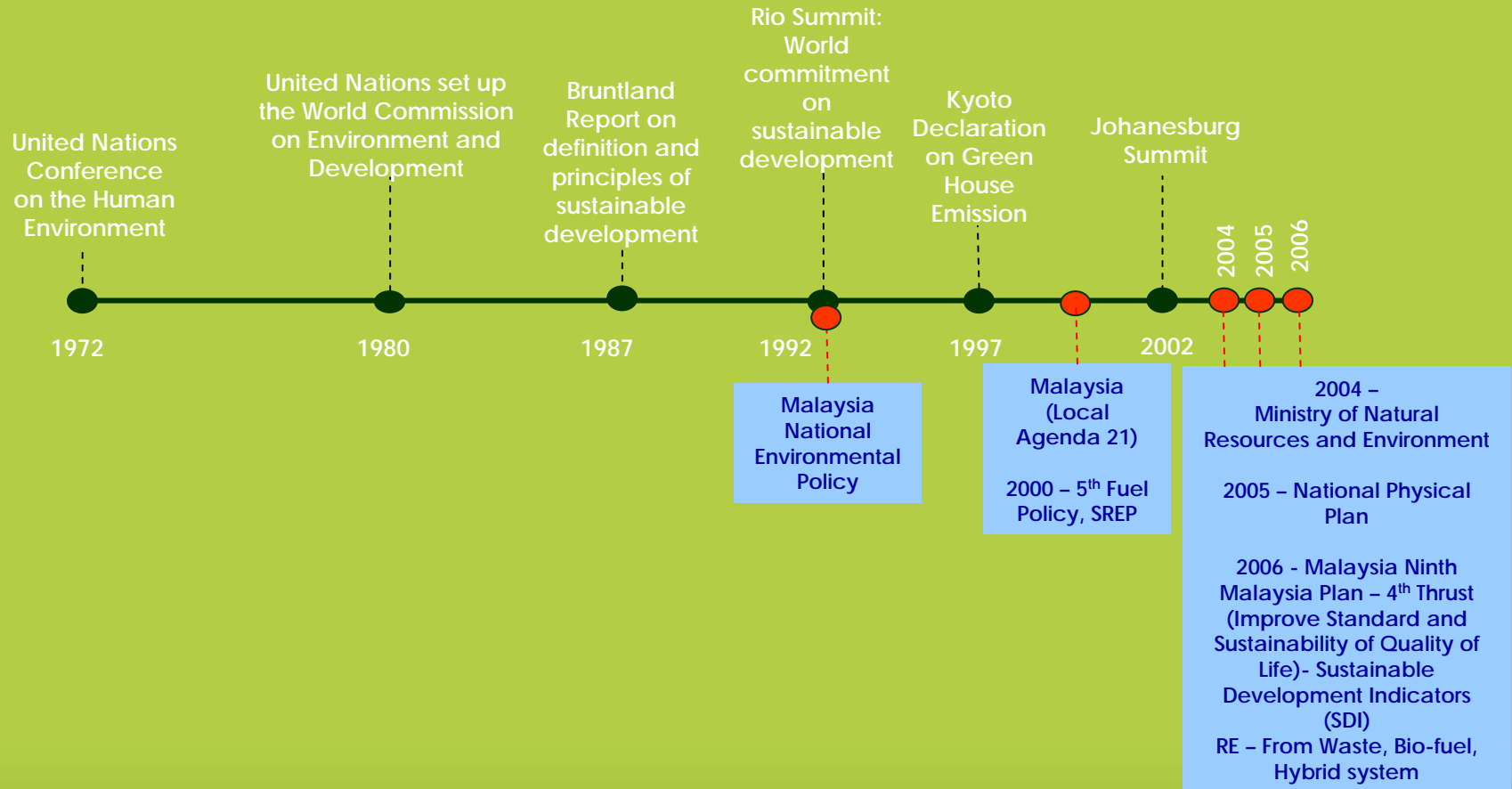




Sustainable Development
Liveable Communities



SUSTAINABILITY IN MALAYSIA



Bestari Jaya is a Selangor's State initiative project to demonstrate its commitments to Sustainability.

ASPIRATION

BEST CITY IN MALAYSIA
KNOWLEDGE CITY
SUSTAINABLE COMMUNITY

VISION

**Towards A Livable Community
(Komuniti Sejahtera)**

Peaceful, Healthy and Prosperous Society



SELANGOR'S DEFINITION OF SUSTAINABLE DEVELOPMENT Selangor Agenda 21

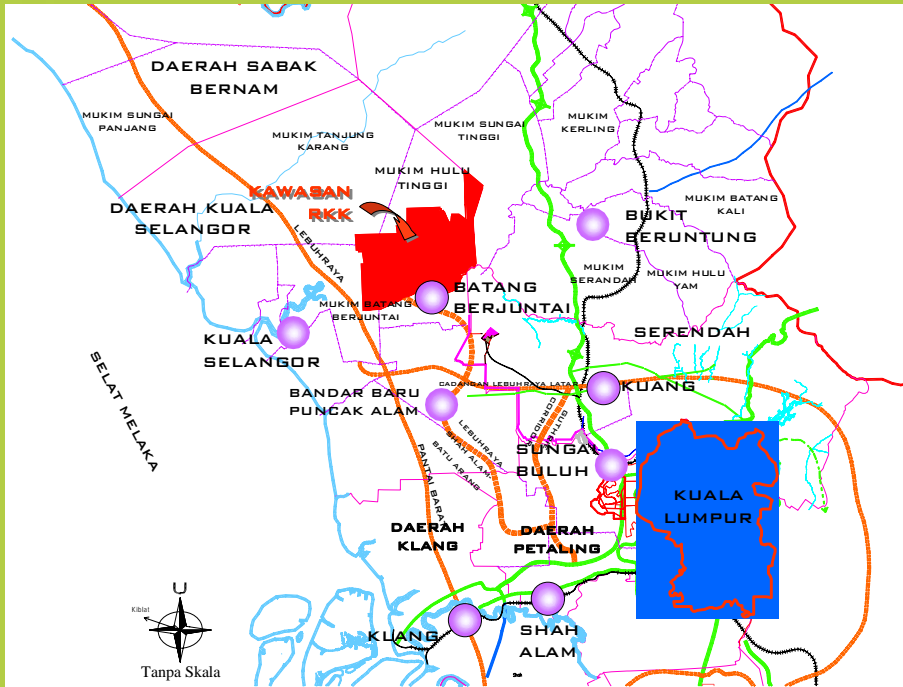
One that requires a reformation of the economy that takes into serious account the impact of development on the environment, natural resources and society.

“ Development that is enduring, characterized by a philosophy of respecting the caring capacity of natural resources, preserving the quality of the environment and ensuring the well being of society”

SELANGOR'S COMMITMENT/ MANIFESTO TOWARDS SUSTAINABLE DEVELOPMENT

1. Building a knowledgeable society
2. Protecting the eco-system health
3. Developing the economic foundation
4. Ensuring natural resources are utilized wisely
5. Expanding agriculture activities
6. Guaranteeing that urbanization provides commodious and healthy settlement
7. Providing infrastructure that is broad and widespread
8. Building a highly skilled and innovative human resources
9. Engaging The Public
10. Integrating the principles of sustainable development

LOCATION



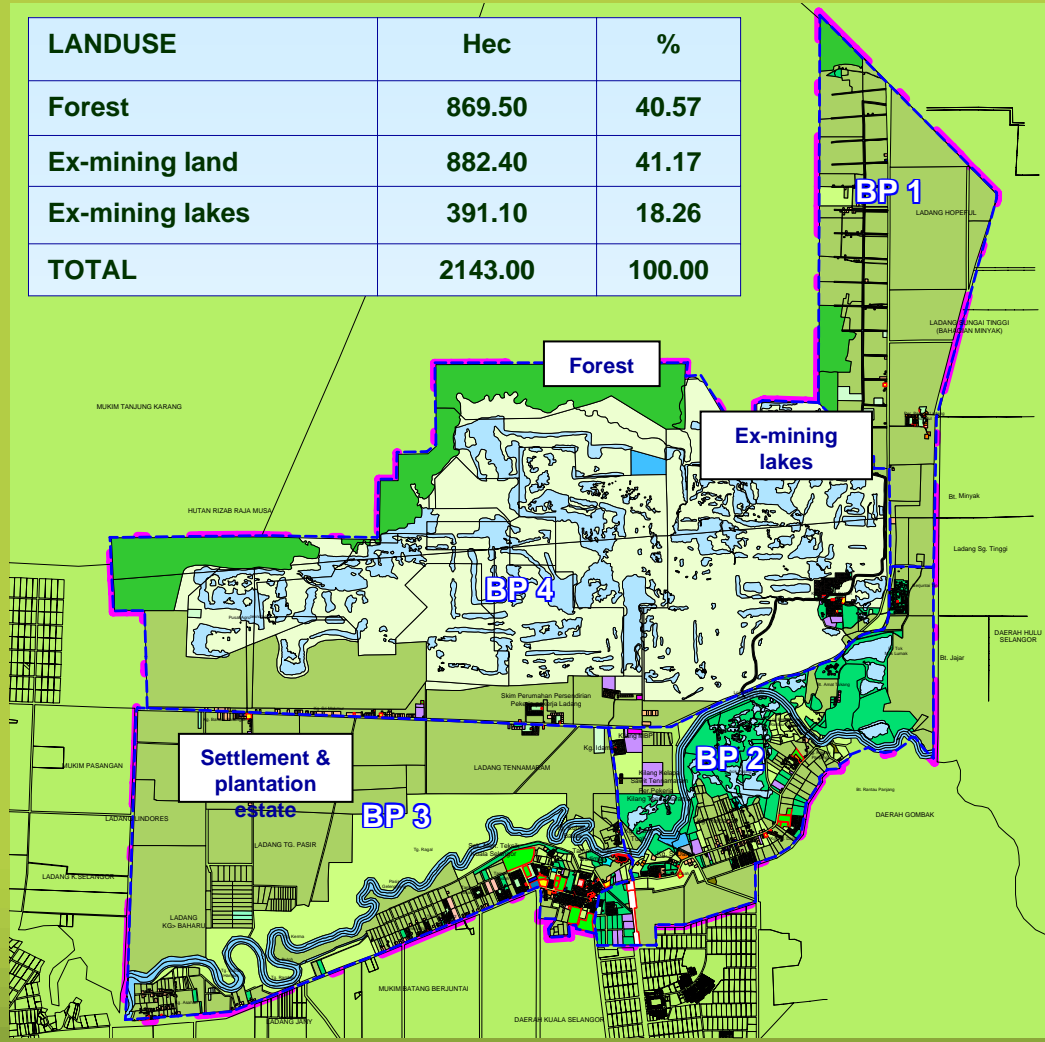
REGIONAL LOCATION

- North South Expressway (NSE) via Rawang,
- Jalan Rawang-Batang Berjuntai,
- Jalan Kundang-Batu Arang-Batang Berjuntai,
- Jalan Sungai Buloh-Ijok-Batang Berjuntai.

In Relation To Malaysia

PLANNING AREA

- 29,000 ACRES (110 SQ.KM) OF LAND
- COMPRISING OF ESTATE LAND, EX-MINING LAND AND EXISTING SETTLEMENT AREAS
- VARIOUS STAKEHOLDERS I.E. ESTATE OWNERS AS WELL SMALL HOLDERS
- POTENTIAL DEVELOPMENT PRESSURE DUE TO UNIVERSITY DEVELOPMENT AND COMMITTED INFRASTRUCTURE
- ENVIRONMENTALLY SENSITIVE AREAS – FOREST RESERVES (RAJA MUSA FOREST) AND RIVER BASIN (SG SELANGOR)
- FLOOD PRONE AREA
- FLAT LAND WITH LEVELS BETWEEN 6.0 M TO 7.5M



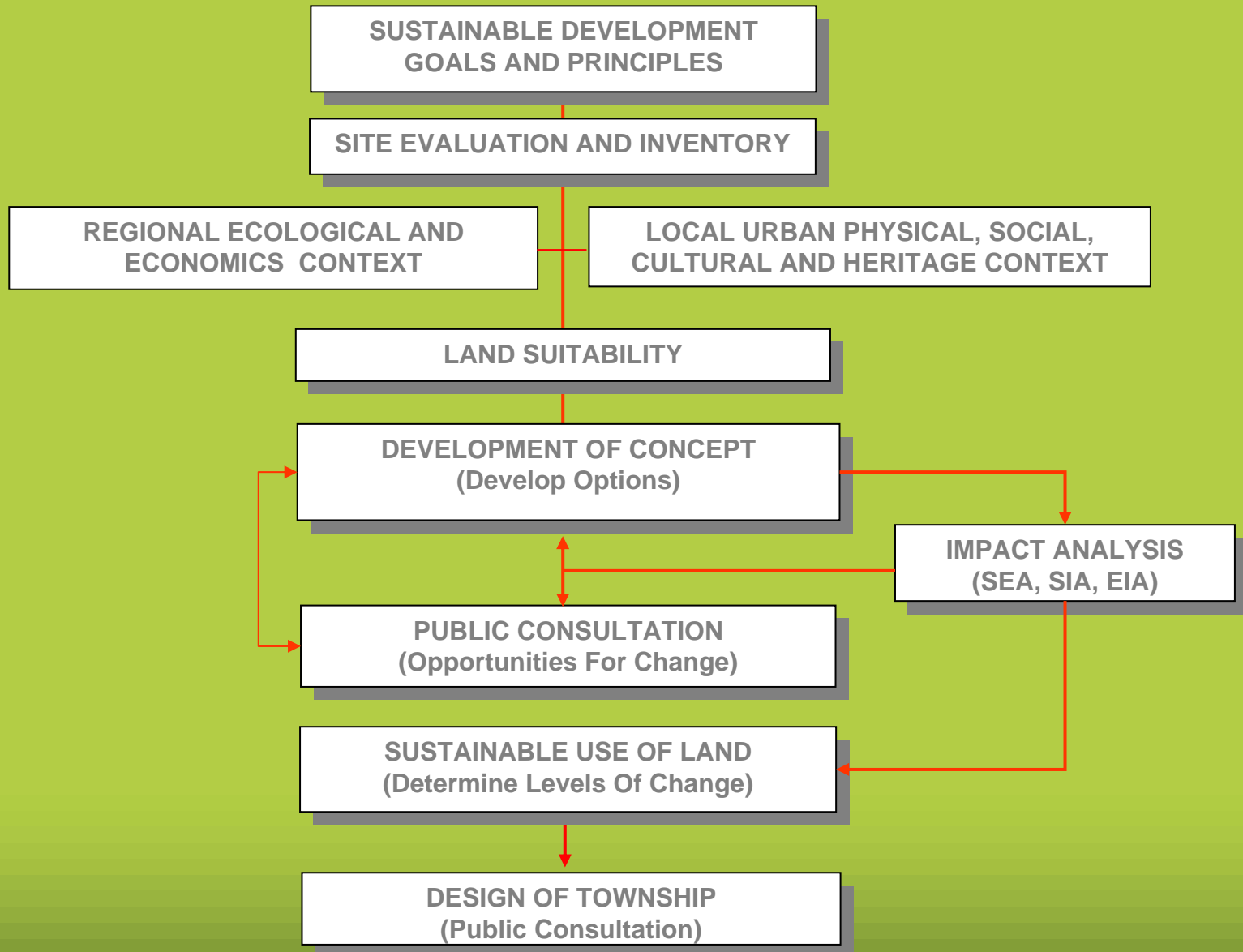
DEVELOPMENT OBJECTIVE

To create a sustainable new township development which has taken into consideration the needs of all stakeholders involved, either directly or indirectly, and will enhance the quality of community's life without compromising the local environment and its ecology.

THE CONCEPT FOR SUSTAINABLE COMMUNITY DEVELOPMENT :-

- Holistic Thinking and Planning Process
- Conserve Natural Resources - Coexistence
- Ecological Standards (Energy Efficiency, Exploitation of Renewal Energy, Water Conservation and Management, Waste Management)
- Maintenance of Eco-systems and Their Regenerative Potential
 - Resource Efficient Layout
 - Consultative Planning Procedure – Public Participation
 - Interconnectedness and Traffic Minimization
- Provision of Social Infrastructure to Facilitate Social Interaction
 - Ecological Landscaping
- Promote Shelter and A Safe and Harmonious Environment

PLANNING PROCESS



METHODOLOGY



PUBLIC CONSULTATION IN THE PLANNING PROCESS

- **Focus Group Discussions**
 - Concept And Definition of Sustainability
 - Development Concept and New Technologies

- **Stakeholders Consultation**
 - Formation of Technical Working Group
 - TWG1 – Drainage, Sewerage and Environmental Quality**
 - TWG2 - Roads and Transportation, Utilities and New Technologies**
 - TWG3 – Management and Implementation**
 - TWG4 - Community Facilities and Safety**
 - (Government Technical Agencies, Approving Authorities, University)
 - Meet the local communities session (local community organizations)
 - Other Stakeholders Meeting – (Land Owners)

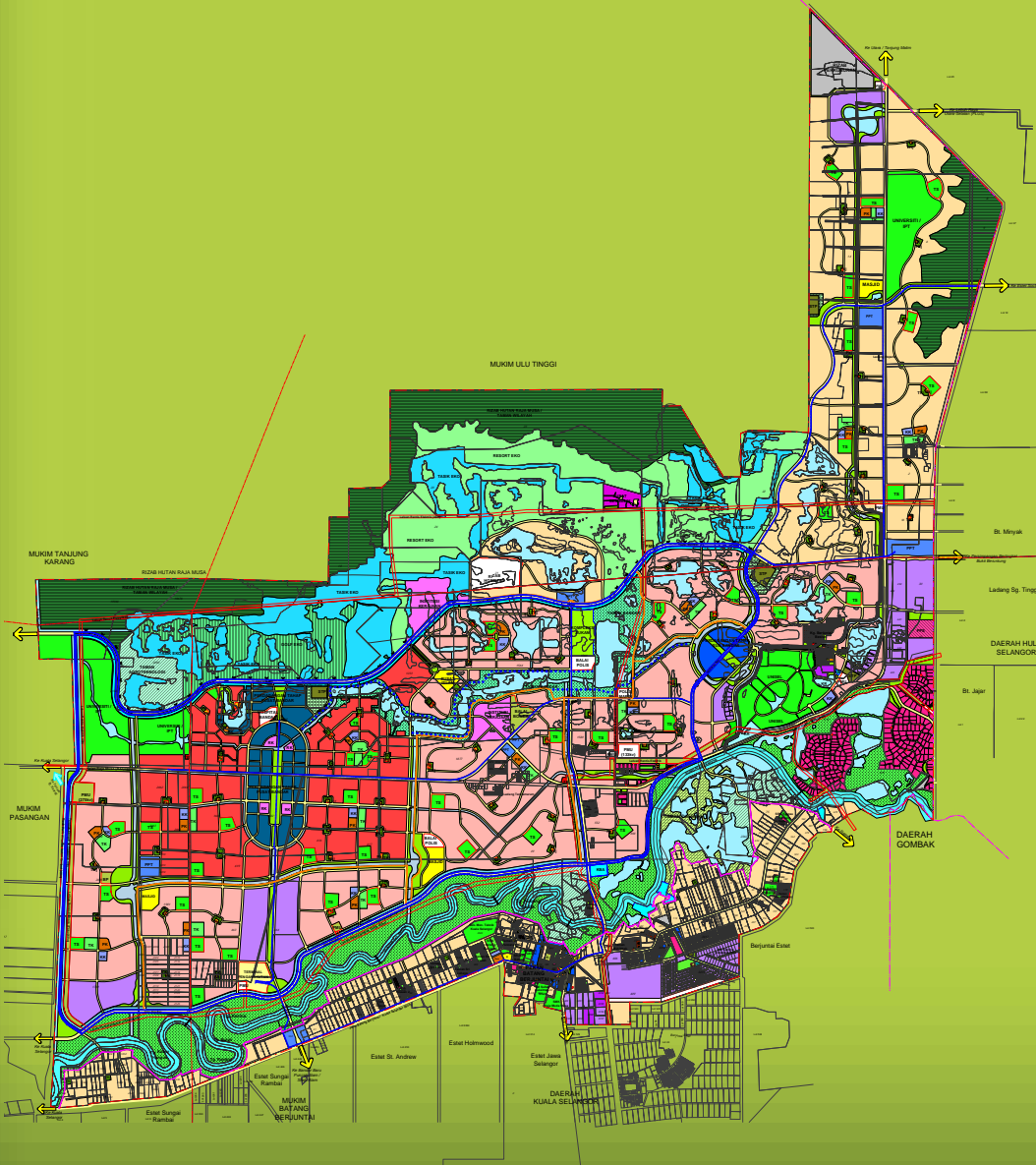
- **Public Exhibition And Participation**
 - 1 month duration to inform and allow the public to appeal

SPECIAL AREA PLAN OF BESTARI JAYA

The Special Area Plan covers 29,000 acres (110 sq.km.) of land and shall guide the development within the area over a plan period until 2040. The Plan is prepared under the provisions of Sect 16B of the Town and Country Planning Act 172, 1976

The Special Area Plan indicates:-

- Land use zoning.
- Intensity of Residential Development allowed.
- Hierarchy of commercial areas.
- Reserves for community facilities required for the projected population.
- Indicative location of schools, community centres as religious reserves based on the population catchment.
- Recreational facilities based on hierarchy.
- Infrastructure and utility reserves.
- Proposed highways, new roads, upgrading of existing roads dan proposed tram routes.
- Environmentally sensitive areas which are conserved.
- Areas involved in the planning of Action Areas.



