2 Project Description

2.1 The Need and Benefits of the Project

2.1.1.1 Hong Kong is experiencing a population aging issue and nowadays people are expecting patient-centred high quality medical service. The need of medical service in an effective and efficient manner will be increasing in future. HA have reviewed the current transportation arrangement for life saving service and recognised the need of another helipad at an acute hospital.

2.1.1.2 Given that QMH is a major acute hospital, a Trauma and Transplant Centre, and the only hospital in Hong Kong which is able to handle certain emergency medical cases such as neonatal with major procedure, liver transplant, heart/lung transplant and aortic dissection, it is of essence for the public to have a helipad in order to enable a point-to-point speedy transfer of patients/survivors suffering from special cases for appropriate treatment and receipt of donated organs. The Proposed Helipad at QMH has been the prime consideration in ensuring that the general public can receive the best emergency service as needed.

2.1.1.3 The erection of a helipad on the rooftop of the New Block of QMH provide a permanent facility to facilitate helicopter emergency medical services. GFS's helicopters currently landing at Wan Chai Heliport for medical emergencies, can land at QMH directly using the Proposed Helipad in future and no onward transfer by ambulance will be required. It could also enhance the overall efficiency and effectiveness of the emergency response services. The reasons for the need of the Project and its benefits are listed as follows:

2.1.2 Speedy Transfer of Patients to QMH

2.1.2.1 Currently, the air transportation of patients from outlying islands and remote area (e.g. Cheung Chau, Peng Chau and Lamma Island, etc) is to either the helipad at PYNEH or to the Wan Chai Heliport for onward transfer to QMH by ambulance. Traffic congestion delays the transfer of patients to hospital which is highly undesirable as timely treatment is critical to the patients with life-threatening conditions.

2.1.2.2 The transfer time of a patient from landing at Wan Chai Heliport to QMH by ambulance can be up to 20 minutes. This can be too long for critical life-saving. Hence, the provision of Proposed Helipad at QMH could enable a point-to-point speedy transfer of patients from the outlying islands for appropriate treatment.

2.1.3 Lower Risk of Additional Transfer

2.1.3.1 Under the existing arrangement, any patient who requires to transfer to QMH through air transportation will be landed at Wan Chai Heliport for onward transfer to QMH by ambulance. The additional transfer could present potential risks to

patients with severe injuries to major parts and lead to deterioration of injuries from crossing road bumps and unpaved road. The Proposed Helipad at QMH could reduce the above risk of additional transfer from Wan Chai Heliport to QMH and also achieve the direct transfer from helicopter to receiving treatment.

2.1.4 Relief Ambulance Resource

2.1.4.1 As mentioned above, patients from Wan Chai Heliport to QMH require the provision of ambulance. If the ambulances are not available, it would cause delays in transferring patients to QMH. Thus, the Proposed Helipad at QMH would relief the ambulance resource that could be used elsewhere.

2.1.5 Location Advantage

2.1.5.1 The provision of the Proposed Helipad at QMH is an ideal drop-off point for injured survivors/ patients travelling from places located to the South and South West of Hong Kong, especially for Cheung Chau, Peng Chau, Lamma Island, Hei Ling Chau, Shek Kwu Chau. The transit time can be reduced for patients travelling from the above destinations to the Proposed Helipad at QMH instead of PYNEH and hence increase the chance of survival in many critical cases.

2.1.5.2 For example, if an accident occurs at southwest of HK Island, there will be a 4-minute flight time difference for the transfer of survivors between the place of accident and the helipad at QMH than PYNEH. As a result, the transit time would be shortened if a helipad is available at QMH in critical cases. Therefore, the Proposed Helipad at QMH has its location advantage than PYNEH.

2.1.6 Weather Alternative

2.1.6.1 The helipad at PYNEH may not be available for operational use from time to time due to adverse weather conditions including poor visibility, low cloud base or strong wind condition. Especially during spring seasons, the prevailing foggy weather from the open sea to the east of Hong Kong results in poor visibility for helicopters to travel. In 2011 - 2015, there were about 8 to 15 CASEVAC A+ operations landed at Wan Chai Heliport due to adverse weather conditions every year.

2.1.6.2 It is better for helicopters to travel to the west of Hong Kong with relatively better weather conditions during spring time. Therefore, the provision of the Proposed Helipad at QMH provides a good alternative landing point for air ambulance and rescue missions with critically ill patients/ injured survivors.

