



# Expansion of Hong Kong International Airport into a Three-Runway System

## 13th Professional Liaison Group Meeting

11 July 2024

# Agenda

1. Update on 3RS Project and Other Airport Development
2. EM&A Updates
3. Marine Ecology and Fisheries Enhancement Strategy
4. Carbon Management
5. Waste Management



# Update on 3RS Project & Other Airport Development





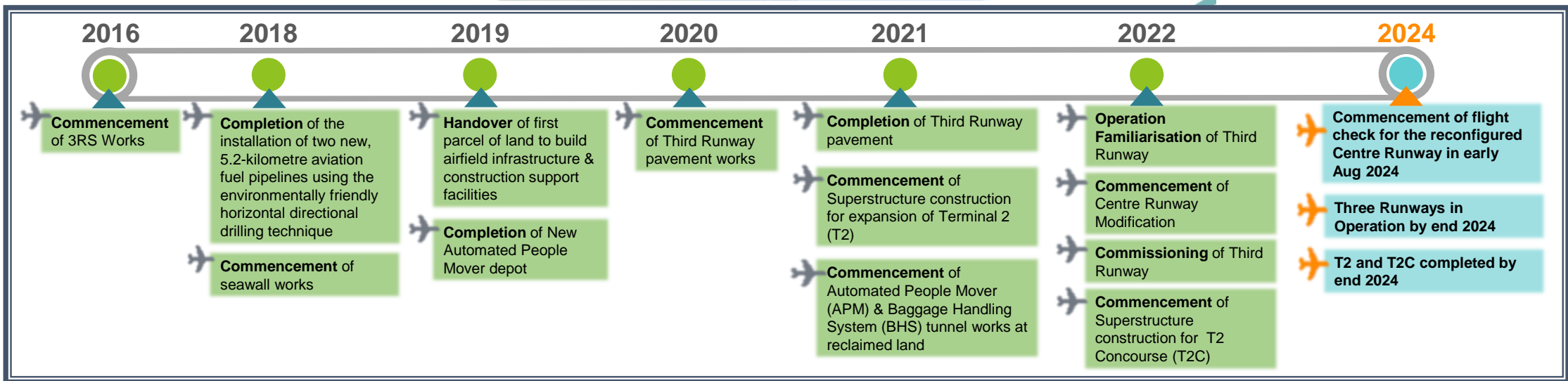


## Update on 3RS Project (till end June 2024)

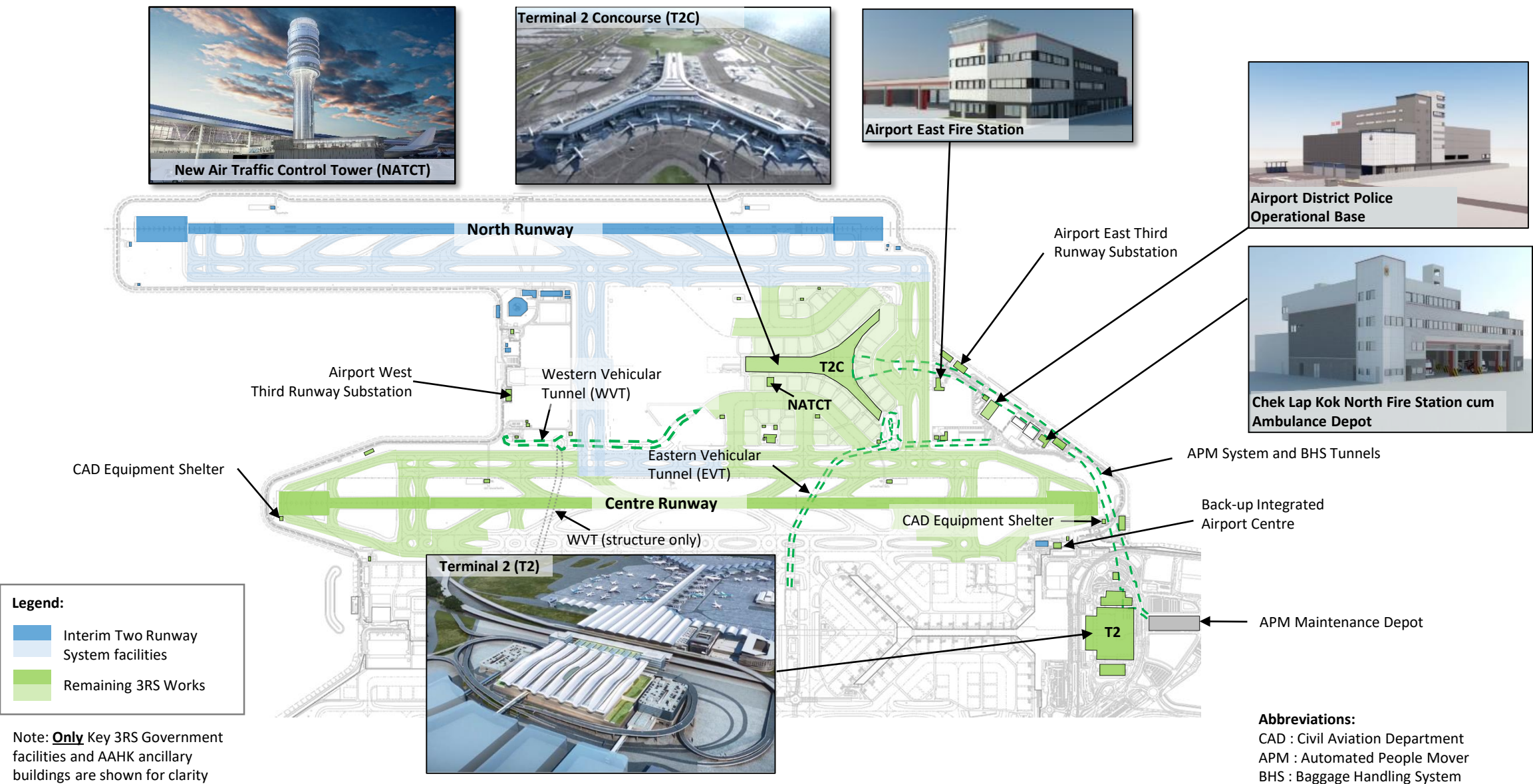




# Three-Runway System (3RS) Project Overview

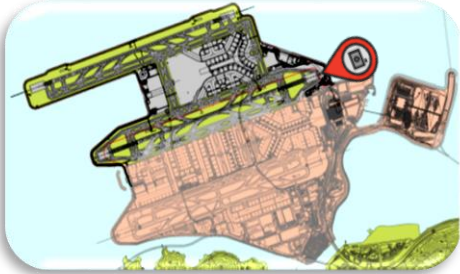


# On-going Works for 3RS Project





# Centre Runway and Taxiway Pavement Works and Airfield Ground Lighting (AGL) Installation Works





# Terminal 2 Concourse (T2C)



Level 6 Departures Concourse  
and Level 7 Retail Facilities



Level 5 Arrivals Concourse



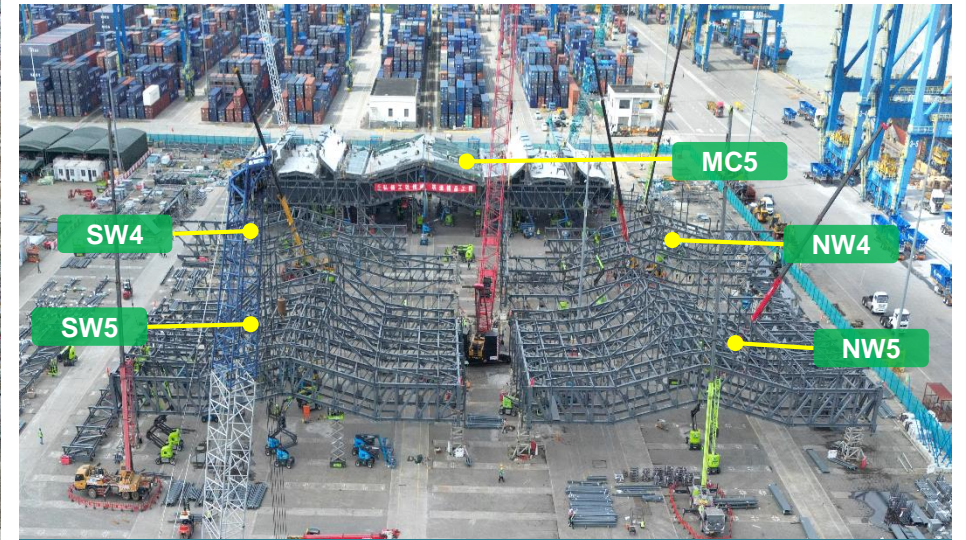
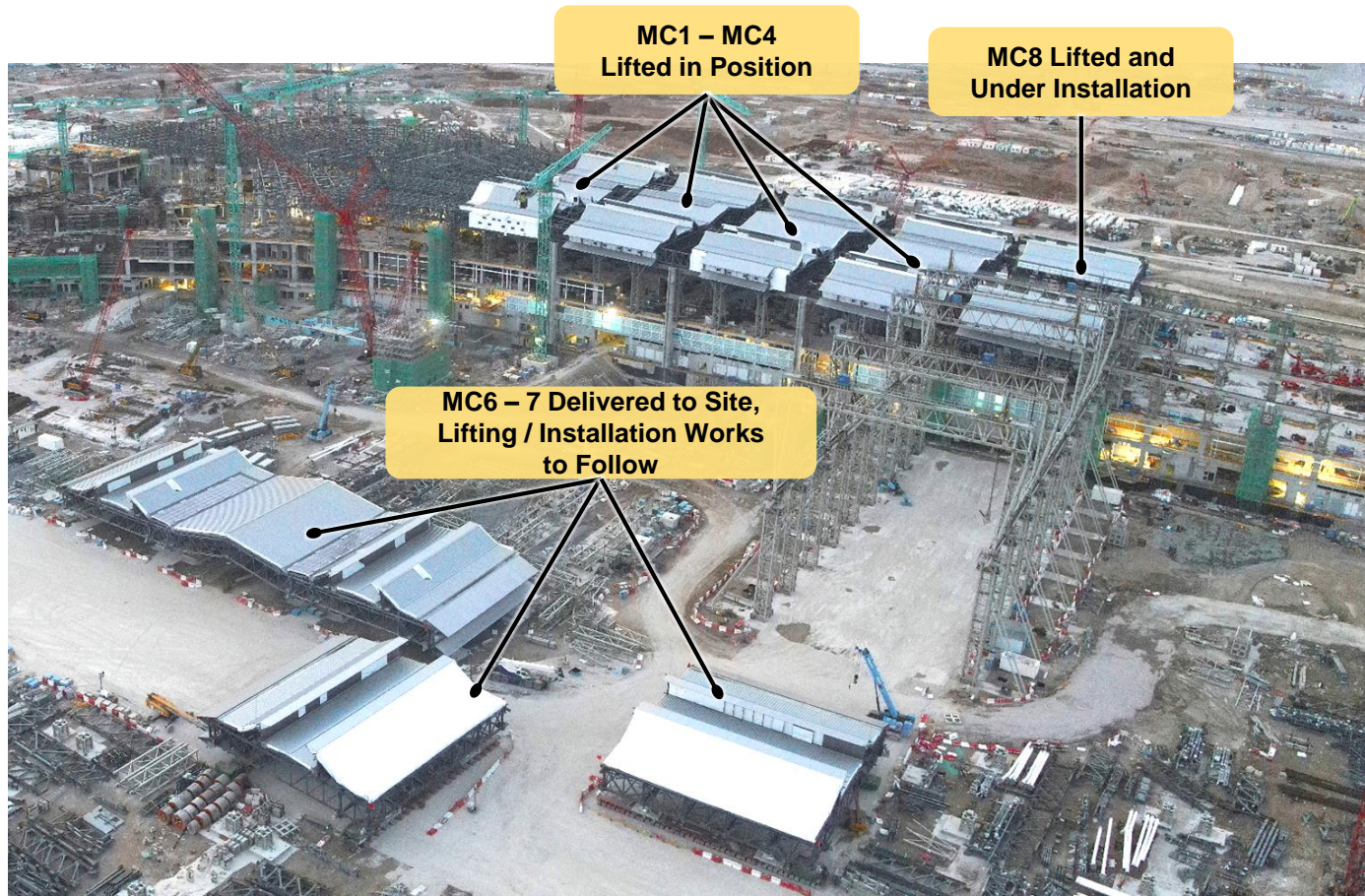
Level 4 Transformer Room



