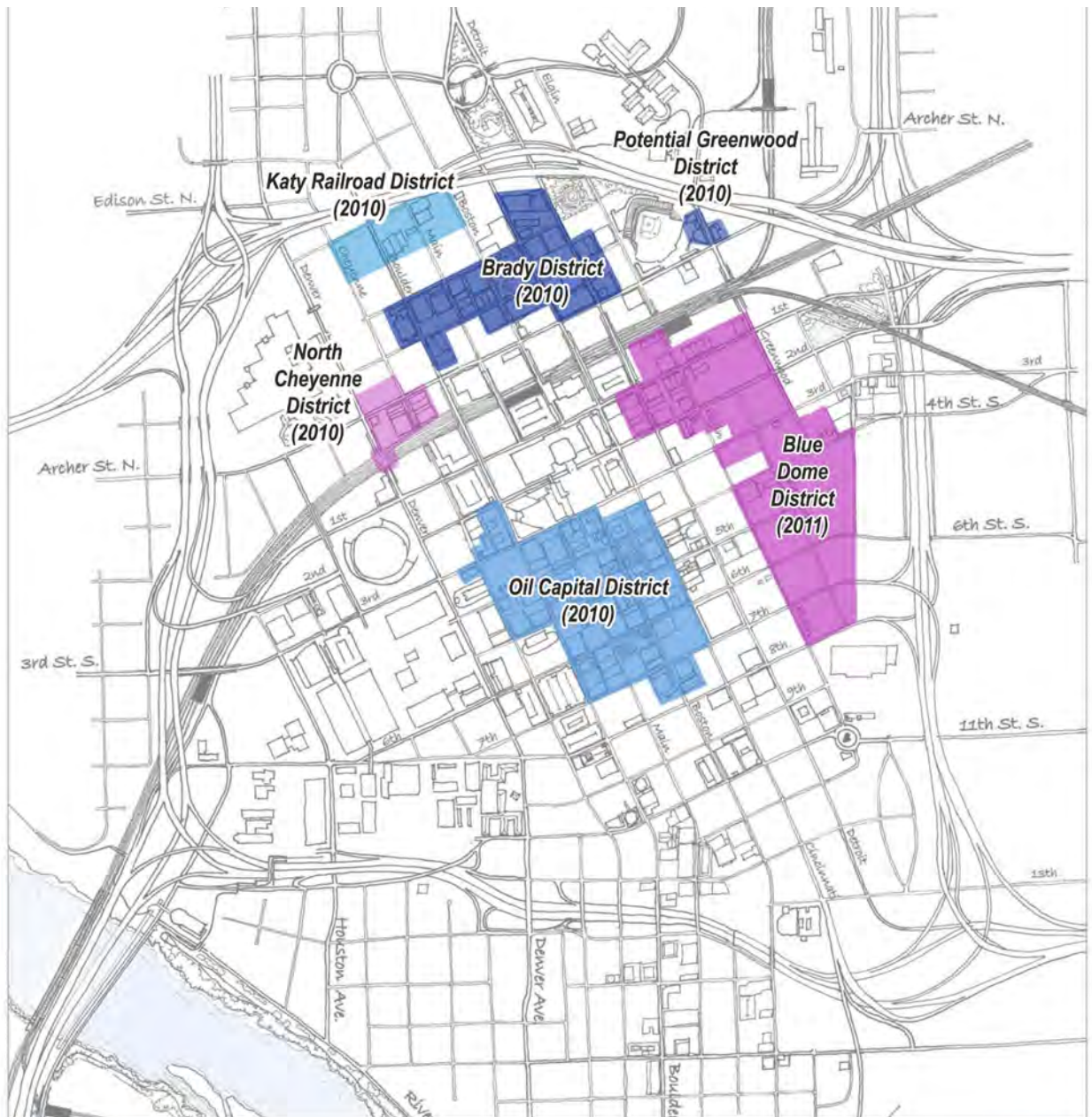
## APPENDIX

Table C: Cost Estimates for Parking Lot Screening Streetscape Projects

<b>Parking Lot Screen Project (for typical 300' block face)</b>				
<b>Sidewalk Repair (for 15% of block)</b>				
Pavement Removal	440 SF @	\$1.70	=	\$748
Pavement Replacement	440 SF @	\$8.90	=	\$3,916
<b>Total Sidewalk Repair Cost</b>				<b>\$4,664</b>
<b>Tree Planting (for one 4'x12' planter)</b>				
Pavement Removal	48 SF @	\$1.70	=	\$82
3" Caliper Tree	1 EA @	\$800.00	=	\$800
Permeable Pavers	40 SF @	\$15.00	=	\$600
Structural Soil (3' depth)	144 CF @	\$2.85	=	\$410
Total for One Tree with Planter				\$1,892
<b>Total Tree Planting Cost (11 trees per block)</b>				<b>\$20,812</b>
<b>Irrigation</b>				
Irrigation per Block	1 EA @	\$3,000	=	\$3,000
<b>Total Irrigation Cost</b>				<b>\$3,000</b>
<b>Parking Lot Shielding Options</b>				
Precast Concrete Panel	300 LF @	\$150	=	\$45,000
Short Decorative Fence	300 LF @	\$75	=	\$22,500
<b>Total for 1 Block of Parking Lot Streetscape</b>			=	<b>\$28,476</b>
<b>Total for 1 Block with Concrete Panel Screen</b>			=	<b>\$73,476</b>
<b>Total for 1 Block with Decorative Fence Screen</b>			=	<b>\$50,976</b>

