Comprehensive Master Plan for Addicks Subdivision

Urban Realm Master Plan_ Enhancing Community Resilience
ACKNOWLEDGEMENTS

We would like to express our sincere appreciation for the generous support from Ms. Fabiana Demarie, Urban Planner, Mr. Clark Martinson, General Manager, and Mr. David Hightower, President of The Energy Corridor District. They provided us with the great opportunity to learn and further our education with such a progressive and inspirational site. Our appreciation is also extended to The Energy Corridor District Board members. Their gracious support included providing the students involved with the Urban and Landscape Design Service Learning Scholarship in 2017.
### Chapter 1  Introduction
- 1.1 Project Introduction
- 1.2 Site Location
- 1.3 Climate Condition
- 1.4 Socio-Demographic
- 1.5 Economic
- 1.6 Existing Circulation of the ECD
- 1.7 Existing Land Use of the ECD

### Chapter 2  Case Study

### Chapter 3  Site Analysis
- 3.1 Land Use Analysis
- 3.2 Circulation Analysis
- 3.3 Building Heights Analysis
- 3.4 Advantages & Disadvantages

### Chapter 4  Design Goals & Spacial Programming
- 4.1 Goals & Objectives
- 4.2 Spatial Programming

### Chapter 5  Master Plan & Design System
- 5.1 Master Plan
- 5.2 Land Use
- 5.3 Circulation System
- 5.4 Green Network System
- 5.5 Recreational Space
- 5.6 Stormwater Management
- 5.7 Way Finding System
- 5.8 Birds eyes view

### Chapter 6  Streetscape
- 6.1 Overview
- 6.2 Woodland Zone & Complete Street
- 6.3 Crossing Zone
- 6.4 Commercial Zone
- 6.5 Transit Zone

### Chapter 7  Open Space Plan
- 7.1 Overview
- 7.2 Open Space System
- 7.3 Addicks Park North
- 7.4 Addicks Park South
- 7.5 Terry Hershey Park
- 7.6 Pedestrian/Bike Bridge
- 7.7 Underpass

### Chapter 8  Economic Growth
- 8.1 Overview
- 8.2 Mixed-Use Residential
- 8.3 Shopping Center & Office
- 8.4 Startup Studio

### Chapter 9  Design Impact
- 9.1 Land Use Change
- 9.2 Building Area Change
- 9.3 Stormwater Treatment
- 9.4 Network Change
- 9.5 Economic Growth

### Appendix
Chapter 1 Introduction
CHAPTER 1 INTRODUCTION
The project site is located in The Energy Corridor district which is a great economic center based on petroleum industry in West Houston. Influenced by the energy industry depression, now this area is facing severe layoff and population loss problem. This project seeks to reclaim the Addicks subdivision with highly shrinking risk into an unconventional neighborhood that attracts new residents, industries, and businesses.

The primary challenges of this project are poor housing and amenity condition, limited safe accesses to the main street and trails, and no visual and physical hierarchy of the existing development. To respond to those challenges, we established 4 main goals:
1) Designing unconventional residential to attract new residents;
2) Introducing innovative startup studio to increase industrial diversity;
3) Creating a well-arranged multi-modal transportation system along Park Row Dr. to promote walkability and bikeability;
4) Implementing ecological friendly design approaches improving the quality of both natural and built environments.

To achieve these goals, this design solution developed several design principle. First, existing abandoned single families are demolished and redeveloped into a mixed-use apartment. Second, the startup studios are developed on the east side of the apartment building where used to be a large concrete parking lot. The new business complex is built on the south side of the park row, which could make this place an important destination. Third, Beautiful street frontage, nice amenities, and safe crossing/intersection could create a walk and bike friendly condition. Fourth, new trails and bus routes are introduced to improve the transit system. Low impact development applications are implemented to manage both stormwater quantity and quality. Porous pavement and green roofs are implemented. Finally existing forest and detention pond are preserved and transformed into recreational open space.

This design finally can re-establish itself as a vibrant neighborhood with stronger economic growth.
The Energy Corridor is a district located along Interstate Highway 10 from Barker Cypress to Kirkwood Road and extends south along Eldridge Parkway and Enclave Parkway to the Westpark Tollway. Occupied by more than 300 domestic and international energy and engineering companies, this district has become the third largest employee center in the region.

Surrounded by large scales of residential communities, business areas as well as two large inner city reservoirs (George Bush Park & Bear Creek Pioneer Park), this district has considerable potential to be developed into a livable district with affluent natural resource, convenient transportation, vibrant business and commercial, safe residential, sustainable ecological effect, and walkable and bikable streets.