Level 4 BHS Hall



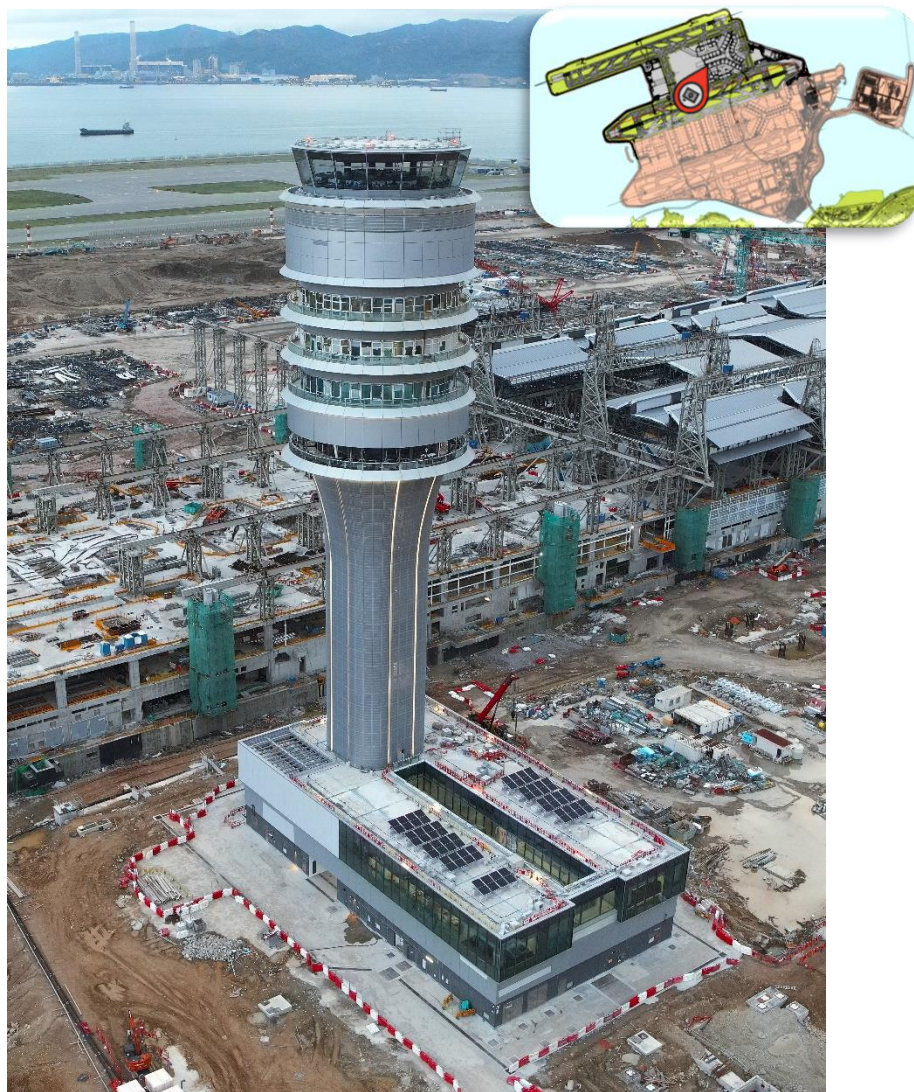
# T2C Roof Modules Assembly, Delivery and Installation



Remaining Roof Modules for T2C Main Concourse and Wing Concourse being Assembled in Dongguan



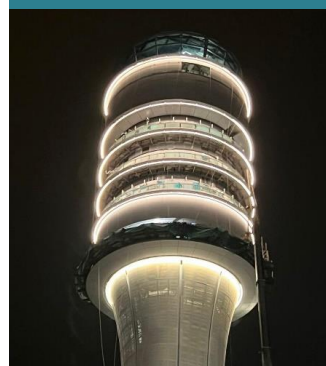
# New Air Traffic Control Tower (NATCT)



Tower Cab



Façade Lighting for NATCT



Hong Kong Observatory Airport Meteorological Office at Level T2



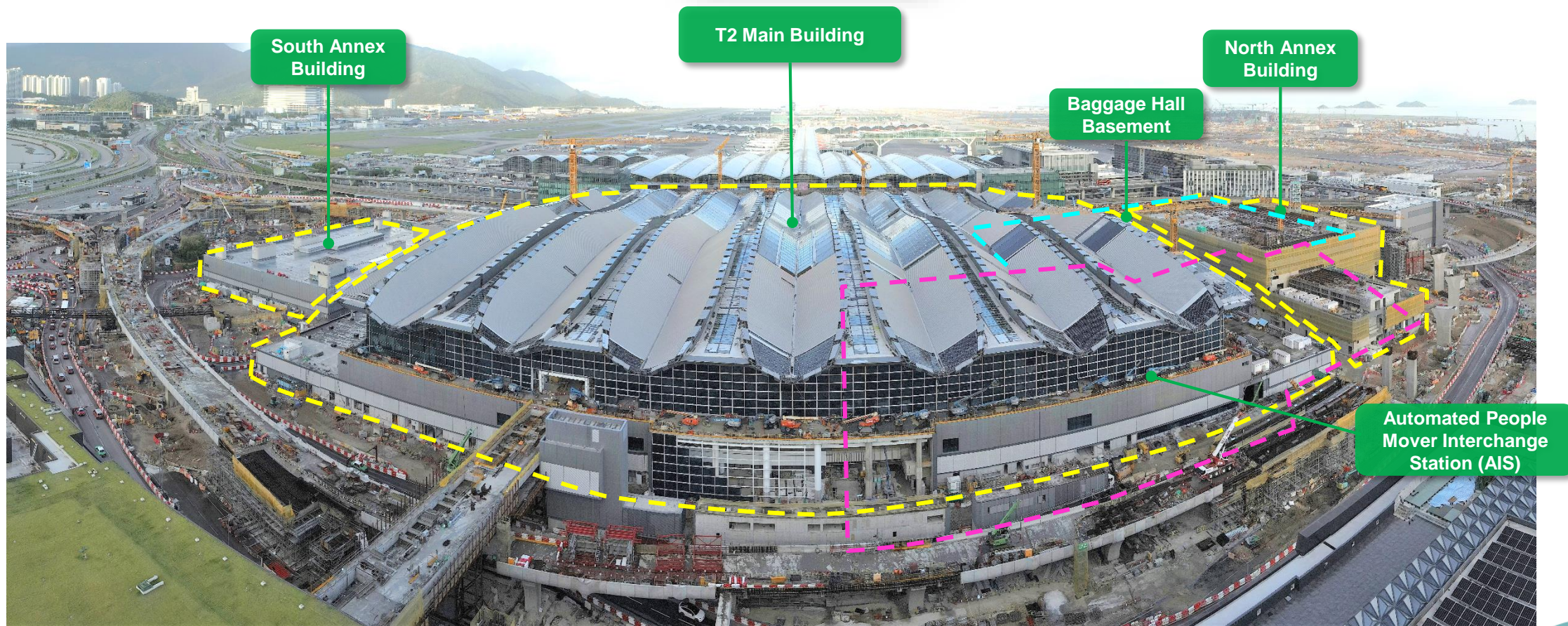
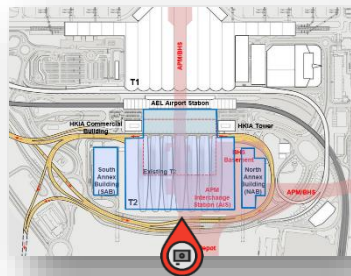


# APM System and BHS Tunnels





# T2 Expansion

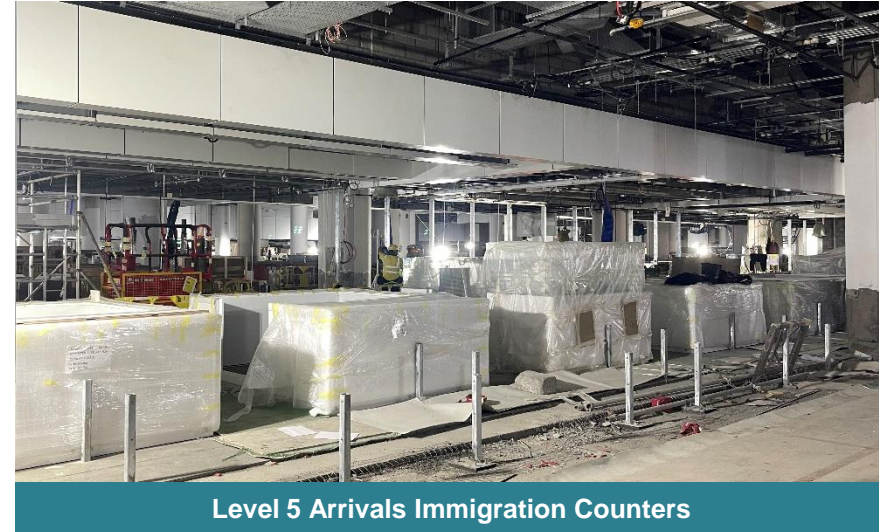




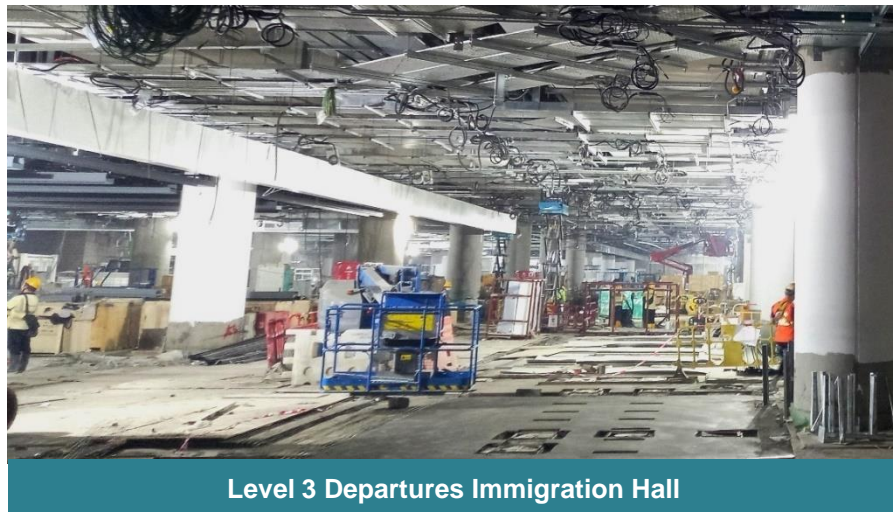
# Fit-out and Building Services Works at Expanded T2



Level 7 Departures Check-in Area



Level 5 Arrivals Immigration Counters



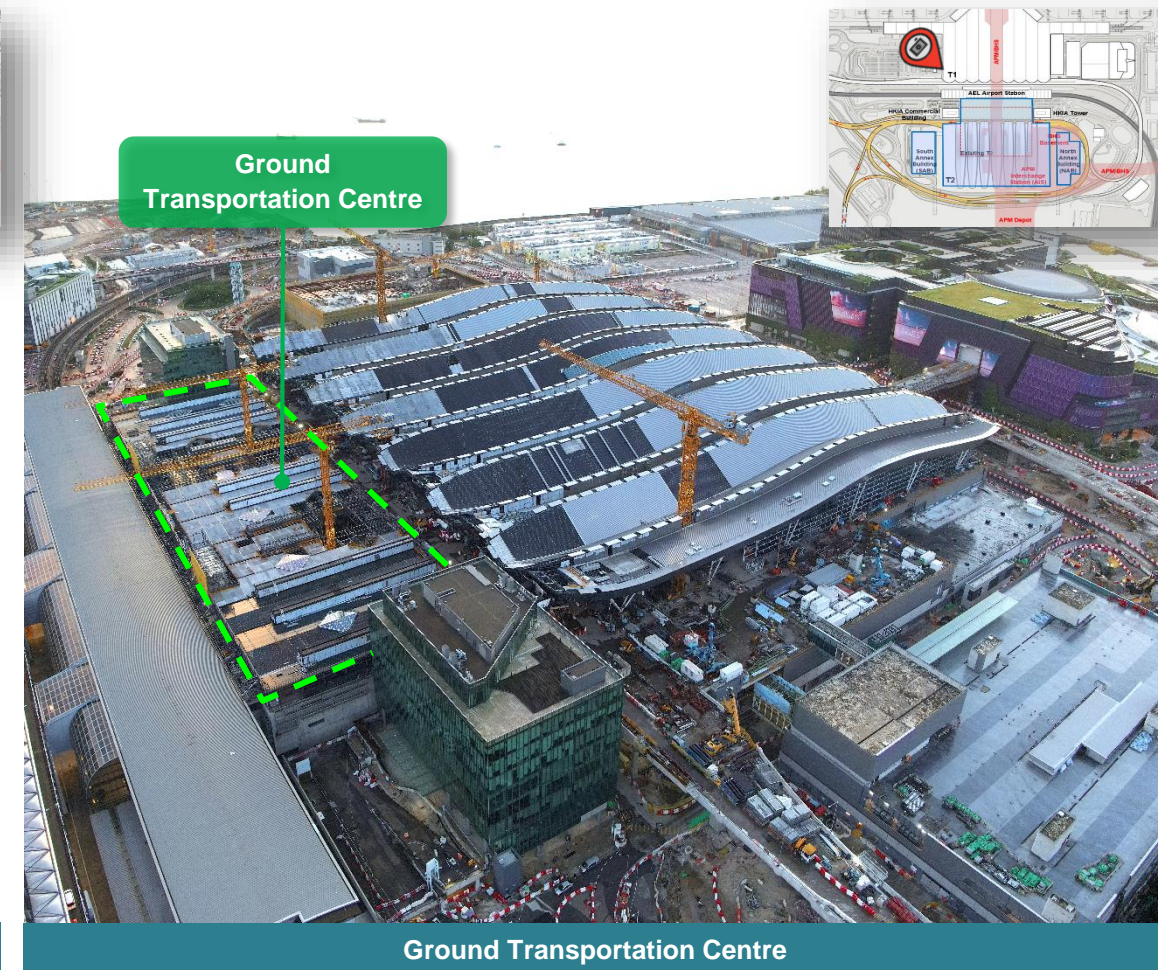
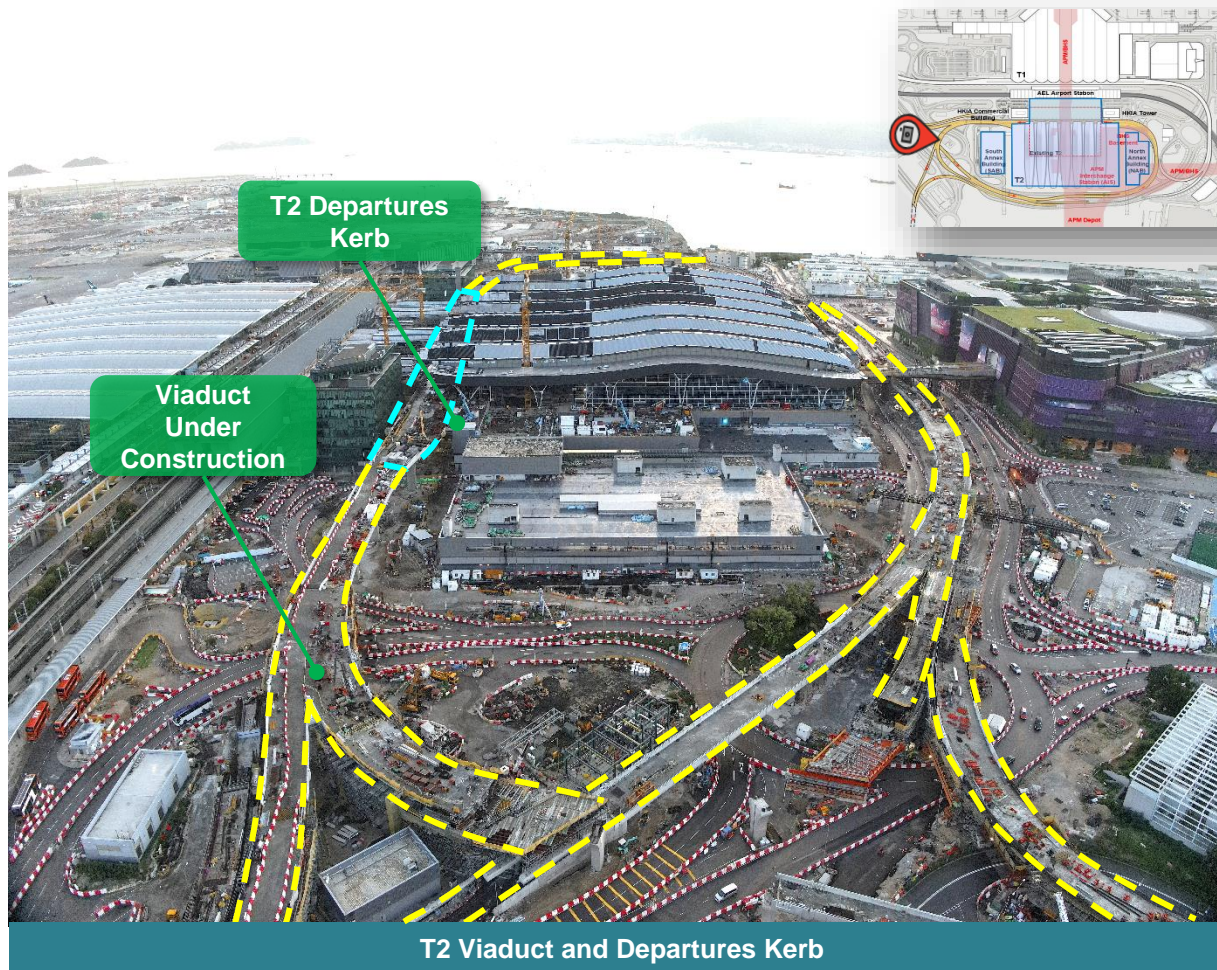
Level 3 Departures Immigration Hall



