

ARCHITECTURE DEPARTMENT

CHINESE UNIVERSITY OF HONG KONG

MASTER OF ARCHITECTURE PROGRAMME

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DESIGN REPORT



**WALK-ABLE CITY: 3D PEDESTRIAN
NETWORK IN CAUSEWAY BAY**

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DEPARTMENT OF ARCHITECTURE
THE CHINESE UNIVERSITY OF HONG KONG

MASTER OF ARCHITECTURE , 2006-2007 Design Report

WALK-ABLE CITY - 3D PEDESTRIAN NETWORK IN CAUSEWAY BAY

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INTRODUCTION

In the past decades the city of Hong Kong has developed a high speed traffic network to provide an efficient linkage from place to place. But the imposition of the network has created "CUTs" of the urban fabric. And hence, **traffic-related problems occur in areas associated with the "URBAN CUTs"**. In these areas one can notice congestion and conflicts between traffic and pedestrians. These conflicts worsen the urban environment and quality of daily life.



SOGO, Causeway Bay

STREET - CONNECTOR or BARRIER?

CONNECTOR FOR VEHICLES

BARRIER / CONNECTOR FOR PEDESTRIANS

BARRIER / CONNECTOR FOR VEHICLES

CONNECTOR FOR PEDESTRIANS



CONNECTOR FOR VEHICLES

BARRIER FOR VEHICLES

BARRIER FOR PEDESTRIANS

CONNECTOR FOR PEDESTRIANS

CHALLENGES INDUCED

Slow inconvenient, crowded and chaotic in the area of high concentration of activities.



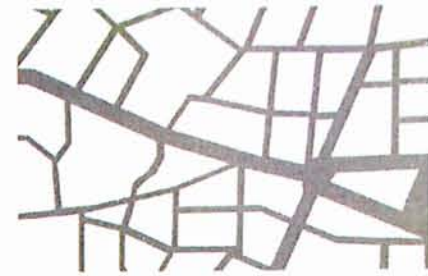
Inaccessibility to the magnificent waterfronts, the waterfront is isolated from the city centre.



PLANNING PRACTISE

The high speed networks and the city fabric (city programmes) were developed as two independent systems. Those traffic routes were planned according to the vehicular needs and technical considerations. The relationships between urban fabric and traffic network were seldom considered. As a result, the urban fabric is fragmented by strips of routes with heavy car traffic forming barriers for pedestrians.

The tradition planning practises in Hong Kong - the traffic routes have the higher priority, then the building blocks and open spaces are filled in.



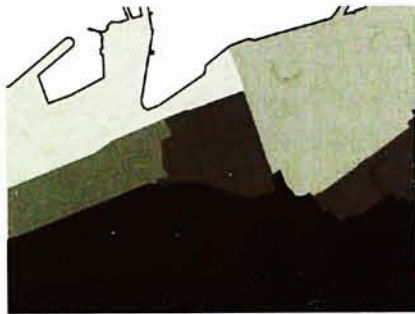
PLANNED STREET



INFILLED FABRIC



DEVELOPMENT SEQUENCE



OVERVIEW OF RECLAMATION IN CAUSEWAY BAY

-  Original Ground
-  Up to 1887
-  1887-1945
-  1946-1967
-  1968-1976

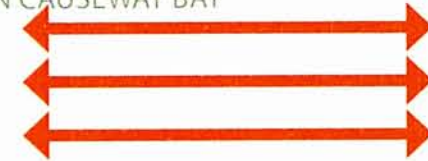


DIRECTION OF RECLAMATION FORCE



OVERVIEW OF TRAFFIC ROUTE IN CAUSEWAY BAY

-  MAJOR TRAFFIC ROUTE
-  SECONDARY TRAFFIC ROUTE



DIRECTION OF TRAFFIC FORCE



URBAN CUTS IN THE REGION

On the north shore of Hong Kong Island, the provision of flat land is limited originally, therefore, reclamation had been taken from time to time in order to match with the city development. At the same time, a new major traffic route was imposed on the new reclamation land to provide the east-west connection. Therefore, the fabric on the north shore was cut into strips of land by the major routes.

The thesis aims to develop a strategy to **improve the pedestrian logistic** in the high density area. And hence, **improve the walking experience** in the city. Therefore, the studies will investigate and design the areas associated with the "URBAN CUTs", to **create a new relationship between the pedestrian walkways and the urban environment**.

THESIS OBJECTIVE

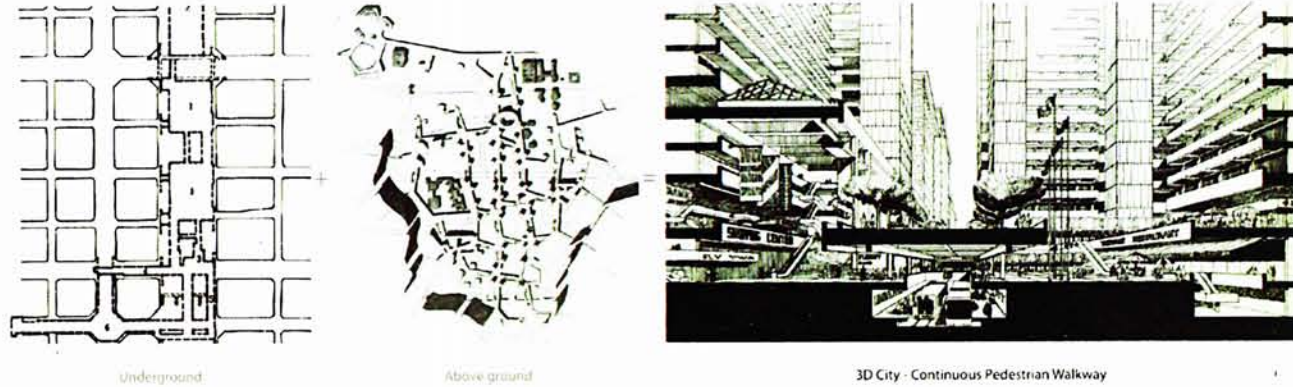
In the past, the pedestrian logistic was either **seldom considered** in the city planning or simply considered in two dimensional viewpoint. In order to respect the unique cityscape of Hong Kong (high density of traffic network), there is a need to **create three dimensional viewpoints of the city spaces**.

Also, it is believed that through the suggestion of a three dimensional pedestrian walkway system, it is not only solving the problem of "URBAN CUT" by performing as a connector, it also **creates new places for events taking in the city**.

HYPOTHESIS

It conceives of all the facilities for urban movement as one single system, a structure that able to integrate individual buildings. It proposes to **break through the "asphalt membrane"** which now divides the city into "above ground" and "underground", to **unify the circulation spaces functionally and visually, creating a true 3D city**.

- From Left to Right:
- 1. Nagoya underground pedestrian walkway
 - 2. Hauptstadt Berlin commercial centre
 - 3. Seattle central Business District
1. From Hong Kong to Nagoya, Nagoya, the Shuang Shuang...
 2. Hauptstadt Berlin commercial centre, Berlin, Germany, 1998
 3. Seattle central Business District, Seattle, Washington, USA, 1998
 4. Main Street, Manhattan, New York, USA, 1998
 5. Main Street, London, UK, 1998



RESEARCH FRAMEWORK



SITE SELECTION



In the commercial and shopping region on the north shore of Hong Kong Island, – from Central to Causeway Bay – only the area of Causeway Bay has not yet been developed as with multi-layered pedestrian walkways (or it exist in a fragmented way).

SITE STUDY

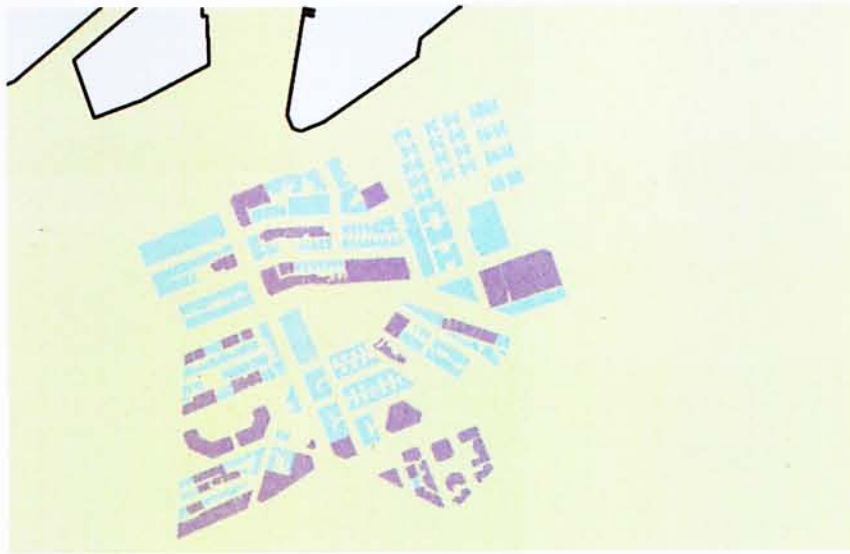


- | | | | | | |
|---|-------------------------|---|--------------------------------------|---|-----------------|
|  | Street |  | Commercial (2) |  | Open Space |
|  | Green Belt |  | Residential (A) |  | Residential (B) |
|  | Government, Institution |  | Future Reclamation Area or Community | | |

TRAFFIC ROUTE X PUBLIC PROGRAMME



- | | | | |
|---|---|---|-------------------------|
|  | SHOPPING MALL |  | MAJOR TRAFFIC ROUTE |
|  | OPEN SPACE |  | SECONDARY TRAFFIC ROUTE |
|  | MIXED USE
(2/F RETAIL + RESIDENTIAL) | | |



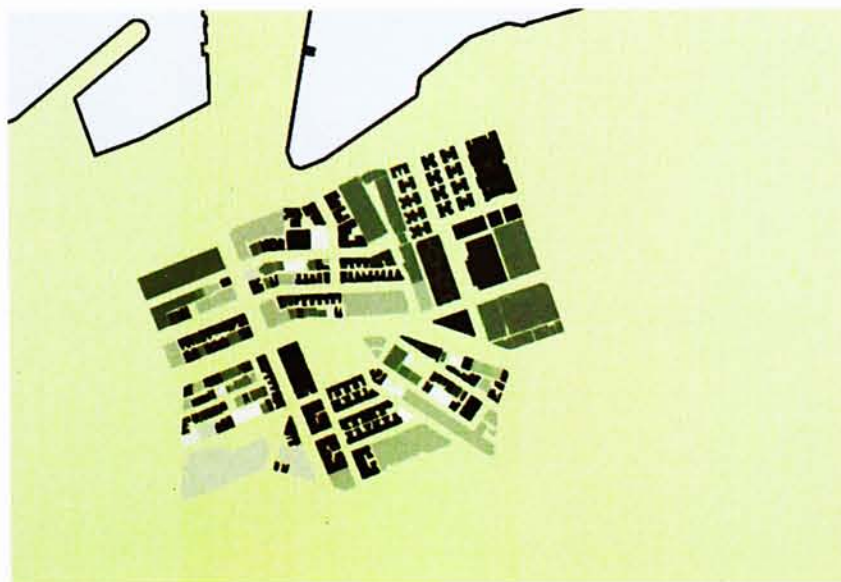
- COMMERCIAL
- RESIDENTIAL

POINT OF ARRIVAL / DEPARTURE

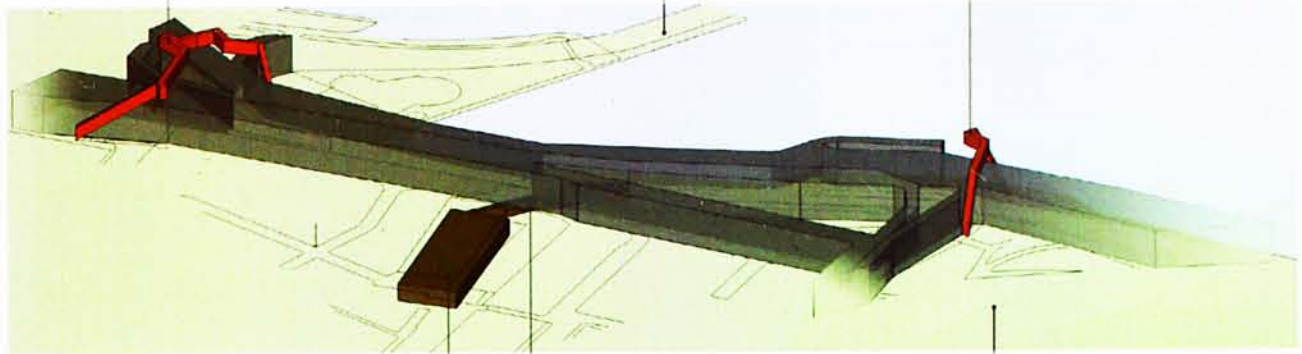


- TAXI
- MINI-BUS
- TRAM
- BUS
- MTR EXIT
- MAJOR ARRIVAL / DEPARTURE AREA

BUILDING AGE



- 0
- 10
- 20
- 30
- 40
- 50+ YEAR



CROSS HARBOUR TUNNEL



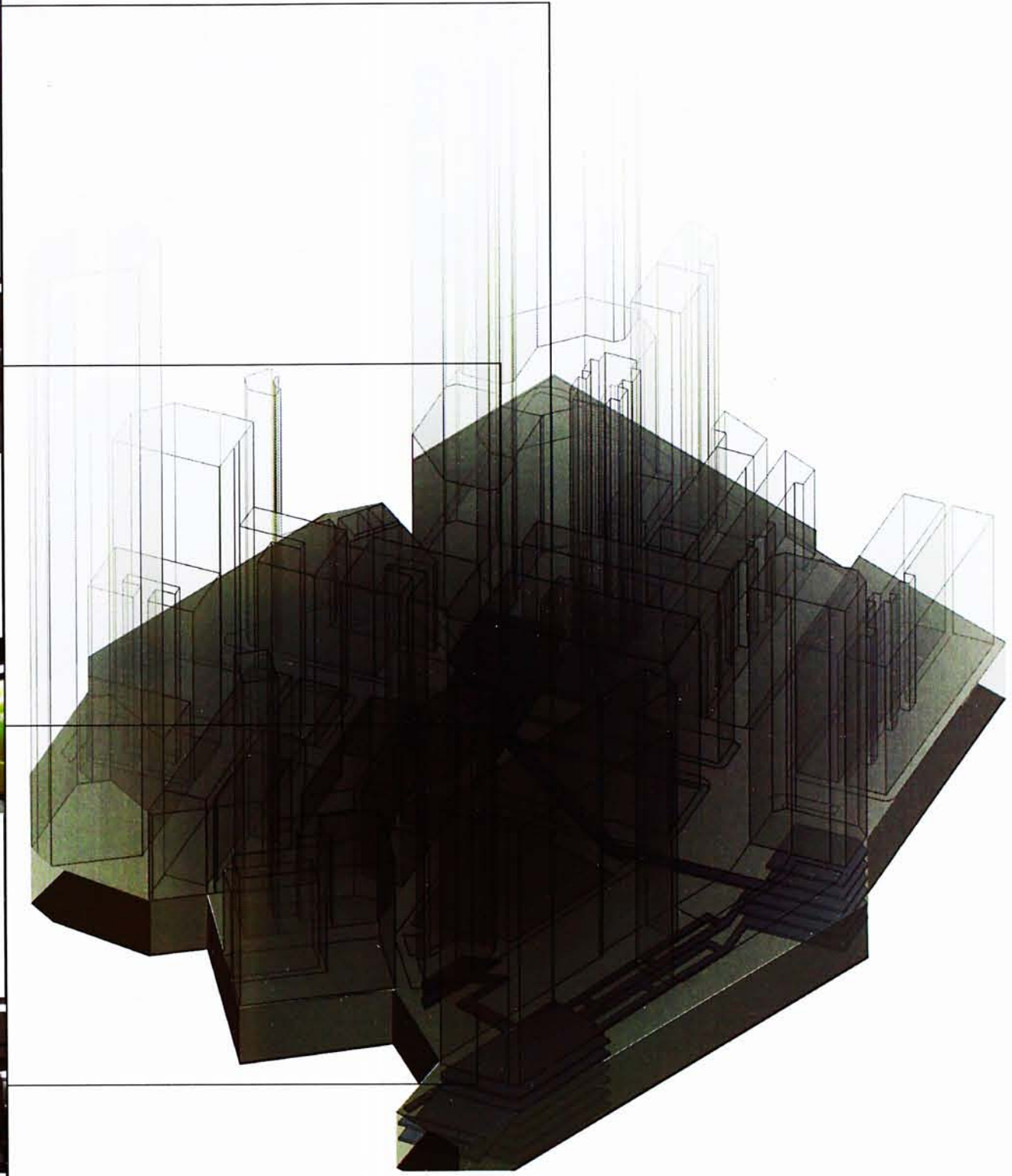
VICTORIA PARK



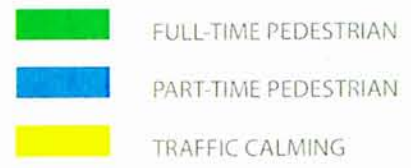
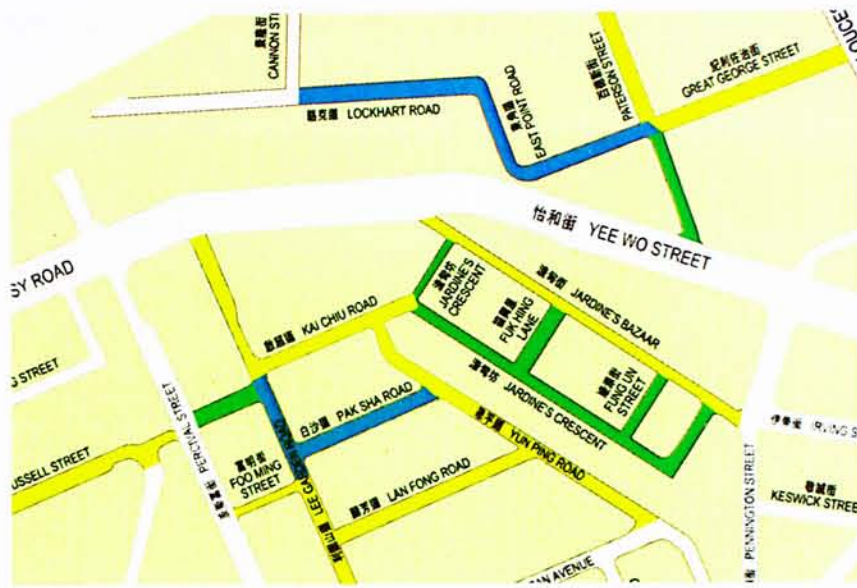
UNPLEASANT CONNECTOR

Although the site has several connector connecting the inland area and waterfront area (including two elevated bridge and a tunnel), but due the very close intimacy to the existing highway (the bridges) and unpleasant car park (the tunnel), these makes the existing connector unpleasant and discourage people to use it.

SITE STUDY DETACHED UNDERGROUND



The "CUTs" issue not only exists in horizontal dimension, it also exists in vertical dimension. The MTR station of Causeway Bay has already developed an extensive network underground that connecting various part of the region. But the underground and the ground layer are loosely connected. The two layers only connecting each other through the "rat hole" on the ground level that minimizing the disturbance of the ground plane. But finally, it "CUT" off the communication between the two layers.