The project site is located on the north of Interstate Highway 10. Park Row Dr. is planned to be connected at here.
Chapter 1 Introduction

NATRUAL ENVIRONMENTS

AVERAGE TEMPERATURE (F°)

http://www.usclimatedata.com

<table>
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AVERAGE RAINFALL (in.)

http://www.usclimatedata.com

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SUN ORIENTATION

http://www.gaism.com

WIND DIRECTION

http://www.mdpi.com

NATURAL ENVIRONMENTS

HIGH POTENTIAL OF URBAN RUNOFF

http://www.usclimatedata.com

WIND DIRECTION

http://www.mdpi.com

Soil Infiltration (in/hr)

- Water: 0.2%
- 0.00-0.06: 42.5%
- 0.01-0.20: 24.5%
- 0.06-0.20: 26.0%
- 0.14-1.42: 14.9%
- 0.57-1.98: 14.0%

Hydrological Soil Group = D

https://tnris.org/
Chapter 1 Introduction

Natural Environments

FLOODING PLAN

Boundary

- ECD

Floodplain

- Floodway
- 100 Year AE Zone
- 500 Year X Zone


Addicks Reservoir

Barker Reservoir

Addicks Reservoir

Barker Reservoir
SOCIO-DEMOGRAPHIC ANALYSIS

GENDER (%)
- Male: 43
- Female: 57

HOUSEHOLD TYPES (%)
- Single-Family: 64
- Non-family: 36

YEAR HOUSE BUILT (%)
- 1949 or before: 4
- 1950-1969: 45
- 1970-1989: 30
- 1990-2004: 15
- 2005 or later: 15

ANNUAL EXPENDITURE (%)
- Housing: 33
- Transportation: 20
- Medical: 12
- Food: 12
- Personal Insurance: 8
- Healthcare: 15
- All others: 6

TRANSPORTATION MODES (%)
- Drive a car alone: 65
- Public transit: 20
- Taxi: 8
- Other: 7

Site Area: 119 Acre

Source: city-data.com
Chapter 1 Introduction

TRANSPORTATION ANALYSIS

PEDESTRIAN NETWORK

Legend
- Existing Sidewalks
- Existing Green Trails
- Proposed Sidewalks
- Parking Space
- Park & Ride
- Waterfront Area
- Water Channel
CHAPTER 2  CASE STUDY
<table>
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<tbody>
<tr>
<td>CUMBERLAND PARK _Hargreaves Associate</td>
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<tr>
<td>Cumberland Park demonstrates Nashville’s commitment to both its children and to sustainability through brownfield remediation, floodplain preservation, stormwater harvesting, improved biodiversity, and interpretation of cultural and natural resources.</td>
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<tr>
<td>WALLER CREEK _MVVA</td>
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<td>This plan was tasked with restructuring this spatially complex corridor, and its constructed nature, as the backbone for a series of new parks and neighborhood connections.</td>
</tr>
<tr>
<td>GURGAON NEW COMMUNITY MASTER PLAN _Sasaki</td>
</tr>
<tr>
<td>The new community is comprised of unique residential districts with diverse housing types, institutional uses, commercial uses, and extensive public spaces. The Gurgaon new community features a climate-appropriate public realm that serves the ecological purpose of groundwater recharge along with amenities and attractions that are critical components of liveability.</td>
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<tr>
<td>CLEVELAND EUCLID AVENUE HEALTHLINE BRT _Sasaki</td>
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<td>This plan redesigned the street to integrate the bus rapid transit system into the Euclid Avenue corridor, which connects the central business district with University Circle. It has helped Cleveland regain its footing and changed the perception of the city as a place to work, live, and reinvest.</td>
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<td><img src="image15" alt="Image 15" /></td>
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CHAPTER 3 SITE ANALYSIS
Chapter 3 Site Analysis
Addicks Subdivision
CIRCULATION ANALYSIS

- Dam
- Proposed Bike Lanes
- Existing Bike Lanes
- Single Family

BIKE LANES

ROADS & SIDEWALKS

- Dam
- Major Roads
- Minor Roads
- Existing Sidewalks
- Interstate Highway
Chapter 3 Site Analysis

BUILDING HEIGHTS ANALYSIS

- MULTI-FAMILY: 5-STORIES
- HOTEL: 5-STORIES
- SINGLE FAMILY: 1-STORY
- STORAGE: 1-STORY

Legend:
- SF: 5F
- 1F
STRENGTHS & WEAKNESSES

STRENGTHS

Good proximity to the site.

