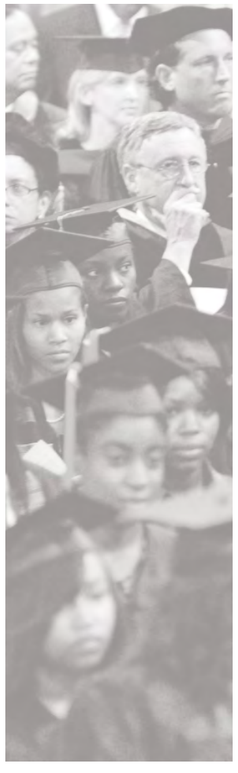
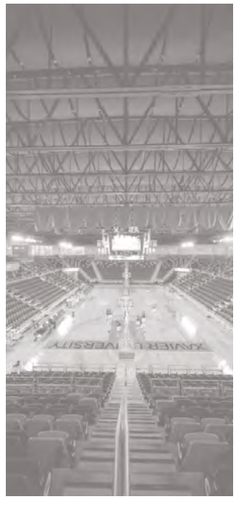


XAVIER UNIVERSITY OF LOUISIANA

INSTITUTIONAL MASTER PLAN

NEW ORLEANS, LA



AUGUST 2016

MANNING ARCHITECTS
ARCHITECTURE | INTERIORS | PLANNING

PROJECT MANAGEMENT, ARCHITECTURAL AND URBAN DESIGN, CAMPUS PLANNING

Stantec

TRAFFIC CIRCULATION AND IMPACT ANALYSIS REPORT

HPE
Hall Planning & Engineering, Inc.

WALKABILITY ANALYSIS

SPACKMAN MOSSOP AND MICHAELS

PERIMETER LANDSCAPE PLAN DESIGN

SHERWOOD
DESIGN ENGINEERS

STORMWATER MANAGEMENT PLAN

XAVIER UNIVERSITY OF LOUISIANA
Facility Planning and Management

1 Drexel Drive * Box 54
New Orleans, LA 70125-1098

(504) 520-7507 * FAX (504) 520-7926

July 29, 2016

Members of the City Planning Commission,

Xavier University appreciates the opportunity to submit this Institutional Master Plan as a part of the requirements of the City of New Orleans Comprehensive Zoning Ordinance that went into effect in August of 2015. We have compiled a multi-disciplinary project team in producing this comprehensive document, consisting of the following:

Manning Architects	Project Management, Architectural and Urban Design, Campus Planning
Stantec	Traffic Circulation and Impact Analysis Report
Hall Planning & Engineering	Walkability Analysis
Spackman, Mossop and Michaels	Perimeter Landscape Plan Design
Sherwood Design Engineers	Stormwater Management Plan

In preparing this document, we coordinated closely with City Planning staff, meeting frequently throughout the planning process. We thank City Planning for their input, which has been reflected throughout this document, and we look forward to working together with the City of New Orleans in moving toward our shared goals of improving the quality of life for all.

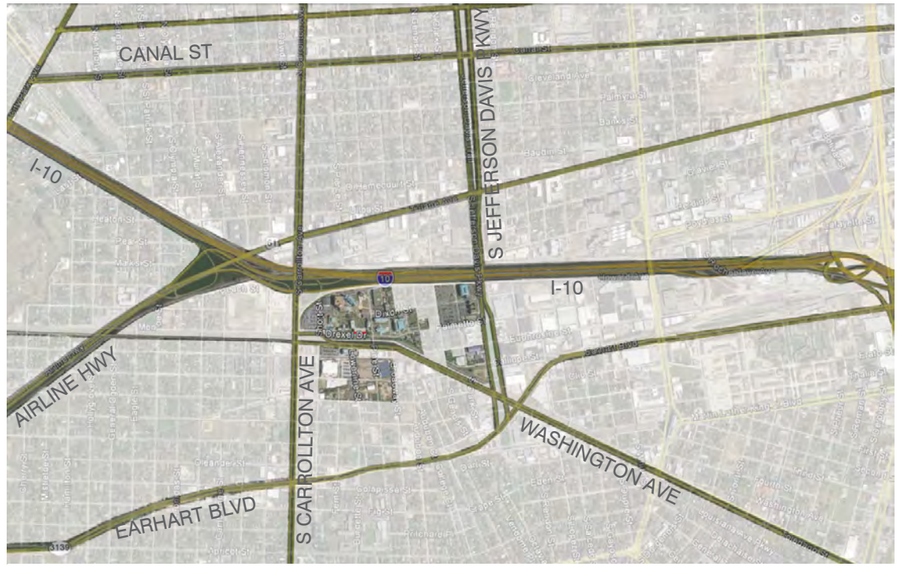
Sincerely,

Marion B. Bracy
Vice President of Facility Planning and Management

TABLE OF CONTENTS

Section 1 - **Institutional Master Plan Scope**

CITY



NEIGHBORHOOD

CAMPUS

This Institutional Master Plan (IMP) has been prepared in accordance with the Article 15 requirements of the City of New Orleans Comprehensive Zoning Ordinance (CZO).

Section 1 of this document indicates the University property included in this IMP, along with zoning and future land use information.

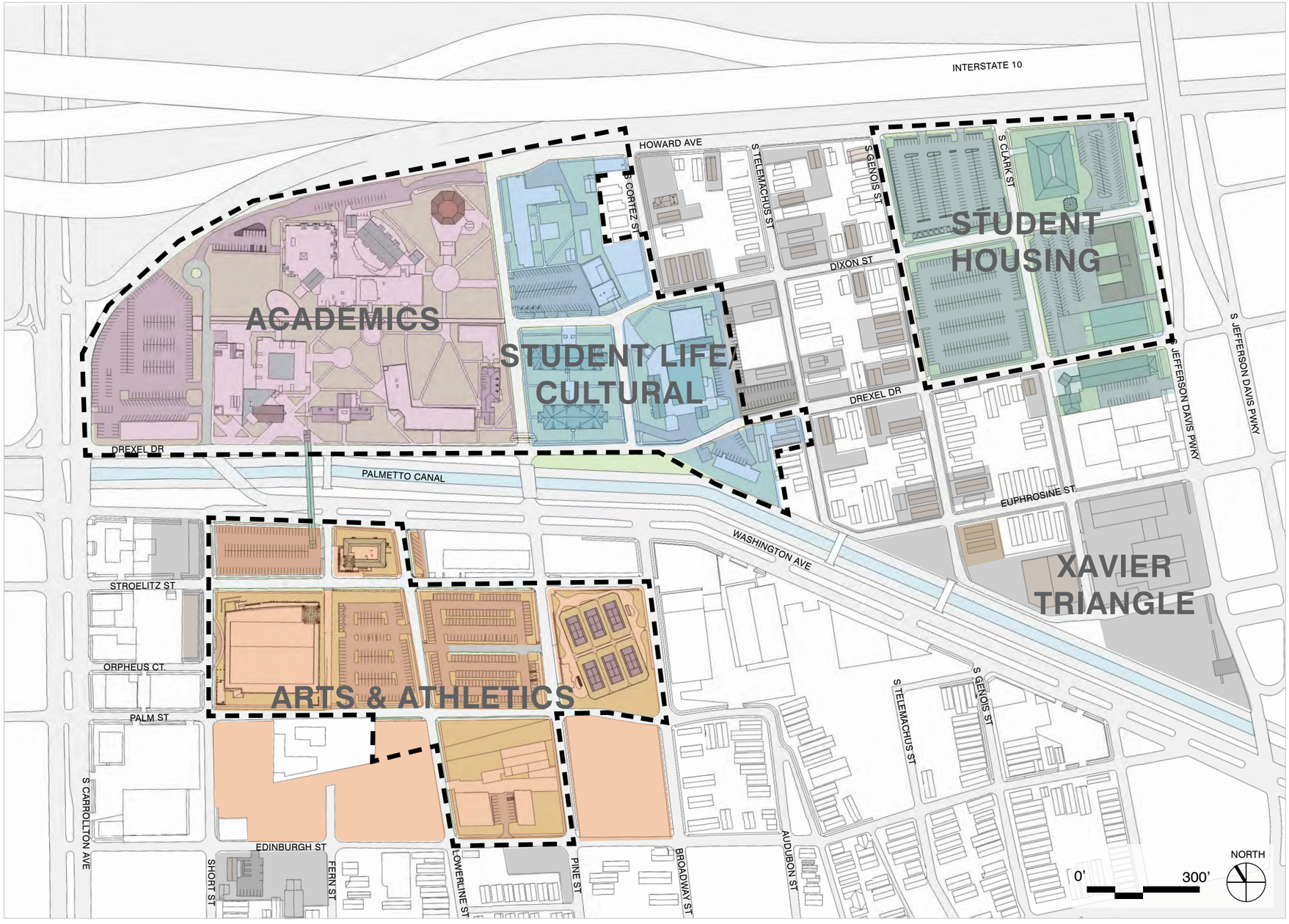
Section 2, Campus Inventory, includes information on location, square footage and heights of all campus buildings, as well as a parking plan.

Section 3, Master Plan Framework, includes a long term vision for future development, supported by the University's design standards, and landscaping, open space,and perimeter sign plans.

Section 4, Traffic Analysis, includes proposed traffic improvements and circulation patterns, along with an inventory of existing transit and bicycle connectivity.

Section 5 highlights the University's proposed short term streetscaping improvements and concludes with the University's compliance statement, indicating that all proposals in this document are intended to satisfy all requirements of the CZO.

Exhibit A, Stormwater Management Plan, and Exhibit B, Traffic Impact Analysis, were also produced for this IMP and provide further supporting documentation.



Over the last several decades, Xavier University has expanded beyond the historic boundaries of its Main Campus - reaching Jefferson Davis Parkway to the South and crossing the Palmetto Canal to the West. This expansion has created several districts, each with their own distinct characteristics.

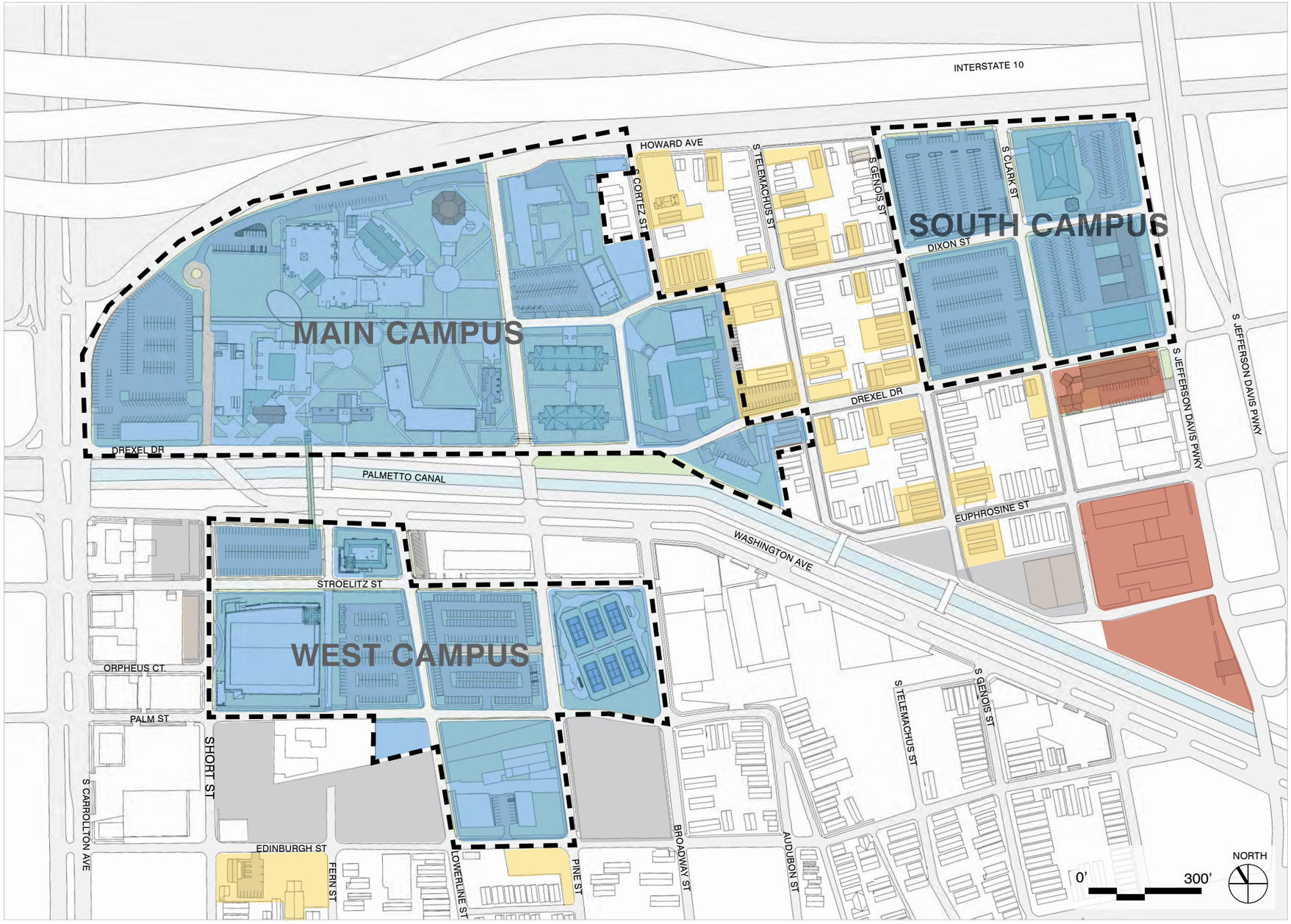
The Main Campus has historically housed the primary academic and administrative functions of the University. Across Pine Street, the renovation of St. Joseph Academic /Health Center and the addition of the University Center have created a distinct sub-district that caters to student life and cultural activities.

A short walk through a block of single family residential homes, some of them owned by the University, leads to Xavier's residential district, which includes two residential halls and a planned third.

Xavier's West Campus is across the Palmetto Canal and Washington Avenue and has become the University's Arts and Athletics district. The West Campus houses sporting events at the Convocation Center and provides recreational opportunities at the Tennis Center. The Art Village serves as home to the Department of Art and its Community Arts Program.

The Xavier Triangle currently consists of mostly vacant warehousing structures that can serve to accommodate the University's future expansion needs.

- ACADEMIC
- STUDENT LIFE/ CULTURAL
- STUDENT HOUSING
- ARTS & ATHLETICS
- ADDITIONAL XAVIER PROPERTY
- **IMP BOUNDARY**



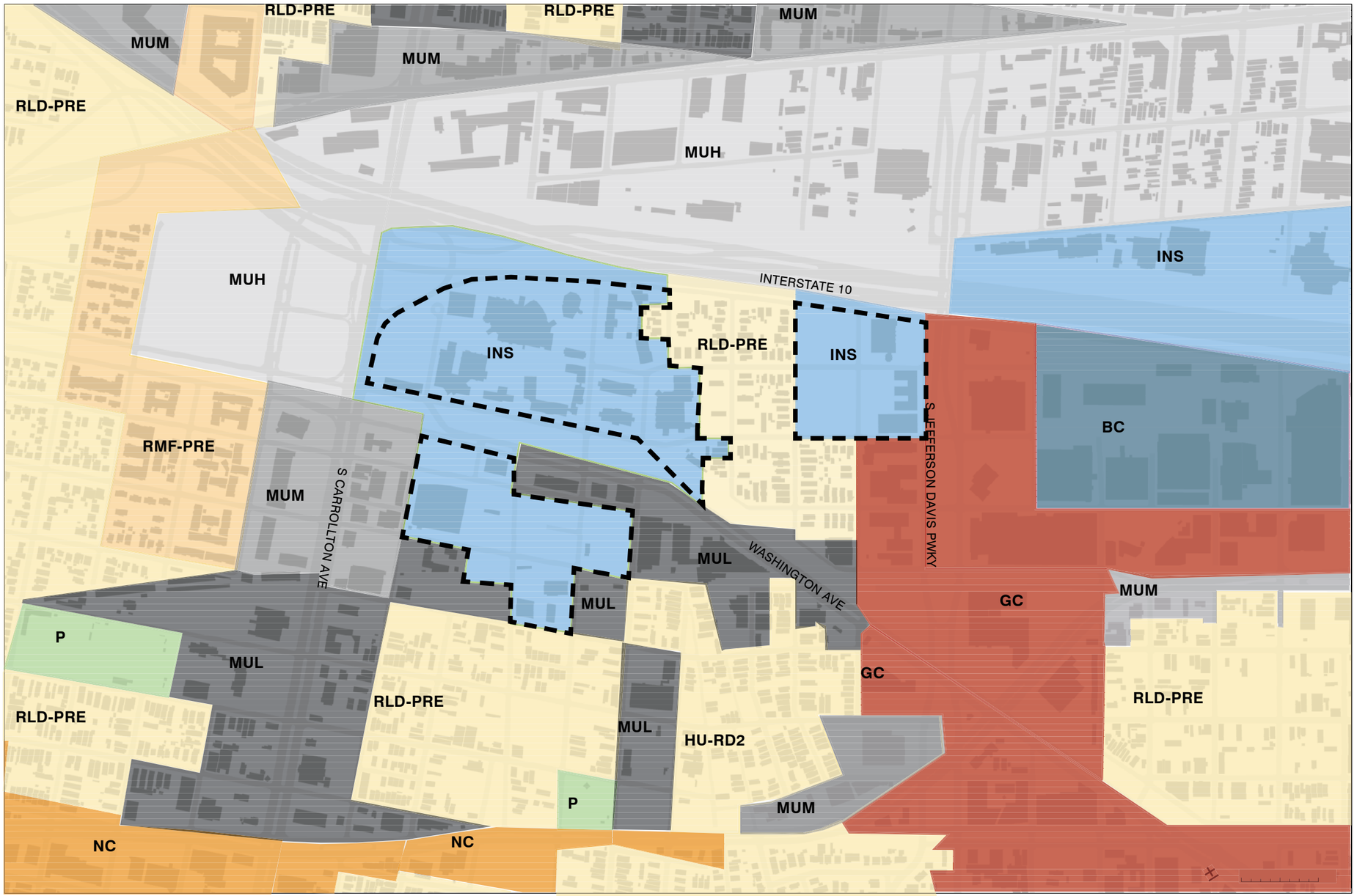
Per the City's zoning requirements, this Institutional Master Plan (IMP) will only include University properties currently zoned EC-Educational Campus. However, due to the significant amount of land owned by the University not zoned EC, this IMP will occasionally address these areas in its longer term vision.

Xavier University is currently applying to amend the Future Land Use designation of its properties currently zoned Mixed-Use and Commercial in order to later apply to have a campus zoned EC consistently throughout. Once this rezoning is achieved, the University will submit an amended IMP that includes these properties.

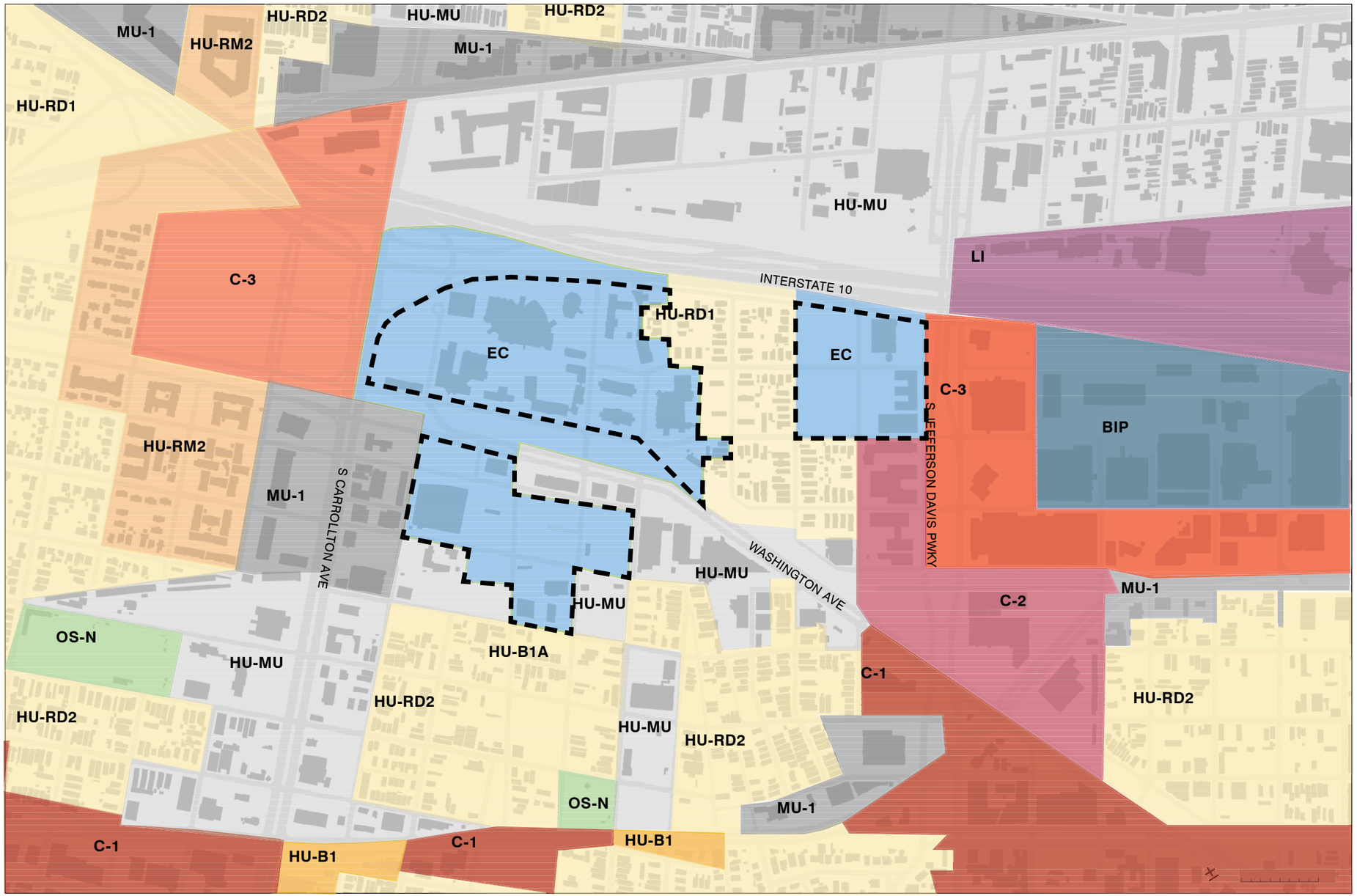
- EC EDUCATIONAL CAMPUS
- C-2 COMMERCIAL
- MIXED-USE
- HISTORIC URBAN RESIDENTIAL
- **IMP BOUNDARY**

INSTITUTIONAL MASTER PLAN SCOPE

CURRENT FUTURE LAND USE DISTRICTS

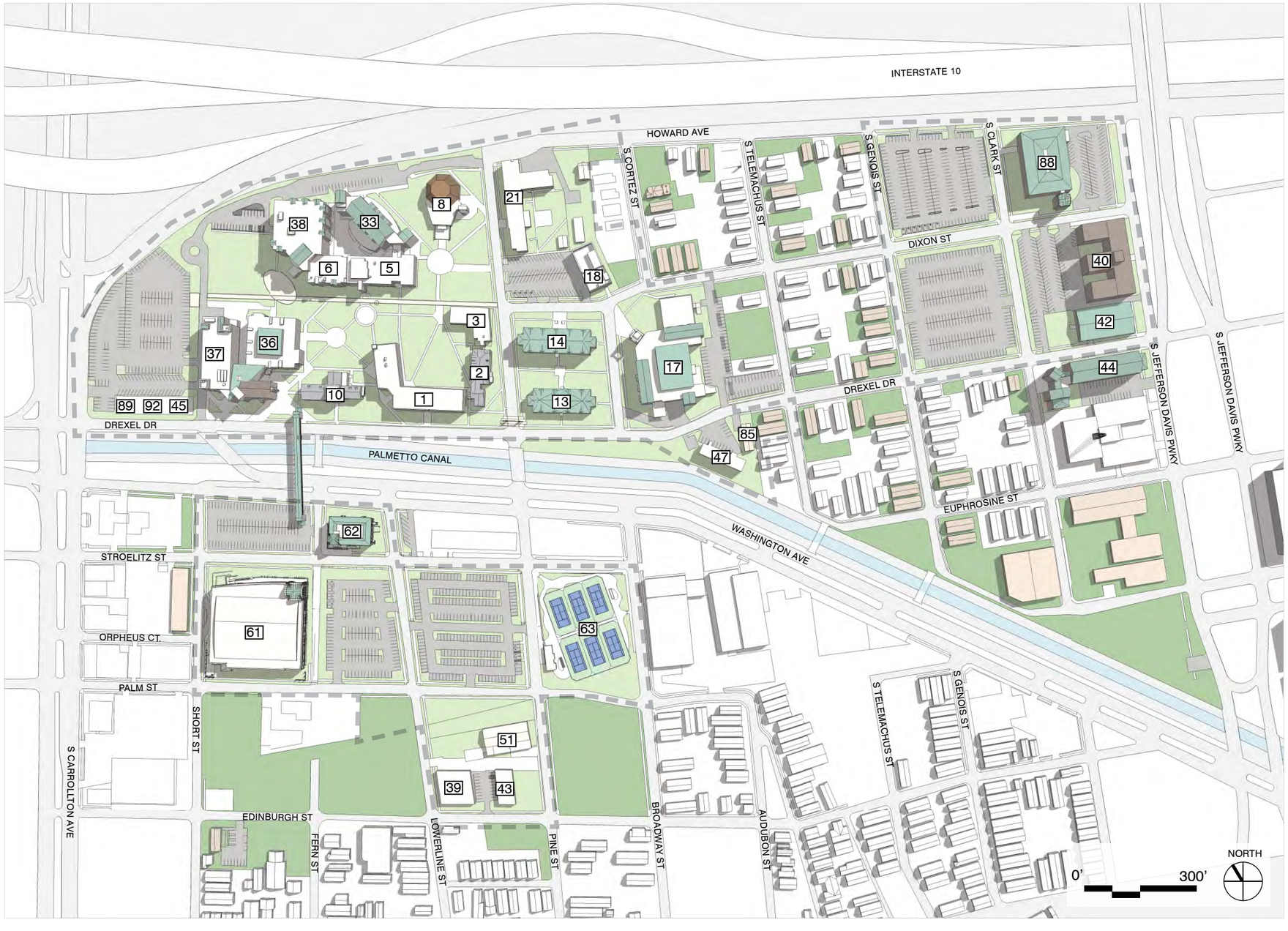


- **IMP BOUNDARY**
- INS: INSTITUTIONAL
- GC: GENERAL COMMERCIAL
- RMF-PRE: RESIDENTIAL MULTIFAMILY PRE-WAR
- P: PARK AND OPEN SPACE
- NC: NEIGHBORHOOD COMMERCIAL
- RLD-PRE: RESIDENTIAL DENSITY PRE-WAR
- BC: BUSINESS CENTER
- MUH: MIXED USE HIGH DENSITY
- MUM: MIXED-USE MEDIUM DENSITY
- MUL: MIXED-USE LOW DENSITY



- **IMP BOUNDARY**
- EC EDUCATIONAL CAMPUS
- C-1: GENERAL COMMERCIAL DISTRICT
- C-2:AUTO-ORIENTED COMMERCIAL DISTRICT
- C-3 COMMERCIAL
- OS-N: NEIGHBORHOOD OPEN SPACE DISTRICT
- LI: LIGHT INDUSTRIAL DISTRICT
- HU-RD2: HISTORIC URBAN TWO-FAMILY RESIDENTIAL DISTRICT
- BIP: BUSINESS INDUSTRIAL PARK DISTRICT
- HU-MU: HISTORIC URBAN MIXED USE DISTRICT
- MU-1: MEDIUM INTENSITY MIXED USE DISTRICT
- HU-B1: HISTORIC URBAN NEIGHBORHOOD BUSINESS DISTRICT
- HU-RM2: HISTORIC URBAN MULTI-FAMILY RESIDENTIAL DISTRICT

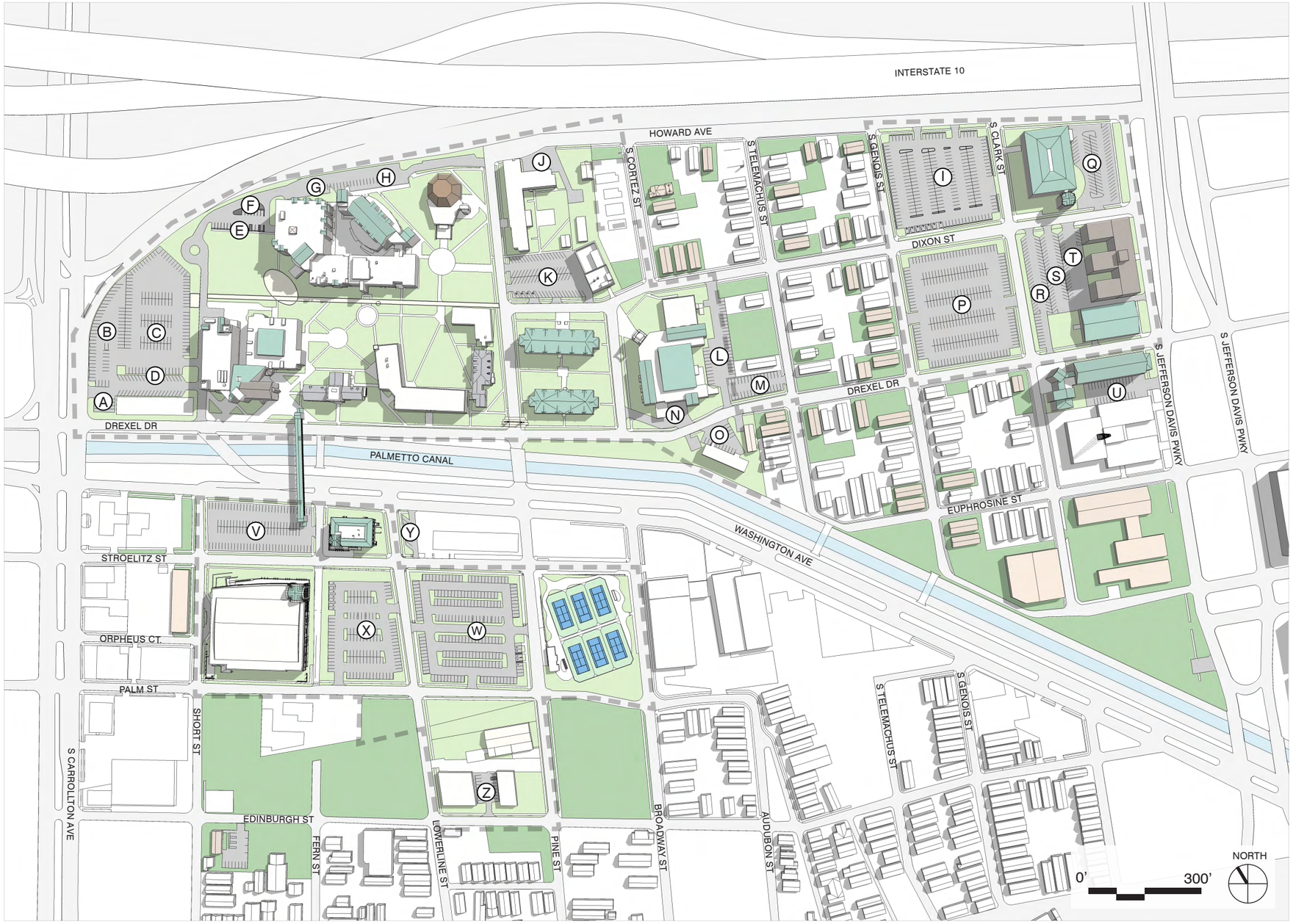
Section 2 - **Campus Inventory**



Below is a height and square footage inventory of existing buildings on Xavier University's campus. Locations of each building are referenced on the map to the left.