OBJECTIVE

- To improve pedestrian safety and mobility
- To promote walking as a transport mode**
- To discourage access for non-essential vehicles
- To reduce air pollution
- To improve overall pedestrian environment**

FACTORS CONSIDERED IN DEVELOPING A PEDESTRIAN SCHEME

- Whether there are **pedestrian capacity** or safety problems
- Public demand** and land use
- Environmental and amenity considerations
- Impact of pedestrianisation on vehicular traffic in the vicinity and the servicing of buildings

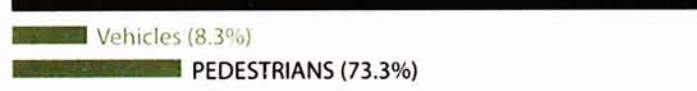
REVIEW OF EXISTING PEDESTRIAN STRATEGY (STATISTIC)

PEDESTRIAN PRIORITY PRINCIPLES

In a crowded area, road design should pay more emphasis on:



Under the setting of a crowded area connected to railway, Road design should pay more emphasis on:



PEDESTRIAN SCHEME

The development of Pedestrian Street (including full-time / part-time Pedestrian Street) is:



The development of Traffic Calming Street is:



Pedestrianisation was very / quite beneficial to the general public.



EFFECTIVENESS

Pedestrian scheme had been implemented in Causeway Bay.

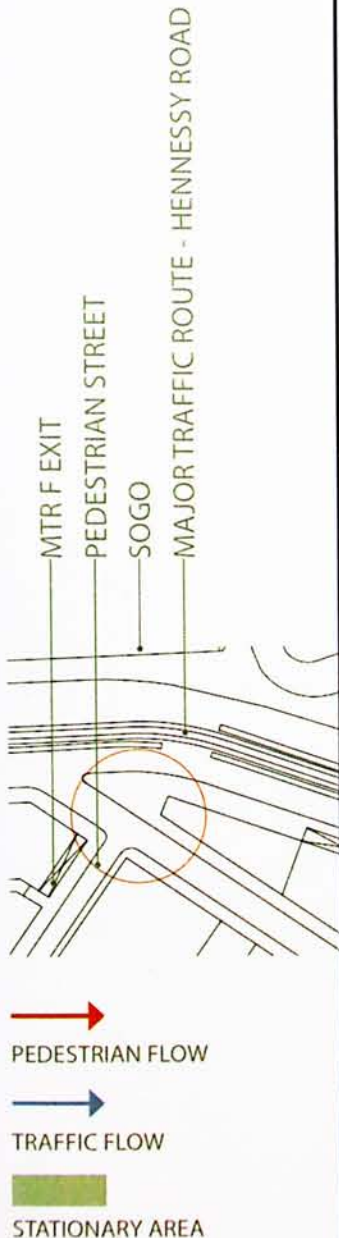
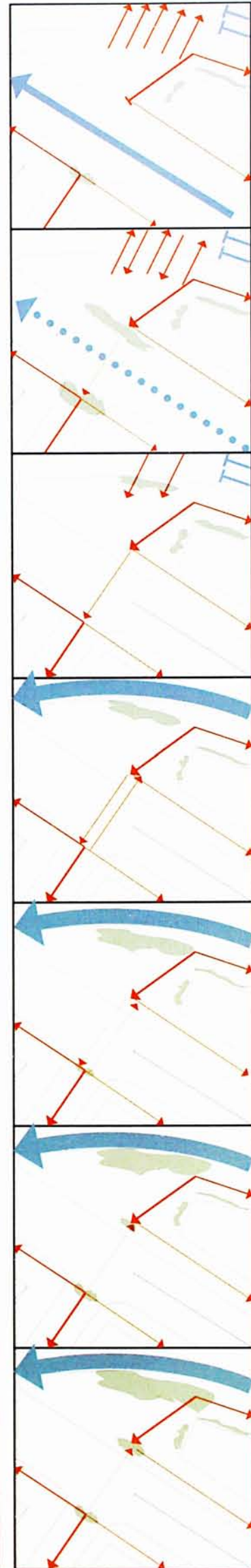


The implementation of pedestrian schemes was:



http://www.td.gov.hk/transport_in_hong_kong/pedestrianisation/pedestrianisation_index.htm

Extracted from "Thematic Household Survey Report No. 19" (http://www.censtatd.gov.hk/FileManager/EN/Content_631/th19_pen.pdf)

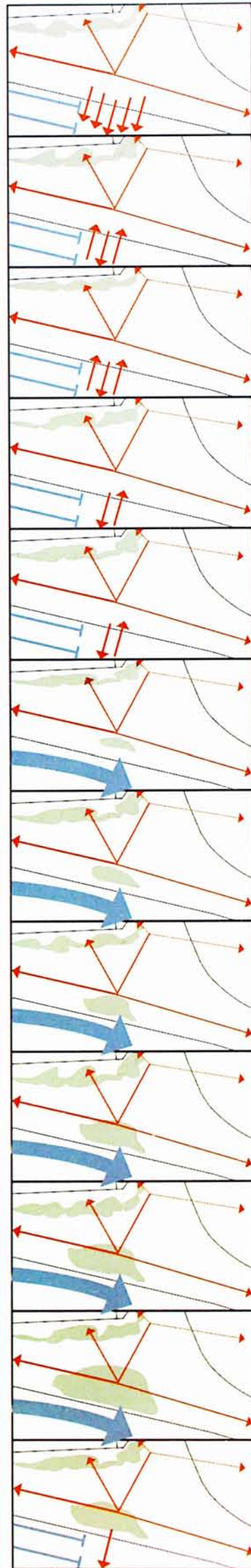


EXISTING CONDITION OF HENNESSY ROAD - EAST POINT STREET - GREAT GEROGE STREET



JUNCTION OF PEDESTRIAN ROUTE AND MAJOR TRAFFIC ROUTE

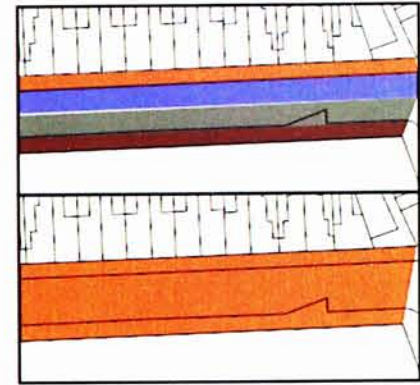
The existing full-time pedestrian street was located in the minor street in the region, and the Jardine's Crescent takes the benefits of it and turns the street to market street. These pedestrian streets are good in terms of providing pedestrian safety in the high density region, at the same time; they also promote ground level shopping. But these pedestrian streets are often end with the Major traffic route, where the junction between the traffic route and the pedestrian street is the point of congestion and overcrowded. When the crowd exists, it starts to erode the circulation zone and induces the congestion and hence chaotic movement.



LOCKHART ROAD (NEXT TO SOGO SECTION)



4pm 12noon

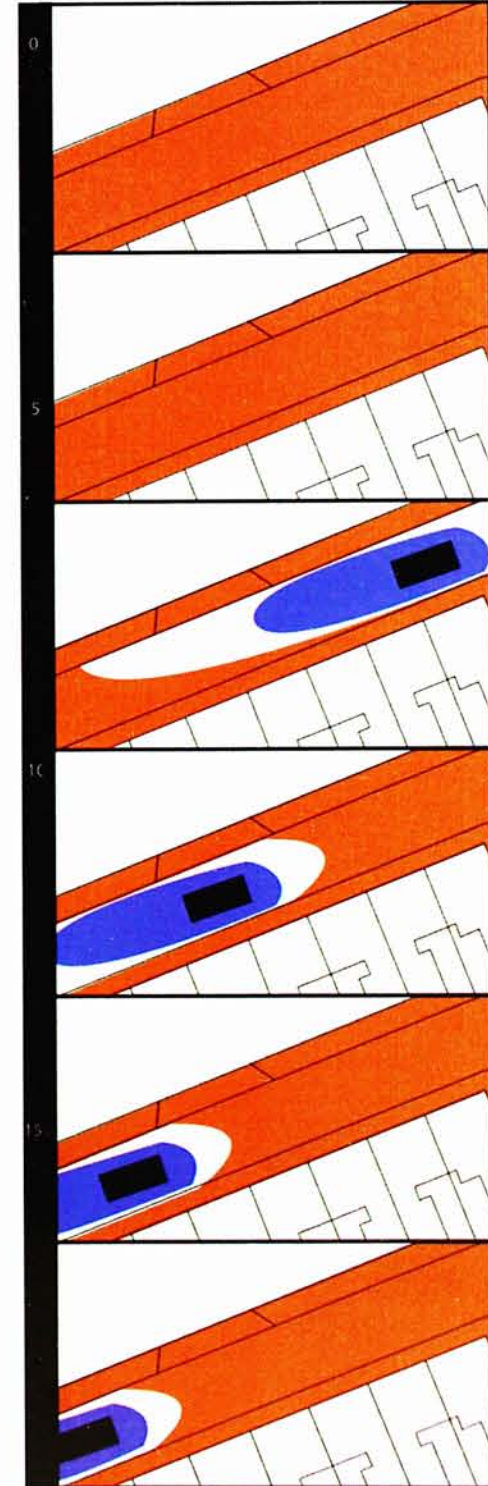
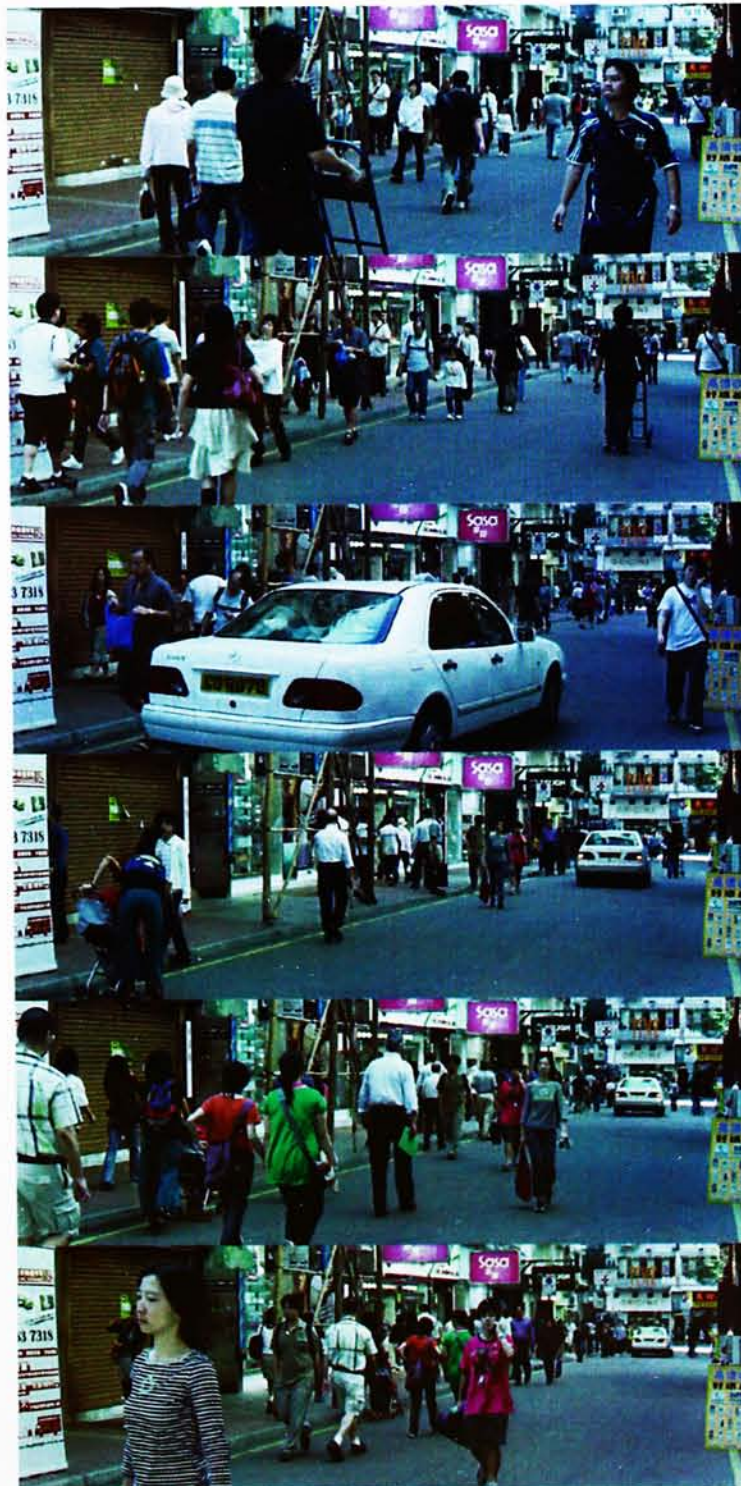


LOADING / UNLOADING AREA TRAFFIC ZONE

PEDESTRIAN ZONE

TRAFFIC CALMING STREET

EXISTING CONDITION OF KAI CHIU ROAD



PEDESTRIAN ZONE
TRAFFIC ZONE
VEHICLE

JUNCTION OF PEDESTRIAN ROUTE AND MAJOR TRAFFIC ROUTE

The existing full-time pedestrian street was located in the minor street in the region, and the Jardine's Crescent takes the benefits of it and turns the street to market street. These pedestrian streets are good in terms of providing pedestrian safety in the high density region, at the same time; they also promote ground level shopping. But these pedestrian streets are often end with the Major traffic route, where the junction between the traffic route and the pedestrian street is the point of congestion and overcrowded. When the crowd exists, it starts to erode the circulation zone and induces the congestion and hence chaotic movement.

INAPPROPRIATE PROGRAMMES AGAINST PEDESTRIANISATION

Besides the inappropriate vehicular flows conflict with the pedestrian flow, the part time pedestrian streets also work well in the hours of pedestrianisation. But in the period which the street is not yet pedestrianise, the streets are often used for the loading/unloading zone for the shopping mall. For example, the Sogo Section of the Lockhart Road, before the pedestrianisation period, nearly half of the street is occupied by the lorries. The loading / unloading zone even erodes the existing pedestrian zone that discourage people to travel through that area.

In the traffic calming street, the original objective is to promote pedestrian priority in the minor streets through limiting the vehicular flows. The pedestrian flows are worked properly when the street is vehicular free. But when a vehicle is passing along the street, it induces conflict between pedestrian and vehicular that causes unsafe pedestrian movement along the street.

CONCLUSION

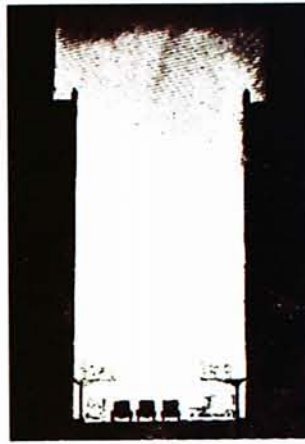
In conclusion, the factors that leading to the unpleasant walking experience were due to undesirable stop at "URBAN CUTs"; that leading to the crowd and unclear boundary between the circulation and stationary spaces, and hence it slows down the pedestrian flows. In some area, a sudden contraction of pedestrian walkways leading to overcrowded areas. All these factors lead to the chaotic movement in the high density area. Conflict between vehicles and pedestrians in traffic calming streets and inappropriate programmes exists on pedestrian streets also create unpleasant and unsafe walking experiences. In conclusion, the existing pedestrian capacity cannot accommodate the users in Causeway Bay.

THEORY STUDY

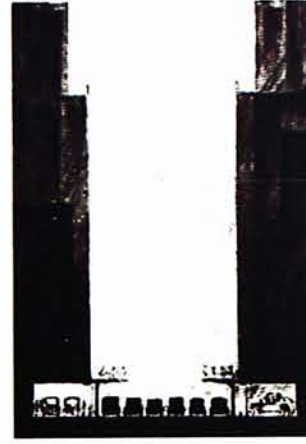
HAEVEY WILEY CORBETT - Proposal for Relieving Traffic Congestion in New York



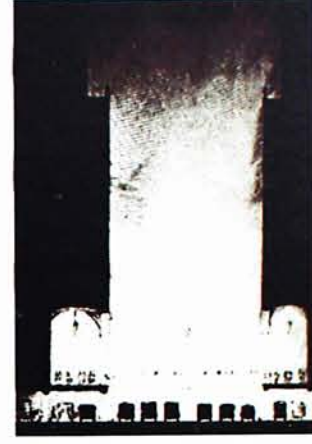
Present situation



First Step:
Pedestrians are removed from grade level to move along bridges cantilevered from the buildings; cars invade their former domain



Second Step:
"Showing Building cut-ins. Six motor cars moving abreast - parking space for two on each side..."

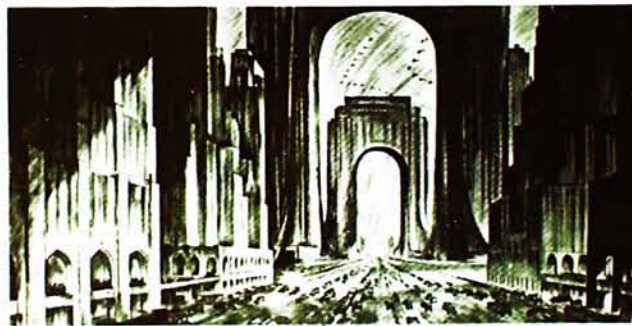


Final Step:
"Pedestrians cross streets on overhead bridges and the cities of the future of the lagoons..."

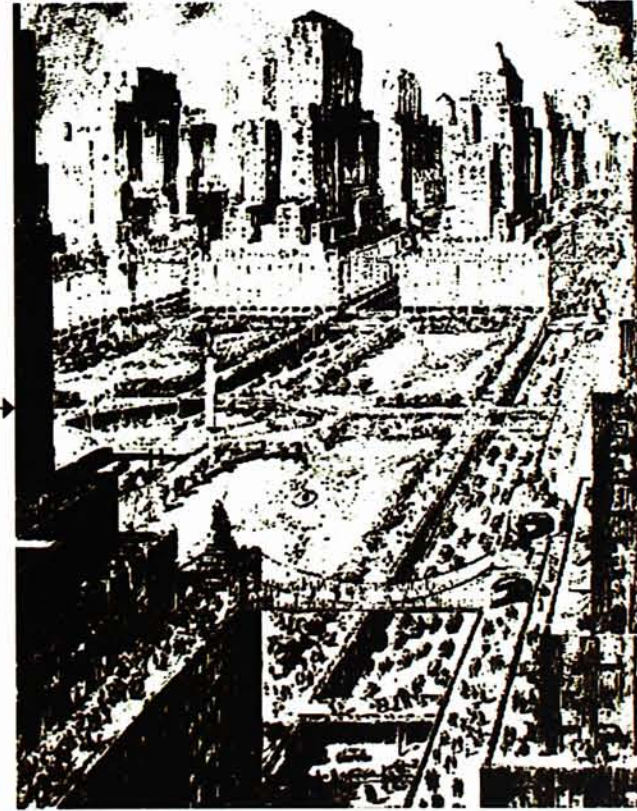
...All the hysterical and nerve-wracking activity that used to occur outside, in the subway, etc., would now be completely absorbed within the buildings themselves. **Congestion has been removed from the streets and is now swallowed by the architecture.**

Future Manhattan - "Very modernized Venice"

"A ocean of cars"



Second level of pedestrian traffic

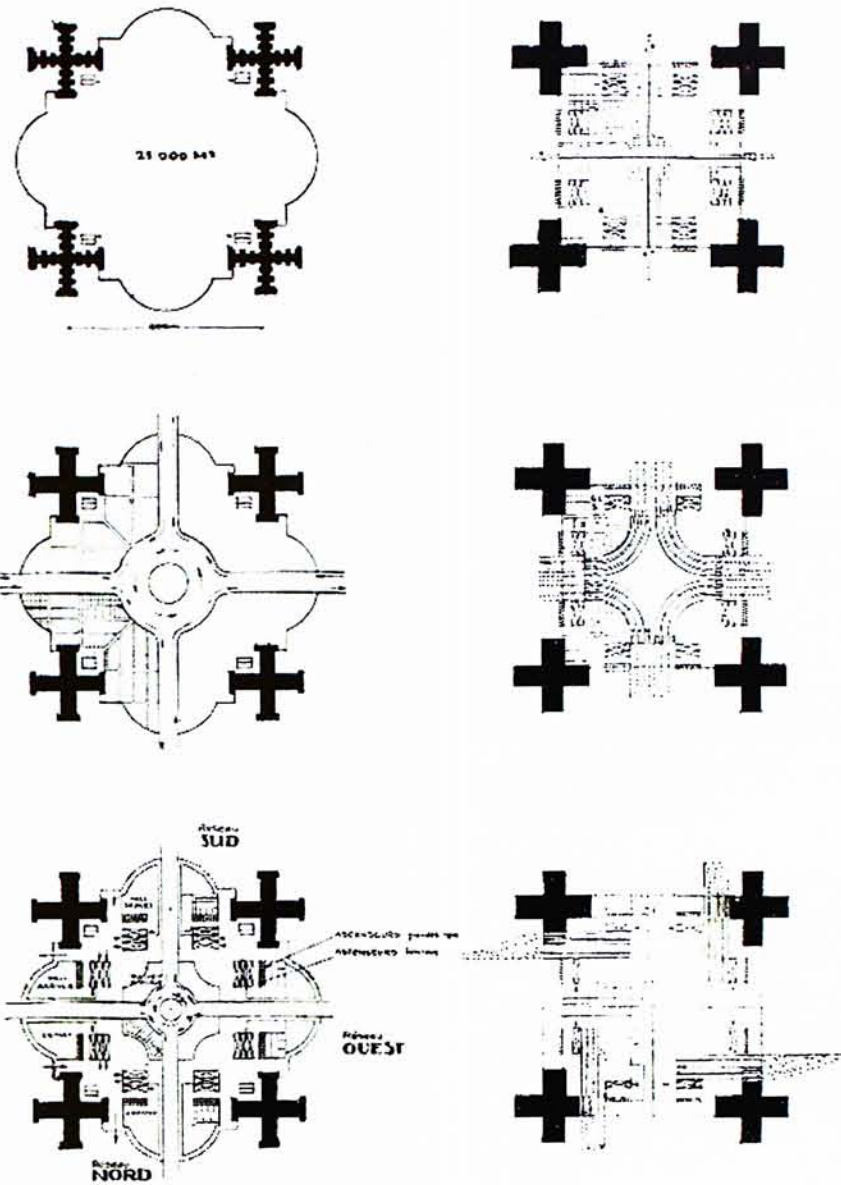


"Very modernized Venice"

Ultimately, Corbett calculates, the entire surface of the city could be a single traffic plane, an ocean of cars, ...

