Transforming Changi: Making Changi a Place to
Rest, Revere and Work
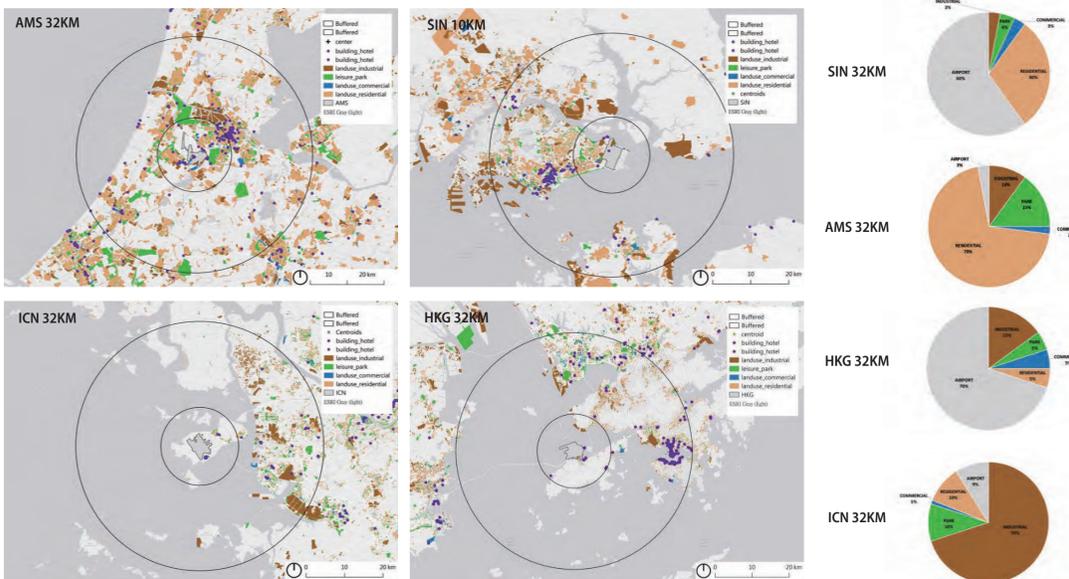
SUTD
SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

Done by: Cheng Yu Ching, Lee Xin Yi
Jemima & Ng Keng Seng Shawn
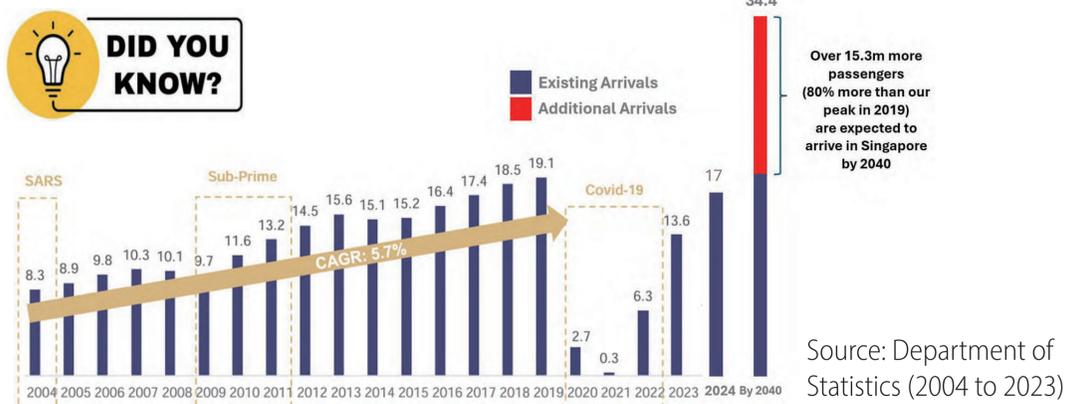Supervisor: Dr Felicity Hwee Hwa Chan

1. Research Question & Premise

Research Question:
What kind of strategic land use optimazation can support Changi in becoming a thriving aerotropolis?

We are undertaking a strategic planning initiative to optimize land use in the southern Changi region, with the goal of developing a thriving aerotropolis, while carefully managing traffic flow. Our aim is to position Changi Airport Terminal 5 and the adjacent Changi East Urban District as the next face of Changi Airport, especially in the latter half of the 21st century. While Changi Airport has been a global benchmark since it began operations in 1981 and is already celebrated for its excellence, we seek to elevate its status further. We envision transforming the southern Changi region into a multifaceted area to rest, revere and work that serves as a sanctuary for both travelers and locals. This will include dedicated zones for traveler decompression post-flight, as well as vibrant spaces for residents to engage with nature and social activities.

Comparative Land Uses of Global Aerotropolis

3. The Backdrop
International Visitor Arrivals Singapore (millions)

DID YOU KNOW?