IMP BOUNDARY

Building Number	Building Name	Square Footage	Height
1	Administration Building	59,460	60' 2"
2	Administation Annex	18,645	56' 8"
3	Convent	14,100	36' 8"
5	College Of Pharmacy	41,520	60'
6	Pharmacy Addition	31,200	66'
8	St. Katharine Drexel Chapel	11,000	80' 6"
10	Music Building	20,270	50' 1"
13	St. Joseph Academic / Health Center	31,120	39'
14	Katharine Drexel Residence Hall	68,700	60' 8"
17	University Center	95,025	74'
18	Central Power Plant	8,000	34'
21	St. Michaels Residence Hall	37,110	33' 8"
33	Qatar Pharmacy Pavilion	66,000	101' 1"
36	NCF Academic Science Complex	69,160	70'
37	NCF Addition	125,900	95' 10"
38	Library Resource Center	114,060	113' 5"
39	Art Village Building D	8,070	16' 5"
40	Xavier South	120,795	87'
42	Student Fitness Center	22,528	39'
43	Art Village Building C	4,260	16' 5"
44	Deporres Residence Hall	116,585	93' 1"
47	Claver Residence Hall	11,700	31'
45, 89, 92	Shipping And Receiving	10,030	20'
51	Art Village Building A	7,085	23' 1"
61	Convocation Academic Center	93,597	52' 4"
62	Convocation Center Annex	23,340	58' 1"
63	Tennis Center	42,445	17'
85	STEM Building	4,000	21' 6"
88	Living / Learning Center	97,125	75' 6"



Xavier University's current off-street parking inventory exceeds the amount required by zoning by over 1,200 spaces.

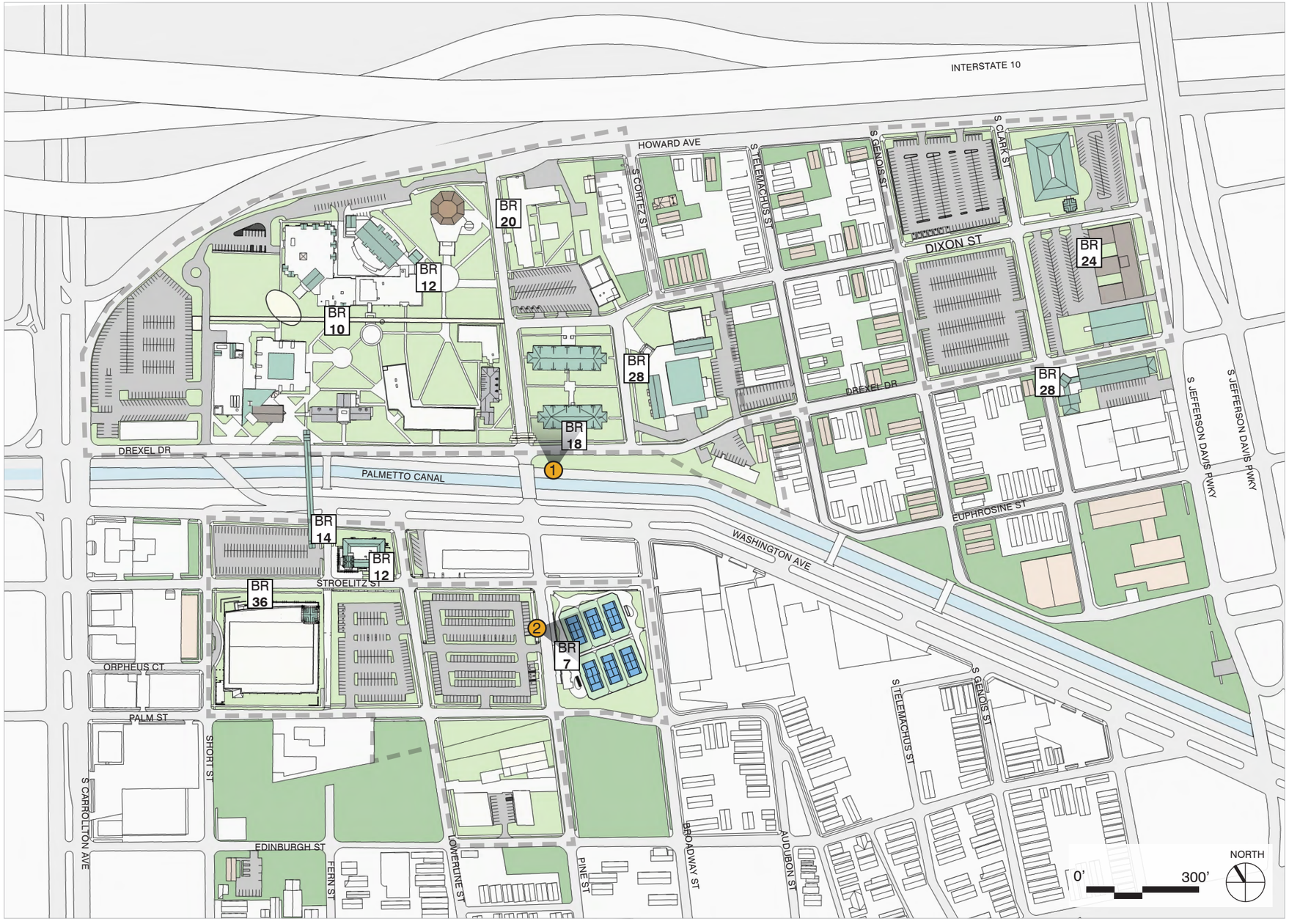
IMP BOUNDARY

NON-RESIDENTIAL				
Building Number	Building Name	Square Footage	Zoning Requirement	Required Spaces
1	Administration Building	59,460	1 / 4,000 sq ft	15
2	Administation Annex	18,645	1 / 4,000 sq ft	5
3	Convent	14,100	1 / 4,000 sq ft	4
5	College Of Pharmacy	41,520	1 / 4,000 sq ft	10
6	Pharmacy Addition	31,200	1 / 4,000 sq ft	8
8	St. Katharine Drexel Chapel	11,000	1 / 4,000 sq ft	3
10	Music Building	20,270	1 / 4,000 sq ft	5
13	St. Joseph Academic / Health Center	31,120	1 / 4,000 sq ft	8
17	University Center	95,025	1 / 4,000 sq ft	24
18	Central Power Plant	8,000	1 / 4,000 sq ft	2
33	Qatar Pharmacy Pavilion	66,000	1 / 4,000 sq ft	17
36	NCF Academic Science Complex	69,160	1 / 4,000 sq ft	17
37	NCF Addition	125,900	1 / 4,000 sq ft	31
38	Library Resource Center	114,060	1 / 4,000 sq ft	29
39	Art Village Building D	8,070	1 / 4,000 sq ft	2
40	Xavier South	120,795	1 / 4,000 sq ft	30
42	Student Fitness Center	22,528	1 / 4,000 sq ft	6
43	Art Village Building C	4,260	1 / 4,000 sq ft	1
45, 89, 92	Shipping And Receiving	10,030	1 / 4,000 sq ft	3
51	Art Village Building A	7,085	1 / 4,000 sq ft	2
61	Convocation Academic Center	93,597	1 / 4,000 sq ft	23
62	Convocation Center Annex	23,340	1 / 4,000 sq ft	6
63	Tennis Center	42,445	1 / 4,000 sq ft	11
85	STEM Building	4,000	1 / 4,000 sq ft	1
	SUBTOTAL:	1,041,610		260

RESIDENTIAL				
Building Number	Building Name	# Rooms	Zoning Requirement	Required Spaces
14	Katharine Drexel Residence Hall	174	1 / 4 rooms	44
21	St. Michaels Residence Hall	97	1 / 4 rooms	24
44	Deporres Residence Hall	262	1 / 4 rooms	66
47	Claver Residence Hall	36	1 / 4 rooms	9
88	Living / Learning Center	174	1 / 4 rooms	44
	SUBTOTAL:	743		186

TOTAL REQUIRED PARKING SPACES:	**446**
TOTAL EXISTING PARKING SPACES:	**1,698**

EXISTING PARKING		
Lot	Type	# Spaces
A/B/C/D	Visitors/Staff/Faculty/Reserve	230
E/F	Faculty/Vendors	24
G/H	Faculty/Staff	84
I	Open	215
J	Staff	6
K	Staff	66
L/P	Staff/Open	424
M	Open	32
N	Open	0
O	Staff	29
Q	Student	62
R/S/T	Staff/Faculty/Reserve	102
U	Student	24
V	Open	54
W	Open	200
X	Open	122
Y	Faculty/Staff	7
Z	Open	17
TOTAL PARKING SPACES:		**1,698**

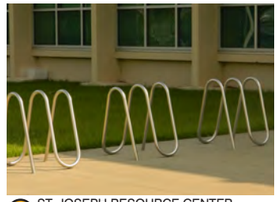


Several existing bike racks are interspersed throughout campus. While opportunities to install long term storage spaces that are sheltered from the elements will become available with any future development that occurs throughout the campus, these spaces are most needed on the South Campus, where students who reside in the dormitories must keep their bicycles stored overnight.

BR 12 EXISTING BIKE RACK
TOTAL NUMBER OF BIKE SPACES

IMP BOUNDARY

PREFERRED EXISTING BIKE RACKS



1 ST. JOSEPH RESOURCE CENTER

2 TENNIS COURTS

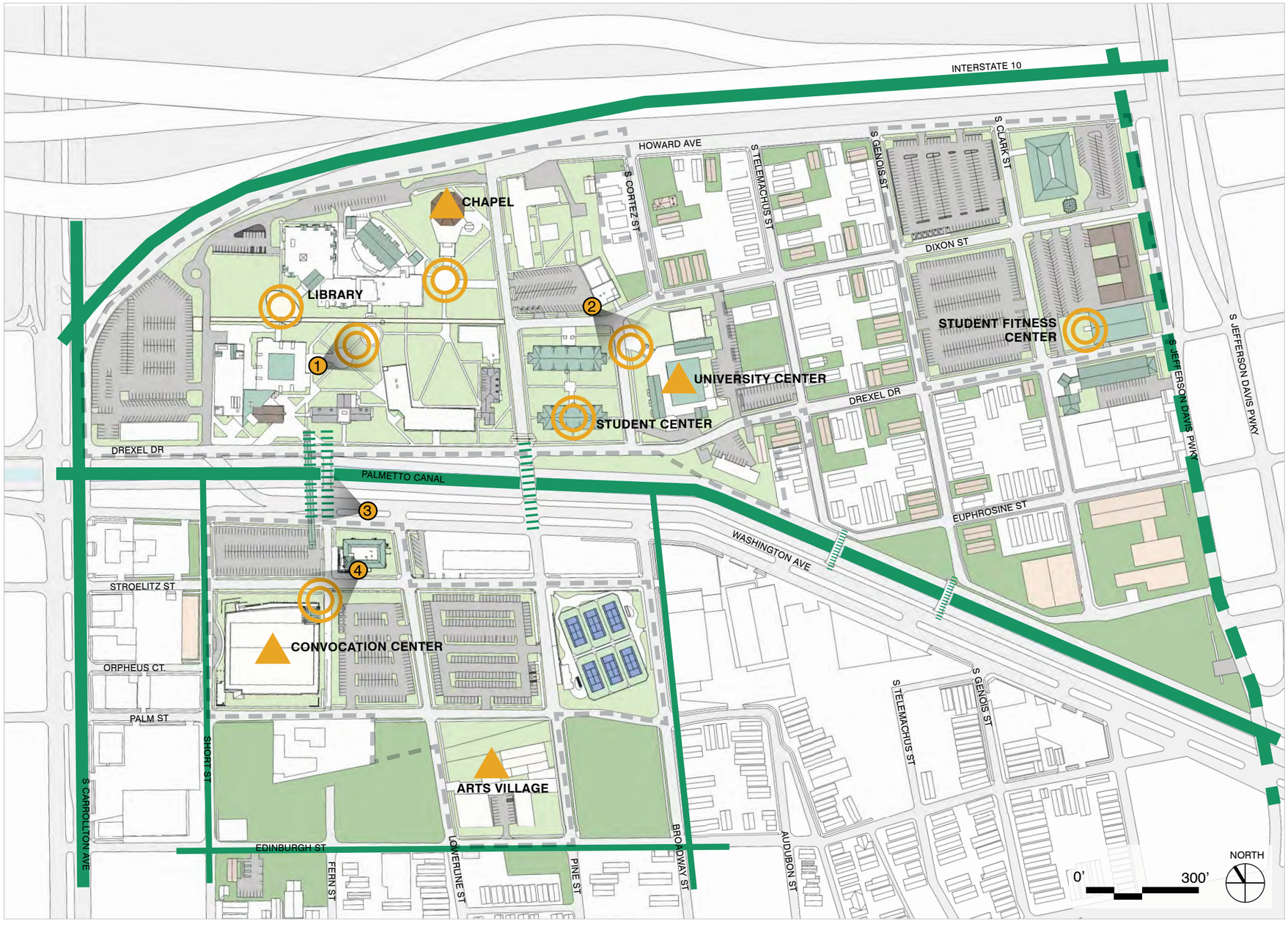
NON-RESIDENTIAL				
Building Number	Building Name	Square Footage	Zoning Requirement	Required Spaces
1	Administration Building	59,460	1 / 5,000 sq ft	12
2	Administation Annex	18,645	1 / 5,000 sq ft	4
3	Convent	14,100	1 / 5,000 sq ft	3
5	College Of Pharmacy	41,520	1 / 5,000 sq ft	8
6	Pharmacy Addition	31,200	1 / 5,000 sq ft	6
8	St. Katharine Drexel Chapel	11,000	1 / 5,000 sq ft	2
10	Music Building	20,270	1 / 5,000 sq ft	4
13	St. Joseph Academic / Health Center	31,120	1 / 5,000 sq ft	6
17	University Center	95,025	1 / 5,000 sq ft	19
18	Central Power Plant	8,000	1 / 5,000 sq ft	2
33	Qatar Pharmacy Pavilion	66,000	1 / 5,000 sq ft	13
36	NCF Academic Science Complex	69,160	1 / 5,000 sq ft	14
37	NCF Addition	125,900	1 / 5,000 sq ft	25
38	Library Resource Center	114,060	1 / 5,000 sq ft	23
39	Art Village Building D	8,070	1 / 5,000 sq ft	2
40	Xavier South	120,795	1 / 5,000 sq ft	24
42	Student Fitness Center	22,528	1 / 5,000 sq ft	5
43	Art Village Building C	4,260	1 / 5,000 sq ft	1
45, 89, 92	Shipping And Receiving	10,030	1 / 5,000 sq ft	2
51	Art Village Building A	7,085	1 / 5,000 sq ft	1
61	Convocation Academic Center	93,597	1 / 5,000 sq ft	19
62	Convocation Center Annex	23,340	1 / 5,000 sq ft	5
63	Tennis Center	42,445	1 / 5,000 sq ft	8
85	STEM Building	4,000	1 / 5,000 sq ft	1
	SUBTOTAL:	1,060,352		208

RESIDENTIAL				
Building Number	Building Name	# Rooms	Zoning Requirement	Required Spaces
14	Katharine Drexel Residence Hall	174	1 / 5 rooms	35
21	St. Michaels Residence Hall	97	1 / 5 rooms	19
44	Deporres Residence Hall	262	1 / 5 rooms	52
47	Claver Residence Hall	36	1 / 5 rooms	7
88	Living / Learning Center	174	1 / 5 rooms	35
	SUBTOTAL:	331,220		149

TOTAL REQUIRED PARKING SPACES:	**356**
TOTAL EXISTING PARKING SPACES:	**192**

Section 3 - **Master Plan Framework**

EXISTING CAMPUS EDGES AND HUBS



Xavier University's visual form is framed by a network of defined edges - ranging from impenetrable barriers to pervious seams.

The Interstate 10 creates a hard edge along its entirety, while the concretized Palmetto Canal that bisects the Main Campus and West Campus is fragmented by several bridges.

The sense of heavy traffic flow along S. Carrollton Avenue causes another perceived barrier that is impenetrable. The Jefferson Davis Parkway edge, however, is more of a uniting seam that links Xavier's campus to a prominent green space and bike path.

IMPERVIOUS EDGE

PERVIOUS EDGE

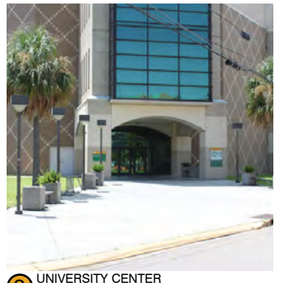
CAMPUS HUB

EVENT VENUE

IMP BOUNDARY

EXISTING CAMPUS HUBS

1 HERITAGE OAKS IN CAMPUS CENTER



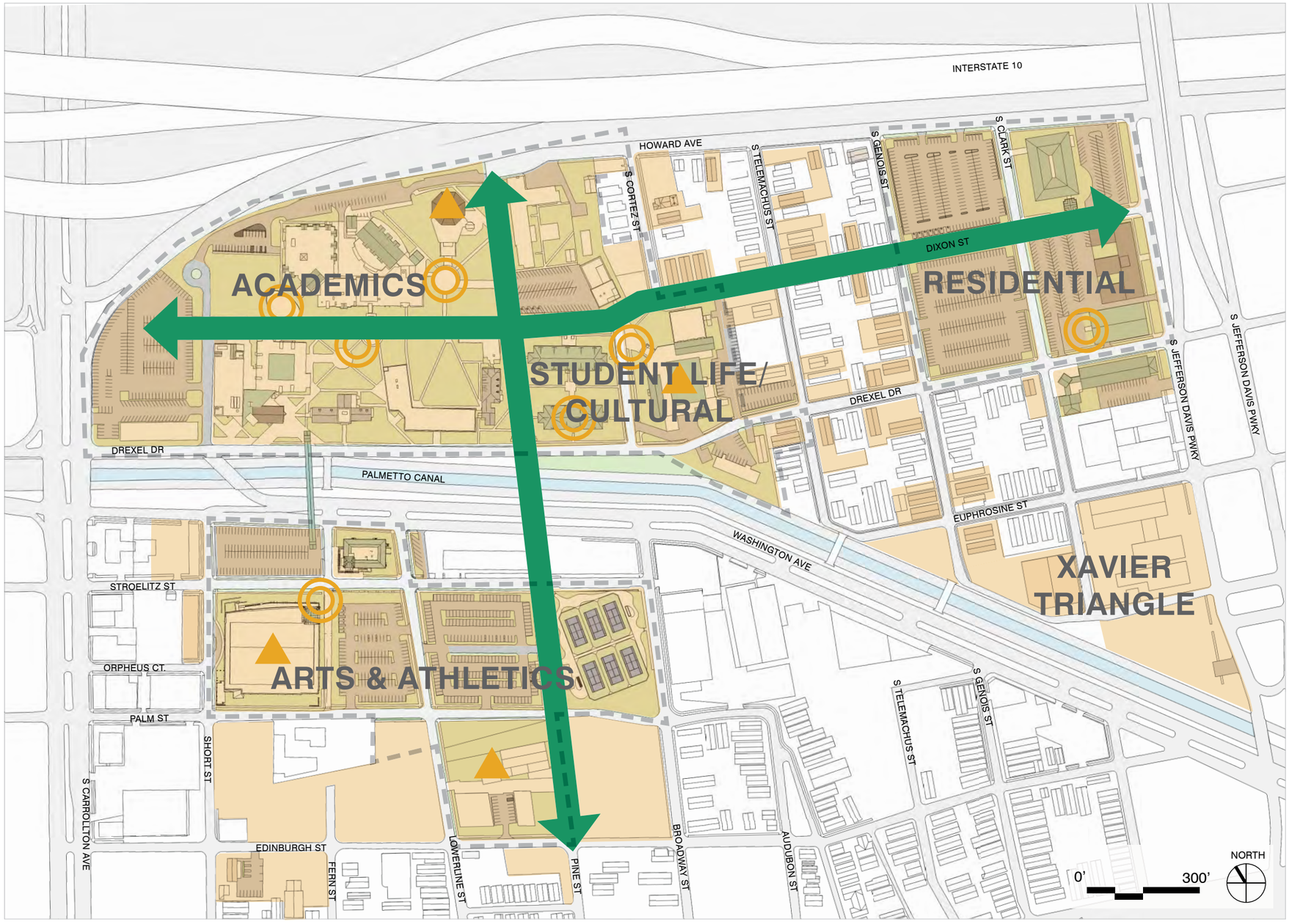
2 UNIVERSITY CENTER

3 PEDESTRIAN BRIDGE OVER CANAL

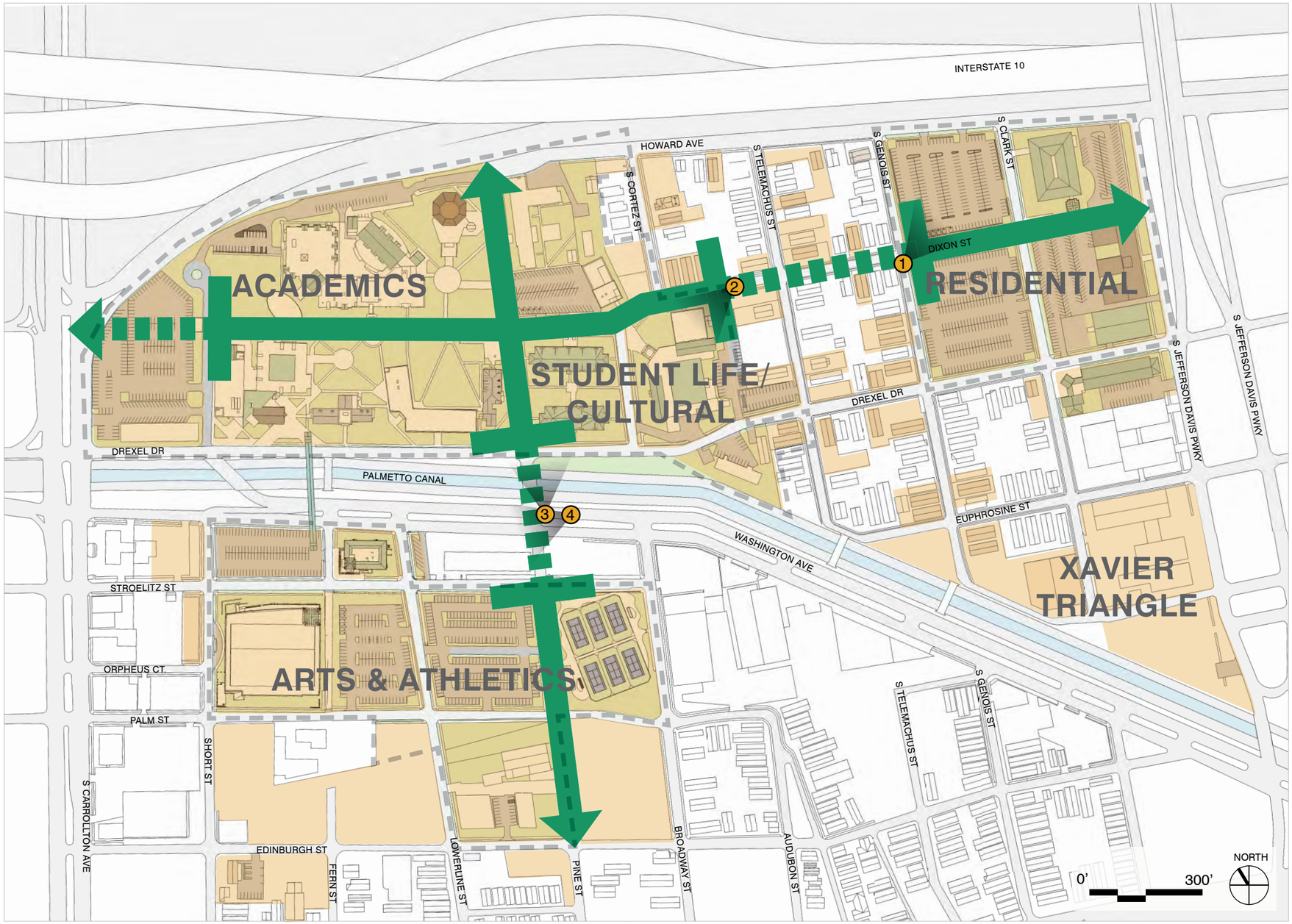
4 UNIVERSITY CONVOCATION CENTER

CAMPUS OPPORTUNITIES - PROPOSED SPINES

One of the goals of this IMP is to provide strategies for improving connectivity within and between the University's campus districts. Dixon Street and Pine Street are two corridors heavily used by students walking to and from the Main Campus. Reinforcing these "campus spines" with streetscape improvements and traffic calming mechanisms, among other measures, will significantly improve Xavier's campus experience. The recent addition of the Pedestrian Art Mall provides an attractive extension of the Dixon Street spine.



CAMPUS CHALLENGES - EXISTING SPINES



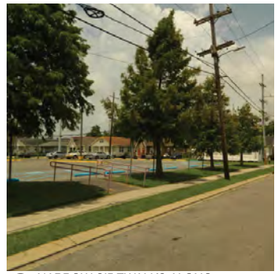
Walking along the Pine Street and Dixon Street spines is currently uncomfortable for pedestrians as well as disconnected and unsafe. Challenges include:

- Vehicles traveling at high speeds
- Dangerous, unsignalized intersection at Pine Street and Washington Avenue
- Pine Street bridge over the Palmetto Canal provides limited room for pedestrians and is not compliant with ADA accessibility standards
- Limited shade from street trees
- Minimal sidewalk width

XAVIER OWNED PROPERTY

IMP BOUNDARY

EXISTING CONNECTIVITY CHALLENGES



1 NARROW SIDEWALKS ALONG DIXON STREET SPINE

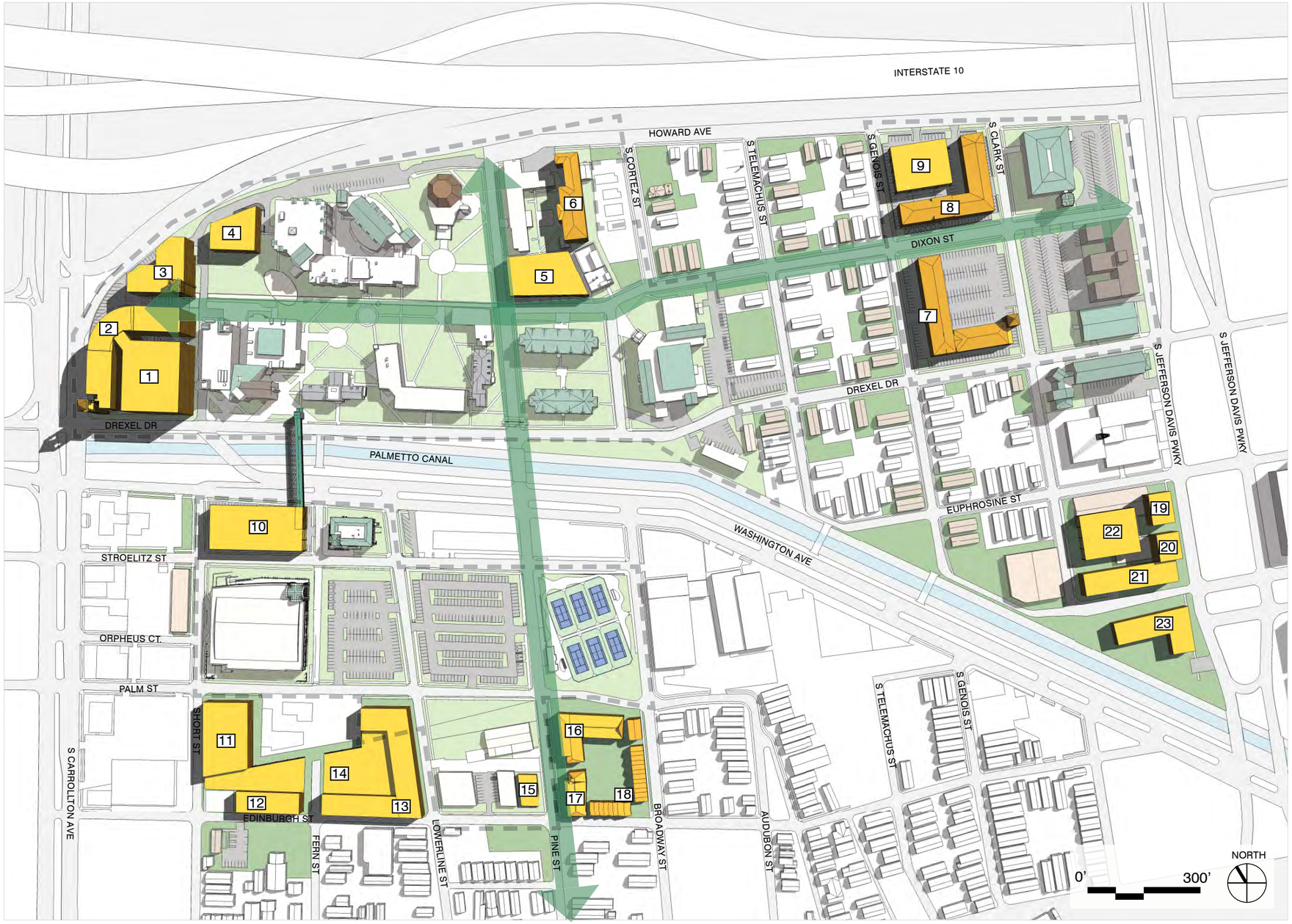
2 UNSHADED, NARROW SIDEWALKS ALONG DIXON STREET SPINE

3 PINE ST. BRIDGE CROSSING THE PALMETTO CANAL

4 UNSAFE INTERSECTION AT PINE & WASHINGTON

LONG TERM CAMPUS VISION

There are several opportunities for infill development throughout Xavier's campus. All proposed buildings on this graphic are conceptual in nature and intended to illustrate long term development opportunities that take advantage of currently under-utilized land.