Level 5 Baggage Reclaim Hall



# T2 Viaduct, Departures Kerb and Ground Transportation Centre

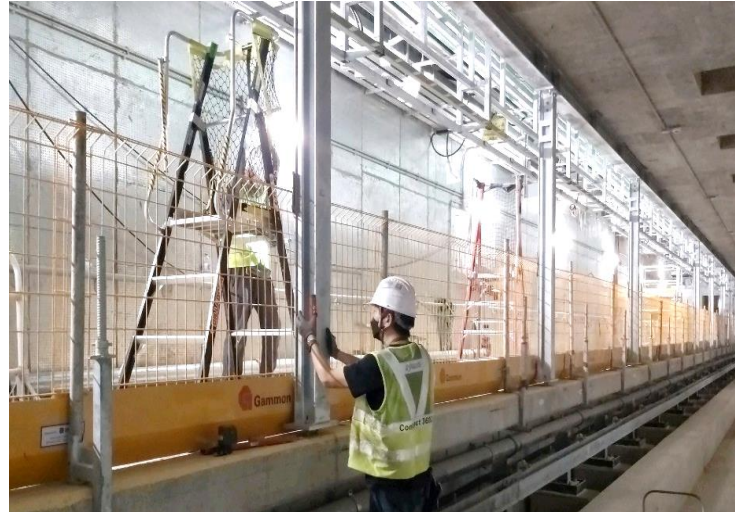




# APM System and BHS



Delivery of First 2 APM Vehicles to APM Depot



Installation of Platform Screen Doors at AIS Platform



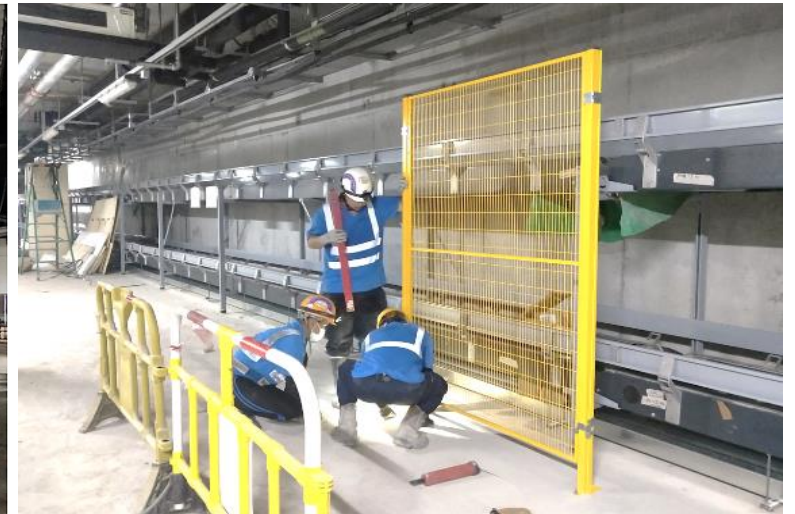
Construction Works at APM Tunnel



Conveyor Installation at T1



Carousel Installation at T2




Conveyor Installation at BHS Tunnel



# 3RS Progress Video





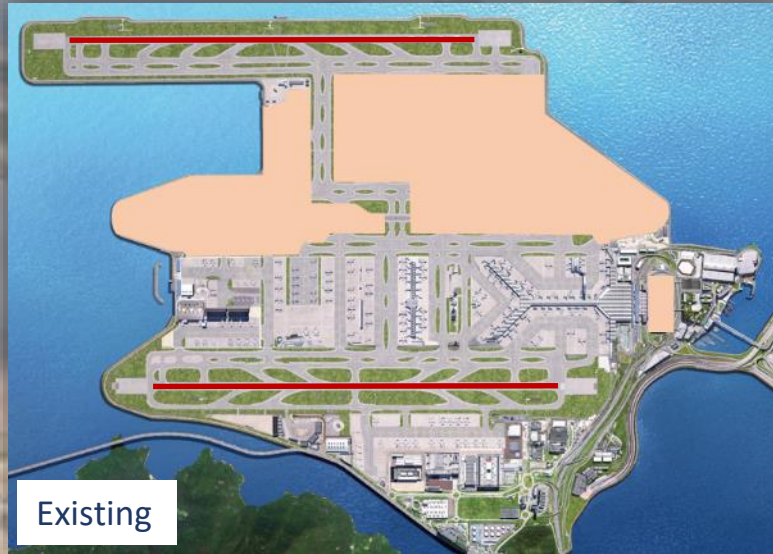


# Operation Readiness, Activation and Transition (ORAT) for Commissioning of 3RS

# Two-Runway System To Three-Runway System



Jul 1998 – May 1999 South Runway  
May 1999 – Jul 2022 Two-Runway System



Existing



From end 2024

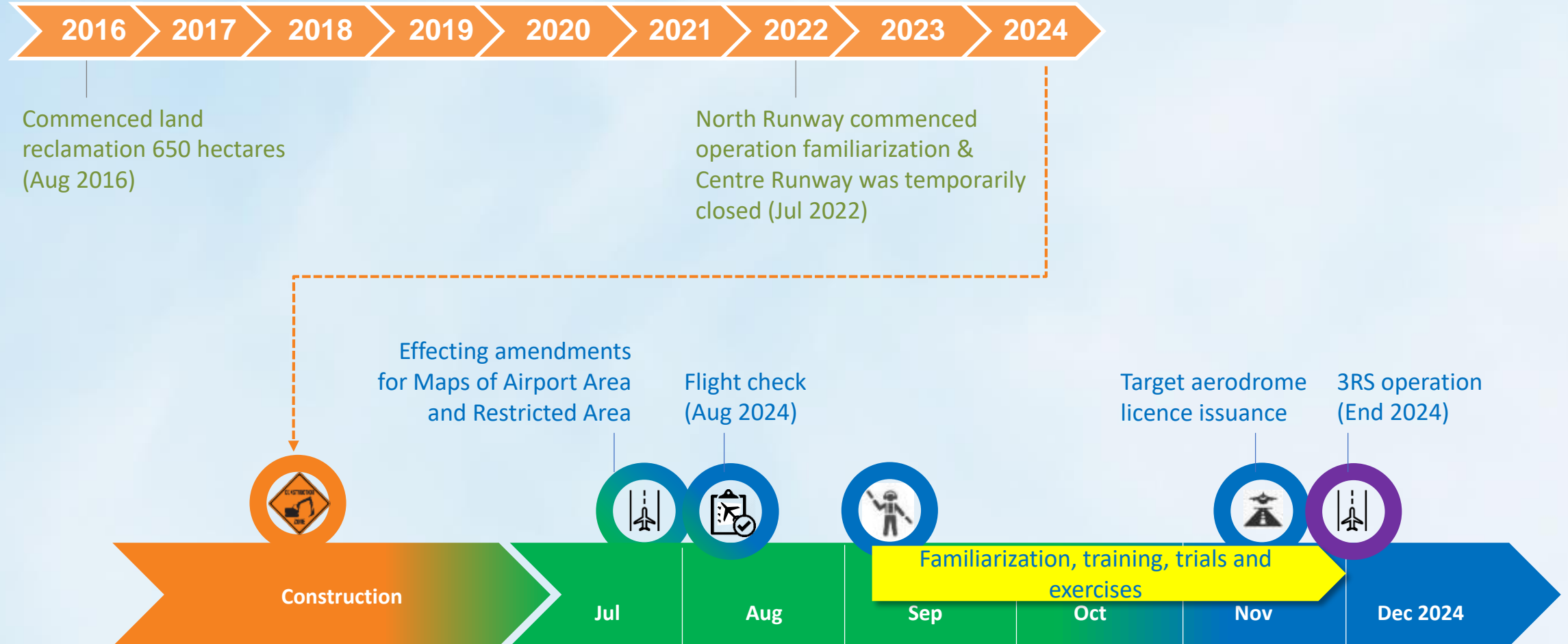


## Commissioning of Three-Runway System in End 2024



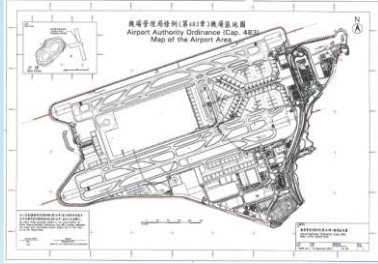


# High-Level Key Dates for Three-Runway System





# Key Operation Readiness, Activation and Transition Tasks



1

Statutory / Gazettal Process



5

Familiarization,  
Training, Trials &  
Exercises

2

Aerodrome Licensing



4

Airport Stakeholders  
Liaison

3

Flight Check



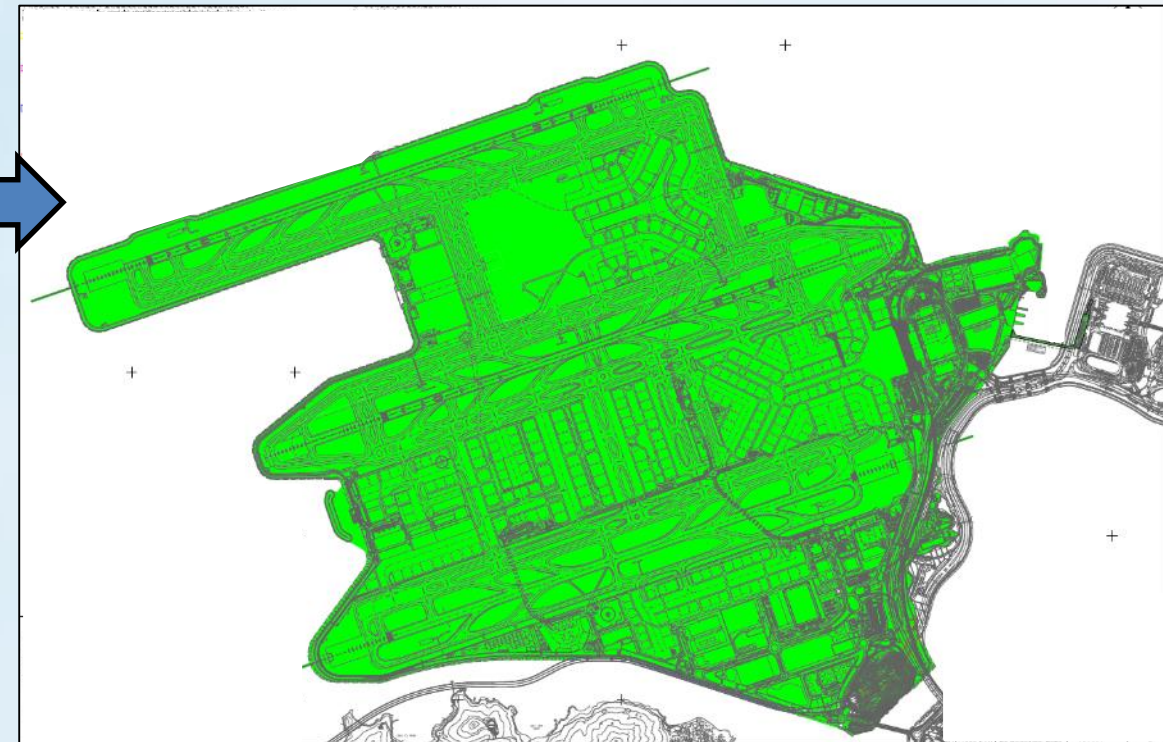


# 1 Statutory / Gazettal Process – Airport Authority Ordinance (Cap. 483)

Existing Map of Airport Area

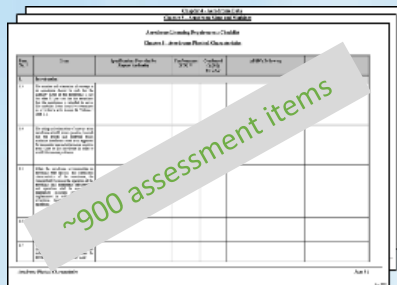


New Map of Airport Area to be effective in end Jul 2024





## Aerodrome Licensing



a

# Licensing Requirements Compliance Checklist



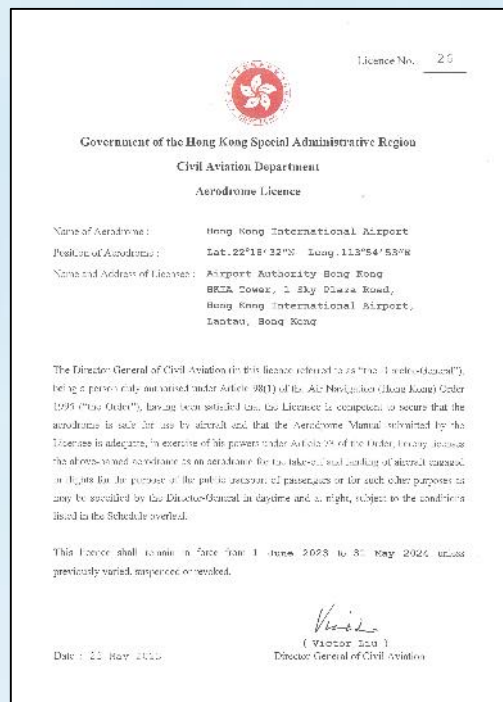
e

# Publish Aerodrome Data



d

## Site Visits & Inspections



**b**

## Design Drawings

C

## Test Records & As-built Drawings

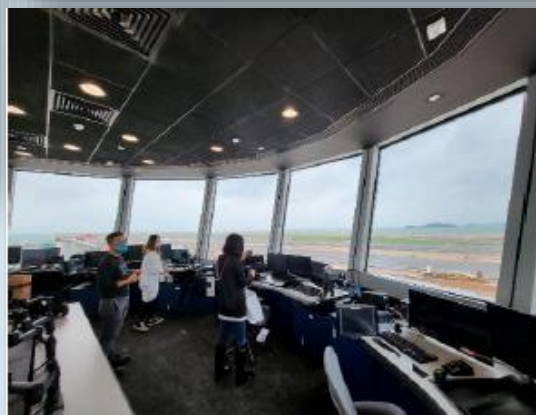
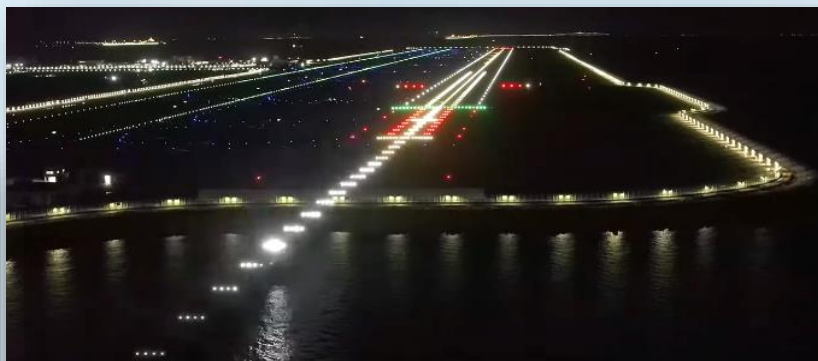




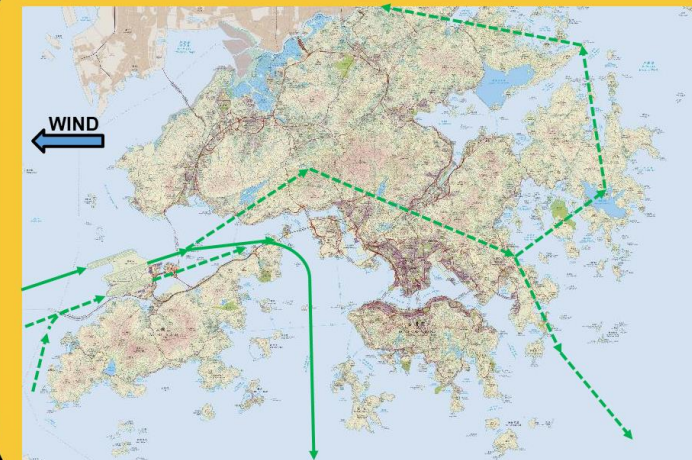
### 3 Flight Check

Scheduled for commencement in August 2024

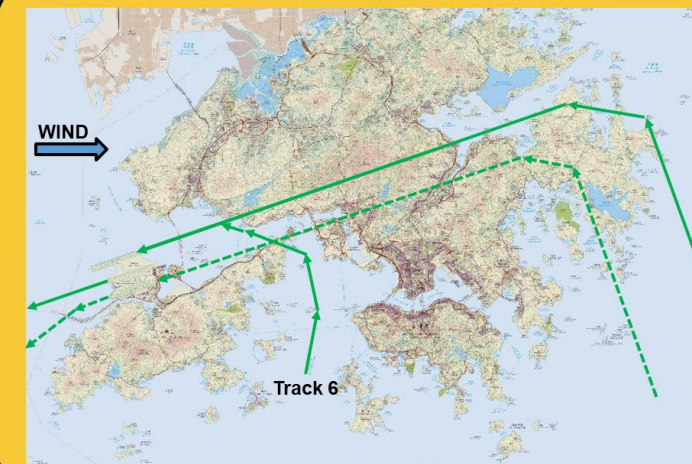
- Airfield Ground Lighting (AGL) System
- Air Navigation Services (ANS) Equipment
- Flight Procedures