Existing Arrivals
Additional Arrivals

34.4

Over 15.3m more passengers (80% more than our peak in 2019) are expected to arrive in Singapore by 2040

SARS   Sub-Prime   Covid-19

8.3 8.9 9.8 10.3 10.1 9.7 11.6 13.2 14.5 15.6 15.1 15.2 16.4 17.4 18.5 19.1 2.7 0.3 6.3 13.6 17

CAGR: 5.7%

2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 **2024 By 2040**

Source: Department of Statistics (2004 to 2023)

We are confident in Terminal 5's potential for growth due to Changi's proven track record as a successful hub, consistently attracting international visitors even in the face of challenges like the Asian Financial Crisis (1997), SARS (2004), the Global Financial Crisis (2007), and COVID-19 (2020).
Additionally, with more local attractions being developed and the ongoing rise of air travel in Asia, the future looks promising for continued expansion.

2. Kasarda's Aerotropolis

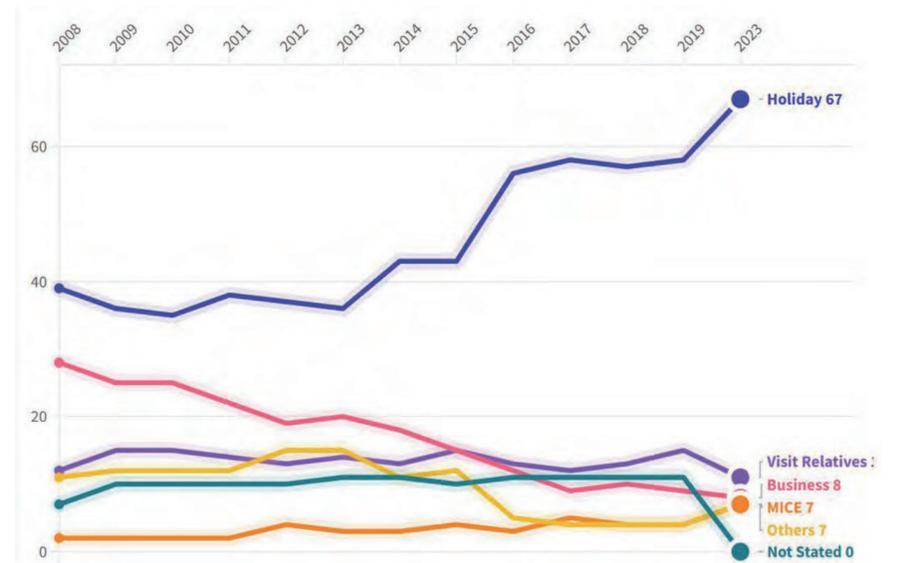Source: Dr. John D. Kasarda
© Aerotropolis Schematic

"Look at yesterday's busiest train terminals and you will find today's great urban centers. Look at today's busiest airports and you will find great urban centers of tomorrow."
John Kasarda in Aerotropolis: The Way We'll Live Next

John Kasarda, commonly known as the father of the aerotropolis concept, defines an aerotropolis as a novel urban structure that leverages an airport and its surrounding surface transportation network to quickly link high-value, time-critical businesses with remote suppliers, clients, and partners. This model features a central commercial hub around the airport—known as the Airport City—along with peripheral corridors and clusters of aviation-related businesses. These areas are supported by mixed-use developments that combine commercial and residential spaces, all benefiting from their proximity to the airport and the interconnected infrastructure.

Spatial Reach
Development Radius: Up to 32 km from the airport
Economic Impact: Measured up to 96.5 km from major airports
Source: Kasarda, J. D. (2008). Shopping in the airport city and aerotropolis. Research Review, 15(2), 50-56.

International Visitor Arrivals Singapore by Purpose of Visit (%)

2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2023

Holiday 67

Visit Relatives
Business 8
MICE 7
Others 7
Not Stated 0

Source: Singapore Tourism Board Analytics Network (2024)

Since 2008, the proportion of international visitors coming for holidays has increased by over 50%, making leisure travel an increasingly significant segment.