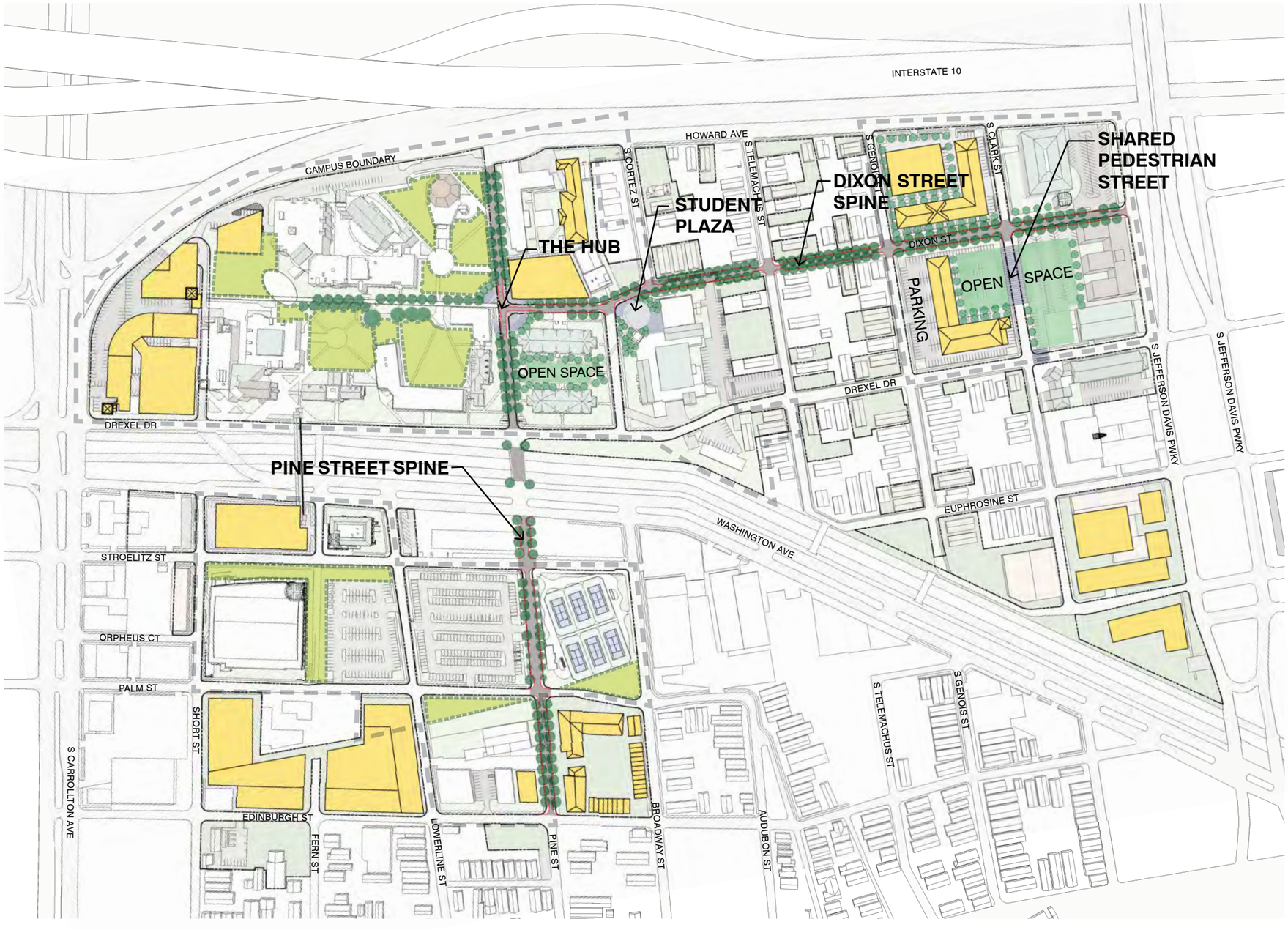


IMP BOUNDARY

Building Number	Building Name	Square Footage	Height (ft)
1	Retail, Parking Garage	332,571	120
2	Retail, Residential, Commerical	282,763	130
3	Retail, Residential	126,680	102
4	Academic	56,105	58
5	Retail, Visitor Parking Garage	129,024	45
6	Academic	80,100	70
7	Dormitory	151,902	70
8	Dormitory	140,250	70
9	Dormitory Parking Garage	108,000	47
10	Commuter Parking Garage	119,972	27
11	Retail	22,617	36
12	Retail, Residential	45,900	56
13	Retail, Residential	136,640	56
14	Resident Parking Garage	128,400	20
15	Academic	4,215	21
16	Residential	43,305	52
17	Residential	19,620	55
18	Townhouses (11 units)	19,250	26
19	Academic, Commercial	25,155	60
20	Academic, Commercial	26,244	75
21	Academic, Commercial	75,000	60
22	Parking Garage	108,000	47
23	Academic, Commercial	47,547	40
Total Square Footage		**2,229,260**	

PROPOSED OPEN SPACE IMPROVEMENTS PLAN

Concentrated campus improvements along the Dixon Street and Pine Street Spines help tie Xavier University's South and West Campuses to the Main Campus. The Hub and Student Plaza offer opportunities for pedestrian and vehicular circulation improvements located at integral nodes along these spines. Proposed improvements include the use of additional landscaped open space, a shared pedestrian street, and shade trees around proposed buildings.



IMP Boundary

Indicates Proposed Street Bump-outs At Crosswalks

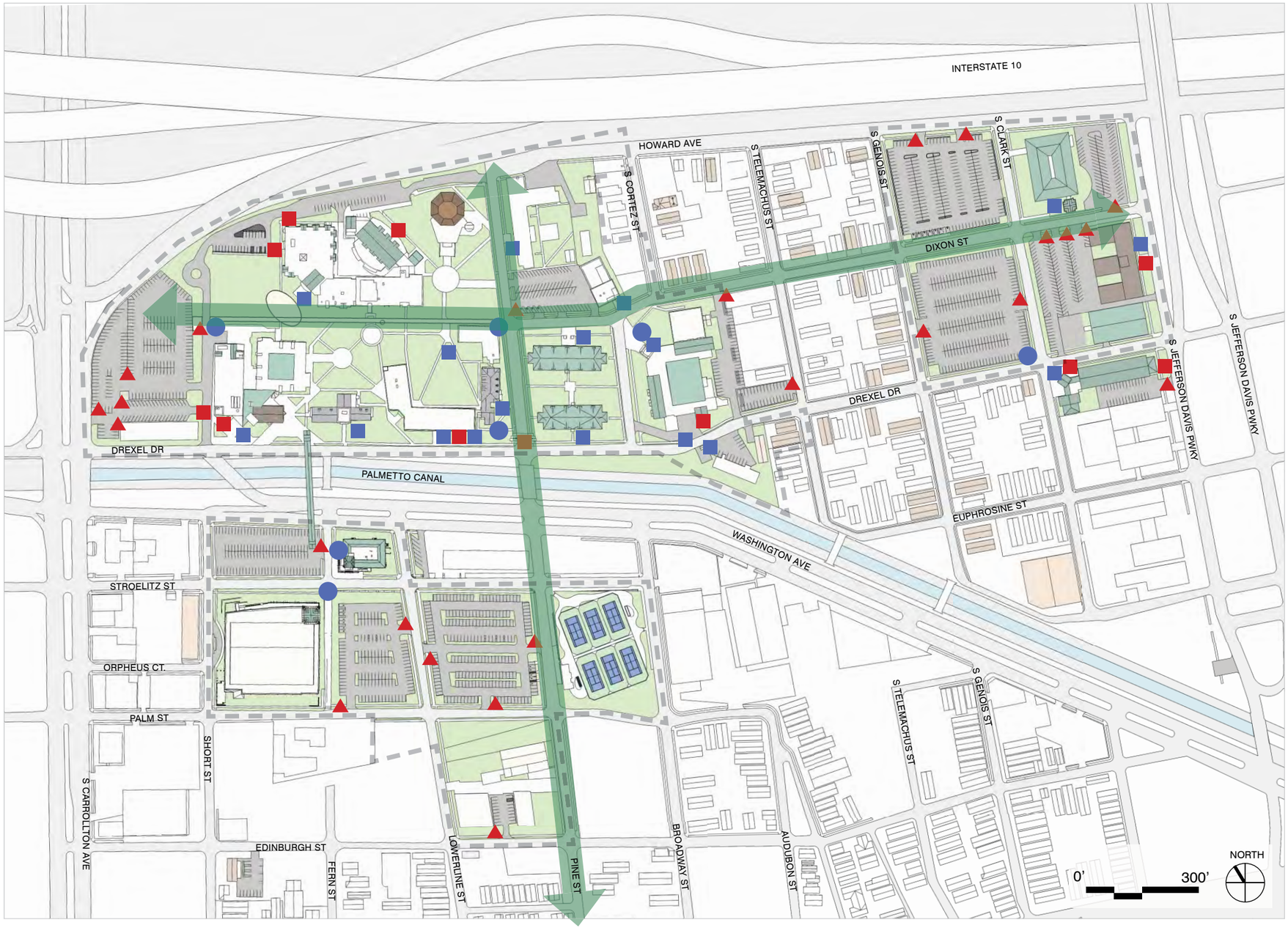
Key Existing Open Space

Any new development on Xavier University's campus will comply with the City CZO's landscape codes listed in Article 23.

Exhibit A - Stormwater Management Plan shows the University's strategy, through the use of green infrastructure, in moving towards compliance with Article 23's stormwater requirements.

Building Foundation Landscape - 10' At Base of Building Facing Street Edge	See 23.6.A
Front Landscape Yard - 10' Along Front Lot Line	See 23.6.B
Parking Lot Perimeter Landscape - 5' At Parking Lot When Facing Street Edge	See 23.7.B
Parking Lot Interior Landscape - Required Plantings and Landscaped Islands	See 23.7.C
Parking Lot Buffer Landscape - 10' Planted Buffer When Campus Meets Residential Use	See 23.8
Required Street Tree with New Building	See 23.1

CAMPUS PERIMETER SIGN PLAN



The existing signage along Xavier's campus perimeter ranges in scale from automobile to pedestrian-oriented.

Opportunities to increase the University's visibility and create an enhanced sense of place will occur at any future development at the parking lot along S. Carrollton Avenue as well as any frontage along the West Campus side of Washington Avenue. The pedestrian bridge currently under construction over Washington Avenue could provide an additional opportunity for campus branding.

Photos of existing signage are shown on the following page, with their respective locations indicated on this map.

- CAMPUS BRANDING SIGNAGE
- CAMPUS PARKING SIGNAGE
- CAMPUS WAYFINDING MAP
- CAMPUS BUILDING SIGNAGE
- **IMP BOUNDARY**

UNIVERSITY SIGN FROM I-10

XAVIER SOUTH SIGNAGE

DEPORRES HALL SIGNAGE

This signage inventory includes all typologies that are visible from the public right-of-way. The large prominent signs on the Norman C. Francis addition, Xavier South, and Deporres Residence Hall are clearly visible to motorists traveling at high speeds along the I-10 eastbound and Jefferson Davis Parkway.

The new Main Entrance Gateway is smaller in scale and is meant to be inviting to both pedestrians and vehicles traveling at slower speeds.

Campus maps placed throughout the University facilitate wayfinding for visitors to campus.

UNIVERSITY SIGN AT ADMIN. BUILDING

SIGNATURE BUILDING SIGNAGE

SIGNATURE BUILDING SIGNAGE

SIGNATURE BUILDING SIGNAGE

GATEWAY AT CAMPUS ENTRANCE

CAMPUS MAP ON ART WALK

CAMPUS MAP ON WEST CAMPUS

CAMPUS MAP AT GATEWAY ENTRANCE

CAMPUS BUILDING SIGN

CAMPUS BUILDING SIGN

CAMPUS PARKING IDENTIFICATION

CAMPUS WAYFINDING MARKER

MUSIC BUILDING FACADE

ADMINISTRATION BUILDING ELEMENTS

CONVENT SIGNAGE

Development on Xavier University's campus spans across nearly 85 years. The Administration Building, Convent, and Music Building on the Main Campus, all built in the 1930's, are the University's most historic buildings and can be easily distinguished with their distinct Gothic architecture.

More recent development, including the University Center, Convocation Center, and Deporres Residence Hall, contain the iconic green-gabled roofs with sandstone-colored facades that have become associated with Xavier's campus. Any future development should remain consistent with this pattern in order to reinforce a strong sense of place on campus.

UNIVERSITY CENTER GREEN ROOF

CONVOCATION CENTER

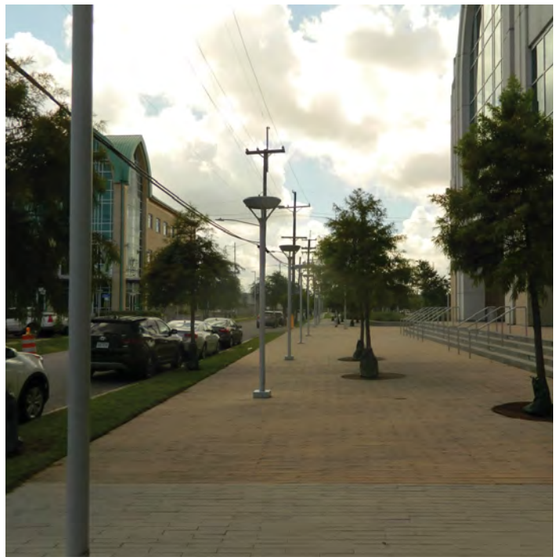
CHAPEL ELEMENTS

XAVIER GATEWAY ARCH

MAIN CAMPUS GATHERING SPACE

PEDESTRIAN ART MALL

STUDENT GATHERING SPACE



CONVOCATION CENTER GATHERING SPACE

CONVOCATION CENTER ANNEX MATERIALS

Xavier University's campus has an iconic presence in the Gert Town neighborhood. The University's design standards, while reinforcing the strong sense of place of the campus, encourages attractive informal gathering spaces that are also contextually sensitive to its neighbors.

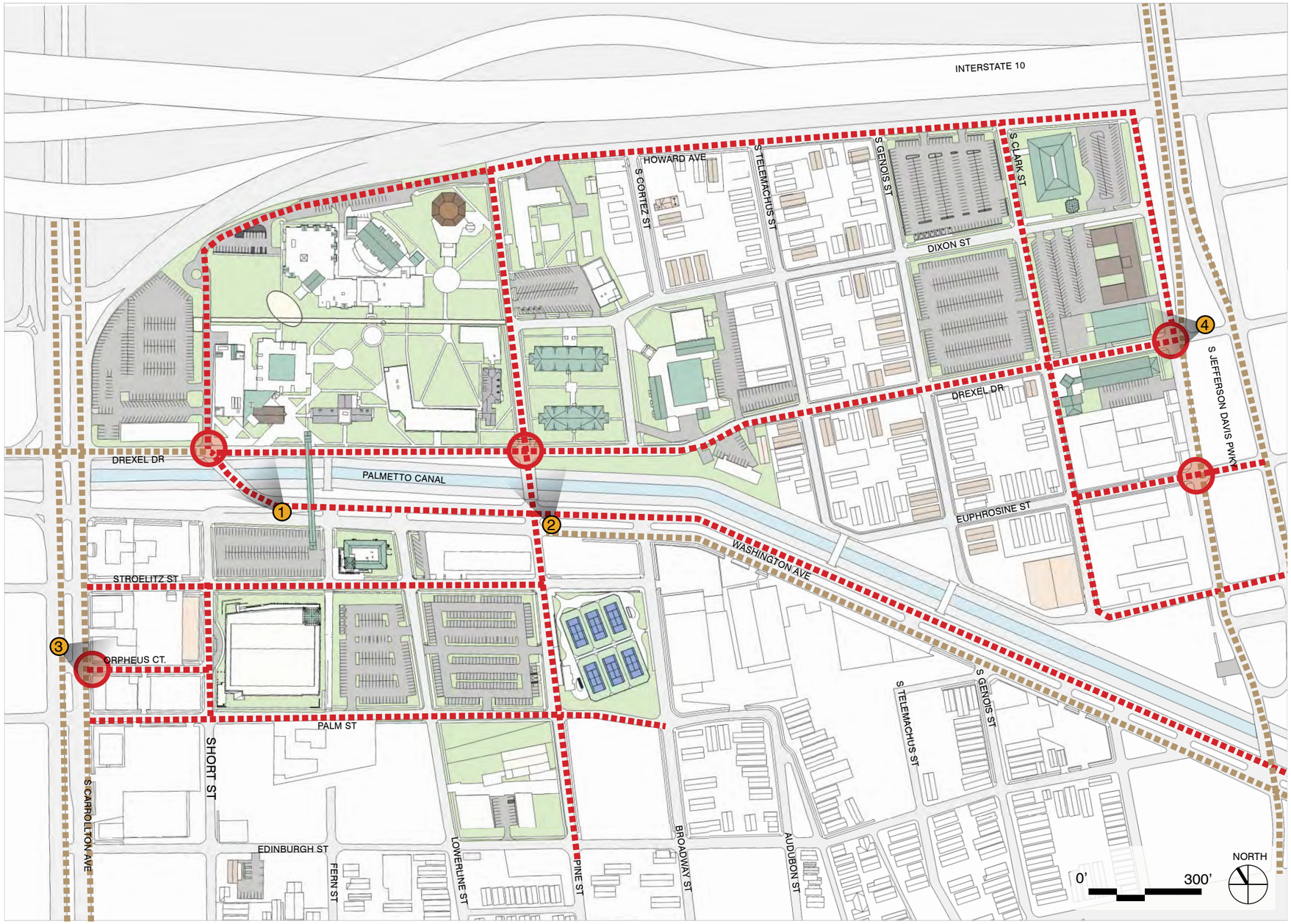
The following standards, taken from the City of New Orleans Comprehensive Zoning Ordinance, will guide any future development on Xavier's campus regarding location, arrangement, size, design, and general site compatibility of buildings and lighting:

- Compatibility with, and mitigation of, any potential impact upon, adjacent property.
- Site illumination designed and installed to minimize adverse impact on adjacent properties.
- Use of screening to lessen the visual impact of the development on adjacent uses and enhance the appearance and image of the campus, and create a logical transition to adjoining lots and developments

In addition, circulation systems and off-street parking shall:

- Provide adequate and safe access to the site for motor vehicles as well as alternate modes of transportation, including pedestrians and bicyclists.
- Minimizing potentially dangerous traffic movements.
- Separate pedestrian and auto circulation and provide for bicycle parking and storage insofar as practical.
- Clearly define pedestrian access from the parking area to the building(s). A clearly defined visible and identifiable network of pedestrian connections should be provided in and between parking lots, street sidewalks, open spaces and buildings.
- Clearly link to alternate modes of transportation such as public transit and bicycle paths.
- Provide connections from internal street networks to the larger street network outside the campus.

Section 4 - **Traffic Analysis**



In order to accommodate greater walkability along the Dixon and Pine Street Spines, primary vehicular circulation will be re-routed along a ring road that follows Drexel Dr, Short St, Howard Ave, and Jefferson Davis Pkwy. Pine Street will remain as the primary vehicular connection between the Main Campus and West Campus.

A complete Traffic Impact Analysis incorporating the proposed modifications was prepared as a part of this IMP and can be found in Exhibit B.

CAMPUS CIRCULATION

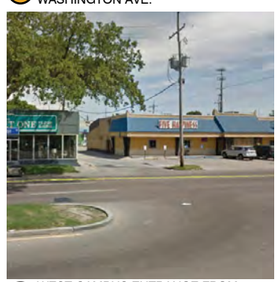
PUBLIC CIRCULATION

PRIMARY CAMPUS ENTRY

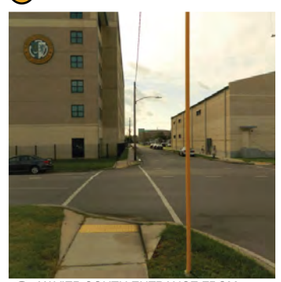
CAMPUS VEHICULAR ENTRY POINTS

1 CAMPUS ENTRANCE FROM WASHINGTON AVE.

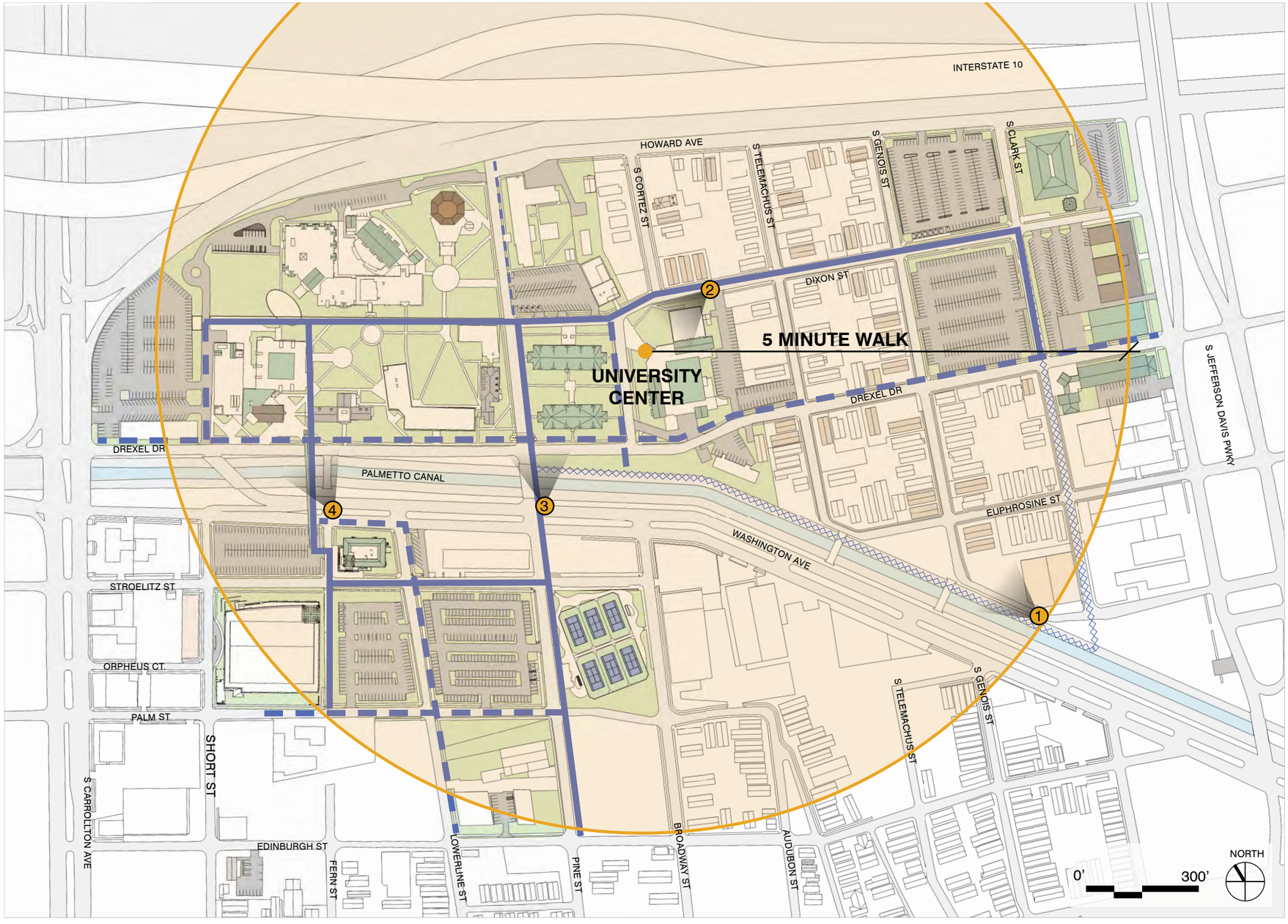
2 CAMPUS ENTRANCE AT PINE ST.



3 WEST CAMPUS ENTRANCE FROM ORPHEUS CT.



4 XAVIER SOUTH ENTRANCE FROM JEFFERSON DAVIS PKWY.



Xavier University's campus, while somewhat fragmented, is compact enough that nearly its entirety is within a 1/4 mile (or 5 minute walk) radius from the University Center.

Shifting the primary vehicular circulation onto the proposed ring road will create a more pedestrian friendly environment along the Dixon Street Spine. Streetscaping improvements to both the Dixon and Pine Street Spines can provide shade to pedestrians as well as slow traffic.

Any future development that occurs at the triangular lot bordered by Jefferson Davis Pkwy. and the Palmetto Canal will create an additional opportunity to anchor an attractive pedestrian path along the canal that links the site to the Main Campus.

PRIMARY CIRCULATION

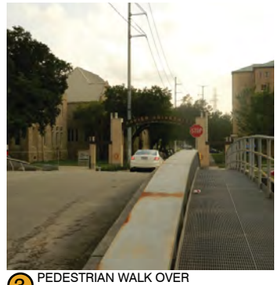
SECONDARY CIRCULATION

FUTURE PEDESTRIAN CONNECTION

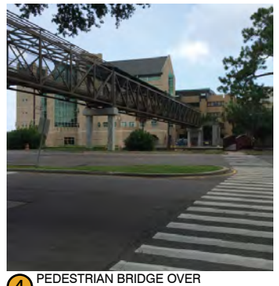
PEDESTRIAN CIRCULATION NETWORK

1 PEDESTRIAN PATH OPPORTUNITY ALONG CANAL

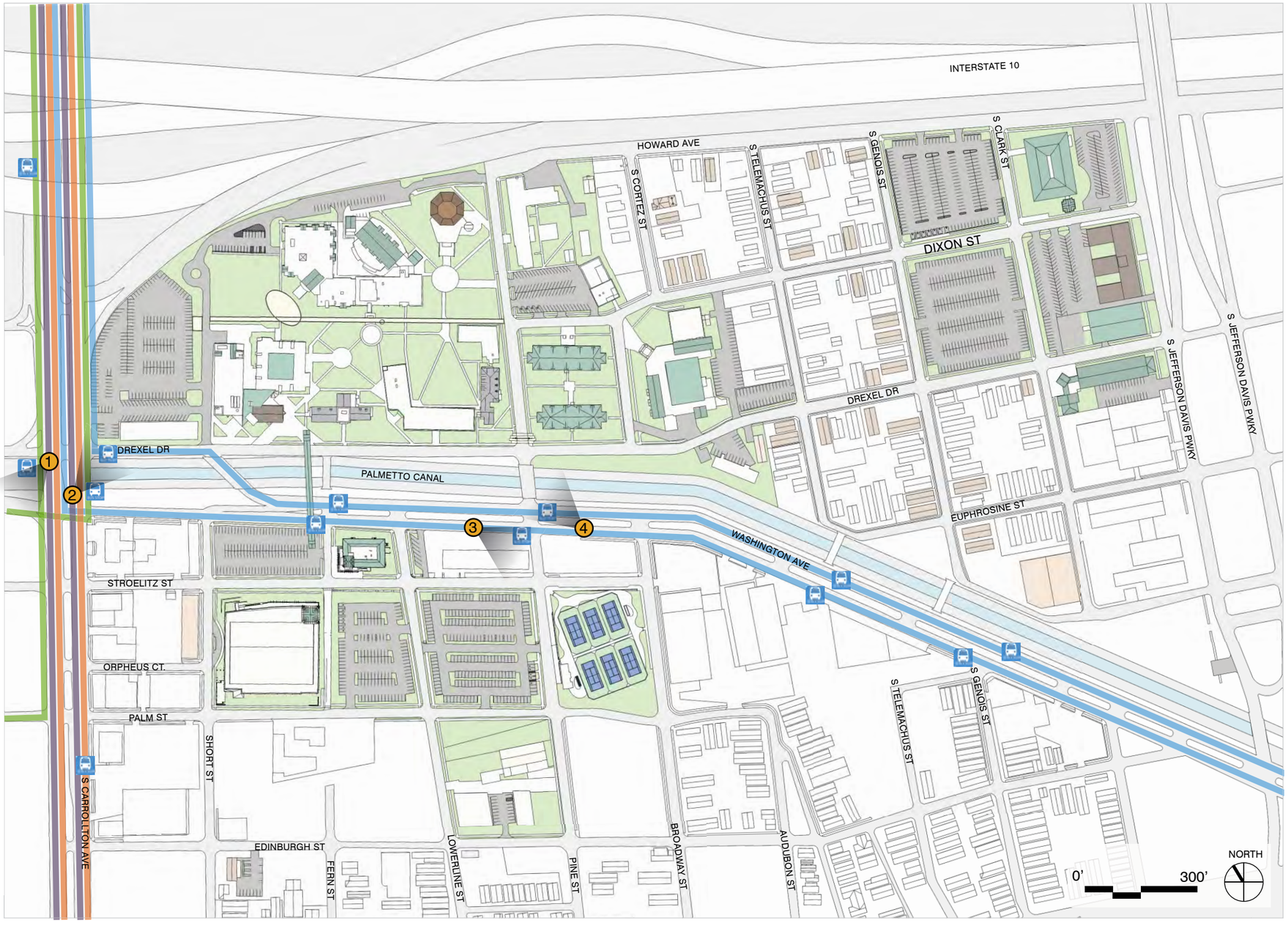
2 SIDEWALK ALONG DIXON ST.



3 PEDESTRIAN WALK OVER PALMETTO CANAL



4 PEDESTRIAN BRIDGE OVER WASHINGTON AVE.



Xavier University is well connected by several RTA bus routes. However, improvements are needed at several bus stops along the 27 - Louisiana route as well as the sidewalks that connect them to campus. Extended concrete landing pads that connect to smoother sidewalks will improve accessibility for transit riders traveling to and from campus.

- 27 - LOUISIANA
- 32 - LEONIDAS - TREME
- 39 - TULANE
- 90 - CARROLLTON

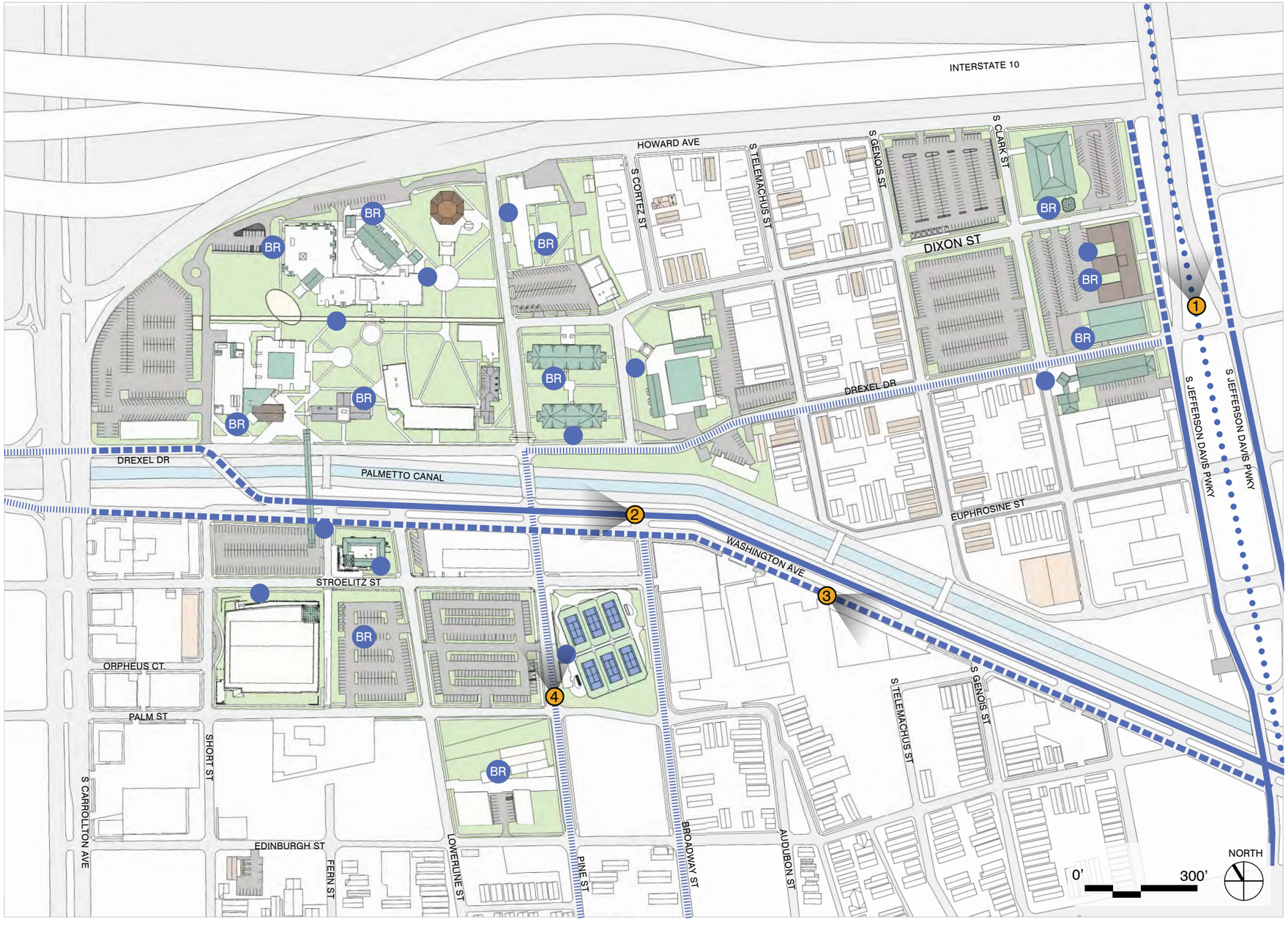
TYPICAL RTA BUS STOPS

1 BUS SHELTER ON S. CARROLLTON AVE. AND PALMETTO ST.

2 BUS SHELTER ON S. CARROLLTON AVE. AND WASHINGTON AVE.

3 BUS STOP ALONG WASHINGTON AVE.

4 BUS STOP ALONG WASHINGTON AVE.



The New Orleans Bike Map includes several designated bike routes that connect to Xavier University's campus. Bicycle infrastructure that compliment these routes would encourage greater ridership for students and faculty living off campus.