2.1.7 Allow Multiple Casualties Transfer

2.1.7.1 The Proposed Helipad at QMH can be operated in parallel with PYNEH when major disasters occur involving a large number of patients. It would help to cater multiple casualties transfer during master disasters when multiple helicopters are involved by serving as an emergency support landing site.

2.1.8 Environmental Benefits

2.1.8.1 Given that Phase 1 Redevelopment of QMH has included the construction of a New Block, the Proposed Helipad will be built on the rooftop of the New Block. There will be no additional foundation and superstructure works required for the Proposed Helipad, and thus the environmental impact arising from the construction of helipad would be minimised. The environmental impact study for the demolition works and construction of the New Block shall be conducted separately in the Preliminary Environmental Review (PER) which is not under the scope of this EIA study

2.1.8.2 In addition, the noise sensitive receivers (NSRs) surrounding the Proposed Helipad of QMH are much farther away than those at PYNEH. It is anticipated that the noise impact on nearby NSRs arising from the operation of Proposed Helipad at QMH will be less than that at PYNEH as the nearest NSR is located over 200m from the Proposed Helipad of QMH while the distance between PYNEH helipad and nearest NSR is less than 100m. Furthermore, the additional helipad at QMH would then reduce the number of helicopter landings at PYNEH thereby reducing noise and disturbance to residents nearby PYNEH.

2.1.9 Uniqueness of QMH

2.1.9.1 QMH is an acute regional and teaching hospital which provides a comprehensive range of clinical services. Besides serving as one of the five major trauma centres in Hong Kong, QMH provides world-class tertiary and quaternary services such as liver and other organ transplantation, neurosurgery, intensive care and paediatric surgical services. In the financial year 2014/2015, there were 68 operations for liver transplant, 16 operations for heart/lung transplant, 80 operations for aortic dissection and 56 episodes of neonatal with major procedure. The unique combination of these services renders QMH an extraordinary position in the treatment and care of major trauma and the critically-ill patients in Hong Kong.

2.1.10 Summary of the need and benefits of the Project

2.1.10.1 It can be seen from the above paragraphs in **Section 2.1.2** to **Section 2.1.9** that the Proposed Helipad development is important and indispensable for the air medical services in Hong Kong. The need and benefits of the Project are also summarised in Table 2.1.

Table 2.1 Summary of need and benefits of the Project

Speedy transfer of patients to QMH	• allow point-to-point transfer of patient to QMH • reduce the chance of delay from traffic congestion during patients transfer by ambulance
Lower Risk of Additional Transfer	• reduce the risk of deterioration of injury from onward movement by ambulance when crossing road bumps and unpaved road
Relief Ambulance Resource	• reduce the needs of ambulance for patients transfer from Wan Chai Heliport to QMH by ambulance
Location Advantage	• an ideal drop-off point for injured survivors/ patients travelling from South and South West of Hong Kong
Weather Alternative	• provide alternative landing location during poor visibility period at east of Hong Kong in spring season

Allow Multiple Casualties Transfer	• will be operated in parallel with PYNEH for multiple casualties transfer
Environmental Benefits	• no additional foundation work for a rooftop helipad is required • offer a longer separation distance from Proposed Helipad to the nearest NSR compared with that at PYNEH • reduce number of helicopter landings at PYNEH
Uniqueness of QMH	• one of the five major trauma centres in Hong Kong • provide organ transplantation, neurosurgery, intensive care and paediatric surgical services. Medical services such as neonatal with major procedure, liver transplant, heart/lung transplant and aortic dissection is only available in QMH

2.2 Key Project Requirements

2.2.1.1 This project will adopt a Design and Construction (D&C) contract arrangement. The future D&C contractor is responsible to both design and construct the Proposed Helipad. The proposal of the design and construction for the Proposed Helipad will need to achieve the environmental performance as stated in this EIA report, EM&A Manual and its Environmental Permit conditions. Site audit and monitoring requirements shall be included in the EM&A manual if necessary.

2.2.1.2 The design and construction of Proposed Helipad would follow the *Helicopter Landing Site Specification Guidelines* issued by Government Flying Service (GFS) and *Aerodromes – Annex 14 Volume II Heliports* issued by International Civil Aviation Organization. The Proposed Helipad is to be located on the rooftop of the New Block at the northern portion of the QMH. The helipad will be at 299.4mPD with about 40m in diameter. A close view and section view of the Proposed Helipad are shown in Figure 2.1 and Figure 2.2.

