

# Executive Summary

## **Penang Botanic Gardens** *Draft Special Area Plan*



# CONTENTS

	Pg
About Special Area Plan	3
Vision	4
Vision, Mission, Objectives	4
Master Plan Design Principles	5
Garden Master Plan	6
Illustrative Master Plan : Overall	6
Master Plan : Core Area	7
Key Proposals	8
Visitor Centre	8
Conservation and Propagation Centre	8
Herbarium	9
Kampung Garden	9
Secret Garden	10
Malaysiana Boulevard and Garden	10
Floral Garden	11
Treetop Walk	11
Natural Amphitheatre	12
Natural Trail	12
Access and Circulation	13
Improving Institutional Capabilities	14
Proposed Expansion to PBG Department	14
Proposed Human Resource Requirement under SAP	15

## DRAFT SPECIAL AREA PLAN FOR PENANG BOTANIC GARDENS

This Draft Special Area Plan will be exhibited for public comments. Following exhibitions, public feedback and other inputs will feed into a review of this special area plan before it is adopted and gazetted.

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Prepared for the State Government of Penang

This Draft Special Area Plan has been prepared under provision of Section 108 of the Town and Country Planning Act 1976. This document has been prepared with input from various stakeholders.

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AJM Planning & Urban Design Group

**APUDG**





# ABOUT THE SPECIAL AREA PLAN

The Special Area Plan (SAP) for Penang Botanic Gardens (PBG), is a detailed master plan that will guide future direction of PBG towards becoming a botanic garden in its true sense. The SAP is prepared under provision of section 16B of the Town and Country Planning Act 1976 (Act 172).

**a. Sub - section 16B(1)**

SAP can be prepared at any time during the preparation or upon the coming into effect of a structure plan or local plan, a State Director or a local planning authority, on his or its own initiative or as directed by the Committee, may submit to the committee a proposal for the designation of a special area for special and detailed treatment by development, redevelopment, improvement, conservation or management practice, or partly by one and partly by another method, of the whole or part of such special area, and the nature of the treatment proposed.

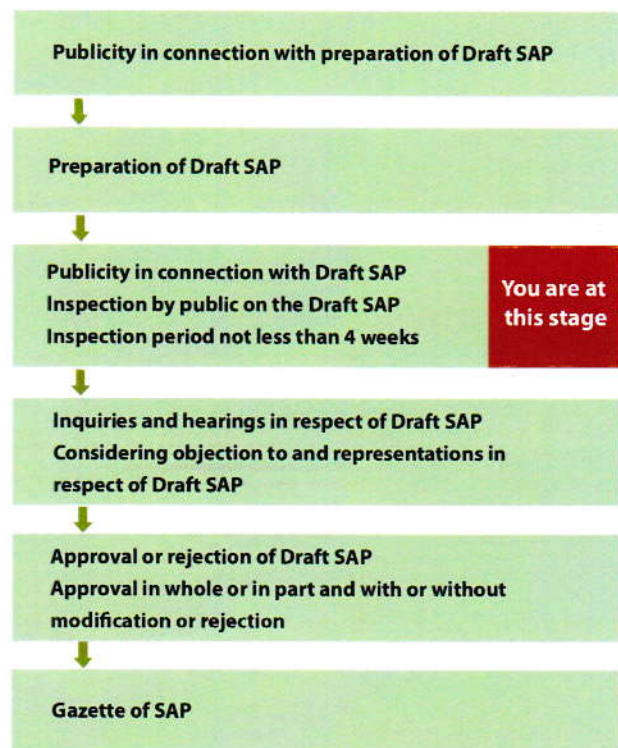
**b. Sub - section 16B(2)**

The Committee shall determine whether it is a State Director or the local planning authority who shall have the responsibility of preparing a plan for the special area.

**c. Sub - section 16B(3)**

The plan for a special area shall be prepared in the same manner as the preparation of a local plan, but there shall be incorporated in such plan detailed guidance for its implementation and management, and the plan shall have the effect of a PBG.

## Provision for Special Area Plan under the Town and Country Planning Act 1976 (Act 172)







# VISION

## Vision

### Connecting to a World's Natural Heritage

#### Mission

##### 1. Conserve

To contribute towards the conservation of rare, endemic and threatened plants.

##### 2. Research

To further research of plants, forest ecology and biodiversity in general.

##### 3. Educate

To inspire, engage and educate in order to bring people closer to nature.

#### Objectives

##### Connecting people and nature

- 1a. Establish and maintain living and artifacts plant collections.
- 1b. Effectively communicate with various segments of the public.
- 1c. To develop, encourage and nurture public interest in plant research and conservation.

##### Plant conservation

- 2a. Establish a plant conservation and species recovery programme.
- 2b. Implement in-situ and ex-situ conservation with plant enrichment programme.
- 2c. Create awareness for general public on importance of plant conservation and biodiversity.

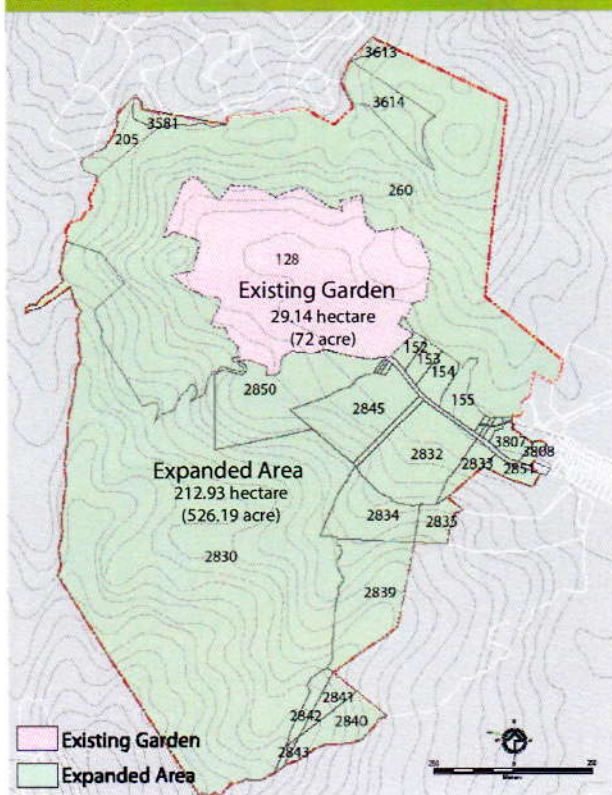
##### Research

- 3a. Upgrade collections of plant genetic material, along with the required databases and research facilities.
- 3b. Establish local and international partnerships and collaborations on plant research and exchange.
- 3c. Encourage and facilitate research projects using the gardens as a living laboratory and reference centre.

