

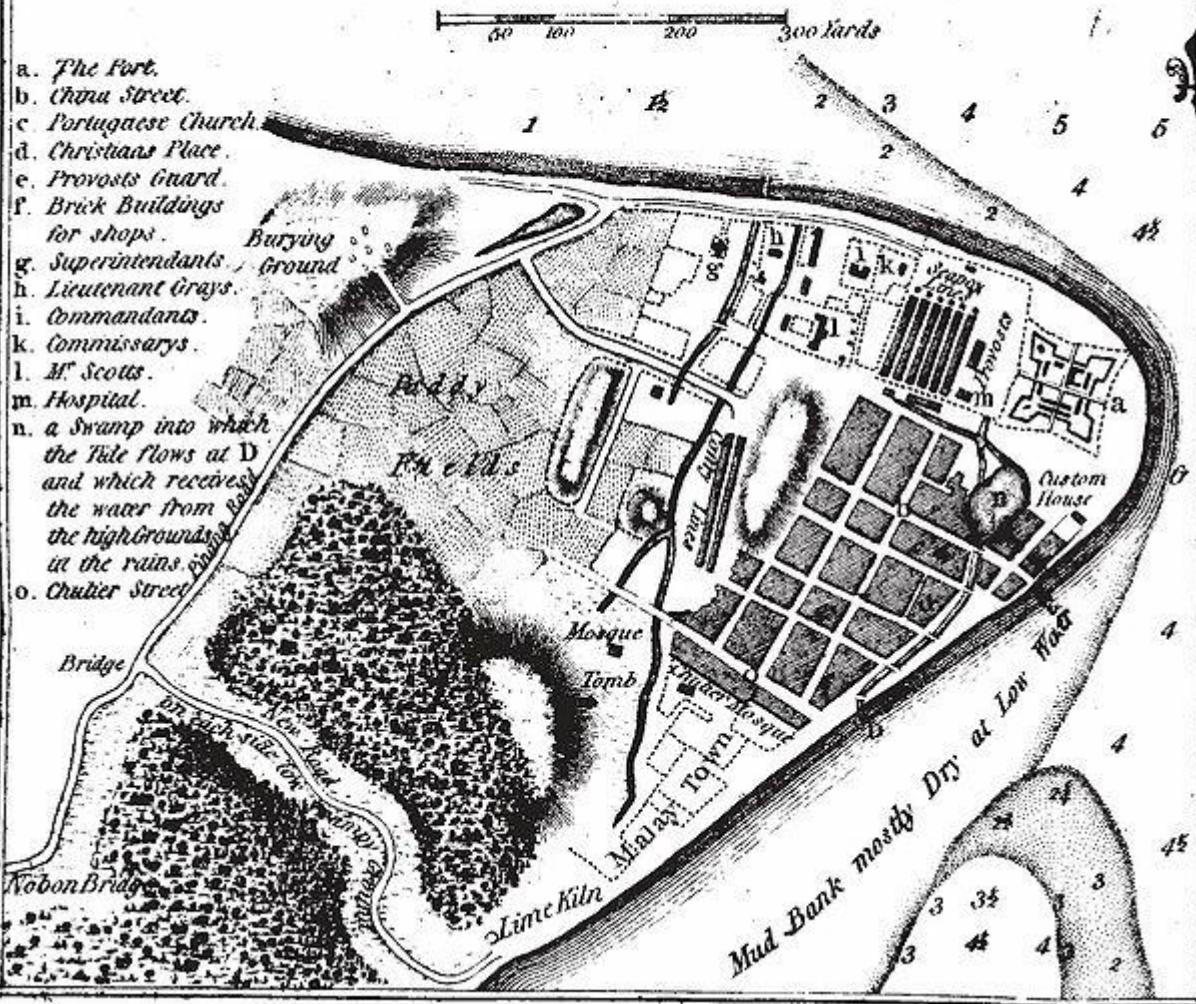
## THE FUTURE

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...starts from the past

# PLAN OF FORT CORNWALLIS

with THE TOWN ON THE *EAST POINT* of the Island



1799

## Fundamentals for Designing the Future

Creating a Balanced Development

Sultanate of Kedah

British East India Company - Straits Settlements 1786

Major Entrepots SEA - Late 19<sup>th</sup> Century



1910

## THE PRESENT FUNDAMENTALS

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Culture, Healthcare, Parks, Education, Infrastructures



## CULTURE

The City is a **Living Museum** and the control of the **Historical, Cultural, Environmental and Places of Interest** is important at the same time it need to **evolve** so that **New Memories** can be created

This is possibly the most challenging aspect of the Fundamentals as the **Balance of Development and Culture** is never perfect. The need to identify the base/Fundamental of **Penang Identity** (consistency) and yet allow for the **Changes** will be crucial for Designing the Future as through time the current is the and and the future , current.



## HEALTHCARE

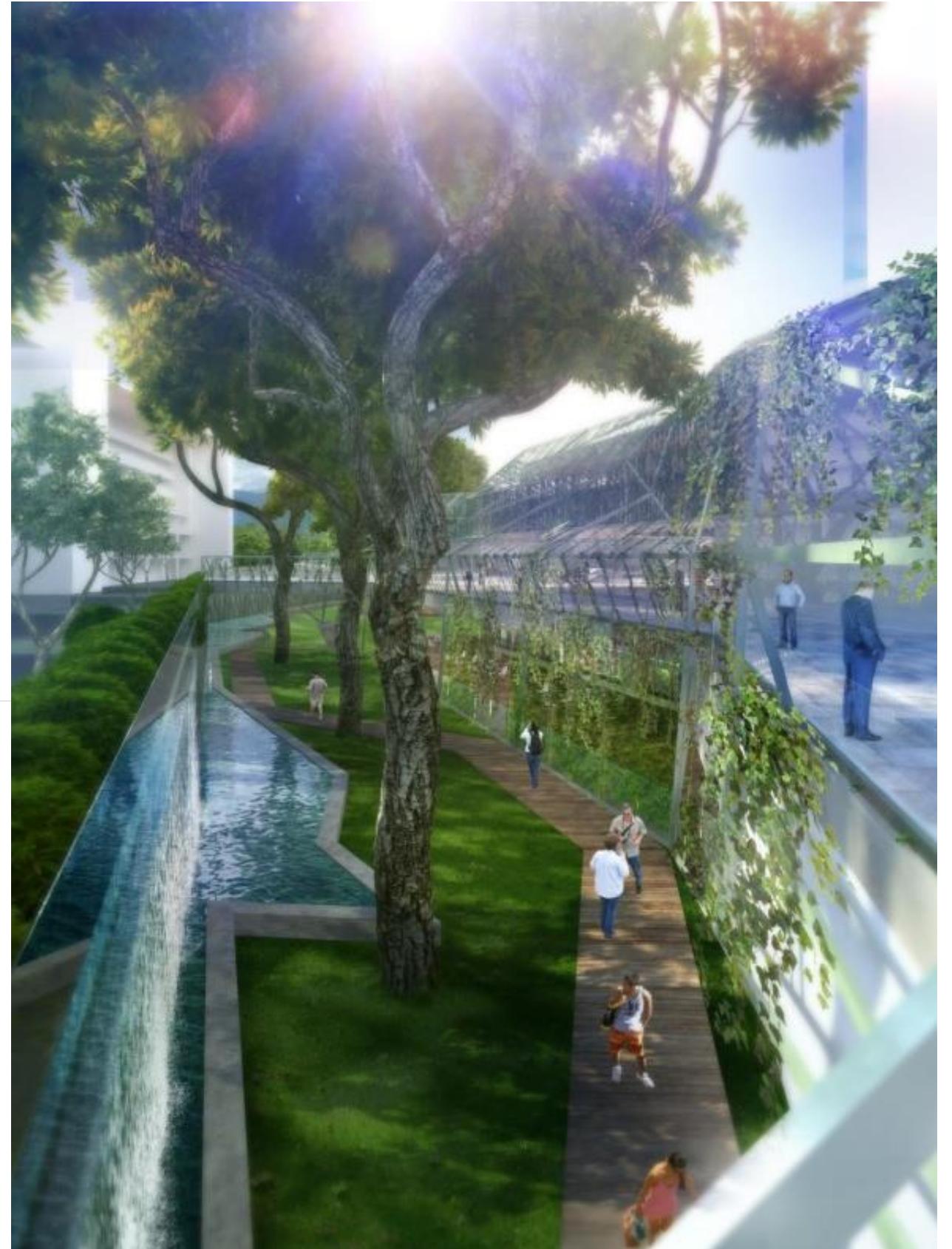
Good Healthcare and Wellness of the people is critical in any city. As Malaysia moved towards an aged society we need to look at better protection, better **Live Balance** and **Healthcare** to the society.

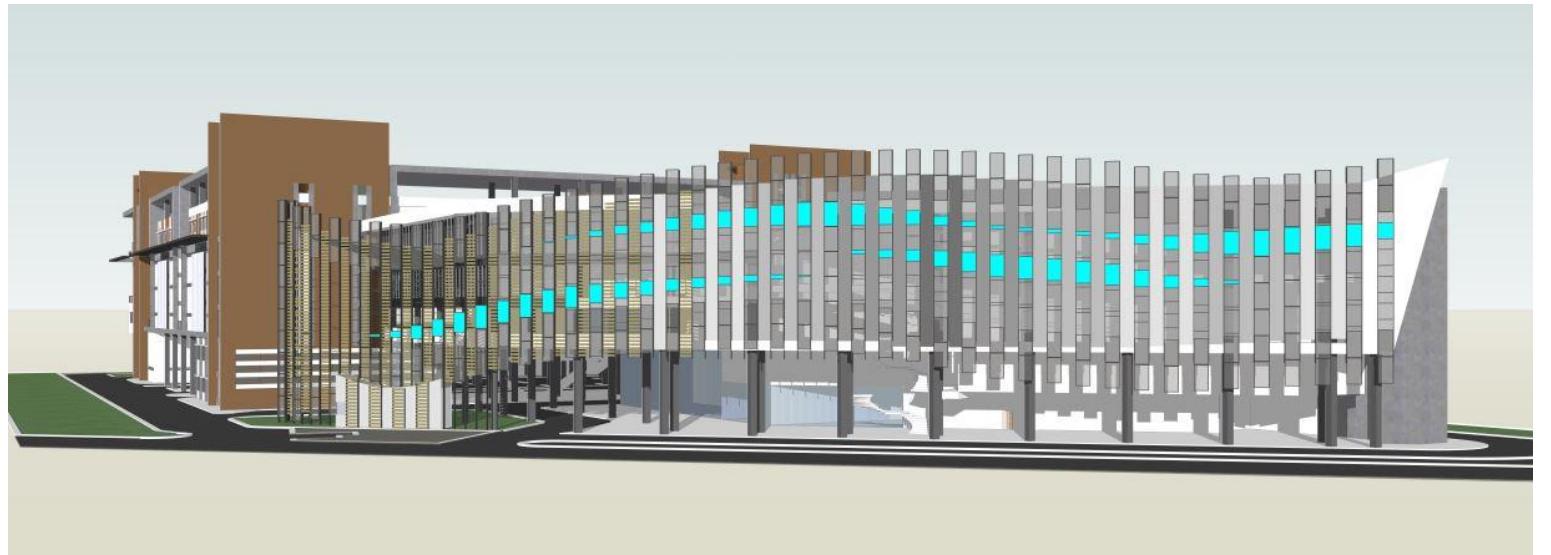
As **DNA** sequencing become more common, healthcare more sophisticate and precision surgery becoming less intrusive. The hospital can be seen as the last resort and even then the duration of stay shortened and potentially the future **Customized Healthcare** based on your DNA may be more planning your wellness and preventive medicine

## BLUE AND GREEN

The **Sanctity** of water and nature cannot be replaced, even the discharge of white, grey and black water need to be well planned

While this seems obvious, we often neglect to take care of this **limited resources**. While it is possible to **Add Blue and Green** into the design it need to a long term **Care**.





## EDUCATION

Penang as a powerhouse of education, yet we are in danger of being left behind as the **digital age, self/peer learning, entrepreneurial and flexible** learning and thinking is key to a future that is changing rapidly as the pedagogy is no longer mass learning but learning to learn how to have a **curiosity, flexibility and understanding fundamental**

Intelligence and learning can be through different means and scope whether through visual, audio, spatial, tactile, emotional etc means that we are looking and leaning the world differently. We are again looking the fundamental of a decent human, **compassionate, understanding, empathy** and a **customized education** that look at learning from all different aspect

## INFRASTRUCTURE AND TECHNOLOGY

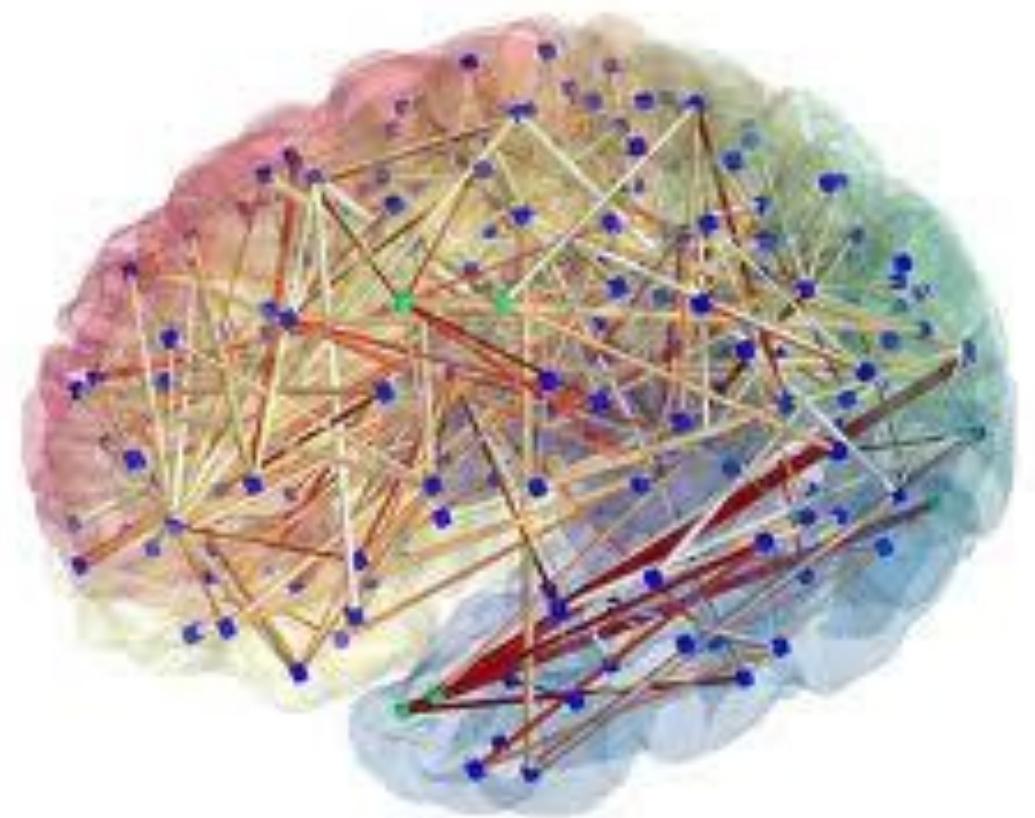
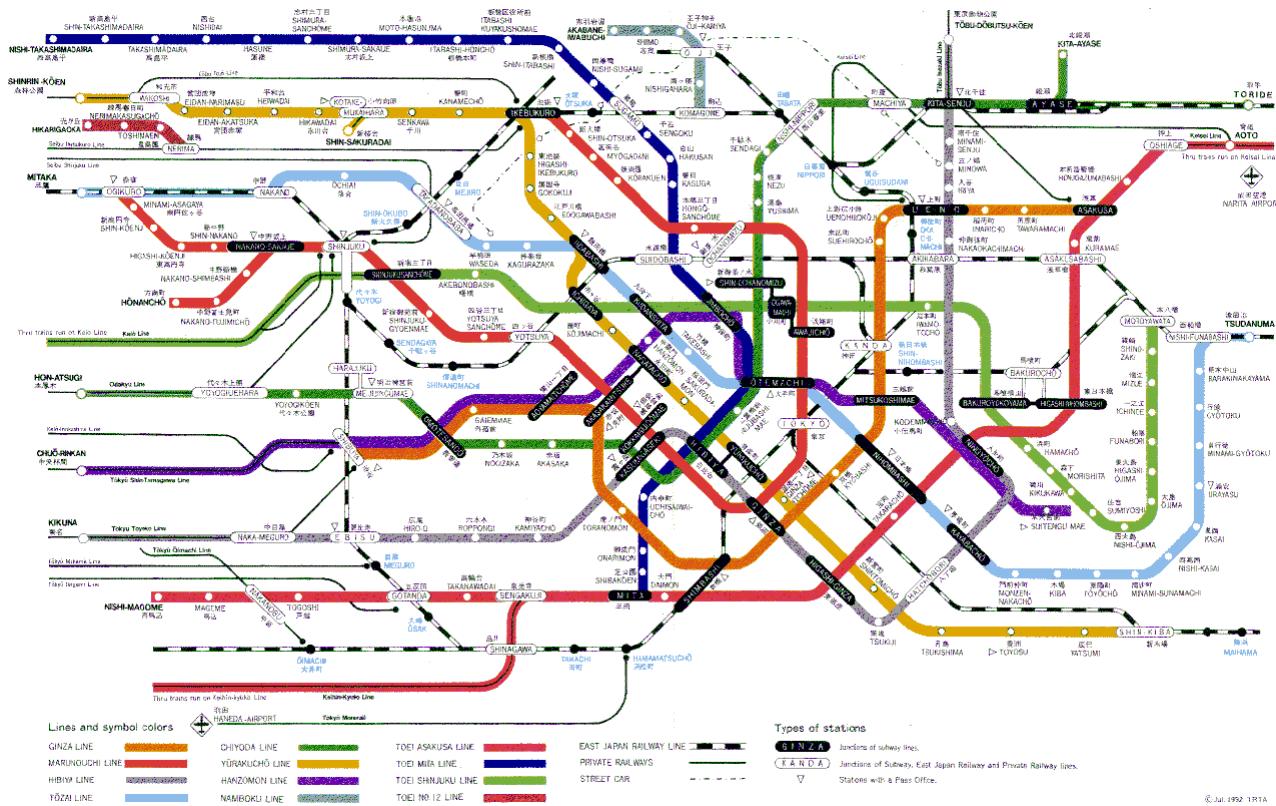
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As human moved into **Cities** ages ago the **Infrastructure** also become an important part of the society. Often linked to technology, the energy, water, communication, sewerage and other utilities are now part of the fundamentals.

Of course part of this is **Transportation** and it is important to look at the transportation as part of **sustainable living**. Transportation is not about living but can be also a brand to the city

# Fundamentals for Designing the Future

## Transportation as a Brand



**Connectome**, a new branch of neuroscience study looking at creating a comprehensive map of the neural connection of the brain or

**How People Connect the Dots** determine his/her personality - Sebastian Seung





# TOD

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Density, Diversity, Design, Distance, Destination, Demand,

## ORIGIN...

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Not necessary new then, but codified in the late 80s and early 90s by Peter Calthorpe, it is an idealized concept of sustainability of which transit and public transport take centerstage after years of private vehicles lead planning..

30 years hence we are in the world of public transport, how do we see these ideals today and in the future

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



## LOCATION...

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Location can be anywhere and of different usage

“Higher density(DENSITY) mixed use development (DIVERSITY) set within walking distance(DISTANCE) of key transit nodes (DESTINATION) or around activity centres (DEMAND).”

Yet the reality beyond is not as clear ....