2.2.1.3 The provision of a Proposed Helipad at QMH will enhance the overall efficiency and effectiveness of the emergency response services. In addition, the helipad can serve as an effective alternative to convey quick response medical teams from QMH to scene of distress if a situation requires to effect the rescue efforts. As mentioned before, the helipad is intended solely for medical emergency use, and will not be used for commercial operations, training flight and transportation of guests or other non-emergency uses (except trial flights). The operation of Proposed Helipad will be intermittent and random, hence, it is not practical and impossible to fix flight schedule.

2.2.1.4 The number of landings for emergency services made by helicopters at PYNEH, TMH and Wan Chai Heliport for the preceding five years, Year 2011 to 2015, is tabulated in Table 2.2 and further discussed in *Section 4: Noise Impact*. With the development of the Proposed Helipad in QMH, the existing helicopter operations at PYNEH will be shared.

Table 2.2 Summary of Flight Data Landed at PYNEH, TMH and Wan Chai Heliport during Year 2011 to 2015

Helipad	2011			2012			2013			2014			2015		
	D	E	N	D	E	N	D	E	N	D	E	N	D	E	N
PYNEH	177	31	45	181	39	43	179	38	54	183	28	59	152	17	32
Total:		253			263			271			270			201	
TMH	3	0	0	7	0	0	4	1	0	7	0	0	5	0	0
Total:		3			7			5			7			5	
Wan Chai (HK07A-HK07)[2,3]	10	2	2	3	1	2	2	2	1	9	3	3	4	1	3
Total:		14			6			5			15			8	

Note:
1. D – Daytime (07:00 – 19:00); E – Evening Time (19:00 – 23:00); N – Night-time (23:00 – 07:00).
2. According to the information provided by GFS, the old Wan Chai Heliport (HK07A) was replaced by the new Wan Chai Heliport (HK07) on 28 May 2012. It is noted that there was no overlapped operation in the replacement of Wan Chai Heliport.
3. Only the flights for CASEVAC A+ are presented as reference for the assessment.

2.2.1.5 Currently the helicopter landing for medical emergencies at Wan Chai heliport occurs only when the helipad facilities at hospitals (i.e. TMH & PYNEH) are not available due to adverse weather conditions, onward transfer to other hospitals by ambulance is also required. However, the existing operations for patients transfer in Wan Chai Heliport are normally for non-emergency cases which direct convey to hospital is not necessary. The Proposed Helipad shall not share the normal helicopter services in Wan Chai Heliport in future.

2.3 Project History and Site Selection

2.3.1 Project History

2.3.1.1 The Site where the helipad located is at the QMH in Pok Fu Lam. The project site is zoned as “Government, Institution or Community” (“G/IC”) on the approved Pok Fu Lam Outline Zoning Plan (“OZP”) no. S/H10/15. The site is currently occupied by University Pathology Building and Clinical Pathology Building at the QMH.

2.3.2 Consideration of Alternatives and Site Selection

Site Selection

2.3.2.1 Speedy and point-to-point transportation of patients and survivors from the scene or outlying islands to the hospital for immediate medical treatment are the key reasons for the need of a helipad in an acute hospital, i.e. with Accident and Emergency (A&E) Department.

2.3.2.2 In Hong Kong, there are only two hospitals provided with helipad for air transportation of medical emergency cases (CASEVAC A+ cases), namely PYNEH and TMH.

2.3.2.3 The helipad at TMH serves day time only due to the site constraints of high-rise buildings nearby which makes it not preferable for safe landing during evening and night-time as advised by GFS, while the helipad at St. John Hospital, Cheung Chau which is basically for transporting the patients outside the island for more advanced medical treatment. Hence, most of the air transportation of medical emergency cases are, at present, landed at the helipad of PYNEH.

2.3.2.4 Although PYNEH is an alternative, it is located in the Hong Kong East and the coverage is considered not comprehensive because of the restriction in terms of territorial location. Sometimes it affects by weather (such as poor visibility, low cloud and strong wind condition) and its helipad would require some maintenance, which make it not possible for helicopter landing at certain times. In order to complement the operation gaps and the emergency service requirements, there is a need to explore an alternative site for a helipad for air transportation of medical emergency cases.

