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STREETS FOR EXCHANGE

A RESTRUCTURING OF THE INNER CITY : JOHANNESBURG

LARRY ENGLISH

This discourse is submitted to the Faculty of Architecture, University of the Witwatersrand, Johannesburg, in partial fulfilment of the degree **Master of Urban Design.**

Johannesburg
October 1993

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CONTENTS

Broad Outline:

Part 1;	INTRODUCTION
Part 2;	METHODOLOGY
Part 3;	STATEMENT OF PROBLEM
Part 4;	JOHANNESBURG: HISTORY AND LEGACY
Part 5;	STATEMENT OF NEED
Part 6;	ASPATIAL RESTRUCTURING
Part 7;	SPATIAL RESTRUCTURING
Part 8;	CONTEXTUAL ANALYSIS
Part 9;	INTERVENTIONS
Part 10;	CATALYTIC PROJECTS
Part 11;	CONTROLS AND GUIDELINES
Part 12;	IMPLEMENTATION STRATEGY
Part 13;	CONCLUSION
Part 14;	BIBLIOGRAPHY
Part 15;	APPENDIX

Contents in Detail :

1. Introduction 6

- 1.1 Motivation
- 1.2 Restructuring
- 1.3 Objectives

2. Methodology 8

3. Problem Statement 9

- 3.1 Dichotomy of the city
- 3.2 Problem: The Disinterested
- 3.3 Problem: The Interested
- 3.4 Urban Designer as Arbitrator

4. Johannesburg: History and Legacy 16

- 4.1 Johannesburg: Spirit of the city
- 4.2 Johannesburg: Apartheid city
- 4.3 Johannesburg: Modernist City
- 4.4 Johannesburg: Nationalist city
- 4.5 Johannesburg: Post-Modernist City

5. Statement of Need 24

- 5.1 Defining Need
- 5.2 Human Need
- 5.3 Environmental Need
- 5.4 City Performance - Inherent Principles
- 5.5 Restructuring based on need

6. Aspatial Restructuring 29

- 6.1 Structure and Restructuring
- 6.2 Concept and Ideology
- 6.3 Aspatial restructuring

7. Spatial Restructuring 34

- 7.1 Metropolitan Restructuring
- 7.2 City Restructuring
- 7.3 Inner-City Restructuring: Street

8. Contextual Analysis 60

8.1 Historical Development of City Structure
8.2 Constraints
8.3 Problems and Opportunities:

9. Interventions 98

9.1 Metropolitan Intervention
9.2 City Intervention
9.3 Joubert Street Intervention
9.4 Intervention Policies

10 Catalytic Projects 112

10.1 Johannesburg Station
10.2 Attwell Gardens
10.3 Ernest Oppenheimer Gardens
10.4 Van der Bijl Square
10.5 New Faraday Station
10.6 Joubert Street Spine

11. Controls and Guidelines 117

11.1 Controls
11.2 Guidelines

12 Implementation Strategy 132

12.1 Implemenatation: Broad Policy
12.2 The Land
12.3 Implementation Schedule
12.4 Implementation Strategies
12.5 Implementation: Phasing

13 Conclusion 137

14 Bibliography 138

15 Appendix 142

PART ONE:
INTRODUCTION

Johannesburg - City of hope or City of Despair:
Context for the Urban Designer 1993:

Motivation:

Johannesburg's inner-city is in crisis. Physically, the city is deteriorating. Daily, the media reports of increased crime figures, and yet another corporation moving to suburbia. Institutions which remain in the city intensify their security and offer internalised canteens, gymnasiums and parking to their staff so that they need not venture out onto the streets. It is therefore doubtful that institutions which remain do so out of love for the city; rather, it would appear that these decisions are motivated for reasons of retaining their property investments.
In reaction, city politicians (who live in suburbia) have embarked on cosmetic urban design upgrades and programmes to keep Johannesburg clean, or green, while others campaign for transportation solutions and stadiums driven by manifestos to make Johannesburg a truly 'world' city - Eurocentric images of what great cities should be.

Yet, on the streets, at train and taxi termini and open spaces Johannesburg continues to pulsate with people, informal market activity and social exchanges. The city is not dying, it is merely being colonised by Soweto, (Wood,1991). The centrality and accessibility of the inner city is being capitalised on for its economic and social benefit. These emerging Third World components of the inner city are, however, unkempt and dilapidated. Correa (1989), referring to post-independence Bombay describes the following:

> *"Every day it gets worse and worse as a physical environment . and yet better as 'city'. That is to say, everyday, on every level of society - from squatter to college student to entrepreneur to artist - it offers more in the way of skills, activities and opportunities. (ibid p76)*

Kirby (1991) describes the new immigrants of the city as 'the interested' as opposed to the 'disinterested', who are the emigrants of the inner city who have chosen to leave the city for the privacy of suburbia. The latter, do not place high value on urbanity and consider the city merely as a machine for making money or as a symbol of corporate wealth. The disinterested, unfortunately, control city government and continue to determine policy for the city. The city has thus for the last hundred years been structured for people who are not interested in the city. Consequently, ease of access by private motor vehicle has been a major structuring consideration, hence the proliferation of freeways, parking garages and the rape of public spaces for parking. Other decisions have included shifting the city hall, the symbolic centre, out of the inner city to a more convenient situation. The produce markets have similarly been centralised and located in an inaccessible location beyond the reach of people on feet.

Restructuring:

> *"To let the cities deteriorate is to squander priceless resources - a blunder of the highest order." (Correa,1989:81)*

The city needs to be restructured. In its present form, the city is unable to serve the needs of all its inhabitants and its new immigrants. This restructuring will have to be based on a new set of values embodied in a new vision for the city. Part of this vision will involve the restructuring of the physical realm. This discourse aims to determine how that restructuring should take place.

Objective:

> *"Great music can be created during rotten times, even painting and poetry, but never great architecture and cities. Why is this so? Primarily because building involves two essential conditions: firstly an economic system which concentrates power and decision-making; and secondly, at the centre of that decision-making, leader with the vision, the taste and the political will to deploy these resources intelligently." (Correa,1989:82)*

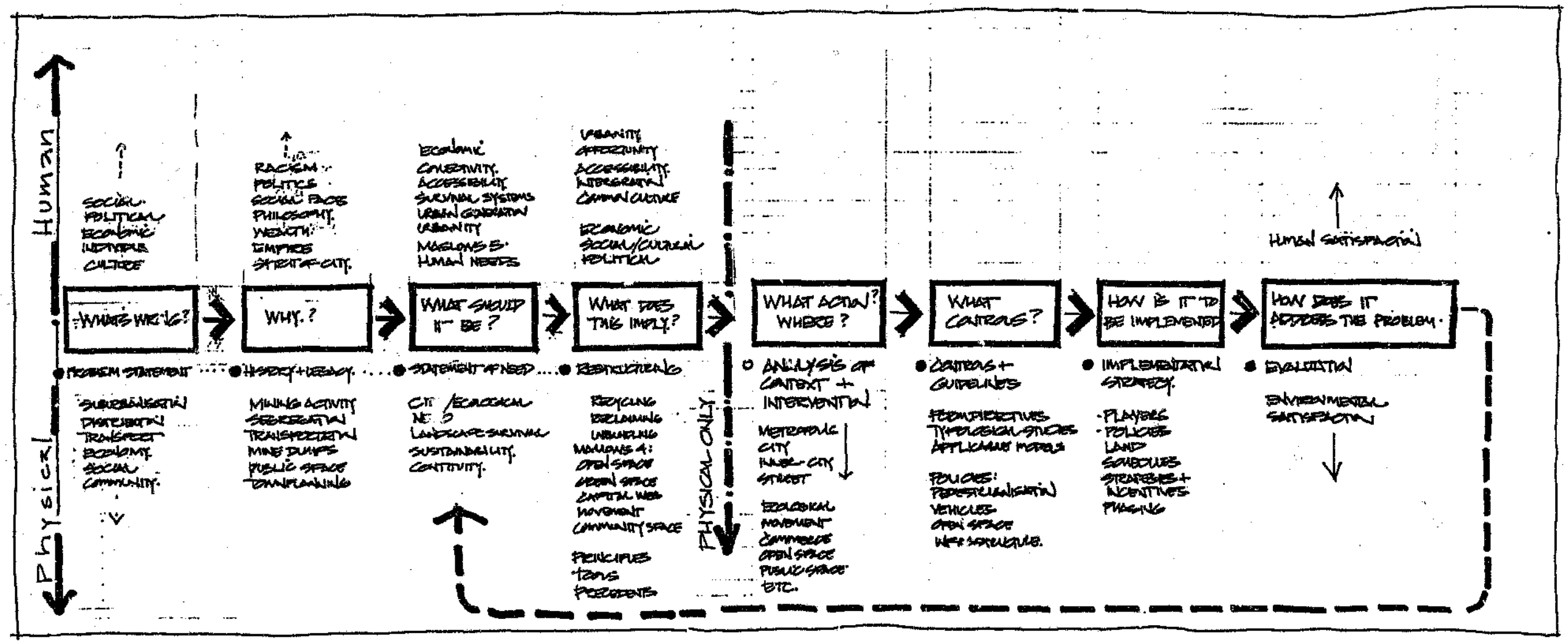
Mallows (1993) has described the 20th century as the century of the First World. The 21st century, he maintains, will be the century of the Third World. The world will have to focus on the problems of bridging the chasm between the two worlds. As South Africans, we are in the unique position of having to bridge that gap in the immediate future in order to ensure the survival of civility in our country. The physical restructuring needed in our cities to bridge the differences will be the focus of urban design for the next few decades.

Although, there has been much research on restructuring, most of this work has dealt with the spatial restructuring and the establishment of a systemic logic at metropolitan and sub-metropolitan levels - in order to address the immediate needs of housing, employment and movement.

This research does not, however, deal with the existing inner city structures and how the forces of rapid urbanisation, deregulation and the desire to locate nearer to the city centre would impact existing inner city structure, or, how the inner city could be restructured to accommodate, and in fact capitalise on these new forces as catalyst for growth and sustenance.

The author seeks to fulfil the following objectives in this discourse:

1. **To establish an understanding of the Johannesburg inner-city problem:**
   - in terms of problems facing South African cities generally,
   - in terms of the context of global problems facing cities,
   - in terms of its own history and legacy.
2. **To determine the needs and values on which the city should be based.**
3. **To establish a role for the Urban Designer in the restructuring of our cities.**
4. **To define restructuring, establish a theoretical base and set out principles by which restructuring should be initiated and guided. That restructuring should combine public and private forces to achieve this.**
5. **To demonstrate these principles by intervention in the physical realm of Johannesburg.**
6. **To determine strategies and implementing such interventions.**


HUMAN
PHYSICAL
PHYSICAL ONLY
?
SOCIAL
POLITICAL
ECONOMIC
HISTORIC
CULTURE
!
RACISM
POLITICS
SOCIAL FACE
PHILOSOPHY
WEALTH
EMPIRES
SPIRIT OF CITY
ECONOMIC
CREATIVITY
ACCESSIBILITY
SURVIVAL SYSTEMS
URBAN GENERATION
URBANITY
MASLOWS 5
HUMAN NEEDS
VIBRANCY
OPPORTUNITY
ACCESSIBILITY
INTEGRATION
COMMON CULTURE
ECONOMIC
SOCIAL/CULTURAL
POLITICAL
HUMAN SATISFACTION
WHAT'S WRONG?
WHY?
WHAT SHOULD IT BE?
WHAT DOES THIS IMPLY?
WHAT ACTION? WHERE?
WHAT CONTROLS?
HOW IS IT TO BE IMPLEMENTED
HOW DOES IT ADDRESS THE PROBLEM
PROBLEM STATEMENT
HISTORY + LEGACY
STATEMENT OF NEED
RESTRICTIONS
ANALYSIS OF CONTEXT + INTERVENTION
CONTROLS + GUIDELINES
IMPLEMENTATION STRATEGY
EVALUATION
SUBURBANIZATION
DISTRIBUTION
TRANSPORT
ECONOMY
SOCIAL
COMMUNITY
MINING ACTIVITY
SEGREGATION
TRANSPORTATION
MINE DUMPS
PUBLIC SPACE
TOWNPLANNING
CITY / ECOLOGICAL NEED
LANDSCAPE SURVIVAL
SUSTAINABILITY
CONTINUITY
RECYCLING
RECLAIMING
UNBUNDLING
MANDENS 4:
OPEN SPACE
GREEN SPACE
CAPITAL WEB
MOVEMENT
COMMUNITY SPACE
PRINCIPLES
TOOLS
PRECEDENTS
METROPOLIS
CITY
INNER CITY
STREET
ECOLOGICAL
MOVEMENT
COMMERCE
OPEN SPACE
PUBLIC SPACE
ETC.
MACRO OBJECTIVES
TYPOLOGICAL STUDIES
APPLICABLE MODELS
POLICIES:
PEDESTRIANISATION
VEHICLES
OPEN SPACE
NET STRUCTURE.
PLANNING
POLICIES
LAND
SCHEDULES
STRATEGIES +
INCENTIVES
PHASING
ENVIRONMENTAL
SATISFACTION

PART THREE
STATEMENT OF THE PROBLEM

3.1 Dichotomy of the City:

Earlier the author referred to the 'interested' and the 'disinterested' to explain different attitudes toward inner-city.

These terms can be expanded to represent a 'desire for urbanity' and a 'denial of urbanity' to define fundamental problems facing the restructuring of the South African city.

> De Tolly (1992:23) describes our cities as consisting essentially of two cities: A **developed city** and a **developing city.**
>
> *"As a developed city we are experiencing problems associated with most world cities such as urban sprawl, costly urban structures, environmental degradation, traffic congestion, farmland conversion, loss of natural, built and cultural heritage ...*
>
> *As a developing city, we face major developmental problems. Poverty and unemployment have reached serious proportions - many live below the minimum household subsistence level. A significant proportion of the city is inadequately housed living in damp, overcrowded, poor quality living environments. Consequently, the high levels of poverty have major implications for health, crime levels, education, incomes, local economy, political stability and quality of life experienced by the city's inhabitants."*

Disraeli described Britain in the 1860's as "*a world of two nations, almost unknown to each other.*" (Mallows,1989:81). This aptly describes the economic and social chasm which exists between the interested and the disinterested. These 'nations' each represent a characteristic set of problems.

3.2 The Disinterested

A denial of Urbanity

> Urbanity can be defined as the quality of a civilised community. characterised mainly by choice - a civilised community which offers its citizens a range of lifestyles, and is expressed in ritualised behaviour of symbolic value. (Lozano, 1990)

3.2.1 Homogeneity and Specialisation

Lozano describes the problem facing new world cities primarily as a the lack of appreciation for the meaning of 'city.' The word 'city' is derived from the Latin word 'civitas' which refers to the culture of cities, ie.

> *"Places where a heterogeneous mixture of people are concentrated in clusters of meaningful size to exchange - exchange goods, services and ideas." (ibid p15)*

Cities are places where people both compete and co-operate with one another, but they are not merely profit-making corporate entities.
Traditional cities would, regardless of internal differences, always define their community. The city wall symbolised community as much as it defended against outsiders. Western cities, Lozano suggests, have built internal defence walls against themselves: *"The wealthy fear the poor while the poor just fear". (ibid:18)*

If one judges cities today by universal standards of urbanity and civilisation, Lozano states, the conclusions are distressing, "Cities seem to be disintegrating:"

- Upper and middle classes are abandoning the city to the poor.
- The affluent are settling in a dispersed and segregated suburbia.
- Suburban life is a homogeneous environment expressed in routines devoid of symbolism or spontaneity.
- Residential areas are subdivided by class, race and even age, resulting in monotonous environments, a weak sense of community, and in many cases, isolation.
- Functional simplification has reduced personal contact and exchange - and the sense of belonging.
- Fewer choices and deterministic urban routines are the signs of the widespread lack of community cohesion and urbanity
- Shopping,eg.,is now strictly a functional act of purchasing that involves a short trip to the local shopping centre -far from the traditional ritual that included window-shopping, promenading, meeting friends informally, exchanging information.

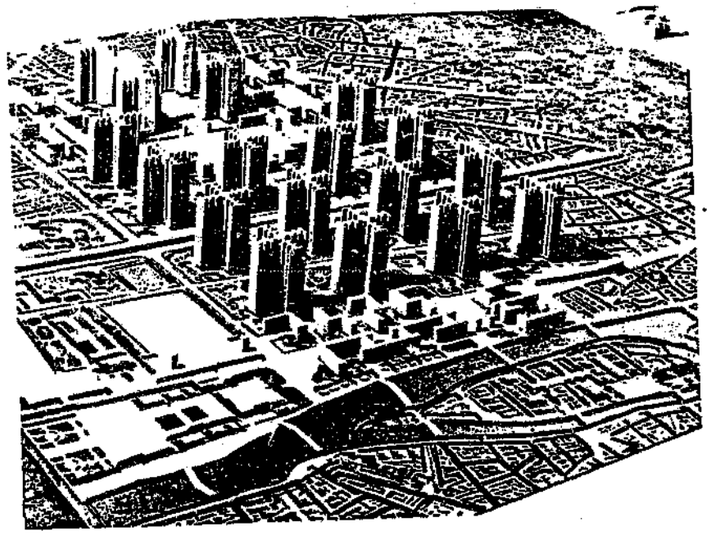
3.2.2 Technology

- For the city and urbanity, technological advancements in communication have contributed to the decline of urban life.
- The television brings the world into the living-room. Press conferences can feed whatever political needs exist -replacing the lively debate that was once the basis of true democracy.
- Commercial exchanges can now take place via personal computers denying human contact - which used to take place in plazas and streets.
- Romance has been replaced by singles bars and dating services.
- Landmarks of culture have been diminished. Religion, morality and ethics, and the supernatural are seperated from everyday living.



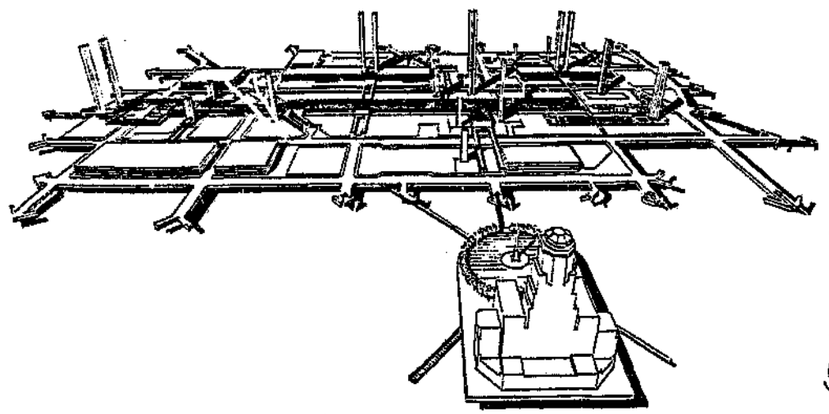
(SARGE LOZANO, 1983)

HOMOGENITY — SUBURBIA



(LOZANO, 1983)

LE CORBUSIER - PLAN VOISIN - HOMOGENITY OF LAND USE -



(BACON, 1975)

TECHNOLOGY - EMPHASIS ON MOVEMENT SYSTEMS.

3.2.3 Townplanning

The disappearance of complex multi-use and the agglomeration of land uses into mono-use blobs, can be equated directly with the advent of town planning, transportation planning, and increased administrative control. British planning professionals actively persuaded the banning of the symbiotic relationship between movement and more intensive activities, under the rubric of `control of ribbon development'. (Dewar and Uytenbogaardt , 1991)
This was motivated by two concerns:

- An increasing obsession with neatness and total control, which accompanied the growing influence of administrative based planning in the mid-twentieth century.
- The phenomenal growth in personal incomes and car ownership in the western world gave rise to the increased influence of transportation engineers and the prioritisation of the free flow of traffic above other issues of urban management.

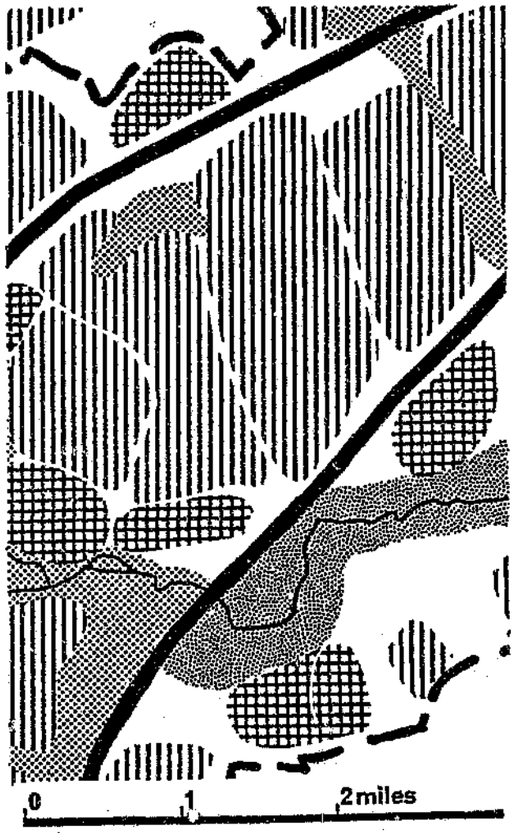
3.2.4 Ephemerality

"Ours is a culture of short lives - there is no permanence, only cycles of fashion" , says Lozano. This status is not conducive to meaningful urban design where the concern is for settlements that will span centuries, not merely painted stages. *"Culture demands a constant stream of novelty ... the social art of architecture has been reduced to another parade of fashions", Lozano concludes. (Lozano, 1990:7)*

3.2.5. Absentee Landlords

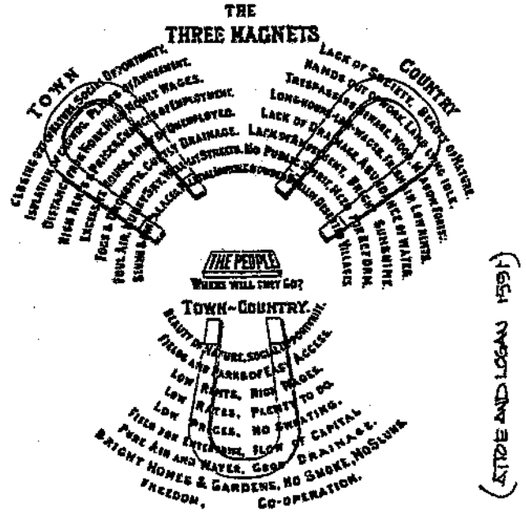
Modern cities lack visible community hierarchies. Traditional elites appropriated power as well as responsibility. The Medici's of Florence or the Pope of Rome, were visible heads of a local hierarchy based on a relationship of give-and-take with their community. The elites lived in the community and in exchange for taxes extracted they returned part in the form of buildings, art or institutions.
In new world cities elites are still elites, but they are unfortunately, no longer urban. Lozano describes:

> *"These elites have fled without abandoning power ... their social responsibility flows to charitable foundations, often with tax benefit ... without any direct link with communities ... these elites continue to extract benefits from the urban system, but they return little in terms of personal presence, taste, or culture. On weekdays, they occupy the corporate towers that house their offices, but they do not live in, nor are they committed to the communities around them. Cities evolve aimlessly in a vacuum lacking community objectives but with constant economic pressures; cities continue to develop, deteriorate and redevelop with decreasing identity and symbolic values."* *(ibid:10)*



(BENTLEY 15)

REGULARISATION OF LAND USES



(ATTOE AND LOGAN 1991)

EBENEZER HOWARDS GARDEN CITY DIAGRAM.



(ALEXANDER 1977)

SEGREGATED USE.

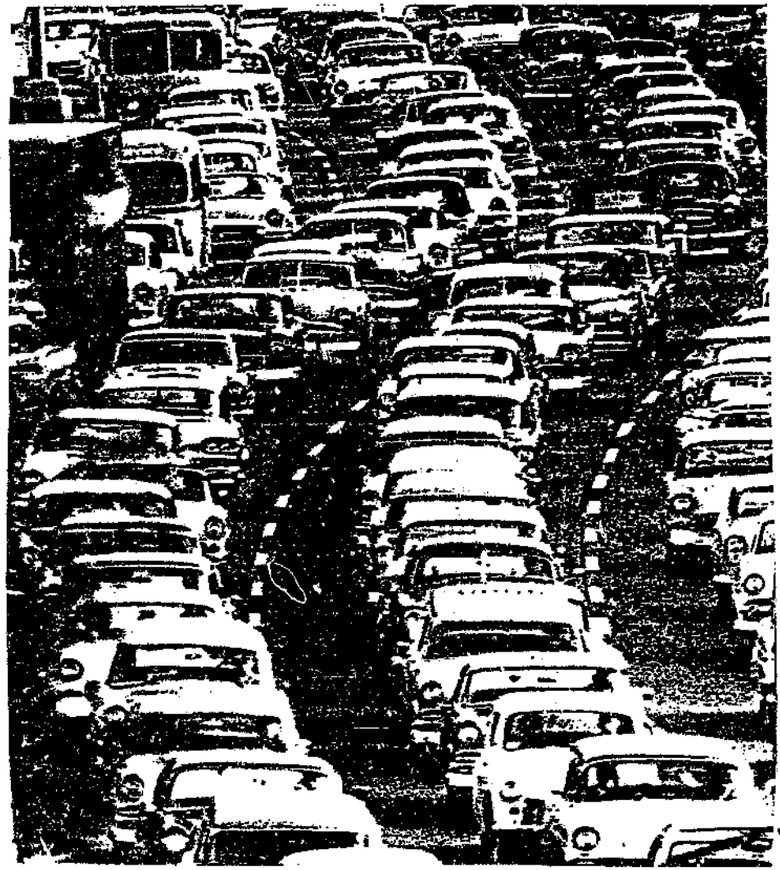
3.2.6 Hedonism and Materialism

City design is controlled by a suburban elite who have ruthlessly introduced the private car, tool and symbol of individual mobility,
Affluence, Hedonism and banality have resulted in a culture that negates urban life and the essence of cities, preferring shopping centre consumerism, while the deserted city becomes a ghetto for the poor and unemployed.

3.2.7 Individualism and Privacy

Since the Second World War, advancements in technology and personal financing have reduced the individual's dependency on others. No longer is it necessary to share public amenities such as the public swimming pool. Such a facility can be enjoyed in the privacy of his own home. Privacy and Individualism are actively marketed as goals to aspire to. Publicness is ignored. Consequently, investment in public facilities has been neglected - to the detriment of those who cannot afford to purchase these 'private luxuries'.

> *"At the same time that the public realm has declined there has been a corresponding flourishing of the private realm - with an emphasis on privacy, retreat, personal comfort, private consumption and security. Looking after ME first, in a rather nasty thing called the `enterprise culture'... The Thatcher era has left an appalling legacy of `selfishness'. (Tibbalds 1993:5)*



INDIVIDUALISM AND PRIVACY - PRIVATE TRANSPORT

3.3 The Interested

A desire for urbanity

It is evident that the anti-urban attitudes of the disinterested present enormous obstacles to restructuring as their value system is a major cause of the plight of the `interested'.

3.3.1 Immobility

The majority of Johannesburg citizens are people whose feet are their only means of mobility, yet the city has been structured for car owners. This has impacted on city scale and the intensity of activity within the city. People on feet allow for a greater degree of intensity of human and economic activity. Feet also permit tighter and more flexible movement patterns, greater complexity, land-use diversity and population densities. These compact activity patterns allow greater concentrations of employment, social facilities and other benefits. Thus, people are able to sustain living without the need for private mobility.

Private mobility has on the other hand enabled the upper and middle classes to move away from the city centre. This has led to the suburbanisation and decentralisation of retail, social facilities and employment. The result is a broad scattering of weak activity centres dependent on large geographical thresholds to remain viable.
The historic ritual of going to the market requiring the skills of bargaining and price comparison are ruled out by distance and entail hours of driving. These facilities, furthermore, are inaccessible to those without cars. Other less obvious social and economic implications of not owning a car are less obvious, namely, a limited choice of school, church, health-care, employment and recreation options:



(CORREA 1985)

INADEQUATE PUBLIC TRANSPORT



(CORREA 1985)

BANALITY

John Carter (Campbell, 1993:15) relates the experience of a man retrenched in the suburbanised city.

> *"Made redundant in his job at a local business park, the keys of his 2 litre Cavalier are taken away and he has to fend for himself. With no possibility of formal employment he sets out to start on his own, only to realise that the town works against him. There is insufficient density in suburbia to sustain a local market; there is no possibility of taking the last shop on the high street because there is no high street; there are no spaces under the railway arches ... no messy bits of the city."*

The isolationist and environmental threat reinforced by the anti-urban idioms of suburban house, the car and business park has to be reversed if we are to bring back successful urban environments. Empirical standards must be replaced with performance criteria if we are to move forward. (Campbell, 1992:16)

3.3.2 Economy and Employment

The capitalist employment market world-wide has reached saturation point. Companies are becoming smaller and employing less.
Current projections in the Group 7 countries reveals that only 1 out of 6 school leavers will be guaranteed formal employment by the year 2000, thus, it is becoming increasingly unlikely that any First World country will totally employ all of its citizens in formal jobs. (Welbank, 1993).
In South Africa, the informal sector is becoming increasingly important as an venue for self-employment. This phenomenon has the added advantage of allowing individuals to regain their independence. Greater self-employment may result in a greater variety and intensity of activities and a return to the importance of the inner-city as a place of exchange. This places increasing emphasis on the ability of the public realm and urban fabric to provide a venue for these activities.

3.3.3 Privatisation of the Public Realm

During the 1980's there was a coincidence between the desire of the developer to have full control over the public realm being created, and the desire of the public to be protected from the squalor and harm of the community at large in ordinary open public streets.

> *"Shopping malls were enclosed, office developments were enclosed, civic centres were enclosed, and the spaces in between the buildings were clean, it never rained inside, and there were no drunks. For those allowed inside it was great, and the bands played Christmas carols and we watched the sparrows in the palm trees." (Lock, 1993:30)*

Tibbalds (1993) questions the sincerity of Developers and City Governments. He also questions their understanding of the term `public'. Many attempts to revitalise inner-cities are superficial attempts restore an appearance of urbanity.

> *"Most of all we need the commitment of the inhabitants and users of cities and towns, They must be interested not just in creating commercial viability, tourist*



(Dewar + Watson 1990)

Bangkok - informal markets



(Correa, 1989)

Early morning in the city - Bombay.

attractions, livability, sustainability, greenness or any of a dozen, trendy epithets now being applied to urban areas, but they must shout loudly "we want a better quality of life for the city as a whole" and commit themselves to achieving this. (ibid:5)

3.4 A Role for the Urban Designer

3.4.1 Arbitrator Between the `Interested' and `Disinterested'

In recent years there has been a shift from public-sector investment to private sector. The shift has resulted in a tendency to ignore the wholistic considerations of the city and its welfare in favour of private sector development. Unfortunately, the latter has tended focus on self-orientated revenue-driven activities involving a limited economic life-span. Sadly, urban design tends to be the vehicle through which these projects are motivated.

> *"... there are commentators who might say of urban designers what they say of planners, that their purpose is "to contribute toward the maintenance of the capitalist system and in particular provide an ideology of intervention in the public interest while, in reality, supporting dominant economic interests". (Lock, 1993:28)*

In the present South African predicament Urban Design will have to begin to campaign for concerns which extend beyond those of their sponsor. Urban design must offer a voice to *`those who are heard with difficulty'* (Kirby, 1992). The principal consideration for evaluating each city intervention should be how it will benefit the needs of the city and its people.

> *"Development which meets present needs without compromising the ability of future generations to achieve their needs and aspirations" (Our Common Future, 1987)*

3.4.2 To Recolonise the Public Realm

In the future the role of the urban designer will be more directed to assisting the public in the re-establishment of street markets, new high streets and seedbed industries.

3.4.3 To ensure Maximum Response from Public Investment

Urban design will need to ensure that each intervention stimulates local economic activity and environmental quality. *"We are going to have to set aside our obsession with `neatness', and recognise the importance of the messy bits of the city to accommodate economic growth and change. (Campbell,1993:14)*

3.4.4 To Shape Human Community

> *"As one of the major components of culture, design should have an active role in shaping human settlements, rather than passively echoing other factors." (Lozano, 1990:11)*



(CARR, 1993)

THIRD WORLD PARADIGM:



3.4.5 Confronting Anti-urban and Anti-human forces

Urban design should seek to confront and lobby for the redirection of these forces. Cities are the base of civilisation and communities are the base of society (Lozano,1990). The urban designer should be a custodian of urban values.

3.5 Current Problems facing the Inner-City

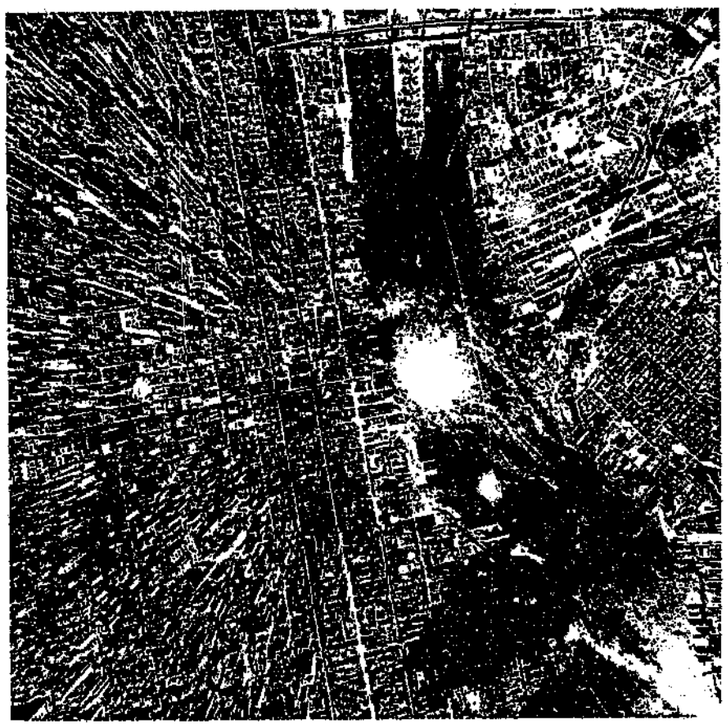
Based on observations typical of American Inner-cities (Attoe and Logan, 1989)

3.5.1 Typical Causes of Inner City Decline:

1. Loss of housing and employment from the city centre.
2. Exodus of retail activities from the centre.
3. Increased use of automobiles because of inadequate public transportation
4. Congestion, inconvenience, and reduced environmental quality because of traffic and parking.
5. Abandonment of outdated and inadequate buildings and facilities in favour of newer facilities elsewhere.
6. The association of downtown with environmental deterioration and undesirable social groups.
7. Cost and difficulty in assembling land for development.
8. Deteriorating and costly infrastructure.

3.5.2 Typical Motivations for Inner City Improvement:

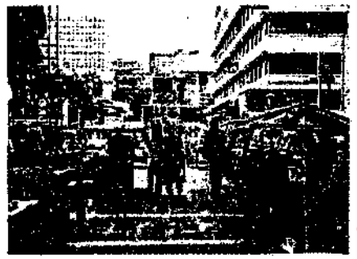
1. Damaged civic pride - economically, physically and socially.
2. Persistent confrontation with an image of what a city centre should be.
3. Declining tax revenues.
4. Declining property and rent revenues as business and wealthy residents leave the centre city.
5. Loss of jobs to competing suburban employment centres.
6. Loss of residents.
7. Deterioration of buildings, infrastructure and environmental quality.
8. Increasing crime.



(Lozano, 1990)

Manhattan





(Segal, 1991)

Johannesburg

PART FOUR
JOHANNESBURG: HISTORY AND LEGACY

Johannesburg is neither the capital city nor the mother city, nevertheless, it is at the centre of the most populous and the most prosperous urban agglomerations of Southern Africa - the Witwatersrand. Home to 7 million people, and stretching for 80 kilometres along what was once the richest gold-bearing reef from Randfontein in the west to Springs in the east.

Johannesburg is relatively young city (107 years) , yet has been rebuilt three times in its short history (Lloyd, 1992). The forces which acted upon and shaped its present form need to be examined in order to understand the present problems the city now faces.

4.1 Original Foundation

One cannot begin to move the city's foundations until you understand why they were placed there. Restructuring requires an understanding of structure and understanding what the structure was intended to support.

When the township of Johannesburg was laid out in 1886, President Kruger instructed the surveyor De Villiers not to provide too ambitious a layout. Many such mining towns had mushroomed in the United States and Australia and had since disappeared. Johannesburg, he believed, would never become more than a mining camp. (Johannesburg-100 Years, 1986)
He requested, further that the city blocks be made small, presumably to increase the number of corner stands. These stands, being more valuable, would fetch higher prices, and, considering that he did not believe Johannesburg would exist for very long, he intended to obtain as much revenue for his embattled Republic, while it lasted. If this observation is true it would be fitting as a motto of the city.

4.2 The Spirit of the City

4.2.1 Business and Heroism

Johannesburg has a distinct spirit. Its heartbeat is faster than other African cities. It is a demanding, compelling drumbeat, which motivates and manipulates the lives of those which live in it.
In order to understand this peculiar ethos one must appreciate the character of its founders and the era of its establishment.

Its founders were Imperialists of the Victorian era, at the height of British Empire. These early mining lords had been raised with power and were steeped in arrogance. Their minds had been fed images of pioneers and conquerors from birth: An early editor of the Rand described as follows:

"The fairy tale of childhood was the nursery of heroism, and the heroism largely consisted in lowly merit, under the influence of love and beauty, fighting and overcoming all obstacles, and the hero winning his way to wealth and power, to be shared by the beautiful princess who was the good fairy and charm and motif of the whole romance." (Johannesburg Today, 1912:18)

Africa presented the young Imperialist , the fulfilment of this dream. It had all the ingredients, the savage, the wild frontier, and gold.

"The love of adventure, of challenging chance, and wooing the fickle goddess Fortune have led daring and virile spirits from the earliest ages to scorn lions in the path, to slay their dragons, and not infrequently - as the pioneers and openers up of new countries - to fight their way to fame and fortune,"(ibid:19)

For the Victorian, this was his right of passage,

"Heroism in the old days was proved in the battlefield and attested by such proof as the Victoria Cross. It was for valour -the prime merit of a man. In later days the field of Business became largely the arena in which he could win his spurs and prove his merit - prove his valour. This was and is even a more crucial test than the battlefield. For success was won, not by one daring picturesque valiant deed, but by a multitude of self conquests." (ibid:19)

4.2.2. The Gentle Art of Fortune-making

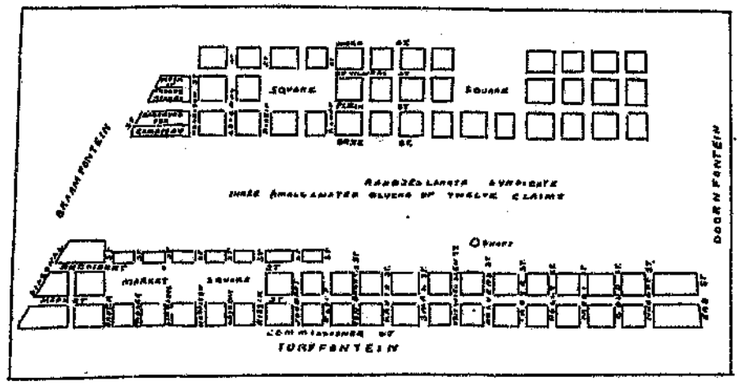
The Randlord was the epitome of success, *"They represented the knight who won his spurs - who had proved his manhood, who scorned delights and lived laborious days, who represented the chivalry of the modern time, the crusader of the nineteenth century."*
The Victorian Culture, was a strange interweaving of religion, state and personal greed. It trampled forward with blinkered intent, seldom questioning its own intentions or methodologies and seldom looking back to count the casualties. Johannesburg was for the Spartan.

"Great fortunes are often the result of great ideals faithfully followed. the motive is not usually or chiefly the mere love of self. It is not infrequently the love of country, the love of humanity, or the love of a woman. Our ambitions are strangely tinged with sentiment." (ibid:20)

4.2.3 Pillarstones: Capitalism and Empire

When eventually, the Randlords are forced to take cognisance of the plight of those around them , the writer, is appalled by those who would attempt to derail this 'righteous' crusade for the Empire!

"Naturally in the suicidal crusade against capital the captains of the South African mining industry received due attention. With an enthusiasm worthy of a better cause an organised campaign of colossal calumny for political and other ends was directed against them. Critics of such calibre could not understand the Imperial instinct, the high ideals, and self-forgetting patriotism of a man like Cecil Rhodes ... who worked himself to death ... to benefit the Empire he loved so well ... (ibid:22)



FIRST SURVEY, 1886 (AFRICANA LIBRARY)


JOHANNESBURG 1888 (JOHANNESBURG 100 YRS, 1986)


MARKET SQUARE. (NEWHAVEN, 1986)

He reminds the proleteriat that while "many of us try to be charitable to the poor. We must learn the more difficult virtue of being also charitable to the rich." These men believed religiously in Capitalism as if divinely commissioned to spread it 'throughout the earth'.

> *"United South Africa is today launching itself upon a great destiny - and epoch of incredible prosperity which will astonish the world. But the magnitude and acceleration of that prosperity must be based on the spirit of mutual goodwill. The great energy of this virile country must not be used up in the mere friction of party politics or racial differences, but wholly devoted to the development of the great riches of the country and the happiness of its people." (ibid:26)*

4.3 Apartheid City

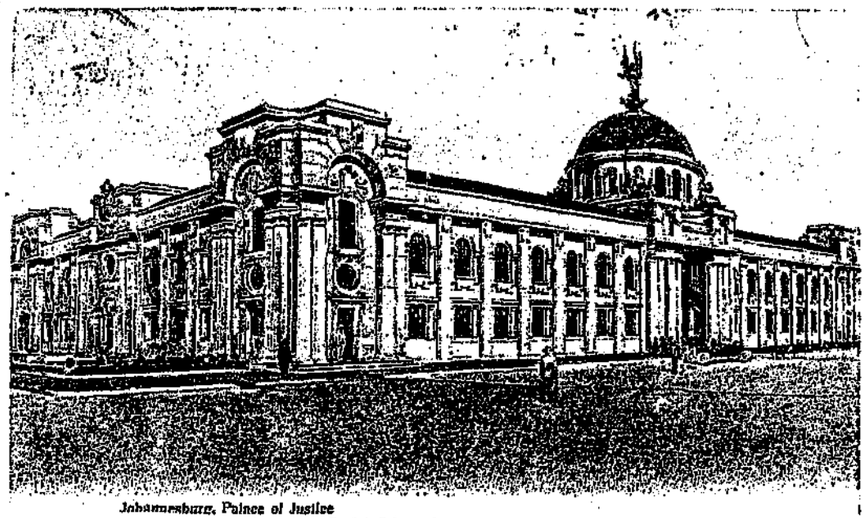
Many of the policies of racial segregation in South African cities evolved as methods developed in to control migrant labour within the mining industry. (Parnell and Pirie, 1991).

The relatively flat topography of Johannesburg did not impose any restrictions on urban growth and only modest ridges running east west and mine dumps served to form physical boundaries between race and class.
From the beginning the residential geography of Johannesburg was controlled by mining and political interests.
Blacks were allocated separate locations and were prevented by the Gold Law of 1885 from owning and residing on land that had been proclaimed for mining.
Land shortage, overcrowding and resettlement are recurrent themes in Johannesburg's black residential areas.

4.3.1 First Segregation Action:

The first removal took place in 1904 (ibid p130) when a severe plague was used to justify the destruction of the inner city 'Coolie' location and the removal of black population to a peripheral site at Klipspruit (nucleus of present day Soweto). Simultaneously, the 'Kaffir' location was disbanded to make way for a cemetery for whites.
Due to the fact that essential services were needed early in the morning and the mines required round-the-clock shift work permission was granted for the erection of compounds around the town. The need to be located near to the workplace was evident even at this stage. Black workers chose to live illegally in white areas often posing as employees of Landlords.
After the First World War the Black population of Johannesburg rose dramatically as the families of migrant workers urbanized.
Three forms of accommodation were available to those who did not qualify for housing in municipal locations, compounds or backyard servants accommodation.

- Freehold areas of Alexandra or Sophiatown allowed blacks to the privilege of purchase. (Most rented rooms in these freehold ghettos)



Johannesburg, Palace of Justice

Rand Club — Johannesburg





Commissioner Street

Johannesburg

(All photos from Norwich 1986)

- The Malay location (later Pageview)- although this was illegal, many chose to ignore restrictions because of its convenience to town.
- Many white landlords rented accommodation on commercial and industrial properties. (ibid p131)

4.3.2 Second Segregationist Action:

The Natives (Urban Areas) Act of 1923 imposed on Johannesburg the removal of 150 000 in 1931. This implied that the only address for Blacks were the municipal locations. Further removals were prevented by court action until the Johannesburg Municipality provided alternative housing (ibid p131).

4.3.3 Third Segregationist Action:

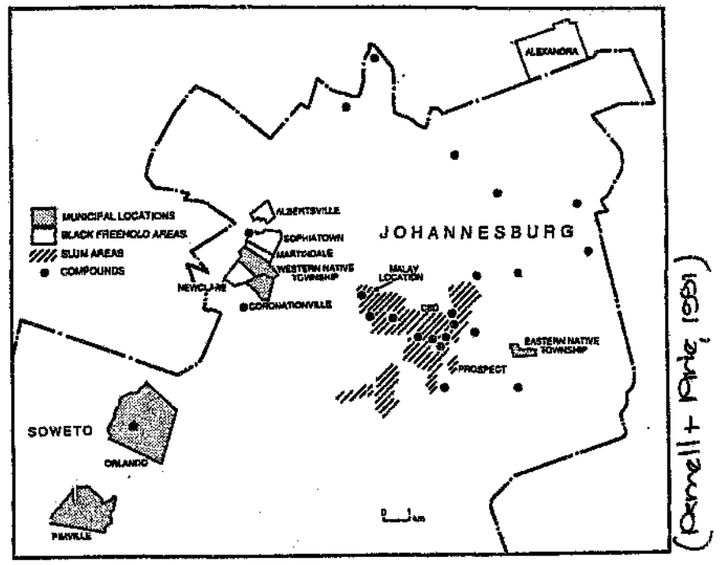
The depression years of the late 1920's and early 1930's saw an escalation in the number of poor whites migrating to Johannesburg. The abandonment of the Gold standard had resulted in a boom period for the city amidst worldwide recession. Thus, coupled with the urbanisation problem, increasing encroachment of the expanding CBD into residential areas put further strain on the availability of working-class housing. These whites found accommodation in the racially-intergrated slums which began to appear on the edges of the city

During the 1930's, culminating in Johannesburg's golden jubilee in 1936, the Municipality undertook a sustained slum clearance and public housing campaign.This action, it was hoped would fix racial separation indelibly. Ostensibly for all race groups the drive provided in practice for whites and blacks only .(ibid.)

As part of this action the houses were built for blacks at Orlando. Due to the distance to the centre city and the lack of suitable tenure (Council owned), however, many of these houses stood empty until the Second World War. Blacks who were evicted from the inner-city under The Slums Act of 1934 preferred to move to the freehold enclaves of Sophiatown and Alexandra. Continued eviction of blacks from white Johannesburg put enormous pressure on these and other freehold areas. So much so that in 1937 the Johannesburg City council decided to relocate the entire black population to a new dormitory town south of Orlando (ibid. p134)
The structures of segregation thus were at an advanced stage even before the National Party victory of 1948.

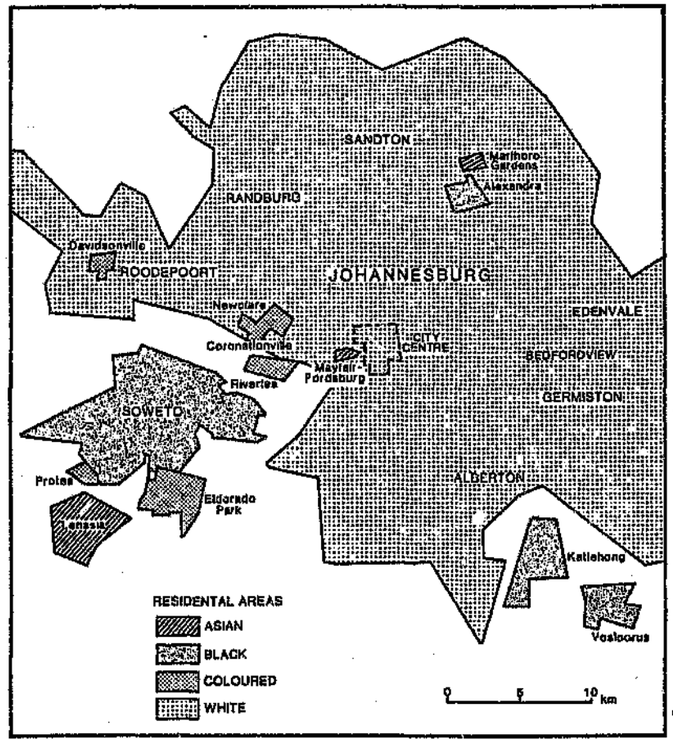
4.3.4 Fourth Segregationist Action :Central Government Intervention

Natives Resettlement Act of 1951. The first action taken by the new Nationalist government was to enact the 1937 proposal (mentioned above) by forcibly moving 58 000 blacks from Sophiatown to Meadowlands and Diepkloof. Most destructive of the ideology of apartheid was the undermining of African tenure. Title to township property was reduced to 30 years and later revoked completely in 1968.
The Indian population of the Malay location were even more badly treated by being moved 30 kilometres to Lenasia (ibid p136).



(Darnell + Pirie 1991)

Black residential areas of Johannesburg prior to World War Two



(Darnell + Pirie 1991)

Group Areas in Johannesburg

4.3.5 Bleaching of the Suburbs

By the 1970's apartheid action had achieved racial residential purity and had ended racial integration. *"Once the initial quilting had been sewn, it was easy to maintain by ensuring adherence to racial conventions in the proclamations of new townships."*
All new housing developments whether public or private ensured the entrenchment of racially exclusive residential areas in Johannesburg.

4.3.6 Failure of the Apartheid City

The dam-walling of urbanisation started to give way in the mid-1970's with the infiltration of elite white suburbs by black churchmen, foreign dignitaries and eventually the high-ranking executives of large corporations.
The 'greying' process of Hillbrow and Joubert Park and the central city served to symbolise the destruction of the Group Areas Act. The sheer numbers of the invasion of black people rendered group areas enforcement ineffective.
The initial movement of black people to central Johannesburg was primarily in response to the grave shortage of accommodation in black townships. (Pickard-Cambridge in Parnell,Pirie,1991). Although rentals in the 'white' city were higher, they could be offset against the reduced cost of travel and accessibility to a wider range of shopping and other facilities. Under the Native (Urban Areas) Act of 1923, retailing and commerce in Municipal townships were limited so that in the late 1980's there were only 1312 registered businesses to serve a population of 1.5 million (Matshabela, in Parnell,Pirie 1991). Further reasons for moving into Johannesburg were to escape the violence in the townships and to reduce travel from workplaces which had gravitated to the northern suburbs of Rosebank and Sandton. The relaxation of racial laws also meant greater access to public amenities and education facilities.

4.5 Johannesburg: Modernist City

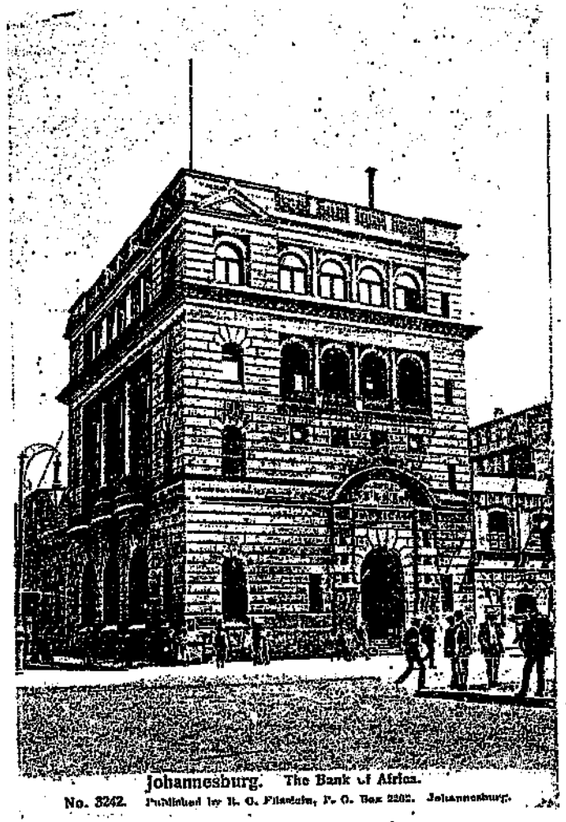
With the introduction of townplanning, coupled with the modern movement ideals, segregationist policies, an engineering bias and capitalist interests, have left the the public environment of Johannesburg severely scarred.

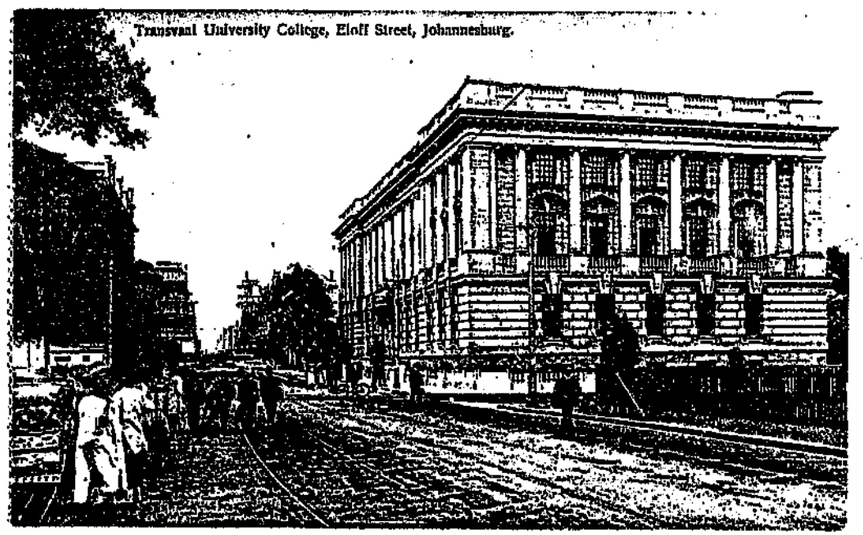
> *"The modernist city grew out of nineteenth century utopian schemes, health control plans, garden city movements, industrialisation, astphylia and the concentration of capital and the segregation of classes into mass housing and the suburbs" (Constantopoulos, 1983:14)*

Characteristics include the following:

4.5.1 Destruction of public space:

Modernists were fascinated by technological developments in engineering, movement and communication. They saw this as a means for alleviating the problems caused by the effects of industrialisation. They rejected the historical city as a model and proposed new models based on rational and technological principles.





For LeCorbusier *"The street is no more than a trench, a deep cleft, a narrow passage. And although we have become accustomed to it for more than a thousand years, our hearts are always oppressed by the constriction of the enclosing walls."* (Broadbent, 1989:129) rather streets should be designed for cars and for speed, "the street is no longer a track for cattle, but a machine for traffic, and apparatus for its circulation." (ibid:133)

Modernists developed abstract ideas about freestanding buildings which had neither front nor back and which ignored the street, square or public park. Buildings were viewed independently of their context - as objects in space. Hence the erosion of city walls which define streets and squares and the discontinuity of urban form.

4.5.2 Motor Vehicle Movement systems

The predominance of private mobility over public transport systems and pedestrian movement has dictated the structure of the modern city in which,

> *"highways, thoroughfares, and parking lots are the predominant types of open space ... and urban form consists of buildings floating around among parking lots and roadways ... cities are subdivided into homogenous districts separated by traffic arteries and vast areas of underused space within the downtown core of many cities." (Trancik, 1986:26)*

4.5.3 Land-use Zoning

Another reaction to industrialisation was the modernist principle of segregating land-uses. Attempts to sanitise human activities and to increase the welfare zonings have reduced to the city to mono-use blobs which are both functionally and economically unsustainable and visually sterile. The destructive effect of zoning has been made worse in South Africa due to the added dimension of racial zoning.

4.5.4 Urban renewal

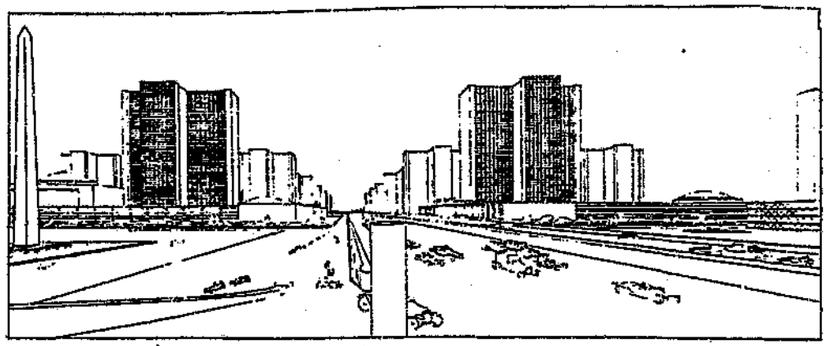
Allied to zoning, and, in an attempt to halt urban decay, Modernists proposed the demolition of large areas for reconstruction according to modern principles. In South Africa this principle was also used to justify the clearance of `undesirable' population groups. Many of these areas still lie vacant as buffer zones while others have been replaced by inhumane production line housing units.

4.5.5 Privatisation of Public Space.

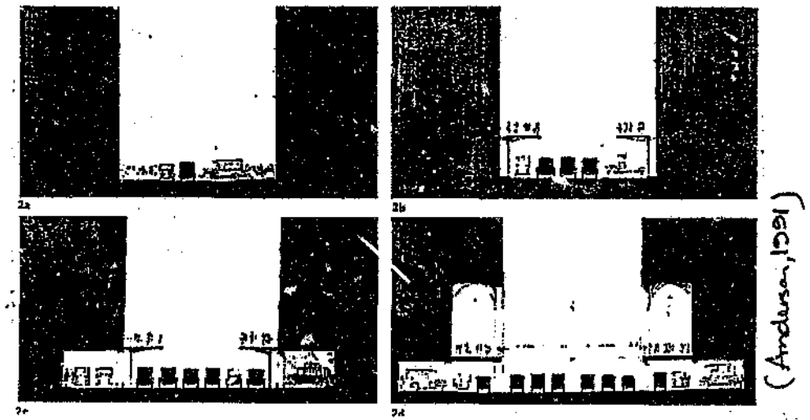
The disregard for the public realm allowed Private or Government institutions to aquire public space for the erection of 'image' buildings

4.5.6 Suburbia and Urban sprawl

Motivated by a desire to enjoy both the benefits of the country and the benefits of the city, simultaneously, Ebenezer Howard's Garden city and Frank Lloyd Wright's Broadacre city served as models for suburbia. These models are *"heavily dependent on private means and the use of expensive, resource-wasteful technologies." (Dewar and Uytenbogaardt, 1991:18)*



Radiant city - Le Corbusier (Trancik 1986)



Process to increase street capacity for cars. New York 1931. (Anderson, 1991)



Green City - Le Corbusier (Attoe + Logan, 1989)

4.6. Johannesburg: Post Modernist City

4.6.1 Inner City - Centrality as a Landscape of Power

Throughout history cities have been symbols of civilisations. Control of a city implied rulership and domination of an entire nation.
The inner city is the birthplace of the city. It is an *"image of collective memory of objective achievement and sentimental attachment to place. It marks the oldest ring of continuous settlement." (Zukin,1989:180)* Centrality is simultaneously a spatial link with history and a temporal link with economic and political power.

If architecture can abstract power, the built form of downtown -sleek, dense, tall - embodies the growing outreach of capital investment and the enormous concentration of authority where investment decisions are made. (ibid:185)

4.6.2 Inner city - Battleground

> *"As the central image and image of centrality of the modern city. downtown is also the site of a paradoxical struggle between economic and cultural values." (ibid:180)*

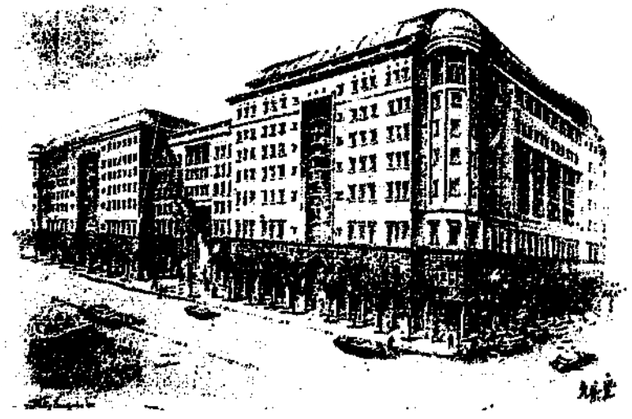
Zukin suggests that Post-modernism seeks to restructure the city according to a model which serves economic and real estate interests. It achieves this by assuming traditional urban themes which superficially represent the cultural values of the city.

> *"They incorporate downtown's segmented vernacular into a coherent landscape on the basis of cultural power. This time, too, the process of creative destruction links a new organization of production and consumption, a reorganization of power at the centre." (ibid:180)*

4.6.3 Brutalisation of the Inner city

Dominant economic institutions carve their imprint on the centre by producing what the French sociologist Henri Lefebvre calls *"abstract space"*. This space is delineated and defined by capital investment, corporate headquarters, and prestigious governmental projects. They brutalize and dominate the city, tearing apart the familiar *"cradle of accumulation, site of wealth, subject of history, centre of historic space". (ibid:183)*

According to David Harvey, the play of economic value through urban forms and spaces creates simultaneous pressures to both create and destroy. Economic values are perennially and potentially highest at the city's geographical centre. Yet these values are often absorbed by unproductive uses - banks, government offices, parking garages -that can either meet or evade landed elites' expensive demands. Thus the brutalized use of the centre, in Harvey's view, does not determine its value; instead, use follows shifts in value. When return on investment in the centre falls below the rate of return in other areas, new construction and high-status tenants move to the suburbs. The periodic decline in the economic value of capital in the centre leads to its temporary abandonment as a landscape of power. (cited Zukin, 1989)



Artist's impression of 3 & 4 First Place showing the Harrison St elevations.

(SA Architecture Jul/Aug '82)



A photograph of 6 Simmonds Street to the left, and 5 Simmonds Street to the right taken from the corner of Simmonds and Frederick Streets. This view is not longer possible as a new building is under construction on Frederick Street

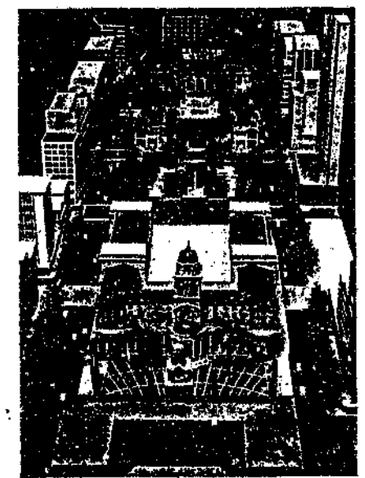
(SA Architecture Journal 1983)

4.6.4 Gentrification of the Inner City

"Gentrification is an effort to appropriate downtown's centrality -and also, by consuming it, to enhance its economic and cultural value." (Zukin 1989:186)

While a "rent gap" reflected the cyclical loss of economic value at the centre, some private-sector institutions - mainly banks and insurance companies, the offices of foreign-owned corporations, and financial services - remained committed to a downtown location for its symbolic value. (ibid)

... market culture has emphasized consumership over citizenship. ... a social return on investment to citizens rather than shareholders' financial returns,... (Zukin, 1989:275)



The model of the Civic Spine development viewed from the east

PART FIVE
STATEMENT OF NEED

> *"It is essential to manage the growth of South African cities so they work well for the lowest common social denominator: people who are dependent on pedestrian and public transportation movement and those who are forced to seek a livelihood in small-scale, self-generated employment." (Dewar and Uytenbogaardt, 1991: 88)*

The needs of our society are so great and our resources so limited that we cannot intervene without a comprehensive understanding of need. Appropriate urban design in our time requires an understanding of the needs of the *'real world'* (1) in which we live in order that each intervention maximises the benefits for all.

> *"Need" refers to human needs and requirements: appropriate urban actions and decisions relate to, and are grounded in, the real needs, requirements and priorities of urban dwellers. It is the identification of these needs which is the basis of relevant ideas and which provides a critical capacity in reviewing or developing urban plans. (Dewar and Uytenbogaardt , 1991:15)*

5.1 Relationship Between Man and City

Cities are made by man essentially to fulfil a particular purpose, usually social or economic. Thus, cities are shaped and controlled by human action and the human mind. The city, as a product of human creation outlives its creators. Over time they become entities of their own and begin to exert control over, and shape the lives of those that live in them. Churchill once remarked, *"We shape our buildings, thereafter, they shape us". (Source- Unknown)* The city is a product of man, and man, a product of his city.

In the context of restructuring on the basis of need, therefore, "need" must be examined in terms of the following perspectives:

a) **Human needs** - for which a cities are created.
b) **City needs** - needs which sustain the organism of the city.
c) **Ecological needs** - needs which sustain natural processes

5.2. Sustaining Human Life

> *"Design should be concerned with the organisation of human communities" (Lozano,1991:14)*

> *"If cities don't start dealing more constructively with poverty, poverty will start dealing more destructively with cities" (Mandy,1991:20)*

5.2.1 Urbanity

Uytenbogaardt and Dewar describe the desire to live in the City as a quest for urbanity. Urbanity, they define, as positive qualities inherent in urban areas which have the capacity to free and stimulate individual creativity (1991). Dewar (1990), explains that this desire is driven by the need to experience the economic, social, cultural and recreational opportunities which are generated through the physical concentration of large numbers of people.
Urbanity is achieved by environments which are properly structured. Proper structuring is based on appropriate actions which in turn, are grounded in the real needs and requirements of urban dwellers.

5.2.2 Survival in the city

To survive in the city requires the learning of certain urban skills. The most fundamental of these is to earn a living, to find shelter and to develop a social support network within the community.
The physical structure of the city and policies of urban management can serve to assist or obstruct this learning/survival process. Factors such as Urban Generation, Accessibility, Collectivity, Freedom and Empowerment are vital to enabling survival in the city.

5.2.3 Urban Generation

Of particular importance in developing countries, where rates of urban growth are extremely rapid and there are high levels of poverty and unemployment, is the need to generate opportunities for small-scale, self-generated economic activity. In many of the cities of these countries, the formal economy is simply unable to absorb new entrants into the job market. These people frequently have no option but to seek survival through self-generated employment, usually in the so-called "informal sector". Finding places to manufacture, trade or provide services at no, or very low, overheads within the urban system is vital to the survival chances of these people. "*The overwhelming need is to turn South African cities into efficient economic machines.*" *(Dewar 1989:18)*

An important part of generation, therefore, is allowing people sufficient freedom to manoeuvre, in order to find opportunities to express their own ingenuity and creativity.

5.2.4 Accessibility

> *"... all urban inhabitants should enjoy relatively easy and equitable access to urban opportunities ... the marginal cost of overcoming access-restricting barriers, of which distance is one, for the more wealthy is low while the equivalent cost to the poor, who perpetually sit on a knife-edge of critical trade-offs is very high. (Dewar and Uytenbogaardt 1991:16)*

This aspect has both spatial and aspatial dimensions:

Spatial accessibility - involves the structure of the city. The location of workplaces, markets or urban amenities, distances between them and the mode of movement between these affects the ability of the urban dweller to survive in the city. The primary physical barrier to ease of access is the cost of overcoming the friction of distance. The best situation is when people can gain access to most necessary daily activities on foot.

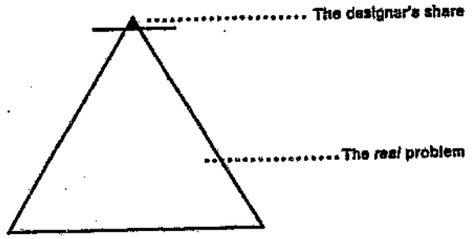


FIGURE 1: THE DESIGN PROBLEM

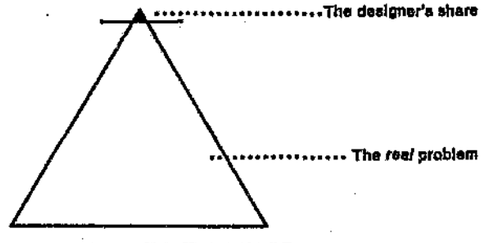


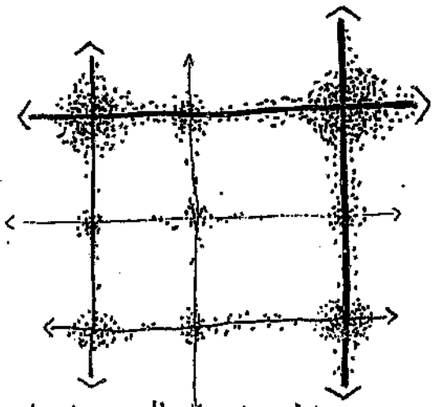
FIGURE 3: THE WORLD

(Papanek, 1985)



(Halprin, 1963)

Survival - Opportunities



trades collect at points where population movement is the greatest (Dewar+Watson, 1991)

Movement on foot, therefore, should define the primary scale of urban development.

