The four steps after COVID-19

Impact on destination, frequency, mode and route choice

Prepared by: Adrian B. Ellison

Presented on: 7th December, 2021

DSpark

people. movement. insight.

The four steps after COVID-19

Context

National Victoria Roads

This was published 8 months ago

Traffic on Punt Road worse than before pandemic as public transport shunned

By Timna Jacks
March 15, 2021 — 2.06pm

Save Share A A A 30 View all comments

Eastern Reporter

Perth traffic volume up 18 per cent on pre-pandemic levels: RAC

Staff Writer | Eastern Reporter
November 10, 2020 7:59PM

TOPICS Eastern Reporter Hills/East

Perth traffic volume is up by an alarming 18 per cent on pre-pandemic levels, according to the RAC.

According to the 2019 Australian Infrastructure Audit, traffic across Perth was expected to increase 32 per cent by 2031.

That could mean the cost of congestion would more than double to $3.6 billion annually.

But RAC general manager of corporate affairs Will Golsby said we've seen more than half of that growth this year alone.

How coronavirus turned peak hour into a Sunday morning drive

By Craig Butt
April 2, 2020 — 3.50pm

Save Share A A A

For our free coronavirus pandemic coverage, learn more here.

Traffic congestion throughout the country has fallen dramatically as people heed calls to avoid unnecessary travel, new analysis shows, with peak-hour traffic in the major cities now flowing as freely as on a typical Sunday morning.

Saturday traffic jams return: Weekend congestion worse than pre-pandemic levels

By Tom Rabe and Nigel Gladstone
May 22, 2021 — 5.00am

Save Share A A A

…en, with recent weekend
…onavirus levels across the city.

Melbourne Today 13 °/ 28 °

Herald Sun

My News Local Victoria National World Opinion Business Entertainment Lifestyle

Technology › Innovation

New data reveals mobility in Sydney dropped more than in Melbourne during most recent lockdowns

New data has revealed the key differences between the lockdowns in Sydney and Melbourne - including the behaviour of people in each city.

Benedict Brook Follow
@BenedictBrook 5 min read October 8, 2021 - 7:16PM news.com.au
2 comments

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Inputs into the four step model

What has changed since COVID?

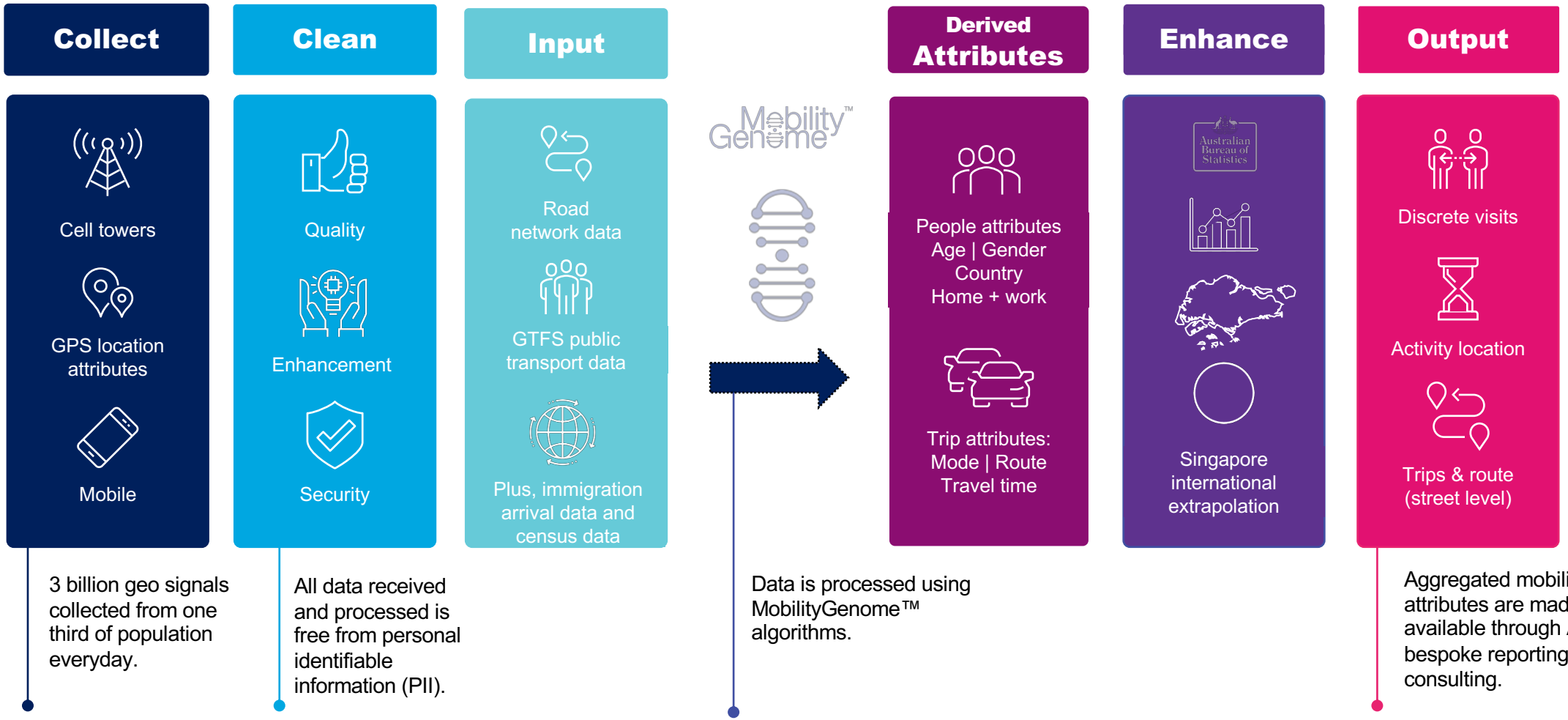
Step 1	Step 2	Step 3	Step 4
...	...	...	...
Trip generation	**Trip distribution**	**Mode & departure time choice**	**Route assignment**
Origin Volumes? Destination Volumes? Purpose?	Origin Destination Pairs? Travel time?	Mode choice? Departure time choice?	Which routes are being used?

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Data is collected, cleaned, aligned and enhanced.

HOW DSPARK WORKS.



© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Our building blocks.

Discrete visit

- Where and when are people present at certain locations and how many people are there?

Stay point

- Where do people stop to spend time?

Trip

- Where do people come from & where do they go next?
- What mode of transport did they use?
- What route did they take?