##### Recreation & Tourism

- 4a. Serve as a green lung for Penangites and as a must-see tourist destination.
- 4b. Develop appropriate garden facilities for innovative and appropriate tourism activities.
- 4c. Create awareness on importance of nature and environment conservation to school children.

#### PBG Area



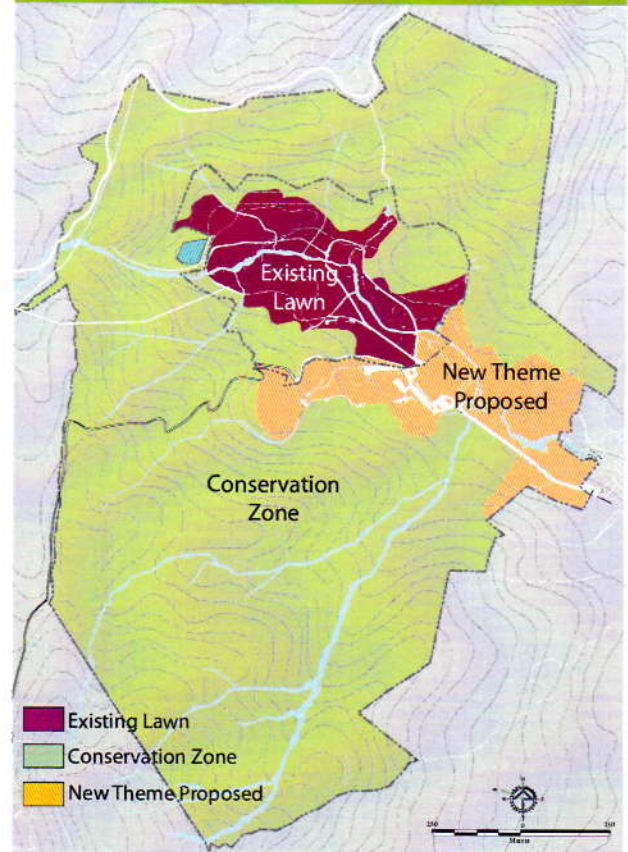




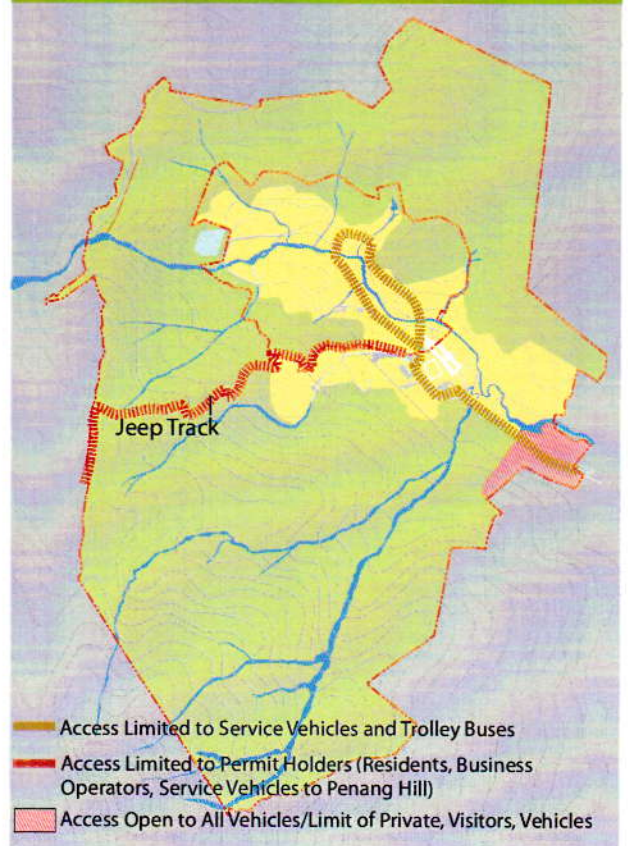
## Master Plan Design Principles

1. Enhancing PBG unique features from its current status;
2. Aligning PBG aspirations and revised functions with its spatial and thematic arrangement as well as providing necessary facilities and spaces for such functions to be implemented;
3. Protecting and enhancing the role of PBG in managing and maintaining plant collections for the purposes of conservation, education, research and display;
4. Maintaining and enhancing the landscape character of the gardens for sustainable recreational opportunities;
5. Facilitating development of appropriate supporting facilities within designated locations where it can be demonstrated that such facilities would result in net benefit to the park and its users; and
6. Ensuring a garden that is dedicated and gives priority to pedestrian users, in terms of safety, access, information and directions and conveniences; with restricted vehicular access into the PBG.

