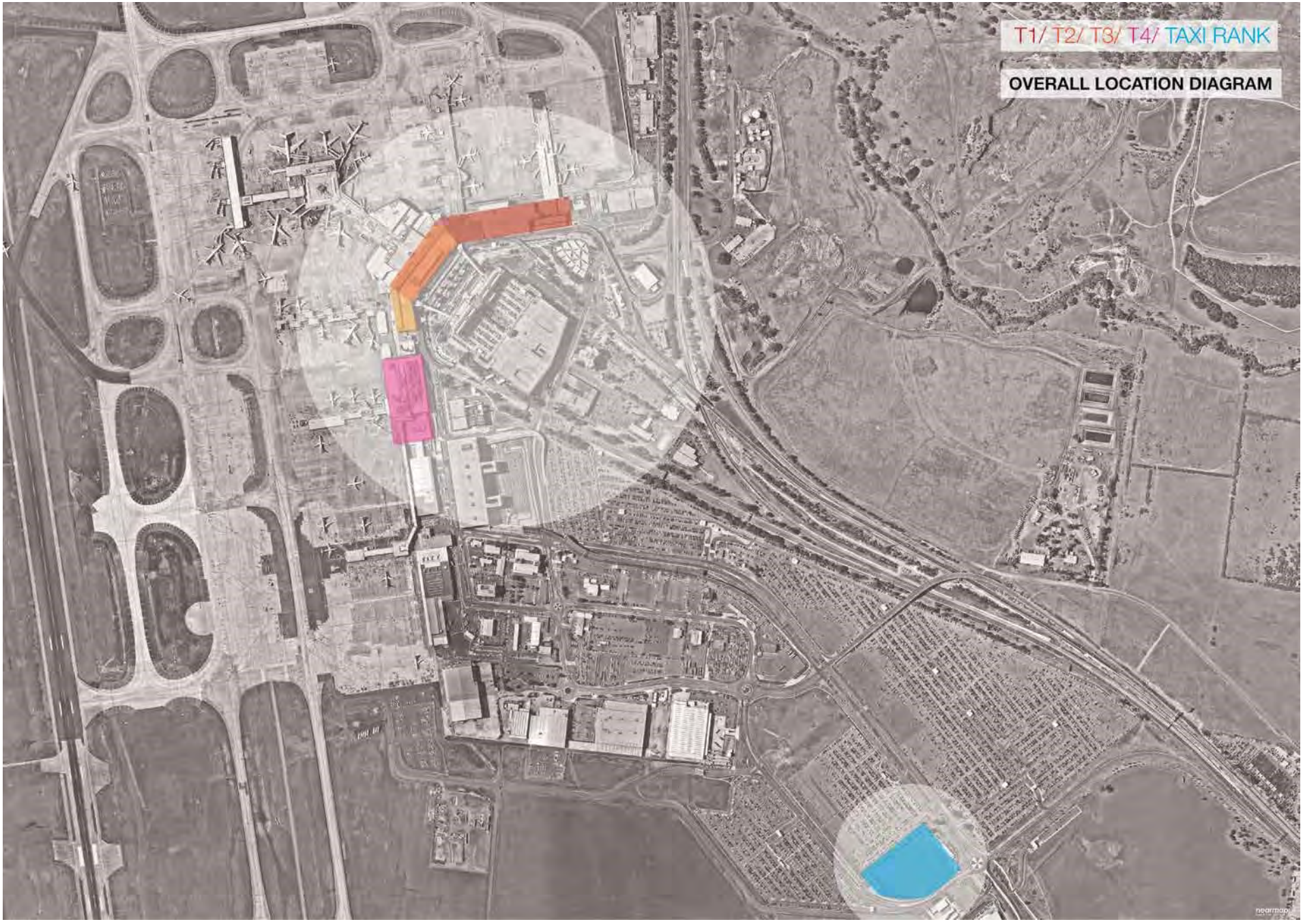
TASK 01

AIRPORT STUDY

MELBOURNE AIRPORT
DEPARTURES
DATA ANALYSIS
GIULIA VIRGATO
SIENNA TARDINI
KA WING WONG
LINGSHAN ZHENG
YANG YANG
ZIXUAN LI

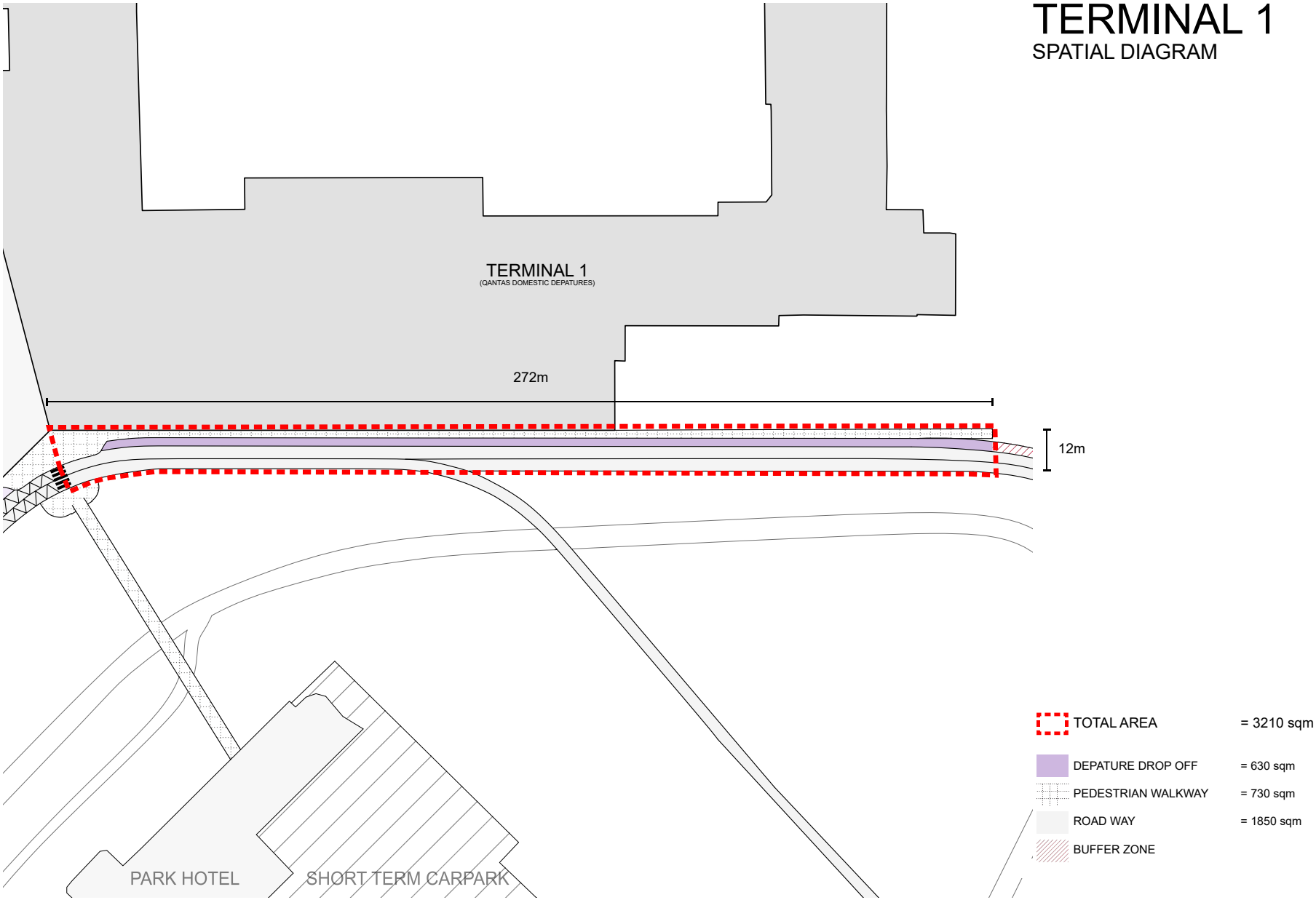

T1/ T2/ T3/ T4/ TAXI RANK
OVERALL LOCATION DIAGRAM

TERMINAL 1 - 4