#### East Flow Flight Tracks



#### West Flow Flight Tracks



*\*Track 6 will be used to the extent practicable at night*

#### Legend

3RS Flight Tracks   not used 2300-0659L



## 4

## Airport Stakeholders Liaison

- Centre Runway & Associated Taxiway ORAT Stakeholders Task Force Meeting commenced in Jan 2023 with 5 meetings held
- Participating organizations (~ 25 organizations)
  - AA & AVSECO
  - CAD
  - Other Government departments (FSD, GFS, HKO, C&ED, DoH, ImmD, HKPF, MD)
  - Home based airlines (CX, UO, HX, HB, Air Hong Kong)
  - Airside operators & franchisees (ramp handling operators, line maintenance operators)
  - Others (HKBAC, AOC, HKALPA)
- Topics shared
  - Progress of construction works
  - Key airport & airfield operation preparations
  - Update on ORAT tasks & programmes
  - On-site familiarization, operation drills & exercises schedule
  - Coordination & Interface issues, and agreed resolutions





## 5

## Familiarization, Training, Trials & Exercises (Sep – Nov 2024)

- On-site activities to commence after Flight Check (tentatively in Sep 2024)
- Coordination on proposed plans, schedules and locations in progress

- Trials & exercises, tentative plans

- Aircraft taxiing simulations – home based airlines, GFS
- Aircraft full emergency response drill
- Recovery of immobilized aircraft drill
- Local standby drill
- Aircraft Crash and Rescue Exercise 2024



- Familiarization & training, examples

- AVSECO mobile patrol familiarization
- Line maintenance operator (LMO) aircraft tractor drivers training
- Hong Kong Business Aviation Centre (HKBAC) aircraft taxiway routing familiarization
- Ramp handling operator (RHO) communication familiarization
- HKO runway equipment access familiarization



- Participating organizations (~ 30 organizations)

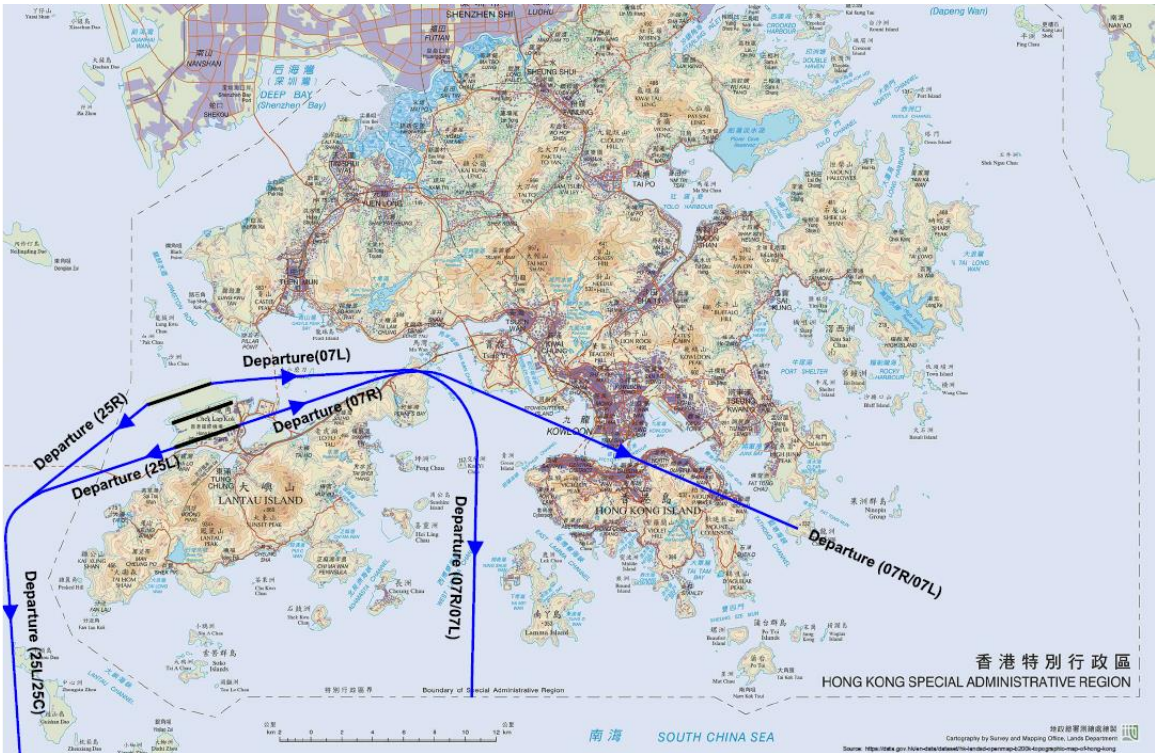
- AA & AVSECO
- CAD
- Other Government departments (e.g. FSD, HKPF, GFS, HKO)
- Home based airlines (CX, UO, HX, HB)
- Ground handling organizations (e.g. BAC, LMO, RHO)
- Maintenance and services contractors (e.g. CLP, PCCW, cleaning contractor)



