



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

*a resilient, mutually supportive urban ecosystem that reconnects people with nature in Pretoria CBD*



# PRETORIA CEED

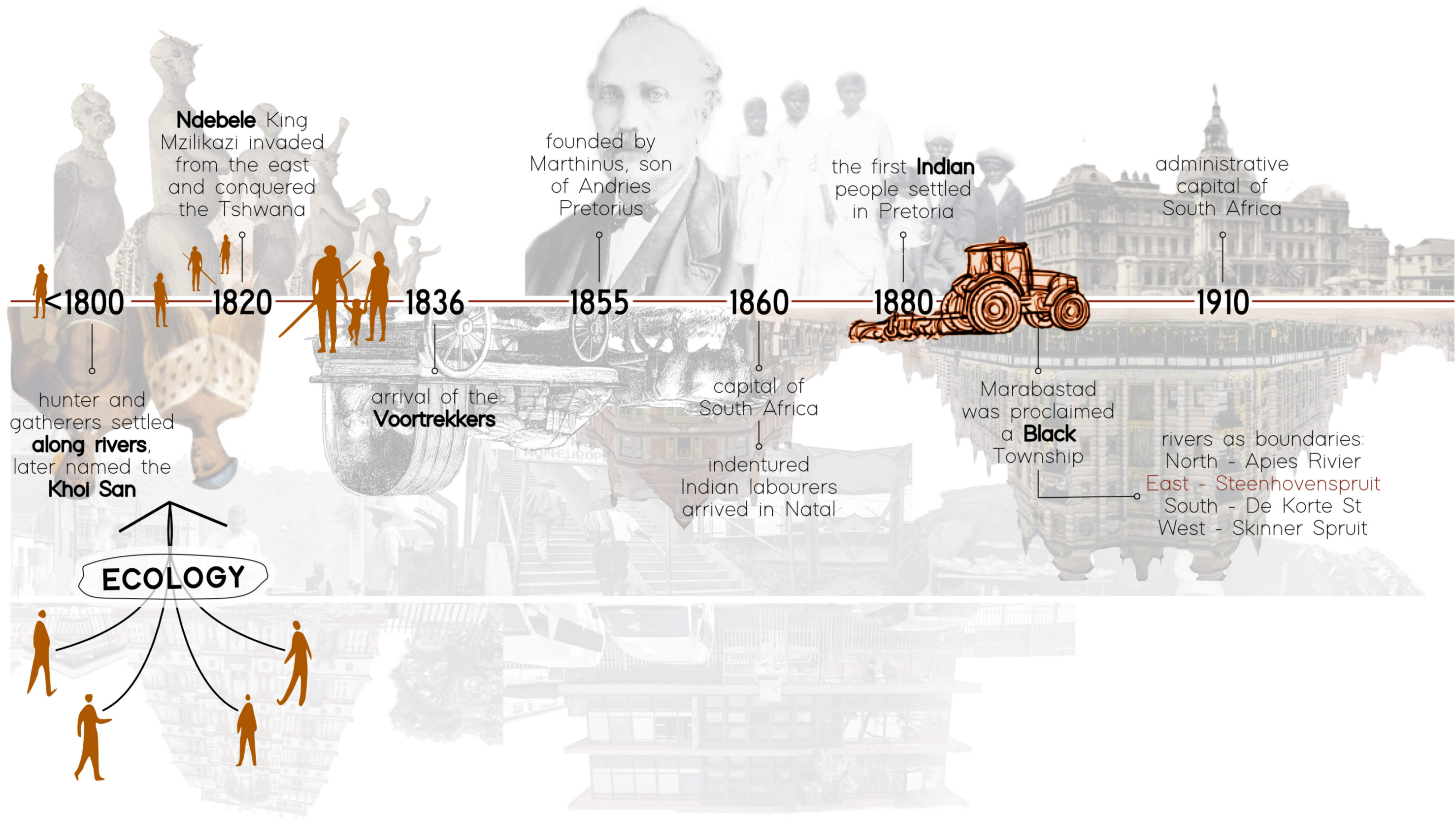
## THE CENTRAL ENVIRONMENTAL DISTRICT





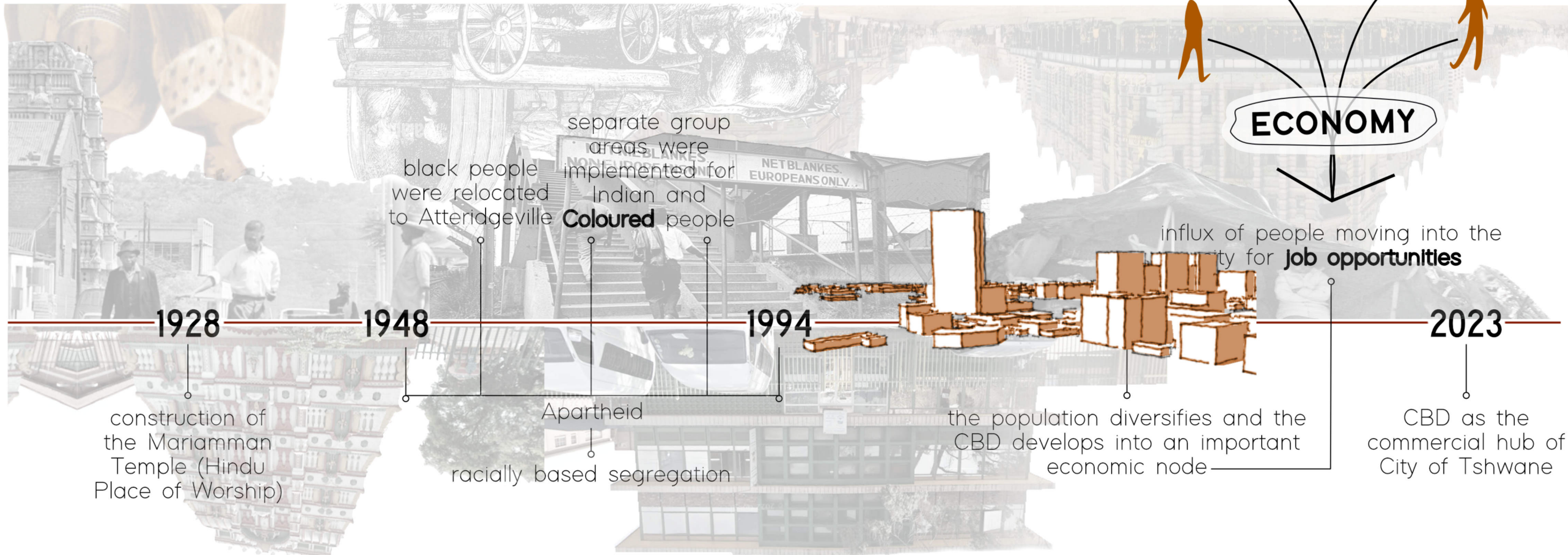
LOCATION | MACRO, MESO





