

# Establishment of a Ranking System on Provision of Hillside Escalator Links and Elevator Systems

## Executive Summary



運輸署  
Transport Department

**AECOM**

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## **1 INTRODUCTION**

- 1.1 In Hong Kong, there are a number of densely inhabited areas with hilly topography. To improve pedestrian accessibility to these areas and to reduce dependence on vehicular access to these areas via congested, steep and narrow access roads, provision of escalator links and elevator systems are to be considered. These escalator links and elevator systems, provided to enable pedestrians to overcome height differences, are generally well patronized and received by local residents.
- 1.2 In view of the growing number of requests from the public for the provision of hillside escalator links and elevator systems, a ranking system is therefore needed for the Government to address the public requests in a fair, objective and open manner.

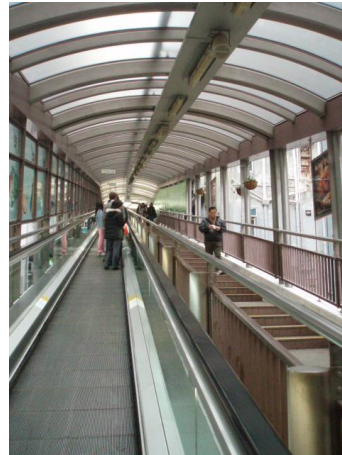
### *Hong Kong Terrain*



- 1.3 In view of this, Transport Department commissioned a consultancy study in May 2008 to establish a ranking system on assessing the priority of considering any proposed provision of hillside escalator and elevator systems, so as to provide a reference to the Government for deploying resources on implementation of the hillside escalator and elevator systems.

**Existing Escalator Links / Elevators System**

**Central to Mid-levels Escalator System**



**Fortress Hill Elevator**





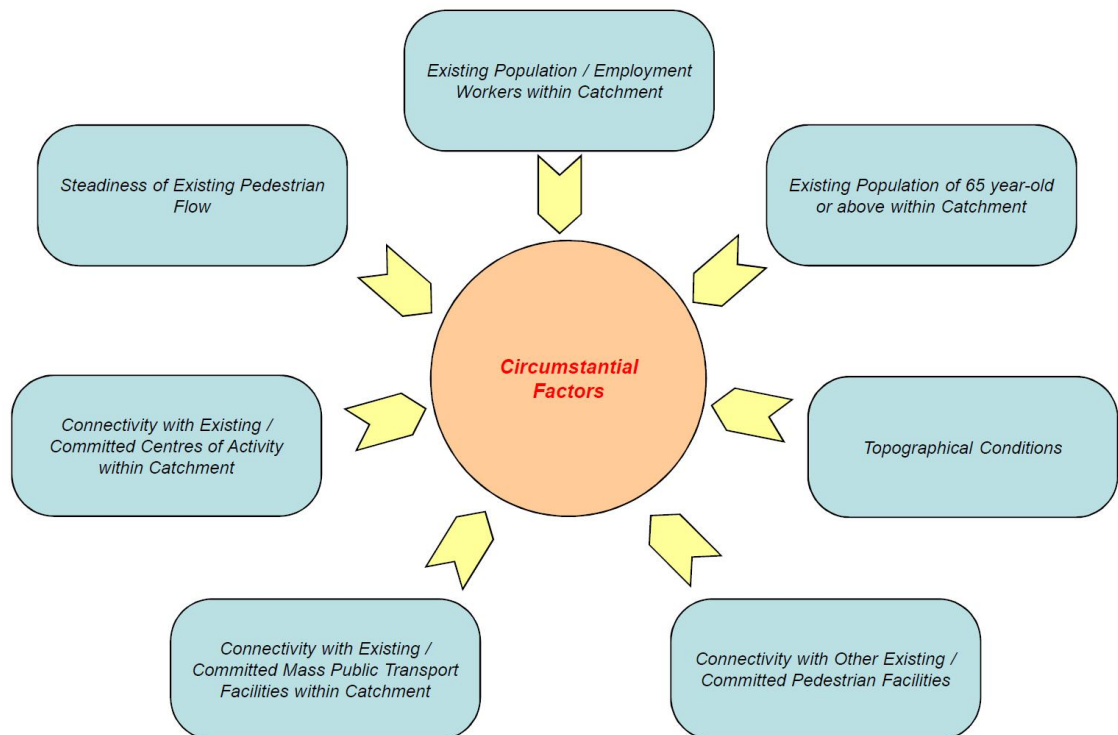
## 2 OBJECTIVES FOR PROVISION OF HILLSIDE ESCALATOR LINKS AND ELEVATOR SYSTEMS

- 2.1 The objectives for the provision of hillside escalator links and elevator systems include social and economic contribution, environmental sustainability, improvement to traffic and pedestrian conditions, and cost-effectiveness.
- 2.2 The provision of the systems should aim at achieving these objectives to the greatest extent possible and as such, a set of criteria is developed based on these objectives for the evaluation of the provision of any new facility.