Good access to the recreational resource (reservoir).

Existing bike trails.

Great potential to bring diverse land use and start new construction.
WEAKNESSES

- Safety issue of walking and biking
- Lack of pedestrians and bike network systems
- No visual and physical hierarchy of the existing development.
- Outdated single family houses and large concrete parking lot.
- Noise pollution from the Interstate Highway 10
CHAPTER 4 DESIGN GOALS & SPATIAL PROGRAMMING
GOALS & OBJECTIVES

MULTI-MODE TRANSPORTATION

◆ Provide multi-transportation modes.
◆ Create multifunctional, inviting and safe transportation nodes.
◆ Enhance the connectivity for pedestrian and cycling use.
◆ Provide a connectivity plan linking open spaces.

LIVABLE COMMUNITY

◆ Increase land use diversity.
◆ Utilize the existing natural resource to serve as recreational spaces.
◆ Provide diverse and attractive destinations.
◆ Create a safe pedestrian and cycling network.
◆ Develop complete streetscape for Park Row.
◆ Improve sense of place and identity.
◆ Support vibrant community events.

ECONOMIC GROWTH

◆ Promote mixed-use development.
◆ Introduce start-up studios to attract diverse business types.
◆ Create shopping areas to serve the residents in and around the project site.

ENVIRONMENTALLY RESPONSIVE DESIGN

◆ Provide pleasant and easy access to natural areas.
◆ Preserve and protect existing forests.
◆ Implement functional, aesthetic and environmentally sustainable.
◆ Promote low impact development practices.
CHAPTER 5 MASTER PLAN & DESIGN SYSTEM
Chapter 5 Master Plan & Design System

**LAND USE**

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<tr>
<th>Use</th>
<th>Acres</th>
<th>Percentage</th>
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<tr>
<td>Industrial</td>
<td>20.71</td>
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<td>Mixed-Use Residential</td>
<td>9.41</td>
<td>7.9%</td>
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<tr>
<td>Green Space</td>
<td>52.72</td>
<td>44.3%</td>
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<tr>
<td>Open Space</td>
<td>2.47</td>
<td>2.1%</td>
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<tr>
<td>Commercial</td>
<td>20.48</td>
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<tr>
<td>Industrial</td>
<td>20.71</td>
<td>17.4%</td>
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**PROPOSED BUILDINGS**

- **Mixed Use Residential**
  - 749,280 sf
- **Industrial**
  - 178,014 sf
- **Commercial**
  - 421,071 sf
- **Office**
  - 253,148 sf
- **Garage**
  - 162,962 sf

**ROAD**
- 6.62 ACRES (5.6%)

**WATER**
- 6.59 ACRES (5.5%)

**GREEN SPACE**
- 52.72 ACRES (44.3%)

**OPEN SPACE**
- 2.47 ACRES (2.1%)

**MIXED-USE**
- 9.41 ACRES (7.9%)

**COMMERCIAL**
- 20.48 ACRES (17.2%)

**INDUSTRIAL**
- 20.71 ACRES (17.4%)

**HOTEL**
CIRCULATION SYSTEM

VEHICLE ROAD & PROPOSED BUS ROUTES

PROPOSED PEDESTRAIN CIRCULATION

PROPOSED BICYCLE CIRCULATION

- Ground Parking
- Garage
- Bus Routes
- Crossing
- Trails
- Sidewalk
- Underpass
- Underpass Bike Lane
- Proposed Bike Lane
- Existing Bike Lane

Chapter 5 Master Plan & Design System
Addicks Subdivision
GREEN NETWORK SYSTEM

**PRE-DEVELOPMENT**
- Preserved Forest: 28.0 acre
- Vacant Land: 79.6 acre
- Forest (Recreation): 28.8 acre
- Green Space (Grass): 24.7 acre
- Water (Retention): 6.6 acre
- Porous Pavement: 44.5 acre
- Concrete Paving: 9 acre
- Building (Abandoned): 0.8 acre
- Building (New Development): 14.4 acre

**POST-DEVELOPMENT**
- Forest (Recreation): 28.8 acre
- Green space (Grass): 24.7 acre
- Water (Retention): 6.6 acre
- Porous Pavement: 44.5 acre
- Concrete Paving: 9 acre
- Building (New Development): 14.4 acre