## DEMAND OR POTENTIAL...

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Designing for existing market mean

- no additional or small growth

Designing for Potential mean

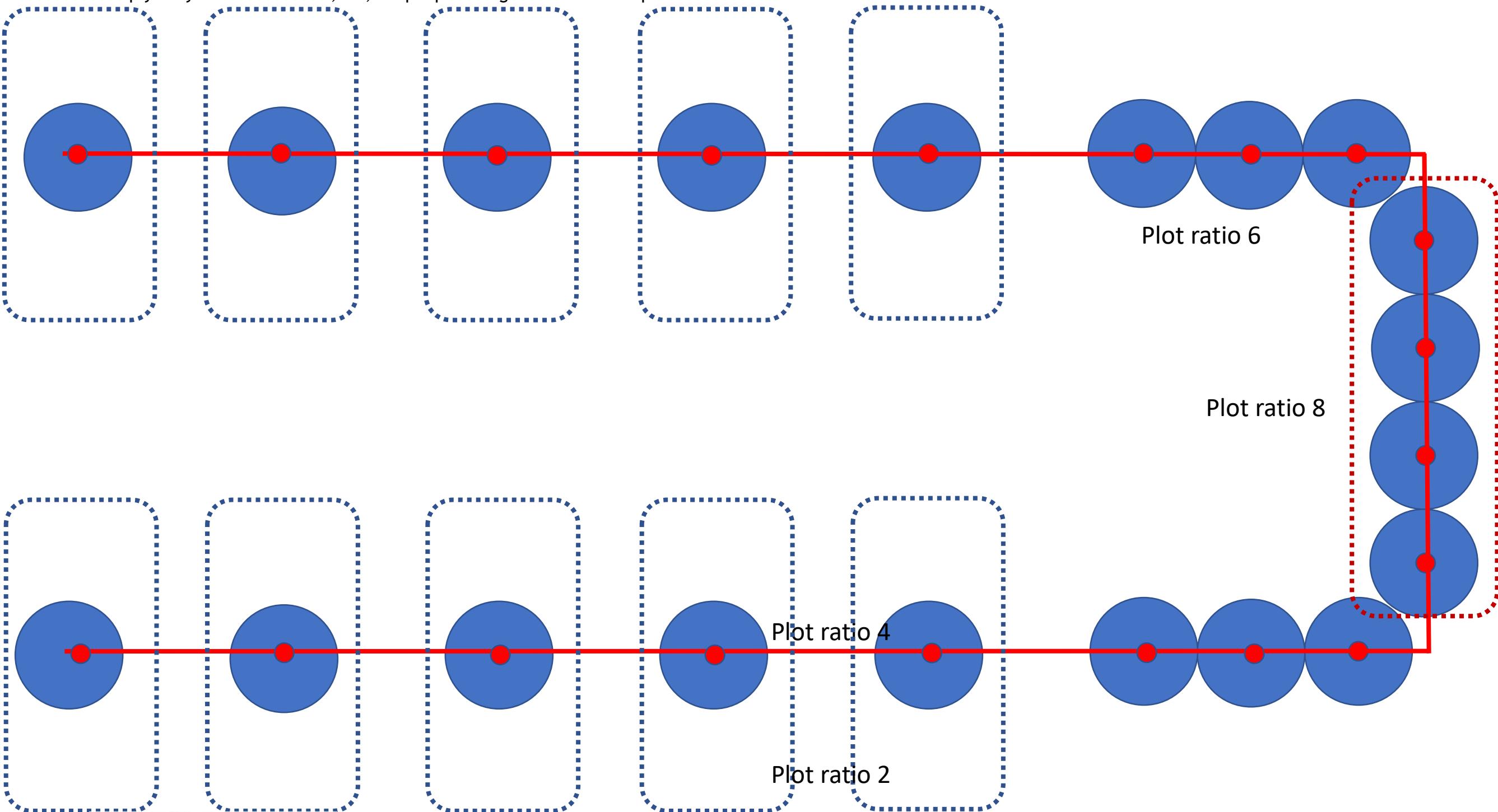
- Existing problems are not solved
- Increase in Growth pattern

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

If every station have a radius of 400m the total area at 125 acres or rounding it up to 500,000 sqm. If we discount half to public space, amenities, greens etc that will be 250,000 sqm and if the area have a plot ration of 4 this will be 1,000,000 sqm of built up area. If there are 20 stations that will be 20,000,000 sqm of built up area.

If we were to provide a 70% residential, 15% Work/office, 5% retail, 2.5% hospitality at 90 sqm per unit of 4 persons, a 18Sqm per person office we will be looking at 14,000,000 sqm of residential. Or about 14,000 family (if at 4 person per unit that will be 56,000 population, 3,000,000 sqm of workers at 20 sq,m per person that will be 15,000 per location...Multiply it by 20 that will be 1,120,000 people living within the transport corridor.



## DENSITY

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It seems intuitive that the density for TOD will be higher than the existing developments.

The issue is what type and how high the density. If we go back to the TOD idea it is not about transport but about sustainability ie the walkability and the buildings are closer and more dense.

If there is no clear understanding of the nature of density we may end up being too dense or not dense enough

## DIVERSITY

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It seems intuitive that TOD will be diverse to provide as much programme within TOD

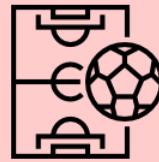
But if every TOD have the same programme, the city start to become more similar and less diverse. The question will then be why go to TOD 1 or TOD 20

Diversity planning will then need to look at the Transit Line rather than just as individual development

## TOD Typology can be categorised into 6 major categories:



1. City



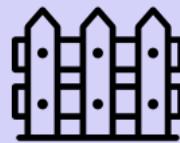
2. Activity centre



3. Specialist activity centre



4. Urban



5. Suburban

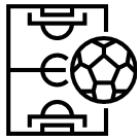
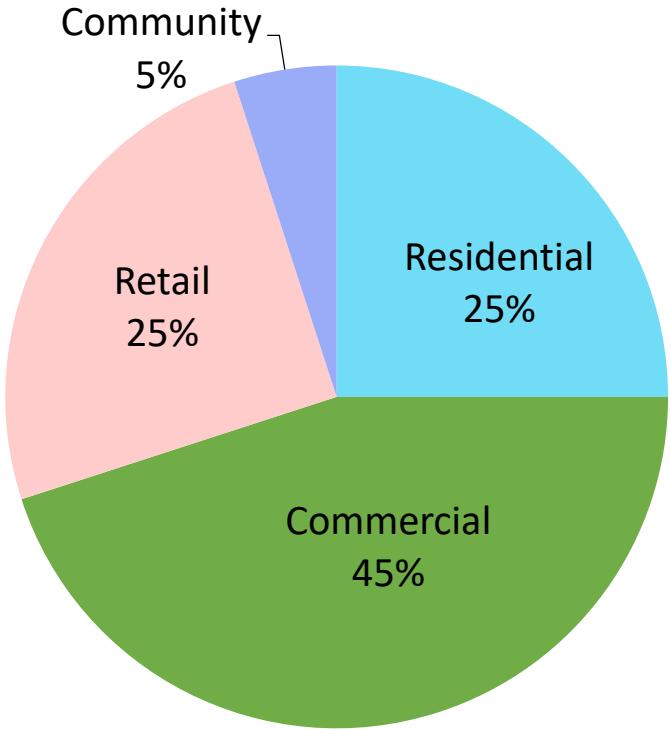


6. Neighbourhood

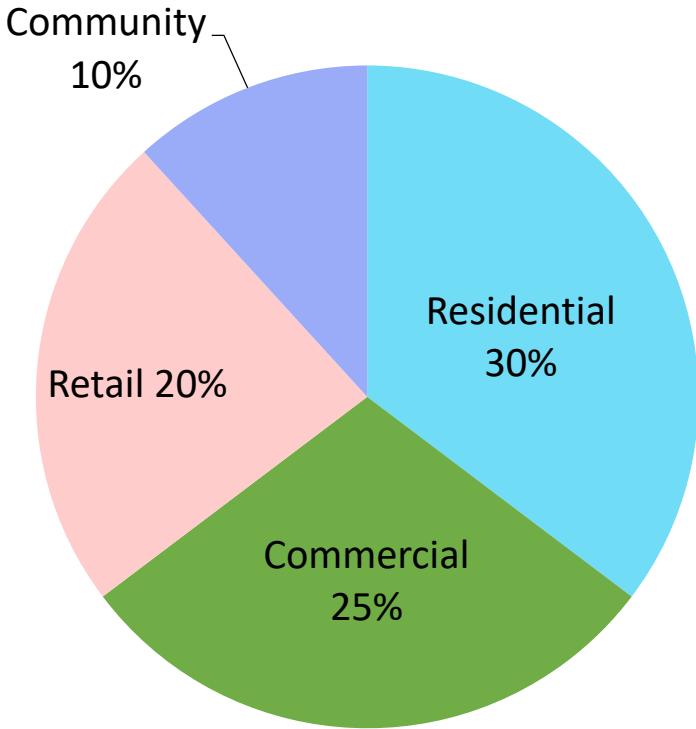
# TOD Typology can be categorised into 6 major categories:



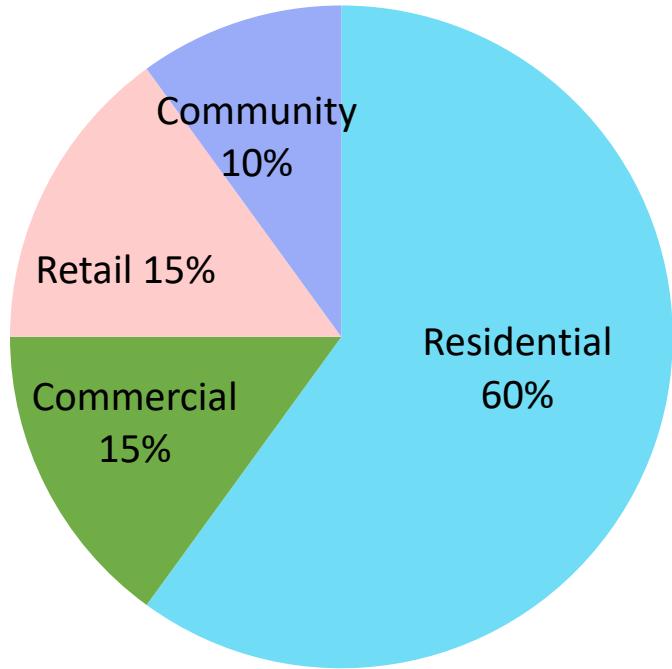
## 1. City



## 2. Activity centre



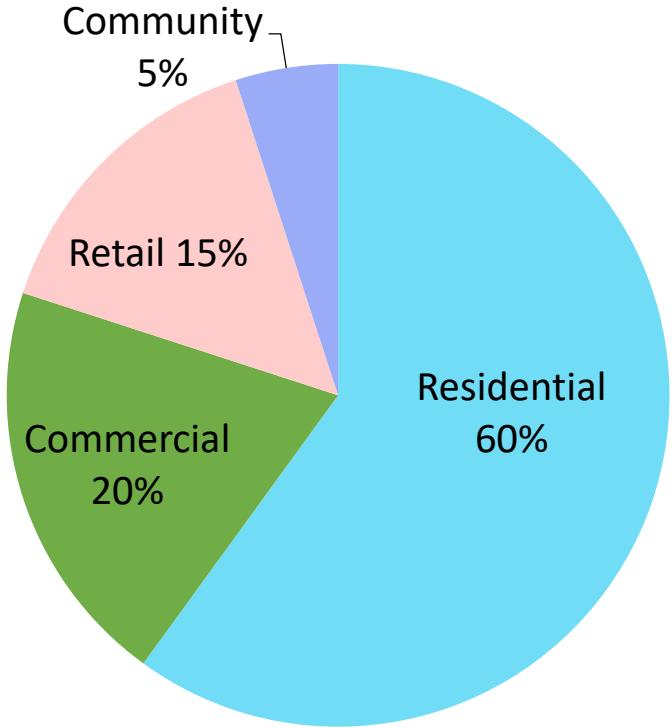
## 3. Specialist activity centre



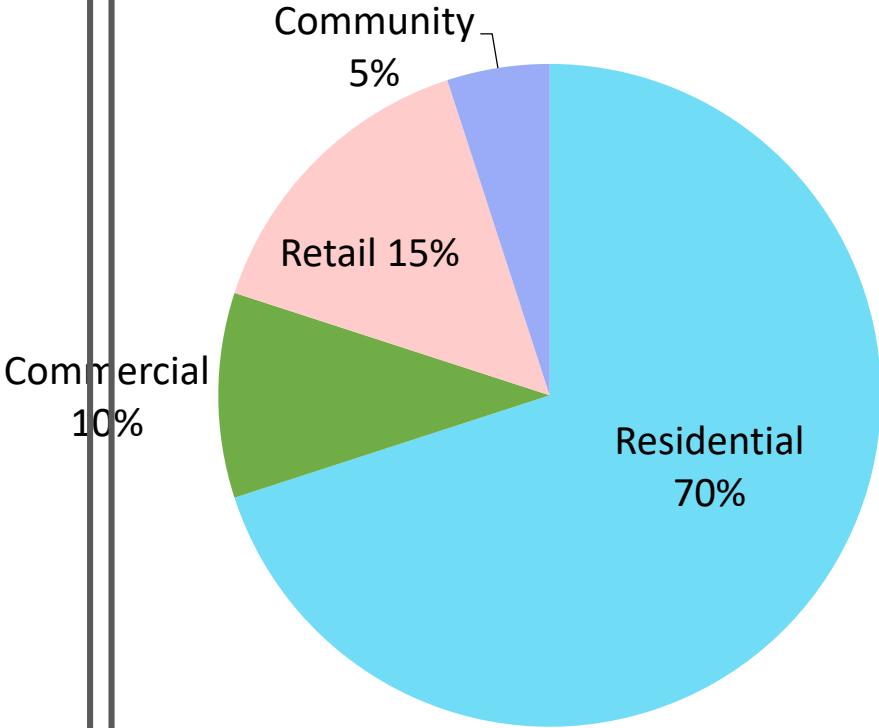
# TOD Typology can be categorised into 6 major categories:



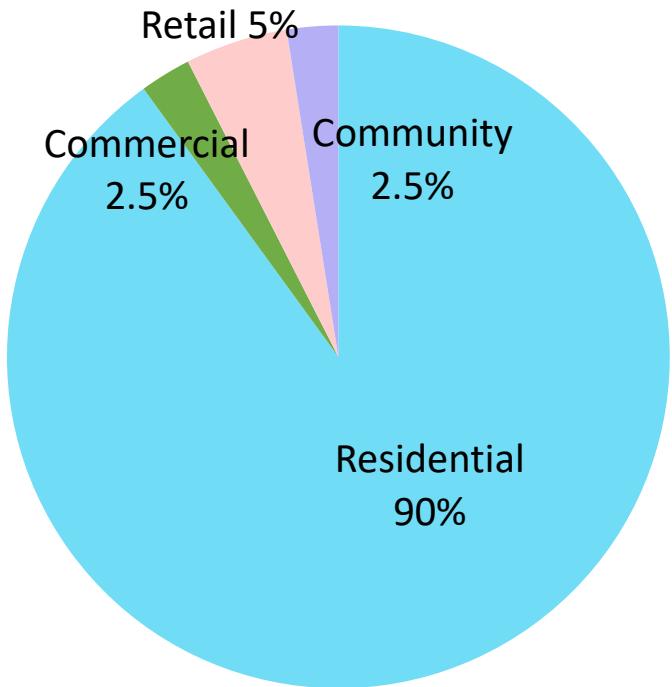
## 4. Urban



## 5. Suburban



## 6. Neighbourhood



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

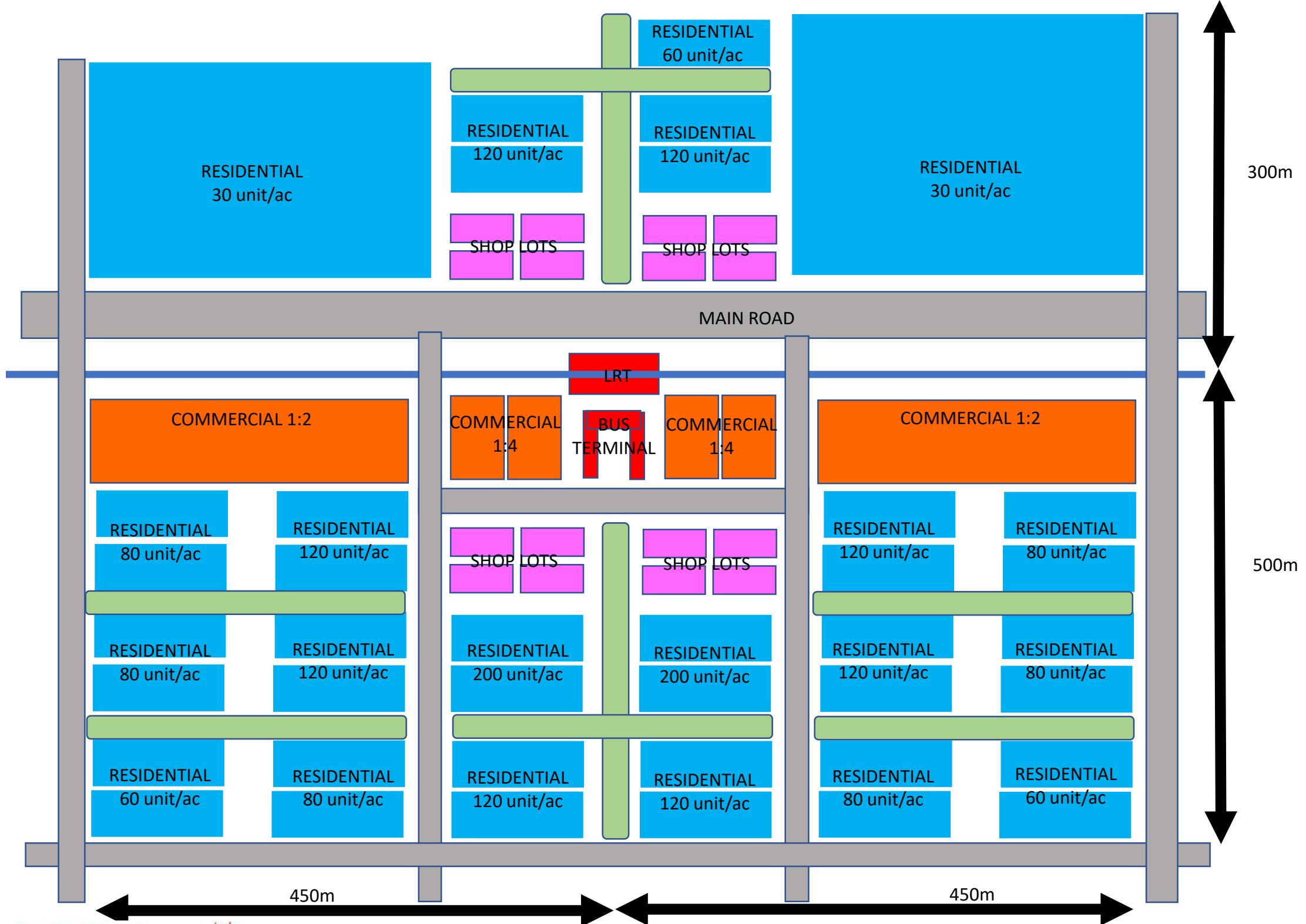
## TOD SUBURBAN REGIONAL CENTRE

WITH 50,000 POPULATION & 10,000 WORKFORCE



# TOD SUBURBAN LOCAL CENTRE

WITH 30,000 POPULATION & 6000 WORKFORCE

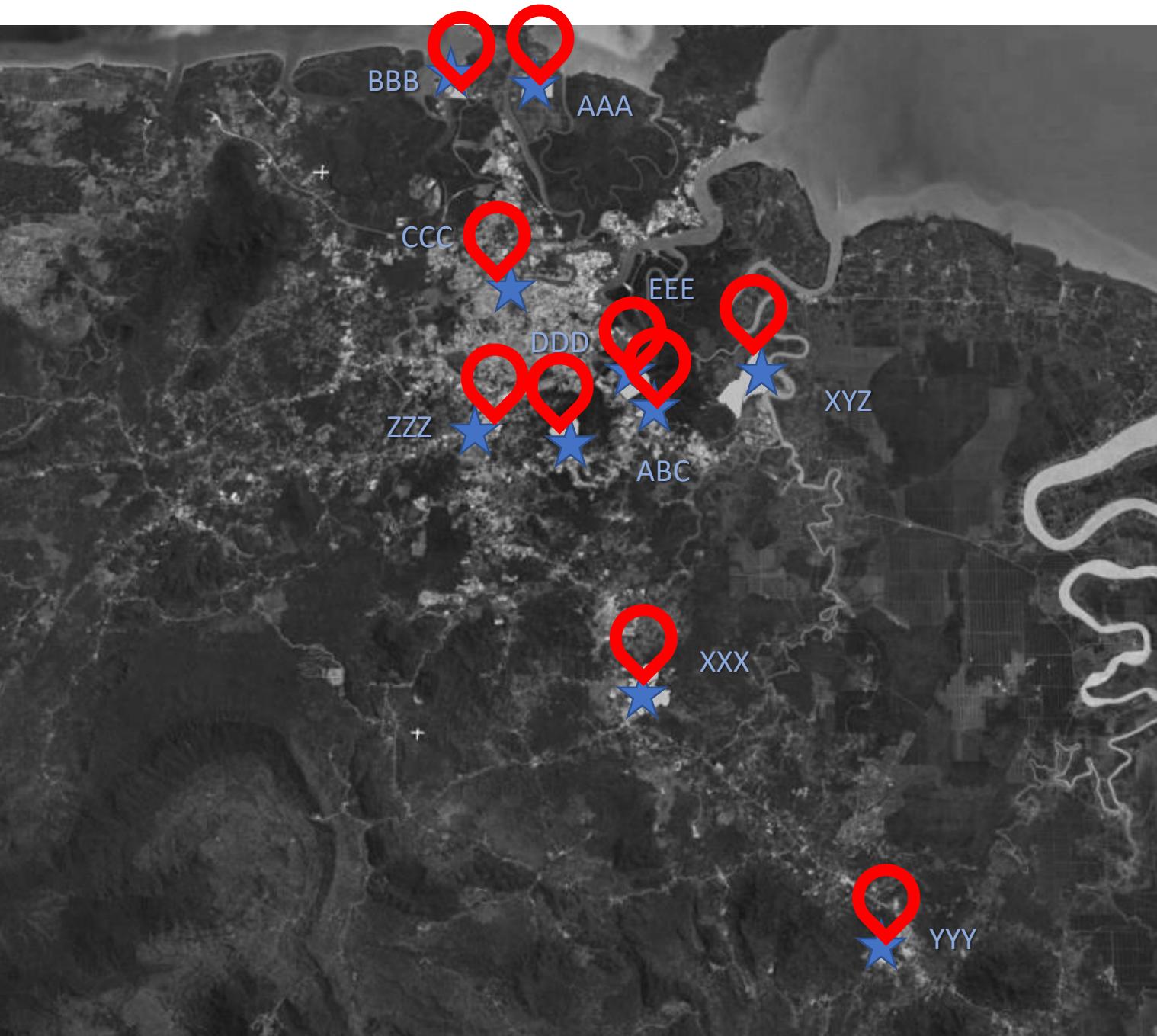


# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

## OVERALL

LIST OF TOD



No.	TOD Name (Station)	TOD Crossing Line	TOD Area (Acre)	TOD Area (M <sup>2</sup> )
1	AAA	Line 1	816	3,301,745
2	BBB	Line 1	143.7	581,533
3	CCC	Line 1, 3 & 5	11.9	48,277
4	DDD	Line 1	712.8	2,884,600
5	EEE	Line 1	1614.02	6,531,707
6	XXX	Line 2	1153.9	4,669,667
7	YYY	Line 2	227.9	922,278
8	ZZZ	Line 6	79.5	321,725
9	ABC	Line 6	541	2,189,350
10	XYZ	Line 6	185	748,668