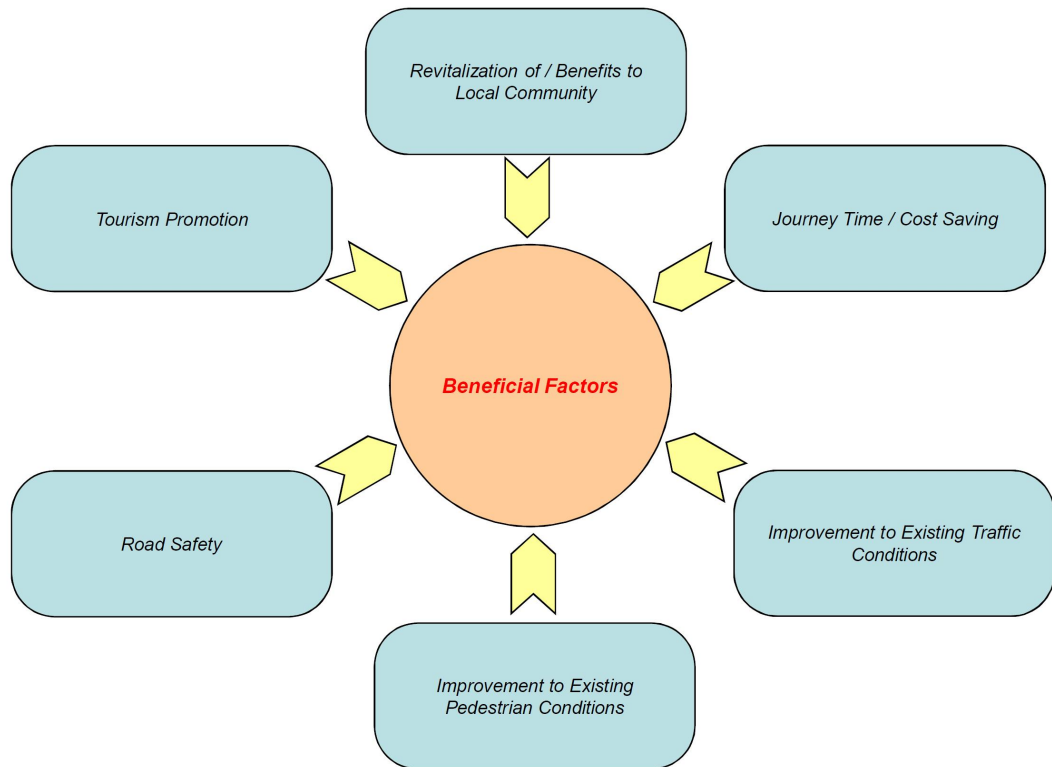
## 3 EVALUATION CRITERIA

- 3.1 To fulfil the identified objectives for the provision of a hillside escalator link / elevator system, a set of evaluation criteria has been developed and is divided into 3 major groups of inter-related categories: Circumstantial Criteria, Beneficial Criteria and Implementation Criteria, details of which are shown in the following diagrams.