PLANNING CONCEPT

Sustainable Site Planning and Design Aspects Incorporated :

- Site Adaptive design consideration.
- Climatic consideration in layout design.
- Neighbourhood Planning base on 5 minutes walking distance.

Existing Site Characteristics influences site planning:

- Detailed existing land use survey.
- Soil investigation.
- Detail inventory and analysis of environmental components.
- Survey of existing traffic situation.
- Socio economic survey of existing population.
- Hydrological study - understanding the drainage and underground water system.
- Inventory of existing physical elements, which can be exploited and incorporated into the plan from urban design perspective

Existing water bodies near forest reserve to act a Eco-Lakes and buffer to peat swamp forest area.

Area zoned for eco-friendly developments which can co-exist with no impact onto the sensitive forest reserve.

Network of green lungs linked to preserve natural area such as forest, lakes and river to create continuity in green spaces and to promote habitat for floras and faunas

Raja Muda Musa Peat Swamp Forest Reserve

To West Coast Highway

To Shah Alam

To North South Expressway

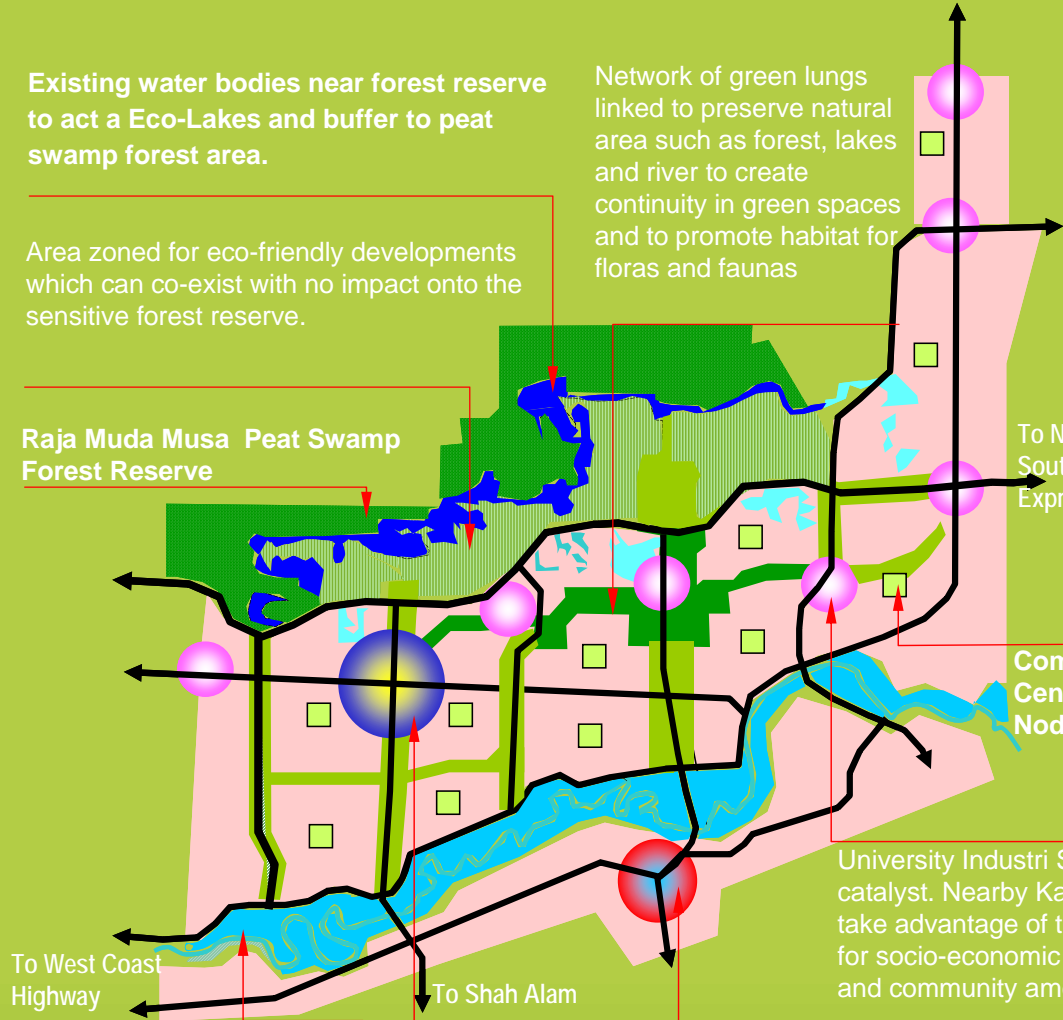
Community Center as the Nodes

University Industri Selangor as institutional catalyst. Nearby Kampung Berjantai Bestari to take advantage of the proximity to the university for socio-economic activity, centre of knowledge and community amenities.

Wide riparian reserve allocated along Selangor River which is categorised as an Environmental Sensitive Area (ESA).

City Centre As New Catalyst and to ba;ance east west development

Function and development of existing Batang Berjantai Town to be further enhanced to complement the new town centre



PLANNING PERIOD AND PHASE OF DEVELOPMENT

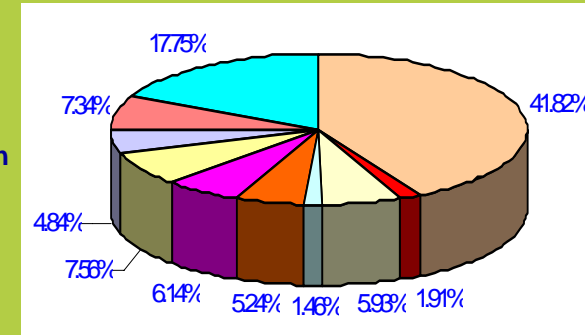
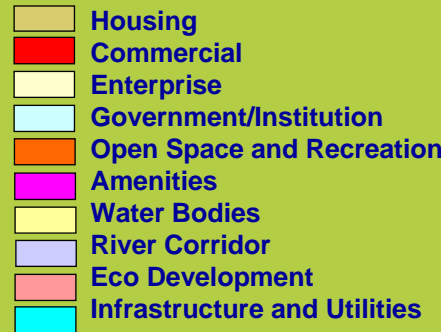
The development of Bestari Jaya shall be carried out in 4 main phases of development :-

1. Planning Period 2003-2010
2. Planning Period 2011-2020
3. Planning Period 2021-2030
4. Planning Period 2031-2040

Optimum population target by planning period 2040 is 515,600 persons.

Planning Period	Optimum Population
Existing Population (2002)	17,000 persons
2003 - 2010	155,200 persons
2011 - 2020	289,100 persons
2021 - 2030	474,370 persons
2031 - 2040	515,600 persons

Landuse 2003-2010



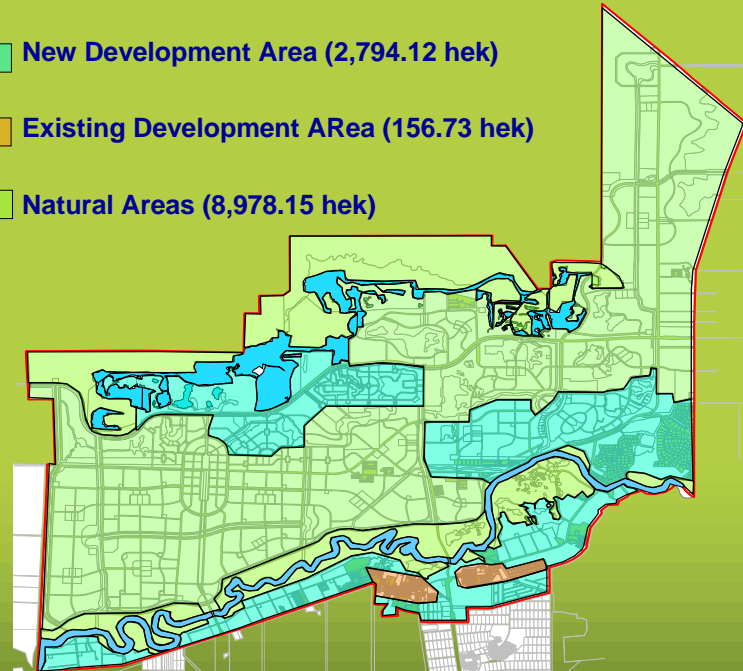
PLANNING PERIOD 2004-2010

Development Area 2003-2010 (2,950.85 hek)

New Development Area (2,794.12 hek)

Existing Development Area (156.73 hek)

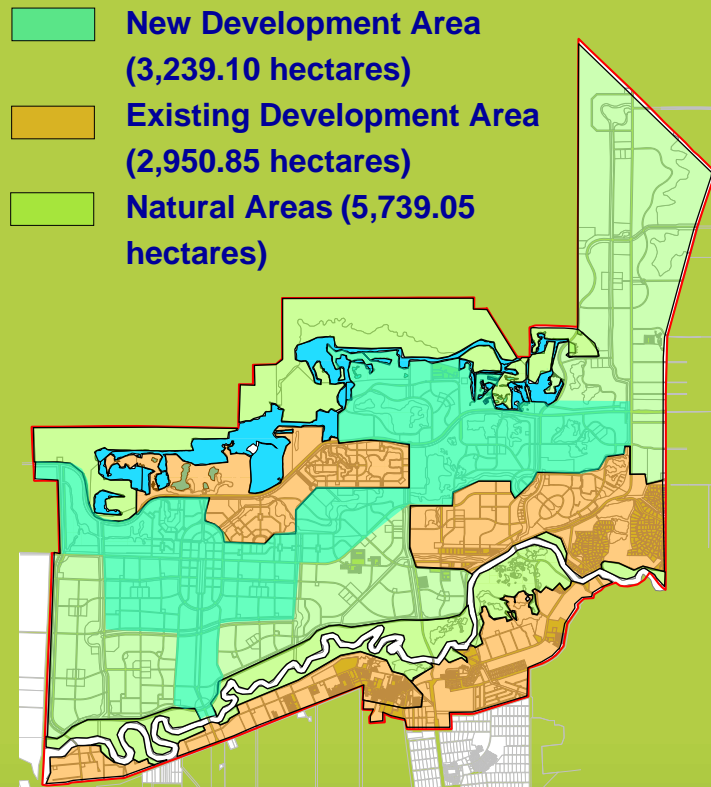
Natural Areas (8,978.15 hek)



PLANNING PERIOD AND PHASE OF DEVELOPMENT

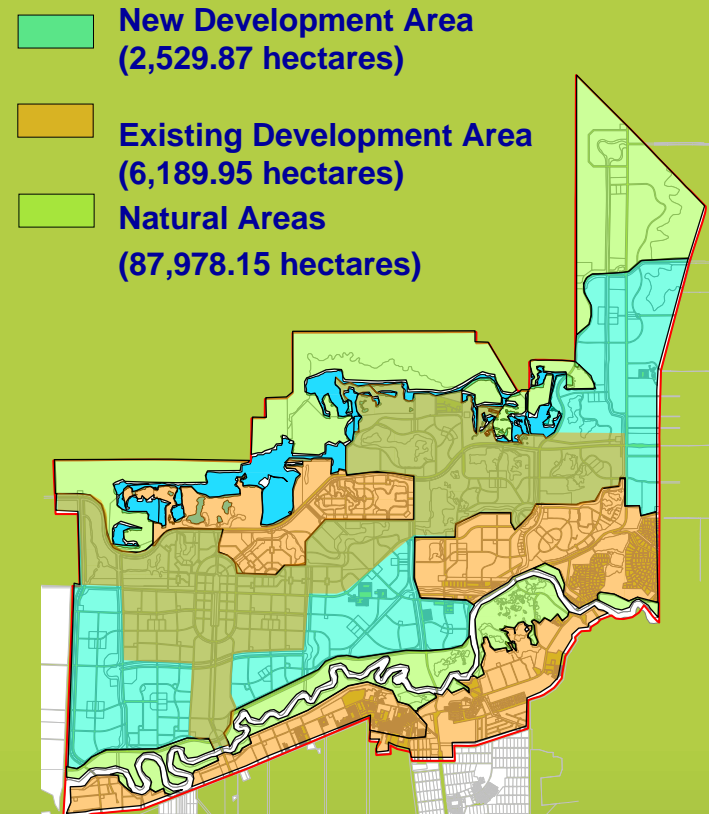
PLANNING PERIOD 2011-2020

Development Area 2011-2020 (6,189.95 hectares)



PLANNING PERIOD 2021-2030

Development Area 2021-2030 (8,719.82 hectares)

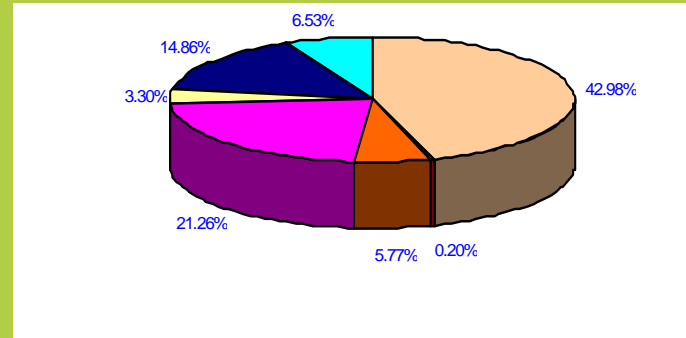
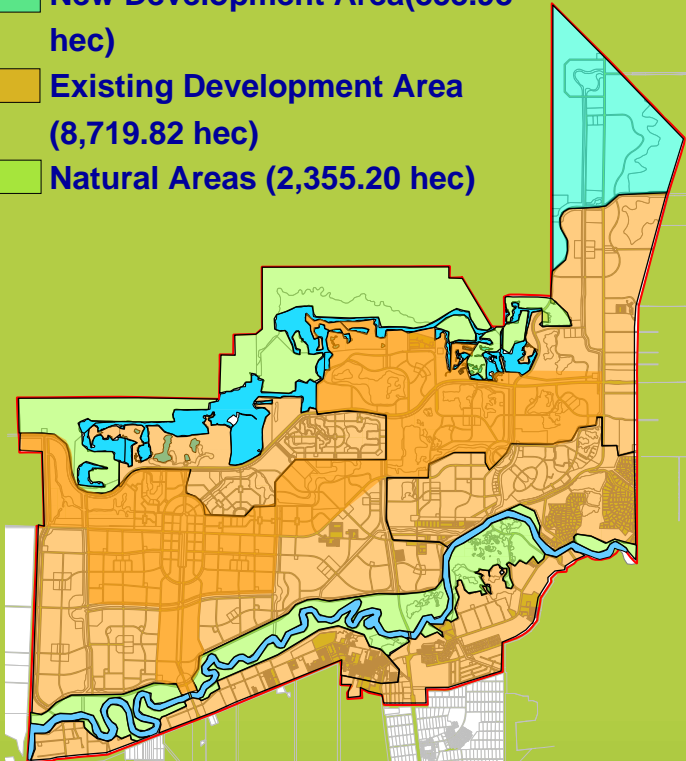


PLANNING PERIOD AND PHASE OF DEVELOPMENT

PLANNING PERIOD 2031-2040

Development Area 2031-2040 (9,573.80 hek)

- New Development Area(853.98 hek)**
- Existing Development Area (8,719.82 hek)**
- Natural Areas (2,355.20 hek)**



Landuse 2031-2040

- Housing**
- Commercial**
- Open Space and Recreation**
- Amenities**
- Water Bodies**
- Forest**
- Infrastruktur and Utilitesi**

DEVELOPMENT CATALYST AND ECONOMIC CENTRES

Development Catalyst

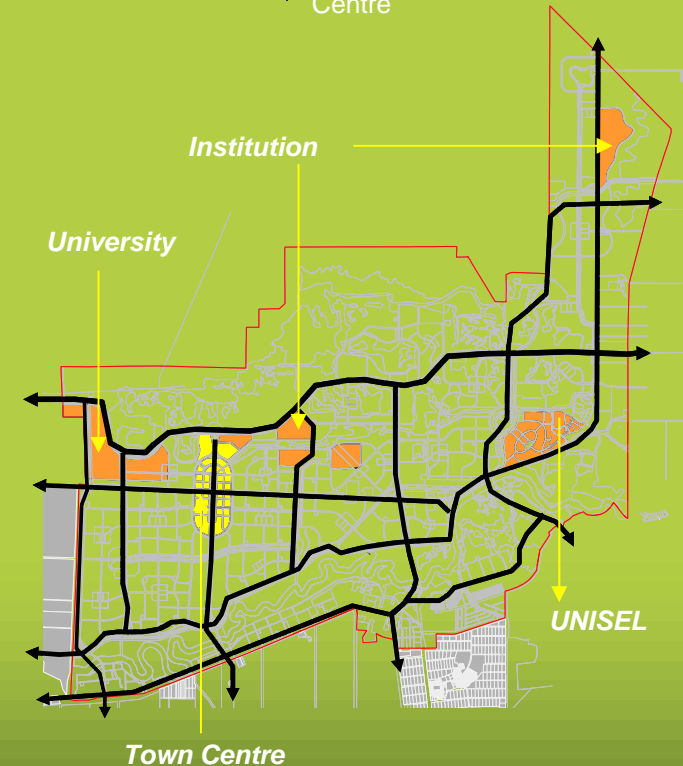
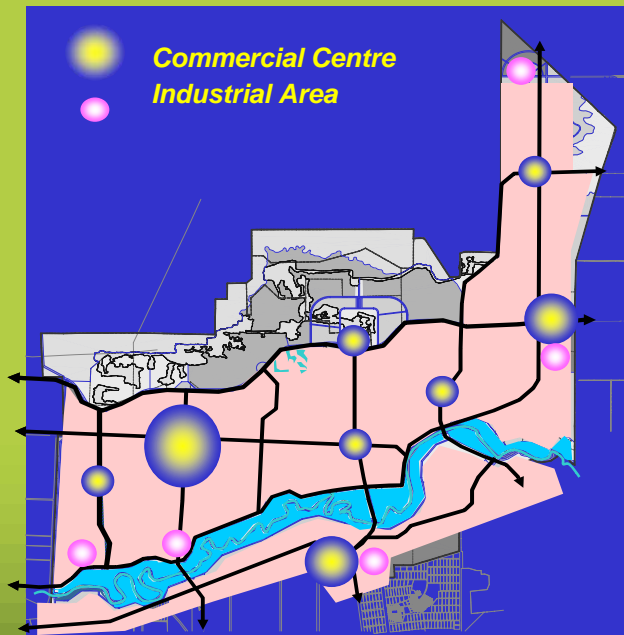
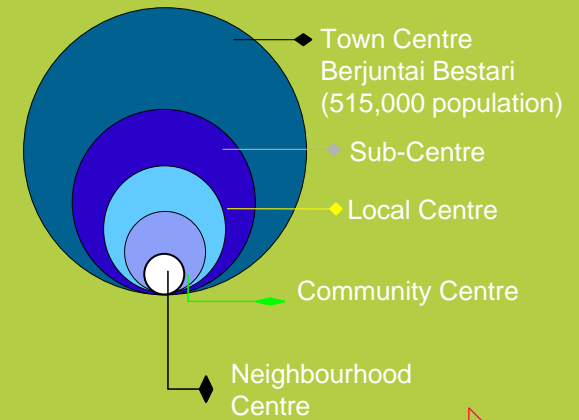
Universities, Private Institution, Training Centres and Town Centre as development catalyst.

Balance Growth

Distribute commercial centres and industrial areas in order to achieve a balanced development.