# Fundamentals for Designing the Future

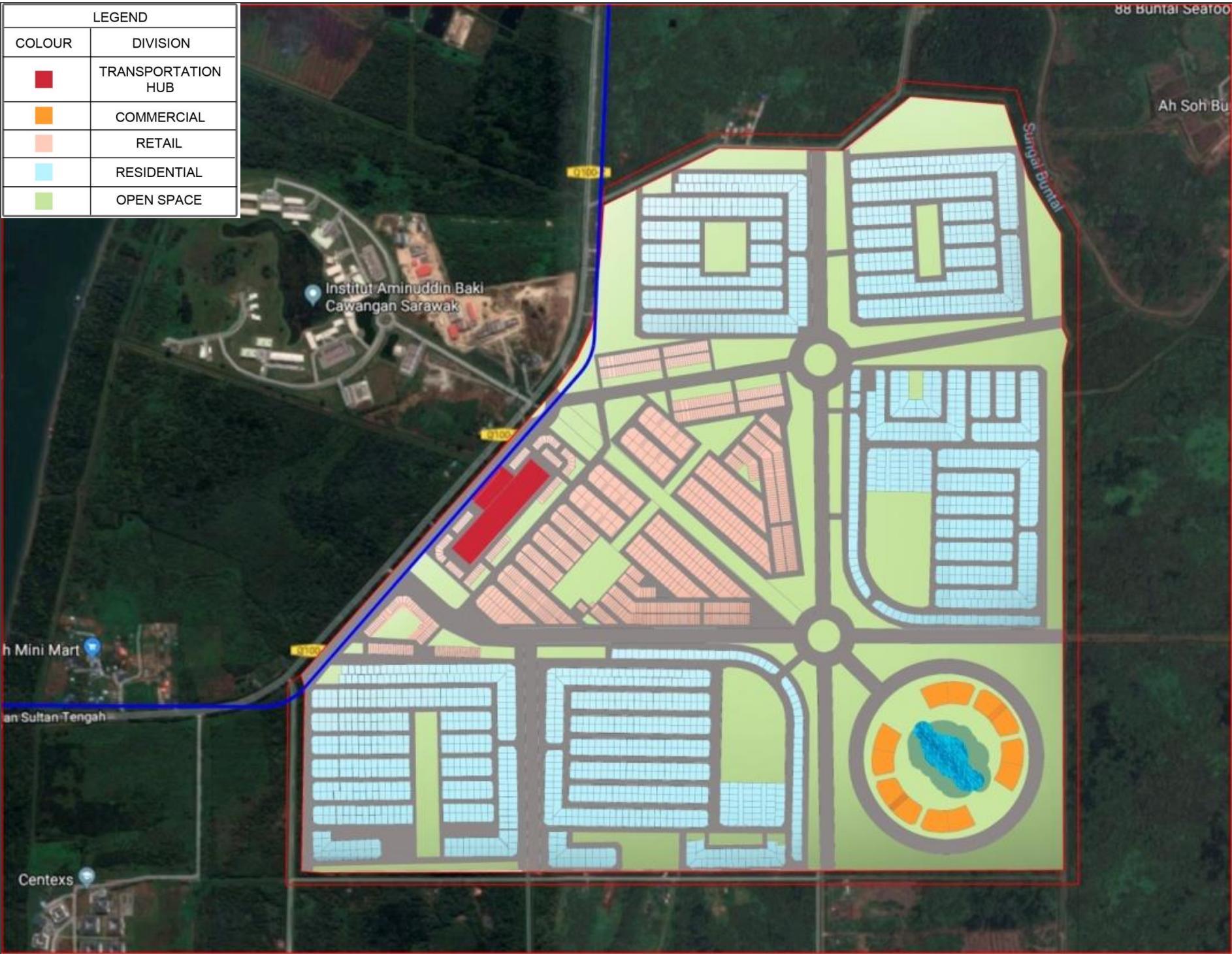
Density, Diversity, Design, Distance, Destination, Demand + 1



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

LEGEND	
COLOUR	DIVISION
■ (Red)	TRANSPORTATION HUB
■ (Orange)	COMMERCIAL
■ (Light Orange)	RETAIL
■ (Light Blue)	RESIDENTIAL
■ (Light Green)	OPEN SPACE



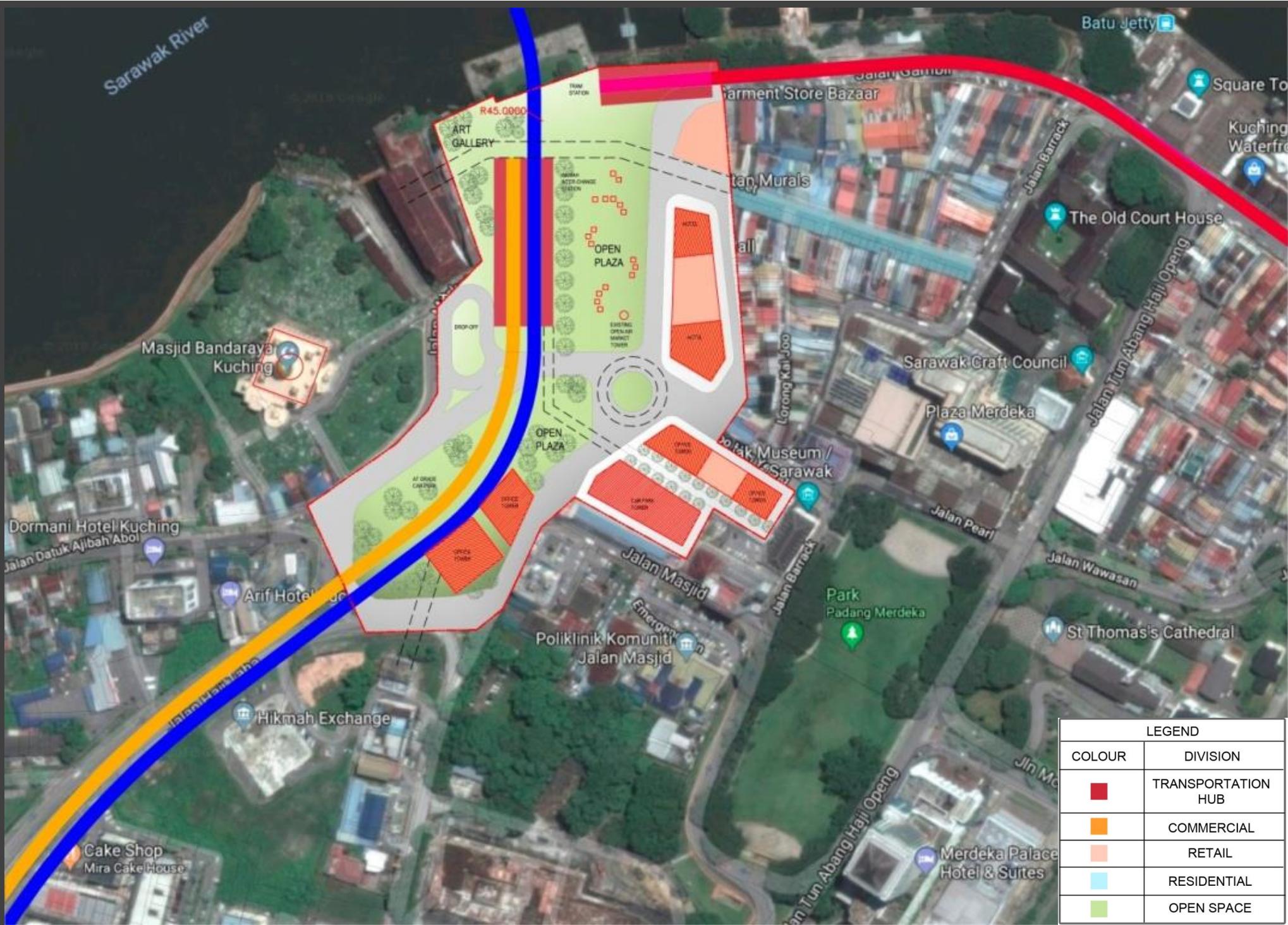
TOTAL AREA : 596 ACRE

**LINE 1**

1. AAA

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

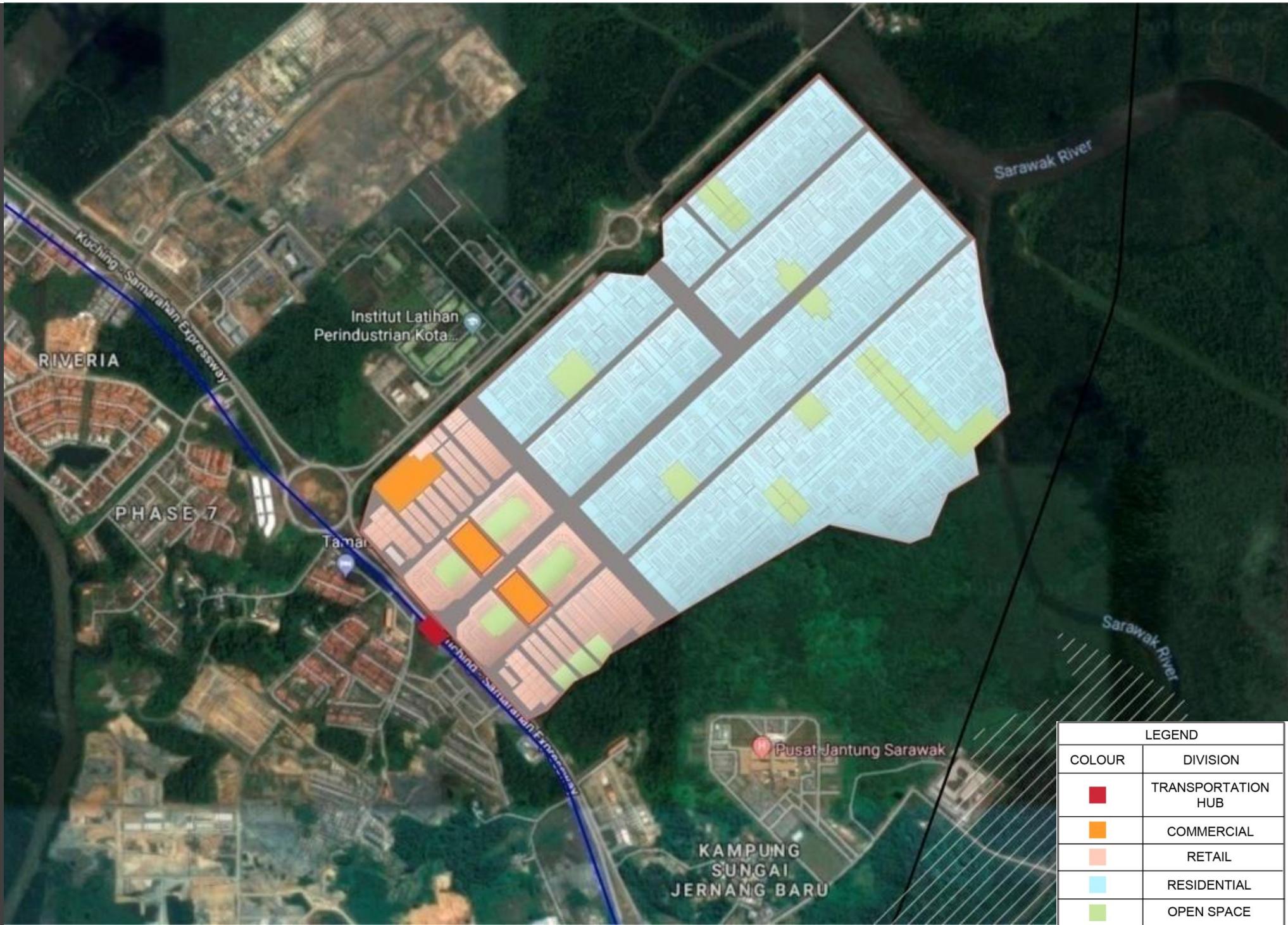


**LINE 1**

3. CCC

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



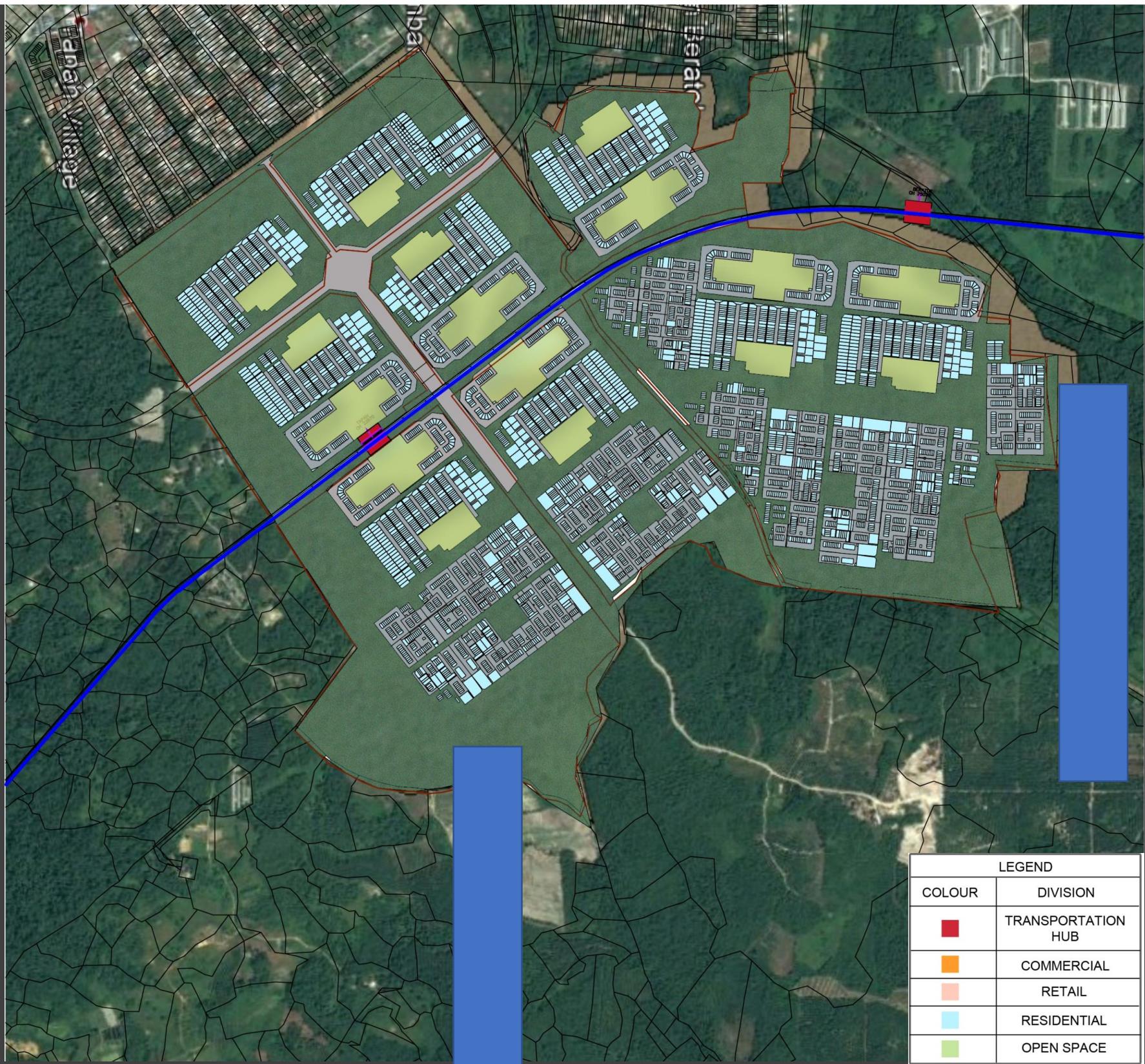
TOTAL AREA : 712.8 ACRE

**LINE 1**

4. DDD

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

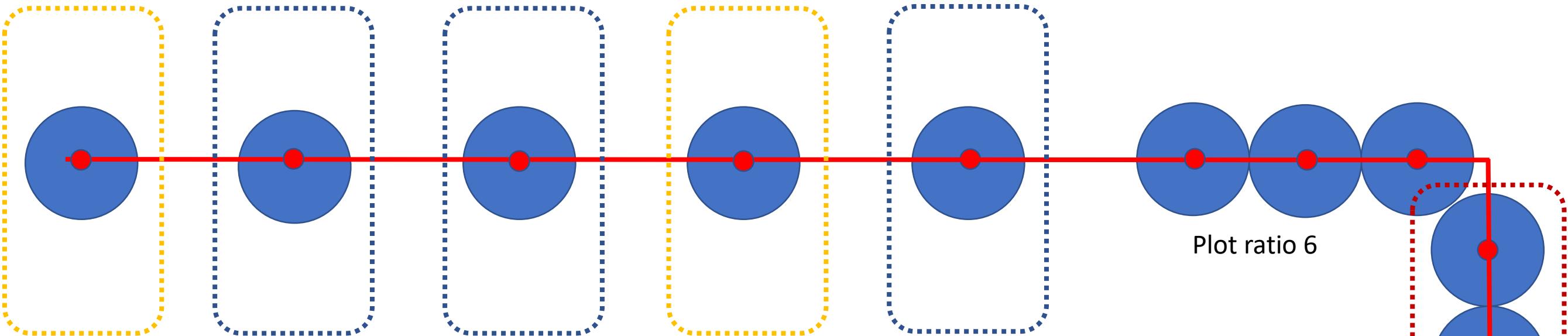


**LINE 2**

# Fundamentals for Designing the Future

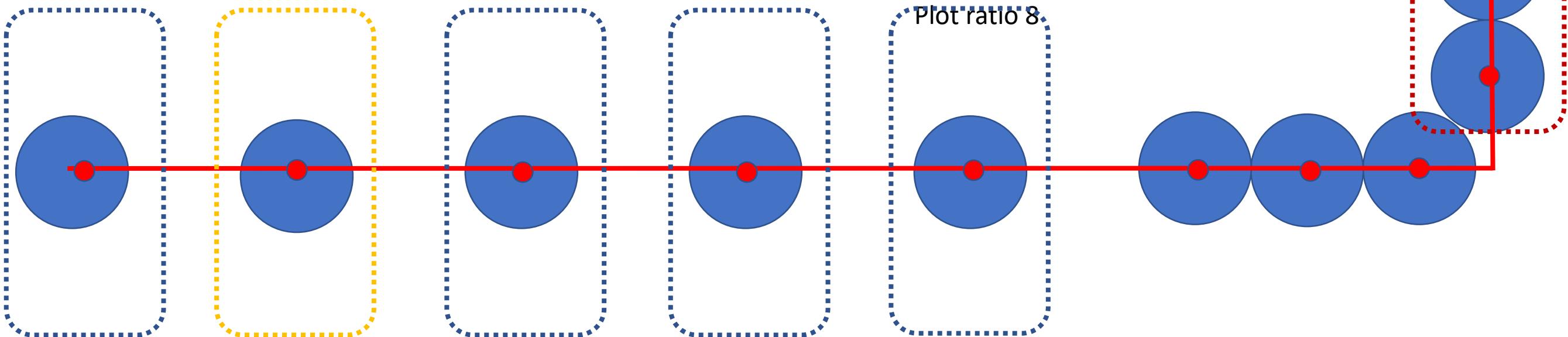
Density, Diversity, Design, Distance, Destination, Demand + 1

Plot ratio 4



Plot ratio 6

Plot ratio 8



Plot ratio 4

## DESIGN

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Design have a significant impact on TOD as it help creates spaces for people

Design also help solved deviation issues as in issues arising from an ideal mould of TOD