### Zoning Strategy



### Access Strategy

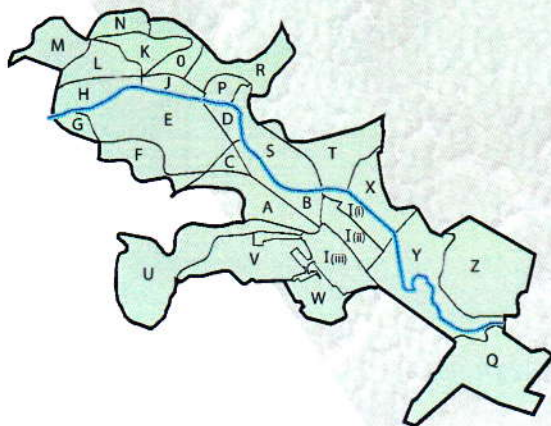




## Illustrative Master Plan: Overall



### LAWN IDENTIFICATION PLAN



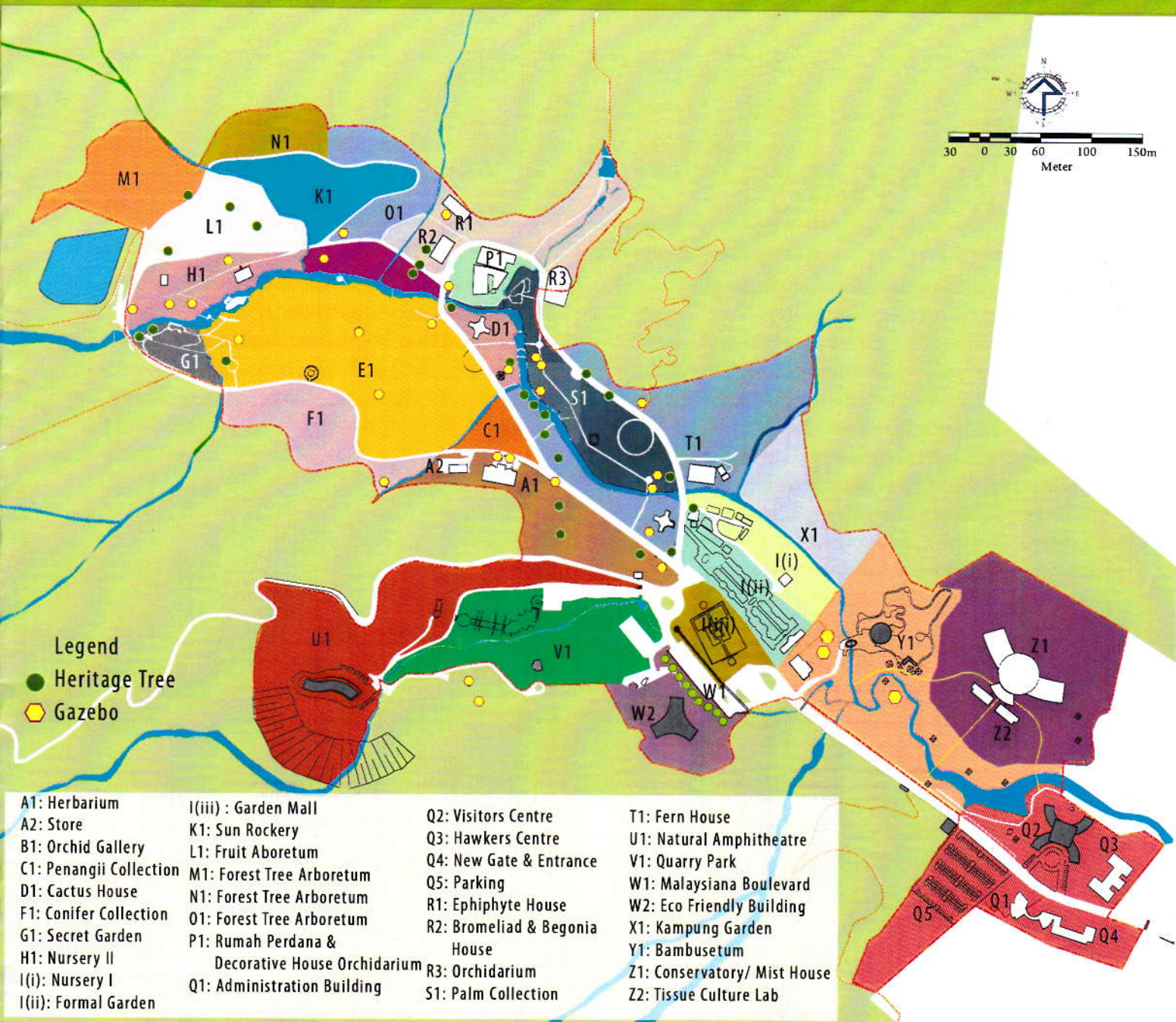
#### Legend

- Existing Lawn
- New Lawn

- |  |   |   |
|--|---|---|
| <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN A</b><br>Herbarium to be enlarged<br>Malaysiana Trees Planting      | <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN K</b><br>Sun Rockery   | <span style="border: 1px solid pink; padding: 2px;"> </span> <b>LAWN U</b><br>Natural Amphitheatre<br>Event Facilities (Meeting / Function and Fine Dining)   |
| <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN B</b><br>Orchid Gallery   | <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN L</b><br>Fruit Arboretum   | <span style="border: 1px solid pink; padding: 2px;"> </span> <b>LAWN V</b><br>Floral Garden   |
| <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN C</b><br>Penangii Collection  | <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN M</b><br>Forest Tree Arboretum   | <span style="border: 1px solid pink; padding: 2px;"> </span> <b>LAWN W</b><br>Malaysiana Boulevard/Garden<br>Eco Building (Auditorium, Function Rooms, Library, Activity Centre, Restaurant and Retail Space)                                   |
| <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN D</b><br>Cactus House   | <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN N</b><br>Forest Tree Arboretum   | <span style="border: 1px solid pink; padding: 2px;"> </span> <b>LAWN X</b><br>Kampung Garden (Native Fruit and Herbs)<br>Kampung House  |
| <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN E</b><br>Conifer Collection   | <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN O</b><br>Forest Tree Arboretum   | <span style="border: 1px solid pink; padding: 2px;"> </span> <b>LAWN Y (BAMBUSETUM)</b><br>Bamboo Interpretation Centre<br>Japanese Garden<br>Convert Waterfall Cafe to Japanese Cafe<br>Refurbish Malaysia Nature Society and Friends Building |
| <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN F</b><br>Conifer Collection   | <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN P</b><br>Rumah Perdana & Decorative House<br>Orchidarium                   | <span style="border: 1px solid pink; padding: 2px;"> </span> <b>LAWN Z (CONSERVATION PROPAGATION CENTRE)</b><br>Tissue Culture Lab<br>Tree Nursery<br>Tree Conservatory<br>Mist House   |
| <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN G</b><br>Secret Garden<br>(Former Fern Rockery and Japanese Garden) | <span style="border: 1px solid pink; padding: 2px;"> </span> <b>LAWN Q (VISITOR CENTRE)</b><br>Visitor Centre Building<br>Administration Building |   |
| <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN H</b><br>Maintenance for upper part of the gardens                  | <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN R</b><br>Epiphyte House<br>Bromeliad & Begonia House<br>Orchidarium        |   |
| <span style="border: 1px solid orange; padding: 2px;"> </span> <b>LAWN I</b><br>Nursery<br>Formal Garden<br>Garden Wall                    | <span style="border: 1px solid pink; padding: 2px;"> </span> <b>LAWN S</b><br>Palm Collection<br>Fern House                                       |   |