> *"the degree to which urban living is dependent upon the car defines the degree to which the poor are spatially marginalized and materially impoverished by city form ... If the urban poor are to gain physical access ... an efficient, viable and co-ordinated public transportation system is a prerequisite, it is not an option." (ibid:18)*

Aspatial accessibility - deals with the need for an appropriate urban policy directed at breaking down the economic, political, regulatory, attitudinal and other barriers which prevent people from fully entering, and participating within, the mainstream of urban life.

5.2.5 Collectivity

- Collectivity for Security - Social interaction is a vital human need. *"The complex social networks which take root in urban areas, many of which have a defined geographic focus, are of profound significance. They provide the first, and frequently the only, form of social security and insurance; they are fundamental in processes of urban socialization; and they radically affect the quality of life of urban dwellers." (Uytenbogaardt and Dewar, 1991:17)*

- Collectivity for Innovation and Survival - Innovation and Diversity are the driving forces behind urban development. These in turn are dependent on the extent of exposure and social exchange which occurs. Cities of great interaction also tend to be the most innovative. City design should enable urban environments which promote interaction and communication. This policy will require that urban management strategies focus on collective activities rather than on private needs. (Uytenbogaardt and Dewar, 1991)

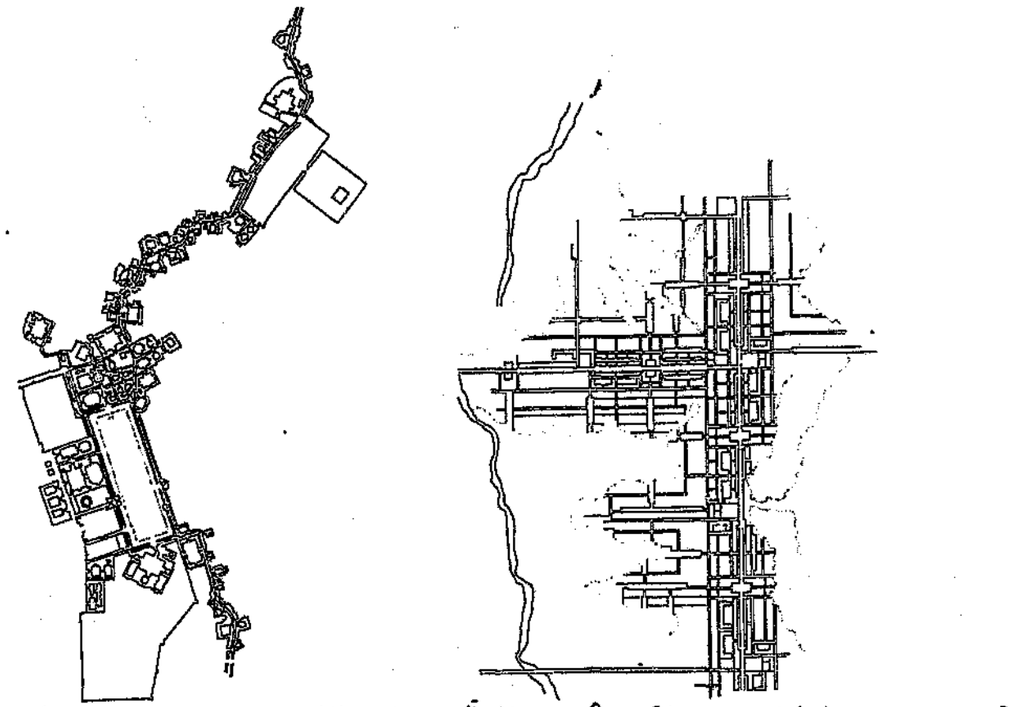
5.2.5 Individual Needs

Maslow's Hierarchy of needs is listed here. (Gerdes et al, 1981). The first four are deficiency need while the fifth is considered a growth need:

- Physiological Needs - hunger, thirst, sex, health and shelter.
- Security Needs - protection, predictability and order.
- Needs for Love and Belonging - a need for affection, relationship, friendship and acceptance
- Needs for Esteem - prestige, power and achievement
- Need for self actualisation and stimulation - exposure to stimulatory (mental and sensual) environments. (Dewar and Uytenbogaardt ,1991)

5.2.6 Current Survey of Human Need in Johannesburg:

(See Appendix E)



Hatfield + Marianhill – Accessibility on foot (Dewar + Uytenbogaardt, 1991)



Collectivity (Alexander, 1977)

5.3 Sustaining an Economic System

Socialist economies are characterised by excessive governmental intervention and control. They manipulate the economy artificially to achieve a desired social condition. This system relies heavily on profitable enterprises subsising less-profitable ones. To sustain such a system requires constant Government intervention to maintain the balance. Consequently, individual accessibility to the economy, competition and incentive are considerably reduced.

Capitalist economies are on the other hand characterised by minimalist Government intervention and are regulated by 'market forces'. Accessibility and competition are, in principle, unrestricted. Capitalism is, however, characterised by monopolisation exploitation. It is often stated that 'the rich get rich, and the poor get poorer' - Underlying this statement are the subtle restrictions which deny access and inhibit upward mobility.

A Free Market is, in the view of the author, the most sustainable economic system. This permits open competition, allowing the forces of supply and demand to dictate prices. `Free', implies complete deregulation and no favourable government taxation clauses or incentives for large enterprises. Government intervention is restricted to creating the infrastructure which will allow people to `climb the ladder.' This would include public transport, public housing (rentable), public marketplaces, social and education facilities. This will provide the `rungs' of the ladder which provide the incentive to climb.



Infrastructure which allows people to climb the ladder. (Dewar + Watson 1981)

5.4 Sustaining the Ecological System

5.4.1 City as a part of Nature

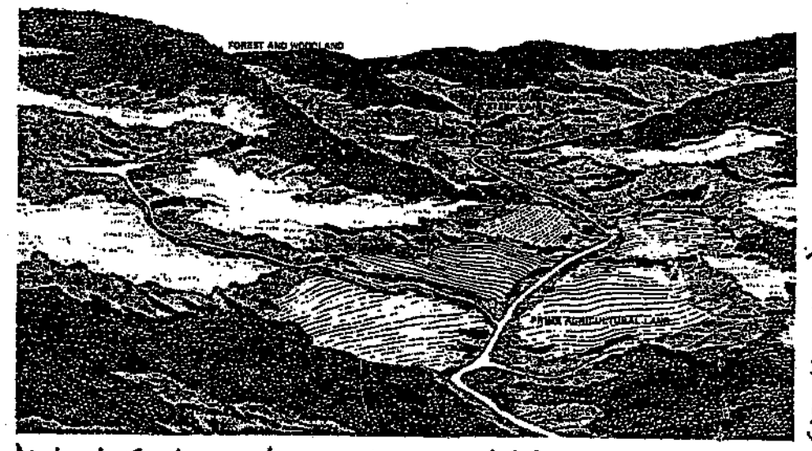
- Urban growth and development has to be balanced with its impact on natural processes. Human intervention has to be seen as the reordering of the natural environment. The new order must allow for the continuation of natural cycles.

> *"the future of human communities whether rural or urban, is inseparable from the future of the natural environment in which they are situated" (Gasson, 1989:6)*

Human demands on the Landscape:

- Landscape is the resource base for sustaining human life
- Landscape is a waste sink for absorbing and recycling domestic and industrial waste
- Landscape is a context for human living. (ibid:6)

> *"The city and its landscape exist in a totally intertwined functional, sensory and psychological relationship." (ibid:7)*



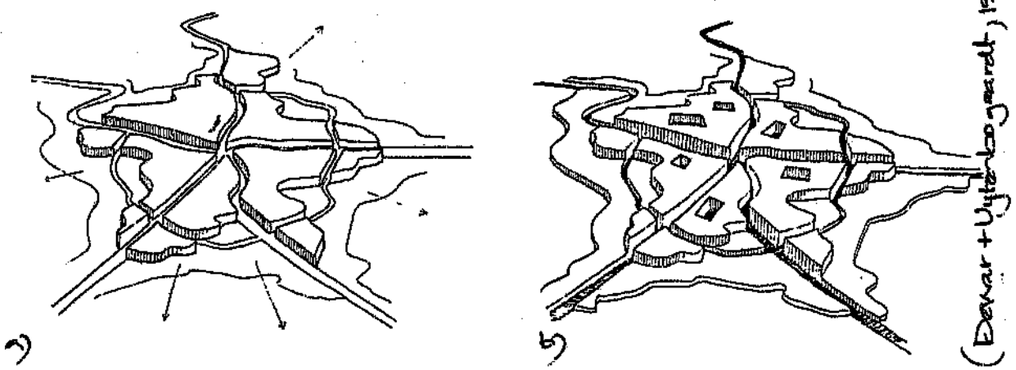
Natural Systems - topography + vegetation - (McHarg 1971)

Landscape demands on cities:

- cities should be a biological community dependent on the same processes of production and consumption, decomposition, and reproduction as any other biological community.
- cities should be as natural a part of the landscape as any other sessile community.
- the city should be a work of art, aesthetically complementing rather than competing with the landscape. (ibid:7)

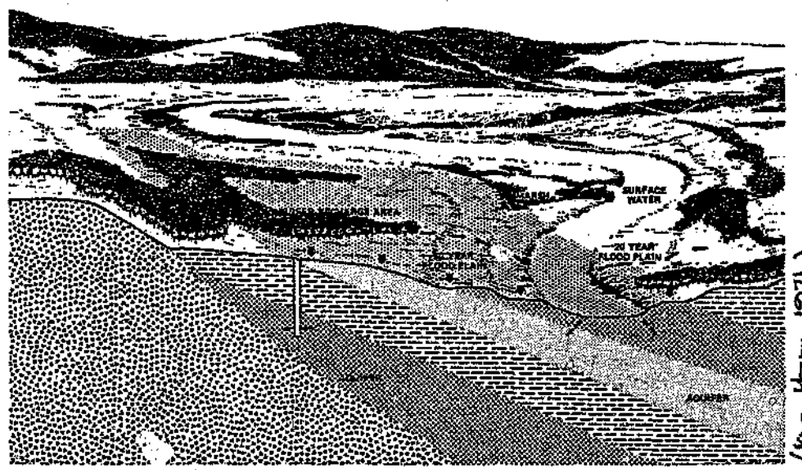
For a sustained balance between the city and landscape to be maintained , certain factors need to be considered:

i. Fixing of existing urban open spaces with the aim of creating continuous 'fingers' of open space from the inner-city to the hinterland especially along river courses and on ridges.
ii To install environmental management programmes and reclamation projects to deal with pollution and wasted landscapes.
iii. To ensure that all urban interventions are fundamentally based on the principles of sustainability and appropriate technology.
iv. To focus on environmental programmes which encourage community awareness of related health issues. (Wood et.al 1993)
v. To encourage programmes which promote conservation in terms of our limited resources: water, energy and air. To promote the idea of a compact city as means of achieving this.
vi. To challenge the manicured images of public open spaces and promote the idea of urban agriculture and community forests. The latter notion is more conducive to ecological balances and presents more efficient land-use in the present climate of poverty.



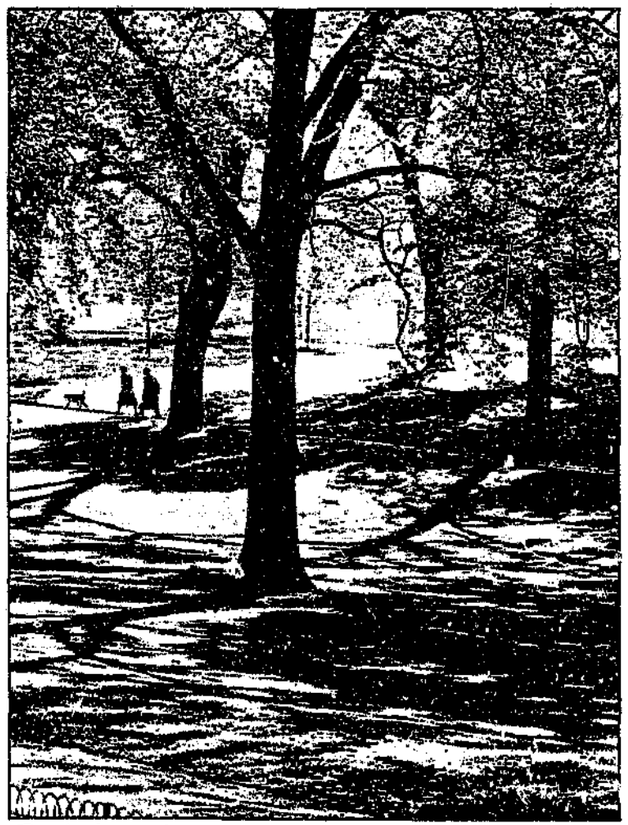
(Dewar + Uytenbogaardt, 1991)

Diagrams illustrating a) uncontrolled urban sprawl b) remedial actions necessary to retain a remnant contact with nature



(Mc Harg 1971)

Drainage systems.



(Halprin, 1963)

Continuous thread of natural space.

PART SIX
ASPATIAL RESTRUCTURING

"Will the cities of the Third World survive the next few decades? The answer may well depend on whether or not we have the perceptiveness to search out and recognise the stones and trees ... as they gradually coalesce into the new landscape ... to find the new landscape, we must start with an overview; we must examine the entire system we call 'city' and try to identify those living patterns, those life-styles, which are optimal in their totality - including roads, services, schools, transportation systems, social facilities and, of course, the hous' ; units themselves." (Correa,1989:120,124)

6.1 Concept and Ideology

6.1.1 New Rungs in the ladder

The most pressing problem faced by Johannesburg as it approaches a new order and a new century is how to address the fact that it does not serve the needs of its greater population

"Most Third World primate cities came into being as an interface between colonial powers and the hinterland. The colonials developed them for their own ends - on a scale and with an economic and physical structure that suited their purpose. After independence, these cities entered a period of rapid growth with no upper limit in sight. In most cases, the new national governments have paid little or no attention to adjusting to obsolete city-structures." (Correa, 1989:25)

6.1.2 A Definition of Structure:

Spatial Structure :

"Structure, refers to creation of the spatial geometry of settlements (the geometry of point, line, and grid or web) to which human activity responds and by which it is ordered." (Dewar and Uytenbogaardt, 1991:23)

Structure could also be defined as the configuration of spatial patterns made by elements such as public space, movement, green space, etc.
Restructuring thus implies the reconfiguration of these elements to reorganise human activity. Uytenbogaardt and Dewar (1991) classify two different types of action which constitute restructuring, namely:

A ***structural action*** - a proactive intervention in the spatial order to create opportunities for people
A ***controlling action*** - a restrictive intervention which creates limitations in order to preserve a perceived value of or related to a particular human activity.

Aspatial Structure:

Structure also encompasses aspatial ordering systems. One speaks of a political, economic or social structure. Similar actions can be applied to these orders which enhance human opportunity and life quality. Restructuring the aspatial order requires both structural action and controlling action. The abolishment of the Group Areas Act was such an action.

6.1.3 A Common Vision for the city

"Where there is no vision the people perish" (Proverbs 29:18)

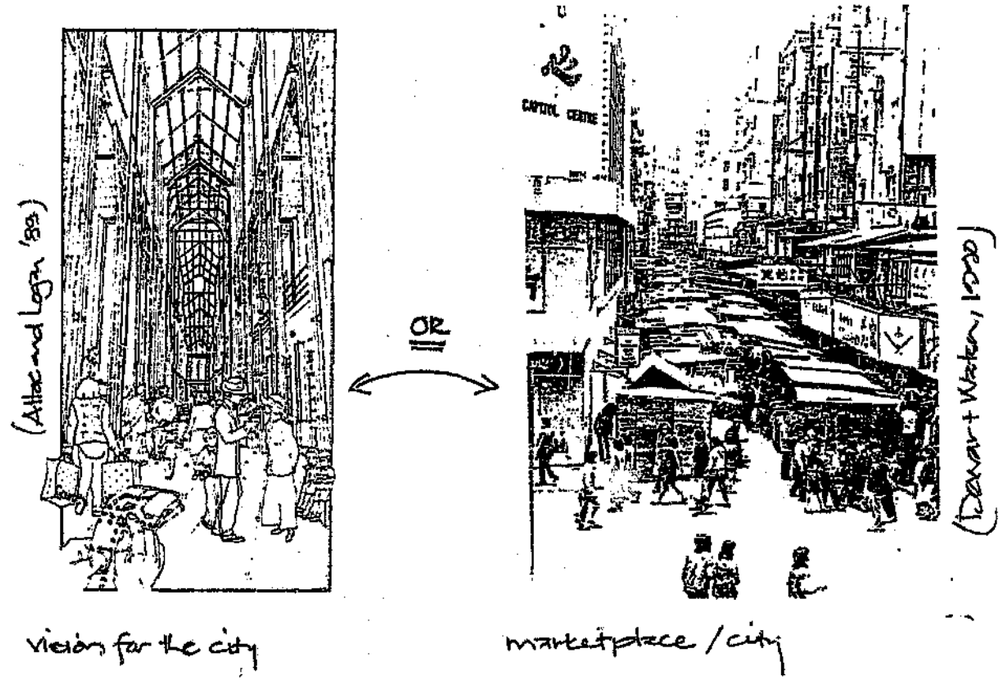
Restructuring of the city requires a common vision - a vision which belongs to everyone. This vision could be a collection of images which synthesise the needs and aspirations of its citizens. A vision is essential in describing the goal towards which restructuring is directed. It is also essential in terms of consolidating the human energies expended in remaking our cities.

6.1.4 Obstructions to Restructuring.

A major obstruction to restructuring is the confusion surrounding an understanding of what `city' should be. In Johannesburg a number of perceptions are held which restrict the formulation of a common vision:

- City - a machine for making money.
- City - a symbol of corporate power.
- City - a museum, a catalogue of artifacts (representing a life that once was and is no more ...)
- City - a scrapyard of buildings which have outlived their use.
- City - a place for the poor

"There is a quality even meaner than outright ugliness or disorder, and this meaner quality is the dishonest mask of pretended order, achieved by ignoring or suppressing the real order that is struggling to exist and be served ... It is futile to plan a city's appearance, or speculate on how to decorate it with a pleasing appearance of order, without knowing what sort of innate, functioning it has." (Jacobs, 1961:15)



6.2 Restructuring the Aspatial Realm

The study of urban form (urban morphology) is the study of the causes which contribute to forming and modifying the physical structure of the city (Gebauer,1981). The city is a physical manifestation of dynamic forces (Political, Economic and Social) and of the physical presented by the natural topography and climate. Restructuring the physical environment cannot be considered in isolation of the non-physical forces which have given structure to the existing city

It is likely that physical restructuring is going to take place naturally, without any plan, as a response to the changes taking place in the political, economic and social order. It is the aim of this discourse, however, to anticipate these changes, and to establish urban design principles which will guide the process so that the city structure may be ordered

to better serve the needs of its inhabitants and immigrants. The aspatial characteristics of structure will therefore be briefly considered here

6.2.1. Political Restructuring

> *"The process of city administration is invisible to the citizen who sees little evidence of its human components but feels the sharp pain of taxation. With increasingly poor public service, his desires and needs are more insistently expressed." (Alexander, 1977:71)*

- City government must be structured to allow adequate representation of all its citizens. Office bearers should be democratically elected from the geographical areas in which they live and represent. This would allow greater accessibility to the political system at a local level. It will also contribute to greater accountability.
- City government services should be decentralised so that they are more accessible and permit greater efficiency of service to the communities they serve. Where feasible, functions which are presently performed by city government should be localised to reduce the size of the present bureaucracy in order that the burden on taxpayers be reduced. This will give local civic organisations greater control over decisions and the allocation of resources.

6.2.2. Restructuring the Urban economy

Exchange of services and goods was one of the bases for city establishment in history. The economic system is a fundamental element of city structure. Since the Second World War, however, the economy has become increasingly formalised and centralised. Vested interests, both private and governmental have, via health and other regulations, developed monopolies on the sale of basic food items and essential services. What is required is greater accessibility to these facets of the urban economy and to greater equity, dynaminism and diversity within the economic system.

- **Cities: The Wealth of Nations**

Jacobs (1985) contests that nations are mistakenly considered by economists as the base entity for an economy. She maintains, that cities are the actual bases of an economy and that, in reality, a national economy is merely a collection of city economies. The city-state, therefore, is the ideal model for examining the structure of an economy. (Jacobs,1985)
From an urban design position, it can therefore be deduced that because the physical structure of a city affects the economic performance of that city, restructuring the physical structure (by optimising infrastructure and accessibility) would enhance the wealth generation capability of that city.

> *"Any intervention we make on the urban scene, therefore, should aim to increase economic activity in these areas."(Correa, 1989 :21)*

- **City as an Economic Ecosystem**

The greater the diversity, the stronger, richer, and more sustainable the ecosystem. Likewise, a city of great diversity will exhibit a richer quality of environment, and an



Hardy Botha
'DAKAR'
(Source: Leadership Magazine 1988)



(Reconstruct, Jne 1992)

economically more sustaina ble one.
If this analogy is assumed to be true, the role of urban design in restructuring the physical environment should be to allow for the greatest diversity and complexity of activities. An important consideration for Urban Design thus, is the indirect effect on the economic viability and sustainability of communities.

- **Economic Growth**

Jacobs (1961) ascribes economic growth to the following factors, which attribute the strength of an urban economy to the ability to replace imports and generate exports:

> *"Economic life develops by grace of innovating; it expands by grace of import replacing. These two master economic processes are closely related, both being functions of city economies." (Jacobs 1985:39)*

Diversity can be attributed to the local production of all goods and services a community needs. As a city begins to reduce its dependency on other cities it becomes a more sustainable entity. This process is dependent on human innovation which is in turn dependent on the social and mental interaction generated within large concentrations of people. For the urban designer, the implications are a greater emphasis on accessibility and the optimisation of public infrastructure and increased density of human habitation.

- **Deregulation and Freemarkets**

The development of a diverse and vibrant local economy is dependent on the informal economy. A major obstruction to the development of the informal sector are:

- The inaccessible location of public infrastructure such as public markets and transportation interchanges.
- Over-regulation of health and environmental bylaws.
- The monopolisation of certain goods and services, often assisted by the above.

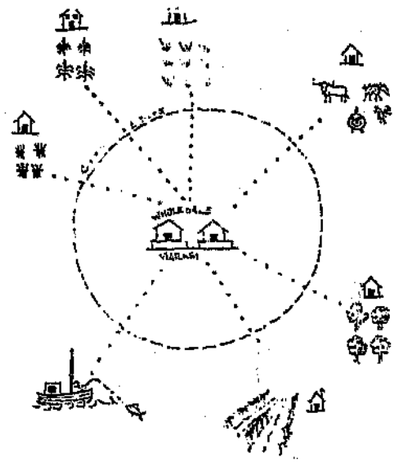
Dewar and Watson (1991) cite a lack of access to basic resources of production as a major hindrance and blame this on the the fact that these resources are monopolized by the formal sector.

> *"the oligopolistic organization of the product markets leaves for informal activities those segments of the economy where minimum size or stability conditions are not attractive for oligopolistic firms to ensure the realisation of economies of scale and to guarantee an adequate capital utilization." (Ibid:6)*

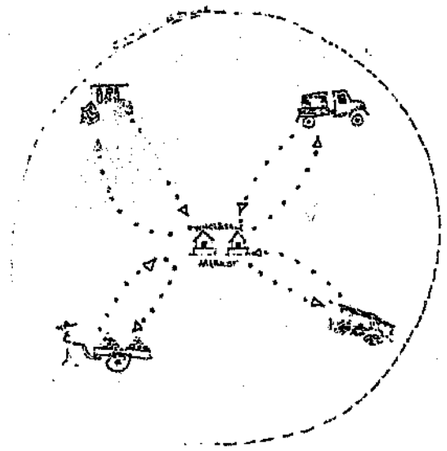
They maintain that to address this problem policies must be formulated which are directed at and benefit the smallest, most fragile economic enterprises. The most effective policy actions they suggest," *are those which increase the room to manoeuvre for small operators by creating additional and better options." (Ibid:9)*

However it has to be noted that:

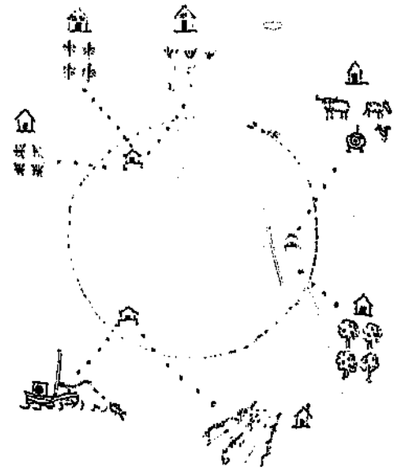
> *"because of the dependent relationship between the capitalist sector and the petty commodity sector, policy solutions designed to assist the latter almost invariably end up by promoting the former." (Moser, in Dewar and Watson, 1991:9)*



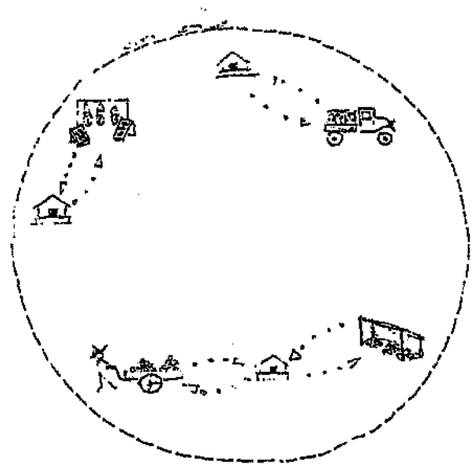
A centralized wholesale market increases the distance between producer and wholesaler



A centralized wholesale market increases the distance between wholesaler and small retailer



A decentralized wholesale system shortens distances between producer and wholesaler



A decentralized wholesale system shortens distances between wholesaler and small retailer

All diagrams from Dewar + Watson (1991)

The implication of this argument, they state, is that in capitalist systems, it is impossible to pre-empt the operation of the market:

> *"The best that can be done is to create the widest possible range of opportunities and to make every effort to ensure that even the most fragile concerns can benefit from them. The wider the range of choices, the greater the `manoeuvring' or `survival' space for small operators and the greater the possibilities for all. (Ibid:9)*

- **Public Marketplaces as a Catalyst**

Dewar and Watson maintain that the facilitation of a system of urban markets (the physical agglomeration of small traders and producers) would serve as powerful instrument for stimulating informal-sector activity:.

> *"If appropriately handled, it increases the sense of security of operators by "legalizing" their activities, and it allows more small entrepreneurs in genuinely viable locations than would be the case if such a policy did not exist. Further, it improves the trading environment for small traders at little or no overhead cost, thereby increasing their competitive position vis-a-vis larger, more formal enterprises." (Ibid:10)*

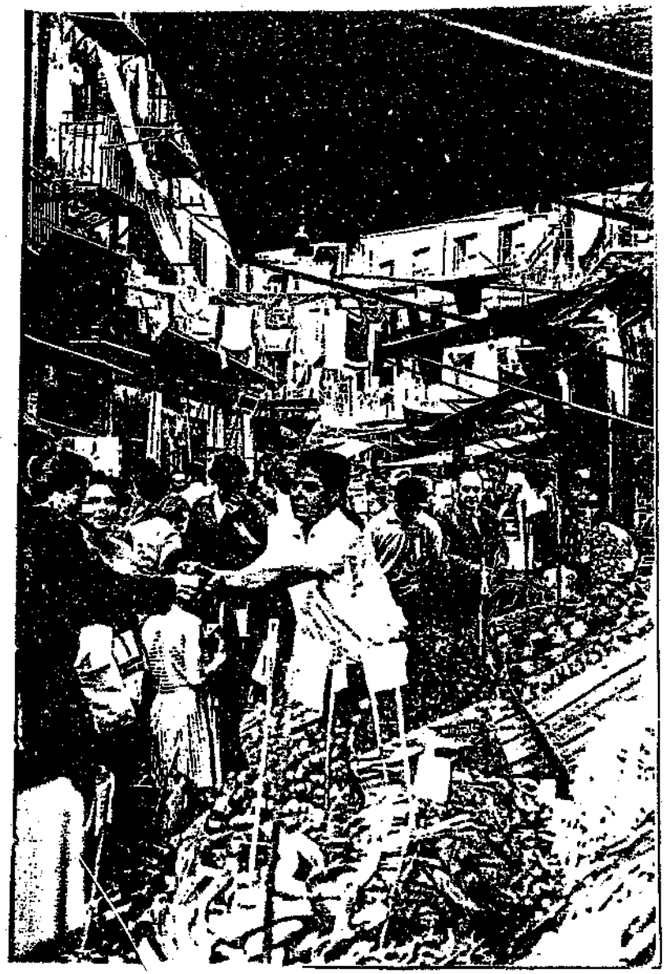
- **Unbundling as a Catalyst**

The unbundling of large centralist organisations such as local and national governments and many private corporate companies would allow access to many of their inefficient and uneconomic activities. The unbundling of state and parastate monopolies such as transport, communications, agriculture, energy production, etc would significantly contribute to the diversification and intensification of these activities. On a local level, many of the services, could be contracted out to more efficient small entrepreneurs. Similarly, the in-house activities of many private corporations, such as internalised canteens etc. ,could be externalised to stimulate entrepreneurial activity and generate greater diversity within the city.

- **City Government as catalyst**

Correa has shown in India that the decentralisation of central and local Government functions can serve as catalysts for generation of new parts and the regeneration of stagnant parts of the city by creating concentrations of people to stimulate the local economy.

> *"In most Third World countries, the State has a high profile indeed, controlling `the commanding heights' of the economy, so that government jobs have a high multiplier effect. If we are to generate new urban growth centres within the limitations of our economy and our resources, we will have to find techniques for re-using key inputs of the urban equation several times over. As soon as a healthy and sustained growth is assured, some of these ingredients must be remarshalled and used again elsewhere. This is like a technique for grafting trees. Or perhaps a better analogy would be a travelling circus - the government pitches tent every 20 years and generates the process of urban growth; then moves on. (Correa 1989:99)*



(Rudofsky, 1969)

PART SEVEN
SPATIAL RESTRUCTURING

The primary objective of spatial restructuring is to achieve a city which by nature of its physical form is functionally efficient, sustainable and serves the needs of its citizens. Although the essential focus of this discourse is an intervention in the inner-city, *"the liveablity of local areas is profoundly influenced by broader city decisions" (Dewar and Uytenbogaardt, 1991).* For this reason it is important that the inner city restructuring not be seen in isolation to the wider structural problems existent in the greater city. Thus, it is important that restructuring principles be established at a broader scale in order to determine a context restructuring at a local level.

- **Scales of Restructuring:**

This sub-section will deal with the establishment of principles and the definition of structural elements at the following scales:

a. **Metropolis**
b. **City**
c. **Street**

- **Models for Restructuring**

Most of the cities from which we draw our urban experiences, theories and precedents are either European or American. Our cities manifest this heritage in their physical and technological form. To utilise these cities as models for retructuring would, however, ignore the great disparity been the scale of our economies, needs and values. We have neither the culture nor the finance to afford aesthetic imitations and clonings.
Simply stated, appropriate models for the South African cities should be those which confront similar problems to those of our own, particularly those which deal with the interface the developed and developing city. (see p) These are cities which have incorporated the benefits of modern technology without allowing it to destroy the historical simplicity of form, accessibility and mixed-use.

- **Theoretical Resources**

In an attempt to deal with the unique hybrid of `developed' and `developing' city which exist in South African cities, the author has selected universal principles from both modern and medieval cities which can also be appropriated to the inner-city of Johannesburg.
At the Metro/City scale: The author has relied heavily on principles established by Dewar and Uytenbogaardt and Wood based on their study and understanding of local conditions and, Correa, who echoes similar principles based on the restructuring of Bombay.
At the Inner-city/Street scale: Due to the economic and functional bias of Johannesburg which closely relates to the development dynamic of American cities, the author utilises theories of Attoe, Logan, Barnett and Anderson. The studies of Dewar, Alexander, Jacobs and others are drawn on extensively to address the human aspects of restructuring which are often ignored in the capitalist development process. The human aspect represents the major focus of this discourse.

7.1 Metropolitan Restructuring

7.1.1 Concepts Underlying Metro/City Restructuring

The following issues are concerned with a desire for good city form and for greater efficiency in the general structure of the city:

- ***Accessibility:***
  The above notion is the primary objective of the concepts which follow. City is about opportunity and benefit. Accessibility has to with the way the physical environment can assist or obstruct people's attempt to capitalise on the opportunities and benefits.

- ***Compaction and Increased Density:***
  "It is essential in order to maximize the generative capacity of urban systems. The more compact the local market, the greater the range of potential economic opportunities which present themselves to all inhabitants" (Dewar and Uytenbogaardt, 1991:44)

  Compactness also permits greater accessibility by reducing the need to travel. Thus, a greater range of services can be accessed and thus supported by people without cars.

  "A direct relationship of work and residence which not only avoids commuting but is simple enough to encourage family businesses - which means more economic activity in the bazaar sector, just where the jobs are most needed." (Correa,1989:67)

The process of Compaction involves the intensification of land-use and activities around nodes, around urban corridors, along activity spines, and the intensification of the urban fringe.Densification implies an increase in building density (number of buildings per erven) and occupancy density (habitable population per erven).

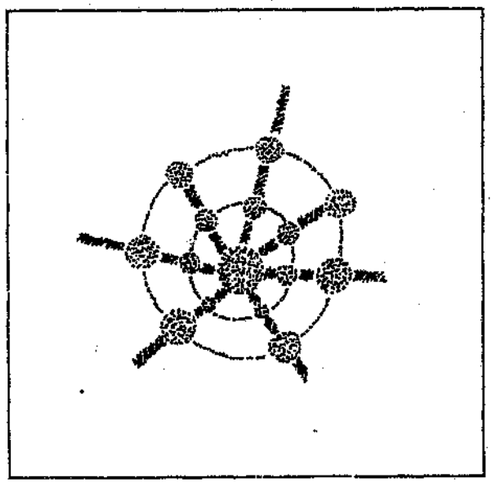
- ***Urban Integration and Continuity***

It is necessary to seek continuity of urban development, in order to allow the cities to operate systemically, rather than promoting fragmentation. Urban sprawl has given rise to a segregated and dysfunctional urban system. Urban integration entails `pulling together', a stitching together of the urban activities and land-uses , essentially by promoting *"continuity of urban fabric and the full utilization of the potential of connector routes." (Dewar and Uytenbogaardt , 1991:46).*
Continuity of the urban fabric can be achieved by assimilating vacant land into the urban fabric (urban infill) and by locating movement systems so that they generate activities along them. (Wood et.al 1993).

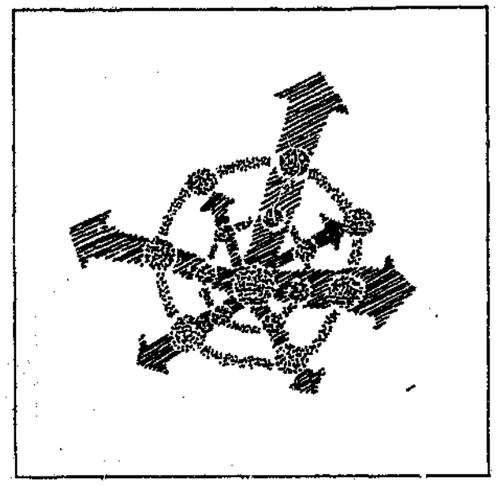
- ***Connectivity / Activity Corridors:***

  "... a public transport system is, almost by definition, a linear function. It is viable only in the context of a land-use plan which develops corridors of high density demand." (Correa,1989:64)

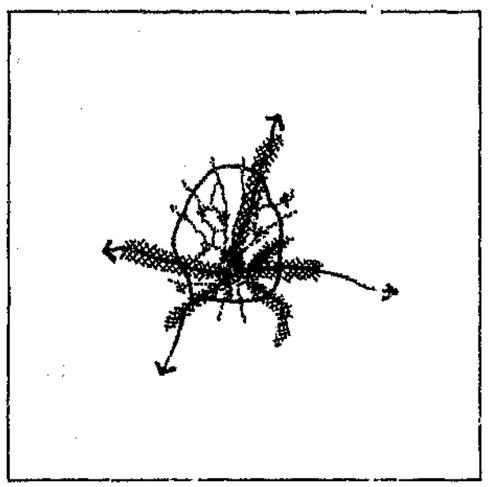
Metropolitan Intervention:



Matching Urban Form and Transport
Efficient Movement

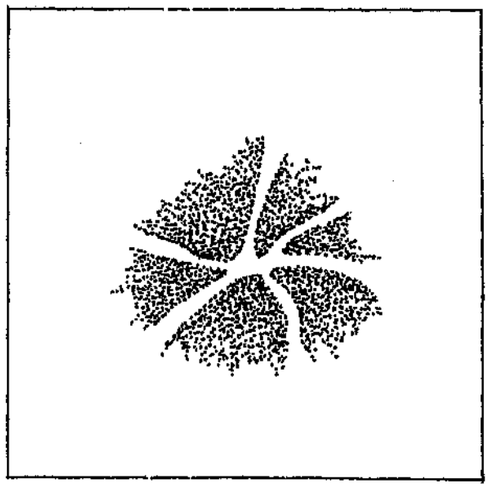


Matching Urban Form and Transport
Creating Coherent Form



(Source : KSF, 1993)

Metropolitan Intervention
Reinforcing the structure



Metropolitan Intervention
Densifying Interstitial Areas.

They are essentially movement corridors which connect people with the city. Due to the opportunities which are generated along these channels, densities are usually higher. This in turn permits efficient public transport which again, increases the desirability of these locations, the intensity of land-use and the generative capacity of the corridor.

- ***Complexity:***

Complexity of urban processes: In order to understand the urban problem, we often make the mistake of compartmentalising the problem into simple sets of issues. The process of urban development, however is a complex one. To compartmentalise issues is to lose the connections between problems and the opportunities they often generate. The process of urban development is a complex one, involving many players and vested interests.

"... it is vital that urban management agencies adopt pro-active, rather than control-oriented, reactive, management positions. What is required is a sensitive understanding of the problems which people face and bold, innovative and creative actions to take these on and to increase peoples' choices. The scale of the problem demands the courage to re-think from first principles, to experiment and to change. (Dewar and Uytenbogaardt, 1991:88)

- ***Collectivity:***

Collectivity entails a greater emphasis on public use than on private. Collective space and social infrastructure are the essential elements around which the urban systemn should be structured. Collectivity optimises social investment by increasing the variety and frequency of use.

- ***Extroversion of resources:***

This notion relates to the exposure of public amenities and activities. This implies that social infrastructure should be located where it can be exposed to optimal use, ie along connector routes. (Dewar and Uytenbogaardt , 1991)

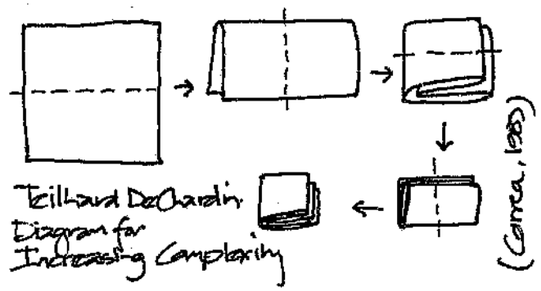
7.1.2 Elements of Metropolitan Structure

- ***Regional Open Spaces***: Open space at the city edge, which in medieval times would have more easily defined as the space beyond the city wall. In post-industrial and more recently, suburbanised cities urban sprawl has blurred this edge creating a zone which is neither rural nor urban. Apart from the negative environmental problems, a further consequence, is that neither the benefits of urban or rural life can be enjoyed.
- ***Urban Open Space***: This system can be separated into public hard space, such as city squares or plazas, and public soft space, such as public parks, recreation fields and river systems.
- ***Urban Agriculture:*** Urban agriculture is the activity which utilises regional open space. It is important to distinguish urban agriculture as an important part of the urban system. Its integration and proximity to the urban system are vitally important to the sustainable future of the city.



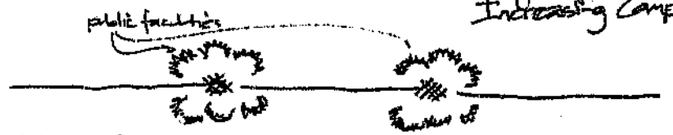
(Norberg Schultz 1979)

linear Village Copenhagen, Lazio

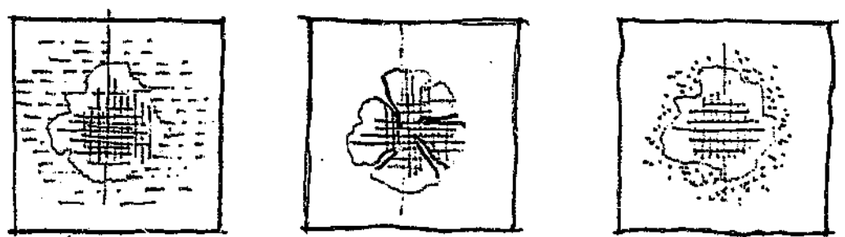


Teilhard DeChardin Diagram for Increasing Complexity

(Correa, 1985)



Extroversion of resources around transport terminal

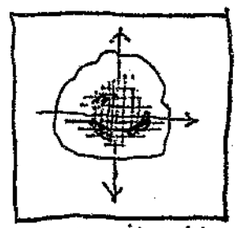


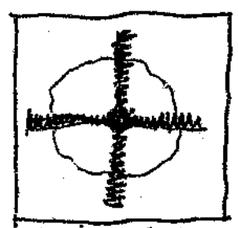
regional open space

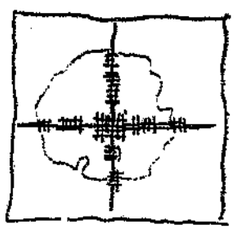
urban open space

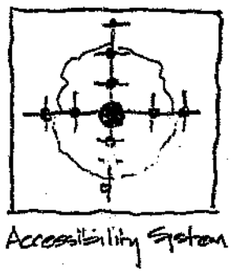
urban agriculture.

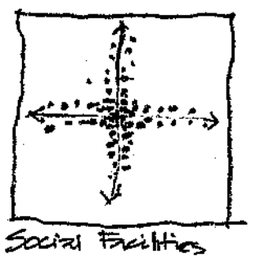
- ***Land Availability***: Land which has been left vacant within the urban system for reasons of property speculation, or, as in the case of Johannesburg, the cessation of mining activity, railway shunting yards and buffers for apartheid. This land is often strategically located to the city core and its assimilation into the urban system presents enormous opportunities in alleviating some of our present urban problems.
- ***Activity System***: This aspect includes all those activities which make up the matrix of the urban fabric such as housing, commerce, religion, recreation etc. It relates to the distribution location and density of land-use and the logical connection between these and other structuring elements.
- ***Urban Economic System***: The patterns of commercial activity and the ..ted pattern of employment opportunities.
- ***Accessibility System***: Ease of access to the opportunities and the activities generated by the urban system. This element comprises all movement channels, vehicular or pedestrian and the logic of the pattern they form.
- ***Social Installations***: The location of public installations such as universities, schools, hospitals, railway stations, public markets etc. The pattern of social installations is particularly important to the context of Johannesburg as these often do not correspond with the patterns of accessibilty.
- ***Environmental and Historically Sensitive Areas***: Precincts and Buildings of particular importance to the memory of the city. This would also include elements which are vital to sustaining the urban ecosystem.
- ***Geological System***: Johannesburg is one city where the geological formation (gold reef) played a significant role in structuring the development of the metropolis. Other constraints such as the ring of dolomite around the metropolitan area and undermining present limitations to urban development.

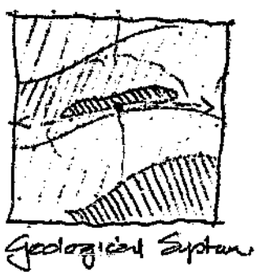












7.1.3 Principles for Metropolitan/City Restructuring

i. Regional Open Spaces:

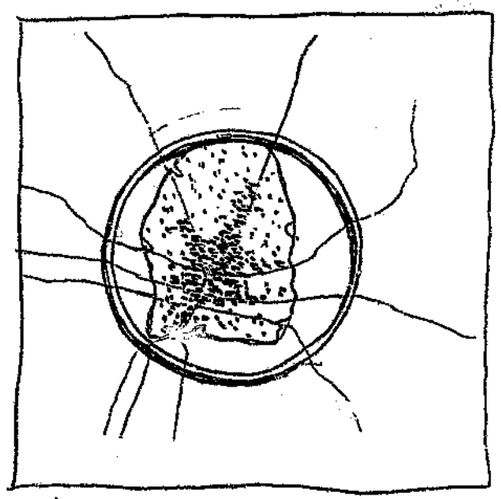
- Fix Open Spaces at the city edge. These urban biomes should delineate the limits for possible future urban development. In order to sustain increased urban densities the regional open space system will become increasingly important, phychologically and ecologically. (Dewar and Uytenbogaardt , 1991)

  "When the countryside is far away the city becomes a prison." (Alexander, 1977:24)

The close juxtaposition of urban and non-urban land also presents a number of opportunities not possible with urban sprawl:

a. Close access to a substantial market reduces transportation costs
b. The edge suggests certain structural responses which contribute to a more fine-grained cohesive urban fabric
c. It allows for the productive disposal of urban wastes. (Uytenbogaart and Dewar, 1991)

- Structural Landscaping: Uytenbogaardt and Dewar suggest that extensive treeplanting should be undertaken of surrounding vacant land in preparation for the advance of urban growth. Urban forests can



provide the geometry to structure future urban form. In addition they have both aesthetic, climatic and economic advantages.

ii. Urban Open Space System

- Mallows (1993) similarly suggests a fixing of open space at the city scale which implies creating a continuous thread of open spaces which connect into the regional open space system. Apart from the aesthetic considerations this proposed system would have both ecological and micro-climatic benefit for the city.

- All urban projects should seek to create and define public social spaces or `urban rooms'. "These promote and enhance collective urban life ... which provide a rationale for lower order public facilities." (Dewar and Uytenbogaardt, 1991:84)

iii. Urban Agriculture

- Urban management policies should encourage the development of small-scale agriculture close to the urban system. In a developing country such as our own, with large scale urbanisation, this presents an economic opportunity for those who have no alternative form of income generation. Allied to this form of enterprise, Local Government will have to re-establish a system of local markets which formerly existed.

- Reducing the distance between the supplier and market can contribute to the cost reduction of basic food items and streamlining of the fresh produce retailing system. Smaller producers will have direct access to the market thus eliminating the role of middlemen and centralised markets (which tend to favour larger producers further away from the market)

  Dewar and Watson (1991) state that the hawker industry of many Asian and African countries is based primarily on food products. Thus, by manipulation of the wholesaling system, the informal sector can be significantly stimulated.

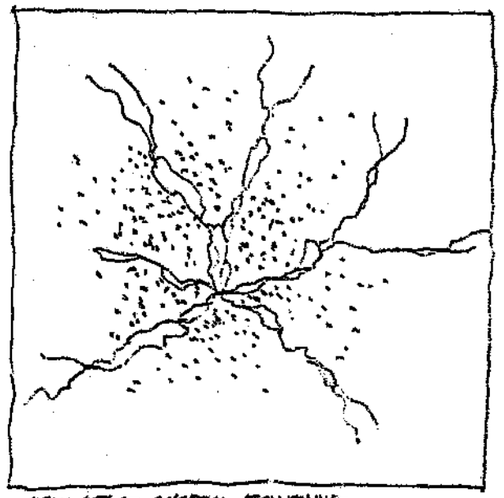
iv. Land Availability

Wood et.al. (1993) and studies by the MUD Programme (University of Witwatersrand) have shown that the unused municipal, railway and mining land surrounding the city will play an important role in restructuring the urban system to cope with the integration of segregated apartheid townships. This presents opportunities for fixing open spaces (which the city desperately needs), and infill projects such as public infrastructure and housing.

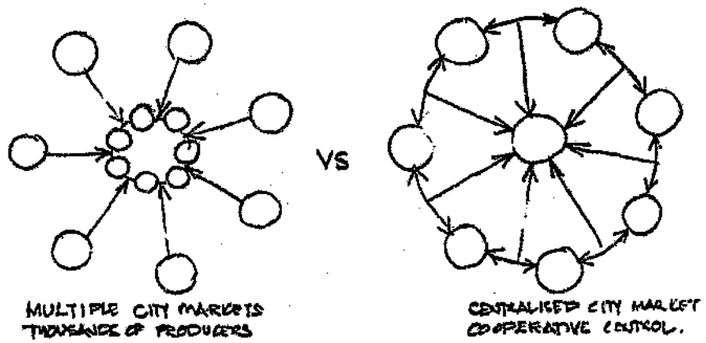
v. Accessibility and Activity Systems

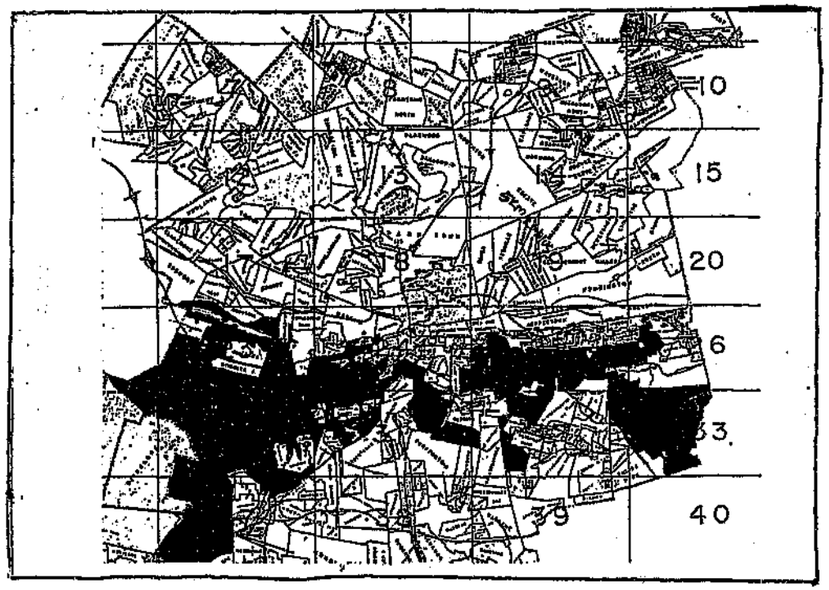
The activity system must be intensified in order to optimise utilisation of public infrastructure. Dewar and Uytenbogaardt (1991) and Wood (1993) suggest the following policies:

a. increased density and compaction of land-use would lead to an



OPEN SPACE SYSTEM FOLLOWING RIVER AND RIDGE SYSTEMS





intensification of activities and opportunity. This could be achieved by the following principles:

- Small basic land unit sizes - Correa (1989) refers to these as equity plots.
- Taxing the purchase of additional units - to limit unnecessary land holding.
- Limiting the number of land units which can be consolidated by any one owner.
- Imploding growth within the existing urban area, by better utilisation of existing land.
- Reducing space standards for public facilities to the greatest degree - thus allowing the same facilities to be used by different groups for different purposes at different times of the day.

The most accessible parts of the city should be the greatest concentration of activities, opportunities and social infrastructure.

b. A matrix of public transportation channels should exist to serve the entire metropolitan area. Channels should be multi-modal to ensure choice. High density residential development either side of the corridor would have the reciprocal effect of benefitting the residents and contributing to the viablility of the transport system.

c. As stated earlier public spaces should be exposed to optimise the utilisation and benefit. These spaces should be used to reinforce the spatial logic of transport system by locating at the places of greatest accessibility such as train and bus stations and other termini or modal interchanges.

d. Public facilities should be located around these spaces, firstly , to give greater access to the people, and secondly, to enclose and define such spaces

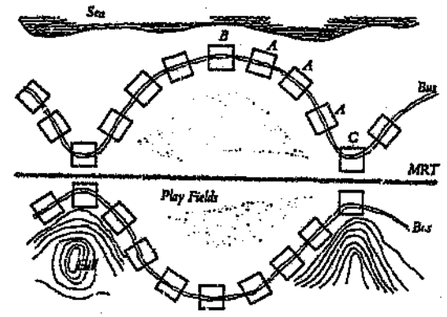
e. Private sector activities which are dependent on large flows of people should be given opportunities to capitalise on the movement channels and public spaces along them. Small-scale entrepreneurs are particularly important. Local Governments should erect market amenities to generate economic activity in these locations.

vi. **Urban Economy:**

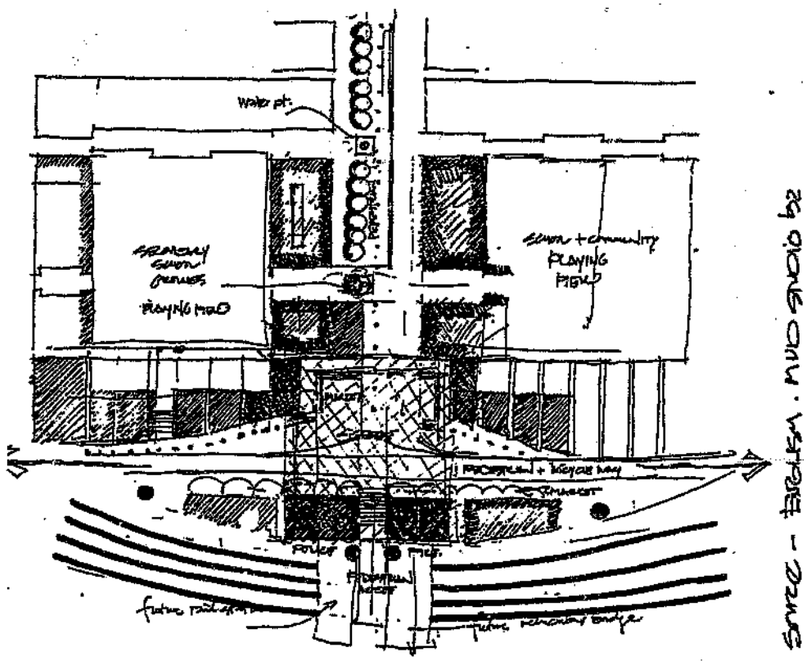
By compacting the city, increasing densities and promoting the optimal location of activities and public infrastructure along movement channels and around public spaces, greater interaction is permitted which has spin offs in economic activity and job creation.

vii. **Patterns of Social and Other Infrastructure:**

Dewar and Uytenbogaardt (1991) and Senior (1991) emphasise the aspect of multi-use, sharing and robust design of public facilities. These contribute to the functional usefulness, economical viability and communal qualities of the project.



CORREA'S DIAGRAM FOR MULTI MODAL TRANSPORT



25 OCTOBER - MARKET - DAYS

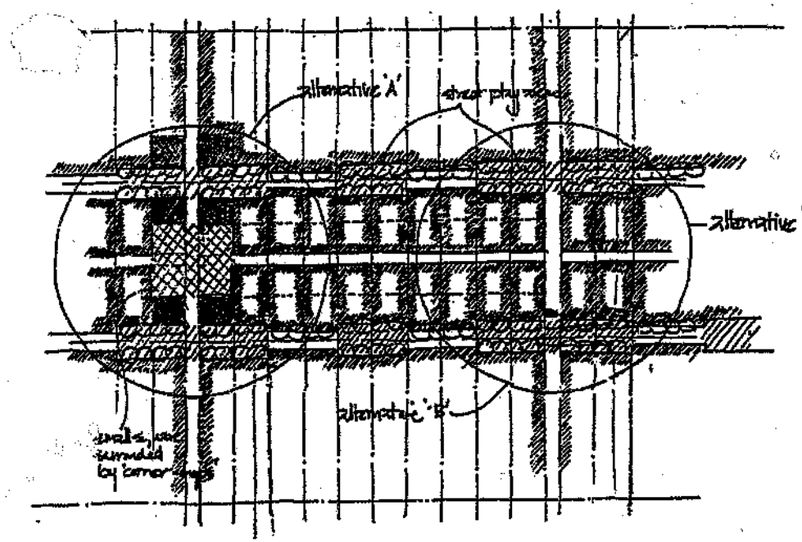
"...make maximum use of the scarce resources available for creating social infrastructure ... encourage the atomization of public facilities such as schools. Place their more public functions in highly accessible locations and encourage sharing between different institutions and between the institution and the community it serves. Encourage a generality of architectural layout so that functional changes can be easily accommodated over ti... (for example, classrooms can become shops and vice versa)"
(ibid:87)

viii. Areas of Environmental and Historic sensitivity

Fix those areas deemed to be worth preserving, so that no development may legally occur on that land.

ix. Geotechnical Constraints

Utilise the land which for geotechnical reasons, cannot be built upon to structure the urban and regional open space system.



Equity Plots

(English Studio MUD - '32)

7.2 Restructuring the City

7.2.1 Structuring Elements of the City

These are elements making up the essential structure of a city. These elements do not exist in isolation but are interdependent. Over time they form a complex layering, the pattern of which affects the spatial order, and the performance of the city. Mallows (1993) defines four primary structuring elements:

i. Movement
ii. Green Space
iii. Public Space (Community Space)
iv. Public Infrastructure (Capital Web)

To this list may also be added the following secondary elements:

v. Commerce
vi. Housing
vii. City Wall

The elements of the city structure can be manipulated through restructuring. It is the restructuring of the primary elements which will have the most significant effect on the performance of the city.

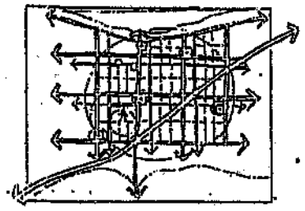
i. Movement:

- In a gridded city the movement system can be manipulated to provide better access and exposure to public facilities. The manipulation of the movement hierarchy can result in the stimulation of a previously dormant parts of the city.
- The hierarchy of movement begins with public movement systems such as rail and bus transport, pedestrian movement, and then private vehicular movement:
- Movement systems are the urban paths integrating both local area and region. These urban paths consist of local activity streets, intra-city and regional connectors
- Public movement system should be integral with the public space system to mutually reinforce the movement system and public space.
- Intersection of urban paths create moments of intense activity and increased opportunity for commercial or public facilities.

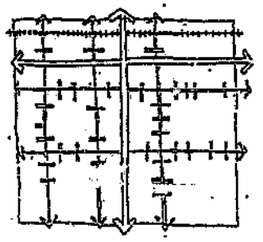
ii. Pattern of Green Spaces:

The pattern is made up of public parks, boulevards and large green spaces ('urban rooms'). These spaces provide breathing space in the city ,the `lungs of the city'. They are vital for urban dwellers as places for relaxation and recreation.
Green space may be divided to the following hierarchy:

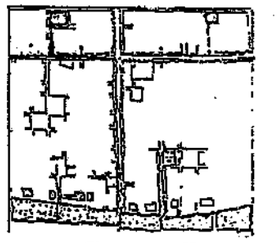
- Large open spaces for Sport and Recreation
- Major parks
- Community parks
- Niche Parks
- Tree Planting in Public Squares, Activity Streets and , major connectors.



Metro Movement



Local Movement



Green Space Pattern

Trees provide an important structuring device in defining the form and edges of major streets and squares. The type and height of trees can also be used as a device to accentuate the movement hiearchy.
Street Trees also serve as a pollution buffer as they absorb much of the harmful elements.

iii. Pattern of Public Spaces:

> *"A city without defined spaces does not offer any kind of promise ... urban space visualises a world which is general as well as local, and thereby helps the buildings which serve public and private dwelling to be rooted in the given environment. It prepares for the fulfillment of dwelling in the institution of the house" (Norberg Schultz, 1985:70)*

Public space is the central focus of the city

iv. Pattern of Public Institutions:

Public institutions should be located around or relate to public open space.
Public Institutions can be seperated into the following hierarchy (Kruger, 1992):

- Low order Facilities; Creches, Schools, Churches Community halls,
- Middle-order Facilities; Town Hall, Library and Information Centres,
- High-order Facilities; Universities, Technikons, Hospitals, Government Departments.

v. Commercial activity:

Commercial opportunities exist at the most accessible parts of the city where people tend to concentrate. It important then, that infrastructure, necessary to support the generation of commercial activity, is located close to movement sytems. Commercial activity can be divided functionally into:

- Formal activities: heavy and light manufacturing, warehousing, office, service and retail and,
- Informal activities such as hawking, vending, markets and home industry.

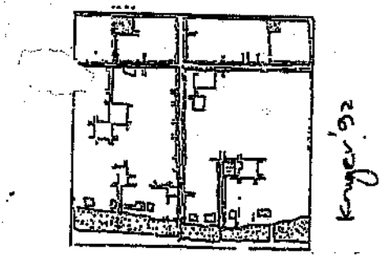
The structural implications of these activities include:

- The patterns of employment created and accessibility to these.
- Location of incompatible functions - which should be determined by forces of land value rather than zoning, which prevents the natural distribution of and mix of industry.

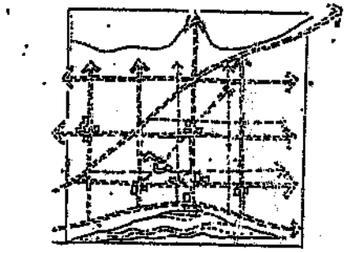
vi. Housing:

Inner-city housing is an important structuring device and should be the major determinant in the hierarchy of public spaces and facilities. It should also form the fabric which encloses these spaces.

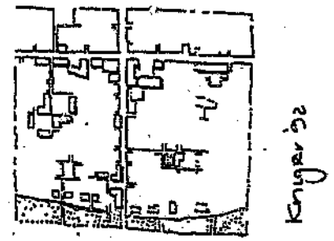
- Housing should be dense to sustain public ammenities, mixed-uses and public transport.
- Housing should be functionally integrated with the public spaces they enclose.
- Housing should be robust. It should accommodate changes in its function over time such as conversion to shops.



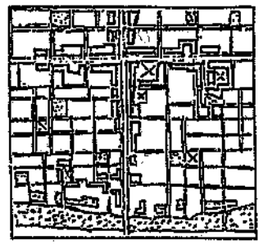
Public Space System



Metro Public Facilities



Local Public Facilities



Commercial activity



Housing

vii. City Walls and Edges:

These elements, characteristic of medieval cities were designed principally for defence. They were also major structuring elements of the city form, responsible for the compactness and the consequent efficiency and quality of public space. Modern City walls could include elevated freeways (abstract aqueducts), Public movement systems and linear building arrangements (such as the Byker Wall in Newcastle)

7.2.3 Components of a Dynamic Inner-City

The inner-city represents the most intense agglomeration of urban services: restaurants, theatres, shops, carnivals, cafes, hotels, night clubs and entertainment. They cluster around concentrations of people which tend to be those space which are the most accessible -the inner city. Suburbanisation removes people from the magic of inner city life, and consequently, from experiencing what it means to be truly `urban'.
This section of the discourse examines those universal components which contribute to the magic of a city. Dynamic cities tend to be public cities. Public people require spaces and components within a city for public activity and interaction.

A. Components of the Traditional City:

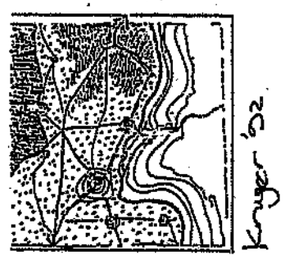
"Perhaps the most profound planning lessons of all lie not in our textbooks, but in history." (Correa,1989:100)

- ***City for Feet***
  Pre-industrial cities display intense movement patterns due to the fact that they are based on pedestrian mobility. This translates into compact city form, more complex and intense land-use and indirectly to a richer quality of urban environment and human interaction.

  "Cars give people wonderful freedom and increase their opportunities. But they also destroy the environment, to an extent so drastic that they kill all social life." (Alexander, 1977:64)

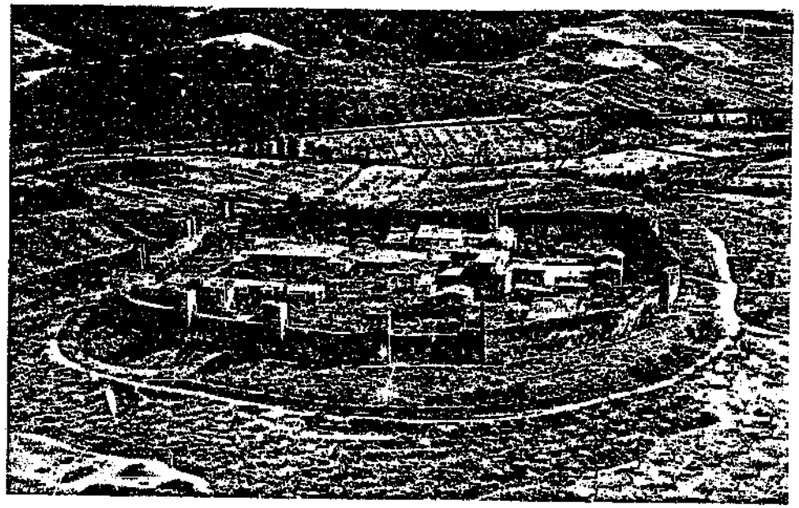
  "It is quite possible that the collective cohesion people needed to form a viable society just cannot develop when the vehicles which people use force them to be 10 times farther apart, on the average, than they have to be. This states the possible social cost of cars in its strongest form. It may be that cars cause the breakdown of society, simply because of their geometry."(ibid:66)

- ***Markets***
  Places to sell food and manufactured goods are essential. Public Space should cater for the easy erection of stalls or permanent shelters should be erected for this purpose. Essentially there are they are characterised by:
  * Permanance:
  - Some markets are flexible organisms shifting to postions of the most intensive human activity. Others are formalised and include rentable selling spaces.
  - Bazaars are permanent intense market streets, the sides of an



Edge Definition





clustered numerous individually-owned shops where the owner is often the trader.

* Time of Operation:
  Markets are not simultaneously active throughout the city at all times of the day. Markets often operate at transportation interchanges during peak periods only and others open up to serve meals at night. Some may only operate over weekends.

- ***Gateways***

They define both boundaries and entrances. They form the threshold of entry and and help to reinforce the character a particular precinct. Boundaries of neighbourhoods or major entrance paths into the city should be reinforced by gateways where the boundary is crossed.

- ***Promenade***

Paths along which people can move and interact with others. People love to watch other people. People attract other people. Successful promenades have the following characteristics:

* A high density of pedestrians using it
* Must be associated with places that in themselves attract people such as markets, clusters of eating places and small shops.
* People find it easier to take a walk if they have a destination. The promenade must have a strong goal .

- ***Children in the City***

Children are sadly missing from the modern city. The child and adult world are separated. Children learn by doing and by copying.

> *"If the child's education is limited to school and home, and all the vast undertakings of a modern city are mysterious and inaccessible, it is impossible for the child to find out what it really means to be an adult..."(Alexander, 1977.p251)*

The reality of the modern city is that it is dangerous for small children. Community spaces should be made defensible by increasing surveillance of the eyes upon the streets and squares to make it safe for children to play.

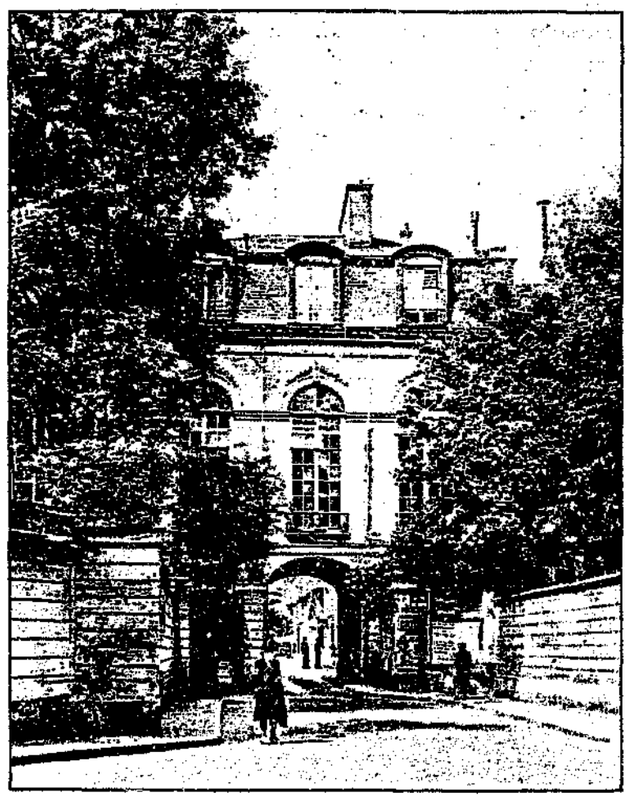
- ***Accessible Greens***

High density living makes access to green open places imperative. These should be provided at regular frequency throughout the city.