# Fundamentals for Designing the Future

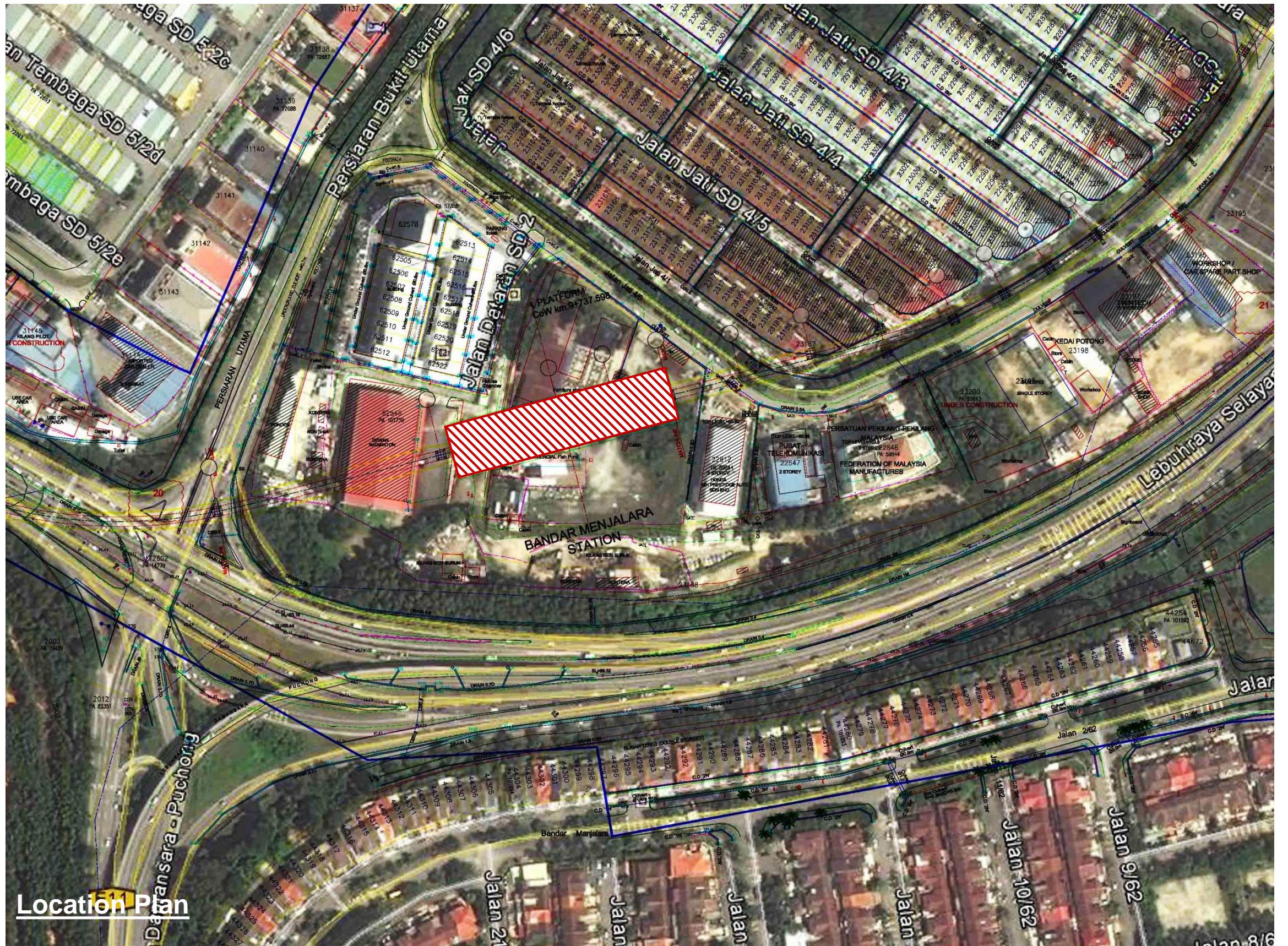
Density, Diversity, **Design**, Distance, Destination, Demand + 1

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## The BIGGER Plan

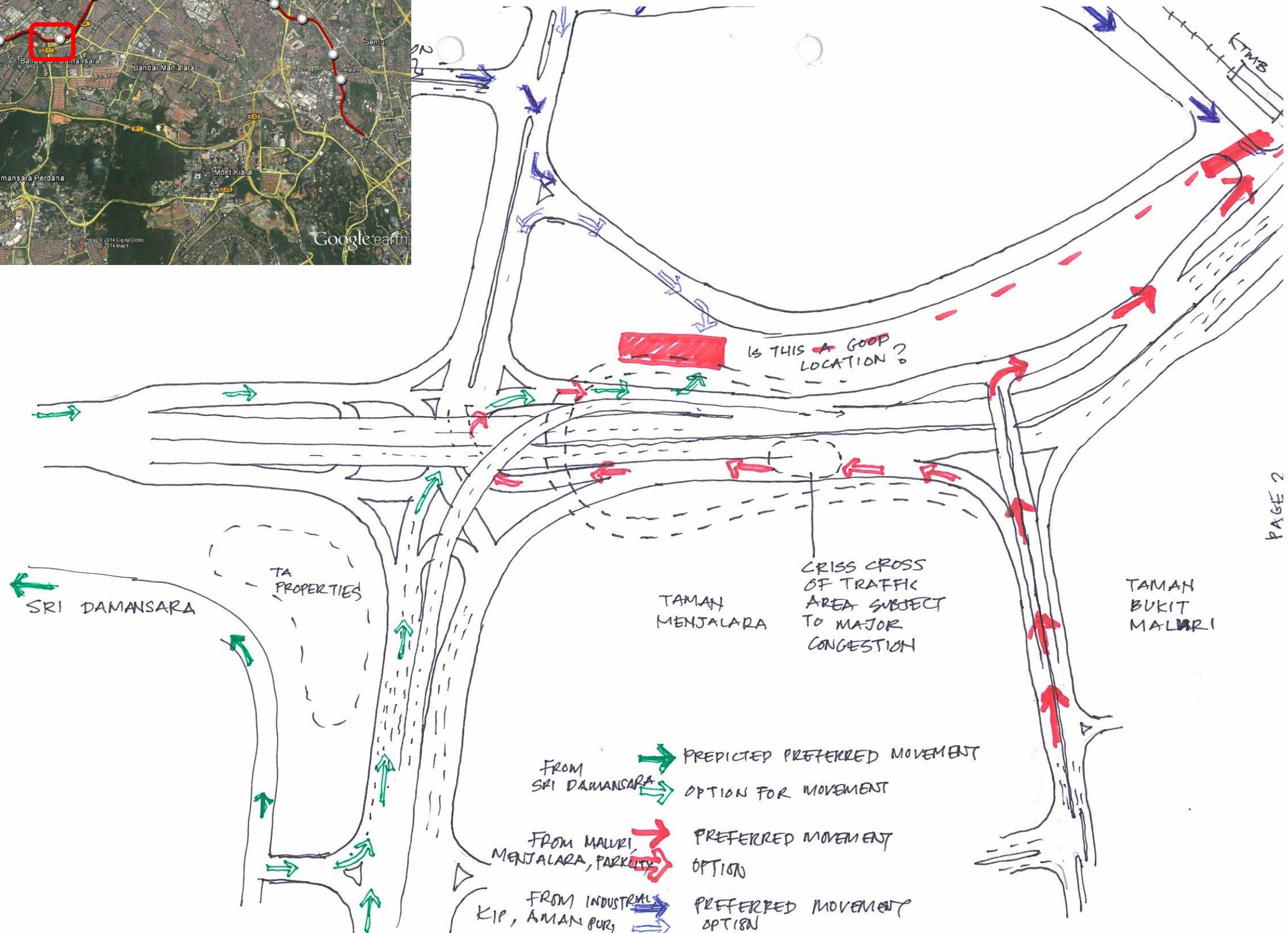
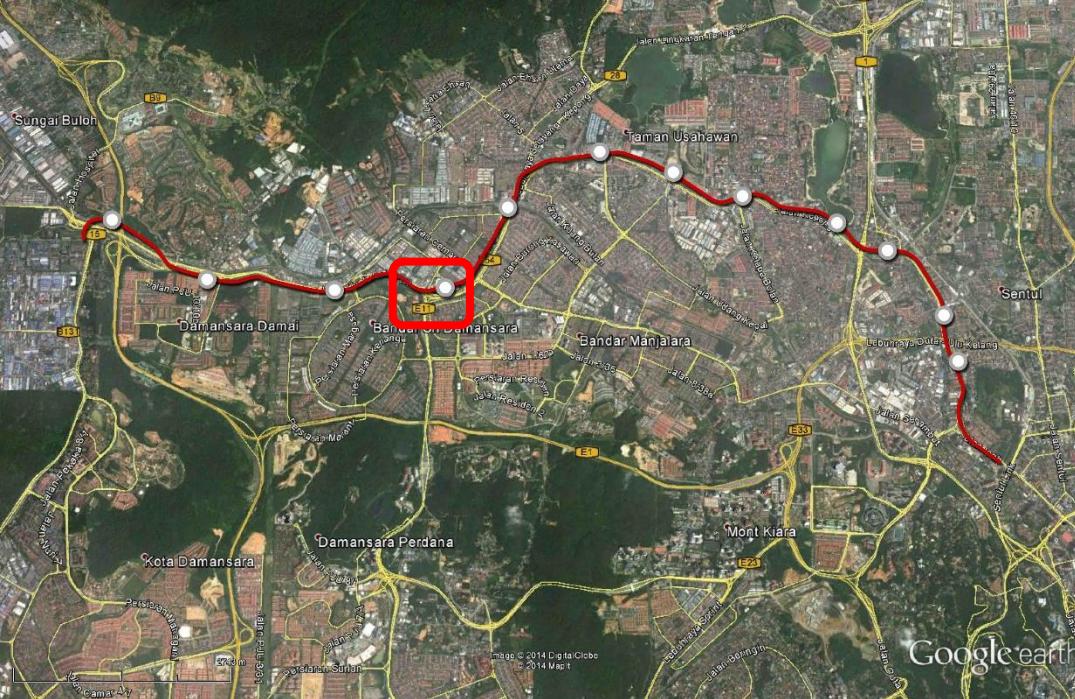
# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



PAGE 2

# Fundamentals for Designing the Future

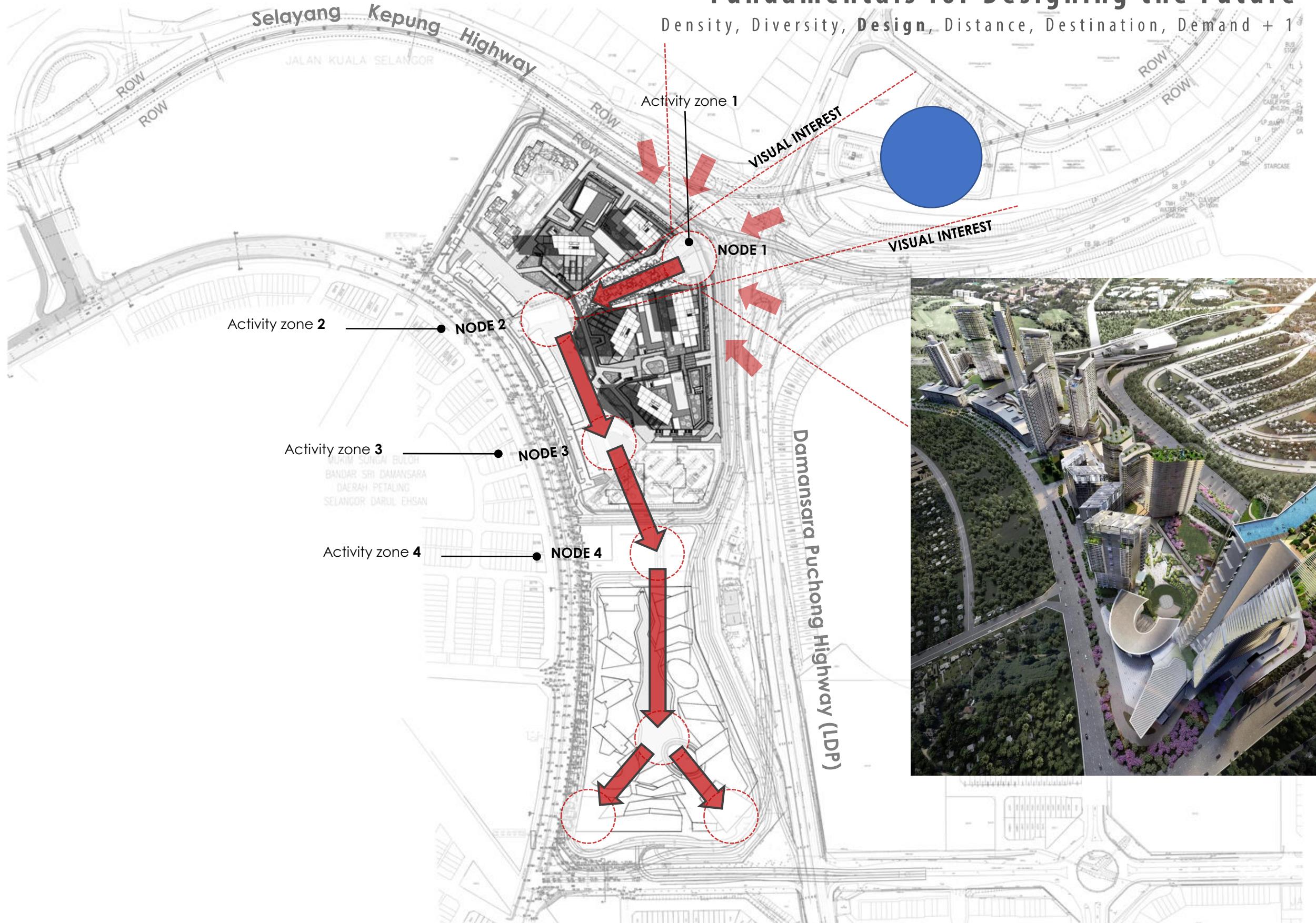
Density, Diversity, Design, Distance, Destination, Demand + 1

Potential Station Site	Sri Damansara
Development Name	Damansara Avenue
Site Area	48 ac.
Land Use Type	Mixed Use (residential, retail, park)
Land Use Configuration	SOFO, Retail, Office Suite, Apartments
Developer	TA Global
Note	On going



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



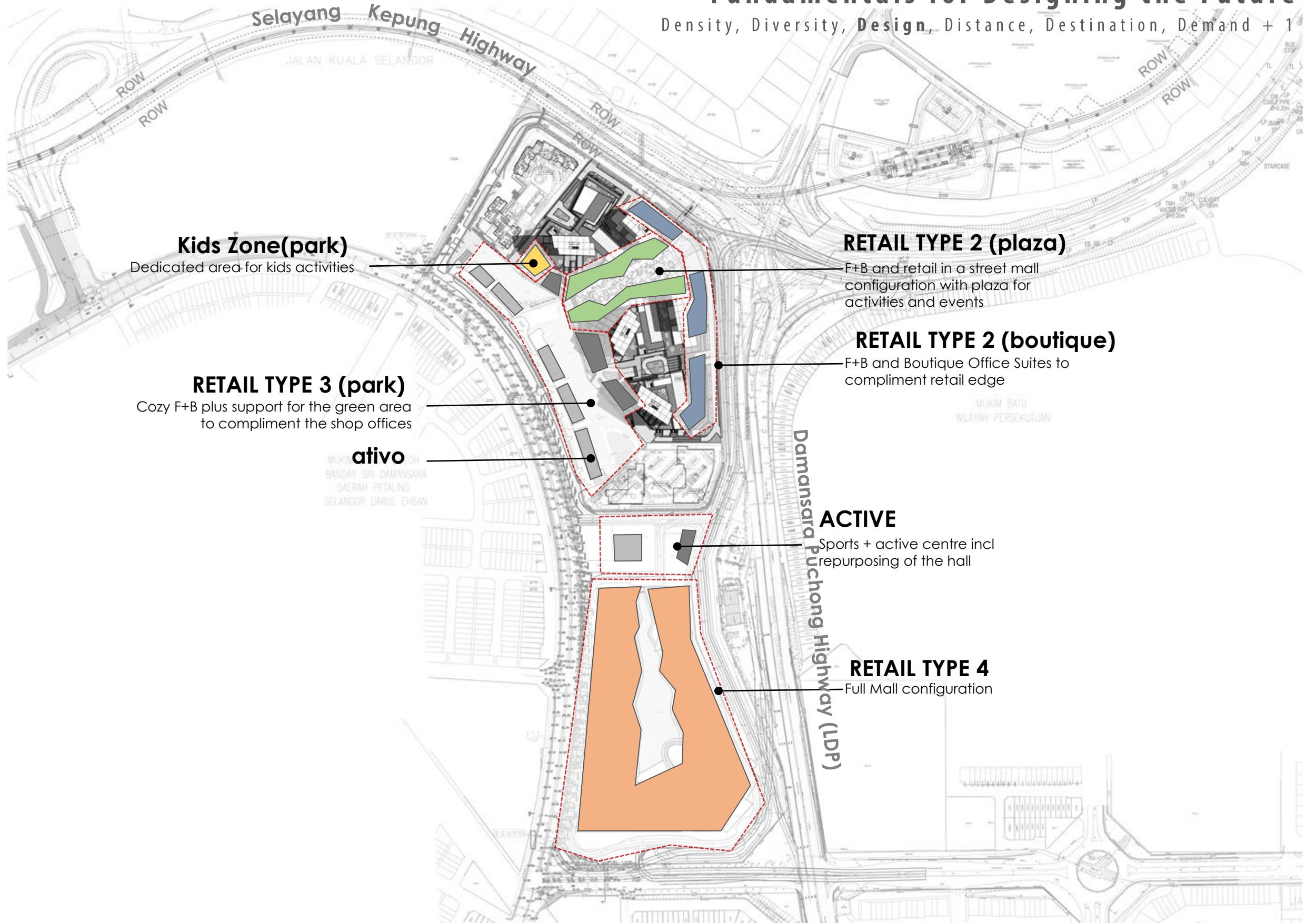
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Planning Concept



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



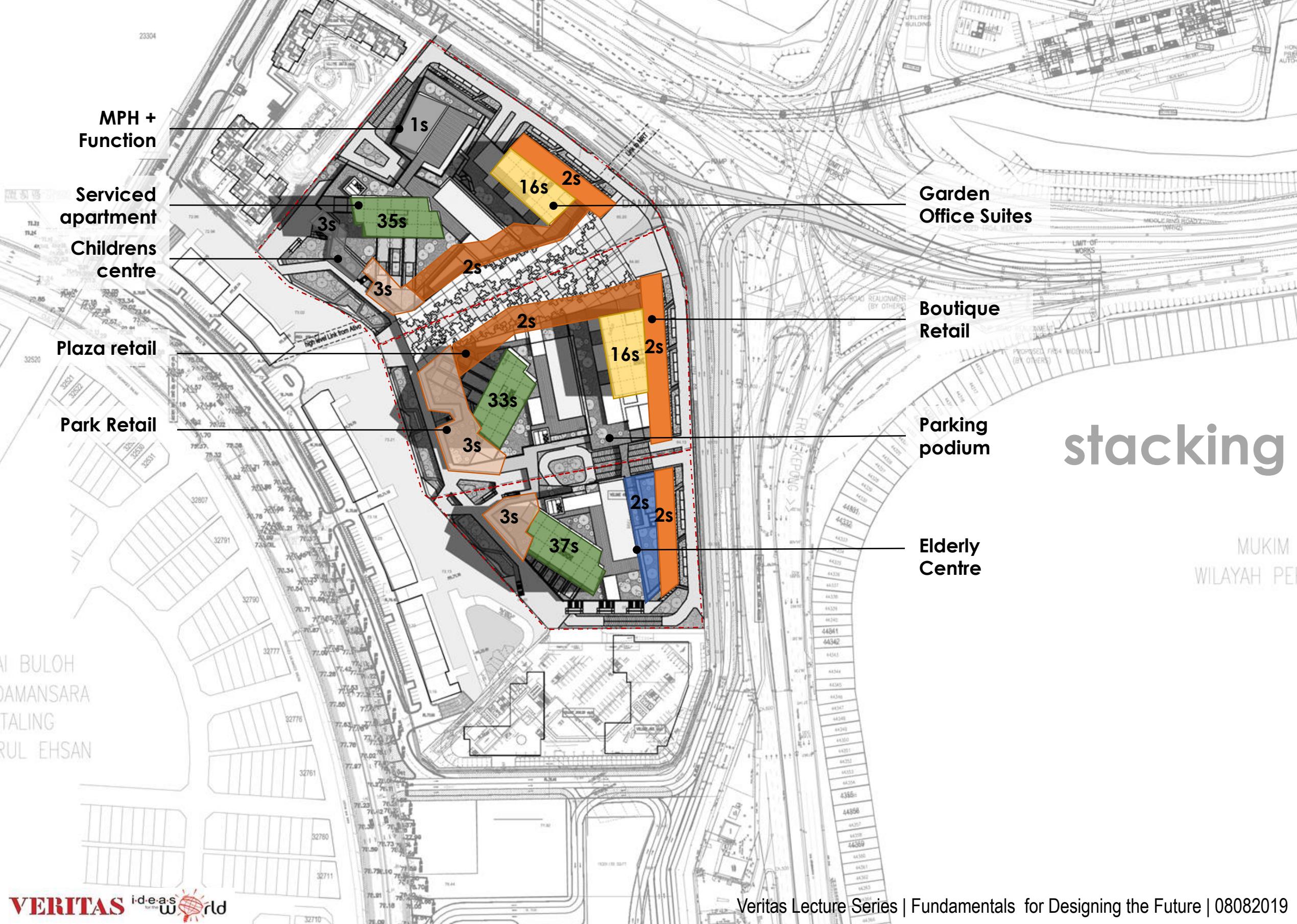
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Planning Concept