"We see a city of sidewalks, arcaded within the building lines, and one story above the present street grade. We see bridges at all corners, ... We see the smaller parks of the city raised to the same side walk arcade level ... and the whole aspect becomes that of a **very modernized Venice, a city of arcades, plazas and bridges, with canals for streets, only the canals will not be filled with real water but with freely flowing motor traffic, ...**

Rem Koolhaas, *Delirious New York* : a retro active manifesto for Manhattan, New York Monacelli Press, 1994, New ed.



The City of Tomorrow and its Planning City of to-morrow and its planning / by Le Corbusier ; translated from the 8th French edition of Urbanisme by Frederick Etchells London : Architectural Press, 1947, c1929.

"The Station is so enormous that everybody can make straight to his work without crowding or difficulty."

The 3d City_KM3

As a positive side effect, this density leads to much more programmatic variety. More synergy, efficiency and mix will lead to more social encounters, urbanity, and possibilities for architecture. What urbanism will then appear? Can an urbanism be developed that enters the **third dimension** in a time when urbanism is still dominated by zoning- a very two-dimensional approach? Can a city be made that literally creates more public levels, **enlarging more capacity of the existing city floor plate?**

Excursions on Capacities KM3, MVRDV, First published in 2005 by Actar, Printed and bound in European Union, p.271

Transport in Cities

'The freedom with which a person can walk about and look around is a very useful guild to the civilized quality of an urban area! This basic issue is adapted not only to residential areas, pedestrian zones or environmental zones between arterial streets, but **to the city as a whole, to the continuum of the urban network of street, places, paths and to the continuum of open spaces.**

In most European cities ... we find ambitious, well designed pedestrian zones in the city centers. In many cases former arterial roads with high loads of car traffic were converted into pedestrian zones...

Without any doubt **pedestrian zones in a city centers are a convincing success on the way to livable cities,** and they remarkably ushered in a new thinking about the priorities in traffic management. But one should not forget that most pedestrian zones, roofed malls and passages are all too isolated islands surrounded by ugly inner-city rings with heavy car traffic which form barrier for pedestrians and cyclists.

Having the right priorities in mind – **pedestrians produce urbanity** – In most cases amenable at-grade solutions for pedestrian crossings...

Transport in Cities, Hartmut H. Topp, Companion to contemporary architectural thought, edited by Ben Farmer and Hentie Louw, London ; New York : Routledge 1993, p. 99-100

...what is crucially needed is a redefinition for more satisfying habitable working and living urban environments: more diverse; greater multiplicity; certainly less regimented; with networks of plazas, parks and enclosed spaces in the sky. **Simply stated, an environment that recreates those fulfilling aspects of our life on the ground.**

...the design issue is how to transpose the horizontal city into a livable vertical one. Essentially, we need to recreate 'horizontal' features at the upper levels of the skyscraper.

How do we design the provision of multiple accessibility and higher complexity of linkages, which can be favorably compared to the multiplicity and complexity of accessibility at the ground at the upper parts of the skyscraper? Can we create pleasurable boulevards and avenues-in-the-sky?

In many low-rise and medium-rise buildings there will very often also be **transitional spaces** (e.g., atriums) to enable users to experience a contiguous organic spatial relationship between the varieties of spaces. Users in these conditions also enjoy a greater and freer sense of access as they are generally able to **move more easily through one space to another**, whether through open stairs, ramps, bridges or corridors...

The **avoidance of compartmentalization** can also be achieved by having internal or transitional spatial volumes (such as atriums), with the other internal spaces volumetrically connected to it, spatially, visually and organically. Another way is to have half-floors, spaces that are juxtaposed or spaces that are detached and connected by bridges and ramps.

The city is first and foremost a meeting place for people. This is the fundamental premise and framework that holds together the many institutions, schools, hospitals and work places that form part of our everyday lives. With this comes the traditional proposition of 'place-making' as creating meeting and event spaces for a livable civic environment. Urban design involves provision of public realm spaces such as plazas, boulevards and avenues that respect the city's unique cultural differences. The shifting nature of these public spaces is the nexus that links the divergent interests of the city, giving people the qualitative experience that they are somewhere. It is the equivalents of these that we need to design into the high-rise.

Urban Flashes Asia

Tokyo is a giant maze-like city without physical navigational aids such as axes or urban boundaries, and it is perhaps for this reason that there are innumerable guidebooks on every facet of life in this city. Tokyo has already been edited to suit every possible objective. Even if they form a kind of software after the fact, in terms of organizing the way the city is used...

Hyper-Spiral Project

The project attempts to decrease this horizontal transfer of commodities in favour of the vertical, and layers related services such as electricity generation and waste incineration or productive green space with consumer facilities for the distribution of products. This hyper-building is not a single towering high-rise building but **a high-rise network with numerous ground-level entry points. It has no dead-ends of circulation or of infrastructure, and is easily accessible** for restoration in the case of an emergency.

The three-dimensional city is to be constructed over the existing, without demolition, and constructed incrementally along with the conversion of the existing fabric to residential use.

Floating pedestrian networks are everywhere in Hong Kong. Detached from the street traffic, they either take the form of a pedestrian bridge, or a labyrinth of corridors inside buildings. Whether outside or inside, open-air or part of an air-conditioned circuit, pedestrians are able to experience a new game – **navigating the urban complexity**. Before, Men used to explore new lands, now the adventure is in recreating a world in response to new living conditions. Dynamic labyrinth is not a sensational experiment, but results from the universal notion of an active relationship between people and their environment, whatever forms they take. Everybody enjoys moving from one place to another with the possibility of discovering new shops and facilities. **Spatial mobility and continuous human migration create a kaleidoscopic motion**, providing these artificial lands with **prime functional space between the apartment and the urban territory**.

The rapid, non-stop changes of rhythms, the variations between exterior and interior, and the link between public and private constitute a unique urban profile that's difficult to map. **Numerous circulation levels and the layering of multiple programmes (uses) add even more confusion**. Generally the network of mobility consists of flows, concentrations of people moving towards specific lines or points. In a study of pedestrian movements during the 1970s the Situationist Group developed the Theory of Drifting. They observed that "the factor of chance [with respect to people's movements] is less important than we can imagine: from the drifting angle, cities show a psycho-geographical shape, with constant streams, fixed points, and turbulence which makes access to or exit from certain zones, very difficult."

A Transitional Network City

...this is not the case in Hong Kong. "Transition" and "networking", these concepts **symbolize their city and lifestyle** – or, these concepts are the city and lifestyle. If one were to analyze the morphology of movement in Hong Kong in relation to that of the United States, the origin is not a "space" but a "point". Present in between is "transition". The method of "transition" is not a question here. A "transition" at full speed takes place in between the "point" here and the "point" there.

Skywalks and roadways – they have developed to their extremes in the vicinity of Central and Wan Chai on the north side of Hong Kong Island. One can proceed from one building to the next without ever descending down to the ground level. Whenever a skywalk is confronted by a building, it slips right through the building and reemerges on the opposite side. It is as if the **entire city is transforming into one enormous and continuous space**.

Five Minutes City

Mobility is essential for animals with herd instincts, such as humans – for safety, protection, development, food, interaction, even procreation. **Mobility is an inseparable part of society**. The ways in which people are mobile tells us something about a society, its identity and culture. Mobility, urban life and city culture in Los Angeles is different from that in London, Venice or Timbuktu! On the other hand, society facilitates mobility, organizes space for it, makes room for it...

URBAN DYNAMICS

Connection -

Connection evokes a network of conjunction. Space flows in a fluid manner and is not constrained by an independent edifice. It results in a separate system while **hybridizing with other existing systems**.

Connection in its most brutal manner is revealed in the act of overlapping and penetration. **Surfaces multiply by the making of additional layers and entities**. Every surface is maximized to **enhance visual connection**, and in the end, to raise its commercial value through the quantity of visual contact.

Mapping Hong Kong / Laurent Gutierrez and Valérie Portefaix, Gutierrez, Laurent, edited by Anna Koor; foreword by Ackbar Abbas, Hong Kong : Map Book, c2000.

A Transitional Network City, Hong Kong City of Multiple Layers, construction and photographs Hirokazu Mukai ; text Shir Muramatsu ; English translation Akiko Takemura, Tôkyô : Tôhō Shoten, 1997 p.17-24

Five minutes city : architecture and (im)mobility, forum & workshop Rotterdam 2002, Winy Maas ; MVRDV, Berlage Institute, Institut Français d'Architecture Fundació Mies Van der Rohe, Rotterdam Episode, 2003

HK lab 2 : an exploration of Hong Kong interior spaces = Xianggang shi yan shi er, Laurent Gutierrez, Valérie Portefaix, Laura Ruggeri, Hong Kong : Map Book Publishers, 2005, p.193

...Traditional Street considered as active environment is now being changed by increased mobility.

The principle of identity we propose is the basis of the Golden Lane Project – a **multi-level city with residential streets-in-the-air**. Outside the house is the first point of contact where children learn for the first time of the world outside. Here are carried on those adult activities which are essential to everyday life – shopping, car cleaning, scooter repairs, letter posting. (THE STREET)

Streets-in-the-air are linked together in a multi-level continuous complex, connected where necessary to work and to those ground elements that are necessary at each level of association. Our 'hierarchy of association' is woven into a modulated continuum representing the true complexity of human associations.

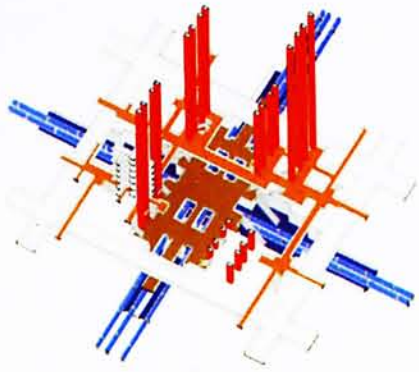
Districts in association generate the need for a richer scale of activities which in their turn give identity to the ultimate community. (THE CITY)

The horizontal street mesh would slot into the vertical circulation of other buildings in an attempt to fuse many different kinds of multi-level buildings already in existence (offices, department stores, parking garages)...

CONCLUSION

In Conclusion, Le Corbusier believe that through providing enough capacity for pedestrian flows in the high density area is a solution for congestion. In Rem Koolhaas point of view, the city is permanent; there is no reason that buildings should ever be replaced, therefore, using the existing "structure" of the city to absorb the congestion in the exterior to the "structure" itself.

PROTOTYPE STUDY

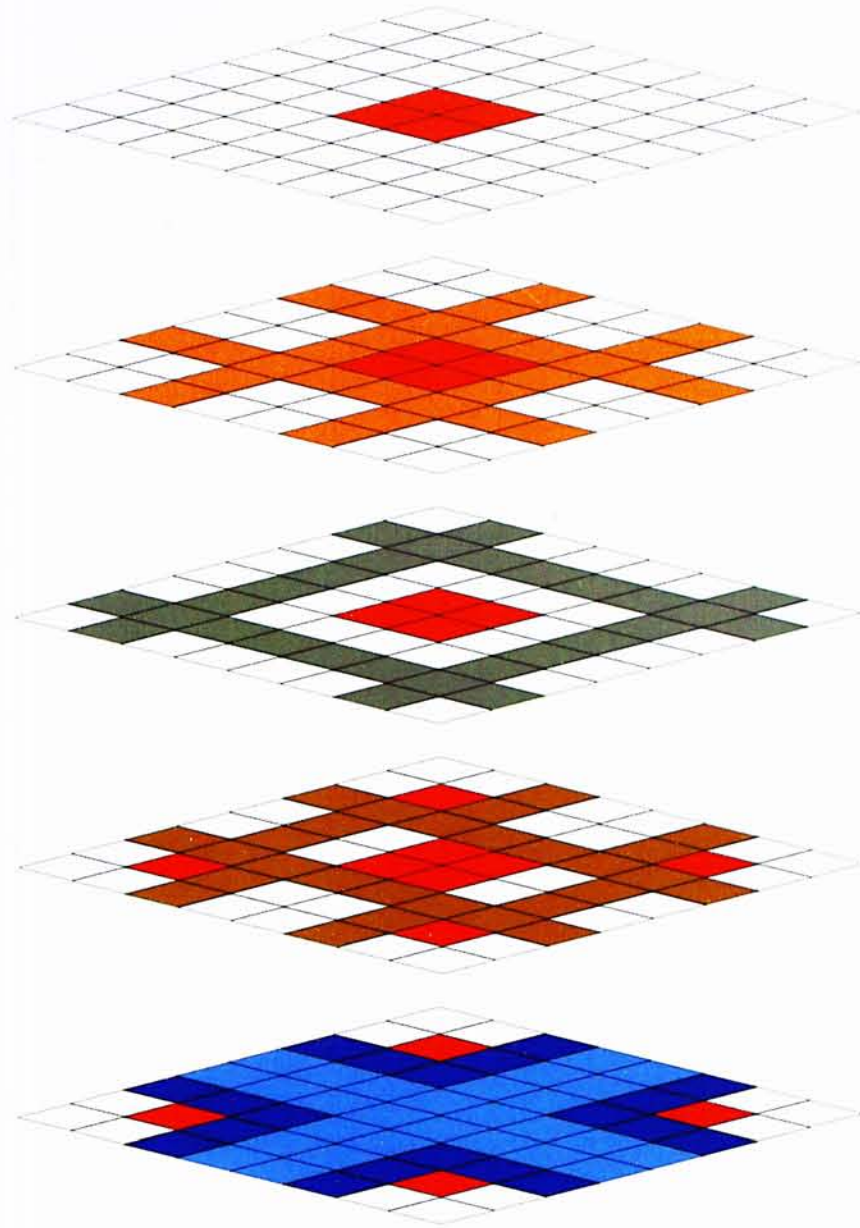


The circulation of the workers at the peak hour between the train door and the office door, a sub-system of the total journey to work, can be compared to a tree...

The "mixing chamber" is designed to permit direct access to elevators and also serve as the reference point for all change of modes of travel. Cutting through the street membrane and opening the "mixing chamber" to light and air would give traveller circulation and amenity.

...With regards to architectural form, the Access Tree would cluster large buildings tightly around the open space of "mixing chamber", keeping more distant buildings low for the purpose of minimizing access time and achieving visual contrast.

ABSTRACTION OF ACCESS TREE MODEL



CASE STUDY

ELEVATED WALKWAY

UNDERGROUND WALKWAY

NEW TOWN DEVELOPMENT
MTR ESTABLISHED



Rockefeller centre, New York



Moscow Metro station



Underground Shopping Arcade, Japan



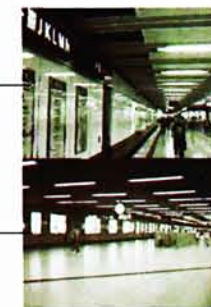
15 Plus, Calgary



Central



Shimbashi Commercial Complex, Japan



Hong Kong Station



Tsim Sha Tsui East Station

...transportation and services function under such great stress and with such precarious margins of tolerance; and since most systems operate under hypertension, the possibility of a chain reaction is not unimaginable. The cumulative effect of overloaded system is felt by millions of New Yorkers whose daily life is long sequence of hypertension, frustration and wasted energy.

The task of dealing with congestion in Midtown Manhattan, therefore, has considerably broader implication than those of increasing traffic flows and assigning more space to pedestrians. The real task is to make the city **habitable and humane**.

...The inefficiencies of transportation ... can not however be resolved by short range measures. Many of the system will be **renewed** in order to achieve a desirable level of effectiveness.

Pedestrian

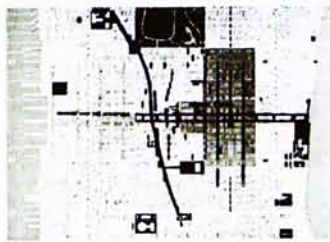
In a highly concentrated area where the demand on movement systems is as great as it is in Midtown Manhattan, provision must be made for relief from the general high intensity of use. The stress created by the levels of noise, constant activity and movement which are particularly intense in Midtown must be offset by areas of low level activity, places to walk and relax, vehicle free precincts and trees and grass.

To reduce the conflict between pedestrians and traffic, the interface between the two should be defined as clearly as possible. This requires reinforcement of the place of the pedestrian in Midtown through the creation of a continuous pedestrian network which is as independent of other traffic as possible.

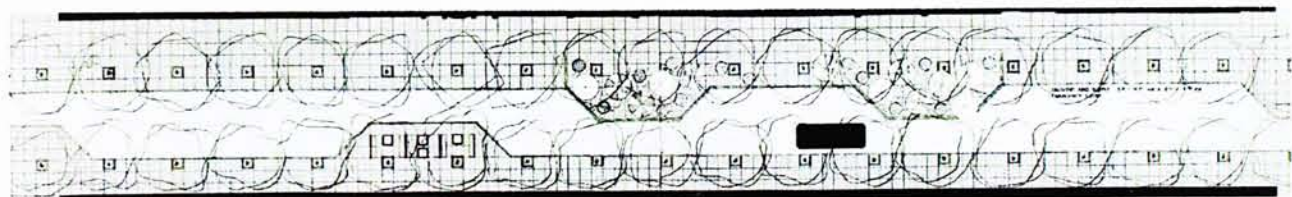
Broadway

Broadway is a major shopping and tourist street. Its historic and visual character evokes a strong image – in which lies its attraction for tourists. It forms the spine of the theatre district and connects to Lincoln center, centre Park, the Coliseum. Times Square and Herald Square where some of the major regional stores of New York City are located. In addition, Broadway passes through areas of high job concentration west of Rockefeller Center, and through the garment district. When west Midtown is developed, Broadway will lie in the middle of the west and east Midtown concentration.