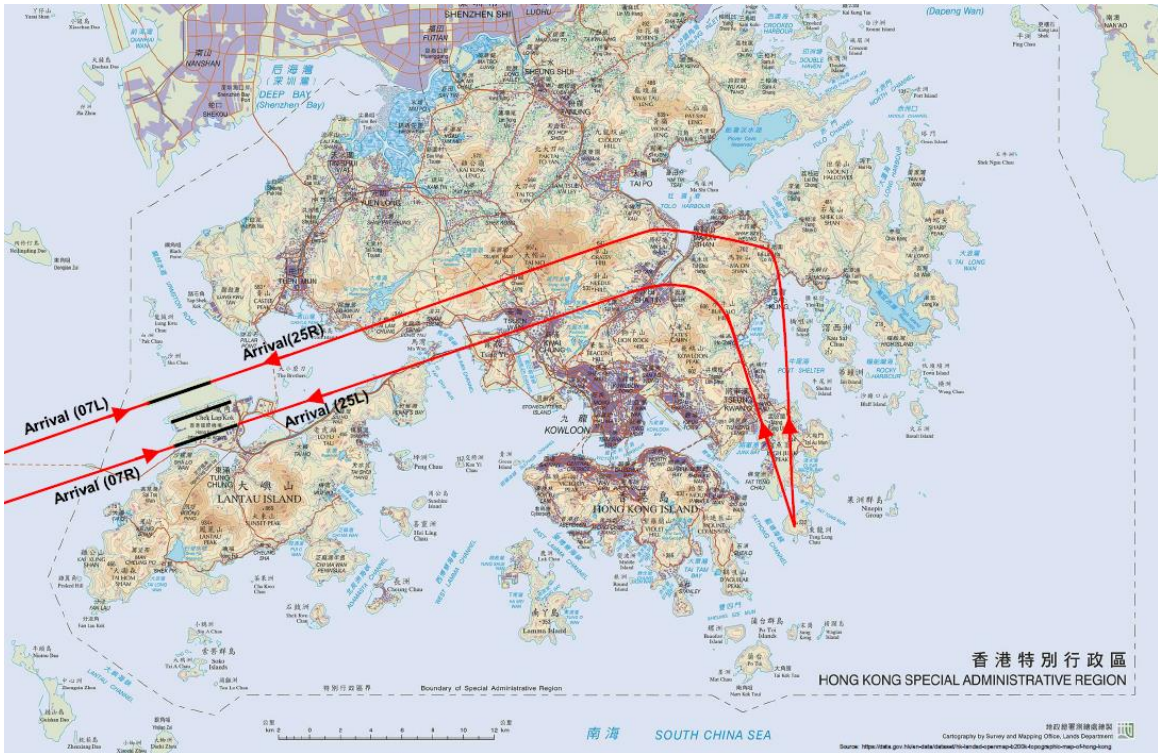


# Interim Two-Runway System (I-2RS) Operation

## Departure Flight Tracks



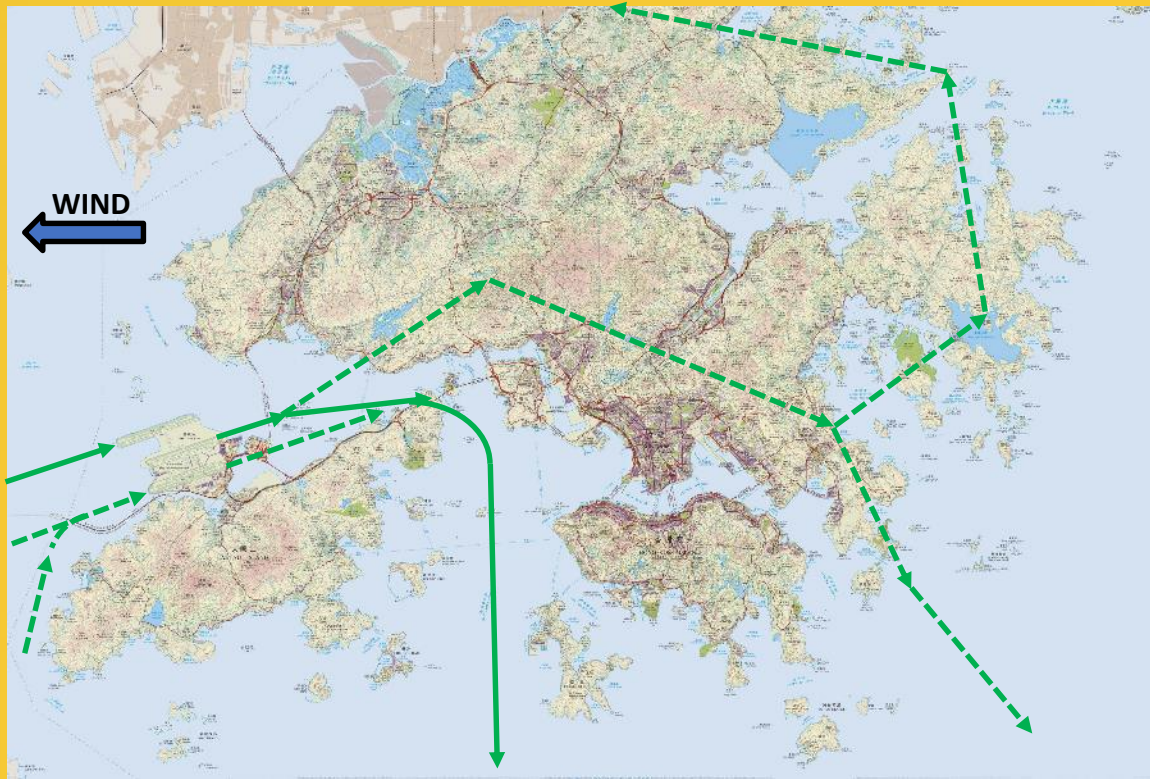
## Arrival Flight Tracks



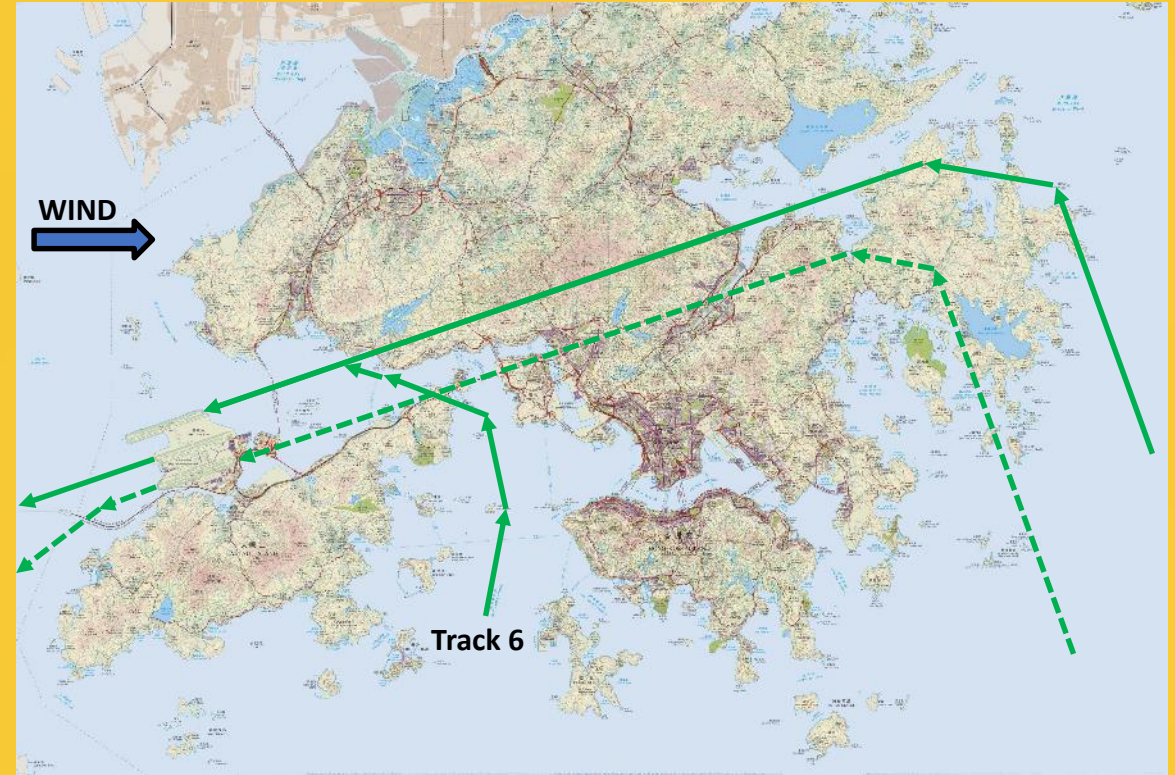


# Normal Mode of Operation of 3RS (ADM mode)

## East Flow Flight Tracks



## West Flow Flight Tracks



*\*Track 6 will be used to the extent practicable at night*

### Legend

3RS Flight Tracks



not used 2300-0700



# Restrictions on or banning the use of noisy aircraft types at HKIA\*

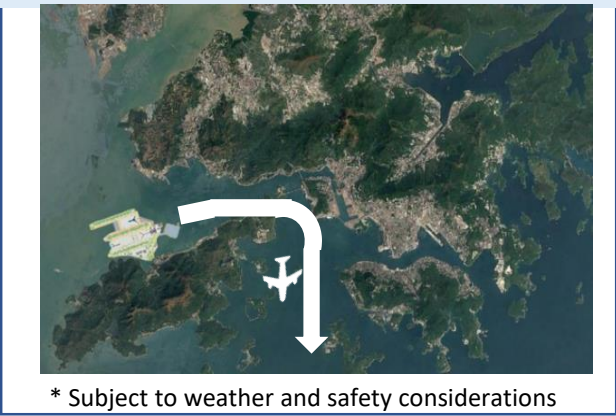
July 2002	Banned aircraft that do not comply with the Chapter 3 noise standards
March 2014	Aircraft that only marginally comply with the Chapter 3 noise standards are not allowed in scheduled operations at night (2300 – 0659)
October 2014	Aircraft that only marginally comply with the Chapter 3 noise standards are not allowed in scheduled operations throughout the day
March 2019	Aircraft that do not comply with the more stringent Chapter 4 noise standards, or equivalent, are not allowed in scheduled operations at night (2200 – 0700)
March 2021	Through the Noise Quota Count (QC) Scheme**, restrict the operation of noisier QC4 aircraft at night (0100 – 0659)
March 2022	Extended the operating restriction of noisier QC4 aircraft at night (2200 – 0659) under the QC Scheme

\* At present, the restrictions on use of noisy aircraft in Hong Kong are generally more stringent than those imposed by many other major international airports.

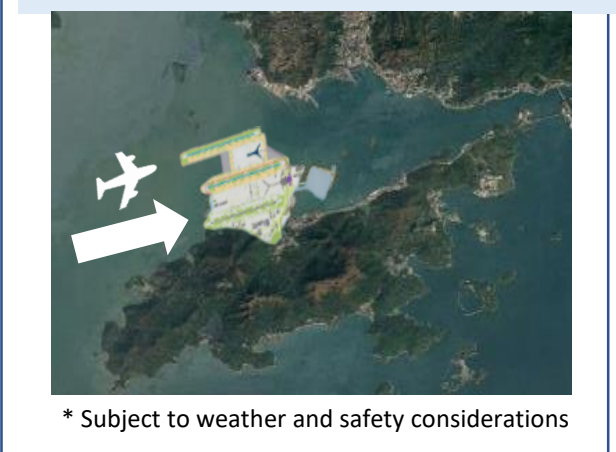
\*\* The Noise Quota Count Scheme was introduced and managed by AAHK

# Implementing operational procedures to reduce noise exposure

**1** Aircraft departing to the northeast are required to use the southbound route via the West Lamma Channel at night (2300 – 0659)



**2** Arrival aircraft are required to land from the southwest over water at night (2300 – 0659)



# Deploy quieter aircraft

- With the advancement of aviation technology, aircraft engines are quieter than before, and the improved design of airframe has also helped reduce noise significantly
- To reduce the impact of aircraft noise on areas near the flight paths, many airlines are replacing their aircraft with quieter models progressively
- CAD and AAHK will continue to encourage airlines to deploy more quieter aircraft in their operations
- The Noise Quota Count Scheme will continue to be implemented at HKIA to offer incentive for airlines to deploy more quieter aircraft



# Airport City





# SKYCITY – A New Tourist Landmark for Greater Bay Area



SKYCITY

Terminal 1

Hotel

AsiaWorld - Expo Phase 2

Terminal 2

11 SKIES

Hotel

AsiaWorld - Expo

Hotel

Airport City Cove



# 11 SKIES - gross floor area of 3.8 million sq. ft.

## HK's Largest Retail, Dining & Entertainment Destination



Over 800 shops including 120 dining outlets

Indoor Entertainment- 570,000 sq.ft





# AsiaWorld-Expo Expansion

Phase 2 development will provide Hong Kong's largest indoor arena with 20,000 seats



AWE Phase 2

AWE

Footbridge to  
Terminal 2

Footbridge to  
11 SKIES



# More Hotels to Support SKYCITY Development



## Regal Airport Hotel



- Over 1100 guest rooms and suites

## Regala Skycity Hotel



- Over 1200 guest rooms and suites

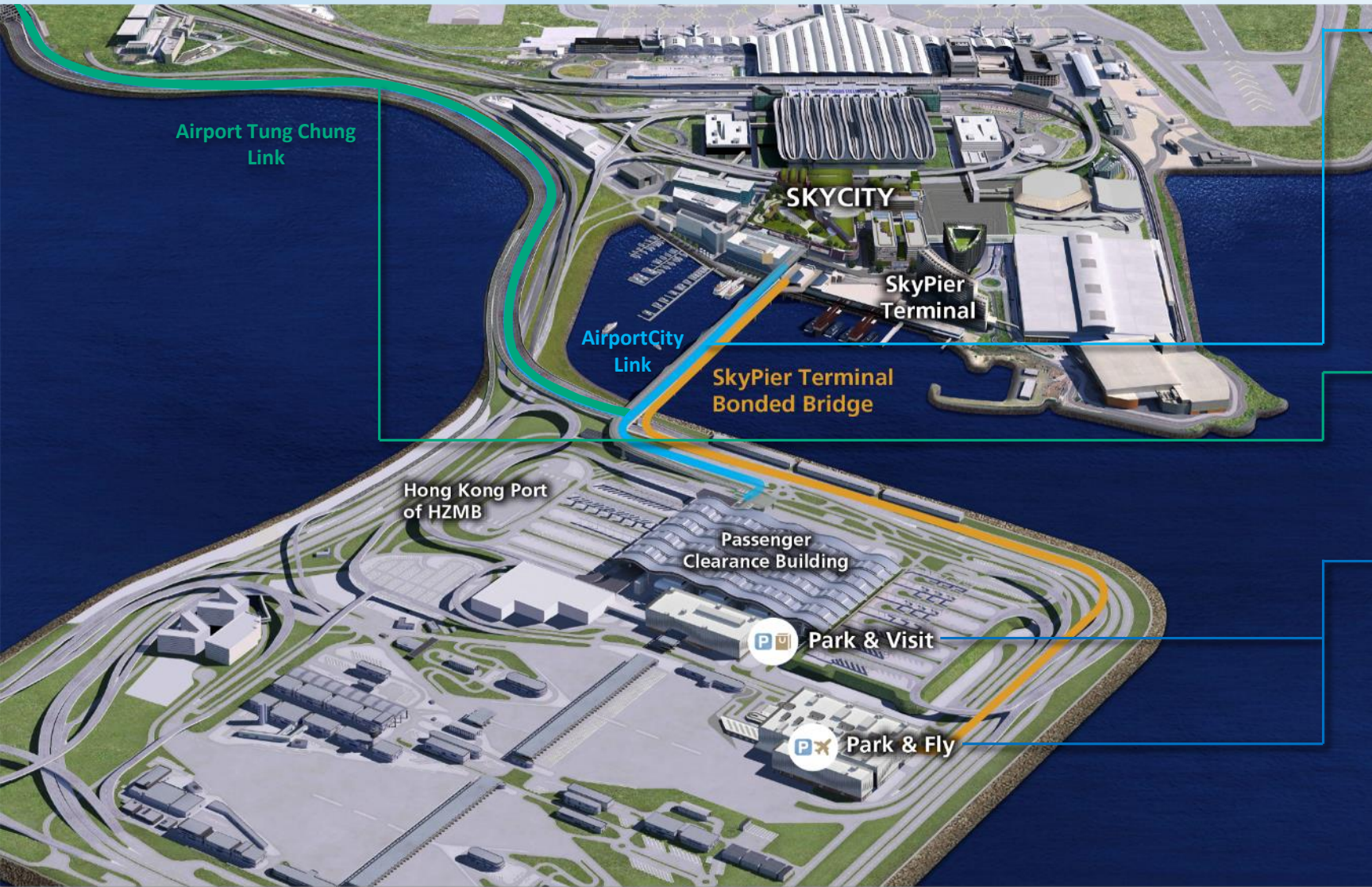
## SkyCity Marriott Hotel



- Over 600 guest rooms



# Autonomous Transportation System



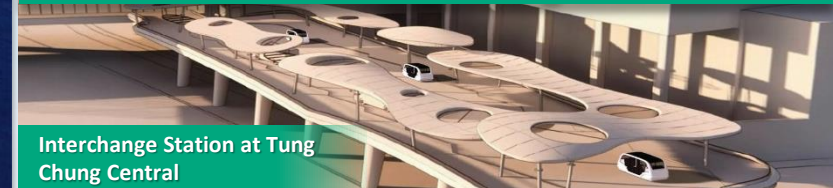
## AirportCity Link



Pedestrian bridge



## Airport Tung Chung Link



## Automated Car Parks

Park and Visit

Park and Fly





# Airport Tung Chung Link

- 8-10 minutes' drive from Tung Chung to SKYCITY/Hong Kong Port
- Environmental Impact Assessment report was approved
- Gazetted in accordance with the Roads (Works, Use and Compensation) Ordinance
- Construction is expected to commence in Q3 2025