> *"... a 1971 citizen survey on open space conducted by the Berkeley City Planning Department. The survey showed that the great majority of people living in apartments want two kinds of outdoor space above all others: (a) a pleasant, usable private balcony and (b) a quiet public park within walking distance." (ibid:305)*

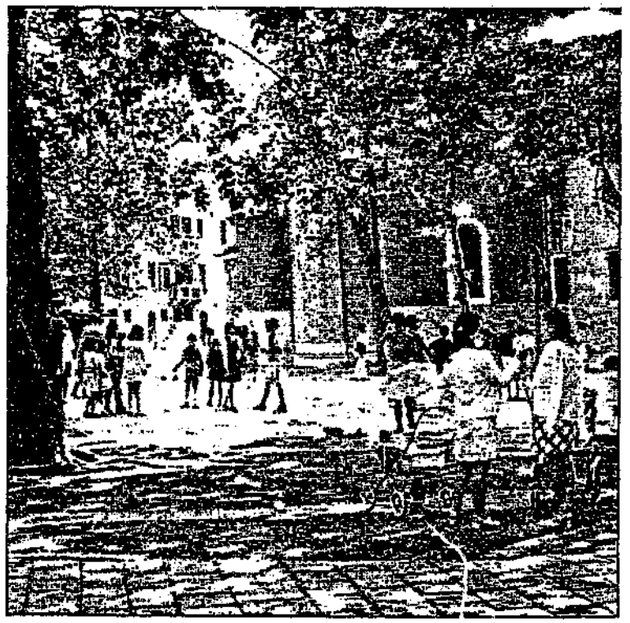
- ***Small Public Squares***

> *" It is natural that every public street will swell out at those important nodes where there is the most activity. And it is only these widened, swollen, public squares which can accommodate the public*



gateways

Alexander 1977



small public squares

Alexander 1977

gatherings, small crowds, festivities, bonfires, carnivals, speeches, dancing, shouting, mourning, which must have their place in the life of the town." (ibid:331)

- ***Dancing in the Street***
  In traditional cultures, dance was an activity which took place in the public arena. Promenades and squares were designed with slightly raised platforms for street musicians and local bands, and paved surfaces for dancing.

- ***Public Fountains and Pools***
  Water plays a fundamental role in our psychology. We need constant access to water, but in cities water is often out of reach. Arid places without natural running water should emphasise the importance of public fountains and drinking fountains.

- ***Places of Worship***
  Church is a symbolic gateway. A gateway to the supernatural. Amidst the hustle and bustle of urban life it presents a refuge from the physical world and an opportunity to enter into worship, prayer and contemplation. - from a human point of view the church represents the gateway of all the important thresholds of life: birth, marriage .. and finally death.
  In the tradional city the church formed the central focus, and the symbolic heart of the city. This aspect has been replaced by monuments of human achievement. The city needs to restore this component of the city to restore the spiritual dimension to the city.

- ***Public Outdoor Rooms***

  "There are very few spots along the streets of modern towns and neighborhoods where people can hang out, comfortably, for hours at a time." (ibid 349)

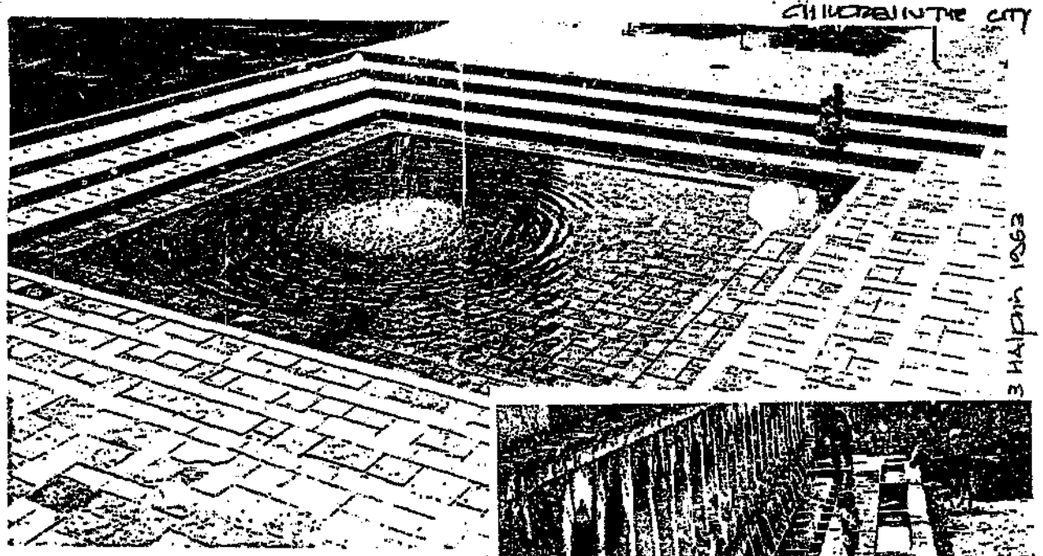
  Alexander suggests a small open space, roofed, with columns, but without walls at least in part, will just about provide the necessary balance of `openness' and `closedness' space.

- ***Sporting Facilities***
  Traditional societies made multiple use of their public spaces. Inner-city sports which can be played within confined spaces should be facilitated in the inner-city. These should be located in such a way that they are visible to passers-by, as an invitation to participate. they should also facilitate public ablutions.

- ***Housing***
  As stated earlier, housing should enclose public spaces. High-density living is dependent on the provision of open space and public facilities. In the traditional city, a range of public amenities were available. Nearby food markets, public bath, parks, communal eating houses negated the need to provide these privately. This model had both social and economic benefit. It made the provision of housing much simpler and the range of housing types more extensive.At the lowest level housing could consist of a simple room without kitchen or ablution, as these facilities were available publically (see Housing Options, part 11).

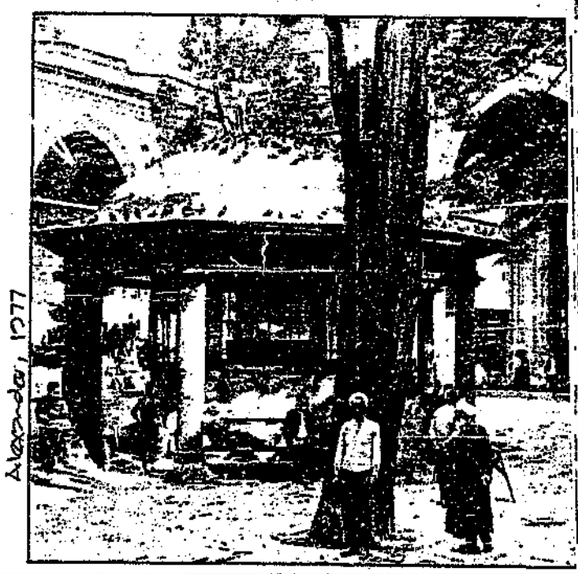


(Anderson, 1991)

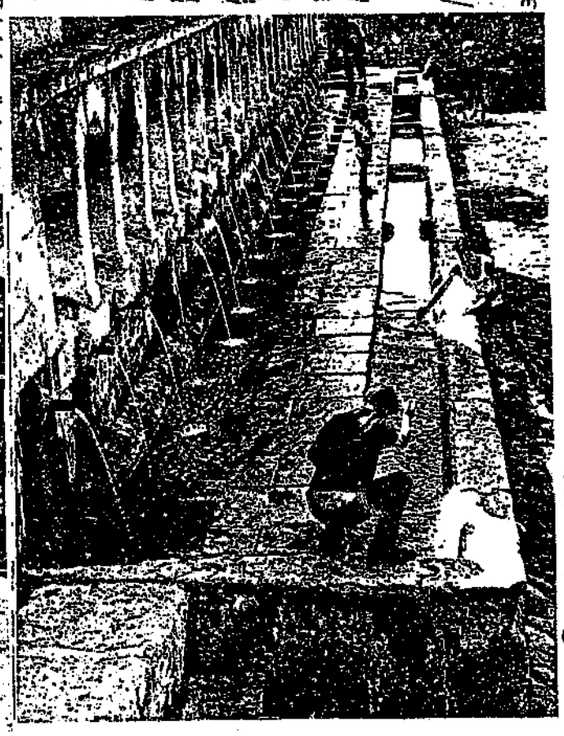


Children in the city

3 Halpin 1963



Alexander, 1977



Rudofsky, 1964

- ***Education Network***

In the traditional context, education was not separated from everyday life. University was the marketplace and learning the socialisation process afforded by city living.

> *"The fundamental learning situation is one in which a person learns by helping someone who really knows what he is doing. Schools and universities have taken over and abstracted many ways of learning which in earlier times were always closely related to the real work of professionals, tradesmen, artisans, independent scholars." (ibid: 374)*

Encouraging a mixing of home and workplace will assist in restoring this dimension to cities.

- **Individually-owned shops**

Diversity is stimulated by individual actions. Diversity is not stimulated by standardised fast food outlets selling standardised food. Retail units need to be reduced in size in order that small entrepreneurs are able to rent or purchase them (as small as 2m x 2m).In contrast to the unique identity given to a city controlled by individual entrepreneurs, South African cities are becoming collections of the same chain stores.

- ***Beer Hall***

Beer Halls are ideal places where the entire community can gather to sing, and shout and drink, and let go of their sorrows. Ideally, it should be located adjacent to public space.

- ***Travellers Inn***

A place which requires no long-term commitment but allows new arrivals and visitors to the city a place to overnight in which he is able to come into contact with others. In contrast to the private room budget hotels offer, this facility should focus on communal gathering and eating.

- ***Food Stands***

> *"Many of our habits and institutions are bolstered by the fact that we get simple, inexpensive food on the street, on the way to shopping, work and friends. These food stands may obviate the need to provide full kitchens in every housing unit." (Alexander, 1977:455)*

Alexander suggests the following about foodstands:

* Foodstands should be concentrated at the crossing of paths,
* Food stands should take on a character that is compatible with the neighbourhood around them,
* The smell of the food should permeate the street,
* Foodstands should never be franchises, but always operated by their owners.





- ***Sleeping in Public***

  "It is a mark of success in a park, public lobby or a porch, when people can come there and fall asleep." (ibid:456)

This quality should be acknowledged by urban management and serve to direct the design of public spaces.

- ***Building Thoroughfare***

Shortcuts through large city blocks. They benefit from intensive movement by affording the pedestrian a more direct way of achieving his destination, and the opportunity of a more stimulating movement experience

- ***Civic Institutions and Public Spaces***

  "Public spaces are meant to invite free loitering. The public places in community buildings (community centres, city halls etc.) need this quality , because people feel free to hang around they will necessarily get acquainted with what goes on in the building and how they may begin to use it. People rarely feel free to stay in a building without an official reason." (ibid 565)

If a public space is to be really useful it must somehow help to counter the anti-loitering tendency in modern society.
Many modern public squares and plazas are intended by designers to be places of intense activity, but are in fact deserted and dead. Alexander maintains that in most cases the cause has to with edge conditions.

"The life of a public square naturally forms around its edge. If the edge fails, then the space never becomes lively. People gravitate toward the edges of public spaces, they do not linger out in the open. If the edge does not provide place to linger, or to stop then it is assumed that it is only a place to pass through. The space should be surrounded by pockets of activity. (ibid:600)

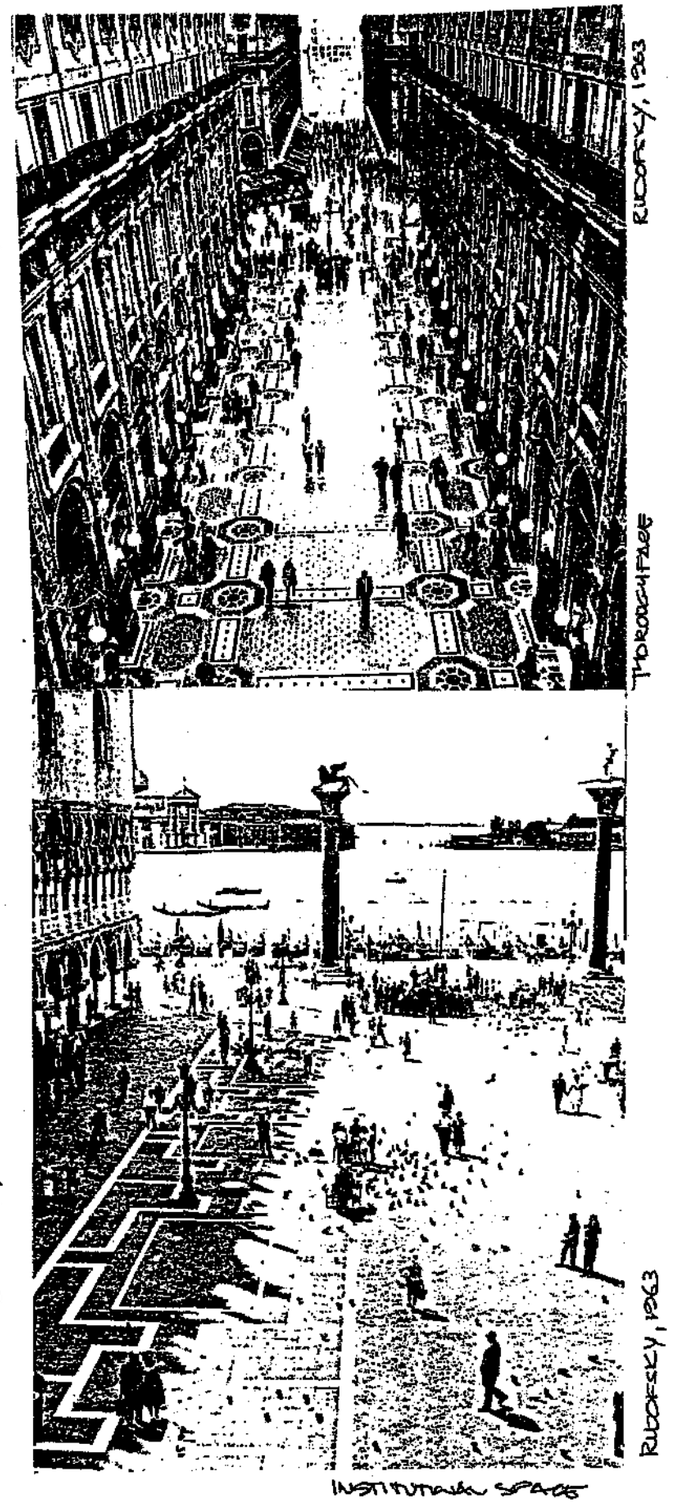
"People like to take up positions which they are protected, especially at their backs." (ibid:671)

The edges of public spaces and paths should be embellished with activities such as street cafe's, stair seats, private terraces overlooking the street, permeable building edges, street windows and galleries.

- ***Stair seats and Open Stairs***

Stairs are unique devices which in addition to their functional role, were used in traditional cities as places where people were given the opportunity to observe a particular activity or other people. They are high enough to seperate the observer while low enough to make him feel part of the activity. Stepped cafe terraces, steps surrounding public plazas, stepped porches, stepped statues and seats are all examples.
Internal stairs reduce the connection between upper stories and the life of the street. When second floor apartment are directly accessible from the street it adds a vertical dimension to the life of the street.





- ***Public Bath Houses***

"The motions we call bathing are mere ablutions which formerly preceded the bath. The place where they were performed, though adequate for the routine, does not deserve to be called a bathroom" (Rudofsky, 1955: 118)

"We ought to remember the thermae of old, with their daily routine of old, with their routine of daily regeneration were as much a matter of course to their users as our restaurants are to us. Only more so; they were considered indispensable. In the fourth century, the city of Rome alone counted 856 bathing establishments; six hundred years later Cordoba boasted an even larger number of public baths." (Rudofsky,1955:118)

It should also be remembered that during the prime of its mining days, Johannesburg itself had a number of bath houses. The concept of public bathing is not foreign to our city.

- ***Home Workshops***

"We imagine a society in which work and family are more intermingled than today; a society in which people -businessmen, artists, craftsmen, shopkeepers, professionals work for themselves, alone and in small groups, with much more relation to their immediate surroundings than we have today." (Alexander, 1977:754)

- ***Inner-city Gardens***

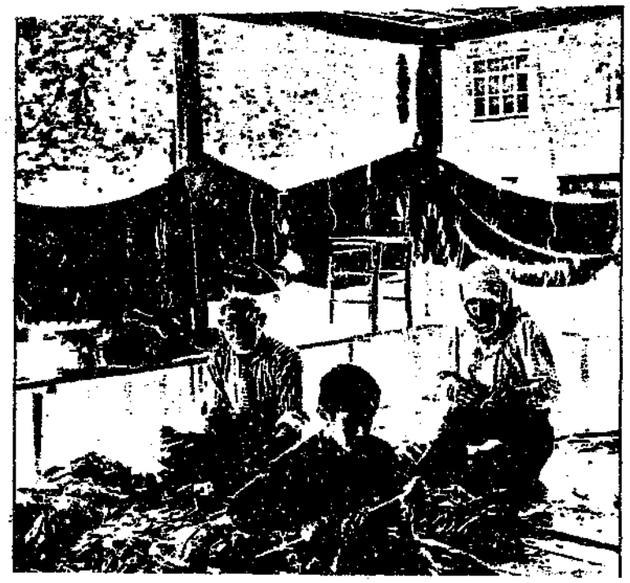
"Parks, street trees, and manicured lawns do very little to establish the connection between us and the land. They teach us nothing of its productivity, nothing of its capacities." (ibid:770)

Urban agriculture has already been referred to in another section, however it is important to emphasise here the need to utilise public lands to generate desperately needed food for our urban populations. During the second World War, public gardens were commissioned for the production of food. It is essential that we reconsider our landscape aesthetic with which we have been conditioned and look to more productive plantings in our streets and parks such as fruit trees and harvestable crops.

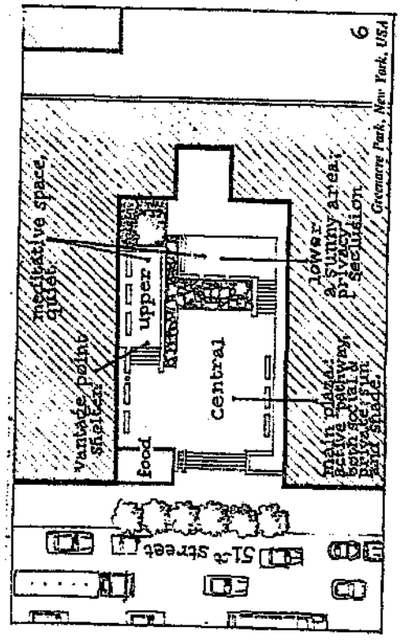
B. Components of the Modern Industrial City

- ***Hierarchy of Movement***

The introduction of modern modes of movement such as motor vehicles, railways and air transport has meant that movement channels have had to be separated to avoid conflict. The positive effect of this system is that it has introduced new elements into the city (which are discussed below) and greater accessibilty.







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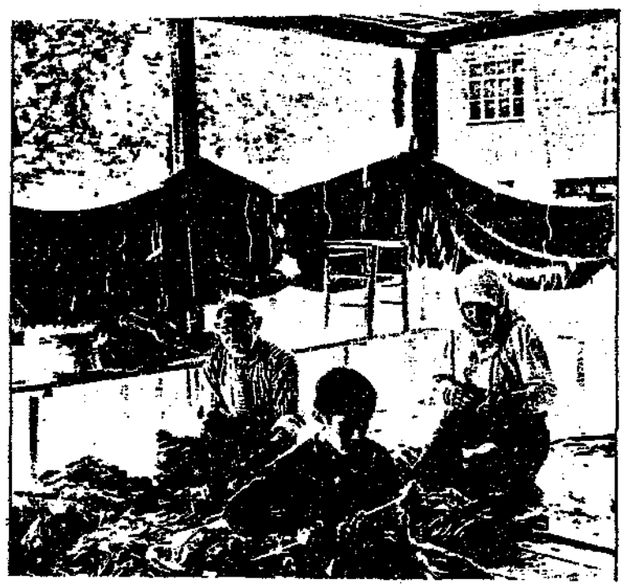



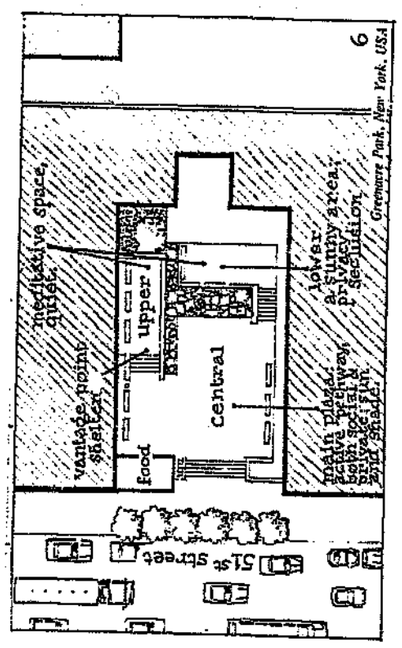

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- ***Transport Interchange***
Modern `gateways' to the city. They are intense movement spaces which can be used to positive effect. Alexander states the following principles:
  * Interchanges should be surrounded with workplaces and housing types which depend on public transportation.
  * Keep the interior of the interchange continuous with the exterior pedestrian network, and maintain this continuity by building in small shops and kiosks.

- ***Bus Stops***
Bus Stops are miniature centres of public life. They should be designed as gateways to places of work or to parts of the city. They should be located so as to interact with several other activities such as newsstands, food vendors, seated shelters, corner groceries, smoke shops, coffee bars, tree places, special road crossings and public bathrooms.

- ***Boulevard***
This could be defined as the `promenade' of the motor vehicle. Because they are wider than normal streets they operate as arterials. They assist in heightening the experience of motor vehicle travel and can be used to define an important entrance path to the city.

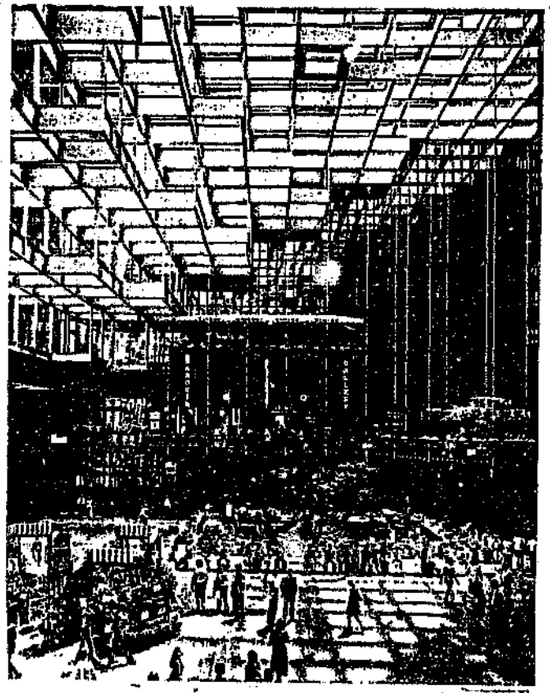
- ***Main Street***
Implied here, is the commercial main street which facilitates both vehicular and pedestrian access. Main Street tends to be the major movement artery through a city centre. It is the place for `ticker tape' parades, a route for procession.

- ***Galleria and the Pedestrian Mall***
Milan's Galleria established the precedent. These are `streets' under glass which enable extended use of these spaces during inclement weather. The Pedestrian mall is a modern version of the Galleria. The major difference is:
  * It attempts to seperate pedestrians from cars,
  * It is often privately owned and controlled.

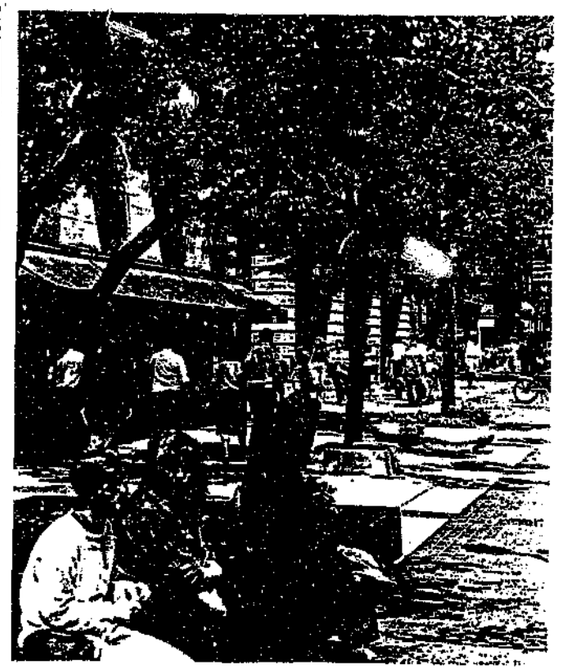
- ***Superblock and Interior City Rooms***
These are a product of the modern gridded city in which blocks are assembled to create larger blocks which better cope with the new requirements of:
  * deep space
  * internalised private space
  * centralisation.
  * underground parking requirements

The superblock presents the following problems for the city:
  * It disrupts access
  * It is not easily converted to other uses because of its dependancy on air-conditioning
  * They are often out of scale with the rest of the city and destroy complexity and diversity by creating mono-use blobs.

The superblock can be positively incorporated if its fabric is used to reinforce public paths and the creation of internal city rooms or public spaces.



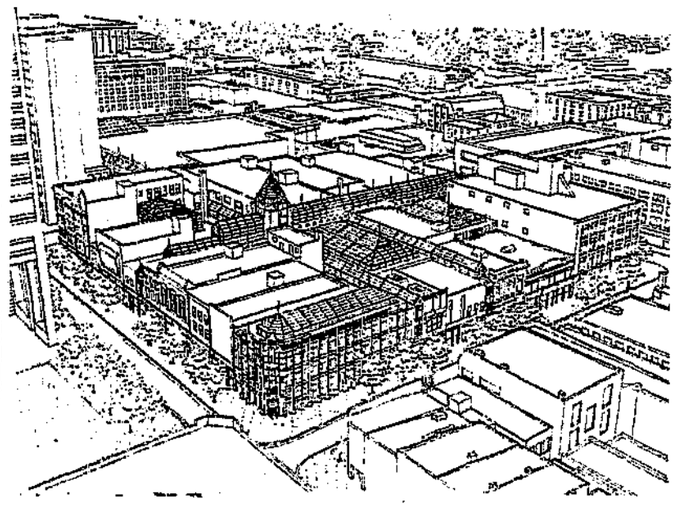
INTERNAL CITY ROOM. (ATTOE AND LOGAN)



BOULEVARD (HALPRIN, 1963)



MAIN STREET (BRIDGEMAN, 1991)



SUPERBLOCK (ATTOE + LOGAN, 1989)

6.2.3 Performance Dimensions

Correa (1989), Lynch (1984), Dewar and Uytenbogaardt (1991) identify certain universal urban qualities which can be used to evaluate city performance in terms of human, economic and ecological needs.

i. ***Vitality and Balance***

This quality can be described as the degree to which urban form supports vital functions ie. the biological functions and capabilities of human beings, (and the degree of support to natural environmental processes). (Lynch,1985)
The city is an organism, continually growing and adapting to changes affecting its order. Balance is a quality which seeks to maintain a sustainable relationship between people, place, and the universe. This entails the following:

- A recognition of a sense of place - the natural, cultural and historical uniqueness of a place.
- That the city coexists with its landscape in a manner which ensures the sustainability of the natural systems.
- An understanding of the relationship between people, as expressed through urban activities. (Dewar and Uytenbogaardt ,1991)

ii. ***Identity and Imageability***

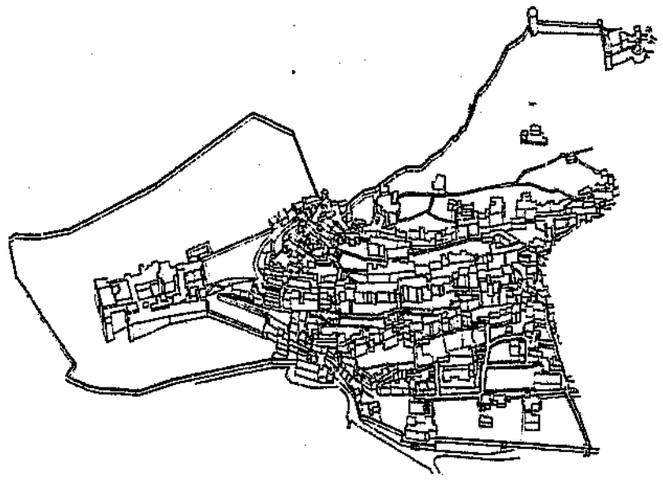
This quality enables a place to be recognised and indentifiable by having a unique and distinct character of its own. This may be as a result of spatial or non-spatial characteristics. A city image may be recalled by the quality of spatial form, or, by a peculiarity of its culture or rituals.

Imageability are those characteristics of a city which reinforce a particular city identity. Lynch (1960) refers to these as:

- Paths: The channels of movement which people take, which may include streets, walkways, bus or railways
- Edges: Linear elements, breaks or boundaries such as walls, rivers or railway cuttings.
- Districts: Medium to large sections of the city which people conceive of as having two-dimensional extent. They are commonly recognisable by some distinguishing or identifiable character.
- Nodes: Strategic points with to or from which the observer travels. these are either the intersection of two paths, junctions or terminals interchange between transport modes.
- Landmarks: Physical objects such as tower, a building, a sign or a natural feature such as tree or mountain - which are used by people as reference points, used as a means of orientation .

iii. ***Accessibility***

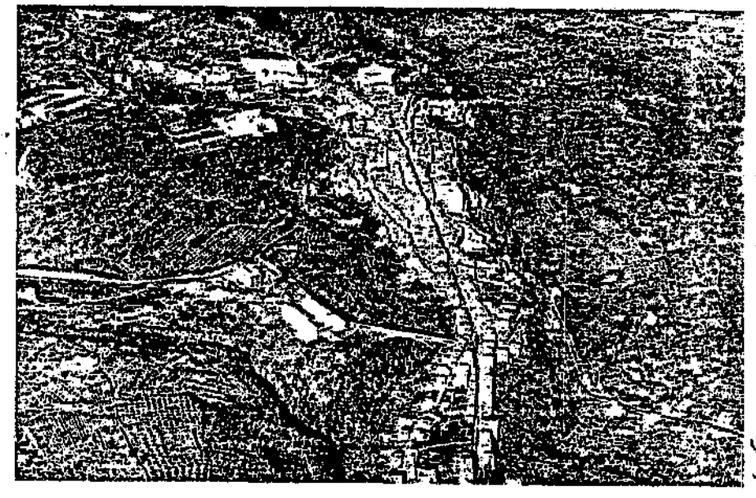
All citizens should have *"the ability to reach other persons,activities, resources, services, information or places.* (Lynch, 1985:118).The desirable quality of urban structure is to enable the lowest social denominator to gain access to all urban elements. (Dewar and Uytenbogaardt , 1991)



VITALITY + BALANCE : ASSISI ITALY

(Lynch 1985)





CAPRAROLA , LAZIO . — STRONG IMAGEABILITY.

(Norberg Schultz - 1979)

iv. ***Freedom and Order***

Urban environments should promote the maximum positive freedom for individuals to act. The creation of urban structure should be so judged as to release the energies and talents to many people in the making of environments. Urban structure should develop an underlying systemic logic which guides and directs development and to which developers may respond. This implies subtle control of the urban order as opposed to autocratic rules and regulations.

v. ***Complexity, Intensity and Diversity***

A characteristic of positive environments is intensity and diversity of activity. This is in turn dependent on thresholds of population support. Greater densities in living environments contributes to greater intensity of interaction, complexity and diversity of human activities. (Dewar and Uytenbogaardt, 1991),

* City development should allow for more complex processes -so that the concerns of a wider range of interest groups are permitted to enter the processes which give structure to the city - individuals, community organisations, small developers, utility companies and employer agencies. (Dewar and Uytenbogaardt, 1991).
* The city should offer the individual a wider range of living enviroments by providing public spaces which vary from intensely public to more quiet and private environment.

vi. ***Linkage and Integration***

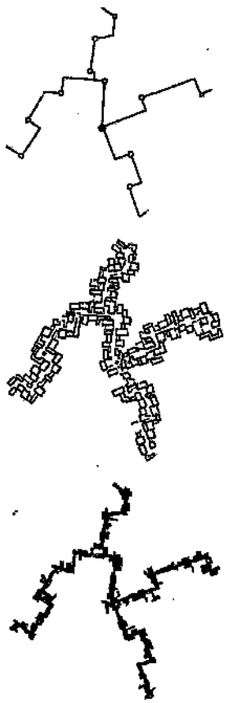
"The essence of urbanity is that, with increasing agglomeration, individuals, groups and communities can benefit from a greater range of opportunities and facilities than can be generated by their operating in isolation." (ibid:22)

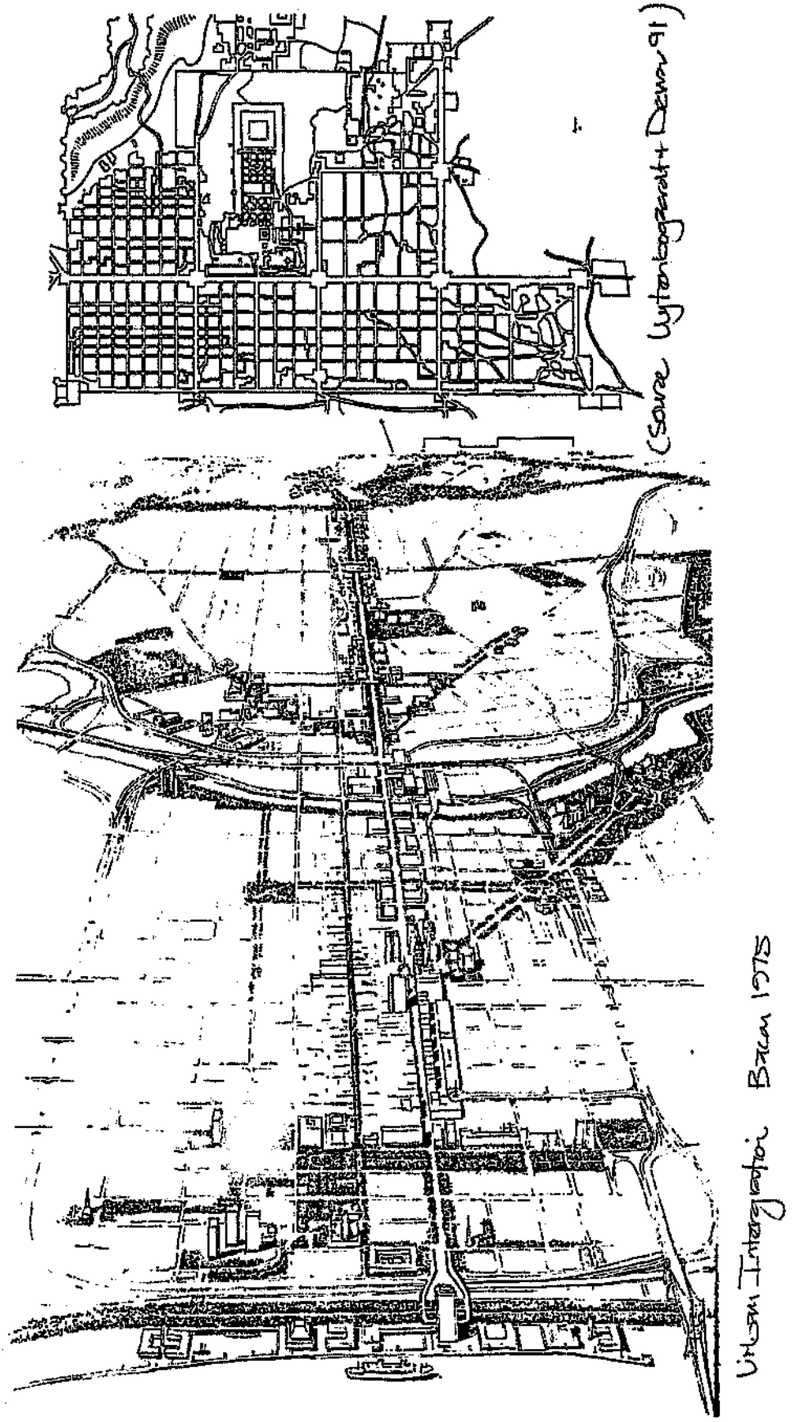
Related to complexity, diversity and accessibility to the opportunities presented by these environments is the concept of integration and multi-functionality. This implies the following notions:

* Integration of home and workplace: Alexander (1977) states further problems associated with the separation of home and workplace:

  "In modern times almost all cities create zones for "work" and other zones for "living" and in most cases enforce the separation by law ... children grow up in areas where there are no men, except on weekends; women are trapped in an atmosphere where they are expected to be pretty, unintelligent housekeepers; men are forced to accept a schism in which they spend the greater part of their waking lives "at work, and away from their families" and then the other part of their lives "with their families, away from work." (Alexander, 1977: 741)

* Integration of land-uses which respond to the natural ordering of social processes .





vii. ***Multifuntionality***

This notion is related closely with previously-mentioned concepts of complexity and diversity. It involves the layering of a multitude of activities over an urban space or facility. Each activity expresses its own requirements, however each activity utilises the space for only a fraction of time. The following should be considered:

- The optimisation of public investment: "*elements of infrastructure may be used differently at different times or in different contexts, according to the dominant needs of the urban population ... public spaces can be primarily social or may be consciously used to create very small-scale trading and manufacturing opportunities in viable locations ... the most efficient systems result when the multi-functional use of urban elements is consciously promoted and when elements are made in such a way that they can meet the full range of demands that may be made upon them. (Dewar and Uytenbogaardt, 1991:30,34)*

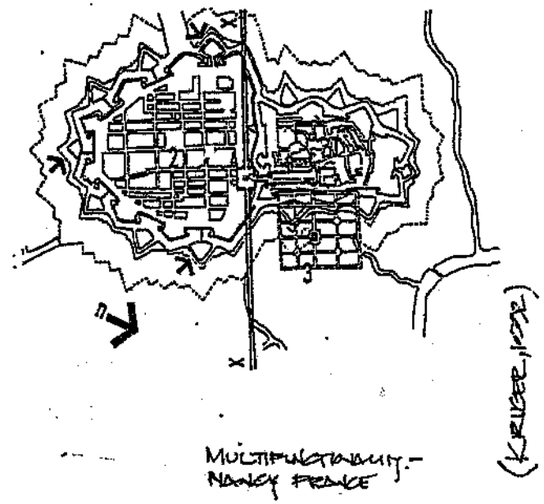
- Optimisation between Public and Private investment:
  When public facilities are adequately provided, the requirement for private facilitation is reduced. For example, the provision of public baths means that private ablutions and expensive services are not needed in low cost housing delivery.
  This applies equally to the quality of public environment. The greater the quality of urban space, the less important the aesthetic quality of individual building needs to be. (Dewar and Uytenbogaardt, 1991)

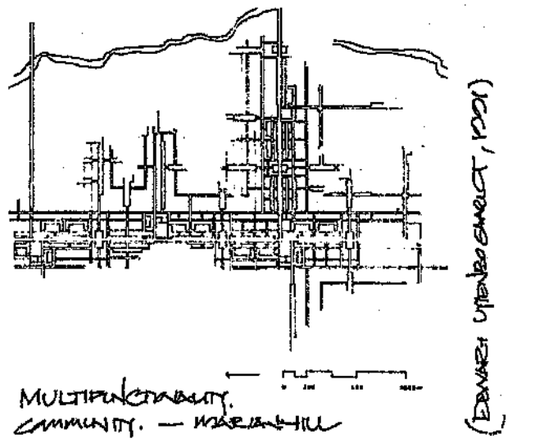
- Robustness of Design:
  Public spaces or buildings should be simply configured so that they are able to be converted, at a later stage, for different, more relevant purposes. This would optimise investment in construction and lengthen the life, particularly of buildings. Specialist buildings have a limited lifespan. They are soon outdated, whereas, some buildings in Europe are still useful after 500 years.

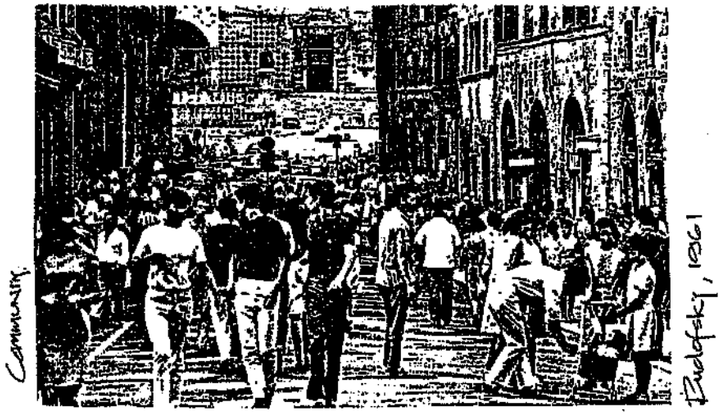
viii. ***Community***

The concept of community relates to creating a sense of identity and belonging - a sense of absorption into urban life. It is dependent on the following:

- Social Interaction- which requires adequate living density and public amenities.
- Social networks - which are place specific and are supported by self-administered social institutions such as churches, sporting clubs.
- Identity - which is dependent on richness of environment ie. *"the celebration of valued societal institutions in the organization of urban space ie. social order directs spatial order ... and through the reflection of cultural expression in the making of environments." (Dewar and Uytenbogaardt, 1991:21)*







ix. *Celebration of Public Life*

These are the places which accommodate the dominant social institutions of the time (religion, education, government, exchange, public squares, etc.). They cause the gathering of people and should be rewarded through the provision of places of collection, positions of high access and dominance. (ibid)

x. *Privacy Gradient and Defensibility*

Urban Space should contain the archetypal ordering priciple of gradual transitions from the most public spaces and activities to the most private spaces and activities. This principle is emphasised by Alexander (1977) who defines the transitions as Public - Semi-public, Semi-Private and Private. Correa (1989) illustrates the same with reference to the traditional urban environments of India:

- Family private spaces - for cooking and sleepings
- Areas of intimate contact - doorstep and stoop
- Neighbourhood meeting place - village tap or well
- Maidan -principle open area

Jacobs (1960) and Newman (1969) suggest another principle of spatial ordering based on defensible space which proposes the following:

- A clear demarcation between publicand private realms and,
- There must be a constant watch on the street
- Pavements must be in constant use.

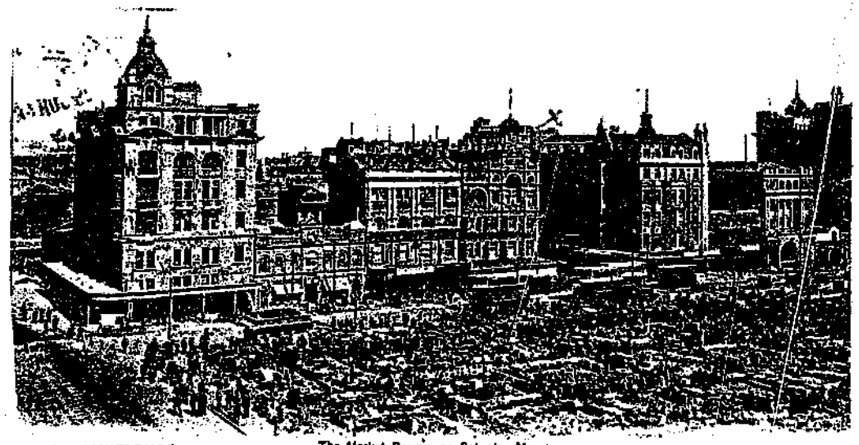
(Further principles are discussed in Appendix E)

7.3 An Appropriate Approach for Restructuring

7.3.1 Overview of Existing Urban Design Approaches

Johannesburg is a First World city coming to terms with Third World needs. Much of our urban design theory has been based on the study of European cities which when translated to an African context are inappropriate.

Attoe and Logan (1989) argue against the use of European Urban design theories for American cities. They propose an alternative theory based on the way American cities have evolved and continue to grow. This approach, based on Urban Catalysts, explains the way private-sector interventions have structured and continue to structure the inner-city of Johannesburg.
The problem with this approach is that it tends either to be laissez-faire or developer driven and focusing on the limited interests of the financing institution. It also tends to restructure the city about itself rather than be structured by the city.
Urban Catalysts need to be part of a sequence of interventions which contribute to a commonly held vision of the city. An integrated approach is thus required to identify broader issues and needs within the city. This approach will integrate the existing (formal sector) city structure with the new (informal sector) demands being placed on it.



JOHANNESBURG. The Market Square on Saturday Morning.

(NORWICH, 1986)



A: Courtyard



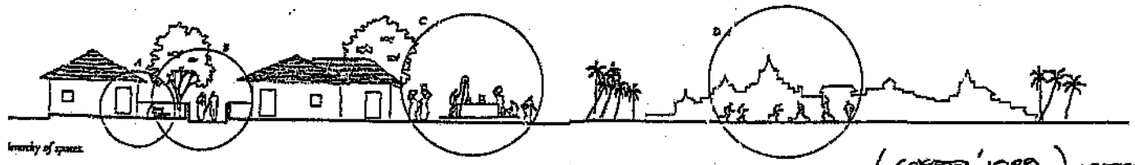
B: Doorstep



C: Water tap



D: Community space



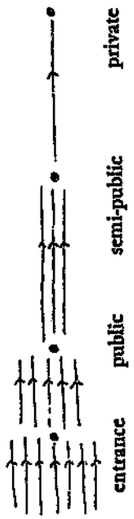
Intensity of spaces

(CORREA 1989)



(NORBERG SCHULTZ - 1979)

PIAZZA DEL CAMPO - CELEBRATION OF PUBLIC LIFE



(ALEXANDER, 1977)

a. Functionalism:

Functionalist theory argues for the separation of incompatible uses. Thus, because vehicles interfere with human activities, vehicles should be separated from pedestrian areas. Similarly, industry, residential, recreation and other functions are separated into use-zones. This approach using empirical formulae and theoretical extrapulations formed the basis for Post War Town Planning. The obsession for neatness and imposed order contributed to the large scale urban renewal programs based on post war reconstruction did just this.

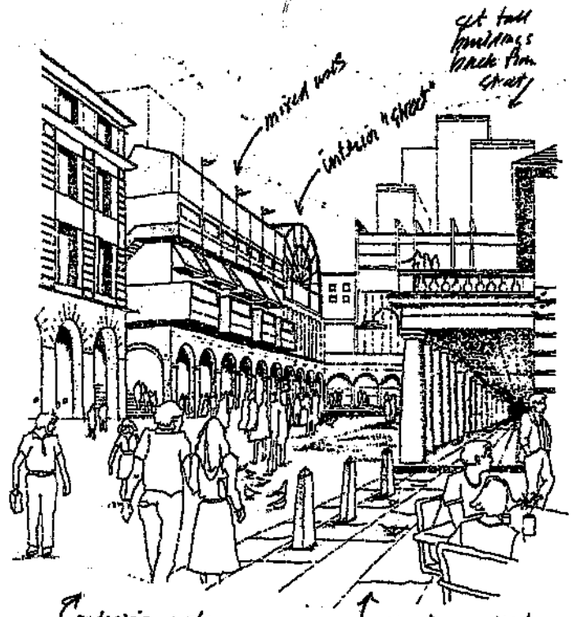
b. Humanism:

Humanist urban design takes on three forms: Townscape, Participation and Heterogenity:

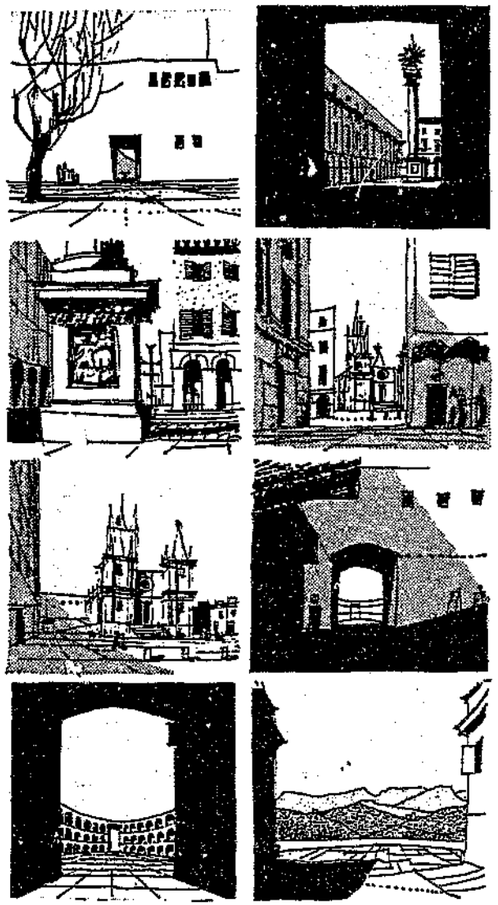
- The *vision of townscape* often involves pedestrianised shopping malls or street closures in an attempt to make the city more attractive by marrying the informality of medieval streets and squares with the convenience and safety of enclosed suburban shopping complexes. These attempts often fail because they assume that all people want is convenient parking and a decorated path. 'Urbanism does not spring from cosmetics.' The quality of the pedestrian's experience is consistent with the humanist thinking.
- The *vision of Participation* is an ideal which attempts to encourage people to mould their environments according to their own visions, however, in practice this is most often only applicable to housing, as the centre city is usually the province of public bureaucracies, developers, and financing institutions. Although citizens try to take charge of centre city areas, these groups typically have little power.
- The *vision of heterogenity* is the belief that a visually rich and socially diverse city centre arises from a mixing of uses as opposed to the functionalist homogenous allocations of land use. This element features in most successful city centres, yet, although propogated in many cities, is seldom achieved in city revitalisation.

c. Structuralism

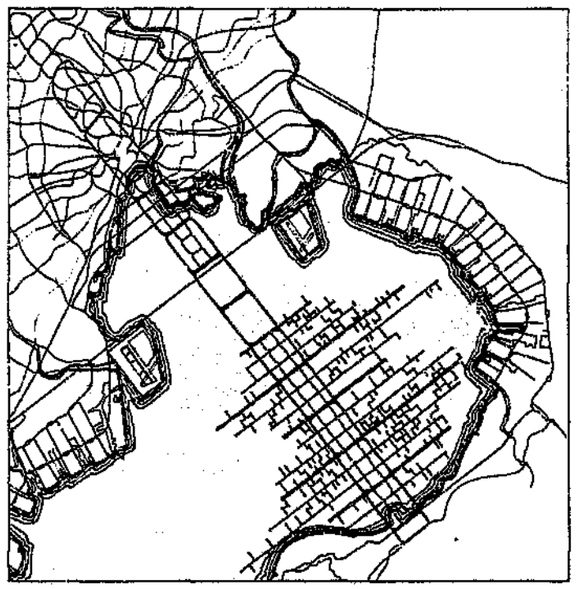
While the European proponents of this school of thought focused on systems of mass movement and building design and others (Dutch) on social structure, the American adherents translated city structure exclusively as freeways and rapid transit systems. Thus, in America, and often in South Africa, to speak of urban structure, is to speak of traffic plans.
Bacon (1975) states that urban designers must have a clear concept of the underlying design structure that must be produced to set in motion the involved processes of city building. He defines the underlying order as simultaneous movement systems conceived of three-dimensionally. Later he concludes that the movement system is the abstract design, from which the design structure of the city begins to emerge.
Structuralist thinking has, of the four theoretical schools had the greatest impact on American and later, by imitation, South African cities, especially with regard to vehicular and rail transport.



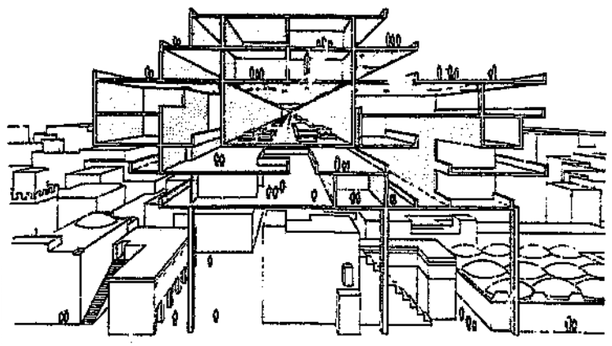
Humanist design. (Attoe + Logan 1989)



(Cullen, 1990)



Kenzo Tange's Tokyo Bay Project. After a drawing published in Japan Architect *(April 1961). Tange proposed a highly structured extension of Tokyo into Tokyo Bay.*



. . A new urban structure imposed upon an older fabric. Based on a drawing by Yona Friedman in L'Architecture Mobile *(Tournai, Belgium: Casterman, 1970.*

Structuralist design (Attoe + Logan, 1989)

In the light of current South African city problems of distribution and access, structuralism theory offers considerable logic. Indeed, the views of Uytenbogaardt, Dewar, Wood and others, underline the importance and restructuring possibilities afforded by a rational and efficient transit systems.

d Formalism

Formalism assumes that there are archetypal patterns and configurations with universal significance. Attoe and Logan include both Beaux arts and Neo-Rationalist planning in this category. Although they differ on socio-economic issues, both assume that urban form is b[illegible]own from timeless patterns. They both stress axial organisation and s[illegible]es. (The idea that if form follows culture, culture will automatically fo[illegible]m)

This approach is thoroughly eurocentric and is difficult to transpose in American or South African contexts. Attoe and Logan cite Rossi, a key advocate of neo-rationalism, who, though he speaks approvingly of the typical American grid, fails to indicate what one can do with it or how one might guide and give impetus to contemporary urban form. Rossi also selectively chooses American towns with late-medieval character such as Boston and Nantucket, but these are not typical modern cities. (Attoe and Logan ,1989)

Formalist practice advocates the following ideas:

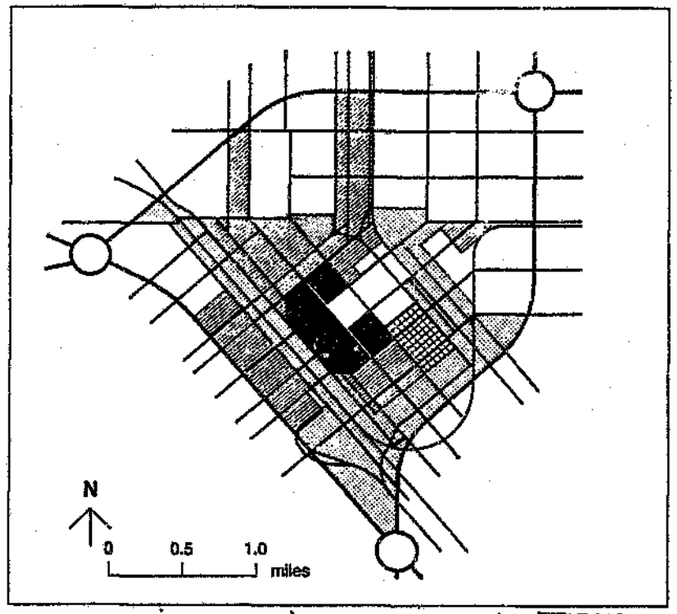
- The vision of civic axis - *'A Shaft of space'* as Bacon refers to it (Bacon 1975), intended to be the civic focus, reinforced preferably by walls of civic buildings. Indicative of this planning are historical examples of Roman forum, the Palace at Versailles, Hausmann's Boulevards etc. The 'civic spine' as was originally planned for Johannesburg was influenced by this school of thought.
- The vision of Public realm - Although an admirable idea, South African city culture has very little idea of what it is to be public. Thus, public squares, and patches of nature in the city are seldom used as intended.

7.3.2 Failure of European Theory as applied to the South African City

None of the theories seem to have exerted an idea powerful enough to substantially influence the modern city. Attoe and Logan maintain that the failure of European theory in the context of the modern city can be attributed to:

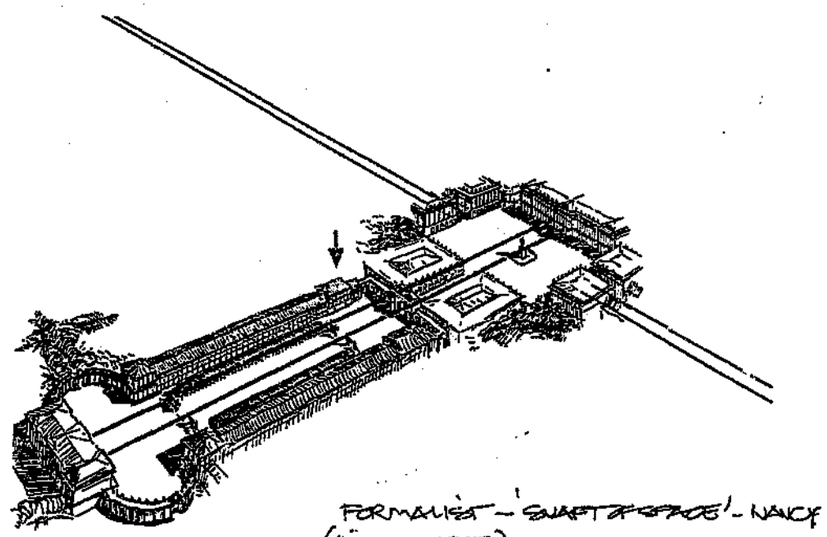
- The inappropriateness of specific models,
- A lack of conviction,
- A concern with too few factors affecting urban development,
- The attitude that each new development effort is independant of its context.

Urban design in South Africa having found its way to South Africa via American universities has tended to follow trends and theories established in that country. Consequently, we suffer from a lack of theory applicable to our particular context.



FUNCTIONALIST DESIGN - VICTOR GRUEN - FRESNO

(Attoe + Logan, 1989)



FORMALIST - 'SHAFT OF SPACE' - NANCY (BACON 1975)

There are several reasons why urban development in the South African city has a tendency to be pragmatic rather than idealistic or inspiring:

- South Africans have little experience with potent, positive, personal rewarding urbanism.
- Many South African towns were mapped out as strict money-making exercises.
- South African towns do not have the long history that imbues cities with richness and depth.
- South Africans have tended to idealise nature and the experience of nature rather than to idealise the city and the experience of the urbanism and civitas.

South Africans expect little of their cities and do not expect anything beyond economic reward, therefore ..."*the task of urban designers ... is as much to educate and to raise aspirations as it is to design and plan strategies.*" *(ibid:41)*

7.3.3 Pragmatic Approach to Inner City Restructuring

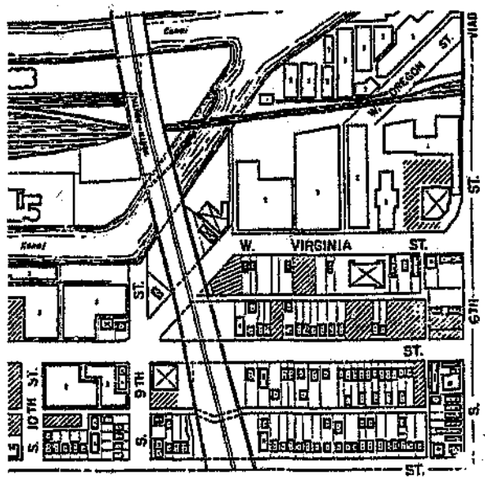
Even though Eurocentric theories are criticised for their impracticalities of application there are universal values (not forms) which can be extracted which contribute to good urbanism:

- Mixed activities are basic to cities.
- Buildings and the spaces they form, are the natural increments of urban growth.
- New urban growth must recognise the context provided by past construction.
- A major goal of urban design is the shaping of public open space, including meaningful street space.
- Streets must accommodate various forms of transit and enhance pedestrian activity and movement.
- Transportation systems should be rational.
- Urban spaces should be varied to enhance the activities associated with them: housing, neighbourhood shopping, major retail, civic etc.,
- Citizens should have a role in shaping urban settings.

7.3.4 Urban Catalysis

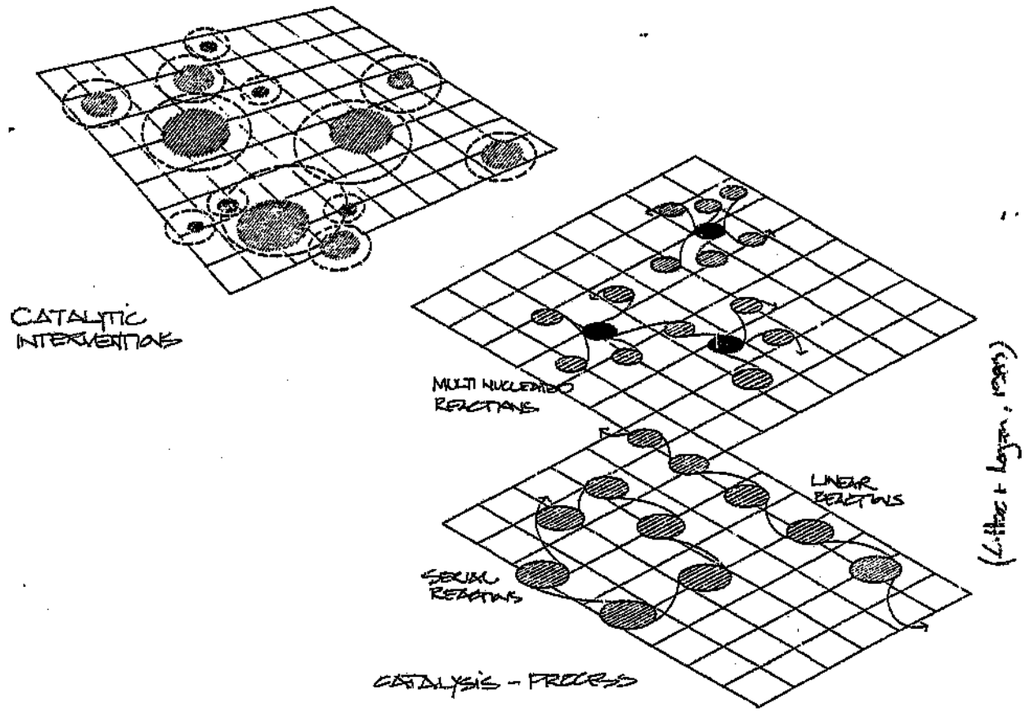
There should be no blueprint for the urban centre, either functionalist, humanist, systemic, or formalist and a toolbox of implementation techniques should not simply be left open for use anywhere at any time. Rather, there should be a *"sequence of limited, achievable visions, each with the power to kindle and condition other achievable visions."* (ibid:48) Attoe an Logan use the word catalyst analogous to its chemical connotation.

> *"In chemistry the catalyst often disappears but in the case of the urban chemistry, the ingredients remain and contribute to the unique character and sense of depth. The layers of urban experience, urban history, the collage of styles and uses characteristic of a vital city centre are the essence of urbanity ... events that have produced its distinctive character: bold street grids;.. main street commercialism; technological bravado, proud civic structures" (ibid 44)*



SYNOPSIS OF A TYPICAL AMERICAN (SOUTH AFRICAN) CITY: - HIGH-SPEED ARTERIALS / NEIGHBOURHOOD STREETS SERVICE ALLEYS RAILS AND STORMWATER CANAL

(Attoe + Logan 1989)



(Attoe + Logan, 1989)

Defined in urban design terms:
"A catalyst is an urban element that is shaped by the city and then in turn shapes its context. Its purpose is the incremental, continuous regeneration of the urban fabric. the important point is that the catalyst is not a single end product but an element that impels and guides subsequent development." (ibid:45)

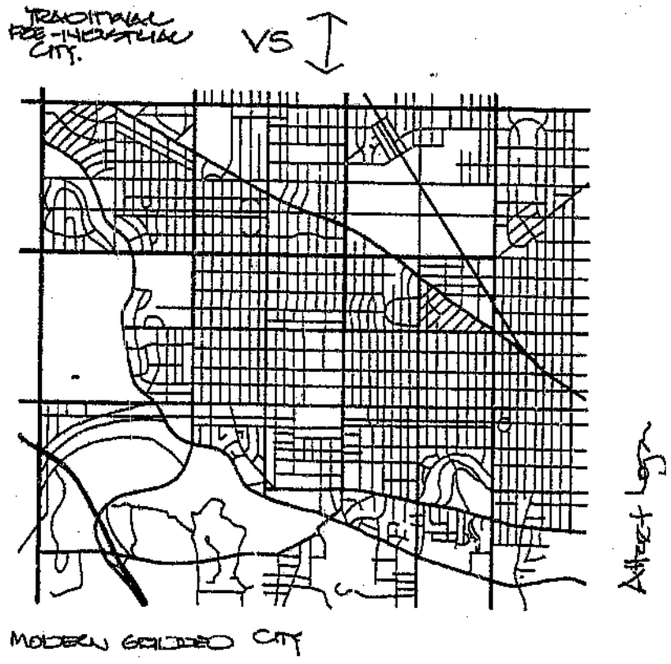
7.3.5 Characteristics of Urban Catalysis:

- The new element modifies the elements around it.
- Existing elements are enhanced or transformed in positive ways.
- The catalytic action does not damage its context.
- A positive catalytic reaction requires an understanding of the context.
- All catalytic reactions are not the same.
- Catalytic design is strategic
- The major goal is a product better than the sum of the ingredients.
- The Catalyst can remain identifiable. (ibid:47)

7.3.6 Advantages of Modern (Gridded) Cities

- Modern cities are simply ordered. They were laid out purposefully with a surveyor's clarity. This allows adaptation to new ordering systems.
- The clarity and flexibilty of the grid make circulation comprehensible and allow the city to develop a complex patchwork of land uses.
- A variety of land-uses creates smaller patchworks of districts which provide opportunities for complexity and diversity.
- Streets are wide and straight: this unfortunately allowed for the easy introduction of the car. However, accommodating the car can be positive; Vehicular streets can be used to frame and focus precincts of activity .
- Whereas Hausmann created hierarchy by carving new boulevards from the existing fabric, the grid affords a range of hierachies (Which is often a problem in itself) The regular street pattern offers opportunities to establish different kinds of streets in different parts of the city. Hierarchy can be created by changing the width and carrying capacity of the streets, some emphasising vehicles, while others are zoned for increased pedestrian use. This type of manipulation would involve wholesale demolition in many European cities.
- Complexity within the grid - When the grid confronts natural terrain, as in the case of San Francisco or Los Angeles, the purity of the grid is distorted creating unique spatial transitions and vistas.
- The intersection of a railway line or market place through the grid also creates distortions and unique spatial effects allowing opportunities for enriching the urban experience and for creating diversity in the land pattern.
- Because of the grid, most modern cities have responded in similar character:
  - * Streets are straight and wide
  - * Antiquarian monuments are infrequent
  - * Buildings date from the nineteenth century or later
  - * Signs of commerce abound (literal or figurative)
  - * Grain and pattern of building development is different to that of European buildings.


(Lozano 1991)



7.4 Design Strategy - A Hybrid

The process of modern city development is the process of catalysis. It is a realistic approach, based on the way capitalist projects are evaluated and financed. With its selfish objectives it cannot be assumed that catalysis alone can restructure the city according to the performance criteria stated above. This can be illustrated by the shambling laissez-faire development of the London Docklands. (Ellis, 1989)

The author believes that a 'masterplan', overall structuring logic or vision is essential to inform and evaluate individual catalytic projects. What is proposed is a strategy for establishing a structure within which catalytic projects are identified and assessed separately.

Proposed Design Process:

a. *Analysis of the Existing Context to identify structuring elements which constrain the proposed intervention.*

b. *Analysis of Problems which exist with the above elements and identify what resources exist which could serve to solve them.*

c. *Development of Design Concept - cohesive idea which serves to inform design decisions*

d. *Application of Design Principles:*

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d. ***Application of Design Principles:***

(page 59 omitted ~~missing~~ in the pagination)

PART EIGHT: CONTEXTUAL ANALYSIS

8.1 Metropolitan Problems and Constraints

8.1.1 Metropolitan Constraints

- **Social Infrastructure**

The majority of social facilities on the Witwatersrand are concentrated at the centre city and in the northern suburbs. The South -western , western and southern areas are equally disadvantaged by having limited access to such facilities. The implication for restructuring is to either increase the facilities in townships or move the townships (the inhabitants) closer to the city centre.