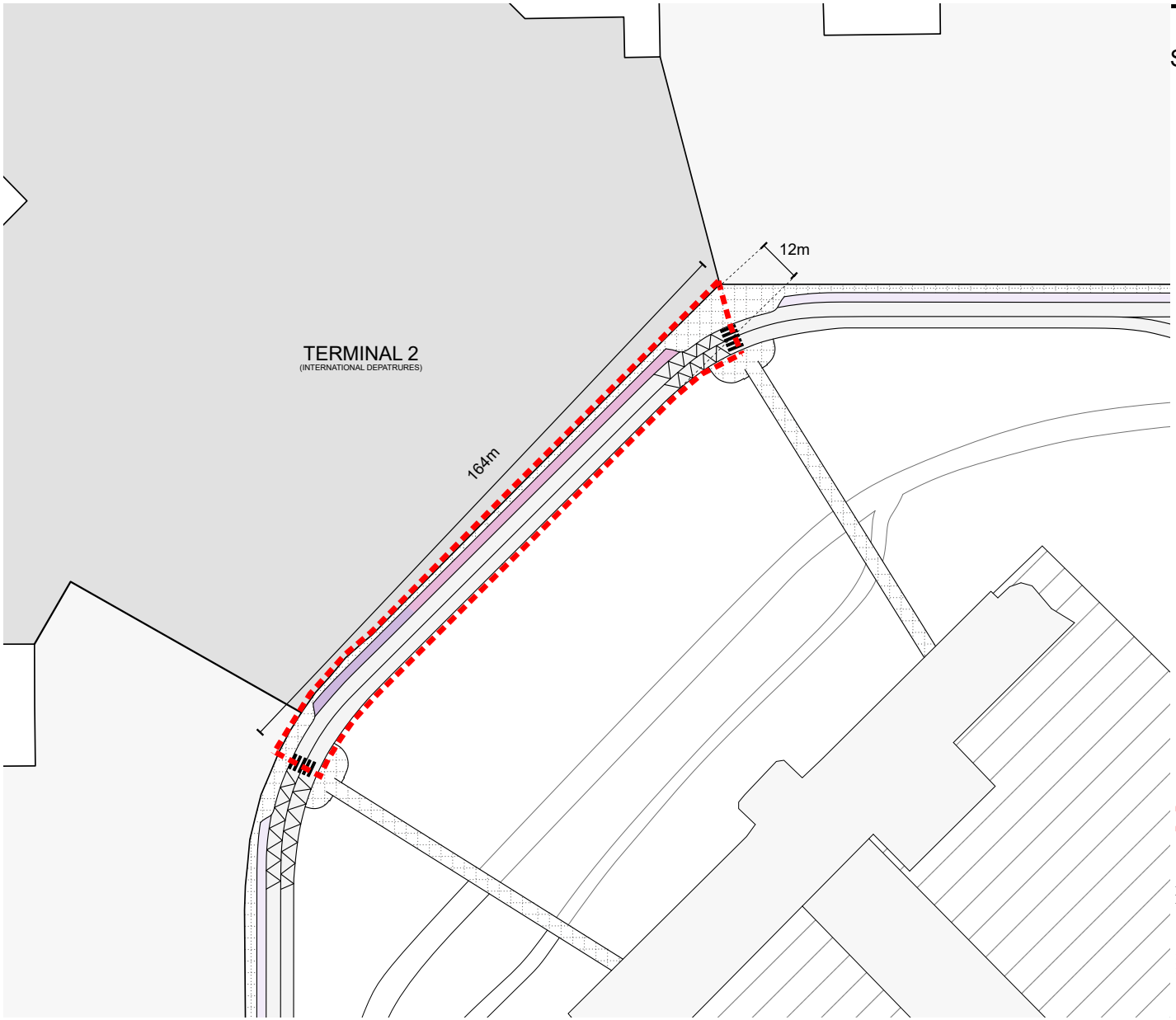
DEPARTURE CIRCULATION

TERMINAL 1
TERMINAL 2
TERMINAL 3
TERMINAL 1 - 3 ROAD WAY
TERMINAL 1 DROP OFF ZONE
TERMINAL 2 DROP OFF ZONE
TERMINAL 3 DROP OFF ZONE
TERMINAL 4 DROP OFF ZONE
TERMINAL 4 ROAD WAY
TERMINAL 4 DROP OFF ZONE
TERMINAL 4 PEDESTRIAN
SHARED ROADWAY