Several existing bike racks are interspersed throughout campus. Placement of future bike racks should consider long term storage spaces that are sheltered from the elements.

- DEDICATED BIKE LANE
- OFF-STREET TRAIL
- SHARED USE TRAVEL LANE
- CONNECTOR ROUTE
- EXISTING BIKE RACK LOCATION
- BR PROPOSED BIKE RACK

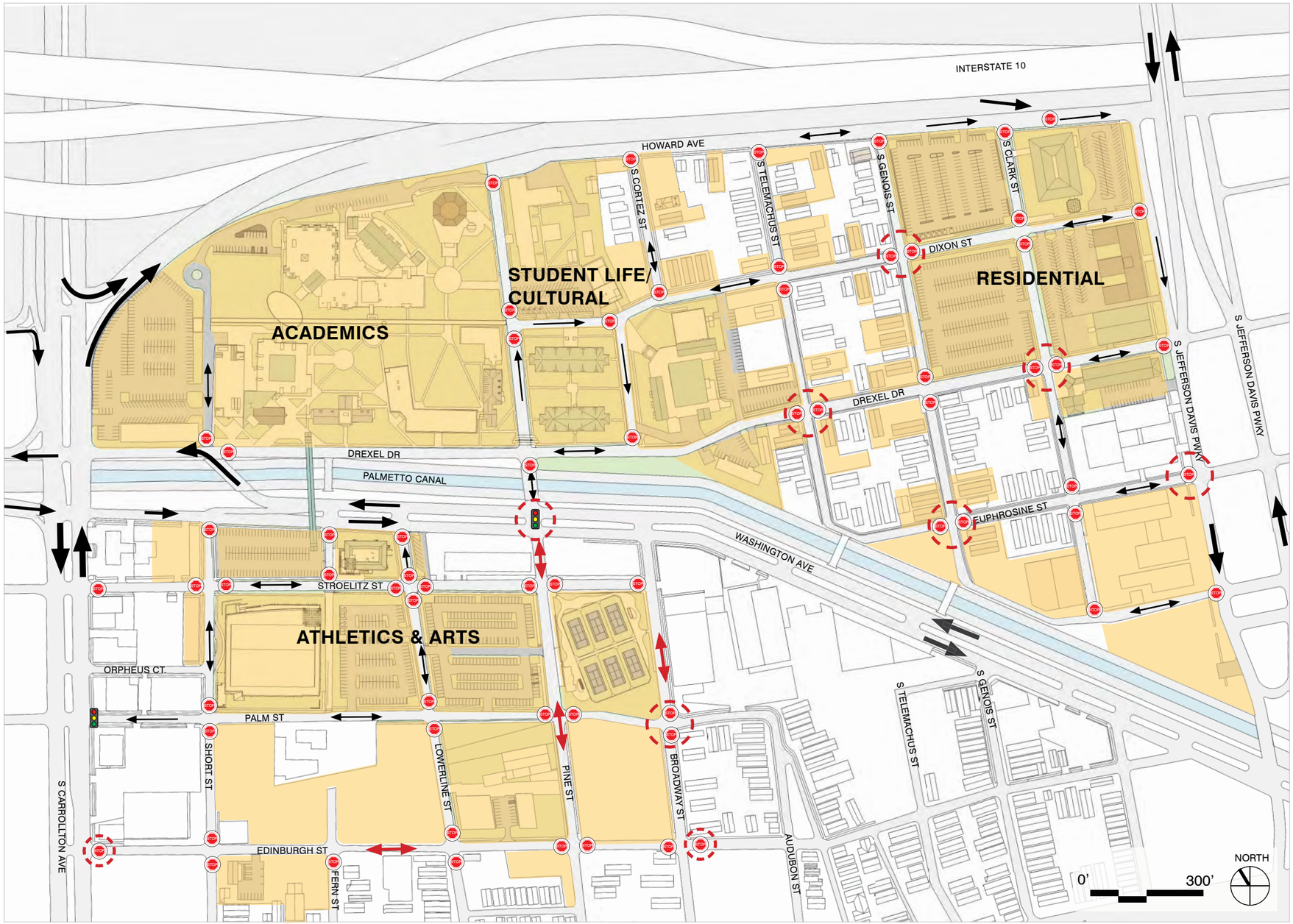
BICYCLE NETWORK

1 JEFFERSON DAVIS BIKE TRAIL

2 WASHINGTON AVE. DEDICATED BIKE LANE

3 WASHINGTON AVE. SHARED BIKE LANE

4 PINE STREET CONNECTOR ROUTE



Several improvements can be made to traffic configurations throughout Xavier University's campus in order to improve walkability.

Xavier's highest priority is signalization of the intersection at Pine St. and Washington Ave, which would allow for safer pedestrian crossing. The City of New Orleans Department of Public Works conducted a signalization warrant study for this intersection and concluded that signalization could be considered (study can be found in the appendix to Exhibit B).

The University also proposes modification of two-way stop sign placement at strategic locations throughout campus that will calm traffic by forcing vehicles to stop at least once every two blocks.

A complete Traffic Impact Analysis incorporating the proposed modifications was prepared as a part of this IMP and can be found in Exhibit B.

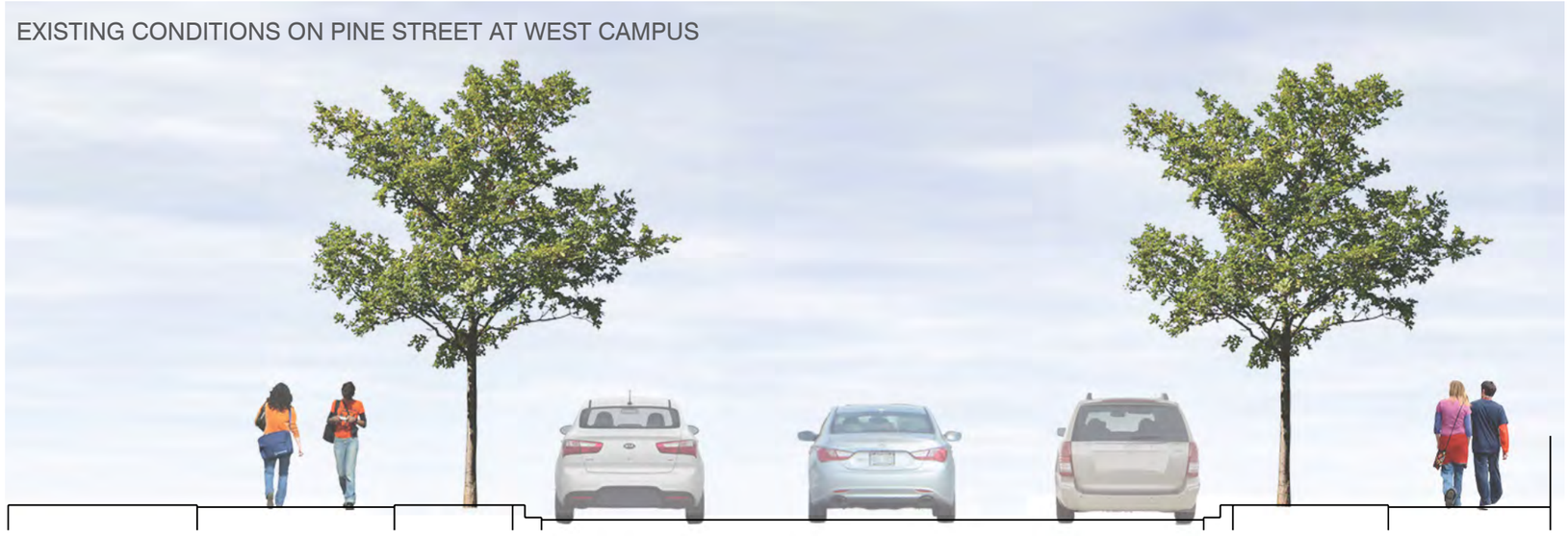
- XAVIER PROPERTY
- EXISTING TRAFFIC DIRECTION
- PROPOSED TRAFFIC DIRECTION
- EXISTING STOP SIGN CONFIGURATION
- PROPOSED STOP SIGN CONFIGURATION
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL

Section 5 - **Implementation**

The Pine Street spine connects Xavier's Arts & Athletics District to the Main Campus across the Palmetto Canal. It currently accommodates one-way traffic heading lake-bound with on-street parking.

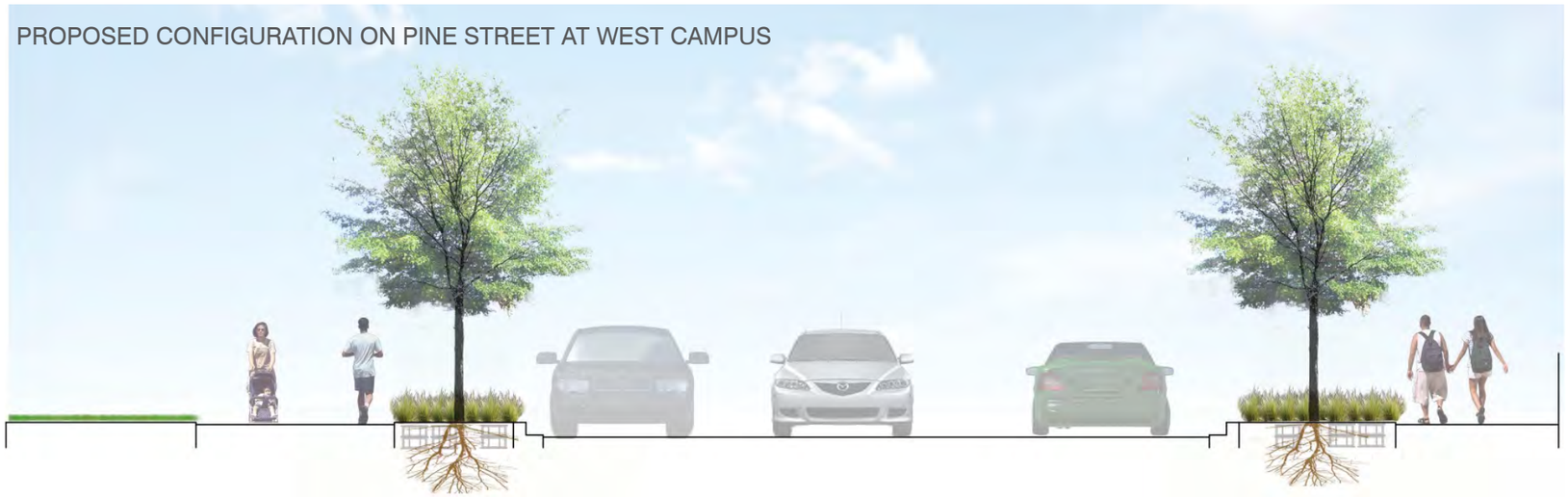
The Pine Street Spine improvements proposes changing Pine Street from 1-way to 2-way travel lanes while retaining one parking lane. Street trees along the whole spine will promote pedestrian circulation between campuses.

EXISTING CONDITIONS ON PINE STREET AT WEST CAMPUS



7' 7" Grass Buffer | 7' 11" Sidewalk | 4' 9" Grass Buffer | 8' Parking Lane | 10' 7" Travel Lane | 8' Parking Lane | 6' 3" Grass Buffer | 6' 6" Sidewalk

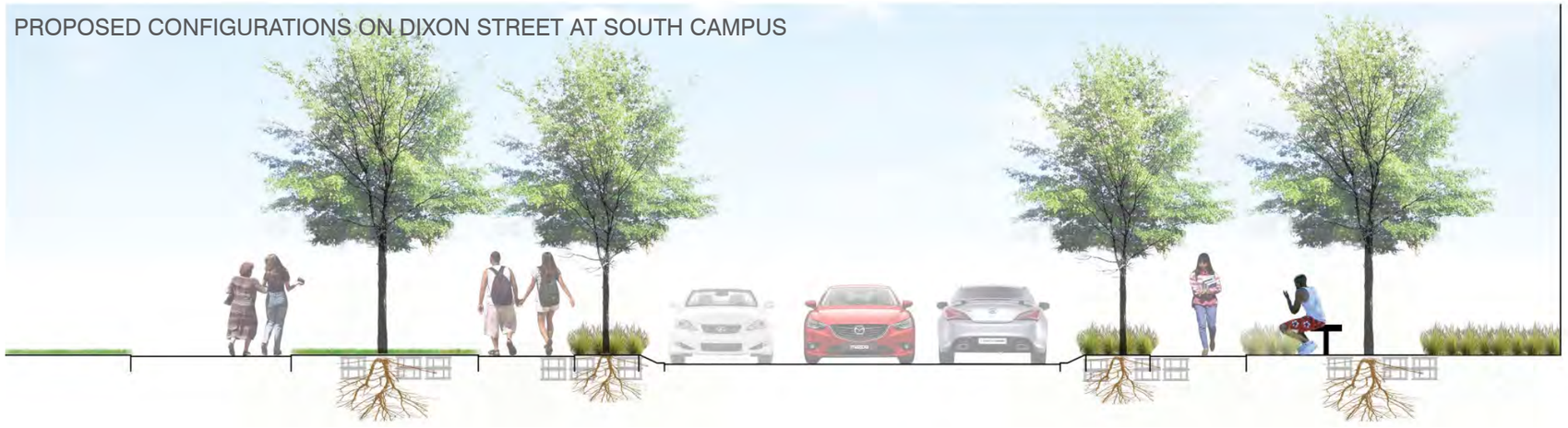
PROPOSED CONFIGURATION ON PINE STREET AT WEST CAMPUS



7' 7" Grass Buffer | 7' 11" Sidewalk | 4' 9" Street Tree with Soil Cells | 7' Parking Lane | 10' Travel Lane South Bound | 9' 6" Travel Lane North Bound | 6' 3" Street Tree with Soil Cells | 6' 6" Sidewalk

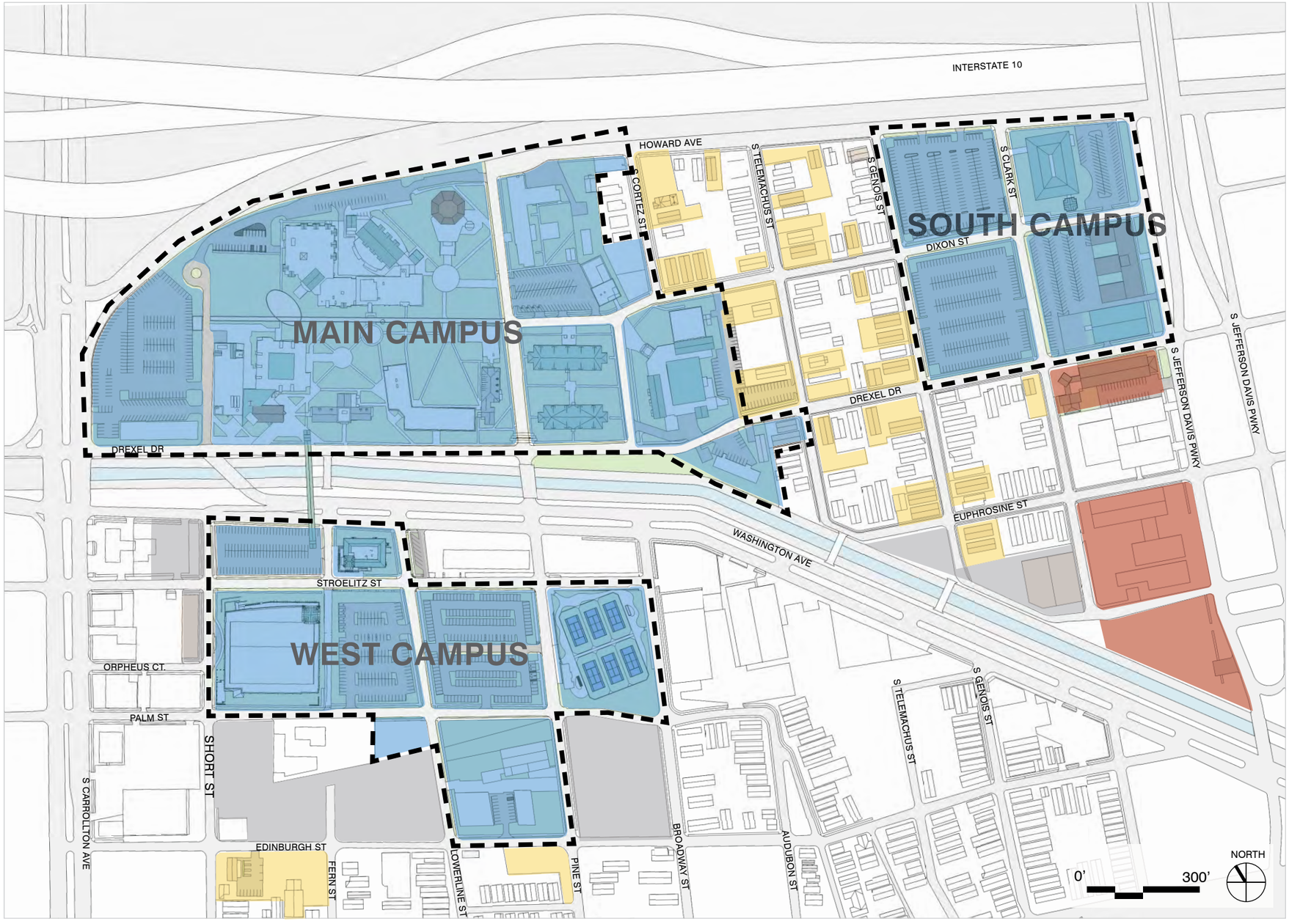
EXISTING CONDITIONS ON DIXON STREET AT SOUTH CAMPUS

PROPOSED CONFIGURATIONS ON DIXON STREET AT SOUTH CAMPUS



The Dixon Street spine connects Xavier’s Residential District through a small-scale residential block to the Main Campus. It consists of on-street parking and two-way travel lanes along most of its length.

The Dixon Street Spine improvements will keep 2-way travel lanes intact while retaining the parking lane. Street trees along the whole spine will promote pedestrian circulation between campuses. The addition of Open Space near adjacent proposed buildings will create spaces for students to use the university’s campus.



All proposed development in this IMP is intended to meet the requirements of the City of New Orleans Comprehensive Zoning Ordinance for EC Educational Campus Districts, specifically:

Article 15 Commercial and Institutional Campus Districts - Permitted and Conditional Uses

- All proposed uses, educational facility (university), dormitory, retail / restaurant, multi-family residential, and parking structures are permitted by right IN EC - Educational Campus Districts.
- Bulk and Yard Regulations: All proposed structures are consistent with the EC regulations for height (2 times most restrictive height of adjacent districts*), front yard setback (10 ft.), and open space (min. 20% permeable open space).

Article 22 - Off Street Parking and Loading

All proposed parking is intended to be compliant with this Article, specifically, the following requirements:

- Educational Facility (University) - 1 space / 4,000 sq. ft.
- Dormitory - 1 space / 4 rooms

Article 23 - Landscaping, Stormwater Management & Screening

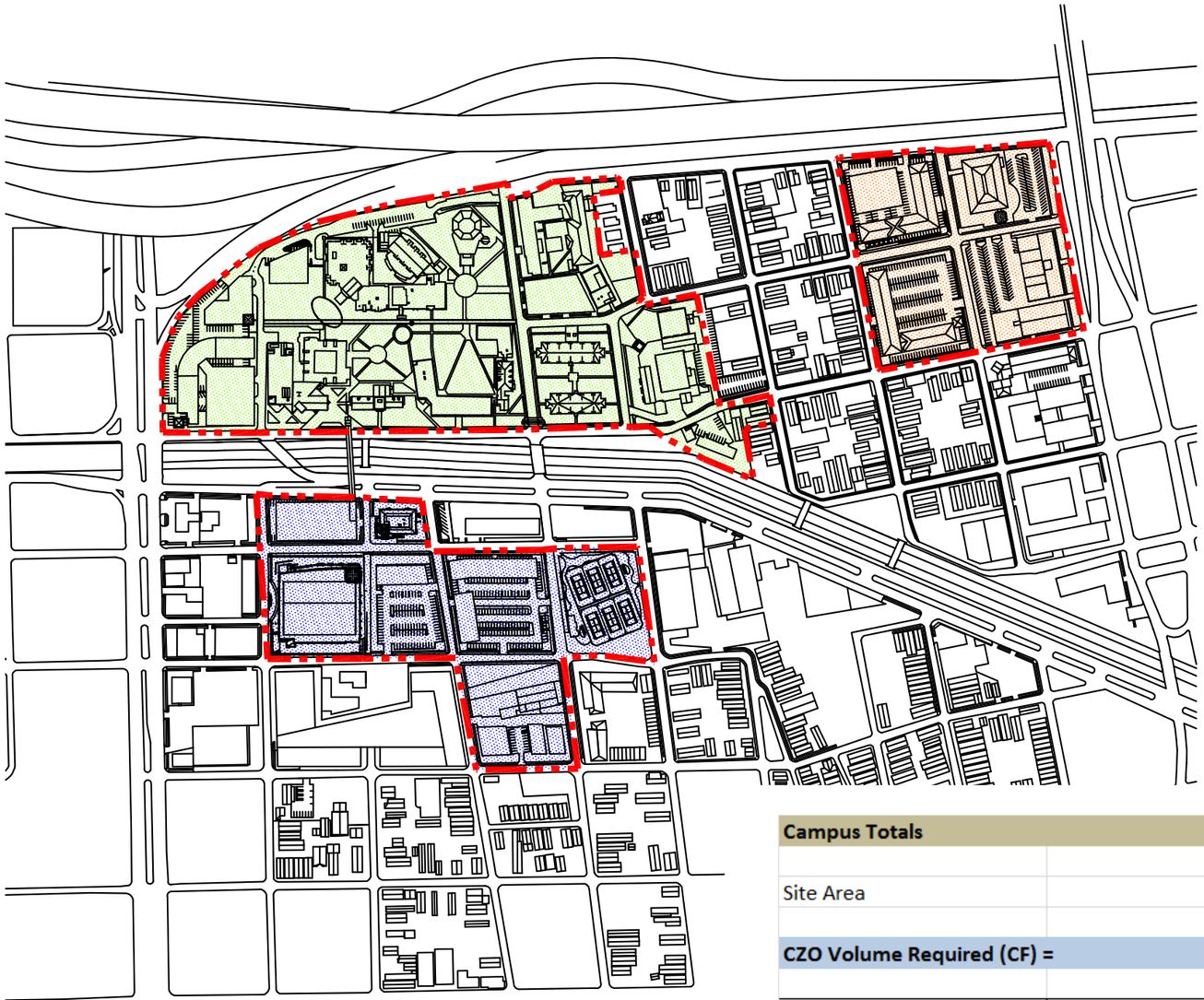
All proposed landscaping and stormwater management is intended to be compliant with this Article (see Landscape Plan on page 16 and Exhibit A, Stormwater Management Plan).

Article 24 - Signs

All proposed signage is intended to be compliant with this Article (see page 18, Perimeter Sign Plan).

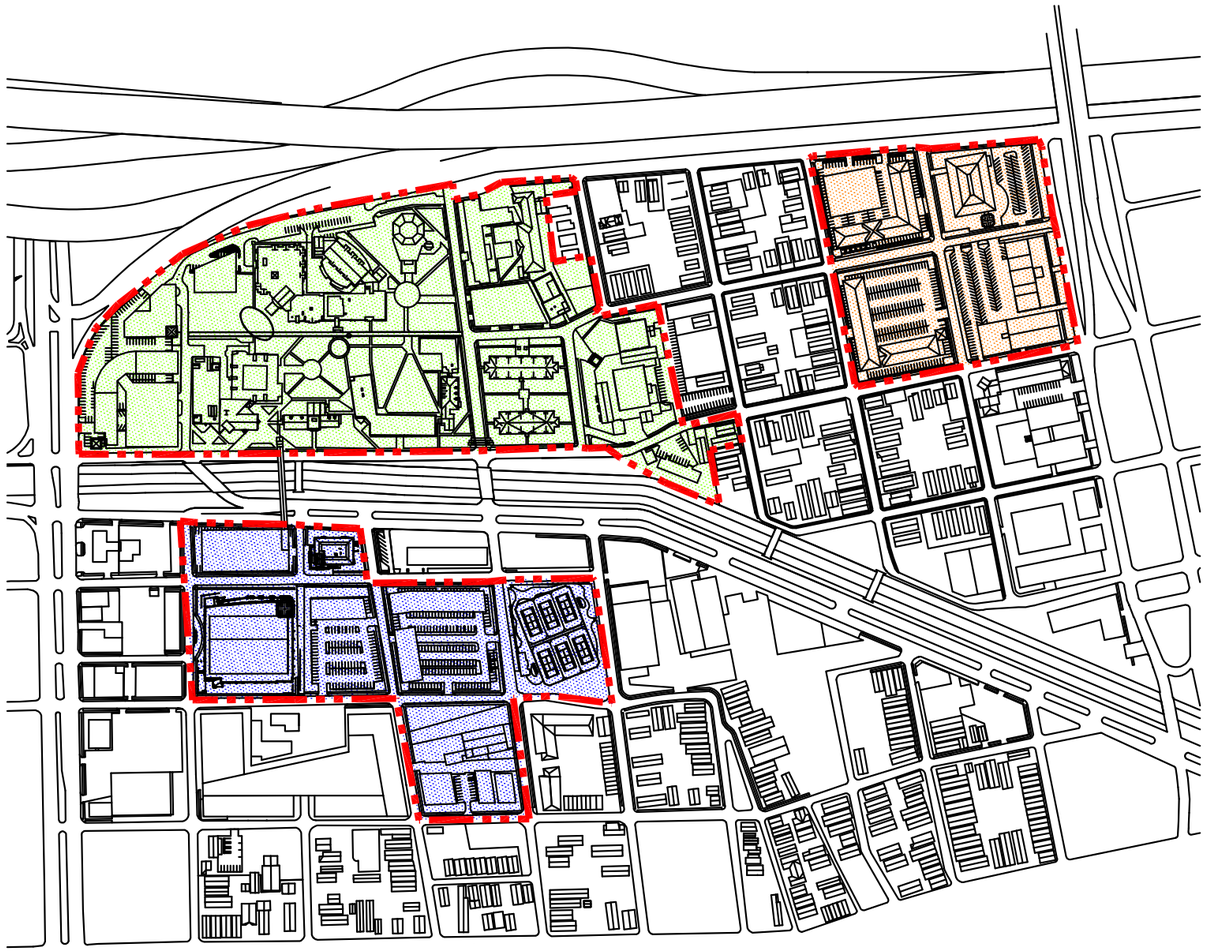
IMP BOUNDARY

Exhibit A - **Stormwater Management Plan**



Campus Totals			
		Proposed (SF)	Proposed (AC)
Site Area		2,111,899	48.48
CZO Volume Required (CF) =		**219,989**	
Stormwater Technique	**Depth of Storage**	**Req'd Area (SF)**	**Req'd Area (AC)**
Rain Garden	0.5' Deep	439,979	10.10
Permeable Paver	1.5' Deep (40% voids)	366,649	8.42
Bioretention	2' Deep	109,995	2.53
Below Grade	3' Deep	73,330	1.68

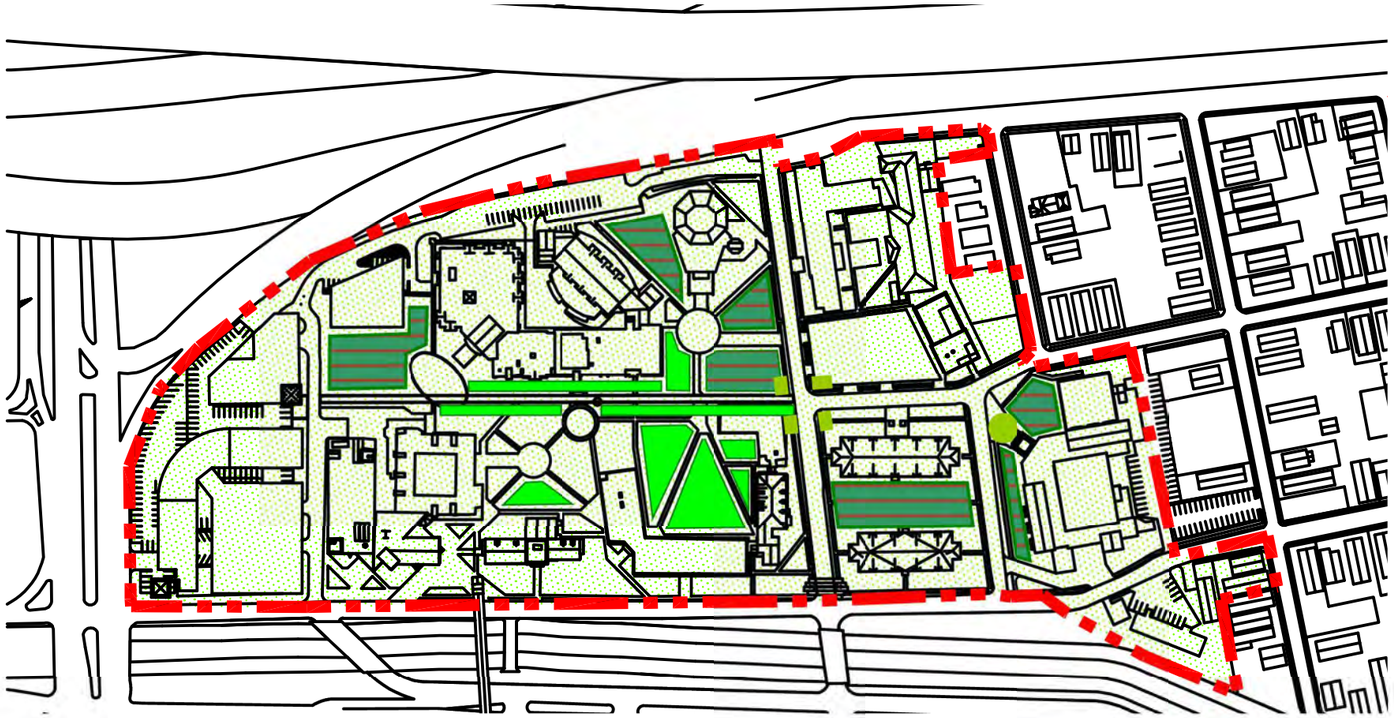
North 0 100' 200' 400'



Main Campus			
		Proposed (SF)	**Proposed (AC)**
Site Area		1,088,580	24.99
CZO Volume Required (CF) =		**113,394**	
Stormwater Technique	**Depth of Storage**	**Req'd Area (SF)**	**Req'd Area (AC)**
Rain Garden	0.5' Deep	226,788	5.21
Permeable Paver	1.5' Deep (40% voids)	188,990	4.34
Bioretention	2' Deep	56,697	1.30
Below Grade	3' Deep	37,798	0.87