Since it is the most highly accessible area by subway a large number of people will change from the north/south subway lines to east/west minibus lines and 48th Street rapid transit line in the Broadway area. For Broadway to be exploited to the maximum, its full width from Lincoln center to Herald Square should be designed for people on foot.



Movement in Midtown, van Ginkel Associates, The Inner City, edited by Declan Kennedy and Margrit I. Kennedy, New York John Wiley & Sons, c1974. p54-67.



Over the last 50 years we have seen increasing demands on space. Protection of the countryside, forests and green-belt areas has concentrated development in towns and cities. Population growth and the trend towards smaller households have placed greater pressure on housing and land prices, while demand for greater mobility and the distribution of consumer goods have led to new requirement for transport infrastructure.

The demands for spaces have resulted in cities that have **spiraled upwards**. Nearly all European capitals have skyscrapers, either dotted around the city, dwarfing existing buildings, or clustered in windy forests.

In our quest for urban regeneration, we should not forget the resource that lies beneath our feet.

Utilizing underground space remains one of the great challenges for the future. The potential is to bury unsightly car parks, highways and shopping malls, and direct the surface space that this unlocks to other uses that **improve the urban environment**.

The benefits of utilizing underground space can be summarized as follows.

-Efficient land use and improvement of the environment

-Aesthetic

-Sustainable development

-Conservation of energy

-Protection of energy

-Security

Underground space offers great future potential in urban environments for burying transport infrastructure, commercial and leisure facilities and **creating a better environment on the surface**.

The development of the underground pedestrian walkway is not an accident. It is a product of the development of the city. In Japan, the underground pedestrian walkway takes a responsibility to adopt many function of the city which makes it to become an **icon of modern city**.

The underground pedestrian walkway is utilized in four areas; the main task is to **improve the transport system** in the city.

After WWII, the economic growth caused the explosive growth of population and vehicular growth in the urban area. In 1970s, the traffic-related rises due to the explosive development in a short time. The existing traffic network in the city can no longer fulfill the demand of the vehicular need. These cause congestions, accidents, air and noise pollution. These problems were considered as disaster at that time. Also, the sudden change of the structure of occupation, an increase in the labor force in business sector, that induce worsen the problems during on and off office hours, especially in the city center and area near the station.

... Therefore. Besides the construction of flyover, developing underground metro and underground pedestrian walkway can help in resolving the problem without widening the road. The development of underground walkway encourage the shopping and traveling activities under the surface, hence, it resolve the conflict between pedestrian and traffic and increase the vehicular flow on the surface.

Second, the underground network is acting as a supports to the shopping and commercial activity. It is because in those high dense area, the land price is extremely high, therefore, before the development of the underground layer, only the apartment store is able to establish. With the development of the underground, it provides many opportunity to the retailer to provide food and beverage business in that area to act as a support to the surface shopping.

Third, since the underground layer reduce part of the pedestrian and traffic flow on the ground, therefore the supply of land on the ground become less tensioned. It offers the opportunity for increasing the greenery on the ground which helps to improving the urban environment.

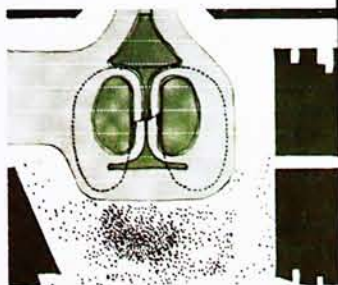
And lastly, the underground space can help to reduce the damages due to disaster such as earthquake.

Much of the public life takes place in semi-open space, often replacing its original and intended uses, such as at temple precincts, shopping arcades and transportation terminals. Shinjuku Terminal's West Concourse is such an example. An extensive underground circulation-spine blossom opens at the busy pedestrian intersection node of the West Concourse. The substitutive nature of space-time *'hiroba' manifests itself here: a spontaneous and candid intercourse born from among whoever happens to be present. ...

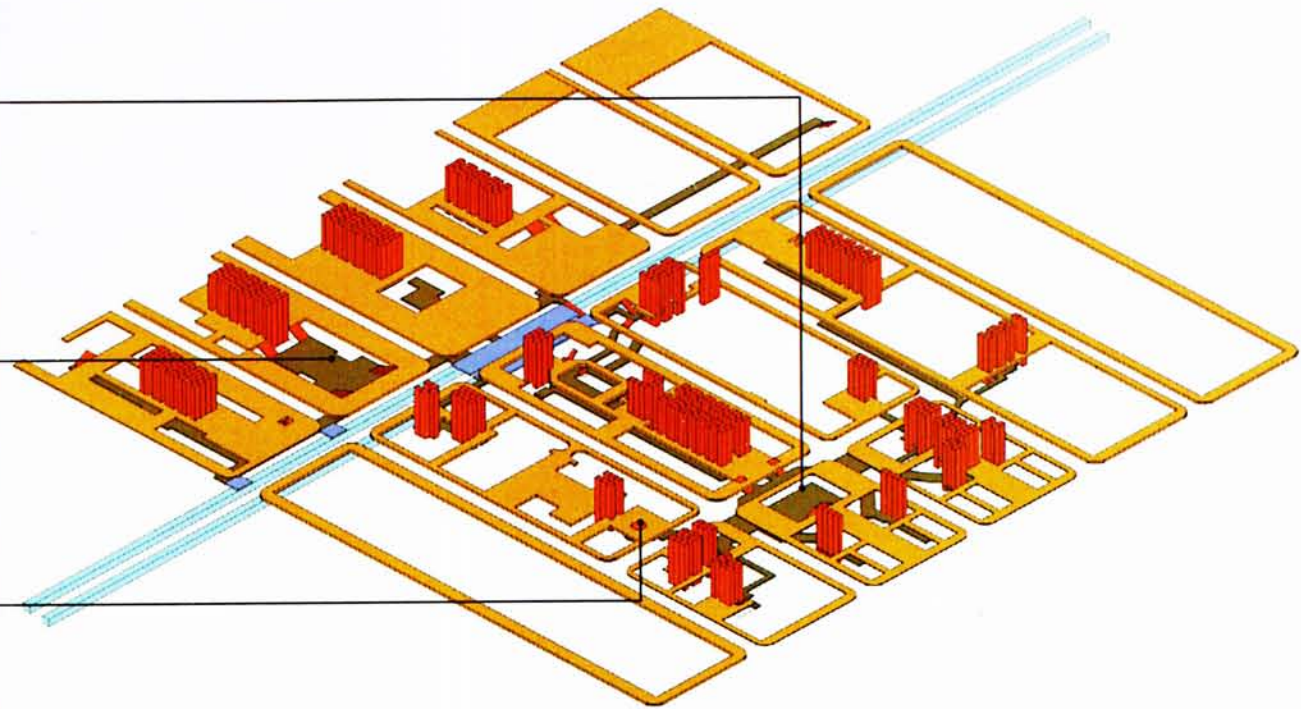


Hidden aspects of urban planning : surface and underground development / editors Tim Paul, Fiona Chow, Oddvar Kjekstad London : Thomas Telford, 2002., p.35

Di xia shang ye jie gui hua yu she ji , Tong Linxu zhu, Beijing : Zhongguo jian zhu gong ye chu ban she, 1998. 1st edp. 25-29

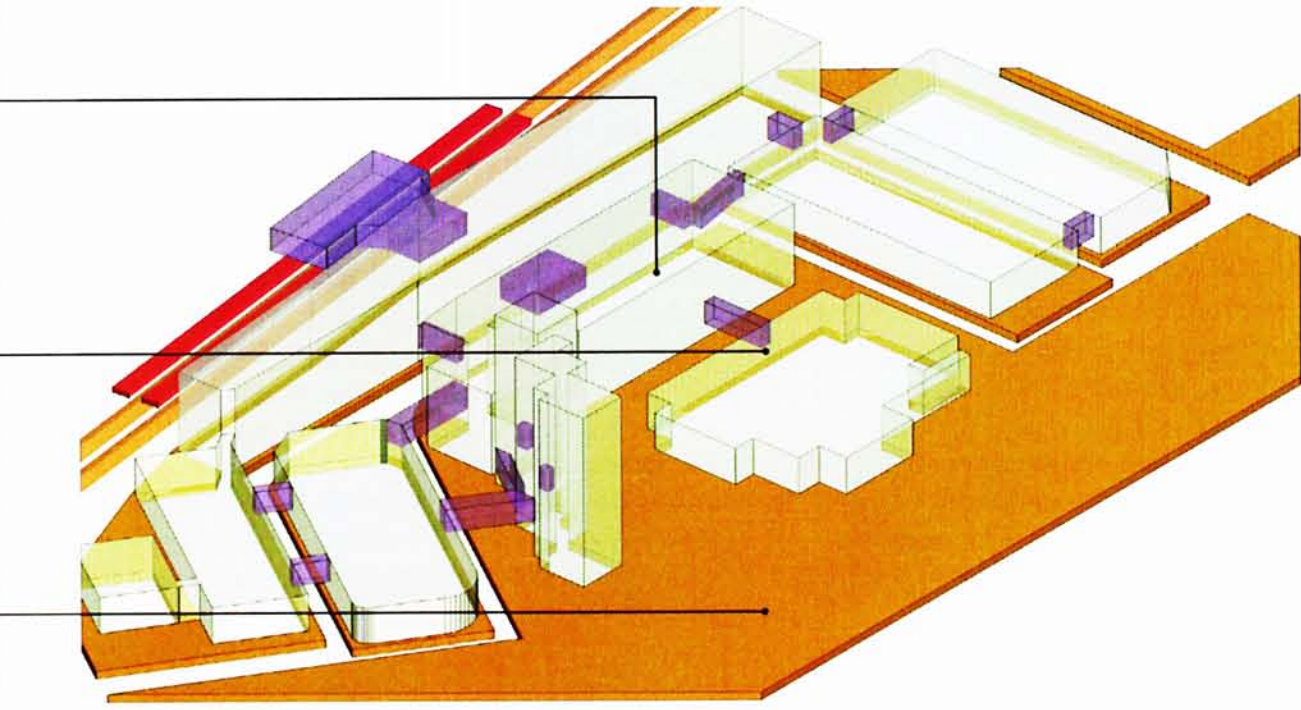


The 'Street' and 'Hiroba' of Japan, van Ginke Associates, The Inner City, edited by Declan Kennedy and Margrit I. Kennedy, New York : John Wiley & Sons, c1974. p54-67.



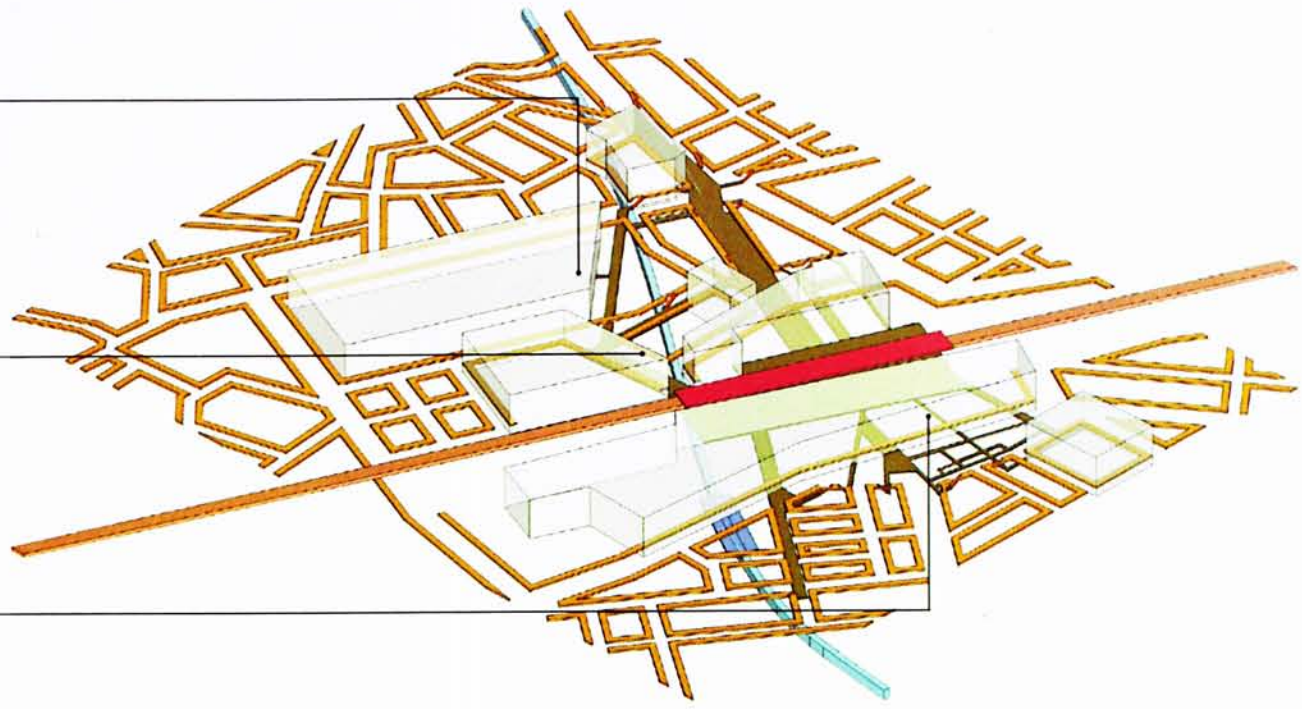
- VERTICAL MOVEMENT
- MEZZANINE LEVEL
- PUBLIC AND SEMI-PUBLIC OPEN SPACE AT GRADE
- TRANSIT
- TRANSIT CONCOURSE

SHATIN NEW TOWN PLAZA



- RAILWAY PLATFORM
- RAILWAY
- PUBLIC AND SEMI-PUBLIC OPEN SPACE AT GRADE
- ELEVATED WALKWAY

While in the new town development in Shatin, as stated before, in order to have an efficient connection between place to place, traffic routes and railways were imposed on the virgin land first. Afterwards, podiums and malls were filled in the left over space. But what we experience in Shatin is the network of malls and podiums is defining a new ground in Shatin. It is because the network have integrate the malls and podium in Shatin and providing continues network that spread over the important area in Shatin.



	RAILWAY PLATFORM		RAILWAY		VERTICAL MOVEMENT
	MEZZANINE LEVEL		TRANSIT CONCOURSE		TRANSIT
	PUBLIC AND SEMI-PUBLIC OPEN SPACE AT GRADE				

After WWII, the economic growth of Japan caused the explosive growth of population and vehicular growth in the urban area. Especially in 1970s, the traffic-related problems rise due to the explosive development in a short time. The existing traffic network in the city can no longer fulfill the demand of the vehicular need. These cause congestions, accidents, air and noise pollution. These problems were considered as disaster at that time. Also, the sudden change in the structure of occupation (an expansion of white collar) worsen the problems during on and off office hours, especially in the city center and area near the station.

At that time, the Japanese government not only constructed the flyovers, they also developed underground metro and underground pedestrian walkway in order to solve the problem without widening the road. The development of underground walkway encourage the shopping and traveling activities under the surface, hence, it resolve the conflict between pedestrian and traffic and increase the vehicular flow on the surface. At the same time, the underground network is acting as a supports to the shopping and commercial activity. It is because in those high dense area, the land price is extremely high, therefore, before the development of the underground layer, only the apartment store is able to establish. With the development of the underground, it provides opportunities to the retailer to provide food and beverage business in that area to act as a support to the surface shopping.

Taking Ikebukuro as an example, the underground network not connecting the railway and the underground metro vertically, horizontally, it is connecting several important shopping mall in the region, forming a "Mega Mall".

CONCLUSION

From the previous case study, it can be concluded that in recent city planning, the city seems to adopt the theory of Rem Koolhaas. The building itself is no longer a "internalize" container of activities, it has a multifunctional role in the city – part of continues pedestrian network.

A continuous pedestrian walkway system is established in many high density traffic flow area such as Ikebukuro in Japan, Rockefeller Centre in Manhattan and New Town Development in Hong Kong. The walkway linked up the surrounding discrete blocks or islands together to form a single system. And the activities articulated to the network are mainly shopping. Since metro or railway is an important mean of transport in these area, therefore, the station become the centre or the starting / ending point to develop the continuity pedestrian network in the high density area.

STREET STUDY



VEHICULAR DENSITY
VS
PEDESTRIAN DENSITY

FORMATION OF STREETScape

STREET =



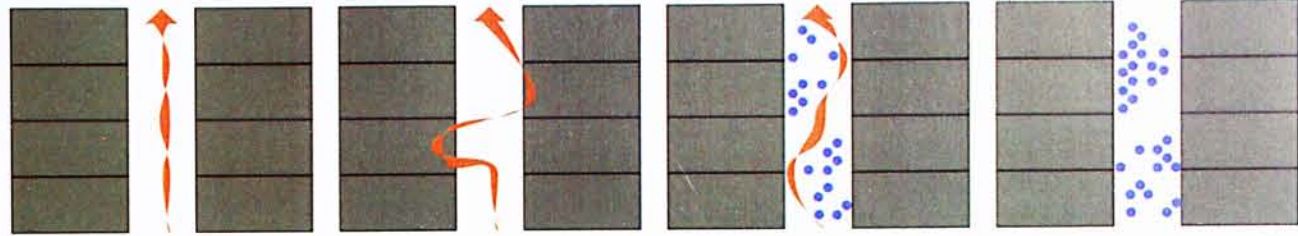
CIRCULATION SPACE

STATIONARY SPACE

SHOPPING SPACE

EVENT SPACE

CIRCULATION SPACE VS FUNCTIONAL SPACE



PURELY FLOW

PEDESTRIAN

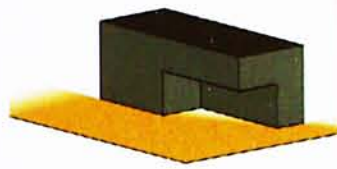
FUNCTIONAL SPACE ACT AS CHECKPOINTS ALONG CIRCULATION

EVENTS GENERATED AS PRODUCTS OF PEDESTRIANISATION

EVENT OCCUPIED THE CIRCULATION SPACE



FORMATION OF STATIONARY SPACE



PUNCHED SPACE



STREET "POCKET"



PROJECTED PLATFORM



UNPLANNED STATIONARY SPACE



SHOPFRONT



RAILING



TYPE I STREET RETAIL

Composite building with ground floor as shops and upper floor as residential unit

TYPE II UPPER LEVEL SHOPPING

Upper residential units are replaced by shopping activities to form the upper level shopping culture
Small "rat hole" as a connector to upper floor

TYPE III PODIUM SHOPPING CENTER

Mall as internalized and conditioned environment podium for shopping
Detached from the outside environment
Linear circulation suggest pure fluidity of flow

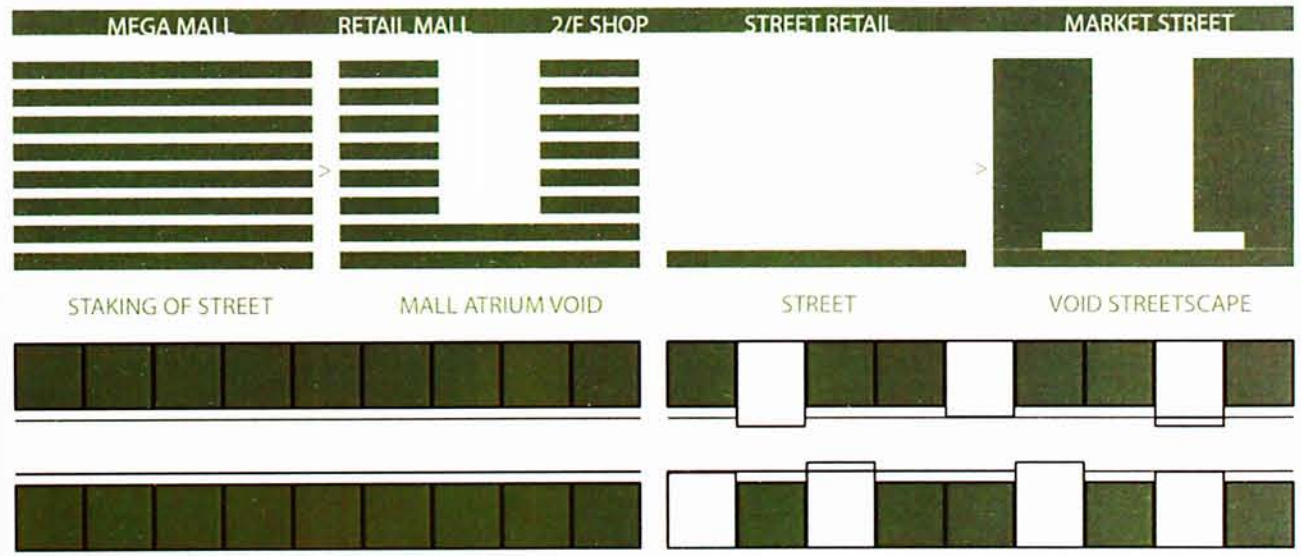
TYPE VI ATRIUM SHOPPING MALL

Atrium spaces and street spaces are ambiguous
Encourage flow from outside to inside.



