



# 20TH STREET FEASIBILITY STUDY

## BIRMINGHAM, AL



THE CITY OF BIRMINGHAM



REGIONAL PLANNING COMMISSION OF GREATER BIRMINGHAM



GOODWYN MILLS AND CAWOOD



HOOD DESIGN STUDIO

## ACKNOWLEDGMENTS

### **Apple Feasibility Study Sponsors / 2017**

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### **References**

Birmingham Comprehensive Plan  
REV - City Center Demographics  
Thrive BHM - Character-Based Code Template  
Towards a Connectivity Plan for Downtown Birmingham  
Downtown Wayfinding Master Plan  
Birmingham CBD Availabilities

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“Complete Streets is a transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient and comfortable travel for users of all ages regardless of their mode of transportation.”

- National Complete Streets Coalition 2005

# 01 PROJECT OVERVIEW

20th Street Feasibility Study for Streetscape Improvements

Apple Study - Partnership with RPCGB/ Regional Planning Commission of Greater Birmingham and the City of Birmingham

Scope - 20th Street from 2nd Avenue S to Linn Park

The 20th Street corridor, also known as “Birmingham Green”, is the “Main Street” for the Birmingham Central Business District. In the 1970s, the corridor underwent a major streetscape improvement project that included new sidewalks, landscaping, lighting, and street furniture. Prior to this work there were no trees along 20th Street. The campaign to raise funds was called “Birmingham Green: a Cooperative Effort”. Work was completed by 1973 with several building owners helping with the effort. Now after almost 50 years the streetscape improvements are nearing the end of their useful life cycle and are in need of improvement. This presents an opportunity to redesign the corridor with enhanced transit and pedestrian amenities. The project scope is to determine the feasibility and cost associated with streetscape improvements to be made along the corridor segment between Park Place (to the north) and 2nd Avenue South (to the south) and the addition of a free fare transit bus circulator.

Recommendations from this study are in keeping with the “Complete Streets” policy of the city and include design elements for making complete streets.



## CONTEXT MAP

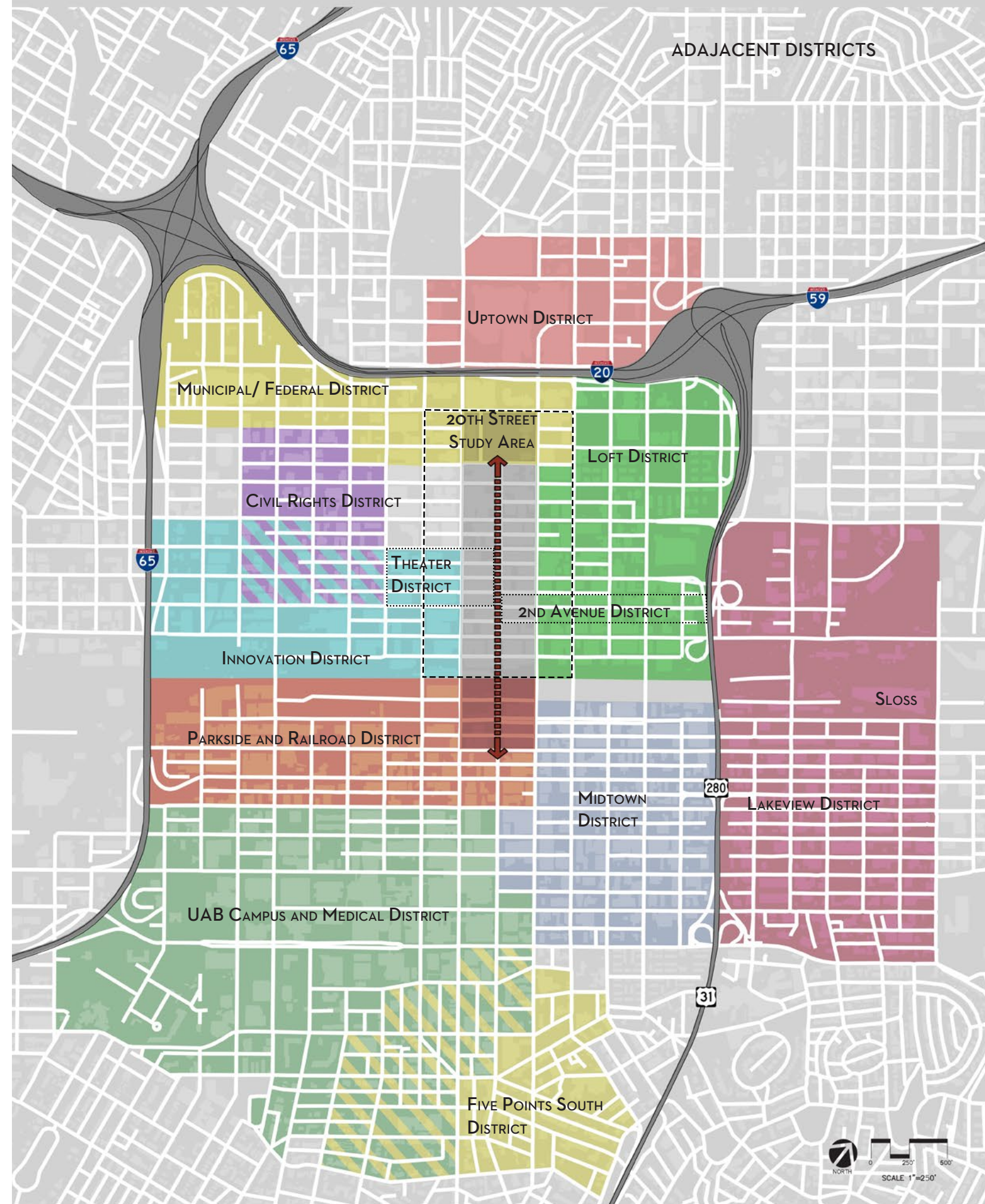
LEGEND

-  PARKS
-  STUDY SITE

# O2 EXISTING CONDITIONS

## Adjacent Districts

20th Street is surrounded by a rich and varied palette of individual districts that add to the diverse texture of the central business district. The north is anchored by the civic buildings of the Municipal District and complex of the BJCC partnered with the entertainment area of the Uptown District. To the east lie the Loft District and 2nd Avenue within this district, which offer a wide range of housing and restaurants. To the southeast sits the mixed-use Lakeview District which includes housing, industrial, and commercial ventures as well as the historic landmark Sloss Furnaces. The Civil Rights District is to the west and was recently designated as a National Monument. The west also includes the distinctive historic establishments of the Theater District and the Innovation District, which partners with UAB in developing new business for the area. The Parkside District borders the southern end of the project area, continuing the green theme along the length of Railroad Park. The up-and-coming Midtown District has been evolving beautifully in tandem with Parkside in recent years. All these districts are valuable assets and are within five minutes walking distance from 20th Street and make it the obvious "Main Street" and central spine of Birmingham.



# TRAFFIC STUDY

In order to determine the impacts of reduction of lanes and/or potential closure of 20th Street, a study area was determined. This study area included 19th Street, 20th Street, Richard Arrington Jr. Boulevard, and 22nd Street, and extends from 4th Avenue South to Reverend Abraham Woods, Jr. Boulevard. A total of 52 intersections were selected for analysis for the project.

Four exhibits documenting the traffic analysis include the following:

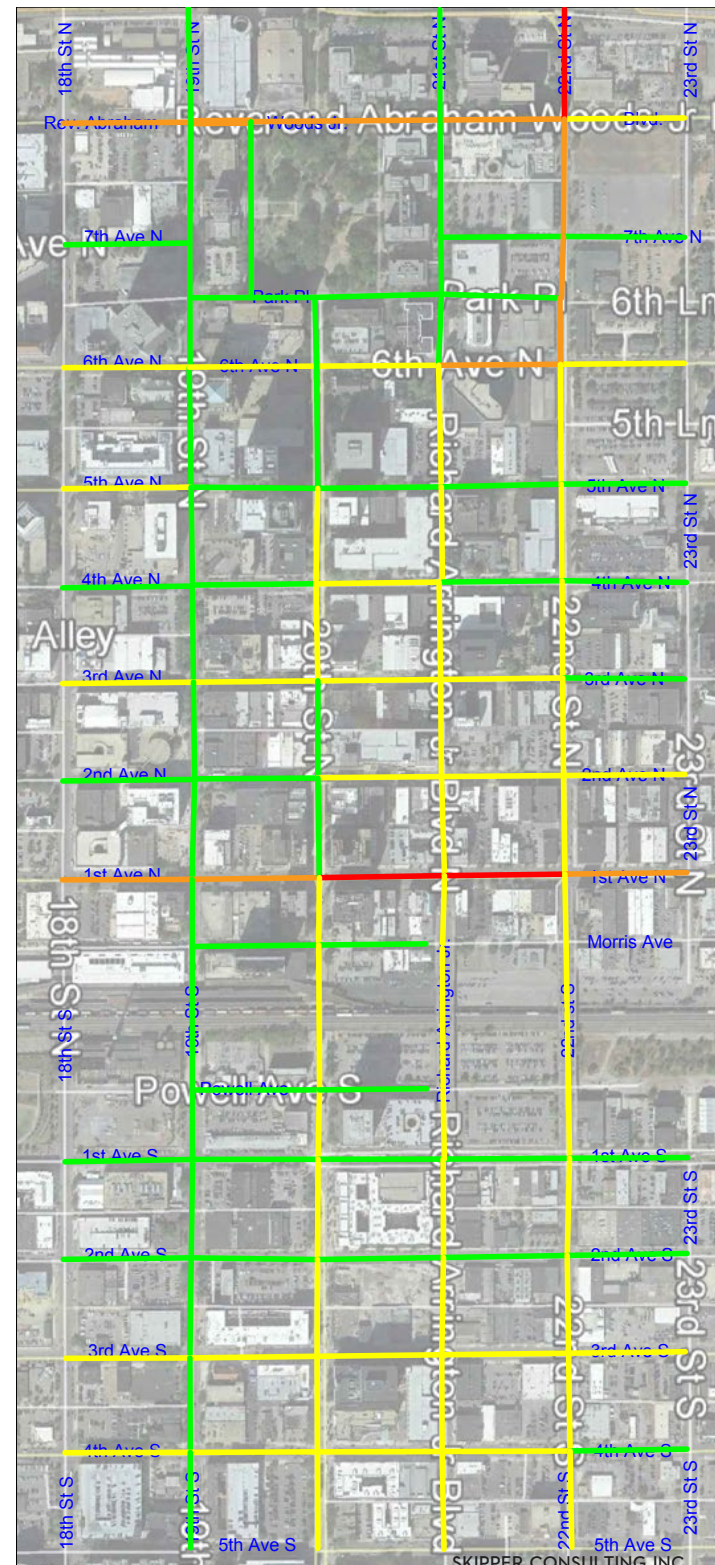
- Existing Traffic Counts for 52 Intersections
- Existing Segment Traffic Counts for 20th Street
- Hot Spots for three levels of analysis
- Existing Traffic Volumes
- Existing Traffic Volumes with "Road Diet" Project

The following observations regarding traffic flow on 20th Street in general terms are:

- a. The section of 20th Street from Park Place to 5th Avenue North has a lower traffic flow (less than 400 vehicles per hour)
- b. The section of 20th Street from 5th Avenue North to 1st Avenue North has moderate traffic flow (400 to 700 vehicles per hour)
- c. The section of 20th Street from 1st Avenue North to 4th Avenue South has higher traffic flow (700 - 1100 vehicles per hour).

The adjacent figures are heat maps illustrating the volumes in the peak hours of morning and afternoon.