2.3.2.5 There are some key considerations in selecting the site for a helipad for medical emergency cases:

- *Type of Hospital and medical services*: It needs to be an acute hospital covering a wide range of medical support in order to provide the most suitable treatment to save the patient/ survivors.
- *At western or southern part of Hong Kong*: It can complement the air transportation of medical emergency to cover the whole territory of Hong Kong.
- *Space availability*: As the operation of helicopter would need a sufficient unobstructed area for safe landing and take-off, an acute hospital with such available space for a helipad is necessary.
- *Environmental Benefit / Dis-benefit*: The potential environmental impact of the construction and operation of helipad is also one of the key considerations so as to minimise the disturbance to surrounding environment.

2.3.2.6 Besides Tuen Mun Hospital, there are three acute hospitals with A&E services and located at western/southern part of Hong Kong, i.e. Pok Oi Hospital, Queen Mary Hospital and Yan Chai Hospital. Table 2.3 shows the considerations for the selection of a suitable acute hospital for the Proposed Helipad.

Table 2.3 Selection of Acute Hospitals (with A&E Services) for the Proposed Helipad

Hospital	Pok Oi Hospital	Queen Mary Hospital	Yan Chai Hospital
Type of Hospital and medical services	• An acute general hospital providing selected specialist, e.g. community psychiatric services, diabetes centre, ear, nose & throat department and ambulatory care services • 24-hour A&E Service	• An acute regional hospital and teaching hospital. Also territory-wide tertiary and quaternary referral centre for many complex and advanced services, e.g. neonatal with major procedure, liver transplant, heart/lung transplant and aortic dissection • 24-hour A&E Service	• An acute general hospital providing acute and rehabilitation services, e.g. otorhinolaryngology, head & neck surgery, orthopaedics & traumatology • 24-hour A&E Service

Hospital	Pok Oi Hospital	Queen Mary Hospital	Yan Chai Hospital
Site Location	New Territories West Cluster – Yuen Long	Hong Kong West Cluster – Pokfulam	Kowloon West Cluster – Tsuen Wan
Space availability	• No extra space at ground level for helipad • Existing buildings may not have spare structural loading for helipad and helicopter landing; need additional structural support to cater the loading	• No extra space at ground level for helipad • Rooftop of New Block is available and can provide sufficient structural loading for the helipad	• No extra space at ground level for helipad • Existing buildings may not have spare structural loading for helipad and helicopter landing; need additional structural support to cater the loading
Environmental Benefit/ Dis-benefit	Benefit: • Minor construction activities involved • Less NSRs in 300m from the hospital	Benefit: • Minor construction activities involved • Relatively far away from nearby NSRs, over 290m • No NSRs at the east • The elevation of rooftop helipad is higher than the nearby NSRs	Benefit: • Minor construction activities involved
	Dis-benefit: • Noise impact on NSRs at all directions • Many NSRs are at higher elevation than the roof of the hospital • NSRs are very close to the hospital, e.g. elderly centre is within hospital boundary, residential development (Yoho Town, 200m from hospital) and village houses	Dis-benefit: • Noise impact on NSRs	Dis-benefit: • Noise impact on NSRs at all directions • Many NSRs are at higher elevation than the roof of the hospital • NSRs are very close to the hospital. The nearest one (i.e. On Yue Building) is less than 20m from the hospital • Noise impact on a larger population is anticipated as many high-rise buildings are located adjacent to the hospital

2.3.2.7 In consideration of the above factors, QMH is the selected location for installation of the helipad.

Development Options

2.3.2.8 With reference to *Clause 3.3* of the EIA Study Brief, alternative development options have been considered for the Project. Consideration has been given to alternatives for:

- Option 1: Adjacent hillside area of QMH;
- Option 2: Existing vacant area within QMH;

- Option 3: Rooftop of existing buildings in QMH;
- Option 4a: Helipad siting at the centre of the rooftop of New Block; and
- Option 4b: Helipad siting at the north-east of the rooftop of New Block.