Inherent strengths of our data

Timeliness | **Sample size** | **Spatial coverage** | **Temporal coverage**

Inherited from data

Age

Gender

Personal characteristics

Country

Derived from behaviours

Home

Work

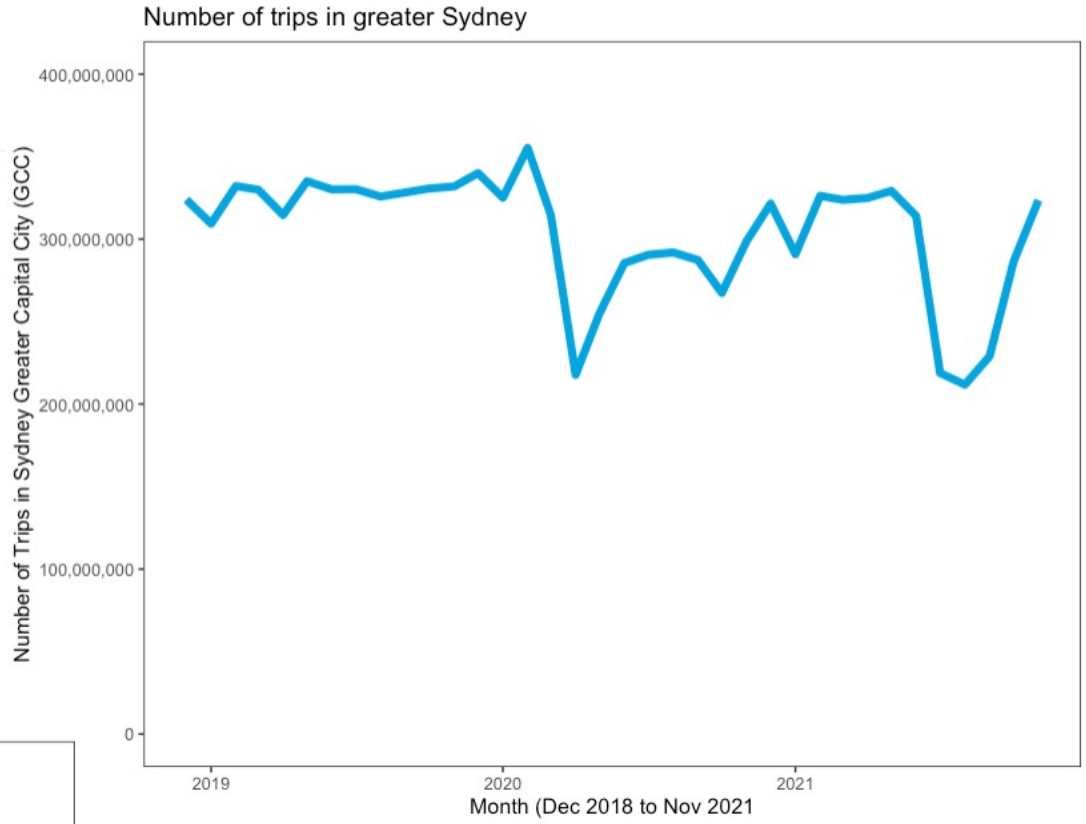
DSpark
people. movement. insight.

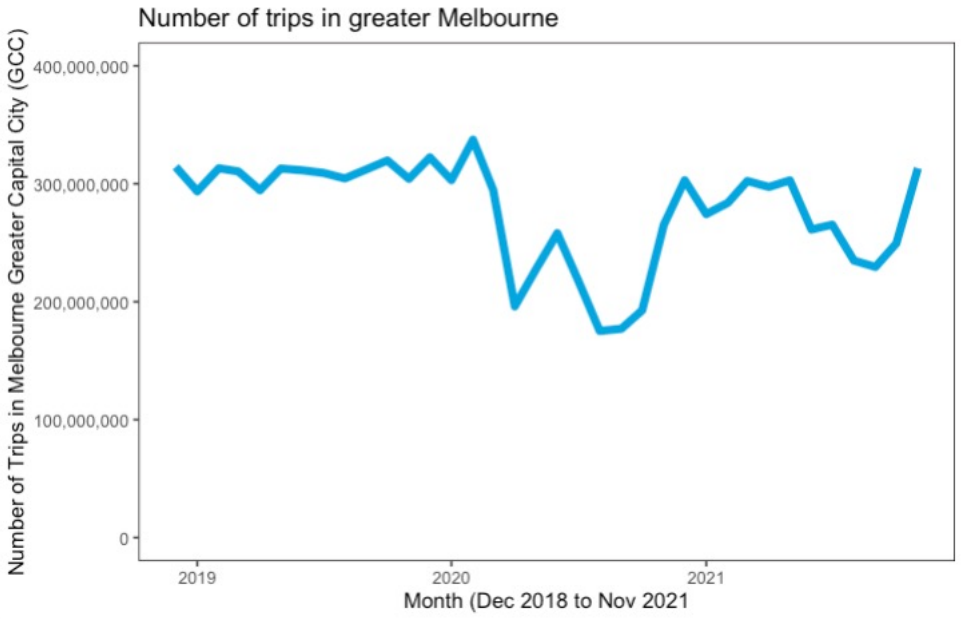
© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