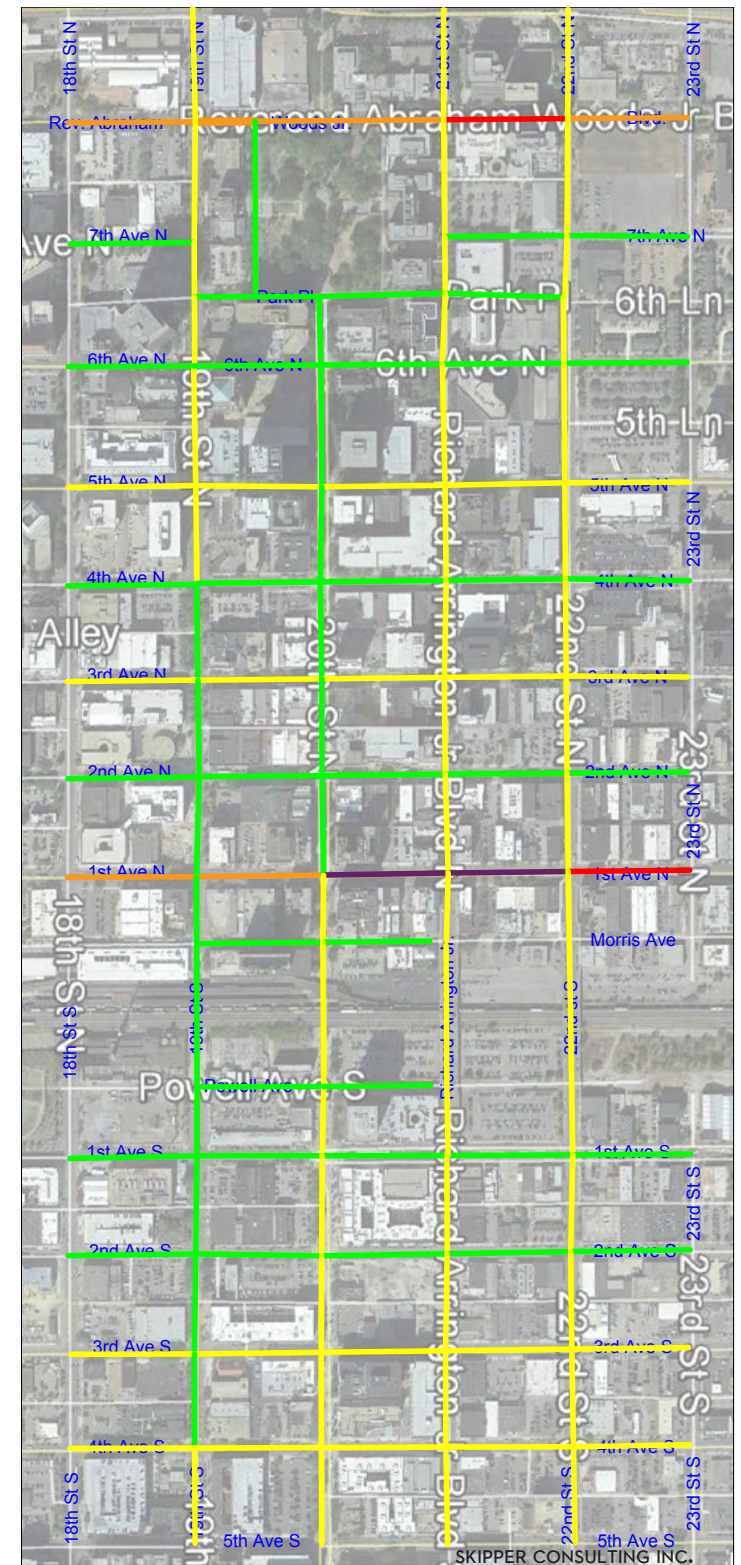
## EXISTING AM SEGMENT VOLUMES



EXISTING AM VOLUMES

- 0-600 vph
- 600-1200 vph
- 1200-1800 vph
- 1800-2400 vph
- 2400-3000 vph

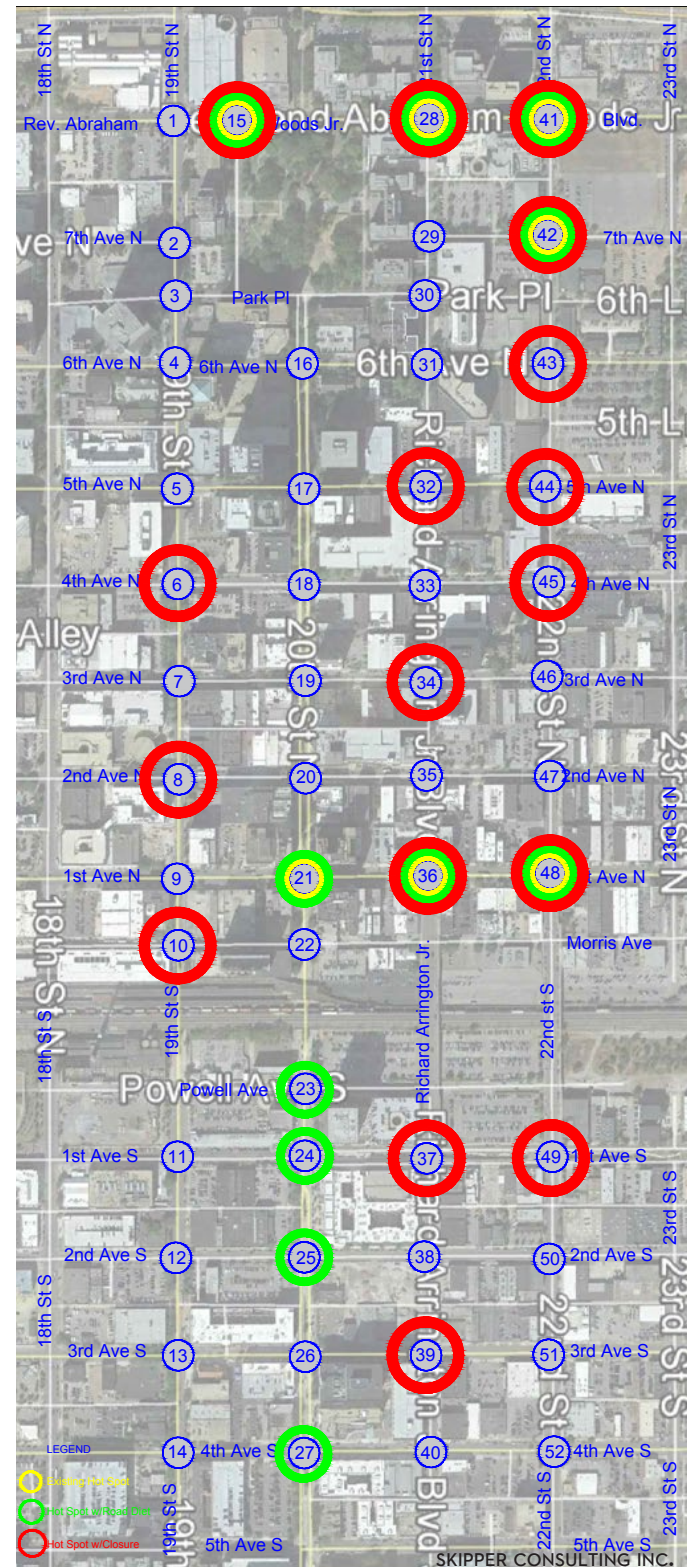
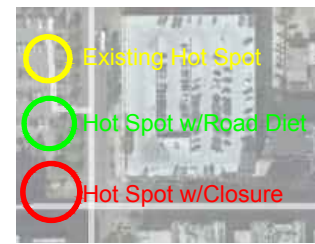
## EXISTING PM SEGMENT VOLUMES



EXISTING PM VOLUMES

- 0-600 vph
- 600-1200 vph
- 1200-1800 vph
- 1800-2400 vph
- 2400-3000 vph

LEGEND



HOT SPOT FIGURE

A "hot spot" map was developed from the counts to illustrate those intersections where one or more lanes (or lane groups where there are multiple lanes making the same movement) have more hourly traffic flow than is considered typical capacity for a signalized lane/lane group. The typical lane/lane group capacities in vehicles per hour (vph) used in the hot spot analyses are:

- 1 lane - 350 vph
- 2 lanes - 775 vph
- 3 lanes - 1225 vph
- 4 lanes - 1650 vph

The following observations regarding the hot spot analyses made are listed in yellow. Hot spots created by reduction in lanes on 20th are illustrated in green. Hot spots resulting from a complete road closure are illustrated in red.

The reduction of lanes along 20th Street would not affect the traffic flow to any great degree to prevent such an improvement. Complete closure would generate considerably more hot spots that could have more impact on traffic flow in the area. This study would benefit from a second Apple Grant to take a closer look at the impact of traffic with the final design recommendation.

STREETSCAPE LEGEND

- GOOD - high quality paving, landscape, lighting, site amenities and multiple uses
- MODERATE - medium quality streetscape; needs improved amenities, landscape, and paving
- POOR - low quality pavement and landscape; lack of amenities and accessibility; width offers limited use

FACADE LEGEND

- ACTIVATED - engaged, high quality facade, high level of activity
- SEMI - ACTIVATED - not engaged, lack of transparency in windows, low activity
- INACTIVE - not engaged, set back, blank/no facade, no interaction with sidewalk/street
- VACANT BUILDING






Key to exploring streetscape improvements along 20th Street is establishing the current condition of each block. The study reviewed the streetscape and matching facades and ranked the conditions along the way with a color code.

Most of the streetscape is predominately yellow with some red and green zones. Ideally we strive to have all green, so there is room for improvement for the streetscape as the scope of this work has already addressed.

The study indicated that fifty percent of the facades are predominately red with great need for improvement. Twenty percent of the facades were yellow with low activity and thirty percent were green and highly engaged.



## TRANSPORTATION LEGEND

-  PARKING DECK
-  PARKING LOT
-  TRANSIT ROUTES
-  ZYP STATION
-  BUS STOP

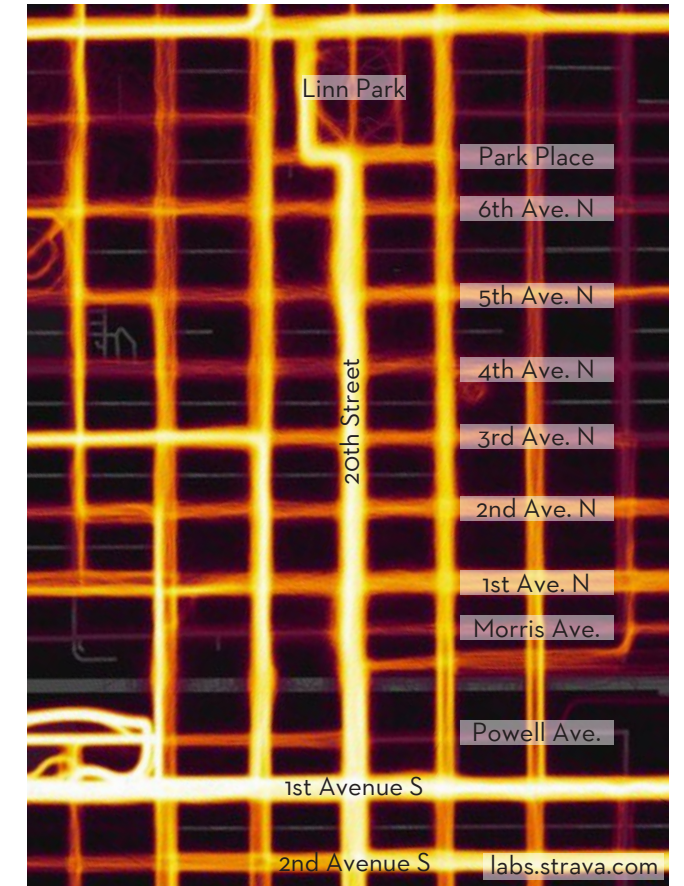
Currently 20th Street has two lanes of traffic each way with a divided median and no on street parking. Parking is available with surface lots and parking decks between 19th Street and Richard Arrington Jr. Boulevard but these are often far from the activity on 20th. There are five ZYP Bike Share Stations in the area along 20th Street between 19th and Richard Arrington Jr. Blvd. Cycling around town on the green bikes has become a familiar sight and is beginning to change the car culture of the CBD.

20th Street and all the cross avenues have transit routes with bus stops at each block on both sides. The Magic City Connector is a bus transit route that runs along 20th Street connecting routes linking to other attractions throughout the City, from Five Points to the Birmingham Jefferson Convention Center. Future improvements should provide better site furnishings for ease of traveling via transit and improve total parking space numbers.

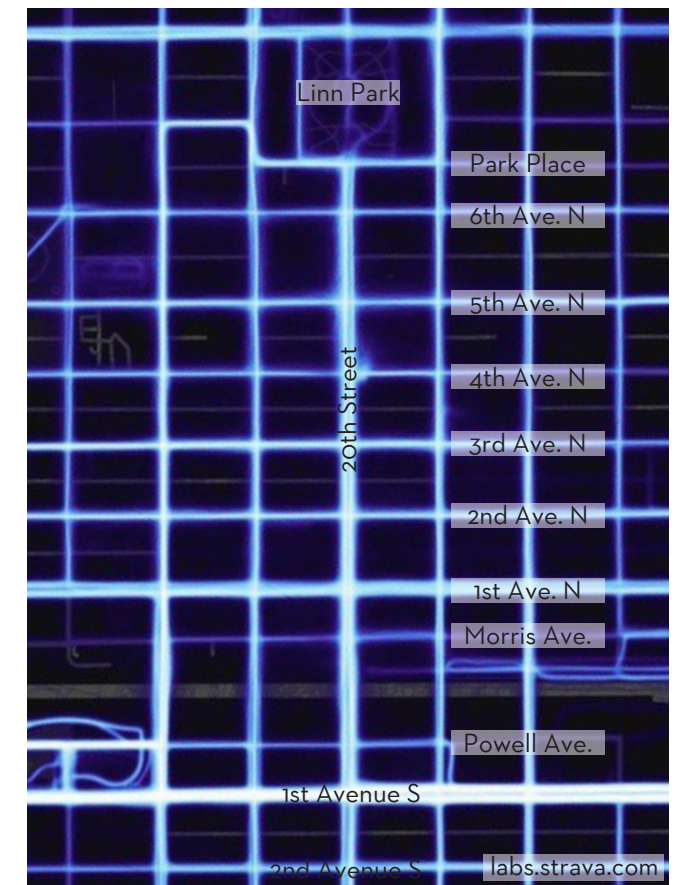


## STRAVA MAPS

Cycling has become a common feature of Birmingham with the introduction of the ZYP Bikes. The maps to the right document a crowd sourced heat map of different circulation patterns. The 20th Street corridor and the 1st Avenue greenway are the busiest areas for both foot and cycling traffic. 20th Street has fallen behind in proper infrastructure for these groups, especially cyclists, who are lacking a dedicated bike lane. Any future plans should attempt to remedy these shortcomings by creating a rich environment for pedestrians and cyclists alike.