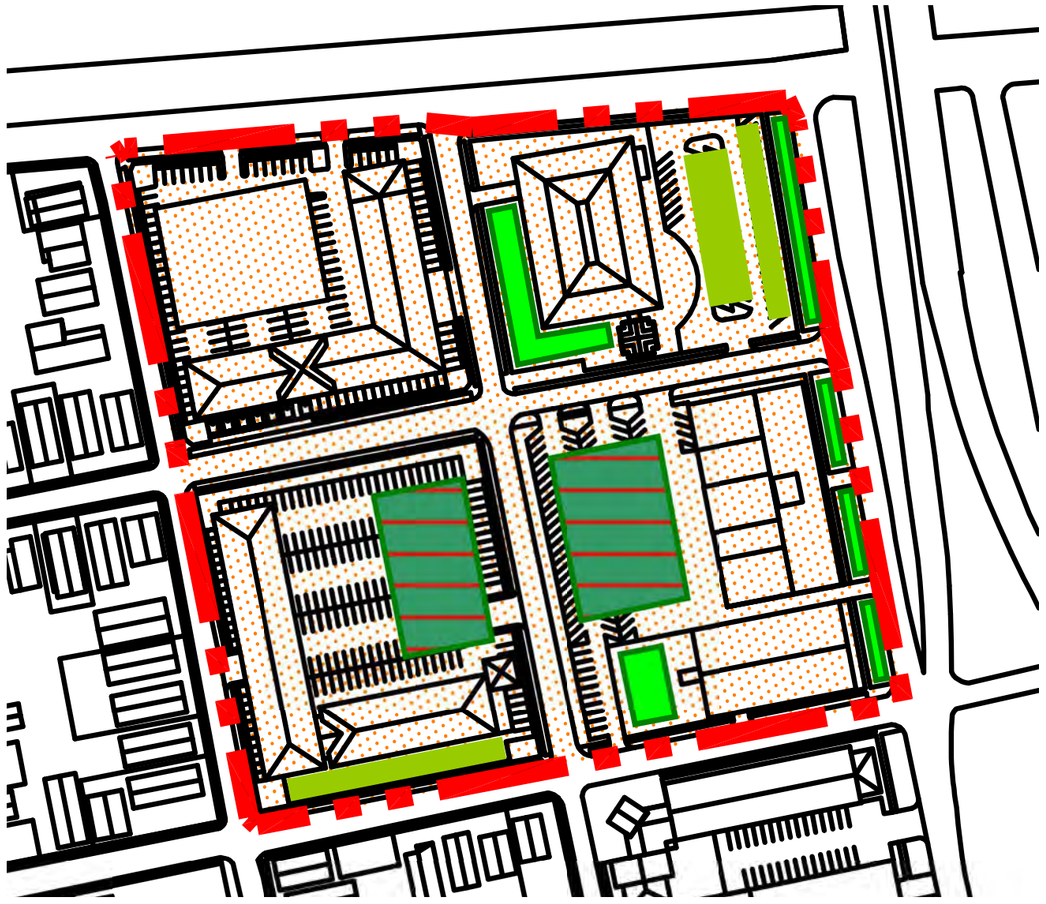
South Campus			
		Proposed (SF)	**Proposed (AC)**
Site Area		418,765	9.61
CZO Volume Required (CF) =		**43,621**	
Stormwater Technique	**Depth of Storage**	**Req'd Area (SF)**	**Req'd Area (AC)**
Rain Garden	0.5' Deep	87,243	2.00
Permeable Paver	1.5' Deep (40% voids)	72,702	1.67
Bioretention	2' Deep	21,811	0.50
Below Grade	3' Deep	14,540	0.33

West Campus			
		Proposed (SF)	**Proposed (AC)**
Site Area		604,554	13.88
CZO Volume Required (CF) =		**62,974**	
Stormwater Technique	**Depth of Storage**	**Req'd Area (SF)**	**Req'd Area (AC)**
Rain Garden	0.5' Deep	125,949	2.89
Permeable Paver	1.5' Deep (40% voids)	104,957	2.41
Bioretention	2' Deep	31,487	0.72
Below Grade	3' Deep	20,991	0.48



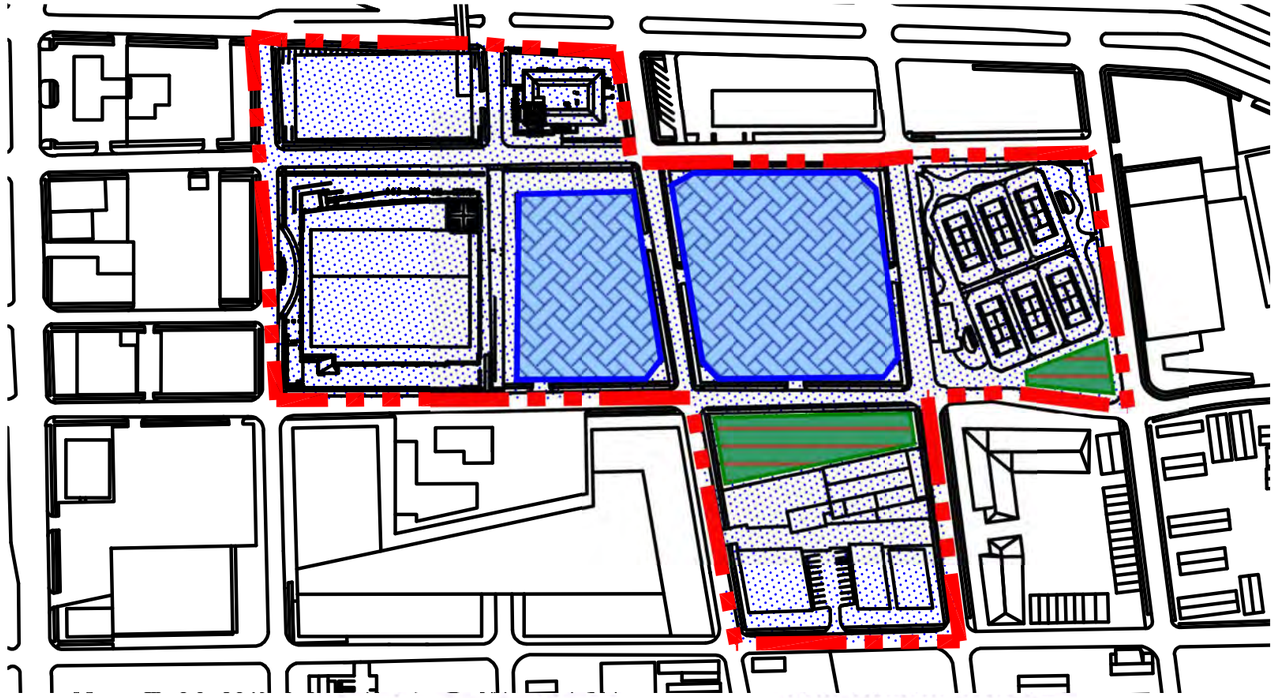
Main Campus			
		Proposed (SF)	**Proposed (AC)**
Site Area		1,088,580	24.99
CZO Volume Required (CF) =		**113,394**	
Stormwater Technique	**Depth of Storage**	**Provided Area (SF)**	**CZO Volume (CF)**
Rain Garden	0.5' Deep	40,000	20,000
Permeable Paver	1.5' Deep (40% voids)	4,000	2,400
Bioretention	2' Deep	50,000	100,000
Total CZO Volume Achieved (CF):			**122,400**

North 0 100' 200' 400'



South Campus			
		Proposed (SF)	**Proposed (AC)**
Site Area		418,765	9.61
CZO Volume Required (CF) =		**43,621**	
Stormwater Technique	**Depth of Storage**	**Provided Area (SF)**	**CZO Volume (CF)**
Rain Garden (along street)	0.5' Deep	12,000	6,000
Permeable Paver	1.5' Deep (40% voids)	13,000	7,800
Bioretention	2' Deep	20,000	40,000
Total CZO Volume Achieved (CF):			**53,800**

North 0 100' 200' 400'



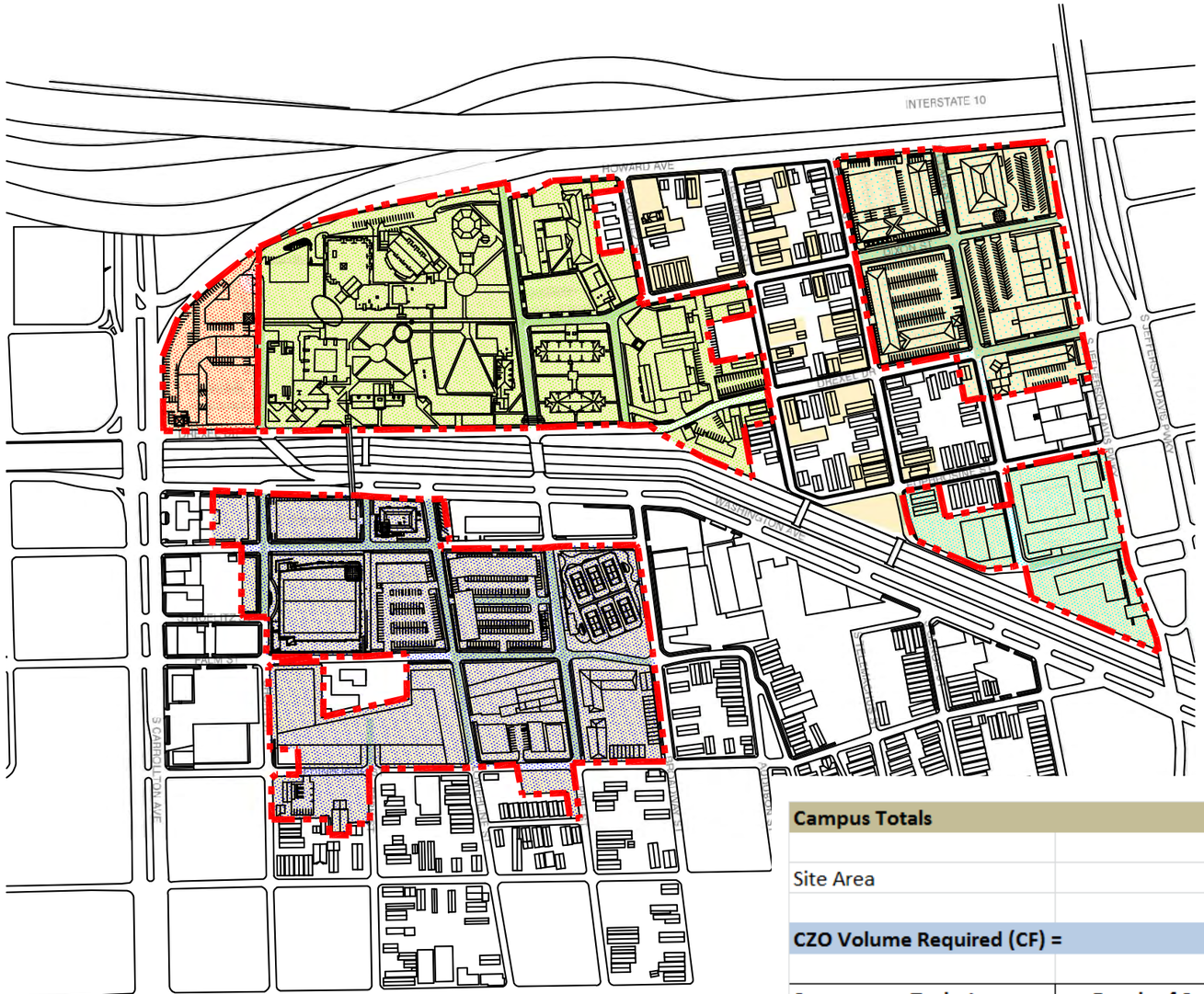
West Campus

		Proposed (SF)	Proposed (AC)
Site Area		604,554	13.88
CZO Volume Required (CF) =		**62,974**	

Existing Stormwater Technique	**Depth of Storage**	**Provided Area (SF)**	**CZO Volume (CF)**
Existing Permeable Paver	1.5' Deep (40% voids)	48,000	28,800
New CZO Volume Required (CF) =			**34,174**

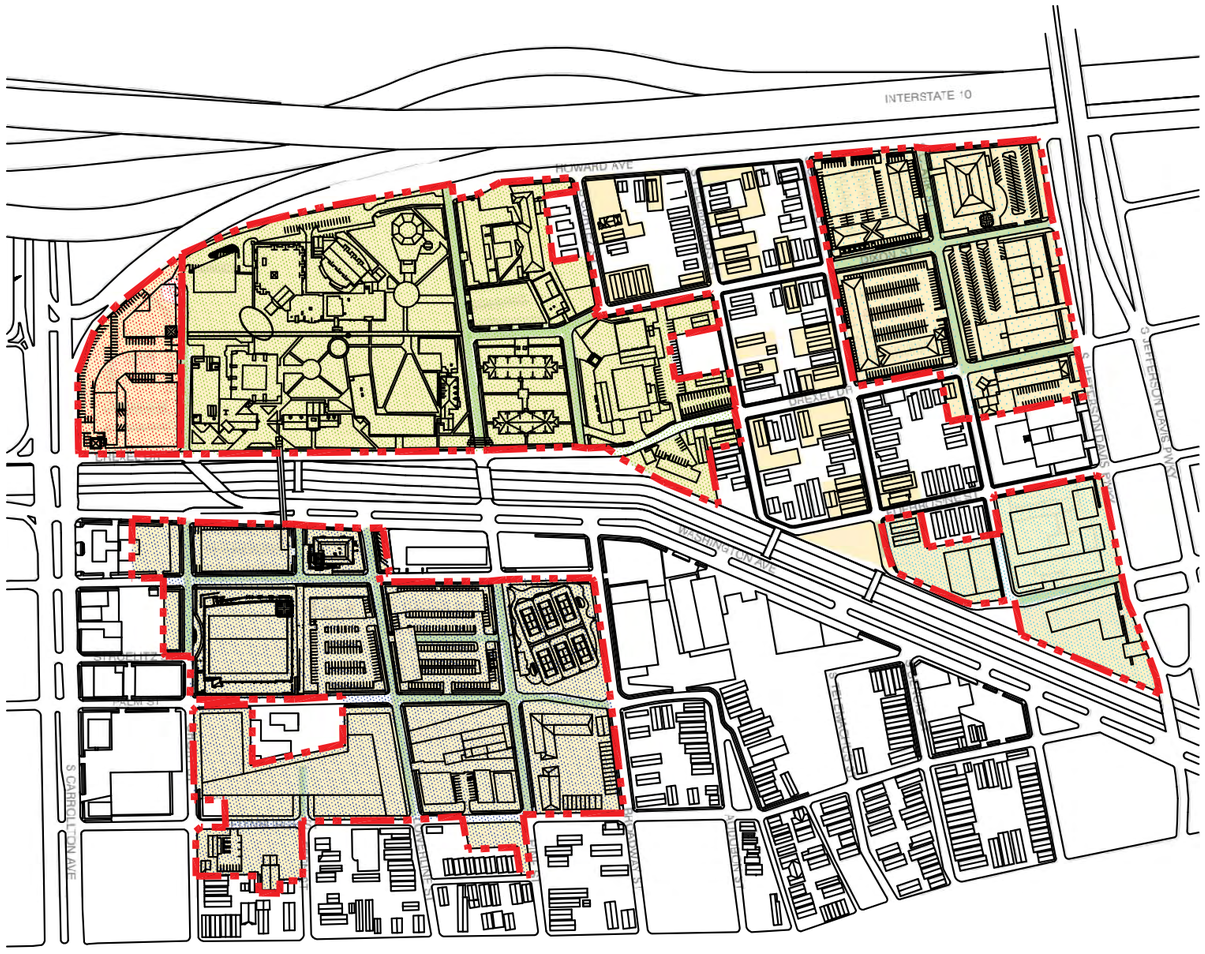
Proposed Stormwater Technique	**Depth of Storage**	**Provided Area (SF)**	**CZO Volume (CF)**
Bioretention	2' Deep	18,000	36,000
Total New CZO Volume Achieved (CF):			**36,000**

North 0 100' 200' 400'



Campus Totals			
		Proposed (SF)	Proposed (AC)
Site Area		2,818,706	64.71
CZO Volume Required (CF) =		**293,615**	
Stormwater Technique	**Depth of Storage**	**Req'd Area (SF)**	**Req'd Area (AC)**
Rain Garden	0.5' Deep	587,230	13.48
Permeable Paver	1.5' Deep (40% voids)	489,359	11.23
Bioretention	2' Deep	146,808	3.37
Below Grade	3' Deep	97,872	2.25

North 0 100' 200' 400'

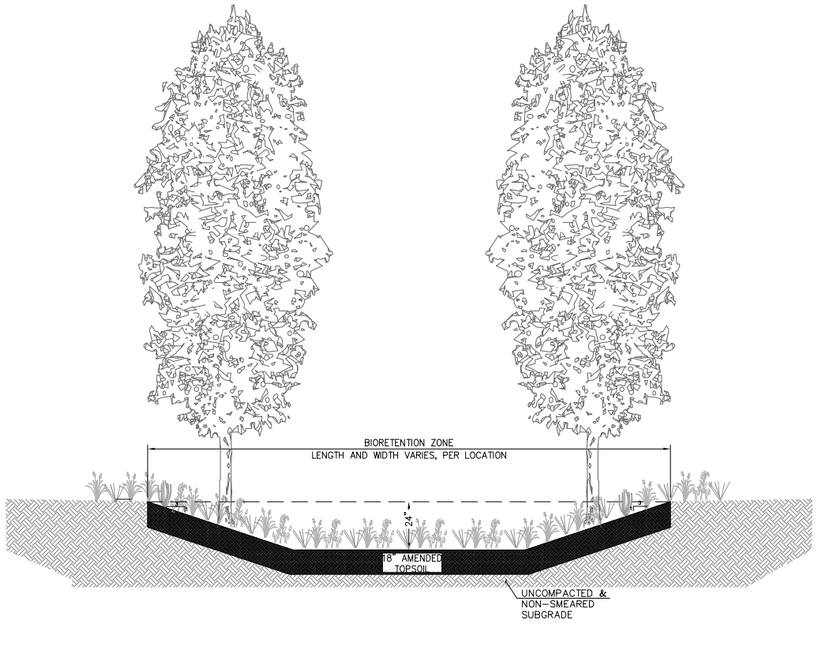


Main Campus			
		Proposed (SF)	Proposed (AC)
Site Area		994,810	22.84
CZO Volume Required (CF) =		**103,626**	
Stormwater Technique	**Depth of Storage**	**Req'd Area (SF)**	**Req'd Area (AC)**
Rain Garden	0.5' Deep	207,252	4.76
Permeable Paver	1.5' Deep (40% voids)	172,710	3.96
Bioretention	2' Deep	51,813	1.19
Below Grade	3' Deep	34,542	0.79

Gateway District			
		Proposed (SF)	Proposed (AC)
Site Area		133,038	3.05
CZO Volume Required (CF) =		**13,858**	
Stormwater Technique	**Depth of Storage**	**Req'd Area (SF)**	**Req'd Area (AC)**
Rain Garden	0.5' Deep	27,716	0.64
Permeable Paver	1.5' Deep (40% voids)	23,097	0.53
Bioretention	2' Deep	6,929	0.16
Below Grade	3' Deep	4,619	0.11

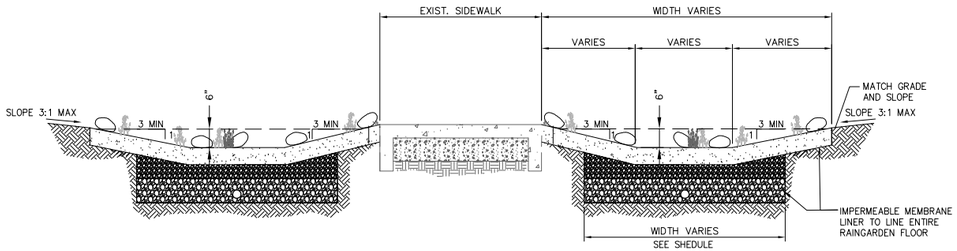
Arts and Athletics District			
		Proposed (SF)	Proposed (AC)
Site Area		980,297	22.50
CZO Volume Required (CF) =		**102,114**	
Stormwater Technique	**Depth of Storage**	**Req'd Area (SF)**	**Req'd Area (AC)**
Rain Garden	0.5' Deep	204,229	4.69
Permeable Paver	1.5' Deep (40% voids)	170,190	3.91
Bioretention	2' Deep	51,057	1.17
Below Grade	3' Deep	34,038	0.78

Parkway District			
		Proposed (SF)	Proposed (AC)
Site Area		710,561	16.31
CZO Volume Required (CF) =		**74,017**	
Stormwater Technique	**Depth of Storage**	**Req'd Area (SF)**	**Req'd Area (AC)**
Rain Garden	0.5' Deep	148,034	3.40
Permeable Paver	1.5' Deep (40% voids)	123,361	2.83
Bioretention	2' Deep	37,008	0.85
Below Grade	3' Deep	24,672	0.57



1 BIORETENTION ZONE

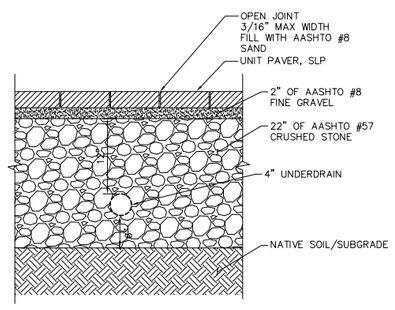
SCALE: NTS



NOTE(S):

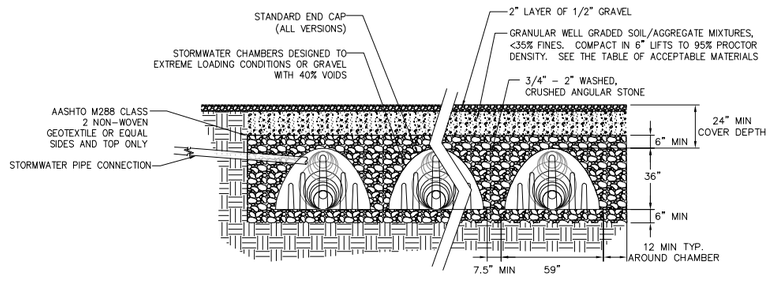
2 RAIN GARDEN ALONG EXISTING SIDEWALK

SCALE: NTS



3 PERMEABLE PAVERS

SCALE: NTS



4 BELOW GRADE STORAGE

SCALE: NTS

Exhibit B - **Traffic Impact Analysis**

Xavier University
Institutional Master Plan
Traffic Impact Analysis

Stantec

Prepared for:
Xavier University of Louisiana

Prepared by:
Stantec Consulting Services Inc.

July 21, 2016

Table of Contents

Stantec

XAVIER UNIVERSITY
INSTITUTIONAL MASTER PLAN
TRAFFIC IMPACT ANALYSIS

Abbreviations and Terms

CZO	Comprehensive Zoning Ordinance
I-10	Interstate 10
IMP	Institutional Master Plan
LADOTD	Louisiana Department of Transportation and Development
RPC	New Orleans Regional Planning Commission
TIA	Traffic Impact Analysis
Downbound	Traveling towards Downtown New Orleans
Upbound	Traveling towards Uptown New Orleans
Riverbound	Traveling towards the Mississippi River
Lakebound	Traveling towards Lake Pontchartrain

Stantec

1.0 INTRODUCTION

Stantec Consulting Services Inc. was contracted as part of a team with Manning Architects to investigate operational improvement potential in and around the Xavier University campus in New Orleans, Louisiana. Multiple methods of high-level analysis were implemented in order to identify existing mobility issues within the study area and propose solutions for the improvement of vehicular and pedestrian mobility within the overall district while also keeping existing bicycle and transit facilities in mind. Several options for improving the operations of the study area have been considered, including but not limited to restriping, signalization, and multimodal facilities.

2.0 STUDY AREA

The study limits are shown in **Figure 1** and are bounded by the following roadways: South Carrollton Avenue, South Jefferson Davis Parkway, Earhart Boulevard, and Interstate 10 (I-10).

Figure 1: Study Area

3.0 EXISTING CONDITIONS

Xavier University has a current annual enrollment of 2,800 students. 1,350 students—or approximately half—live on campus.

Existing traffic counts were provided by the City of New Orleans and the Louisiana Department of Transportation and Development (LADOTD). The City of New Orleans recently performed a traffic signal warrant analysis for the intersection of Washington Avenue and Pine Street which included 48-hour counts at each approach to the intersection. The full count data is presented in **Appendix A**. The existing average daily vehicular traffic volumes are as follows:

- Washington Avenue - Lakebound - 9240 vehicles
- Washington Avenue - Riverbound - 6599 vehicles
- Pine Street - Downbound - 1963 vehicles
- Pine Street - Upbound - 608 vehicles

The City study also included pedestrian counts at the intersection. The study documented 50 pedestrians crossing Washington Avenue during the AM peak hour and 32 during the PM peak hour. Many pedestrians currently cross the canal that runs parallel to the southwest edge of campus using the pedestrian bridge at Fern Street instead of crossing at Pine Street. There is also an additional overhead pedestrian bridge under construction that will allow pedestrians to cross both the canal and surface streets such as Washington Avenue and Drexel Drive from above.

LADOTD provided traffic counts on South Carrollton Avenue that were performed during 2011 as part of the Costco development study. These counts are presented in **Appendix B**.

Existing traffic patterns encourage drivers to drive directly to their destination and park close by. Due to the spread out nature of the campus and the direct routing of the streets, drivers who are unfamiliar with the area may have difficulty navigating to their destination. The existing access and circulation patterns are shown in **Figure 2 through Figure 5**.

Furthermore, there is an existing bike path that runs along Jefferson Davis Parkway, connecting Xavier's campus to City Park to the north. Transit options are available with stop locations located in the median of the South Carrollton Avenue and Palmetto Street intersection.

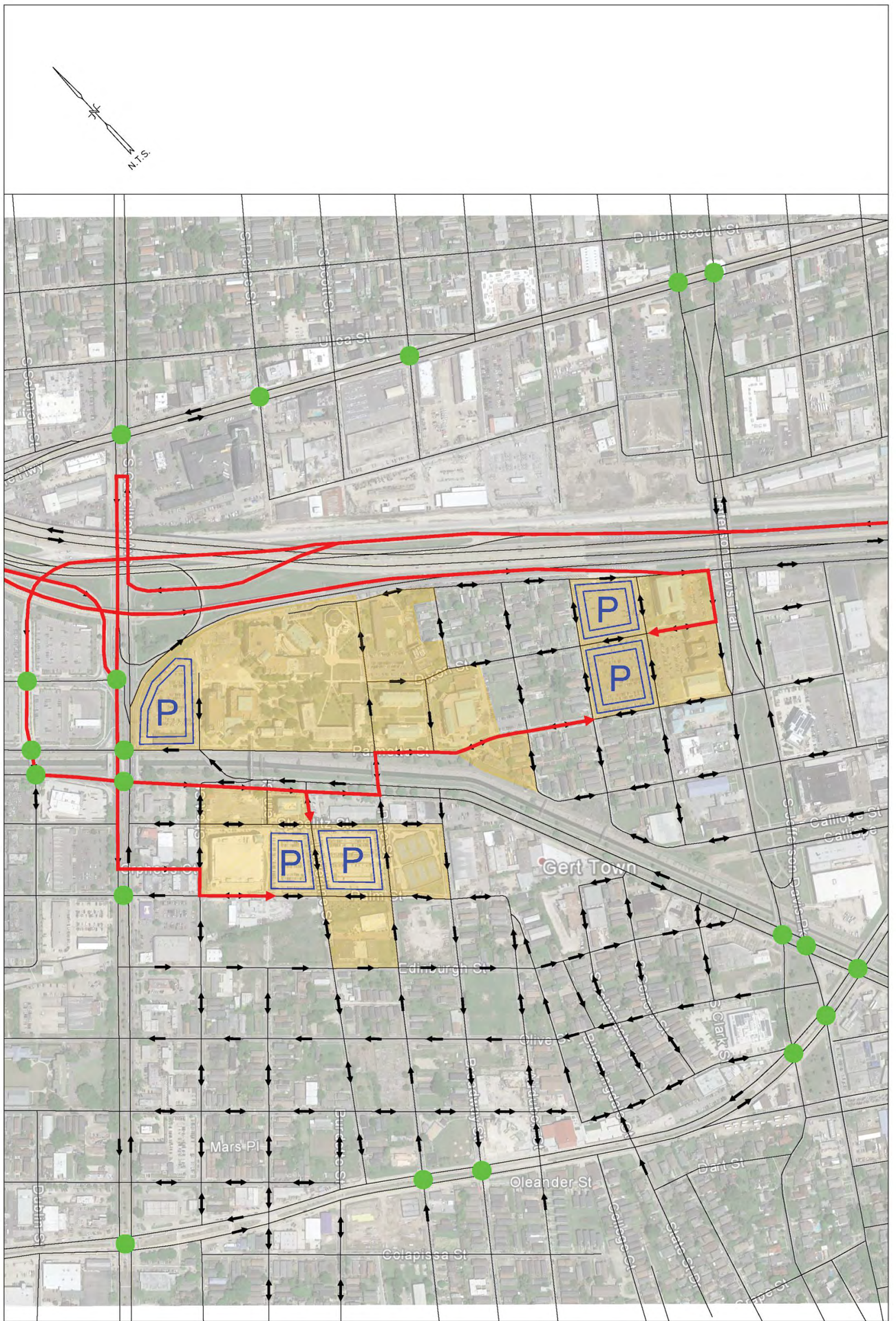


FIGURE 2

EXISTING SITE ACCESS, ENTERING FROM INTERSTATE

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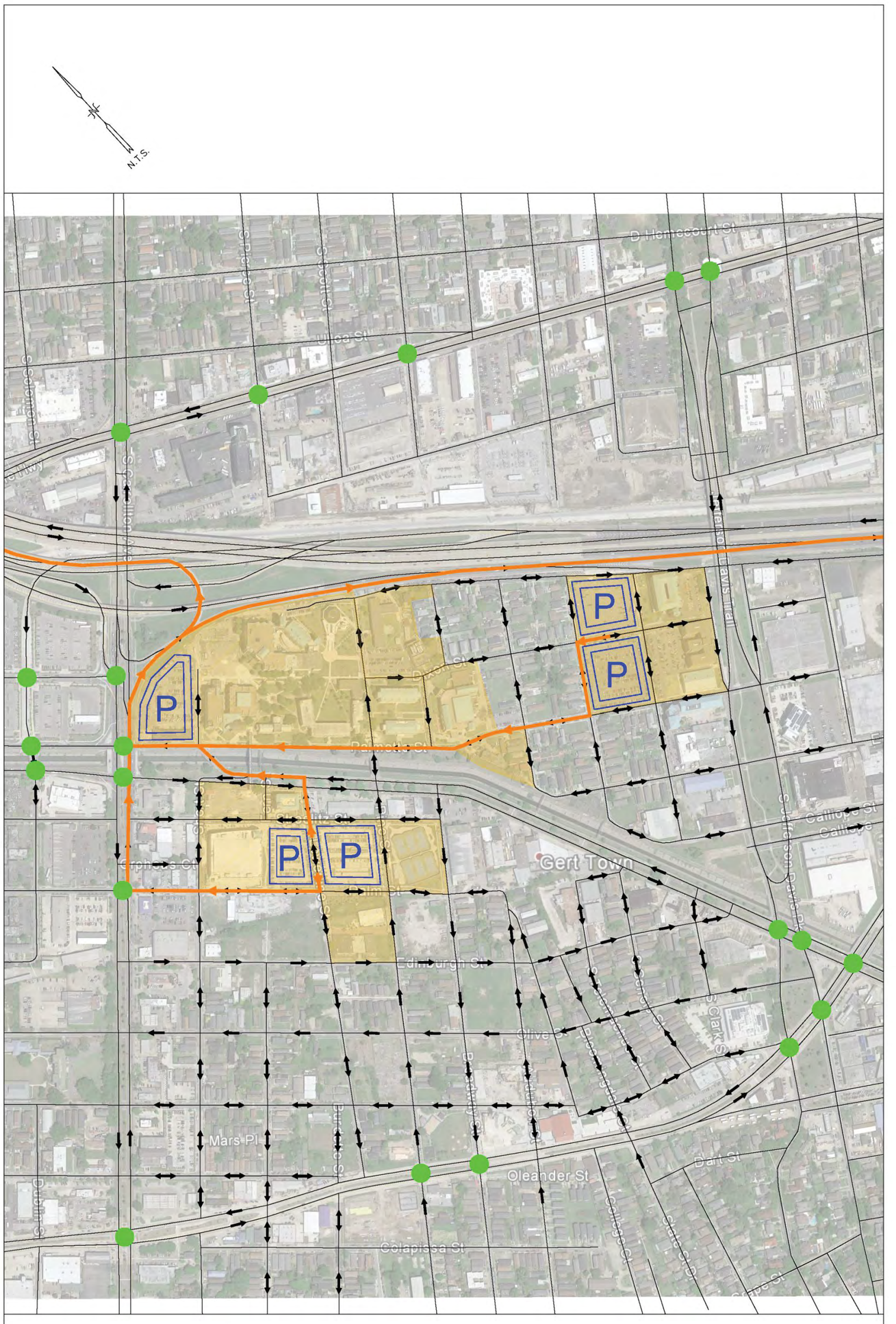