# Fundamentals for Designing the Future

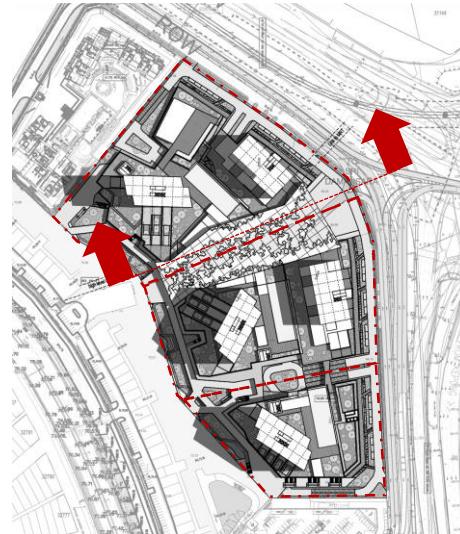
Density, Diversity, Design, Distance, Destination, Demand + 1



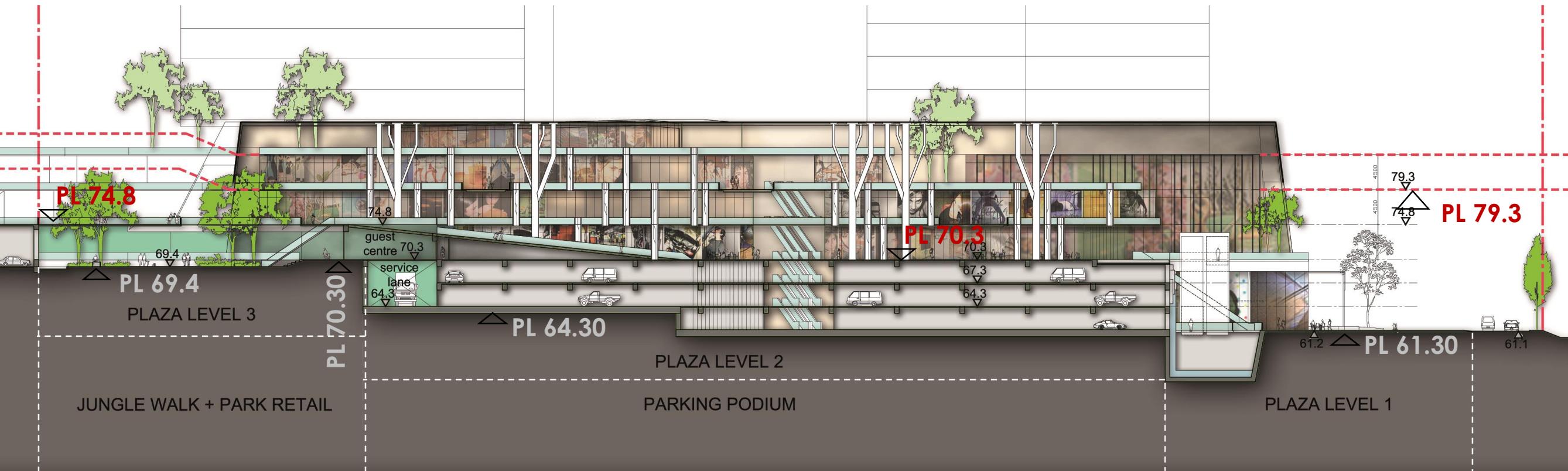
# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

Section locations



T h e P L A Z A



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



## The Plaza

Fundamentals for Designing the Future  
Density, Diversity, Design, Distance, Destination, Demand + 1

# Boutique Retails



Fundamentals for Designing the Future  
Density Diversity Design Distance Distribution Demand + 1

# Jungle Walk Park Retail



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



## DISTANCE

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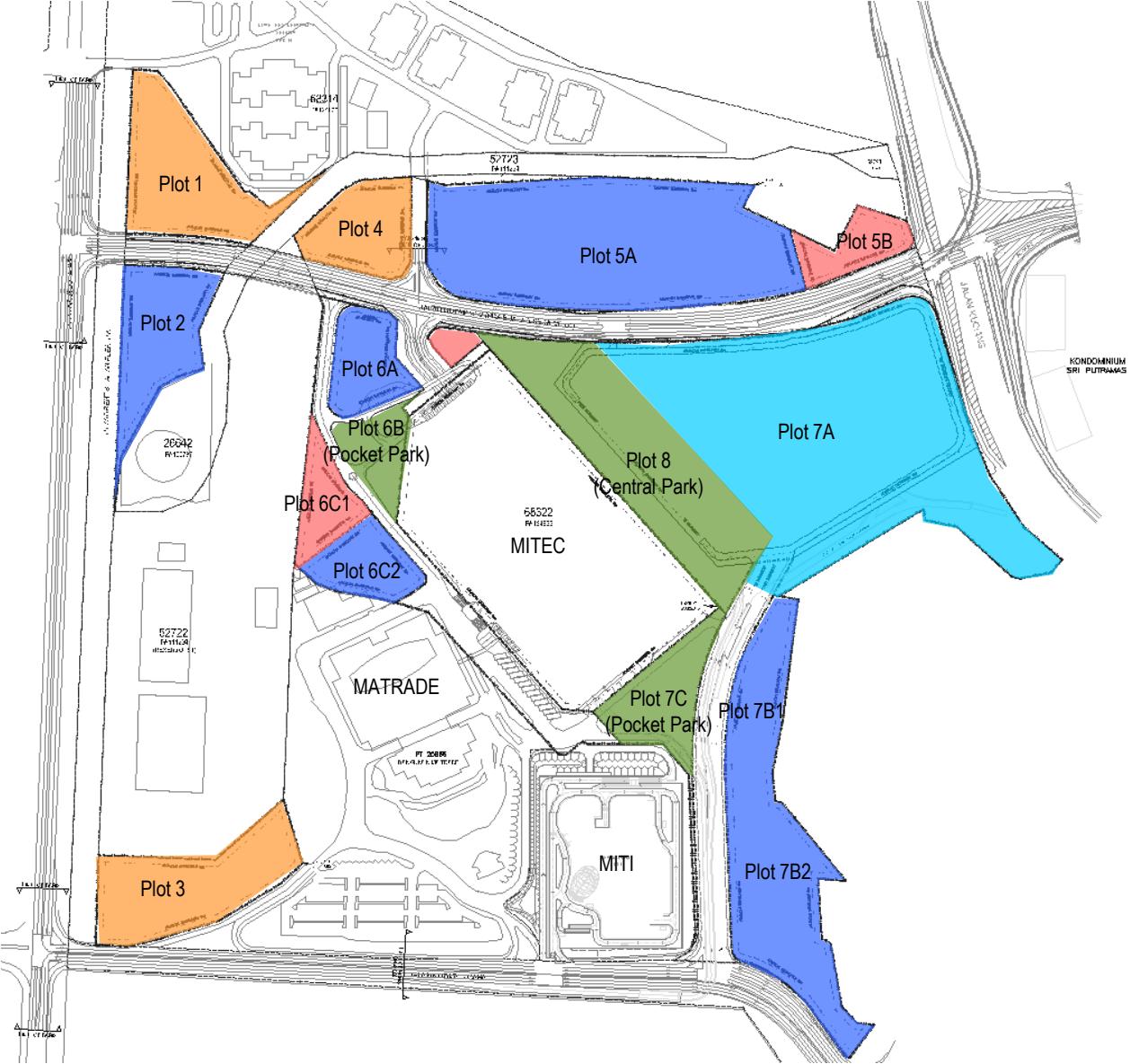
### Distance of TOD to Transit and Other Mode of Transport

Let's look at how far for the People rather than to the transport. The issue is existing development and the distance from TOD or Transit System may require another 15 minutes for the final mile.

Can we look at how to create Spaces for the people to move through..

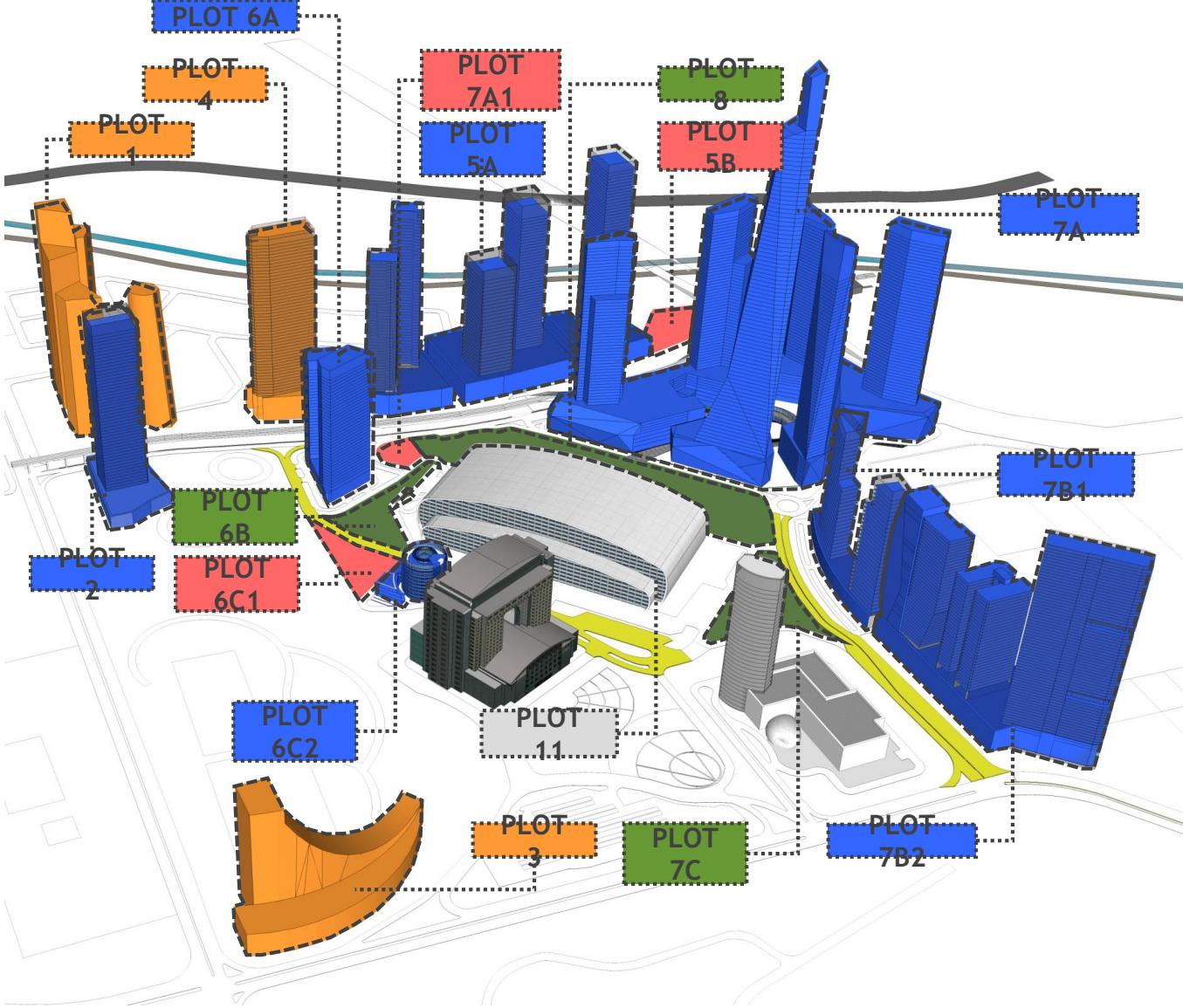
# PLANNING AS WE KNOW IT

Mainly 2D



# Fundamentals for Designing the Future

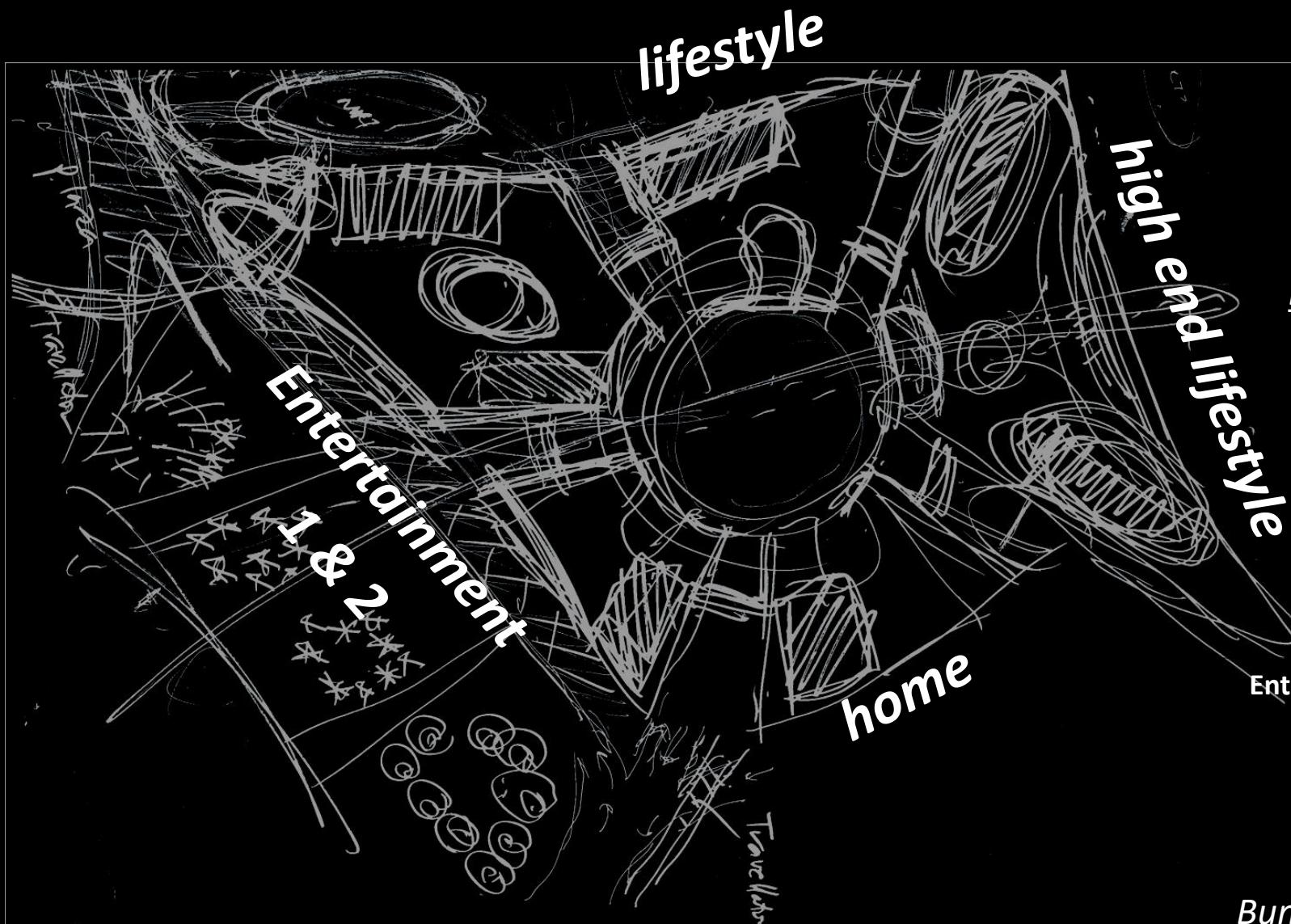
Density, Diversity, Design, Distance, Destination, Demand + 1



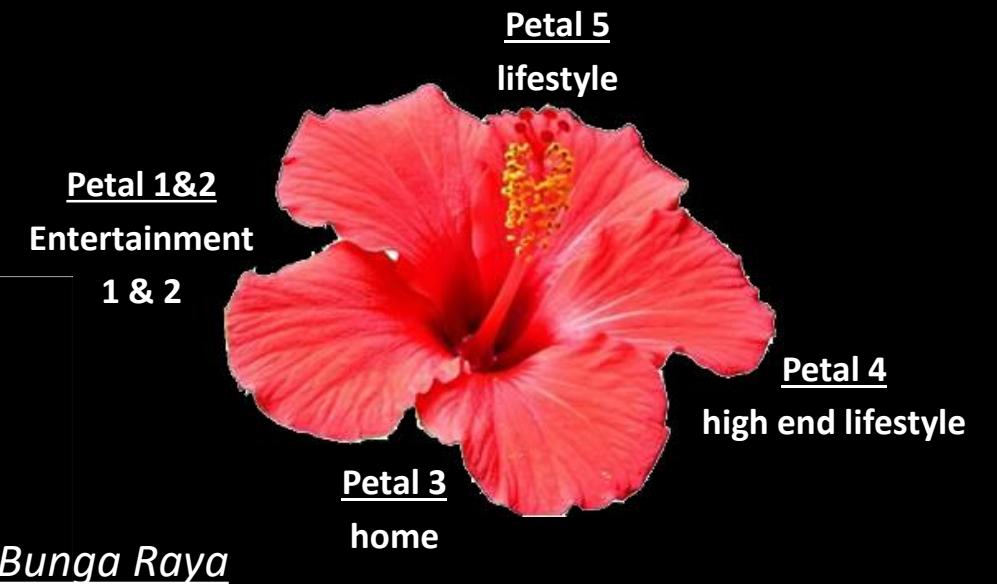
Plot 1-R Plot 3-R Plot 4-R	Residential Plots
Plot 2-C Plot 5A-C Plot 6A-C Plot 6C2-C Plot 7B1-C Plot 7B2-C	Commercial/ Business Plots
Plot MX-7A	Mixed-Use Plot

# PLANNING AS WE KNOW IT

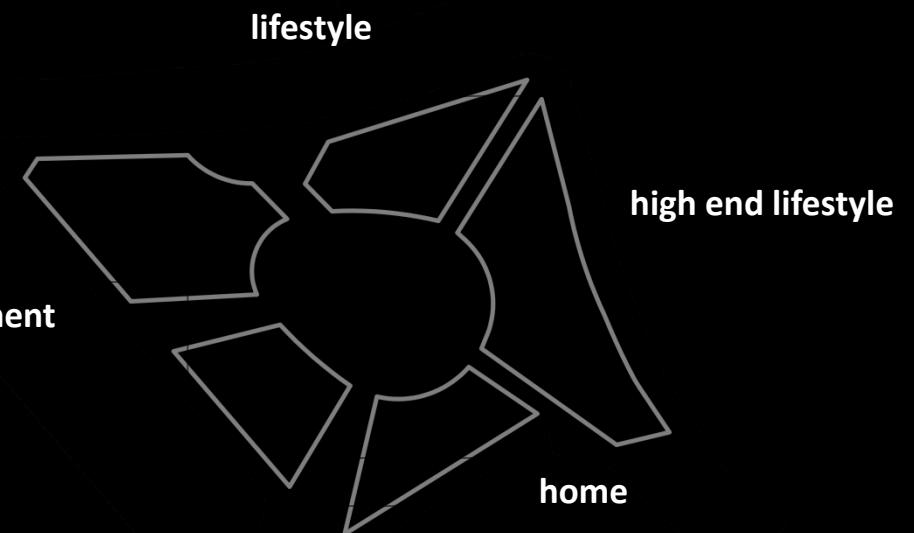
a bit instinct



Bunga Raya-Sketch Layout



Bunga Raya



Bunga RayaMall Layout

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

## DG 4 : Green & Connectivity

### Connectivity Linkages



- a. Elevated walkway & travelator from MRT Segambut Station to Sekolah Menengah (857m)
- b. Elevated walkway & travelator from Plot 2 to MITEC. (442m)
- c. Elevated walkway & travelator from MITEC to Boulevard Road (118m)

At grades walkway next to MITEC. (243m)

Bridge to Sekolah Menengah Kiaramas (30m)

Bridge / Nodes and Event Space (25m width)



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

## DG 1 : Zoning, Use Class & Activities

### Residential

Refers to designated residential areas to accommodate a variety of different residential types, densities and forms to cater for a diverse group of community.

### Mixed Use

Refers to land and building intended for the development of a mix of varied but compatible land uses and activities, primarily commercial such as retail and offices with residential or residing activities.

### Commercial

Refers to areas located within KLM where land and building designated under this zone are to be used primarily for commercial development and activities.

### Open Space & Green Areas

Refers to land which under or will be under the ownership of DBKL or other public authority, with or without access control, and which is set aside by private or public entity for the use of public as open space for recreation, games, sports, or cultural activity; including parks, playgrounds, pocket parks, public gardens, outdoor or indoor sport facilities and includes associated buildings and uses.