## PRETORIA CENTRAL: A HISTORICAL SUMMARY





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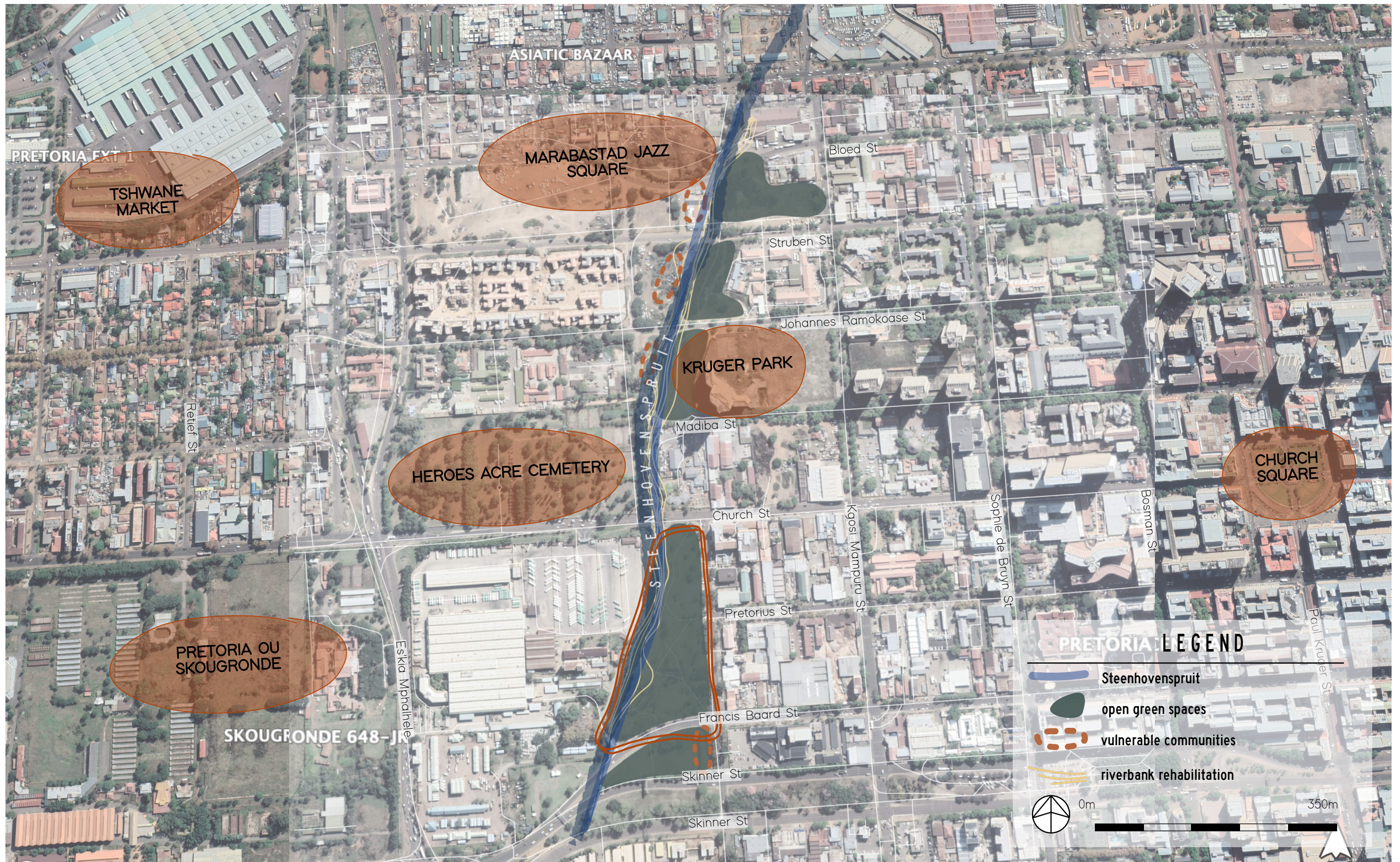


## PEOPLE IN THE CBD



## RIVER IN THE CBD

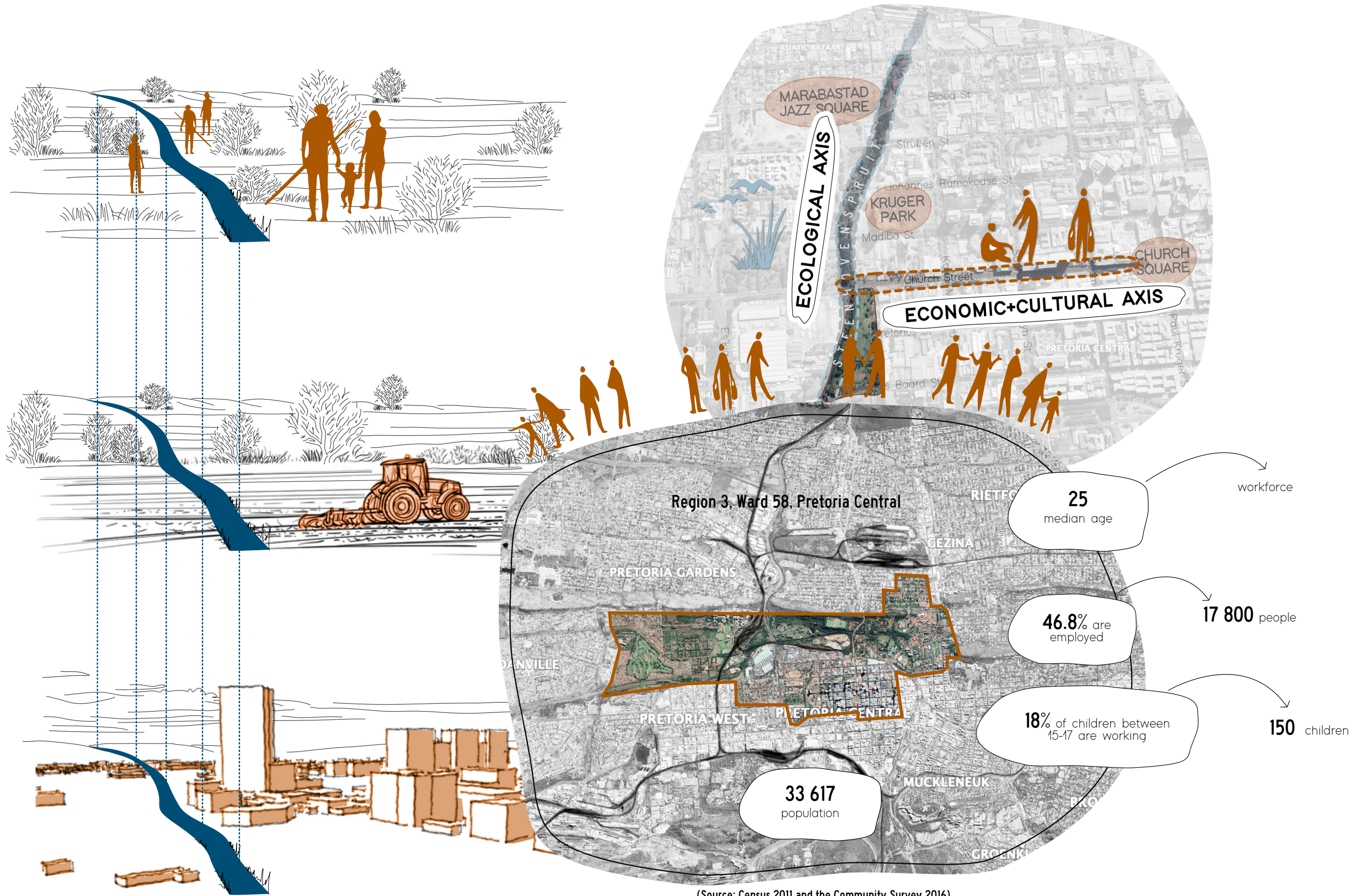




-25.748604, 28.178174 | City of Tshwane, 0183 | South Africa

## LOCATION | MICRO





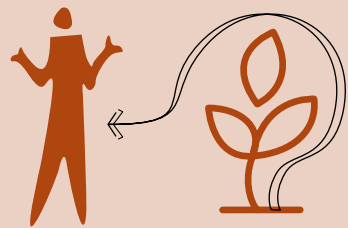
(Source: Census 2011 and the Community Survey 2016)