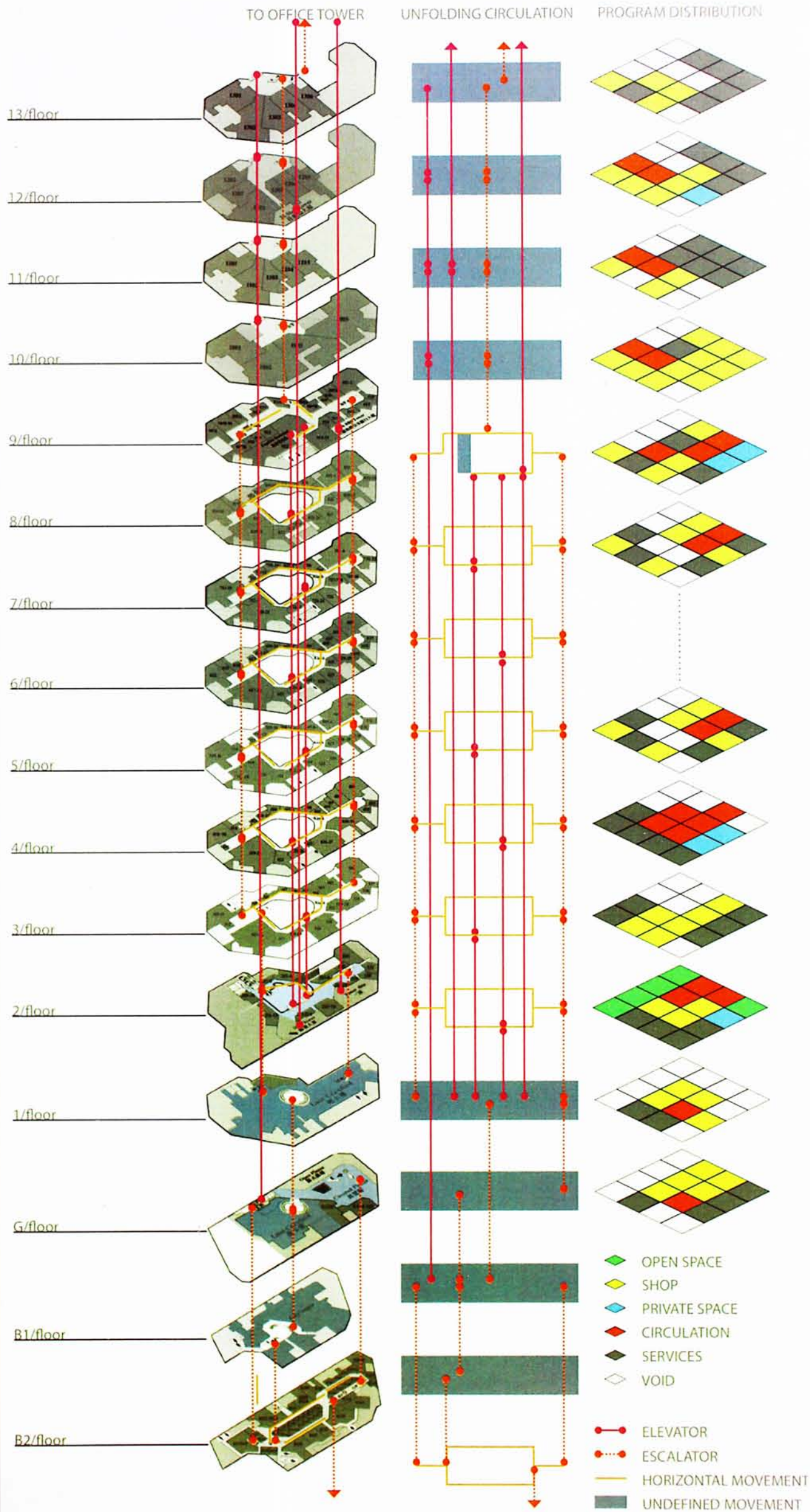
SHOPPING MALL - MUTATION OF STREETScape

COMPARISON OF STREET AND MALL



INTERNAL STREETScape

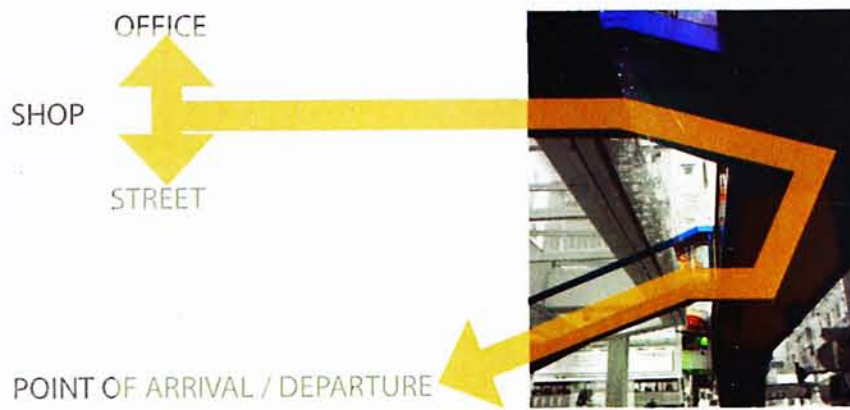
The shopping mall has contained some similarity as a street in term of both of them are formulated by circulation space, stationary space, shopping space and event space. But they different in terms of visual transparency and visual connection.



RESEARCH CONCLUSION

DESIGN PARAMETER

CONTINUITY



Walking without being forced to stop

UBIQUITY



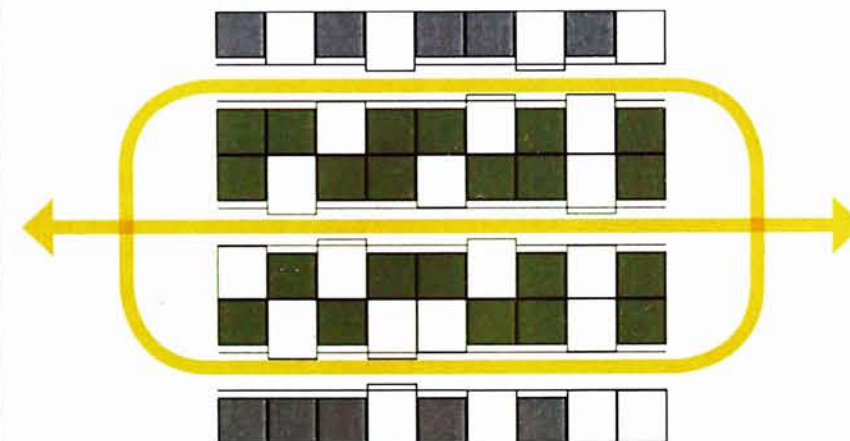
Networks that span a whole city

EFFICIENCY



High average walking speeds
Short connections

VARIETY



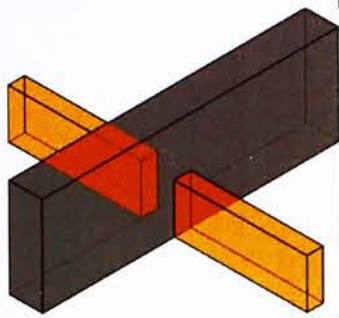
Prerequisite for humane network

In conclusion, the strategy will be concentrated on how a new type of shopping and entertainment network can contribute to the internal pedestrian planning and enhance the quality for staying and communal activities within Causeway Bay. So, from the parameter concluded above, we can derive the design strategy in three scale, urban scale, building scale, and spatial scale.

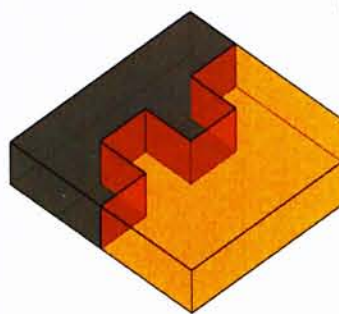
RESEARCH CONCLUSION

STREET SCALE STRATEGY - CREATING FLUID PEDESTRIAN FLOW

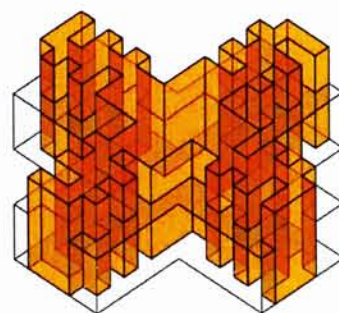
FACTORS INDUCES CONGESTION



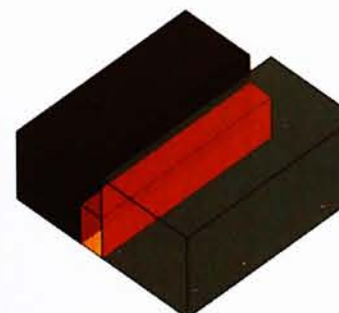
DISCONTINUOUS PEDESTRIAN WALKWAY



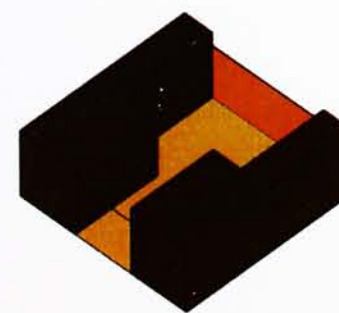
INAPPROPRIATE PROGRAMME ERODE THE PEDESTRIAN SPACE



UNCLEAR BOUNDARY BETWEEN STATIONARY AND CIRCULATION

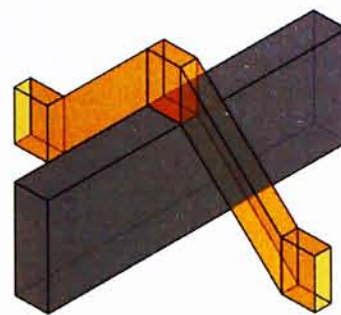


INADEQUATE PEDESTRIAN SPACE

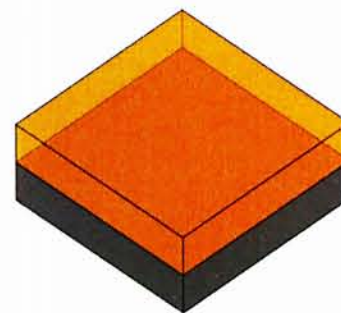
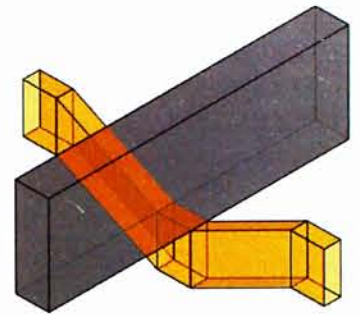


SUDDEN CONTRACTION OF PEDESTRIAN SPACE

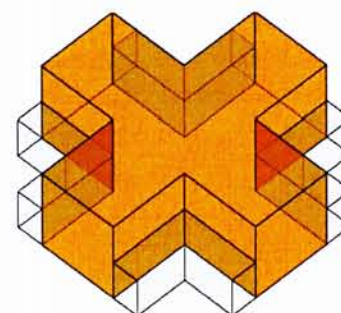
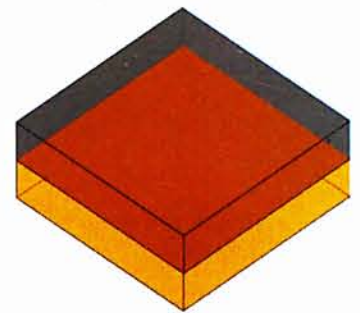
POSSIBLE SOLUTION



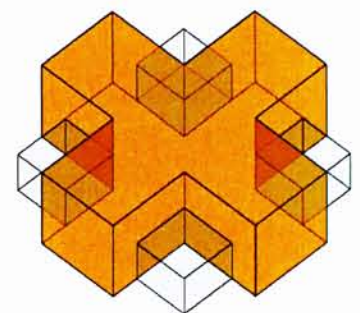
RE-CONNECTING THE PEDESTRIAN WALKWAY BY ABOVE OR UNDERGROUND CONNECTOR



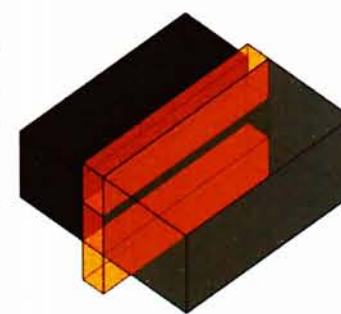
CLEAR INTERFACE BETWEEN TWO PROGRAMMES IN VERTICAL DIMENSION



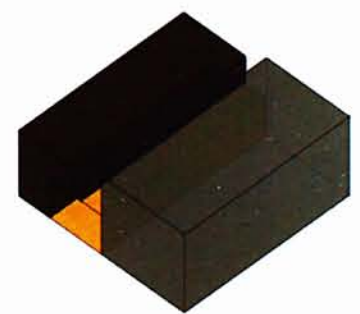
WIDEN THE PEDESTRIAN WALKWAY



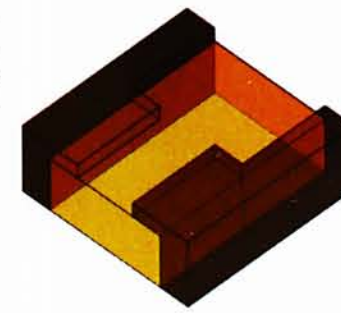
INCREASE THE AREA IN PEDESTRIAN NODE



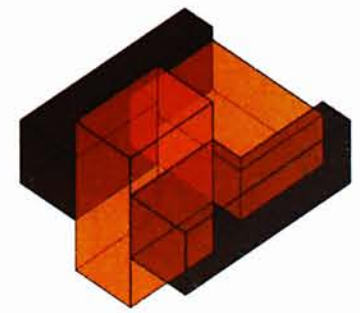
INCREASE PEDESTRIAN CAPACITY IN VERTICAL DIMENSION



USING BUILDING TO "SWALLOW" THE PEDESTRIANS



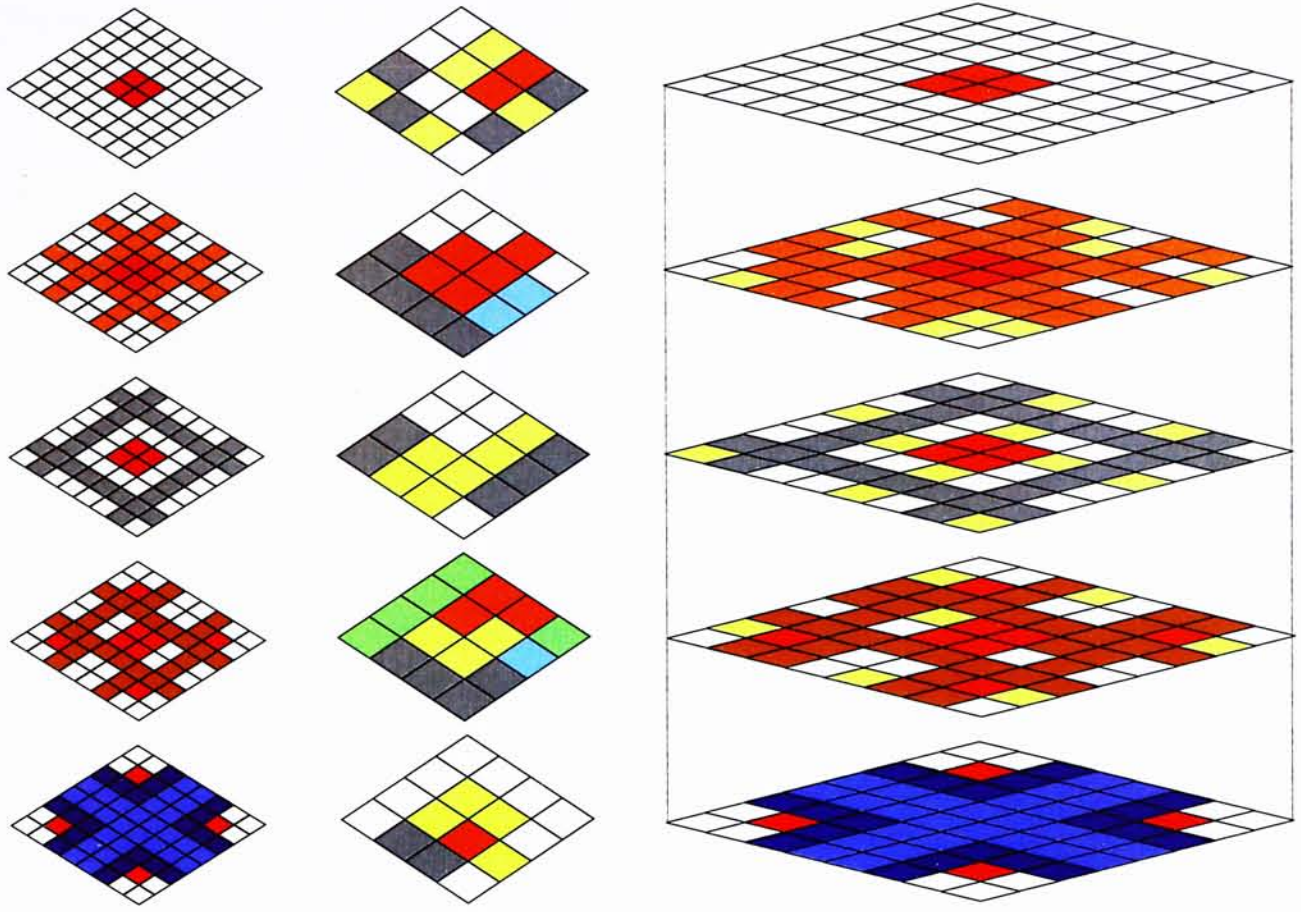
USING BUILDING TO "SWALLOW" THE PEDESTRIANS



INCREASE PEDESTRIAN CAPACITY IN VERTICAL DIMENSION

It will explore the integration of pedestrian path to interior and street life, and hence there is no distinguish between in and out. Therefore the design will have equal emphasis on street path, interior path and solid spaces. And if there is any new insertion of building, it will as a part of the urban connector rather than a self-standing block to replace the lots. And hence, integration of different levels, from underground to above ground levels.

- PEDESTRIAN WALKWAY
- STATIONARY SPACE
- TRAFFIC ROUTE
- BUILDING



ACCESS TREE MODEL + STREETSCAPE = MULTI - LAYERED STREETSCAPE

With reference to the Access Tree Model, that has the benefits of allowing rapid access from place to place. But on the other hand it do does not provide the opportunity to trigger events. In order to promote events in different level of the city / building, the design will explore the possibility of integrating the prototype with the positive elements in the "streetscapes" that we face everyday.