TERMINAL 1
SPATIAL DIAGRAM

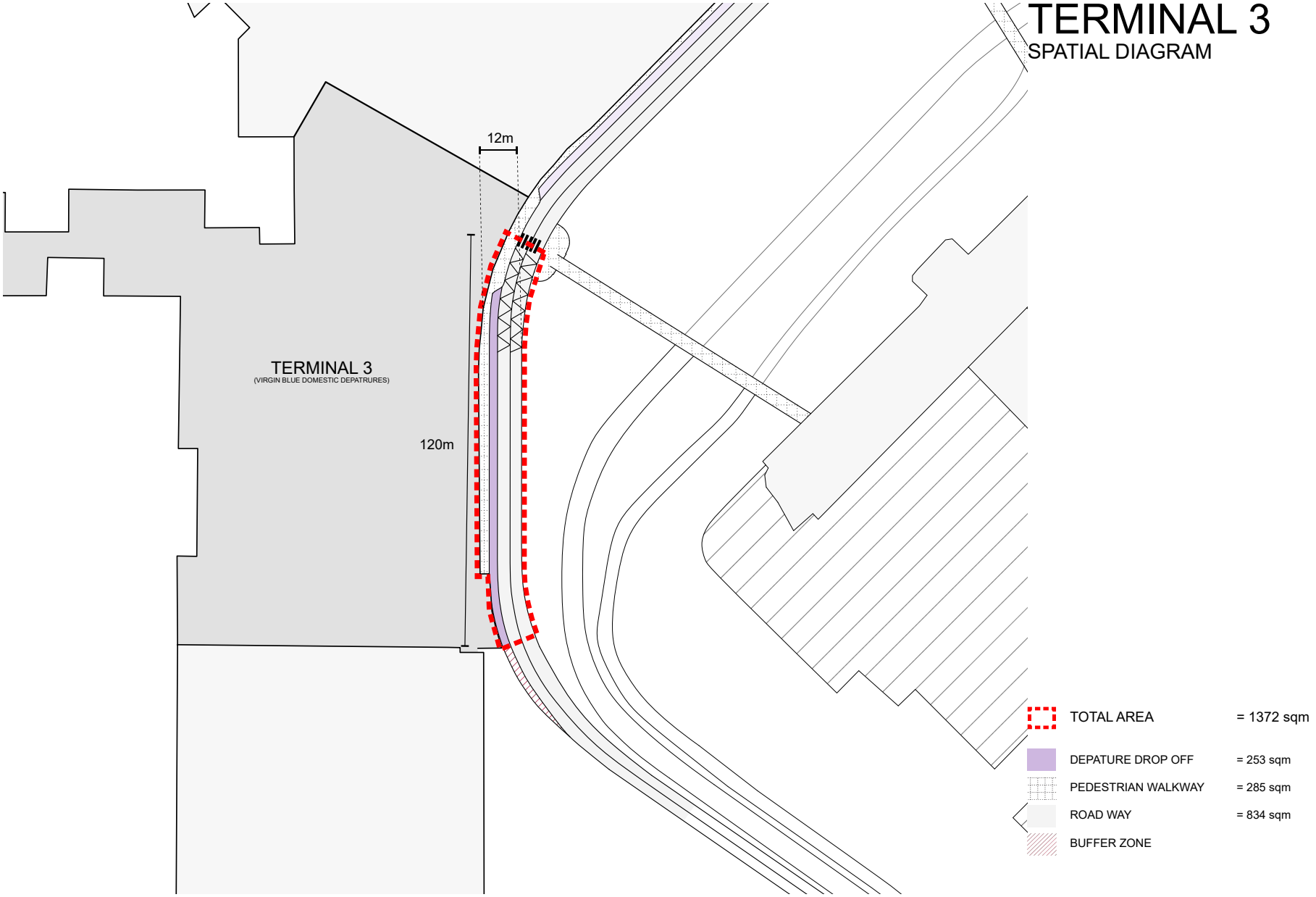


TERMINAL 2
SPATIAL DIAGRAM

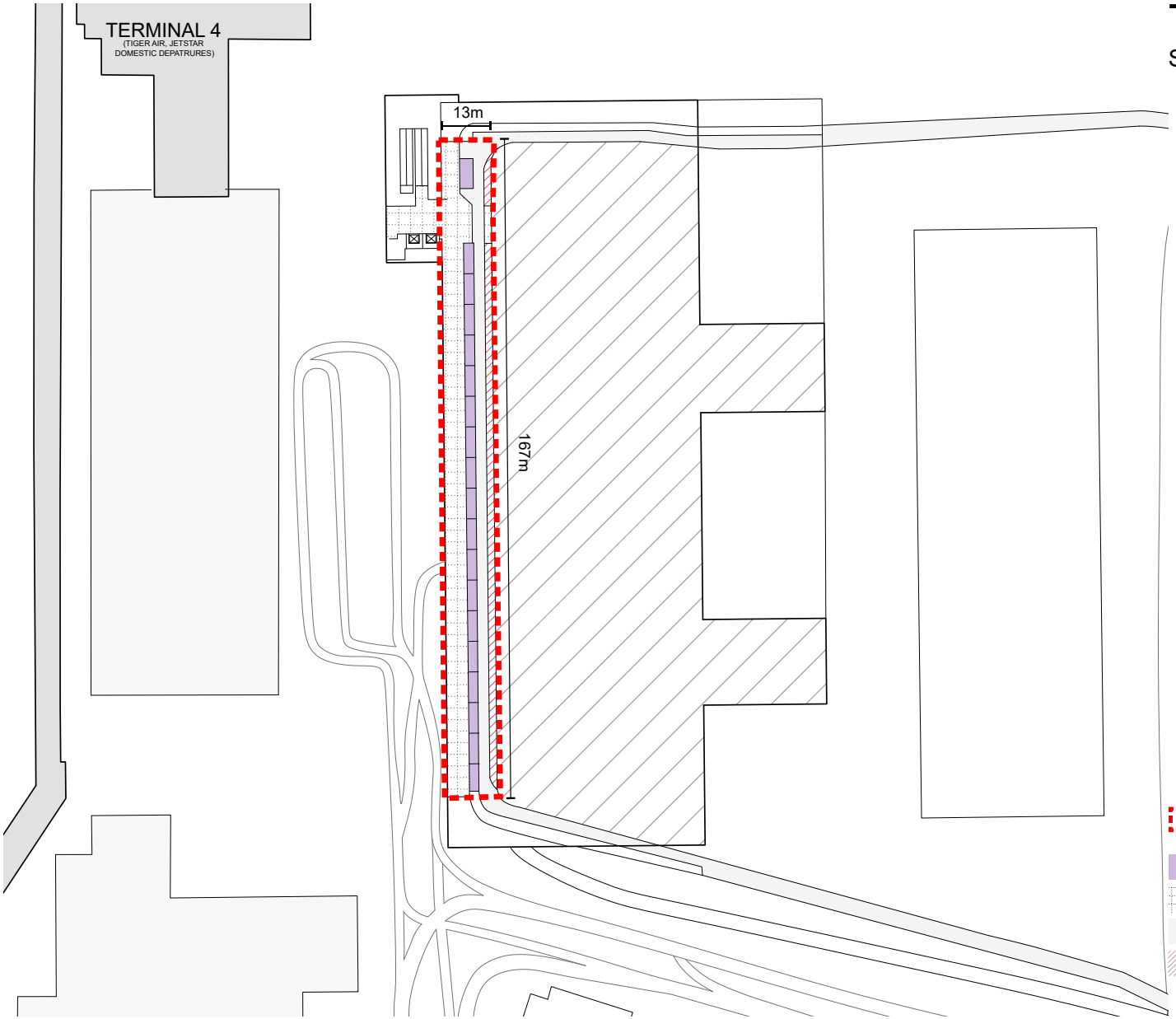


TOTAL AREA	= 1790 sqm
DEPATURE DROP OFF	= 304 sqm
PEDESTRIAN WALKWAY	= 373 sqm
ROAD WAY	= 1113 sqm
BUFFER ZONE	

TERMINAL 3
SPATIAL DIAGRAM



TERMINAL 4
SPATIAL DIAGRAM



TOTAL AREA	= 2112 sqm
DEPATURE DROP OFF	= 390 sqm
PEDESTRIAN WALKWAY	= 955 sqm
ROAD WAY	= 491 sqm
BUFFER ZONE	= 276 sqm

TAXI

PERSONAL + UBER

TERMINAL 1

VEHICLES ARRIVING

MORNING 8am - 9am

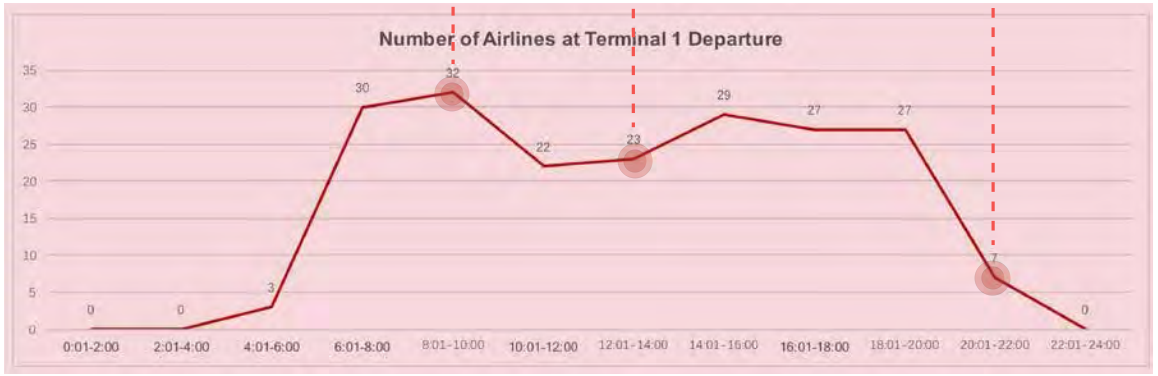
TOTAL VEHICALS = 210

AFTERNOON 12pm - 1pm

TOTAL VEHICALS = 224