## Master Plan: Core Area



### LAWN IDENTIFICATION PLAN



	Ac.	%		Ac.	%
Lawn A	2.88	0.48	Lawn P: Rumah Perdana & Decorative House	0.89	0.15
Lawn B	1.62	0.27	Lawn R	2.95	0.49
Lawn C: Penangii Collection	0.62	0.10	Lawn S	2.98	0.50
Lawn D	0.83	0.14	Lawn T: Palm Collection	4.08	0.68
Lawn E	8.48	1.42	Lawn Q: Office Building	7.83	1.31
Lawn F: Conifer Collections	2.45	0.41	Lawn U: Amphitheatre and Fine-dining	7.80	1.30
Lawn G: Secret Garden	0.57	0.10	Lawn V: Floral Garden	2.39	0.49
Lawn H	1.86	0.31	Lawn W: Malaysiana Boulevard/Garden Convention and Activity Building	5.39	1.50
Lawn I (i): Nursery	2.04	0.34	Lawn X: Kampung Garden	2.34	0.39
Lawn I (ii): Formal Garden	1.53	0.34	Lawn Y: Bambusetum	4.74	0.79
Lawn I (iii): Garden Mall	1.45	0.26	Lawn Z: Conservation Propagation Centre	8.18	1.37
Lawn J	1.03	0.17	Nature and Conservation Zone	477.43	80.0
Lawn K: Sun Rockery	4.45	0.74	Water Body	20.55	3.44
Lawn L: Fruit Arboretum	2.22	0.37	Road and Trail	12.15	2.03
Lawn M: Forest Tree Arboretum	2.71	0.45			
Lawn N: Forest Tree Arboretum	1.42	0.24			
Lawn O: Forest Tree Arboretum	1.76	0.29			
<b>Total</b>				<b>598.16</b>	<b>100.00</b>

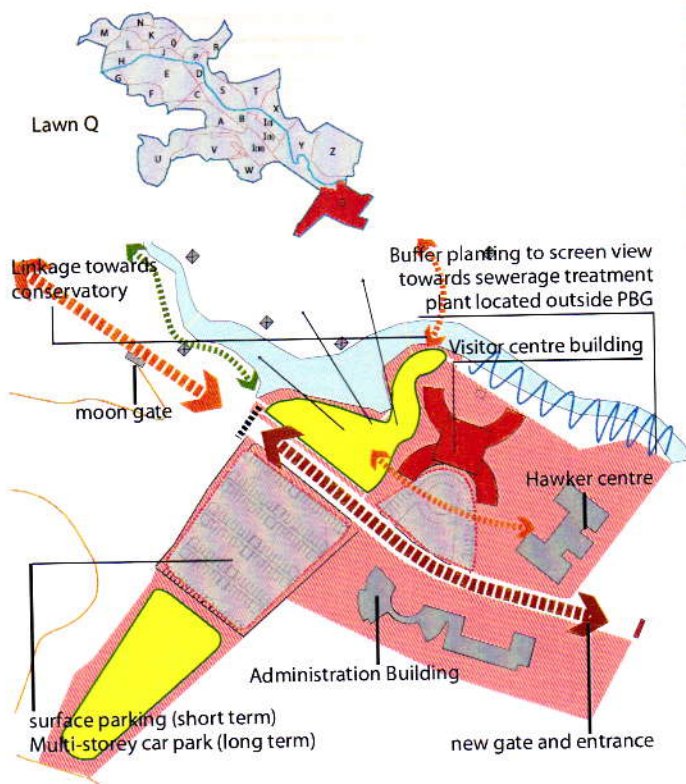




# KEY PROPOSALS

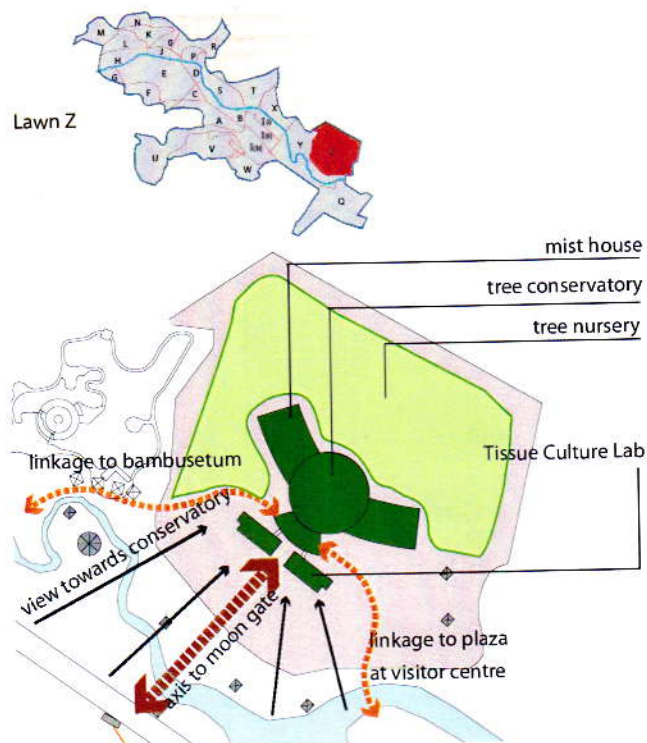
## Visitors Centre

The visitors centre is located at the entrance of the PBG. The area consists of two existing buildings newly completed administration office building and hawkers centre. Within the area, a new visitors centre building is proposed. This visitor centre building shall accommodate spaces for ticketing office, visitors information facilities, garden tour office, gift shop, surau and toilet facilities. The visitors centre building provides visitors with information on the entire garden before they experience the various lawns in the Gardens. Construction of the visitors centre shall involve demolition of existing structures on site. The area is also planned with parking facilities. In the short term, surface parking shall be provided which will later be replaced with multi-storey car park in the longer term. A new gate and entrance structure shall be provided immediately at the boundary of PBG to welcome visitors to the Gardens.



## Conservation and Propagation Centre

Located at the new Lawn Z, the centre shall accommodate a building for tissue culture laboratory which is critical to PBG's conservation mission and objectives. The laboratory shall be supported by tree conservatory, nursery and mist house that will provide spaces for tree propagation as part of the whole conservation and research activities in PBG.





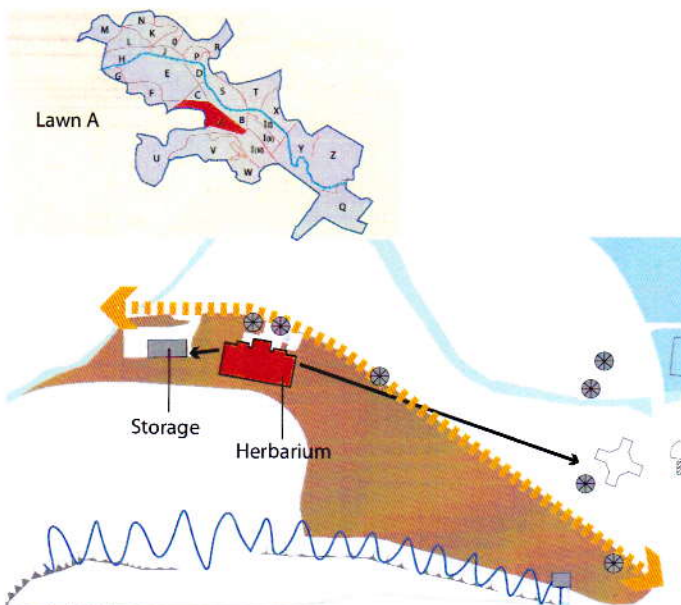


## Herbarium

Capacity of existing herbarium facilities shall be expanded to 100,000 herbarium sheets from its current 4,000 herbarium specimens. The existing Penang Botanic Gardens Department office shall be adapted and modified to accommodate the required facilities of a modern herbarium.