Option 1: Adjacent Hillside Area of QMH

2.3.2.9 QMH is bounded by Pok Fu Lam Road and the surrounding hillside area. Further to the northeast and east of the hillside area are Lung Fu Shan Country Park and Pok Fu Lam Country Park respectively. Situating/ placing the Proposed Helipad at the country park area can provide certain screening effect to the construction and operation of the Proposed Helipad by the nearby hilly topology and the existing buildings in QMH. Noise impact on some NSRs may be reduced. In addition, a delivery pathway will be required between helipad and hospital. However, such construction works of the pathway and operation of the Proposed Helipad may pose adverse impact on the ecology of the surrounding hillside area. Moreover it will still need some delivery time between the helipad and hospital and hilly topography is not a preferred location for helicopter landing. Therefore locating the Helipad at adjacent country parks is not considered.

Option 2: Existing Vacant Area within QMH

2.3.2.10 The helipad with 40m diameter would require a large and unobstructed area for safe landing. Due to the number of buildings and structures within the QMH, there is no such vacant land available for the development of a ground-level helipad. This option is not possible.

Option 3: Rooftop of Existing Buildings in QMH

2.3.2.11 As there is no available space at ground level, it could only consider to construct the helipad at the rooftop of building. Majority of the nearby tall buildings are located at the south and west of QMH. In consideration of flight operation safety, these obstacles would create air turbulence and affect helicopter operations. The helipad shall locate away from such objects in order to minimise air turbulence in the vicinity of landing and take-off area. Thus, an elevated location with adequate vertical clearance from surrounding objects is preferred. Since the northern part of QMH has a highest terrain and is far away from most of the NSRs, it would be the preferred location of QMH for the construction of helipad.

2.3.2.12 In view of the structural consideration, there are difficulties in providing a helipad on the rooftop of existing buildings as the existing buildings have not been designed to cater for the landing of helicopters. The structure of buildings is not capable of supporting the load of a helipad and helicopter, so that landing of helicopter may cause vibration and affect the medical equipment in the building. Therefore building a helipad at existing building within QMH is technically not feasible.

Option 4a & 4b: Helipad Siting at the Centre / North-East of the Rooftop of New Block

2.3.2.13 Given that in QMH, the northern part of existing buildings of Clinical Pathology Building (CPB), Houseman Quarters (HQ) and University Pathology Building (UPB) are planned to be redeveloped as a single building constituting 27 levels above ground, the New Block would be the highest building among the surrounding buildings as indicated in Figure 2.3. Helicopter operation in the Proposed Helipad siting at the rooftop of the New Block will be free from obstacles, and thus the flexibility of flight path selection is maximised. Also, the structure of the New Block could be designed to cater for the loading of helipad and helicopter in accordance with the latest design requirements. Hence, the rooftop of New Block would be the preferred location for the construction of helipad.

2.3.2.14 To further minimise the helicopter noise during the operational phase upon the nearby NSRs, the Proposed Helipad has been positioned to the north-east corner at the rooftop of the New Block (Option 4b). Such position could increase the distance from the nearest NSRs to the helipad and provide noise screening to some NSRs by the building structure of New Block. Therefore, considering all these reasons above, the helipad siting at the north-eastern side of rooftop of the New Block of QMH is the most preferred location.

2.3.2.15 The alternative development options for the siting location of the Proposed Helipad has been discussed above and summarised in Figure 2.4 and Table 2.4 below.

Table 2.4 Alternative of Helipad Siting Locations

Alternative Options of Helipad Siting	Preferable Option?	Comment
Option 1 - Adjacent Hillside Area of QMH	✖	This option is NOT suitable due to the operational constraints from helipad to hospital and the possible ecological impact to the surrounding hillside area.
Option 2 - Existing Vacant Area within QMH	✖	This option is NOT considered due to insufficient vacant space in QMH for the Proposed Helipad.
Option 3 - Rooftop of Existing Buildings in QMH	✖	This option is NOT considered. The existing buildings in QMH was not designed for helicopter landing and the building structure is unable to support the loading of helipad and helicopter.
Option 4a - Helipad Siting at the Centre of the Rooftop of New Block	✖	The rooftop of New Block will be the highest location in the QMH which provides a better condition for helicopter landings and away from obstacles (Option 4a). This option is more preferable.
Option 4b - Helipad Siting at the North-East of the Rooftop of New Block	✓	To further minimise the noise impact, the positioning of the helipad is carefully considered. Position the Proposed Helipad from centre to north-eastern side at rooftop of New Block could increase the separation distance and provide noise screening to some NSRs. Option 4b is selected.