- **Open Space**

The Witwatersrand has relatively few Open Spaces which have been set aside or 'fixed'. Open space tends to be those areas which cannot be built on such as ridges or pans. The pattern of open space thus follows the ridges from east to west.

- **Employment**

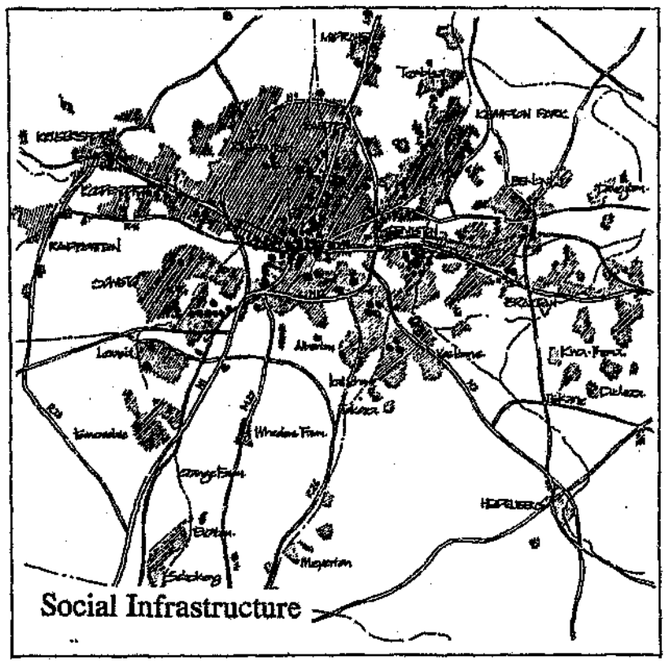
The employment pattern follows the major movement channels. Employment along the east-west corridors is easily accessible, however, the more recent northern corridor, is only accessible by motor vehicle.

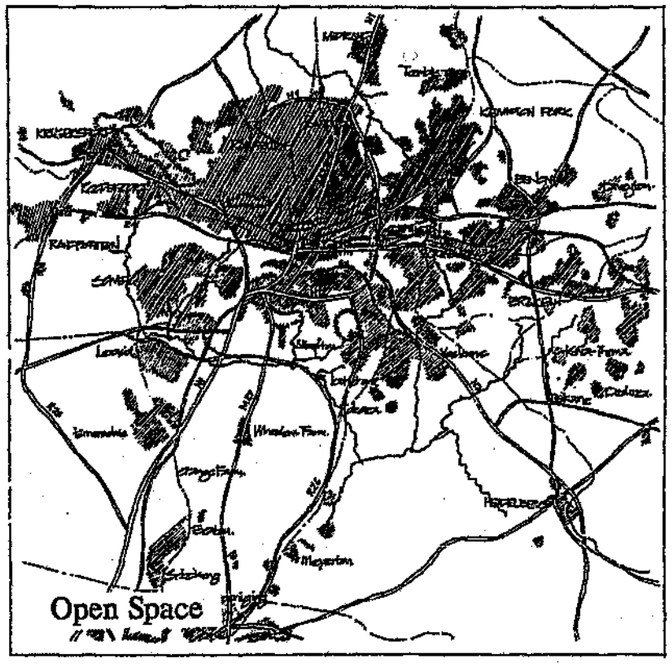
- **Geology**

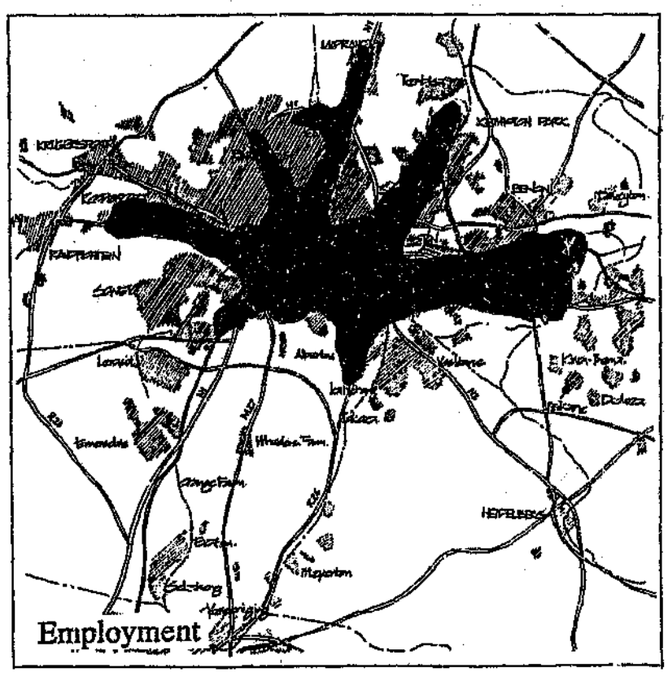
The Witwatersrand geological system consists of a ring of dolomite intersected east west by linear outcrops of the former gold-bearing reef.

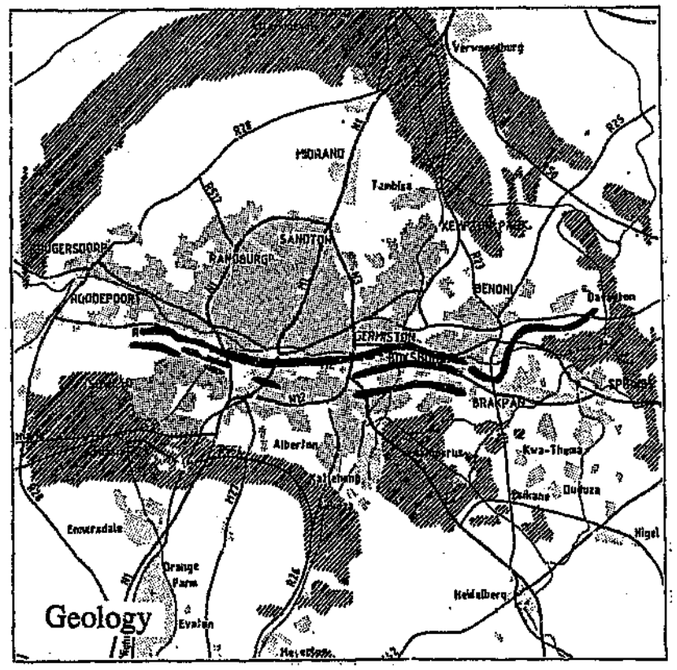
8.1.2 Problems and Opportnities

Two major problems exist at a metropolitan level, namely, Rapid Urbanisation and Urban poverty . These are made worse by the logistical problems created by apartheid.

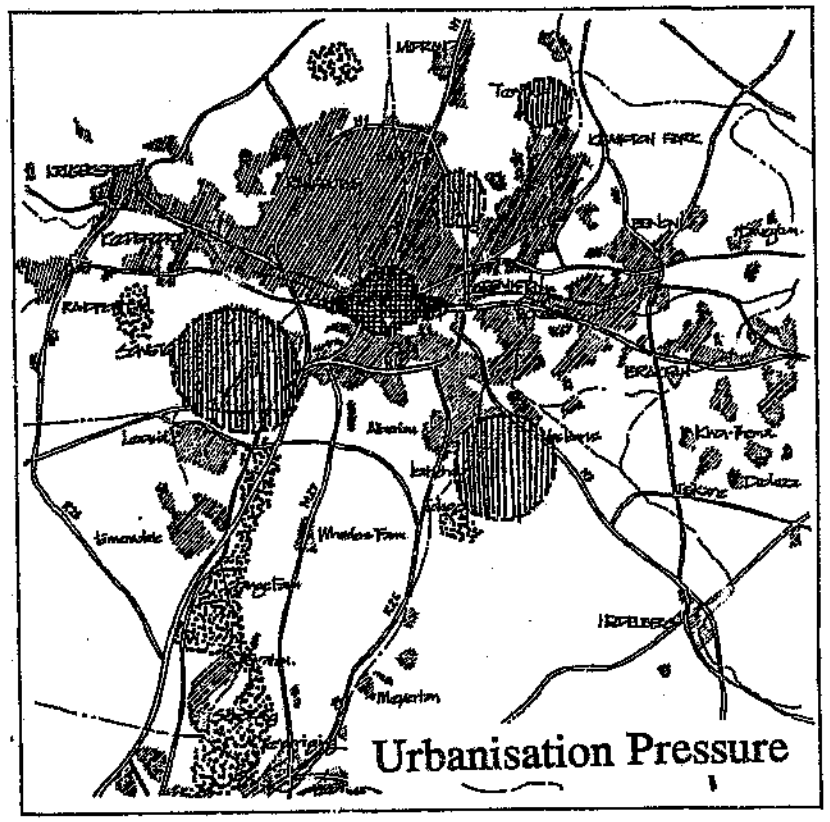


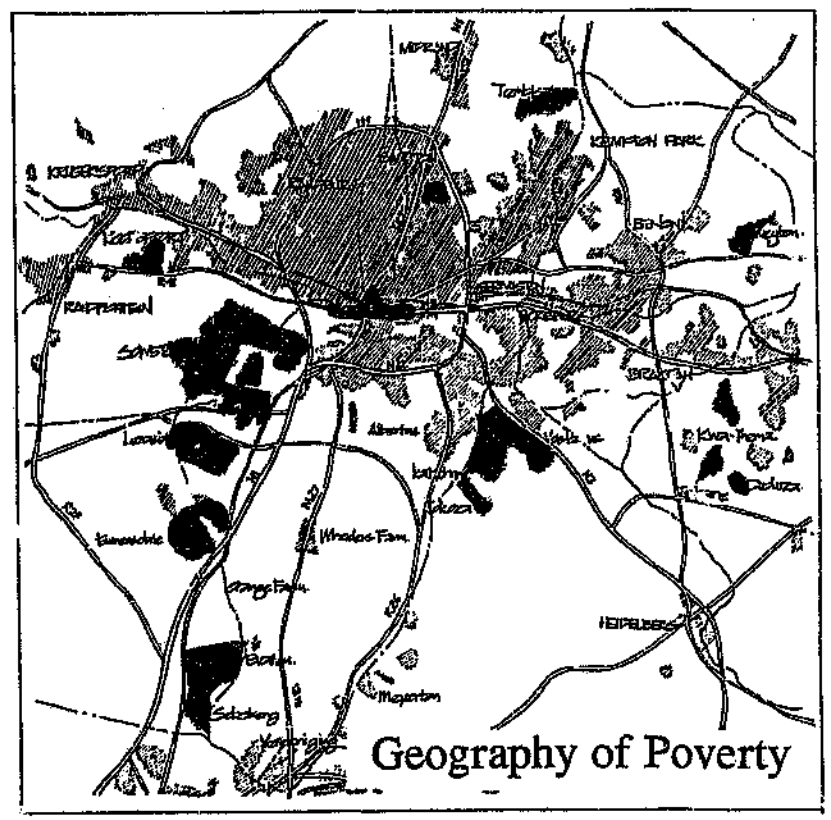






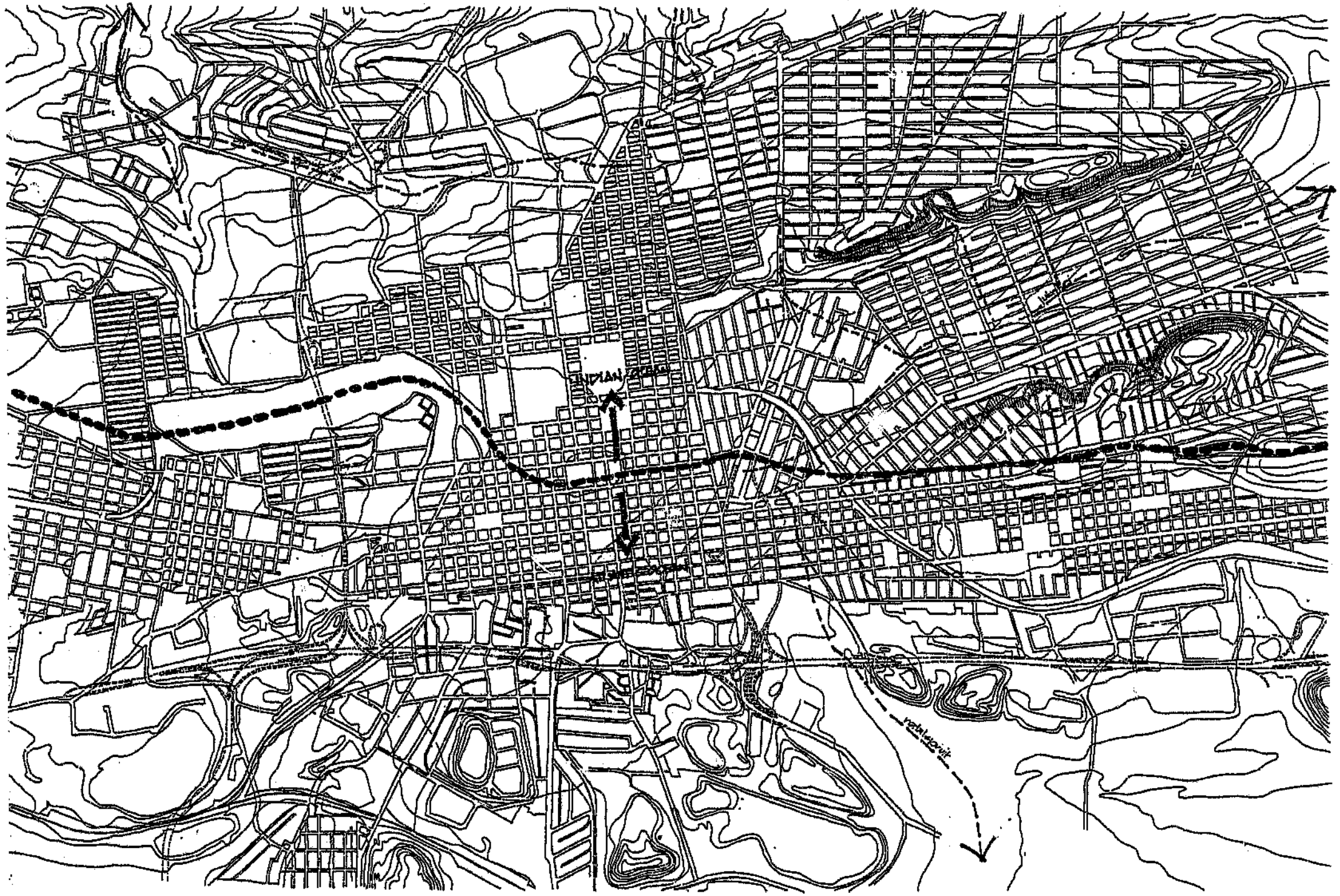
Metropolitan Constraints:





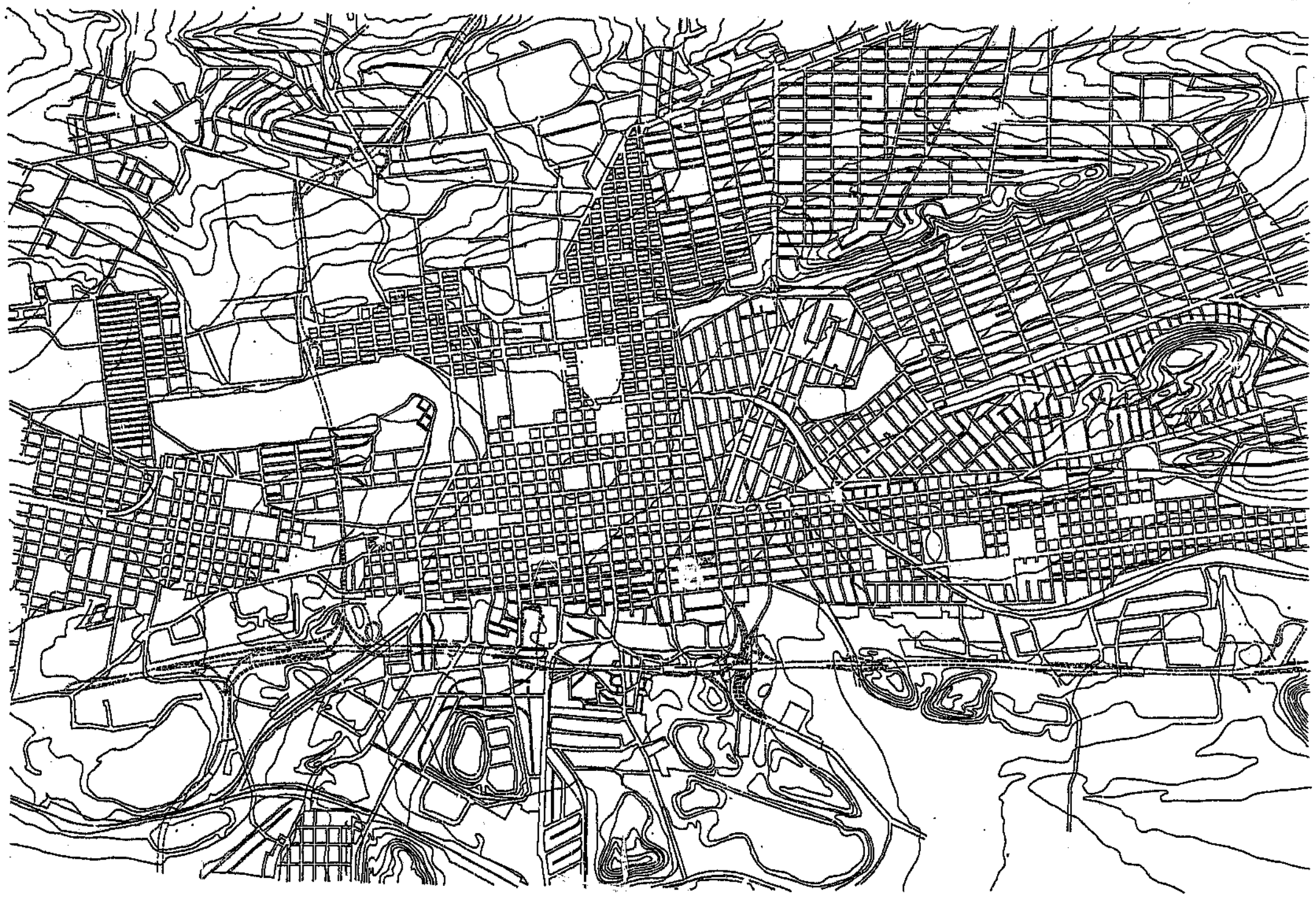
Metropolitan Problems:

8.2 City Problems and Constraints



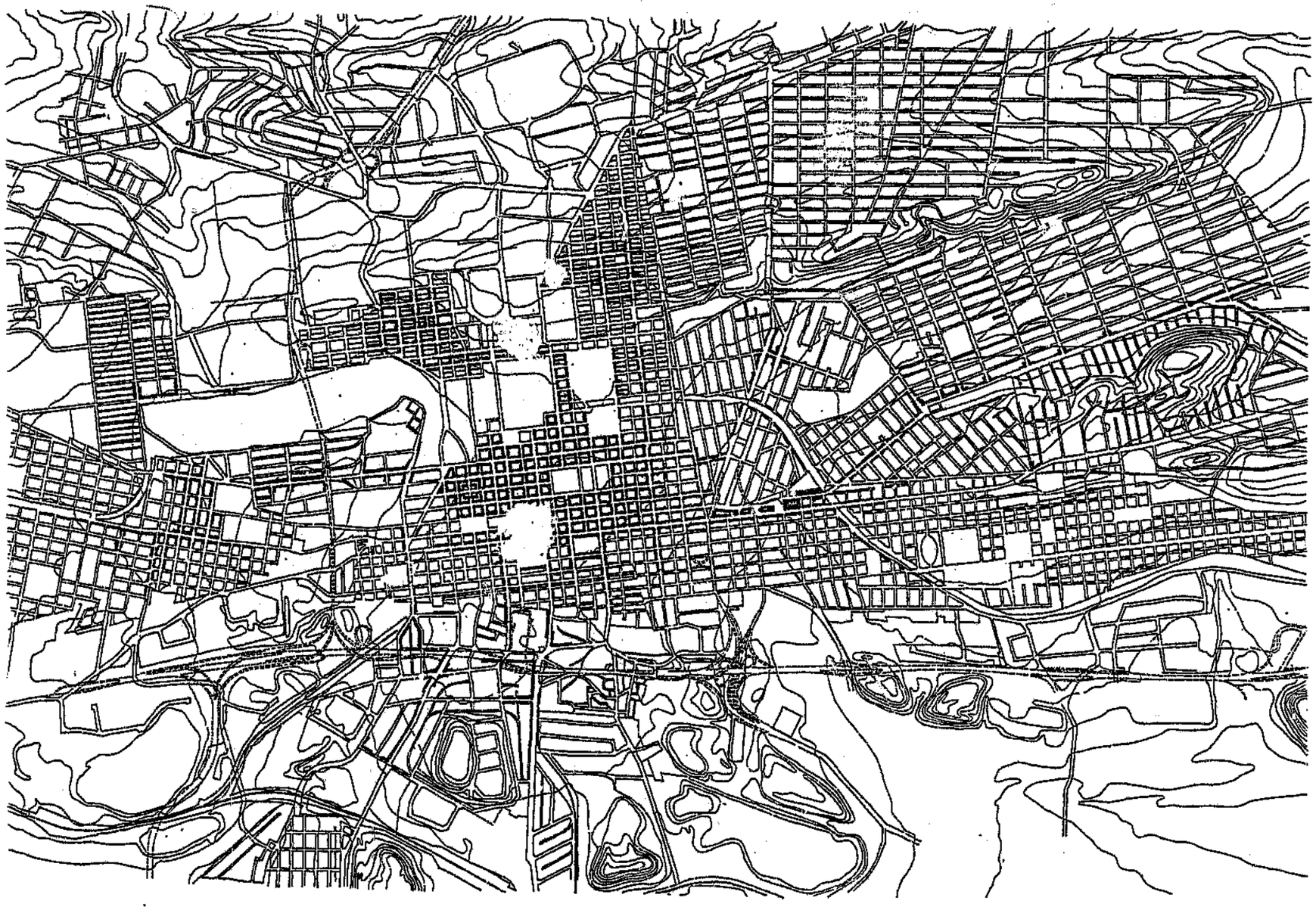


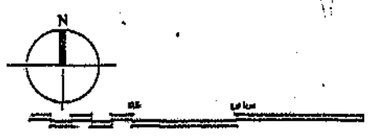
City Constraints:
Natural Systems



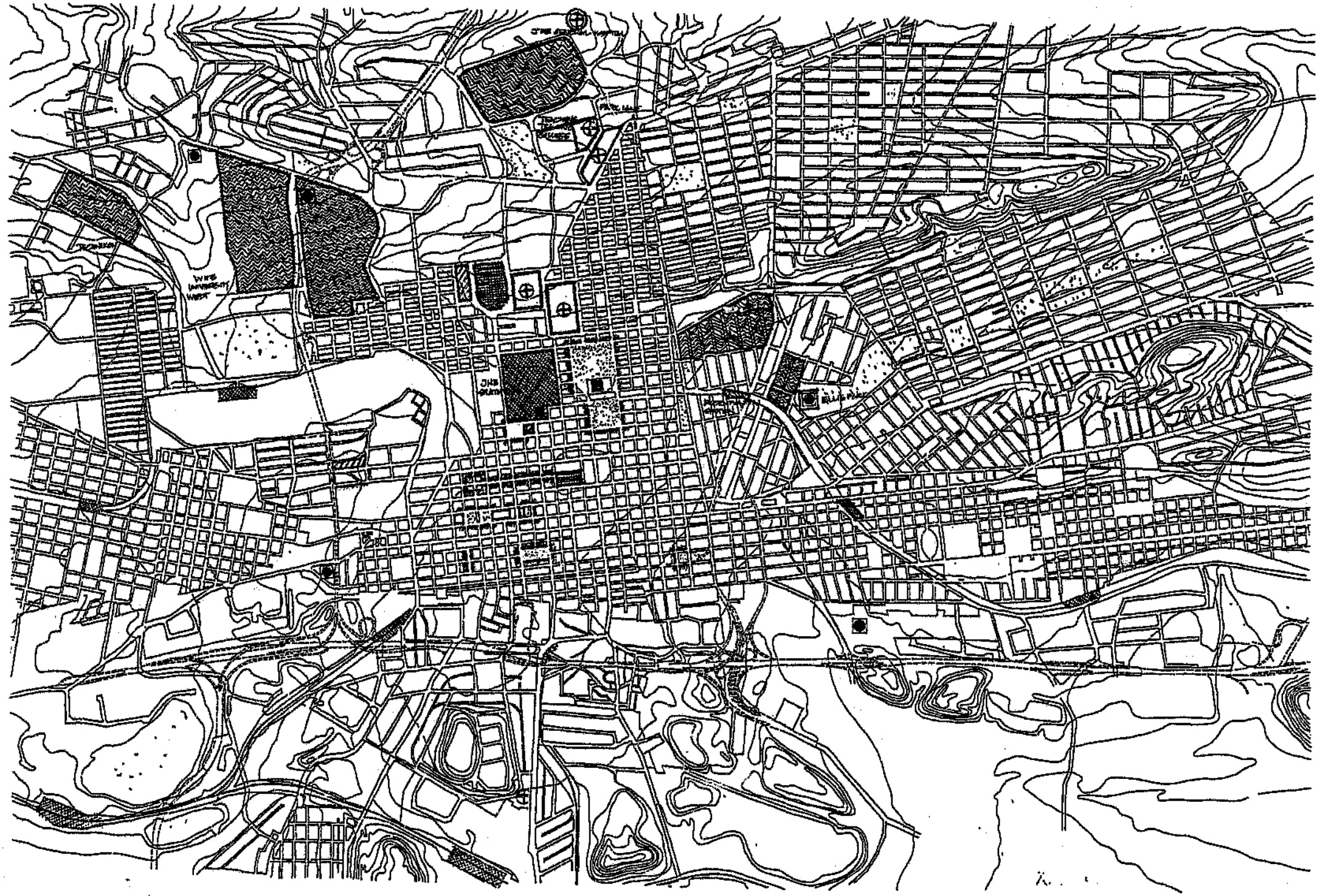


City Constraints:
Spatial Structure



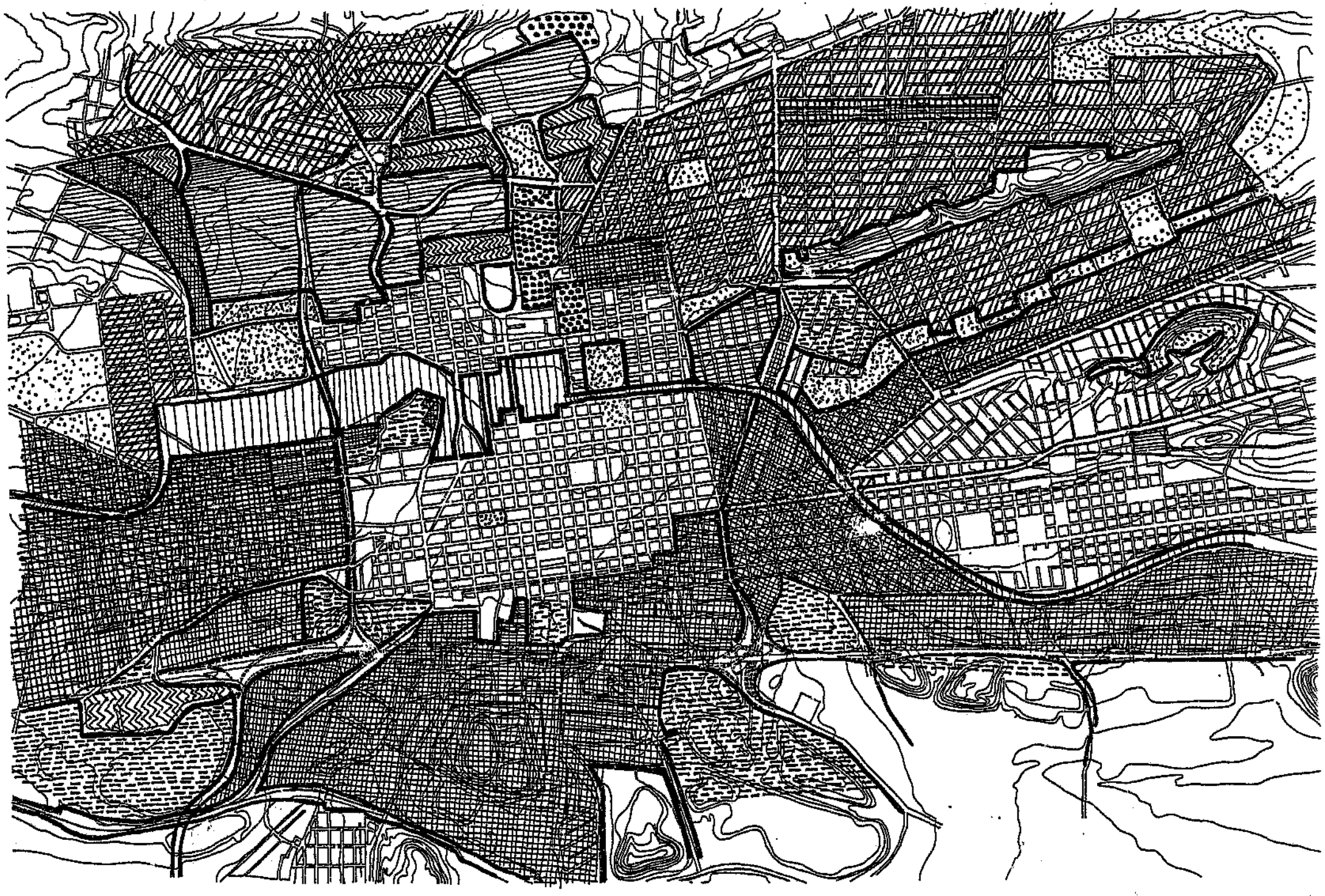


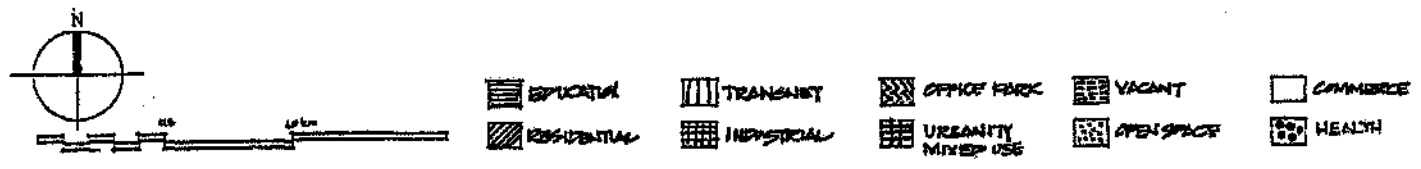
City Constraints:
Commercial Activity



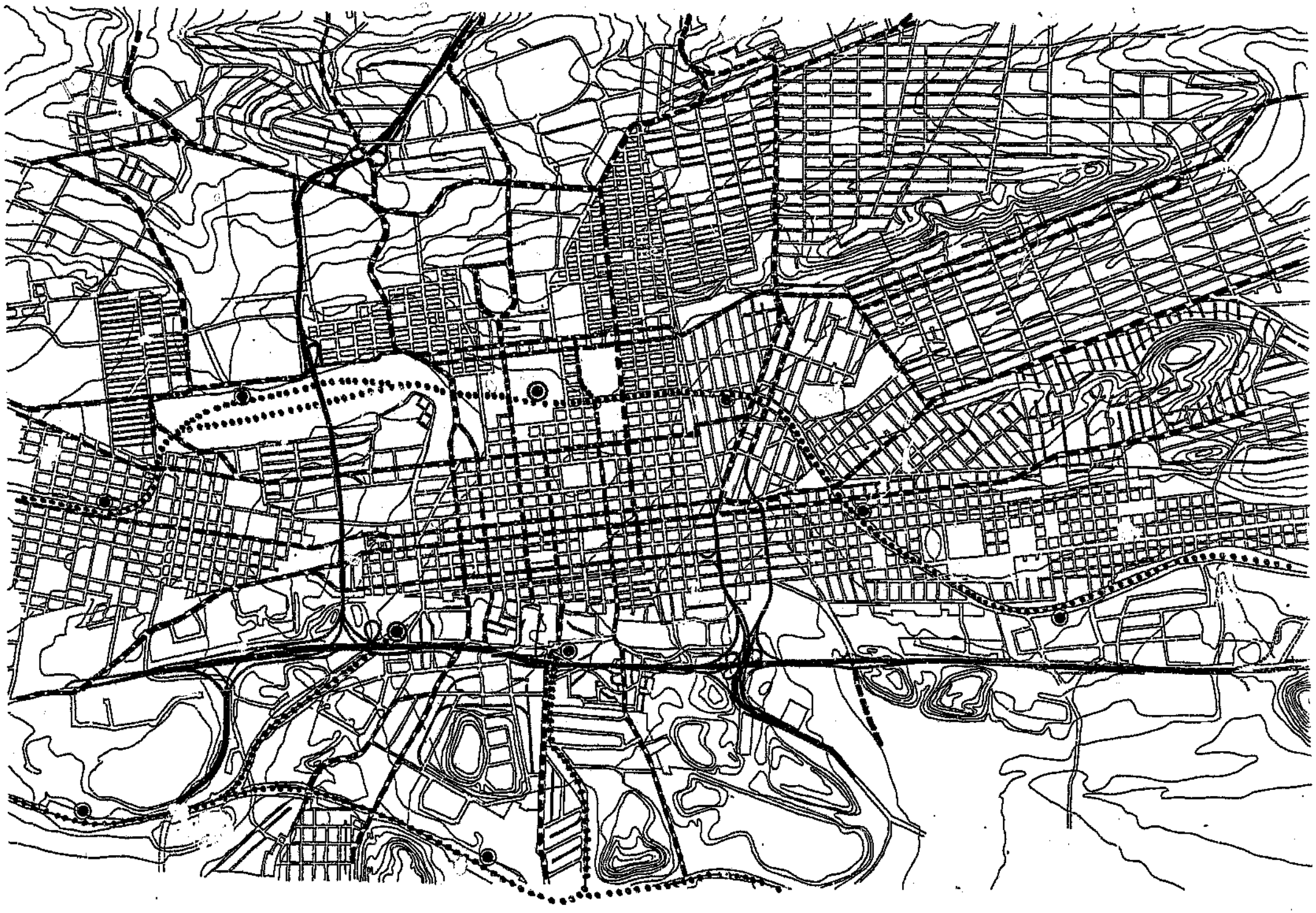


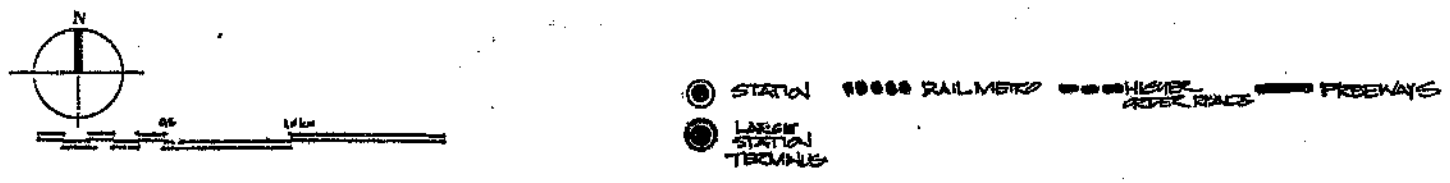
City Constraints:
Public Amenities



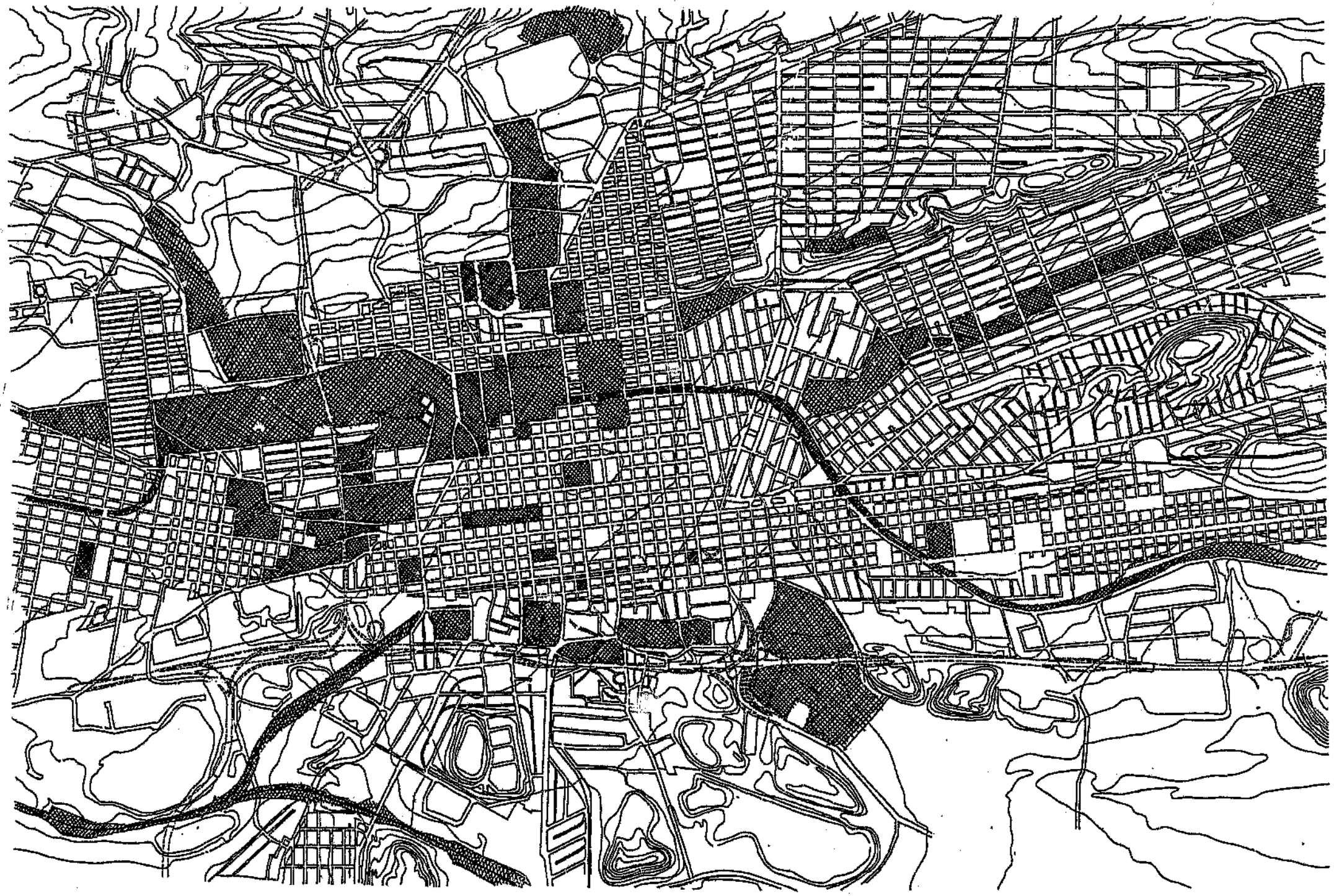


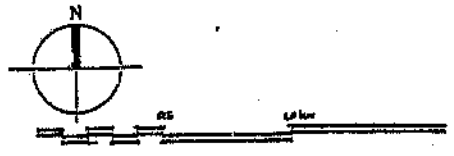
City Constraints:
Predomninant Land Use



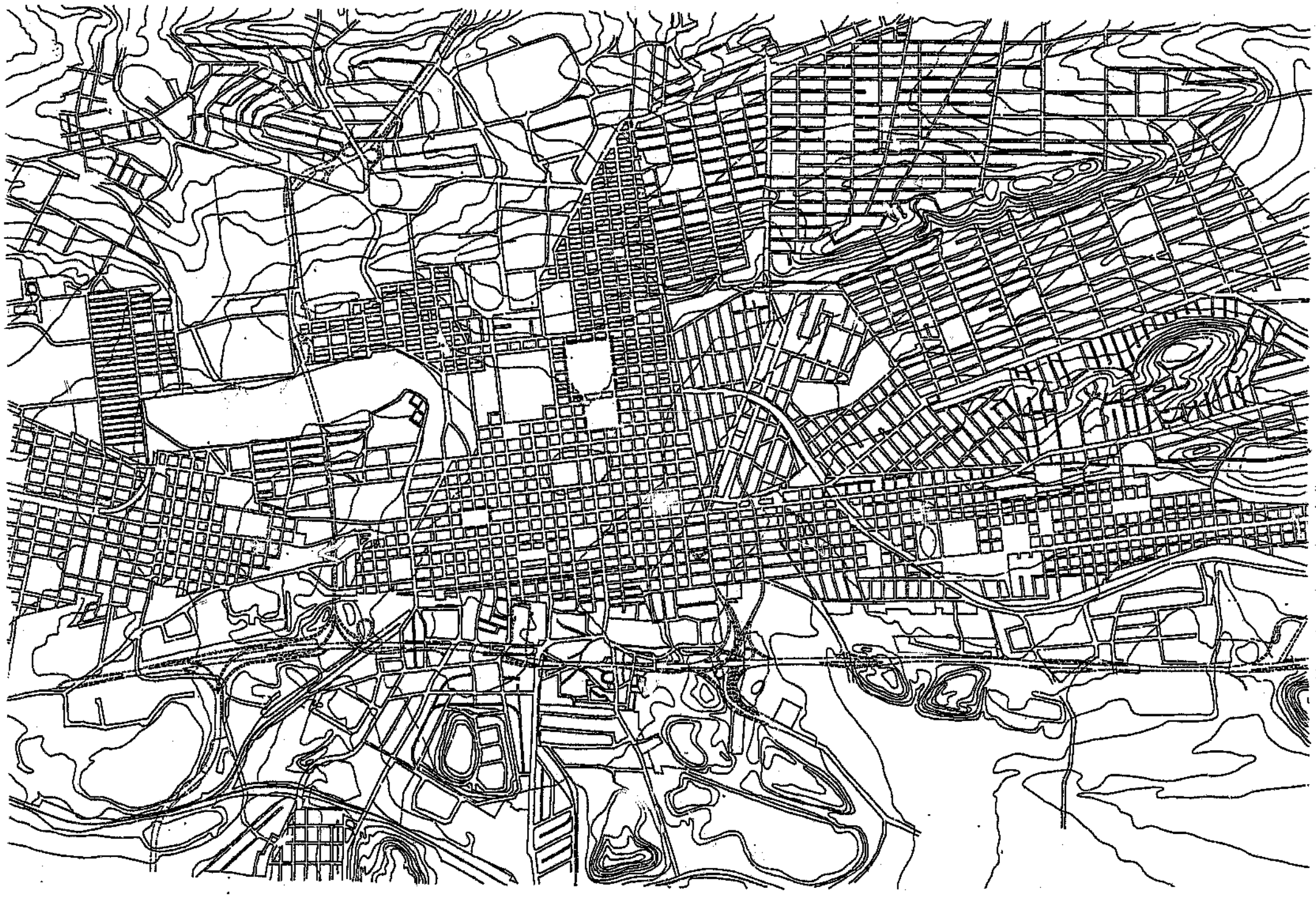


City Constraints:
Movement



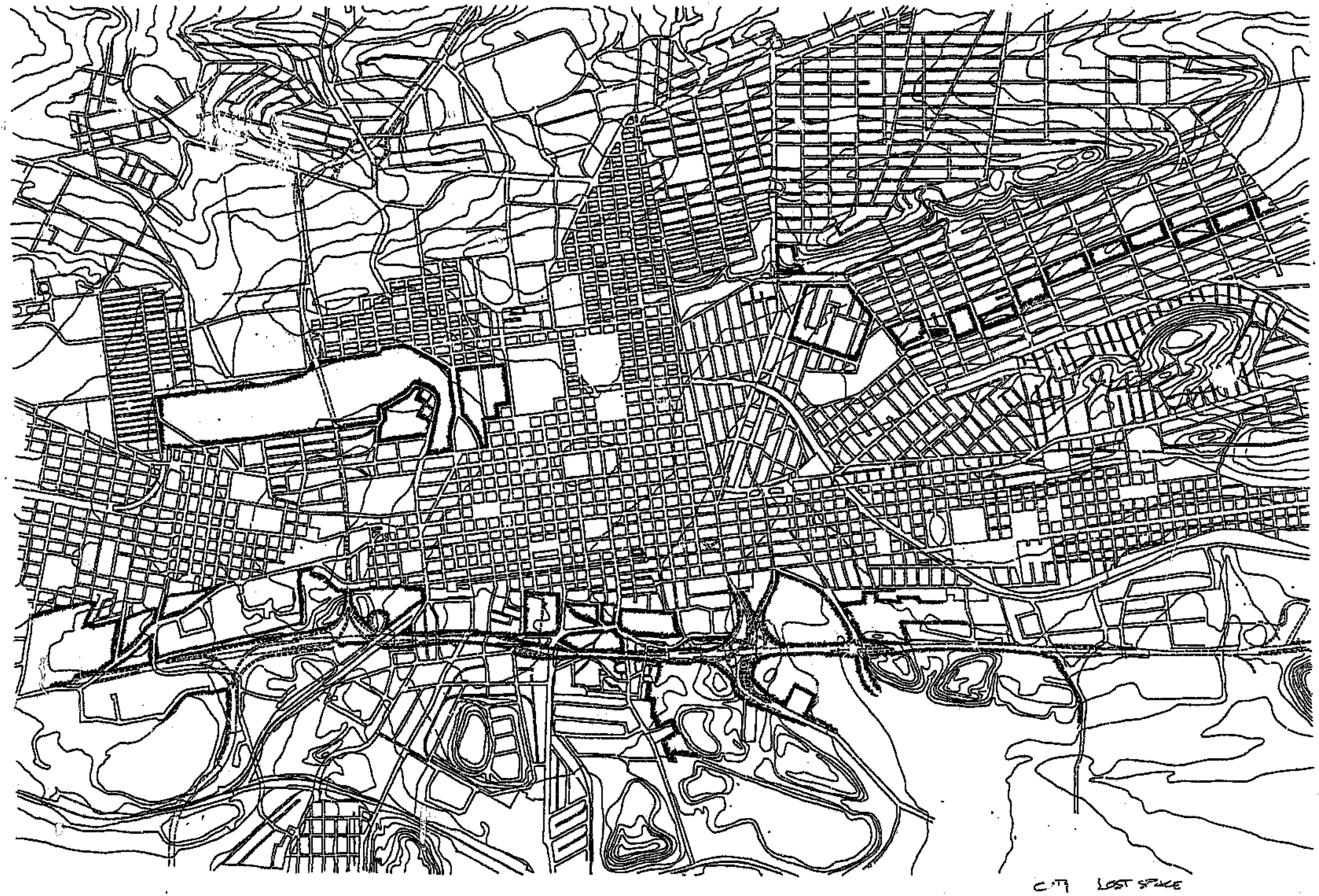


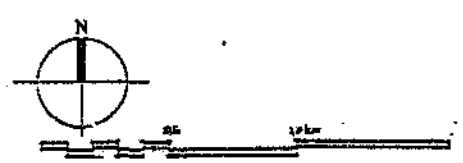
City Constraints
Institutionalised Land



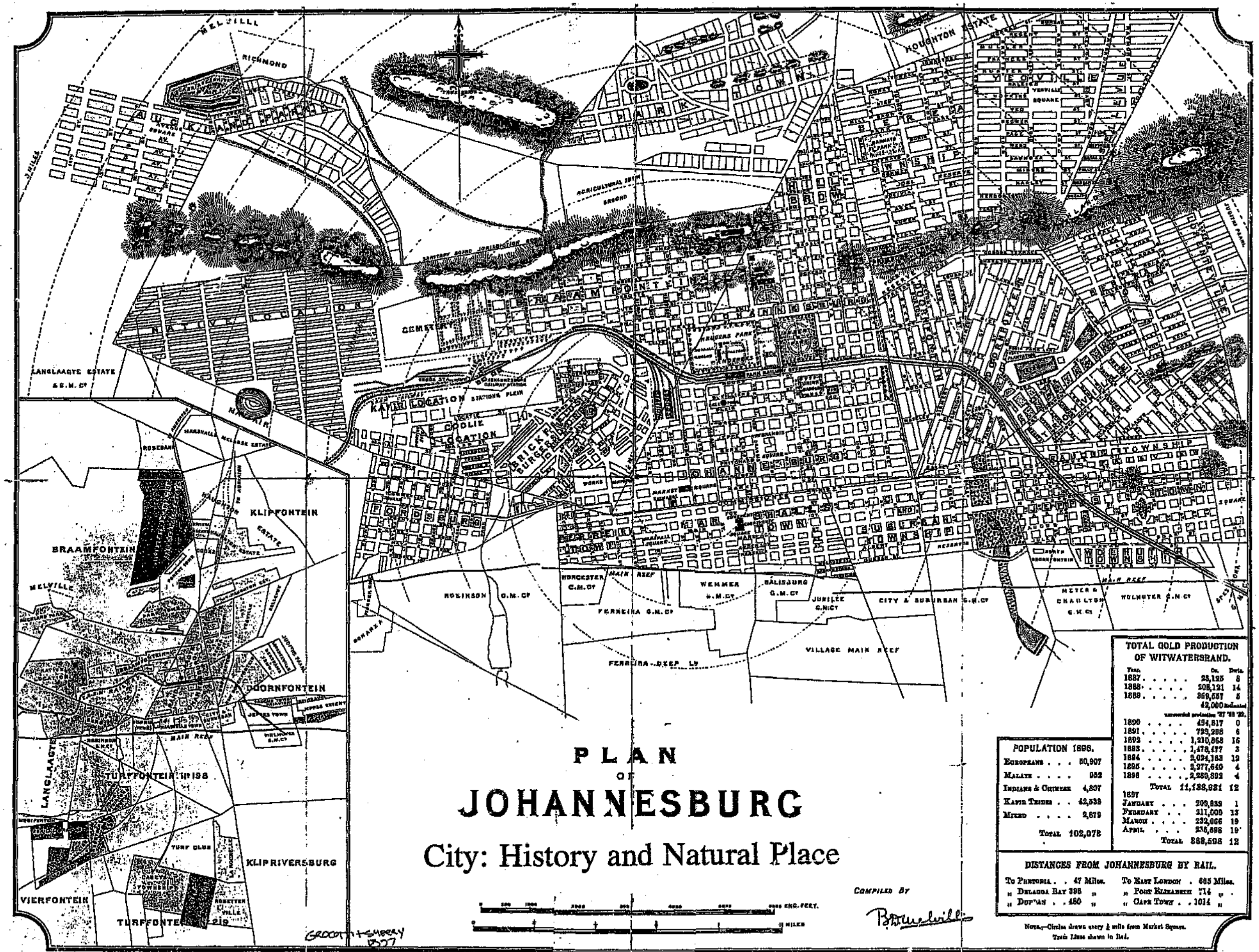


City Constraints:
Urban rooms





City - Problems and Opportunities:
Lost Space


PLAN
OF
JOHANNESBURG
City: History and Natural Place
COMPILED BY
TOTAL GOLD PRODUCTION OF WITWATERSRAND.
Year. Oz. Dwts.
1887 . . . . . 23,125 8
1888 . . . . . 208,121 14
1889 . . . . . 369,557 5
42,000 Estimated
unrecorded production '87 '88 '89.
1890 . . . . . 494,817 0
1891 . . . . . 723,268 6
1892 . . . . . 1,210,868 16
1893 . . . . . 1,478,477 3
1894 . . . . . 2,024,183 12
1895 . . . . . 2,277,640 4
1896 . . . . . 2,280,892 4
Total 11,138,931 12
1897
January . . . 209,839 1
February . . . 211,000 13
March 232,066 19
April 235,598 19
Total 888,598 12
POPULATION 1896.
Europeans . . . 50,907
Malays 952
Indians & Chinese 4,807
Kafir Tribes . . 42,533
Mixed 2,879
Total 102,078
DISTANCES FROM JOHANNESBURG BY RAIL.
To Pretoria . . 47 Miles.
" Delagoa Bay 398 "
" Durban . . 480 "
To East London . 665 Miles.
" Port Elizabeth 714 "
" Cape Town . . 1014 "
Note.—Circles drawn every ½ mile from Market Square.
Train Lines shown in Red.
Copyright
GROCOTT & SHERRY, PUBLISHERS, JOHANNESBURG, S.A.R.
GROCOTT + SHERRY 1897
MELVILLE
RICHMOND
AUCKLAND PARK
HOUGHTON ESTATE
YEOVILLE
BEREA
HILLBROW TOWNSHIP
BRAAMFONTEIN
NATIVE LOCATION
CEMETERY
KAFIR LOCATION
COOLIE LOCATION
BRICKFIELDS
JOHANNESBURG
FORDSBURG
MARSHALLS MELROSE ESTATE
KLIPFONTEIN
BRAAMFONTEIN
MELVILLE
DOORNFONTEIN
LANGLAAGTE
TURFFONTEIN No 198
KLIPRIVERSBURG
VIERFONTEIN
TURFFONTEIN No 219
ROBINSON G.M.Cy
WORCESTER G.M.Cy
FERREIRA G.M.Cy
WEMMER G.M.Cy
BALISBURG G.M.Cy
JUBILEE G.M.Cy
CITY & SUBURBAN G.M.Cy
VILLAGE MAIN REEF
FERREIRA DEEP LD
METER & CHARLTON G.M.Cy
WOLMUTER G.M.Cy
MAIN REEF
ENG. FEET.
MILES

8.3 Historical Development of City Structure

8.3.1 First Establishment -1886

Johannesburg came into existence as a result of the discovery of the gold reef. Kruger believed that it would soon disappear, as did many other gold rush towns. The town was established at the base of the triangular farm 'Randjesfontein' abutting the gold reef.. The triangular boundary would have great impact on the form and growth of the city to the north, particularly, Diagonal street, End street and the form of Hillbrow.

8.3.2 Market 1887

The3 surveyor, De Villiers, formed the town around an elongated public space, parallel to the gold reef. It was originally intended that the major access paths would run east-west, and that development would follow this pattern. Hence, roads running east-west are much wider than those running north-south. Rail Routes reinforced this form of development.

8.3.3 Gold Reef and Main Reef Road

The gold reef was an important structuring element, determining not only the orininal orientation of the town but also that of the metropolis which would later evolve. The gold reef along with the dust of the mines above it, also formed a major barrier preventing growth of the city southwards. Although settlements were established in the south, these were generally inhabited by poorer miners (because of the mine dust). It was only with the cessation of mining activity that these portions of the city could be properly integrated. Today the south is still disconnected, seperated by a band of mono-use industrial land and vacant mining land. This land constitutes a vital resource for much needed housing and open space.

8.3.4 Railway 1889

The railway followed the watershed reinforcing the linear development of the city. Although, initially, there was no commuter service, tram services interfaced with the stations and Main Reef road to produce a multi-modal corridor. The city was thus able to extend accessibilty to Mayfair and Paarlshoop in the west to Jeppestown and Belgravia in the east.

8.3.5 Mine Dust - Development of the North 1897

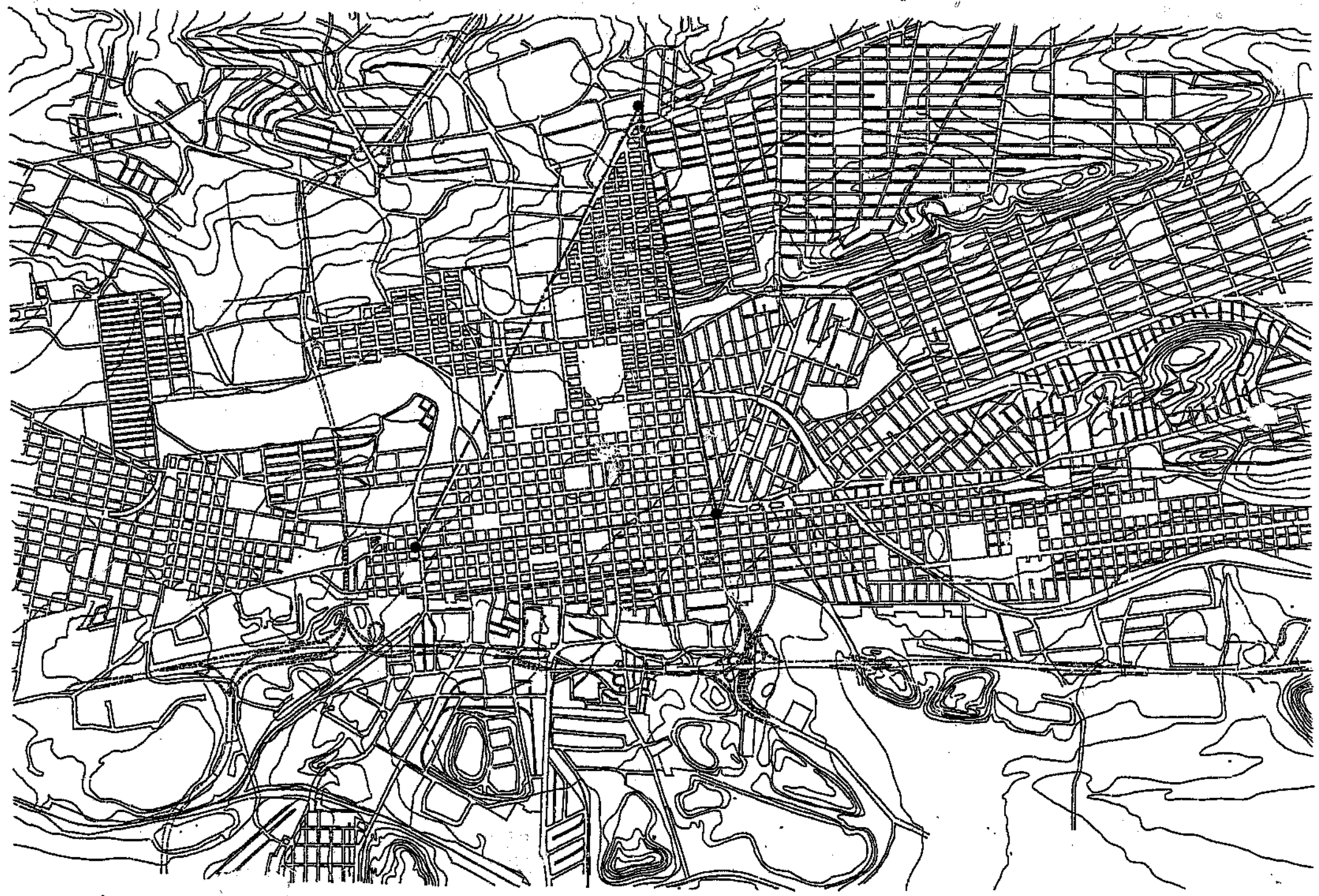
Mine dust and the general aridity of the highveld caused many of the wealthier inhabitants to move to the northern side, Parktown (developed ridge). As many of these people were also in command of city resources, development and infrastructure began to shift in this direction. Thus today, the major traffic arterials extend northwards. Rail routes were never extended to these areas and consequently, they were able to retain exclusivity. Doornfontein, Jeppestown and Fordsburg , because of the accessibility to the city became prime areas for location. Hence their demise as middle-class areas and their consequent densification.. The latter areas of Johannesburg, because of their accessibility and density, are the only centres which express a quality of urbanity.
The development of the north presented major problems for the city. There were no direct connecting routes. The city grid did not extend northwards. The Braamfontein and

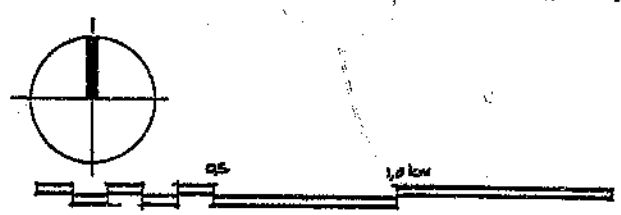
Parktown ridges presented major infrastructural obstacles.
The resultant connections to the city disrupted the designed logic of DeVilliers. With increased development northwards, the narrow north-south streets became major movement arterials. Later, the primary public space, the market square was cut up by north bound roads, thus destroying the east west logic of the city.