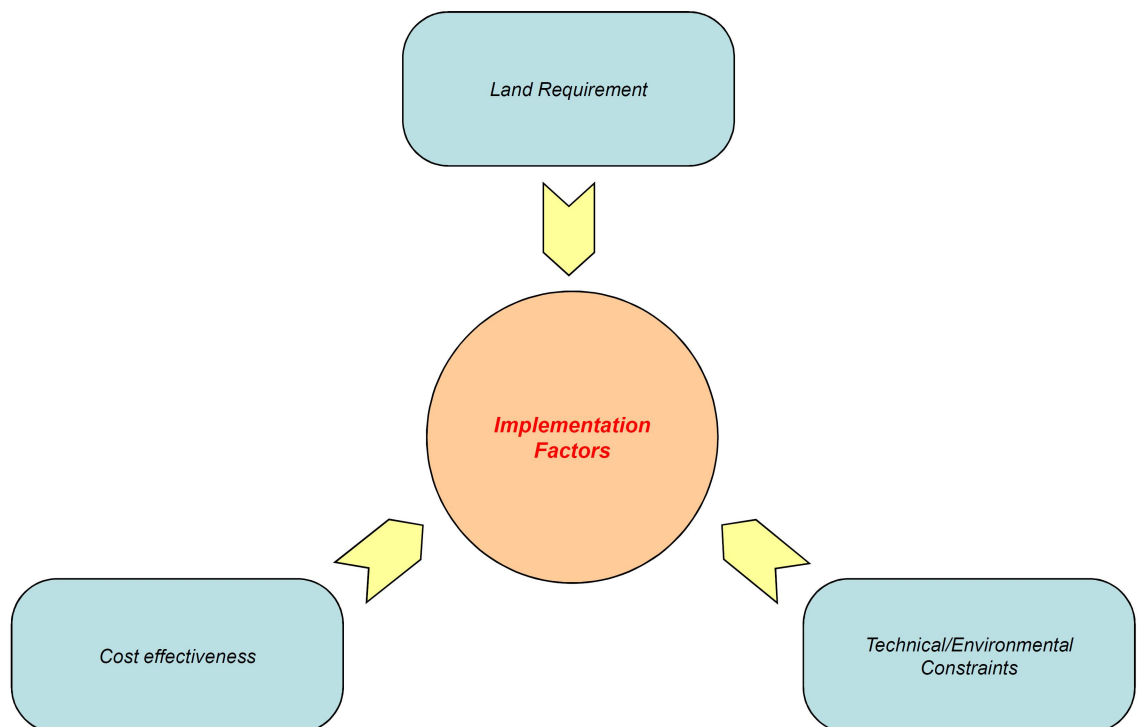
### Circumstantial Criteria



*Beneficial Criteria*



*Implementation Criteria*



## **4 DETAILS OF RANKING SYSTEM**

4.1 A score-based ranking system has been developed based on the set of criteria identified under the 3 major categories, i.e. Circumstantial Criteria, Beneficial Criteria and Implementation Criteria, for evaluating the need of a proposed facility. The system was further verified by initial test runs in order to rectify any major deficiency and to confirm the effectiveness and appropriateness before system finalization.

4.2 The evaluation of proposals is carried out in 2 Stages:

- **Stage 1** - Initial Screening
- **Stage 2** - Scoring

### **Stage 1 - Initial Screening**

4.3 An initial screening process will first be carried out. It helps discard the proposals which are considered obviously infeasible or unjustifiable for further consideration at the very beginning. Proposals will be checked against 4 major conditions, as illustrated below:

- Land Unavailability –inadequate land and /or infeasible land resumption to possibly accommodate the proposed facility;
- Redundancy – similar facility / facilities is / are already provided or committed in close proximity<sup>1</sup> to the proposed facility;
- Insurmountable Construction or Operational Difficulties – difficulties that cannot be overcome during construction / operational stages are expected for implementation of a facility; and
- Small Level Difference - the level difference to be overcome by the proposed facility is less than 6m.

4.4 Any proposal with any one of the above conditions should not be recommended for further consideration until the condition(s) can be overcome.

### **Stage 2 – Scoring**

4.5 Prior to the scoring process under Stage 2, it is necessary to go through a data collection process to obtain relevant information for input into the ranking system. Whilst some of the information requires desk-top and/or on-site investigations, other information is obtainable from relevant government departments / parties.

4.6 The evaluation will be carried out by assigning a score to each criterion. As different criteria have different degrees of importance, appropriate weightings will be allocated to the criteria to reflect their relative importance. The weighting for each of the criteria is illustrated in **Table 4.1** below.

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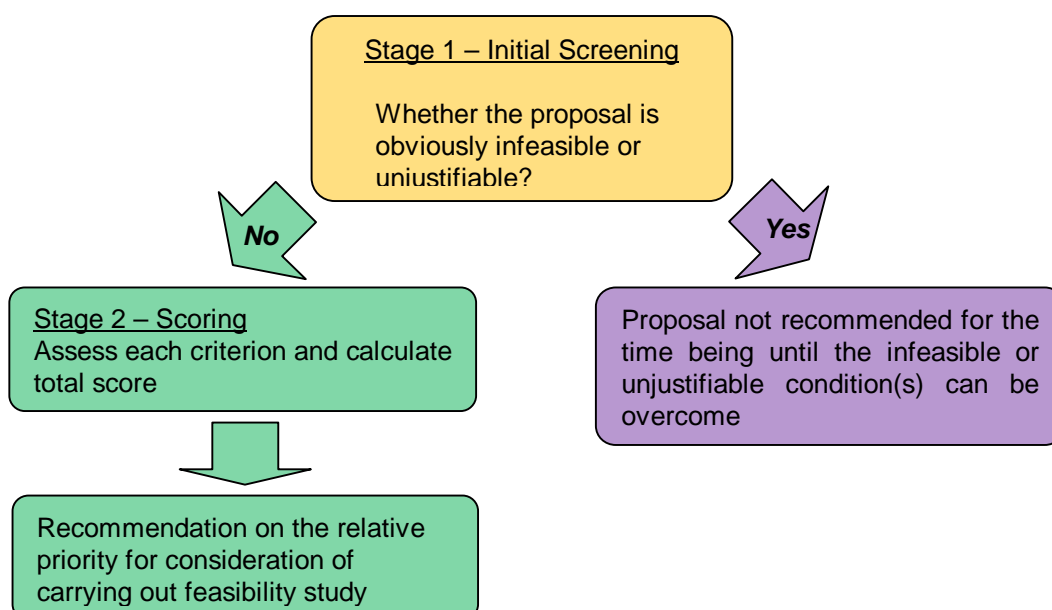
Remark: <sup>1</sup> A facility located within 300 m of the proposed facility is generally regarded as one within close proximity.