## DG 2 : Gross Floor Area GFA Exclusions



1. Basement Carpark



3. Green roof



2. Loading Bay



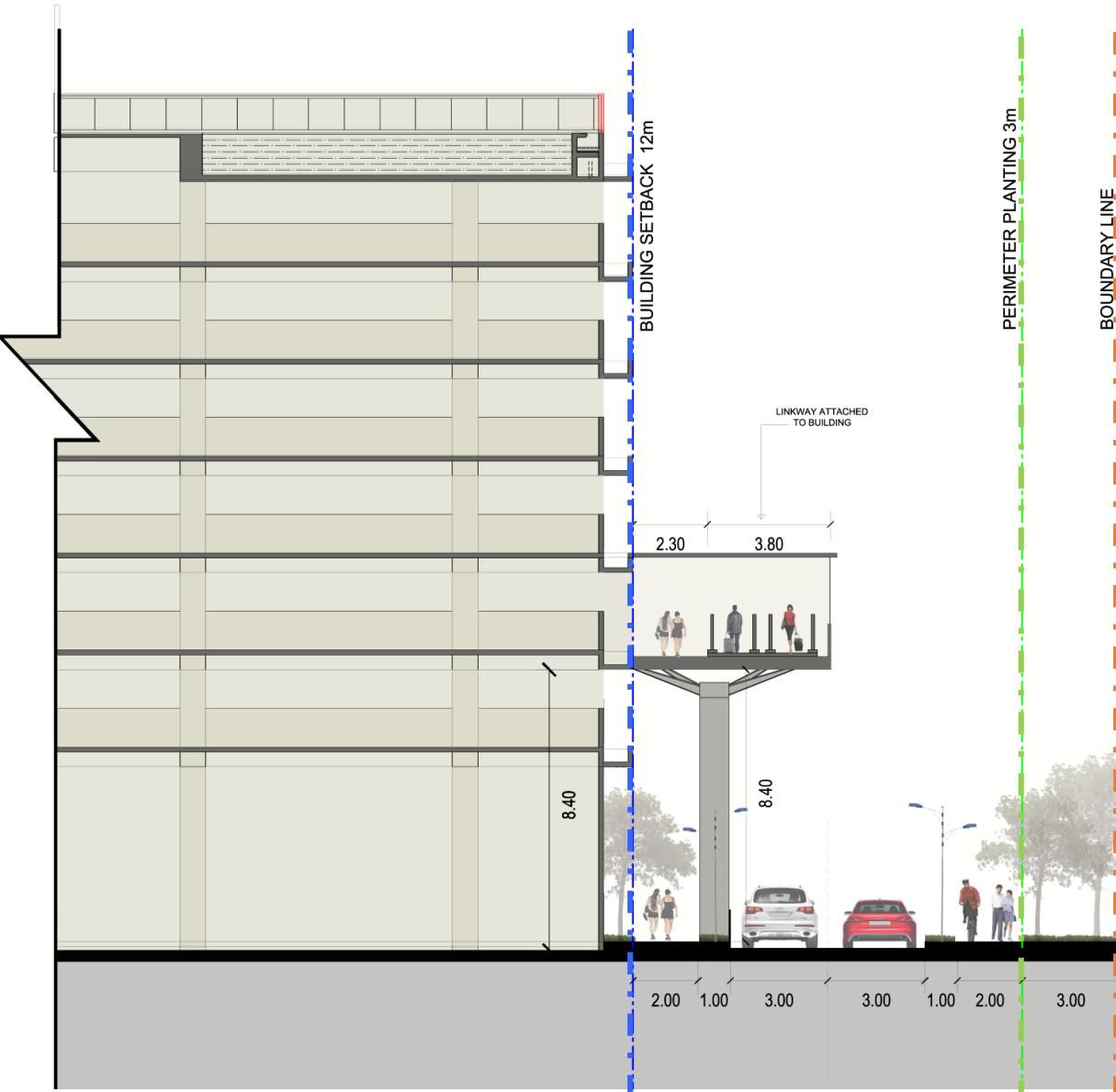
4. Pedestrian bridge from public transport station

# Fundamentals for Designing the Future

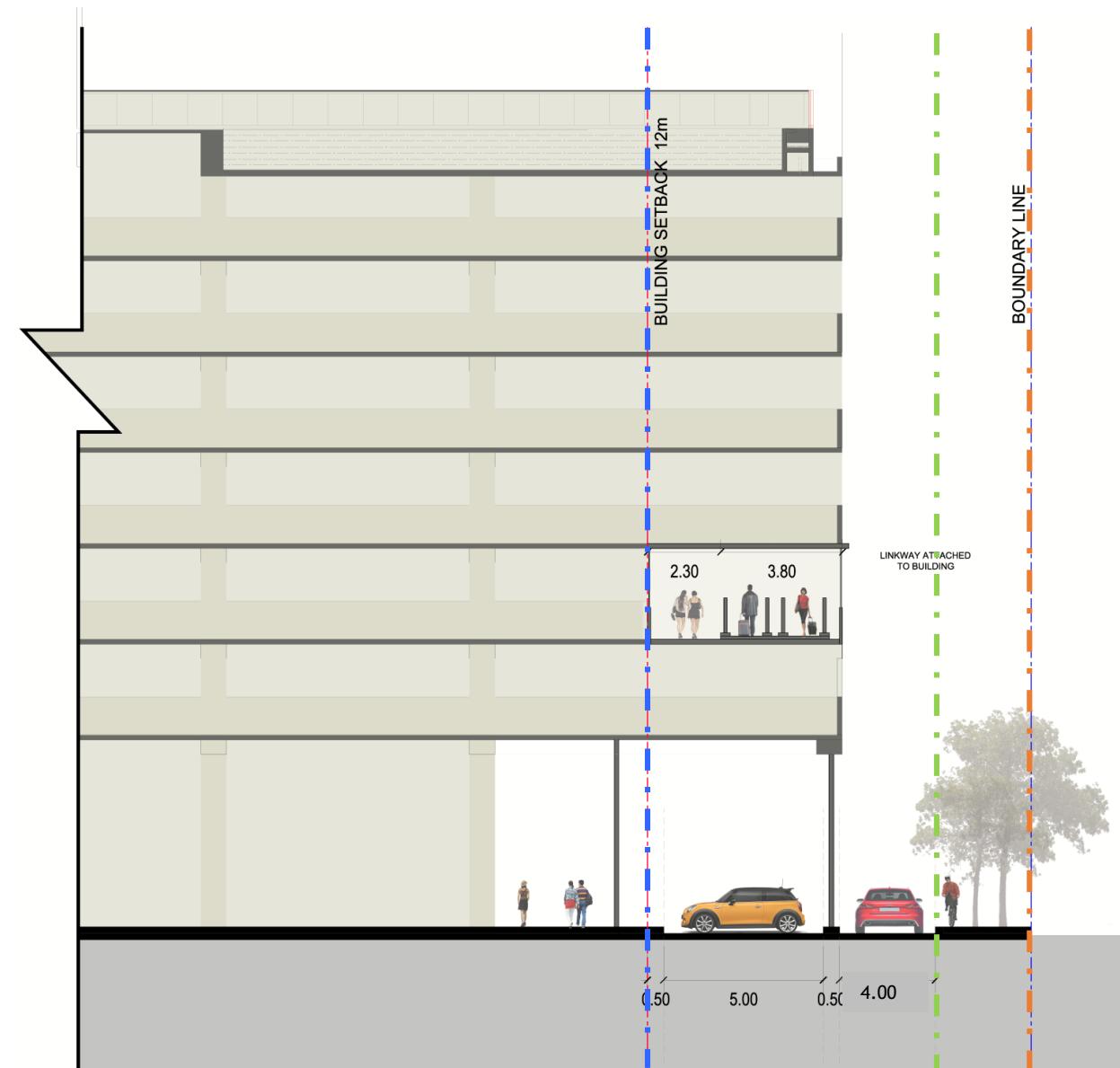
Density, Diversity, Design, Distance, Destination, Demand + 1

## DG 4 : Green & Connectivity

### Elevated Walkway & Travelator



Option 1 : Pedestrian Linkway attached to the building



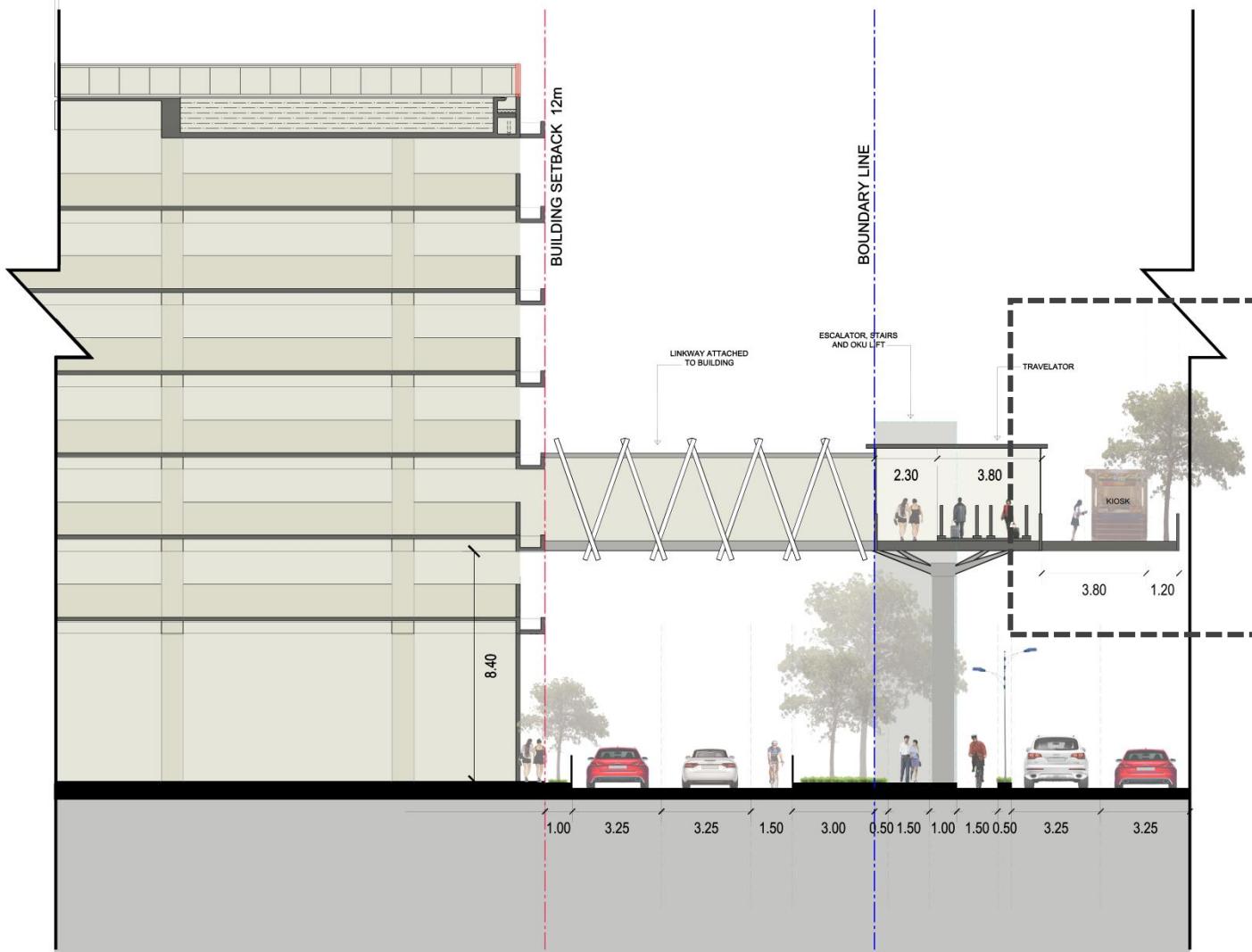
Option 2: Pedestrian Linkway attached inside the building

# Fundamentals for Designing the Future

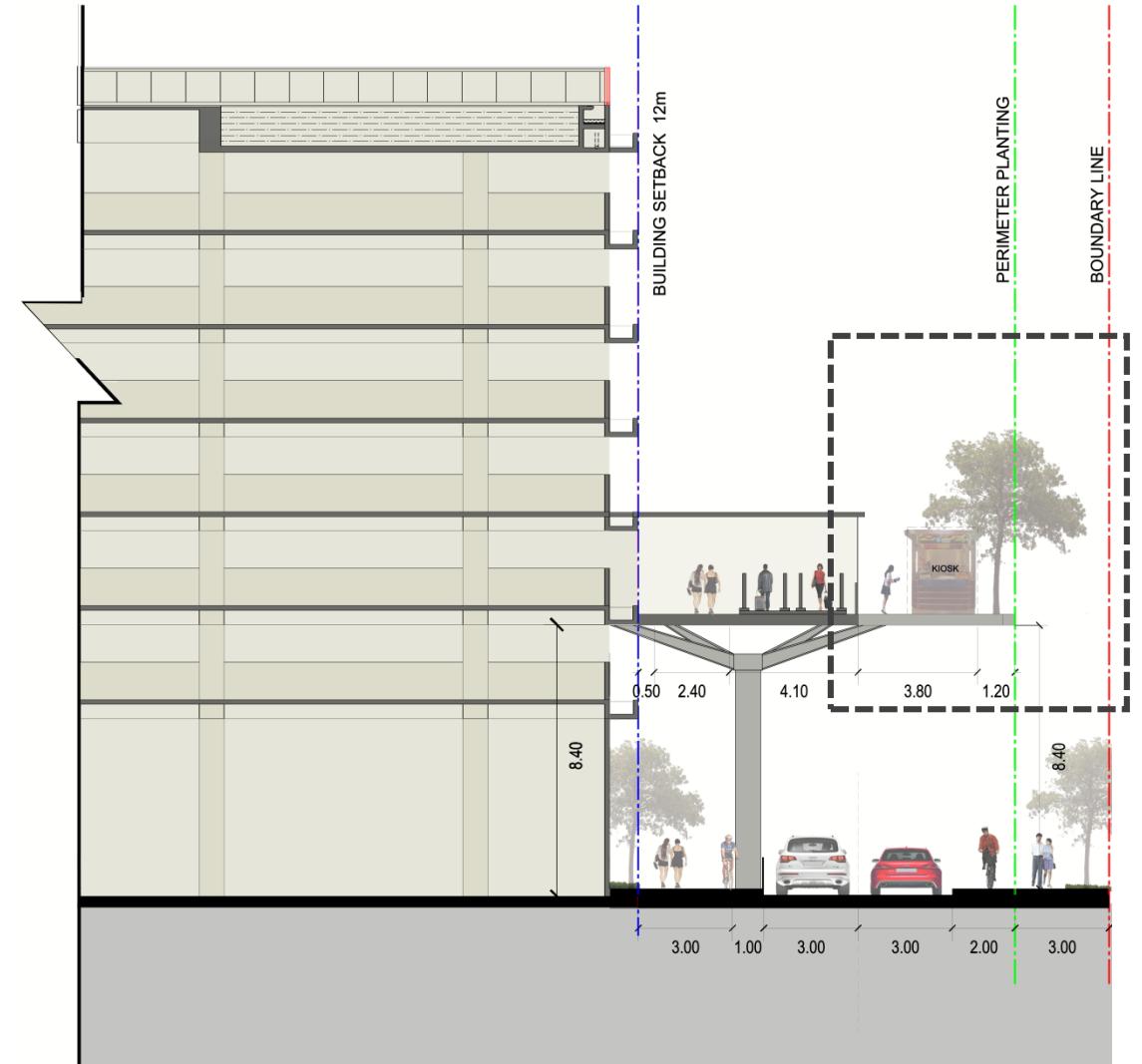
Density, Diversity, Design, Distance, Destination, Demand + 1

## DG 4 : Green & Connectivity

### Nodes & Event Spaces



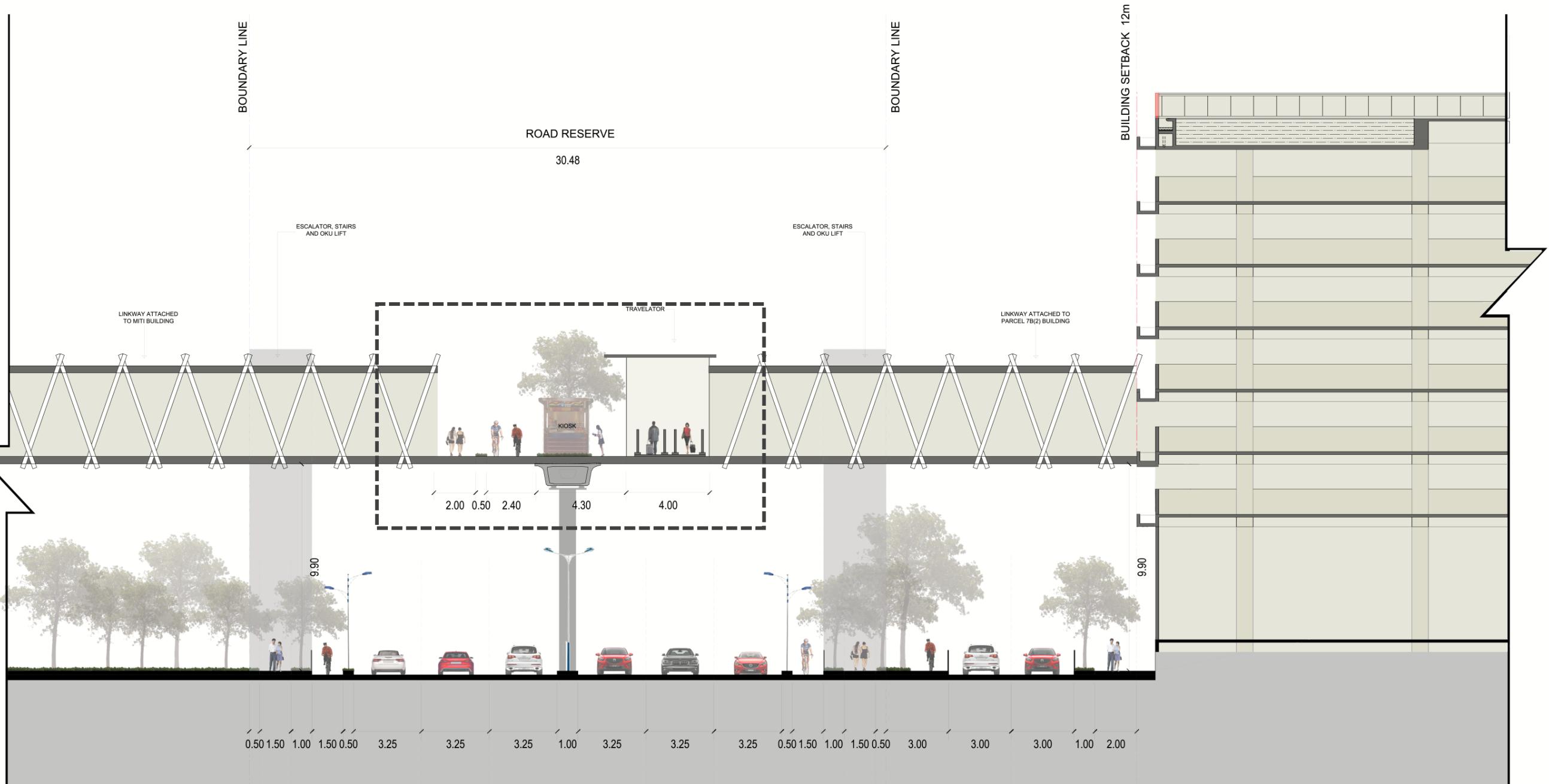
Option 1 : Pedestrian Linkway with nodes/ event space detached to the building



Option 2 : Pedestrian Linkway with nodes/ event space attached to the building

## DG 4 : Green & Connectivity

### Nodes & Event Spaces



Option 3 : Pedestrian Linkway with nodes/ event space at the road median with bridge connecting to the buildings



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

## DG 5 : Urban Edges

### Promenade Edges

1. Shall create a very lively and happening frontage with utmost quality on public realm interfacing road edges.
2. Encourage building ground floor to be transparent (i.e. raise floor) and permeable with corridors towards internal courtyard.
3. Access to park direct from the building without vehicular or obstacle.
4. Universal Accessibility to elderly, child and disable with gradient not more than 6% if ramp is required.
5. The maximum Base / podium height shall be 15m or 3 floors after which the tower shall step-back at least 6m.
6. No parking, loading, storage, trash collection, or outdoor service shall be permitted within this edge.
7. No ingress and egress, ramp to parking shall be permitted within this edge.