8.3.6 Rape of Public Spaces

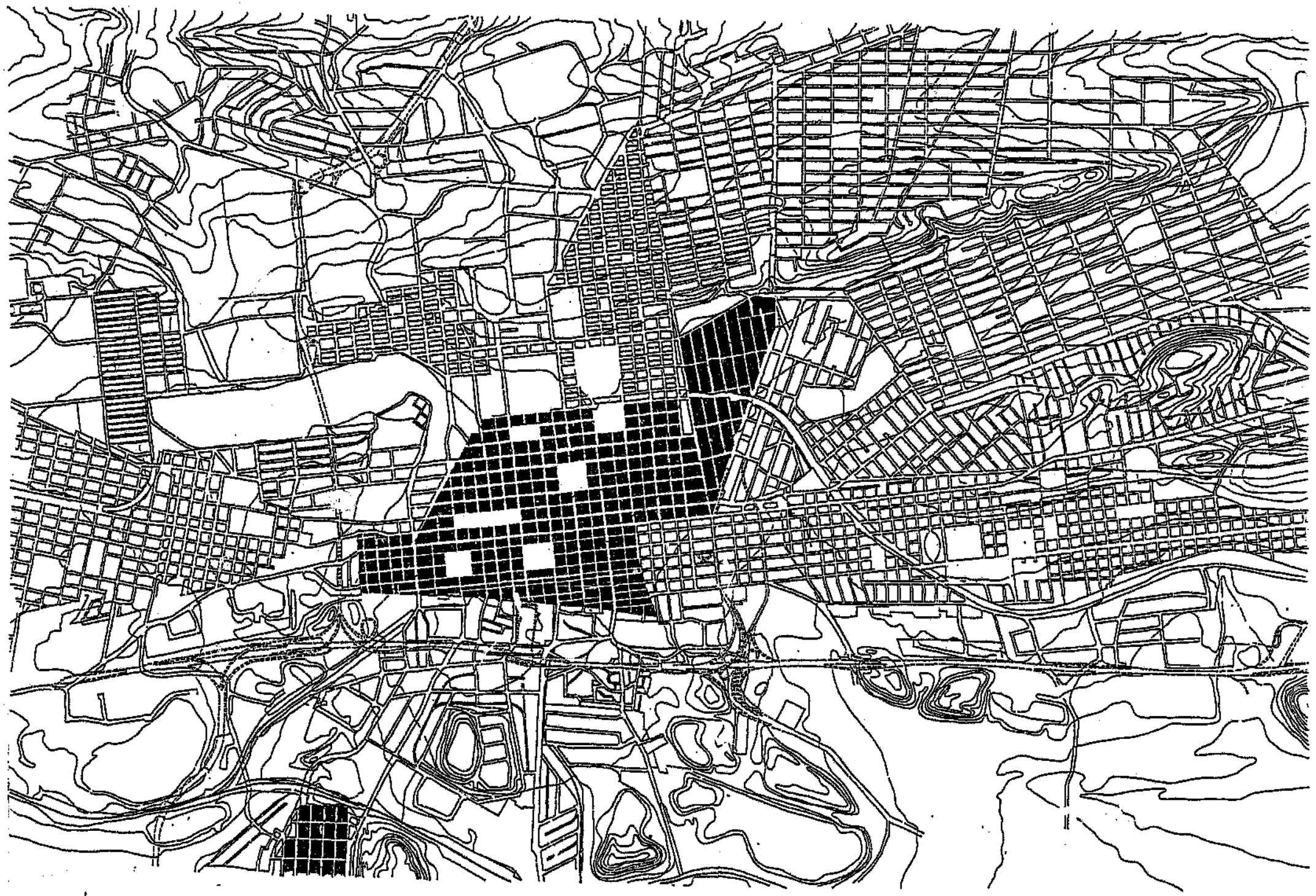
One of the most destructive activities of the city fathers was to privatise and build over public space. The main reason, it appears, was the fact that public spaces permitted easy assembly and were less expensive to aquire. Many of the early city fathers were also hand-in-glove with, or were themselves, the major property owners. This resulted in the successive rape of almost all the city's public spaces. Those that were not auctioned off or donated were used for public building site. Later as a result of pressures for parking, many were excavated for parking garages, rendering extensive planting very difficult. The following city-spaces were affected:

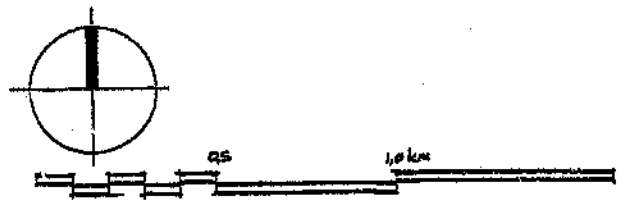
Harry Hofmeyr Gardens (Market Square)
Van der Bijl Square (Government Square)
Jack Minster Square (Union Square)
Marshall Square (Completely built over in 1989)
Church Square
Johannesburg Station (formerly Wanderers Grounds)
Wemmer Parking Lot (Wemmer Grounds)



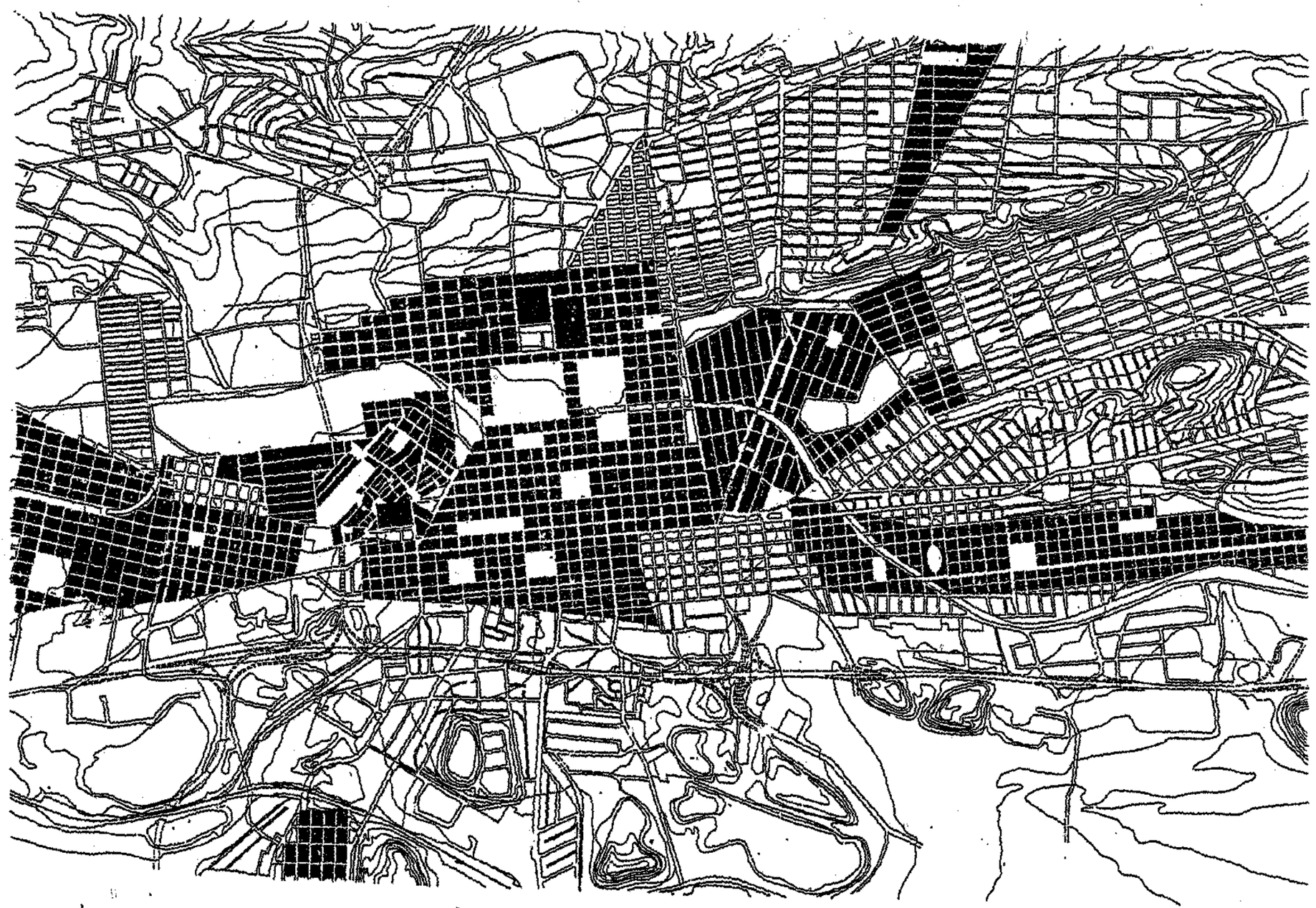


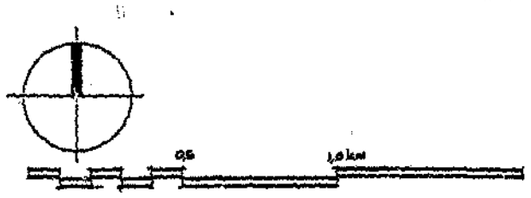
Development of City: 1885



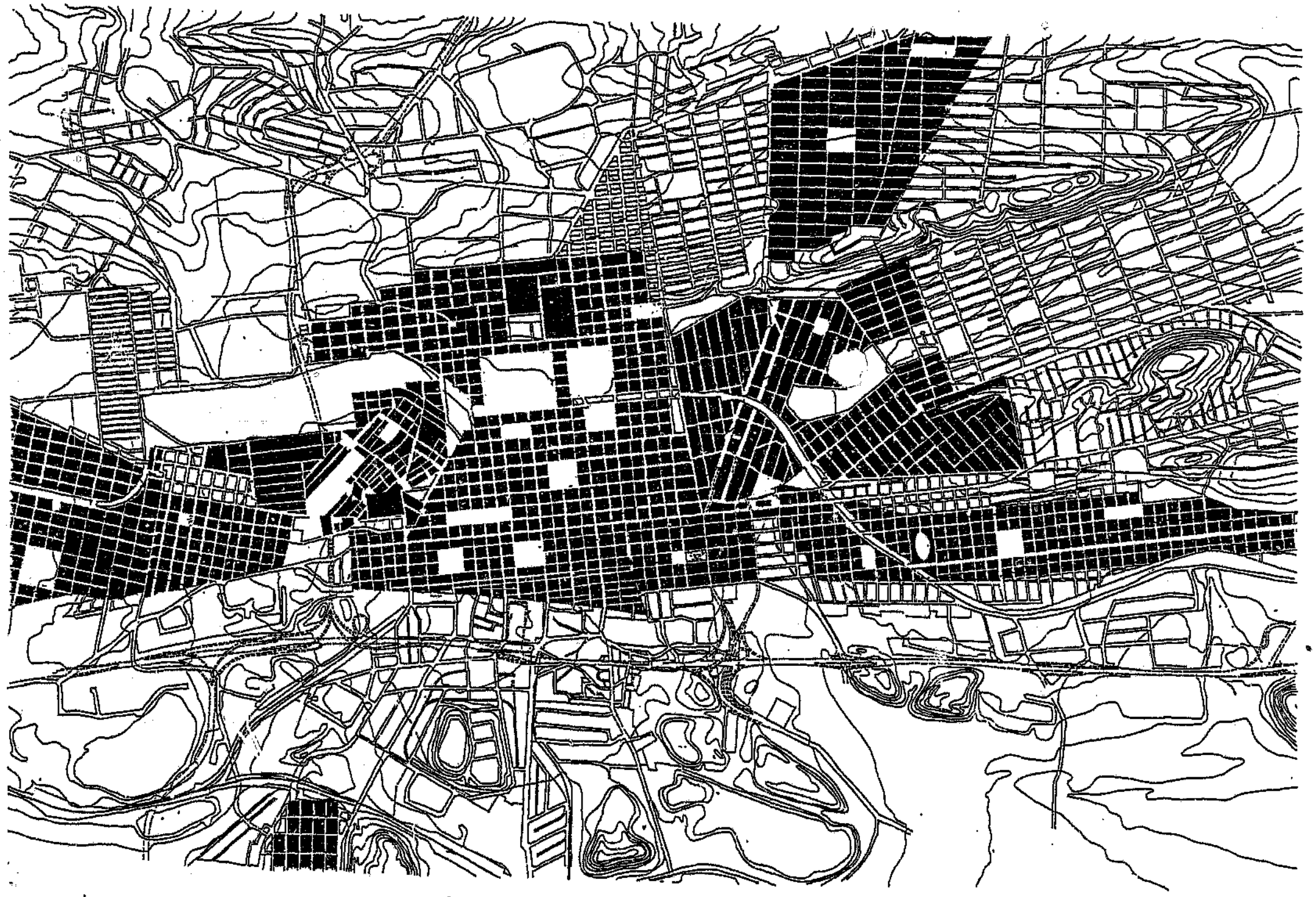


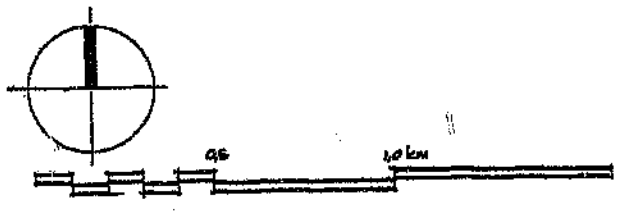
Development of City: 1887



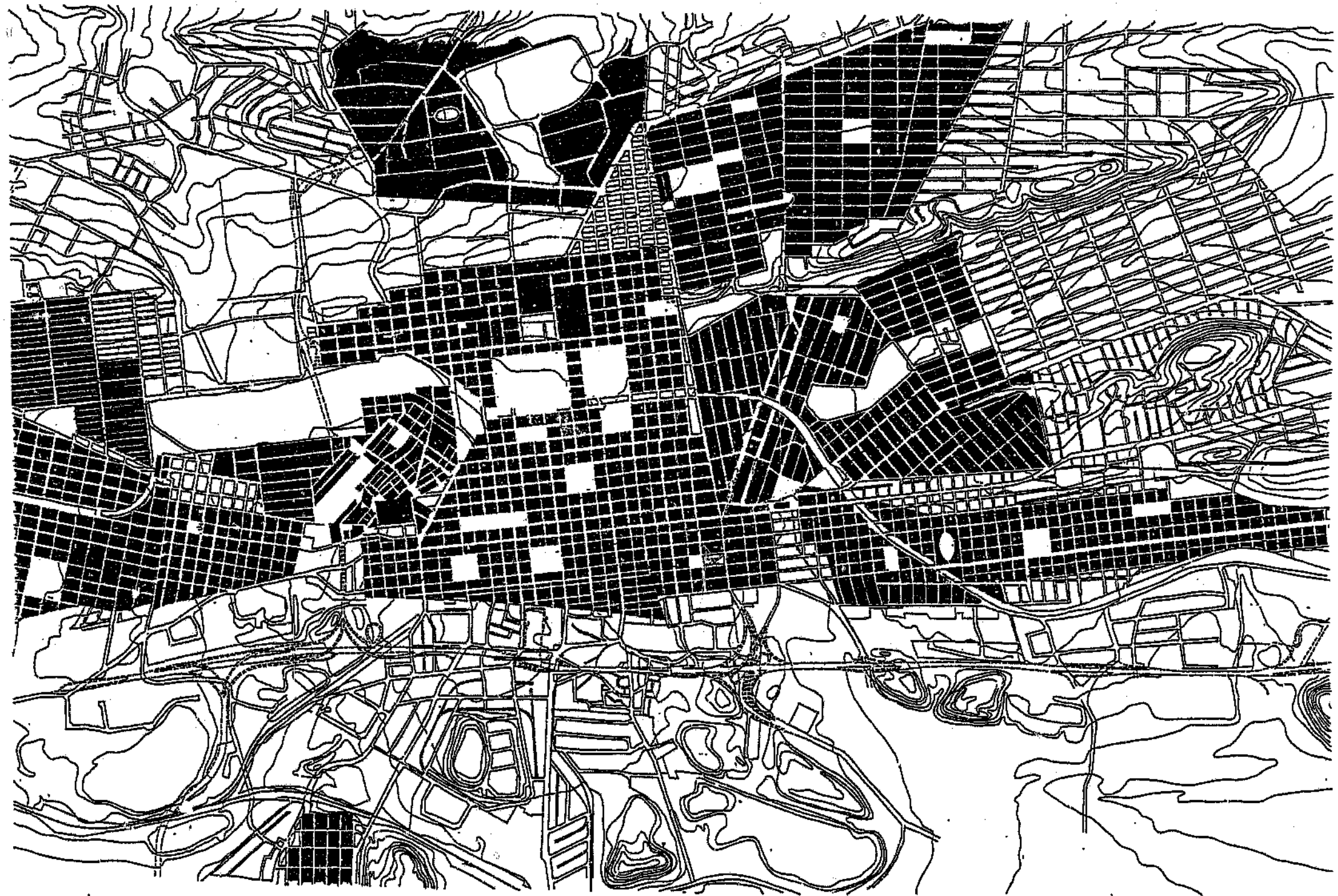


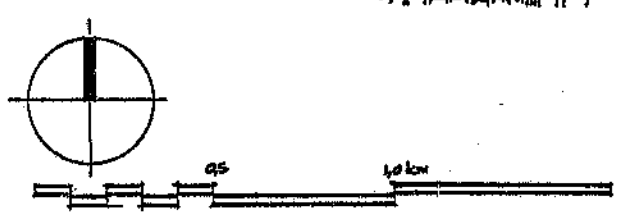
Development of City: 1888-1890



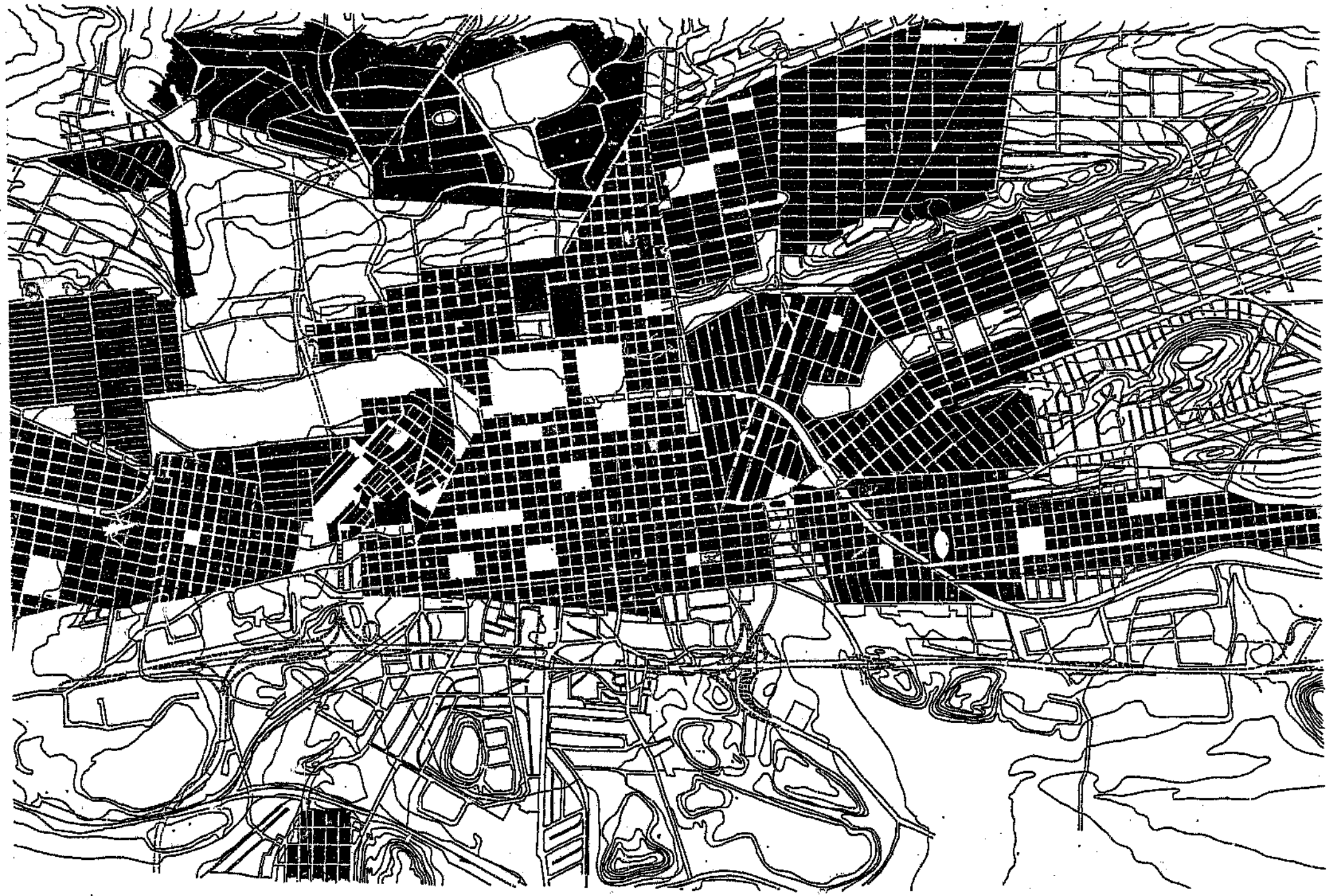


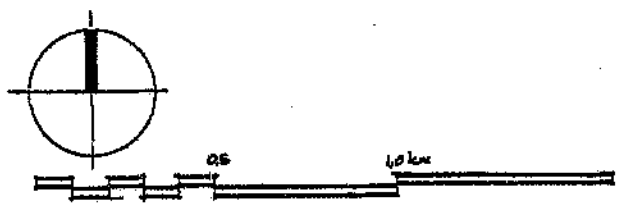
Development of City: 1890-1892



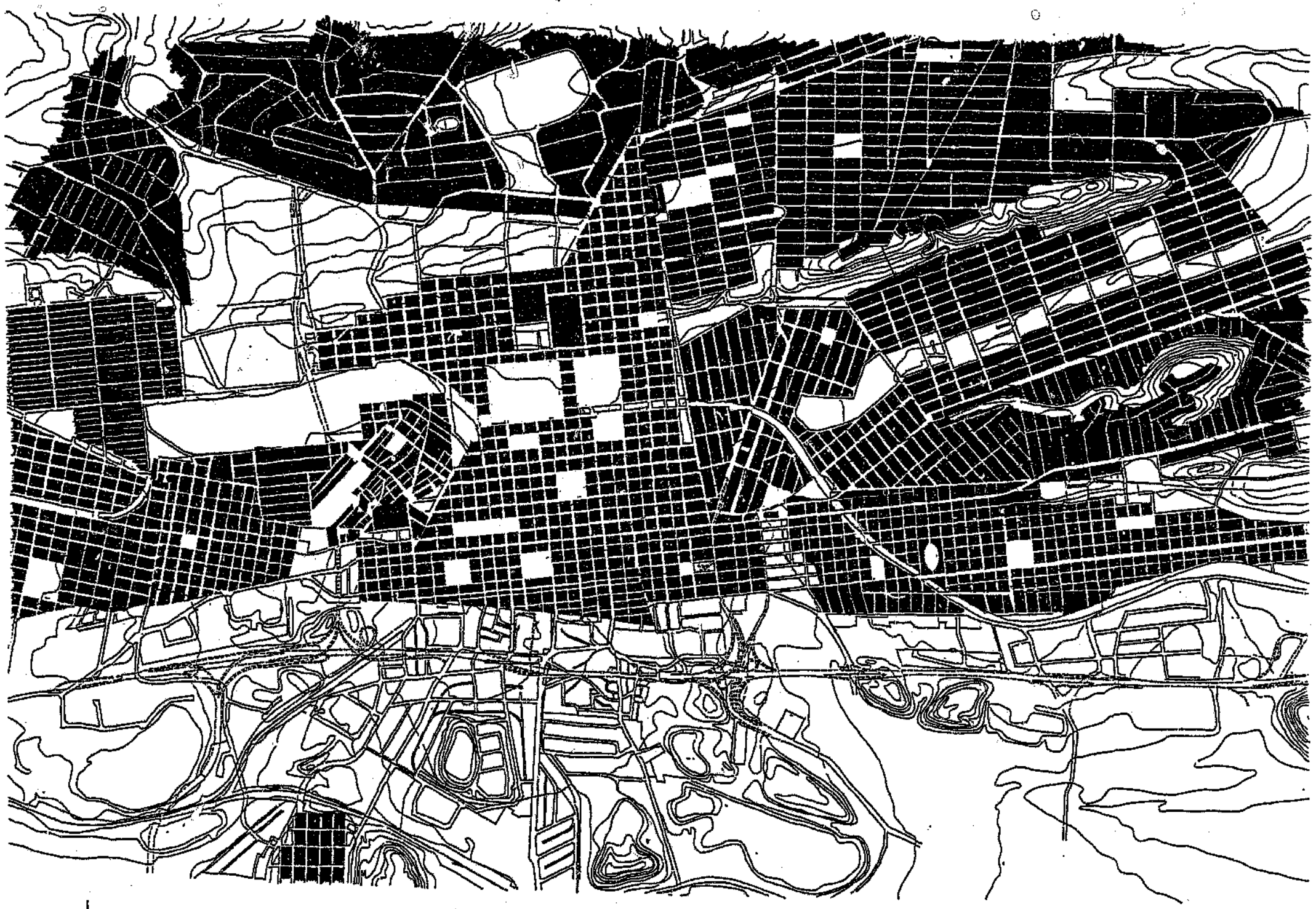


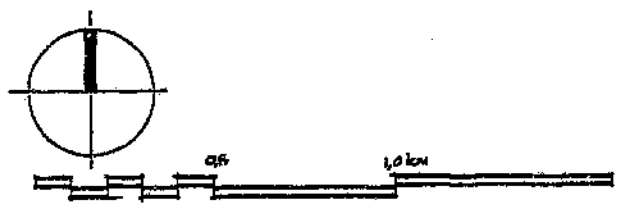
Development of City: 1892-1895



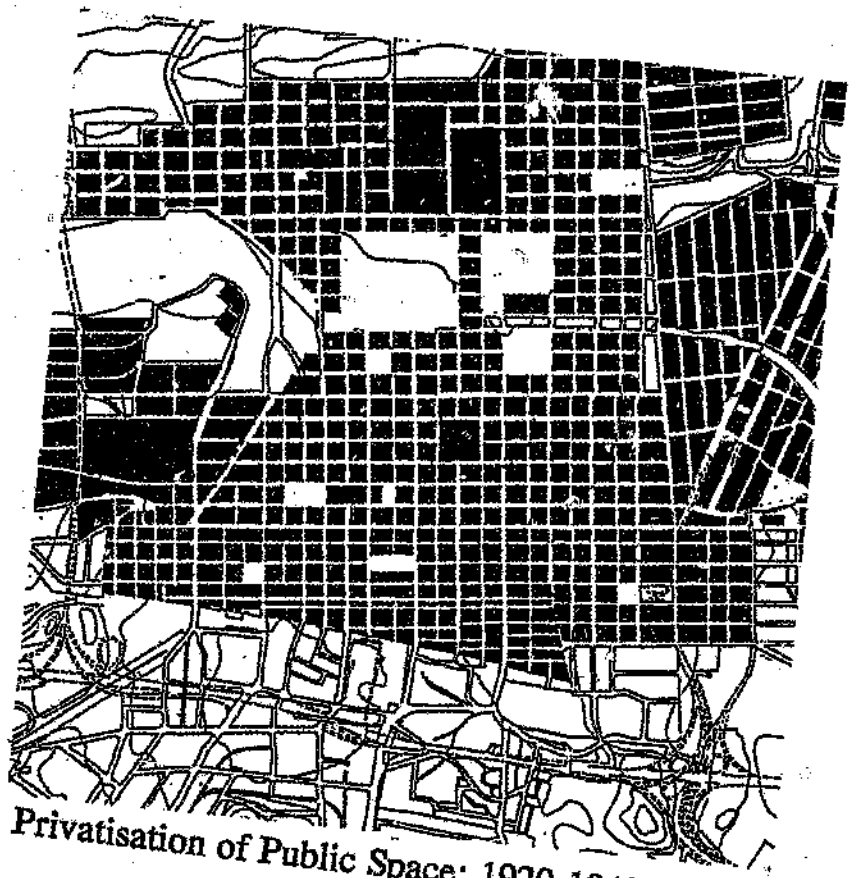


Development of City: 1895-1900

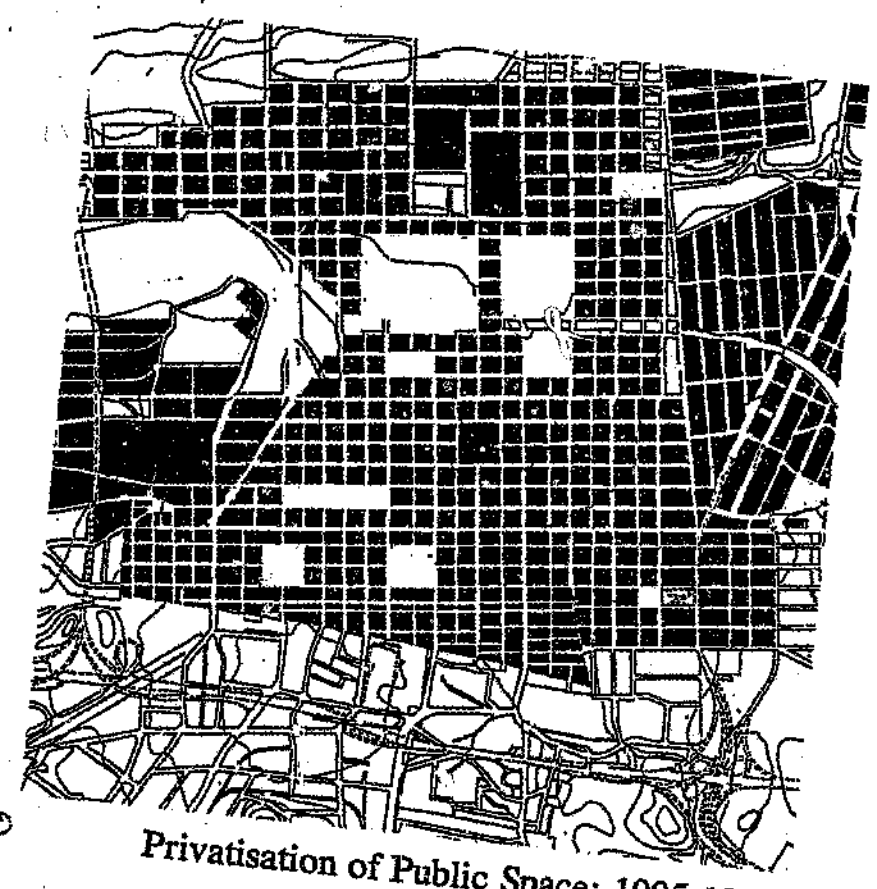




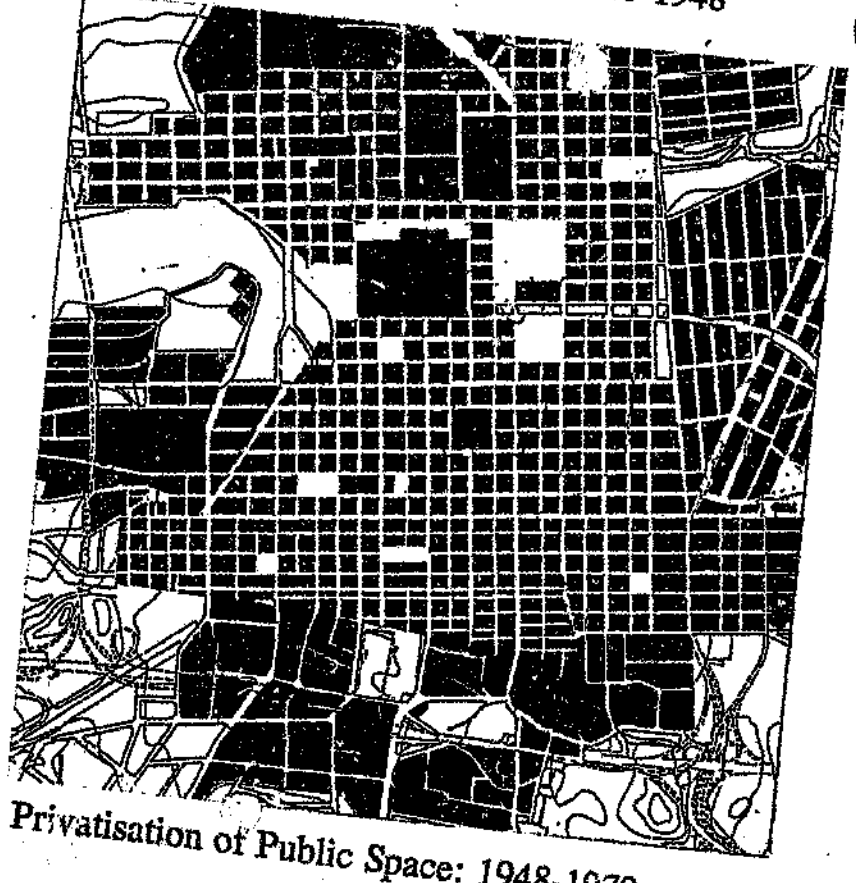
Development of City: 1900-1905



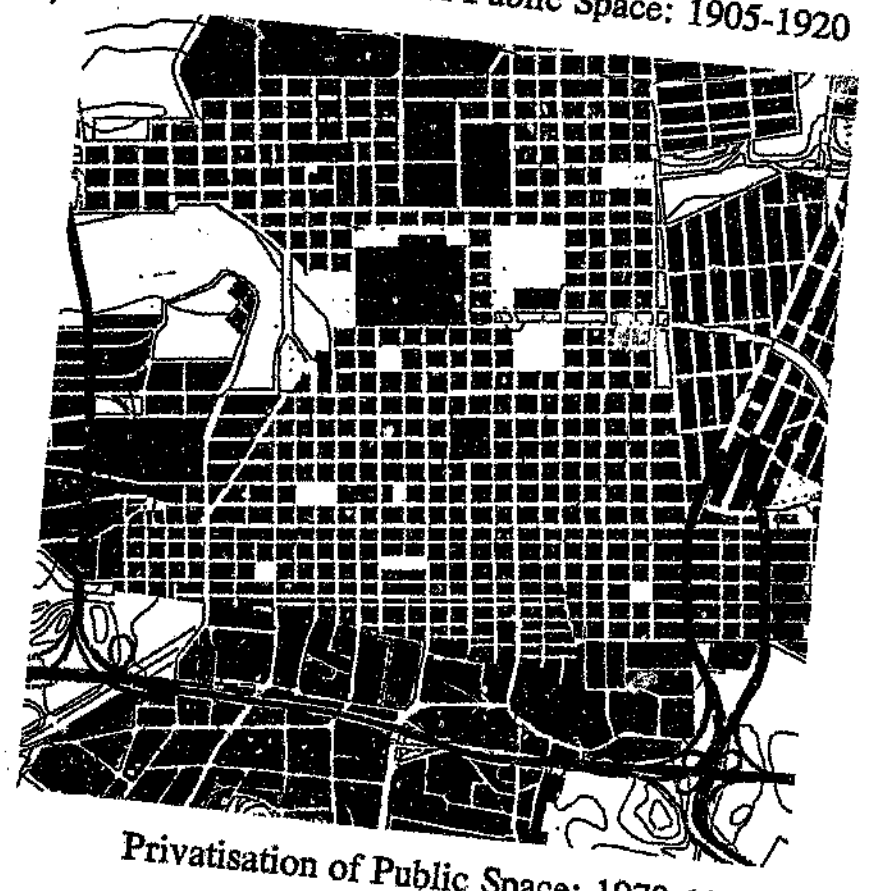
Privatisation of Public Space: 1920-1948



Privatisation of Public Space: 1905-1920

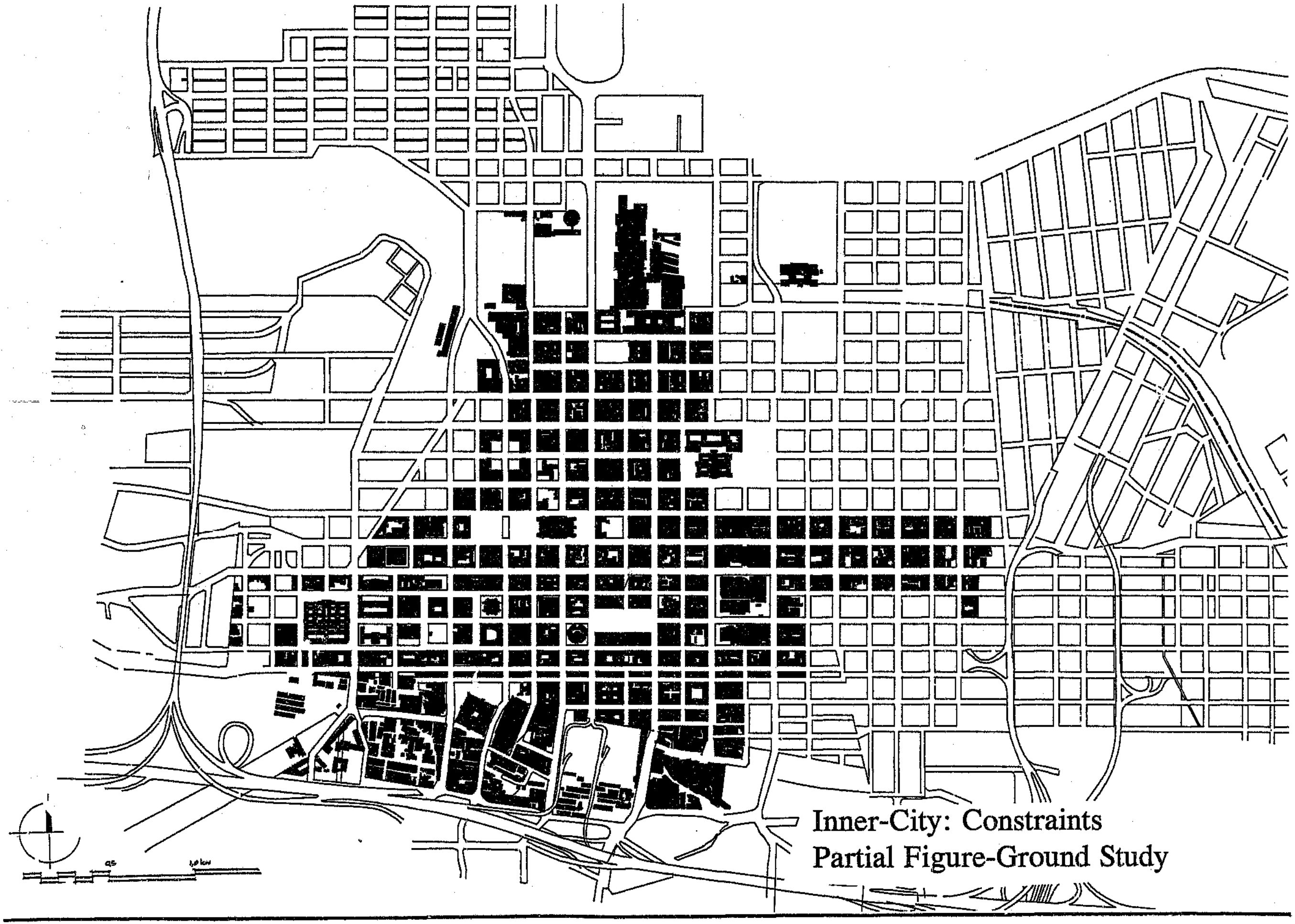


Privatisation of Public Space: 1948-1970

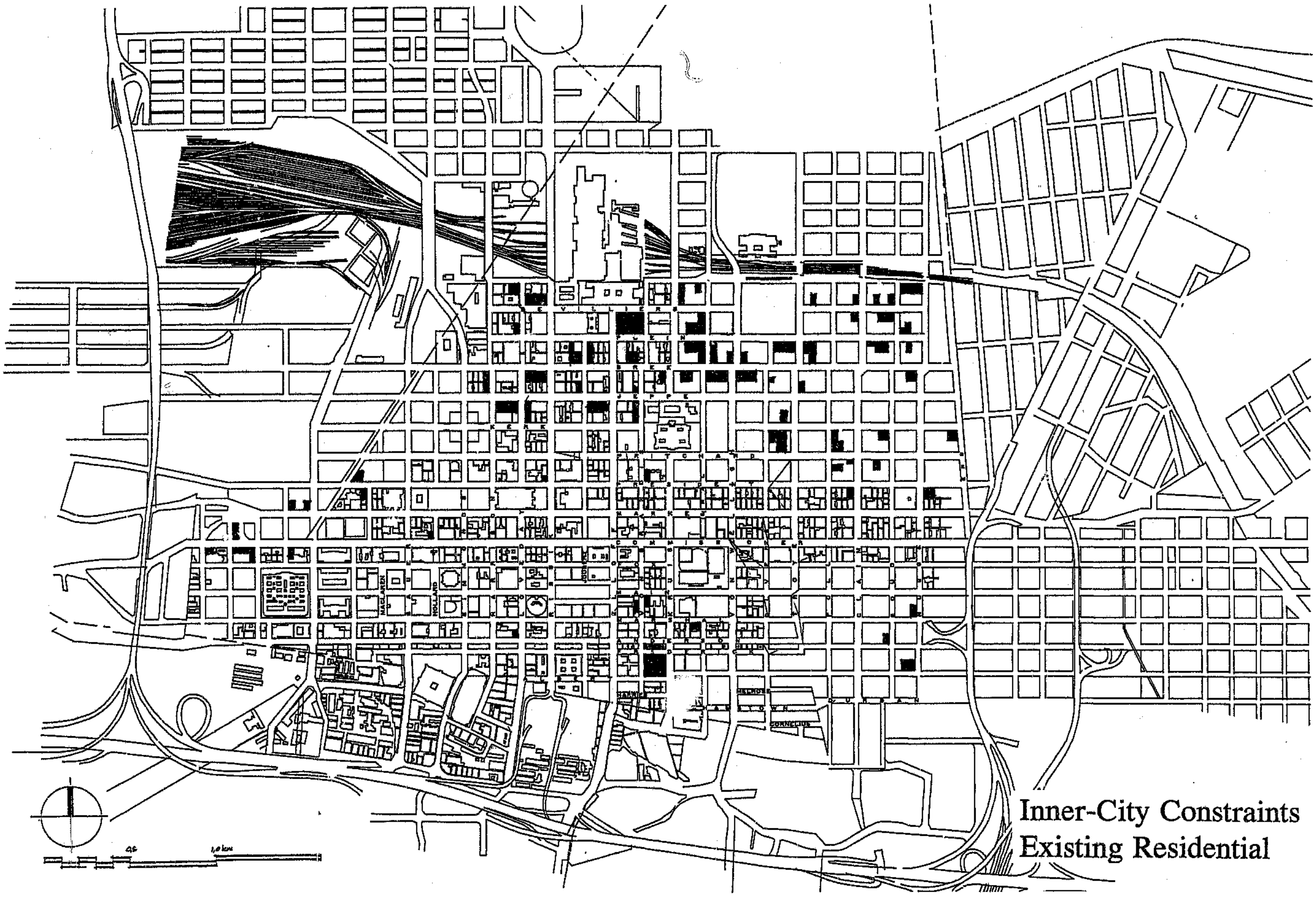


Privatisation of Public Space: 1970-1990

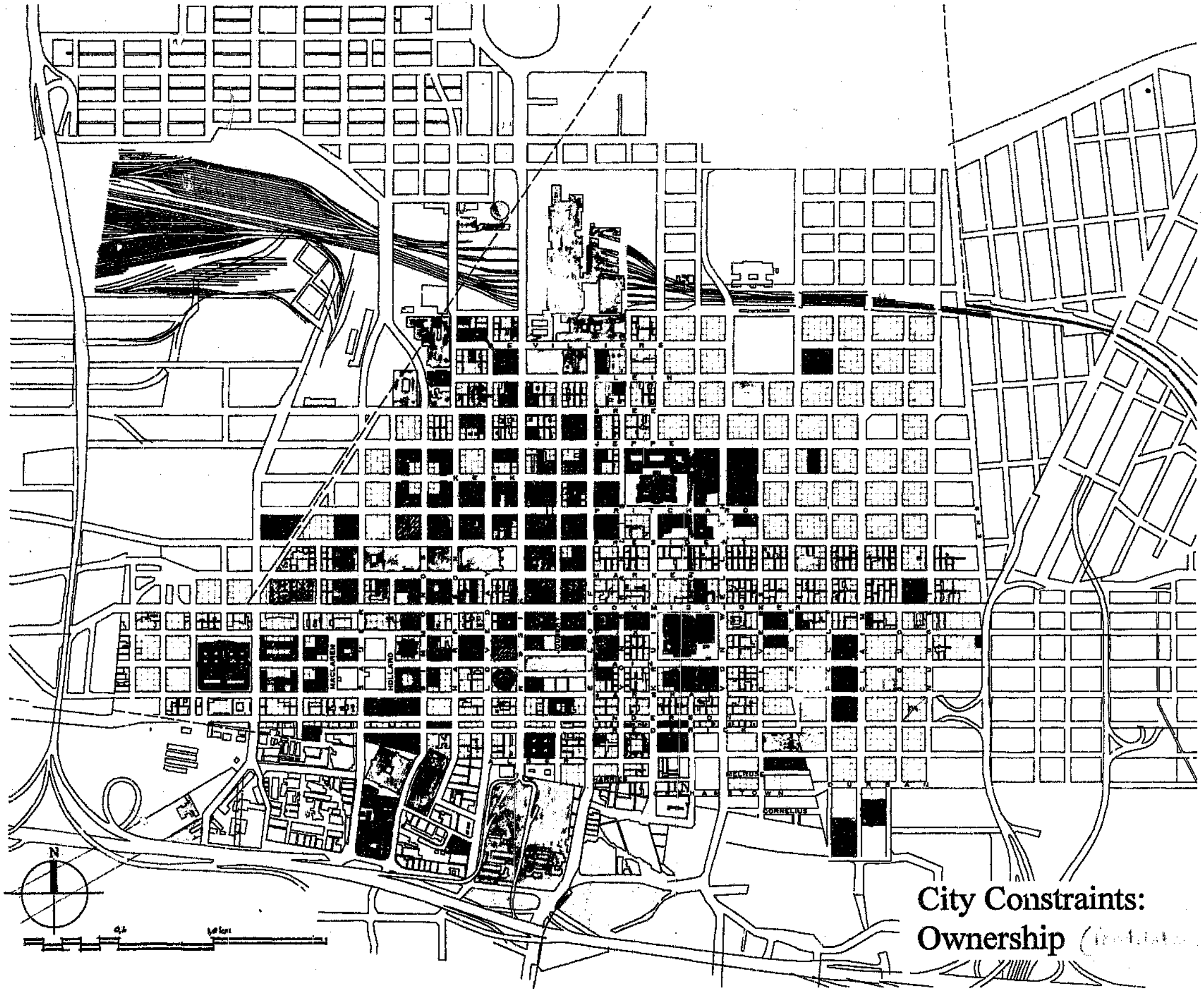
8.4 Inner-City Problems and Constraints



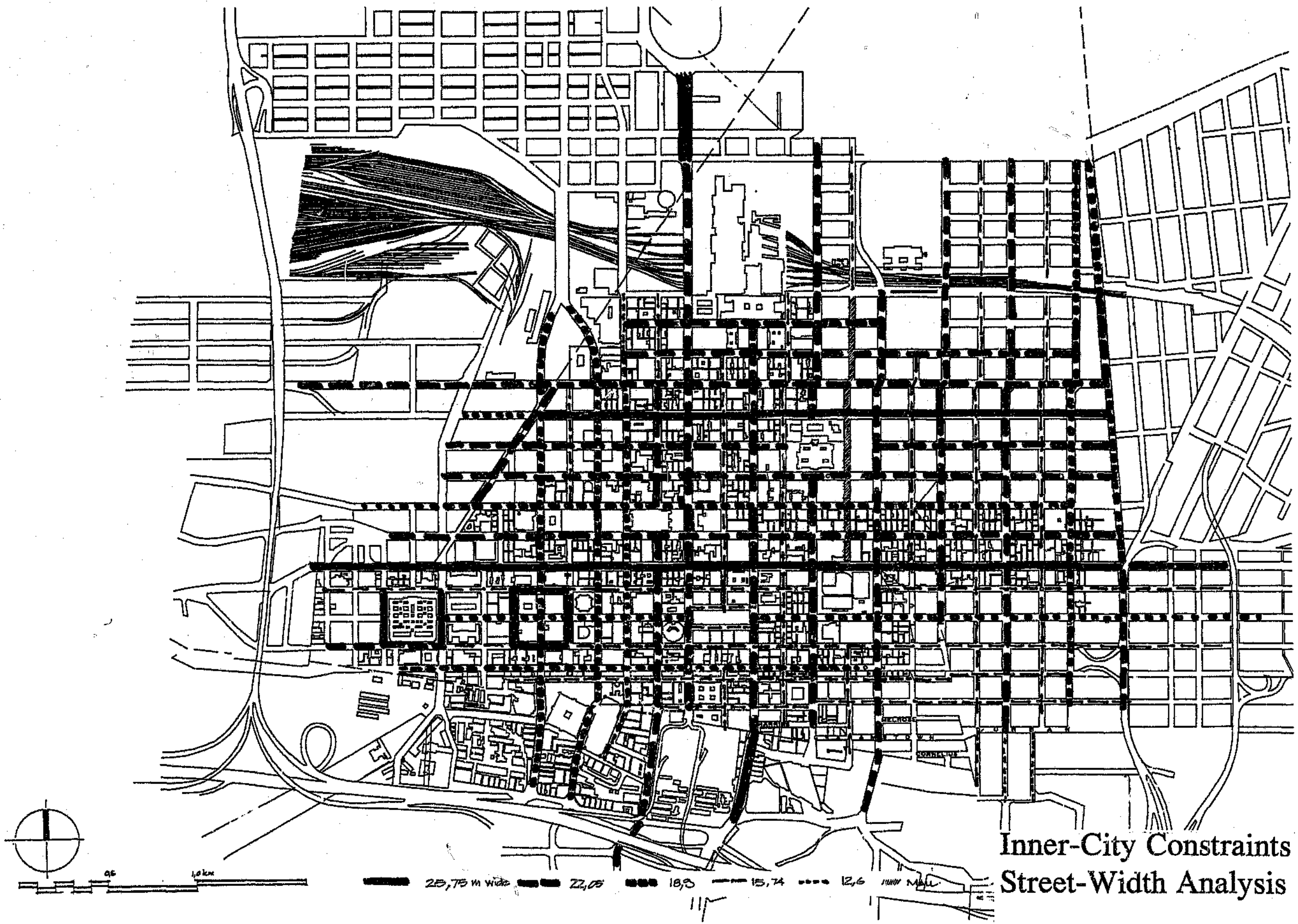
Inner-City: Constraints
Partial Figure-Ground Study



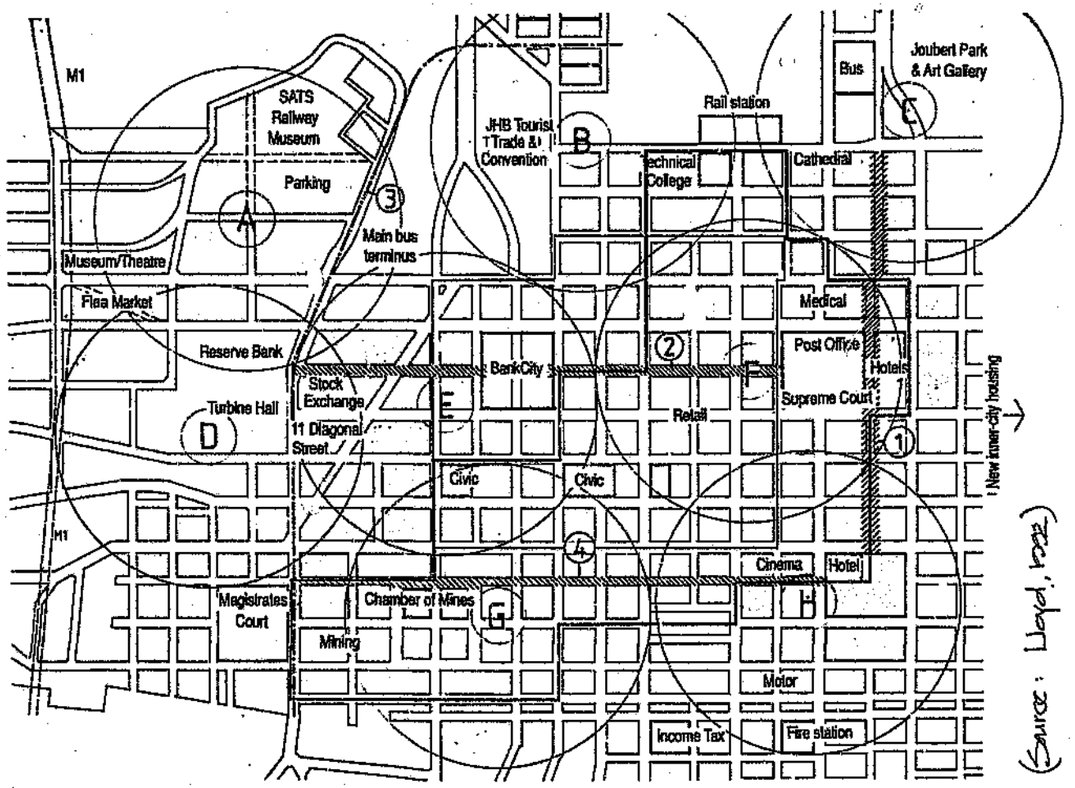
Inner-City Constraints
Existing Residential



City Constraints:
Ownership



Inner-City Constraints
Street-Width Analysis



Source: Lloyd, 1992

A. TRANSNET Museum; African Cultural Trust (Potato Sheds); Africana Museum; Market Theatre.
B. Convention Centre with hotels and retail.
C. New 11Air rights" Retail Development, taxi centre, park and hotels.
D. Redevelopment of old "core" CBD on Eloff St spine.
E. New financial and banking development.
F. Turbine Hall. Retail and entertainment?
G. Old mining/finance district.
H. Carlton Hotel — still on a limb.

Parking restriction area.

Parking
Transport to provide linkages:

1. Small St Mall: "1st World" sinew in a growing sea of 3rd World trading.
2. Kerk St
3. Light rail from main station and Sandton to west station.
4. Fox St

Key Buildings and Places



8.5 Street Problems and Opportunities

Street Precinct:Constraints
Building Heights
(greater than 5 Storeys)

Street Precinct:Constraints
Buildings for Preservation

Street Precinct:Constraints
Consolidations

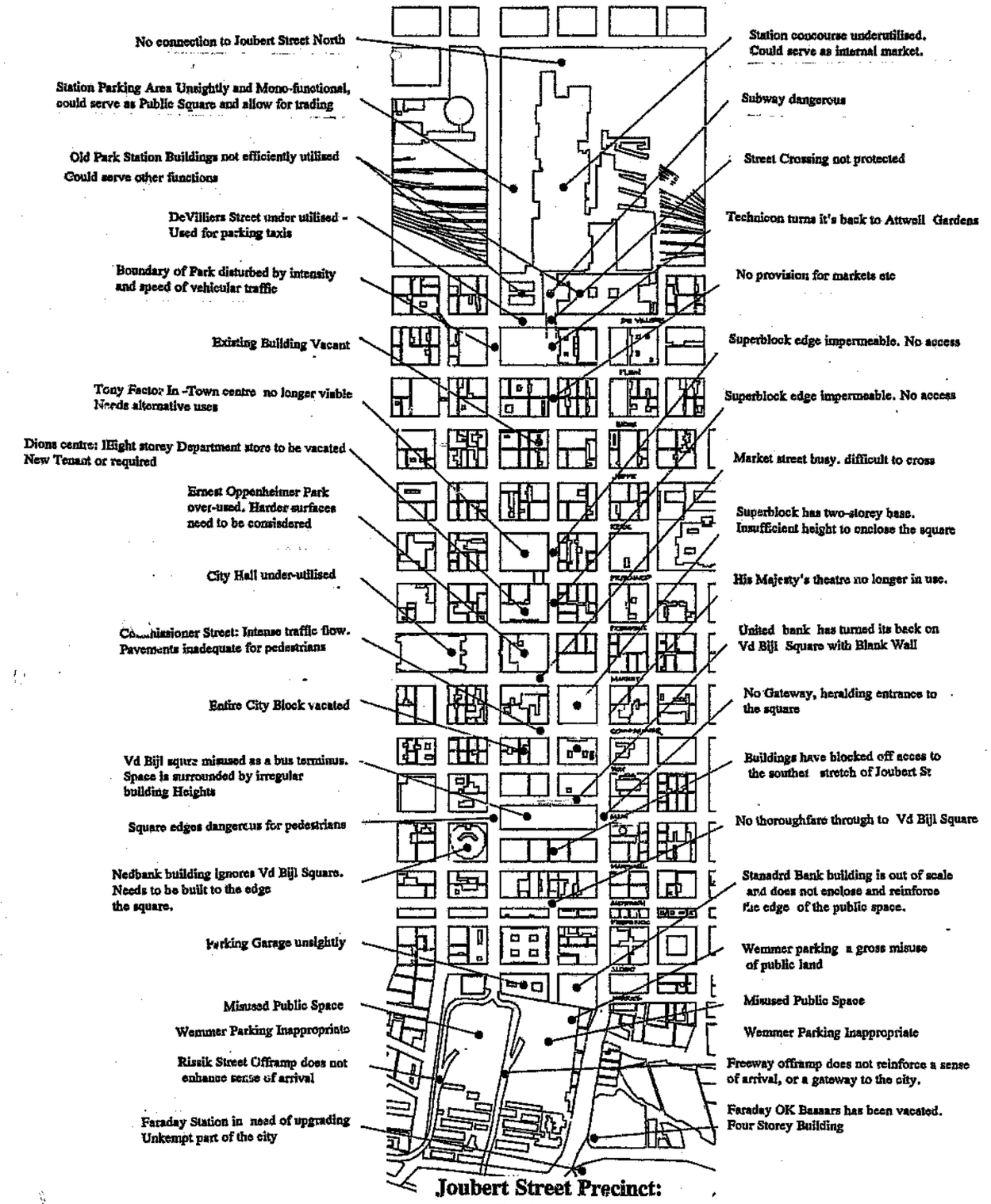
Street Precinct:Constraints
Robust Buildings

Street Precinct: Problems and Opportunities
Airconditioning-Dependant Buildings

Street Precinct:Problems and Opportunities
Vacant Buildings

Street Precinct:Constraints
Land-Use

Street Precinct:
Figure Ground Study



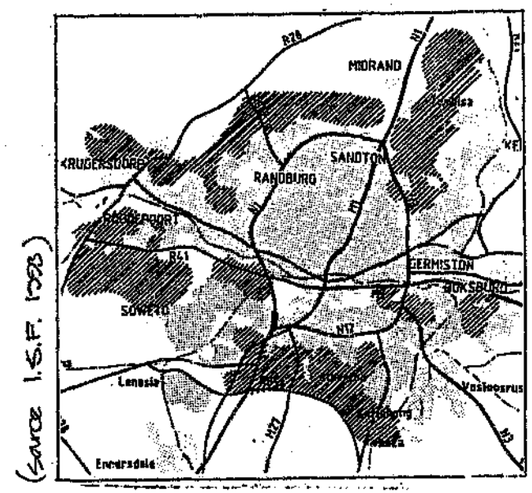
Joubert Street Precinct: Local Problems

PART NINE
INTERVENTION

When you make a thing, a thing that is new,
it is so complicated making it
that it is bound to be ugly.
But those who make it after you,
they don't have to worry about making it.
And they can make it pretty, and so everybody can like it
when the others
make it after you.

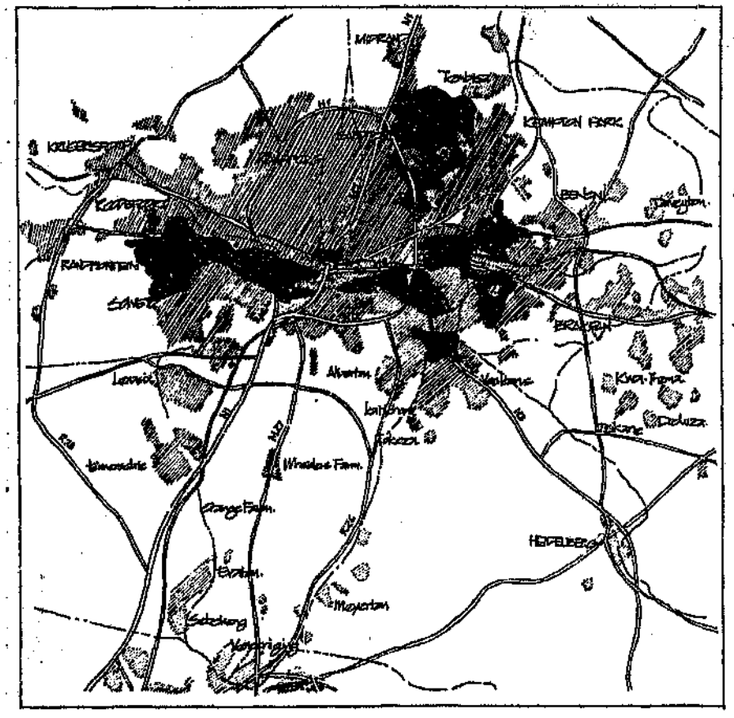
Picasso (Papanek,1985:151)

9.1 Metropolitan Intervention



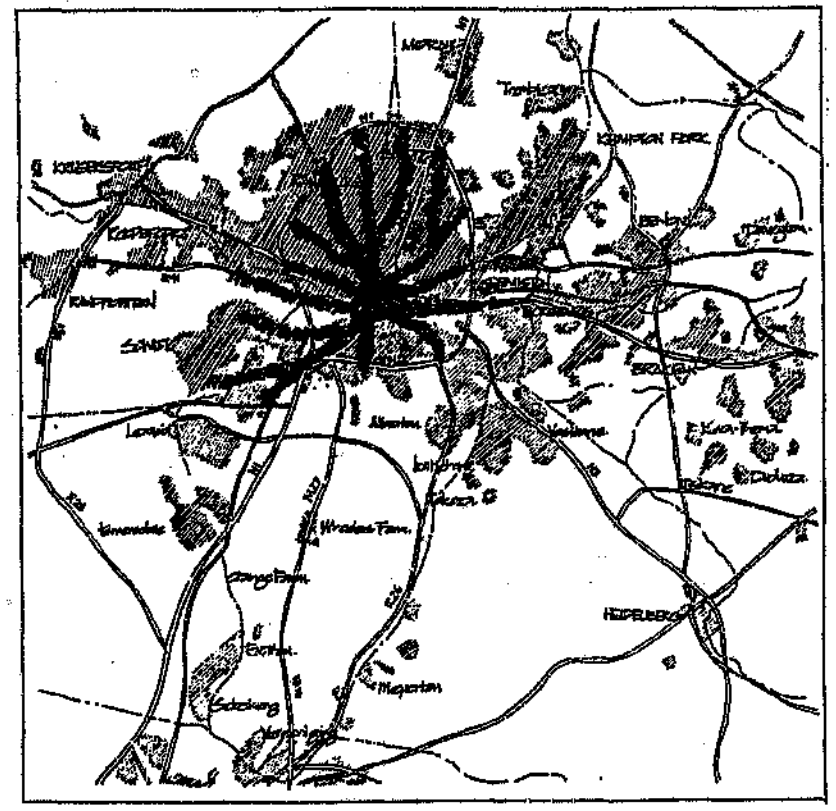
(source I.S.F. 1993)

Vacant Land



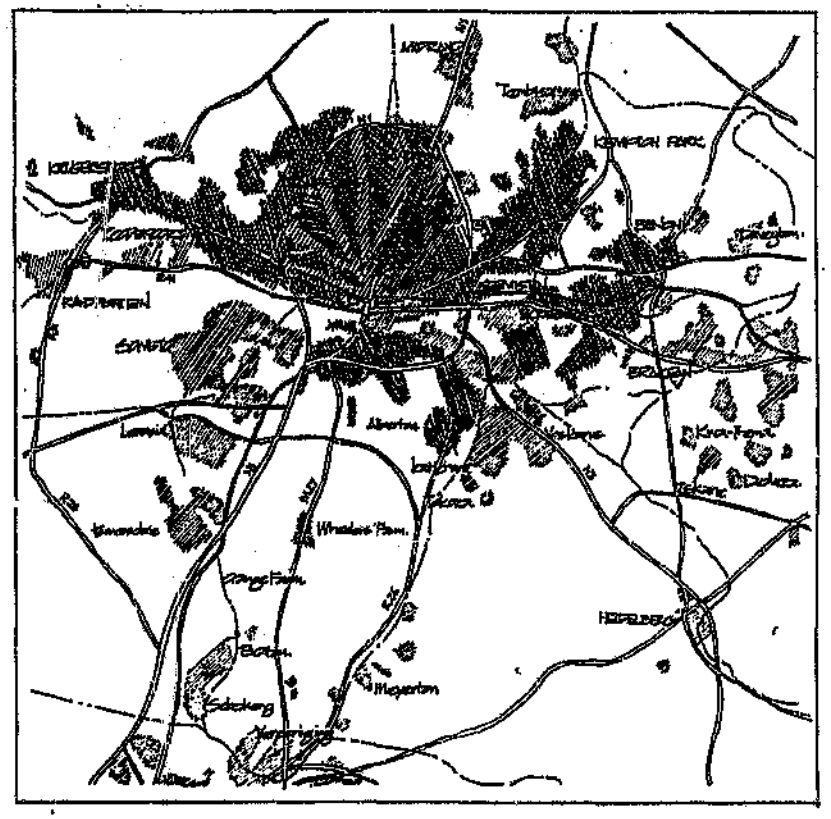
Metropolitan Intervention
Assimilating Vacant Land

Metropolitan Intervention:



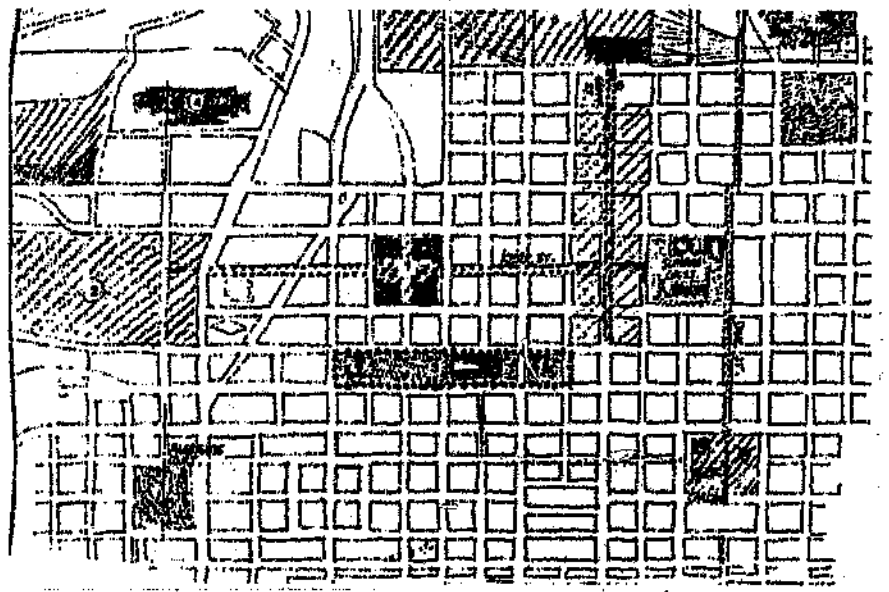
Intensifying Movement Corridors

Metropolitan Intervention

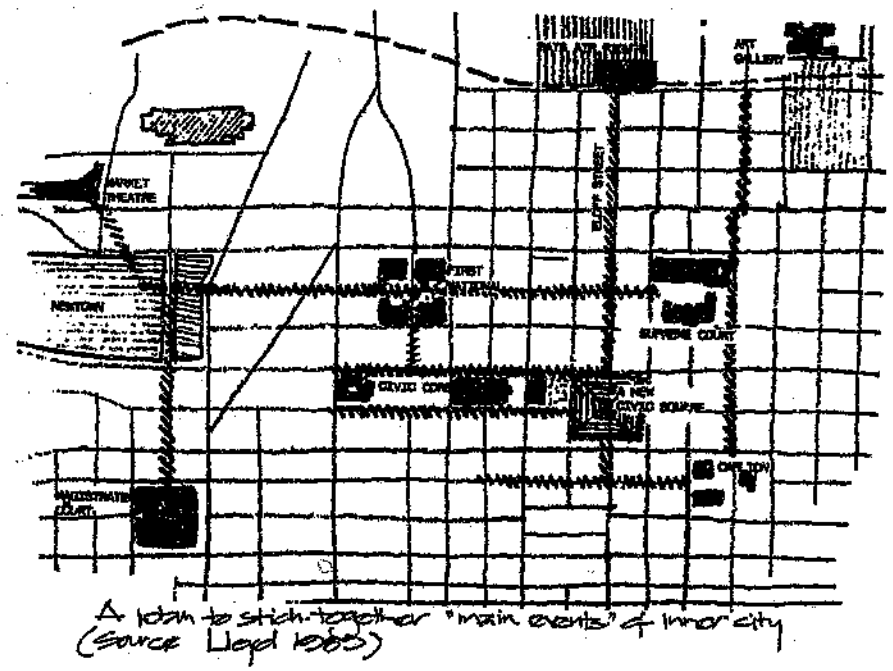


Increasing Densities in the Suburbs

9.3 Inner-City Intervention



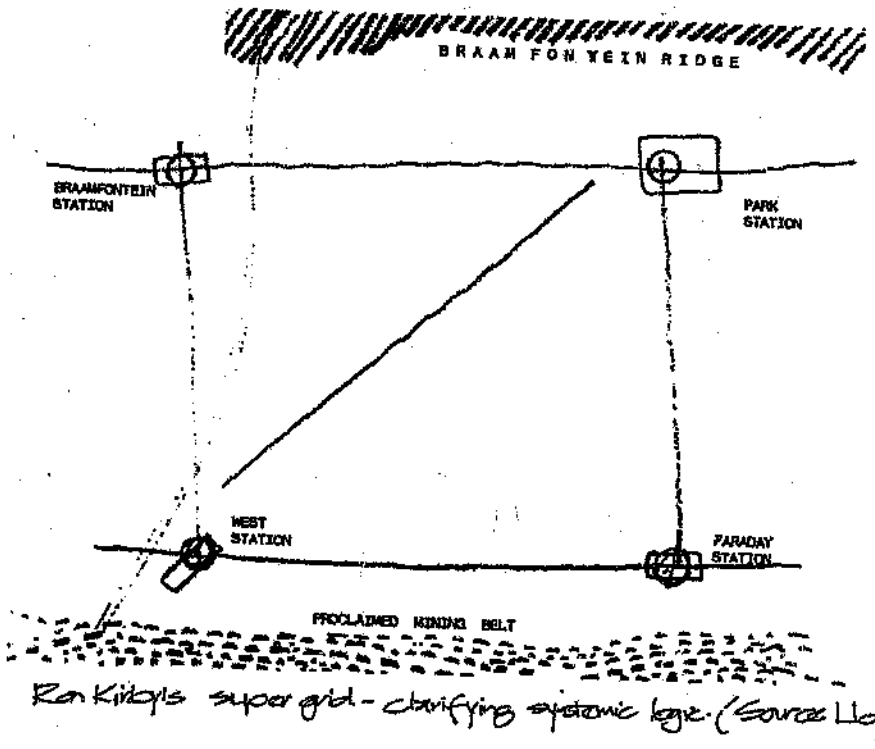
Plan showing existing and proposed main nodes and links - (Urban Design Workshop)
(Source : Lloyd 1989)



A plan to stitch together "main events" of inner city
(Source Lloyd 1989)

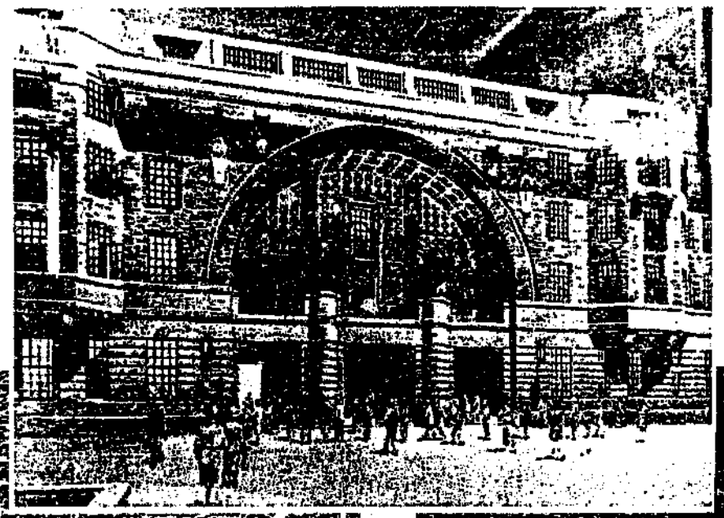


City Council Urban Design Framework 1988. (Source Segal, 1991)



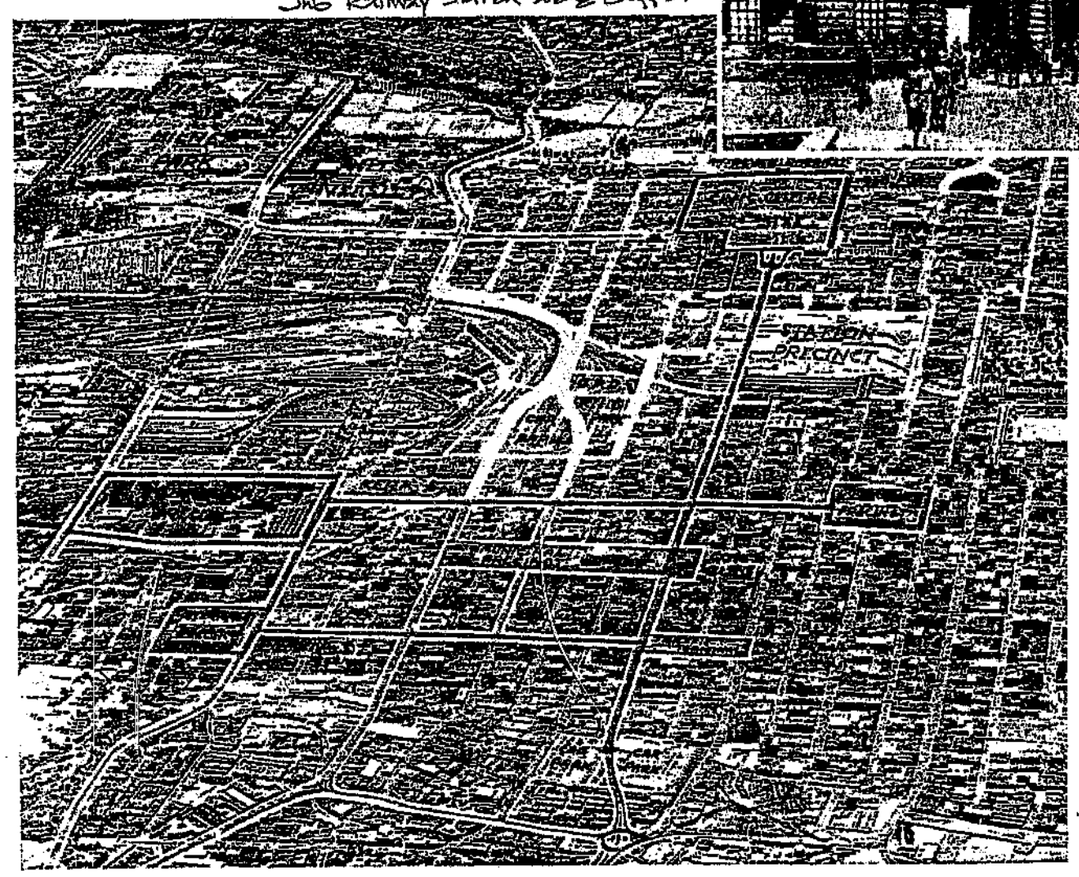
Ron Kirkpis super grid - clarifying systemic logic. (Source Lloyd, 1989)

Intervention: Visions for the City



Garda Leitch's unbuilt entrance to Jhb Railway Station along Eloff St.