Trip Generation

Trip volumes

Recovered to pre-covid levels at an aggregate level





© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

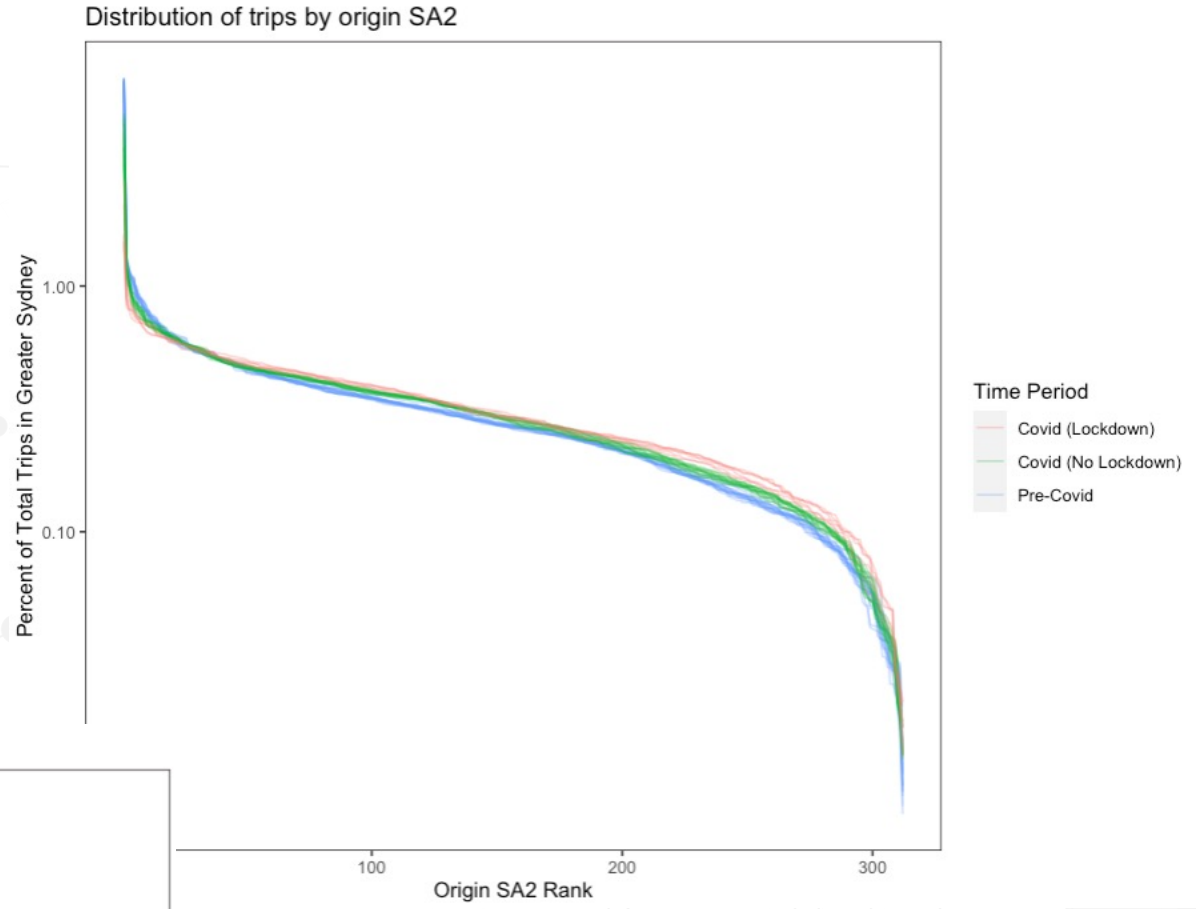
Trip Generation

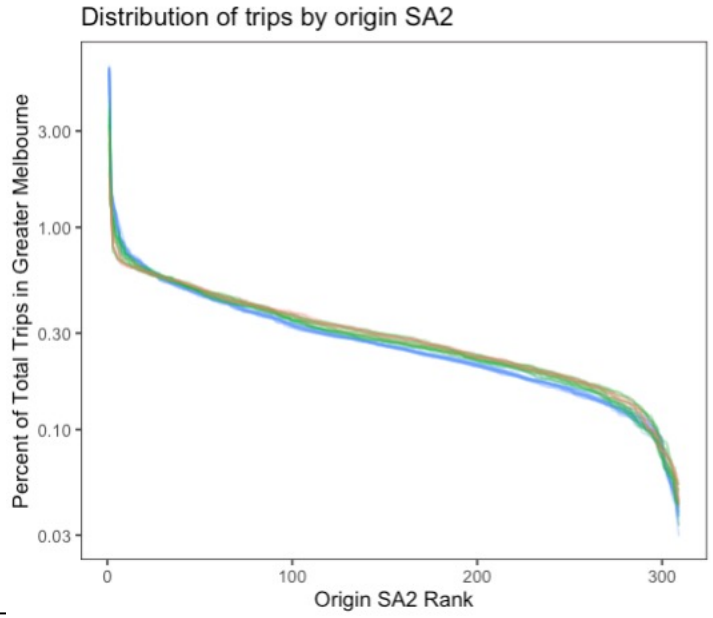
Trip volumes

Recovered to pre-covid levels at an aggregate level

Origin (or destination) volumes

Some differences in the distribution of trip origins and destinations





© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

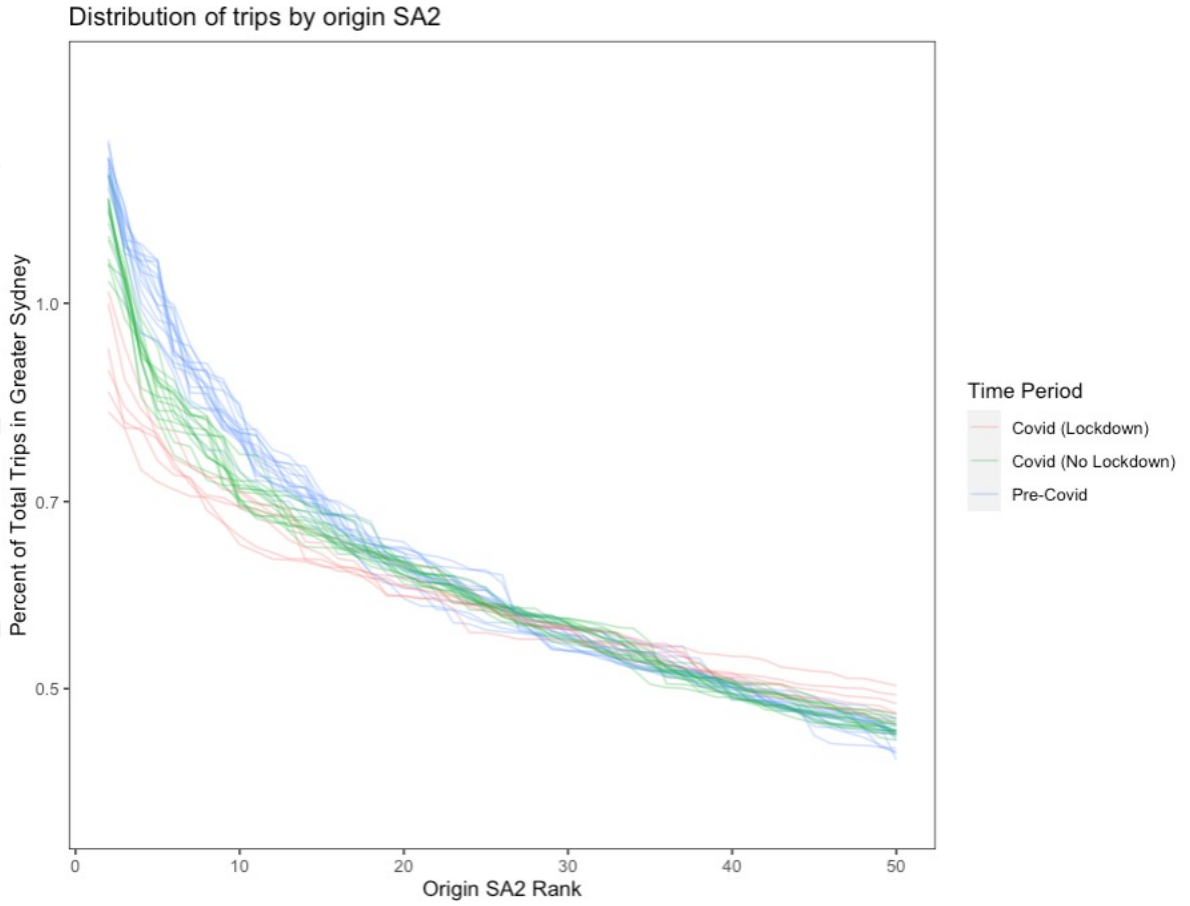
Trip Generation

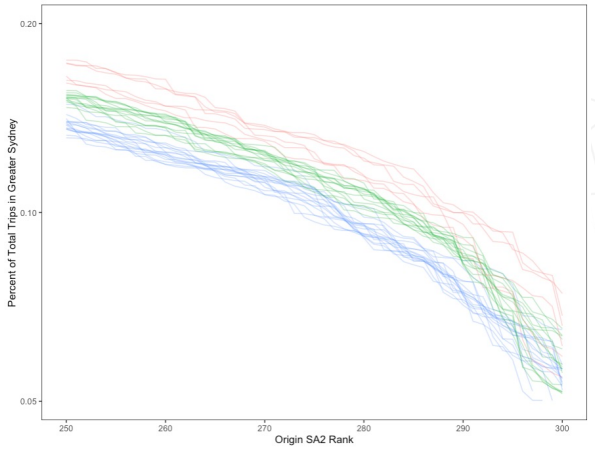
Trip volumes

Recovered to pre-covid levels at an aggregate level

Origin (or destination) volumes

Some differences in the distribution of trip origins and destinations





DSpark
people. movement. insight.

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

Trip Generation

Trip volumes

Recovered to pre-covid levels at an aggregate level

Origin (or destination) volumes

Some differences in the distribution of trip origins and destinations

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Trip Generation

Trip volumes

Recovered to pre-covid levels at an aggregate level

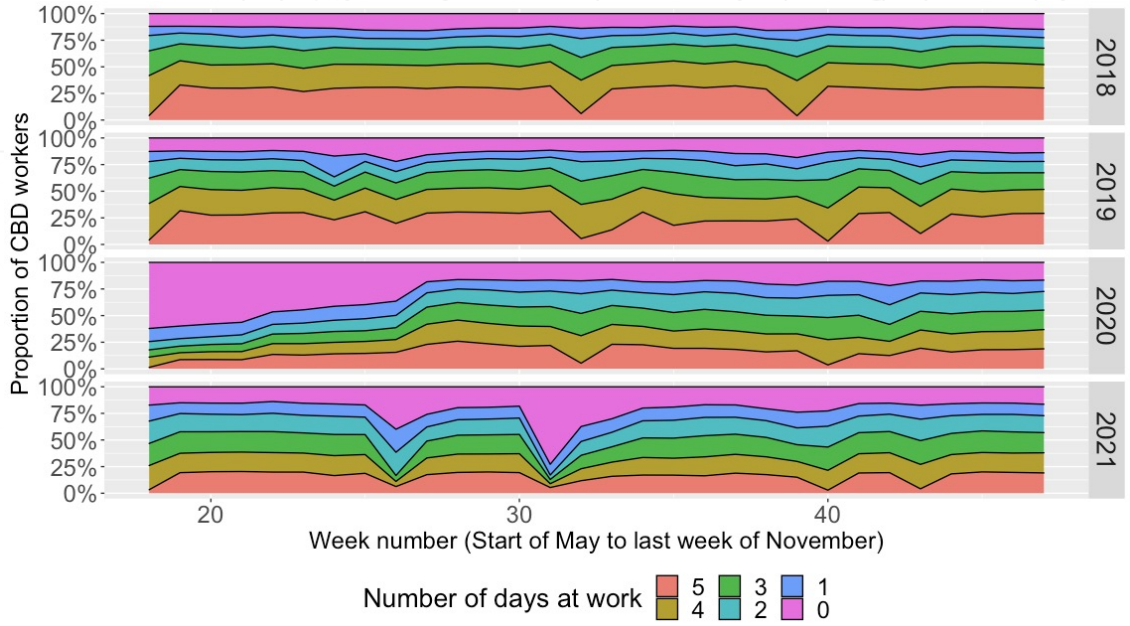
Origin (or destination) volumes

Some differences in the distribution of trip origins and destinations.