CIRCULATION HEAT MAP - WALKING



CIRCULATION HEAT MAP - BIKING



## LAND USE LEGEND

- OFFICE
- INSTITUTIONAL
- PARKING
- RESIDENTIAL
- COMMERCIAL USE - RETAIL
- COMMERCIAL USE - RESTAURANTS
- MIX-USE
- PARK - GREENSPACE
- VACANT BUILDINGS

Office space dominates 20th Street with land use. Commercial use and restaurants are sprinkled throughout the street to give it a culinary presence. Residential use is present with a few units popping up and a major anchor of apartments/ mixed use at the south end adjacent to the Rotary Trail. Institutions are represented by the Church of the Advent at 6th Avenue N.



## EXISTING TREES

Most of the trees along 20th Street are nice mature specimens and are predominately oak trees. The oak trees are in good condition and should be protected and preserved for their maximum longevity. There are some red maples that are in poor health and candidates for removal. There is also a beautiful Ginkgo in the median just south of Linn Park that should be preserved. The shrubs and ground cover in the Right of Way along 20th Street are in poor shape and have reached their life span after 30 plus years and are in need of replacement.



# 03 CASE STUDIES

This study is exploring the possibilities for streetscape improvements that may result in lane reduction and sidewalk expansion or complete lane reduction with limited traffic for transit service. Traditionally, complete closure of streets has been considered a “pedestrian mall”. Since the 1970s over 200 pedestrian malls have been created for downtown main streets, and fewer than 25 are still existing. Why did pedestrian malls with complete street closure have a great rate of failure? It sounded like a good idea at the time, but for many cities to close their main vehicular artery was difficult and made it confusing for visitors to visit the downtown area because it disrupted the city’s traffic patterns. The most successful pedestrian malls were those in university towns like Charlottesville, Virginia or Boulder, Colorado where a large part of the population is walking. Sixteenth Street in Denver is another good example of a thriving pedestrian mall where enough density is present with major retail anchors, sports events, a successful transit system and access to two rail stations. Denver organized a special downtown assessment district in the early 90s to manage the mall and occasionally reevaluate the mall’s design and land use patterns. Free transit is utilized daily which reduces the need for parking.

Greenville, South Carolina’s Main Street may be one of the most successful models for Birmingham to use as inspiration. With streetscape improvements in the 70s, Greenville reduced the number of lanes, increased the sidewalks, and actively managed the street as a temporary pedestrian mall. Thursday and Friday nights the street is closed for pedestrian night life and on Saturday mornings for the farmers market. Falls Park on the Reedy was created as an anchor for this thriving streetscape that has become a major destination in the southeast.

## CHARLOTTESVILLE, VA PEDESTRIAN MALL (MAIN STREET)



Designed by: Lawrence Halprin  
 Built: 1979 Redesigned: 2009 (WRT)  
 Size: .35 miles  
 \*\* Closed to Traffic

**Design goals:** To promote human activity and interaction

**3 Main Elements**

1. Paving patterns
2. Fixed elements - creates rhythm
3. Movable elements - planter and seats

**3 Design Aspects that create a diversity of experiences**

1. Open Space
2. Tree Coverage
3. Intersections

**Benefits of Design:**

- Walkability
- Creation of many microclimates
- Diversity of activity
- Retains the form character of the downtown

**Issues of Design:**

- Less parking
- Lack of public seating

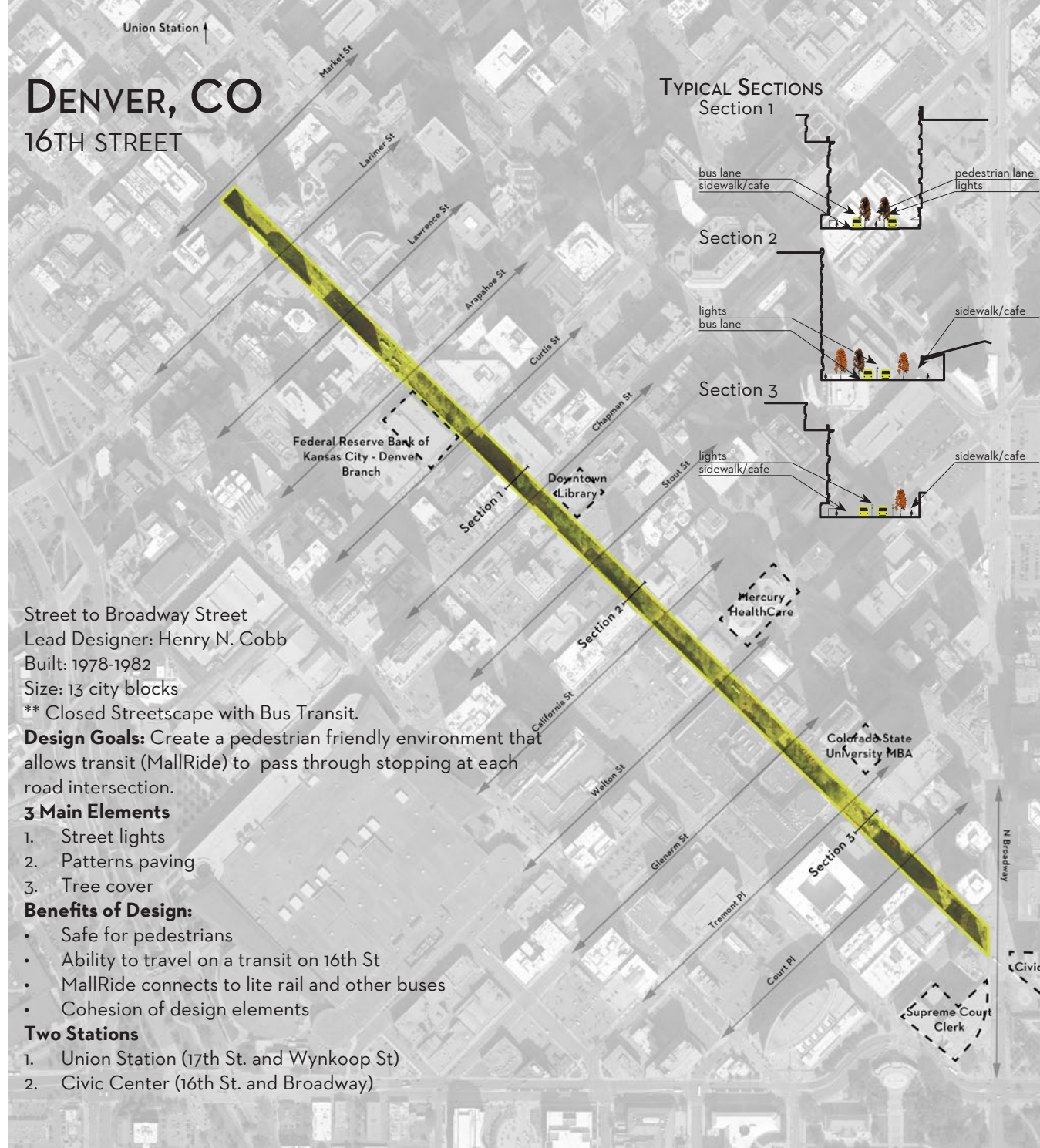
CASE STUDIES

BEFORE - 1976



AFTER - TODAY





BEFORE - 1970



AFTER - TODAY



**GREENVILLE, SC**

MAIN STREET

**TYPICAL SECTIONS**



BEFORE - 1970



AFTER - TODAY



## O4 DESIGN WORKSHOP

A design workshop was held for two days at the Auburn Architecture Urban Studio on 20th Street and 3rd Avenue South. The workshop was led by renowned landscape architect Walter Hood from Oakland, California and Jane Reed Ross of GMC. City department heads, local developers, merchants, residents and other stakeholders along 20th Street were invited to hear presentations providing information and demographics for the area, what has been done in the past, and the vision for the future. Assets and challenges were listed with an engaging discussion of what the people of Birmingham see for their main street.