As a result, the share of visitors for business purposes has decreased proportionately. However, the MICE (Meetings, Incentives, Conferences, and Exhibitions) segment has seen a threefold increase over the same period.
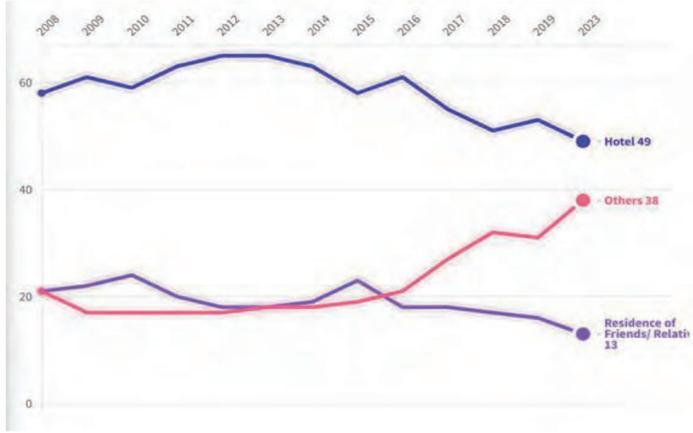
With 50% of international visitors continuing to stay in hotels, it makes strategic sense to include hotel developments in the Changi East Urban District (CEUD)

Source: Singapore Tourism Board Analytics Network (2024)

· Between 2008 and 2019, the average length of stay for international visitors decreased from 3.96 days to 3.34 days. This decline is primarily driven by an increase in the number of 1-3 day visitors. While there has also been growth in the 4-10 day visitor segment, it has been less significant compared to the shorter-stay travelers.

· As a result, we aim to focus on the 1-3 day visitors, who now account for 50% of the total visitor base.

· Given that the future Changi East Urban District (CEUD) will serve as the face of Terminal 5, this presents a valuable opportunity to capitalize on its potential

Traveler Group	Approximate Percentage
Transit Traveler (Under 1 Day)	20%
1 – 3 Day Traveler	50%
4-10 Day Traveler	25%
11 Days onwards	5%

Data Series	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2023
Total International Visitor Arrivals (%)													
Under 1 Day (Number)	24.60%	23.81%	22.29%	21.99%	24.38%	24.49%	22.26%	21.78%	22.03%	20.90%	21.45%	21.54%	21.47%
1 Day (Number)	21.49%	20.70%	19.67%	19.49%	19.99%	20.46%	18.10%	18.70%	20.17%	20.67%	20.27%	19.77%	15.41%
2 Days (Number)	16.89%	17.25%	17.62%	17.60%	16.92%	17.12%	17.72%	17.09%	16.61%	16.51%	16.10%	15.92%	15.46%
3 Days (Number)	12.46%	13.30%	14.70%	15.46%	14.77%	14.40%	15.61%	15.59%	15.49%	15.50%	15.50%	15.45%	16.13%
4 Days (Number)	6.69%	6.98%	7.86%	8.26%	7.85%	7.81%	8.86%	9.39%	9.28%	9.60%	9.83%	10.06%	10.99%
5 Days (Number)	3.81%	3.85%	4.22%	4.23%	4.02%	3.96%	4.54%	4.85%	4.93%	5.16%	5.37%	5.62%	6.15%
6 Days (Number)	2.47%	2.47%	2.60%	2.54%	2.39%	2.36%	2.68%	2.73%	2.74%	2.92%	2.95%	3.10%	3.58%
7 Days (Number)	1.82%	1.86%	1.84%	1.79%	1.67%	1.64%	1.82%	1.85%	1.81%	1.86%	1.87%	1.90%	2.39%
8-10 Days (Number)	2.57%	2.65%	2.56%	2.49%	2.30%	2.23%	2.43%	2.43%	2.28%	2.27%	2.23%	2.23%	2.95%
11-14 Days (Number)	1.98%	1.96%	1.84%	1.74%	1.59%	1.53%	1.63%	1.62%	1.47%	1.41%	1.38%	1.37%	1.77%
15 Days & Over (Number)	5.23%	5.18%	4.79%	4.39%	4.12%	4.01%	4.34%	3.97%	3.49%	3.21%	3.04%	3.06%	3.69%
15-29 Days (Number)	3.20%	3.23%	3.17%	2.96%	2.78%	2.72%	3.02%	2.85%	2.50%	2.33%	2.22%	2.23%	2.55%
30-59 Days (Number)	1.45%	1.41%	1.17%	1.06%	0.99%	0.94%	0.97%	0.80%	0.70%	0.63%	0.60%	0.60%	0.82%
60 Days & Over (Number)	0.58%	0.54%	0.45%	0.38%	0.35%	0.34%	0.35%	0.32%	0.28%	0.24%	0.23%	0.23%	0.32%
Average Length Of Stay (Days)	3.96	3.98	3.85	3.72	3.47	3.48	3.49	3.62	3.42	3.36	3.33	3.34	3.80

Source: Department of Statistics (2024)