Employment Opportunities

Target Employment : Population Ratio to be at 0.5 within planning area and 0.7 within regional catchment area.



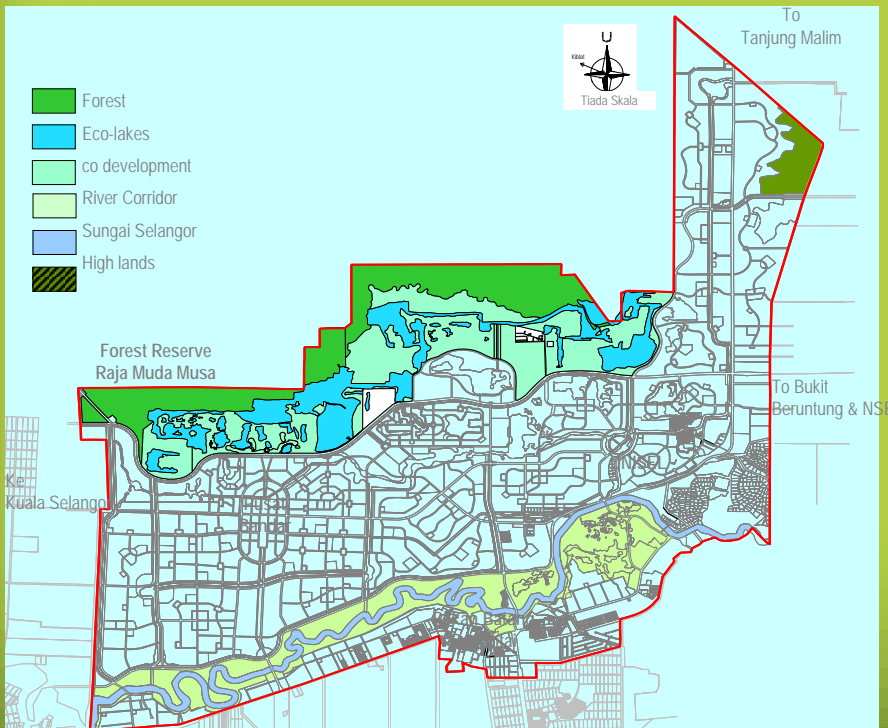
ENVIRONMENT CONSERVATION AND PRESERVATION

Maintain and protect the existing natural environment.

Create a balance between development and environment through the conservation of the forest areas, water bodies and protection of wildlife in the area.

Control pollution at source.

Capitalize on existing natural resources into economic benefits to the development.

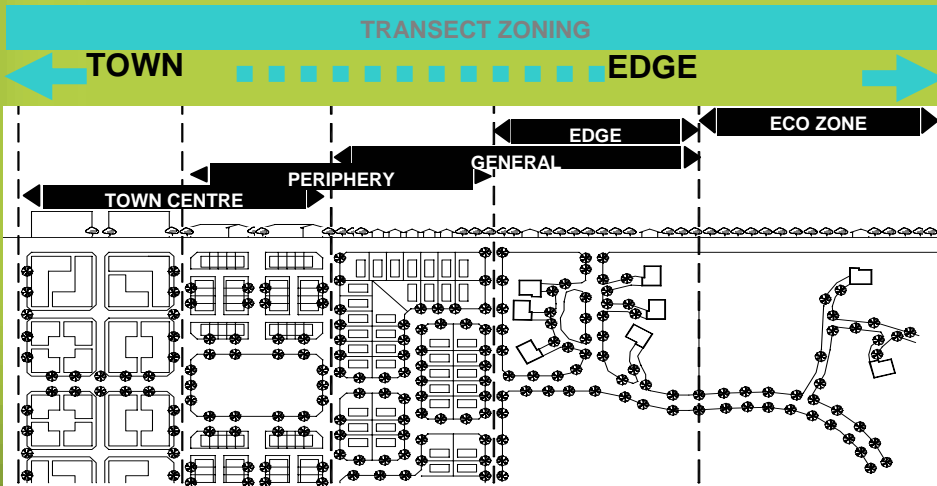
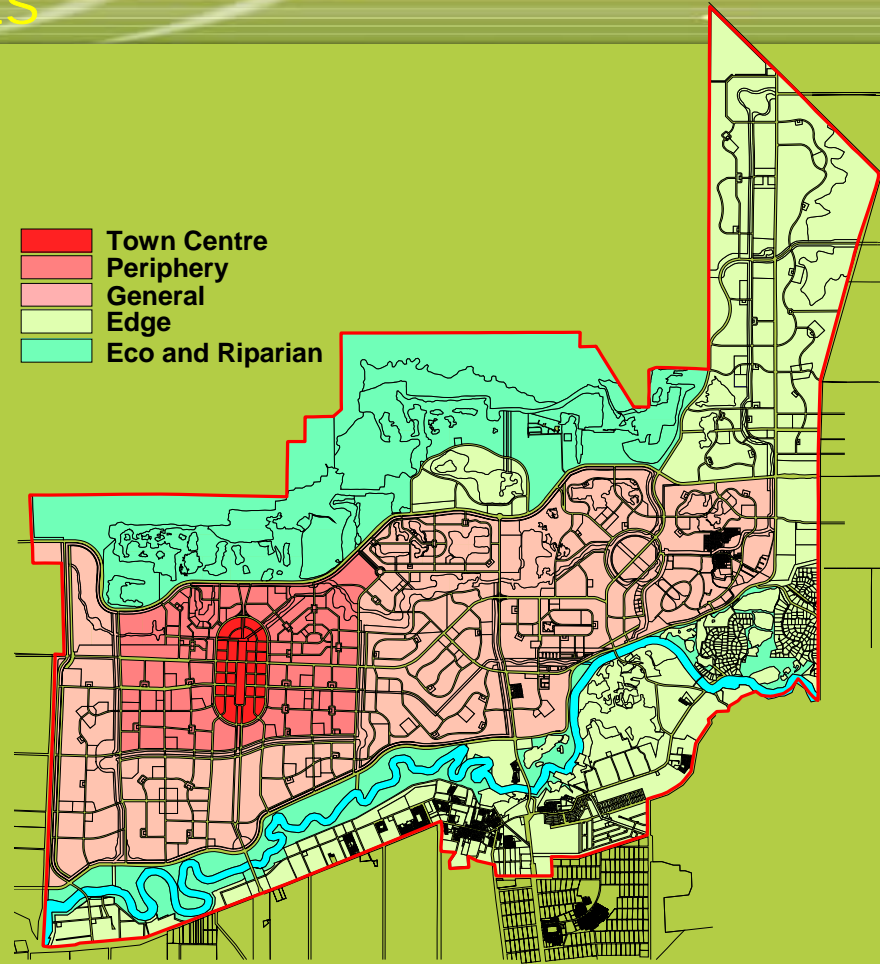


CREATING BALANCE BY DISTRIBUTING DENSITIES

TRANSECT ZONING

- A system of distribution of based on the correlation of the various elements by a common rural to urban transect.
- Component elements of each zone reinforce each other to create and intensify a specific character.
- Residential density distributed according to transect:-
 - a. Eco and Riparian – 2.5 unit/hectare
 - b. Edge – 25 units/hectare
 - c. General – 30 units/hectare
 - d. Periphery – 37.5 unit/hectare
 - e. Town Centre

- Town Centre
- Periphery
- General
- Edge
- Eco and Riparian



NEIGHBOURHOOD PLANNING

5 minutes

Residential development is based on neighbourhood planning which is defined by the ability to walk within 5 minutes from centre of neighbourhood area to the edge.

Center

Every neighbourhood shall have a defined central focal area.

Self Contained

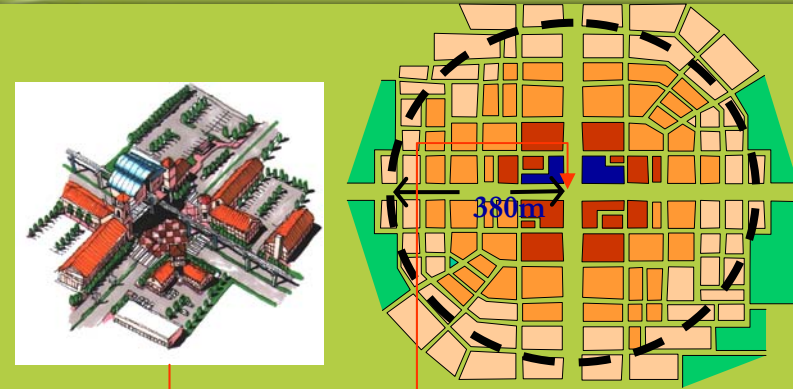
Each neighbourhood to have sufficient amenities to support the neighbourhood community.

Medium Density

To support the provision of infrastructure and amenities.

Mixed Use/Components/Densities


Mixed use in terms of types of residential, cost and densities as well as the encouragement of mixed use in the core area.

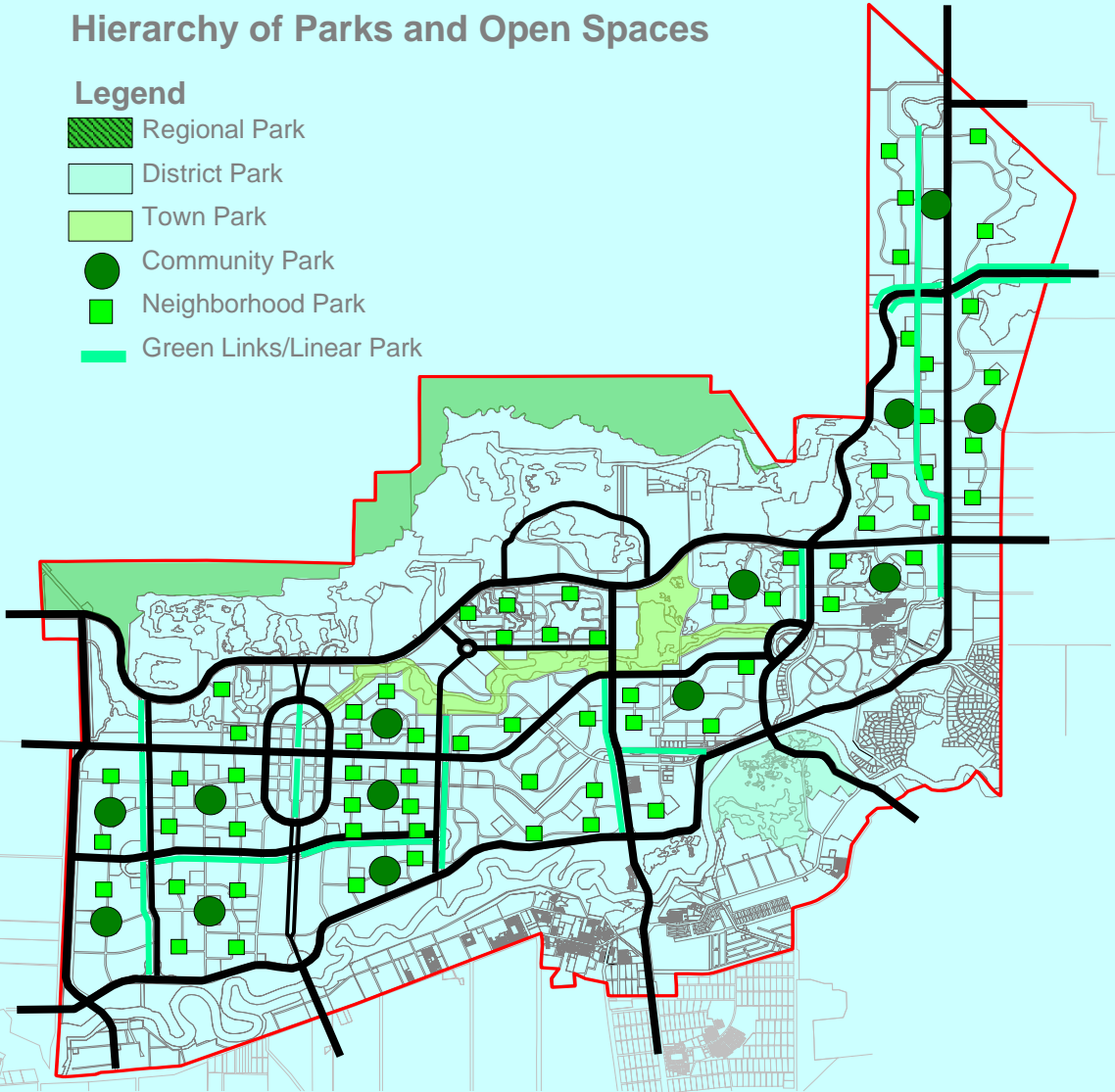


PARKS, OPEN SPACES AND LANDSCAPING

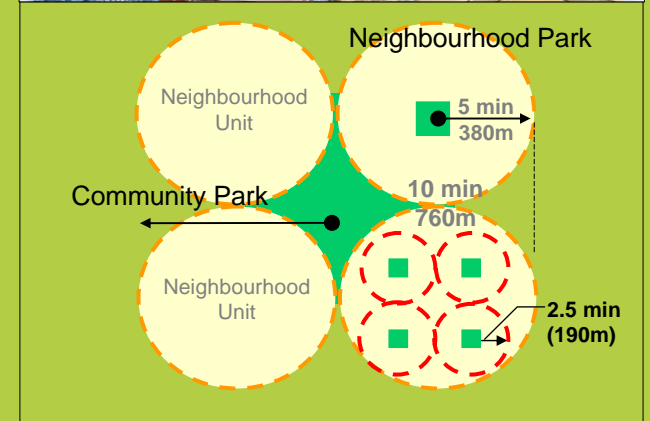
Hierarchy of Parks and Open Spaces

Legend

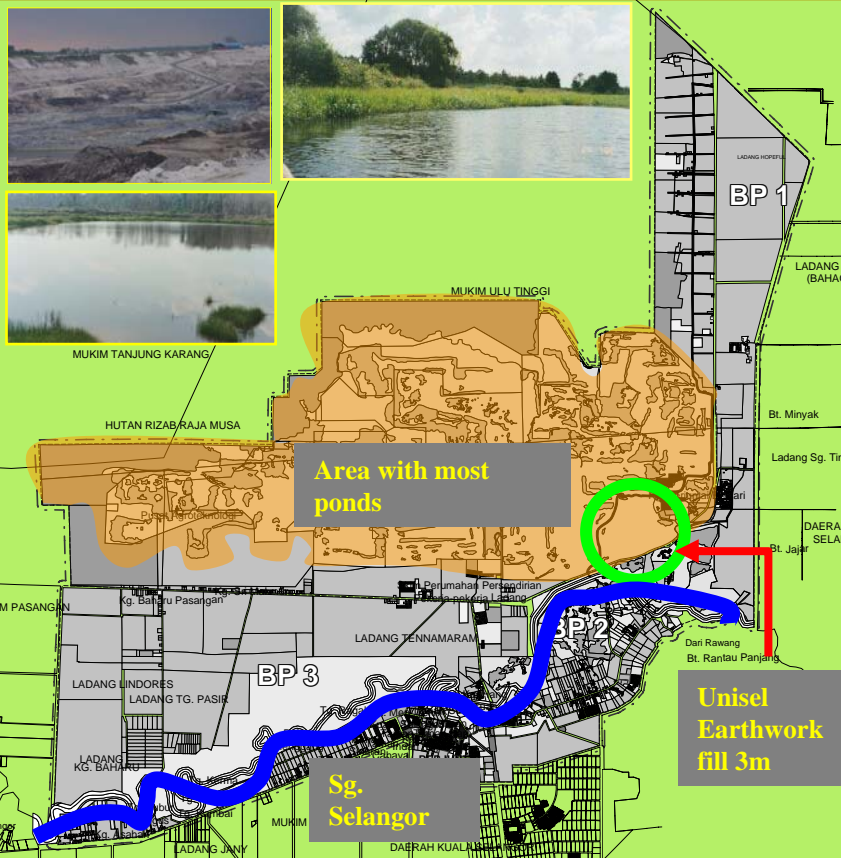
-  Regional Park
-  District Park
-  Town Park
-  Community Park
-  Neighborhood Park
-  Green Links/Linear Park



- Hierarchy of parks and open spaces
- Sustainable Landscaping i.e. Local plant species, less maintenance etc)



LAND MANAGEMENT STRATEGY



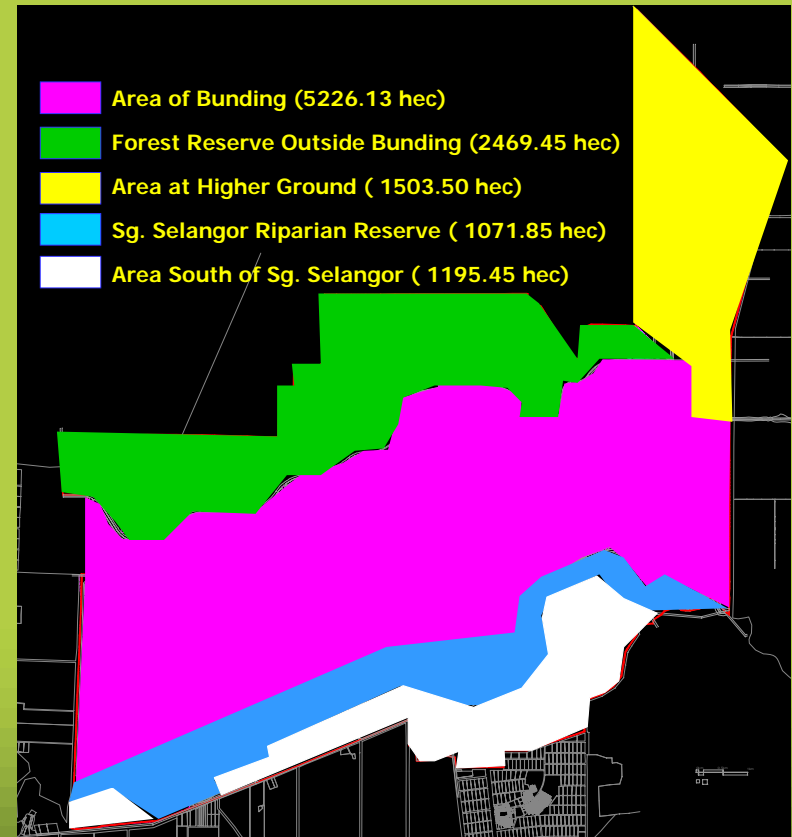
EXISTING ISSUES AND POTENTIAL

- Low lying area and within the flood plain
- High percentage of water bodies (ex-mining land)
- Unsuitable soil condition – peat and residual of mining activities (slime, sludge). Construction would require subsoil to be excavated and replaced

Objective :-

- To minimize import of earth for plat forming
- Balancing cut-& fill (bund and canal) and localized earth mobilization

