



# Measuring Broadband Australia

## Monthly report (August to October 2020)

In 2017, the Australian Competition and Consumer Commission (ACCC) launched its project to measure internet performance. SamKnows was appointed to supply their Whiteboxes to internet users in Australia to measure the quality of experience for fixed-line internet.

The goal of the Measuring Broadband Australia project is to increase transparency and encourage greater performance-based competition and better internet performance throughout the country.

SamKnows prepares these reports for publication by the ACCC each quarter. The metrics are also presented by the ACCC in a public dashboard at <https://www.accc.gov.au/consumers/internet-phone/broadband-performance-data>.

The program tests fixed-line services as a main focus, however in this report we have included fixed-wireless services analysis as well.

# Overview

August - September - October  
2020

This is the third monthly report issued as part of the Measuring Broadband Australia program. This report tracks the performance of NBN fixed-line services and fixed-wireless services from August to October 2020.

In this report we present daily average download figures for the following NBN fixed-line download speed plans:

- 100 Mbps
- 50 Mbps
- 25 Mbps

And the following fixed-wireless plans:

- Fixed Wireless Plus
- 25 Mbps

The daily averages are calculated by aggregating raw test results by Whitebox, plan speed and day, with this then being averaged across all Whiteboxes for each plan speed.

Additionally, we have presented the percentage change in average daily download speeds for each fixed-line plan against a pre-COVID 19 February 2020 average baseline.

For this monthly Measuring Broadband Australia key indicators report, calculations have been conducted for all hours and busy hours (7pm - 11pm) from Monday to Sunday. For fixed-line services this is excluding underperforming<sup>1</sup> and impaired units<sup>2</sup>.

1. We classify a service as 'underperforming' if no more than 5 percent of speed tests that we conducted over the service achieved a speed that was above 75 percent of maximum plan speed. This test effectively identifies those services with maximum attainable speeds that fall closer to the maximum speed of a lower speed tier than to the maximum speed of the consumer's current plan.  
2. Impaired services are those where NBN Co provides us with the information that maximum plan speed cannot be attained due to physical limitations.

# Overview

August - September - October  
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The unprecedented demand during COVID-19 has required additional checks of the MBA test data so we can remain confident that the metrics that we are reporting accurately show the speed and quality that is available to consumers when using their broadband service to access popular online content and applications.

These checks led us to believe that on some days the speed tests that we conducted in Victoria could have likely been impacted by congestion that occurred on the data network that hosts those test servers, which a consumer would be unlikely to have encountered in their own use of their broadband service. Due to this we have established new test servers in Victoria (Melbourne) that are hosted on a separate data network. These new servers were established in October and data from them is included in this report. Consequently, we have shown daily results exclusive and inclusive of Victoria tests from the old server (during August, September and early October), and have shown all tests for the new server which was fully established on 8th October.

In response to increased demand and change in usage of online applications due to COVID-19, NBN has:

- Provisioned more CVC (connectivity virtual circuit) capacity for retail service providers (RSPs). This additional capacity was available during RSPs during the test period for this report.
- Over-provisioned the download component of some NBN speed tiers by around 10 – 15 per cent where possible. This was being implemented over the period between June and August 2020.

From July 2020, overall download speeds across the NBN network have seen a significant uplift. The main cause for this increase is the measures introduced by NBN Co. The over-provisioning of the download component now means that consumers can more reliably experience speeds that are closer to the maximum set download speed of their chosen retail plan speed. For example: prior to this change, an NBN100 service would have been provisioned at slightly above 100 Mbps line speed; after protocol overhead, the highest speed test result which we could have measured might have been around 94 Mbps. After the change, the same service might have been provisioned at above 100 Mbps line speed, meaning that even after protocol overhead we might still measure speeds around or slightly above 100 Mbps. The increase in CVC has meant that there is sufficient capacity for RSPs to deliver these speeds that are very close to the maximum set download speed.

All charts use a consistent set of Whiteboxes across the entire reporting period that are used in the charts. If a Whitebox changed speed tier during the period, it is excluded.

## Note

- Monthly data presented should not be directly compared with corresponding data in the quarterly reports as the composition of sample sizes may vary between the quarterly and monthly report.
- 12/1 Mbps services are excluded from monthly reporting due to the limited sample size.
- The Victoria test server also serves some Whiteboxes located in neighbouring states or territories.