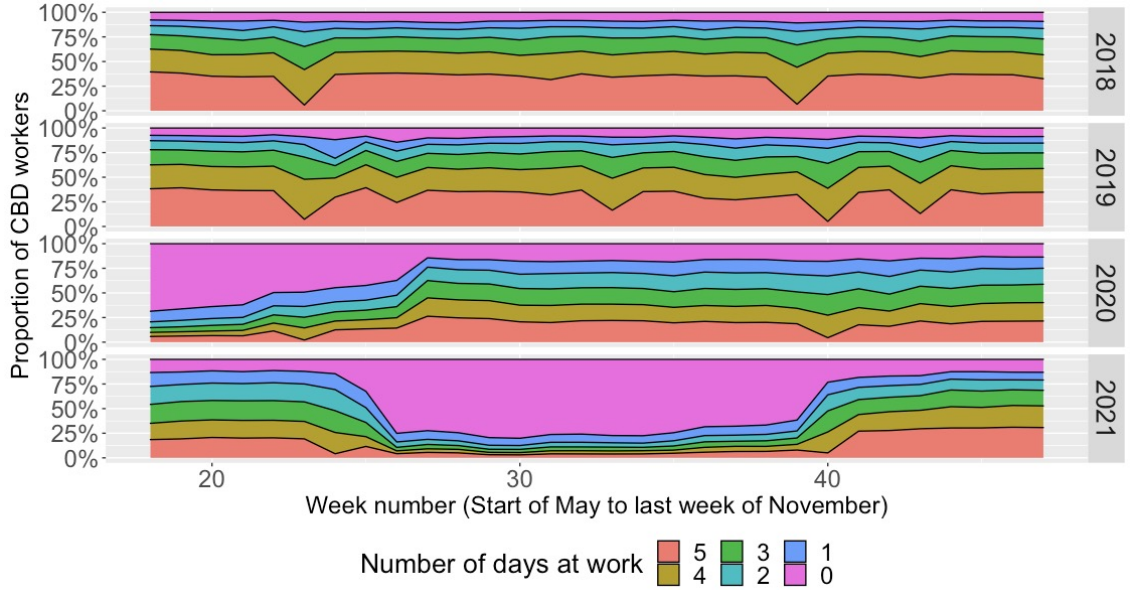
Trip purpose

Most people spending fewer days at work - 5 days per week less common than pre-covid.

Brisbane



Sydney



DSpark
people. movement. insight.

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

Trip Generation

Trip volumes

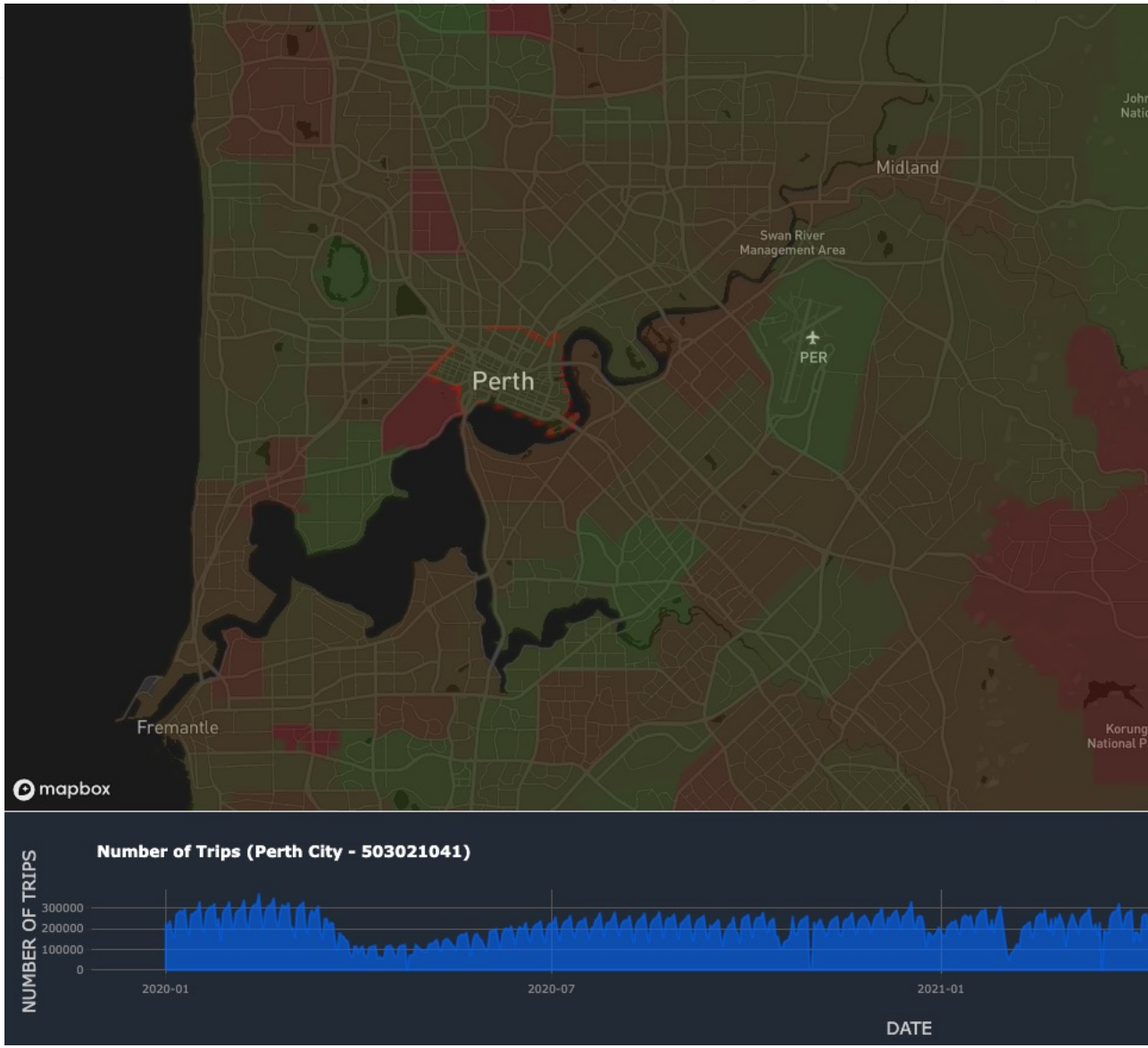
Recovered to pre-covid levels at an aggregate level

Origin (or destination) volumes

Some differences in the distribution of trip origins and destinations.

Trip purpose

Most people spending fewer days at work - 5 days per week less common than pre-covid.