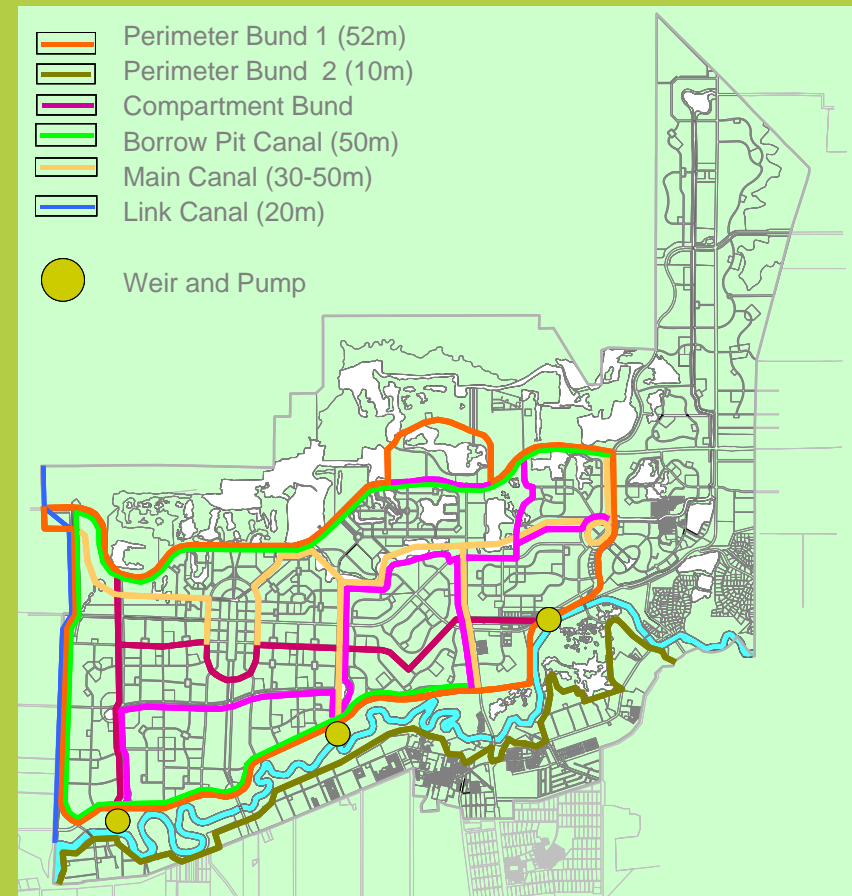
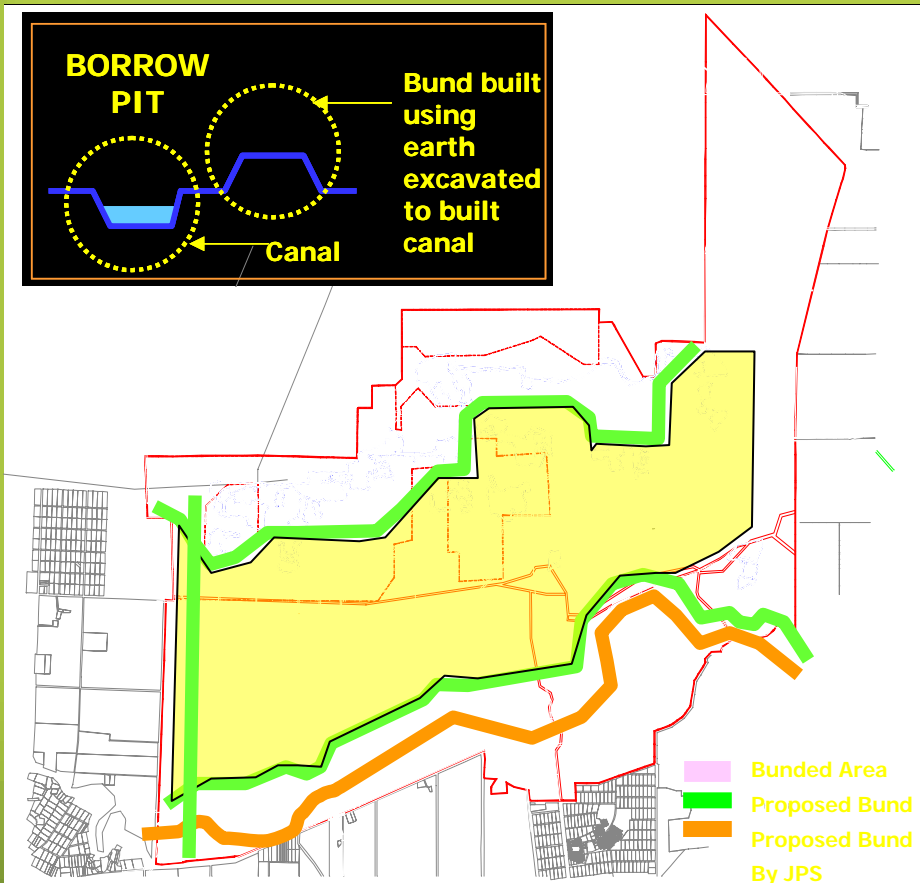
Key difference from normal practice – using Polder System i.e bunding system



LAND MANAGEMENT STRATEGY

POLDER SYSTEM

- Borrow Pit Canal – using earth to excavate canal to build bund
 - Total Development area – 11,929 hectare
 - Total Banded area – 5226.13 hec (43.8% of of study area)
 - Total length of bund – 37,074.27m (37km)



- Existing ponds and proposed canals to act as retention.
- Canals retain run-offs within the catchments of banded area. Total area of canal and pond required – 731 hec (14% of banded area and 6% of total development area)
- 10% of canal provided for overall development. Balance 4% provided by individual owner as retention
- Weir and pumps will be used to control water level in the canals

FLOOD MITIGATION AND DRAINAGE CONCEPT

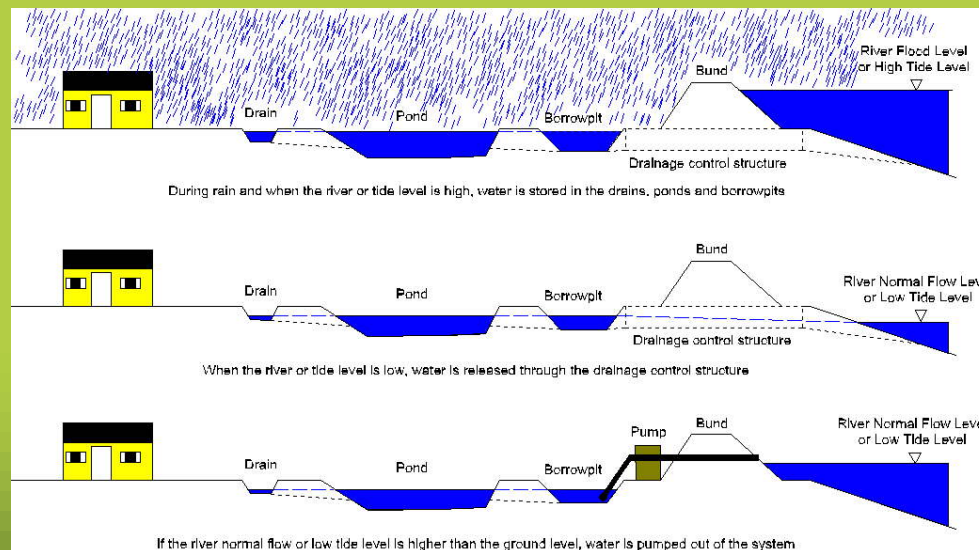
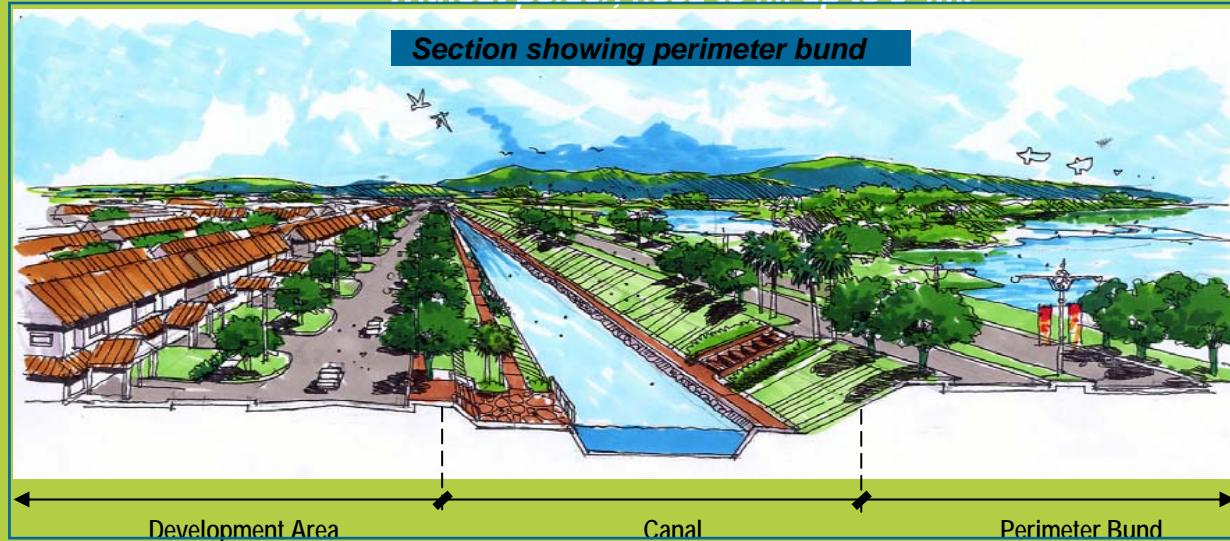
- The use of polder system with the combination of ban and canal as a flood mitigation system and main drainage system for the town.



Soft edge treatment on neighborhood canals

LAND FORMATION & EARTHWORK MANAGEMENT

- Use of polder system also minimize earth filling and as alternative to land reclamation:-
 - Without polder, need to fill up to 3-4m.



Polder System

In total, 14% of the whole Bestari Jaya area is reserved for water bodies in the forms of canals, lakes and drains for retention purposes (Figure 4.8). This is well beyond the minimum requirement of 5 – 7% required by MaSMA

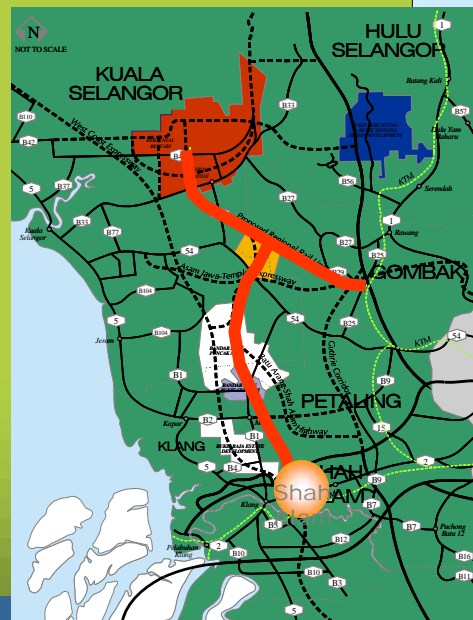
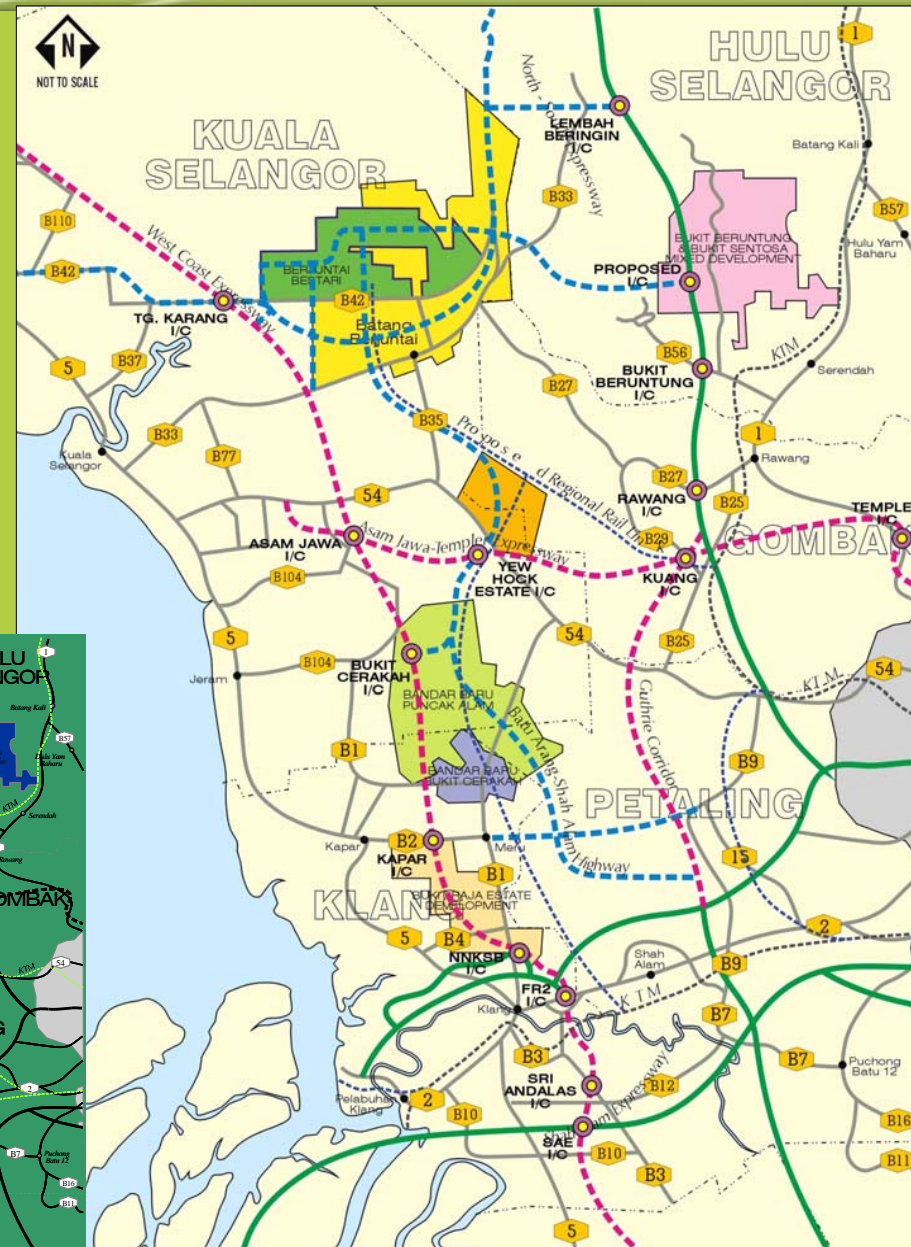
REGIONAL ROAD NETWORK AND PUBLIC TRANSPORTATION

RAIL LINKAGE

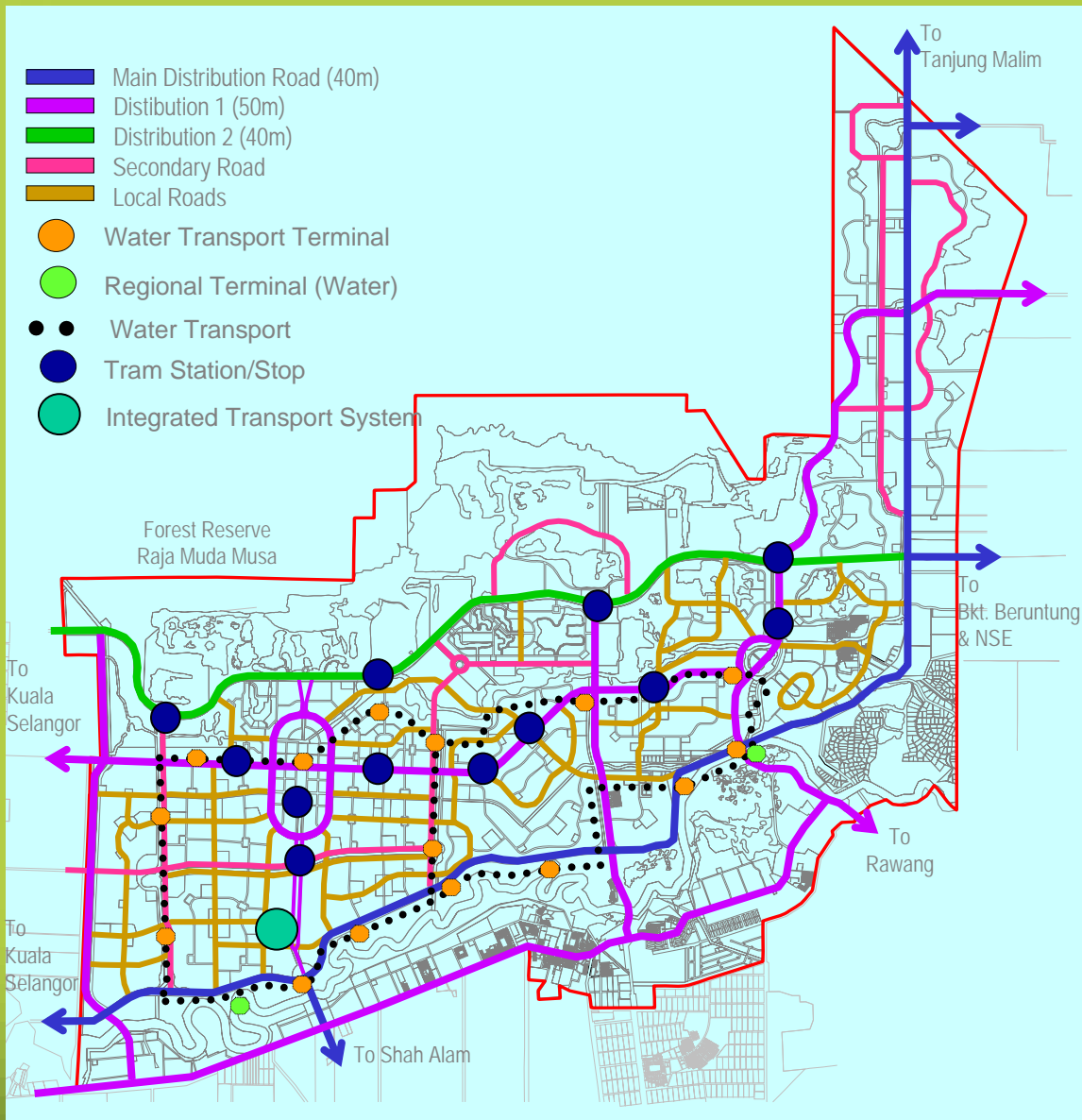
- Kuala Lumpur-Rawang-Batu Arang- Berjuntai
- Padang Jawa-Shah Alam-Puncak Alam- Batu Arang-Bestari Jaya

HIGHWAY AND LOCAL LINKS (COMMITTED PROJECTS)

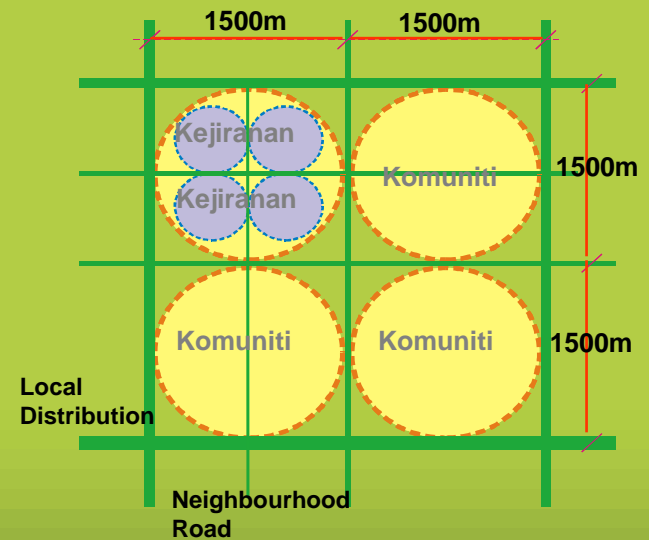
- West Coast Expressway (WCE),
- Jalan Shah Alam/Puncak Alam-Berjuntai Bestari
- NSE via Bukit Beruntung



TRANSIT ORIENTED DEVELOPMENT

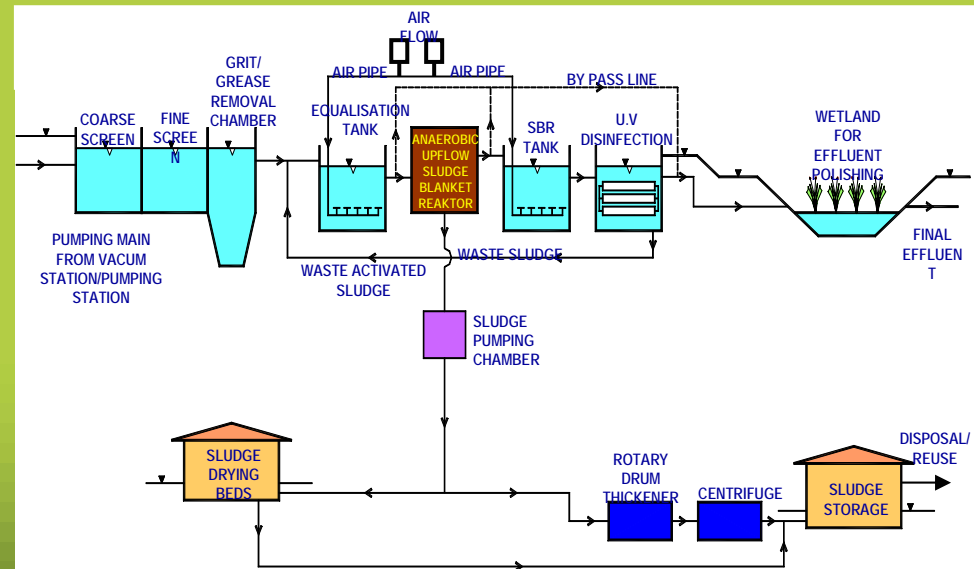
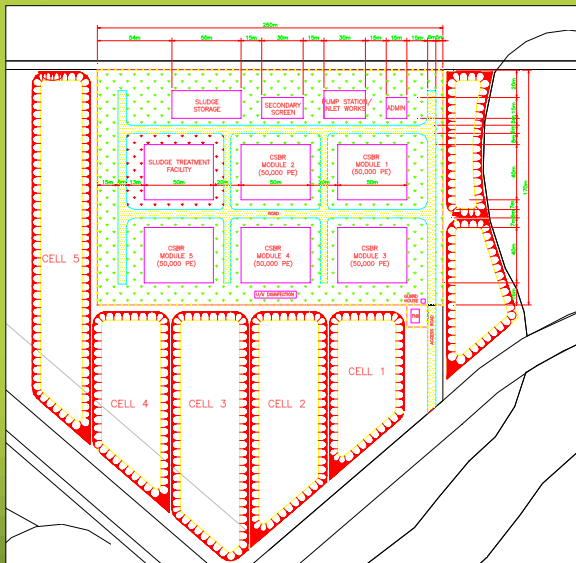