The following assets and challenges were listed by the stakeholders at the workshop. Using this valuable input combined with the traffic study and analysis of the area, the design team developed a vision for the streetscape improvements and established goals and objectives for development of a design concept.



## ASSETS AND CHALLENGES

### **Assets**

- Traditional grid streetscapes are good bones for urban fabric/main street feel
- Mature street trees
- Flat grades
- CAPS (Security)
- Slow pace
- Ride sharing services
- Linn Park as an anchor
- Publix grocery store as anchor and food source in a food desert
- Well lit
- Zyp Bikes
- Alleys
- Proximity of UAB
- City connector
- Events like the Mercedes Marathon and Veteran's Parade
- Small town feel
- Big City attractions
- Restaurants
- Attitude shift to the better
- Historic buildings
- Great districts surrounding 20th Street: Municipal/ Civil Rights/ Innovation/ Parkside/ Loft District/ Midtown/ Lakeview District and the Theater District
- Lighting

### **Challenges**

- Broken sidewalks
- Central median is a barrier
- No bike lanes
- Abandoned buildings
- Lack of affordable housing
- Parking meters
- Empty storefronts
- Rats and trash
- Homeless presence
- Old lights
- Viaduct smells of urine
- Parking in general
- Plants that have met their life cycle
- Dull site furnishings



## VISION AND GOAL

### Vision

Promote 20th Street as “Birmingham Green” once again as a recognizable pedestrian friendly green zone from 19th Street to Richard Arrington Jr. Boulevard and from 2nd Avenue S to Linn Park.

### Goal

Develop an enhanced streetscape that is pedestrian and cycling friendly and is still open to traffic and supports living/working/entertainment and the arts in the CBD.

## CONCEPTUAL DEVELOPMENT

### Conceptual Development

Using the input from the various stakeholders, the design team set about creating a program for potential improvements to 20th Street. The focus was on creating a streetscape that built upon the existing strengths of the street, such as mature canopy and good transportation infrastructure, and improving the detrimental aspects. The hope is that with street improvement comes further development and investment into the 20th Street corridor.



## OBJECTIVES

**Complete Street** - expand the sidewalks/reduce vehicular lanes, minimize crossing widths with bump-outs, preserve existing trees worth saving, improve pedestrian crossings, add new trees and landscape with updated site furnishings, lighting and way-finding signage.

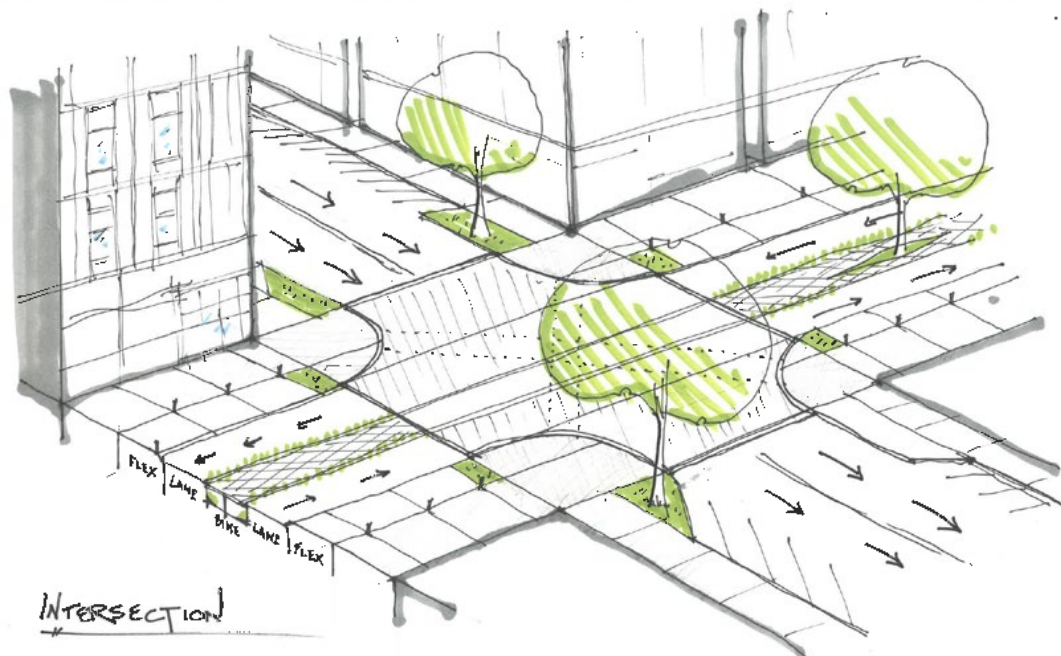
**Create a Birmingham Green Zone** - reduce lanes from 3 to 2 lanes and add diagonal parking on the adjacent Avenues from 19th to Richard Arrington Boulevard to slow traffic down and provide more parking, lights and street trees. (This will still work along the avenues if the city converts the one-ways into two-ways as stated as a goal in the Comprehensive Plan for the downtown area.) Reduce traffic along 20th Street by removing the inner medians and reduce lanes from two lanes to one each way servicing reduced traffic and the Magic City Connector bus.

**Promote Safe Cycling** - add bike lanes for safe cycling down the center of the street with a vegetative border that functions as bio-retention/storm water drains as well as defines the bike ways spatially, making them safer.

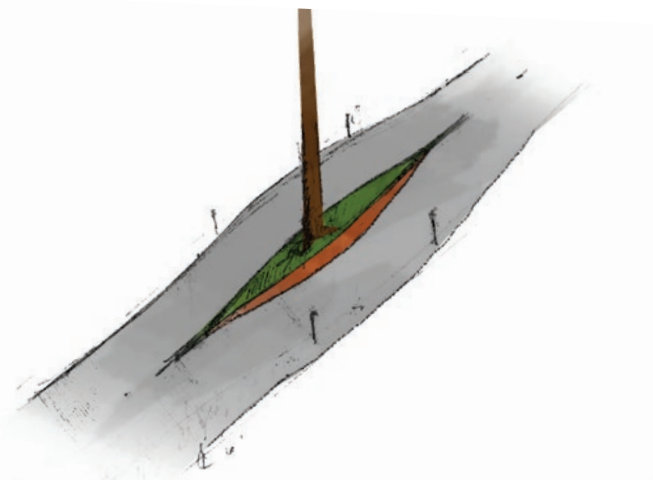
**Improve Storm-water Management** - create bio-retention/infiltration in the center of the street to work in conjunction with the drainage system, directing water away from the sidewalks and creating a green border for the bike lanes.

**Engage Stakeholders** - create an organized special district that manages and programs activities and events to engage pedestrians and local businesses.

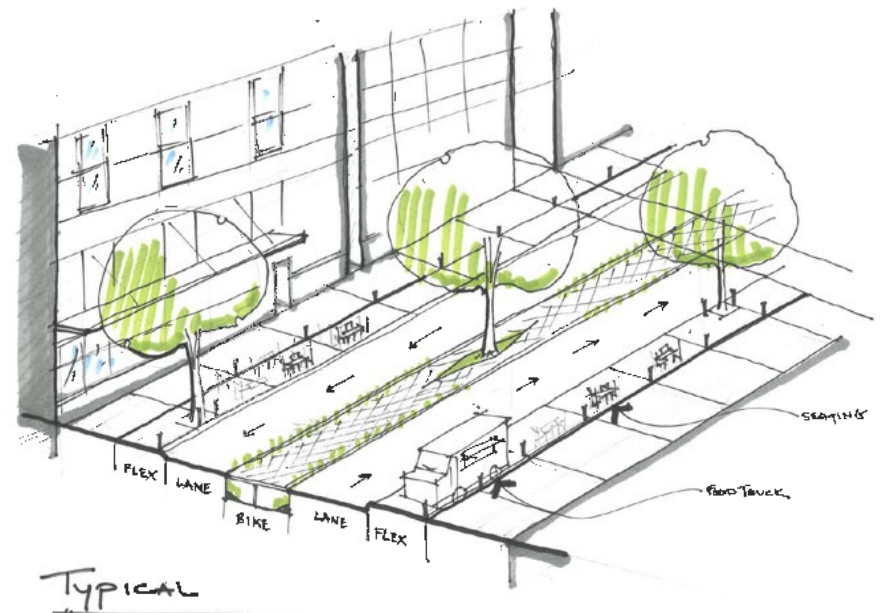
**Transit** - find partners for funding the Magic City Connector Transit.