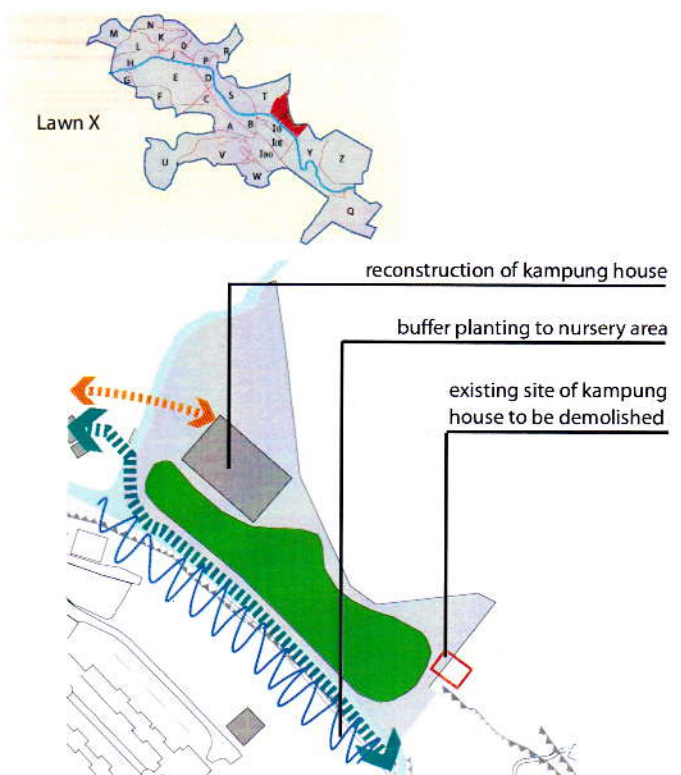
## Kampung Garden

In the Kampung Garden, a theme of typical Malay village shall be re-created using fruit trees and other relevant features present at the site. Major structure within the area will be a kampung house. The kampung house structure is to be used as a Plant Artifact and Ethnobotany Museum that displays findings and collections which focused on the classification and uses of plants by the indigenous people of Malaysia. The area can also be used as venue for herbal remedy talks and demonstrations.



pedestrian linkage  
 buffer planting

view towards plant house and storage



area to conserve existing trees and to be planted with native fruit trees  
 streamwalk

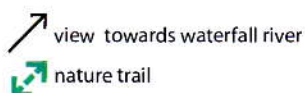
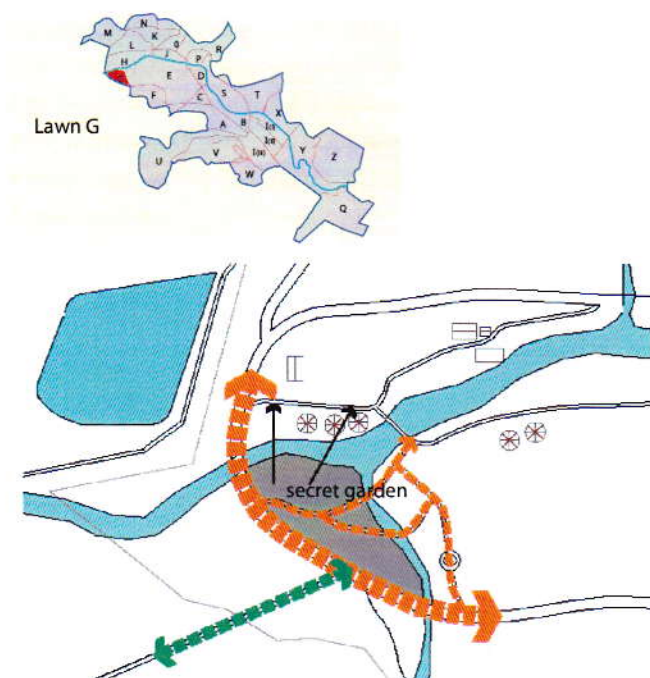
pedestrian linkage  
 buffer planting





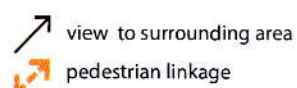
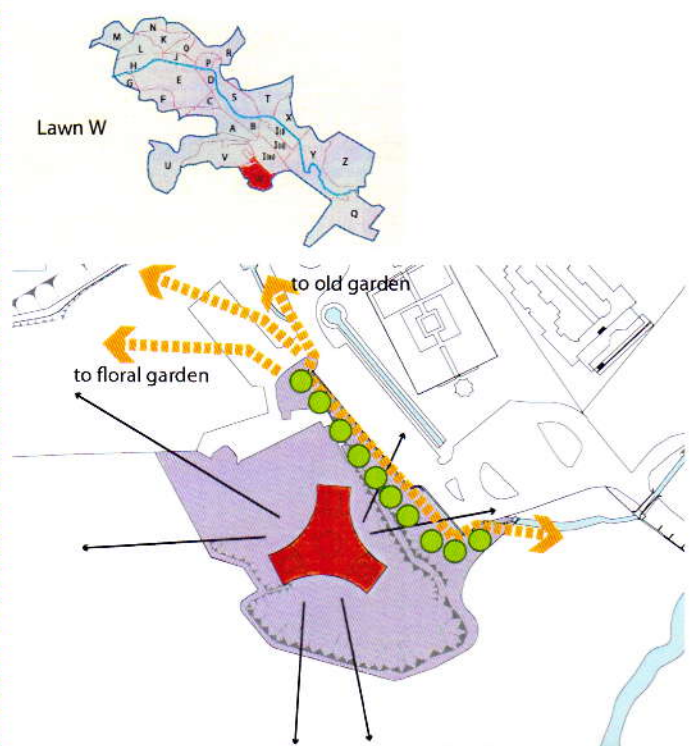
## Secret Garden

This area is a hidden gem; generally by-passed by visitors but one of the most naturally beautiful places in the PBG. What sets it apart from the other areas is its meandering pathway shaded by trees along a rocky stream, with remnants of old brick structures that give it an air of a mystery and wonder.