# PEOPLE OF PRETORIA CBD



function of nature

I can't think of those examples in South Africa because they're not here yet in terms of the functionality of how nature can actually provide to the people.

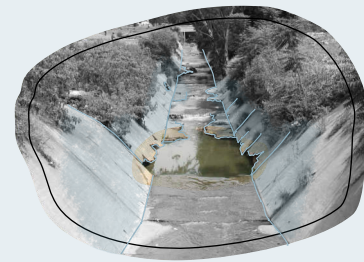


importance of nature

People are destroying nature because some of these people they don't know. They don't even know the importance of nature. For them, it's useless, it's not useful.



CoT Research



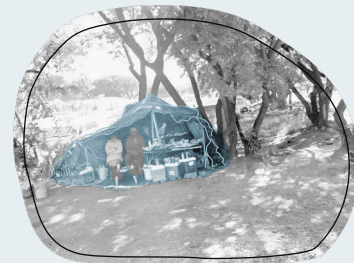
POLLUTION & DEGRADATION

82 % of South Africa's main river ecosystems are threatened (National Spatial Biodiversity Assessment, 2004)



URBAN HEAT ISLAND

temperatures in the city centre have been measured up to 3 degrees warmer than surrounding urban areas due to the UHI



STREET VENDORS

70 000 women and 55 000 men are active street vendors in the City of Tshwane and Johannesburg (Women in Informal Employment, 2019)

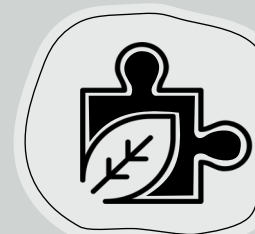
Site



CLIMATE CHANGE IN SUB-SAHARAN AFRICAN CITIES



RESILIENT CITIES



NATURE BASED SOLUTIONS



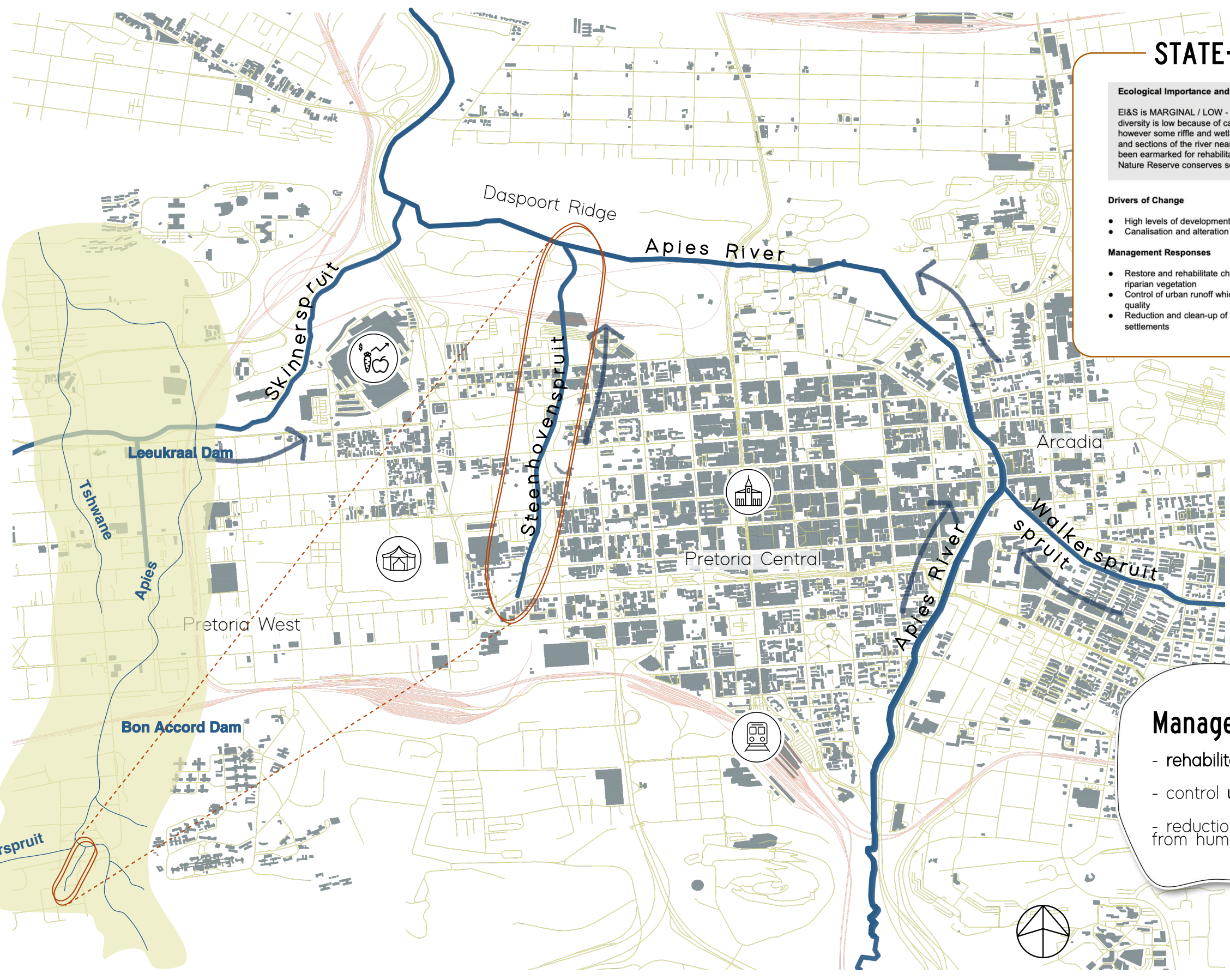
GREEN ECONOMY

Theory

How can nature based solutions form infrastructure frameworks for small economies in the urban domain towards a resilient urban environment for stronger human-nature relationships?

PROJECT INTRODUCTION & RESEARCH QUESTION

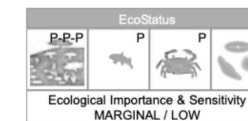




## STATE-OF-RIVERS REPORT

### Ecological Importance and Sensitivity (EI&S)

EI&S is MARGINAL / LOW - species and habitat diversity is low because of canalised system, however some riffle and wetland habitats are present and sections of the river near Bon Accord Dam have been earmarked for rehabilitation. The Wonderboom Nature Reserve conserves some natural area.