EVENING 8pm - 9pm

TOTAL VEHICALS = 232

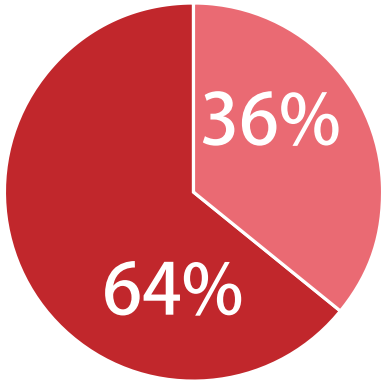


FOR DOMESTIC FLIGHTS PEOPLE GET TO THE AIRPORT 30 MINS TO 1 1/2 HRS BEFORE THEIR FLIGHTS.

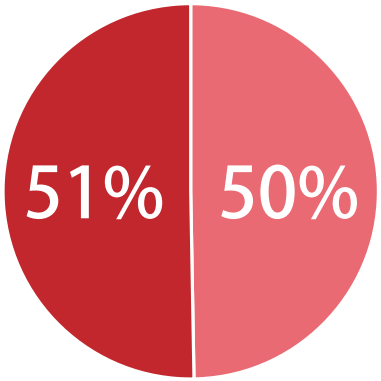
THIS GRAPH SHOWS FLIGHTS DEPARTING AT TERMINAL 1, 30 MIN TO 1 1/2 HOURS AFTER WE COLLECTED THE DATA AT THE DEPATURES DROPP OFF.

HOW MANY VEHICLES?

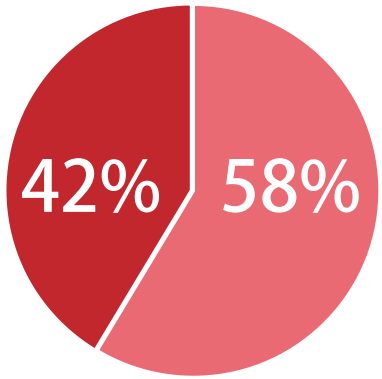
MORNING



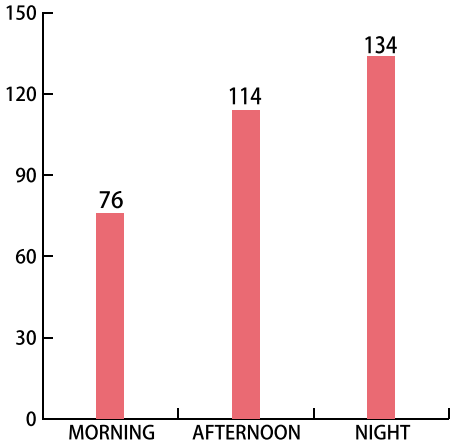
AFTERNOON



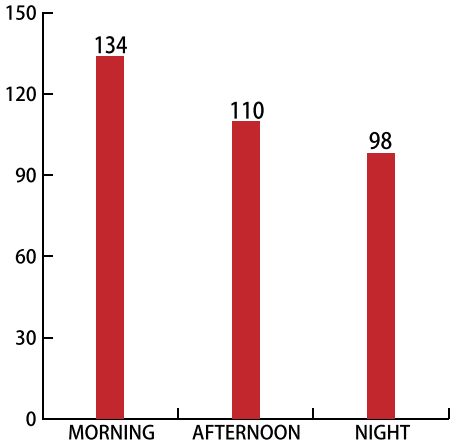
NIGHT



TAXI
CAR



PRIVATE
CAR/UBER



TAXI
CAR

PRIVATE
CAR/UBER

WHO IS COMING?