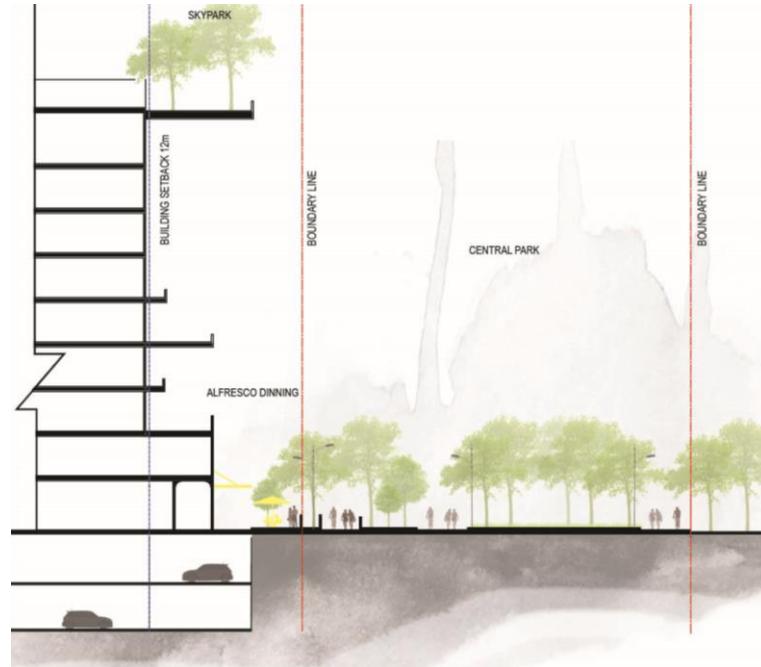
\*this picture is for illustration purposes ONLY

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

## DG 5 : Urban Edges

### Promenade Edges



#### Ground Floor

- Active Retail with alfresco dining
- Transparent glass is encourage

#### Passageway

- Double Volume
- To provide louvre for sun protection
- Café and alfresco dining is allowed 3m above the building edge
- 3m min clear passageway

#### Set Back

- Free standing seating gazebo / café or fully covered kiosk is allowed at max. 6m
- Pedestrian shall have 3m clear passageway along high street
- Staircase to carpark is allow to come out from the setback zone

#### Building Offset

- Free standing seating gazebo / café or fully covered kiosk is allowed at max. 6m
- Pedestrian shall have 3m clear passageway along high street
- Staircase to carpark is allow to come out from the setback zone

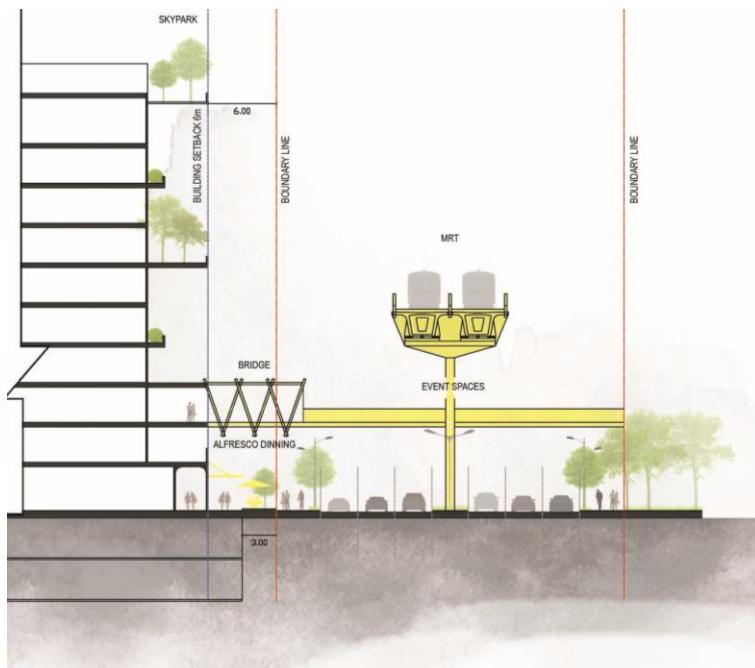
12m Setback

5m

Min 7m(w) x 6m(h)

12m

Min 3m



- Active Retail with alfresco dining
- Transparent glass is encourage

- Double Volume
- To provide louvre for sun protection
- 6m passageway shall be kept clear from any obstacle
- All door shall open to internal to avoid obstacle to pedestrian

- Free standing seating gazebo / café or fully covered kiosk is allowed at max. 4m about to setback line
- Platform for seating is allowed to raised at max 1m

- 3<sup>rd</sup> level shall be activated at the pedestrian crossing
- Planter box and planting is encourage at the setback ledge
- Balcony and expression is allow to projected up building line
- Double volume balcony or void is encourage to create more interesting façade and proportionate to wide street frontage

6m Setback

5m

Min 7m(w) x 6m(h)

6m

Min 6m



\*this picture is for illustration purposes ONLY

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

## DG 5 : Urban Edges

### Neighborhood Edges

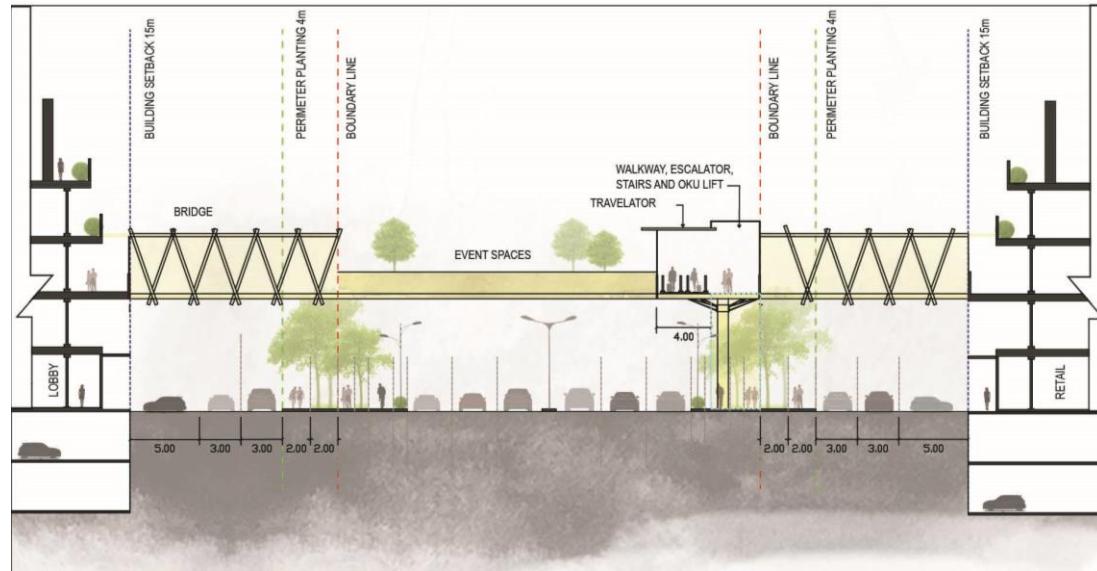
1. View
2. Gateway
3. Nodes
4. Place making
5. Street edge
6. Typology

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

## DG 5 : Urban Edges

### Neighborhood Edges



#### Ground Floor

- Allowable for Convenient Shop, Non polluting services i.e. laundry, nursery

#### Passageway

#### Set Back

- Shall allow pedestrian path (min 1.5m) within the setback zone connected to next plot

#### Building Offset

- Balcony / Planter Box / Sky garden are encourage after 6m onwards above proposed road level

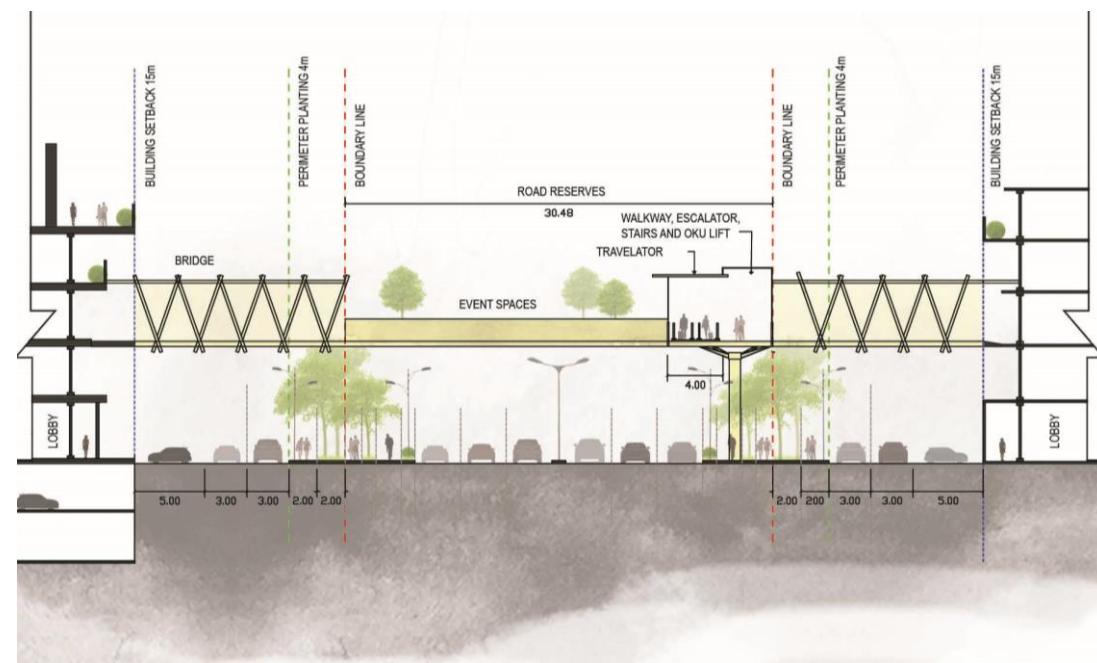
15m Setback (With Retail)

4m

Min 4m(w) X 3m(h)

6m

Max 3m



- Lobby for residential only

- Passageway level should not be more than 0.5m from road level. Ramp is compulsory at every 100m

- Shall allow pedestrian path on the setback zone connected to next plot
- Landscape / Planter box should be limited to max 1m height as segregation

- Balcony / Planter Box / Sky Garden are encouraged up to max 6m from the building setback line

15m Setback (Without Retail)

5m

Optional

6m

Max 3m

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

## DG 5 : Urban Edges

### Park Edges

1. Encourage building or ground floor to be transparent and permeable for better.
2. Encourage opening between building for cross ventilation creating better air quality.
3. Access to park direct from the building without vehicular or obstacle.
4. Universal Accessibility to elderly, child and disable with gradient not more than 6% if ramp is required.



\*this picture is for illustration purposes ONLY

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



## PUBLIC FACILITIES INITIATIVES— Use of LRT Reserve



## DESTINATION

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This is about accessibility to the TOD

Can we look at the TOD as a Destination. MYHSR and Heavy Rail are usually Destination but Transit TOD can offer destinations as Specialised Activities Centre

## DEMAND

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Demand Management look at how to get sufficient demand to the TOD

It is also about making all the other D's density, diversity, design, distance and creating destination work to create demand

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

## Penang Sentral

After linking KL to Ipoh and while concurrent work is happening from Ipoh to Butterworth and Padang Besar

Penang Sentral was the next TOD with Rail, Bus, Ferry and future Transit system linking Penang with a coordinated Transit system. After its launch in 2007 it would take another 2 years before any physical work started in 2009 as part of the advance work and the temporary bus terminal was completed in 2011.

Work on the Penang Sentral since 2015 is expected to be completed in 2018 with the TOD



## TIME

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Travel time

Changes through time

Time may not change

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



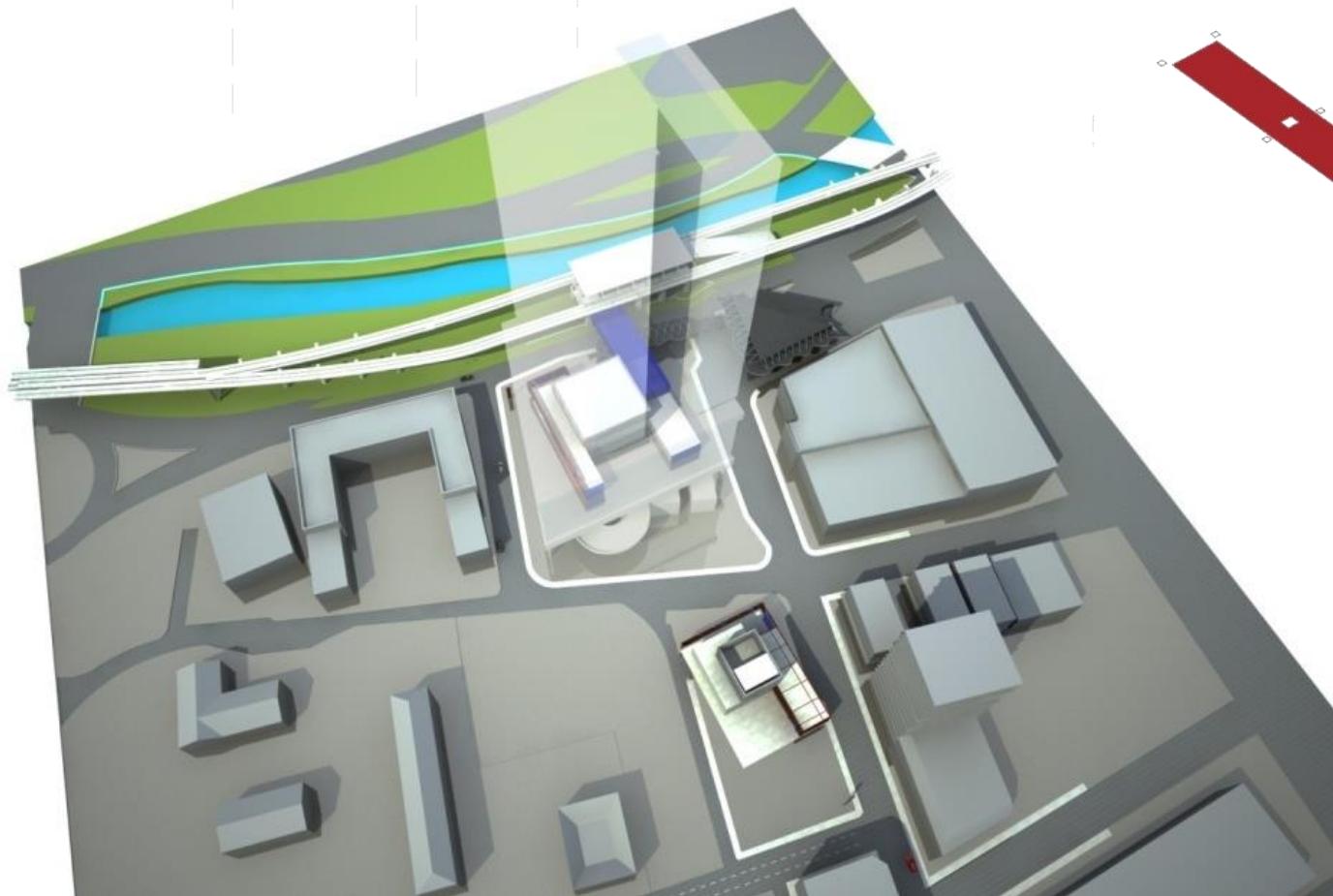
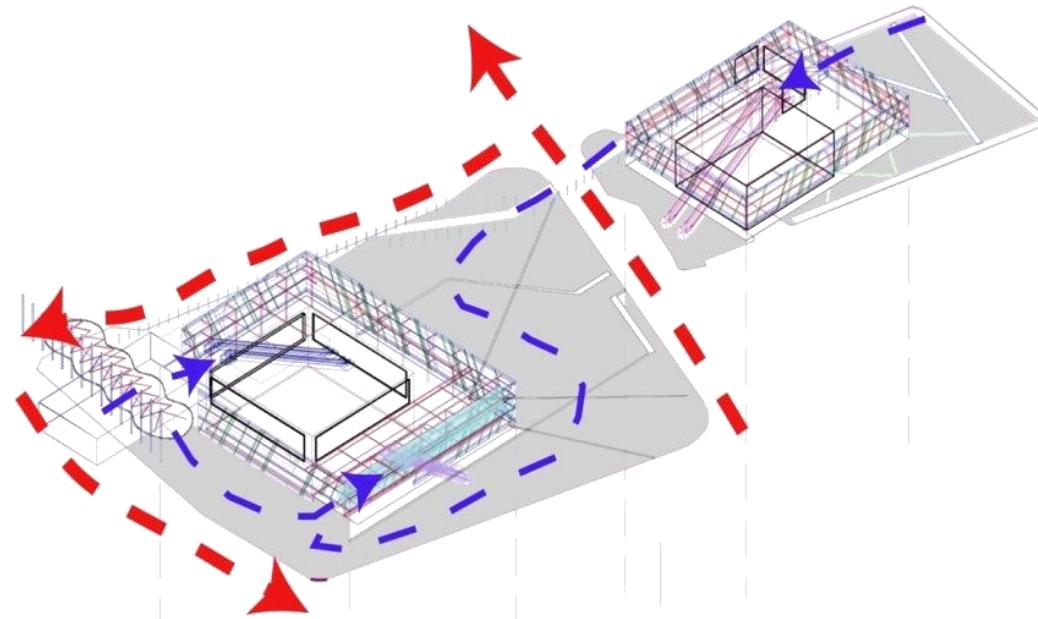
Serendah Station planned to be the new development area.

After 15 years....



# SCHEME | OVERALL

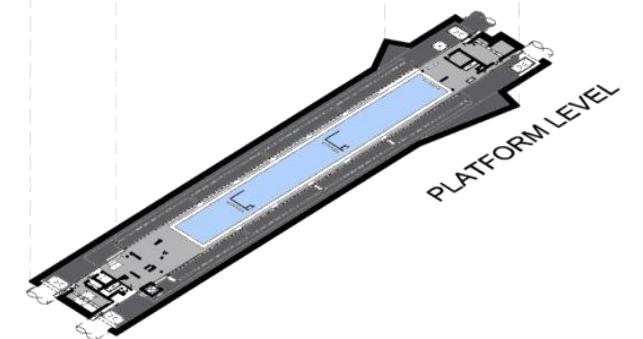
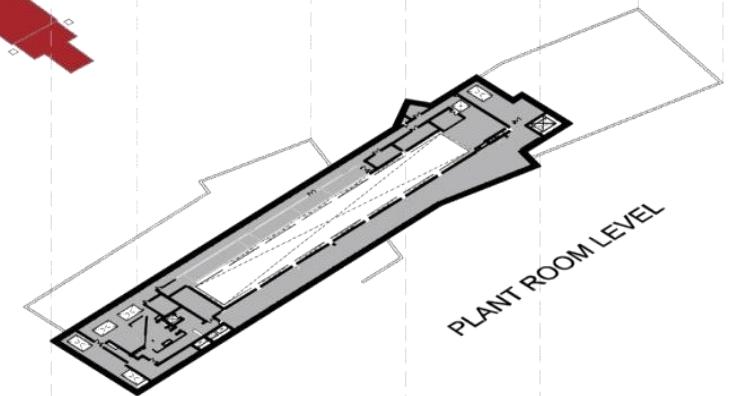
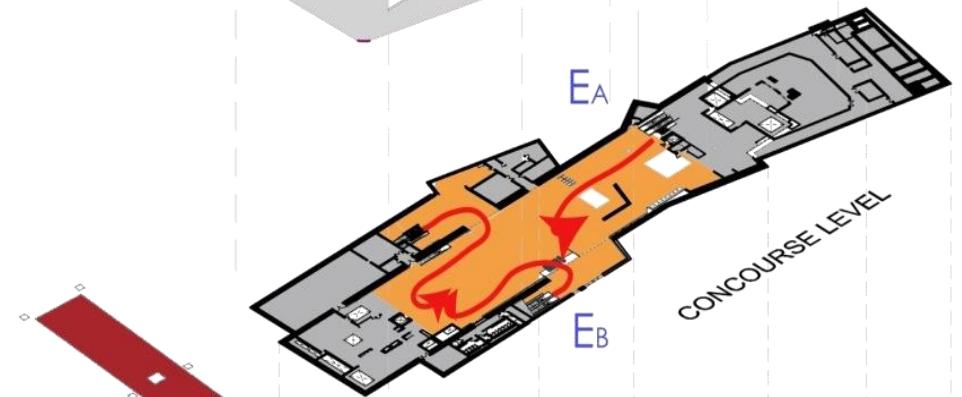
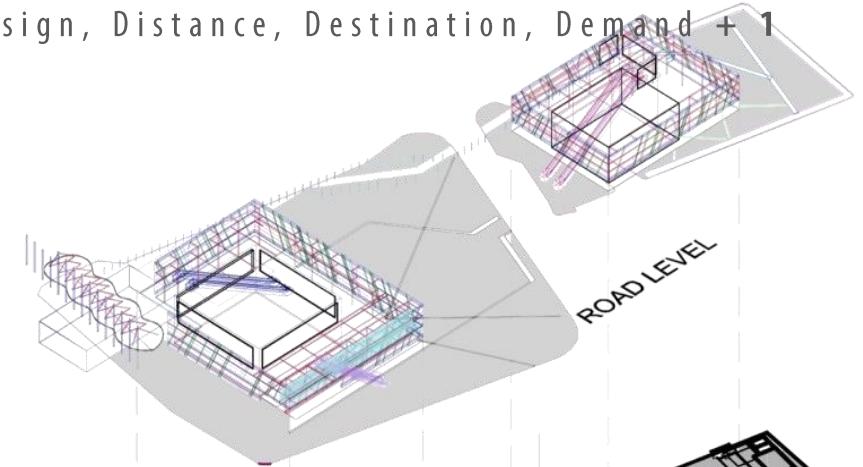
- Private area
- Concourse area
- Platform area
- Tube area
- E Entrances
- Transit
- - - Pedestrian Transit
- - - Car Transit



An interactive and multiple-use plaza design to activate and enliven the public spaces surrounding the station entrance buildings.