**Comparison Tables**

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<td>28.0 acre</td>
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<tr>
<td>Vacant Land</td>
<td>79.6 acre</td>
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<tr>
<td>Forest (Recreation)</td>
<td>28.8 acre</td>
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<tr>
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<tr>
<td>Water (Retention)</td>
<td>6.6 acre</td>
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<tr>
<td>Porous Pavement</td>
<td>44.5 acre</td>
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<tr>
<td>Concrete Paving</td>
<td>9 acre</td>
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**Area Comparisons**

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<td>Preserved Forest</td>
<td>1,305,390 sf</td>
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<tr>
<td>Recreational Green Spaces</td>
<td>1,120,944 sf</td>
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<td>Buffer</td>
<td>314,253 sf</td>
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<td>Rain Gardens &amp; Green Belts</td>
<td>43,563 sf</td>
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STORMWATER MANAGEMENT

STORMWATER MANAGEMENT SYSTEM

Rain Garden
Rain Water Harvesting
Detention Pond
Green Roof
Porous Pavement

RAIN GARDEN

GREEN ROOF

DETENTION POND

POROUS PAVEMENT

Water Tank
Rain Garden Drainage
Runoff
RECREATIONAL SPACE

Chapter 5 Master Plan & Design System
Urban Realm Master Plan_Enhancing Community Resilience

39
WAY FINDING SYSTEM
CHAPTER 6  STREETSCAPE
As a significant part of The Energy Corridor District development, the Park Row Dr. has been connected within the study site. This four lanes - two ways road will serve as a major road in the ECD area.

In order to accomplish the goal to create livable neighborhood, to promote a multi-modal transportation system, and to enhance attraction of the project site as a vibrant neighborhood to both potential residents and business, the complete street design approaches are introduced in this design.

The Elements such as traffic calming devices and crossing are implemented to improve safety, and increase walkability in this urban neighborhood. Bus stop shelter and bike racks are well organized to support a multi-modal transportation network. The retail shops, resting areas, as well as the street trees work to transform the street into a more comfortable and convenient area. A variety of features related to public amenities such as benches, street lights and way finding signs are applied with placemaking practices.

Finally, the environmentally friendly infrastructures are introduced to meet the goal of reducing the development impact in this site.

The streetscape elements are divided into three categories:

1) Amenities, which include benches, waste receptacles, lights, way finding signs, and maps;

2) Traffic facilities, which include bus stop shelters, bike racks, crossings, traffic lights, and signal timing changes;

3) Environmentally-friendly infrastructure, which includes some low impact development approaches such as street trees, rain gardens, and permeable paving.
The intersection of the Park Row Dr. and N Eldridge Pkwy adopts a design concept called "Dutch Intersection", the detailed design refers to the streetscape guideline of The Energy Corridor District proposed by a Texas A&M University design team in 2016.
WOODLAND ZONE & COMPLETE STREET

Existing Streetscape (Park Row)
WOODLAND ZONE & COMPLETE STREET

Proposed Streetscape (Park Row)
Chapter 6 Streetscape
Addicks Subdivision

CROSSING ZONE

SYSTEM
- Ped/Bike Bridge
- Underpass
- Crossing

AMENITIES
- Benches
- Waste Receptacle
- Pedestrian Light
- Street Light
- Way Finding Sign
- Map
- Bike Rack
- Pedestrian Crossing
- Traffic Light
- Signal Timing Changes
- Street Tree
- Permeable Paving
- Rain Garden
- Way Finding Sign
- Map
- Street Tree
- Permeable Paving
- Rain Garden
CROSSING ZONE

Chapter 6 Streetscape

Urban Realm Master Plan_Enhancing Community Resilience
COMMERCIAL ZONE

Chapter 6 Streetscape

Urban Realm Master Plan_Enhancing Community Resilience
Chapter 6 Streetscape

Addicks Subdivision

TRANSIT ZONE

AMENITIES

- Benches
- Waste Receptacle
- Pedestrian Light
- Street Light
- Way Finding Sign
- Bus Stop
- Shelter
- Bike Rack
- Pedestrian Crossing
- Street Tree
- Permeable Paving
- Rain Garden

MULTI-MODE TRANSPORTATION SYSTEM

Public Transportation

Bicycle

Pedestrian

Way Finding Sign

Street Light

Waste Receptacle

ADDICKS SUBDIVISION

54
CHAPTER 7 OPEN SPACE PLAN
The Open space system in the project site contains the newly developed Addicks Park near the existing forests, and the redeveloped Terry Hershey Park. It is divided into three parts by the Park Row Dr and Interstate Highway 10.