MORNING	60	79	32	+ 6
AFTERNOON	46	102	24	7
NIGHT	76	57	40	9

MAX.
1 USHER

Telling cars to MOVE ALONG if they parked for too long

Answering QUESTIONS for lost travellers

MORE SPACE meant that passangers spent **MORE TIME** saying goodbye and therefore cars were **PARKED LONGER**

NO QUEUE as there was excess parking provided past the terminal doors, so spill over moved forward

HOW LONG ARE PEOPLE STAYING?

WHAT IS THE SPACE USED FOR?

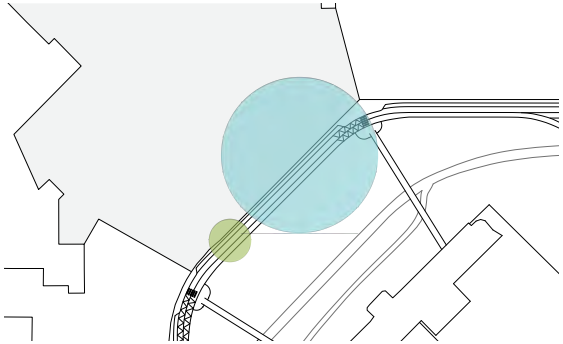
TAXI

PERSONAL + UBER

TERMINAL 2

VEHICLES ARRIVING

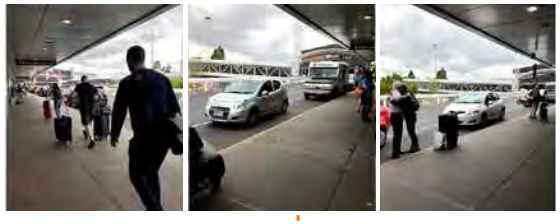
MORNING 8am - 9am



TOTAL VEHICALS = 298

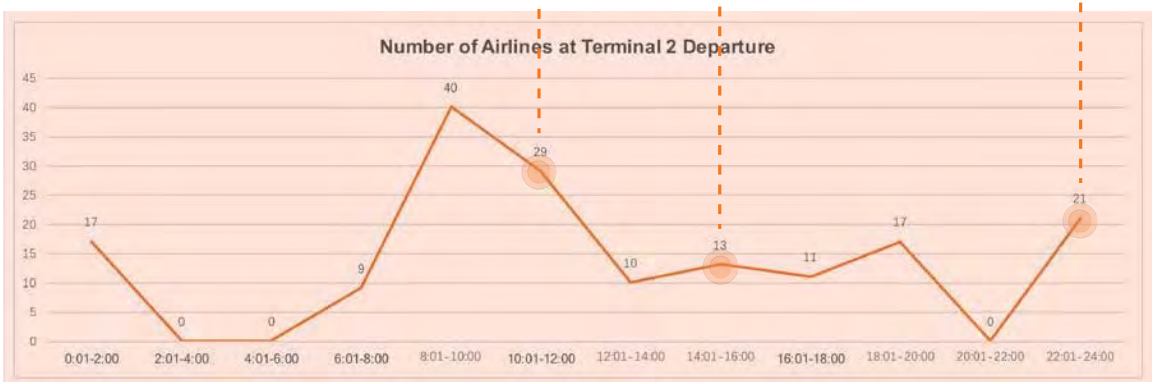
AFTERNOON 12pm - 1pm

TOTAL VEHICALS = 162



EVENING 8pm - 9pm

TOTAL VEHICALS = 224

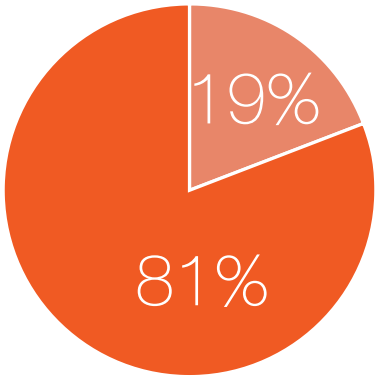


FOR INTERNATIONAL FLIGHTS PEOPLE GET TO THE AIRPORT 3 HRS BEFORE THEIR FLIGHTS.

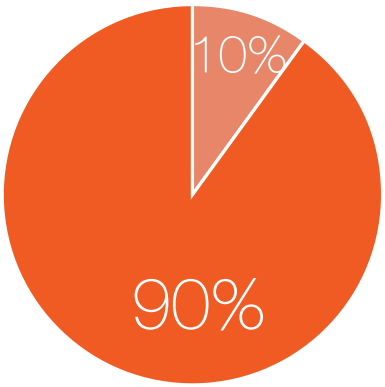
THIS GRAPH SHOWS FLIGHTS DEPARTING AT TERMINAL 2, 3 HOURS AFTER WE COLLECTED THE DATA AT THE DEPATURES DROPP OFF.

HOW MANY VEHICLES?

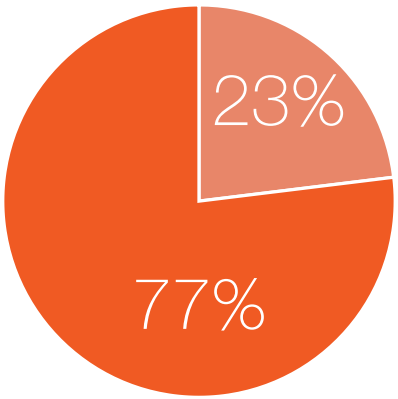
MORNING



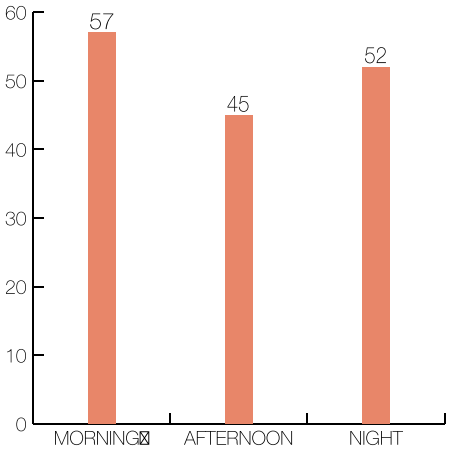
AFTERNOON



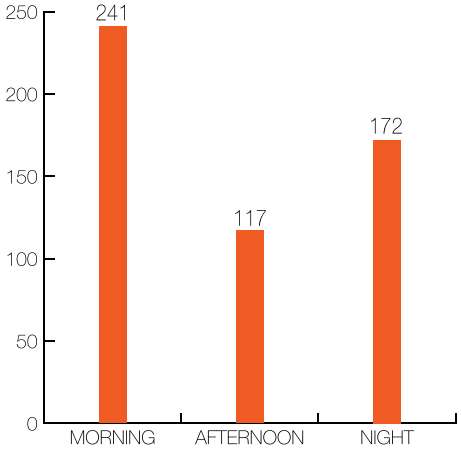
NIGHT



TAXI
CAR



PRIVATE
CAR/UBER



TAXI
CAR

PRIVATE
CAR/UBER

WHO IS COMING?