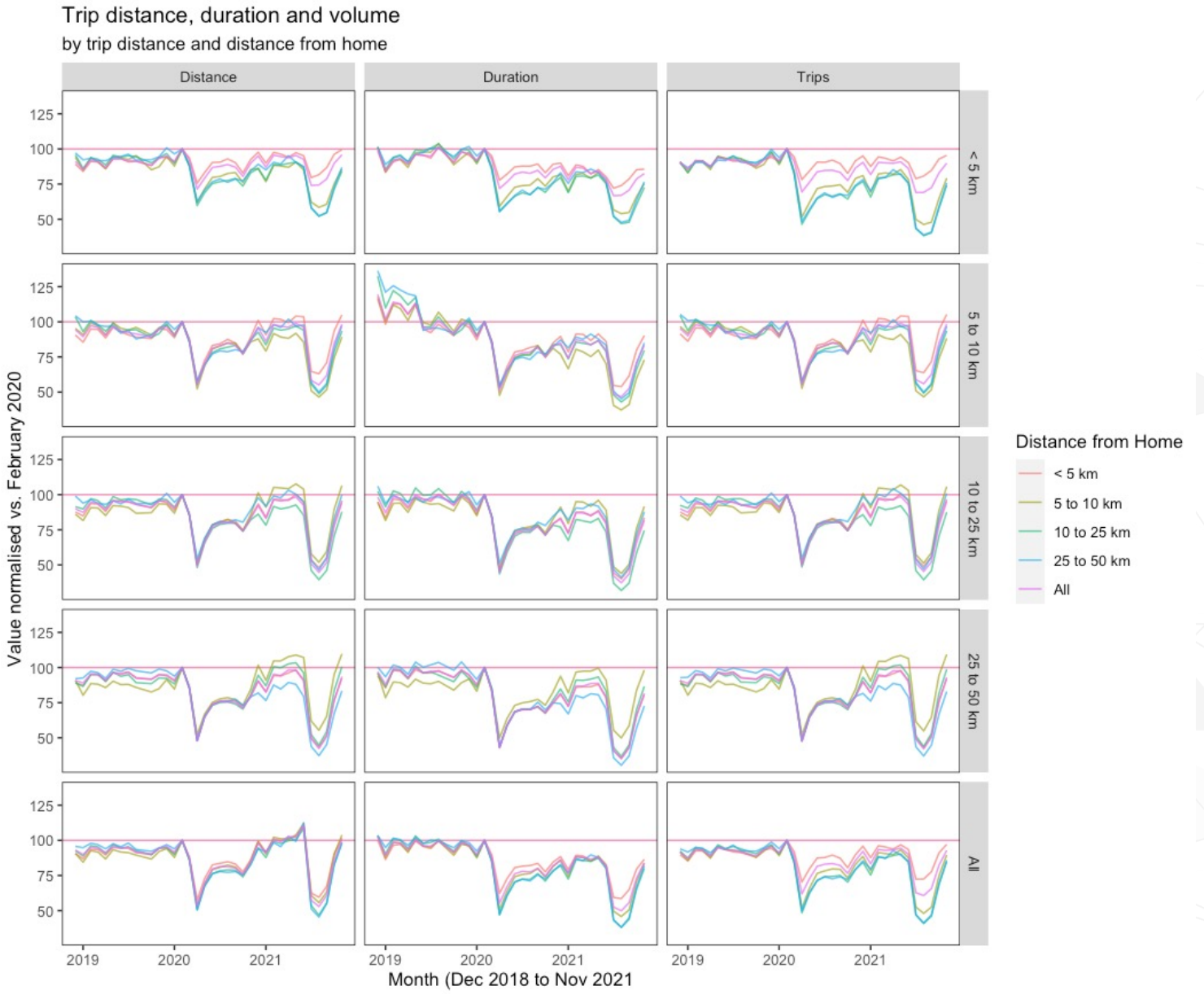
© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Trip Distribution

OD pairs

Observed OD pairs similar but volumes differ by trip distance and distance (of origin) from home



© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

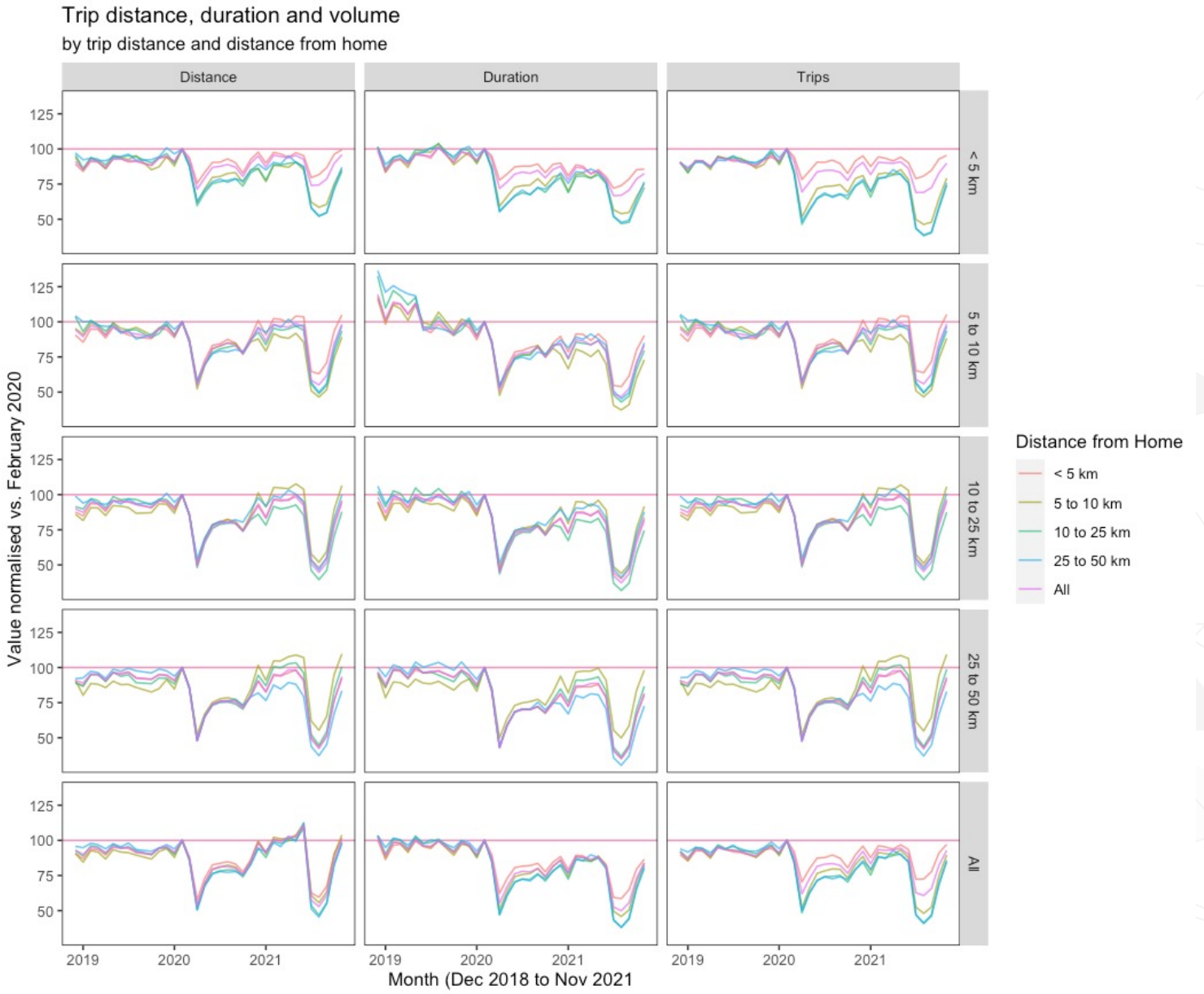
Trip Distribution

OD pairs

Observed OD pairs similar but volumes differ by trip distance and distance (of origin) from home

Travel times

Average travel times remain significantly below pre-covid levels despite distances and volumes having recovered



© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Trip Distribution

OD pairs

Observed OD pairs similar but volumes differ by trip distance and distance (of origin) from home

Travel times

Average travel times remain significantly below pre-covid levels despite distances and volumes having recovered