## Malaysiana Boulevard and Garden

The idea for this boulevard is to plant a collection of trees of which states, towns or places in Malaysia are named after. The boulevard is located between the existing garden mall and the new Lawn W which currently houses a shooting club. The present shooting club shall be relocated outside of PBG and a new building providing convention and other activity centre shall be developed. The new building shall be eco-friendly to showcase the use of plants as part of green building concept.

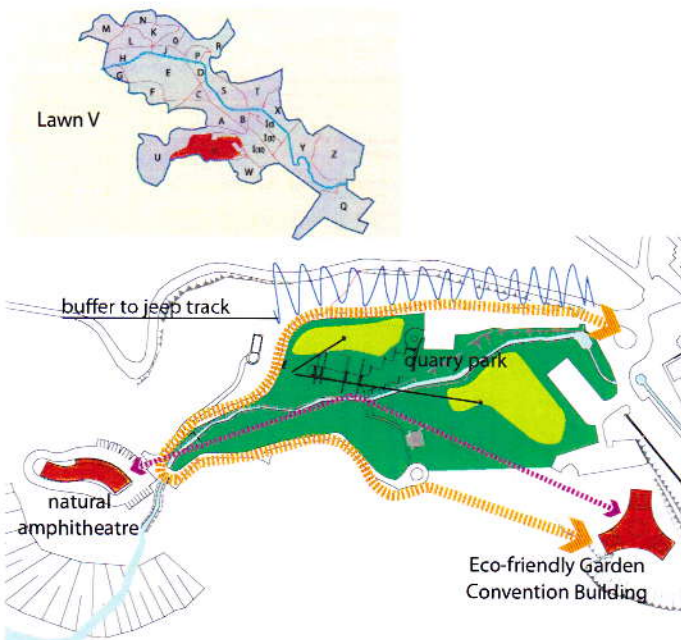








## Floral Garden

The focus of the Floral garden is on horticulture. This space will be one of the two lawns in PBG focusing on horticulture (the other being the formal garden). The ultimate objective of the Floral Garden will be to contribute towards the development of a truly "Malaysian" tropical garden design that blends tropical (preferably native Malaysian) plants with other landscape elements to reflect Malaysia's cultural diversity.

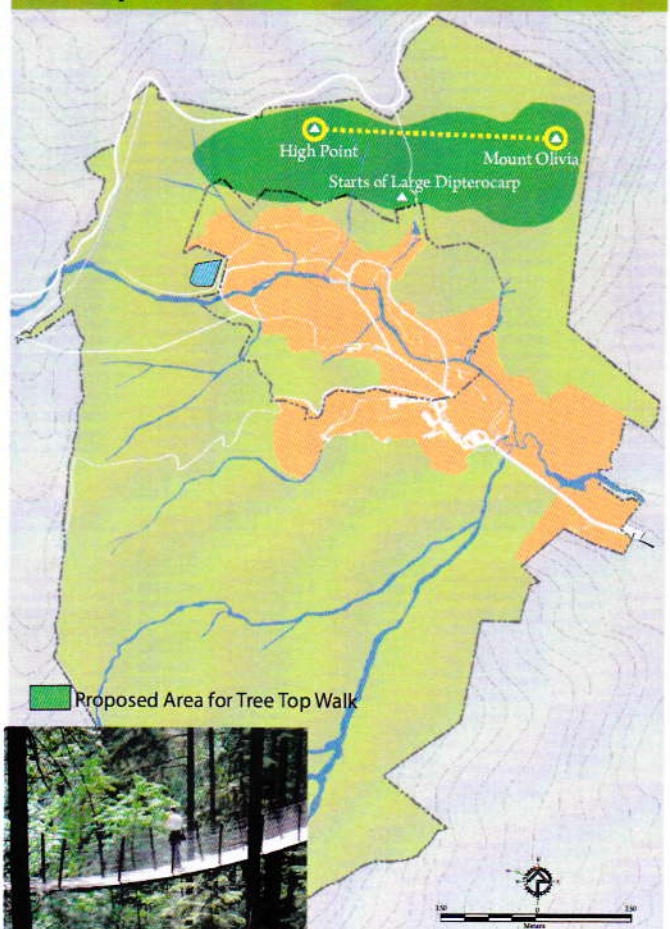


-  area to be planted with flowers
-  view from the upper platform towards floral garden
-  buffer planting
-  pedestrian linkage
-  axis to Garden Mall

## Tree Top Walk

The tree top walk is envisaged to be 100 -200m long elevated walkway starting from a spur and rising across the valley (up to around 30m elevation above ground level at the highest point) to an adjacent spur. The most suitable site for the tree top walk is the forested slopes just northeast of the Curtis trail. This area is essentially a narrow valley between two spurs, with the largest trees and most natural forests (the forests at lower elevations have been logged over and have very few big rainforest trees). The tree top walk offers new attraction for visitors to PBG to explore the rainforest, provide new source of revenue to PBG, provide researchers access to the forest canopy for observation and data collection and provide an avenue for educational walks relating to rainforest canopy.

### Tree Top Walk

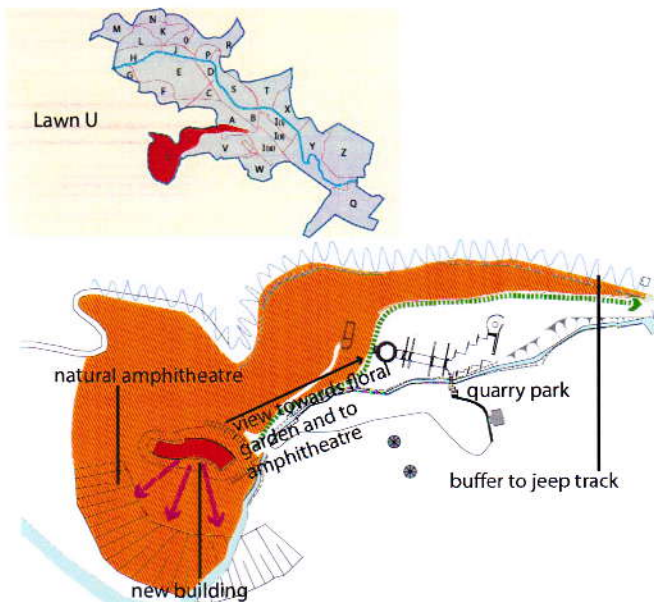






## Natural Amphitheatre

The quarry face located behind the existing Quarry Park offers a unique opportunity for the creation of a natural amphitheatre. The rock formation edging the area naturally amplifies or echoes sound, making it ideal for musical and theatrical performances. Open air seating areas and some shaded seated areas shall be provided. The area is also ideal for garden-themed weddings or other events. In order to support such events, a new building accommodating fine-dining restaurants and other related facilities such as toilets are planned within this area.