Selection of Flight Sectors

2.3.2.16 The flight sector design for the Proposed Helipad shall allow minimum impacts on the immediate surroundings and ensure flight safety which was carefully investigated by the GFS. Various flight sector options have been considered

based on the associated noise impact on noise sensitive receivers, terrain condition, obstacles clearance and other ambient conditions such as wind and turbulence. Also, the flight sector design shall avoid any downwind operations and minimise crosswind operations which could undermine safety of the flight. As the actual wind conditions will vary from time to time, the proposed flight sectors shall allow sufficient flexibility to the flight crew in deciding the most suitable and safe flight path for approaching and departure.

2.3.2.17 Four different flight sectors has been assessed including "North-west (Zone 1)", "East (Zone 2)", "South (Zone 3)", and "South-west (Zone 4)" based on the distribution of NSRs and the surrounding condition over the study area as indicated in Figure 2.5. The population distribution in the vicinity of the Project was also considered for the selection of flight sectors and presented in Figure 2.5.

2.3.2.18 Table 2.5 below presents the considerations of each zone for flight sector selection. The information and considerations presented in Table 2.5 are provided and confirmed by GFS.

Table 2.5 Considerations of the Selection for Flight Sectors

Possible Flight Sector	Estimated Population within Approaching/ Departure Zone	Flight Sector Condition and Considerations	Conclusion
Zone 1	about 850	• Residential density of Zone 1 is lower than Zone 4. • Helicopter approaching and departure will not be affected under the prevailing wind direction in Hong Kong (East).	Zone 1 is selected as the flight sector for the Proposed Helipad.
Zone 2	0	• The geographical condition of the high ground and build up areas in the vicinity of the helipad could induce flight safety concerns or potential disturbance to the neighbourhood.	Helicopter operation over Zone 2 is not recommended.
Zone 3	about 550	• Residential density of Zone 3 is lower than Zone 4. • Helicopter approaching and departure will not be affected under the prevailing wind direction in Hong Kong (East).	Zone 3 is selected as the flight sector for the Proposed Helipad.
Zone 4	about 2800	• High residential density. • High-rise and low-rise residential buildings as well as student halls and campus of HKU are located in Zone 4.	Helicopter operation over Zone 4 is not recommended.

2.3.2.19 Based on the above considerations for each flight sector zone, North-west (Zone 1) and South (Zone 3) are selected by GFS as the optimum operation zones for safe helicopter operations with minimum environmental impact to the immediate surrounding. Figure 2.6 presents the selected flight sectors for the Proposed Helipad. Figure 2.7 shows the aerial view of the Project and the selected flight sectors.

Helipad Management Alternatives

2.3.2.20 The receiving site of medical emergency helicopters is managed by HA. Under the classification of CASEVAC A+ case, it should be reserved for patients who, in the professional opinion of the attending doctor or nurse, that medical attention in a hospital-based A&E is necessary and when the use of public transport is not appropriate. This should include patients suffering from immediate life threatening or limb threatening condition or emergency conditions where immediate response from the GFS is essential.

2.3.2.21 Currently, unless otherwise specified, patients in CASEVAC A+ case will mostly be sent to the PYNEH especially for those patients from outlying islands. Upon completion of the helipad in QMH, the heli-services would be shared among the existing helipad facilities in TMH & PYNEH and the new helipad in QMH.

2.3.2.22 However, in deciding the transportation of patients to which hospital A&E by CASEVAC will depend on a number of factors including the proximity of the hospital, the nature of the incident, the weather condition, and the wind velocity etc. It should also taking into account of the uniqueness of certain emergency medical cases. Since QMH is the only hospital that can provide liver transplant, heart/lung transplant and aortic dissection, neonatal with major procedure etc., immediate response from the GFS is essential for these emergency medical cases. Hence, management/ administrative measures that HA will take on the heli-service diversion among the existing & planned hospitals very much depend on the above mentioned factors and the professional opinion of HA and GFS. HA will work closely with GFS in compliance with the aviation rules and all relevant guidelines and the actual situation.