MORNING	54	112	121	+ 11
AFTERNOON	48	55	57	2
NIGHT	47	79	93	5

MAXIMUM
5 USHERS

5 ushers in the MORNING

1 all other times

VITAL in during PEAK hours to push on traffic and maximise the number of cars in the SPACE

Cars needed ogranising

Up to 4 people waiting in the QUEUE to park

HOW LONG ARE PEOPLE STAYING?

People spend time parked to say goodbye

People leave immediately after exiting the car

WHAT IS THE SPACE USED FOR?

Drop Off | Trolleys | Parking Pay | Walking | Saying Goodbye

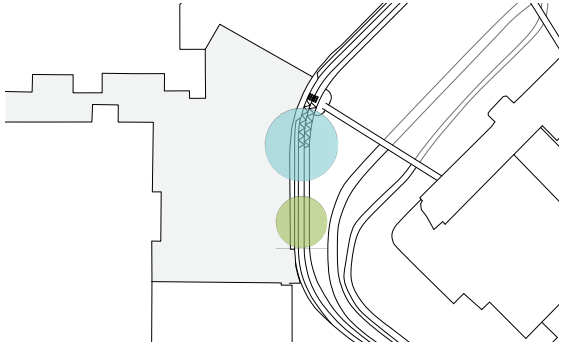
TAXI

PERSONAL + UBER

TERMINAL 3

NO. OF VEHICLES ARRIVING

MORNING 8am - 9am

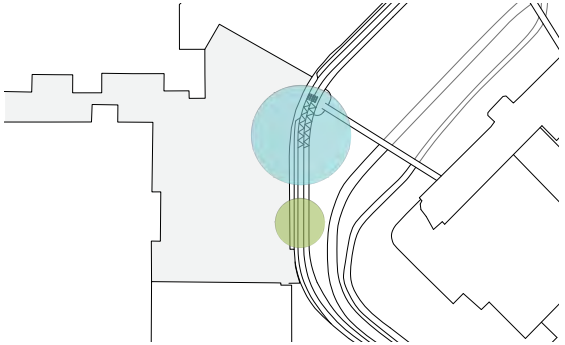


TOTAL VEHICALS = 198

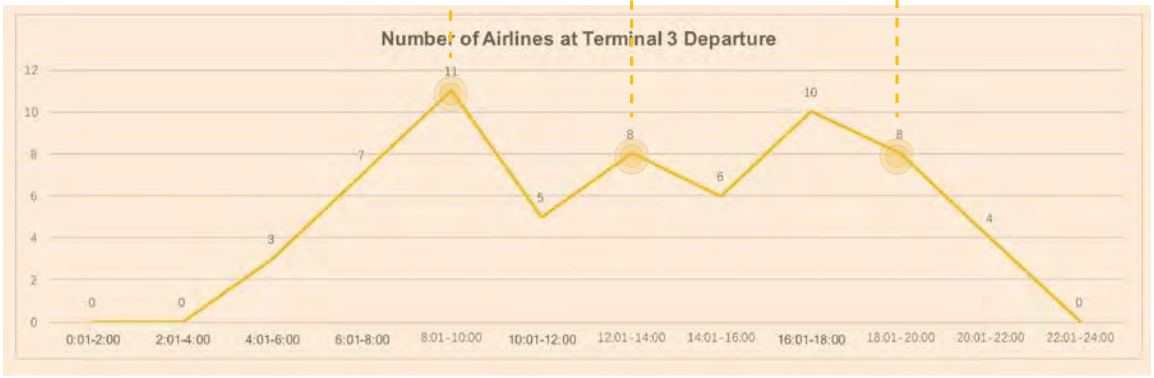
AFTERNOON 12pm - 1pm

TOTAL VEHICALS = 160

EVENING 7pm - 8pm



TOTAL VEHICALS = 214

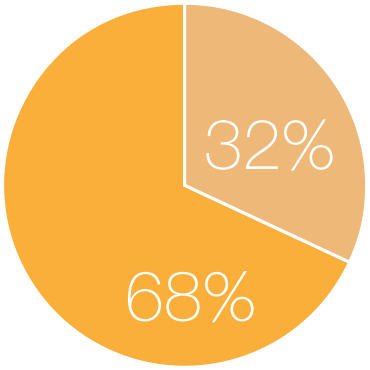


FOR DOMESTIC FLIGHTS PEOPLE GET TO THE AIRPORT 30 MINS TO 1 1/2 HRS BEFORE THEIR FLIGHTS.

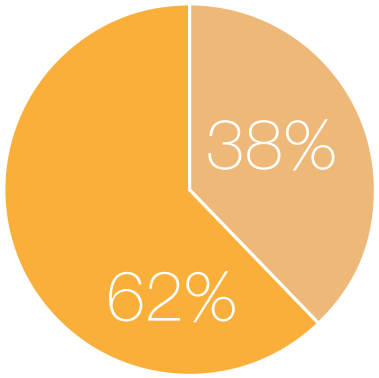
THIS GRAPH SHOWS FLIGHTS DEPARTING AT TERMINAL 3, 30 MIN TO 1 1/2 HOURS AFTER WE COLLECTED THE DATA AT THE DEPATURES DROPP OFF.

HOW MANY VEHICLES?

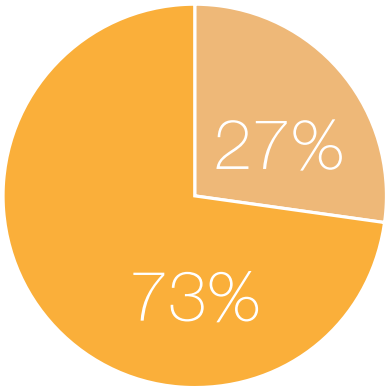
MORNING



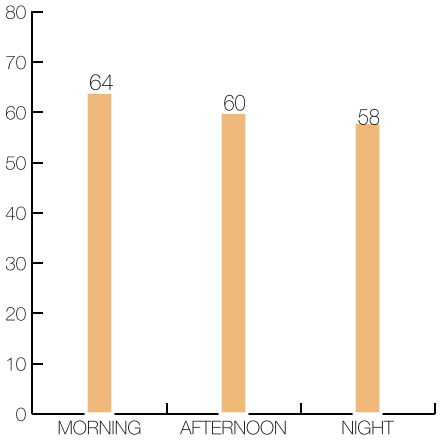
AFTERNOON



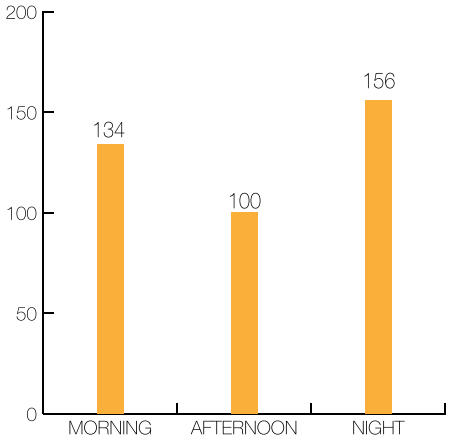
NIGHT



TAXI
CAR



PRIVATE
CAR/UBER



TAXI
CAR

PRIVATE
CAR/UBER

T3 DATA

WHO IS COMING?