## APPENDIX

### National Historic Districts in Downtown Tulsa, Oklahoma



Planning Department  
Community Development & Education  
Division  
City of Tulsa Oklahoma

Dates indicated in ( ) are estimates as to when National Historic District designation has been or is expected to be approved.

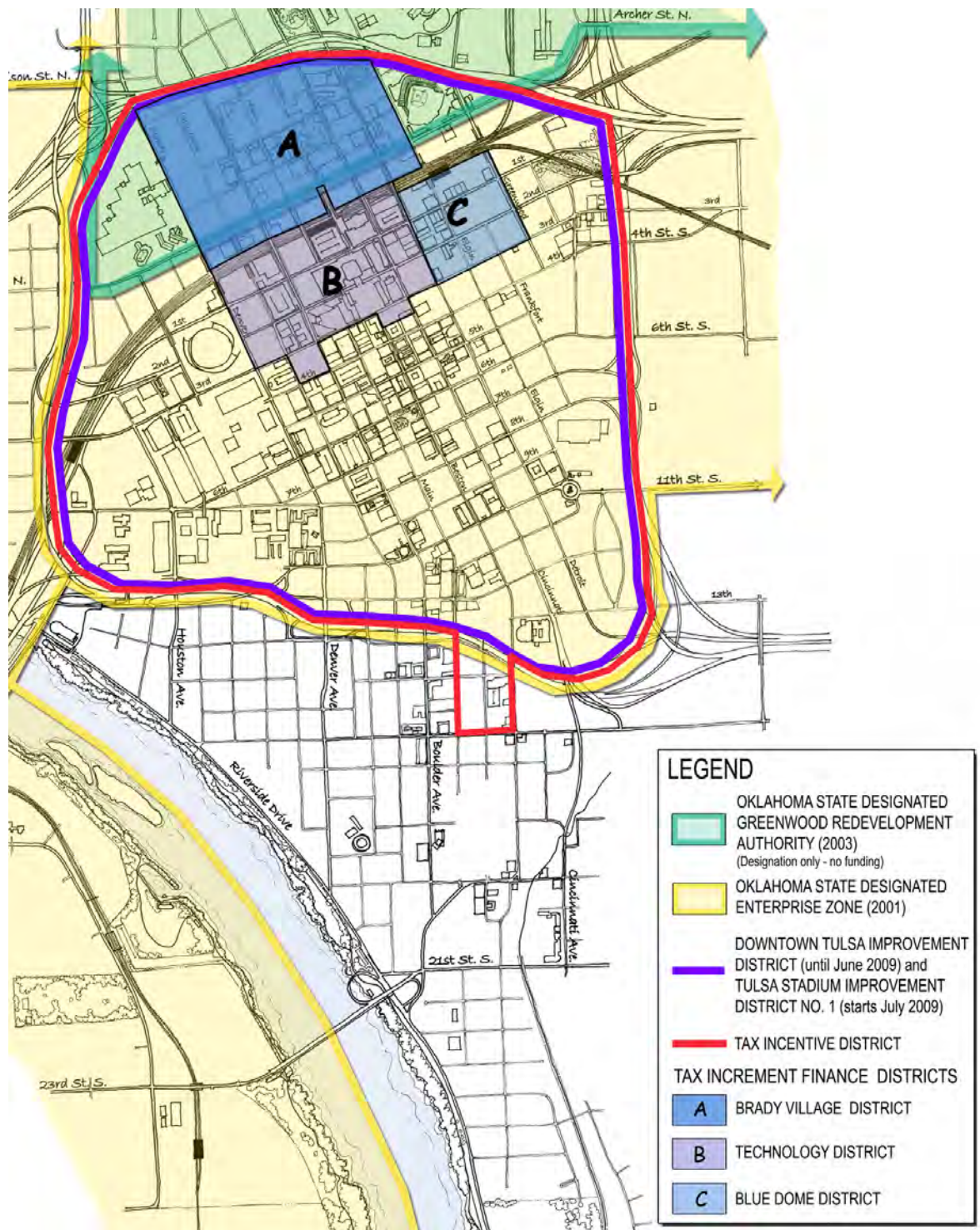


Date: 11.29.2010  
Design: sdc



## APPENDIX

### Governmental Context Map - Downtown Area Master Plan



## APPENDIX

TIF District Boundaries in Downtown Tulsa, Oklahoma