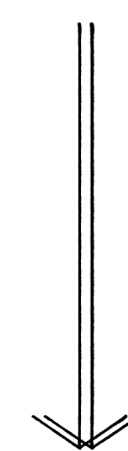
### Drivers of Change

- High levels of development and urbanisation
- Canalisation and alteration of flow patterns

### Management Responses

- Restore and rehabilitate channel morphology and riparian vegetation
- Control of urban runoff which is impacting on water quality
- Reduction and clean-up of litter from human settlements

part of the Crocodile (West) Marico Water Management Area

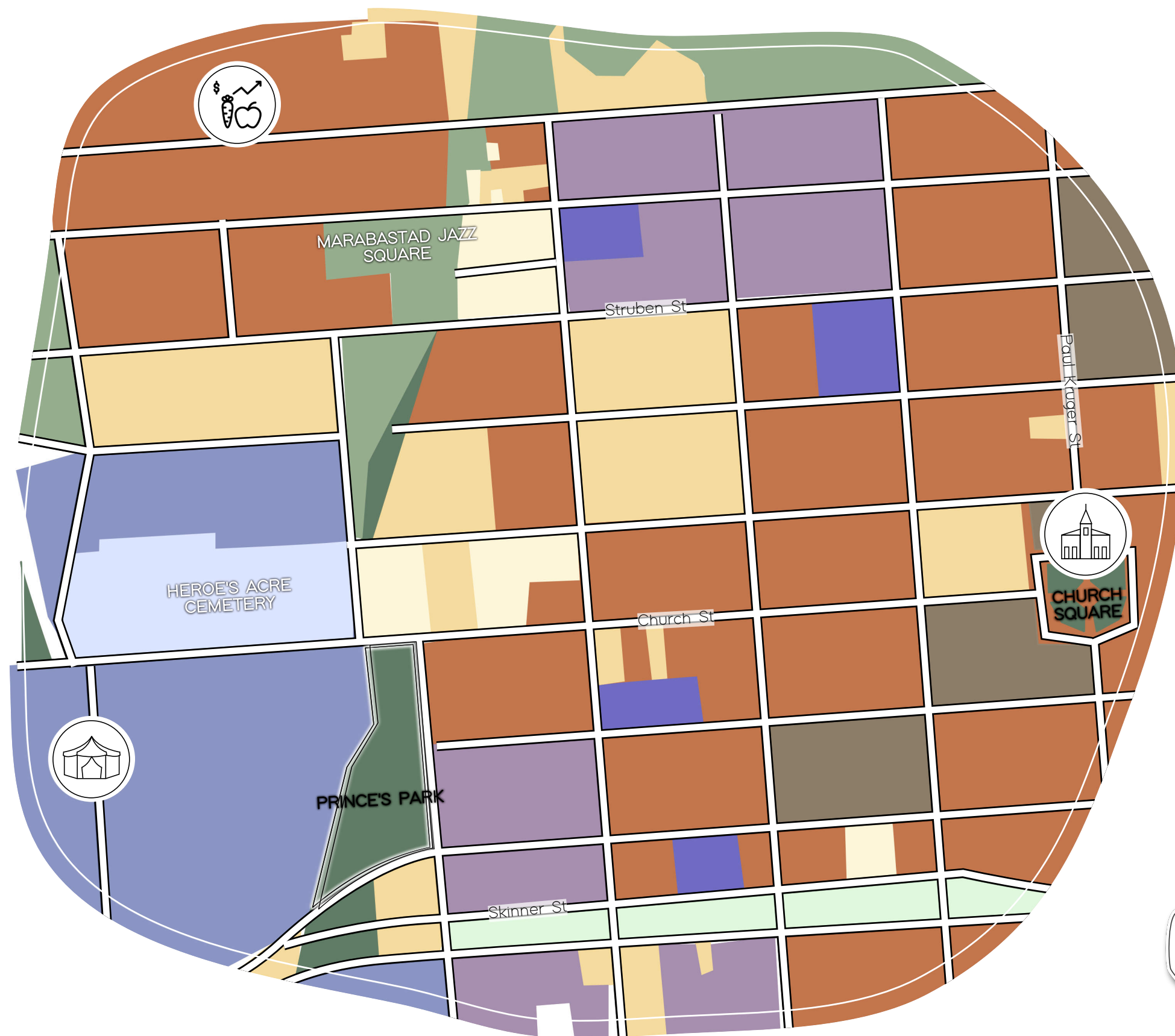


## Management Response

- rehabilitate channel morphology
- control urban runoff
- reduction and clean-up of litter from human settlements