FIGURE 3
EXISTING SITE ACCESS, EXITING TO INTERSTATE

Stantec

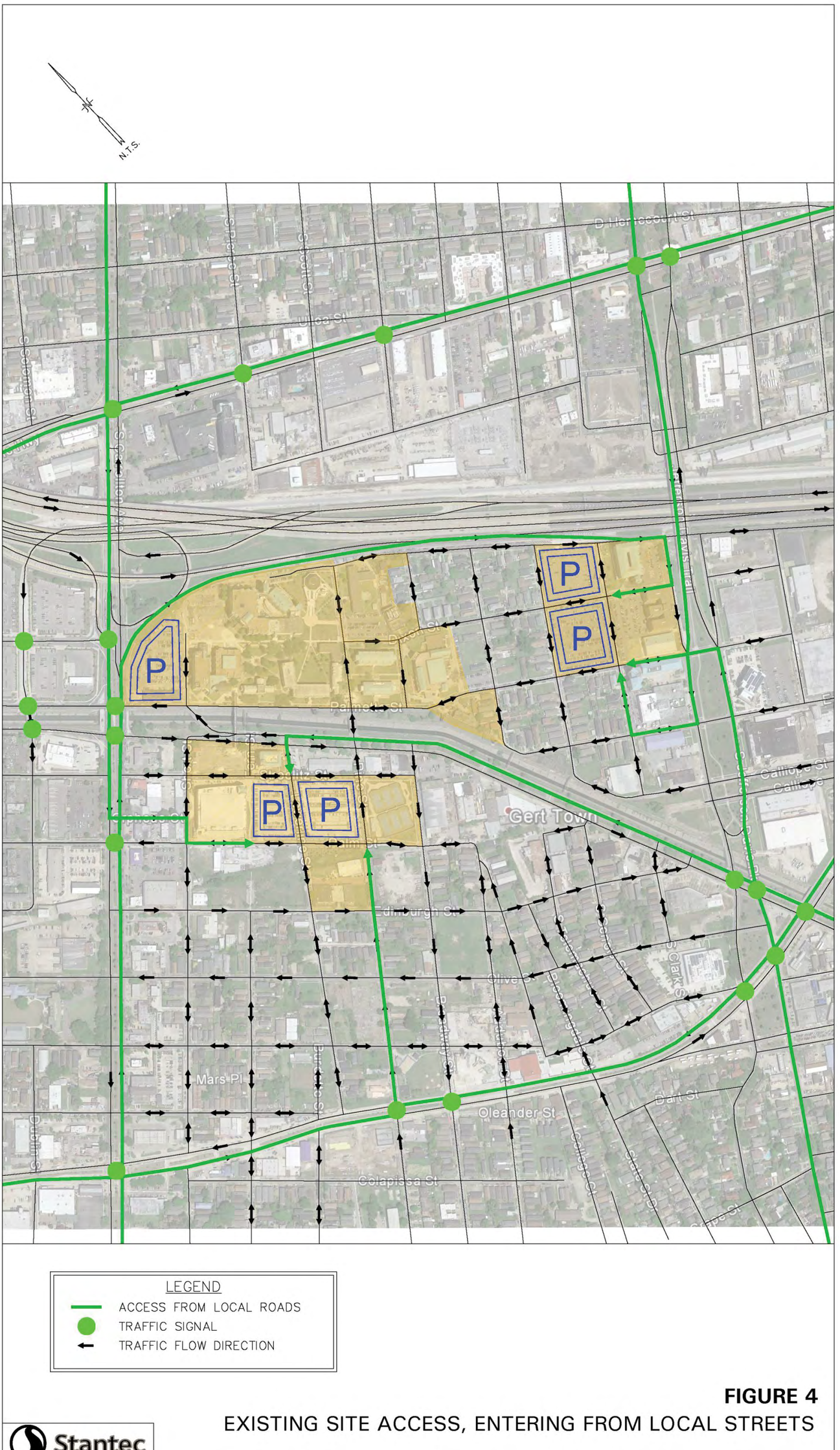

FIGURE 4
EXISTING SITE ACCESS, ENTERING FROM LOCAL STREETS

Stantec

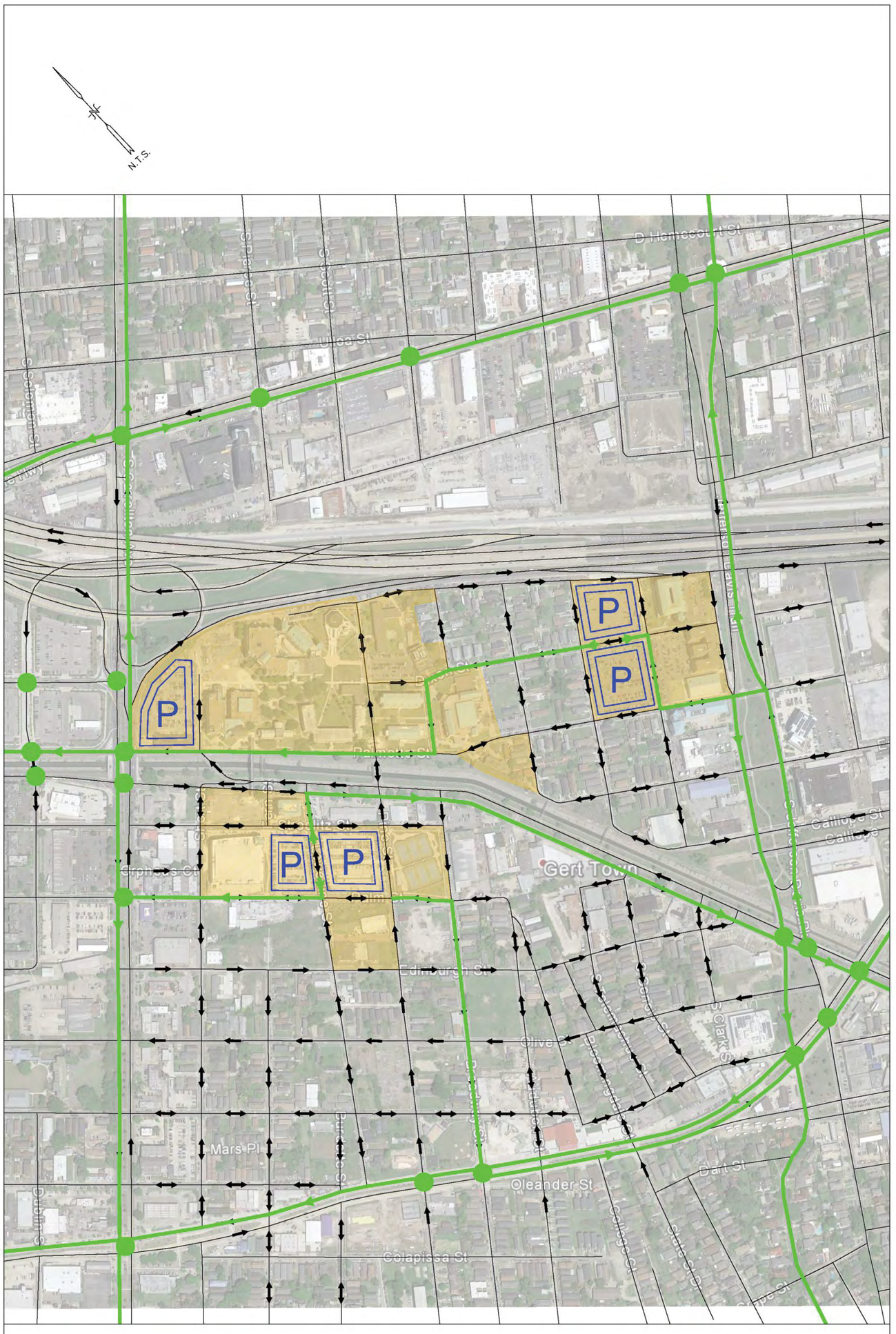

FIGURE 5
EXISTING SITE ACCESS, EXITING TO LOCAL STREETS

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4.0 FUTURE CONDITIONS

Xavier University has a series of near term and long term development plans and planned roadway projects. Future traffic patterns will utilize a set of defined circulation routes around campus that will provide access to the different campus areas when entering from the external street network. The existing access and circulation patterns are shown at the end of this section in **Figure 13 through Figure 16**.

4.1 DEVELOPMENT PLANS

4.1.1 Near Term

The University's near term development plans include the construction of a new dormitory in south campus and a new mixed use development along South Carrollton Avenue. The mixed use development would replace the existing parking lots along South Carrollton Avenue and would contain a mix of retail, residential, commercial, and structured parking.

4.1.2 Long Term

The University's long term development plan includes an increase emphasis on expansion and reorganization of campus properties. Academics would remain at the main campus, while residences and athletics/arts would be focuses in south campus and west campus, respectively.

Potential developments include new dormitories, new academic buildings, and a mix of retail and residential in west campus, upriver of Washington Avenue. Development would consist mostly of infill, and would result in the construction of additional parking garages to focus parking activities.

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Future Conditions
July 20, 2016

4.2 ROADWAY IMPROVEMENTS

4.2.1 In Progress

4.2.1.1 Circulating Ring Road

Xavier has recently completed construction of a new circulating ring road (seen in yellow below) which connects Howard Avenue to Short Street around the back side of campus. This improves the connection between the north parking lot and the residential area in south campus and provides more options for internal campus circulation.

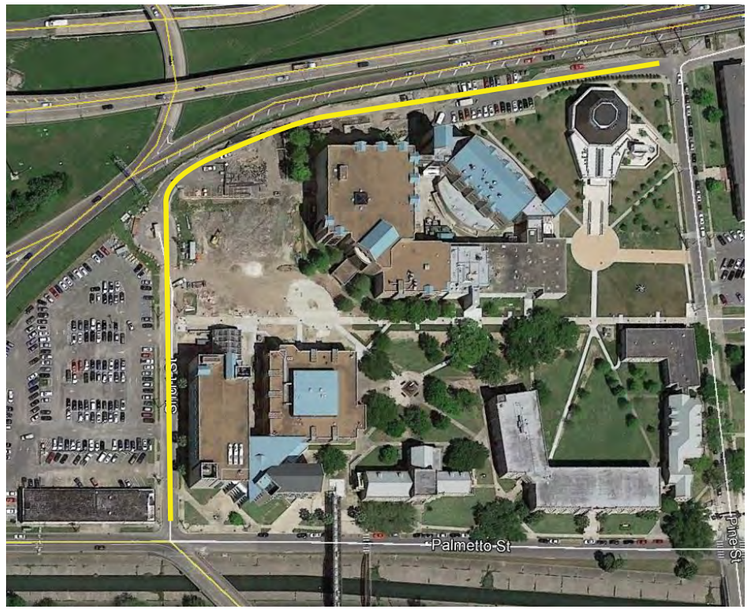

Figure 6: Circulating Ring Road

4.2.1.2 Pedestrian bridge

Also new is a recently constructed pedestrian bridge which crosses Washington Avenue and Drexel Drive in addition to the canal. In the future this bridge will connect with a new parking garage on the southwest side of the canal, providing safe access between parking and the academic quad.

Figure 7: New Pedestrian Bridge

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INSTITUTIONAL MASTER PLAN
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Future Conditions
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4.2.2 Near Term

4.2.2.1 Washington Avenue at Pine Street

The City of New Orleans performed a signal warrant analysis for Washington Avenue at Pine Street and found that it met signal warrants 1B and 2. While it did not meet some of the warrants for higher traffic volumes, the satisfaction of these two warrants allow a signal to be considered at this intersection. The signal warrant analysis is presented in **Appendix A**.

A traffic signal at Washington Avenue and Pine Street would play a large part in creating a renewed emphasis on the Pine Street corridor. Left turns from Riverbound Washington Avenue onto Pine Street downbound have the opportunity to occur under a protected phase. Also, pedestrian movements would occur during a protected signal phase. Currently pedestrians are required to wait for a gap in traffic along Washington Street, which does not stop for pedestrians or vehicles.

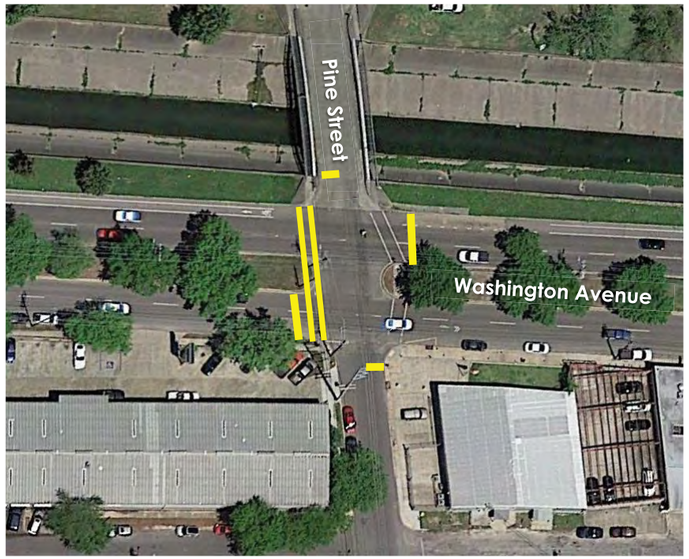

Figure 8: Washington Avenue at Pine Street

Currently, the majority of students cross using the lakeside bridge at Fern Street. Since Pine Street—in conjunction with Dixon Street—is recommended to be the new pedestrian spine through campus, the number of pedestrians crossing the Pine Street bridge is expected to increase. It would also be beneficial to add a new pedestrian crosswalk on the lake side of Pine Street to tie in with the pedestrian path across the bridge.

4.2.2.2 Modification of Two-Way Stop Sign Placement

There have been concerns over excessive speeding through the Xavier campus. To help improve safety for cyclists and pedestrians, it is recommended that the directions having to stop at certain two-way stop controlled intersections be changed. This would help keep vehicles speeds through campus at or below the speed limit by introducing a stop sign for every direction at least every other block. The task would require re-orienting stop signs at the following intersections in the stated manner:

- Dixon Street at Genois Street: Free-flow Lakebound and Riverbound, Stop Downbound and Upbound
- Drexel Drive at Telemachus Street: Free-flow Lakebound and Riverbound, Stop Downbound and Upbound
- Drexel Drive at Clark Street: Free-flow Lakebound and Riverbound, Stop Downbound and Upbound
- Euphrosine Street at Genois Street: Free-flow Lakebound and Riverbound, Stop Downbound and Upbound
- Euphrosine Street at Jefferson Davis Parkway: Free-flow Lakebound and Riverbound, Stop Downbound and Upbound
- Palm Street at Broadway Street: Free-flow Downbound and Upbound, Stop Lakebound and Riverbound

4.2.2.3 Two-Way Streets

Multiple one-way streets could be converted to two-way operation near campus to enhance access and create a more walkable environment. Studies have shown that converting streets to two-way traffic reduces vehicle speeds along the corridor. Streets which should be considered for this conversion include the following:

- Pine Street between Washington Avenue and Edinburgh Street
- Broadway Street between Washington Avenue and Edinburgh Street
- Edinburgh Street between South Carrollton Avenue and Broadway Street

Each of these streets carries one lane of traffic right now, so the conversion would not result in the loss of a travel lane. On-street parking would be impacted, which could be mitigated

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through the provision of additional off-street parking spaces, which is expected to be generated with the implementation of parking garages.

4.2.2.4 Enhancement of Circulating Ring Road

The construction of the circulating ring road provides improved mobility around campus in the clockwise direction, but even more benefits could be achieved by creating an additional counterclockwise flow using Pine Street, Howard Avenue, Short Street, and Drexel Drive. This is currently impeded by a left turn prohibition from Short Street onto Drexel Drive.

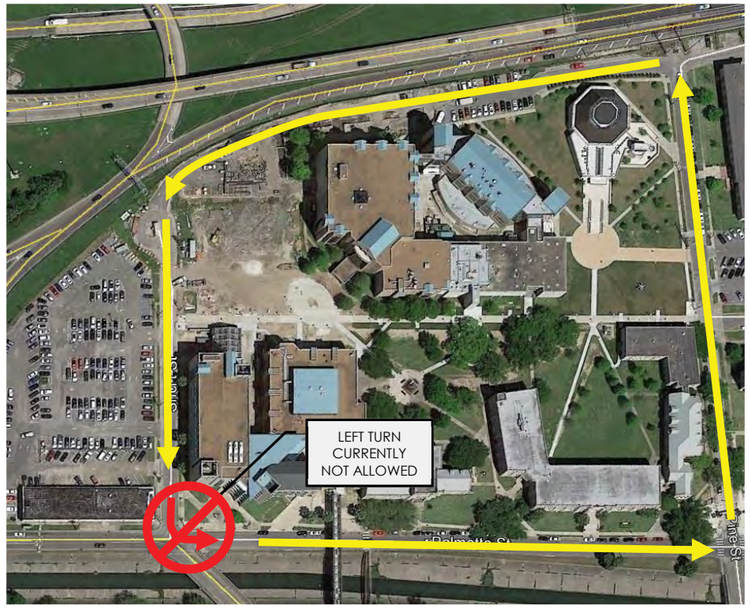

Figure 9: Circulating Ring Road, Counterclockwise Circulation

4.2.3 Long Term

4.2.3.1 South Carrollton Avenue Intersections

The current intersections along South Carrollton Avenue at Palmetto Street, Dixon Street, and I-10 are spaced very closely together and often result in delay for vehicles. Multimodal accommodations for pedestrians, bicycles, and transit users both along and across South Carrollton Avenue are also sparse in this area.

South Carrollton Avenue has had several intersection improvements over the past 60 years, but there has not been a comprehensive study done for the corridor. The I-10 interchange could also benefit from a new comprehensive approach, having itself been built in three phases with the last major addition occurring in 1977.

- 1952 – Railroad underpass
- 1957 – Initial freeway layout, with the mainline located where the frontage roads are today
- 1977 – South Carrollton Avenue Overpass and slight ramp reconfigurations

Any improvements to these intersections should be developed using a comprehensive approach to guarantee that the whole system operates as efficiently and safely as possible for all users.

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INSTITUTIONAL MASTER PLAN
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Future Conditions
July 20, 2016

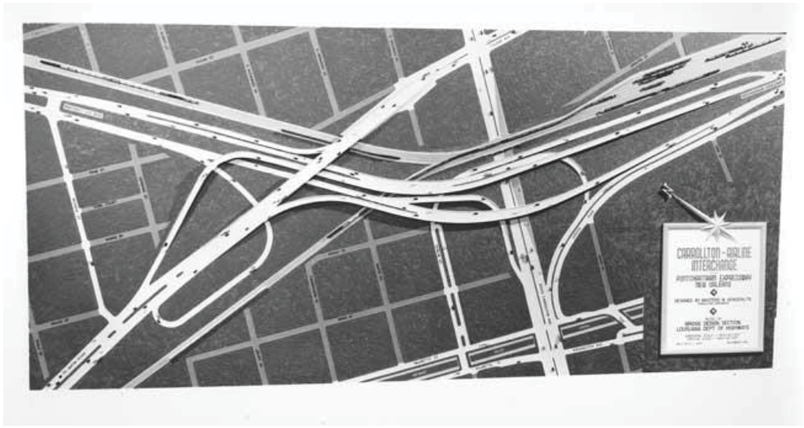

Figure 10: South Carrollton Avenue, Original Interchange Concept
Source: City Archives, New Orleans Public Library

Figure 11: South Carrollton Avenue, Current Interchange Configuration

4.2.3.2 South Jefferson Davis Parkway at Drexel Drive

There are currently no right turns allowed from upbound Jefferson Davis Parkway onto Drexel Drive, due to a safety conflict between vehicles on Jefferson Davis Parkway and vehicles on the service road. Even though signs prohibit it, drivers still make this right turn, putting themselves in a dangerous situation. Therefore, it is recommended to look at options to safely allow the right turn movement as a long term improvement.

While Dixon Street will be emphasized as a major pedestrian corridor, Drexel Drive will serve as a major leg in the vehicular circulation around campus. There is good reason, then, to determine some improvements that will allow drivers to safely make a right turn from Jefferson Davis Parkway onto Drexel Drive. This safety improvement would likely require some geometric reconstruction of the roadways leading into the intersection, but it would also provide the opportunity to emphasize Drexel Drive's importance as a gateway into campus.

Figure 12: Jefferson Davis Parkway at Drexel Drive

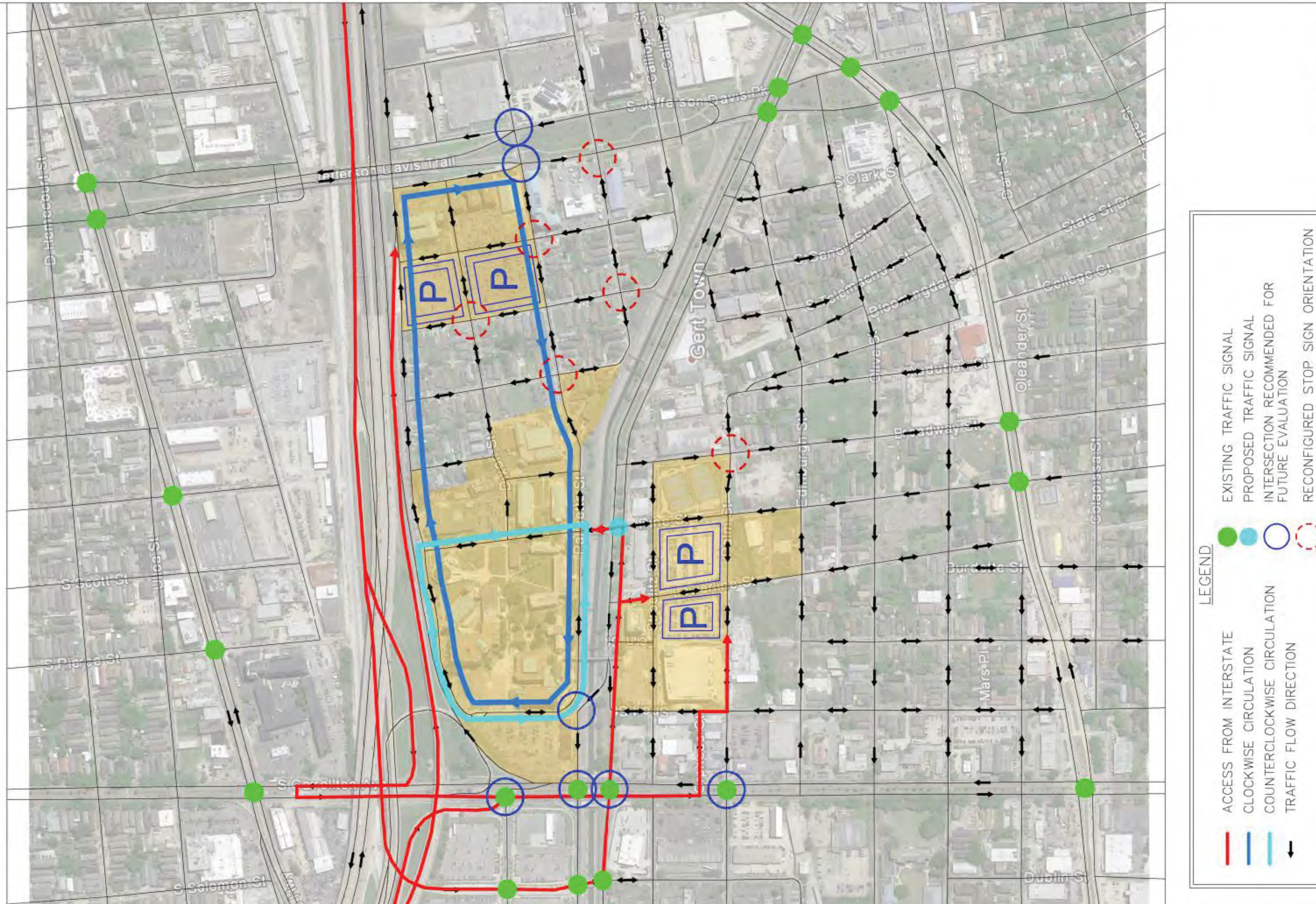

FIGURE 13
PROPOSED SITE ACCESS, ENTERING FROM INTERSTATE

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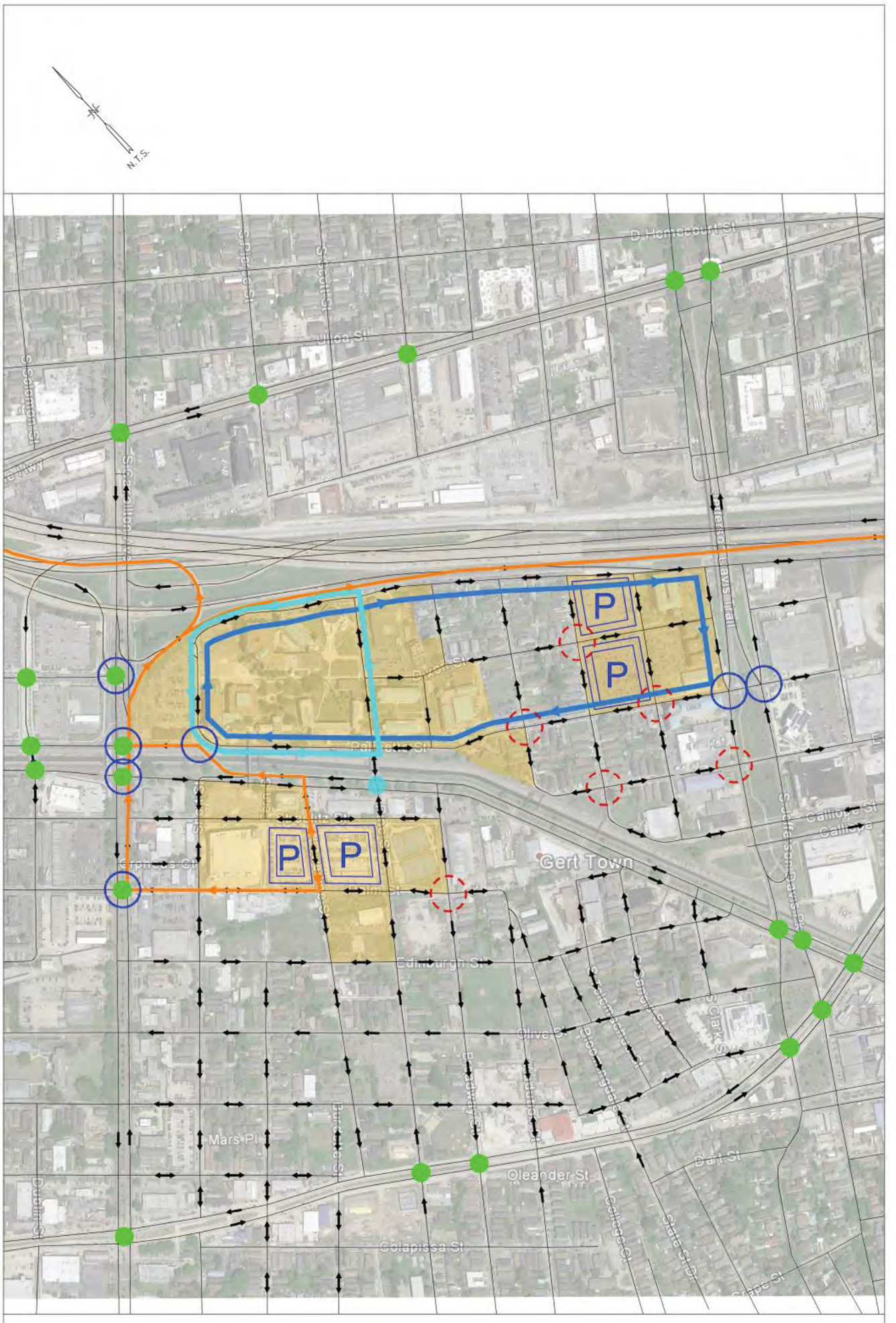

LEGEND

- ACCESS TO INTERSTATE
- CLOCKWISE CIRCULATION
- COUNTERCLOCKWISE CIRCULATION
- TRAFFIC FLOW DIRECTION
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL
- INTERSECTION RECOMMENDED FOR FUTURE EVALUATION
- RECONFIGURED STOP SIGN ORIENTATION