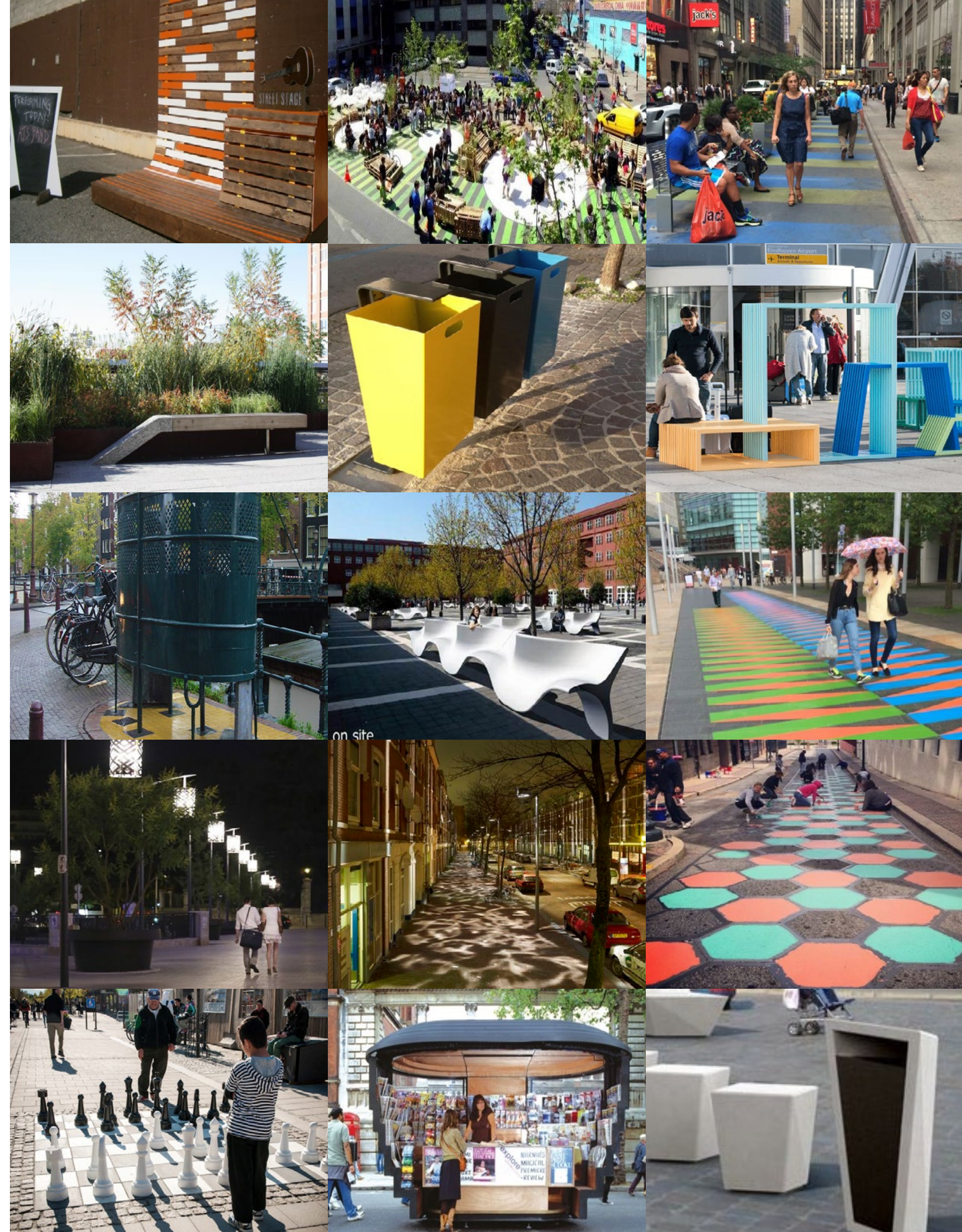
20th Street Intersection Conceptual Sketch



Island Conceptual Sketch for Existing Trees in Medians

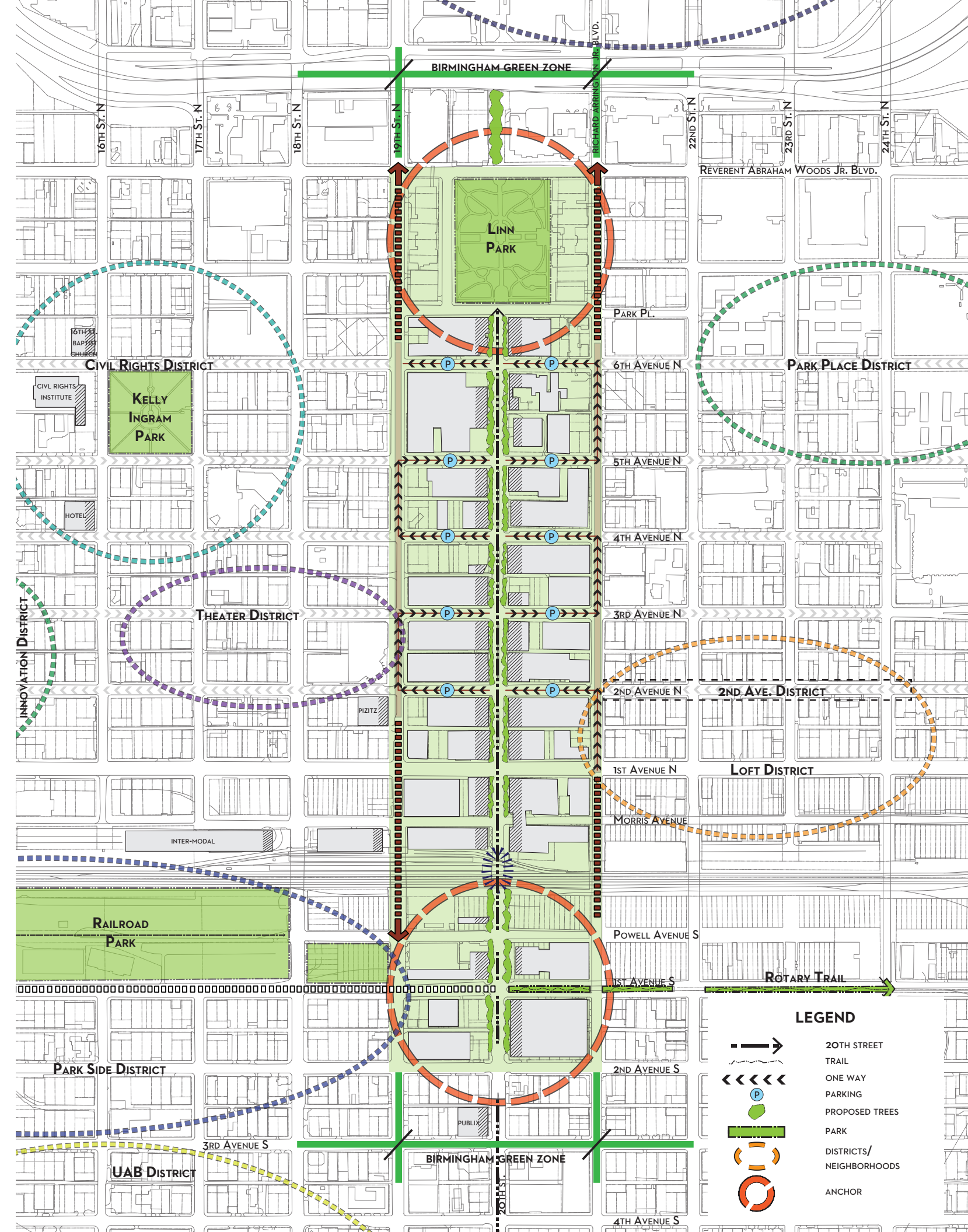


20th Street Section Conceptual Sketch



# 05 DESIGN CONCEPT

The driving concept for improvements along 20th Street is to revitalize a “Birmingham Green” district or zone for the area between Richard Arrington Jr. Blvd and 21st Street between 2nd Avenue South and Linn Park. Making improvements along the avenues between these two streets creates an awareness for the district before actually arriving at 20th Street. This area is a pedestrian friendly “zone” with slower traffic, enhanced site furnishings and landscaping. Improvements include reducing the number of lanes, adding bike lanes, improving pavement, planting trees, updated site furnishings, updated lighting, way-finding signage and new traffic lights on 20th Street as well as the avenues between 19th and Richard Arrington Jr. Blvd. The diagram to the right illustrates this concept.