- Interconnected, high permeability road network.
- Design with modal split of:-
Short term
– 50% Public : 50% Private
Long Term
- 70% Public : 30% Private



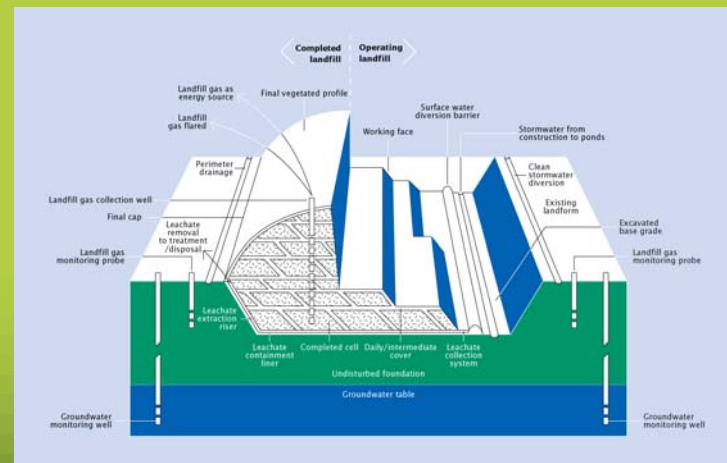
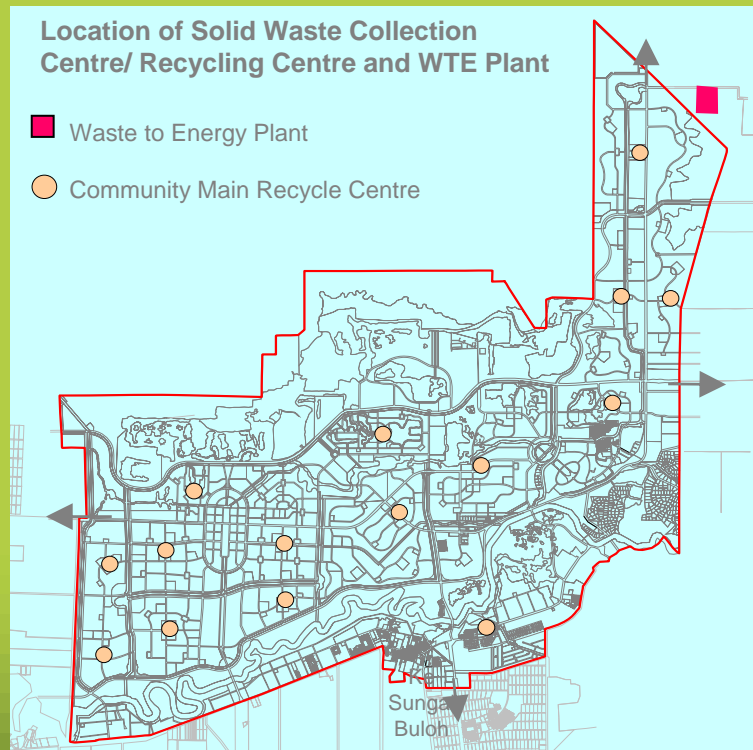
SEWERAGE AND WASTE WATER TREATMENT

- Adopting a sustainable sewerage treatment system that reduces impact to the built and natural environment.
- Decentralizing STP to reduce energy use in mechanized system – 3 nos STP.
- Combining primary and biological treatment for STP.
- Ensuring that effluents from STP comply to Standard A Environmental Quality Regulations (Sewage and Industrial Effluent), 1979 and Class 1, National Water Quality Standard before entering canals and water bodies.



SOLID WASTE MANAGEMENT

- Managing solid waste collection.
- Recycle at source – 2 bins and 3 bins system.
- In short term solid waste sent to nearby Landfill site located less than 4 km away.
- Long term - ‘Waste Into Energy’ plant at the Landfill site.
- Encourage reduction of construction waste and reuse of construction waste



ENHANCING LOCAL CLIMATE

Local climate is enhanced by :-

- The conservation of natural environment;
- The introduction of water canals;
- Emphasizing on streetscape;
- Reduction of energy
- Public Transportation
- Landscaping



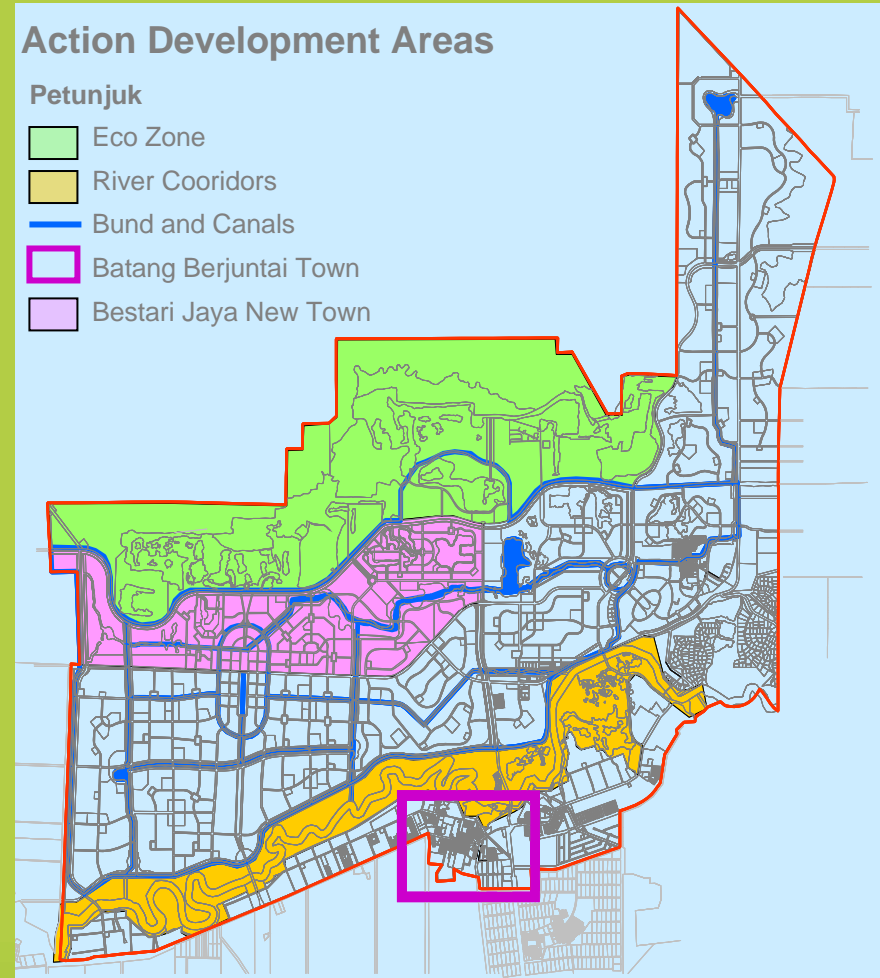
ACTION DEVELOPMENT AREAS

ACTION DEVELOPMENT AREAS

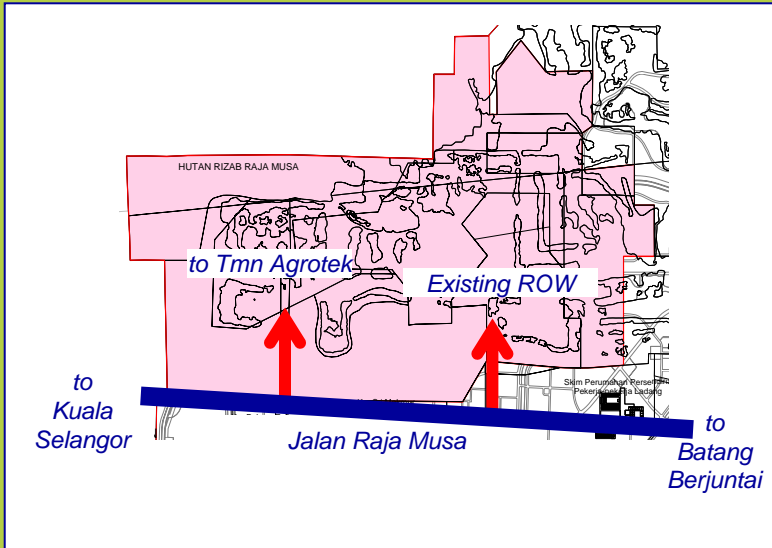
Five areas has been identified as Action Development Areas within The Special Area Plan of Bestari Jaya :-

1. Eco Zone
2. River Corridor
3. Bund and Canals
4. Batang Berjuntai Town
5. Bestari Jaya New Town

Action Development Area Plan focus upon the development proposal for areas which require special attention and detail planning. These areas shall have detail development control plan and design guidelines.

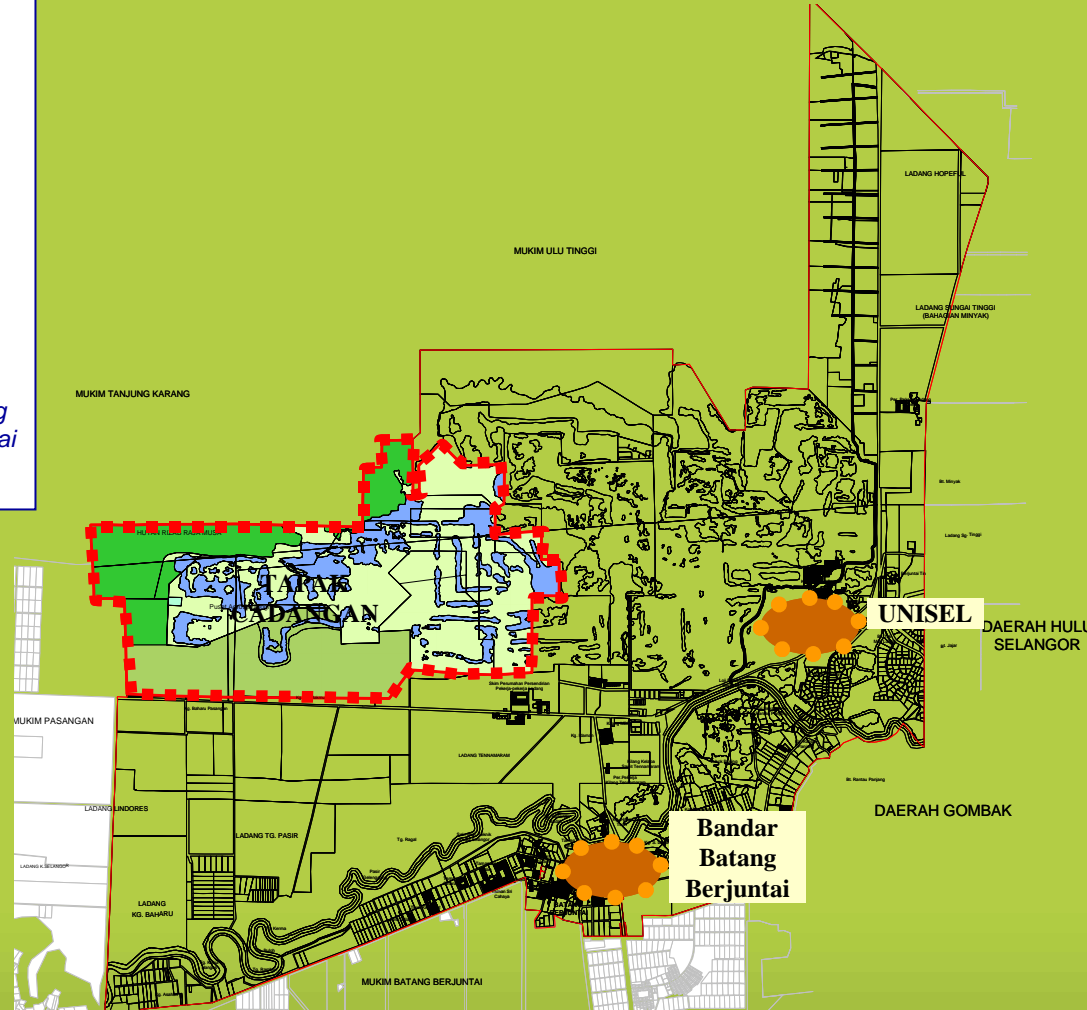


BESTARI JAYA NEW TOWN



Access to the land via:-

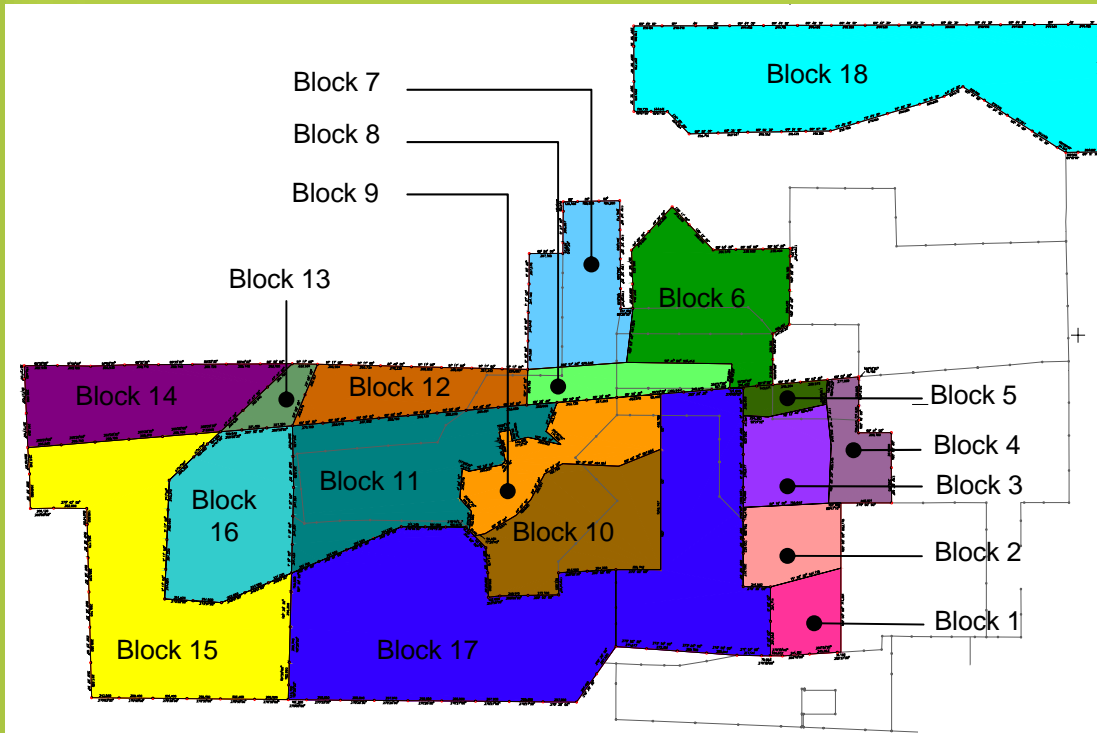
- Agro technology Park from Jalan Raja Musa,
- existing ROW south of the land area from Jln Raja Musa.



Existing access to land area from main road

LAND INFORMATION

- Total BESTARI JAYA is 6121.4 ac.



Mukim	Title Block No.	Area (ac)
Tanjung Karang	13	55.8
	14	313.1
<i>subtotal</i>		368.9
Pasangan	15	704.5
	16	355.1
<i>subtotal</i>		1059.6
Ulu Tinggi	6	372.8
	7	256.2
	8	120.5
	12	197.4
	18	845.3
<i>subtotal</i>		1792.2
Batang berjantai	1	99.8
	2	135.6
	3	111.1
	4	148.8
	5	44.3
	9	229.0
	10	329.1
	11	463.1
	17	1339.9
<i>subtotal</i>		2900.7
Grand Total	<i>(as of 2004)</i>	6121.4

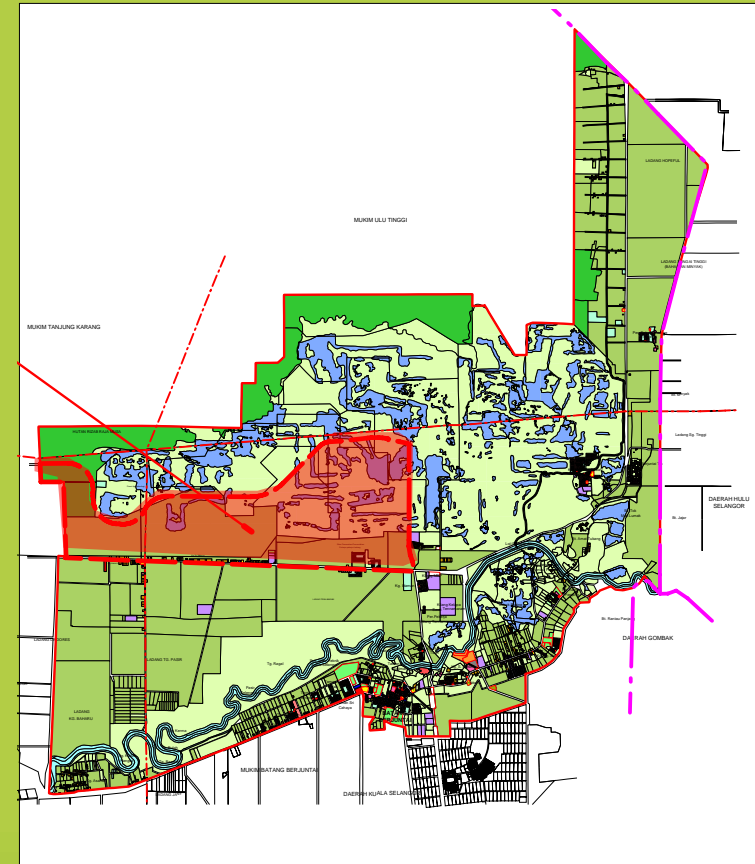
BESTARI JAYA NEW TOWN

Strategy

TO DEVELOP A TOWN BASE ON THE SUSTAINABLE DEVELOPMENT PRINCIPLES TOWARDS LIVABLE COMMUNITIES.

The objectives :-

- To become the first sustainable development in Malaysia.
- A 'lived-in' model development of sustainable development.
- Demonstrate the various application of technology and system that leads towards sustainable development.
- To be the resource for various research for the concept of sustainable development built in a holistic manner.
- To study the adaptation and impact of the community towards the concept of sustainable development in local context.
- To become an example of smart partnership between government, private sector and local communities.