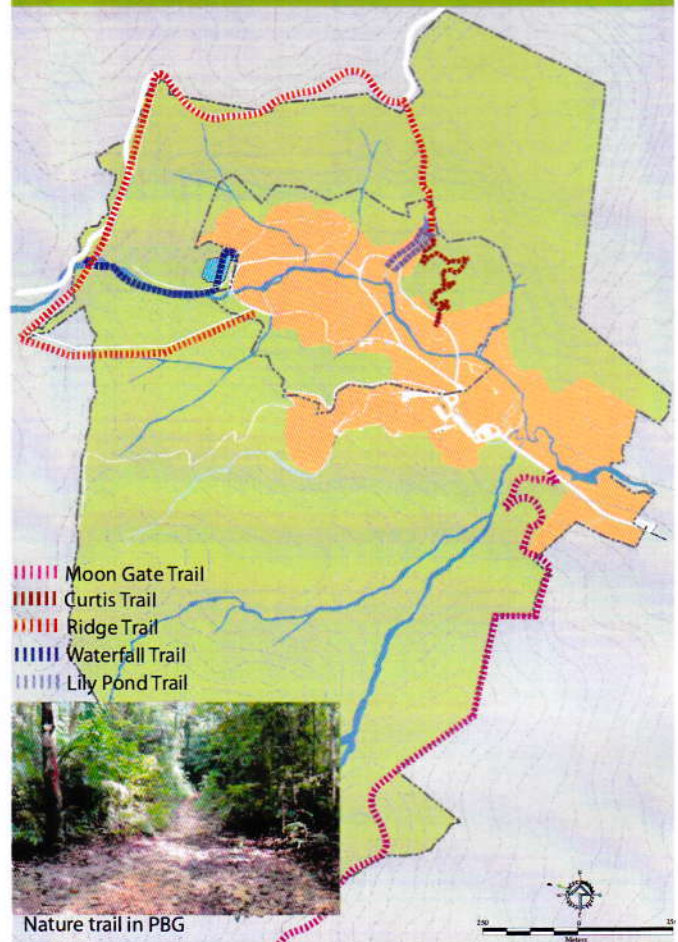
pedestrian linkage  
view towards quarry face

buffer planting  
view towards floral garden and to amphitheatre

## Nature Trails

It is proposed that four main trails be developed, i.e. the Lily pond trail, Curtis trail, Waterfall trail and Ridge trail. (please refer to map). These trails have been selected to ensure that PBG trail network will have something for everyone, i.e. cater to the multiple user groups, each of whom that may have varying objectives, interests and levels of fitness or mobility. In contrast to the various lawns and plant houses, the trails must retain their elements of wilderness and therefore, should not be overly developed. Only the basic trail elements necessary to ensure the safety of users and to support the intended functions of the trails should be installed. Other trails that can be developed in the future are the trail to Mount Olivia and the trail to Penang Hill.

### Nature Trails





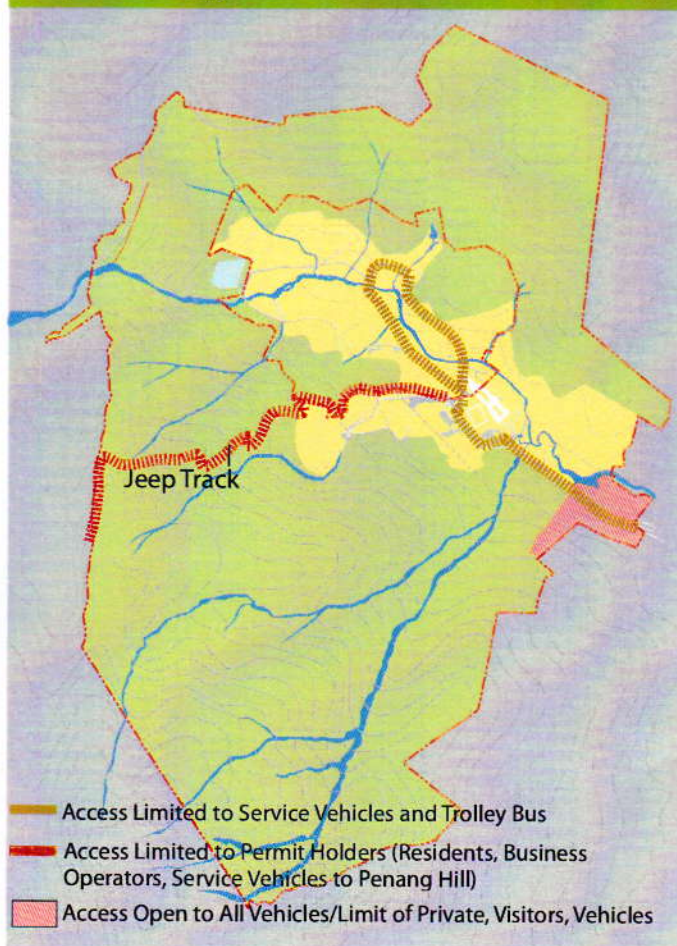


## Access and Circulation

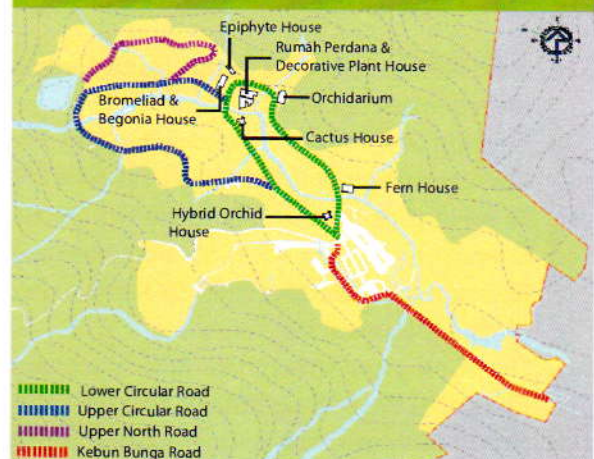
PBG shall be turned into a 'traffic-free' garden where visitors' access shall only be limited up to the visitors' centre at Lawn Q. Here, a centralised parking facilities shall be provided ( surface parking in the immediate term and multi-storey parking in the long term). Circulation within the Garden shall only be via trolley buses.