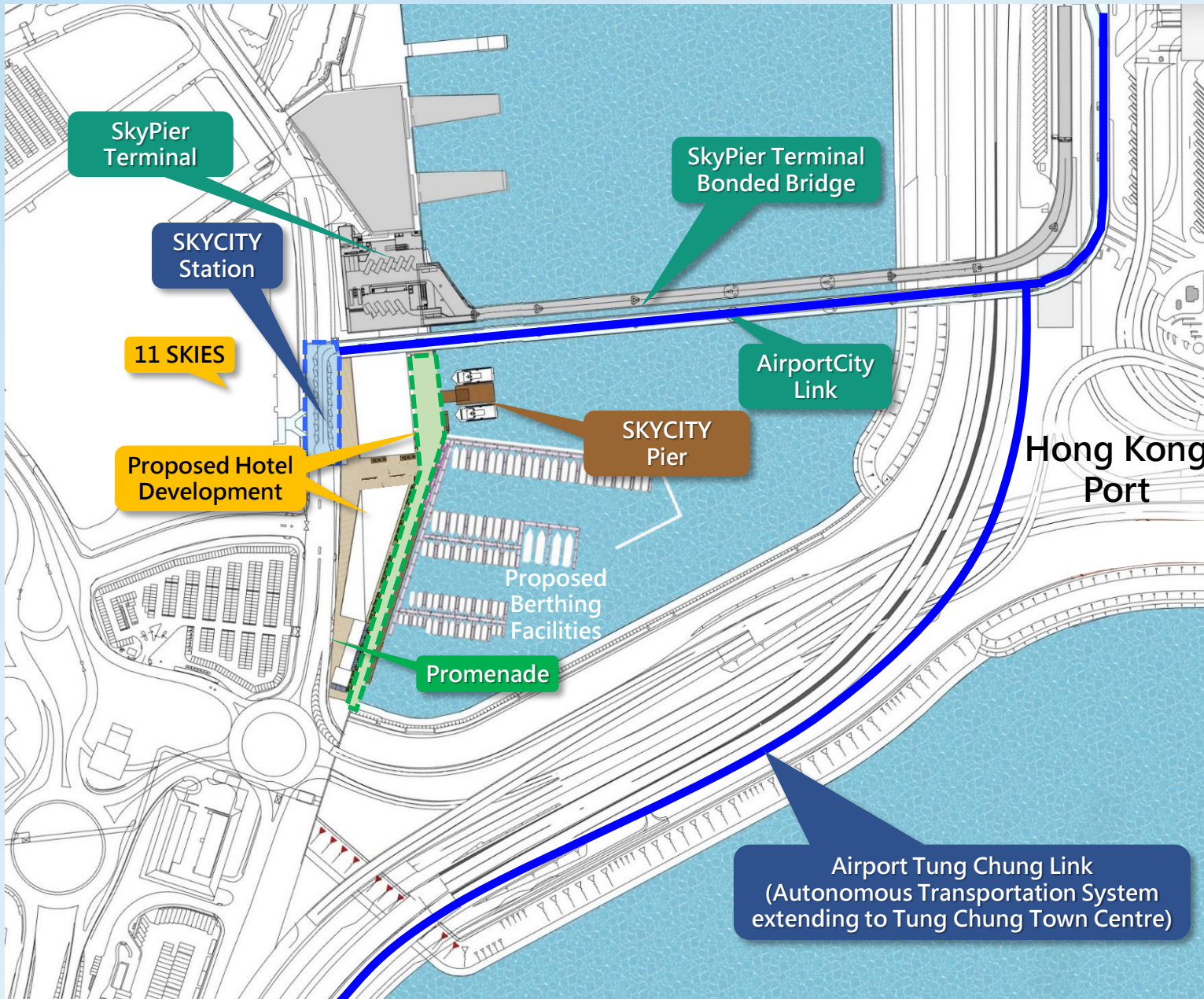


Forming an integrated transport system with AirportCity Link





# SKYCITY Pier & Berthing Facilities



- Environmental Impact Assessment report was approved
- Gazetted in accordance with the Foreshore and Sea-bed (Reclamations) Ordinance





# EM&A Updates





# EM&A Monitoring – Air Quality & Noise

**Nov 2023 – Jun 2024**

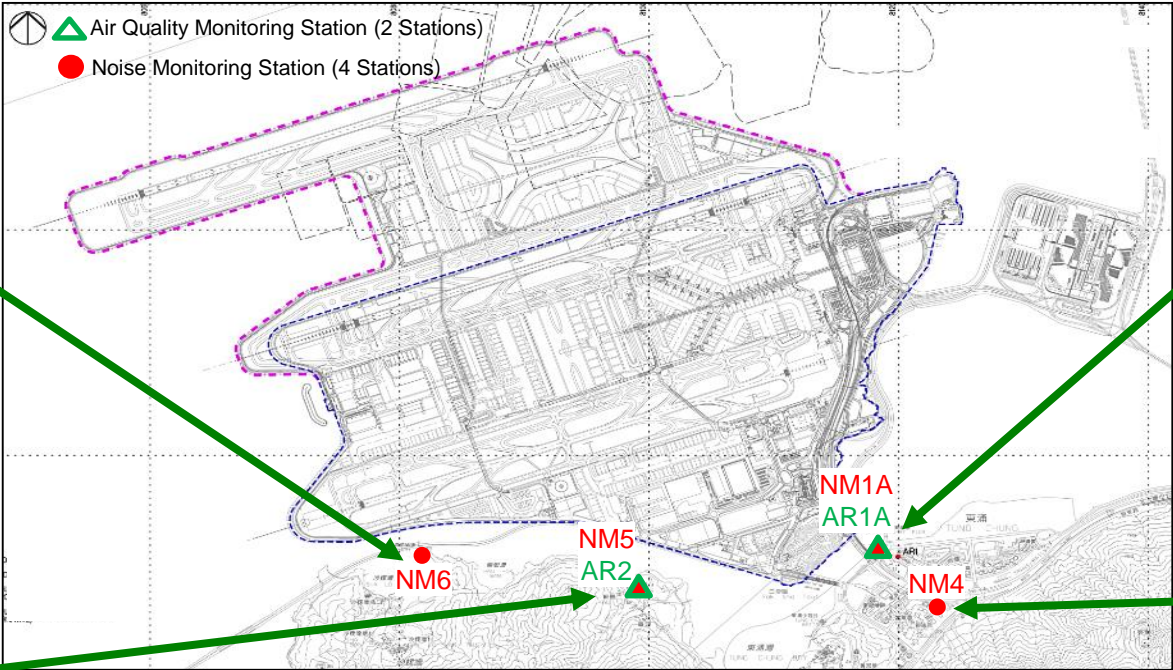
➤ No exceedance of project-related Action / Limit Level was recorded



Noise Monitoring Station NM6



Noise Monitoring Station NM5  
Air Quality Monitoring Station AR2



Noise Monitoring Station NM1A  
Air Quality Monitoring Station AR1A



Noise Monitoring Station NM4

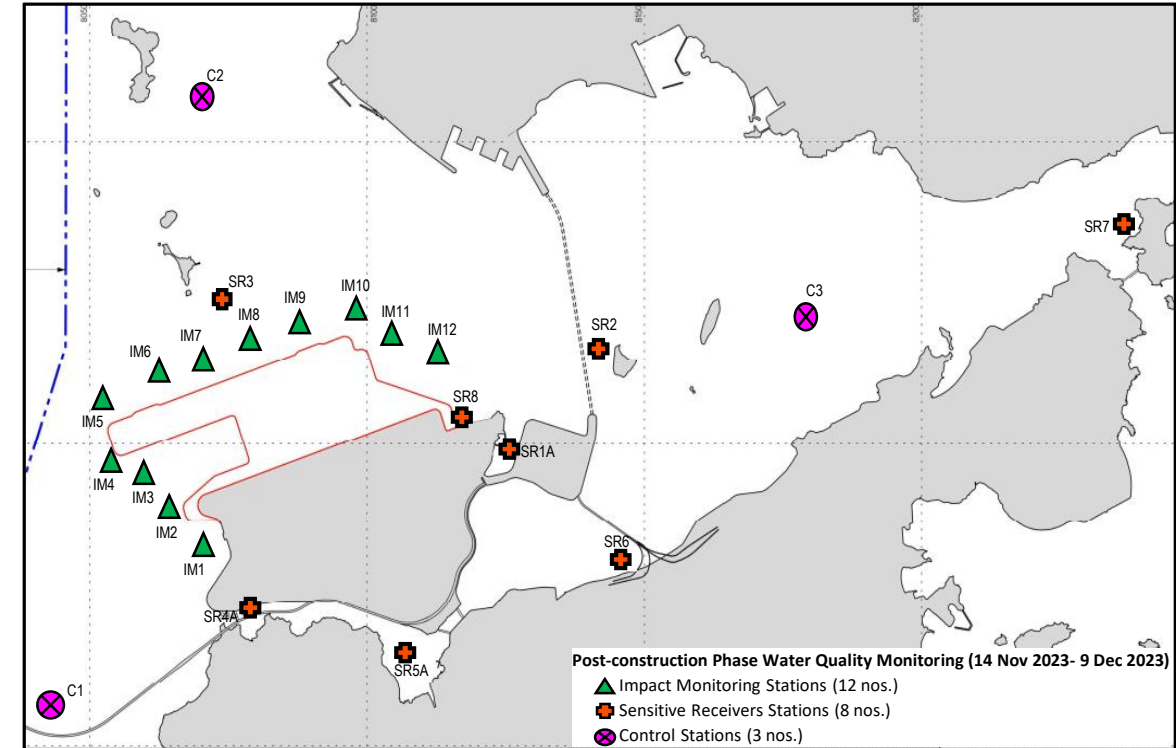
Nov 2023 – Jun 2024	
Air Quality Monitoring (2 stations)	252 events
Noise Monitoring (4 Stations)	138 events



# EM&A Monitoring – Water Quality

## Nov 2023 – Jun 2024

- With the completion of land formation works (including seawall construction and all marine filling works) in the first quarter of 2023, water quality impact monitoring finished on 31 Oct 2023
- Four weeks post-construction phase water quality monitoring were carried out according to the Updated EM&A Manual
  - Mid Nov - mid Dec 2023: Total 12 water quality monitoring events (23 monitoring stations)
  - Monitoring results indicated **no significant changes** in water quality compared with baseline monitoring



Water sampling



*In-situ water  
quality monitoring*



# EM&A Implementation

## Air Quality Mitigation



*Regular water spraying at stockpiles to reduce fugitive dust emission*



*Regular water spraying at haul roads to reduce fugitive dust emission*



*Conveyor belts were fully enclosed to prevent fugitive dust emission*



*Regular water spraying to reduce generation of fugitive dust: automatic water sprinklers*



*Install wheel washing facilities with high pressure water jet at site exit to avoid carrying of dust and soil to public road by site vehicles*



*Curtains were erected next to works areas to reduce dust nuisance*



# EM&A Implementation

## Water Quality Mitigation



*Conduct regular checking & water sampling to check and ensure wastewater treatment facilities are functioning properly*



*Bunds were provided along temporary drains to prevent seepage of surface runoff into diversion channel*



## Noise Mitigation



*Noise enclosures were erected to reduce noise nuisance*

## Environmental Measures



*Metal recycling*



*Conduct chemical drills regularly*



*Asphalt generated from 2RS excavation works were reused*

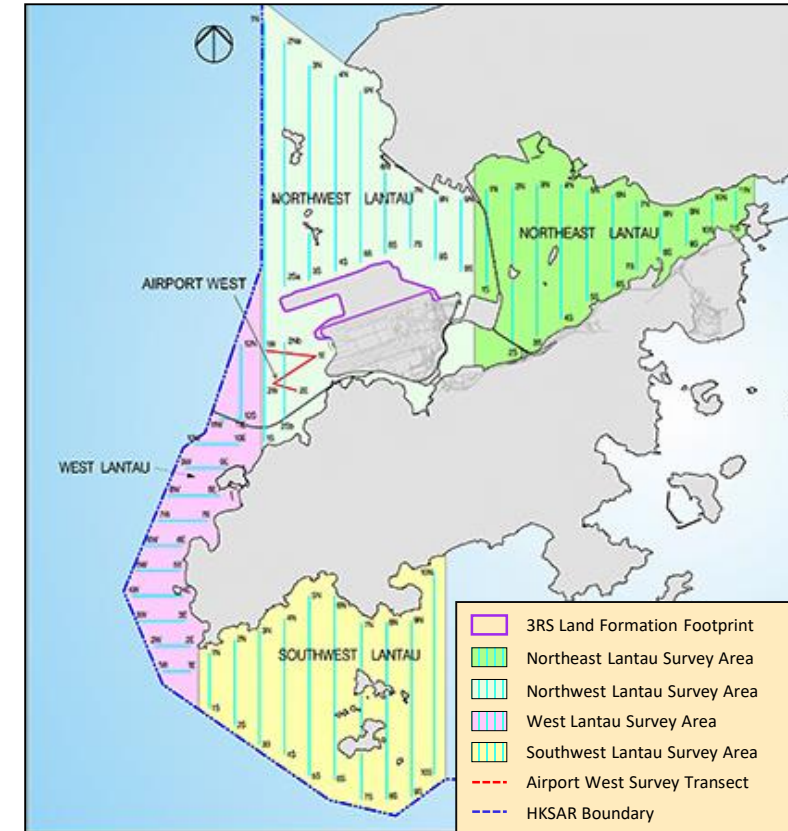


# CWD Monitoring – Vessel Line Transect Survey

- With the completion of land formation works (including seawall construction and all marine filling works) in the first quarter of 2023, construction phase CWD monitoring was completed in Dec 2023
- 12-month post-construction phase CWD monitoring commenced in Jan 2024 according to the Updated EM&A Manual