MORNING	100	54	32	+ 12
AFTERNOON	70	48	26	16
NIGHT	80	66	44	17

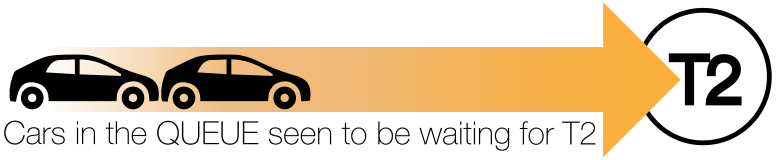
MAXIMUM
2 USHERS

2 ushers in the MORNING

1 all other times

To GUIDE and ORGANISE drivers in the space

WOULD THESE BE NEEDED FOR AV?



Cars in the QUEUE seen to be waiting for T2

HOW LONG ARE PEOPLE STAYING?

INCREASED due to the need to PAY?

WHAT IS THE SPACE USED FOR?

+

Drop Off

Trolleys

Parking Pay

Walking

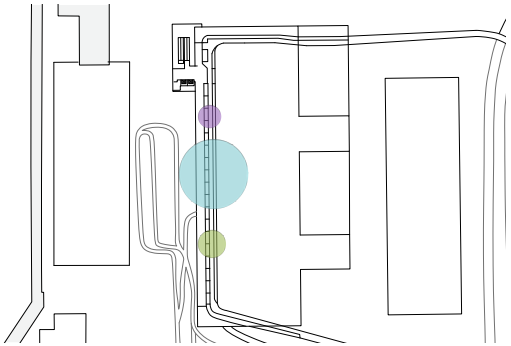
Saying Goodbye

TAXI PERSONAL UBER ARRIVALS

TERMINAL 4

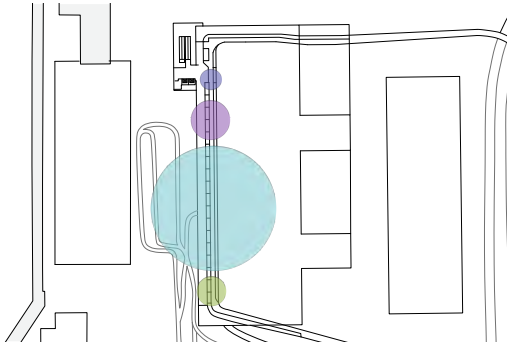
NO. OF VEHICLES ARRIVING

MORNING 8am - 9am



TOTAL VEHICALS = 131

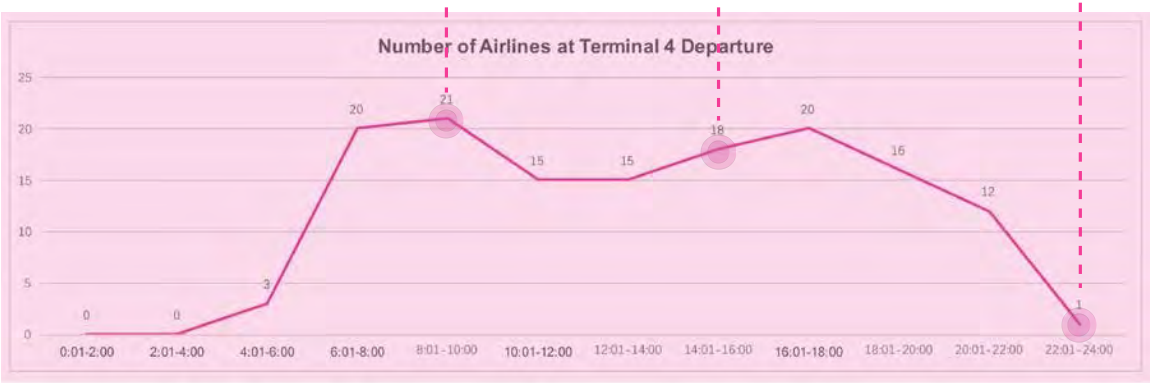
AFTERNOON 3:30pm - 4:30pm



TOTAL VEHICALS = 262

EVENING 9pm - 10pm

TOTAL VEHICALS = 30

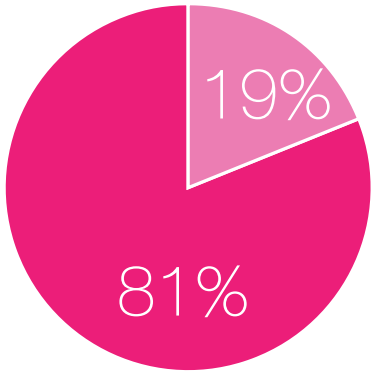


FOR DOMESTIC FLIGHTS PEOPLE GET TO THE AIRPORT 30 MINS TO 1 1/2 HRS BEFORE THEIR FLIGHTS.

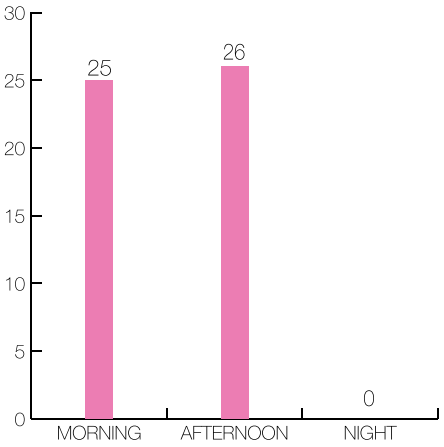
THIS GRAPH SHOWS FLIGHTS DEPARTING AT TERMINAL 4, 30 MIN TO 1 1/2 HOURS AFTER WE COLLECTED THE DATA AT THE DEPATURES DROPP OFF.

HOW MANY VEHICLES?