**Table 4.1 Criteria Weightings**

Criteria Category	Criteria	Weighting
Circumstantial	Existing Population / Employment Workers within Catchment	6
	Existing Population of 65 year-old or above within Catchment	5
	Topographic Conditions	11
	Connectivity with Other Existing / Committed Pedestrian Facilities	4
	Connectivity with Existing / Committed Mass Public Transport Facilities within Catchment	4
	Connectivity with Existing / Committed Centres of Activity within Catchment	4
	Steadiness of Existing Pedestrian Flow	6
<b>Sub-total</b>		<b>40</b>
Beneficial	Revitalization of / Benefits to Local Community	6
	Journey Time / Cost Saving	8
	Improvement to Existing Traffic Conditions	6
	Improvement to Existing Pedestrian Conditions	6
	Road Safety	6
	Tourism Promotion	3
<b>Sub-total</b>		<b>35</b>
Implementation	Land Requirement	6
	Technical / Environmental Constraints	6
	Cost Effectiveness	13
<b>Sub-total</b>		<b>25</b>
<b>Total</b>		<b>100</b>

4.7 The total score of a proposed facility is calculated by summing up the weighted criterion scores.

4.8 Hence the procedures of using the ranking system can be summarized as follows:





## **5 SYSTEM APPLICABILITY**

5.1 The ranking system is not applicable to the following situations:

- Proposals in new regional development or redevelopment areas, including those existing areas to be served by new railway stations, should be considered in the overall planning of the particular development/redevelopment schemes concerned and this ranking system may not be applicable.
- For the case where an isolated facility only crosses a single road with length shorter than 25m or the level difference to be overcome is smaller than 6m, it is not necessary to go through the ranking exercise. The consideration for the provision of such individual grade-separated cross-road facility should follow the guidelines as stated in the Transport Department's Transport Planning and Design Manual and relevant government technical circulars.
- For the case where the proposed facility is to be provided entirely within the boundary of a housing site, it is also not necessary to go through this ranking exercise. The provision of the facility will be evaluated / considered by Housing Department with reference to its design manual, guideline or circulars currently in force.
- For the case where the proposed facility is to be provided within the boundary of a housing site but with any section of facility encroaching on public road area, the proposal is still required to go through this ranking exercise but the implementation and funding of proposal have to be sorted out separately. The project managing party should take the findings of this exercise into account in deciding whether it will proceed to implement the proposal.

## **6 KEY NOTES OF THE RANKING SYSTEM**

6.1 The key notes of the ranking system are summarized as follows:

- The objective of the established system is to allow users to appreciate the need for a proposed hillside escalator link and elevator system under an easy and user-friendly systematic approach, with due consideration given to a list of criteria covering a wide range of comprehensive factors.
- Similar evaluation system for provision of hillside escalator links and elevator systems is not found established in other cities / countries. Owing to the lack of similar references, the system established is entirely based on local experience only. Review of the ranking system at an appropriate time for improvement or refinement is desirable taking into account the data and experience obtained in carrying out assessments and implementation of the proposed systems.
- The ranking system and the evaluation of each criterion have been expressed in quantifiable terms as much as possible. However, there are criteria which may require professional judgement on individual local condition.
- The established system has been verified by test runs and is considered robust and general enough for long-term application.

**7 CONSULTATION**

- 7.1 The Transport Advisory Committee and the Legislative Council Panel on Transport were consulted on the ranking system and their comments have been incorporated as appropriate.

**8 CONCLUSION**

- 8.1 In conclusion, the ranking system can effectively prioritize proposals of hillside escalator link and elevator systems for further study. The criteria, scoring range, respective weightings and the overall evaluation process are considered appropriate for future application.