4. INTERVENTION: MASTER PLAN- FOCUSING ON CEUD & WATER FRONT
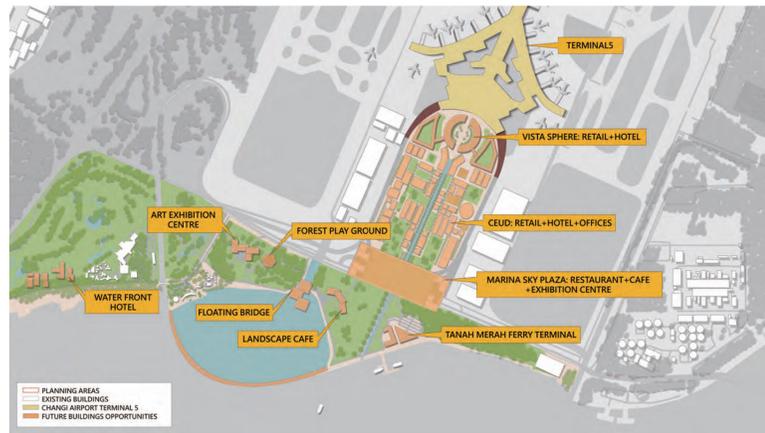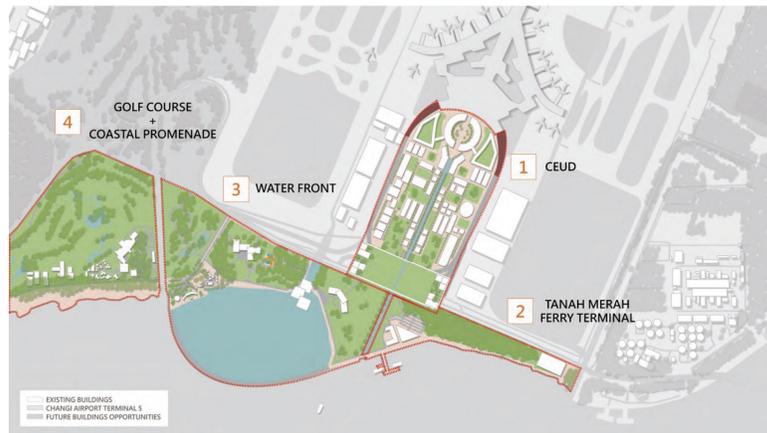
Based on the analysis of land use at various airports and the duration of stay in Singapore over the years, we have selected CEUD and the Water Front as our primary planning areas. Through our planning, we aim to effectively provide our target audience with a comfortable, short-term experience of Singapore, thereby preventing potential traffic congestion after the completion of the T5 project.

TRANSPORTATION PLAN

In line with future infrastructure planning, we will develop a comprehensive public transportation system to ensure that the entire area is pedestrian-friendly, with more distant areas accessible by bus or MRT. Within CEUD, shuttle services will be provided for visitors with mobility challenges and those carrying luggage.

PLANTING DESIGN

Additionally, during the peak tourist season, the central avenue will be transformed into a Flower Avenue, designed to attract visitors. The avenue will feature seasonal planting designs with different color schemes throughout the year, offering tourists a unique visual experience each month.

TRANSPORTATION PLAN
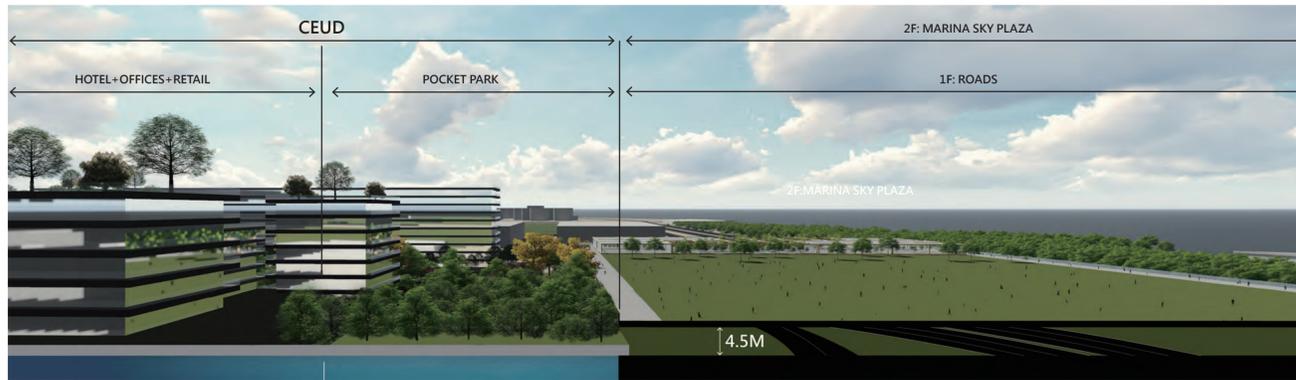
MARINA SKY PLAZA

BLOSSOM AVENUE