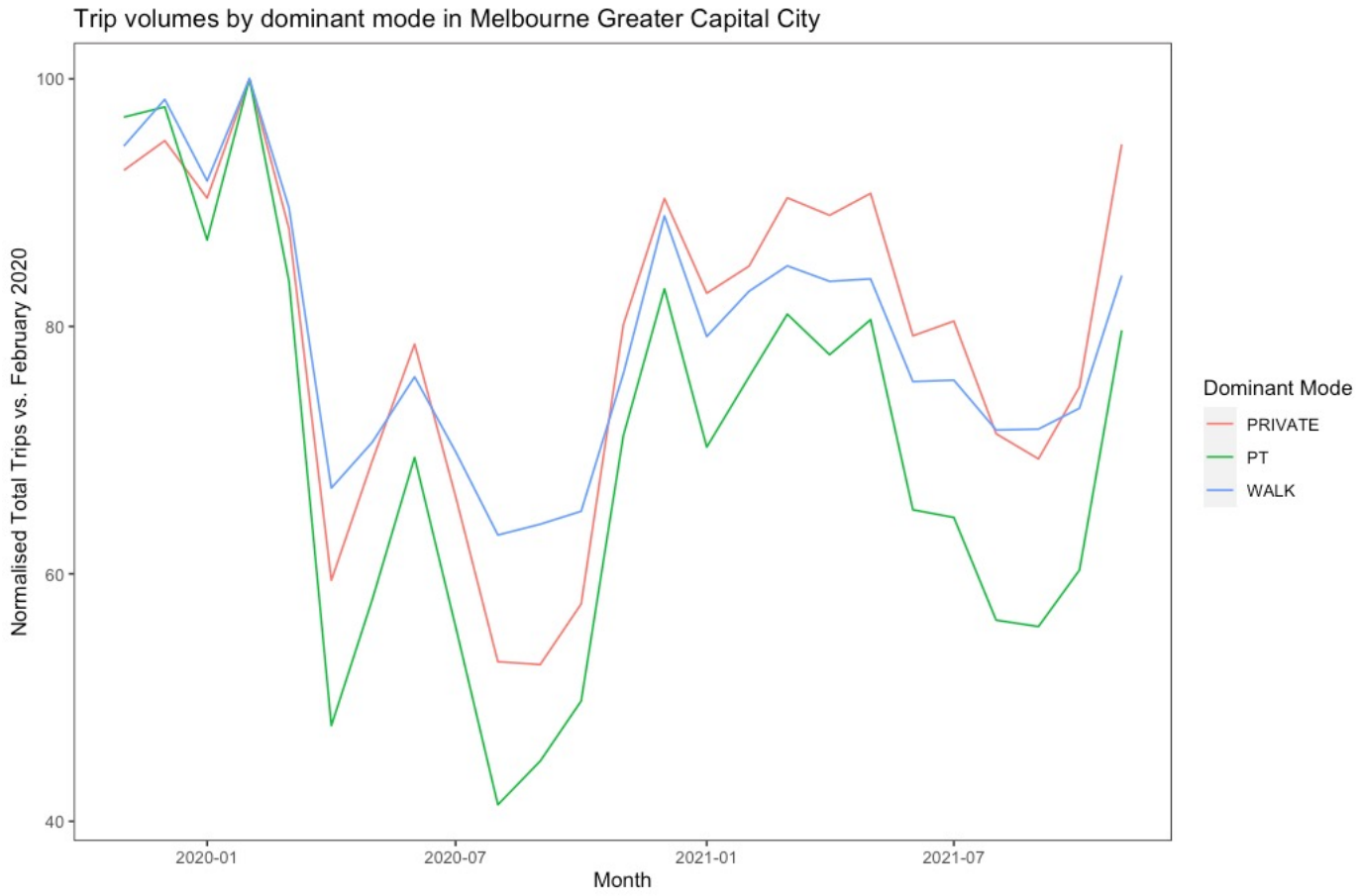
© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Mode and departure time choice

Mode choice

Private car recovered to pre-covid levels but public transport remains significantly below previous volumes



DSpark
people. movement. insight.

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

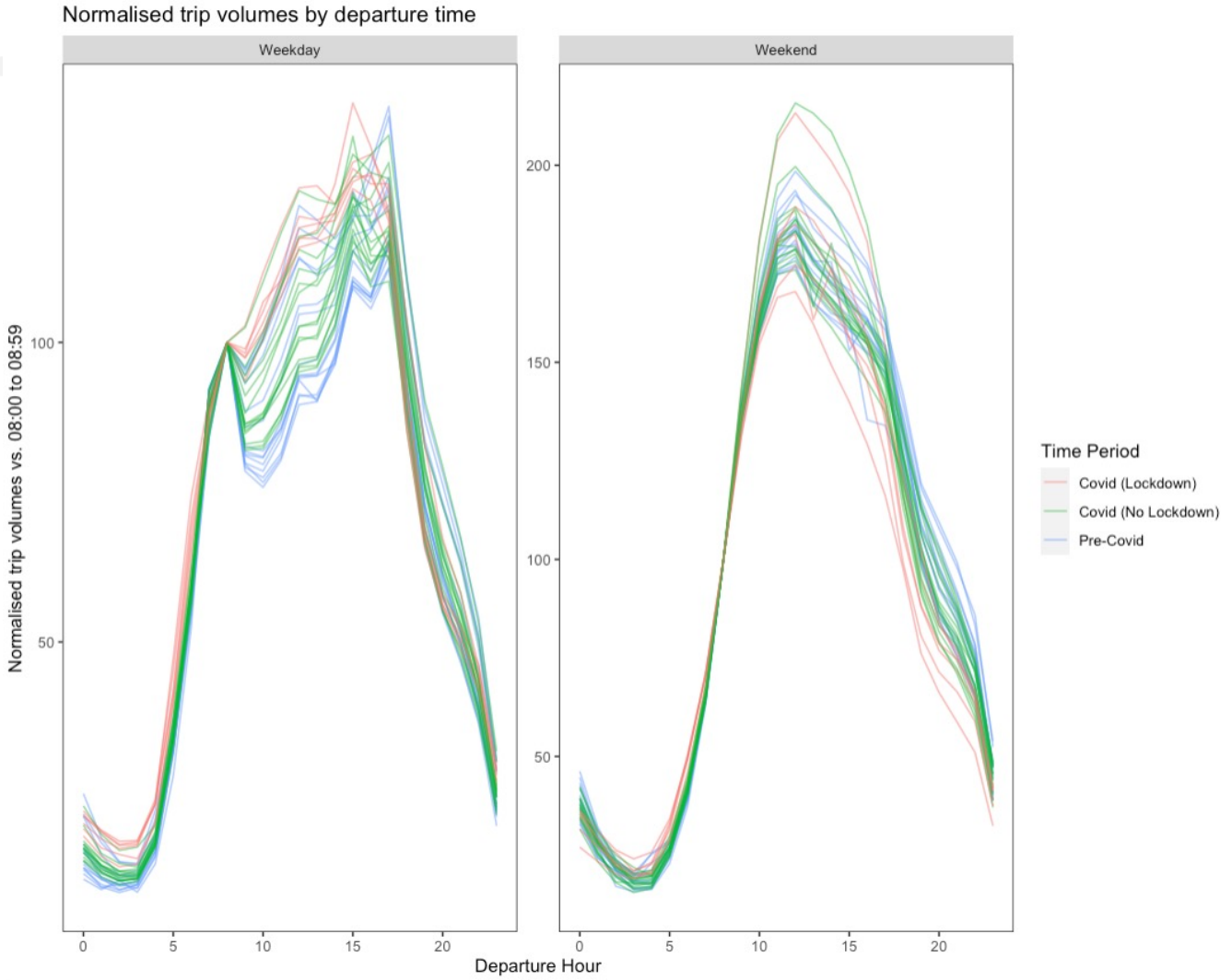
Mode and departure time choice

Mode choice

Private car recovered to pre-covid levels but public transport remains significantly below previous volumes

Departure time choice*

Weekends returned to pre-covid pattern but weekdays still significantly different, particularly with an afternoon peak two hours earlier than pre-covid



* Technically not in this step but departure time choice has some bearing on which modes are available