The main goals of the proposed open space plan are to preserve the existing forests, to provide recreational opportunities with the natural resource, and to create important destinations for the residents in this area as well as the from the surrounding neighborhoods to get access to proposed open space.

The basic principle of developing the Addicks Park is to preserve the existing vegetation as much as possible. Several activity clusters are located in the place where vegetation is relatively less dense in the north part of the Addicks Park. While in the south part, a newly proposed trial is implemented to enrich the existing trail system. The water channel in the Addicks Park North is enlarged as a large water body to create diverse wildlife habitats.

The Terry Hershey Park is redeveloped to enhance the park environment and become a new attraction to the surrounding residents. The new plan reorganizes the existing plan by relocating the existing facilities and offering new recreational areas.

The three parts of the open space system are connected by underpasses and crossings, which link to the current trail system of the West Houston. New pedestrian and bike bridges are built cross the water channel to increase connectivity between two sides of the water channel in the project area.
Chapter 7 Open Space Plan

Addicks Park N.

Addicks Park S.

Terry Hershy Park
Different activity clusters are designated with different functions, which is quite similar to the cells in creatures’ bodies that support the life.

Large open spaces are scarce in this area. A great lawn is designed right next of the large water body to provide more diverse recreational opportunities for the residents in this and surrounding neighborhoods.
GREAT LAWN & ADDICKS POND
CELL PARK -- PLAYGROUND

ADDICKS PARK NORTH
ADDICKS PARK NORTH

CELL PARKS (MODULAR POCKET PARKS)

ADVENTURE PARK

PLAYGROUND
ADDICKS PARK NORTH

CELL PARKS (MODULAR POCKET PARKS)

PICNIC FIELD

SKATEBOARDING FIELD
ADDICKS PARK NORTH

CELL PARKS (MODULAR POCKET PARKS)

RESTING AREA

PET PARK
Chapter 7 Open Space Plan

TERRY HERSHEY PARK

PRE-DEVELOPMENT

EXISTING CONDITIONS

POST-DEVELOPMENT

◇ Noise from IH-10.
◇ Inappropriate function.
◇ Add a screening buffer to block noise.
◇ Create various landforms to define outdoor spaces.
◇ Transform the existing play ground to pet park.

◇ Lack of identity.
◇ Relocate and expand the existing rose garden.
◇ Reorganize the resting areas.

◇ Lack of attraction.
◇ Relocate the existing pavillion.
◇ Control view shed.
◇ Add picnic tables.
◇ Redefine outdoor activity areas.

◇ Control view shed.
◇ Add picnic tables.
◇ Redefine outdoor activity areas.

◇ Problems
◇ Solutions

0 100 300 500 ft

N
Chapter 7 Section 2 -- Open Space Plan
Addicks Subdivision
CHAPTER 8 ECONOMIC GROWTH
Chapter 8 Section 3 -- Economic Growth

Addicks Subdivision

OVERVIEW

- MIXED-USE RESIDENTIAL
- LIFESTYLE CENTER & OFFICE
- STARTUP STUDIO

Park Row Dr.

IH -10
ACCESSIBILITY

- **WORK**: 2 min, 4 min, 5 min
- **SHOPPING**: 3 min
- **RECREATION**: 4 min, 6 min
- **MEDICAL TREATMENT**: 8 min

GO TO HOUSTON

30MIN DRIVING DISTANCE

- Mixed-Use Residential
- Recreation: 4 min walk
- Work: 5 min walk
- Shopping: 3 min walk
- Medical Treatment: 8 min walk

Source: ECD 2015 Inventory And Database
New mixed-use residential areas are proposed to replace the existing single-family houses.
PROXIMITY ANALYSIS

GROCERY STORES (30 MIN DISTANCE)

FITNESS CENTERS (THE ECD AREA)

RETAILS (30 MIN DISTANCE)

RESTAURANTS (THE ECD AREA)
Chapter 8 Section 3 -- Economic Growth

Addicks Subdivision

STARTUP STUDIO

- Multipurpose Hall
- Art Gallery and Studio
- Co-Working and Meeting Space
- Concert; Cinema; prom; Banquet
- Studio; Gallery; SOHO
- Events; Conference; Presentation; Workshop; Training

- Medical Laboratory Technology
- Agriculture Related Technology
- Cloud HQ and Data Center
- Internet technology
- Coffee and Gym
- Restaurants
- Retails
Total Volume of Rain = 647,782 sq.ft (Site Area) x 1.5 in. (Rain Event) = 80,973 cu.ft

- Detention Pond: 52,483 cu.ft (65%)
- Rain Garden: 11,779 cu.ft (14%)
- Bioswale: 10,450 cu.ft (13%)
- Vegetated Filter Strip: 1,433 cu.ft (2%)
- Vegetated Open Channel: 4,828 cu.ft (6%)

LID Features 35%: 28,490 cu.ft
Chapter 8 Section 3 -- Economic Growth

Rain Garden
Detention Pond
Water
Watershed Boundaries
RAINFALL COLLECTION INFRASTRUCTURE
### Bioswale (Area: 5,619 sq.ft.)