PROGRAMMES COMPARISON

TRANSIT /
RAILWAY

SHOPPING

RESIDENTIAL

COMMERCIAL

NEW TOWN PLAZA



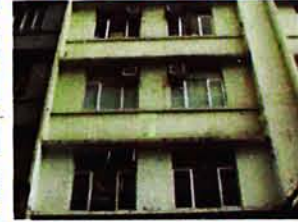
IKEBUKURO



ROCKEFELLOR CENTRE

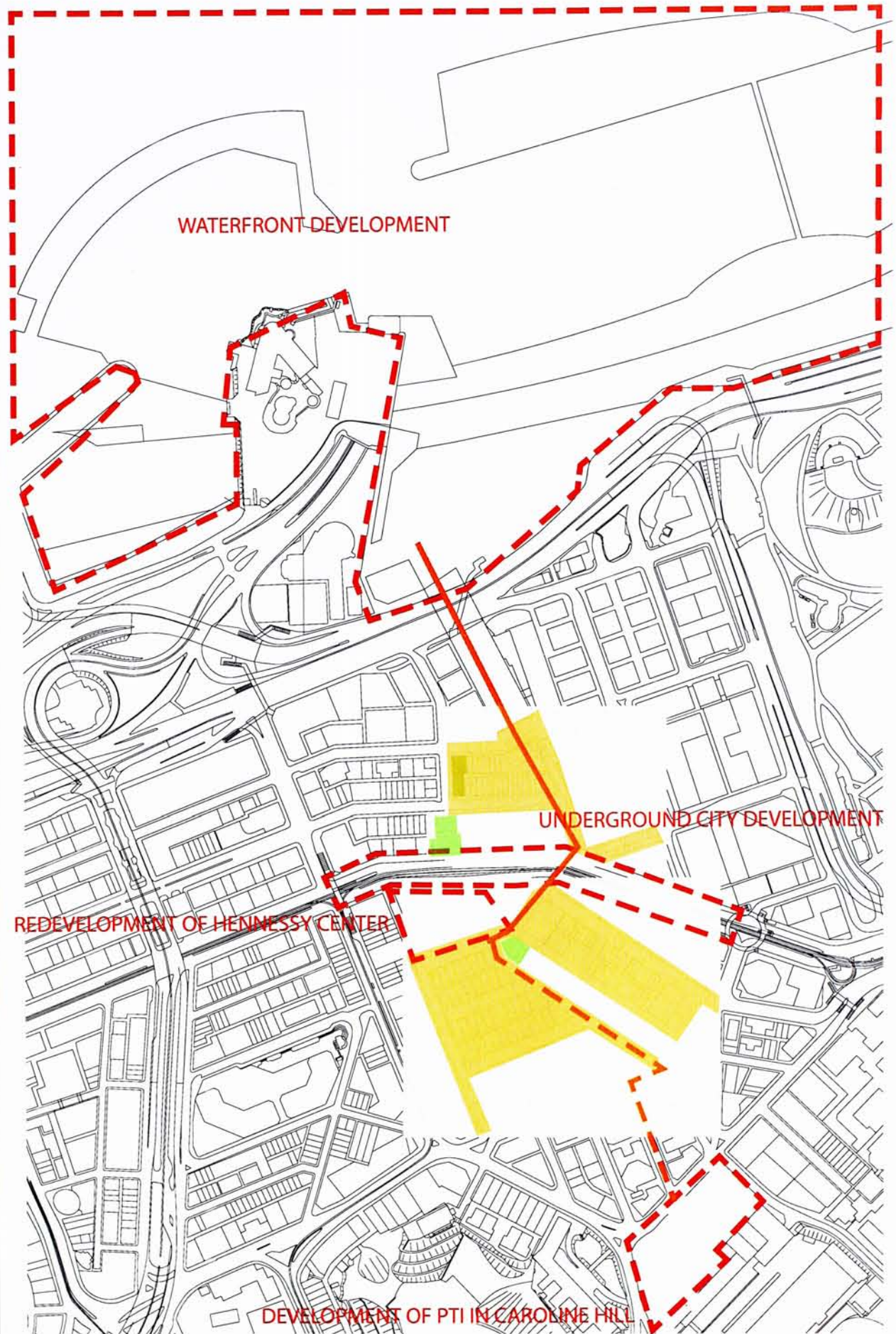


CAUSEWAY BAY



Causeway Bay has similar features to the three case study objects in term of metro station and shopping (both mall and retail) are the two major urban structure in the region. Therefore, it is believed there is a potential to establish a 3-dimensional network or create a new layer of movement through the existing urban structure. And through the establishment of the new layer of movement, it will help to draw part of the flows to the new level and relief the existing ground level problems.

DESIGN



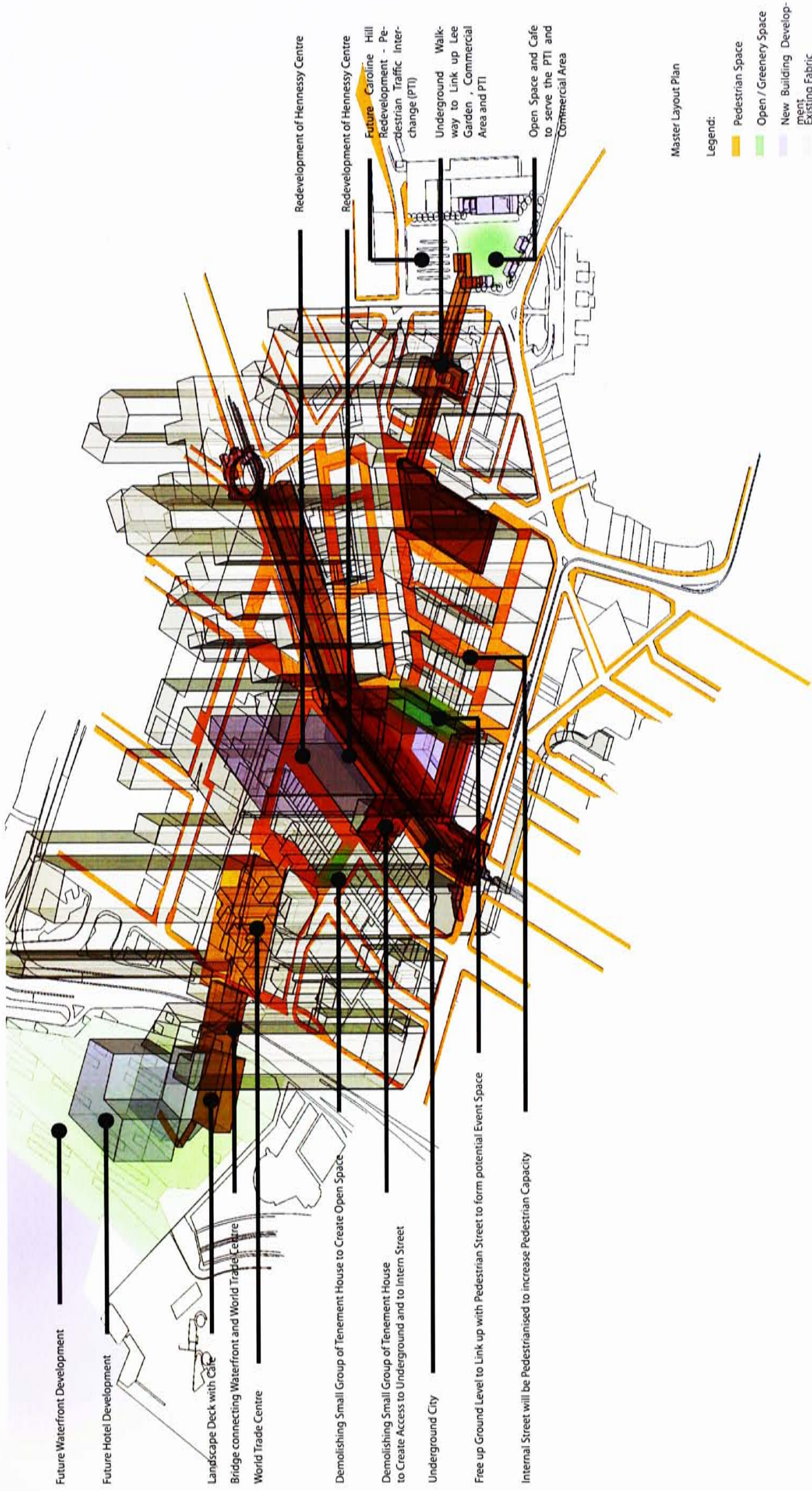
There are several new development in Causeway Bay including the waterfront development, the underground city, redevelopment of Hennessy Center and the pedestrian and traffic interchange (PTI) in Caroline Hill.

THE SEVERAL DEVELOPEMENT IN THE FUTURE WILL CHANGE THE PEDESTRIAN MOVEMENT IN CAUSEWAY BAY. IN CAN BE PREDICTED THAT THE SPINE FROM WATERFRONT TO CAROLINE HILL WILL BECOME A VERY IMPORTANT PEDESTRIAN LINE IN THE FUTURE.

IN ORDER TO INCREASE THE PEDESTRIAN CAPACITY ALONG THE SPINE, TENAMENT HOUSE EXIST IN SMALL GROUP WILL BE DEMOLISHED AND LEFT AS AN OPEN SPACE FOR EVENTS OR OTHER PEDESTRIAN ZONE.

PART OF THE INTERNAL STREETS WILL BE PEDESTRIANISED TO PREVENT CONCLICT BETWEEN TRAFIC AND PEDESTRIAN.

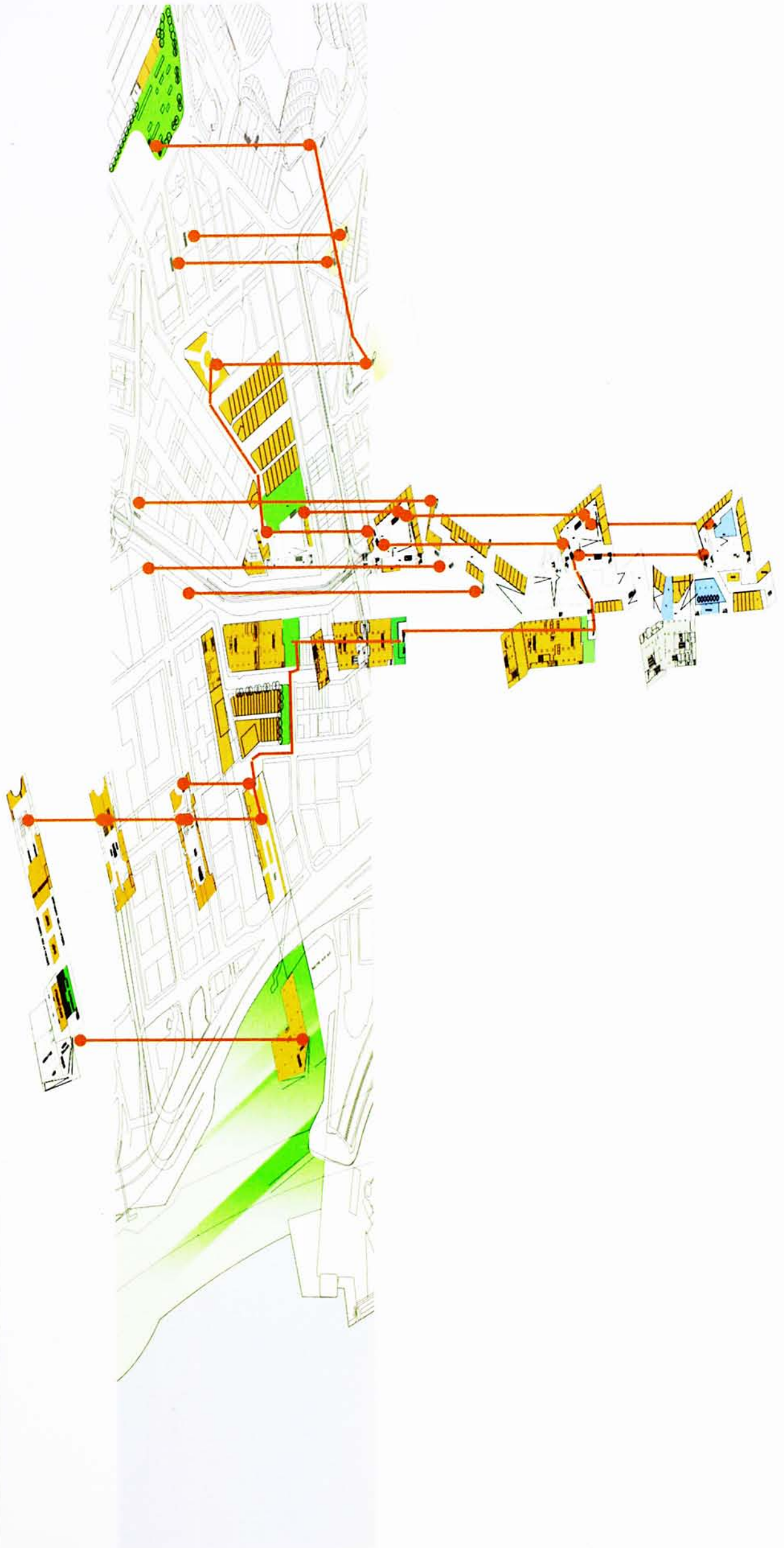
THE THESIS ALSO PROPOSED THAT THE PROGRAMME DENSITY SHOULD NOT EXCEED THE PEDESTRIAN ON THE MAIN PEDESTRIAN LEVEL IN ORDER TO PREVENT CROWDS WILL CAUSE SLOW AND INCONVENIENT PEDESTRIAN MOVEMENT.