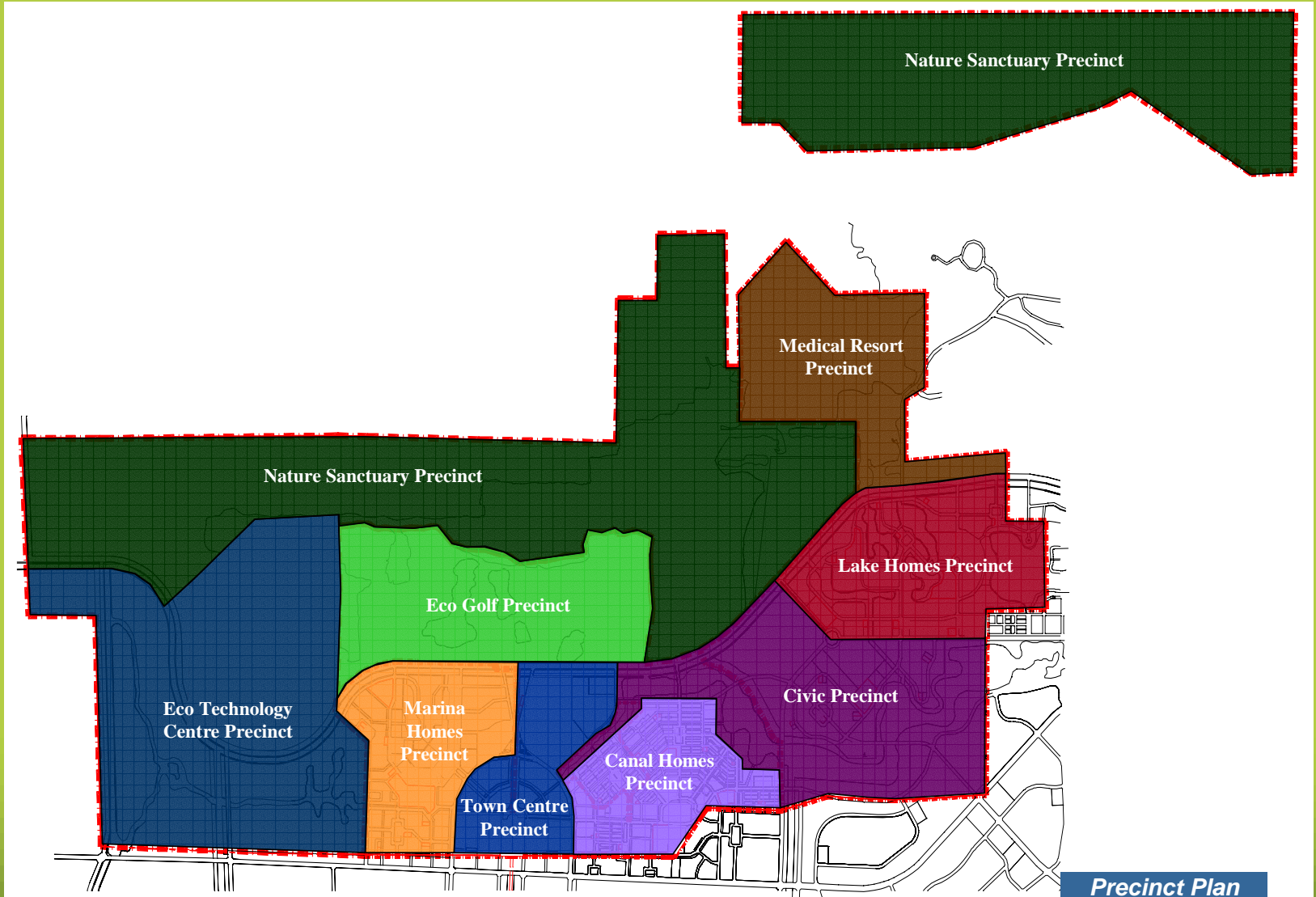
Location of New Town

DEVELOPMENT LAND UTILIZATION

LANDUSE	ACREAGE	%
Residential	517.32	8.45
Commercial	216.3	3.53
Institution	704.25	9.87
Golf (with Bungalow)	427.24	6.98
Eco Medical Resort	294.94	4.82
Eco Resort	116.55	1.90
Agriculture	207.89	3.40
Forest	1754.46	28.66
Open Space	236.31	3.86
Public Facilities	55.19	0.90
Water Bodies	1056.05	18.89
Infrastructure & Utilities	534.9	8.74
Total	6121.40	100.00

DEVELOPMENT PRECINCTS

- 9 development precincts with different themes to create unique identity and character.

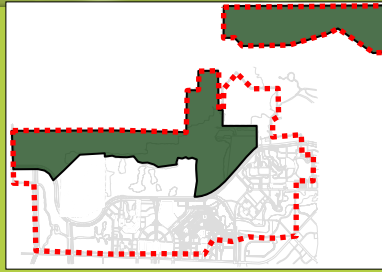


DEVELOPMENT PRECINCT

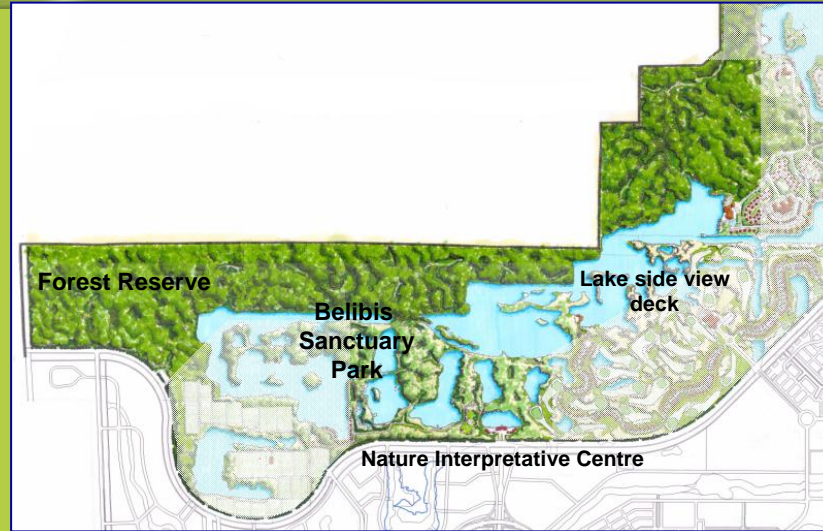
Nature Sanctuary Precinct

Component

- Belibis Sanctuary Park
- Nature interpretative centre
- Lakeside viewing deck
- Camping ground
- Hiking trail



Key Plan



Illustrative Masterplan



Sunset view across existing lake



Existing unique floras and faunas within the precinct



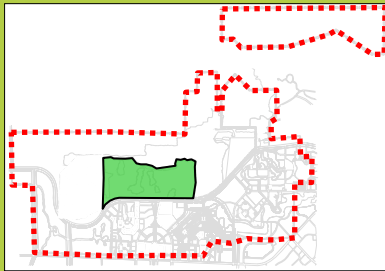
Development Images

DEVELOPMENT PRECINCT

Eco-Golf Precinct

Component

- 27-hole eco-golf course
- Club house
- Golf bungalow
- Resort Hotel
- Condominium



Key Plan



Illustrative Masterplan



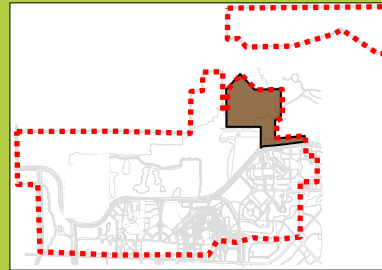
Development Images

DEVELOPMENT PRECINCT

Eco-Resort Precinct

Component

- Health resort & spa
- Retirement homes
- Lakefront chalets
- Camping Grounds



Key Plan



Illustrative Masterplan



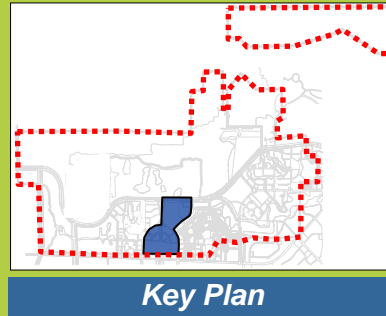
Development Images

DEVELOPMENT PRECINCT

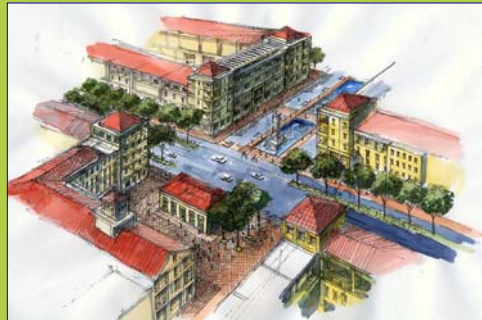
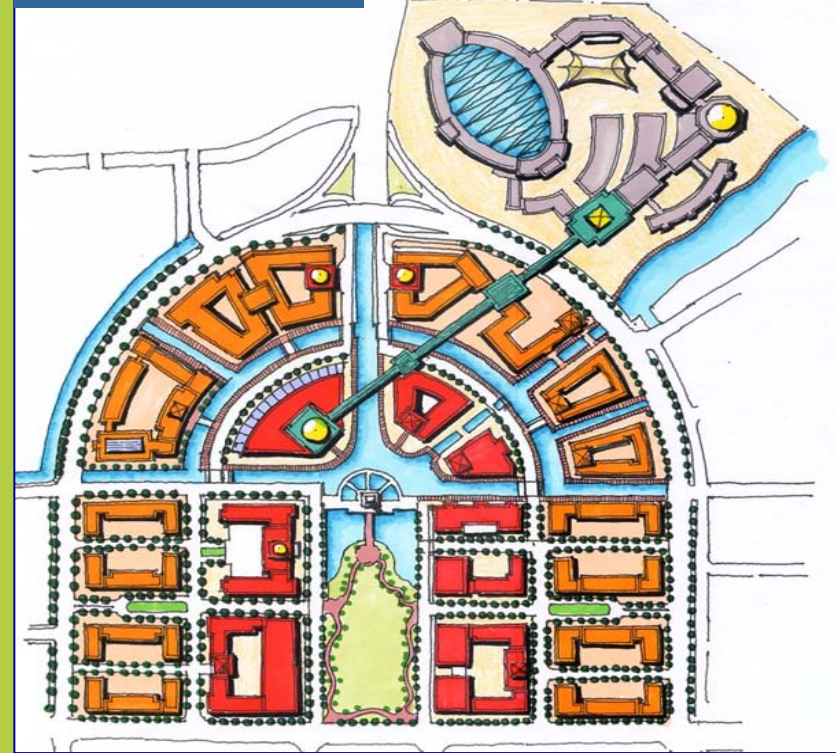
Town Centre Precinct

Component

- Local council office
- Public library
- Town square
- Shopping centre
- Exposition & convention centre
- Commercial & Retail Shops
- Office
- Hotel
- Town House
- Apartments
- Service Apartments
- Convention Centre



Illustrative Masterplan



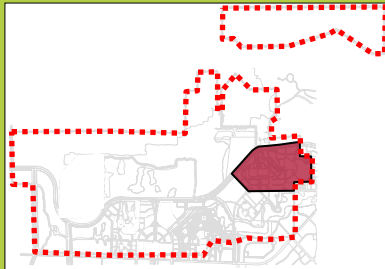
Development Images

DEVELOPMENT PRECINCT

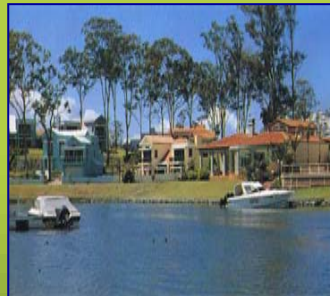
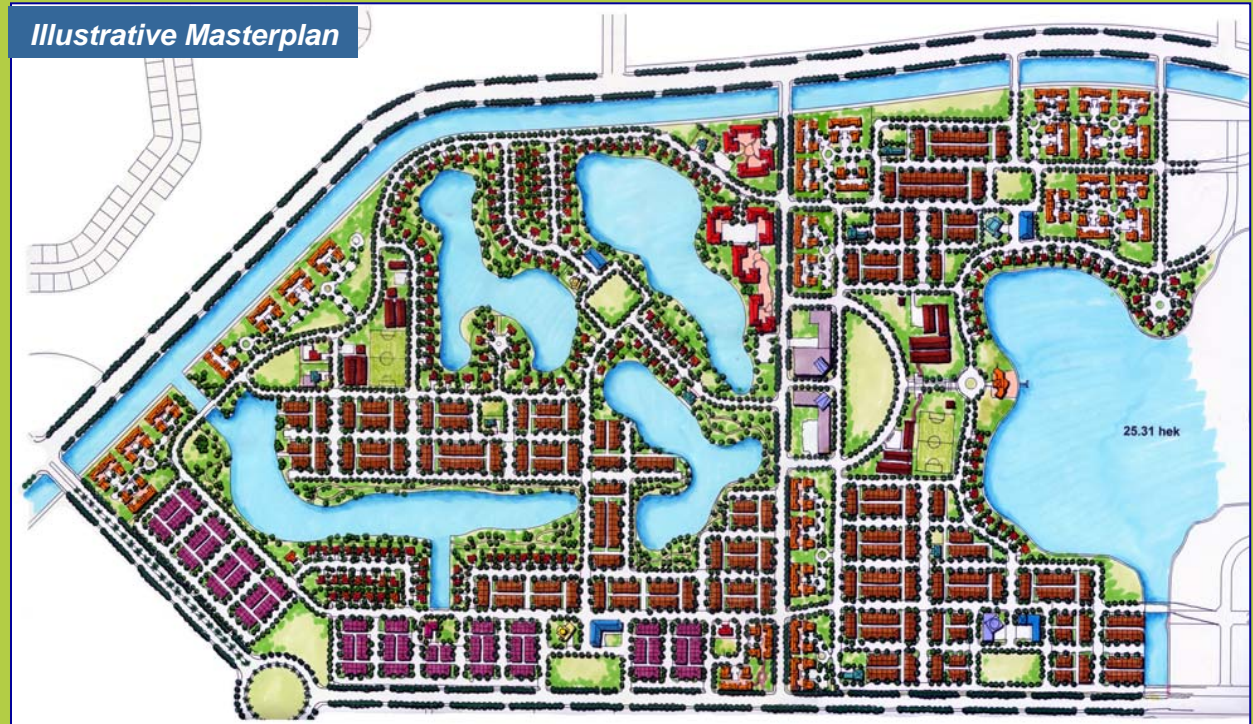
Lake Home Precinct

Component

- Lake front homes
- Community centre
- Local shops
- Public amenities



Key Plan



Development Images

DEVELOPMENT PRECINCT

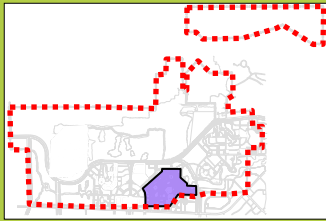
Canal Home Precinct

Component

- Canal front homes
- Community centre
- Local shops
- Public amenities
- Islamic centre
- Town park



Illustrative Masterplan



Key Plan



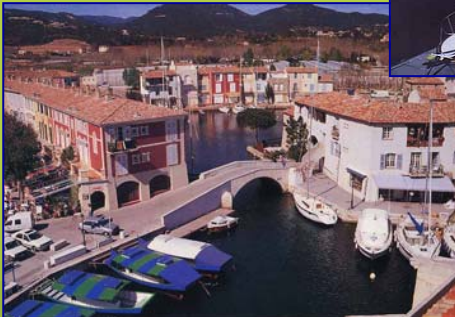
Development Images

DEVELOPMENT PRECINCT

Marina Home Precinct

Component

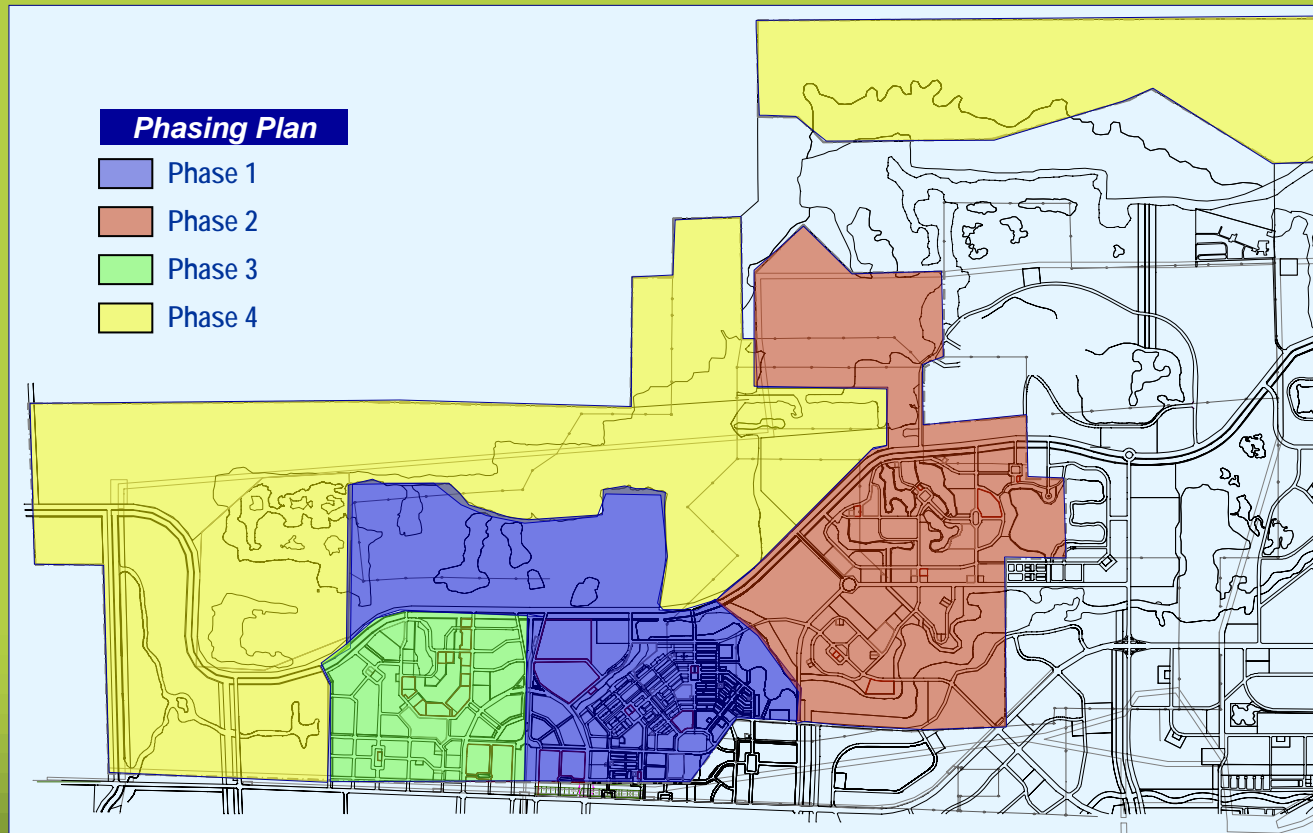
- Marina homes
- Marina centre
- Business park
- Community centre
- Public amenities



Development Images

OVERALL DEVELOPMENT PHASING

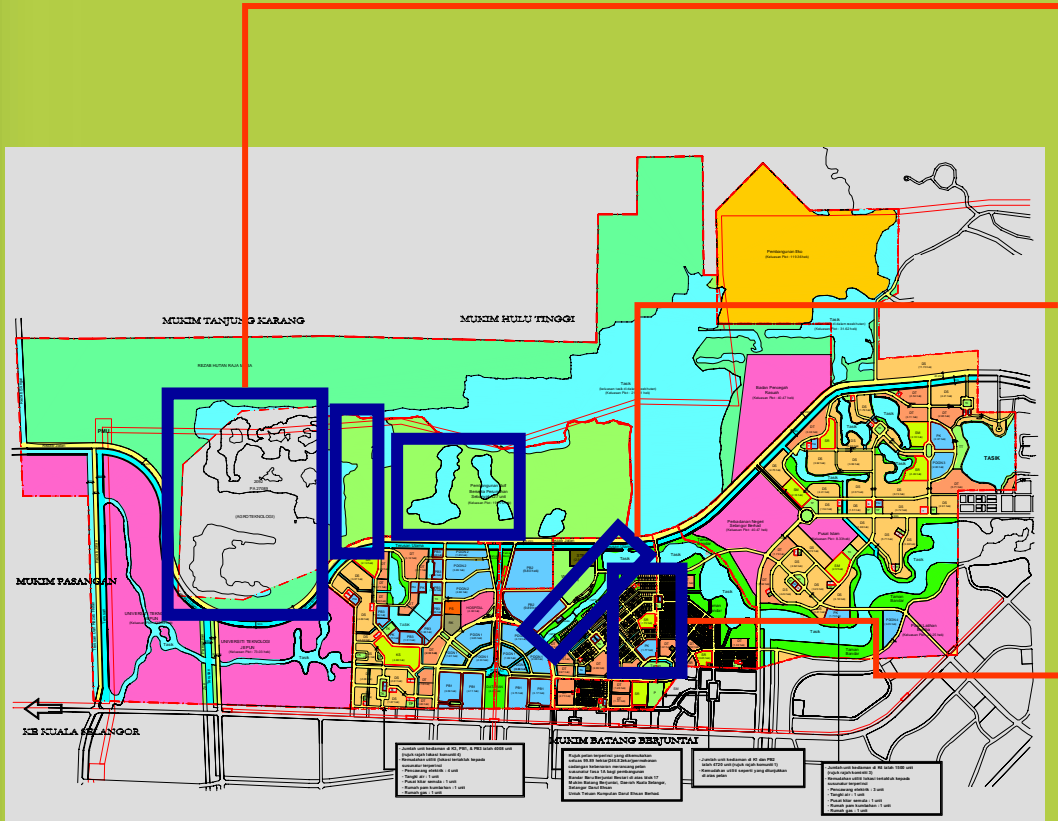
PHASE	ACRES	%	UNIT
Phase One (2005 - 2007)	1024.72	16.72	4484
Phase Two (2008 - 2012)	1318.62	21.54	4859
Phase Three (2013 – 2018)	461.63	7.54	2584
Phase Four (2018 – 2020)	3316.43	54.18	nil
TOTAL	6121.40	100.00	



DETAIL BREAKDOWN OF OVERALL DEVELOPMENT PHASING

LANDUSE	Phase 1		Phase 2		Phase 3		Phase 4		Total	
	Acre	%	Acre	%	Acre	%	Acre	%	Acre	%
Residential	145.27	14.18	226.54	17.18	145.51	31.52			517.32	8.45
Commercial	97.53	9.52	31.08	2.36	87.69	19.00			216.3	3.53
Institution	2.17	0.21	199.53	15.13	2.55	0.55	500.00	15.94	704.25	11.50
Golf (with Bungalow)	427.24	41.69							427.24	6.98
Eco Resort							116.55	3.72	116.55	1.90
Eco Medical Resort			294.94	22.37					294.94	4.82
Public Facilities	11.97	1.17	25.95	1.97	17.27	3.74			55.19	0.90
Agriculture							207.89	6.63	207.89	3.40
Forest							1754.46	55.94	1754.46	28.66
Open Space	100.39	9.80	126.46	9.59	9.46	2.05			236.31	3.86
Water Bodies	102.13	9.97	277.15	21.02	10.72	2.32	666.05	21.24	1056.05	17.25
Infrastructure and Utilities	138.02	13.47	136.97	10.39	188.43	40.82	71.48	2.28	534.9	8.74
Total	1024.72	100.00	1318.62	100.00	461.63	100.00	3316.43	100.00	6121.4	100.00

DEMONSTRATION PROJECTS



Belibis Sanctuary Park

Belibis – Lesser Whistling Duck (migratory bird)

111.98 hectares of bird sanctuary reserve area.