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<th>Depth(ft.)</th>
<th>Void Space</th>
<th>Volume(cu.ft)</th>
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<td>Gravel</td>
<td>1.5</td>
<td>3,371</td>
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<tr>
<td>Planting Mix</td>
<td>1</td>
<td>2,191</td>
</tr>
<tr>
<td>Ponding Depth</td>
<td>1.5</td>
<td>4,214</td>
</tr>
<tr>
<td>Undisturbed Subgrade</td>
<td>0.06</td>
<td>674</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>10,450</strong></td>
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</tbody>
</table>

### Rain Garden (Area: 6,333 sq.ft.)

<table>
<thead>
<tr>
<th>Depth(ft.)</th>
<th>Void Space</th>
<th>Volume(cu.ft)</th>
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</thead>
<tbody>
<tr>
<td>Gravel</td>
<td>1.5</td>
<td>3,800</td>
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<tr>
<td>Planting Mix</td>
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<td>Ponding Depth</td>
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<td>Undisturbed Subgrade</td>
<td>0.06</td>
<td>144</td>
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<td><strong>Total</strong></td>
<td></td>
<td><strong>11,779</strong></td>
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Total Volume of Water (Rain Garden) = 16,801 (cu.ft)

### Bioswale A (Area: 5,619 sq.ft.)

<table>
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<tr>
<th>Depth(ft.)</th>
<th>Void Space</th>
<th>Volume(cu.ft)</th>
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</thead>
<tbody>
<tr>
<td>Gravel</td>
<td>1.5</td>
<td>3,371</td>
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<td>Planting Mix</td>
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<td>2,191</td>
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<tr>
<td>Ponding Depth</td>
<td>1.5</td>
<td>4,214</td>
</tr>
<tr>
<td>Undisturbed Subgrade</td>
<td>0.06</td>
<td>674</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>10,450</strong></td>
</tr>
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</table>

Total Volume of Water (Bioswales) = 10,450 (cu.ft)
### Vegetated Filter Strips

<table>
<thead>
<tr>
<th>Depth(ft.)</th>
<th>Void Space</th>
<th>Volume(cu.ft.)</th>
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</thead>
<tbody>
<tr>
<td>Gravel</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Planting Mix</td>
<td>1.5</td>
<td>39% 1,189</td>
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<tr>
<td>Undisturbed Subgrade</td>
<td>0.06</td>
<td>24 244</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>1,433</td>
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</table>

### Vegetated Open Channels

<table>
<thead>
<tr>
<th>Depth(ft.)</th>
<th>Void Space</th>
<th>Volume(cu.ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravel</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Planting Mix</td>
<td>1.5</td>
<td>39% 4006.461875</td>
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<tr>
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<td><strong>Total</strong></td>
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<td>4,828</td>
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WELCOME PLAZA AND SCULPTURE GARDEN

STARTUP STUDIO

Urban Realm Master Plan_Enhancing Community Resilience

Chapter 8 Section 3 -- Economic Growth

Urban Realm Master Plan_Enhancing Community Resilience
WATER COLLECTION STRUCTURE AND SUNKEN AMPHITHEATER

Multipurpose Hall

Tree Pits

Water Collection Structure

Sunken Plaza

Sitting Area
Chapter 9 Design Impact

**BUILDING AREA CHANGE**

**BEFORE**
- SINGLE FAMILY: 89,492 SF
- FACILITY HOUSE: 8,864 SF

**AFTER**
- MIXED USE RESIDENTIAL: 749,280 SF
- COMMERCIAL: 421,071 SF
- INDUSTRIAL: 178,014 SF
- OFFICE: 253,148 SF
- GARAGE: 162,962 SF