The existing jeep track will only be opened to permit holders (residents and business operators on Penang Hill) and service/maintenance and emergency vehicles to Penang Hill.

### Access Strategy



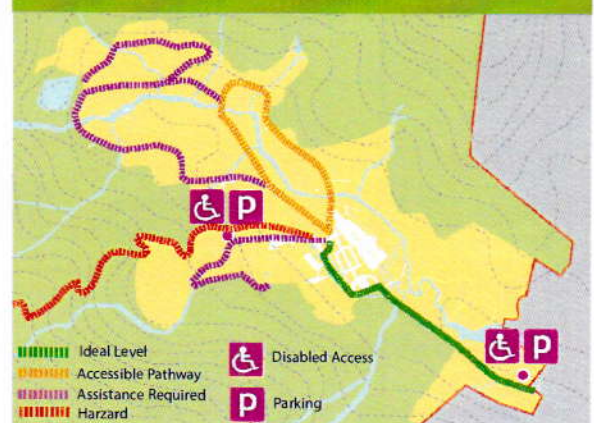
### Lower Circular, Upper Circular & Upper North Circular Road



### Trolley Bus Route



### Disabled Access Indication





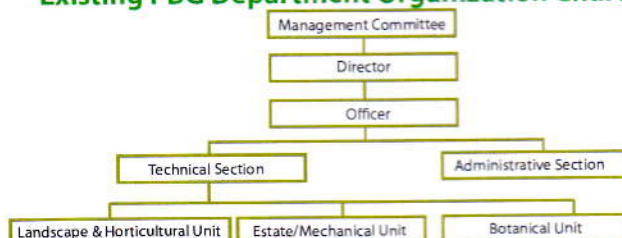


# IMPROVING INSTITUTIONAL CAPABILITIES

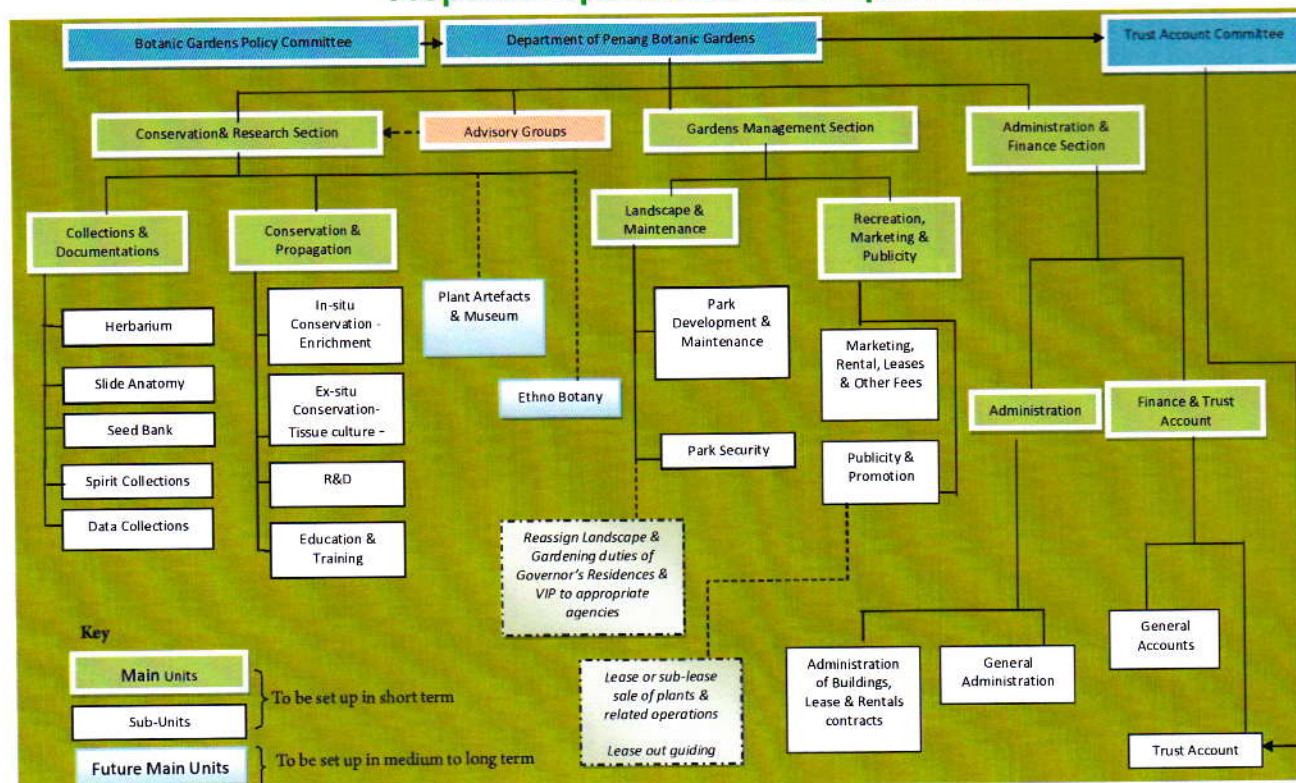
## Key Proposals:

1. Strengthen organisational structure of Penang Botanic Gardens Department to facilitate PBG's revised function by:
  - a. Subdividing existing Technical Section into two namely; (i) Conservation and Research Section, and (ii) Garden Management Section;
  - b. Creating additional units under the Conservation and Research Section comprising of a Collection and Documentation Unit and Conservation and Propagation Unit;
  - c. Grouping the existing Landscape/Horticulture/Estate Units into a Garden Management Section;
  - d. Strengthening Trust Account Committee to oversee management of PBG Trust Account;
  - e. Reassign the maintenance of Sri Mutiara garden and VIP Bungalows and supply of plants for state functions to other appropriate state agencies;
  - f. Developing and strengthening relationships with other organisations especially NGOs and universities;
  - g. Renaming the Penang Botanic Management Committee into Penang Botanic Policy Committee; and
  - h. Establishing several expert advisory groups to assist in a project and programmes implementations.

## Existing PBG Department Organization Chart



## Proposed Expansion to PBG Department





2. Make available relevant and sufficient human resources through:
  - a. Recruitment of skilled and experience plant taxonomist;
  - b. Creation of new managerial and profesional positions;
  - c. Upgrade and retrain existing staff to till new upgraded positions; and
  - d. Use of contractual appointment as short term measures.

### Proposed Human Resource Requirement under SAP