Implementation Partners/Agency :
State Selangor Wildlife Department

Town Park

Demonstration project for sustainable landscaping.

Implementation Partners/Agency :
National Landscape Department, Malaysia

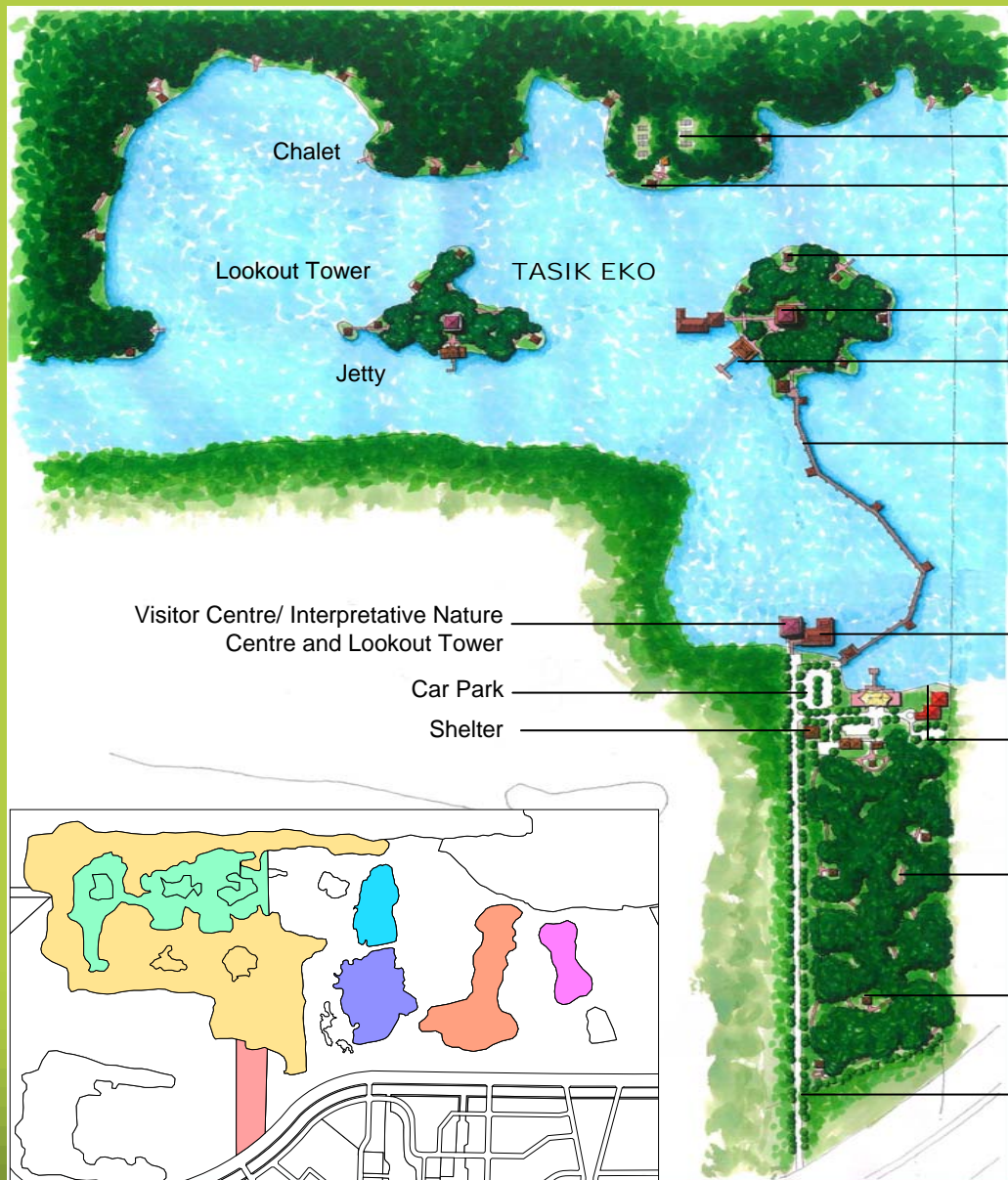
Resource Centre

To be develop as a learning and reference centre for sustainable development.

Model Village

1st Live-in Demonstration Neighborhood Development. To cater for 1000 population. Part of 54.29 acres of land which include the Town Park and Resource Centre.

BELIBIS SANCTUARY PARK



- Camp Grounds
- Jetty
- Shelter
- Lookout Tower
- Jetty
- 'Boardwalk'
- Jetty and Restaurant
- Rest House
- Cycle Path and Walkway
- Shelter
- Road Entrance

TOWN PARK



Town Park

Part of the Town Park shall be built as part of the City's beautification program and demonstration project.

It shall demonstrate and adopt sustainable landscaping principles and concept :-

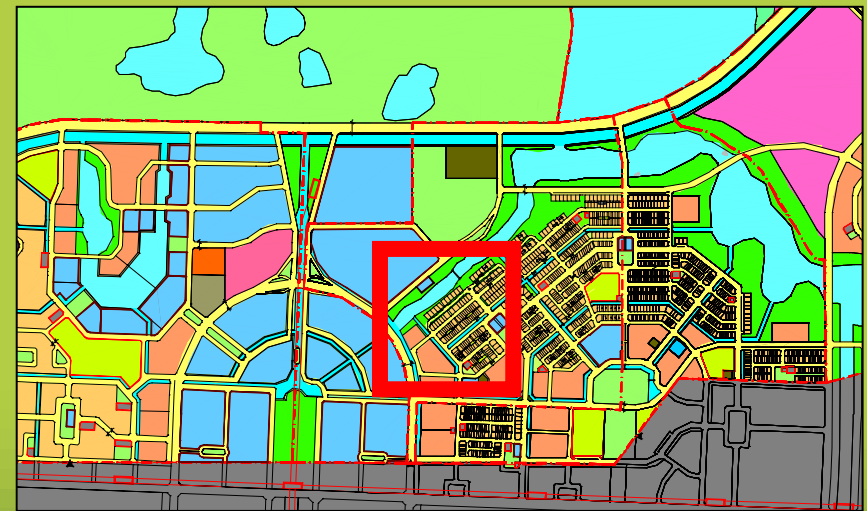
- Native plant species will be used and any non-native plants used must co-exist with local environment.
- Water-efficient landscaping will be introduced to conserve water.
- The town park water way also acts as a natural storm drainage and retention system
- The park shall also contribute towards cooler climate for the area.

TOWN PARK



MODEL VILLAGE

- The Show Village is a test bed and reference point for various related R&D works on sustainable concepts which is to be displayed in an integrated and more holistic manner.
- To study the sociological acceptance and impact of the Sustainable Development concept in the Malaysian context in order to further improve the systems holistically for future development.
- To encourage collaboration efforts by various parties from both the public and private sector.
- It shall be the first for Malaysia – setting future trends in urban development.



Model Village Location

*Located In Phase 1
54 acres of land*

MODEL VILLAGE

COMPONENTS OF MODEL VILLAGE

- Resource Centre
 - Link Homes 1 - 16 unit
 - Link Homes 2 - 34 unit
 - Link Homes 3 - 72 unit
 - Link Homes 4 - 30 unit
 - Detached Homes - 39 unit
 - Semi-detached - 16 unit
 - Cluster Homes - 24 unit
-
- TOTAL - 231 UNIT**



'MODEL VILLAGE'

Artist Impression – Streetscape



MODEL VILLAGE

Artist Impression – Green Link Homes



NEIGHBOURHOOD PLANNING



EDGE OF NEIGHBOURHOOD

- Edge defines the neighbourhood area.

SIZE

- 5minutes walking distance from edge to centre.

DEVELOPMENT COMPONENTS

- Various types, price and design.
- Focal point and landmark of development.
- Public amenities such as parks, religious reserves, nursery and neighborhood shop.

CENTRE

- Focal Point
- Place Making for neighborhood
- Community sense of belonging

LAYOUT STRUCTURE

- Permeability and Accessibility

LANDSCAPE

- The provision of open spaces within walking distance and the use of xeriscaping concept in the development.



Community Park

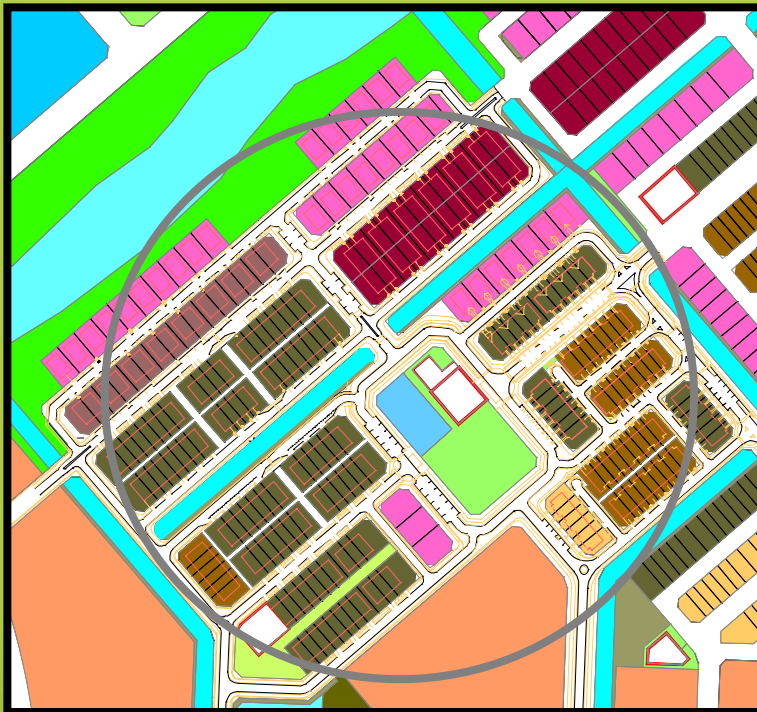


Play tots

- tot lots – 90m (5 min)
- neighborhood park – 380m (5 min)

PLANNING LAYOUT

- Neighbourhood concept which provides for walkability.
- Encourage walkability within a safe and secure environment and the enhancing permeability.



- Walkable neighbourhood size of 5 minutes from centre to edge of neighbourhood.**
- Optimum desirable neighbourhood size – 145 ac.**
- Centre consisting public amenities such as surau and neighborhood shops**

NEIGHBOURHOOD PLANNING

Provides safe public spaces with natural surveillance.

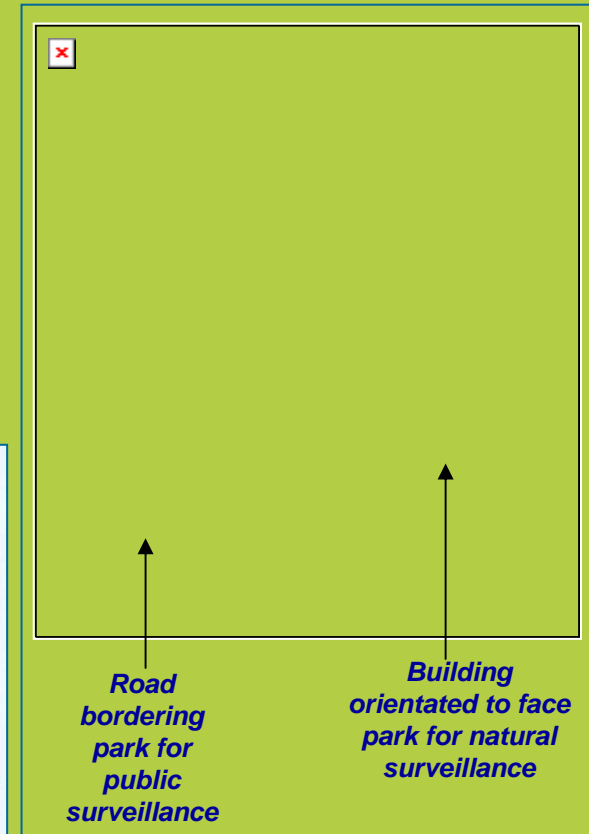
- a. Buildings to front public spaces such as streets and parks.
- b. Public parks edged by streets as boundary.
- c. Houses with habitable rooms fronting street and parks.
- d. Houses located closer to public street (reduced setback from street) to allow surveillance from houses onto public street.



Public street bordering parks and other public places to allow surveillance from road and to avoid secluded areas.



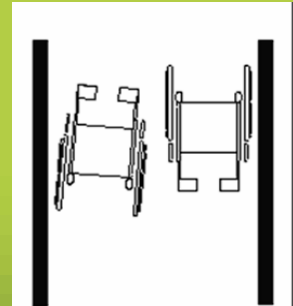
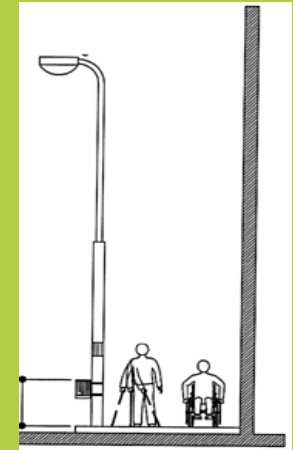
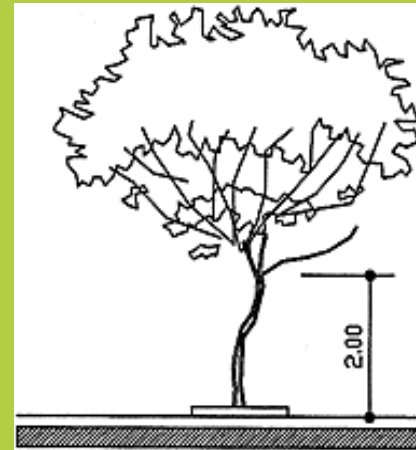
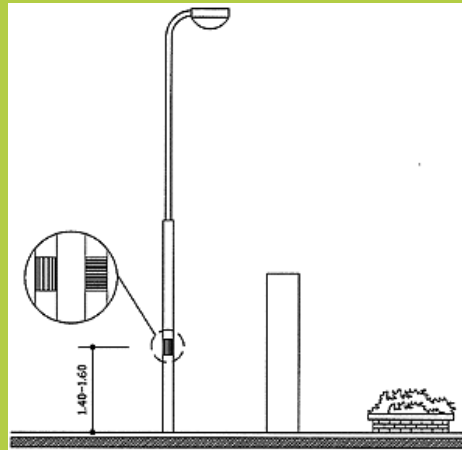
Buildings with balcony fronting street to allow public surveillance onto the street



APPLICATIONS OF SUSTAINABLE INFRASTRUCTURE AND PLANNING PRINCIPLES

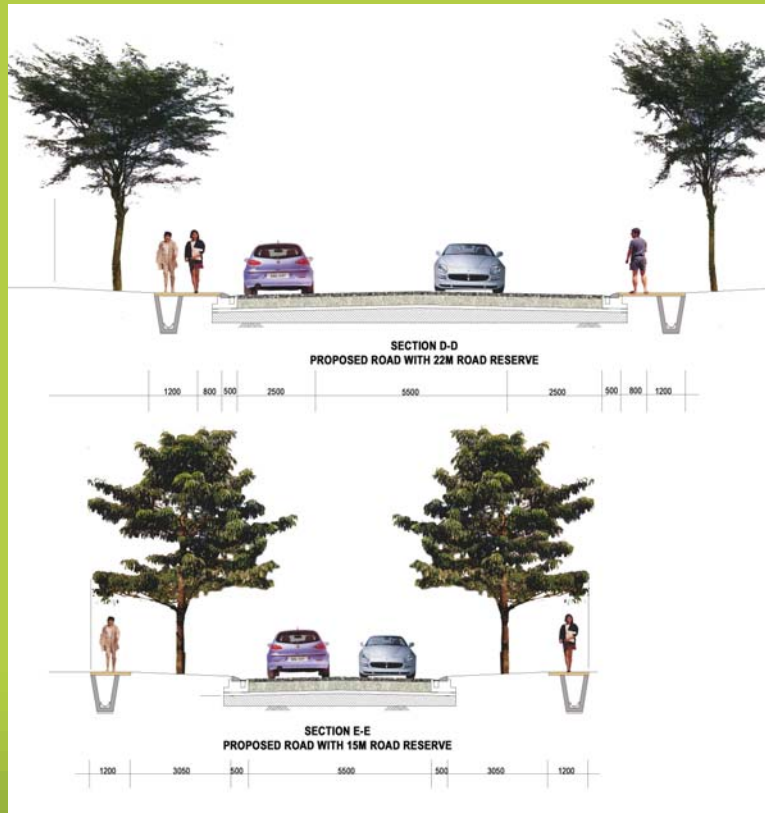
BARRIER FREE ENVIRONMENT

- Providing a barrier free environment that meets the needs of all levels of communities i.e. children, aged population as well as the disable community.



STREETSCAPE

- Attractive streetscape that has its own identity as well provides for a safe and pleasant environment for pedestrians.



APPLICATIONS OF SUSTAINABLE INFRASTRUCTURE AND PLANNING PRINCIPLES

DEVELOPMENT COMPONENT

- Innovative products that meets the needs of the community.