(Source : Lloyd, 1989)



(Source Floyd, 1960)

FIGURE 13 — JOHANNESBURG New Civic Centre *(Aerial photograph by Aircraft agency)*

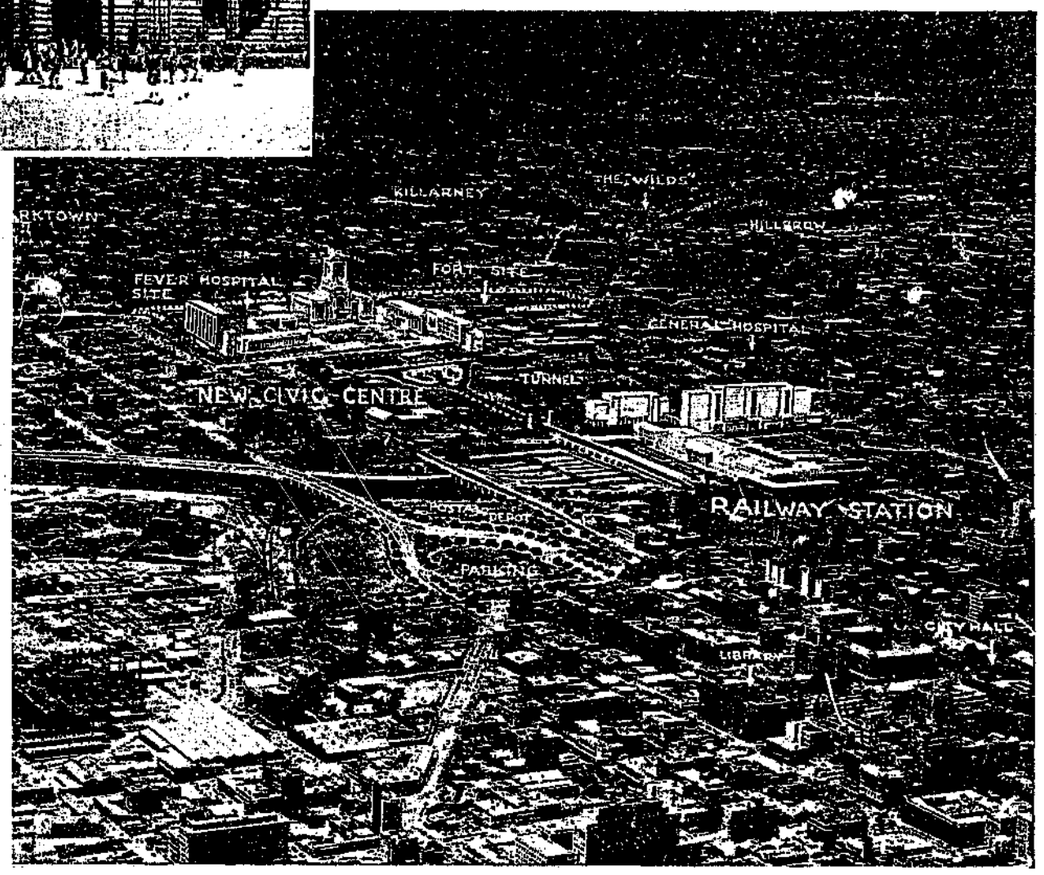
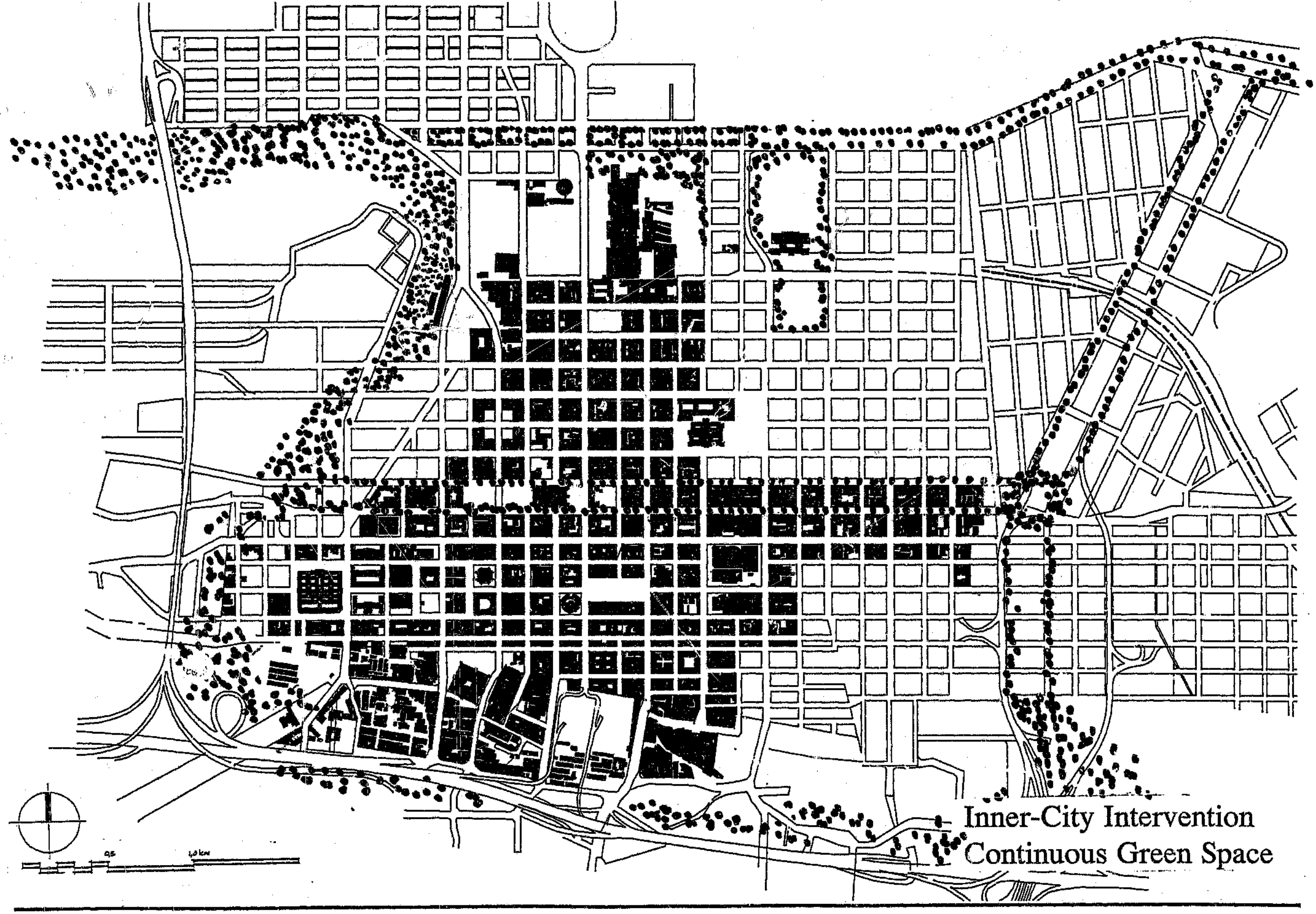


FIGURE 14 — JOHANNESBURG New Civic Centre (Source : Floyd, 1960)


Inner-City Intervention
Continuous Green Space

9.4 Joubert Street Intervention

9.4.1 Motivation: Why this area for intervention ?

For humans to live at high-densities it imperative that sufficient public open space be made available. A brief investigation into inner-city housing in Johannesburg revealed that the only multi-storey housing which has survived was the housing around large public spaces, such as Joubert Park. With increasing vacancies in office buildings (certain buildings have been totally emptied), the obvious reaction was that this presented the city with an opportunity to convert these into housing. However, the fact that there is so little public space left in the city rendered effective housing solutions useless. An examination of the remaining open areas led the author to discover a way in which they could be connected to form a continuum of public space, and hence a viable environment for living.

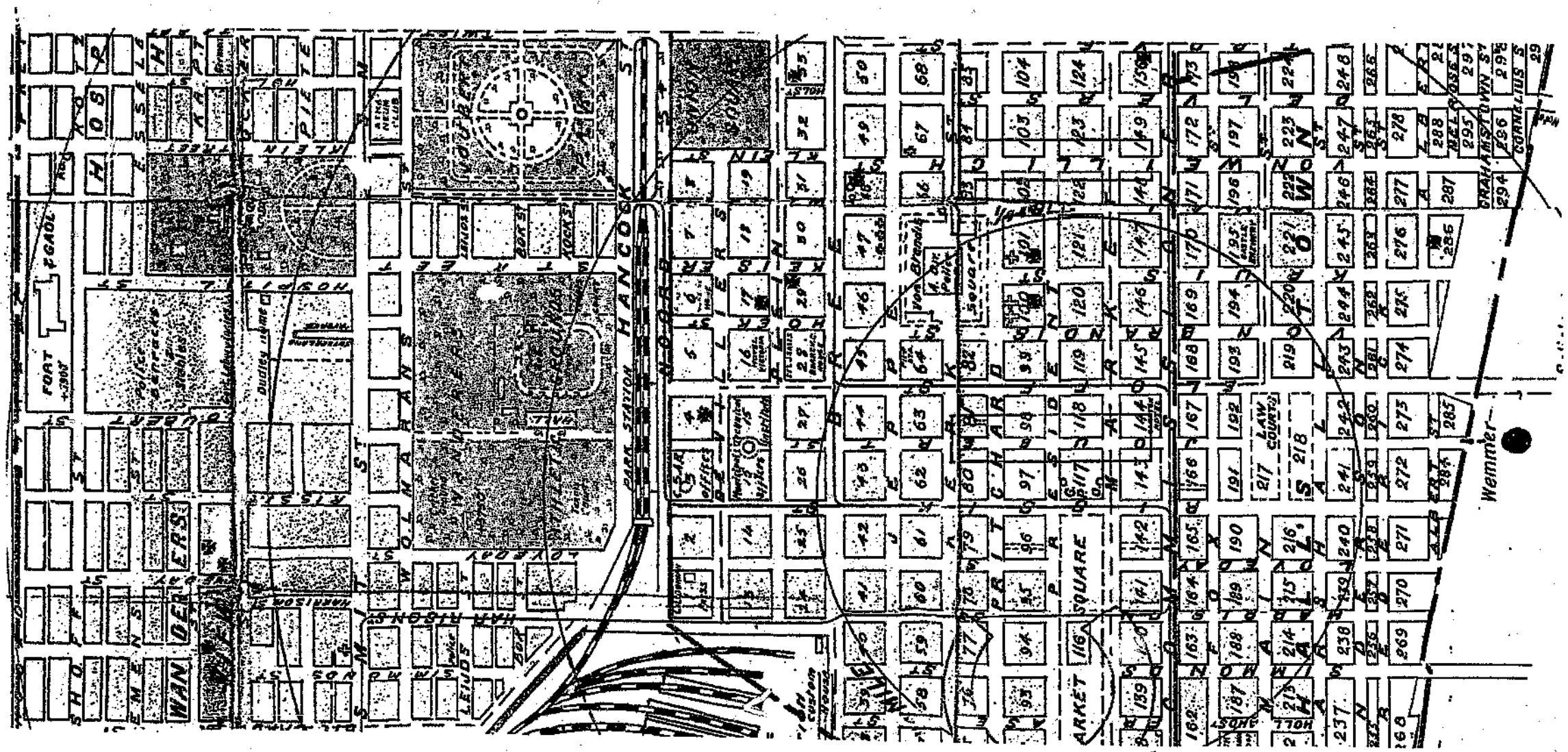
9.4.2 Concept: Street for Exchange

Idea of a city for feet. Feet imply that a person has no car, thus by implication he has limited means and which by further implication mean that he has limited access to the city. How do we intervene to make the city a place which can fulfil his need? How do we make the city a place in which he can live and enjoy living? How do we make the city a place that sustains living in the city?

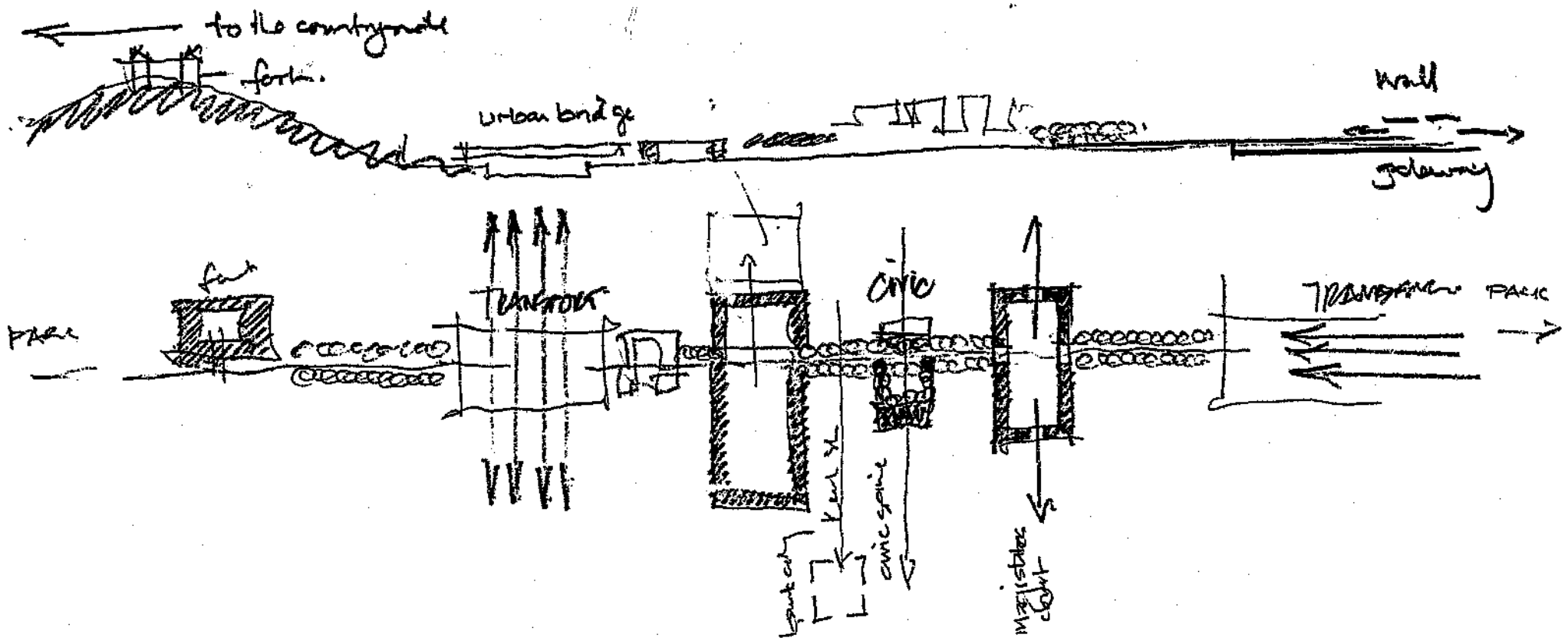
Historic Origin - The extended thread
The original intention of the surveyor DeVilliers was to extend Joubert street over the railway line, through Kruger Park (Wanderers) over Braamfontein ridge to the countryside (Norwich, 1986) It was the main axis to the original Park station and was one of the more significant north/south streets at the time.The structure of this extended connection still exists. What is needed is to clear the path of obstructions.

Connecting Thread
Apart from its historical importance, Joubert street forms an axis which connects four major urban spaces, namely, Historical Station Square, Attwell gardens (Plein), Ernest Oppenheimer Gardens and Van der Bijl square (Government Square) . It used to extend to the Wemmer Recreation Grounds (now Wemmer Parking lot)

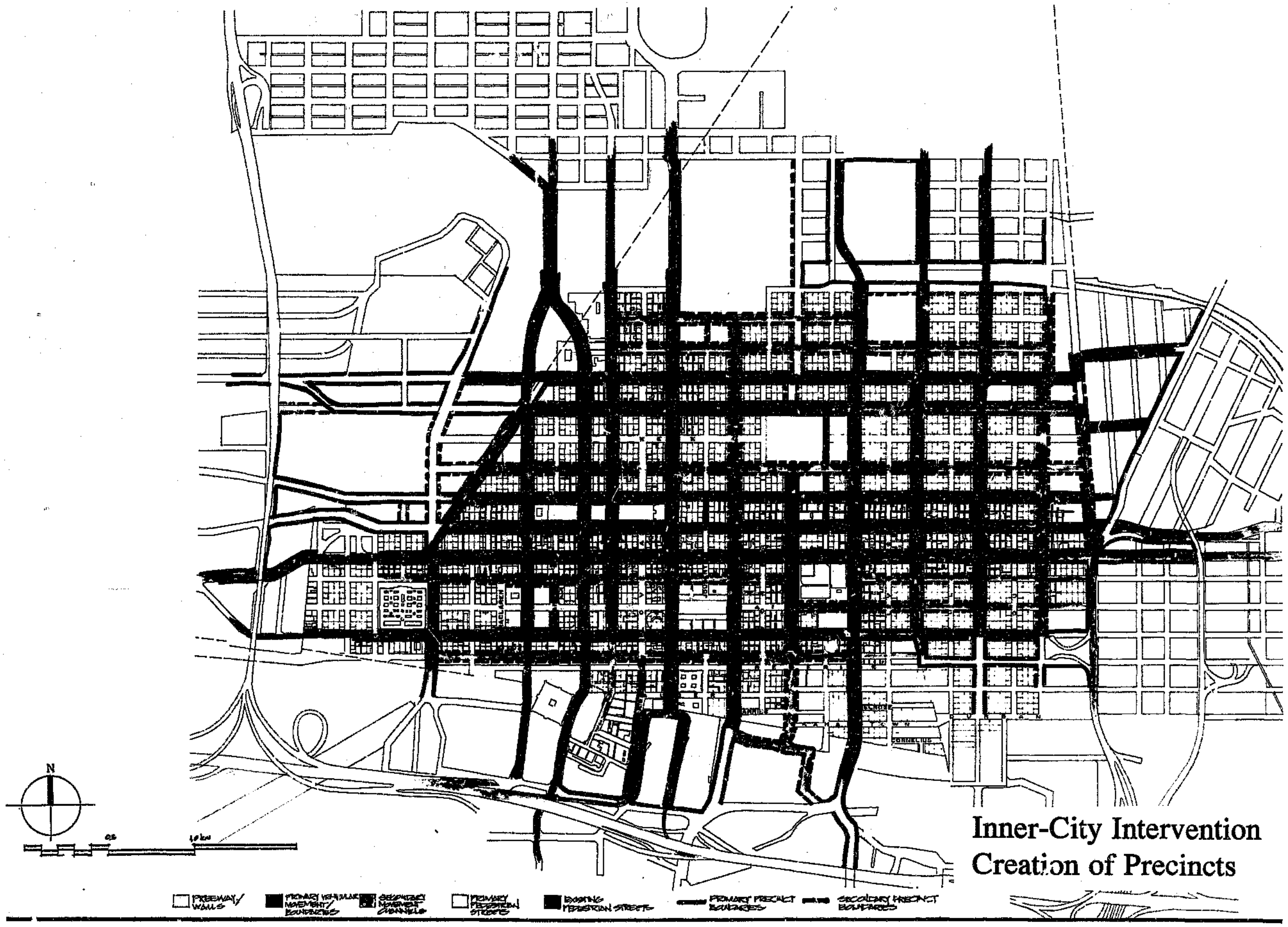
Narrow Streets
As shown earlier, the city grid comprises 4 standard street widths of which the narrowest is 50 cape feet (15.74m) . These streets do not cope well with vehicular movement and when lined with parked cars they do not permit easy vehicular movement. For this reason they are popular pedestrian streets and some have been enclosed for this sole purpose (Smal Street Mall). They lend themselves to more intense activity. Where apartment housing has survived it has tended to be located along narrow streets.



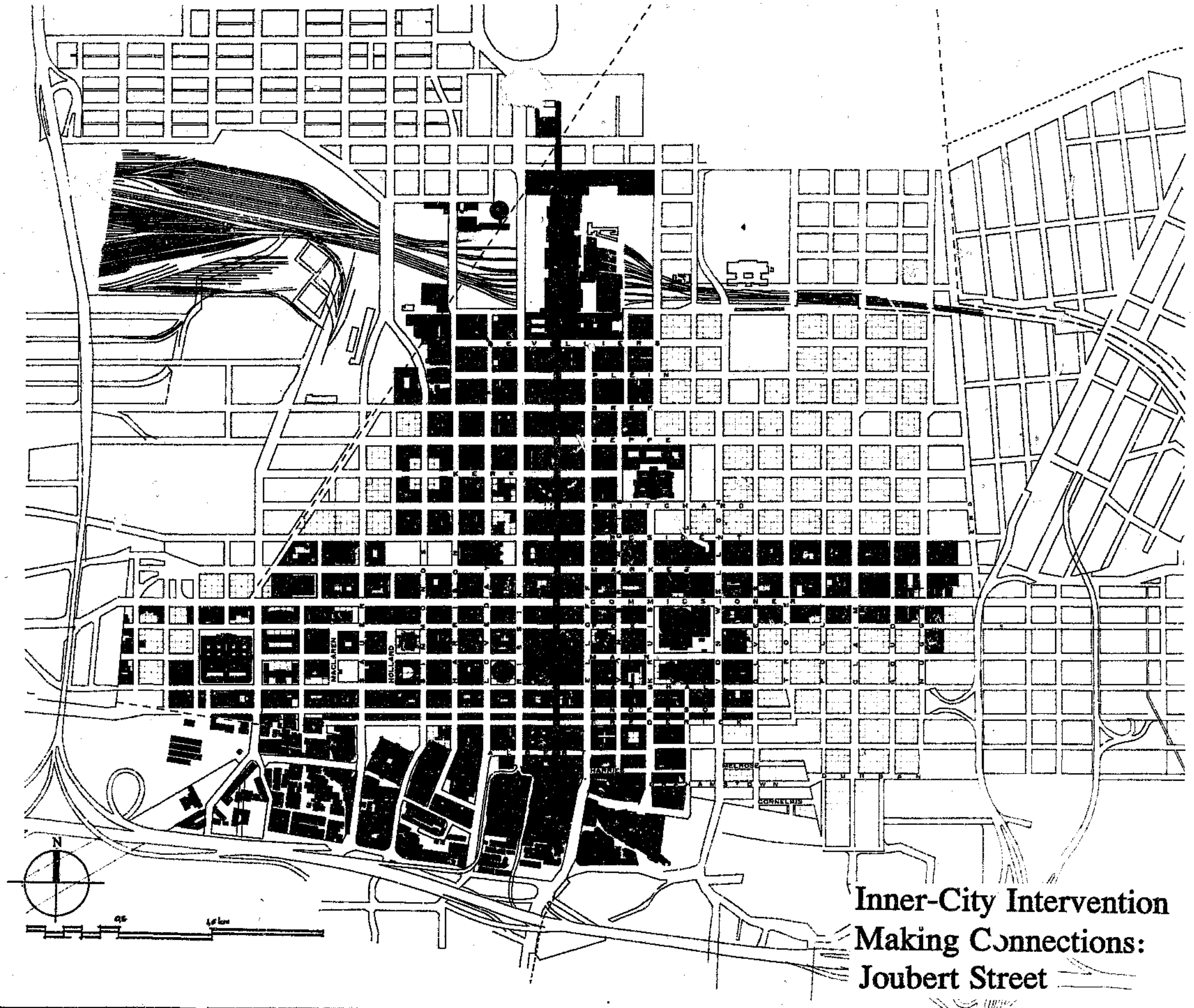
Joubert Street in History (1906)



City Intervention: Idea

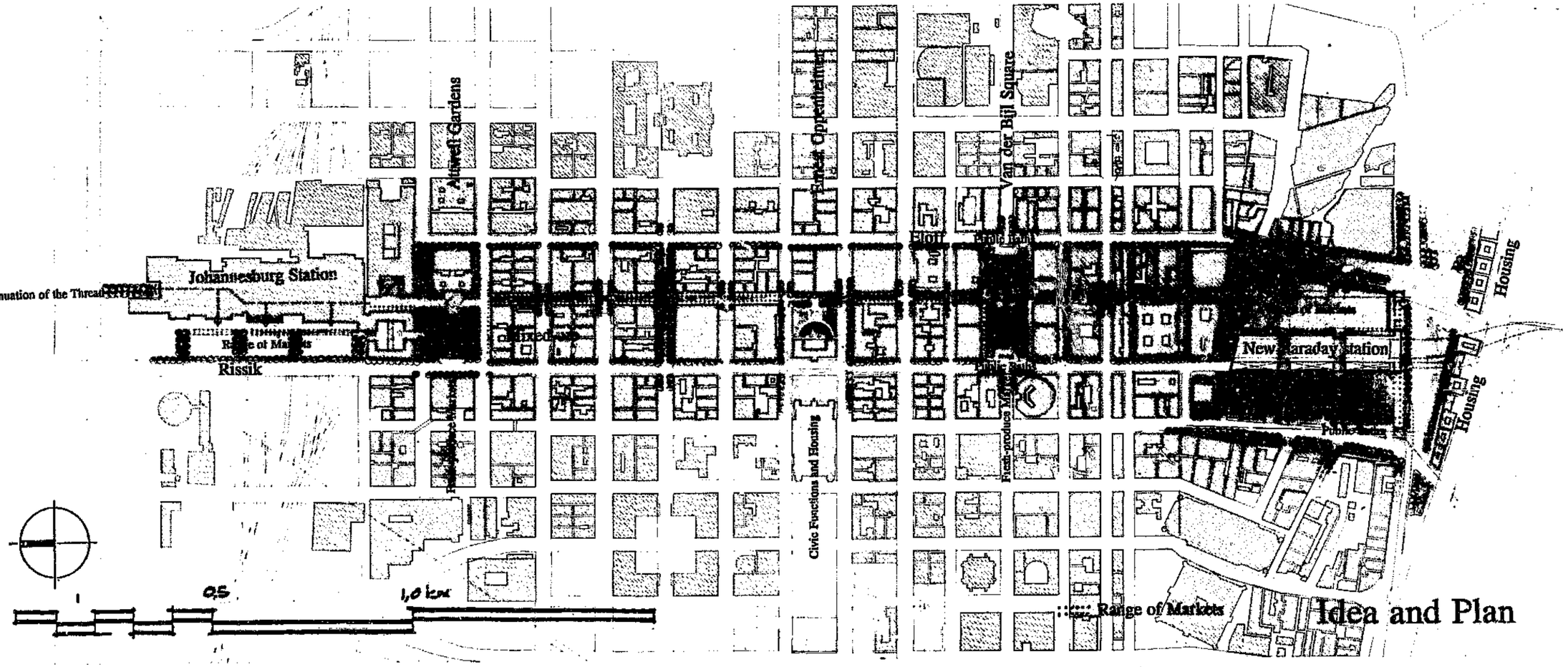


Inner-City Intervention
Creation of Precincts

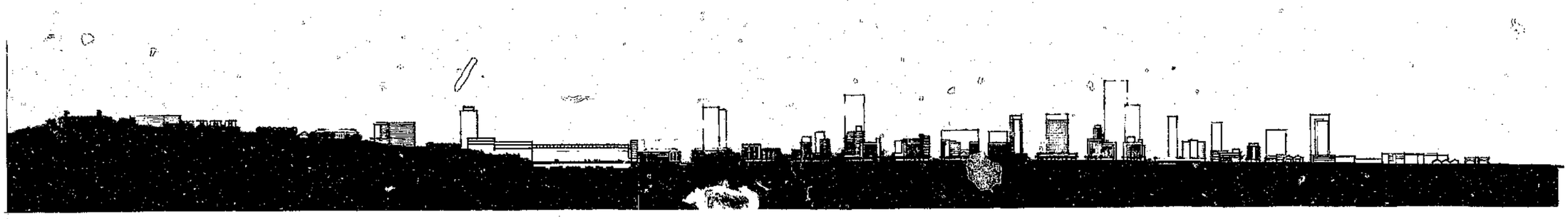


Inner-City Intervention
Making Connections:
Joubert Street





Idea and Plan



Section Through City Along Joubert Street



Van Beijlenplein - East towards Van Beijlenplein



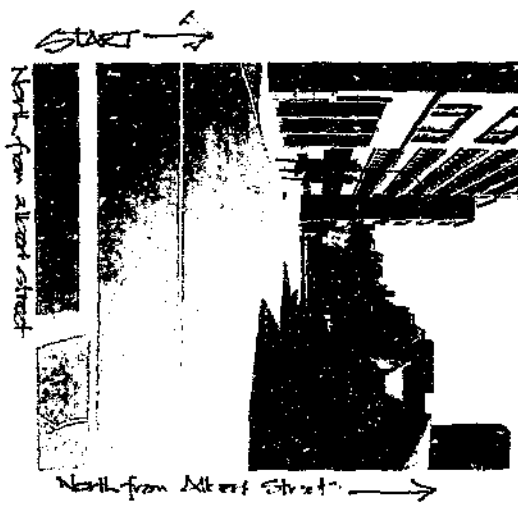
Van Beijlenplein looking East



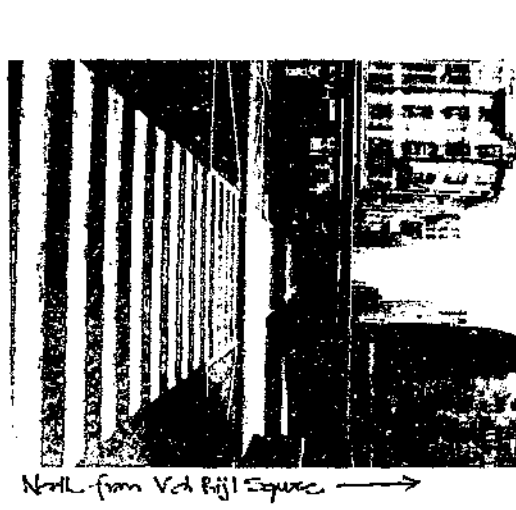
Mitchell Gardens looking North West



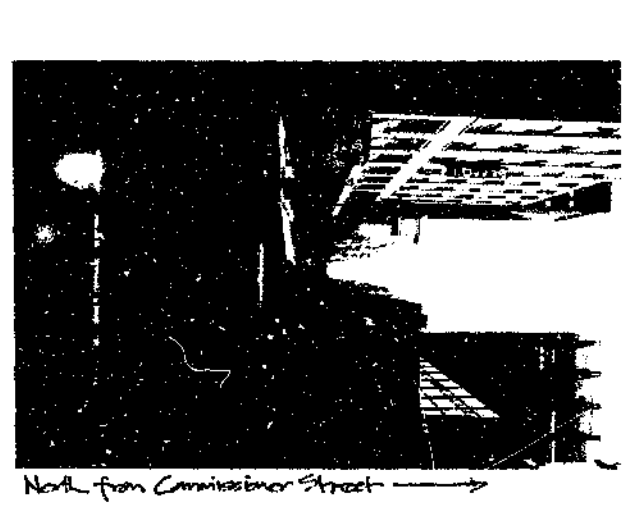
Old Rembrandt - Courtyard



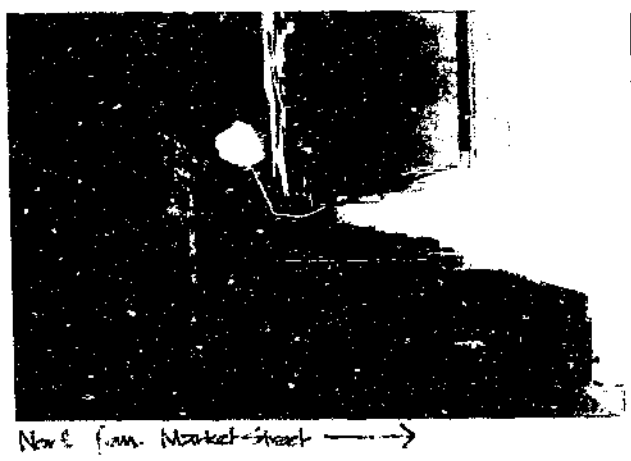
North from Albert Street →



North from Van Beijl Square →



North from Commissioner Street →



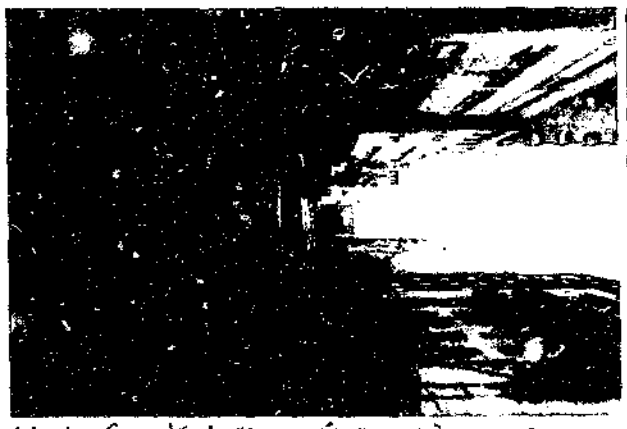
North from Market Street →



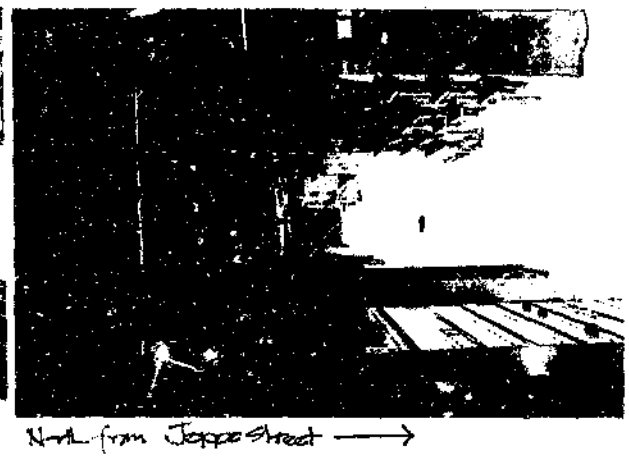
North from President Street →



North from Pittsburgh Street →



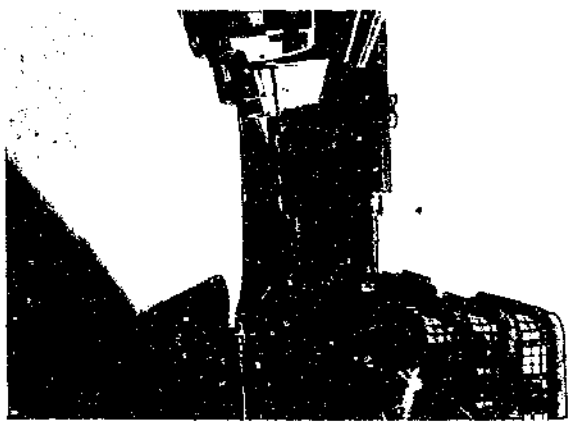
North from Kark Street (PNB-zijde) →



North from Jeppe Street →



North from Bree Street →



North from Mark St →



North from Mixell Gardens →



Entrance to Jubilee station → Exit



Trinc Shad - Grand Avenue, W. Embarcadero



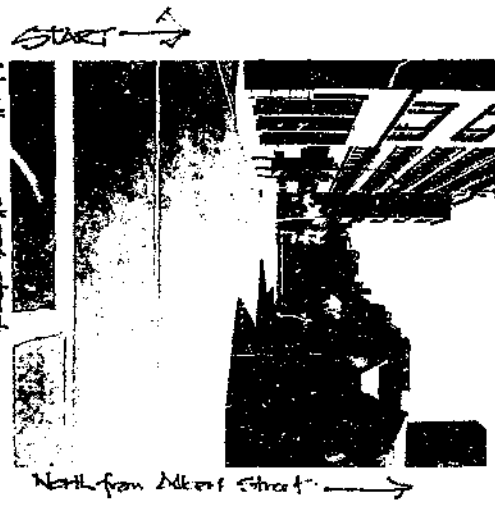
Vd Ripl Sculpture looking East



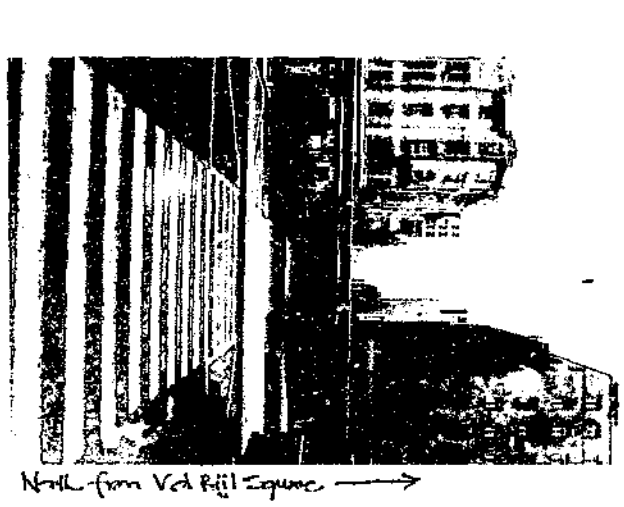
Howell Gardens looking North West



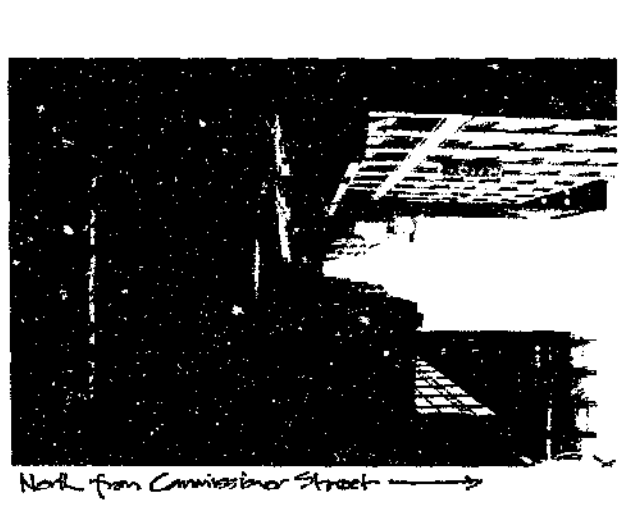
Old Post Office - Courtyard



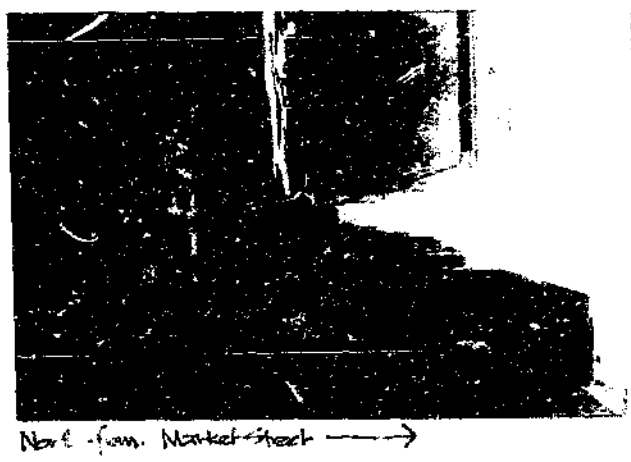
North from Market Street →



North from Vd Ripl Square →



North from Commissioner Street →



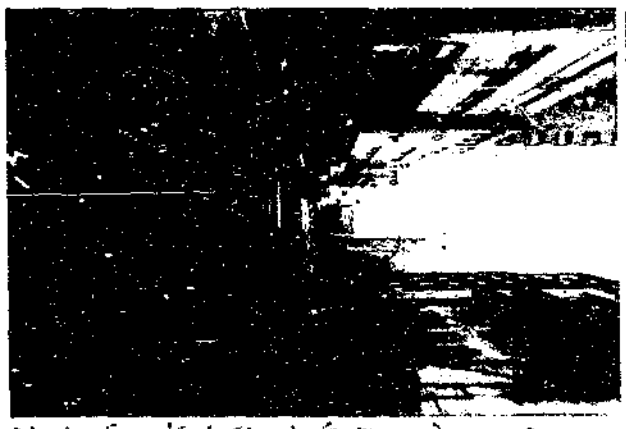
North from Market Street →



North from President Street →



North from Pittsburg Street →



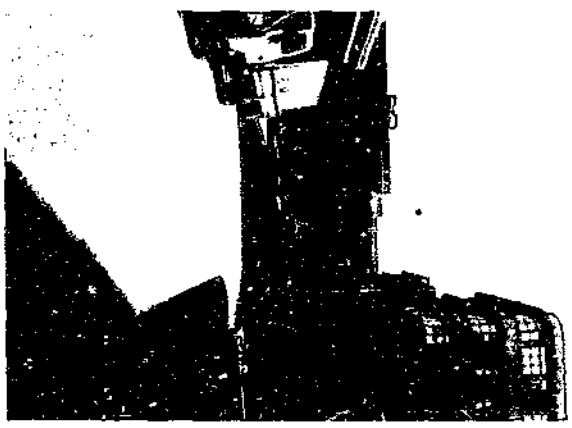
North from Post Street (Financial) →



North from Jappe Street →



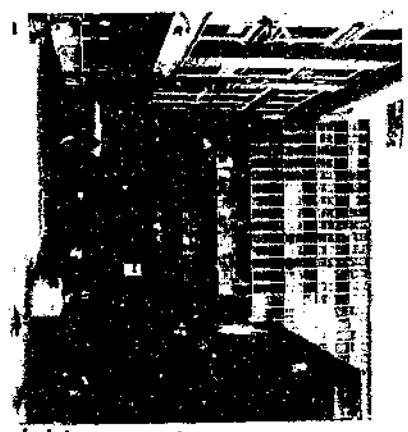
North from Pine Street →



North from Howell Factory →



North from Howell Factory →



Entrance to Jnb. station → Exit

START →

PART TEN
CATALYTIC PROJECTS

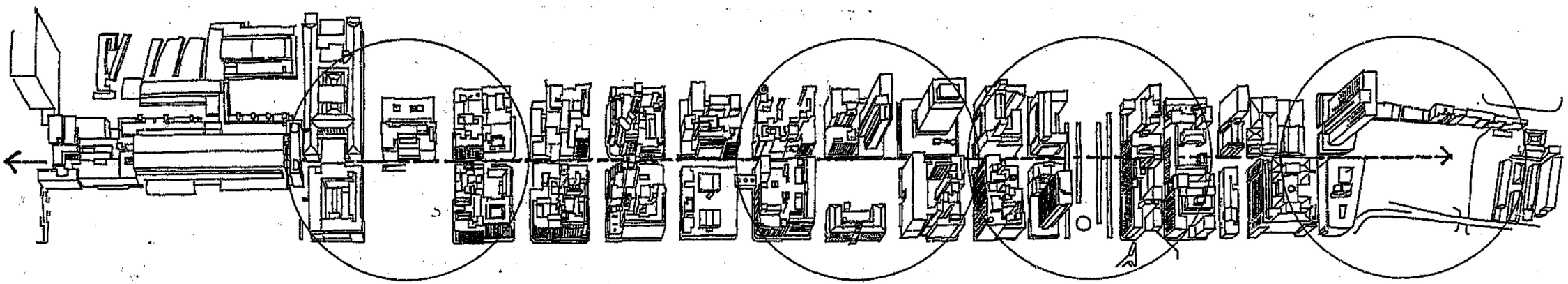
Johannesburg Station Precinct

Attwell Gardens Precinct

Ernest Oppenheimer Gardens Precinct

Van der Bijl Square Precinct

Faraday Square Precinct



● Catalytic Urban Design Projects: Joubert Street Corridor:

Action Projects:

- Public Projects will include the establishment of Market and Bathhouse facilities, as well as a major planting programme.
- Private Responses will largely involve the conversion of buildings to uses in keeping with the overall urban design objectives of mixed use and the inclusion of traditional city components.

● Catalytic Urban Design Project: Attwell Gardens

Action Projects:

- Renovation of technikon building (School of Mines) into Public College. Open out toward Atwell Gardens - utilise as a playground.
- Erection of Public Baths to enable the development of affordable housing.
- Conversion of buildings surrounding the park to mixed-use as a Action Projects.
- Extensive Public Planting Project

● Catalytic Urban Design Project: Ernest Oppenheimer Gardens

Action Projects:

- Conversion of the Rissik Street Post Office into a mixed social facility including a school, welfare facilities and opening up of the vaulted basement to an amphitheatre.
- The creation of a new facade and entrance accessible from the park.
- The adaptation of nearby buildings into mixed-use and civic functions.
- Extensive Public planting Programme.
- The puncturing of the solid facades of Dion and Edgars buildings to the north and south, to allow for new uses to be inserted .This will enable the creation of balconies, and natural ventilation.

The remainder of these deep spaced buildings could be recreation facilities which require large volumes

● Catalytic Urban Design Project: Van der Bijl Square

Action Projects:

- The Removal of the Bus Terminus and the resurfacing of the square.The establishment of Bath Houses to assist in the conversion of vacant offices to housing.
- The creation of an independent colonnade around the entire square with canvas canopies in each opening - to stimulate activity around the edges.
- The conversion of vacant blocks of offices into mixed-use housing and retail
- Extensive Public Planting programme to be employed.

● Catalytic Urban Design Projects: New Faraday Station

This urban design project will require extensive public funding

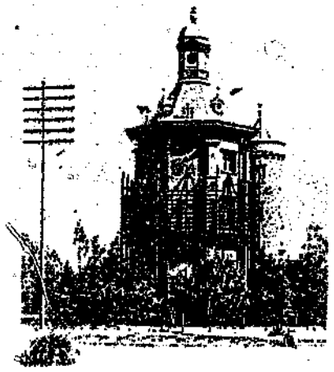
Action Projects:

- Housing Wall along freeway to reinforce the city 'wall' and to enclose and define public space.
- The establishment of a green corridor along the M2 freeway.
- The redirecting of the Faraday line into Faraday Square (Formerly Wemmer parking lot) and the erection of a new station flanked by a major hard space and a softer space either side.
- The redirecting of the off-ramps to converge on the Rissik Street axes thus heightening the sense of arrival.

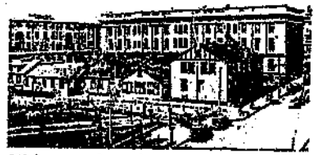
Catalytic Urban Design Projects:



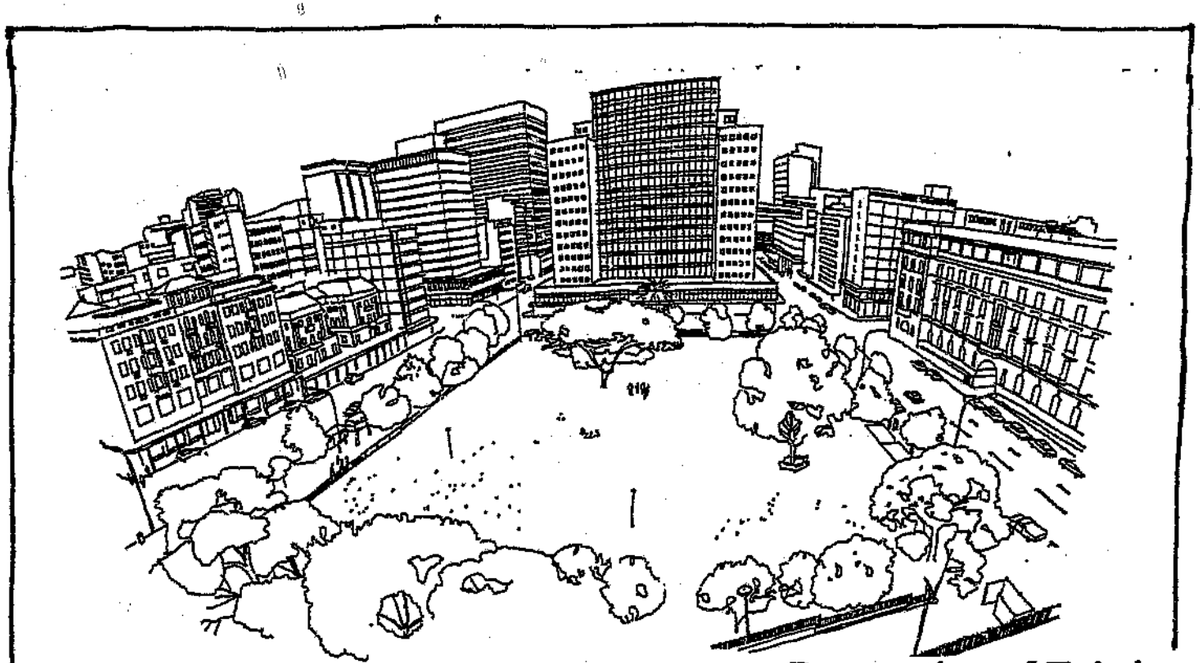
The Temporary Municipal Offices, Johannesburg



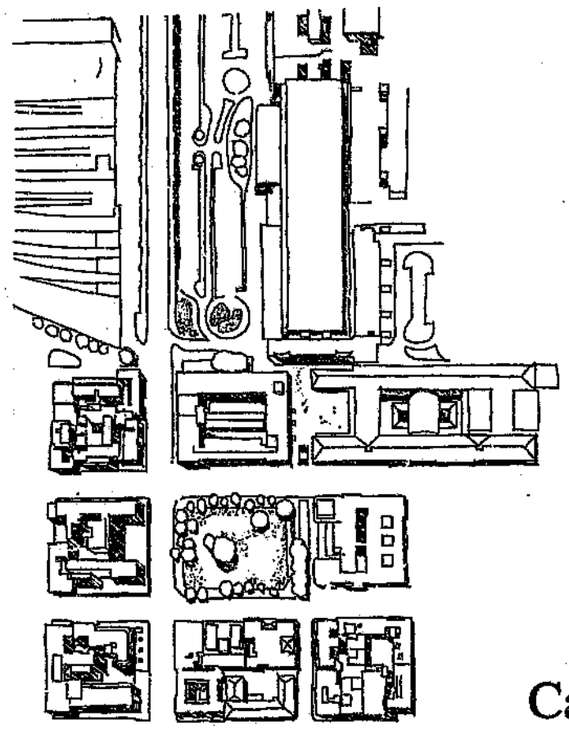
One of the most picturesque buildings in the mining camp was the Telephone Tower (1893) which stood in Plein Park, now Attwell Gardens. From here telephone wires radiated to all parts of town, much like a giant cobweb.



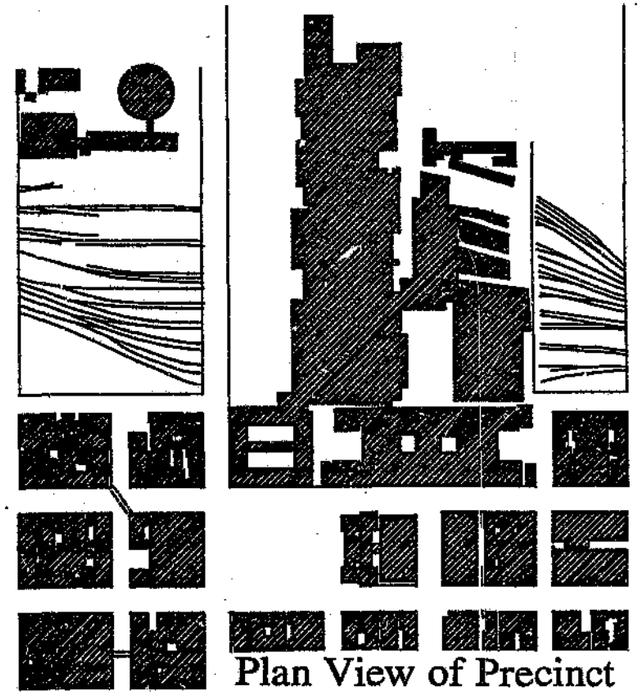
This complex of corrugated iron buildings, which was not demolished until the thirties, was known as the 'Tin Temple'. It was started in 1903 and at various stages the buildings served as municipal offices, the Johannesburg Commercial High School and later as part of the University.



Perspective of Existing

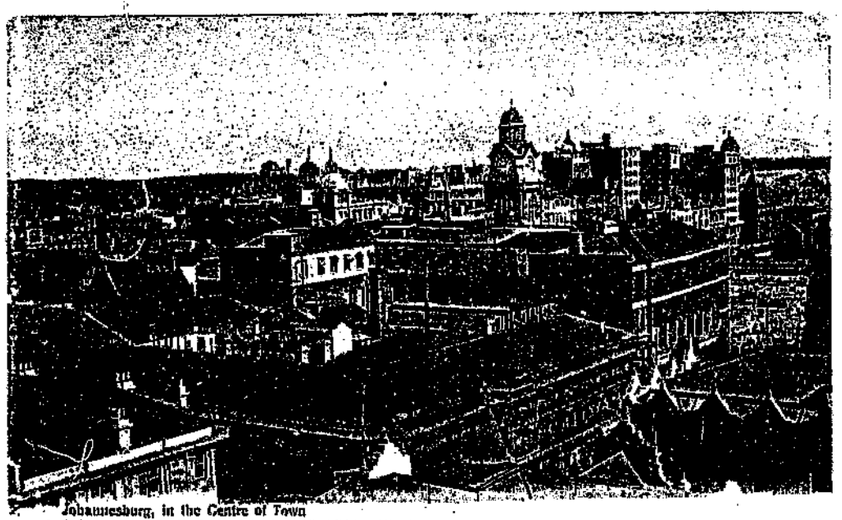


3D Drawing of Existing



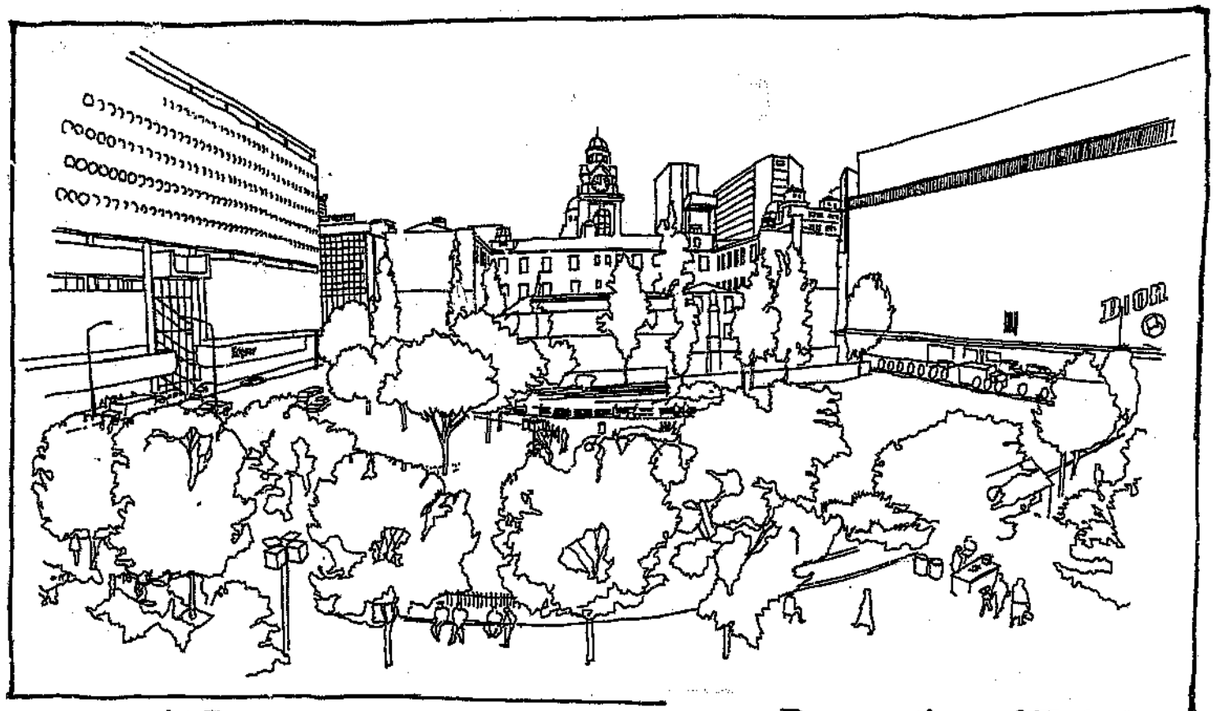
Plan View of Precinct

Catalytic Urban Design Project: Attwell Gardens

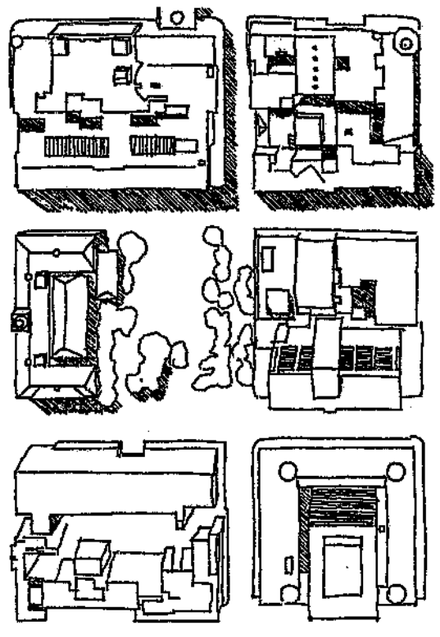


Johannesburg, in the Centre of Town
No. 3194 Published by H. O. Flusleis, P. O. B. 2362 Johannesburg.

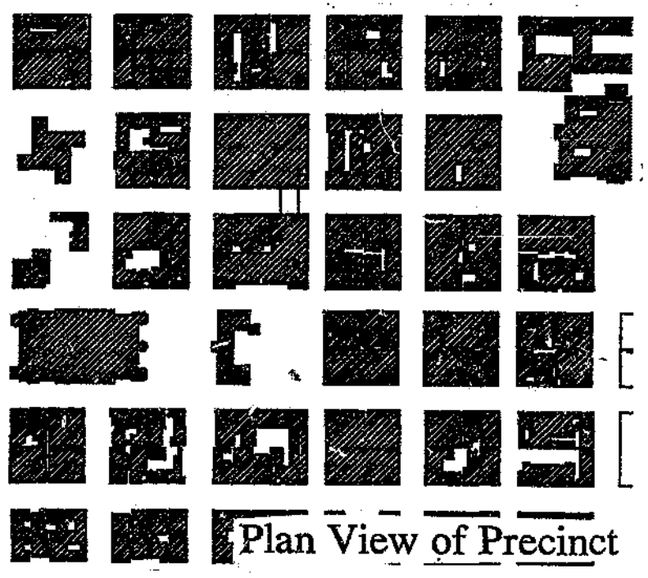




Perspective of Existing

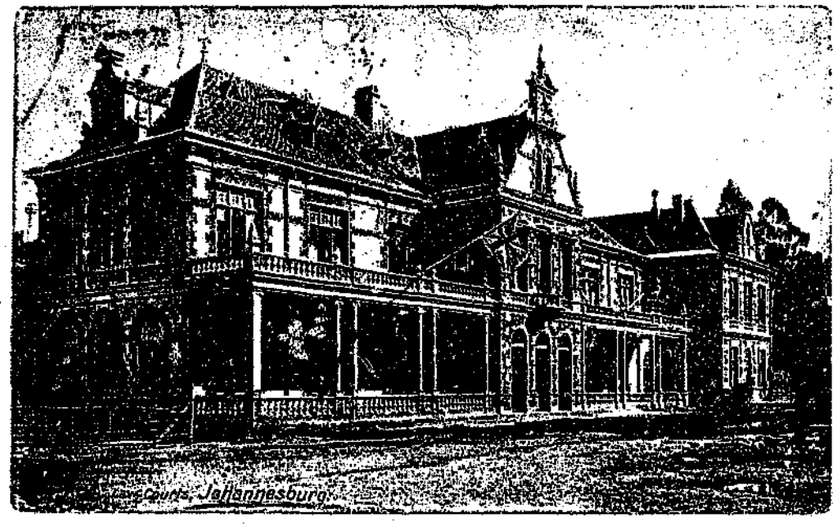


3D Drawing of Existing

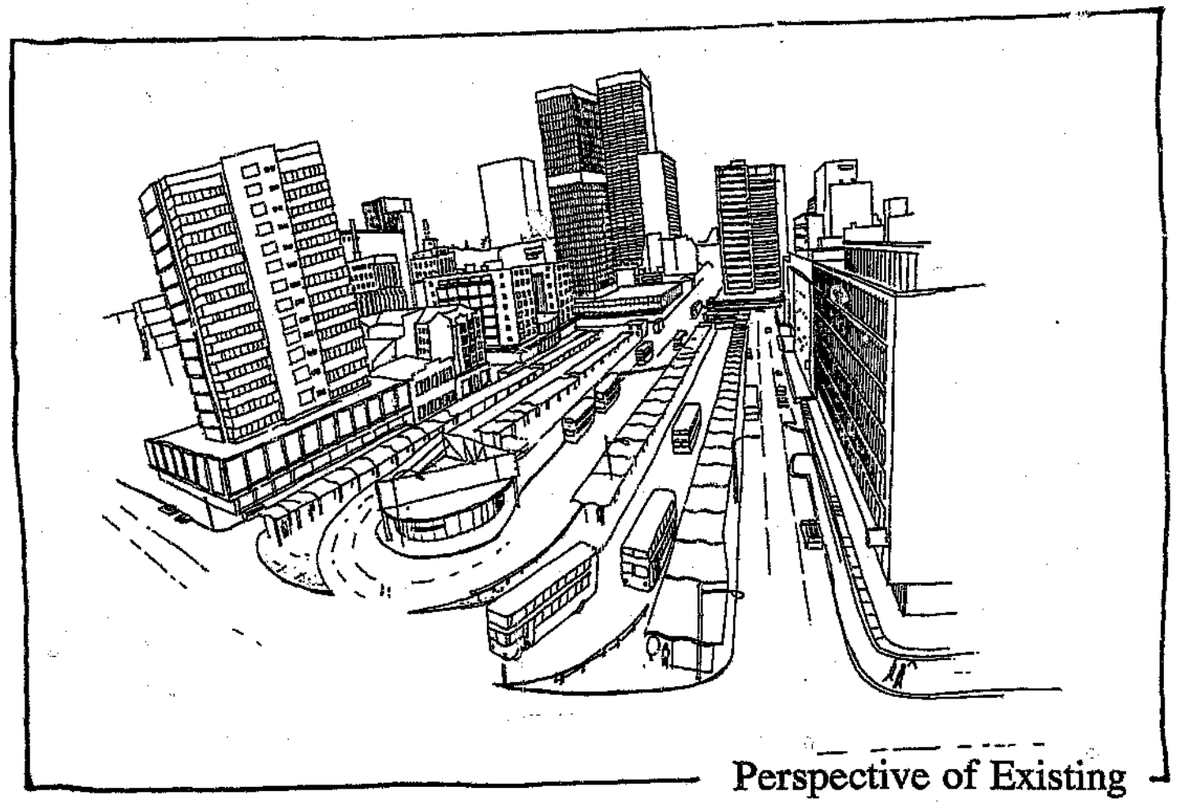


Plan View of Precinct

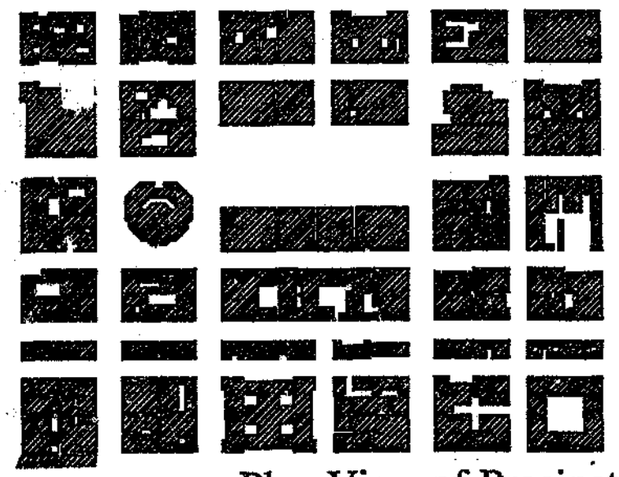
Catalytic Urban Design Project:
Ernest Oppenheimer Gardens



81 Law Courts.
Also known as Court House and, originally, Government Park. In 1965 the city council named it Van der Bijl Square after the eminent South African industrialist who became chairman of Iscor and Escom. The original Escom Building was erected adjacent to the square, which was originally intended to house a Gold Fields Club but this never transpired and the law courts were erected instead. Towards the end of the Anglo-Boer War, Lord Roberts with Lord Kitchener, entered the town. The Vierkleur on this square was taken down and a silken Union Jack, made by Lady Roberts, was run up in its place, after which the keys of the city were handed to the British.

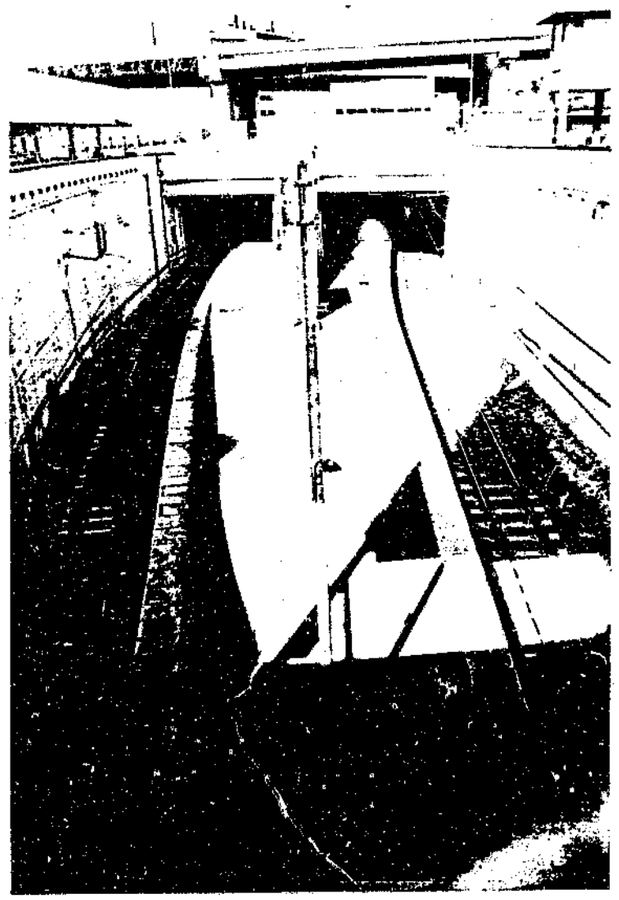


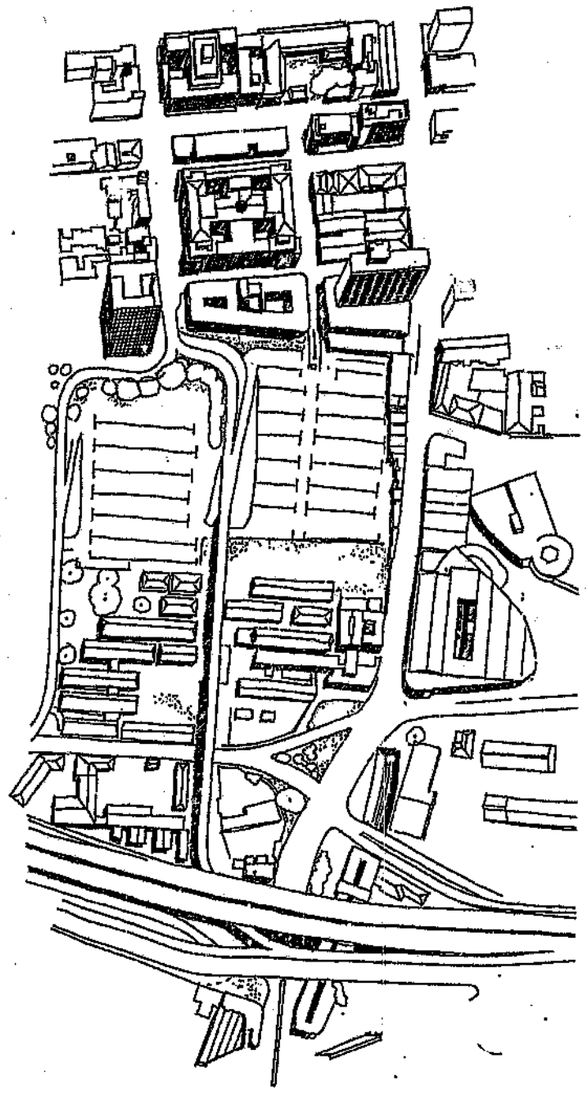
Perspective of Existing



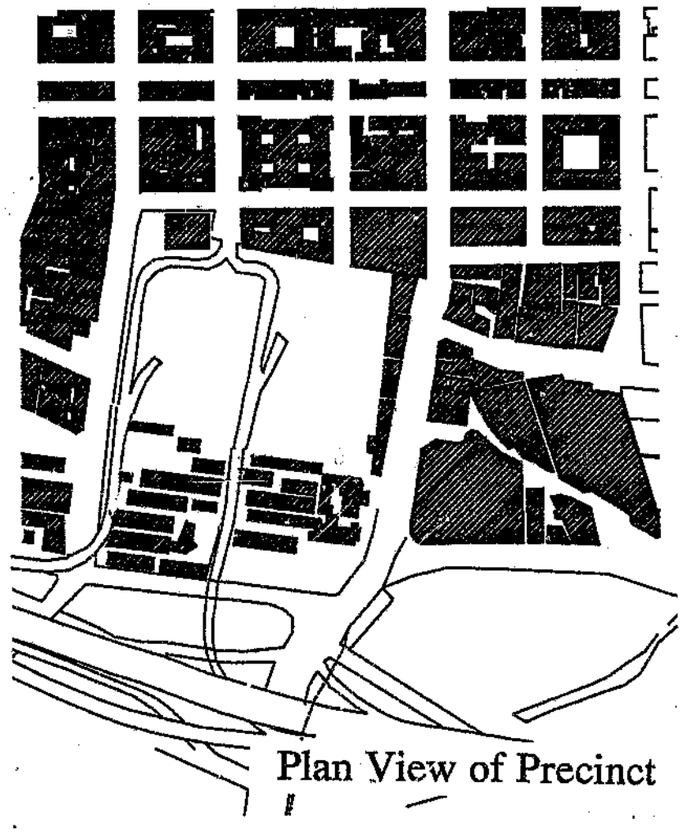
Plan View of Precinct

Catalytic Urban Design Project: Van der Bijl Square





3D Drawing of Existing



Plan View of Precinct

Perspective of Existing

Catalytic Urban Design Project:
New Faraday Station

PART ELEVEN
CONTROLS AND GUIDELINES

Intervention requires certain controls and policies. These are to ensure that the resultant urban form fulfills the accepted objectives. Guidelines are suggestions illustrating prototypical models or typologies of the desired solution.