FIGURE 14

PROPOSED SITE ACCESS, EXITING TO INTERSTATE

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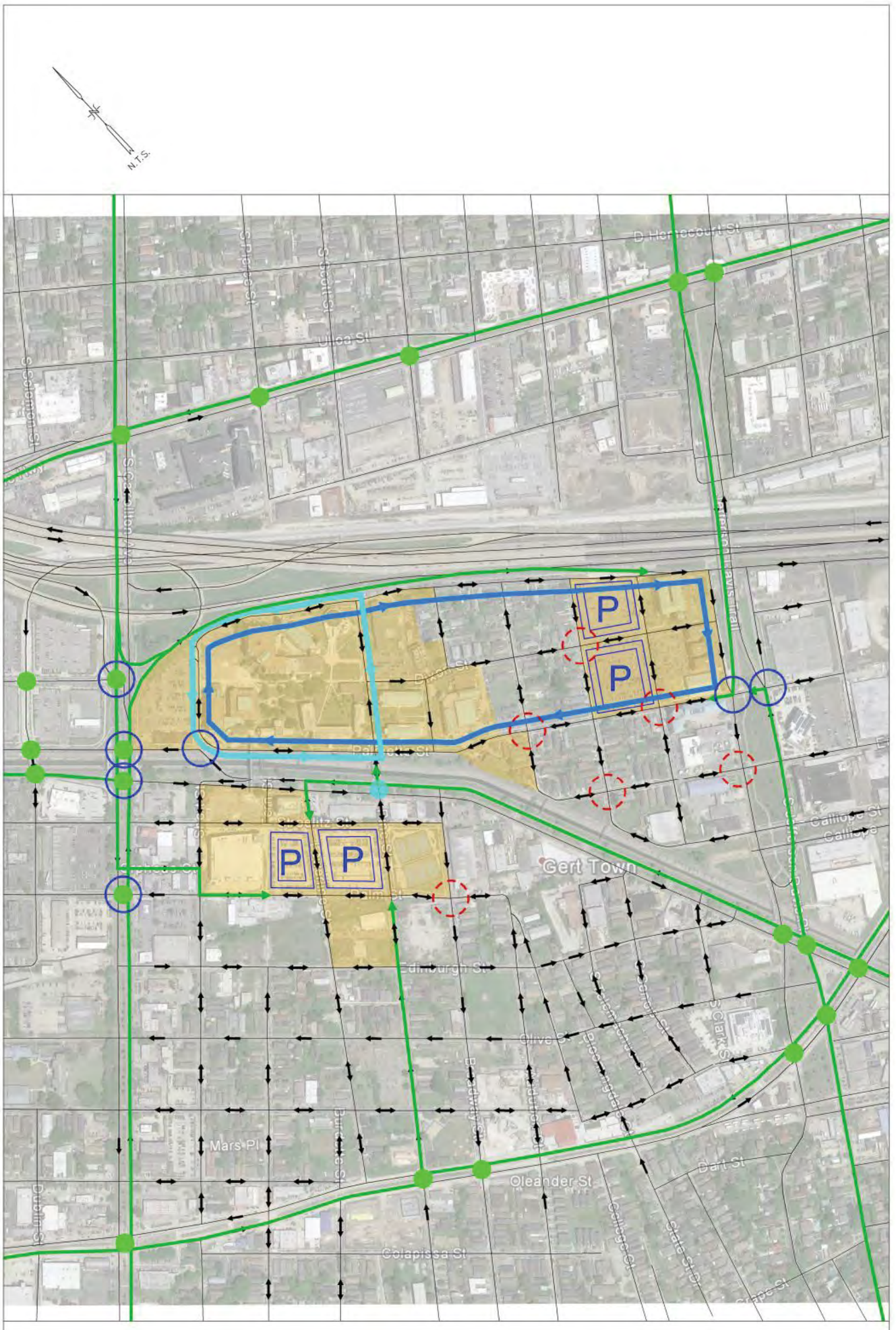

FIGURE 15

PROPOSED SITE ACCESS, ENTERING FROM LOCAL STREETS

Stantec

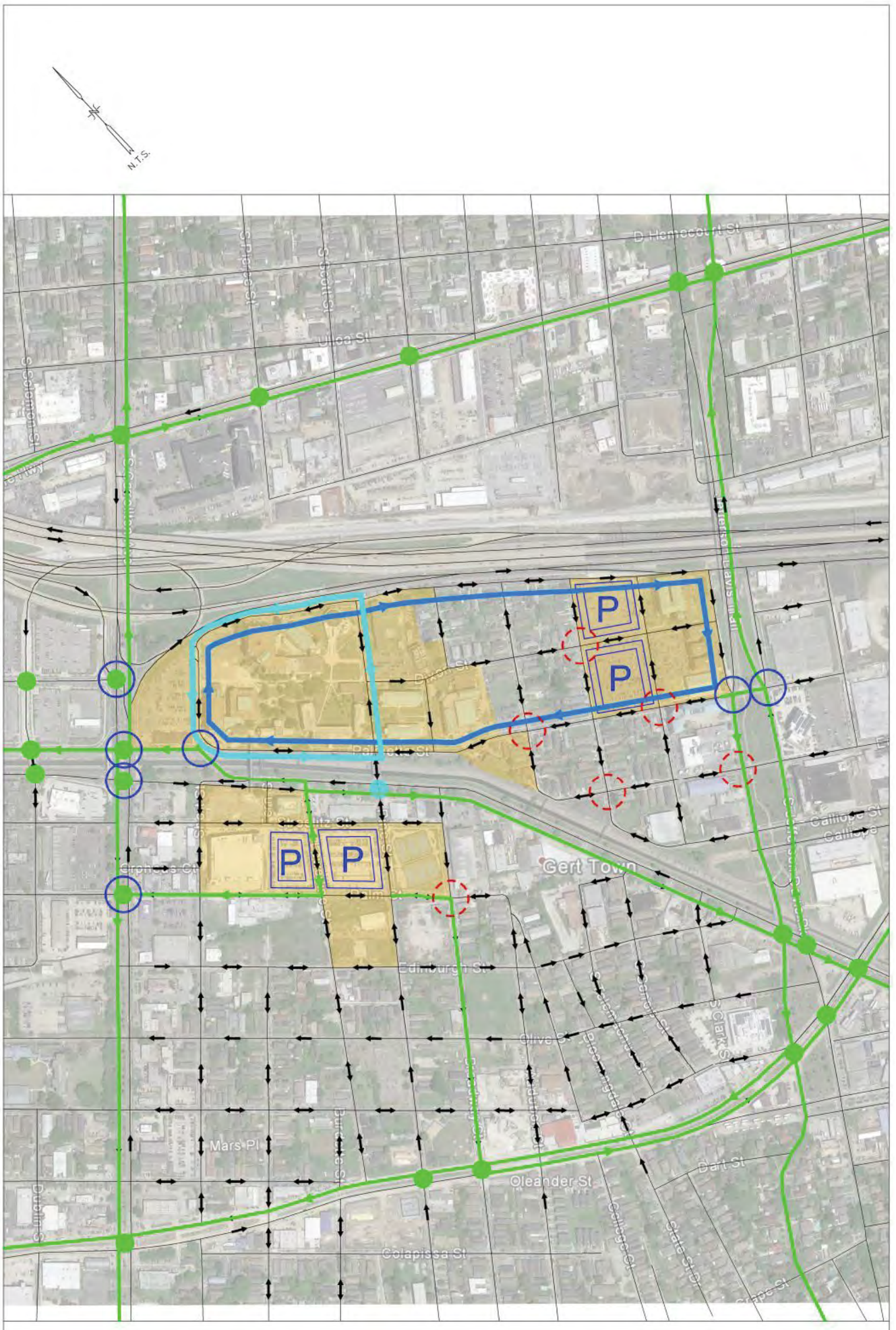

FIGURE 16

PROPOSED SITE ACCESS, EXITING TO LOCAL STREETS

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XAVIER UNIVERSITY
INSTITUTIONAL MASTER PLAN
TRAFFIC IMPACT ANALYSIS

Appendix A : Washington at Pine Signal Warrant Analysis (2016)
July 20, 2016

Appendix A : WASHINGTON AT PINE SIGNAL WARRANT ANALYSIS (2016)

Stantec

DEPARTMENT OF PUBLIC WORKS
CITY OF NEW ORLEANS

July 11, 2016

Washington and Pine
Traffic Signal Study

At the request of Xavier University, a signal study was completed at the intersection of Washington and Pine with the following results:

Washington Avenue is a divided roadway consisting of two 28 foot wide roadways separated by a 20 foot wide median. It operates in the lake/river direction and has a speed limit of 35 mph.

Pine Street consists of a 28 foot wide roadway operating in the uptown/downtown direction. It operates one-way in the downbound direction on the uptown side of Washington and two-way on the downtown side of Washington.

The intersection is currently under stop sign control with stop signs posted on Pine on both sides of Washington.

The average daily vehicular traffic volumes were found to be:

Washington Avenue	- Lakebound	- 9240	vehicles
Washington Avenue	- Riverbound	- 6599	vehicles
Pine Street	- Downbound	- 1963	vehicles
Pine Street	- Upbound	- 608	vehicles

The average hourly highest 8 hour volumes were:

Washington Avenue	- Lakebound	- 683	vehicles
Washington Avenue	- Riverbound	- 468	vehicles
Pine Street	- Downbound	- 154	vehicles
Pine Street	- Upbound	- 54	vehicles

The crash experience for the calendar year of 2015 was:

4	Right angle type crashes
2	Sideswipe type crashes

The right angle and total crash rate per million vehicles entering the intersection are 0.59 and 0.89 respectively.

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PHONE 504-658-8000|FAX 504-658-8007

Pedestrian activity was monitored as well at the intersection. During the morning, 50 pedestrians were observed crossing Washington in an hour. During the afternoon, 32 pedestrians were observed crossing.

Visual Observations and Comments:

During the observed times, the volume of pedestrian traffic crossing Washington was relatively small. There were sufficient gaps in the Washington traffic for safe crossings with minimal delay. A standard crosswalk was in place on the river side of the intersection, but a large percentage of the pedestrians crossed on the lake side, where no marked crosswalk exists.

Warning signs to alert motorists to the possible presence of pedestrians were in place on both Washington approaches to Pine during the initial observation. These signs appeared to have very little effect on pedestrian crossings. Shortly after, "Stop Here For Pedestrians" signs were added to each approach at the Pine intersection. After the addition of these signs, a noticeable change took place. Many motorists were stopping for pedestrians waiting to cross (some vehicles stopped when no pedestrians were present).

Occasionally during the observation, some congestion occurred with vehicles waiting on both Pine approaches, motorists waiting to turn left from riverbound Washington to downbound Pine and pedestrians attempting to cross Washington. The motorists and pedestrians were observed to follow the right-of-way rules and the congestion cleared safely with minimal delay.

During all but one observation period, at least one vehicle traveled down the one-way section of Pine in the wrong direction. Each of these vehicles turned into the Xavier parking lot. Appropriate "One Way" and "Do Not Enter" signs are in place.

Initial observations revealed some sightline issues involving parked vehicles along Washington and foliage in the median. The Department of Parks and Parkways trimmed trees and bushes to improve the motorists' view down Washington. "No Parking To Corner" signage would eliminate the issue with parked vehicles.

There is a curve in Washington Avenue on the riverside of the intersection. While the curve is a sufficient distance away (approximately 400 feet) to not pose a visibility problem for drivers driving near the speed limit, motorists substantially exceeding the speed limit could cause problems. All curve warning and chevron signage has been replaced to improve visibility.

The left turn from riverbound Washington to downbound Pine was relatively heavy, with vehicles waiting in the left lane of Washington for a gap in traffic on a regular basis. However, sufficient gaps existed to execute this maneuver with minimal delay.

Findings:

The warrants for signalization contained in the Manual on Uniform Traffic Control Devices were checked.

The following warrants are currently met by the intersection:

Warrant 1, Eight Hour Vehicular Volume, Condition B – Interruption of Continuous Traffic
Warrant 2, Four Hour Vehicular Volume
The current pedestrian volumes were not large enough to meet the pedestrian volume warrant (Warrant 4) and the crash experience warrant (Warrant 7) was not met during the previous year.

Recommendations:

Since two of the warrants for signal control are currently met, this intersection can be considered for signalization at this time. However, it should be noted that the augmented signage and foliage trimming has improved the conditions at the intersection and it is performing acceptably currently.

A high visibility crosswalk should be installed on the lakeside of Washington to delineate this crossing to both aid pedestrians in the proper crossing location and to alert motorists to the potential pedestrians. This would also involve adding ADA ramps and sidewalks in the median. The existing utility poles may need to be relocated to allow this. The existing crosswalk on the riverside should be changed to a high visibility crosswalk, as well.

Regular trimming of the trees and bushes along Washington should be scheduled by Parks and Parkways.

The Parking Division should regularly enforce the parking regulations at this location.

AMY

Page 1

PINE UT, BOUND
Site Code:
Station ID:

Latitude: 0° 0.000 South

Start Time	Mon 02-May-16	Tue 03-May-16	Wed 04-May-16	Thu 05-May-16	Fri 06-May-16	Average Day	Sat 07-May-16	Sun 08-May-16	Week Average
12:00 AM	*	*	*	6	1	4	0	0	2
01:00	*	*	*	1	5	3	0	0	2
02:00	*	*	*	2	1	2	0	0	1
03:00	*	*	*	2	1	2	0	0	1
04:00	*	*	*	1	0	0	0	0	0
05:00	*	*	*	8	6	7	0	0	4
06:00	*	*	*	15	10	12	0	0	6
07:00	*	*	*	26	15	20	0	0	10
08:00	*	*	*	25	24	24	0	0	12
09:00	*	*	*	25	32	28	0	0	14
10:00	*	*	*	20	25	22	0	0	11
11:00	*	*	**45**	**30**	**44**	**40**	0	0	**24**
12:00 PM	*	*	46	47	**51**	48	0	0	29
01:00	*	*	28	54	8	30	0	0	18
02:00	*	*	42	30	1	24	0	0	15
03:00	*	*	61	45	0	35	0	0	21
04:00	*	*	77	56	0	44	0	0	27
05:00	*	**103**	**82**	0		**62**	0	0	**37**
06:00	*	22	21	0		14	0	0	9
07:00	*	18	14	0		11	0	0	6
08:00	*	10	13	0		8	0	0	5
09:00	*	8	6	0		5	0	0	3
10:00	*	9	7	0		5	0	0	3
11:00	*	8	10	0		6	0	0	4
Day Total	0	0	477	546	224	456	0	0	264
% Avg. WkDay	0.0%	0.0%	104.6%	119.7%	49.1%	172.7%	0.0%	0.0%	
% Avg. Week	0.0%	0.0%	180.7%	206.8%	84.8%	172.7%	0.0%	0.0%	
AM Peak			11:00	11:00	11:00	11:00			11:00
Vol.			45	30	44	40			24
PM Peak			17:00	17:00	12:00	17:00			17:00
Vol.			103	82	51	62			37

Page 2

WASHINGTON RB
Site Code:
Station ID:

Latitude: 0° 0.000 South

Start Time	20-Apr-16 Wed	Channel 1	Channel 2	Total
12:00 AM	30	14		44
01:00	16	8		24
02:00	15	3		18
03:00	6	10		16
04:00	16	4		20
05:00	21	18		39
06:00	86	76		162
07:00	226	**267**		**493**
08:00	**241**	224		465
09:00	211	138		349
10:00	210	133		343
11:00	233	135		368
12:00 PM	**305**	178		483
01:00	261	153		414
02:00	252	193		445
03:00	269	195		464
04:00	254	240		494
05:00	276	**242**		**518**
06:00	216	233		449
07:00	193	157		350
08:00	131	112		243
09:00	117	65		182
10:00	78	47		125
11:00	62	29		91
Total	3725	2874		6599
Percent	56.4%	43.6%		
AM Peak	08:00	07:00		07:00
Vol.	241	267		493
PM Peak	12:00	17:00		17:00
Vol.	305	242		518

Page 1

PINE DT, BOUND
Site Code:
Station ID:

Latitude: 0° 0.000 South

Start Time	Mon 02-May-16	Tue 03-May-16	Wed 04-May-16	Thu 05-May-16	Fri 06-May-16	Sat 07-May-15	Sun 08-May-16	Week Average	Average Day
12:00 AM	*	*	*	14	8	0	0	6	11
01:00	*	*	*	4	6	0	0	2	5
02:00	*	*	*	3	8	0	0	3	6
03:00	*	*	*	0	4	0	0	1	2
04:00	*	*	*	8	4	0	0	1	6
05:00	*	*	*	11	14	0	0	3	12
06:00	*	*	*	43	38	0	0	6	40
07:00	*	*	*	**155**	141	0	0	20	**148**
08:00	*	*	*	129	**144**	0	0	**74**	136
09:00	*	*	*	113	106	0	0	68	110
10:00	*	*	*	99	98	0	0	55	98
11:00	*	*	*	123	138	0	0	49	130
12:00 PM	*	*	140	112	**142**	0	0	65	**131**
01:00	*	*	122	118	19	0	0	**79**	86
02:00	*	*	120	125	6	0	0	52	84
03:00	*	*	**165**	**180**	1	0	0	50	115
04:00	*	*	147	154	0	0	0	69	100
05:00	*	*	133	169	0	0	0	60	101
06:00	*	*	124	159	0	0	0	60	94
07:00	*	*	105	92	0	0	0	57	66
08:00	*	*	80	68	0	0	0	39	49
09:00	*	*	52	40	0	0	0	30	31
10:00	*	*	26	24	0	0	0	18	17
11:00	*	*	11	20	0	0	0	10	10
Day Total	0	0	1225	1963	877	0	0	882	1588
% Avg. WkDay	0.0%	0.0%	77.1%	123.8%	55.2%				
% Avg. Week	0.0%	0.0%	138.9%	222.8%	99.4%				180.0%
AM Peak				07:00	08:00				07:00
Vol.				155	144				148
PM Peak			15:00	15:00	12:00				12:00
Vol.			165	180	142				131

Page 2

WASHINGTON LB
Site Code:
Station ID:

Latitude: 0° 0.000 South

Start Time	20-Apr-16 Wed	Channel 1	Channel 2	Total
12:00 AM	16	28		44
01:00	10	14		24
02:00	9	11		20
03:00	7	12		19
04:00	10	31		41
05:00	21	56		77
06:00	55	159		214
07:00	222	337		559
08:00	**228**	**426**		**654**
09:00	185	334		519
10:00	177	299		476
11:00	201	340		541
12:00 PM	224	355		579
01:00	201	358		559
02:00	252	414		666
03:00	320	**453**		773
04:00	356	433		789
05:00	**419**	384		**803**
06:00	266	396		662
07:00	138	266		404
08:00	112	192		304
09:00	91	157		248
10:00	61	105		166
11:00	37	62		99
Total	3618	5622		9240
Percent	39.2%	60.8%		
AM Peak	08:00	08:00		08:00
Vol.	228	426		654
PM Peak	17:00	15:00		17:00
Vol.	419	453		803

Standard:

04 **The need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day:**

- **A. The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; or**
- **B. The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.**

In applying each condition the major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of these 8 hours.

Option:

05 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 70 percent columns in Table 4C-1 may be used in place of the 100 percent columns.

Guidance:

06 *The combination of Conditions A and B is intended for application at locations where Condition A is not satisfied and Condition B is not satisfied and should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.*

Standard:

07 **The need for a traffic control signal shall be considered if an engineering study finds that both of the following conditions exist for each of any 8 hours of an average day:**

- **A. The vehicles per hour given in both of the 80 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; and**
- **B. The vehicles per hour given in both of the 80 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.**

These major-street and minor-street volumes shall be for the same 8 hours for each condition; however, the 8 hours satisfied in Condition A shall not be required to be the same 8 hours satisfied in Condition B. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume

Condition A—Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B—Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	56%[d]	100%[a]	80%[b]	70%[c]	56%[d]
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

[a] Basic minimum hourly volume
[b] Used for combination of Conditions A and B after adequate trial of other remedial measures
[c] May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000
[d] May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

Section 4C.03 Warrant 2, Four-Hour Vehicular Volume

Support:

01 The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Standard:

02 **The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours.**

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-2 may be used in place of Figure 4C-1.

Section 4C.04 Warrant 3, Peak Hour

Support:

01 The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

Standard:

02 **This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.**

03 **The need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:**

- **A. If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:**
  1. **The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; and**
  2. **The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and**
  3. **The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.**
- **B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.**

Option:

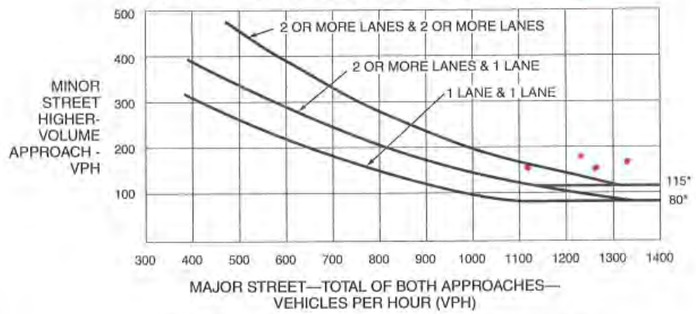
04 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to evaluate the criteria in the second category of the Standard.

05 If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal may be operated in the flashing mode during the hours that the volume criteria of this warrant are not met.

Guidance:

06 *If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal should be traffic-actuated.*

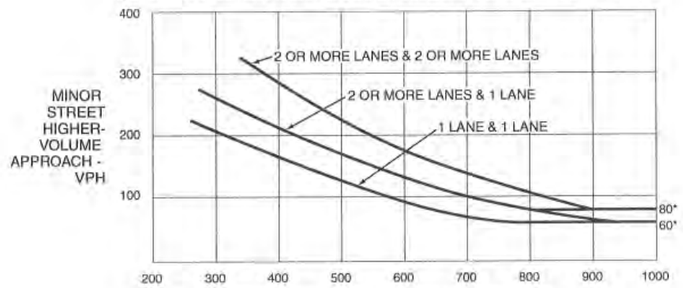
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

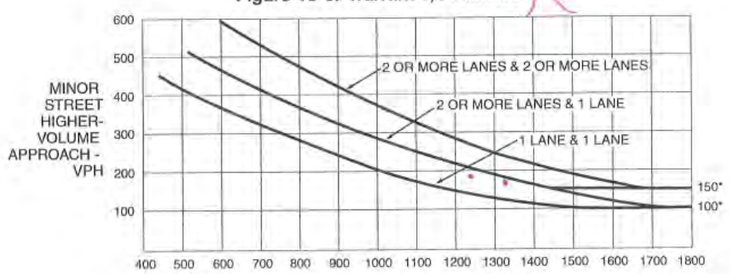
Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

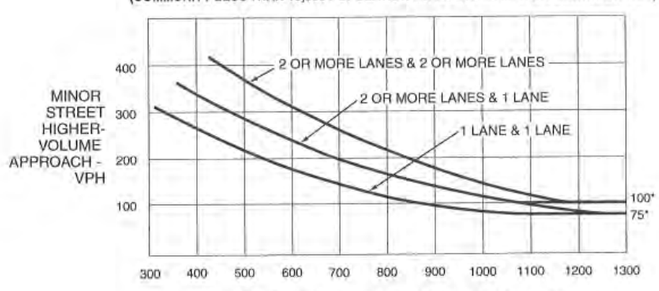
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Section 4C.05 Warrant 4, Pedestrian Volume

Support:

01 The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

Standard:

02 **The need for a traffic control signal at an intersection or midblock crossing shall be considered if an engineering study finds that one of the following criteria is met:**

- **A. For each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) all fall above the curve in Figure 4C-5; or**
- **B. For 1 hour (any four consecutive 15-minute periods) of an average day, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding pedestrians per hour crossing the major street (total of all crossings) falls above the curve in Figure 4C-7.**

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 35 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-6 may be used in place of Figure 4C-5 to evaluate Criterion A in Paragraph 2, and Figure 4C-8 may be used in place of Figure 4C-7 to evaluate Criterion B in Paragraph 2.

Standard:

04 **The Pedestrian Volume signal warrant shall not be applied at locations where the distance to the nearest traffic control signal or STOP sign controlling the street that pedestrians desire to cross is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.**

05 **If this warrant is met and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4E.**

Guidance:

06 *If this warrant is met and a traffic control signal is justified by an engineering study, then:*

- *A. If it is installed at an intersection or major driveway location, the traffic control signal should also control the minor-street or driveway traffic, should be traffic-actuated, and should include pedestrian detection.*
- *B. If it is installed at a non-intersection crossing, the traffic control signal should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and should be pedestrian-actuated. If the traffic control signal is installed at a non-intersection crossing, at least one of the signal faces should be over the traveled way for each approach, parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the crosswalk or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance, and the installation should include suitable standard signs and pavement markings.*
- *C. Furthermore, if it is installed within a signal system, the traffic control signal should be coordinated.*

Option:

07 The criterion for the pedestrian volume crossing the major street may be reduced as much as 50 percent if the 15th-percentile crossing speed of pedestrians is less than 3.5 feet per second.

08 A traffic control signal may not be needed at the study location if adjacent coordinated traffic control signals consistently provide gaps of adequate length for pedestrians to cross the street.

Section 4C.06 Warrant 5, School Crossing

Support:

01 The School Crossing signal warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. For the purposes of this warrant, the word "schoolchildren" includes elementary through high school students.

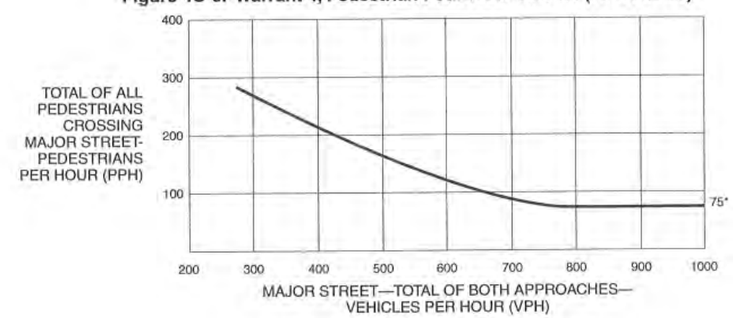
Standard:

02 **The need for a traffic control signal shall be considered when an engineering study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of schoolchildren at an established school crossing across the major street shows that the number of adequate gaps in the traffic stream during the period when the schoolchildren are using the crossing is less than the number of minutes in the same period (see Section 7A.03) and there are a minimum of 20 schoolchildren during the highest crossing hour.**

Figure 4C-5. Warrant 4, Pedestrian Four-Hour Volume

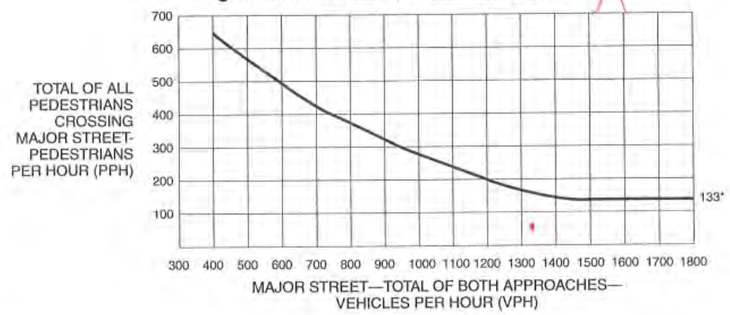
*Note: 107 pph applies as the lower threshold volume.

Figure 4C-6. Warrant 4, Pedestrian Four-Hour Volume (70% Factor)



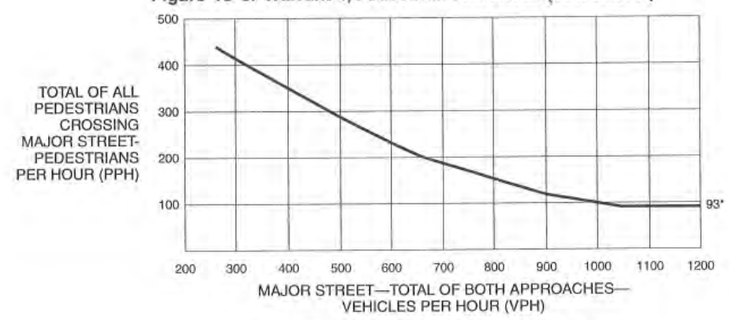
*Note: 75 pph applies as the lower threshold volume.

Figure 4C-7. Warrant 4, Pedestrian Peak Hour



*Note: 133 pph applies as the lower threshold volume.

Figure 4C-8. Warrant 4, Pedestrian Peak Hour (70% Factor)



*Note: 93 pph applies as the lower threshold volume.

03 **Before a decision is made to install a traffic control signal, consideration shall be given to the implementation of other remedial measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing.**

04 **The School Crossing signal warrant shall not be applied at locations where the distance to the nearest traffic control signal along the major street is less than 300 feet, unless the proposed traffic control signal will not restrict the progressive movement of traffic.**

Guidance:

05 *If this warrant is met and a traffic control signal is justified by an engineering study, then:*

A. If it is installed at an intersection or major driveway location, the traffic control signal should also control the minor-street or driveway traffic, should be traffic-actuated, and should include pedestrian detection.

B. If it is installed at a non-intersection crossing, the traffic control signal should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs, and should be pedestrian-actuated. If the traffic control signal is installed at a non-intersection crossing, at least one of the signal faces should be over the traveled way for each approach, parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the crosswalk or site accommodations should be made through curb extensions or other techniques to provide adequate sight distance, and the installation should include suitable standard signs and pavement markings.

C. Furthermore, if it is installed within a signal system, the traffic control signal should be coordinated.

Section 4C.07 Warrant 6, Coordinated Signal System

Support:

01 Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles.

Standard:

02 **The need for a traffic control signal shall be considered if an engineering study finds that one of the following criteria is met:**

A. On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.

B. On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.

Guidance:

03 *The Coordinated Signal System signal warrant should not be applied where the resultant spacing of traffic control signals would be less than 1,000 feet.*

Section 4C.08 Warrant 7, Crash Experience

Support:

01 The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

Standard:

02 **The need for a traffic control signal shall be considered if an engineering study finds that all of the following criteria are met:**

A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and

B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and

C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

Section 4C.09 Warrant 8, Roadway Network

Support:

01 Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network.

Standard:

02 **The need for a traffic control signal shall be considered if an engineering study finds that the common intersection of two or more major routes meets one or both of the following criteria:**

- **A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday; or**
- **B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of any 5 hours of a non-normal business day (Saturday or Sunday).**

03 **A major route as used in this signal warrant shall have at least one of the following characteristics:**

- **A. It is part of the street or highway system that serves as the principal roadway network for through traffic flow.**
- **B. It includes rural or suburban highways outside, entering, or traversing a city.**
- **C. It appears as a major route on an official plan, such as a major street plan in an urban area traffic and transportation study.**

Section 4C.10 Warrant 9, Intersection Near a Grade Crossing

Support:

01 The Intersection Near a Grade Crossing signal warrant is intended for use at a location where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal.

Guidance:

02 *This signal warrant should be applied only after adequate consideration has been given to other alternatives or after a trial of an alternative has failed to alleviate the safety concerns associated with the grade crossing. Among the alternatives that should be considered or tried are:*

- *A. Providing additional pavement that would enable vehicles to clear the track or that would provide space for an evasive maneuver, or*
- *B. Reassigning the stop controls at the intersection to make the approach across the track a non-stopping approach.*

Standard:

03 **The need for a traffic control signal shall be considered if an engineering study finds that both of the following criteria are met:**

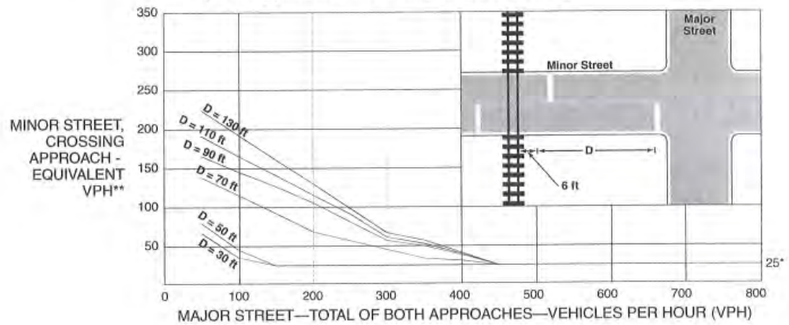
- **A. A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach; and**
- **B. During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the minor-street approach that crosses the track (one direction only, approaching the intersection) falls above the applicable curve in Figure 4C-9 or 4C-10 for the existing combination of approach lanes over the track and the distance D, which is the clear storage distance as defined in Section 1A.13.**

Guidance:

04 *The following considerations apply when plotting the traffic volume data on Figure 4C-9 or 4C-10:*

- *A. Figure 4C-9 should be used if there is only one lane approaching the intersection at the track crossing location and Figure 4C-10 should be used if there are two or more lanes approaching the intersection at the track crossing location.*

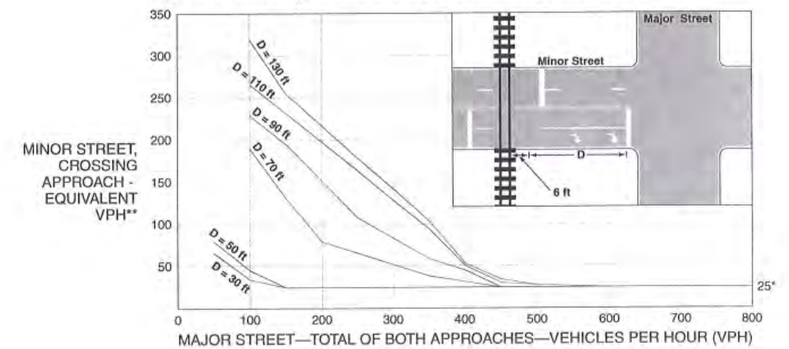
Figure 4C-9. Warrant 9, Intersection Near a Grade Crossing (One Approach Lane at the Track Crossing)



* 25 vph applies as the lower threshold volume

** VPH after applying the adjustment factors in Tables 4C-2, 4C-3, and/or 4C-4, if appropriate

Figure 4C-10. Warrant 9, Intersection Near a Grade Crossing (Two or More Approach Lanes at the Track Crossing)



* 25 vph applies as the lower threshold volume

** VPH after applying the adjustment factors in Tables 4C-2, 4C-3, and/or 4C-4, if appropriate

B. After determining the actual distance D, the curve for the distance D that is nearest to the actual distance D should be used. For example, if the actual distance D is 95 feet, the plotted point should be compared to the curve for D = 90 feet.