## CONTEXT WATERCOURSES

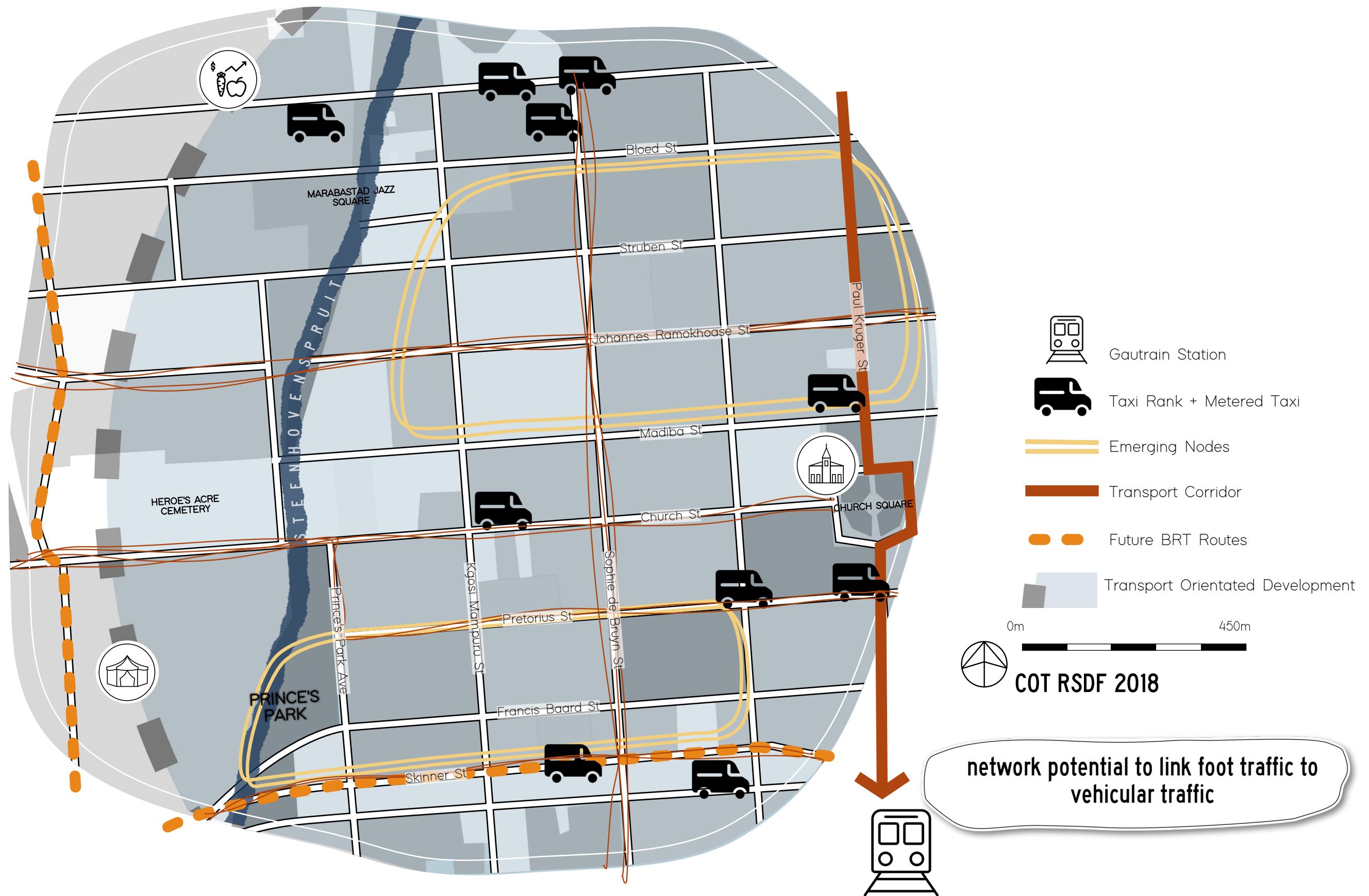




**economy as programme driver**

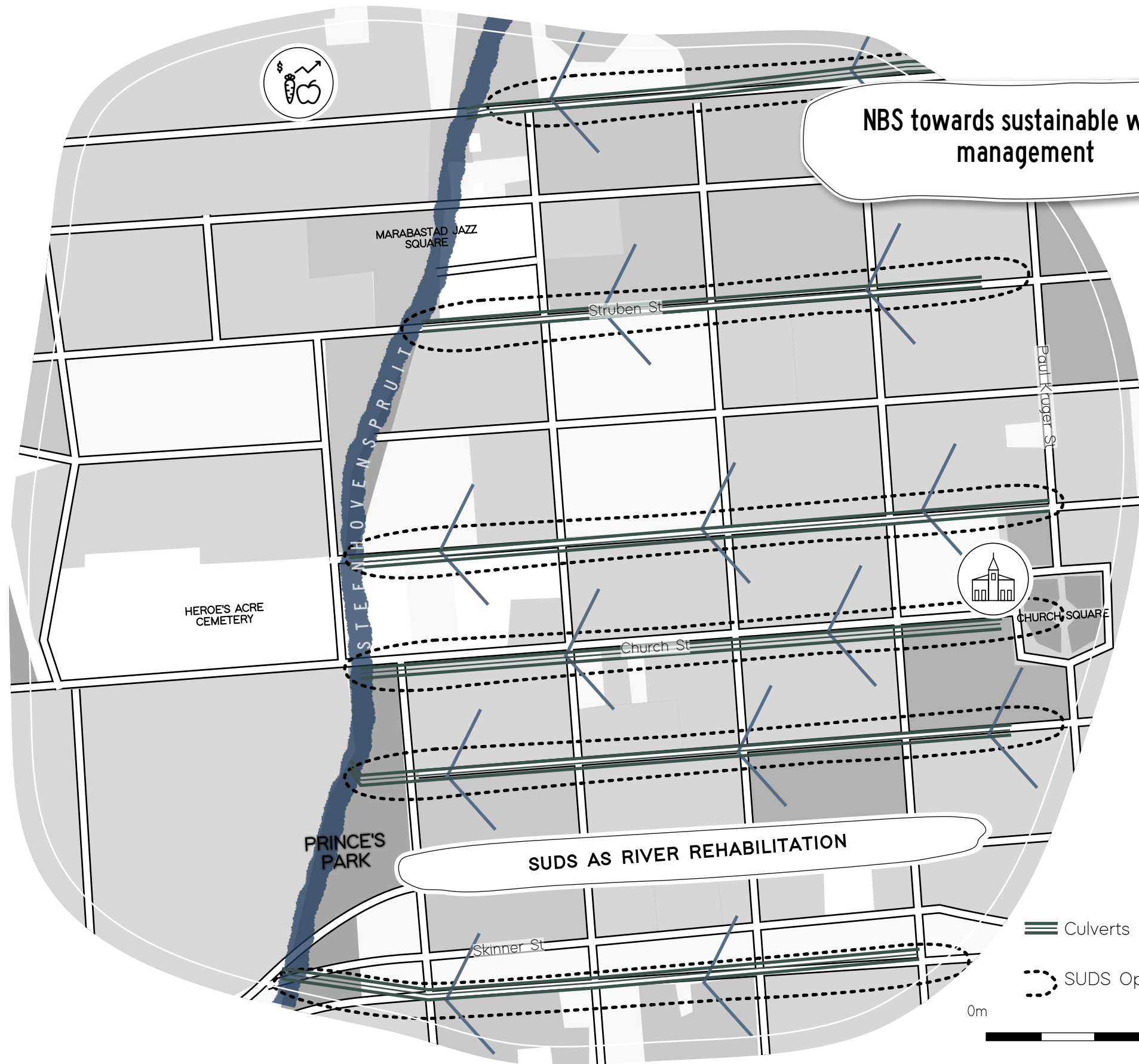
**REGIONAL ZONING**





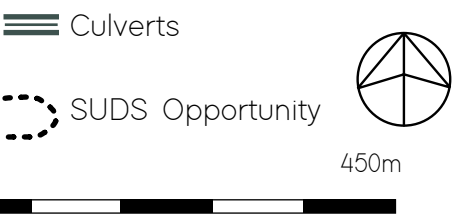
## TRANSPORT NODES AND CORRIDORS



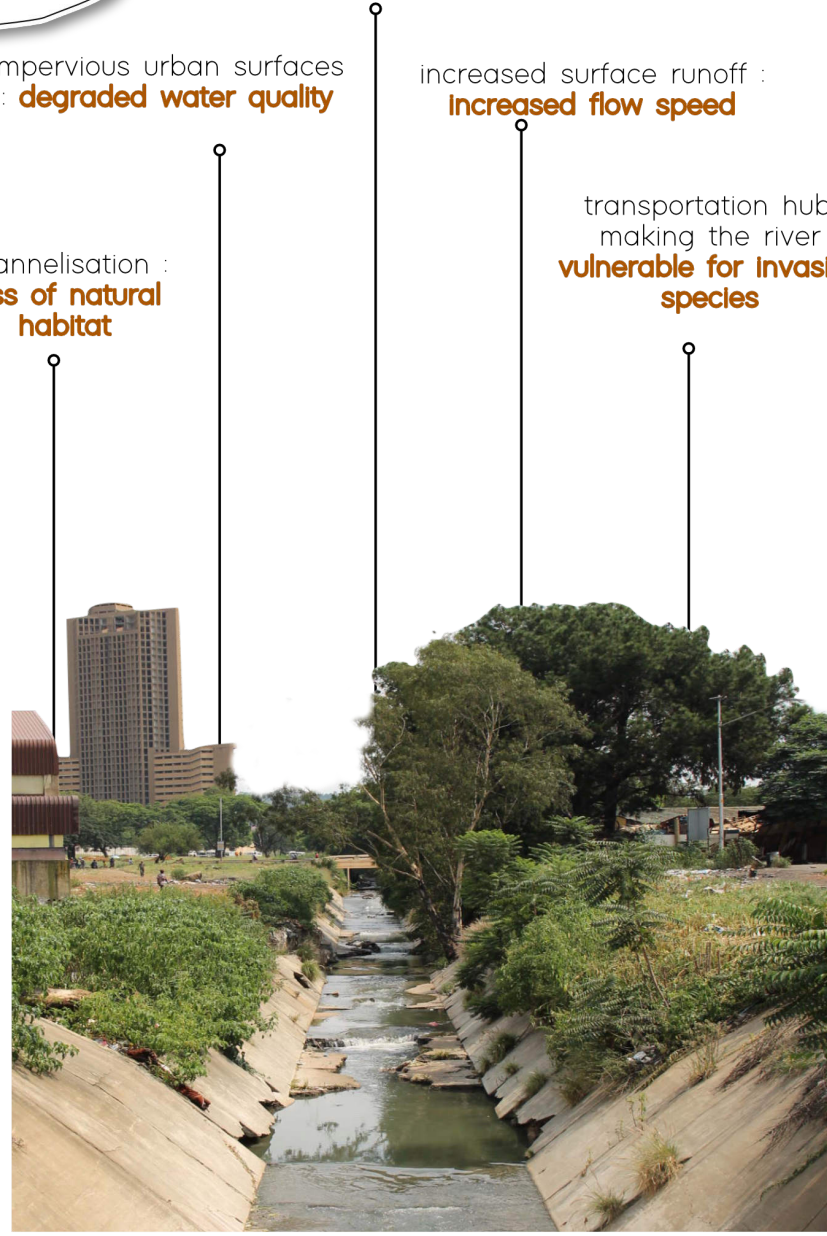


NBS towards sustainable water management

SUDS AS RIVER REHABILITATION



- removed riparian zone: **decreased habitat variety**
- impervious urban surfaces: **degraded water quality**
- channelisation: **loss of natural habitat**
- increased surface runoff: **increased flow speed**
- transportation hub: **making the river vulnerable for invasive species**



STORMWATER AND SPRUIT CURRENT STATE



## Existing Frameworks

- Regional Site Development Framework (RSDF)
- Municipal Site Development Framework (MSDF)
- C-Plans

## Existing Acts

- National Environmental Act
- National Environmental Management Biodiversity Act
- National Water Management Act
- Spatial Planning
- Land Use Management Act
- City of Tshwane Town Planning Scheme

### EXISTING POLICIES

## Zoning (Tshwane WebGIS)

Zoning: Public Open Space  
Land Use: Retail

## Gauteng C-Plan 3.3 (SANBI BGIS)

National Biome: Savannah Biome  
National soil description: Red, yellow and / or greyish soils with low to medium base status  