11.1 Controls

11.1.1 Urban Form Directives

- **Site Development Plan Process:** in order to ensure that development keeps within the established objectives it is necessary to retain the above process.
- **Floor area Ratios:** indicates the maximum volume of a building as a factor of its floor area.
- **Height:** indicates the maximum or minimum number of storeys which are necessary to provide comfortably proportioned urban space.
- **Key Installations**
- **Special Architectural Responses:** - Locations which will require either a vertical element or special architectural response as opposed to a building which fades into the background.
- **Arcades:** where the path needs to reinforced by activities and shopping.
- **Colonnades:** where a permeable edge to the street is required. This creates a transition between vehicular and pedestrian movement
- **Important Vista's:** in order to assist legibility certain vista's enhance the urban experience by giving the pedestrian a glimpse of what lies ahead. It is also important to orientate the pedestrian toward his goal.
- **Review Process:** where, because of the importance of the location or the design response, it may be necessary to maintain control over the development.
- **Build to line:** Where the urban wall is important in defining and reinforcing urban space it is necessary to build up to the boundary

11.2 Guidelines

11.2.1 Activities and Land uses

The preferred uses of building spaces, particularly those which abut public spaces . This control stipulates whether a particular use is mandatory or elective.It includes uses such as retail, entertainment, offices, residential etc.

11.2.2 Urban Space and Landscaping

This control stipulates the extent of hard and soft space, green space, road treatment, landscape features and pedestrian links

11.2.3 Edge Continuity

This control stipulates the way in which the edge should be continued or `in-filled'
It controls edge permeability. Factors dealing with edge continuity include
activies, scale, form and material or texture. Height is also a major determinant.

11.2.4 Microclimate and Pollution:

- The planting of trees alongside roadways and at intersections to improve the microclimate, or to filter pollutants,
- Planting of trees around parks and squares for aesthetic and psychological benefit; and
- The planting of trees for structural reasons, especially on vacant land.

11.2.5 Pedestrian Movement

With regard to the inner city, a concerted effort will need to be made to prioritise channels for pedestrian movement. This will entail the erection of colonnades, arcades, raised platforms at pedestrian crossings, ie. the creation of a 'city for feet' in which all his activities can be performed unimpeded by cars.

11.2.6 Defensibility

As dicussed earlier defensible space principles will be applied to the eveluation of all conversions and new housing schemes.

11.2.7 Informal Markets

Urban management will actively support informal initiatives and seek to create the infrastructure necessary to support them. This will entail the erection of simple shelters, ablutions and health infrastructure.

11.2.8 Land Consolidation

Consolidation ot more than 500sqm, unless for public benefit, will be strongly discouraged. Large city blocks result in mono-use and the specialised form and deep space make future conversions difficult.

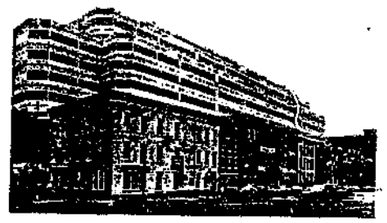
11.2.9 Disaggregation of Built-Form

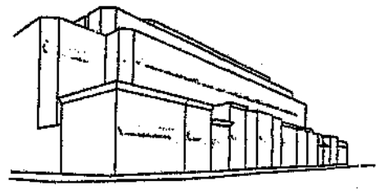
Large buildings must be broken up to represent the structural module of the city

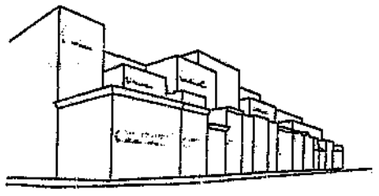
> *"A building cannot be a human building unless it is a complex of still smaller buildings or smaller parts which manifest its own internal social facts.*
> *A building is a visible, concrete manifestation of a social group or social institution. And since every social institution has smaller groups and institutions within it, a human building will always reveal, not as a monolith, but as a complex of these smaller institutions, made manifest and concrete too." (Alexander, 1977:469)*

11.2.10 Robustness

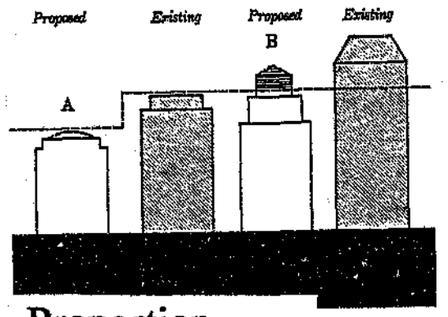
This policy entails the design of public and private buildings and spaces. The principle of



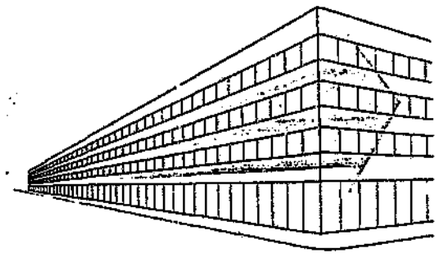




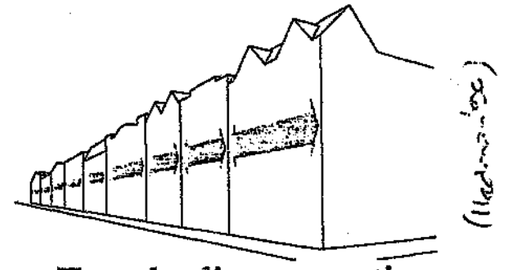
Height disaggregation



Proportion

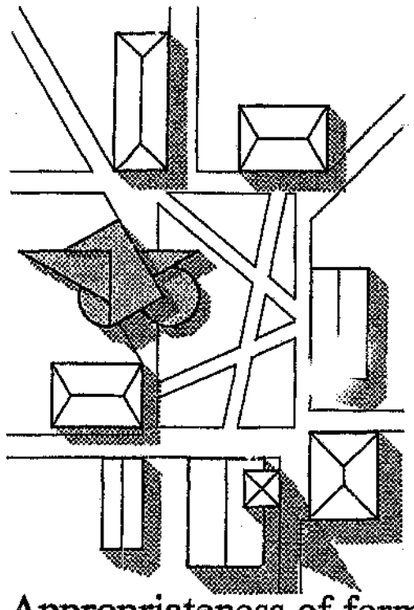


(Hedman, 80)



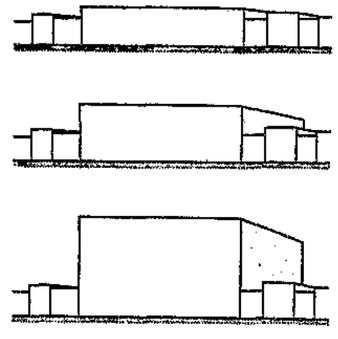
(Hedman, 80)

Facade disaggregation



(Hedman, 80)

Appropriateness of form



(Hedman, 80)

Scale

Built-form Directives

multi-use and the ability to be converted into another use extends the life of buildings and spaces. Thus, all new buildings should display a simple, easily convertable plan.

The simple Georgian house had a form which enabled a variety of spatial options satisfying both privacy gradient, and light and ventilation requirements. In addition these simple houses are easily converted into apartments, embassies or even schools.

11.2.11 Site Repair

Buildings should be sited on the worst land not the best. Interventions must be healing.

11.3 Typological Guidelines

11.3.1 Street Cross-section Typologies

This typological study deals with alternative sections through Joubert Street. The primary concern is how to accommodate the principle of mixed-use within the existing fabric. The following options are considered:

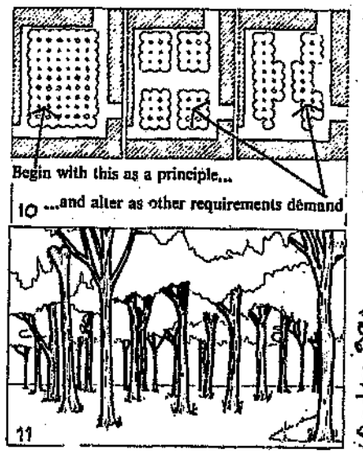
- Incorporation of schools
- Incorporatrion of Recreational Facilities
- Issues regarding Parking
- Street Market alternatives
- Street Market circulation options
- Vertical Circulation separation.

11.3.2 Housing Conversion Typologies

The author has attempted to explore the provision of public amenities, such as Food Vending and Public Baths, to alleviate the need to provide these services privately. This assumption generates a number of options at the lower end of the housing market. Shown here are a range of dwelling units ranging from a shared room without ablutions to a two bedroom unit with private ablutions. The author has managed to generate eight options.

See following diagrams:

Small Urban Forests



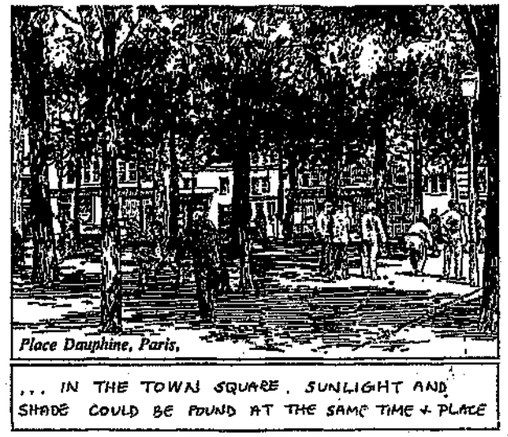
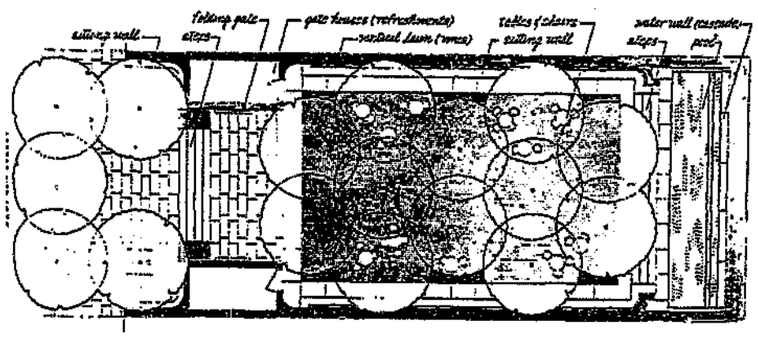
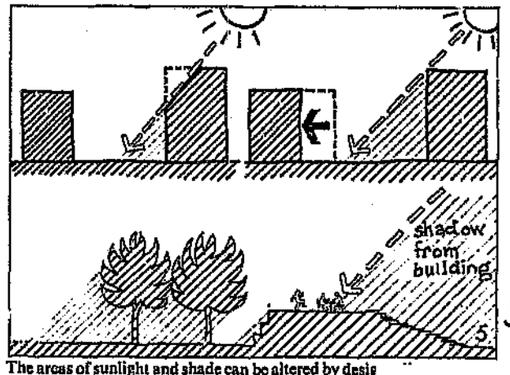
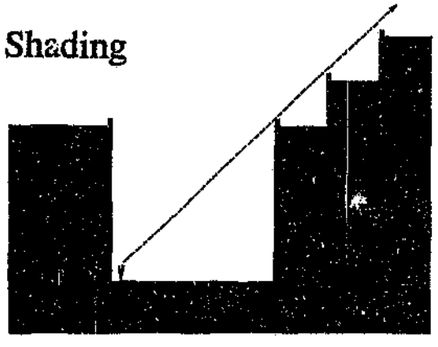


FIGURE 3.9
Plan of Paley Park, showing the simplicity with which its climatic effect is achieved: a waterfall, vine-covered walls, and a canopy of trees.

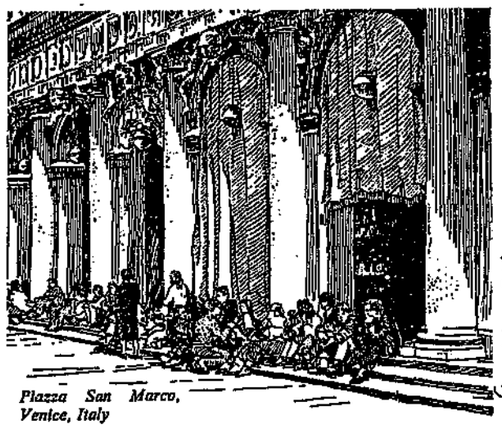




The areas of sunlight and shade can be altered by desig a variety of scales: building mass, open space width, le or other features within the space (5).

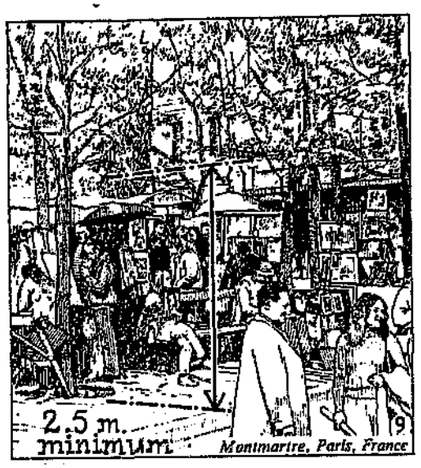


Landscaping and Microclimate

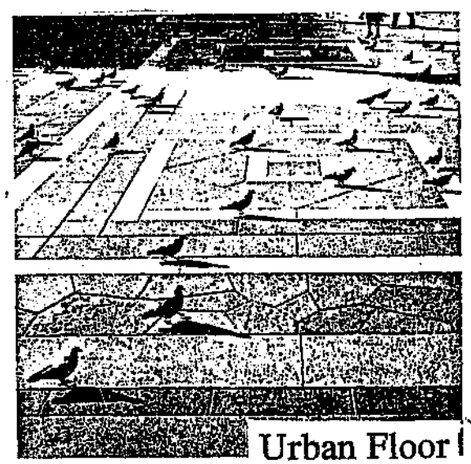


Piazza San Marco, Venice, Italy

(Bartley 91)



(Bartley 90)



Urban Floor

(Halprin 1961)



Edge activities

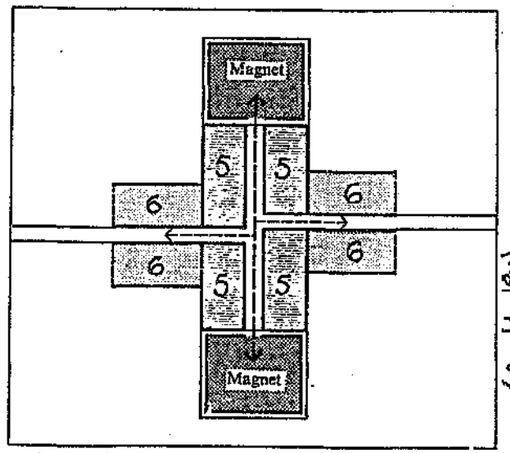


The Pedestrian Bill of Rights

- The city shall not harm the pedestrian
- The streets belong to all the people, and shall not be usurped for the passage and storage of motor vehicles
- People shall have the right to cycle in safety; that means ample provision of bikeways separate from trucks, buses, and automobiles
- To reduce dependence on the automobile, city and suburban residents shall have the right to convenient, clean, and safe mass transportation
- People shall be freed from the heavy burdens of daily travel by having the opportunity to live near their places of work
- Urban residents shall have plentiful and generous open public places — outside of parks — for gathering and ceremonies
- Pedestrians shall have the right to breathe clean air on streets, free of the harmful fumes of vehicles
- Standing room only on city streets shall end by providing benches for sitting and relaxation
- The sounds of human voices shall replace vehicular noise on city streets
- Concern for the welfare of pedestrians shall extend to the surface underfoot — with paving congenial for walking — and shall include human-scale street furniture and signs
- Urban man shall have the right to experience trees, plants and flowers along city streets
- Cities shall exist for the care and culture of human beings, pedestrians all!

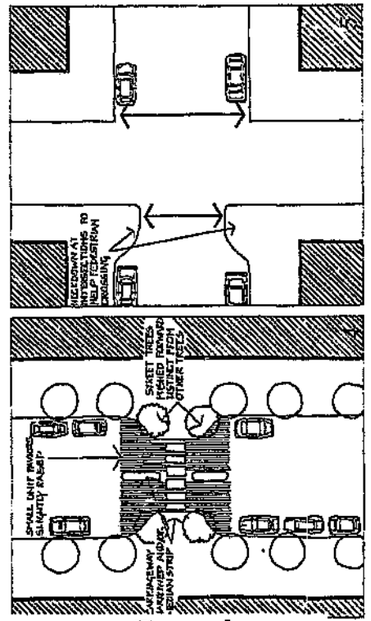
Simon Breines & William J. Dean, *The Pedestrian Revolution*, N.Y., Vintage Books, 1974, p. 146

Sance (Cronhurst 1987)

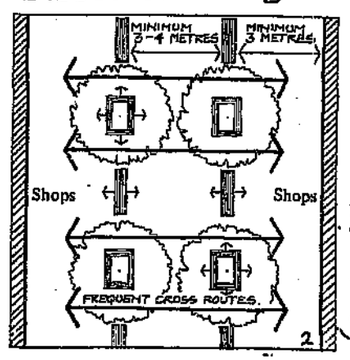


(Bartley 91)

Shopping Centre Principle.
Goal-orientated Movement

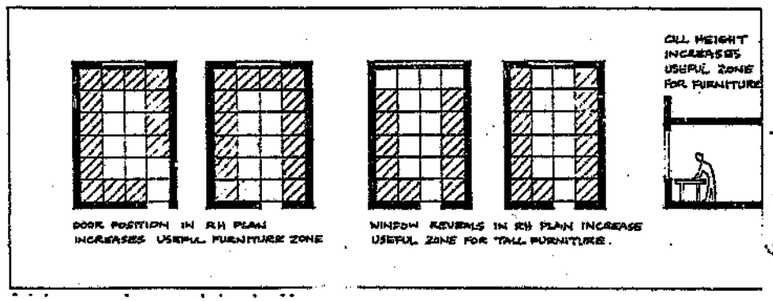


Street Crossings

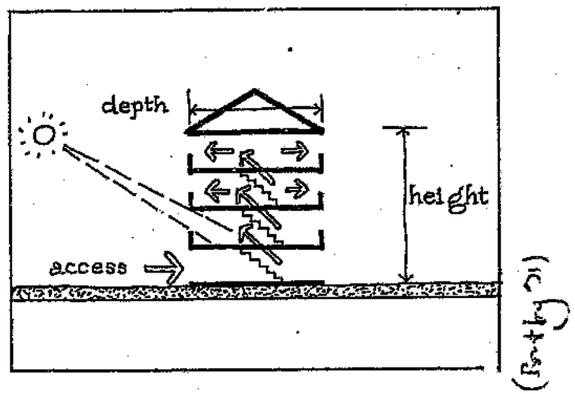


(Bartley 91)

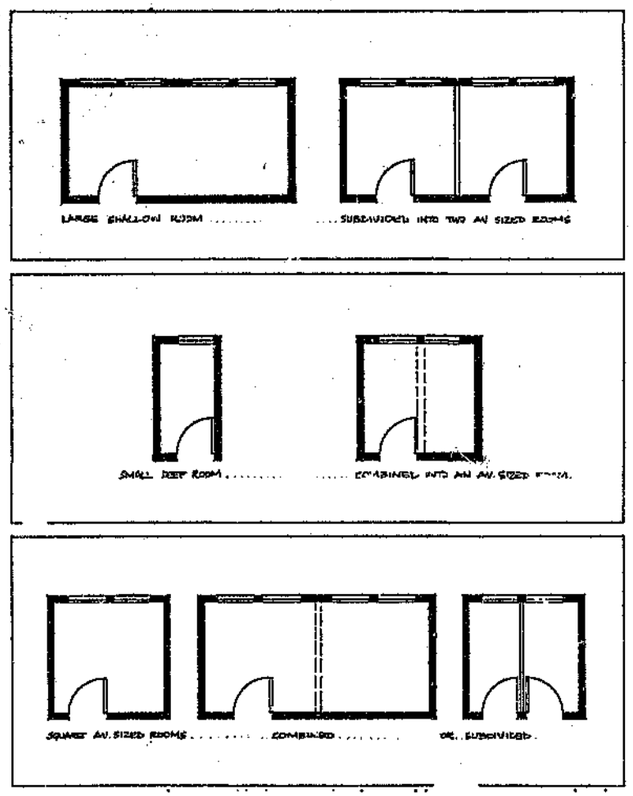
Pedestrian Movement



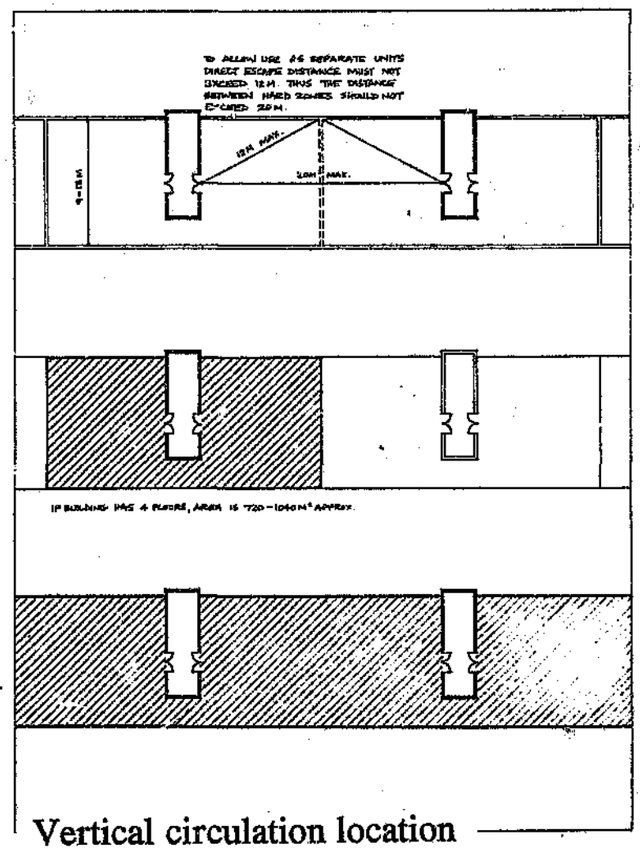
Floor Space utilisation



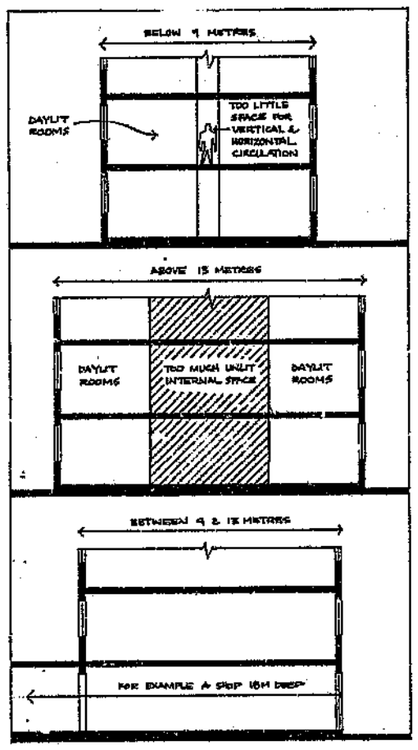
Natural Ventilation



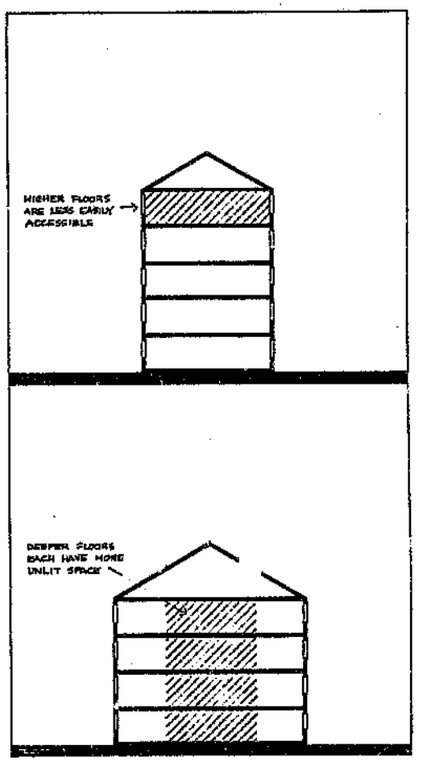
Divisibility



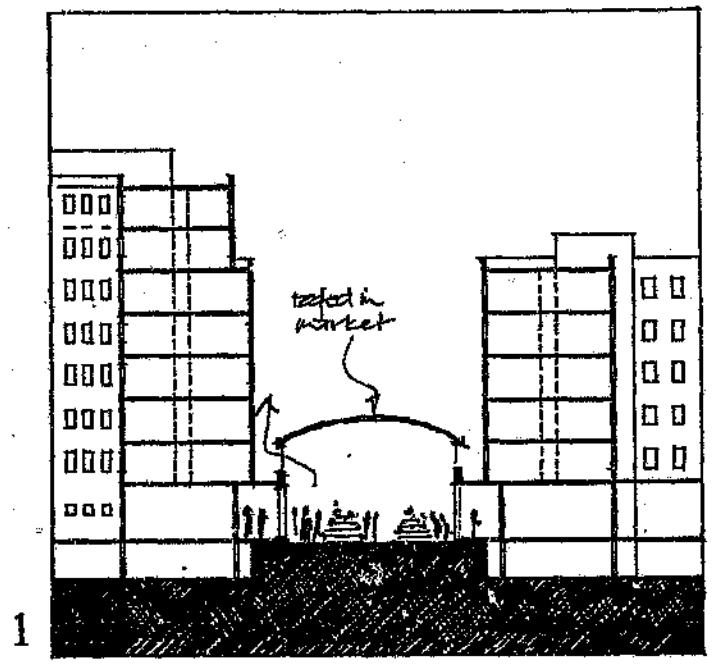
Vertical circulation location



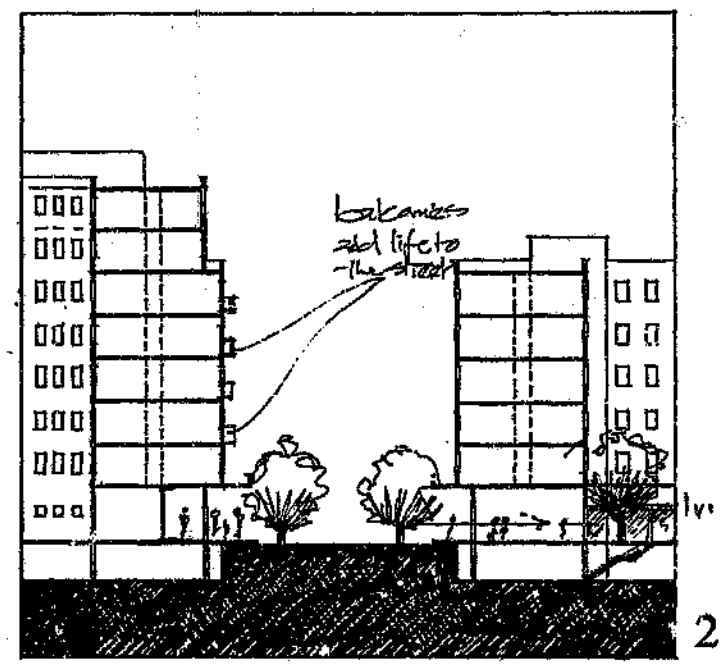
Depths/Deep Space



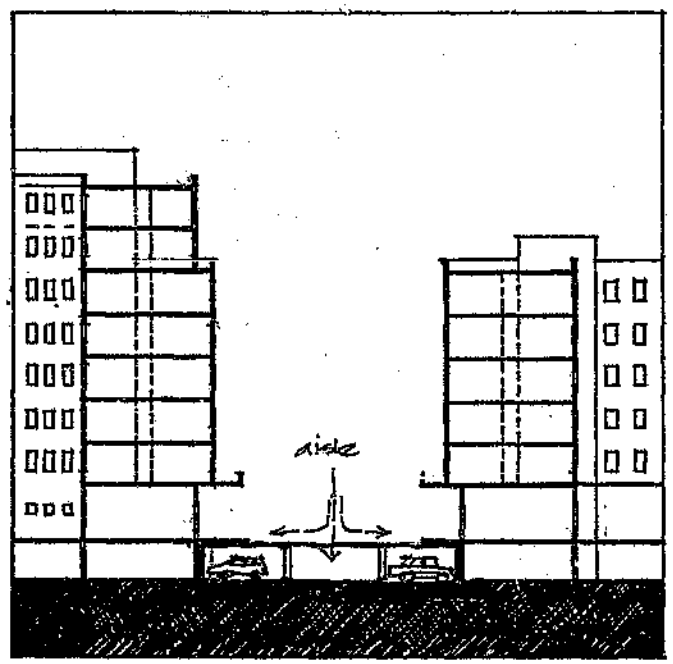
Robustness



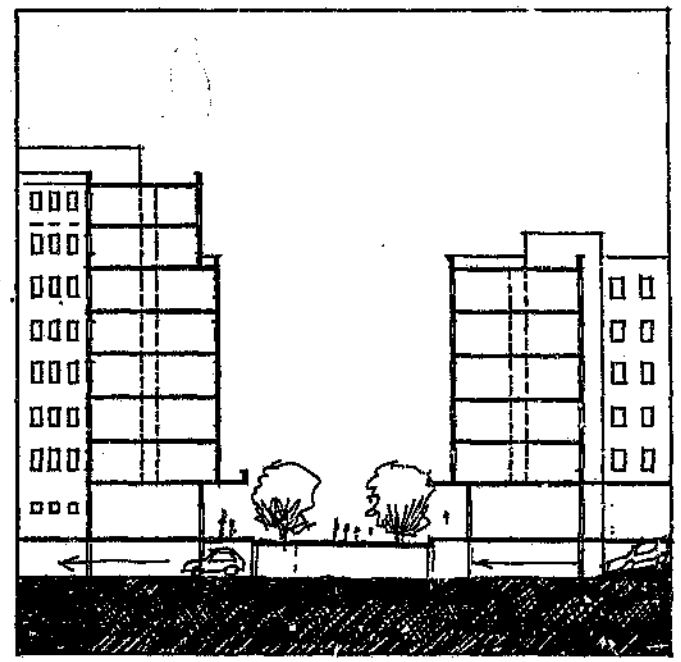
1 ROOFED SPACE - NATURALLY VENTILATED



2 BORROWING PRIVATE SPACE FOR PUBLIC

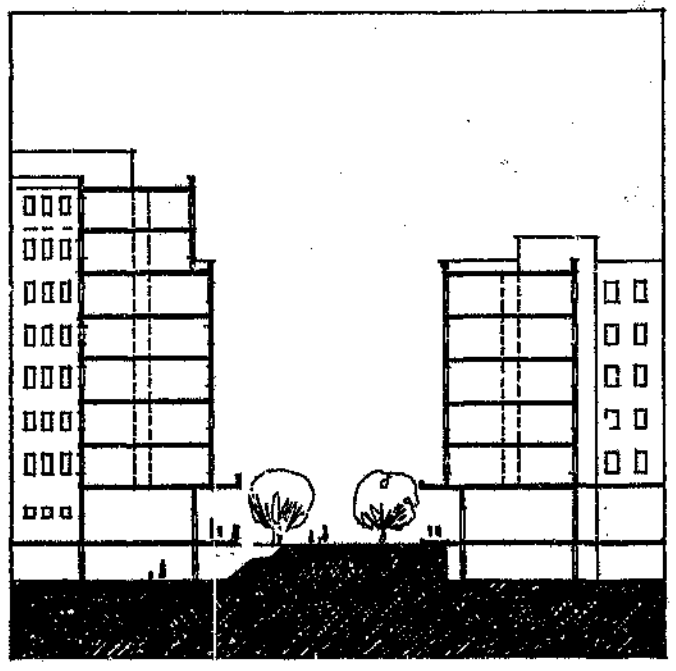


3 PARKING OPTIONS — UNDER STREET PARKING

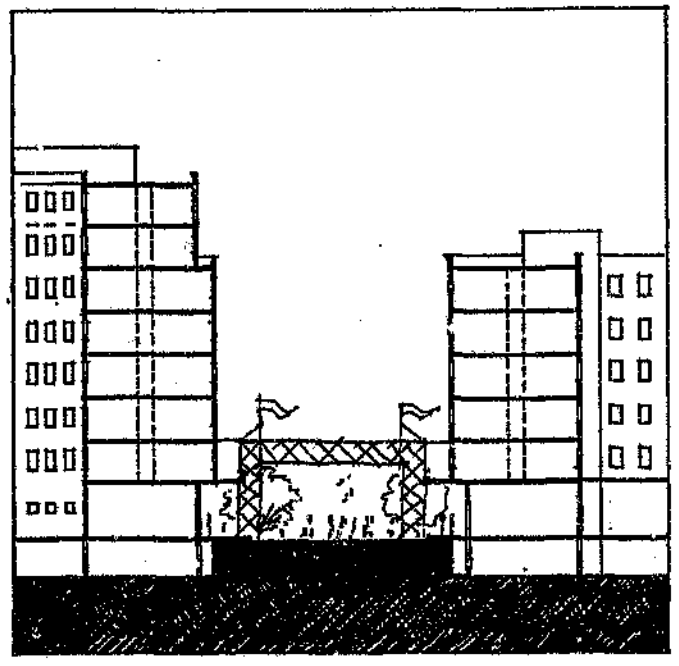


4 CONNECTING BASEMENTS FOR GREATER ACCESS

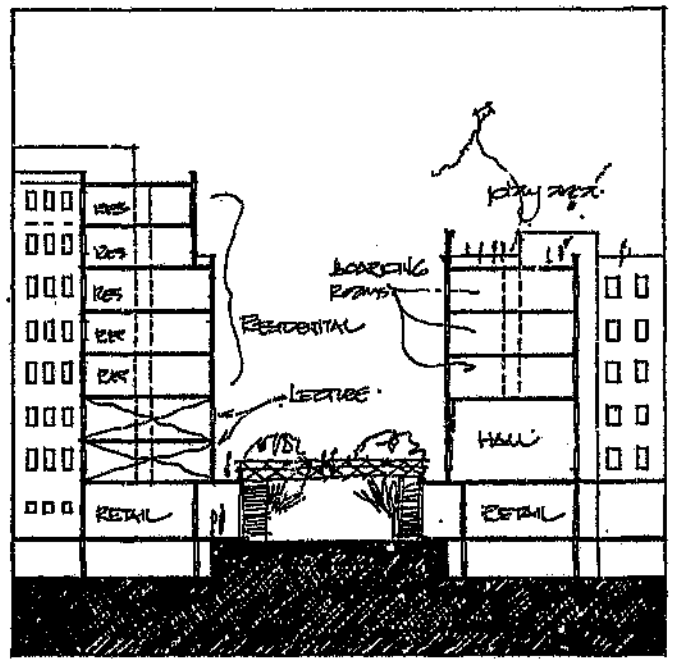
Street Section Typologies



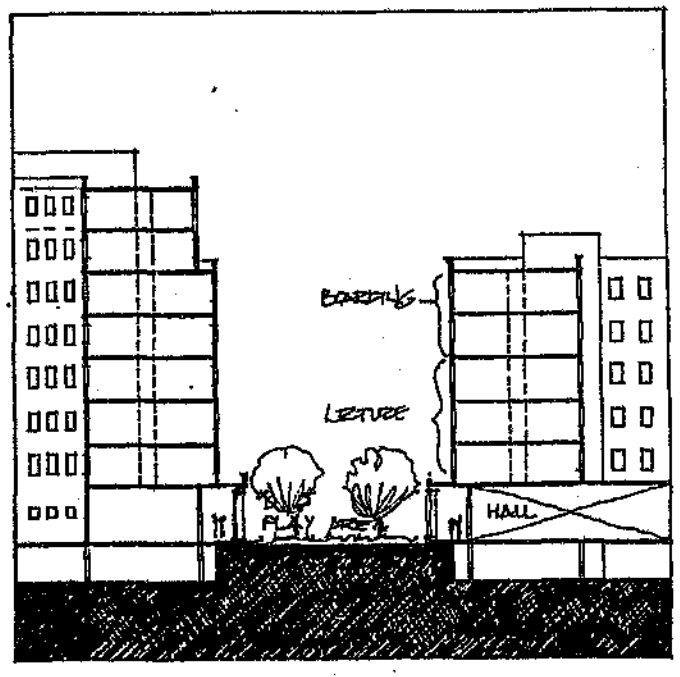
5 OPENING UP 'THE BASEMENT' TO THE STREET FOR PUBS, RESTAURANTS AND OPEN PUBLIC BATHS



6 CREATING GATEWAYS – ESPECIALLY AT NODES

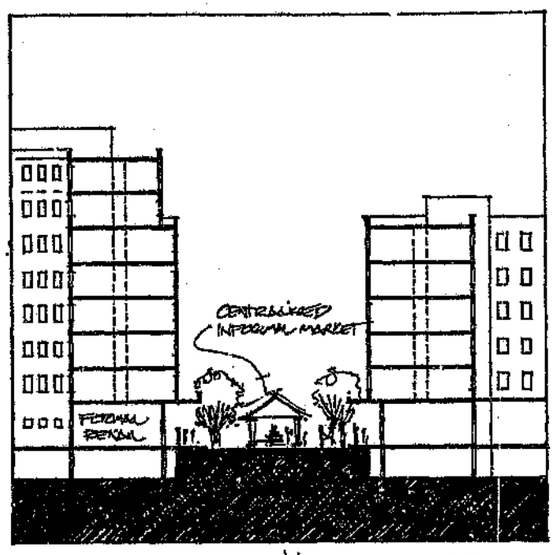


7 CONNECTING BRIDGES – FLOW OF CLASSES TO SCHOOL.

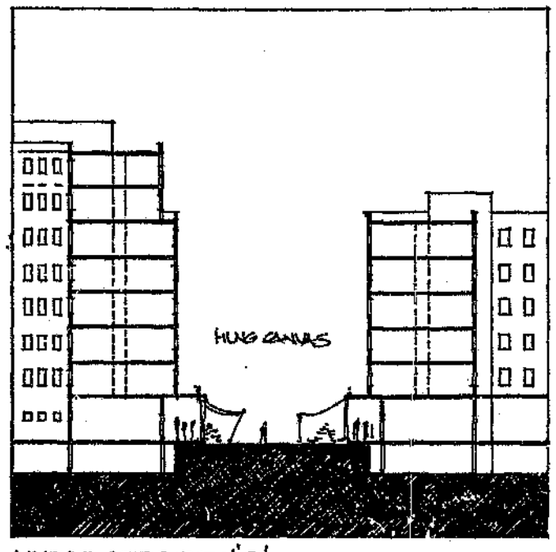


8 SCHOOL – USING STREET AS PLAY AREA DURING SPECIFIC PERIOD.

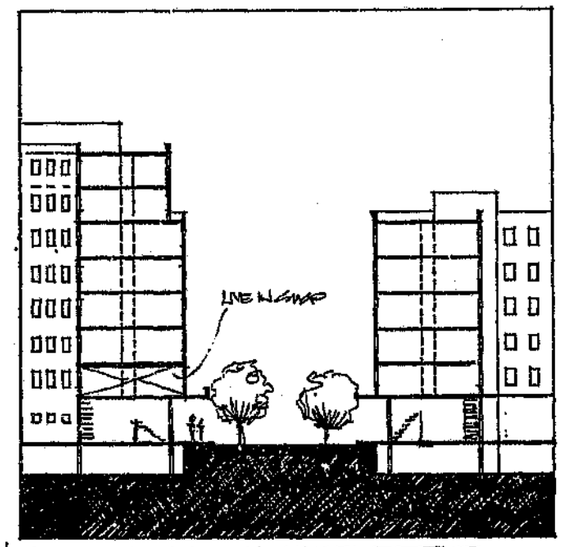
Street Section Typologies



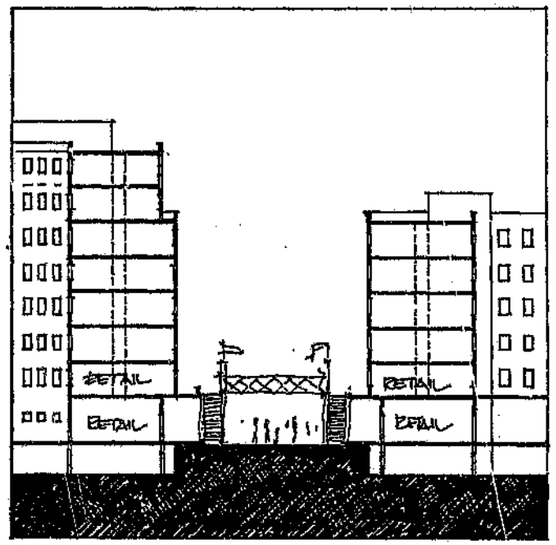
9 MARKET CONFIGURATION 'A' – DOUBLE SIDED



10 MARKET CONFIGURATION 'B'

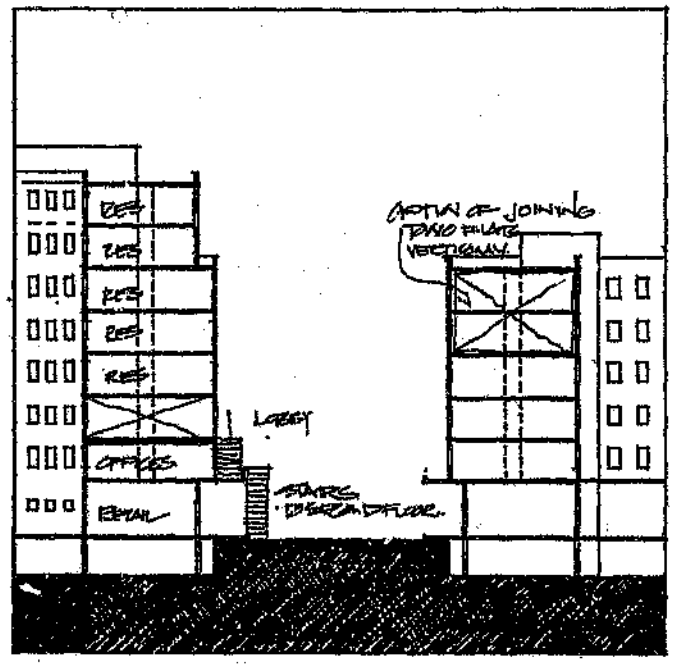


11 'C' SIDE OWNERS LIVE IN, MANUFACTURE AND SELL FROM SIDE

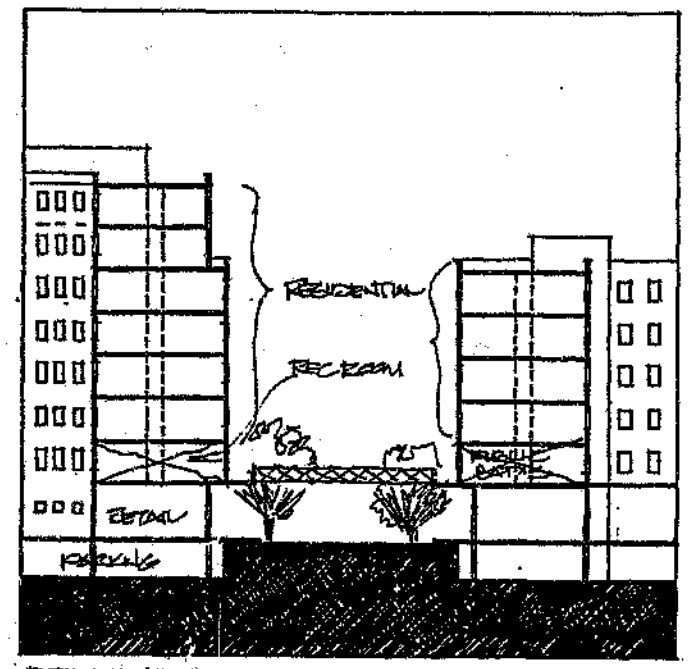


12 'D' UPPER LEVEL MARKET PLACE

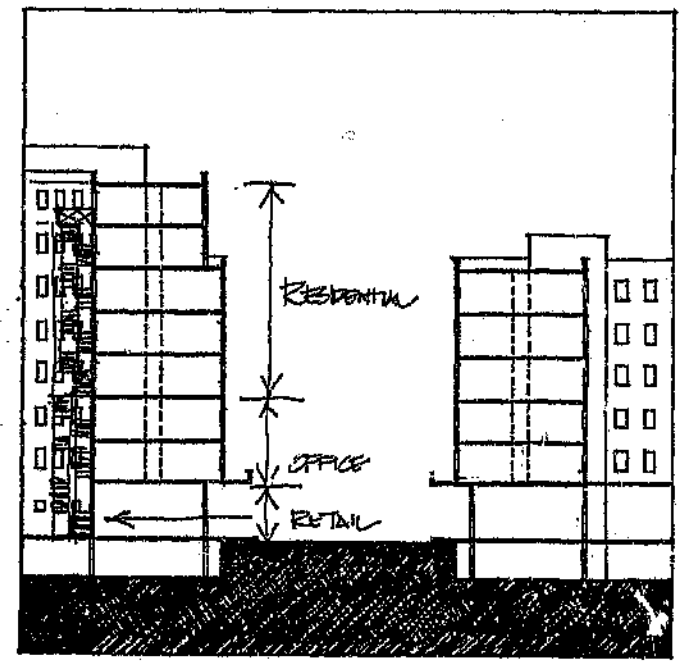
Street Section Typologies



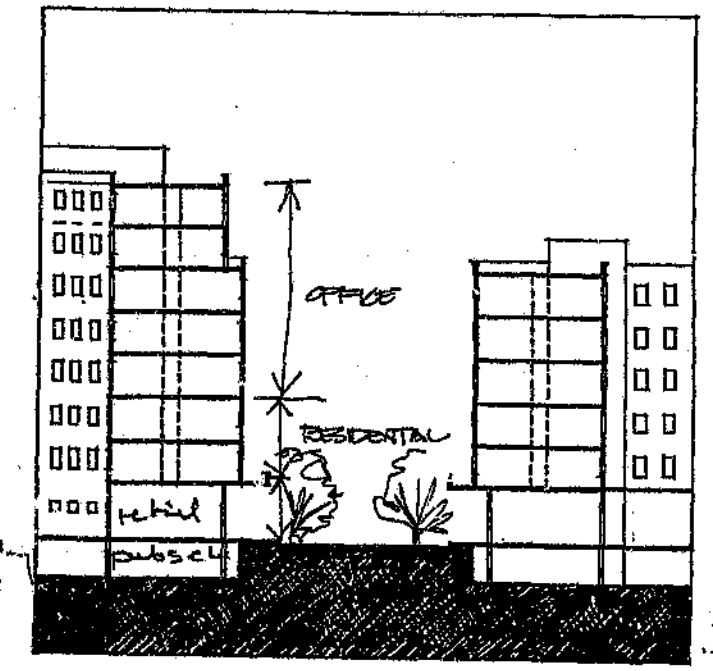
13 MIXED USE: HOUSING OFFICE RETAIL
SEPERATING RESIDENTIAL + OFFICE CIRCULATION



14 BRIDGES TO CONNECT RESIDENTIAL AREAS
SHARING OF FACILITIES BETWEEN TWO BUILDINGS

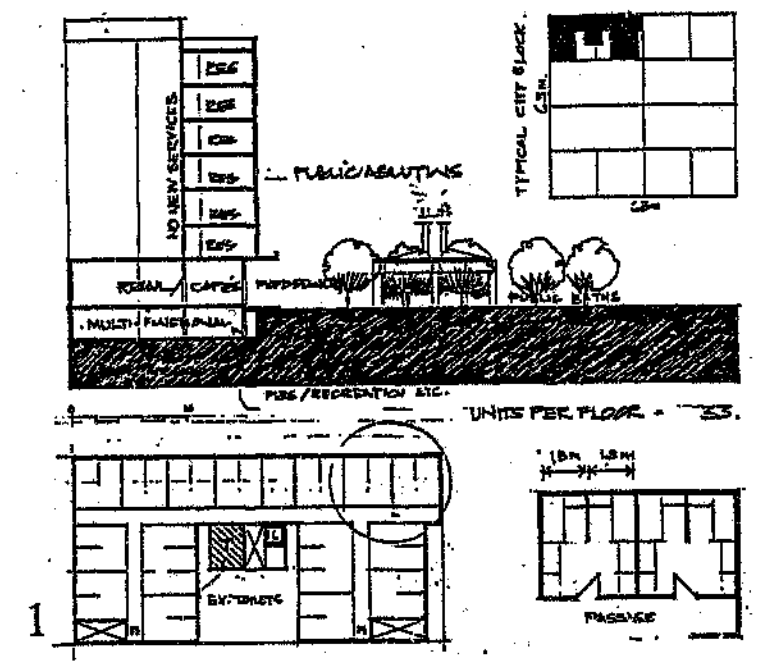


15 SEPERATING MIXED USE CIRCULATION VIA
REAR STAIRCASE.

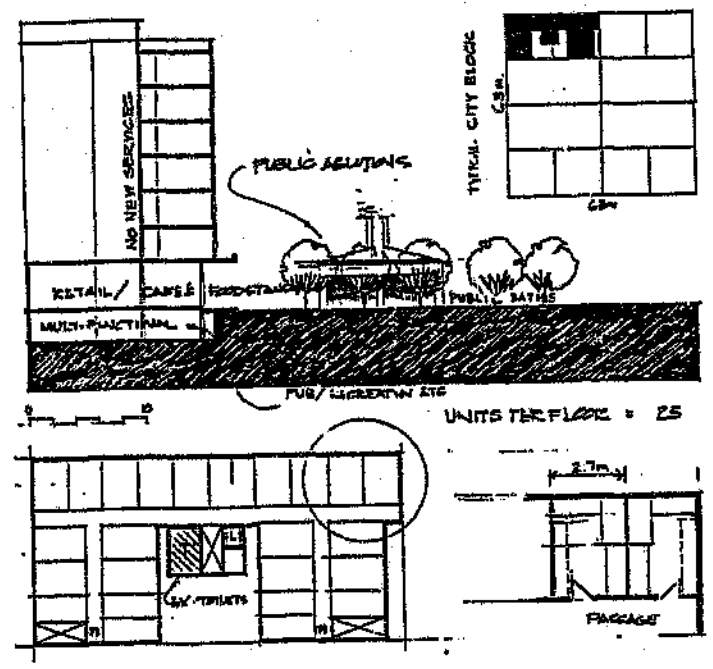


16 IDEAL OPTION - LIVING THE STREET BUT
FEEL NOT WORK -
PEOPLE WANT TO WORK CLOSE TO GROUND.

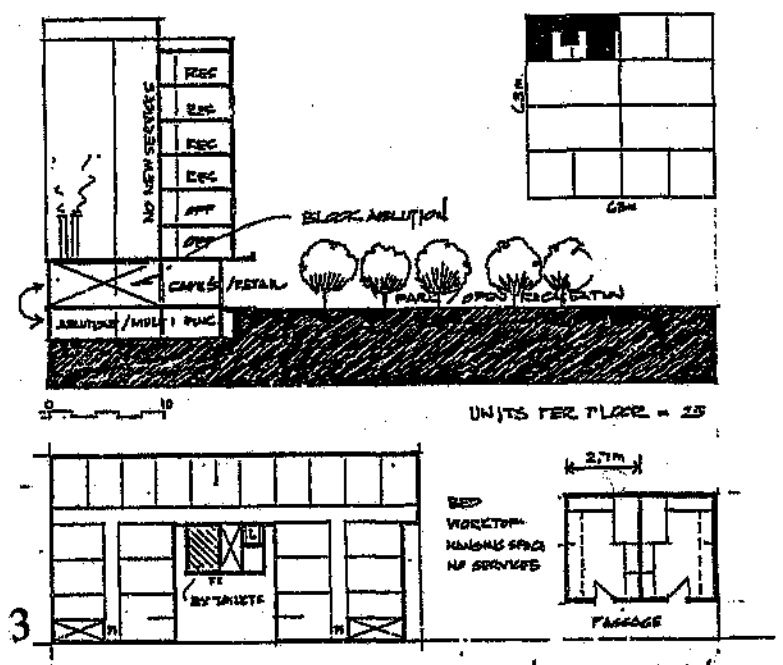
Street Section Typologies



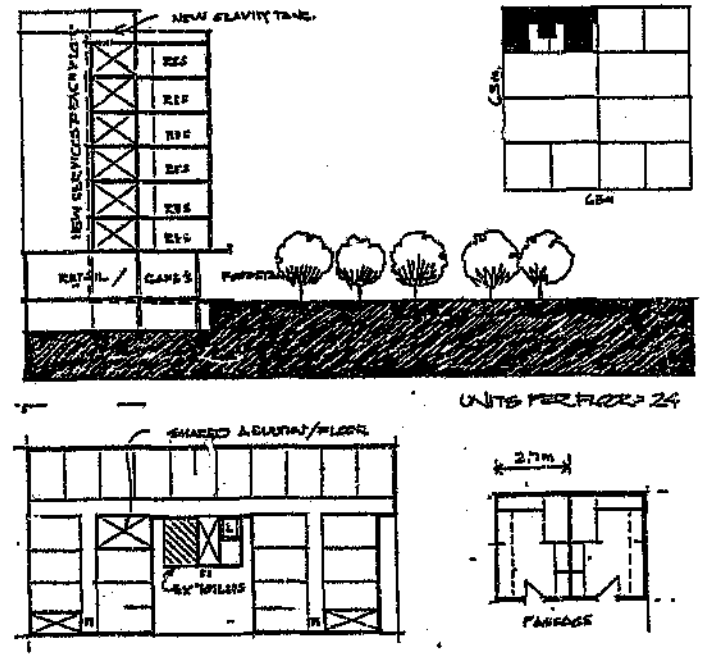
1 TYPE 1 SHARED ACCOMMODATION WITH PUBLIC ABLUTIONS



2 TYPE 2 BATCHELOR UNIT WITH PUBLIC ABLUTIONS

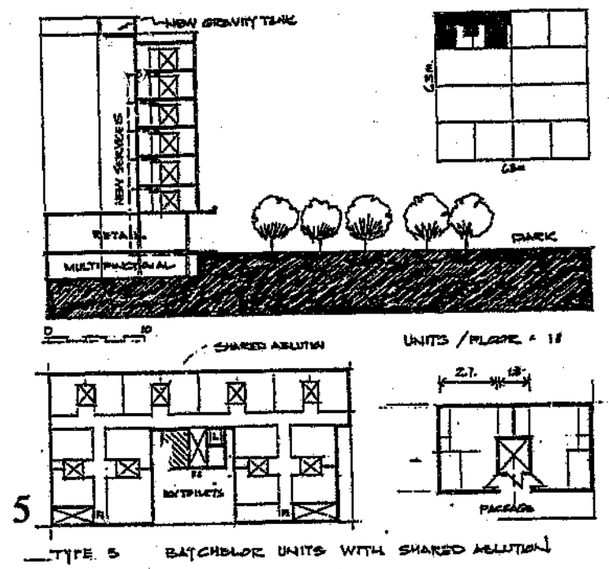


3 TYPE 3 BATCHELOR UNIT WITH SHARED BLOCK ABLUTIONS



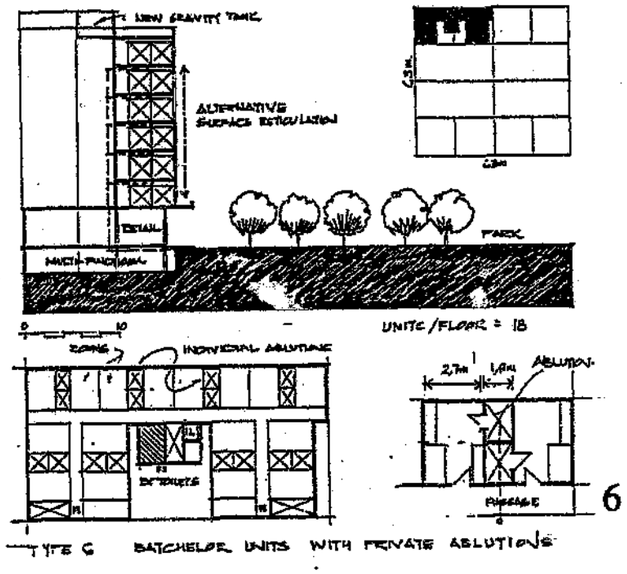
4 TYPE 4 BATCHELOR UNIT WITH SHARED ABLUTIONS AT EACH FLOOR

Conversions for Housing: Typologies



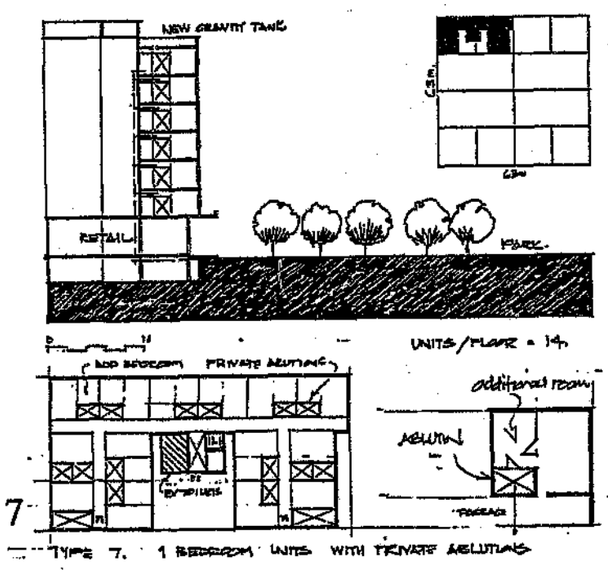
5

TYPE 5 BATCHELOR UNITS WITH SHARED ABLUTION



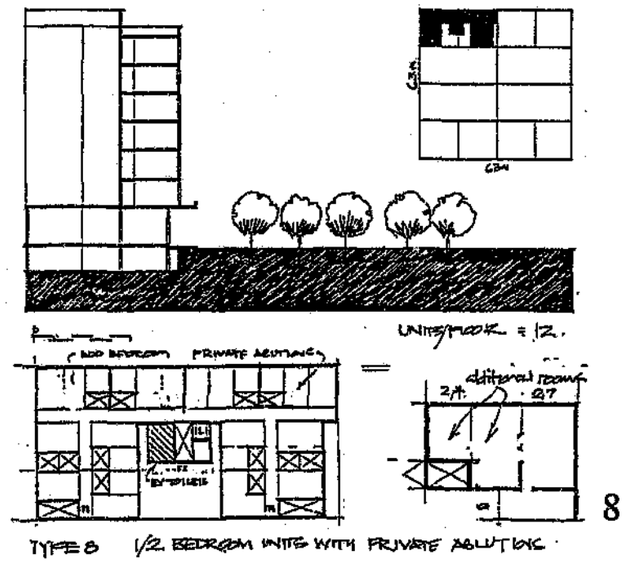
6

TYPE 6 BATCHELOR UNITS WITH PRIVATE ABLUTIONS



7

TYPE 7. 1 BEDROOM UNITS WITH PRIVATE ABLUTIONS



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TYPE 8 1/2 BEDROOM UNITS WITH PRIVATE ABLUTIONS

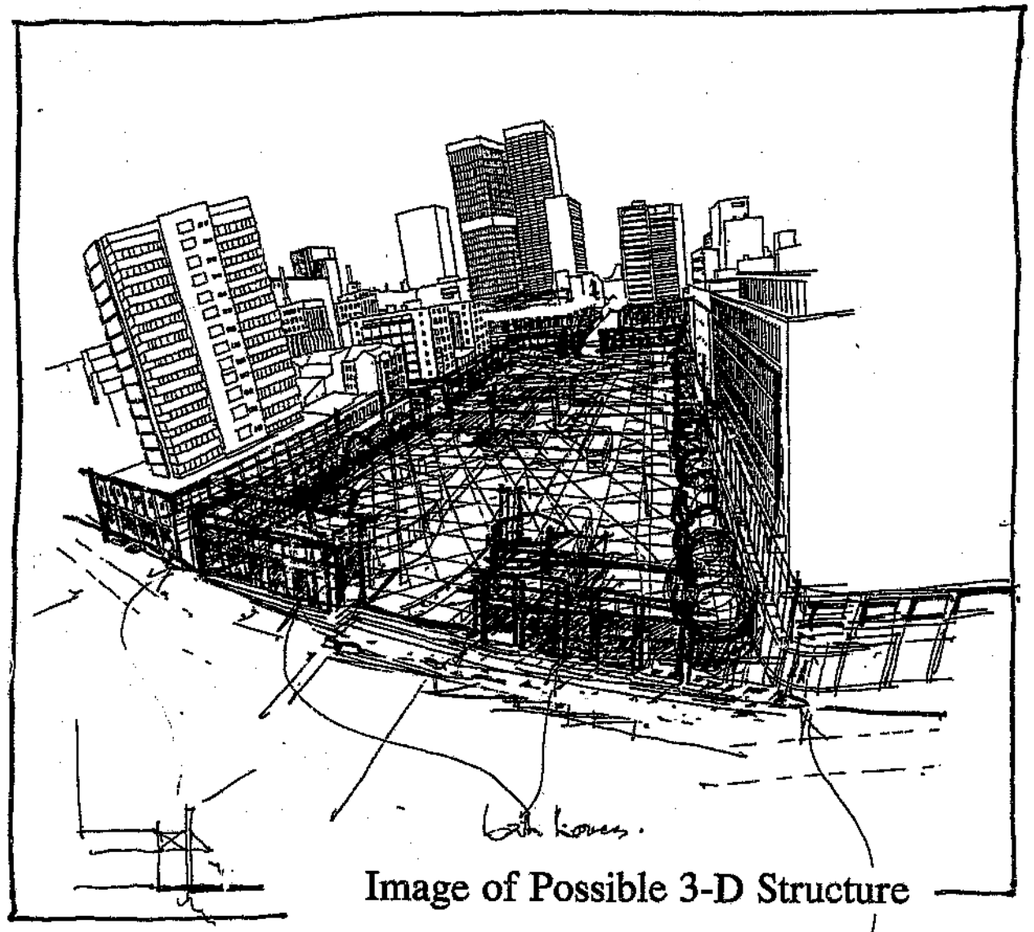
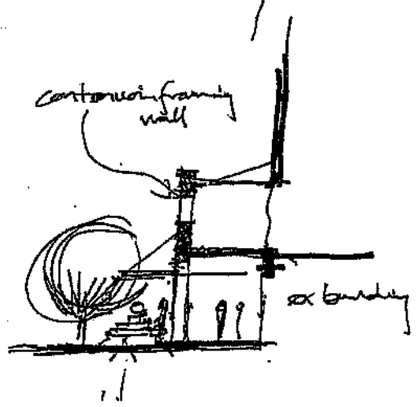


Image of Possible 3-D Structure



Conceptual Development
Vd Bijl Square

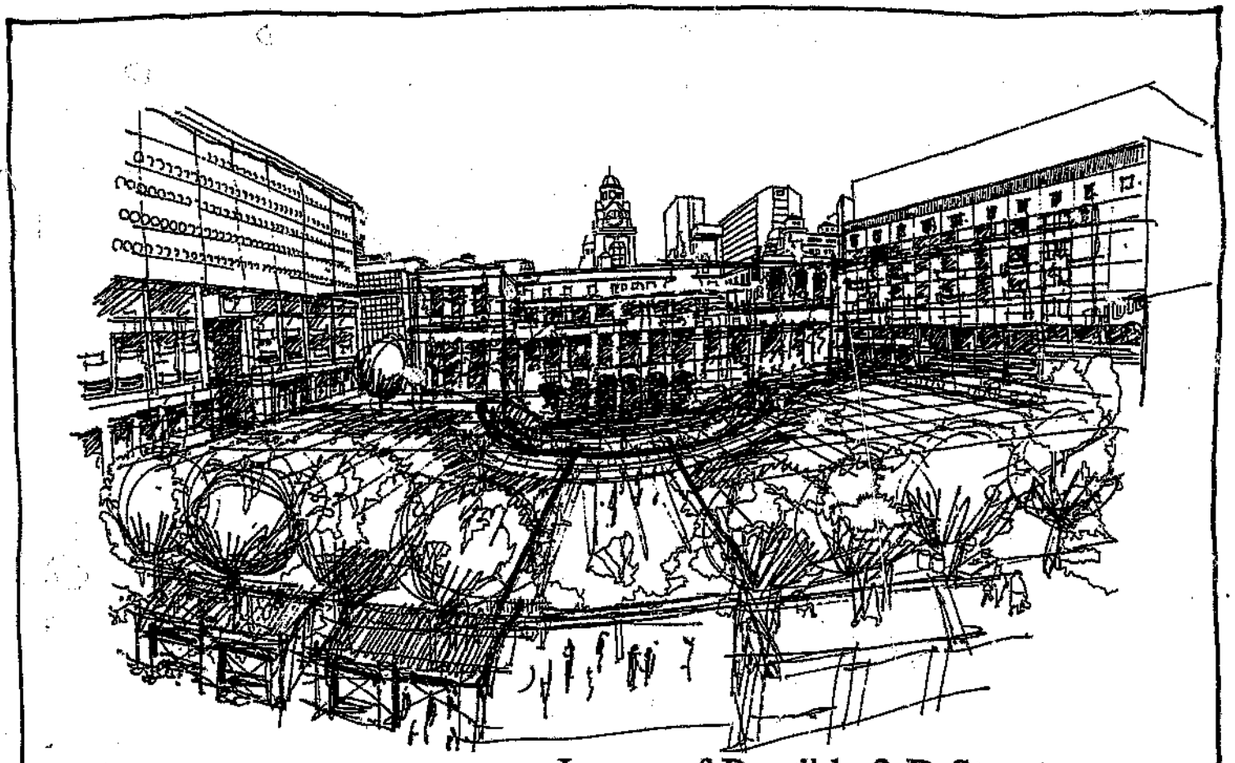
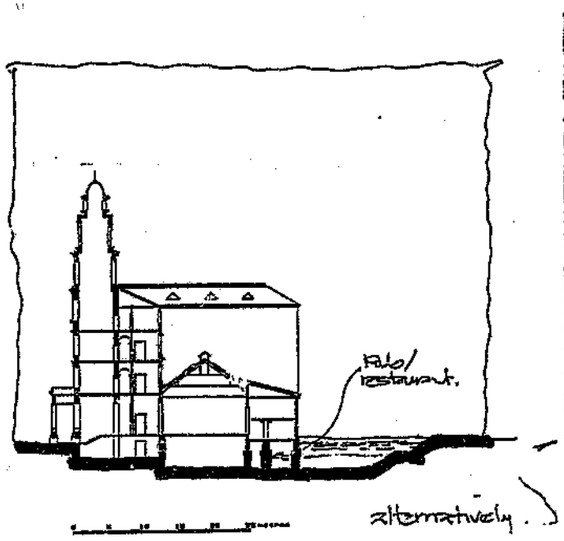
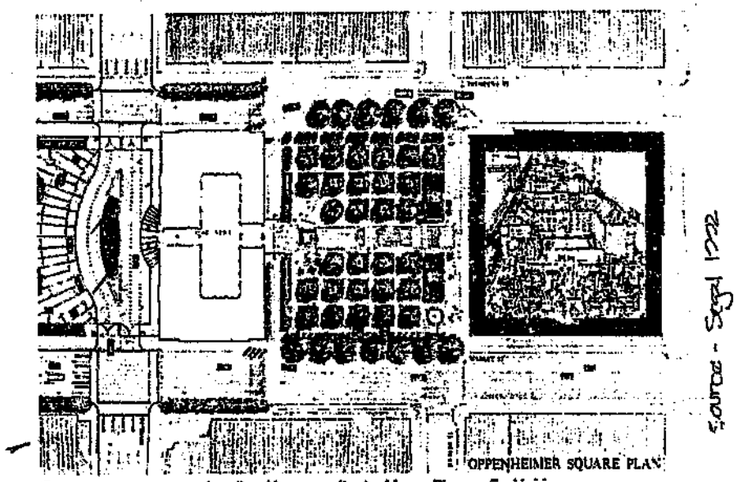