2.3.2.23 Table 2.6 presents the capability of medical services in these three acute hospitals.

Table 2.6 Medical Services Capability in TMH, PYNEH and QMH

Hospitals	Capability of Medical Services
TMH	• An acute regional hospital in New Territories West Cluster with about 1,800 number of beds providing a comprehensive range of acute, ambulatory and community services. • Specialties include anaesthesiology, dermatology, ear, nose & throat, neurosurgery, ophthalmology, orthopaedics & traumatology, paediatrics & adolescent medicine, ear, nose & throat, etc.
PYNEH	• An acute regional hospital in Hong Kong East Cluster with about 1,600 number of beds providing a full range of specialist services. • Specialties include anaesthesiology, ear, nose & throat, neurosurgery, ophthalmology, orthopaedics & traumatology, paediatrics & adolescent medicine, ear, nose & throat, etc.
QMH	• An acute regional hospital in Hong Kong West Cluster and teaching hospital with about 1,600 number of beds. Also a territory-wide tertiary and quaternary referral centre for many complex and advanced services. • Specialties include anaesthesiology, cardiothoracic anaesthesiology, cardiothoracic surgery, ear, nose & throat, liver transplant, neurosurgery, ophthalmology, orthopaedics & traumatology, paediatrics & adolescent medicine, paediatric cardiology, etc.

Type of Helicopters

2.3.2.24 The Government has purchased 7 new helicopters (i.e. Airbus H175) to replace the current helicopters for "CASEVAC" operation, namely AS332 L2 "Super Puma" and EC155 B1 "Dauphin". The new helicopters will be operated with a lower noise level than that of the current AS332 L2 Super Puma and EC155 B1 Dauphin in general. Thus, the helicopter noise impact would be lower than using "Super Puma" in future.

2.4 Project Implementation and Schedule

2.4.1.1 The project is implemented by ArchSD.

2.4.1.2 Construction of the helipad would involve line painting, supporting frame installation and equipment installations in its final construction stage. The structural works for the Proposed Helipad will take around 4 months and the overall construction duration will be less than a year.

2.4.1.3 The operation, management and maintenance of the helipad will be undertaken by HA. GFS will be the user of this helipad.

2.4.1.4 The tentative planning and implementation programme for the Project is as follows:

- Planning / Approvals and Detailed Design [early 2014 to end-2019]
- Foundation work of the New Block of QMH [mid-2019 to end-2020]
  (Not under the scope of this EIA)
- Superstructure of the New Block of QMH [end-2020 to 2022]
  (Not under the scope of this EIA)
- Finishing and BS Installation Work of the New Block of QMH [end-2022 to 2024]
  (Not under the scope of this EIA)
- Construction of the Proposed Helipad [1 year between 2022 & 2024]
  (about 4 months for structural works)
- Helipad Operation [2024]

2.4.1.5 The construction and operation of the New Block will proceed independently while the final decision on whether or not to proceed with the construction and operation of the helipad at the rooftop is contingent upon whether or not an Environmental Permit for the Proposed Helipad can be obtained under the EIAO. Hence, the Proposed Helipad will make use of the rooftop of the New Block for its construction and operation, it does not form an integral part of the New Block. Except the development of the New Block in QMH, there is no other related project associated with the Proposed Helipad.

2.5 Construction Method

2.5.1.1 According to the architectural layout approved in TFS, the Proposed Helipad will be located at rooftop and at the north-eastern side of the New Block. The elevated circular helipad has a diameter of about 40m and the maximum projection from the supporting building below is about 17m.

2.5.1.2 With reference to the "Helicopter Landing Site Specification Guidelines" issued by GFS, the requirements on the construction method and material of helipad are as below:

- All materials used in the construction of the Proposed Helipad should be non-combustible and fire retardant; and
- The actual landing surface should be constructed of materials that will not yield under hard landings.

2.5.1.3 In view of the above requirements, both structural steel and reinforced concrete can be used in the construction of the Proposed Helipad. It is reasonable to predict that the main structure of the Proposed Helipad will be constructed by same material with the main building below, i.e. by reinforced concrete. Although structural steel is also feasible, additional cost will be required to provide fire protection to the steel members.