National soil class: Association of Classes 1 to 4: Undifferentiated structureless soils  
National threatened terrestrial ecosystem: Marikana Thornveld  
- extend: vulnerable

## RSDF 2020 (Tshwane WebGIS)

Region 3, Ward 58  
classified as Open Space - Other Natural Area  
Falls on western edge of the largest transport node of City of Tshwane Tshwane  
Park classified as Ecological Support Area 2 along Steenhovenspruit

### INITIAL SITE INFORMATION

where can zoning and land use meet:  
retail vs public open space?

how can the transport sector be involved to  
support small scaled economies?

how can interventions be inclusive,  
developmental, equitable and resilient?

### EARLY CONSIDERATIONS

## Public Amenities Bylaw

"The municipality adopts this By-law with the aim of controlling access to and use of all public amenities owned by or under the control of the municipality."

## Land Use Management Bylaw

"To provide a framework for spatial planning and land use management in the Republic; to specify the relationship between the spatial planning and the land use management system and other kinds of planning; to provide for inclusive, developmental, equitable and efficient spatial planning..."

## City of Tshwane Town Planning Scheme

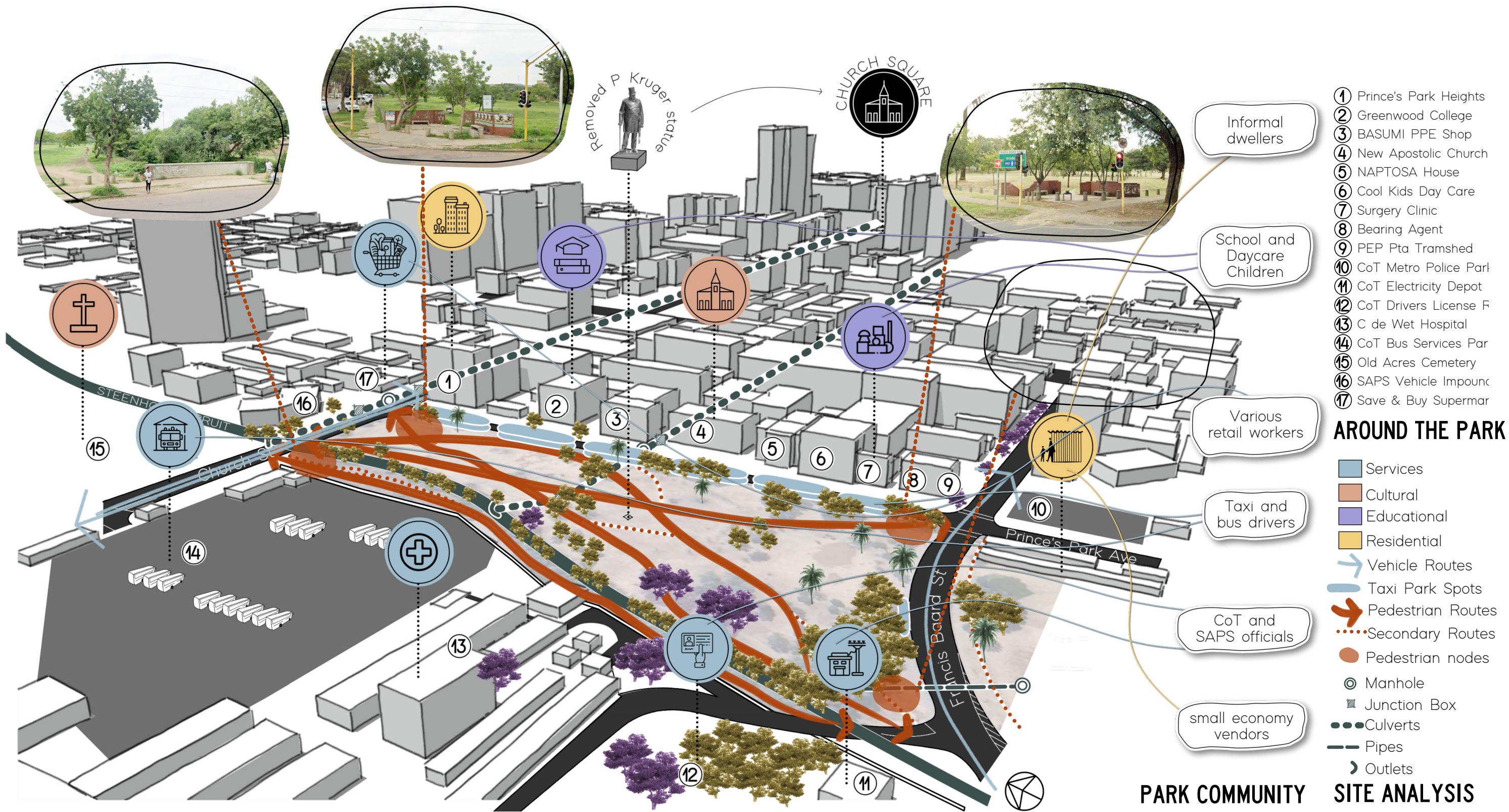
relating to the following matters:

- Part 1: Introduction.
- Part 2: Streets, Building Lines and Building Restriction Areas.
- Part 3: Use of Buildings and Land.
- Part 4: Development Conditions.
- Part 5: Parking and Loading Facilities.
- Part 6: Amenity in and of the Environment and Appearance of Buildings.
- Part 7: General Conditions.
- Part 8: Schedules.

### RELEVANT SITE BYLAWS

# ENVIRONMENTAL LEGISLATION





- ① Prince's Park Heights
- ② Greenwood College
- ③ BASUMI PPE Shop
- ④ New Apostolic Church
- ⑤ NAPTOSA House
- ⑥ Cool Kids Day Care
- ⑦ Surgery Clinic
- ⑧ Bearing Agent
- ⑨ PEP Pta Tramshed
- ⑩ CoT Metro Police Parl
- ⑪ CoT Electricity Depot
- ⑫ CoT Drivers License F
- ⑬ C de Wet Hospital
- ⑭ CoT Bus Services Par
- ⑮ Old Acres Cemetery
- ⑯ SAPS Vehicle Impounc
- ⑰ Save & Buy Supermar

**AROUND THE PARK**

- Services
- Cultural
- Educational
- Residential
- Vehicle Routes
- Taxi Park Spots
- Pedestrian Routes
- Secondary Routes
- Pedestrian nodes
- Manhole
- Junction Box
- Culverts
- Pipes
- Outlets