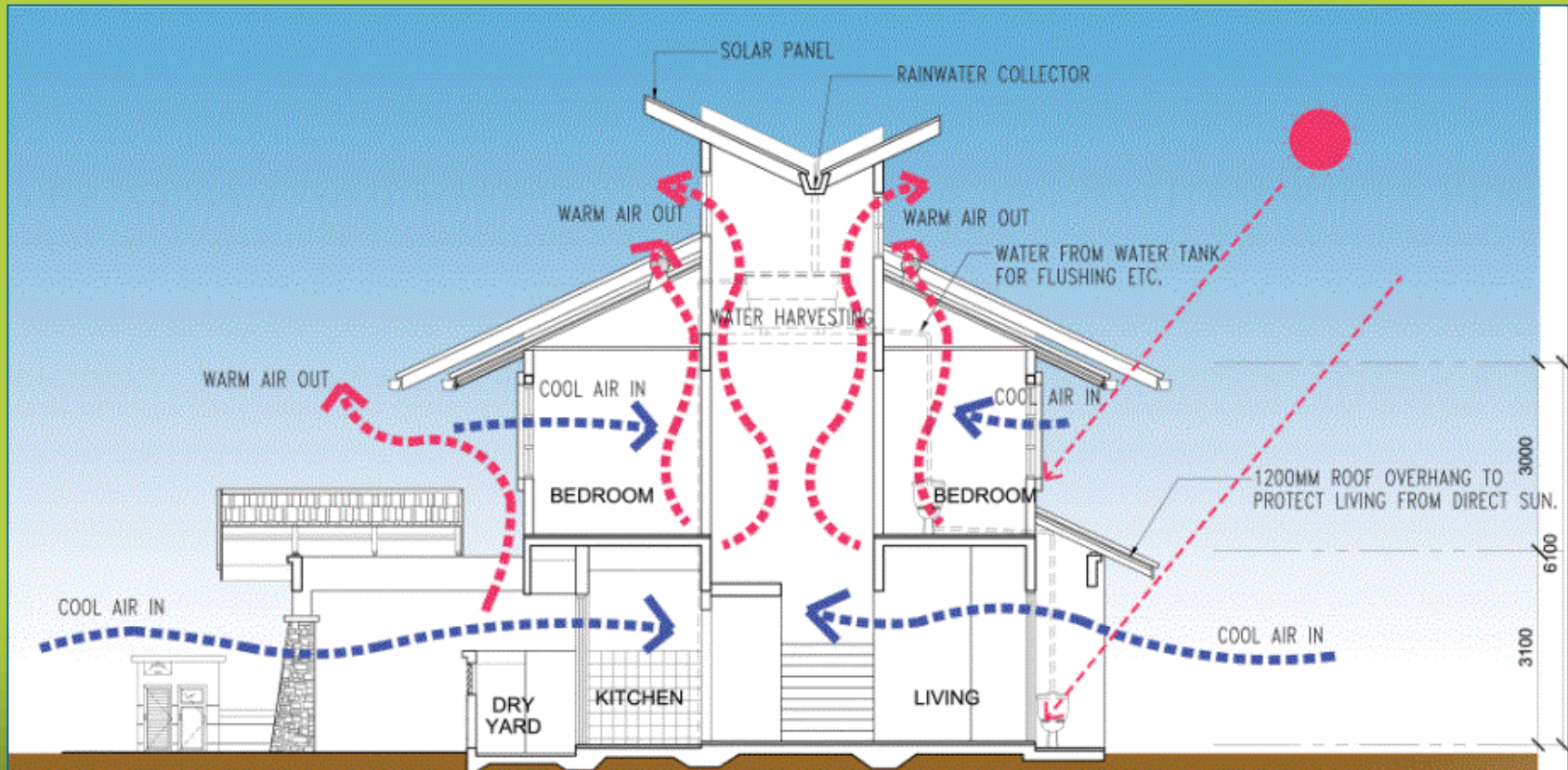
Innovative Design:
i. Green Street Products
ii. Canal Homes
iii. Quadruplex



APPLICATIONS OF SUSTAINABLE INFRASTRUCTURE AND PLANNING PRINCIPLES

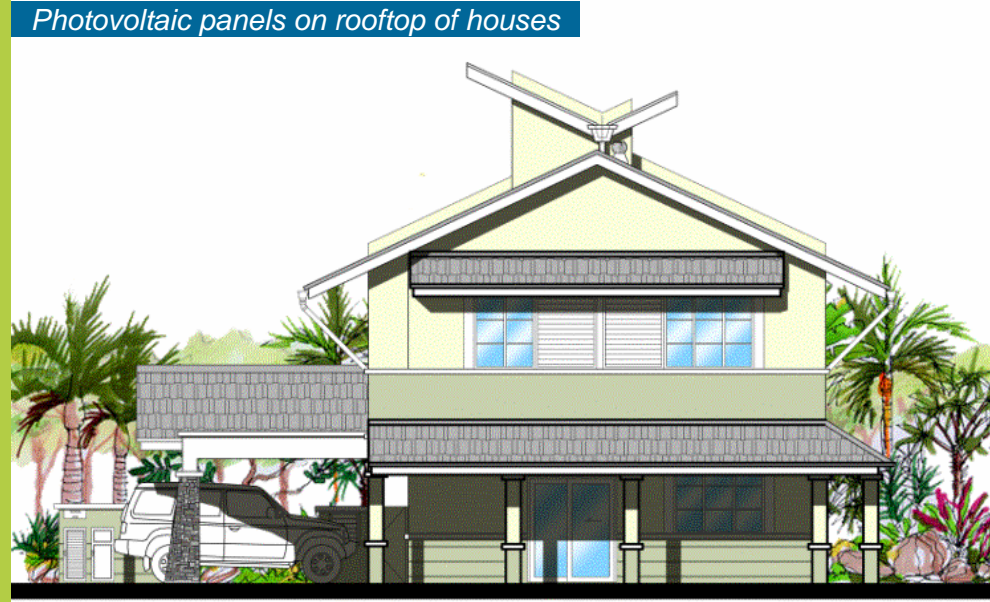
ENERGY

- **Reduced energy consumption in buildings :-**
 - using cool roof technology to reduce heat trap in building.
 - incorporating natural conditioning techniques to effect appropriate internal comfort levels – eg natural ventilation, high roof, window openings.
 - protecting habitable rooms from direct exposure from sunlight through landscaping and building orientation.
 - target reduction of energy consumption per household by a minimum of 50%.



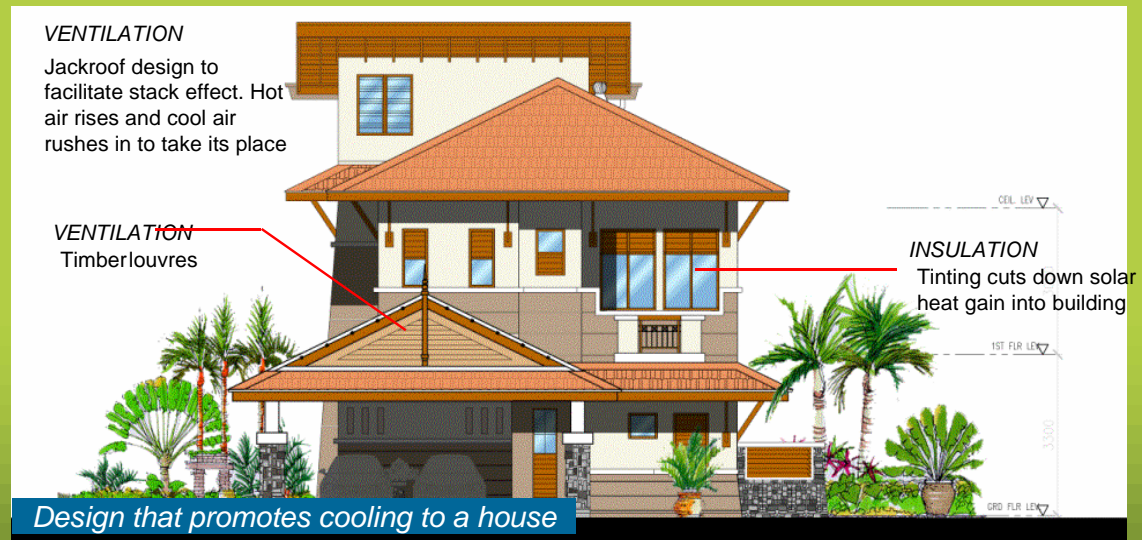
ENERGY

- **Solar for additional energy supply and heating**
 - installation of photovoltaic panels on rooftop of buildings to produce up to 3kW hours of energy.
 - connected to TNB grid with special meter for rebate.
 - photovoltaic panels model village homes



Application of cooling techniques to 2 storey bungalow in Model Village

- Jack roof design that creates a stack effect allows for air exchange.
- Use timber louvers
- Large overhangs
- Tinting of glass

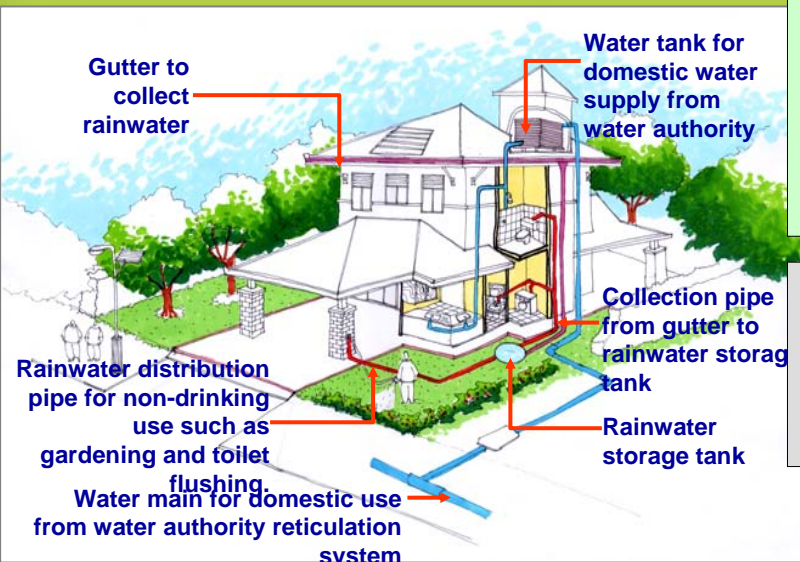


APPLICATIONS OF SUSTAINABLE INFRASTRUCTURE AND PLANNING PRINCIPLES

WATER MANAGEMENT



- Sustainable use of water by reducing and recycling of water.

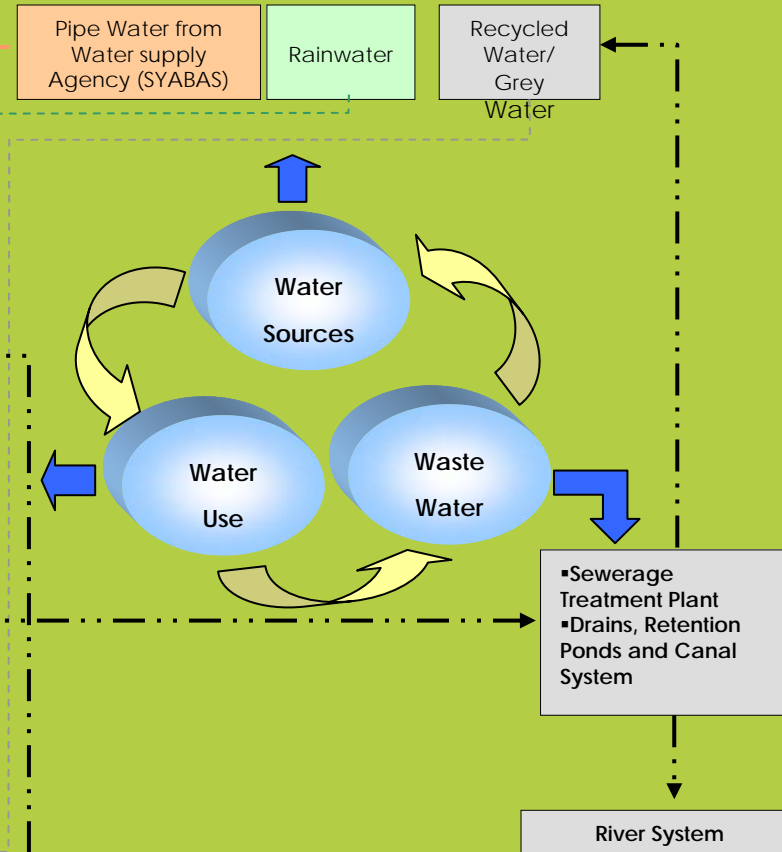


- DOMESTIC USE**
 - Drinking Water
 - Kitchen Use
 - Bathing
 - Washing

- DOMESTIC USE**
 - Bathing
 - Washing
 - Toilet Flushing
- NON-DOMESTIC USE**
 - Gardening
 - Municipal landscaping
 - Car Washing

- DOMESTIC USE**
 - Toilet Flushing
- NON-DOMESTIC USE**
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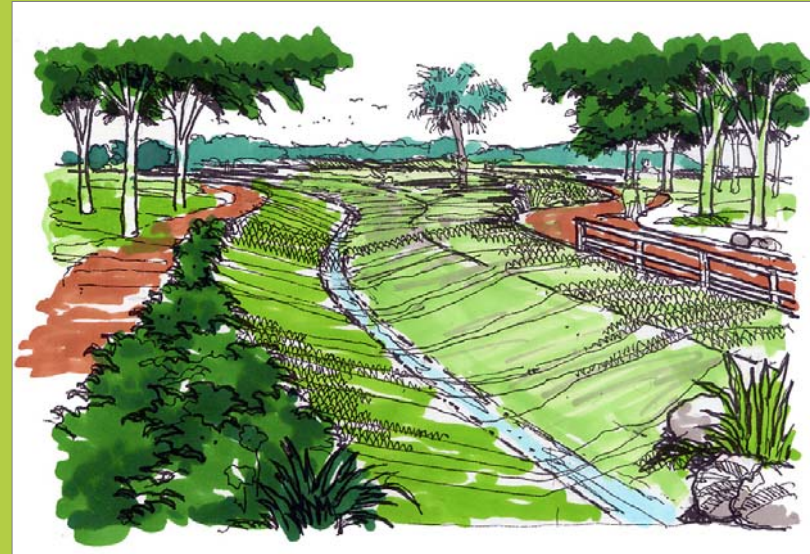
Concept of Bestari Jaya Integrated Water Management



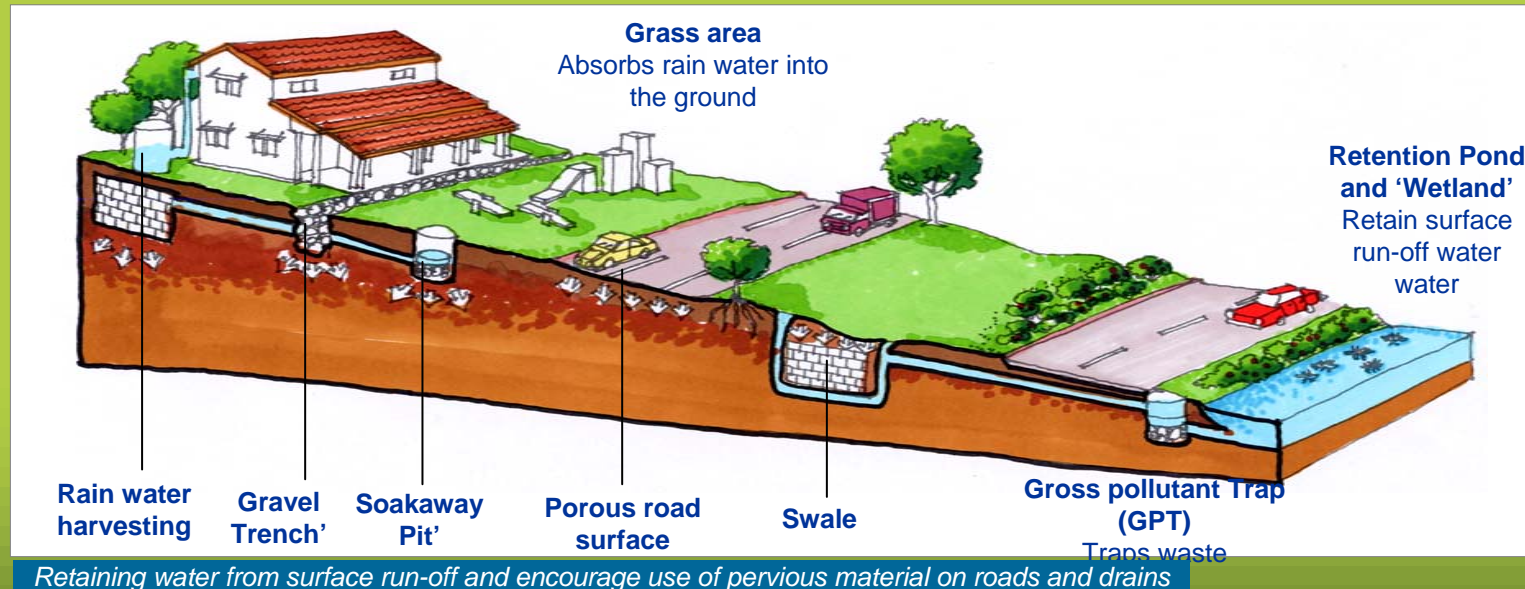
APPLICATIONS OF SUSTAINABLE INFRASTRUCTURE AND PLANNING PRINCIPLES

DRAINAGE

- Encourage the use of pervious material for car parks, roads and drains to allow water to drain naturally into the ground.
- Provide retention ponds to retain water before flowing into rivers and natural waterways.
- Use Gross Pollutant trap to trap waste from going into retention ponds to ensure better water quality.

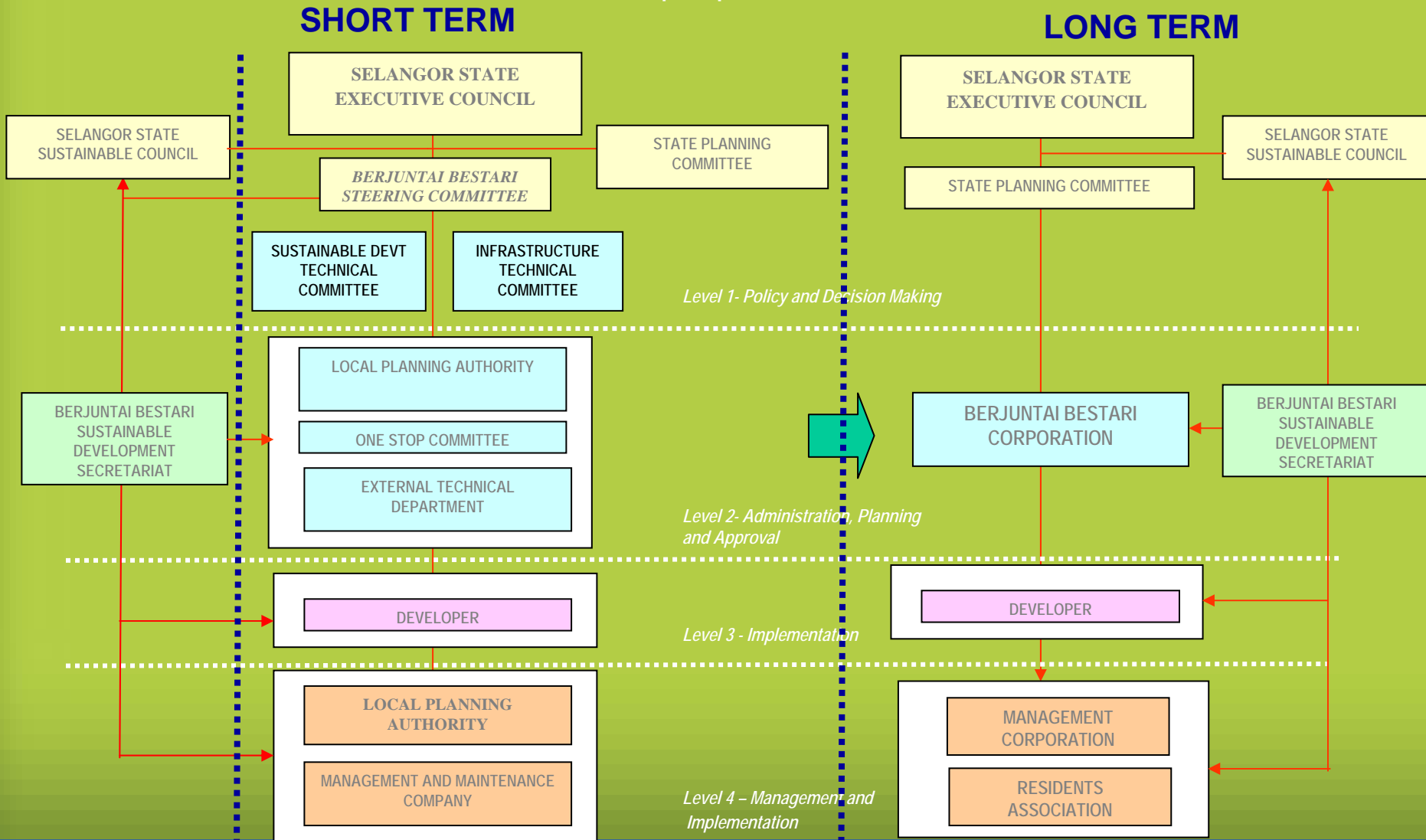


Swales are used instead of lined drains



MANAGEMENT AND IMPLEMENTATION

The implementation of development in Bestari Jaya requires a management mechanism that is holistic. Therefore a dedicated organization shall be formed to manage and administer the development of Bestari Jaya based on the sustainable development principles.



A sunset scene over a pond with lotus flowers. The sky is filled with soft, orange and pink clouds, and the sun is low on the horizon, casting a warm glow over the water and the surrounding greenery. The lotus leaves and flowers are visible in the foreground and middle ground.

Thank you

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46E-8, LEVEL 8

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JALAN PJS 8/2

DATARAN MENTARI

46150 PETALING JAYA

SELANGOR