**Street Improvements**

- Implement road diet with 4 lanes reduced to 2 lanes.
- Remove the central median, but keep existing trees in raised steel islands.
- Expand sidewalks with three different zones: Flex Zone, Core Zone, and Building Border.
  - **Flex Zone** - paved in plank pavers, on the street-side of the sidewalk functions as pullover for buses, delivery trucks, valet and service and also serves as an activities zone during street events.
  - **Core Zone** - paved in brick, is where seating, bus shelters, and new trees are located and other site furnishings occur.
  - **Building Border** - scored concrete and functions as passage along the street and to buildings and parking.
- Bio-retention/ drain inlets border the bike lanes and have breaks for pedestrian passage.
- A double row of trees on each side of the street mixed with protected existing trees (existing trees located in the original central median are protected with raised steel islands between the bike lanes).

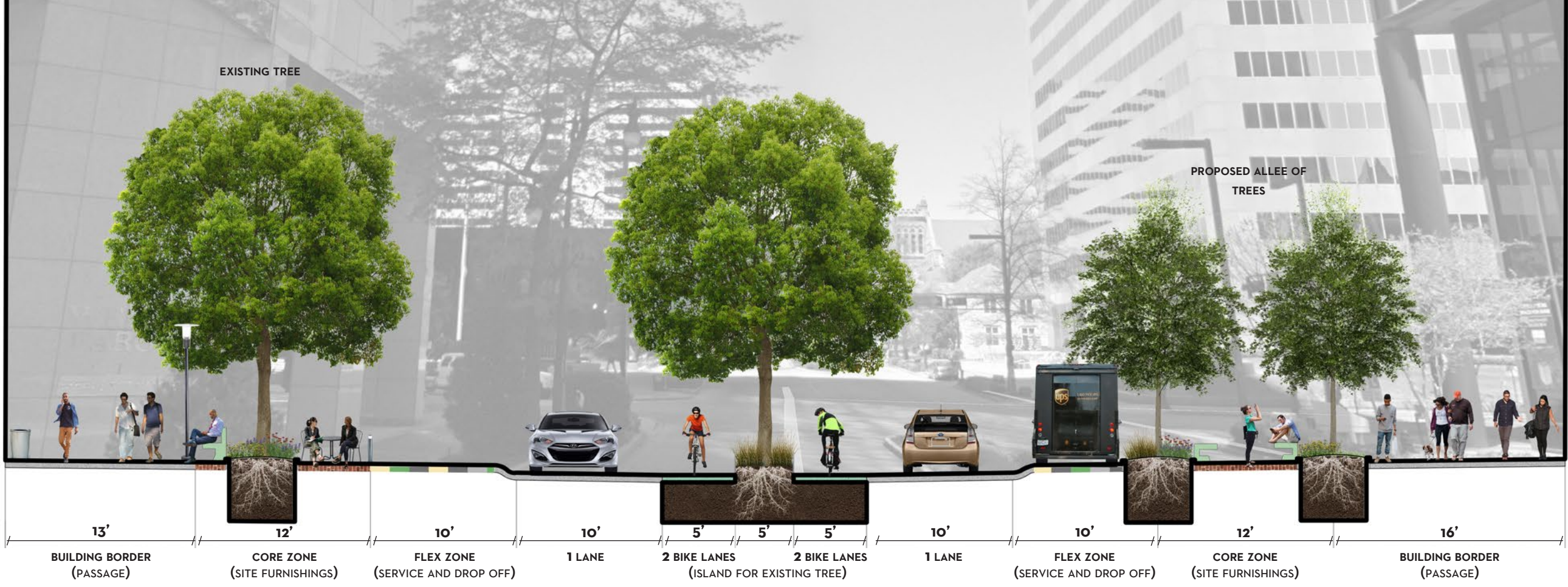
- Bike lanes run down the center of 20th with a planted strip and drain inlets as a border separating the bike lanes from vehicular aisle. This scenario celebrates cycling with ornamental grasses that define the space. Another option illustrates the bike lanes on the outside perimeter of the vehicular lanes adjacent to the flex space. See section on page 36.
- Updated lights, site furnishings, and wayfinding signs.
- Magic city connector transit with sheltered bus stops at every other block.
- Green accents are utilized throughout 20th street in site furnishings, paving, planted islands and bike lanes to emphasize the concept of the “Birmingham Green”.



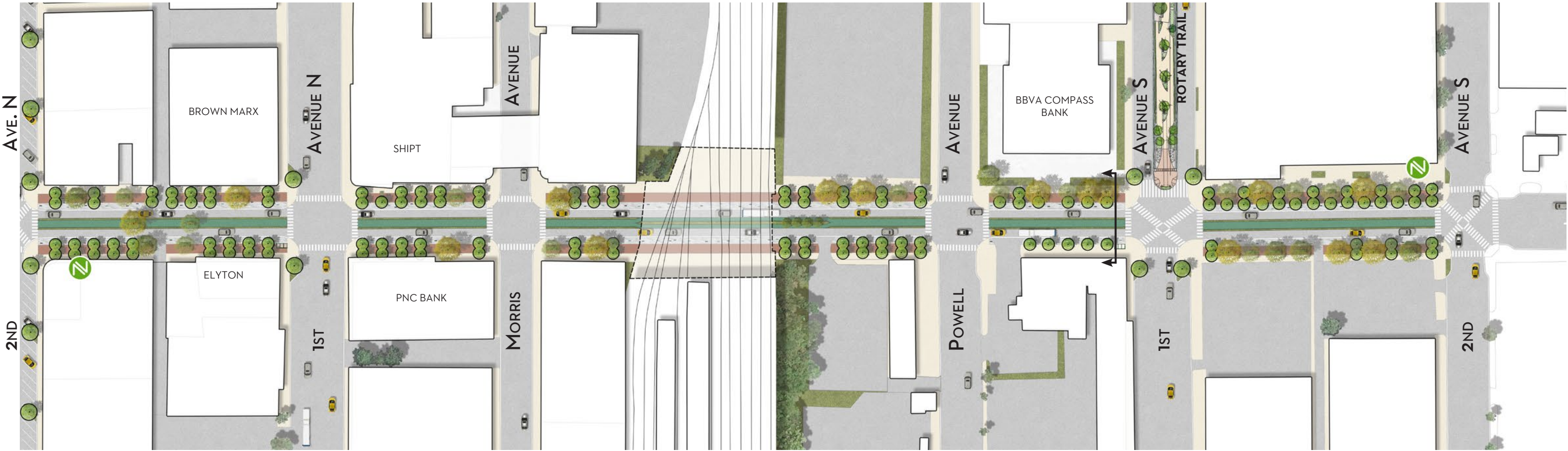
20TH STREET FROM LINN PARK TO 2ND AVENUE NORTH