C. If the rail traffic arrival times are unknown, the highest traffic volume hour of the day should be used.

Option:

05 The minor-street approach volume may be multiplied by up to three adjustment factors as provided in Paragraphs 6 through 8.

06 Because the curves are based on an average of four occurrences of rail traffic per day, the vehicles per hour on the minor-street approach may be multiplied by the adjustment factor shown in Table 4C-2 for the appropriate number of occurrences of rail traffic per day.

07 Because the curves are based on typical vehicle occupancy, if at least 2% of the vehicles crossing the track are buses carrying at least 20 people, the vehicles per hour on the minor-street approach may be multiplied by the adjustment factor shown in Table 4C-3 for the appropriate percentage of high-occupancy buses.

08 Because the curves are based on tractor-trailer trucks comprising 10% of the vehicles crossing the track, the vehicles per hour on the minor-street approach may be multiplied by the adjustment factor shown in Table 4C-4 for the appropriate distance and percentage of tractor-trailer trucks.

Standard:

09 **If this warrant is met and a traffic control signal at the intersection is justified by an engineering study, then:**

A. The traffic control signal shall have actuation on the minor street;
B. Preemption control shall be provided in accordance with Sections 4D.27, 8C.09, and 8C.10; and
C. The grade crossing shall have flashing-light signals (see Chapter 8C).

Guidance:

10 *If this warrant is met and a traffic control signal at the intersection is justified by an engineering study, the grade crossing should have automatic gates (see Chapter 8C).*

Table 4C-2. Warrant 9, Adjustment Factor for Daily Frequency of Rail Traffic

Rail Traffic per Day	Adjustment Factor
1	0.67
2	0.91
3 to 5	1.00
6 to 8	1.18
9 to 11	1.25
12 or more	1.33

Table 4C-3. Warrant 9, Adjustment Factor for Percentage of High-Occupancy Buses

% of High-Occupancy Buses* on Minor-Street Approach	Adjustment Factor
0%	1.00
2%	1.09
4%	1.19
6% or more	1.32

* A high-occupancy bus is defined as a bus occupied by at least 20 people.

Table 4C-4. Warrant 9, Adjustment Factor for Percentage of Tractor-Trailer Trucks

% of Tractor-Trailer Trucks on Minor-Street Approach	Adjustment Factor	
	D less than 70 feet	D of 70 feet or more
0% to 2.5%	0.50	0.50
2.6% to 7.5%	0.75	0.75
7.6% to 12.5%	1.00	1.00
12.6% to 17.5%	2.30	1.15
17.6% to 22.5%	2.70	1.35
22.6% to 27.5%	3.28	1.64
More than 27.5%	4.18	2.09

XAVIER UNIVERSITY
INSTITUTIONAL MASTER PLAN
TRAFFIC IMPACT ANALYSIS

Appendix B : South Carrollton Avenue Traffic Counts (2011)
July 20, 2016

Appendix B : SOUTH CARROLLTON AVENUE TRAFFIC COUNTS (2011)

Stantec

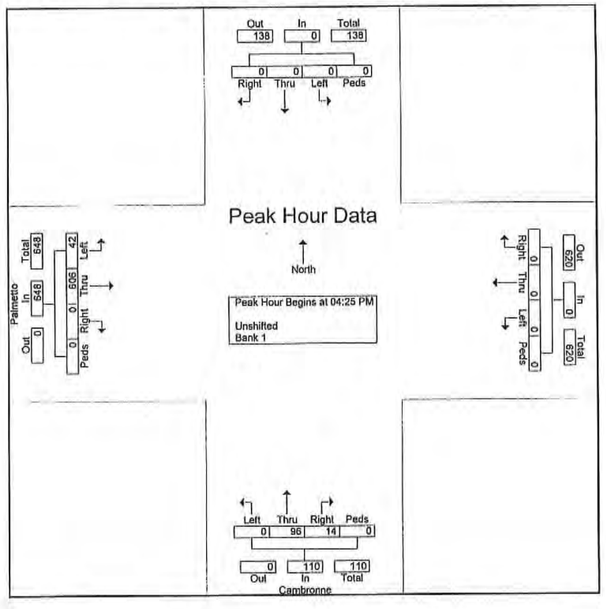
B.1

Urban Systems, Inc.
400 N. Peters, Suite 206
New Orleans, LA 70130
504-523-5511

ıns Parish
ɔronne at Palmetto South
'eak

File Name : Cambronne at Palmetto South PM
Site Code : 11-095
Start Date : 11/17/2011
Page No : 3

	Southbound					Westbound					Cambronne Northbound					Palmetto Eastbound					
Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
our Analysis From 3:55:00 PM to 5:40:00 PM - Peak 1 of 1																					
our for Entire Intersection Begins at 4:25:00 PM																					
) PM	0	0	0	0	0	0	0	0	0	0	0	19	4	0	23	6	145	0	0	151	174
) PM	0	0	0	0	0	0	0	0	0	0	0	**30**	3	0	**33**	**14**	143	0	0	157	190
) PM	0	0	0	0	0	0	0	0	0	0	0	25	4	0	29	11	**160**	0	0	**171**	**200**
) PM	0	0	0	0	0	0	0	0	0	0	0	22	3	0	25	11	158	0	0	169	194
olume	0	0	0	0	0	0	0	0	0	0	0	96	14	0	110	42	606	0	0	648	758
Total	0	0	0	0		0	0	0	0		0	87.3	12.7	0		6.5	93.5	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.800	.875	.000	.833	.750	.947	.000	.000	.947	.948



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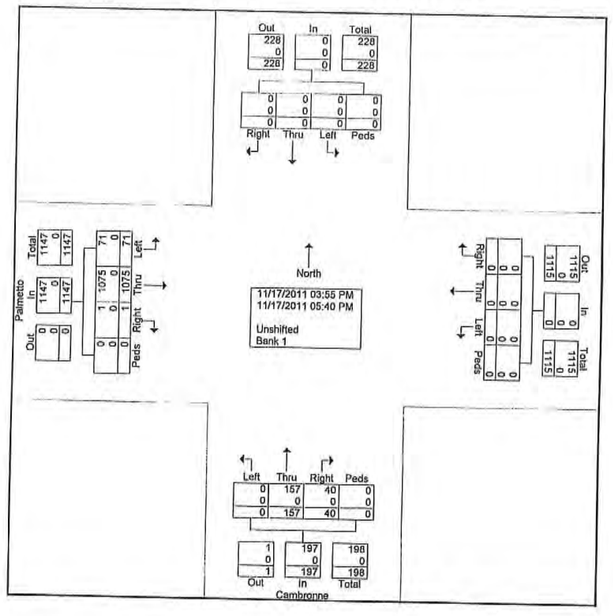
Orleans Parish
Cambronne at Palmetto South
PM Peak

File Name : Cambronne at Palmetto South PM
Site Code : 11-095
Start Date : 11/17/2011
Page No : 2



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ans Parish
bronne at Palmetto South
Peak

File Name : Cambronne at Palmetto South PM
Site Code : 11-095
Start Date : 11/17/2011
Page No : 1

Groups Printed- Unshifted - Bank 1

	Southbound					Westbound					Cambronne Northbound					Palmetto Eastbound					
Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
:5 PM	0	0	0	0	0	0	0	0	0	0	0	24	4	0	28	6	127	1	0	134	162
0 PM	0	0	0	0	0	0	0	0	0	0	0	10	10	0	20	8	115	0	0	123	143
:5 PM	0	0	0	0	0	0	0	0	0	0	0	19	4	0	23	6	145	0	0	151	174
0 PM	0	0	0	0	0	0	0	0	0	0	0	30	3	0	33	14	143	0	0	157	190
:5 PM	0	0	0	0	0	0	0	0	0	0	0	25	4	0	29	11	160	0	0	171	200
0 PM	0	0	0	0	0	0	0	0	0	0	0	22	3	0	25	11	158	0	0	169	194
:5 PM	0	0	0	0	0	0	0	0	0	0	0	16	7	0	23	7	143	0	0	150	173
:0 PM	0	0	0	0	0	0	0	0	0	0	0	11	5	0	16	8	84	0	0	92	108
t Total	0	0	0	0	0	0	0	0	0	0	0	157	40	0	197	71	1075	1	0	1147	1344
rch %	0	0	0	0		0	0	0	0		0	79.7	20.3	0		6.2	93.7	0.1	0		
otal %	0	0	0	0	0	0	0	0	0	0	0	11.7	3	0	14.7	5.3	80	0.1	0	85.3	
hifted	0	0	0	0	0	0	0	0	0	0	0	157	40	0	197	71	1075	1	0	1147	1344
shifted	0	0	0	0	0	0	0	0	0	0	0	100	100	0	100	100	100	100	0	100	100
ank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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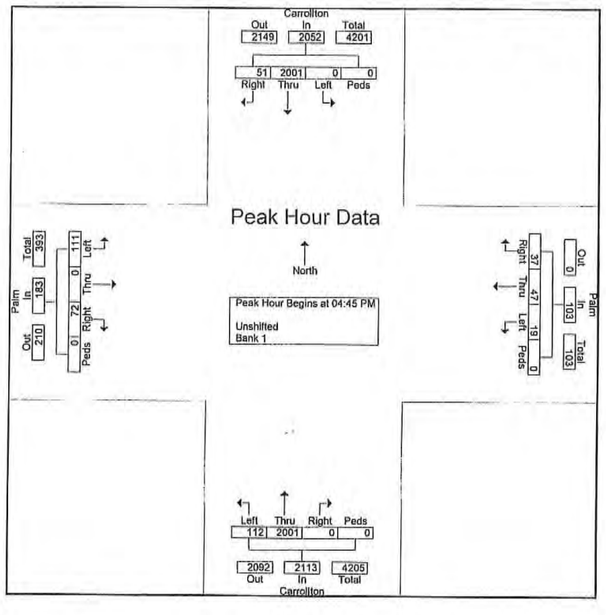
Orleans Parish
Palm at Carrollton
PM Peak

File Name : Palm at Carrollton NB WB PM
Site Code : 11-095
Start Date : 11/16/2011
Page No : 3

	Carrollton Southbound					Palm Westbound					Carrollton Northbound					Palm Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 4:45:00 PM																					
4:45:00 PM	0	428	6	0	434	5	8	9	0	22	19	495	0	0	514	23	0	17	0	40	1010
5:00:00 PM	0	505	11	0	516	6	15	10	0	31	30	457	0	0	487	34	0	11	0	45	1079
5:15:00 PM	0	503	17	0	520	5	12	3	0	20	34	522	0	0	556	33	0	23	0	56	1152
5:30:00 PM	0	565	17	0	582	3	12	15	0	30	29	527	0	0	556	21	0	21	0	42	1210
Total Volume	0	2001	51	0	2052	19	47	37	0	103	112	2001	0	0	2113	111	0	72	0	183	4451
% App. Total	0	97.5	2.5	0		18.4	45.6	35.9	0		5.3	94.7	0	0		60.7	0	39.3	0		
PHF	.000	.885	.750	.000	.881	.792	.783	.617	.000	.831	.824	.949	.000	.000	.950	.816	.000	.783	.000	.817	.920



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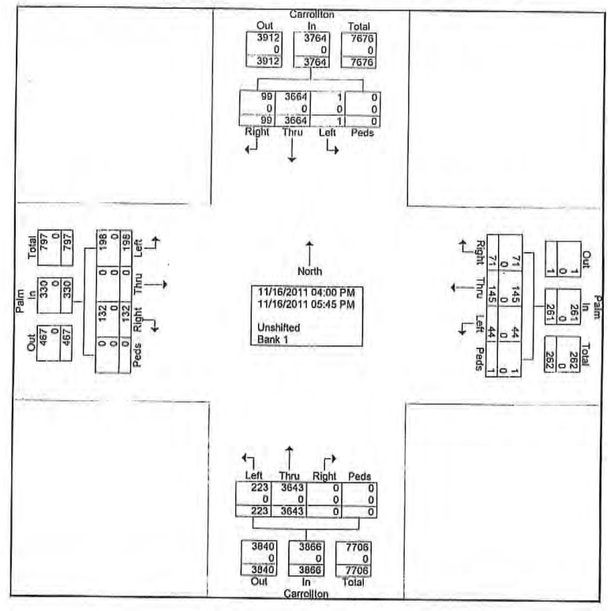
ns Parish
at Carrollton
eak

File Name : Palm at Carrollton NB WB PM
Site Code : 11-095
Start Date : 11/16/2011
Page No : 2



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rleans Parish
alm at Carrollton
M Peak

File Name : Palm at Carrollton NB WB PM
Site Code : 11-095
Start Date : 11/16/2011
Page No : 1

Groups Printed- Unshifted - Bank 1

	Carrollton Southbound					Palm Westbound					Carrollton Northbound					Palm Eastbound					
art Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
4:00 PM	0	386	14	0	400	5	59	8	0	72	32	382	0	0	414	23	0	12	0	35	921
4:15 PM	0	422	9	0	431	6	19	7	0	32	23	388	0	0	411	23	0	13	0	36	910
4:30 PM	0	425	12	0	437	9	7	8	0	24	22	465	0	0	487	24	0	23	0	47	995
4:45 PM	0	428	6	0	434	5	8	9	0	22	19	495	0	0	514	23	0	17	0	40	1010
Total	0	1661	41	0	1702	25	93	32	0	150	96	1730	0	0	1826	93	0	65	0	158	3836
5:00 PM	0	505	11	0	516	6	15	10	0	31	30	457	0	0	487	34	0	11	0	45	1079
5:15 PM	0	503	17	0	520	5	12	3	0	20	34	522	0	0	556	33	0	23	0	56	1152
5:30 PM	0	565	17	0	582	3	12	15	0	30	29	527	0	0	556	21	0	21	0	42	1210
5:45 PM	1	430	13	0	444	5	13	11	1	30	34	407	0	0	441	17	0	12	0	29	944
Total	1	2003	58	0	2062	19	52	39	1	111	127	1913	0	0	2040	105	0	67	0	172	4385
and Total	1	3664	99	0	3764	44	145	71	1	261	223	3643	0	0	3866	198	0	132	0	330	8221
pprch %	0	97.3	2.6	0		16.9	55.6	27.2	0.4		5.8	94.2	0	0		60	0	40	0		
Total %	0	44.6	1.2	0	45.8	0.5	1.8	0.9	0	3.2	2.7	44.3	0	0	47	2.4	0	1.6	0	4	
nshifted	1	3664	99	0	3764	44	145	71	1	261	223	3643	0	0	3866	198	0	132	0	330	8221
Unshifted	100	100	100	0	100	100	100	100	100	100	100	100	0	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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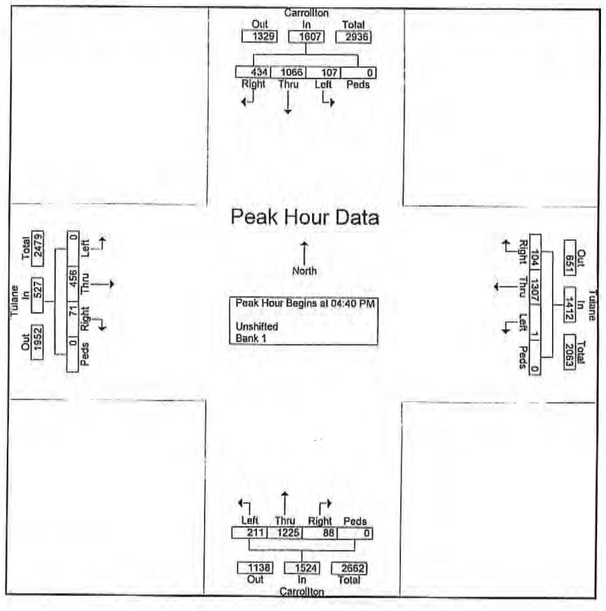
ans Parish
ne at Carrollton
Peak

File Name : Tulane at Carrollton NB WB PM
Site Code : 11-095
Start Date : 11/15/2011
Page No : 3

	Carrollton Southbound					Tulane Westbound					Carrollton Northbound					Tulane Eastbound					
Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Hour Analysis From 3:55:00 PM to 5:40:00 PM - Peak 1 of 1																					
Hour for Entire Intersection Begins at 4:40:00 PM																					
00 PM	31	262	87	0	380	0	325	26	0	351	47	315	23	0	385	0	131	18	0	149	1265
00 PM	22	292	124	0	438	0	358	26	0	384	54	288	12	0	354	0	120	17	0	137	1313
00 PM	28	262	101	0	391	0	320	27	0	347	49	320	31	0	400	0	118	22	0	140	1278
00 PM	26	250	122	0	398	1	304	25	0	330	61	302	22	0	385	0	87	14	0	101	1214
Volume	107	1066	434	0	1607	1	1307	104	0	1412	211	1225	88	0	1524	0	456	71	0	527	5070
. Total	6.7	66.3	27	0		0.1	92.6	7.4	0		13.8	80.4	5.8	0		0	86.5	13.5	0		
PHF	.863	.913	.875	.000	.917	.250	.913	.963	.000	.919	.865	.957	.710	.000	.953	.000	.870	.807	.000	.884	.965



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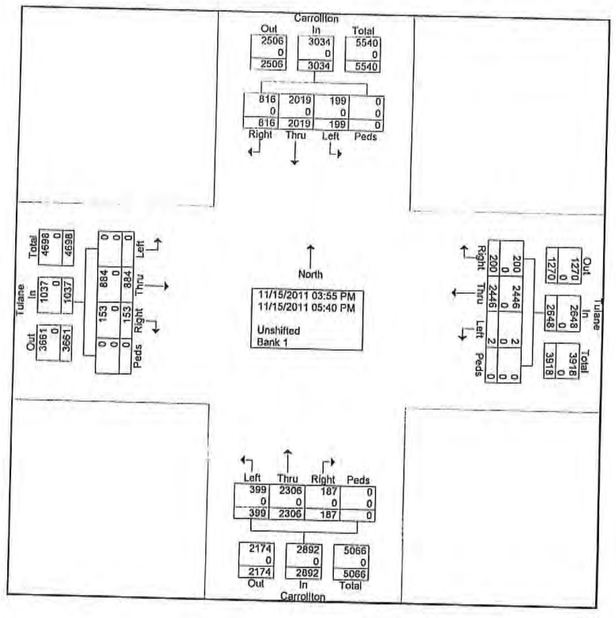
Orleans Parish
Tulane at Carrollton
PM Peak

File Name : Tulane at Carrollton NB WB PM
Site Code : 11-095
Start Date : 11/15/2011
Page No : 2



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Orleans Parish
Tulane at Carrollton
PM Peak

File Name : Tulane at Carrollton NB WB PM
Site Code : 11-095
Start Date : 11/15/2011
Page No : 1

Groups Printed- Unshifted - Bank 1

	Carrollton Southbound					Tulane Westbound					Carrollton Northbound					Tulane Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:55 PM	21	264	91	0	376	1	306	29	0	336	51	268	23	0	342	0	99	18	0	117	1171
04:10 PM	31	240	119	0	390	0	301	28	0	329	45	248	24	0	317	0	113	25	0	138	1174
04:25 PM	24	237	87	0	348	0	329	18	0	347	50	278	29	0	357	0	122	20	0	142	1194
04:40 PM	31	262	87	0	380	0	325	26	0	351	47	315	23	0	385	0	131	18	0	149	1265
04:55 PM	22	292	124	0	438	0	358	26	0	384	54	288	12	0	354	0	120	17	0	137	1313
05:10 PM	28	262	101	0	391	0	320	27	0	347	49	320	31	0	400	0	118	22	0	140	1278
05:25 PM	26	250	122	0	398	1	304	25	0	330	61	302	22	0	385	0	87	14	0	101	1214
05:40 PM	16	212	85	0	313	0	203	21	0	224	42	287	23	0	352	0	94	19	0	113	1002
Grand Total	199	2019	816	0	3034	2	2446	200	0	2648	399	2306	187	0	2892	0	884	153	0	1037	9611
Apprch %	6.6	66.5	26.9	0		0.1	92.4	7.6	0		13.8	79.7	6.5	0		0	85.2	14.8	0		
Total %	2.1	21	8.5	0	31.6	0	25.5	2.1	0	27.6	4.2	24	1.9	0	30.1	0	9.2	1.6	0	10.8	
Unshifted	199	2019	816	0	3034	2	2446	200	0	2648	399	2306	187	0	2892	0	884	153	0	1037	9611
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	0	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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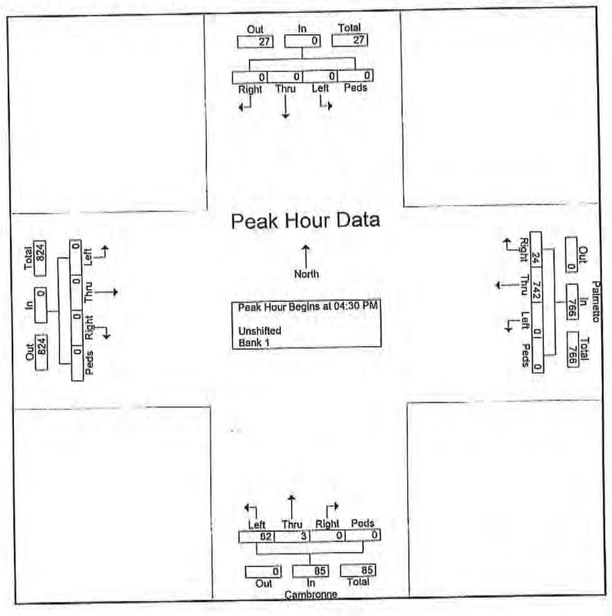
Orleans Parish
Cambronne at Palmetto North
PM Peak

File Name : Cambronne at Palmetto North P
Site Code : 11-095
Start Date : 11/17/2011
Page No : 3

Start Time	Southbound Left	Thru	Right	Peds	App. Total	Palmetto Westbound Left	Thru	Right	Peds	App. Total	Cambronne Northbound Left	Thru	Right	Peds	App. Total	Eastbound Left	Thru	Right	Peds	App. Total	Int. Tot
Peak Hour Analysis From 4:00:00 PM to 5:45:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 4:30:00 PM																					
4:30:00 PM	0	0	0	0	0	0	171	2	0	173	19	0	0	0	19	0	0	0	0	0	19
4:45:00 PM	0	0	0	0	0	0	190	7	0	197	22	3	0	0	25	0	0	0	0	0	22
5:00:00 PM	0	0	0	0	0	0	190	7	0	197	19	0	0	0	19	0	0	0	0	0	21
5:15:00 PM	0	0	0	0	0	0	191	8	0	199	22	0	0	0	22	0	0	0	0	0	22
Total Volume	0	0	0	0	0	0	742	24	0	766	82	3	0	0	85	0	0	0	0	0	85
% App. Total	0	0	0	0		0	96.9	3.1	0		96.5	3.5	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.971	.750	.000	.962	.932	.250	.000	.000	.850	.000	.000	.000	.000	.000	.95



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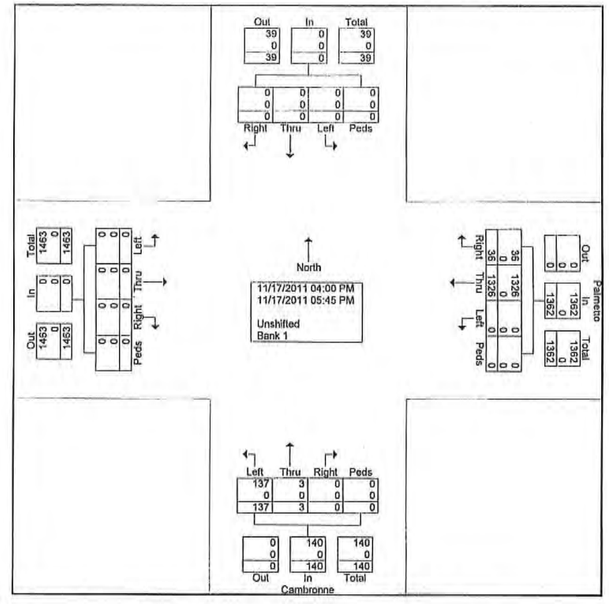
Orleans Parish
Cambronne at Palmetto North
PM Peak

File Name : Cambronne at Palmetto North PM
Site Code : 11-095
Start Date : 11/17/2011
Page No : 2



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Orleans Parish
Cambronne at Palmetto North
PM Peak

File Name : Cambronne at Palmetto North Pl
Site Code : 11-095
Start Date : 11/17/2011
Page No : 1

Groups Printed- Unshifted - Bank 1

	Southbound					Palmetto Westbound					Cambronne Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	140	5	0	145	26	0	0	0	26	0	0	0	0	0	171
04:15 PM	0	0	0	0	0	0	140	2	0	142	9	0	0	0	9	0	0	0	0	0	151
04:30 PM	0	0	0	0	0	0	171	2	0	173	19	0	0	0	19	0	0	0	0	0	192
04:45 PM	0	0	0	0	0	0	190	7	0	197	22	3	0	0	25	0	0	0	0	0	222
Total	0	0	0	0	0	0	641	16	0	657	76	3	0	0	79	0	0	0	0	0	736
05:00 PM	0	0	0	0	0	0	190	7	0	197	19	0	0	0	19	0	0	0	0	0	216
05:15 PM	0	0	0	0	0	0	191	8	0	199	22	0	0	0	22	0	0	0	0	0	221
05:30 PM	0	0	0	0	0	0	168	0	0	168	10	0	0	0	10	0	0	0	0	0	178
05:45 PM	0	0	0	0	0	0	136	5	0	141	10	0	0	0	10	0	0	0	0	0	151
Total	0	0	0	0	0	0	685	20	0	705	61	0	0	0	61	0	0	0	0	0	766
Grand Total	0	0	0	0	0	0	1326	36	0	1362	137	3	0	0	140	0	0	0	0	0	1502
Apprch %	0	0	0	0		0	97.4	2.6	0		97.9	2.1	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	88.3	2.4	0	90.7	9.1	0.2	0	0	9.3	0	0	0	0	0	
Unshifted	0	0	0	0	0	0	1326	36	0	1362	137	3	0	0	140	0	0	0	0	0	1502
% Unshifted	0	0	0	0	0	0	100	100	0	100	100	100	0	0	100	0	0	0	0	0	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

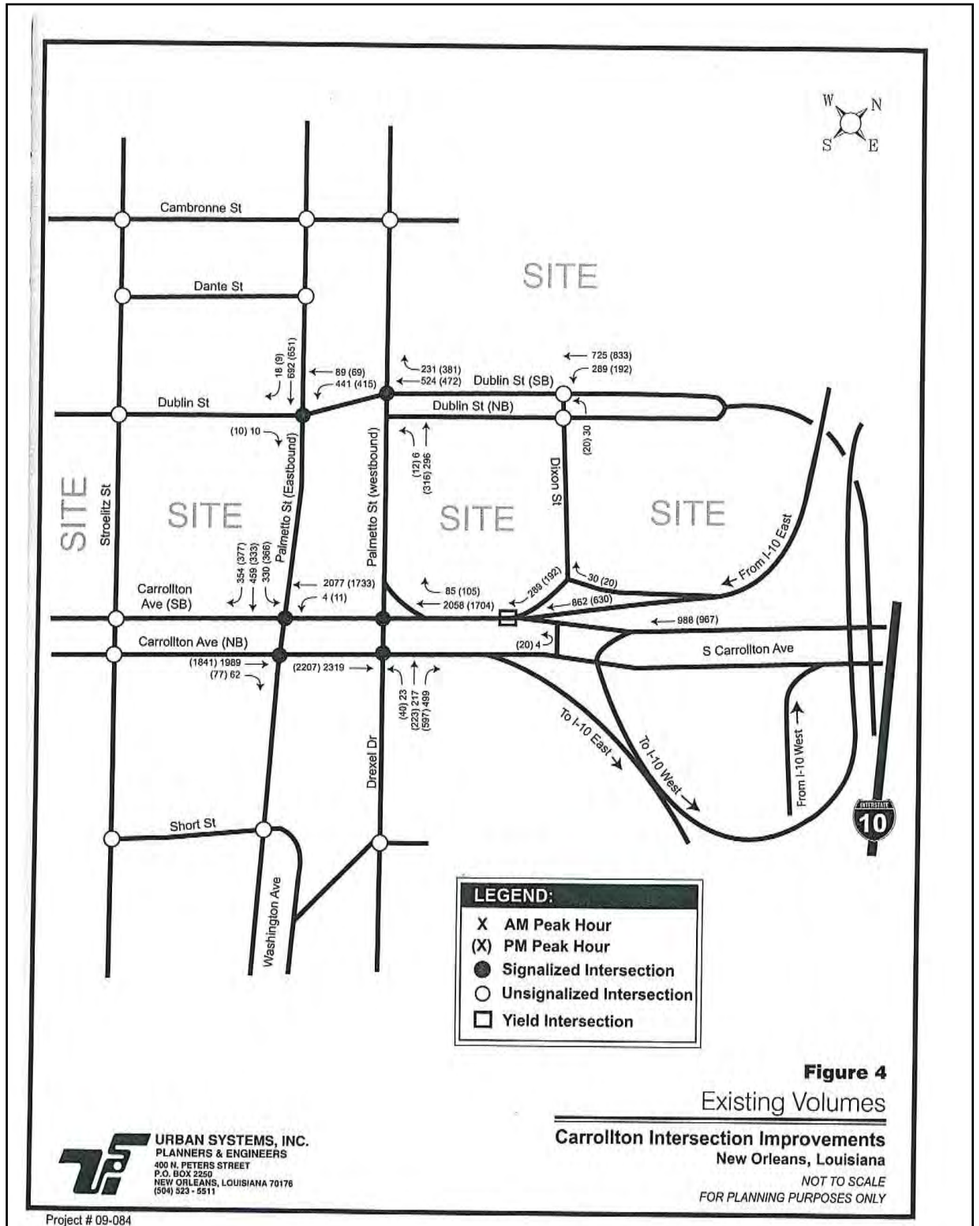

Figure 4
Existing Volumes
Carrollton Intersection Improvements
New Orleans, Louisiana
NOT TO SCALE
FOR PLANNING PURPOSES ONLY

URBAN SYSTEMS, INC.
PLANNERS & ENGINEERS
400 N. PETERS STREET
P.O. BOX 2250
NEW ORLEANS, LOUISIANA 70176
(504) 523 - 5511

Project # 09-084

1 Drexel Drive
New Orleans, LA 70125
t: 504.486.7411
www.xula.edu