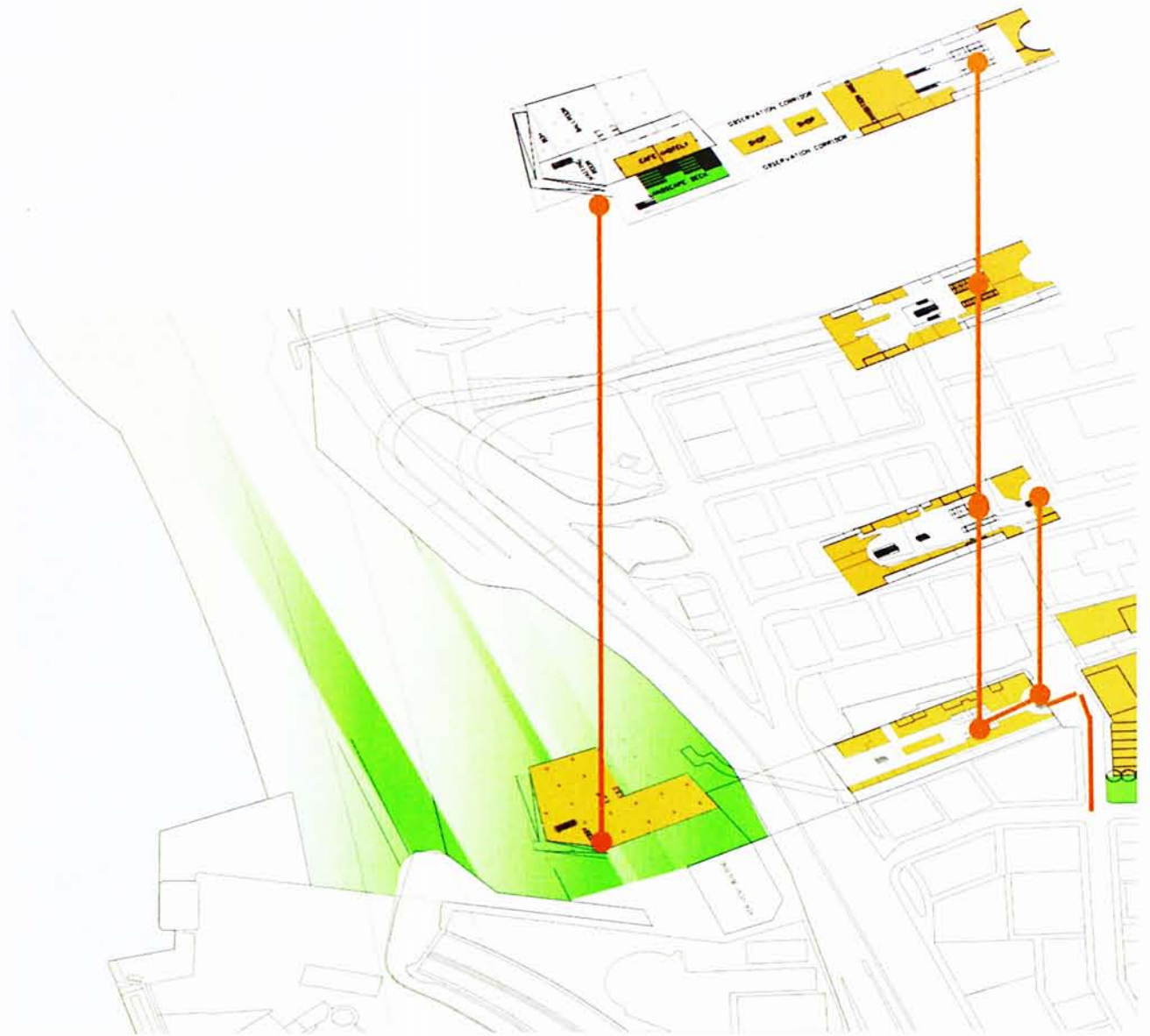


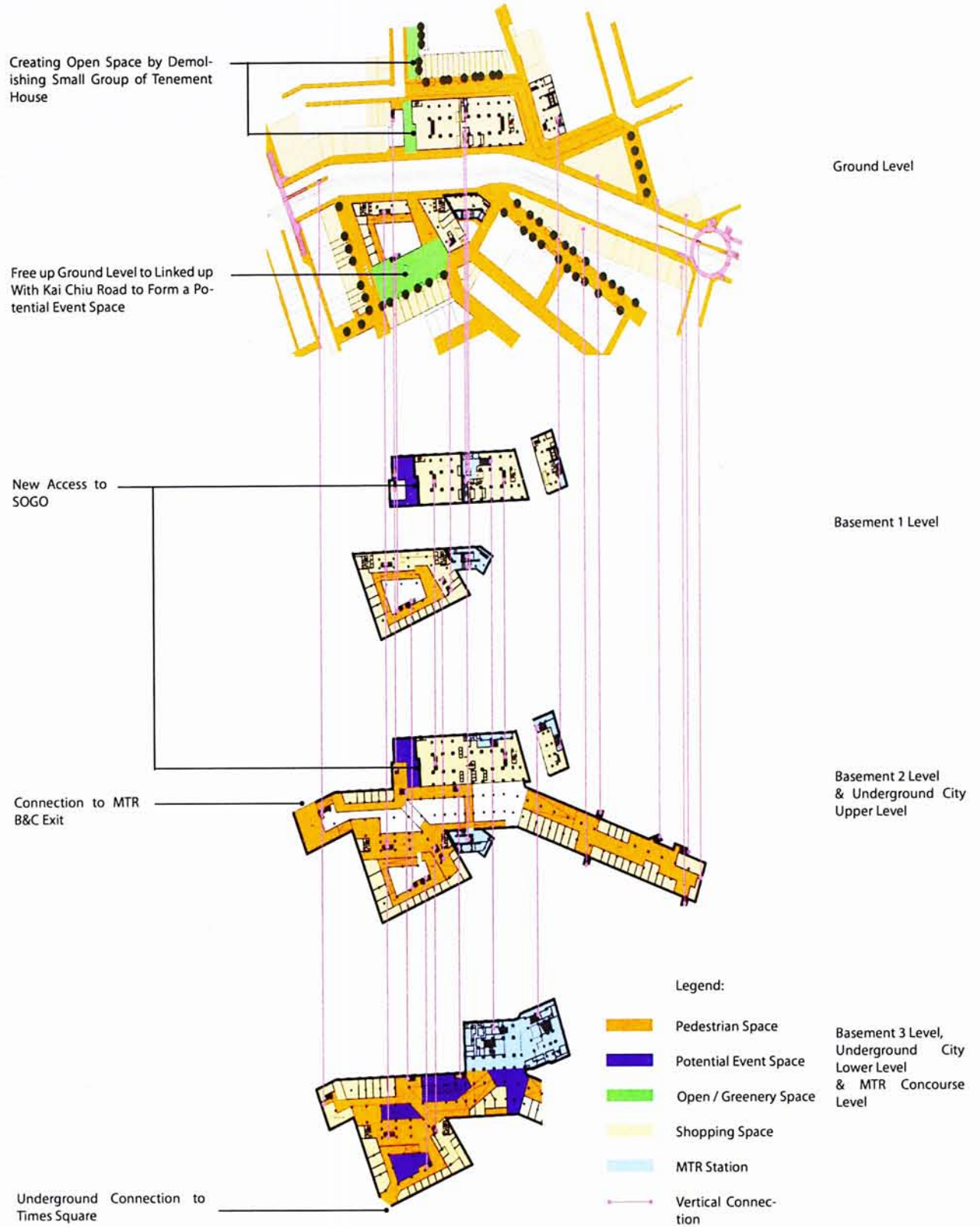
Master Layout Plan

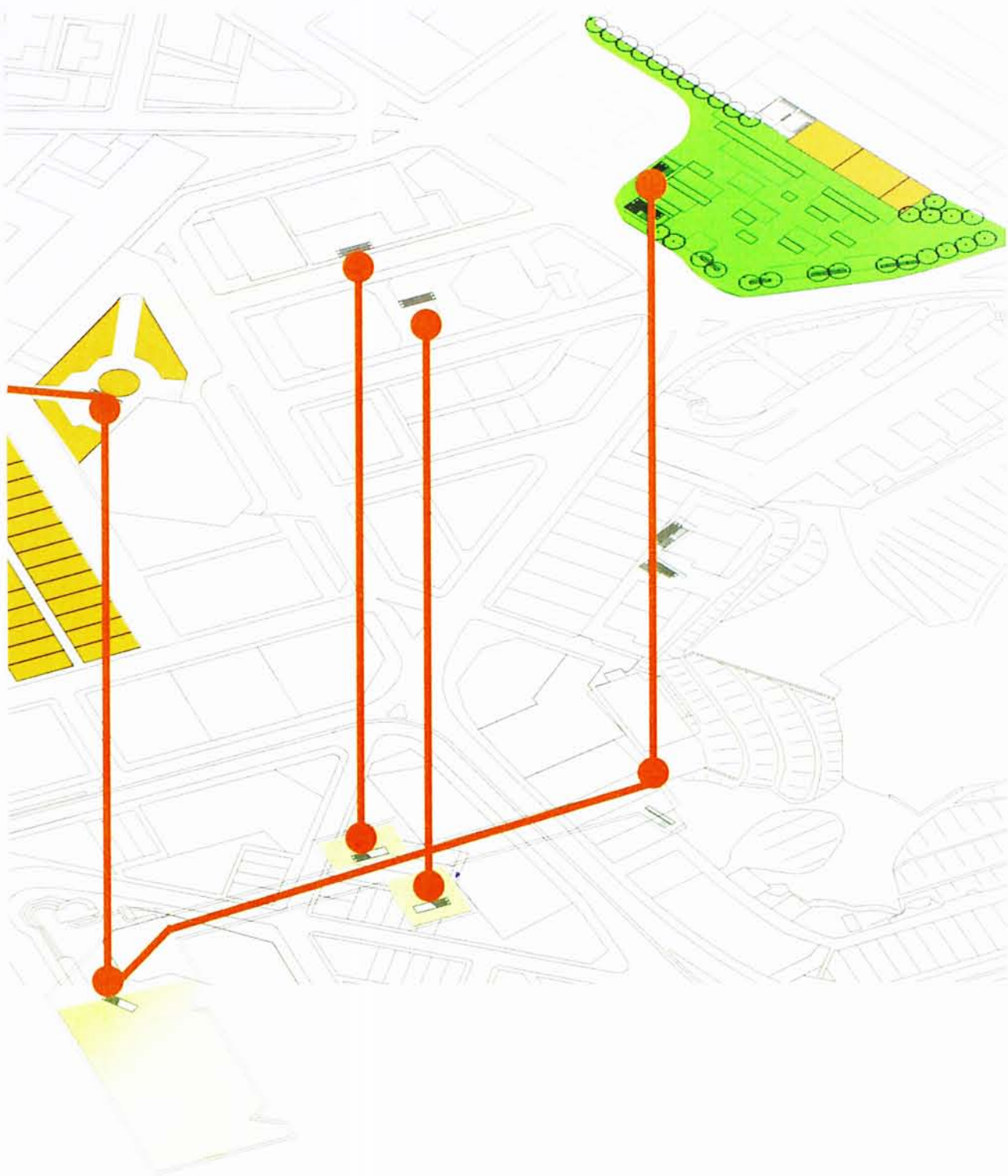
Legend:

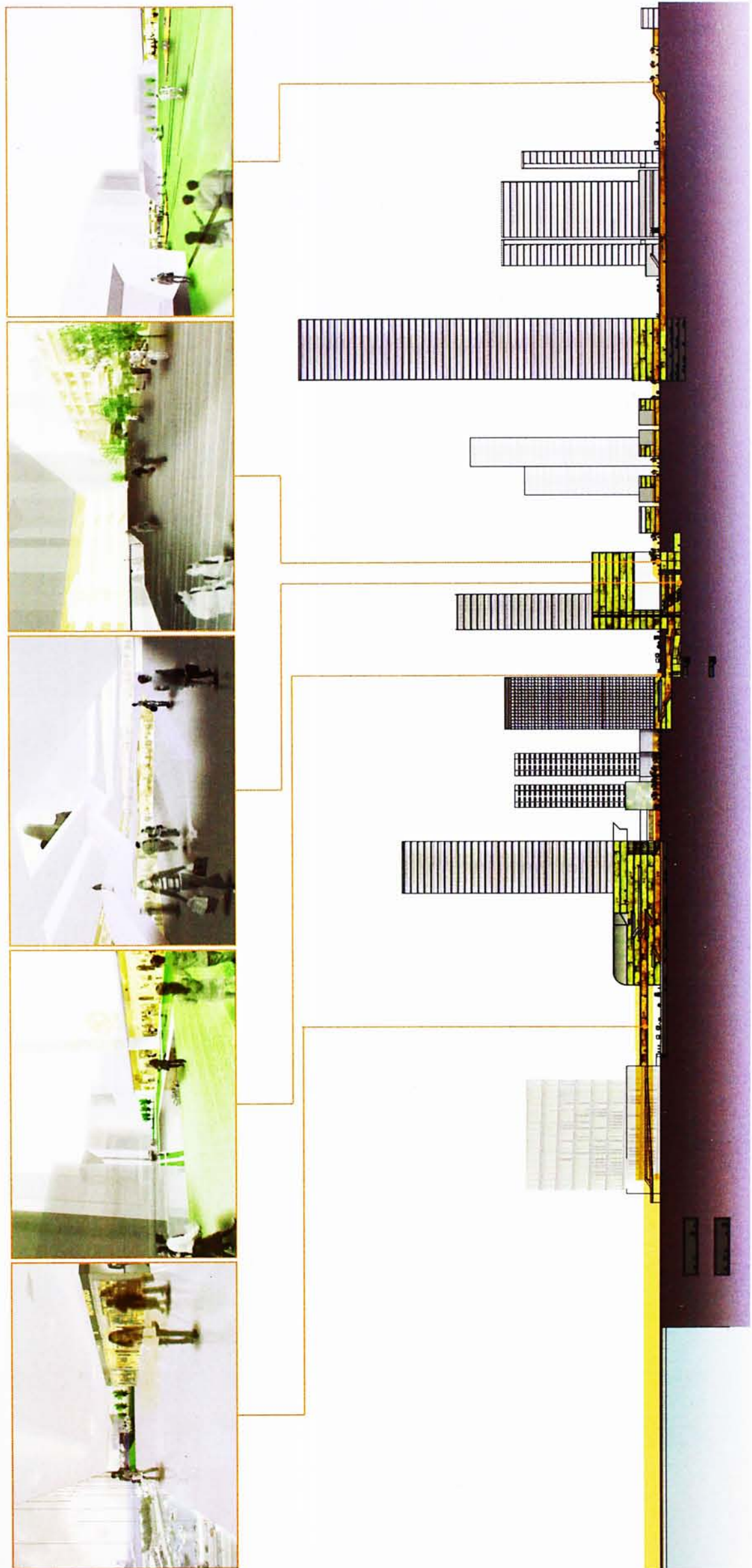
- Pedestrian Space
- Open / Greenery Space
- New Building Development
- Existing Fabric

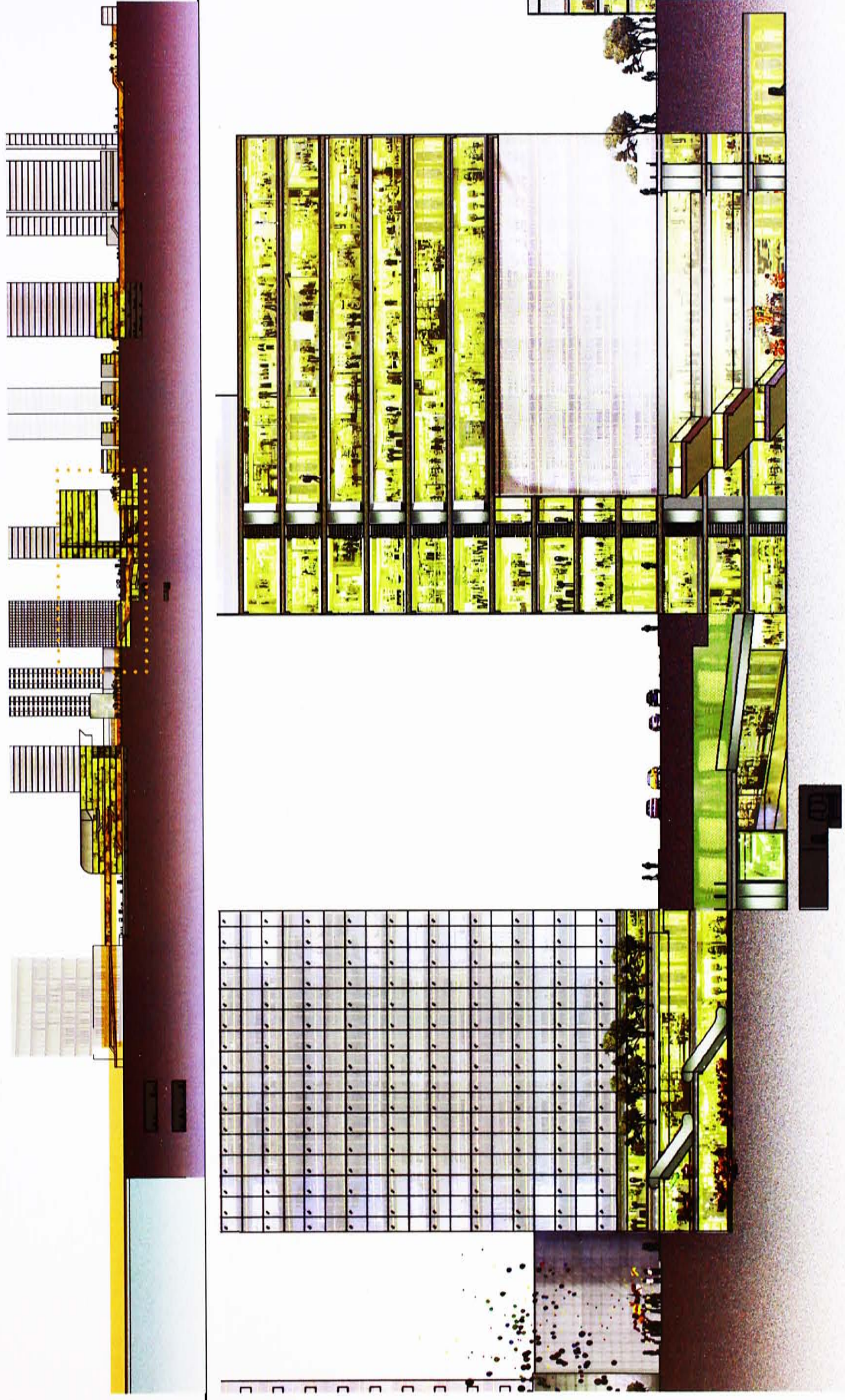




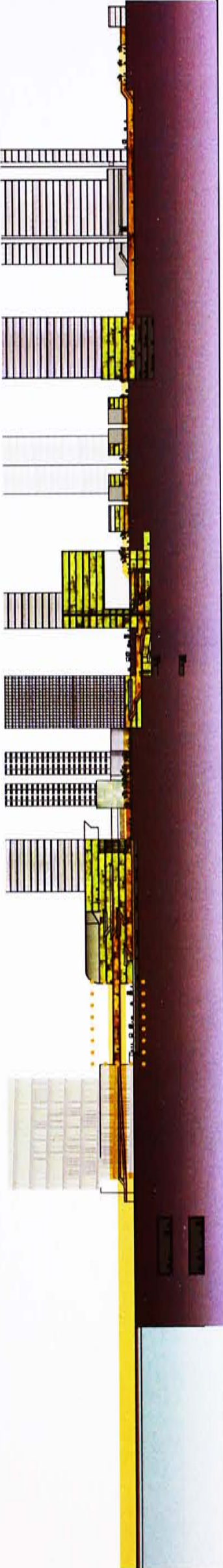




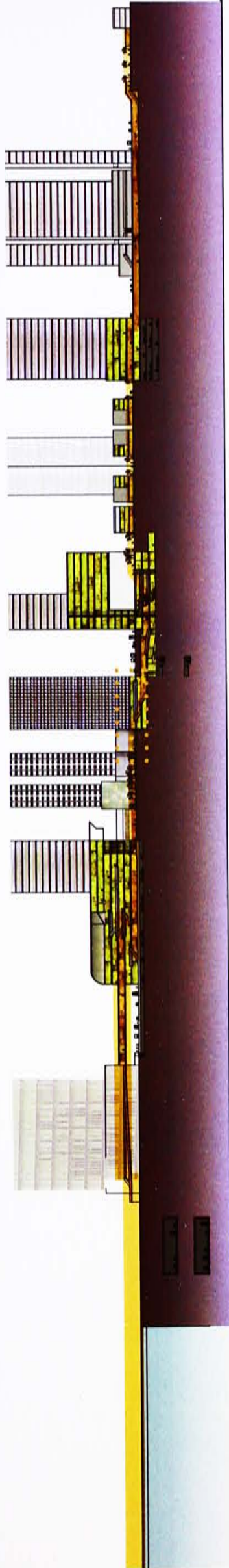




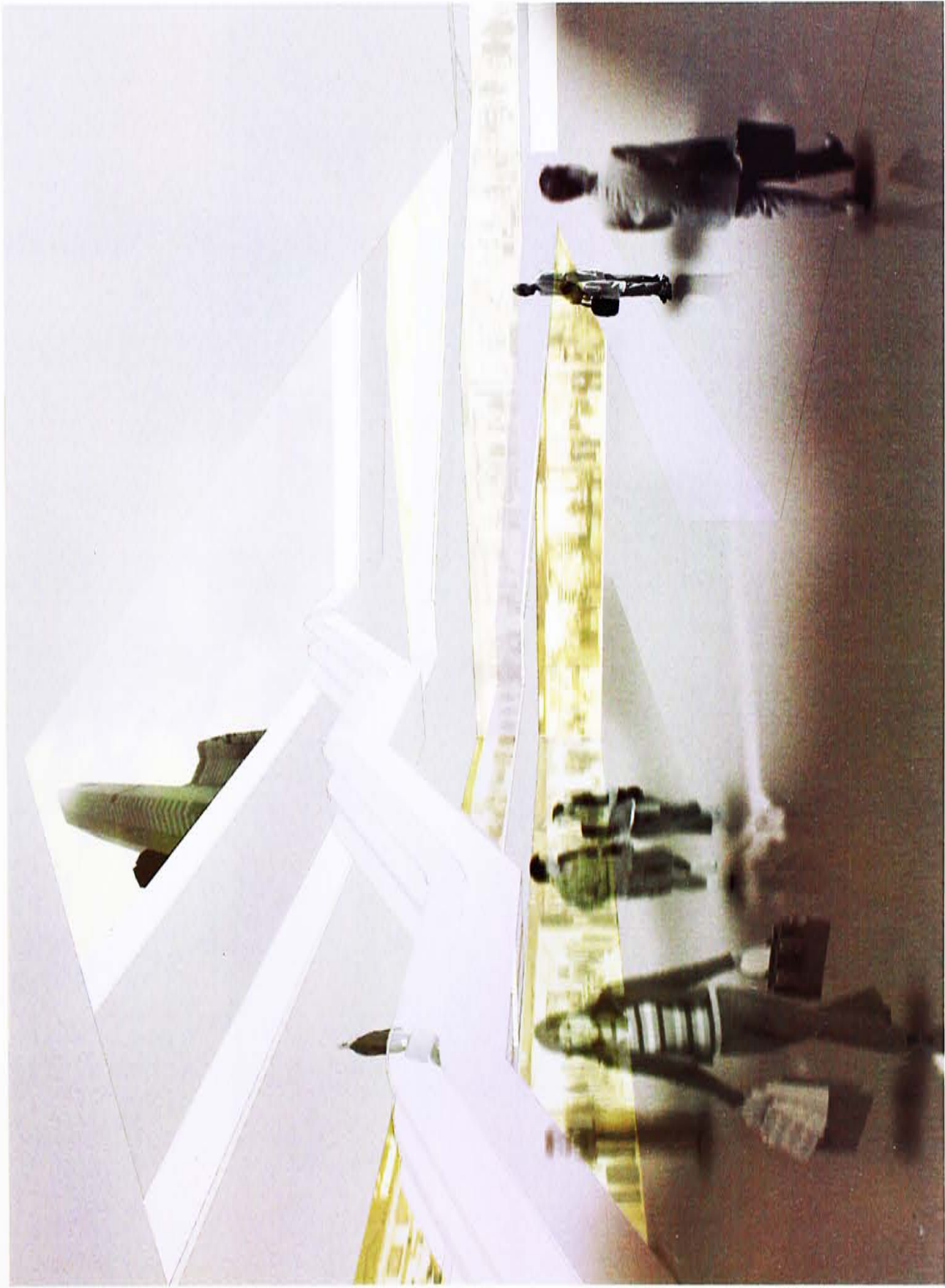
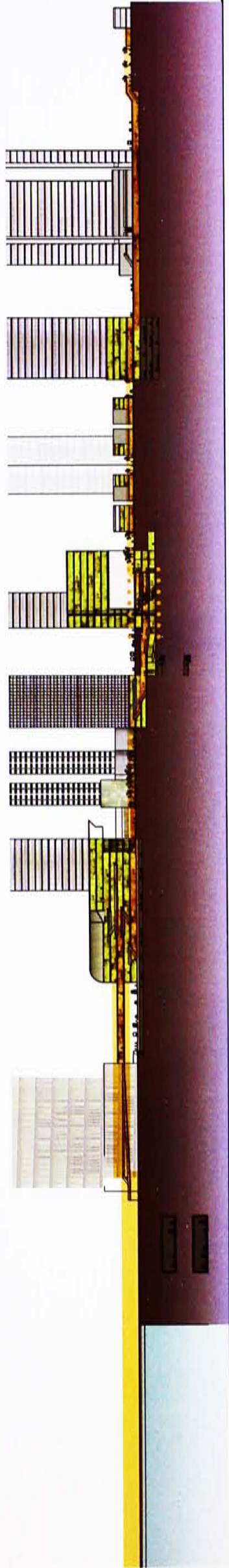
The suggestion of a three dimensional pedestrian walkway system is not only solving the problem of "URBAN CUT" by performing as a connector, it also creates new places for events taking in the city.