**PARKING SPACE CHANGE**
- BEFORE: 902 CONCRETE PARKING LOT
- AFTER: 604 ECO-PARKING GARAGE

BEFORE
- 18 times

AFTER
- 330%
Chapter 9 Design Impact
Addicks Subdivision

STORMWATER TREATMENT

STORMWATER CAPTURE
2.87 ACRE-FEET

RAINWATER HARVESTING
6,683,090 GAL/YR

PRESERVED FOREST
1,305,390 sf

RECREATIONAL GREEN SPACES
1,120,944 sf

BUFFER
314,253 sf

RAIN GARDENS & GREEN BELTS
43,563 sf

STORMWATER TREATMENT

RAINWATER HARVESTING

Chapter 9 Design Impact
Addicks Subdivision

98
Network Change

**Pedestrian Network**
- 7,325 ft
- 20,872 ft (285% increase)

**Bicycle Network**
- 8,500 ft
- 19,029 ft (225% increase)

**Sidewalk**
- 8,425 ft
- 12,447 ft

**Bike Lane**
- 8,425 ft
- 10,604 ft
### Chapter 9: Design Impact

#### Economic Growth

- **ECONOMIC GROWTH**

#### Area x Rental Rate = Improvement

<table>
<thead>
<tr>
<th>Type</th>
<th>Area</th>
<th>Rental Rate</th>
<th>Improvement</th>
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<tbody>
<tr>
<td>Startup Studio</td>
<td>178,014sf</td>
<td>$37.06/sf</td>
<td>$6,177,086</td>
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<tr>
<td>Commercial</td>
<td>421,071sf</td>
<td>$15.20/sf</td>
<td>$6,400,279</td>
</tr>
<tr>
<td>Office</td>
<td>253,148sf</td>
<td>$6.34/sf</td>
<td>$1,604,958</td>
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<tr>
<td>Residential</td>
<td>749,280sf</td>
<td>$1.51/sf</td>
<td>$1,131,413</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$15,313,736</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Diagram

- **Addicks Subdivision**
- **Site Area:** 118 Acres
- **Future Hospital**
- **Future Health Care Community**
- **Voluntary Pond**
- **Forest**
- **Vacant Land**
- **Concrete Parking Lots**
- **Abandoned Single Families**
- **Hwy - 10**
- **IH - 10**
- **Park Row Dr.**
- **Companies**
- **Vacant**
- **Living**
- **Shopping**
- **Working**

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**Chapter 9 Design Impact**

**Addicks Subdivision**

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100
Chapter 9 Design Impact

CASE STUDY

Total $15,313,736
CUMBERLAND PARK _Hargreaves Associate

Location: Nashville, TN, United States

Cumberland Park demonstrates Nashville’s commitment to both its children and to sustainability through brownfield remediation, floodplain preservation, stormwater harvesting, improved biodiversity, and interpretation of cultural and natural resources.

It is a park that showcases its distinctive site qualities to attract families for imaginative play, events, and interaction with Nashville’s rich riverfront history. Cumberland Park and the neighboring redeveloped Bridge Building are the first constructed phases of a master plan prioritized to draw residents and visitors back to the river and downtown.

http://www.archdaily.com/228388/cumberland-park-hargreaves-associates
MASONIC AMPHITHEATRE AND PEDESTRIAN BRIDGE
_design/buildLAB

Location: Clifton Forge, VA, United States

The project consists of the complete redevelopment of the post-industrial brownfield into a public park and performance space. The idea driving the design is that the built elements are sculptural forms emerging out of the landscape of the park. The park is a series of extruded lawns and carved paths that knit the surrounding urban fabric into the site's circulation.

The site was previously the home of a derelict industrial warehouse whose materials were repurposed in the construction of the amphitheater shell and bridge. The park, serve to knit together the fragments of a fledgling arts based revitalization in neighboring buildings.

http://www.archdaily.com/253283/masonic-amphitheatre-project-designbuildlab-at-virginia-tech
APPENDIX

WALLER CREEK
_MVVA

Location: Austin, TX, United States

Cumberland Park demonstrates Nashville’s commitment to both its children and to sustainability through brownfield remediation, floodplain preservation, stormwater harvesting, improved biodiversity, and interpretation of cultural and natural resources.

The existing Waller Creek landscape comprises a mix of odd bits of abandoned utilities, new super-scaled infrastructure, moments of fragile natural beauty, and eroded earthen banks. The Waller Creek corridor is also a series of intensely urban spaces punctuated by municipal street crossings and unique infrastructural and landscape circumstances at every block. At the time of the Framework Plan, the study area of the creek also intersected two existing, albeit underutilized, parks: Waterloo Park to the north and Palm Park downstream. The presence of these existing nodes, along with the potential of activating underutilized areas around the creek, informed the central propositions of the Framework Plan.