# Fundamentals for Designing the Future

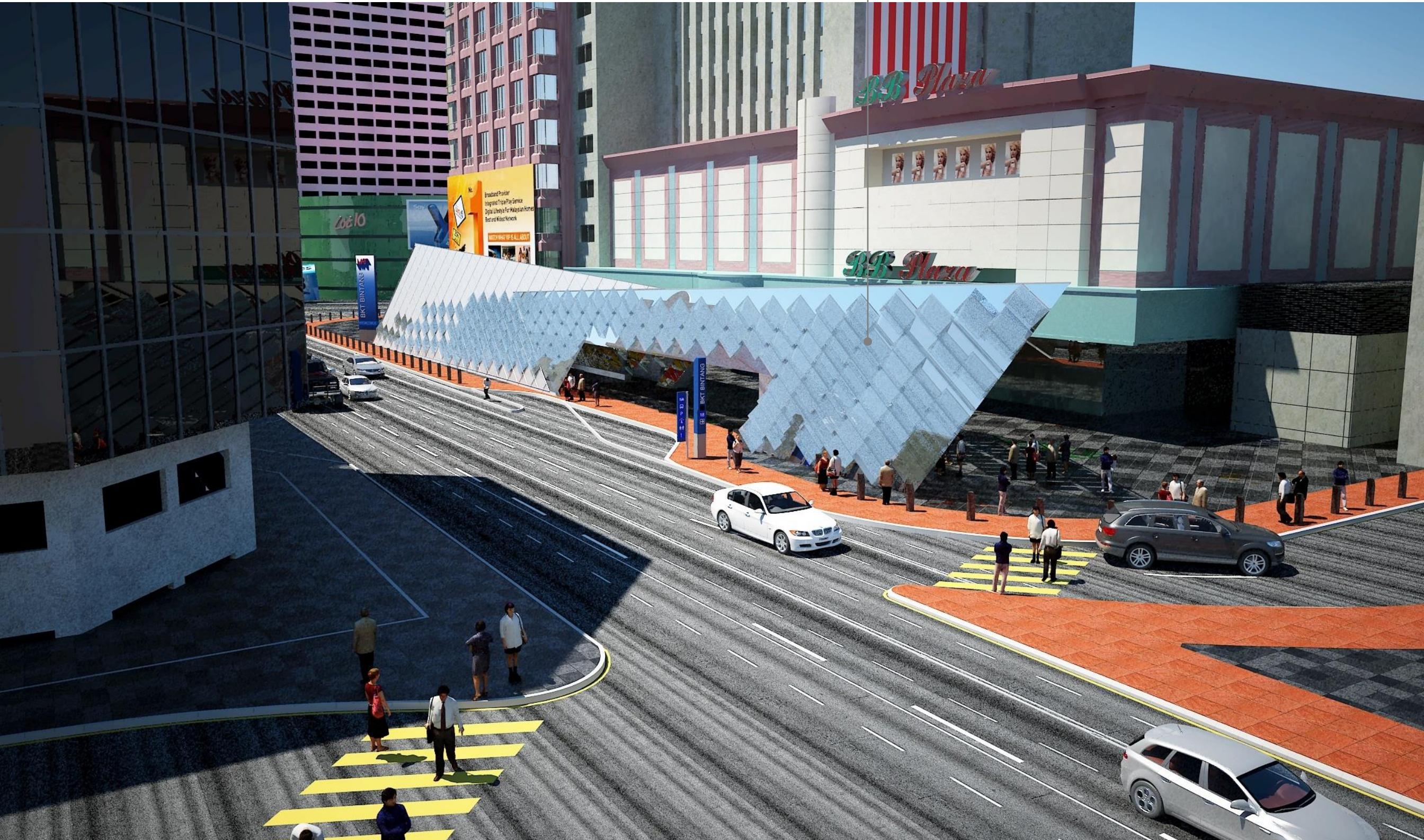
Density, Diversity, Design, Distance, Destination, Demand + 1



Planned for TOD ..only 2-3 years ago

# VIEW | OVERALL CONTEXT

## Fundamentals for Designing the Future Density, Diversity, Design, Distance, Destination, Demand + 1



Existing Development at the backdrop

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



Waiting for a new TOD

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1

# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



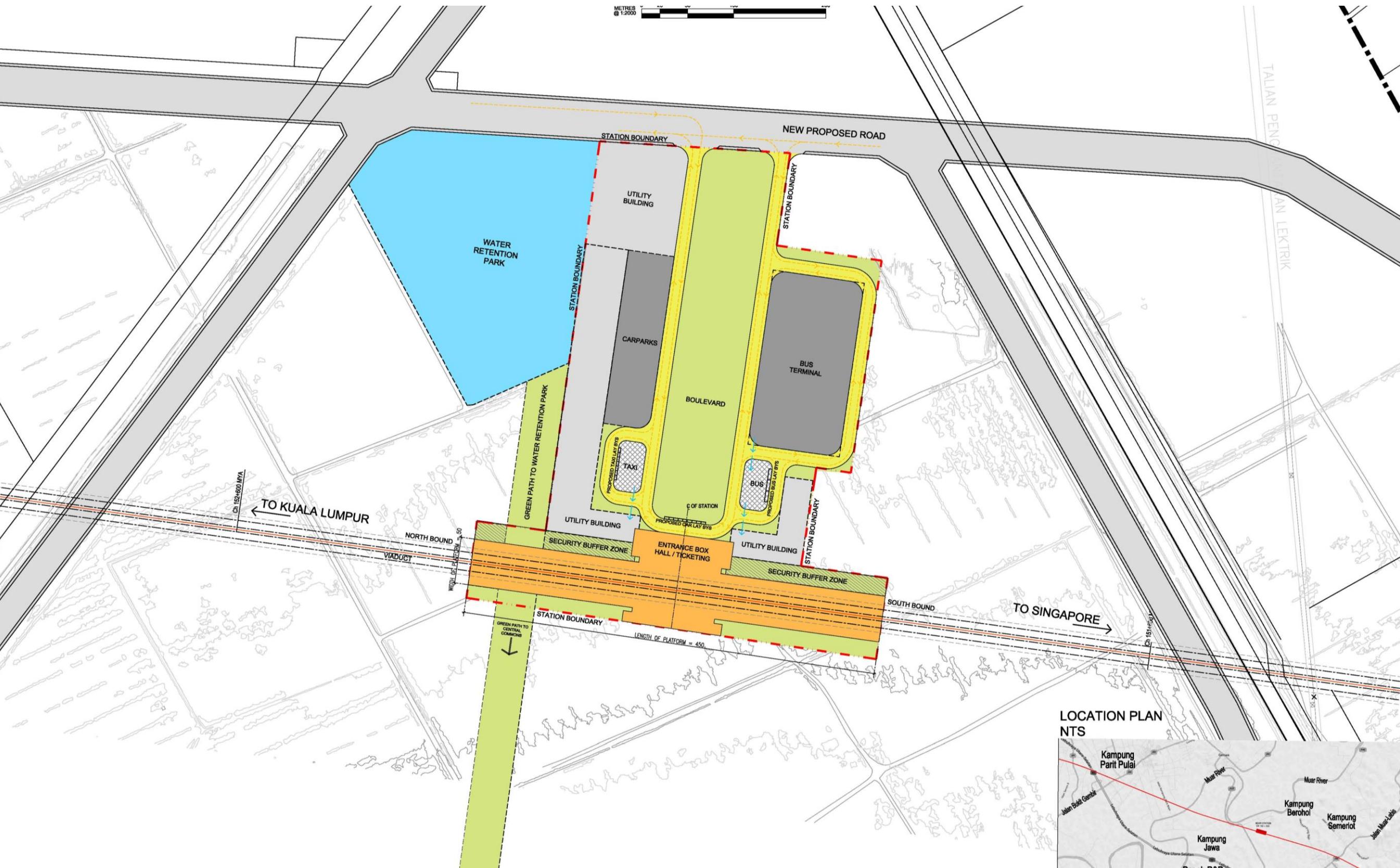
# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



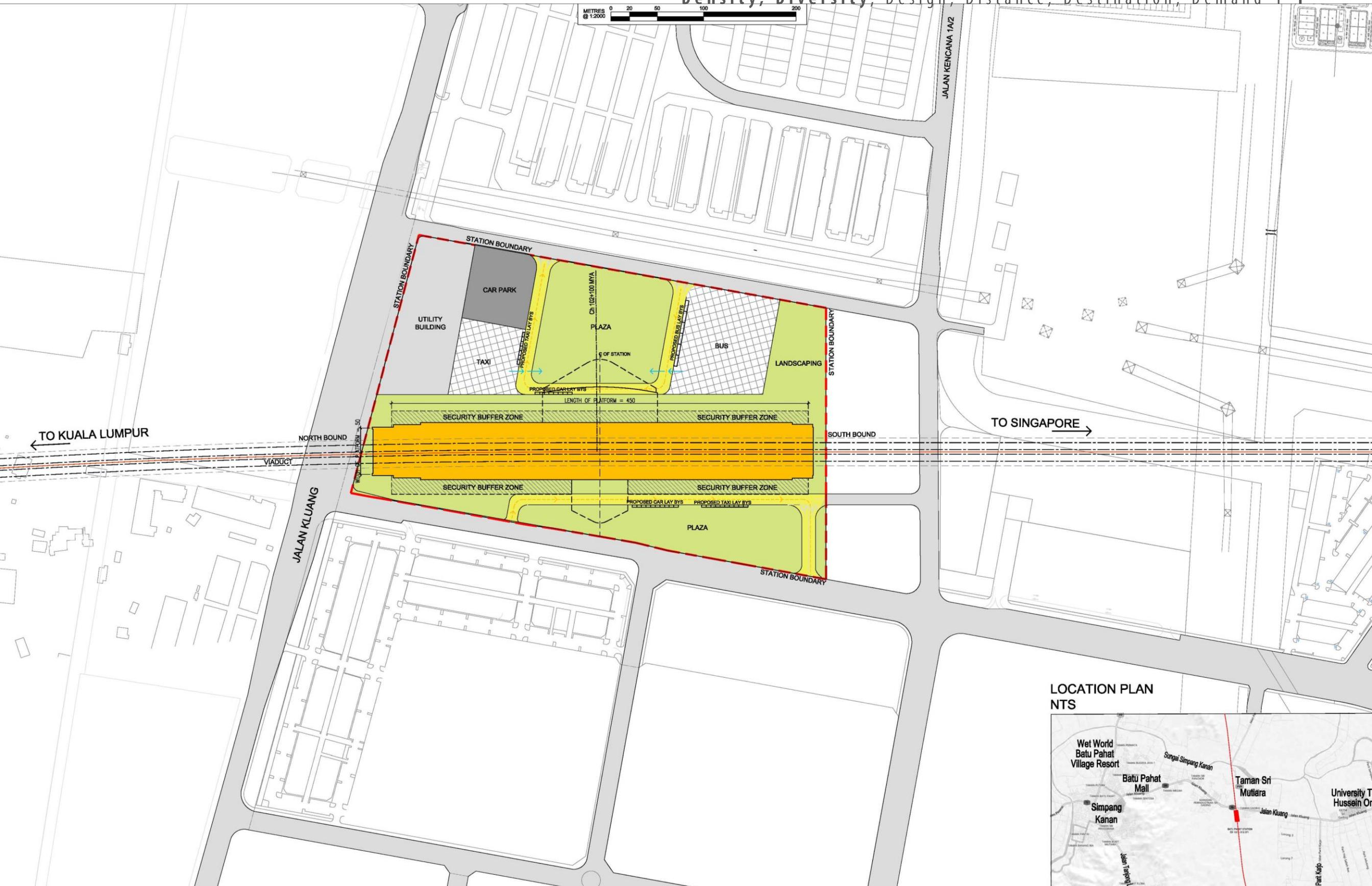
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# Fundamentals for Designing the Future

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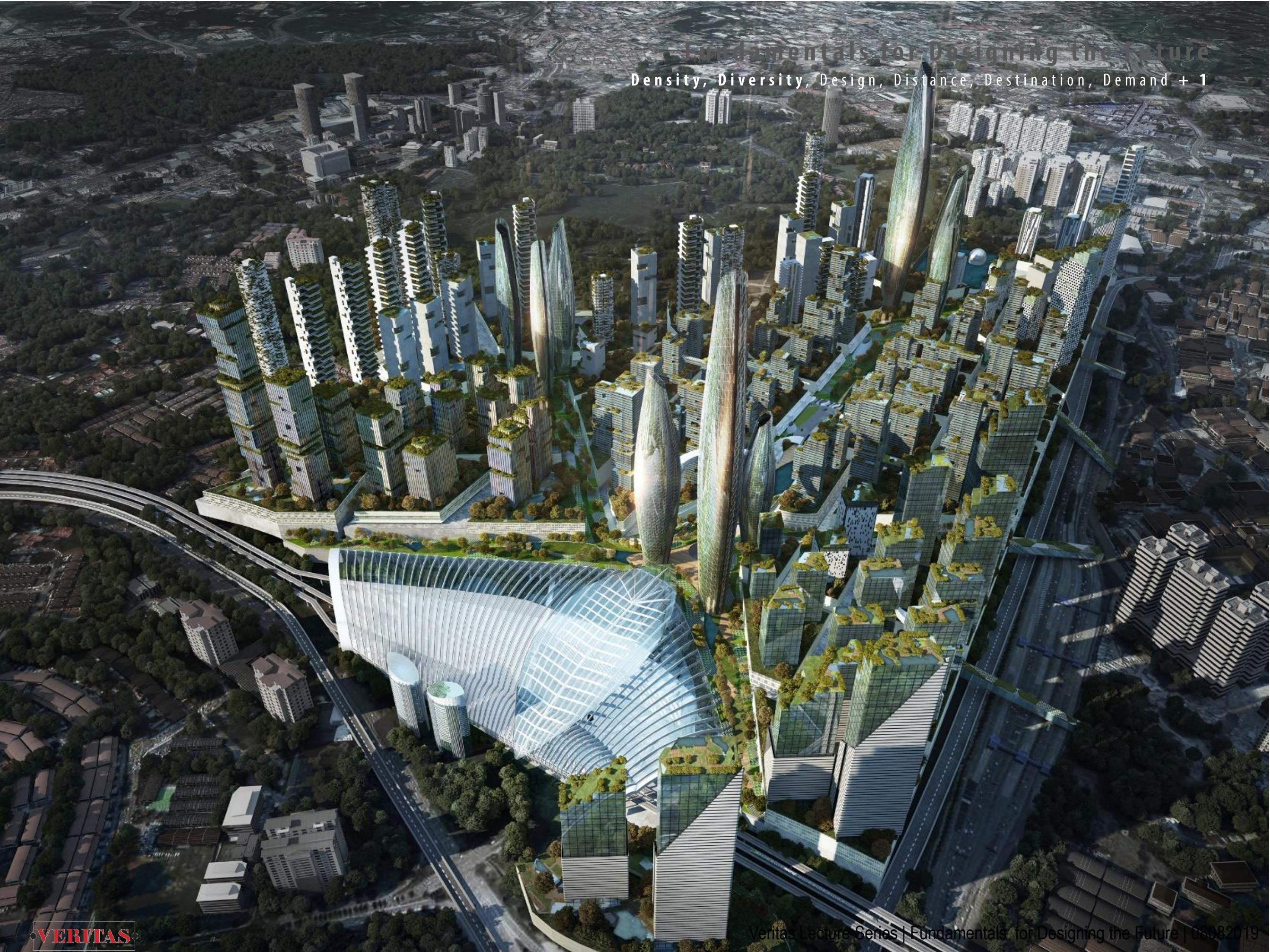


LOCATION PLAN NTS



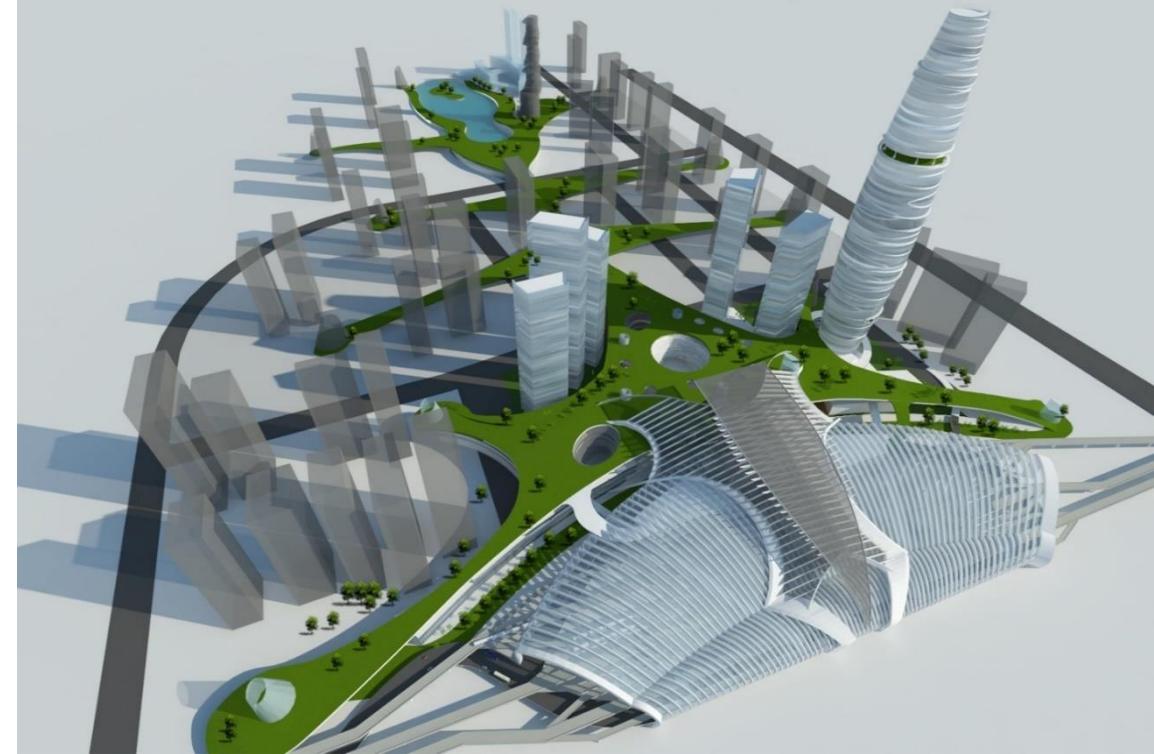
# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



# Fundamentals for Designing the Future

Density, Diversity, Design, Distance, Destination, Demand + 1



The Way forward

Technology enabled

Walkability

Diversity

Lifestyle

Flexibility and Adjustment

A total Change in Car ownership

...self driving cars

## THE FUTURE

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Where are we going? Are we going backward

## DATA

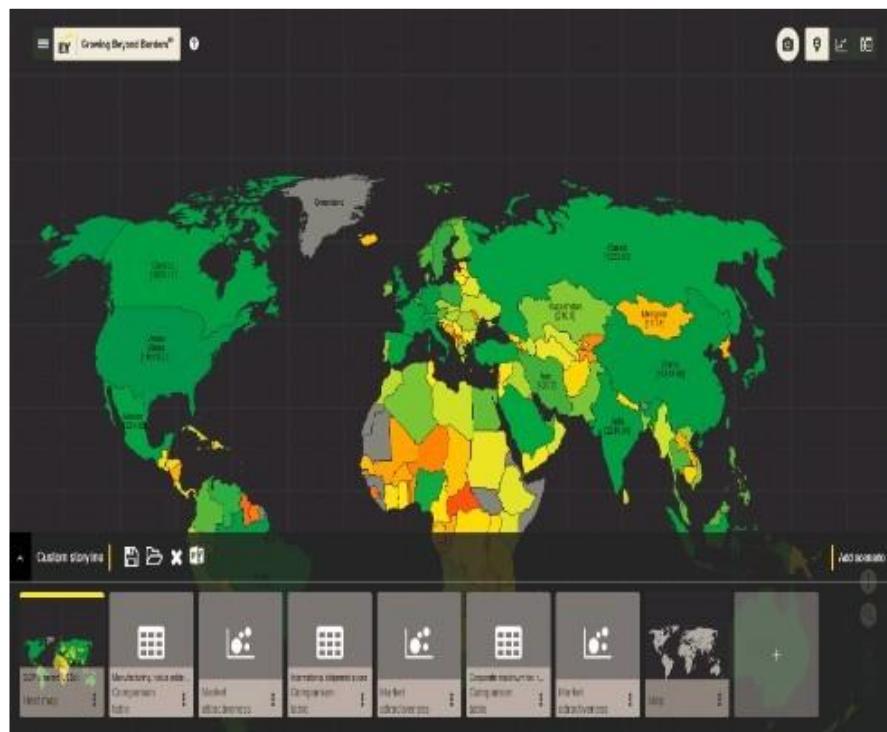
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The **current fundamentals** look at creating a broad base of experience and we are looking towards creating local flavour and customization. Customisation need DATA. In this digital age the correlation of data (not personalised data but broad based data) can be tracked, if necessary, yet we are behind.

3 years ago we talked about Big Data and the future of planning, to this day we still have difficulty getting data on infrastructure whilst cities in the world are already using data and sensors to plan and change easily

## WITH DATA we know WHAT, WHY and HOW we can CHANGE THE MASTERPLAN

LIVE DATA extraction to helps with global benchmarking; economic, social as well as parameters relevant to the Live, Work, Play



### Possible outputs

insights      fresh perspectives

global markets

areas      an upside potential

- Explore opportunities to match the untapped needs

3D Modelling Technology will allow us to digitise and effectively visualise the essence of your CDP, and better connect with your stakeholders

## 3D Model...

## CHANGES

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Yet **Data itself is Insufficient** as we need people to interpret the data, see the pattern and understand the fundamentals behind it

Data is only **a guide** as all the data collections are the past and not necessary a representation of the future and unless we adapt it immediately (Flexible Planning) we will need to look at predictive modelling and that in itself is a danger as imagine an AI running your life... and if do not know the fundamentals we may not know the problems or how to solve it in the future.

## What Next ?

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We have in our hand the ability to control our destiny with ever advanced information. We need good **fundamentals** to guide the design of the Future (Order) but we also need **Visionaries** that will challenge the world (Chaos)

As Order cannot create and Chaos cannot maintain, we need to be always thoughtful and vigilant that we straddle the fine line of **Designing a Better Future**

TQ

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its elementary...