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

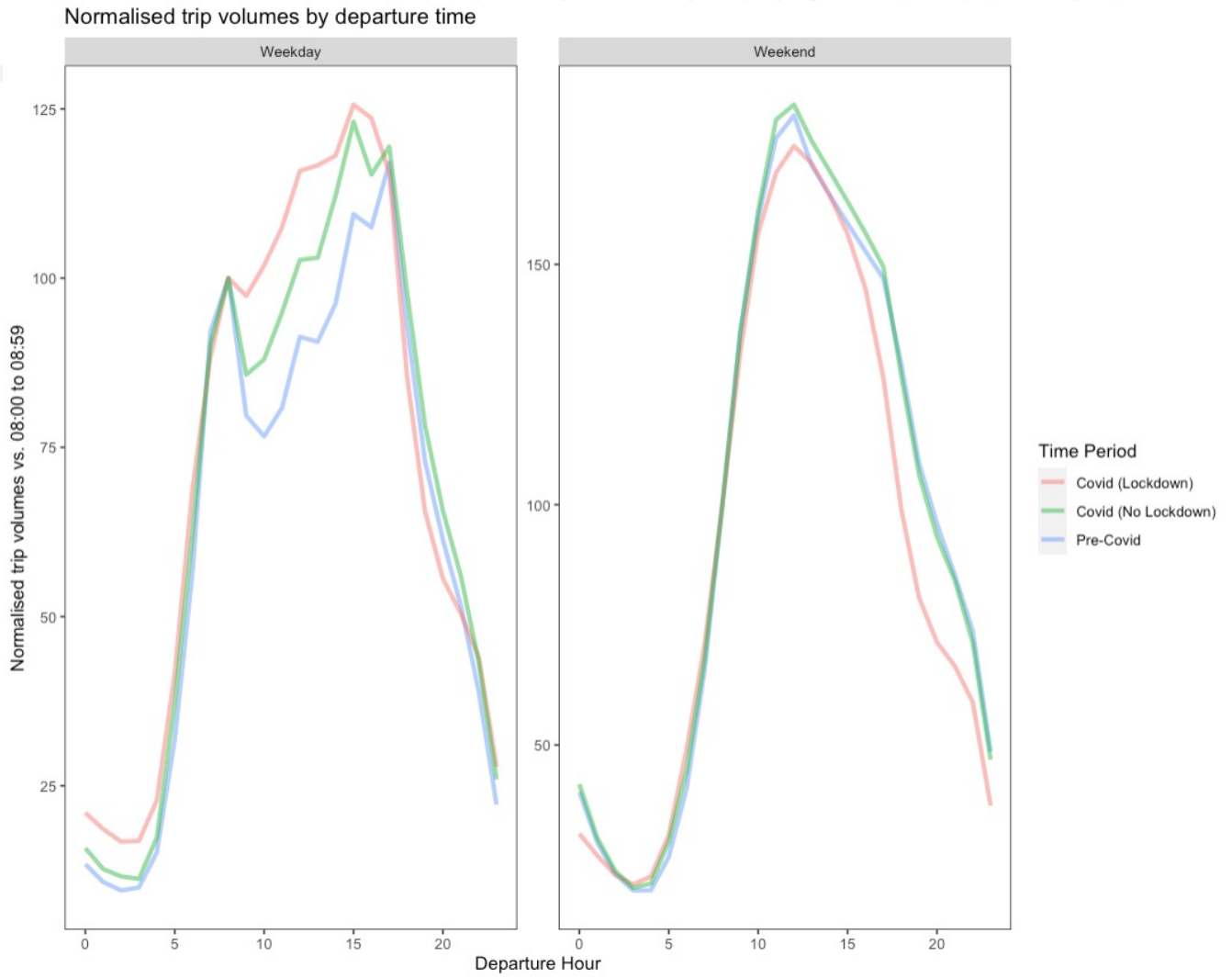
Mode and departure time choice

Mode choice

Private car recovered to pre-covid levels but public transport remains significantly below previous volumes

Departure time choice*

Weekends returned to pre-covid pattern but weekdays still significantly different, particularly with an afternoon peak two hours earlier than pre-covid



* Technically not in this step but departure time choice has some bearing on which modes are available

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Mode and departure time choice

Mode choice

Private car recovered to pre-covid levels but public transport remains significantly below previous volumes

Departure time choice

Weekends returned to pre-covid pattern but weekdays still significantly different, particularly with an afternoon peak two hours earlier than pre-covid

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

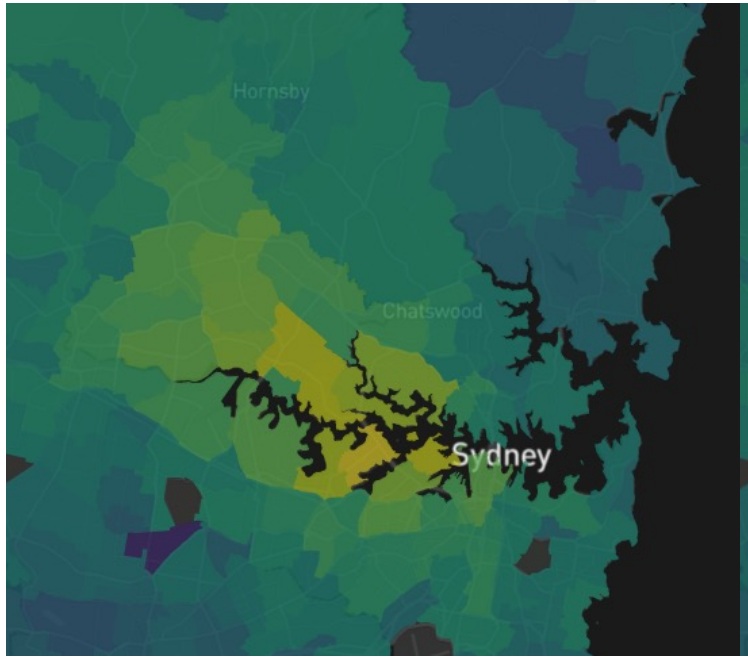
DSpark
people. movement. insight.

Route assignment

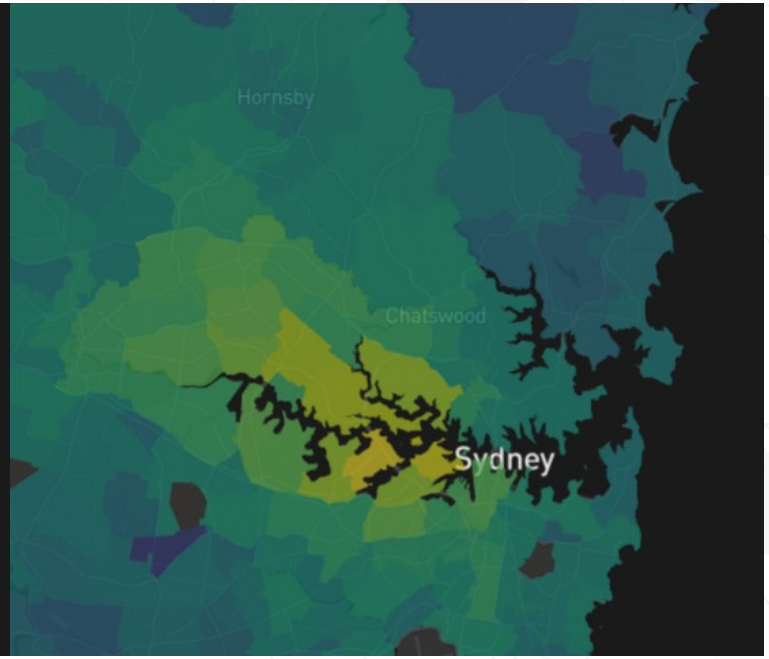
Route choice

Route choice between the same OD pairs for the same mode has remained largely stable.