This integrated nature-machine system reflects an evolving global narrative of how development of cities and promotion of natural systems are necessarily intertwined. The Waller Creek project recognizes the critical role of landscape architecture as a nexus for spatial, ecological, and cultural planning.

BUFFALO BAYOU PARK
_SWA

Location: Houston, TX, United States

This thoroughly renovated, 160-acre public space deploys a vigorous agenda of urban ecological services and improved pedestrian accessibility, with two new bridges connecting surrounding neighborhoods. The design utilizes channel stabilization techniques, enhancing the bayou’s natural meanders and offering increased resiliency against floodwaters while preserving the beauty of this culturally significant waterway.

The planting strategy reduced mowed turf by half, replacing it with riparian woodlands and naturalized meadows featuring native species. This further stabilizes the landscape, provides habitat, and uses Texan species to return a sense of place to the city. All lighting, plantings and walkways are designed to withstand the natural, periodic flooding of the bayou. The project provides continuous pedestrian and bike trails, public art, and special maintenance and safety provisions. The formerly trash-strewn waterway along the Promenade now teems with ducks, herons, turtles and fish. The Corps of Engineer’s existing HEC model was used to ensure that floodwater conveyance would not be compromised by the improvements.

http://www.swagroup.com/projects/buffalo-bayou-park/
GURGAON NEW COMMUNITY MASTER PLAN _SASAKI

Location: Gurgaon, India

The Gurgaon new community will become a world-class urban environment in the emerging district of Gurgaon, a burgeoning high-tech city on the outskirts of Delhi. Sasaki’s plan is anchored by sustainable planning that clarifies complex regulatory constraints, incorporates development targets, and enhances site ecological features. The new community is comprised of unique residential districts with diverse housing types, institutional uses, commercial uses, and extensive public spaces. The project acts as an extension of the city while providing a sustainable model of growth. The Gurgaon new community features a climate-appropriate public realm that serves the ecological purpose of groundwater recharge along with amenities and attractions that are critical components of liveability. The plan ensures vehicular connectivity as well as bike paths, pedestrian paths, and trails to encourage alternative modes of transport. The project includes approximately 8,000 residential units with approximately 73,000 residents.

The Gurgaon new community offers exemplary urban development amidst the chaotic growth that is prevalent in Gurgaon. Sasaki’s plan proposes a sustainable strategy that responds to the topography of the site and local climate and encourages sustainable architecture, pedestrian use, and public transit connectivity. The plan also provides a landmark public realm with retail and entertainment facilities that will be a center of leisure activity in Gurgaon and creates a large civic park out of the historic bund and nallah water channel for recreation and flood control. The plan also provides amenities such as schools, clubs, community centers, and civic facilities.

CLEVELAND EUCLID AVENUE HEALTHLINE BRT _SASAKI

Location: Cleveland, OH, United States

Cleveland’s Euclid Avenue is being transformed by a strategic $200 million investment in a Bus Rapid Transit Corridor, which has catalyzed $5.8 billion dollars in spin-off investments and over 13.5 million square feet of development. Sasaki redesigned the street to integrate the bus rapid transit system into the Euclid Avenue corridor, which connects the central business district with University Circle. It has helped Cleveland regain its footing and changed the perception of the city as a place to work, live, and reinvest. The Corridor opened for service as the Euclid HealthLine in October 2008, and ridership has increased over 54%.

Sasaki ensured that the corridor accommodates multiple modes of transit by incorporating exclusive bike lanes and pedestrian-friendly sidewalks and street crossings. Key features of the BRT system include prominent, safe, and visually attractive stations in the median of the street, low floor boarding, real time updates, off-vehicle fare collection, and signal prioritization at intersections. Parking was integrated back into the street to support developer efforts to revitalize vacant retail storefronts. Additional elements of the design include utilities, sidewalks, street lights, and street trees. The number of stations is reduced to improve travel times and median platforms reduce encroachments on the sidewalks. Seasonal plantings provide splashes of color in the medians, colorful and rhythmic pavement striping in the sidewalks provide human scale, and distinctive lighting elements provide visual interest. Public art is both integrated into the design elements along the corridor, such as paving and site furnishings, as well as stand-alone projects. A comprehensive signage program for the BRT and the street provides wayfinding along the corridor while also creating a unique brand for the corridor and BRT.

http://www.sasaki.com/project/105/cleveland-euclid-avenue-healthline-brt/