Image of Possible 3-D Structure



Or



Source - Sept 1992

Conceptual Development
Ernest Oppenheimer Square

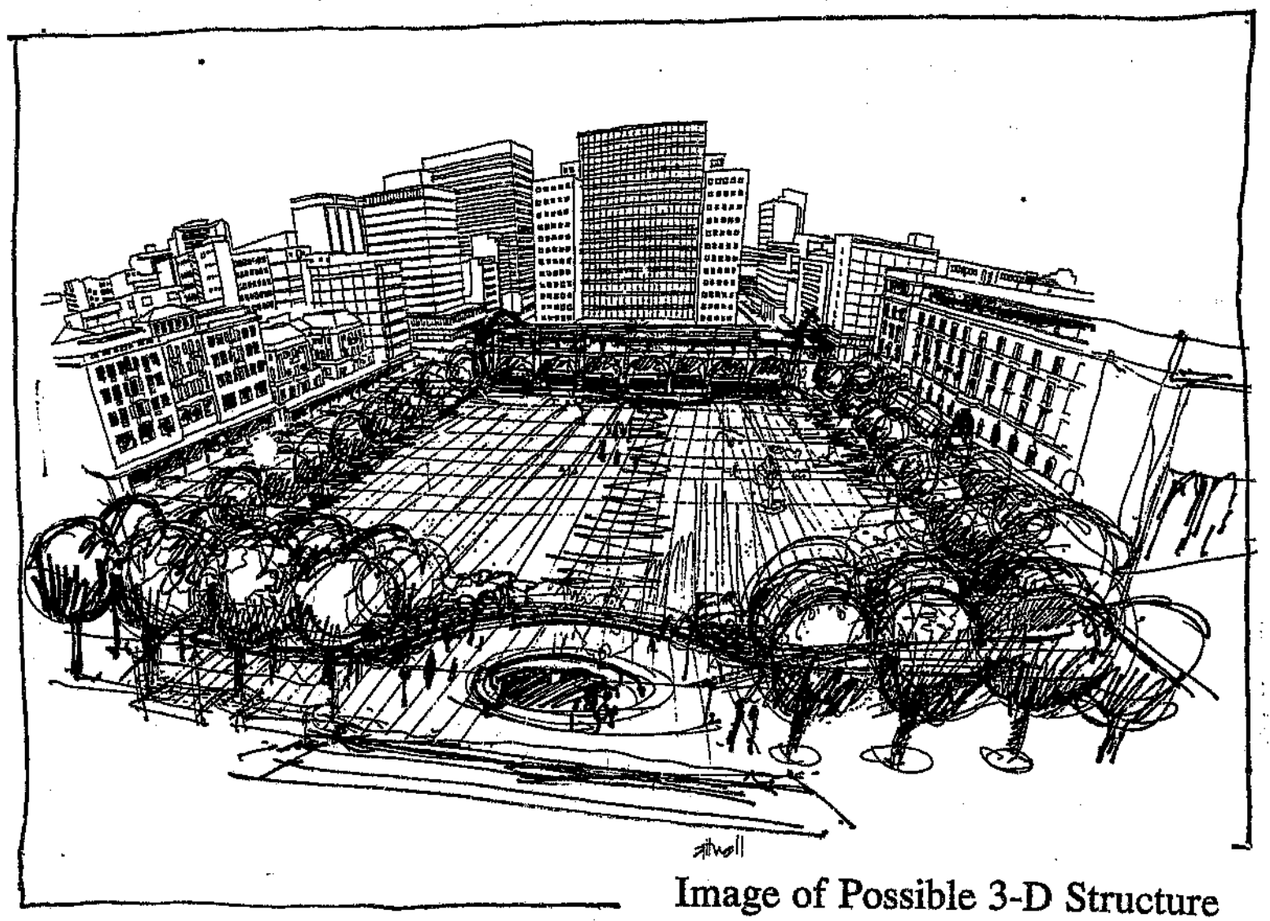
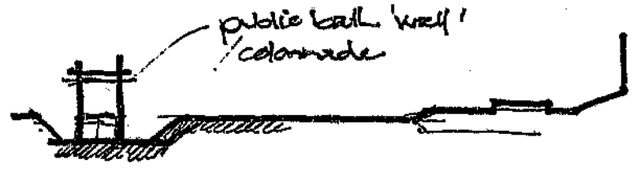


Image of Possible 3-D Structure



Conceptual Development
Attwell Gardens

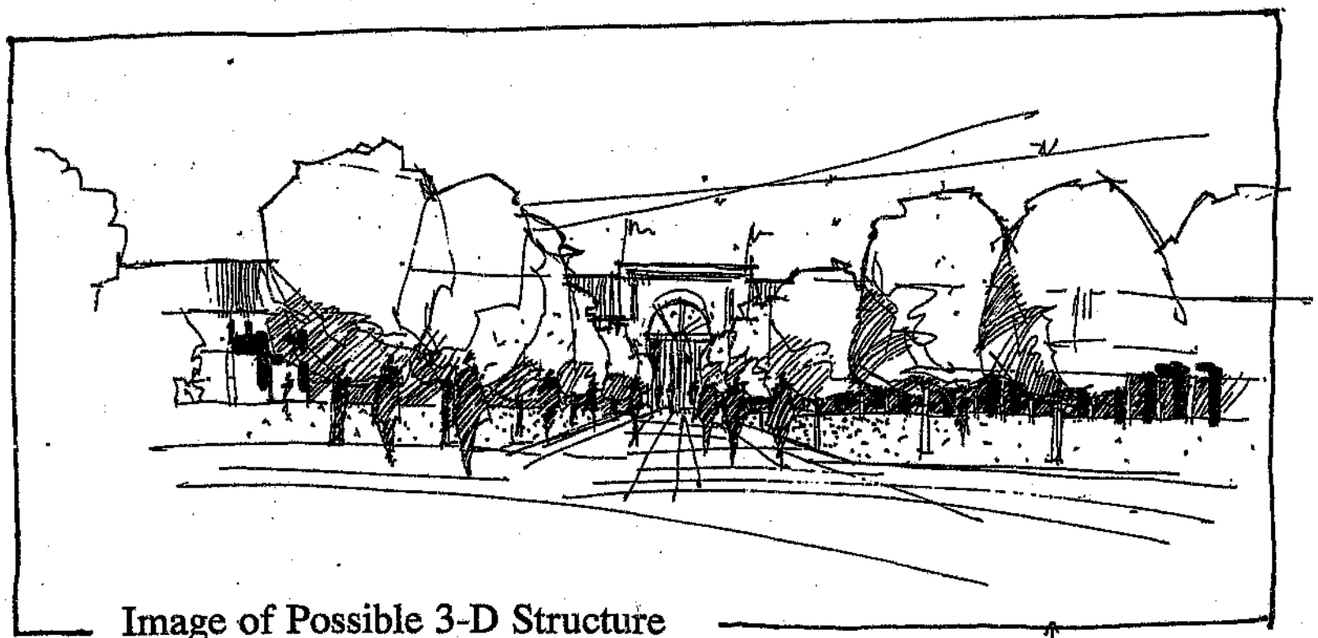
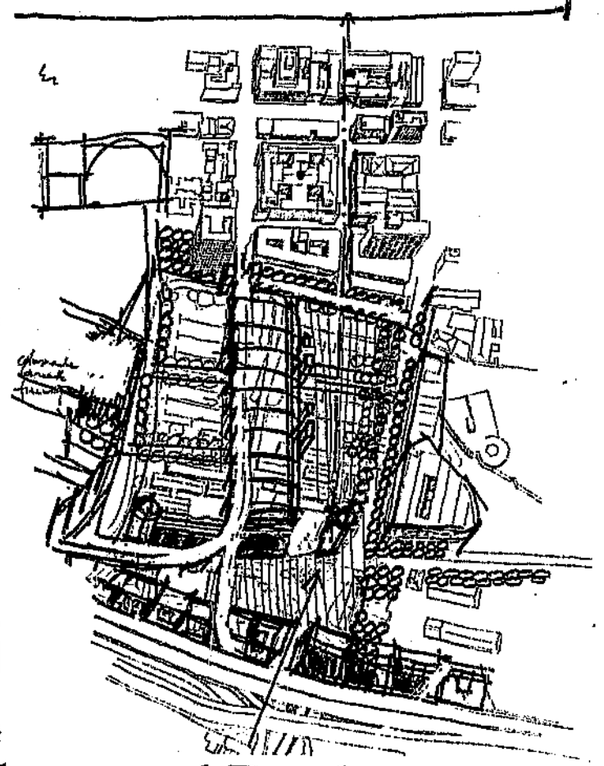
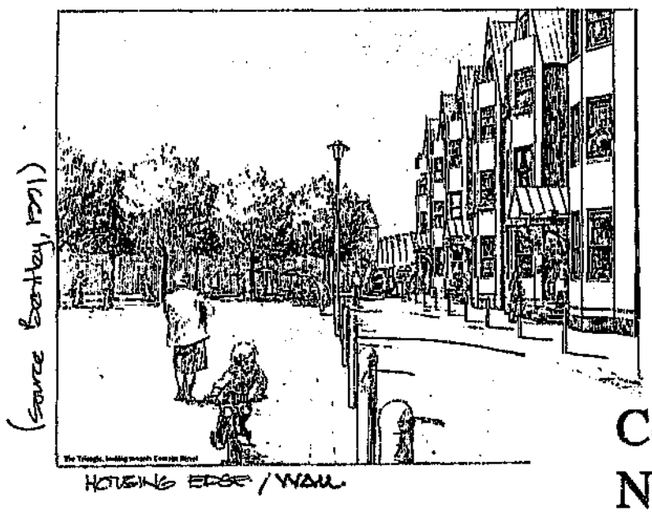


Image of Possible 3-D Structure



Conceptual Development
New Faraday Station

Image of Possible Urban Structure



PART TWELVE
IMPLEMENTATION

12.1 Implementation: Broad Policy

> *"Too often, government agencies are so devoid of both money and vision that they turn over the entire process of planning, and the responsibility for creating public space, to private developers ... In each case the private sector owns and controls public space, since it, not the public sector, had the money to build it ... the city's planners may set limits on what real-estate developers can do, it is still the developers who call the tune, since it is their dollars, and not the public's, that are creating the public space the city needs and wants. (Goldberger,1990)*

Sixty percent of the floor area of the city is privately owned. (Segal,1990). If restructuring is to take place private institutions will need to play an important role. This will require a fundamental shift in the mindset of investors and a broadening of the whole notion of investment.

12.1.1 Wholistic approach to investment in the inner city

A new approach to investment in the inner city is needed. The economic viability of investment in the city needs to be evaluated in terms of its wider impact on economic growth and the generation of activities which are more diversified. We need to extend the time scale for revitalisation beyond the five or ten years normally considered for commercial developments. Urban interventions in the inner city, involving either public space or private buildings need to evaluated in terms of their long term benefit for the city. (See Analogue: Appendix A).

"Urban achievements occur over long time spans. There is need to take a twenty to fifty year of a city's future: not a three or four year one. It is vital to look beyond what is politically expedient in the short term. Short term cycles in the development market, coupled with the relatively short-term periods of office of central and local governments, do not provide the best context for the achievement of long term visions. A coalition of interest is required, subscribing to an agreed vision and committed to making it happen over a potentially very long time scale. There need to be one or two, key, simple, cogent ideas which are easy to grasp and will capture the imagination of the community and its leaders." (Tibbalds 1993:7)

12.2 The Land

12.2.1 Players and Roles

- Transnet : Which owns and manages the important railway stations at each end of Joubert Street. Other important players within Transnet are:
  - Propnet, the property development susidiary of Transnet
  - Rail Commuter Corporation, which operates the local and metropolitan commuter services for Transnet.
  - Spoornet, which operates the regional and narional rail transport services.
- Johannesburg City Council which controls all public spaces including Joubert street, and the municipal bus service which utilises Van der Bijl Square as its termini, and the Wemmer municipal parking lot which it operates at the southern end of Joubert street.
- Central Government which holds several key facilities along the spine, including the Receiver of Revenue building.
- Technikon which owns the old School of Mines building .
- Life Institutions: Which have extensive holdings within the precinct. These include:
  Sanlam; Southern Life ABSA: Old Mutual;African Life and Sage
- Metropolitan Planning: Governs all major movement arterials
- Individual owners: which account for 50% of all property within the precinct.
- Private Developers:
- Section 21 Developing Companies
- Central Johannesburg Partnership: A partnership of Business, City Council and Community Organisations which has been established to facilitate and coordinate development issues within the inner-city.
- Civic Associations: Community representatives
- Actstop: Lobby organisation for inner-city residents
- Political parties
- Urban Foundation

12.2.2 Land Release

- For most of the Joubert street spine, public space is owned and contolled by either the Johannesburg City Council or Transnet and apart from the Faraday Station precinct, land ownership may remain as it is. The Faraday Station precinct will require either a land swop or the release of council-owned land (Wemmer Parking Lot) to Transnet and/or independent development Company.
- Regarding Private land: Land affected by Thoroughfares will need to be purchased. This involves the State-owned property and a building owned by Stannic on the southern face of Van der Bijl square.
  Owners of existing property surrounding the squares and along Joubert street will have the option to develop individually, or to utilise the development company set up to deal with conversions.

12.2.3 Procurable Land

- **Public land:**

In order to procure land for the development of Faraday Transport Interchange it will be necessary to relocate the existing parking to an alternative site. Alternative sites could include the Disused bus depot east of Faraday or Under Street parking off Eloff and Anderson. General Policy will however attempt to curb investment in private transport in favour of public transport as too much floor area is already occupied by parking.
The procurement of Van der Bijl square as a Public (pedestrian) square and Park will require the relocation of the termini to Loveday, Rissik and Eloff Streets (Which is already used as such), and a new facility adjacent to the proposed Faraday Square. It is the author's opinion that due to the shortage of suitable public space, a city square, originally set aside for public use cannot be utilised as a bus depot when this function can easily be accommodated along streets.
The call-taxi terminus along DeVilliers street will also require relocation to the south side of Attwell Gardens to enable the integration of the gardens and Station.
Joubert Street will require remodelling to inhibit vehicular movement. City Council will be required to reconsider this as an extension of public space if Housing and other facilities are to be sustained along it.

- **Public Facilities:**

These facilities will be need to be integrated in the whole living environment to serve as the social infrastructure for new city inhabitants. These include:

Rissik Street Post Office
Johannesburg City Hall
Technikon (former School of Mines)
Railway Offices, Museum and Square
Receiver of Revenue Building
Old Police Barracks

- **Private Facilities may include:**

Dion Superblock
Old OK Building
Tony Factor In-Town Centre
His Majesty's Theatre

12.2.4 Management District

The establishment of a management district is essentialt to form a partnership amongst those parties who have an interest in the Joubert Street Precinct. This forum is able to separate itself from the concerns of the wider city and focus its time energy and finance on local issues affecting the precinct. The management partnership is able to establish its own objectives, raise funds, appoint consultants, form development companies and control development without getting bogged down in red tape and external issues.
The Management district proposed would be bounded by Rissik and Eloff Streets and extend from Eloff Street extension to Parktown.

12.3 Implementation Schedule

The Schedule will be determined by a willingness to participate, the acceptance of a common vision for the precinct and the availability of funding from internal and external sources.
With the formation of a management district, the establishment of an agreeable set of objectives and controls, individual actions could proceed immediately, however these would be conditioned by the following:

- existing context and recent projects
- current priorities, and circumstances
- the objectives and conceptual idea
- legal requirements
- resource and financing mechanisms
- its contribution towards the general functioning and viability of the precinct.

12.4 Implementation Strategies

12.4.1 Joubert Street Partnership

The formation of a management district would allow a management team of representatives to form a partnership which could initiate and coordinate development in terms of the overall vision. This team would be responsible for the following:

- The formulation of objectives, policies and a management structure for development
- Negotiating and securing property to further its goals
- Promoting and putting out to tender action projects
- The control and approval of plans
- The appointment of consultants to perform design and feasibility exercises.

12.4.2 Formation of a Development Company

The Partnership may decide for reasons of economy to establish its own "section 21" company to carry out its development objectives. Its purpose would primarily be to initiate, coordinate and administer development projects, and put together development packages which will enable smaller developers to participate in the process.

12.4.3 Public Initiatives

Major infrastructure such as roads and bulk services will need to be provided by the City Council. The council will also be required to focus on the provision of public facilities such as market shelters, ablutions, public baths, recreation and social facilities. Where these are already in existence they need to be upgraded and made available to the public. The general policy is to provide as much public infrastructure as possible in order to reduce the burden of providing these privately.

12.4.4 Private Responses

A range of developers and agencies should be permitted to participate in the process. The greater the public provision the less sophisticated the developer needs to be. Developers could include:

- Property owners upgrading and restructuring their own investments
- Small developers working on behalf of an individual owner
- Larger developers catering for larger infill projects
- "Section 21" companies working for their constituent market

12.4.5 Finance and Incentives for Development

- Government subsidies will be essential for social infrastructure and housing through the IDT and Development Bank
- Self-imposed levies applied to members of the management partnership.
- Foreign funding via Social upliftment loans
- Inner City Housing Utility Trust (ICHUT). A mechanism which provides security to bank loans.
- Revolving finance made avilable from rents received from market stall operators and housing tenants.

Incentives include:

- Rates holidays: which relieve the developer from his obligation of
- paying rates and taxes during the initial years
- Rates incentives: for example a reduction of rates pro-rata to the number of housing units provided.
    - Transfer of rights- Property owner is given the opportunity of tranferring excessive rights eg. bulk, to another of his properties
    - Low interest loans for projects which have wider economic and social benefit. eg a 'hive of industries project'
    - Bulk banking

12.4.6 Models for Financing Conversion

Due to the great number of vacant offices in the city, many institutions are making considerable losses on their buildings. Many of these buildings derive an income from the first two floors only. This presents a number of opportunities:

a. The owner retains only those portions which are profitable, and donates the remainder to a "section 21" company to convert into housing . The owner is then relieved from maintenance and tax costs.
b. The owner becomes a major shareholder in the company set up to convert the remainder of his building. Thus, he retains ownership and the option to reconvert if the need for offices increases.
c. The owner converts the building himself to cut his losses. A fund could be established to subsidise this.

12.5 Implementation : Phasing

The phases set out here will favour that order which will result in the desired form. Time limits are impossible to predict especially due to the uncertainty and instability of our economy. The order too, may change over time dependent on the the needs faced at a particular time in the future. The phasing has been ordered in such a way that if successive phases do not take place the linkage established will be significant enough to restructure this precinct in the city. A minimal structure is set in place by Phase Two.

Phase One: Negotiation

- Begin negotiations with the City Council and Transnet
- Form a management partnership
- Appoint a team of city planners, urban designers, architects, landscape architects, engineers, landscape architects and property economists.
- Establish the goals and objectives, the working methodology and the development criteria.

Phase Two: Minimal Structure

- Remove parking and demolish existing structures at Wemmer precinct.
- Relocate Bus termini at Van der Bijl Square and establish temporary Bus and Taxi termini at south end of Faraday
- Establish link from Faraday 'Square' through to Van der Bijl Square. (This extends the movement path from Parktown through the Johannesburg Station to Faraday Station threading through 3 major public spaces. - this intervention constitutes the minimal structure)
- Reorder vehicular movement hierarchy to define housing precincts

Phase Three: Creating a new gateway

- Service the Faraday site with bulk services for potential housing
- Begin repositioning of Rissik Street off-ramps
- Extend Faraday station from present position into the former Wemmer parking area and create open platforms.
- Begin upgrade and landscaping of Van der Bijl Square, relocate basement parking entrance to Rissik and Eloff..
- Establish market shelters along Joubert at VanderBijl, and Attwell Gardens
- Begin tree planting along Joubert.
- Begin to extend public space to urban walls by extending urban floor treatment

Phase Four: Provision of Public Amenity

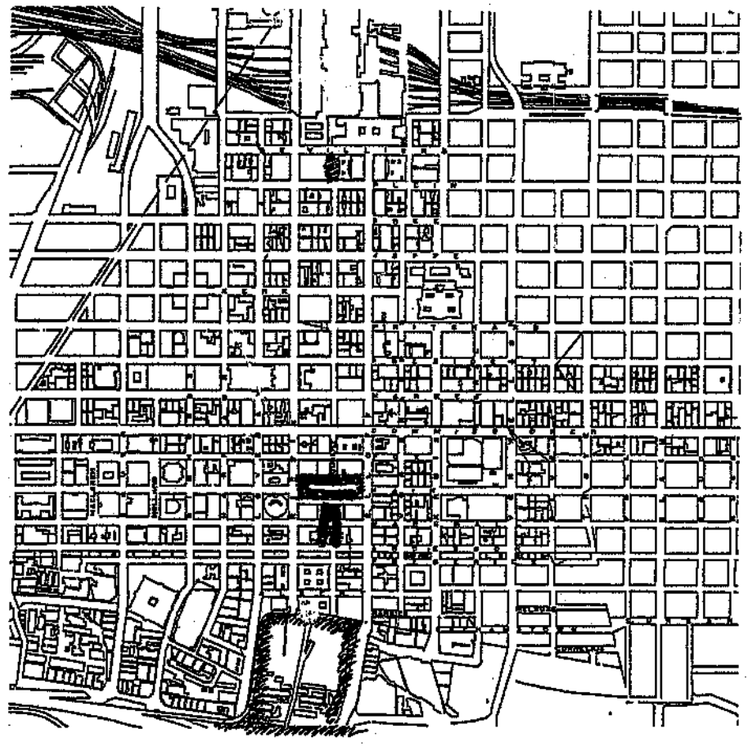
- Provide public ablutions public baths, schools, clinics, creches, market, shelters public water, outside rooms - ie public infrastructure that assists in the conversion and change of use in private buildings along public edges.
- Begin infill projects to create a more continuous urban wall

Phase Five: Defining the Public Realm

- Major development of new Faraday Station and flanking hard and soft open spaces
- New Housing development to enclose Faraday Square
  Permeable edge treatments around Vd Bijl square and Ernest Oppenheimer Square.



Phase 2



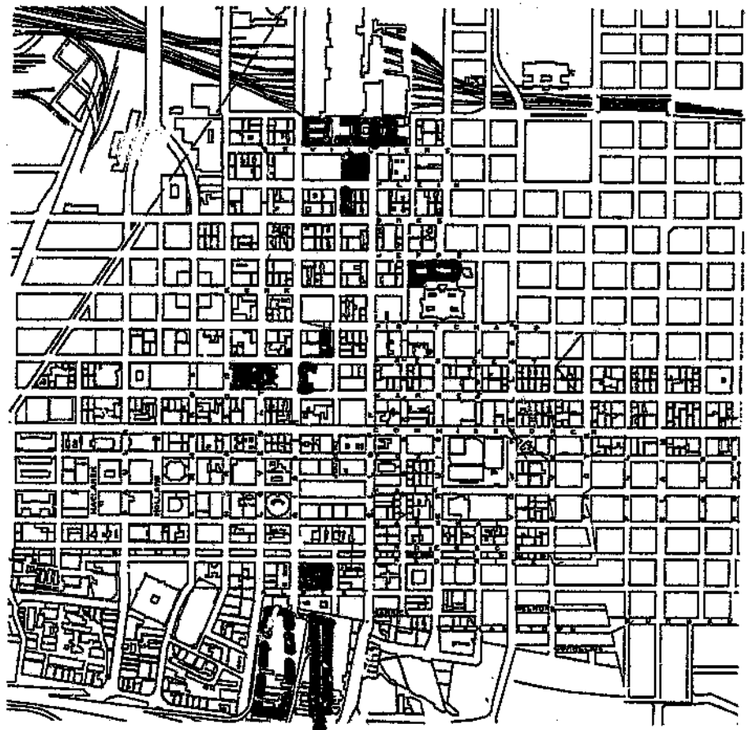
Phase 3

Phase Six: Restructuring the Private Realm

- Recycling public and private buildings into new, or their former uses. eg. the City
- Hall as community centre and His Majesty's theatre to its former use
- Upgrading of Johannesburg station into an internal and external marketplace with housing component.

Future Phases: Possibility of Extending the Thread

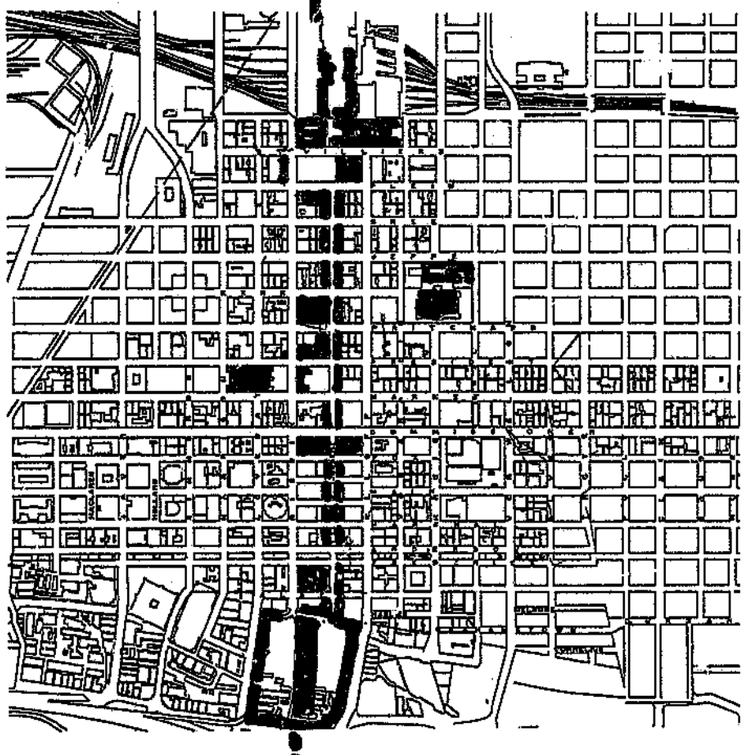
- Extension of the thread to North: To the Johannesburg Fort and Pieter Roos Park.
- Extension of the thread to the South: To Wembley stadium, Turfontein and Booysens Station. (allied to the development of an activity corridor along the rail route to the south)
- A Rail connection between Westgate station and Faraday station.



Phase 5



Phase 4



Phase 6

PART THIRTEEN
CONCLUSION

There is much debate at the moment regarding the future of Johannesburg. The city faces enormous problems with regard to the legacy of apartheid and the spatial dislocation of the majority of its population. Unemployment, housing shortages, and a lack of suitable social infrastructure contribute to the city's headache. It is generally accepted that the present structure of the city does not cater for these needs.

For almost three years city planners and community organisations have been debating the issue of the inner city. These forums have focused on the formulation of a multitude of policies. Banks and Life companies have pledged their support. After all this time, however, nothing has happened to change the present structure of the city.

This discourse has been an attempt to move beyond the paralysis of policy making, and suggest how a physical intervention in the present city structure could serve to integrate need and investment. This has been an attempt also to discover whether there is a way in which all stakeholders can benefit by restructuring. The author believes that restructuring can ultimately benefit all parties. It will however require a wholistic understanding of the city - that each individual action on the city should serve to strengthen the city as a sustainable system. For this to succeed will require boldness and vision by local government, property owners and community leaders. It will also require a grasp of what city should be -what it means to be urban and a complete reassessment of ownership and land-value will need to be considered. Leaders in government, in the economy and in society will need to look beyond their own self-interest and make decisions about the city which may only begin to benefit generations to come, long after we are gone.



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PART FIFTEEN
APPENDIX

Appendix A :
Analogue -Wholistic approach to Inner City development

Having a child is an irresponsible investment in the short term, in fact, it is a continuing investment for almost 25 years. Yet, if that child is properly educated, raised with the right values, he will be able to produce for himself for another 50 years, and influence generations after him. It is this attitude of regeneration which is lacking in our short-term investment world.
Current investors ignore the fact that valued investments will have a pay back period beyond the life-spans of the investors. In our hedonistic world we seem to have lost the continuum between past, present and future and concerned ourselves only with that which will affect us personally - in our own life-span.
The city needs valuable investments. Investments in the structure of the city which make accessible the benefits of urbanism to its present citizens and to the generations still to be born.

Wholistic Investment (Sustainable investment)

We need to consider the benefits of investments in the city more wholistically, over longer periods. For example, how has the investment in Central Park, New York contributed to a better living environment and consequently, better adjusted and more productive people. Surely then, the initial investment in Central Park, can be considered in economic terms as having contributed to the economic growth of New York. The problem with city investment today is that it is too narrow-minded and self-orientated to see the value in investments that will benefit more than its own constituency. Consequently they ignore making those minimal investments in the city which will contribute to a more diverse and economically stronger community and ... which will ensure its own survival.

Appendix B:
The Destructive nature of Institutional Investment

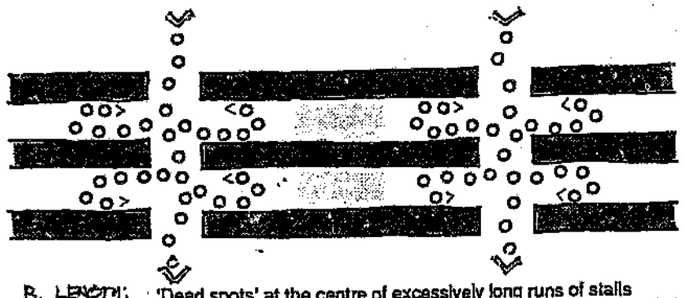
Financial institutions are not really private, they are constituted to represent a public (millions of shareholders) and make investments on their behalf. Unfortunately, what that public is not aware of, is that much of their valuable contributions are being ploughed into investments which in fact are destroying the city, and are in turn, making it more difficult and more costly to generate income. I refer here to the suburbanisation of capital and the privatisation of public space and activities. In Johannesburg, New York's Central Park would have been auctioned off to the highest bidder.

Appendix C : Market Design

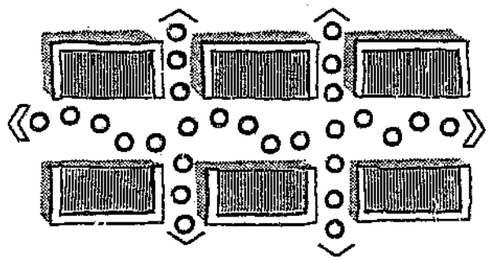
Typology of Markets:

Defined By:

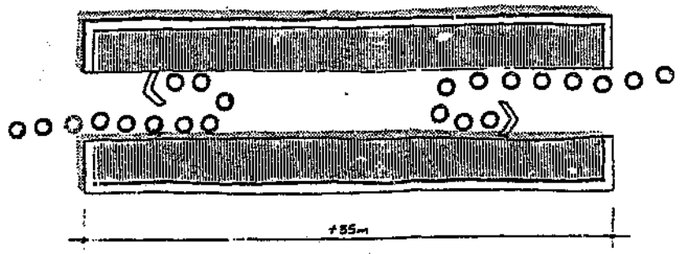
1. **Nature of supply**
   The main distinction here is generally between <u>wholesale markets</u>, which primarily distribute in bulk and which are the principal source of supply for retail markets and other forms of outlet; and <u>retail markets</u>, which break bulk and deal in much smaller quantities and which directly serve the consuming public.
2. **Function**
   Even though many markets are mixed and accommodate a wide variety of products and services, they usually reflect a functional emphasis.
3. **Degree of formality**
   At one end of the continuum, nothing is externally provided (as, for example, some informal street markets); at the other, almost everything is externally provided (this may take the form, for example, of a market building with a full range of infrastructure.
4. **Form**
   Urban markets take many different physical forms. At the most basic level, the primary distinction is between linear markets, the form of which is usually directly informed by lines or channels of movement and nucleated markets, which take more concentrated form at particular points within the city.
5. **Time of operation**
   The primary distinction here is between permanent and temporary markets, although a range exists in terms of the pattern of periodicity (for example, night markets, morning markets, weekend markets, and so on). Significantly, too, different traders frequently adopt different temporal rhythms within any one market.



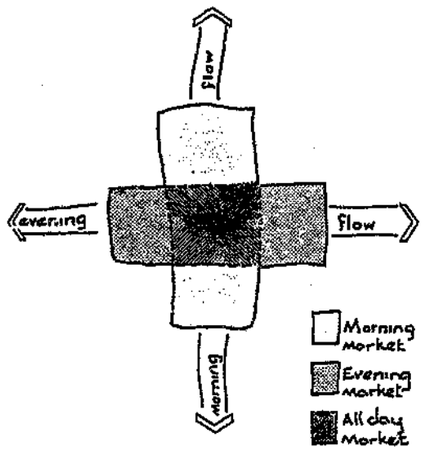
B. LENGTH: 'Dead spots' at the centre of excessively long runs of stalls



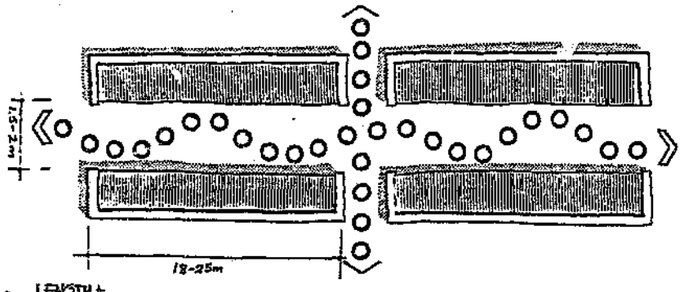
C LENGTH Selling runs are too short and customer flows are dissipated and confused



D LENGTH Selling runs are too long and customers do not penetrate to centrally located stalls



Market size and location can change over the day, depending on the strength and direction of pedestrian flows.

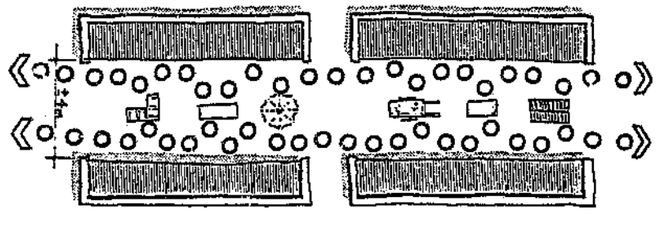


E LENGTH + WIDTH: A more appropriate length for selling runs

All diagrams – David Lowe + Vanessa Watson 1990



F GROWTH. Markets should be able to expand and contract and still remain as a cohesive whole.



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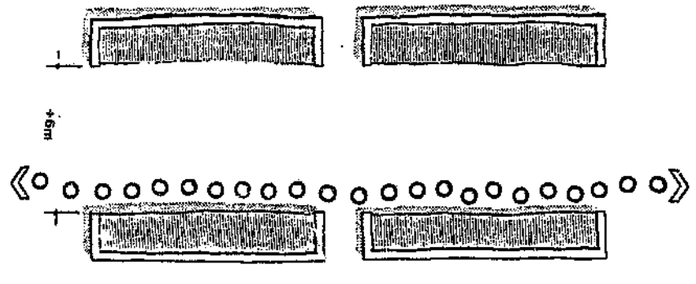
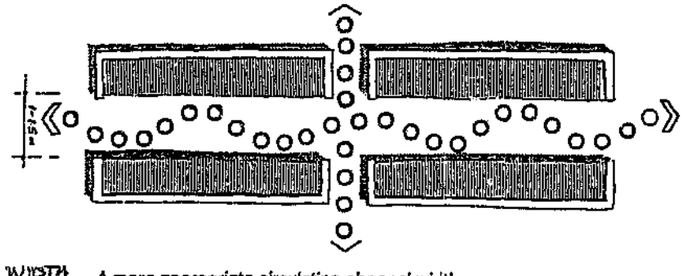


G WIDTH: When circulation channels are too wide, customers concentrate on one edge only



H WIDTH A more appropriate circulation-channel width

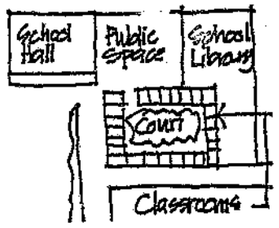
Appendix D:
Multi-use

Facilities	Threshold	Facilities Needed	Area/ Facility	Area Required
Tertiary Education				
* University	2 000 000	1	20.0	20.0
* Technikon	500 000	4	8.5	34.0
* Technical College	50 000	44	5.0	220.0
* Training College	10 000	220	1.5	330.0
Health				
* Major Hospitals	500 000	4	2.8	11.6
* Poly-clinics	60 000	25	1.5	42.0
Community				
* Theatres	500 000	4	2.0	8.0
* Central Library	500 000	4	2.0	8.0
* City Buildings	200 000	11	1.0	11.0
Recreation				
* Sport Stadium	25 000	11	12.0	144.0
* Regional Pool	250 000	3	0.5	4.5
* Metro Park	1 000 000	2	100.0	200.0
* Sports Fields	150 000	10	1.5	15.0
Admin	-			
* Admin Bldg	300 000	4	1.0	4.0
* Police Stations	40 000	4	0.2	
* Post Offices	20 000	7	0.1	0.0
* Fire Stations		1	0.5	0.0
				0.0
Commercial				
* Produce Market	1 000 000	2	10.0	20.0
Other				
* Recycling Plants	1 000 000	2	100.0	200.0
* Landfill Sites	1 000 000	2	100.0	200.0
* Graveyards	450 000	5	100.0	500.0

Source: Metro studie 1981.

The programmatic response on the site will have to address the utilization of scarce urban resources to their maximum capacity. The sharing of resources and information to the benefit of all city dwellers must be promoted.

Present CPA, RSC, CCC and other Metro-standards for public facilities are unrealistically high and based on the premise of anti-cities (suburbia). The standards related to schools in an urban city model will have to be adjusted considerably:



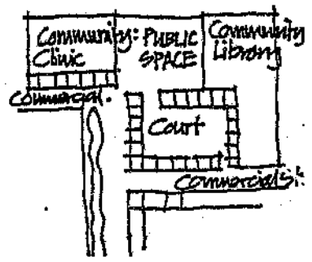
education:

Education or Learning is a valuable public institution and resource which must be utilized to its full potential and capacity.

The education system should become a commercially viable entity, operating as a business.

The conceptual thinking of how an educational facility operates and its role in society must change fundamentally.

* Education is a democratic right of citizens and must be available equitably to everyone.



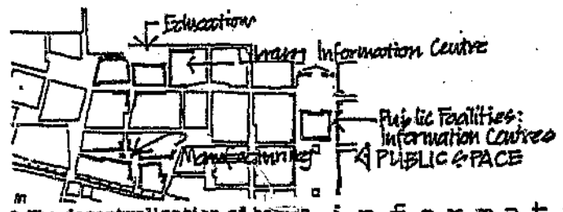
* The sharing of resources such as sports fields, libraries swimming pools and school halls for community purposes, so that school facilities are utilized to its full capacity should be promoted.

* Through efficient management these facilities can then be used by the community as recreation, health, sports and library facilities. Community schools, centred around public space and part of the commercial hub of the city can thus be the paradigm.

health:

* The understanding of health as an educational process, where people are educated in family planning, child care and can then become part of such a system.

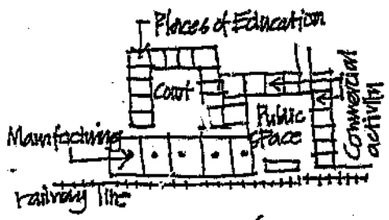
* Access to health facilities is a democratic right of citizens and the provision of clinics as part of the social education structure of the community will give a high degree of accessibility to health facilities for inhabitants.



* The decentralisation of health facilities are necessary, to enable access to higher order facilities. Health facilities must be provided as a system, with high and lower order facilities interrelated.

manufacturing and craft:

The learning process can also be related to the manufacturing industry, artisans living and working in a specific location, using apprentices for labour, in a schooling process. If this is then related to a higher educational facility such as a technical college, it could become formalised, but retaining its commercial value.

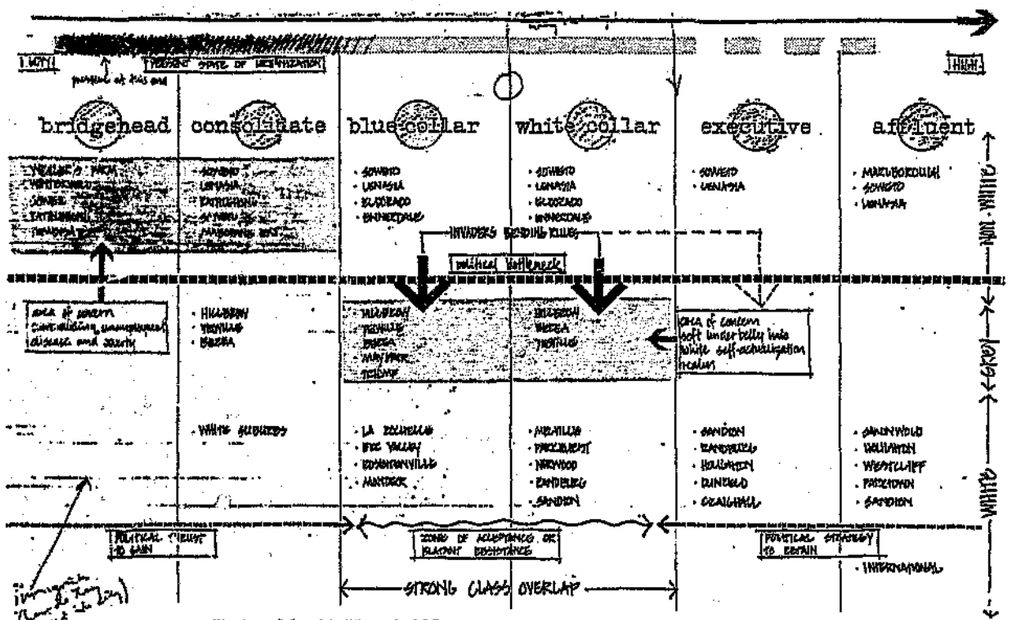


(Source: Kruger 1992)

information centres:

Centres of information, to serve as places of arrival for new city dwellers or tourists, can be related to an educational system. Information on such areas of urban living such as temporary and permanent accommodation, job opportunities, health facilities, building materials can be provided, as well as tourism, recreation and transport information. This function can best be provided by the public community library.

Appendix E: Affordability



(Source: Cranshaw + White 1992)

Table 1. Monthly Household Income

	Hillbrow	Joubert Park	Residential CBD	Commercial CBD	All Districts (Average)
No Answer/Students	11	6	15	14	12
Less than R1000	12	23	23	25	21
R1001 to R2000	29	35	28	34	32
R2001 to R3000	25	16	17	12	18
R3001 to R4000	11	11	12	8	11
R4001 to R5000	3	3	4	3	3
R5001 to R6000	3	4		3	3
R6001 to R7000	1		1	1	1
Over R7000	3	2			4
Total	100	100	100	100	103*

*Percentages may not add up to 100 because of rounding off.

Table 2. Monthly Accommodation Costs

	Hillbrow	Joubert Park	Residential CBD	Commercial CBD	All Districts (Average)
No information	1	2	2	2	2
Less than R200	5	6	4	11	7
R201 to R400	15	34	37	41	32
R401 to R600	44	39	35	31	37
R601 to R800	12	8	12	9	13
R801 to R1000	9	8	8	3	7
R1001 to R1200	4		2	3	3
Over R1200		3			
Total	100	100	100	100	100

(Source: Cranshaw + White 1992)

Table 4. Ratio of Accommodation Costs to Household Income

Accommodation Costs divided by Household Income	Hillbrow & Berea (4)	Joubert Park (5)	Residential CBD (6)	Commercial CBD (10)	All Domains (Average)
	Percentages*				
0 - 9%	15	11	12	14	13
10 - 19%	32	23	31	26	28
20 - 29%	19	20	19	19	19
30 - 39%	10	11	10	8	10
40 - 49%	5	4	5	8	5
50 - 59%	4	5	2	6	4
60 - 69%	1	3	3	2	2
70 - 79%	2	1	1		2
Missing data	13	21	16	18	17
Total	100	100	99	100	100

* Percentages may not add up to 100 because of rounding off.

Table 5. Household Type (Percentage distribution by district)

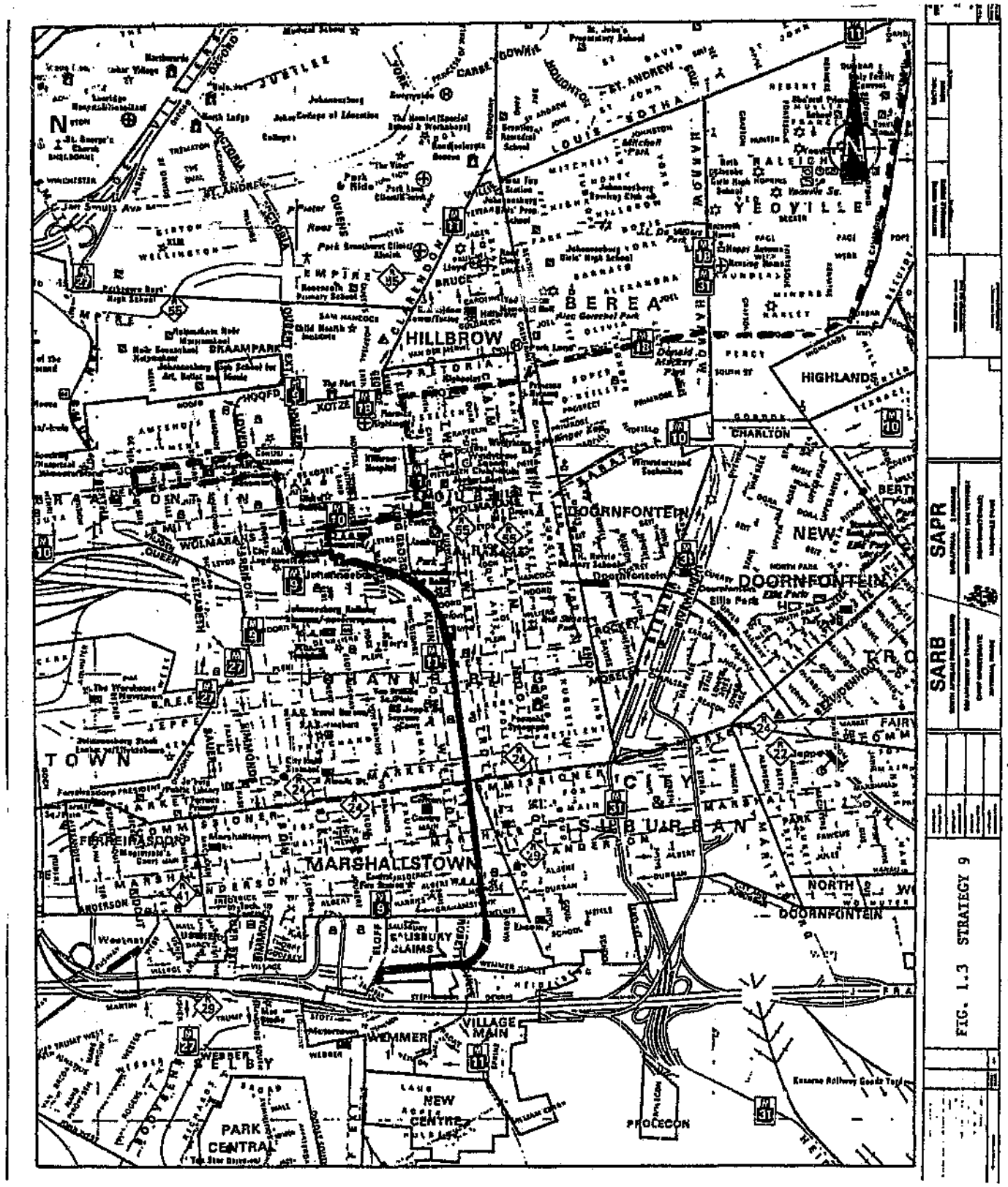
	Hillbrow (4)	Joubert Park (5)	Residential CBD (6)	Commercial CBD (10)
Student/s	3	1	6	1
Single, Living Alone	22	21	22	18
Single, Living with Friends	26	25	17	15
Young Parent/s without Children	14	21	14	13
Older Parent/s without Children	4	3	10	8
With Pre-School Children	11	12	14	19
With School Children	13	7	8	14
With University Children			1	2
With Working Children	7	9	7	9
Retired Couple or Single		1	1	1
Total	100	100	100	100

Table 3. Occupation & Employment Profile (Percentage Distribution)

	All Districts African	Coloured	Indian	White	All Races
Middle Managers	1	1	5	2	2
Supervisors	1	3	2	5	2
Professionals	1	0	3	3	2
Semi-Professionals	7	8	8	6	7
Clerks & Salespeople	13	19	25	20	18
Artisans	2	4	2	6	3
Rank and File Police and Guards	4	4	1	5	4
Semi-Skilled Operatives	4	8	3	4	5
Motor Vehicle Drivers	3	1	0	2	2
Non-Manual Unskilled Workers	17	2	1	1	8
Unskilled Manual Workers	2	0	0	0	1
Informal Sector Traders	3	1	1	1	2
Small Business Owner	3	2	2	5	3
Other/Unknown	3	4	2	5	3
Work Seekers	10	8	6	7	8
Unemployed Non-Work Seekers	2	1	0	1	1
Housewives	3	5	12	3	4
Students	13	8	11	6	10
Children	7	19	15	8	11
Disabled	0	0	0	1	0
Pensioners	0	0	0	9	2
Total	100	100	100	100	100
n	630	290	199	261	1380

SOURCE: Cranshaw + White, 1992

Appendix F :
Masstran



Source. Masstran Consortium (1991)



JOHANNESBURG

REFERENCE

- LIGHT RAIL TRANSPORT
- PEDESTRIAN LINKS
- BUS ROUTES
- SUPREGRID
- RAILWAYS
- GATEWAYS
- CONCENTRATION OF INFORMAL TRADE
- TRANSPORTATION NODES
- EXISTING DEVELOPMENT
- IN PROGRESS
- PROPOSED
- PARK

TAXI RANKS

1 NOORD STREET RANK
3 NOORD STREET RANK
6 BREE STREET RANK NEWTOWN TERMINUS
6 DIAGONAL STREET RANK
7 KORT AND DELVER STREETS RANKS
8 COMMISSIONER STREET RANKS
10 BREE STREET RANK NEWTOWN TERMINUS
11 NOORD STREET RANK
12 NOORD STREET RANK
19 BREE STREET RANK NEWTOWN TERMINUS
20 TROTE STREET RANK
25 NOORD STREET RANK
26 NOORD STREET RANK
27 PRITCHARD STREET RANK
35 NOORD STREET RANK
72 FRASER STREET RANK
76 PRITCHARD STREET RANK
77 BREE STREET RANK
80 LOVEDAY STREET
81 PARK STATION

PROJECT	COSTS	AREA
AFRICANA MUSEUM (Upgrading)	R 10 million	no change in floor area
ANGLO AMERICAN	R130 million	40 000m²
AUSTEY'S BLOCK	R 80 million	465 000m²
ART GALLERY PROPOSALS		
BANK CITY (7 blocks) total	R100 million	31 000m² each
CARLTON CENTRE	R 2 million	8 000m²
CIVIC CENTRE PROPOSALS		
CULTURAL FACILITY (potato shade)	R 5 million	upgrading
HARRISON STREET PRECINCT	PRIVATE SECTOR FUNDING	
INVESTOR BANK		
JACK MINCER TAXI TERMINUS PROPOSALS		
NEWGATE		
NEWTOWN AND KAZERNE BUS AND TAXI	R172 million	105 000m²
NEWTOWN DEVELOPMENT (phase 1) (phase 2)	R600 million	35 000m² 38 000m²
OLD MUTUAL	R 73 million	31 000m²
QUARTZ STREET	R 600 000	
BUS STREETS THE BRIDGE DEVELOPMENT	R 70 million	8 000m²
SMAL STREET (6 blocks)	R 2 million	
STANDARD BANK (Chambers)	R 30 million	6 400m²
SUN HOTEL		
TRANSNET MUSEUM	R 7 million	
VAN DER BIJL SQUARE		
WORLD TRADE CONFERENCE CENTRE DECKING RAILWAY LINES	R1.2 Billion	448 000m²
ZAR BUILDING	R 68 million	

JOHANNESBURG CBD

RECENT, CURRENT AND PROPOSED DEVELOPMENT

Appendix G:
City Council Framework

Appendix H:
Metropolitan Public Facility Standards

Facilities	Threshold	Facilities Needed	Area/ Facility	Area Required
Tertiary Education				
* University	2 000 000	1	20.0	20.0
* Technikon	500 000	4	8.5	34.0
* Technical College	50 000	44	5.0	220.0
* Training College	10 000	220	1.5	330.0
Health				
* Major Hospitals	500 000	4	3.5	14.0
* Poly-clinics	80 000	25	1.5	42.0
Community				
* Theatres	500 000	4	2.0	8.0
* Central Library	500 000	4	2.0	8.0
* Civic Buildings	200 000	11	1.0	11.0
Recreation				
* Sport Stadium	260 000	11	12.0	144.0
* Regional Pool	250 000	9	0.5	4.5
* Metro Park	1 000 000	2	100.0	200.0
* Sports Fields	150 000	10	1.5	15.0
Admin				
* Admin Bldg	500 000	4	1.0	4.0
* Police Stations	40 000	4	0.2	
* Post Offices	20 000	7	0.1	0.8
* Fire Stations		1	0.5	0.7
				0.5
Commercial				
* Produce Market	1 000 000	2	10.0	20.0
Other				
* Recycling Plants	1 000 000	2	100.0	200.0
* Landfill Sites	1 000 000	2	100.0	200.0
* Graveyards	450 000	6	100.0	600.0

(Source: Kruger, 1992)

Appendix I:
Ventilation and Fire Standards

OO4 **NATURAL VENTILATION**

OO4.1 Where for the purposes of natural ventilation any room is provided with an opening or openings —
(a) the position of such opening or openings in relation to each other and to any internal doors to such room shall be such as to ensure that such room will be ventilated; and
(b) the arrangement and sizes of such openings in a garage shall be such as to ensure that the quantity of noxious fumes or gases at any location in such garage does not exceed a safe limit.

OO4.2 Every such opening shall be either —
(a) an opening in an external wall; or
(b) an openable glazed window in an external wall or in a suitable position in the roof; or
(c) an opening in the ceiling or at the top of an internal or external wall, connected directly to a vertical ventilating flue.

OO4.3 The total area of any opening or openable glazed window contemplated in subrule OO4.2(a) or (b) shall be not less than 5 % of the floor area of the room, or 0,2 m², whichever is the greater.

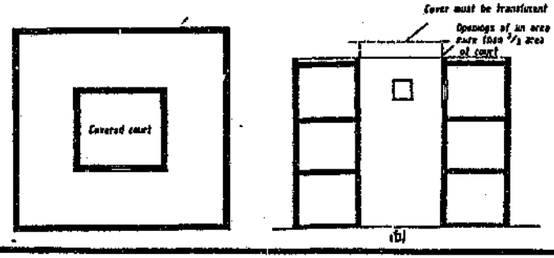
OO4.4 The total area of any opening contemplated in subrule OO4.2(c) shall be not less than 2 % of the floor area of the room.

Commentary: *In any building, which is not permanently occupied, such as a holiday home, or chalet, windows providing ventilation may remain closed for long periods. In hot humid areas this can lead to problems such as dampness and mould growth and some form of supplementary ventilation may be desirable. Airbricks provide a partial solution but as these may not be sufficient on their own some other form of permanent ventilation such as a roof vent should also be considered.*

OO5 **NATURAL LIGHTING AND VENTILATION OF ROOMS OPENING ONTO ENCLOSED BALCONIES, GALLERIES, VERANDAHS AND COURTS**

OO5.1 Any room having an opening which opens onto any roofed and enclosed balcony, gallery or verandah, as the case may be, shall be deemed to satisfy the requirements contained in regulation O1 where such opening satisfies the requirements contained in rules OO1 and OO3 and —
(a) a portion of the outer wall of any such balcony, gallery or verandah has openings complying with subrule OO2.2 and the area of such openings is at least 10 % of the combined floor area of the room concerned and the balcony, gallery or verandah;
(b) any such balcony, gallery or verandah is provided with doors or other openable areas having an area of at least 5 % of the combined floor area of the room concerned and the balcony, gallery or verandah; and
(c) that portion of the outer wall of such balcony, gallery or verandah in which openings contemplated in paragraphs (a) and (b) are formed is provided with a zone of space complying with the requirements contained in rule OO3.

OO5.2 Any room having an opening which opens onto any enclosed and covered or partially covered court shall be deemed to satisfy the requirements contained in regulation O1 where such opening satisfies the requirements contained in rules OO2, OO3 and OO4 and —
(a) the cover to such court is adequately translucent; and
(b) the plan area of such cover is not more than one-third of the plan area of such court; or



TT16 **PROVISION OF ESCAPE ROUTES**

TT16.1 One or more escape routes shall be provided in any building: Provided that in the case of any dwelling unit having an escape door at ground level, or any dwelling unit at first floor level served by an individual stairway to ground level, such escape route shall not, where the travel distance along such escape route does not exceed 45 m, be required to comply with rules TT17 to TT30 inclusive.

TT16.2 Where, in any building, the travel distance measured to the nearest escape door is more than 45 m, two or more such escape routes shall be provided and an emergency route shall form part of each such escape route: Provided that emergency routes shall not be required in any building where —
(a) the travel distance, measured to the nearest escape door, is not more than 45 m;
(b) such building is not more than two storeys in height; and
(c) in the case of a two storey building the population of the upper storey is not more than 25 persons.

TT16.3 Where, in terms of subrule TT16.2, emergency routes are required in any building —
(a) two or more entirely independent emergency routes shall be provided and such routes shall be so situated that should any one of such routes become unusable or inaccessible not less than one other such route may reasonably be expected to remain accessible and usable;
(b) the travel distance to the nearest access door shall be not more than 45 m.

TT16.4 Where, in terms of subrule TT16.2, emergency routes are required in any building, the exit door from any room shall lead into a feeder route: Provided that —
(a) such exit door may lead into a dead-end corridor where the total distance to be travelled from the furthest point in such room to an access door or to a feeder route is not more than 15 m; or
(b) such exit door may lead into any other room, where such other room is within the same tenancy and the exit door from such other room leads into a feeder route.

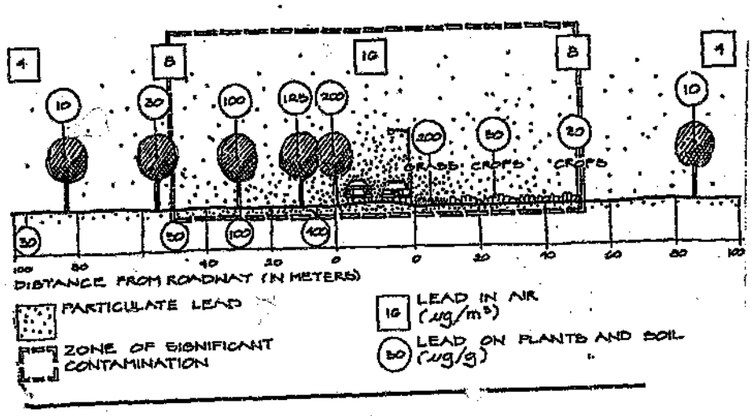
TT16.5 (a) The path of travel from any exit door in any room to any access door shall, subject to the proviso to subrule TT16.4, be along a feeder route.
(b) Any feeder route shall lead in two different directions to two or more independent emergency routes.

Commentary: *All buildings must be provided with one or more escape routes that can be used in case of fire or other emergencies. The two most important aspects are that the route should, at all points, be wide enough to allow the population using such route to move rapidly along it and it must not, at any time, be obstructed in any way.*

The width of any escape route within a dwelling house (occupancy H4) or within an individual dwelling unit in an occupancy H3 is not critical because of the small population involved and the fact that the layout of the dwelling unit can be assumed to be well-known to the occupants. In the case of any occupancy H3 where two or more dwelling units open on to a part of the escape route which serves all of them, such common part of the route must comply with all the requirements (including width) for escape routes.

The length of an escape route in an H3 occupancy may be controversial. The travel distance is of course always measured from the furthest point in any room in a dwelling unit to the nearest escape door or access door but it is important to note that there may be certain special circumstances that must be considered. In any dwelling unit at ground level, whether an H4 occupancy or part of an H3 occupancy, any "exit" door from the dwelling unit that leads to an approved open space may be regarded as an escape door

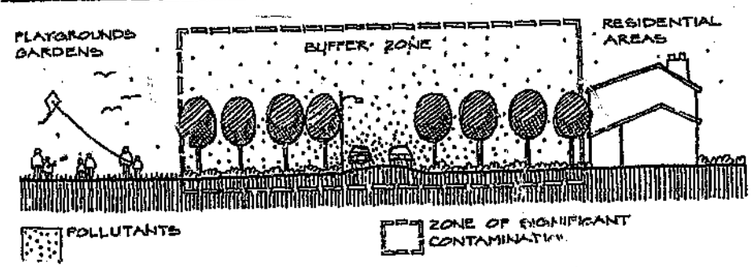
(Source SABS 0400)



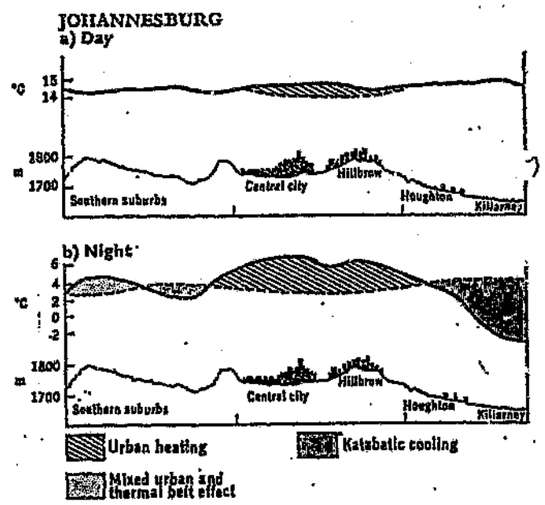
The problem: lead is concentrated in air, soil, and plants along streets, a function of traffic speed, volume, and distance from roadway. Here, along a street averaging 24,000 vehicles per day, under calm conditions, lead in the air above the street is sixteen times the "normal" urban atmospheric lead content, falling off to eight times normal fifty meters (164 *feet*) away.

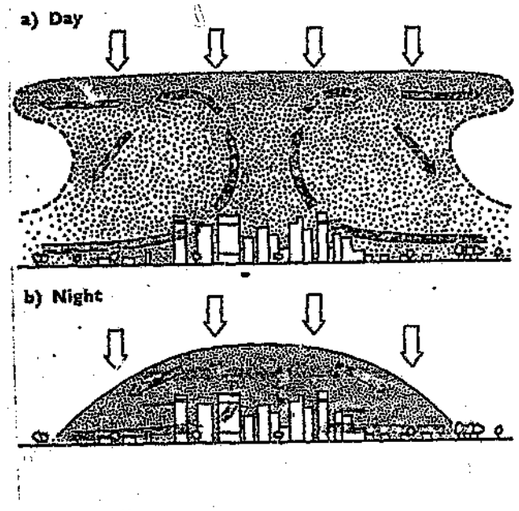
(Source Whitten-Spain, 1985)

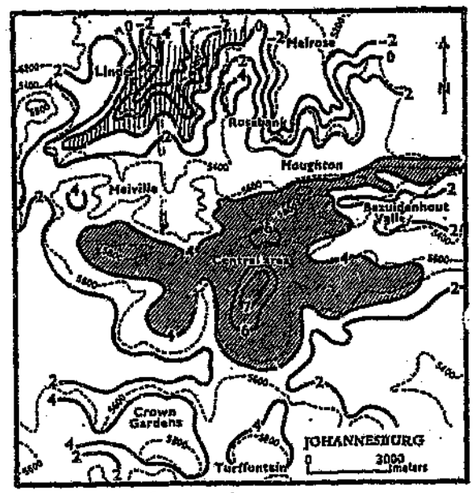
The solution: a multifaceted approach to limit air pollution exposure along streets: traffic regulations to reduce the production of lead and other pollutants; landscaping to capture particulates; and setbacks to minimize exposure. Traffic volume determines size of setback.



(Source Spain, 1987)



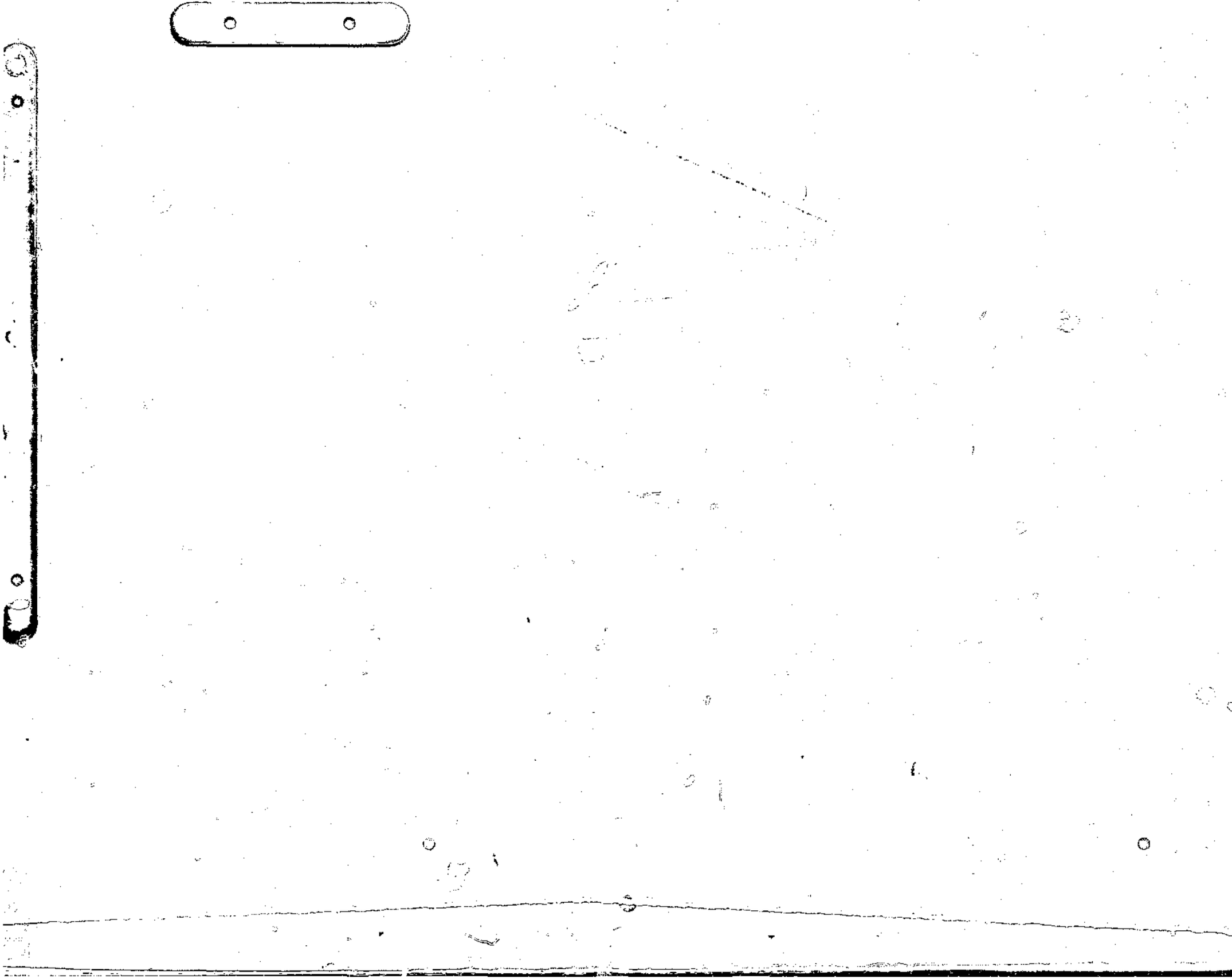




TEMPERATURE (WINTER)



(Source MUD ESTIMATE, 1982)



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