2.5.1.4 Based on the most updated information provided by the Project Proponent, three methods for constructing the Proposed Helipad have been put forward. The three methods are listed below:

- Helipad constructed by in-situ concrete (Option 1)
- Helipad constructed by steel structure prefabricated off-site (Option 2)
- Helipad main structure constructed by in-situ concrete and cantilevered structure constructed by prefabricated steelwork (Option 3)

2.5.1.5 The merits and demerits of the above methods are presented in Table 2.7 below.

Table 2.7 Merits and Demerits of the Construction Methods for the Proposed Helipad

Alternatives Construction Method	Merits	Demerits
In-situ concrete	• Temporary formworks and construction plants at lower floors can be re-used for helipad construction.	• A substantial temporary steel platform will be required for the construction of the cantilevered portion of the Helipad.
Steel Structure prefabricated off-site	• Shortened construction time in comparison to the in-situ option. • Construction of light-weight steel structure requires a relatively smaller temporary steel platform.	• Higher construction cost when compared to in-situ option. • Temporary formworks and construction equipment from lower floors cannot be re-used. • Require another trade of skilled labourers and additional construction equipment for erecting steelwork structures.
Helipad main structure constructed by in-situ concrete; cantilevered portion constructed by prefabricated steelwork	• Temporary formworks and construction plants at lower floors can be re-used for helipad construction. • Shortened construction time for cantilevered portion when compared to the in-situ option. • Reduced scale of temporary platform required for the construction of the cantilevered portion of the Helipad due replacement of concrete with use of light-weight steel structure.	• Require another trade of skilled labourers and additional construction equipment for erecting steelwork structures.

2.5.1.6 The environmental impact brought about by the proposed construction methods are similar for the three methods. With consideration to the nature of the proposed construction methods, costs and construction programme, Option 3 (Helipad main structure constructed of concrete and cantilevered portion prefabricated using steelwork) is the preferred construction method.

2.5.1.7 According to the preferred construction method (Option 3), the main structure of the Proposed Helipad is likely to be constructed by in-situ concrete. The safety walkway and access ramp may be formed by prefabricated steel members in suitable size and weight and to be assembled on site by welding or bolting.

2.5.1.8 The Project will engage a Design and Construction (D&C) contract arrangement, the design and construction method of the Proposed Helipad will be proposed and provided by the appointed contractor in future. In this EIA report, the construction method and material of the Proposed Helipad were provided based on reasonable assumptions for assessment purpose only.

2.6 Concurrent and Interfacing Projects

2.6.1.1 Only one concurrent project has been identified within 500m of the Site which is the finishing works and building services installation works at the New Block of QMH. Cumulative environmental impacts from the concurrent projects, if any, have been assessed in this EIA report.

2.7 Consideration of "Without Project" Scenario

2.7.1.1 The "without project" scenario considers the implications of the Proposed Helipad not providing at the rooftop of New Block at QMH.

2.7.1.2 Without the Project, emergency patients and casualties will continue to be landed at PYNEH or TMH, but those landings may be precluded or restricted due to adverse weather or safety consideration. Currently, patients who require to be transferred to QMH through air transportation should firstly be delivered to Wan Chai Heliport, and then transfer to QMH by ambulance which may take up to 20 minutes transportation time. Obviously, the above arrangement is unfavourable to the helicopter medical emergency services and emergency patients.

2.7.1.3 As such, if the project is not implemented, it will be an undesirable situation as the transfer of patients to hospital is unnecessarily prolonged and causing a great impact on the emergency response services to patients with life-threatening conditions.

2.8 Public Consultation and Comments

2.8.1.1 Two District Council Committees Meetings have been conducted to collect comments to the development plan of QMH including the Proposed Helipad at the proposed New Block in QMH, as listed below:

(i) 4th Meeting of the Culture, Leisure & Social Affairs Committee (CLSAC) 2014-15 [Central & Western District Council (C&W DC)]; and

(ii) 17th Meeting of the Community Affairs and Tourism Development Committee (CATC) [Southern District Council (2012-2015) (SDC)]

2.8.1.2 In the abovementioned District Council Committees Meetings, there were some concerns about the possible adverse helicopter noise impact to the residents and student halls in the vicinity of the Proposed Helipad location at QMH. The possible helicopter noise impact on noise sensitive receivers has been critically assessed and minimised as presented in this EIA. Notwithstanding, some supports have been received from the meetings due to its the benefits to the community and the enhancement of the casualty services of GFS.

2.8.1.3 Public consultation was also conducted in February 2015 during submission of the Project Profile for the application of an EIA study brief (ESB-284/2015) for the Proposed Helipad issued under the Ordinance on 2 April, 2015 and also published on the EPD website.