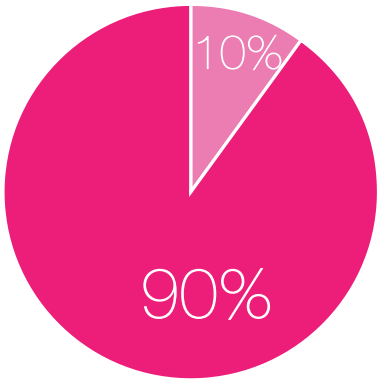
MORNING



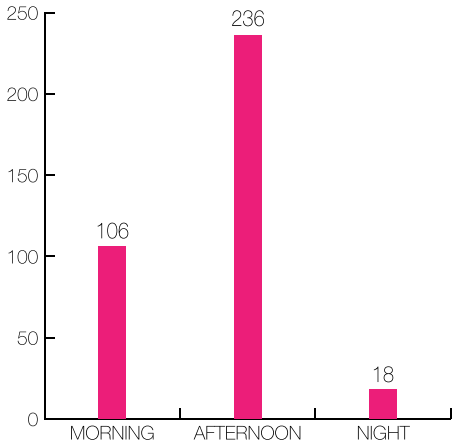
TAXI CAR



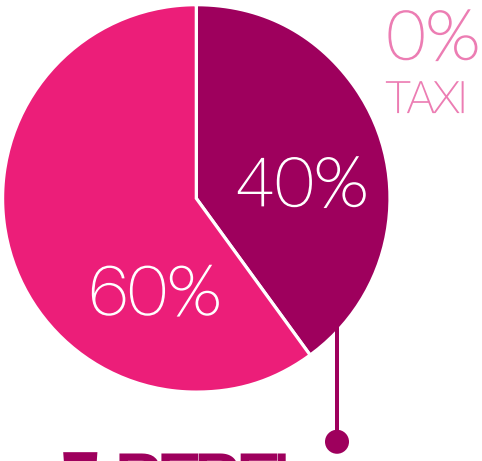
AFTERNOON



PRIVATE CAR/UBER



NIGHT



! REBEL ALERT

Due to crowing in ARRIVALS, people came to the empty DEPARTURES to pick up people!

CARS TO PICK UP

TAXI CAR

PRIVATE CAR/UBER

WHO IS COMING?

MORNING	36	43	9	+ 8
AFTERNOON	151	82	18	8
NIGHT	12	3	1	1

WHERE WAS THE USHER?

Ushers came in and out randomly at T4 - appearing to have no need to organise the cars

Purpose: to check everything is OK

! REBEL ALERT

ILLEGAL PARKERS were far more comming at **NIGHT TIME** as there was **NO SUPERVISION** and **LITTLE DEPARTURES**

HOW LONG ARE PEOPLE STAYING?

* with the exception of FAMILIES who took an extended amount of time

People with LUGGAGE took, on average, an extra 30sec to leave

WHAT IS THE SPACE USED FOR?

IN OFF PEAK TIMES...

An UNEEDED QUEUE was formed behind cars tht parked in spot midway - despite front spots being free

IN PEAK TIMES...

Up to 3-5 people waiting in the QUEUE at peak times

WHAT DO THE TAXI DRIVERS THINK?

DO YOU SPEND TIME AT THE TAXI RANK?	✓	✓	✓
HOW LONG WOULD YOU WAIT AT THE RANK FOR?	2H	1H	2H
DO YOU THINK THERE IS ENOUGH SPACE AT THE TAXI RANK?	✗	✗	✗
WHERE DO YOU GO MOST OFTEN?	DEPARTURES	ARRIVALS	DEPARTURES
WHERE DO YOU GO AFTER YOU GO TO DEPARTURES?	TAXI RANK	TAXI RANK	TAXI RANK
HOW LONG DO YOU WAIT IN THE QUEUE AT DEPARTURES?	10min	10min	5min

OUR TAXI DRIVER SAID THAT

T2

WAS THE MOST INEFFICIENT

SUMMARY

TERMINAL 1

DROP OFF AREA	=	630 sqm	NO. TAXI	=	324			
PEDESTRIAN AREA	=	730 sqm	NO. PERSONAL + UBER	=	342			
ROAD AREA	=	1850 sqm						
TOTAL AREA	**=**	**3210 sqm**	**TOTAL VEHICLES**	**=**	**666**	**TOTAL PEOPLE**	**=**	**1034**

TERMINAL 2

DROP OFF AREA	=	304 sqm	NO. TAXI	=	154			
PEDESTRIAN AREA	=	373 sqm	NO. PERSONAL + UBER	=	530			
ROAD AREA	=	1113 sqm						
TOTAL AREA	**=**	**1790 sqm**	**TOTAL VEHICLES**	**=**	**684**	**TOTAL PEOPLE**	**=**	**1526**

TERMINAL 3

DROP OFF AREA	=	253 sqm	NO. TAXI	=	182			
PEDESTRIAN AREA	=	283 sqm	NO. PERSONAL + UBER	=	390			
ROAD AREA	=	834 sqm						
TOTAL AREA	**=**	**1372 sqm**	**TOTAL VEHICLES**	**=**	**572**	**TOTAL PEOPLE**	**=**	**1072**

TERMINAL 4

DROP OFF AREA	=	390 sqm	NO. TAXI	=	51			
PEDESTRIAN AREA	=	955 sqm	NO. PERSONAL	=	302			
ROAD AREA	=	491 sqm	NO. UBER	=	58			
TOTAL AREA	**=**	**2112 sqm**	**TOTAL VEHICLES**	**=**	**411**	**TOTAL PEOPLE**	**=**	**607**

TOTAL DROP OFF	=	1577 sqm	TOTAL TAXI	=	711			
TOTAL PEDESTRIAN	=	2341 sqm	TOTAL PERSONAL + UBER	=	1622			
TOTAL ROAD	=	4288 sqm						
TOTAL AREA	**=**	**8206 sqm**	**TOTAL VEHICLES**	**=**	**2333**	**TOTAL PEOPLE**	**=**	**4239**

FUTURE ASSUMPTIONS

Scenario 1: if all automatic vehicles are public owned or owned by big companies

- The airport don't need short-term or long-term parking spaces for passengers but there need places for the automatic vehicles to circulate from departure to arrivals or other parts of the airport.
- Drop off and traffic flow will be quicker and the drop off zones could be used more efficiently compared to human drivers, especially for the two domestic terminals.

Scenario 2: if there are mix of privately-owned automatic vehicles and public/commercial automatic vehicles

- The demand of parking spaces, particularly long term will decrease as people can just send their automatic vehicles home.
- The drop off process will be quicker as they do not have to interact and complete the transaction with the drivers. The whole traveling process would be even faster with the integration of luggage check-in on board of the automatic vehicles and automatic bag-drop.