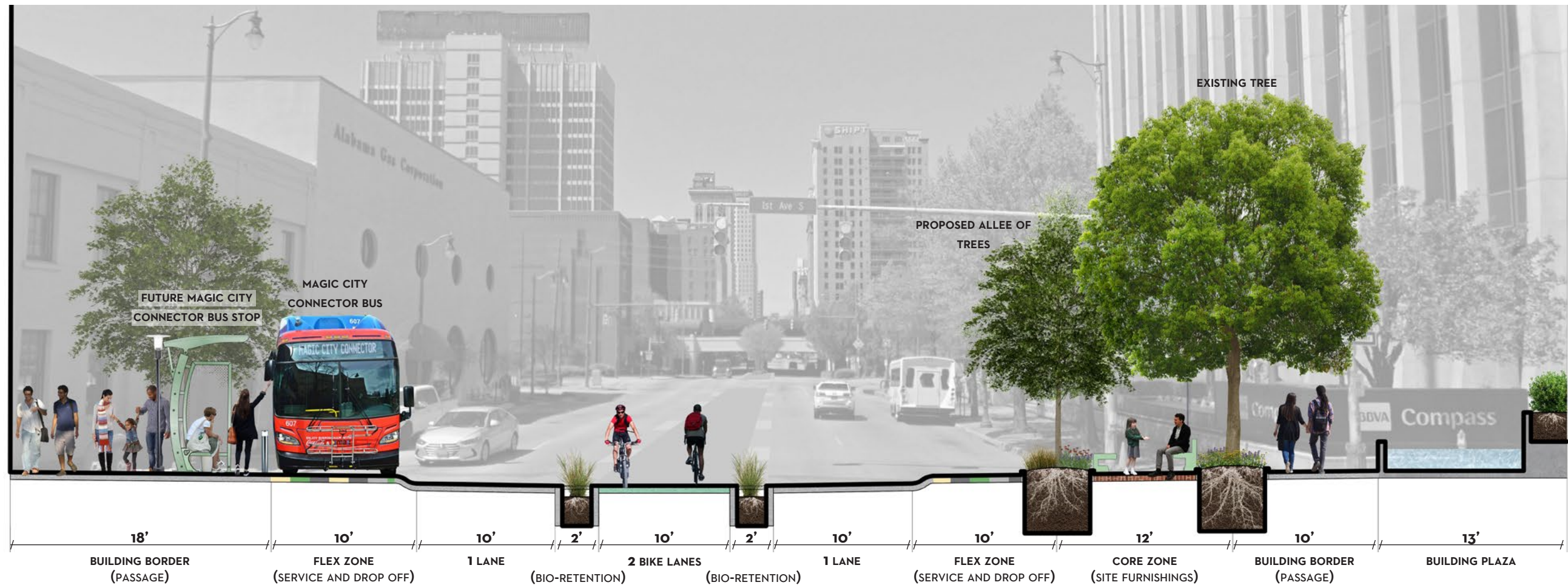
SECTION BETWEEN 2ND AND 3RD AVE. N



20TH STREET FROM 2ND AVENUE NORTH TO 2ND AVENUE SOUTH

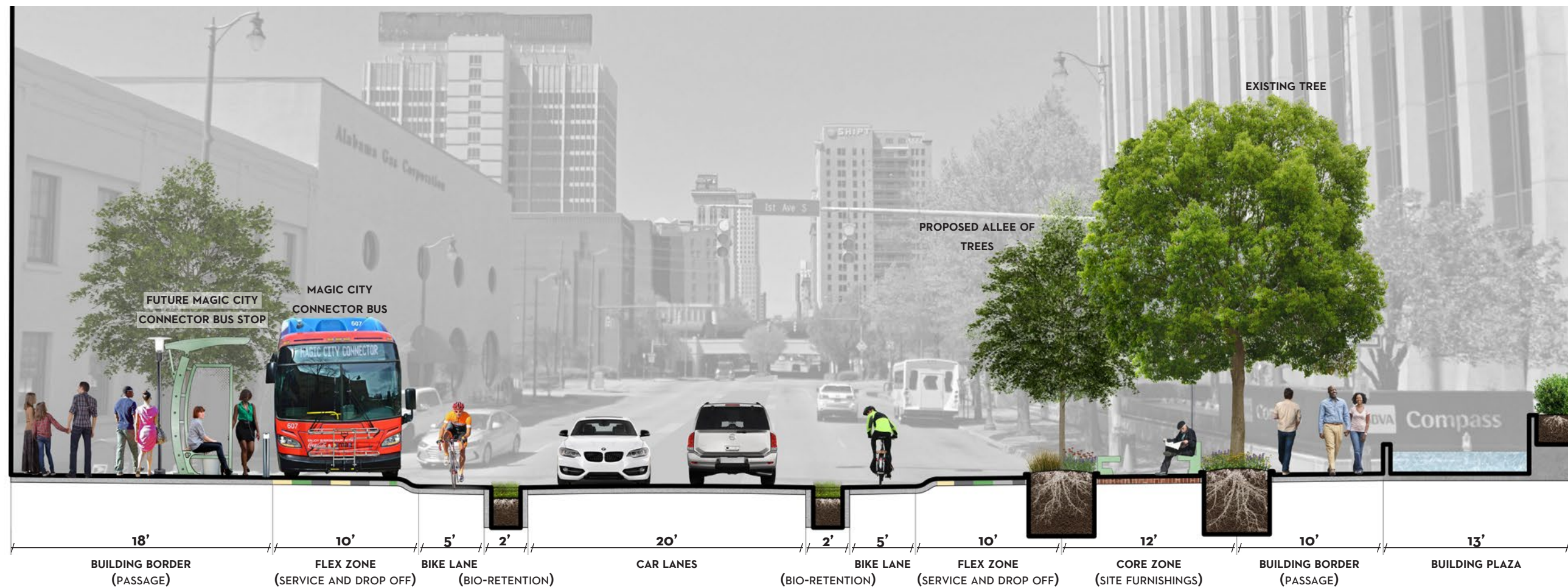


SECTION BETWEEN 1ST AVE. S AND POWELL AVE.



## OPTIONAL BIKE LANE LOCATION

The bike lanes located down the center of 20th Street highlight and celebrate cycling and frame the vehicular lanes with a green strip. Some people may be more comfortable with a traditional location of the bike lanes on the outside edge of the vehicular lane. On this page there is a section illustrating the optional location. The landscape buffer strip will be lower profile than the center of the street location, which will allow more flexibility in the flex zone.





## 20TH STREET LOOKING AT 3RD AVENUE N

### Implementation

Landscape improvements for 20th Street set forth a bold vision for the City to redefine the main street and central spine for the central business district. It will be the thread that connects other areas of town that have seen improvements with the current development renaissance such as Uptown, UAB and Parkside with Railroad Park and the Rotary Trail. Improvements along 20th Street are key to continuing the momentum of development in the Central Business District and addressing the growing needs of downtown life and people enjoying active lifestyles of walking, cycling and the ease of riding transit. The concept focuses on developing a plan that includes the elements of "Complete Streets" with reduction of traffic lanes, expansion of sidewalks for a more pedestrian friendly atmosphere, introduction of free transit for ease of movement up and down the corridor, introduction of bike lanes, additional planting and innovative storm water management for environmental low impact design.



## 20TH STREET TOWARDS 3RD AVENUE

The plan will require a significant commitment of time, energy and financial resources to implement. This report included a traffic count to understand the effect on traffic flow with reduction of lanes. Additional traffic studies will be required to take a closer look at the traffic patterns with the current concept in mind and would be the next step in implementation.

## IMPLEMENTATION MATRIX

*The following steps would be recommended to proceed with streetscape improvements:*

- Phase 2 of the Traffic Study for a closer look at the traffic patterns.
- Adoption of the design concept by the City of Birmingham.
- Bring back the name “Birmingham Green” for 20th Street.
- Develop Design Development Plans with a phasing plan with short term and long term tasks with a schedule and cost estimates.
- Identify funding for implementation.
- Identify a “Management Group” with programming and maintenance considerations.
- Develop Construction Documents for Phase I of the Design Concept and proceed with implementation.

## IMPLEMENTATION AGENCIES

The original streetscape improvements made in the 1970s were promoted with funds raised by using the name “Birmingham Green.” They were made with a public/private partnership of different agencies, the city and business people partnering to make the needed improvements to encourage activity in the downtown area. For many years 20th Street was called “Birmingham Green.” As years have passed, that name has disappeared. Its prudent to bring that name back along with the public and private partnerships.

*The following agencies are key players in the partnerships along with Business and Stakeholders.*

- COB - The City of Birmingham
- RPCGB - Planning Commission of Greater Birmingham
- MPO - Birmingham Metropolitan Planning Organization
- CAP - City Action Partnership
- REV Birmingham
- NA - Neighborhood Associations
- FWLAT - Freshwater Land Trust
- Local Business Owners
- Local Property Owners
- Utility Providers
- Downtown Re-development Authority
- Auburn University Urban Studio in Birmingham
- BJCTA

# 06 PHASING AND ESTIMATES OF COST

## **Phase 1 - 20th Street from Morris Avenue to Park Place** (Roughly 7 blocks or 2700 linear feet)

### **Improvements include the following:**

1. Expand Sidewalks
2. Remove 2 lanes of traffic and preserve existing concrete paving
3. Remove medians
4. Bike Lanes (concrete paving)
5. Site furnishings (benches, tables, bike racks, banners, trash receptacles)
6. Wayfinding signage, lighting
7. Landscape planting
8. Traffic Lights and Signage (Pedestrian Scramble)
9. Drainage infrastructure

Each block averages \$2 Million in costs for a total of \$14 Million for 7 blocks.

## **Phase 2 - 20th Street from 2nd Avenue South to Morris Avenue** (Roughly 3 blocks or 1200 linear feet)

1. Expand Sidewalks
2. Bike Lanes
3. Site Furnishings
4. Wayfinding Signage, lighting
5. Landscape Planting
6. Traffic Lights and Signage (Pedestrian Scramble)
7. Drainage Infrastructure

Each block averages \$1.8 Million in costs for a total of \$5.4 Million for 3 blocks.

## **Phase 3 - Side Avenues between 19th Street and 21st Street from 2nd Avenue N to Park Place** (Roughly 7 blocks or 6,811 linear feet)

1. Remove one lane and provide diagonal parking.
2. Provide new sidewalks
3. Street trees in parking islands
4. Street lights
5. Resurface Asphalt, new striping

Each section averages \$1 million with a total of \$7 million for 7 blocks.

## **Phase 4 - Side Avenues between 19th Street and 21st Street from 2nd Ave S to Morris Avenue** (Roughly 3 blocks or 6,811 linear feet)

1. Provide Street Trees
2. Diagonal Parking only on 2nd Avenue S with bike lanes
3. Street Lights
4. Resurface Asphalt, new striping

Each section averages \$1 million with a total of \$3 million.

Total Project is estimated to be \$29 Million for implementation.