Informal dwellers

School and Daycare Children

Various retail workers

Taxi and bus drivers

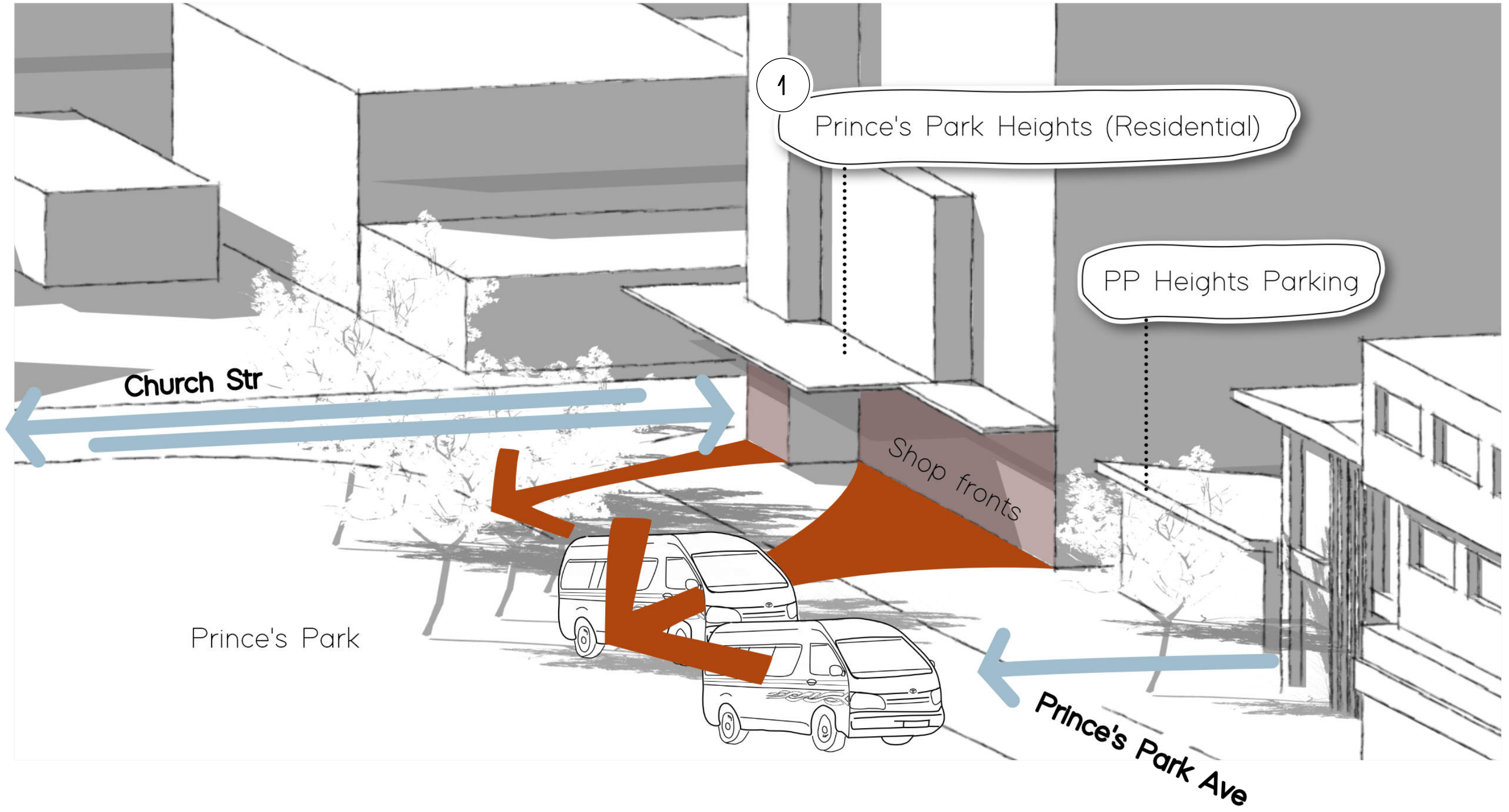
CoT and SAPS officials

small economy vendors

**PARK COMMUNITY SITE ANALYSIS**

**SITE AND CONTEXT ANALYSIS**





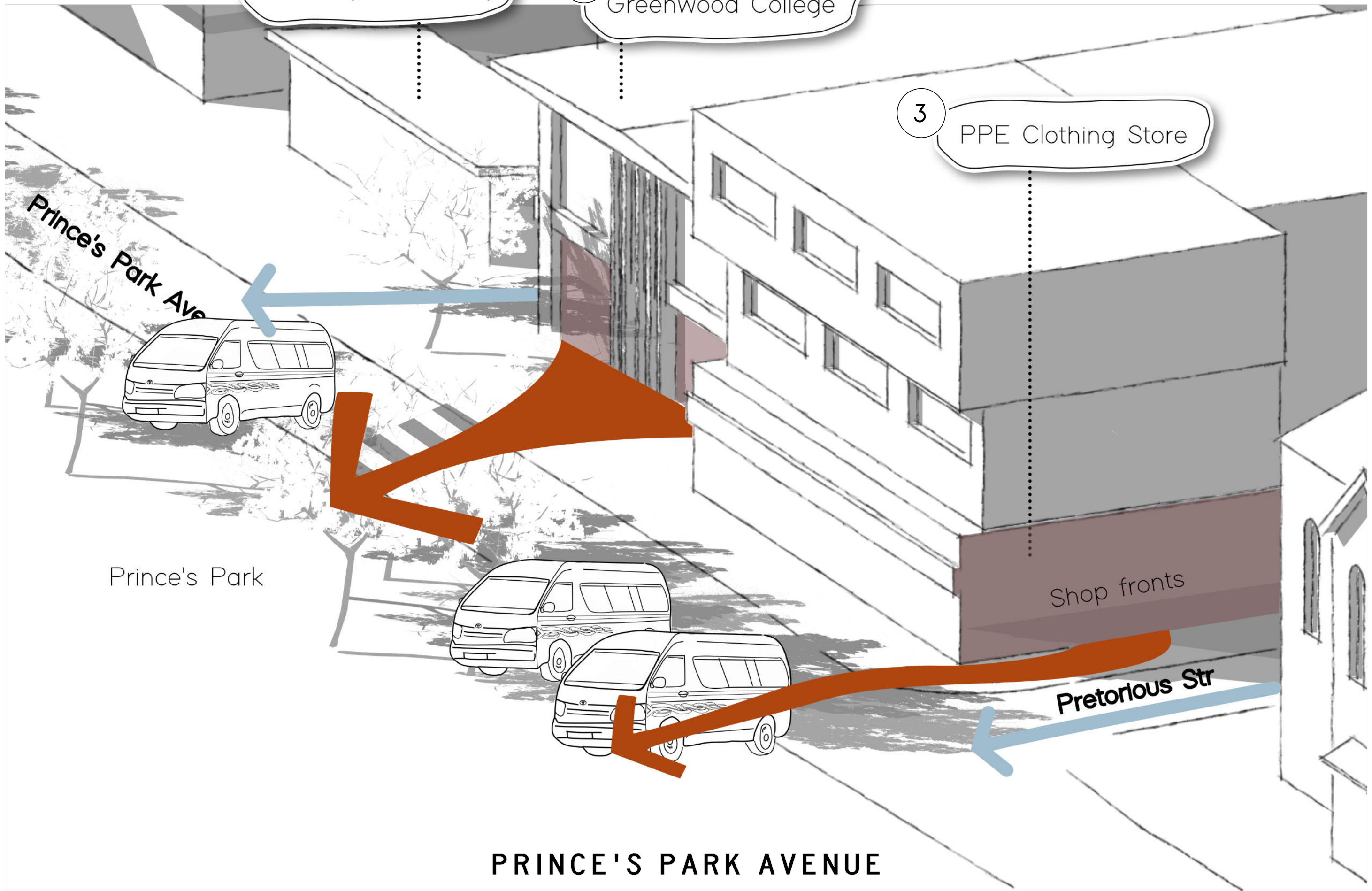
# PRINCE'S PARK AVENUE



1 PP Heights Parking

2 Greenwood College

3 PPE Clothing Store



Prince's Park Ave

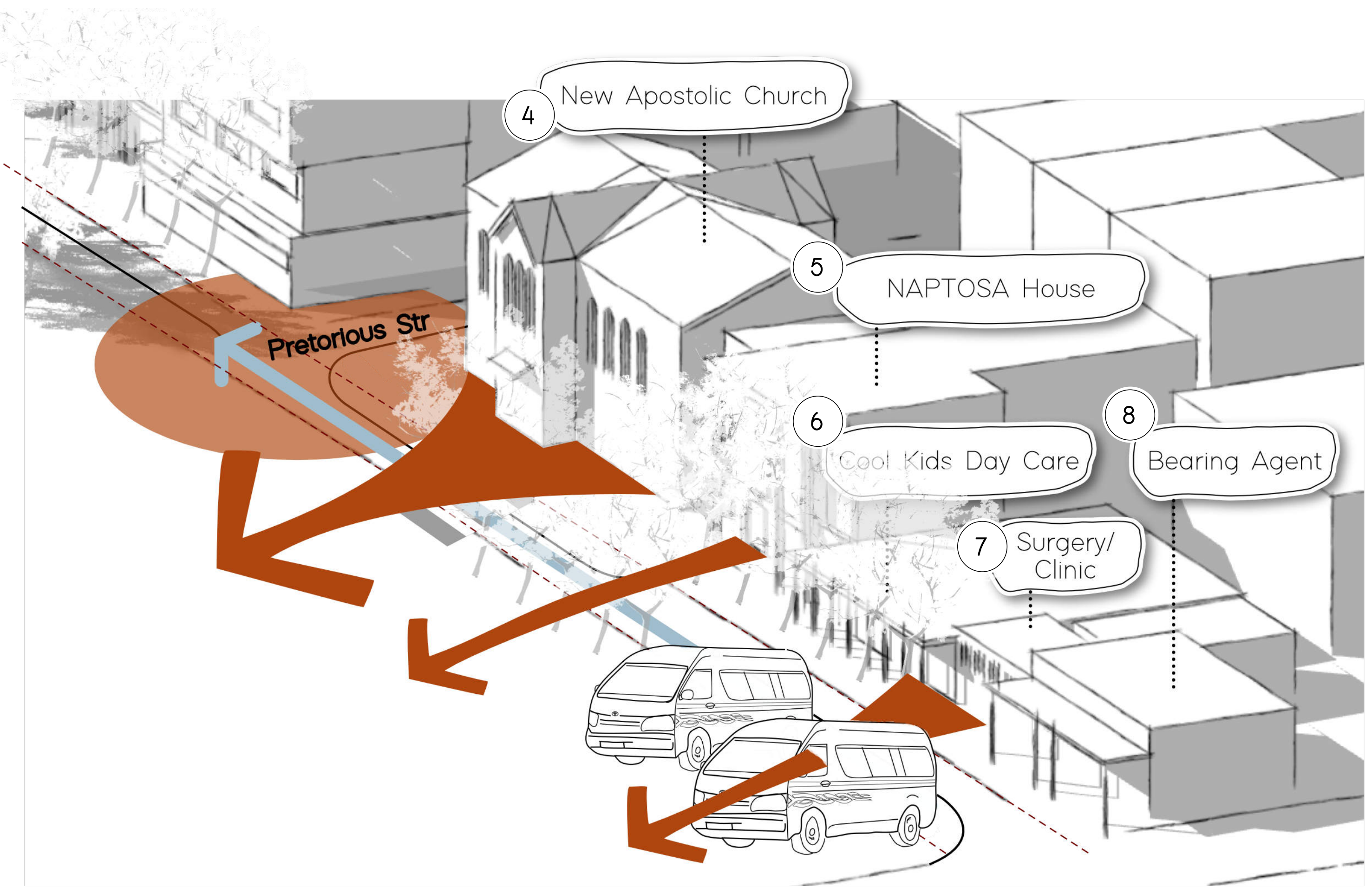
Prince's Park

Shop fronts

Pretorious Str

PRINCE'S PARK AVENUE





PRINCE'S PARK AVENUE