## Nov 2023 – Jun 2024

- 16 rounds of vessel line transect surveys, covering a total distance of approx 3,600km
- 82 groups of CWDs with 255 dolphins sighted
- Average group size was 3.1 dolphins, ranging from 1 to 15 dolphins
- 15 sightings with mother-and-unspotted calf and/or mother-and-unspotted juvenile pair(s) observed
- CWDs detection distribution: WL around 72%; SWL around 23%; NWL less than 10%

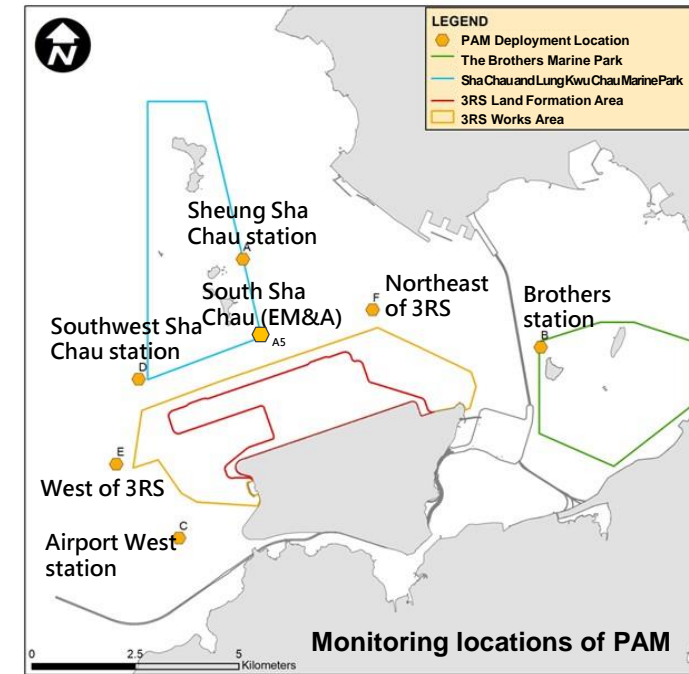




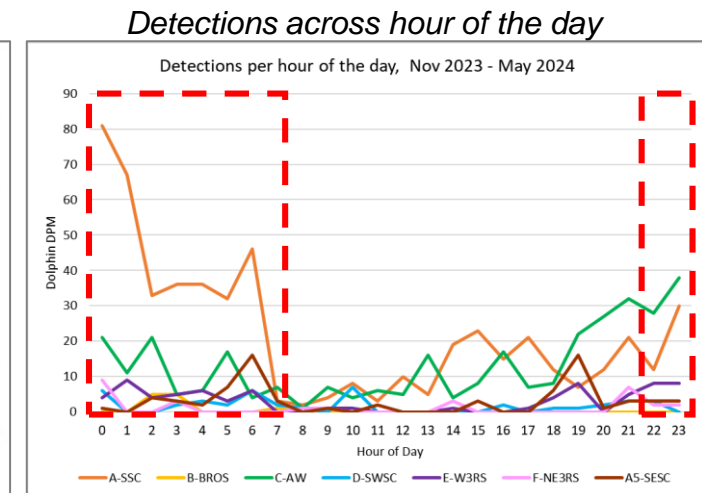
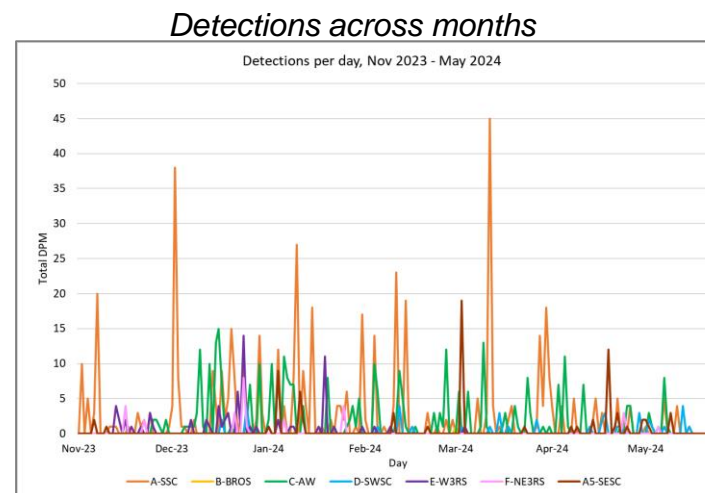
# CWD Monitoring – Passive Acoustic Monitoring

Nov 2023 – Jun 2024

- CWDs detected at all 7 monitoring stations, , including Brothers and Northeast of 3RS stations
- Higher detections at Airport West station & Sheung Sha Chau station – 38% & 36% logged days with at least one CWD detection respectively
- Slightly more CWD detections recorded during night-time than daytime – peak detections between 2300-0700 especially at Sheung Sha Chau station

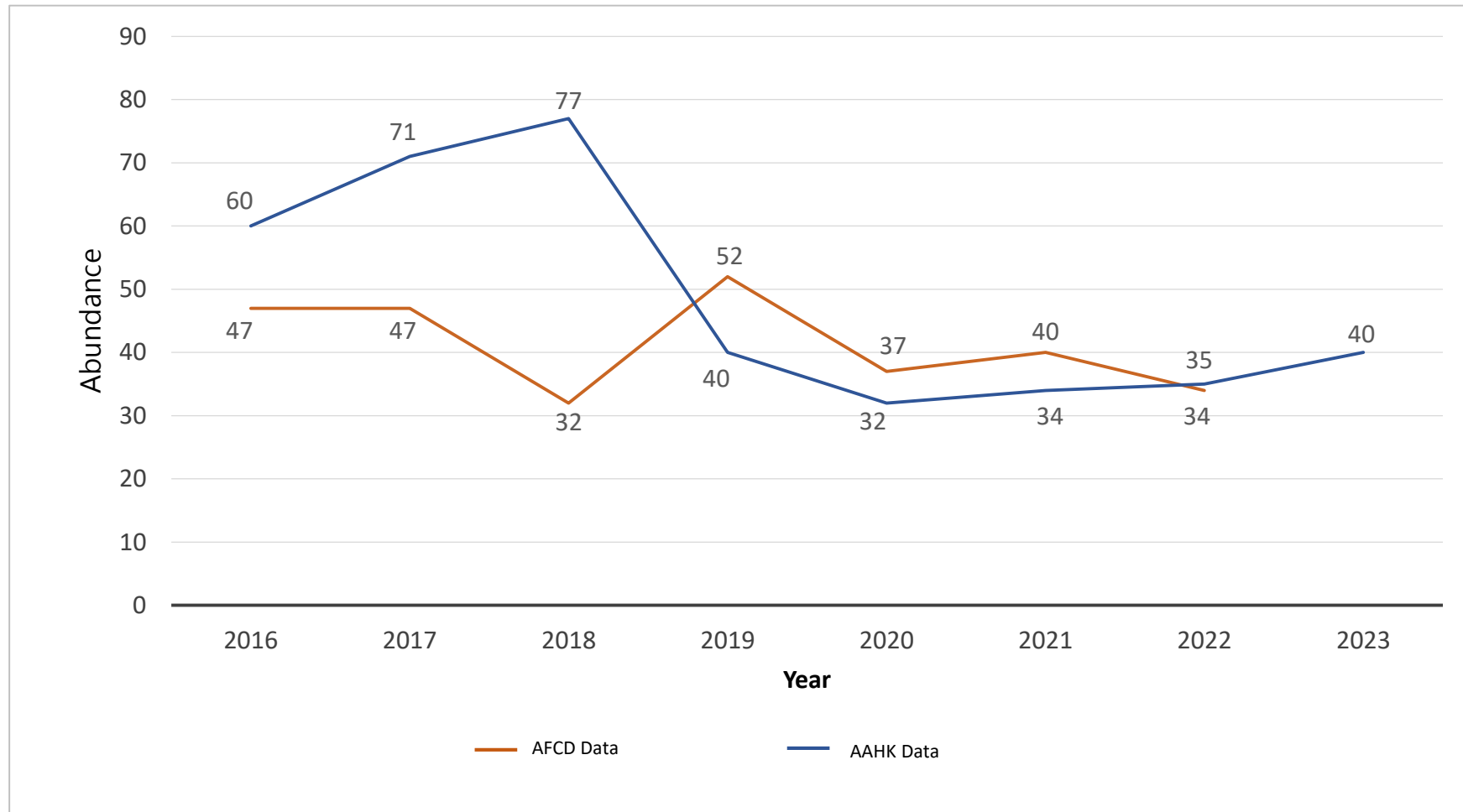


*Retrieval of the underwater PAM device*





# CWD Estimated Abundance in Four Survey Areas of Lantau Waters (2016 – 2023)



*Note: As of June 2023, AFCD has not announced the overall CWD abundance in 2023*



# Complaints and Enquiries

	2015 (from 28 Dec)	2016	2017	2018	2019	2020	2021	2022	2023	2024 (Jan-Jun)
Complaint	0	1	7	8	1	10	21	11	12	6
Enquiry	0	25	16	19	20	9	13	2	13	12
Total	0	26	23	27	21	19	34	13	25	18





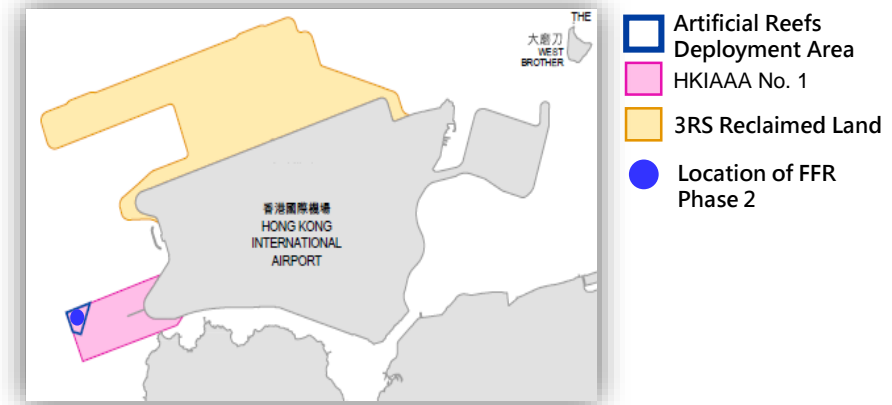
# Marine Ecology & Fisheries Enhancement Strategy





# Fish Fry Release Pilot Study Phase 2 – Completed

- **Fish fry release** in May & Sep 2023 at AA's deployed Artificial Reefs (ARs), ~20,000 fry released
- **Shrimp fry release** in Sep 2023 at Sham Wat Wan & Sha Lo Wan, ~1 million fry released
- 6-month post-release **monitoring done**
  - **17 fish species** were recorded at ARs – 3 of which were released species (green grouper, yellowfin seabream, black seabream)
  - Fishes observed were **seeking refuge, inhabiting & feeding** in the ARs
  - Recorded species observed to have **grown in size**, incl released species (green grouper, yellowfin seabream)
  - Results **indicated potential** for the released species to establish & grow in North Lantau waters





# Fish Fry Release Pilot Study Phase 2 – Completed



# Scale up of Marine Enhancement Measures

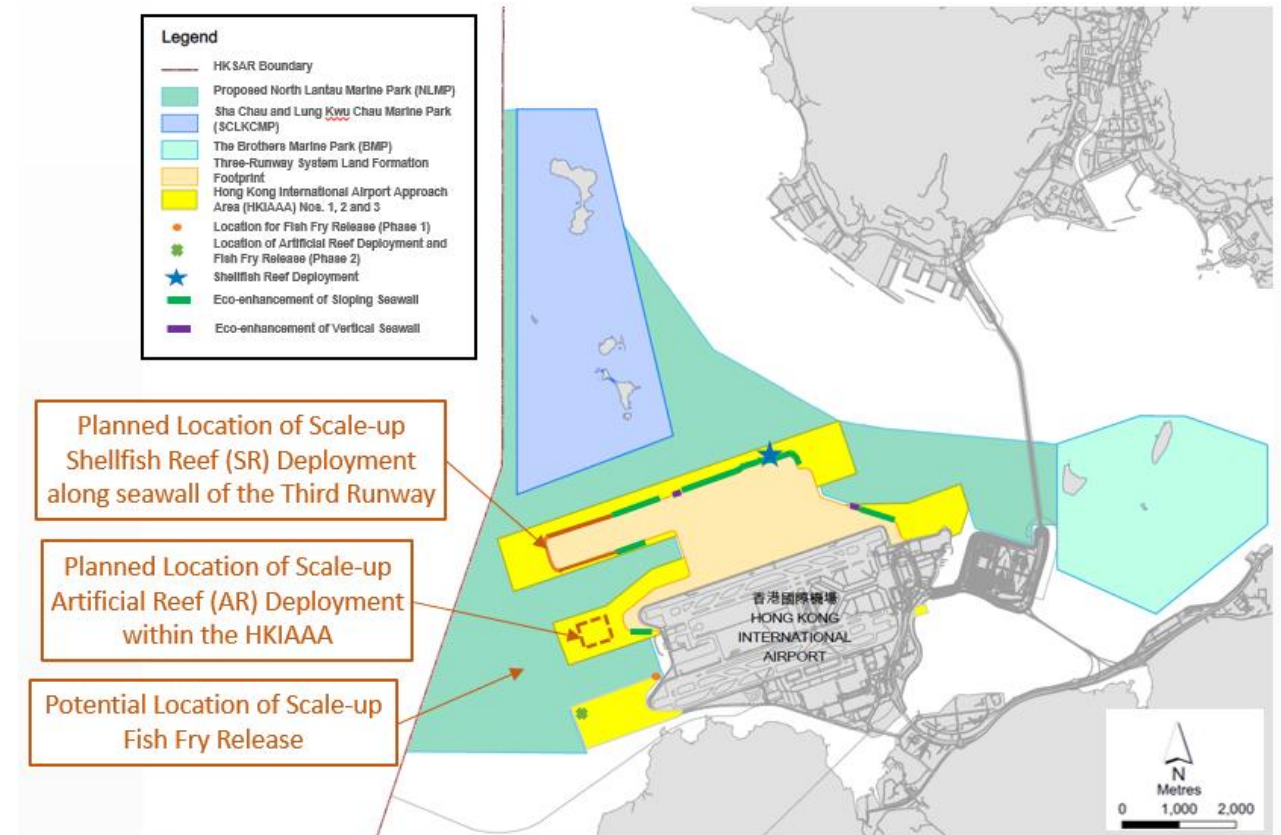
- 3 pilot initiatives being scaled-up at Airport West area
  - **Shellfish Reef** deployment: H2 2024
  - **Artificial Reef** deployment: H2 2024
  - **Fish Fry Release**: 2025 & beyond
- Six-year holistic monitoring programme