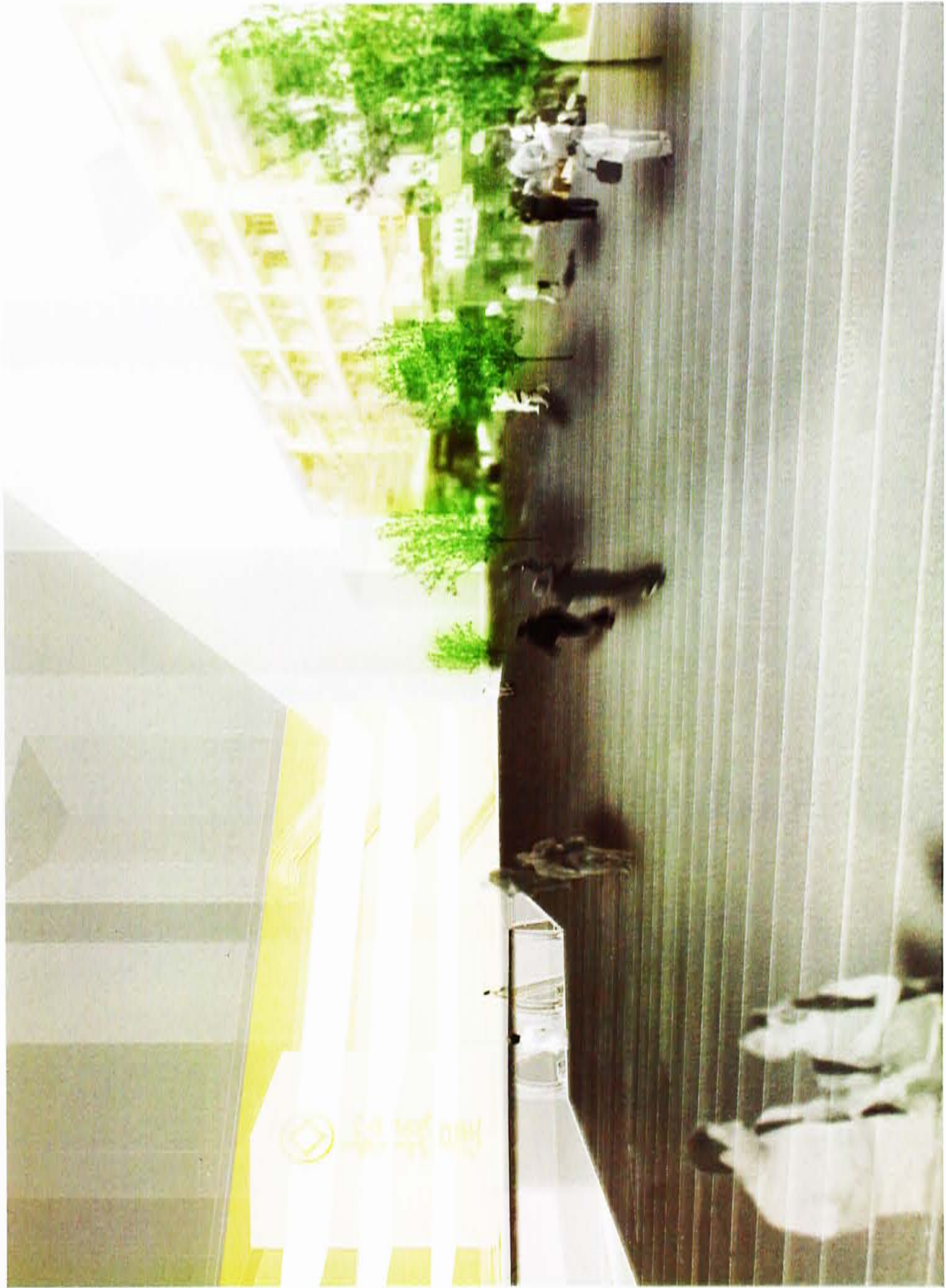
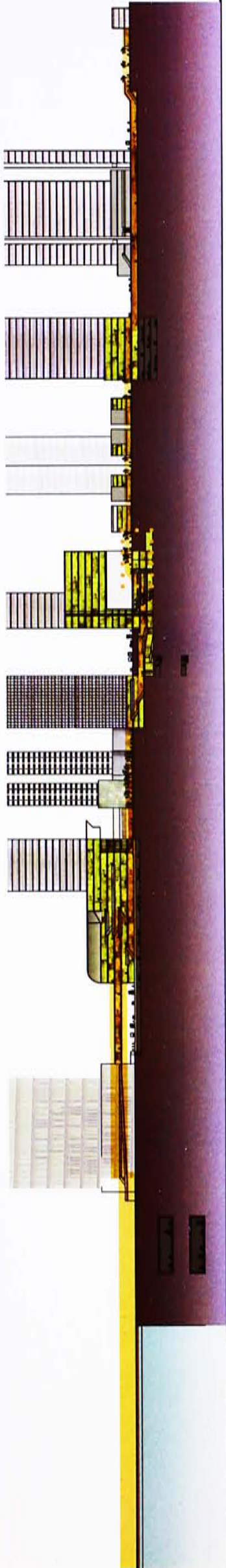
A transparent Bridge is connecting the World Trade Centre and Future Waterfront Development.



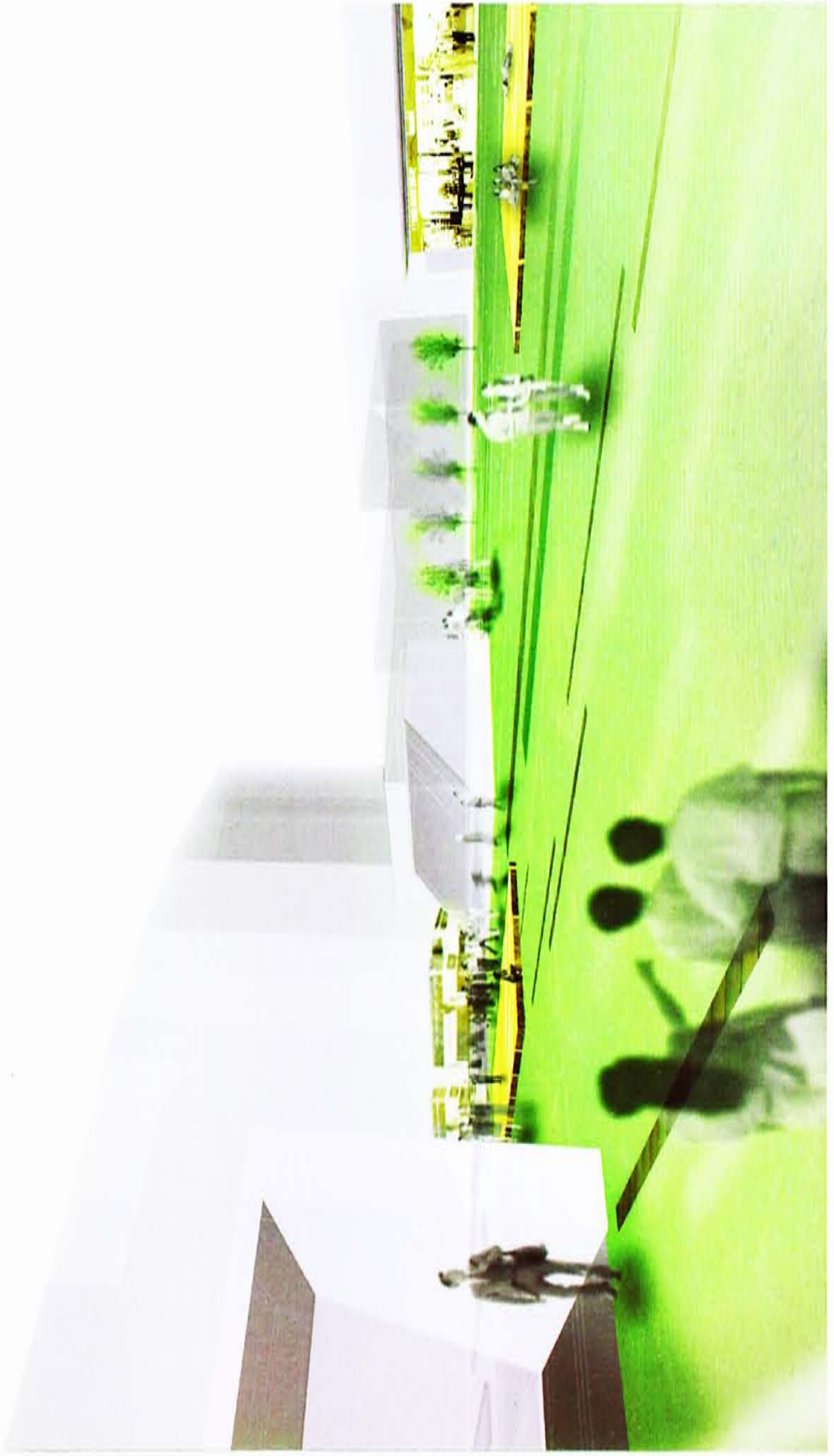
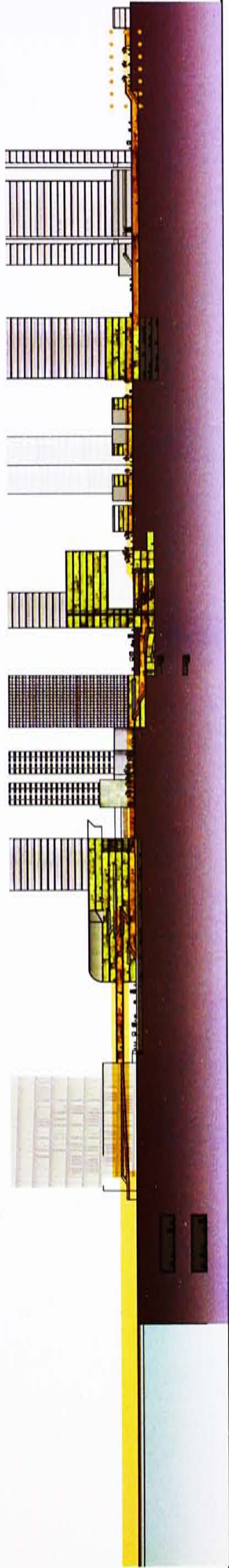
Tenement house will be demolished to provide fast access to Lockhart Road and vertical connection to Underground City.



Creating visual connection to some icons of the site to provide orientation to the pedestrian.

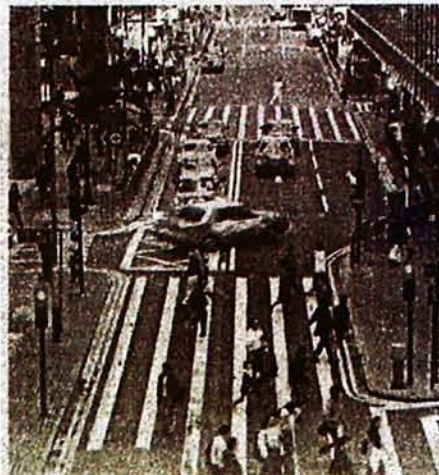


Free up the ground level of Hennessy Centre and linked up with Kai Chiu Road (fully pedestrianised) to form a large open space.



Creating breathing space next to the Pedestrian and Traffic Interchange and the commercial area to provide an "oasis" to the busy area.

APPENDIX



中環行人專區被指治標 議員憂將大街問題移小街

部分皇后大道中道路將列為行人專用區，所有車輛須改道。

【本報訊】政府計劃將中環十三條街劃作行人專用區，多段人多車多的道路均會劃為全面禁車區。整項計劃須重新規劃交通網絡，現時行駛在皇后大道中的巴士及車輛，全要改行干諾道中及威靈頓街，地區人士擔心會將大街的污濁空氣及交通問題轉移到較狹窄的街道。

威靈頓街難承車流

民主黨中西區區議員甘乃威指出，威靈頓街十分狹窄，難以承受大量的汽車流，屆時中區交通可能會癱瘓，他也對於干諾道中能否容納大量的巴士路線，表示化環境改善工程。

有關於計劃將於星期日及公眾假期中午十二時至晚上九時，封閉西貢街市及萬年街介乎年春街與海旁之間的路段，若經三個月試行證實成功，運輸署將會劃出永久行人專用區，並會進行美化環境改善工程。

他認為，政府現在的建議只是將交通擠塞問題，由皇后大道中，帶至其他街道，政府在考慮設立行人專用區前，應先計劃如何減少車輛進入中區，如重組巴士路線或增加轉乘計劃，及在繁忙時間禁止貨車駛入中區等。

西貢行人區受歡迎

另外政府昨在西貢實施為期三個月的行人專用區試驗計劃，首天的試行普遍獲市民歡迎，不過設於海旁的海鮮食肆則擔心私家車不能直達，會影響生意。

Central Pedestrian Zone Is A Stopgap Measure - Councillor Worried Shifting the problems from Major Street to Minor Street

世紀城市 建築與環境合一

採人車分隔 引入環保概念

踏入廿一世紀，港人對居住的要求愈來愈高，而在對生活質素有所追求的同時，社會對環境保護的意識亦愈來愈強。事實上，政府目前在設計廿一世紀城市規劃時，在確保有足夠的土地供應發展外，亦積極考慮將對引入環保概念，當中包括在興建中的環保新市鎮，採取人車分隔環保全新措施，確保長遠發展與設計以不破壞環境，提高改善生活質素為目標。

研究海水冷卻設施

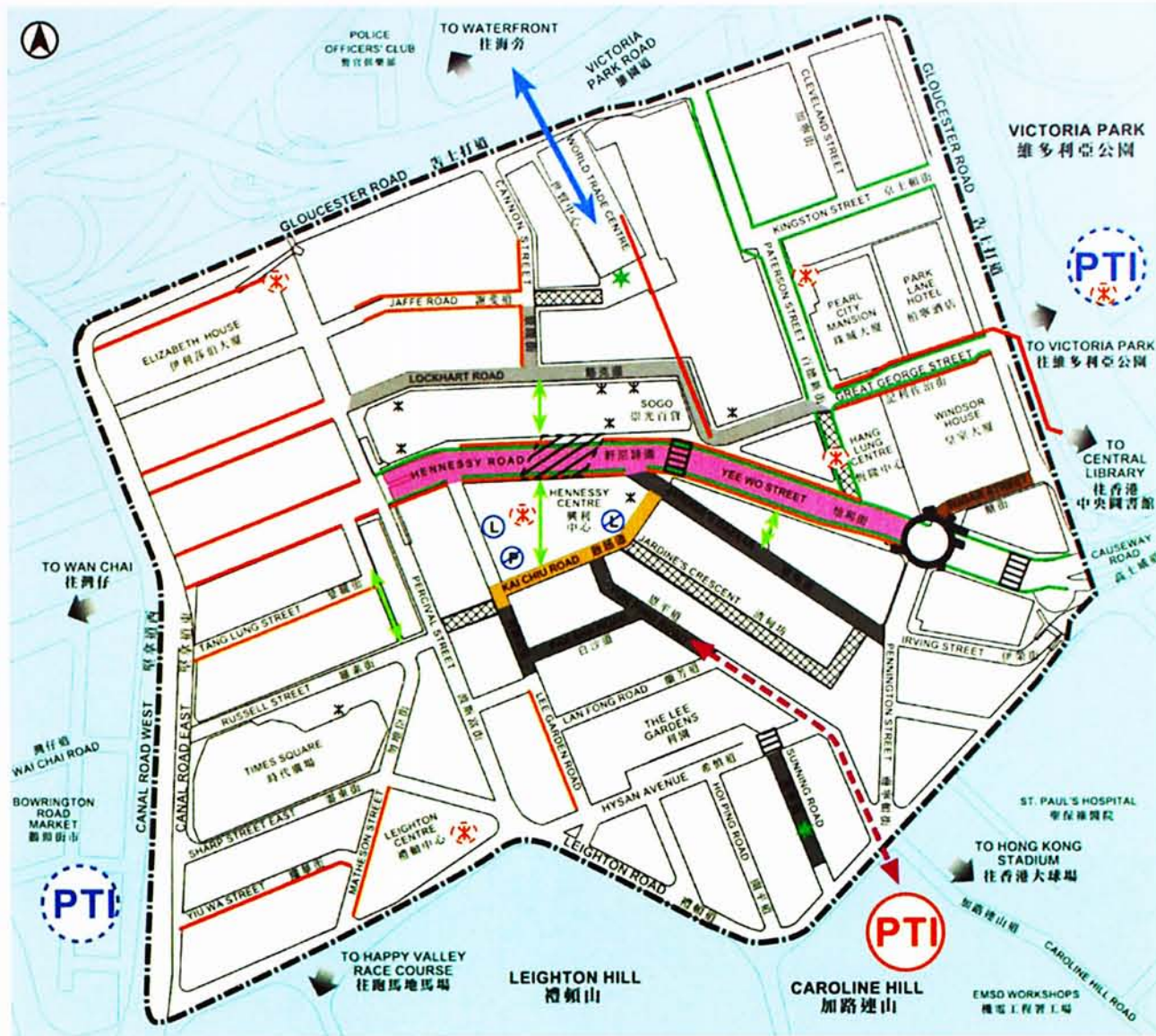
自一九九二年以來，為因應現代化城市的科技，再加之環保意識的普及，設計出環保與環境共融的建築，是設計界近年最關注的課題之一。在環保意識的普及下，又將如何設計環保建築？在設計方面，包括：環境友好設計、環保材料、環保能源、環保水電、環保裝修等。在環保意識的普及下，又將如何設計環保建築？在設計方面，包括：環境友好設計、環保材料、環保能源、環保水電、環保裝修等。

樓宇行人專用區概念

因應社會對環境保護意識的普及，無不要求，在設計上對建築設計，應以「人車分隔」為設計的主題，而建築設計「行人專用」的概念出現，以促進建築與環境的和諧，而建築設計與環境的和諧，亦將是未來建築設計的主題。

在過去這幾年來，香港建築界，在設計上對建築設計，應以「人車分隔」為設計的主題，而建築設計「行人專用」的概念出現，以促進建築與環境的和諧，而建築設計與環境的和諧，亦將是未來建築設計的主題。

21st Century Urban planning - ... Separation Between Pedestrians and Vehicles...



- COVERAGE OF PEDESTRIAN PRIORITY ZONE
- EXISTING / COMMITTED FULL-TIME PEDESTRIANISATION SCHEME
- EXISTING / COMMITTED PART-TIME PEDESTRIANISATION SCHEME
- PPZ CORE PROPOSALS**
- POSSIBLE NEW MTR ENTRANCE
- POSSIBLE PTI
- FULL-TIME PEDESTRIANISATION
- RELOCATION OF LOADING / UNLOADING BAY
- PROPOSED PUBLIC TRANSPORT INTERCHANGE
- TRAM AND BUS ROUTE ONLY CORRIDOR
- CLOSURE OF CARPARK
- UNDERGROUND PEDESTRIAN-CUM-RETAIL LINK
- KEY LINKAGE IMPROVEMENT**
- AT GRADE LINKAGE
- ELEVATED LINKAGE
- SUBWAY LINKAGE
- FOOTPATH WIDENING
- KEY STREETScape IMPROVEMENT**
- PIAZZAS
- STREETScape ENHANCEMENT
- LANDSCAPES CORRIDORS
- KEY TRAFFIC MANAGEMENT MEASURES**
- FULL-TIME PEDESTRIANISATION
- PART-TIME PEDESTRIANISATION
- ENHANCE PEDESTRIAN CROSSING
- POSSIBLE FOOTBRIDGE DEMOLITION

http://www.pland.gov.hk/p_study/prog_s/pedestrian/causeway_bay_digest/pedestrian_hp_chi/enlarged_plan_c.htm

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