Feb 2020



Nov 2021



© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

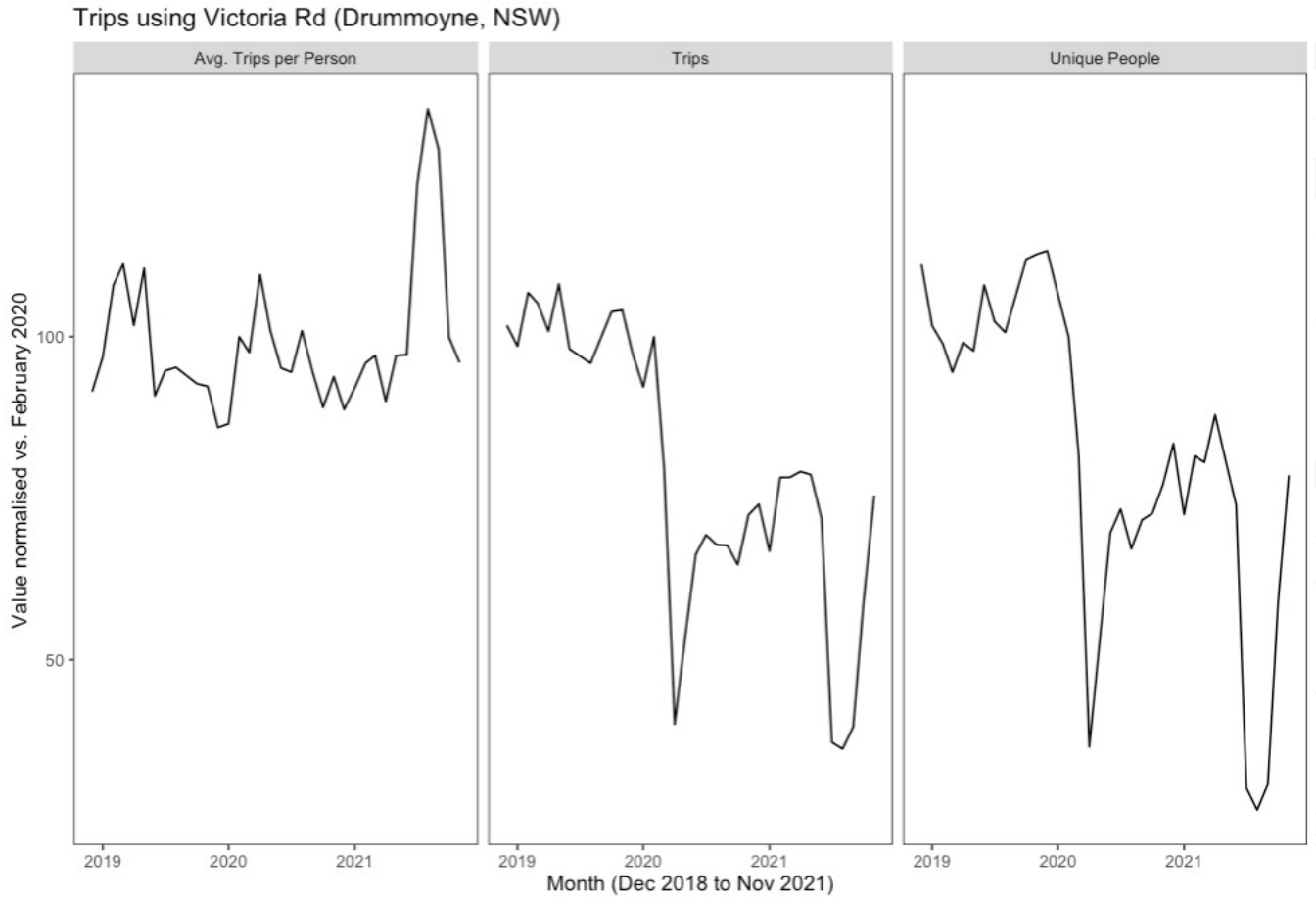
DSpark
people. movement. insight.

Route assignment

Route choice

Route choice between the same OD pairs for the same mode has remained largely stable.

However, recovery of volumes on individual links varies by their main use – links primarily used for travel to/from CBDs have significantly reduced volumes as people remain closer to home.



© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Inputs into the four step model

What has changed since COVID?

Step 1

...

Trip generation

- Trip Volumes?
- Orig. (or Dest.) Vol.?
- Purpose?

Step 2

...

Trip distribution

- OD Pairs?
- Travel time?

Step 3

...

Mode & departure time choice

- Mode choice?
- Departure time choice?

Step 4

...

Route assignment

- Which routes are being used?

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

DSpark
people. movement. insight.

Some lingering questions

Can we perform calibration?

Calibration using loop detectors / road counters is unlikely to be sufficient without knowing the OD pairs that use each link or taking into account the increased number of shorter trips closer to home.

Can we still use 2019 data?

Still too early to know if behaviour will completely revert to what was observed in 2019 and earlier. Data from Brisbane suggests some stability in commuting patterns with fewer people commuting 5 times per week.

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.

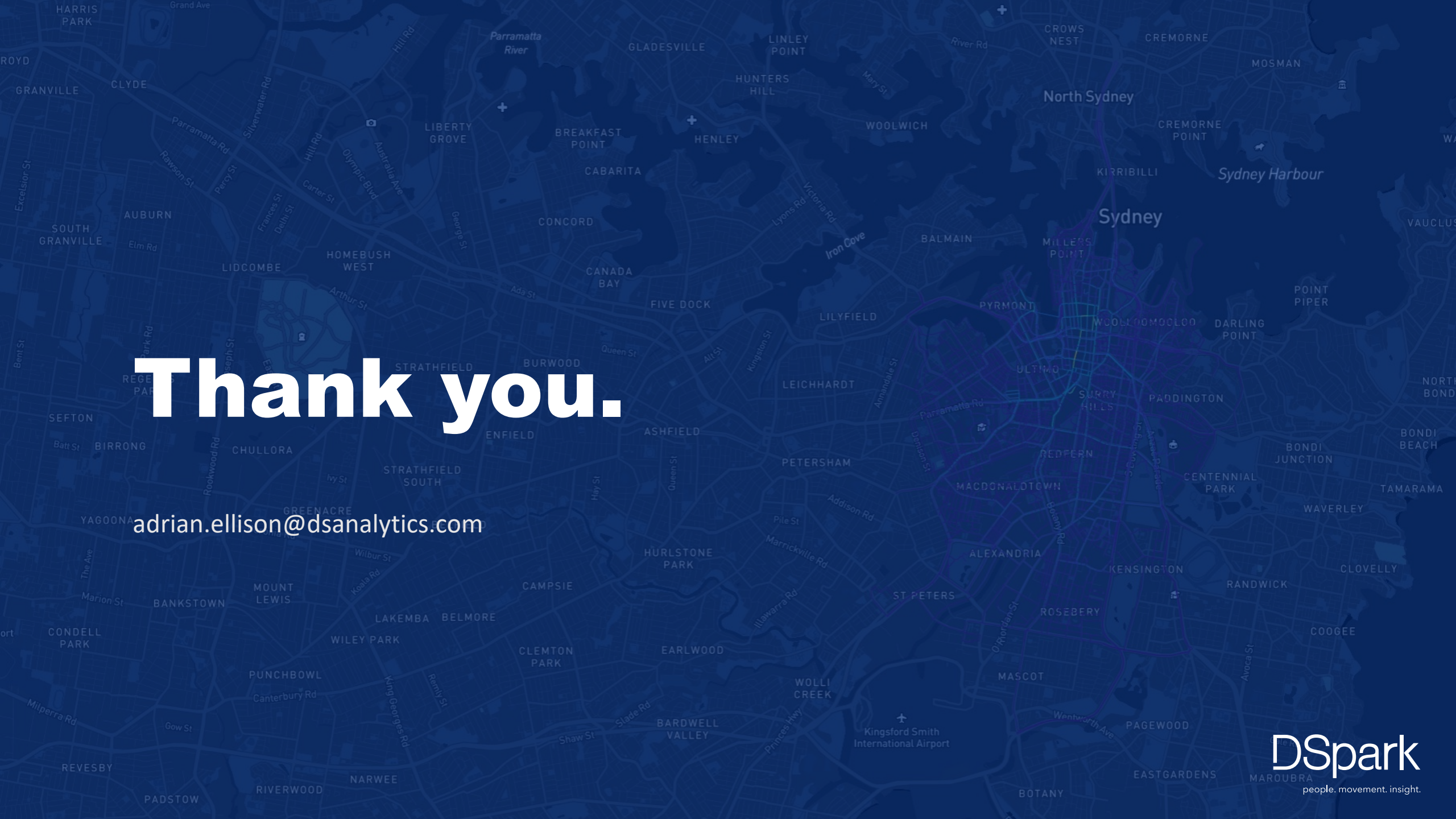
DSpark
people. movement. insight.

For attendees of this AITPM webinar, we are offering a free DSpark transport white paper.

Visit dspark.com.au/AITPM to download your copy.

DSpark
people. movement. insight.

© DSpark Pty. Ltd 2021. All Rights Reserved. The content of this presentation is proprietary and confidential information of DSpark. It is not intended to be distributed without the written consent of DSpark.



Thank you.

adrian.ellison@dsanalytics.com

DSpark

people. movement. insight.