Shellfish Reef Deployment

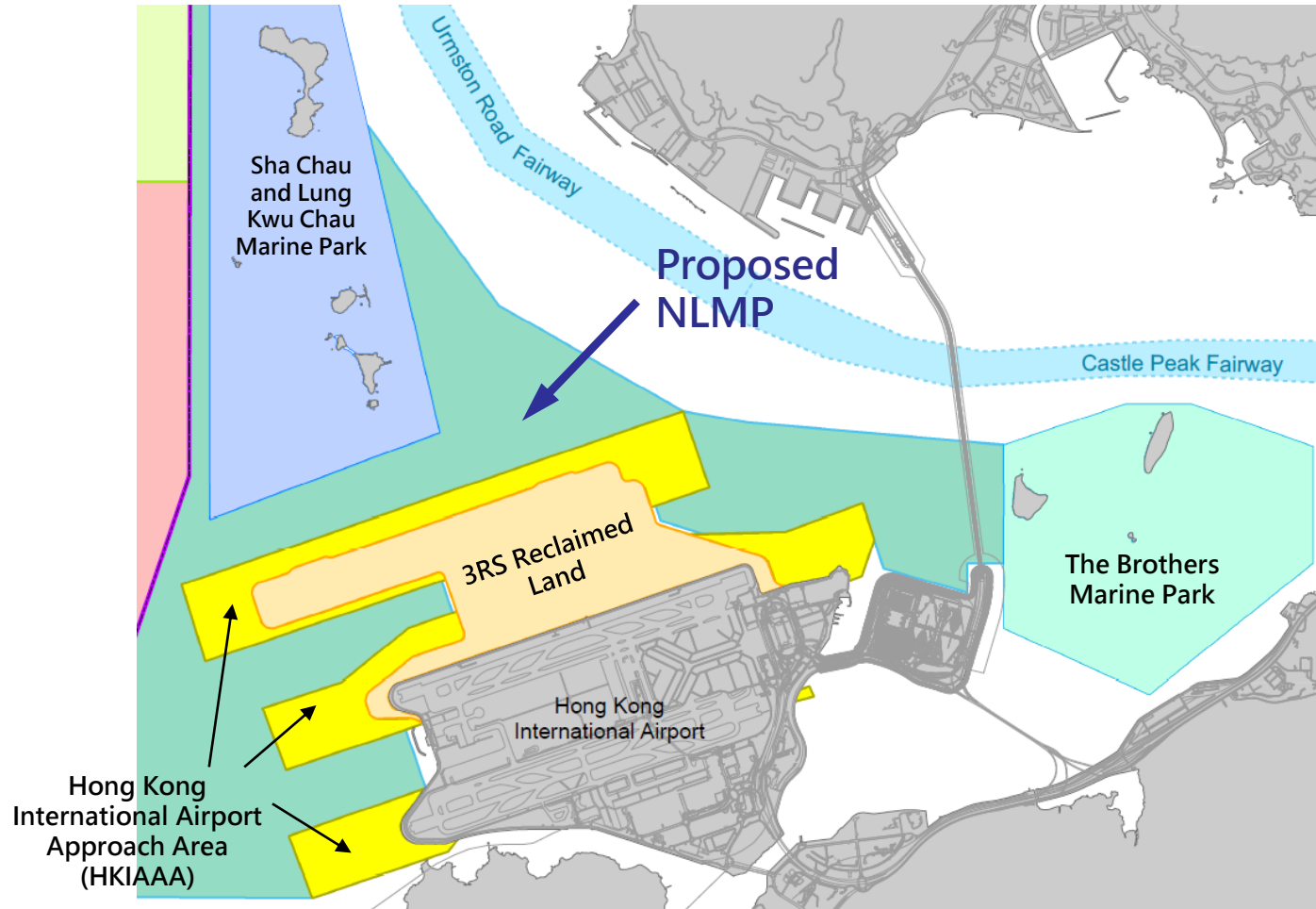


Artificial Reef Deployment





# Proposed North Lantau Marine Park

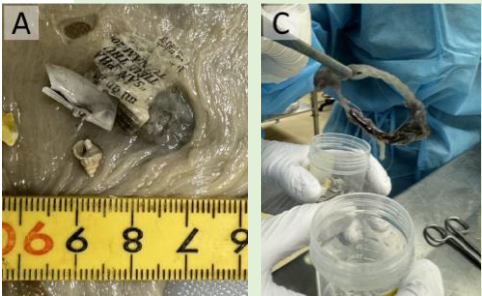


- The Marine Parks (Designation) (Amendment) Order 2024 tabled at LegCo on 19 Jun 2024 for negative vetting
- Come into effect on 1 Nov 2024 to tie in with the full operation of the 3RS

# Marine Ecology Enhancement Fund (MEEF)

- A total of **43 projects** have been approved with a total funding amount of approximately **HK\$46.52 million since 2017**

No. of Funded Projects & Total Amount	Approved MEEF projects in Year 2024/25
<b>9 Projects</b> <b>~ HK\$6.34M</b>	<ul style="list-style-type: none"> <li>• Sea turtle as an ocean health indicator of marine debris impact in the Hong Kong-Macau Greater Bay Area*</li> <li>• Save Our Shells: Repurposing Shells to Reduce Landfill Waste and Restore Marine Habitats*</li> <li>• Conservation of ardeids by understanding their foraging ecology through dietary investigation*</li> <li>• Long-term monitoring of population dynamics of Chinese White Dolphins (<i>Sousa chinensis</i>) in Lingding Bay of the Pearl River Delta region: the third stage</li> <li>• Assessment of fish biodiversity and spatiotemporal spawning activity in the Western Hong Kong waters</li> <li>• Developing a non-invasive method to estimate the age of Chinese White Dolphins and Finless Porpoises using the DNA methylation rate</li> <li>• Evaluating the ecological impacts of microplastic pollution on blue carbon ecosystems in Hong Kong using molecular fingerprints</li> <li>• Exploring the mystery of Chinese Bahaba in Hong Kong western waters using revolutionary eDNA techniques</li> <li>• 3D Technology-Enhanced Aquatic Conservation Hub (3D TEACH): an artificial reef initiative for ecological restoration and conservation education</li> </ul>



Necropsy findings in stranded sea turtles



Artificial reef units deployed in Hoi Ha Wan Marine Park

\* 2<sup>nd</sup> Phase of Project



# Fisheries Enhancement Fund (FEF)

- A total of **24 projects** have been approved with a total funding amount of approximately **HK\$46.90 million since 2017**

No. of Funded Projects & Total Amount	Approved FEF projects in Year 2024/25 (July 2024 – June 2025)
<b>3 Projects</b> <b>~ HK\$1.23M</b>	<ul style="list-style-type: none"> <li>• Cuttlefish Mariculture Pilot Project in Hong Kong Waters</li> <li>• Pilot Test for GPS and Beidou Dual Satellite Receiver System with Nautical Charts, Fish Finder and Automatic Identification System#</li> <li>• Product Development of Nano Pearl Powder with Detoxification and Antioxidant Functions*</li> </ul>



Product development of nano pearl powder with detoxification & antioxidant functions



Pilot test for GPS 4-in-1 Automatic Identification System

\* 2<sup>nd</sup> Phase of Project  
 # 3<sup>rd</sup> Phase of Project



# Carbon Management



# Renewable Diesel (RD) Pilot – Launched

- Supported by **HKIA Greenovation Fund**
- Applicant Hactl (in collaboration with Shell), funded ~\$1M
- 12-month pilot kick-started in Apr 2024
- **‘Drop-in’ fuel** to replace conventional fossil fuel for hard-to-electrify equipment/ GSEs
- RD applied in rubber removal machine, apron sweeper, mobile generator
- Offers **~87% reduction** in Scope 1 emissions



***HKIA – Asia’s 1st airport  
to use RD on GSEs***

# HKIA Carbon Capacity Building Programme

- 3-year 15-event programme tailoring to the needs of Business Partners
- Partnership with the Business Environment Council (BEC)
- At least 5 events per year
- 12 events held to date, topics including:
  - Carbon management, audit & reporting
  - Decarbonisation & energy efficiency solutions
  - Low carbon trends & solutions
  - Setting science-based targets
  - Value chain management & Scope 3 mapping
  - Climate change & aviation



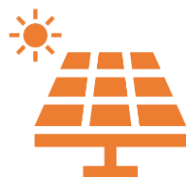


# HKIA Greenovation Fund

- Launched in Dec 2022, 3-year period from FY 2022/23 to FY 2024/25, \$20M budget
- The Fund will provide support for projects that are associated with any one of the following categories:



**Innovative energy  
efficient technology**



**Innovative renewable  
energy**



**Innovative alternative  
fuel**

	Applicant	Project	Remarks
1	DHL	Installation of Battery Energy Storage System (BESS) for Surplus Electricity Generated by Solar PV System	<ul style="list-style-type: none"><li>Project kick-started in Sep 2023</li></ul>
2	Hactl	Renewable Diesel Pilot	<ul style="list-style-type: none"><li>Project kick-started in Apr 2024</li></ul>

# Sustainable Aviation Fuel (SAF) Study

- 6-month study kick-started in Feb 2024
- Target completion: Q3 2024
- Major output:
  - Key facts on SAF technologies, production, supply chain etc.
  - Requirements and global trends on SAF usage and production
  - Effectiveness of policies on SAF usage and production in other jurisdictions
  - Demand, supply and consumption status of conventional jet fuel vs SAF and future projections
  - Proposed options (with pros and cons) to drive the use of SAF in Hong Kong





# Hong Kong Sustainable Aviation Fuel Coalition



- Launched by Business Environment Council (BEC) in Jan 2024 & co-initiated with CX
- 3-year period, 14 coalition partners including AA
- Objectives:
  - Seek to explore possibility of developing HK into a SAF global hub
  - Identifies topics of interest to foster the development of SAF





# Waste Management





# AA Waste Management

## Waste Separation at Source Programme

- AA working to enhance upstream recyclables separation by tenants
  - Provide *free recycling bags* to tenants to encourage sorting (*unique code* on bags)
- Clearly labelled recyclables collection points in all AA refuse rooms



Recyclables



Food Waste

# AA Waste Management

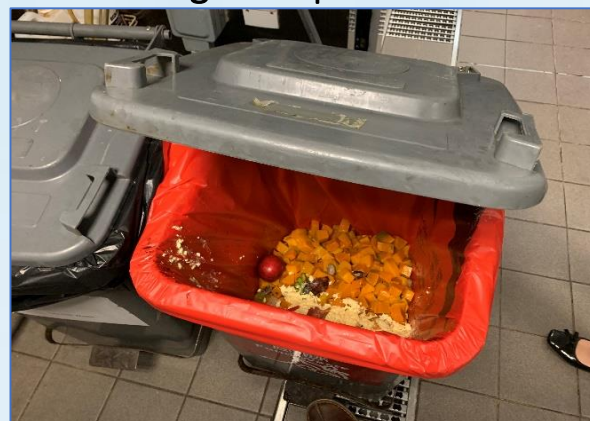


## Tenant Areas

Use transparent bag for separation



Use red bag for separation

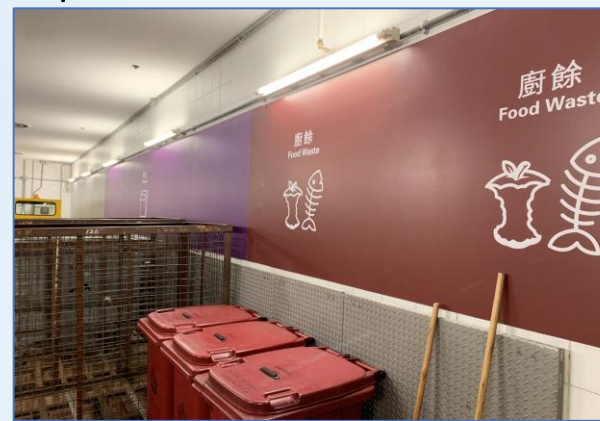


## Refuse Rooms

Dispose of recyclables by categories



Dispose of food waste in food waste bins





# AA Waste Management

Operational efforts to reduce waste – numerous and ongoing

*Avoiding waste generation in the first place a top priority*



>800 “one-stop” hand-washing /hand-dryers installed to reduce paper towel use



Use of Food TranSmarter



Water zones installed across passenger areas to reduce SUP use



Encourage reusable / durable tableware use for eat in customers in Caterers / F&B license agreements

# Action to increase recyclables



## Aircraft Cabin Waste Separation – 3-month Trial

Major airline now separating plastic bottles and cans from other wastes on arriving flights



Waste / co-mingled recyclables collected by LMO



Co-mingled waste from CX flights delivered to Airside Waste Station – bottles separated from cans



- Emptied plastic bottles to New Life Plastics
- Cans to metal recycler



# Ongoing Initiatives

- Stepped up / focused trainings for tenants/ cleaners
- Routine inspections of waste separation effectiveness and follow up on mal-practices
- Incentive schemes, e.g. retail & E. Food court tenants
- Revised Waste Management Contract clauses
- Exploring Waste-to-hydrogen as a long-term waste management option for HKIA





**Thank you**