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# Monthly report

August - September - October

2020

Fixed-line services

Figures 1 and 2 track the average daily download speeds by plan for the period of August to October 2020. Both charts exclude impaired and underperforming units.

Network performance is broadly stable for all plan speeds, during all hours, while during busy hours there is more variability. For both charts, there is an increase in performance from the beginning of the reporting period with the lowest figures recorded in August.

Figure 1: Average Daily NBN download speeds during all hours by plan

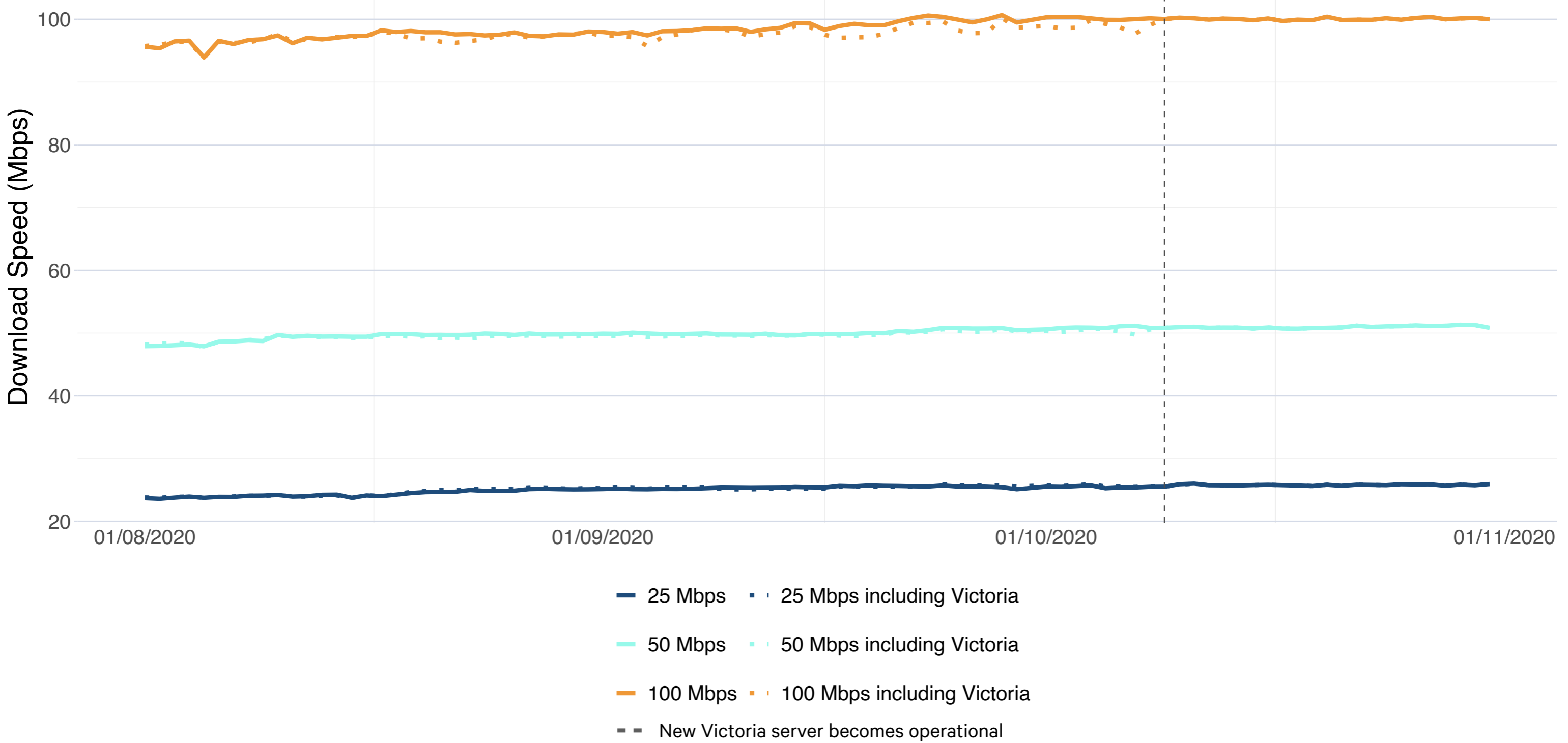
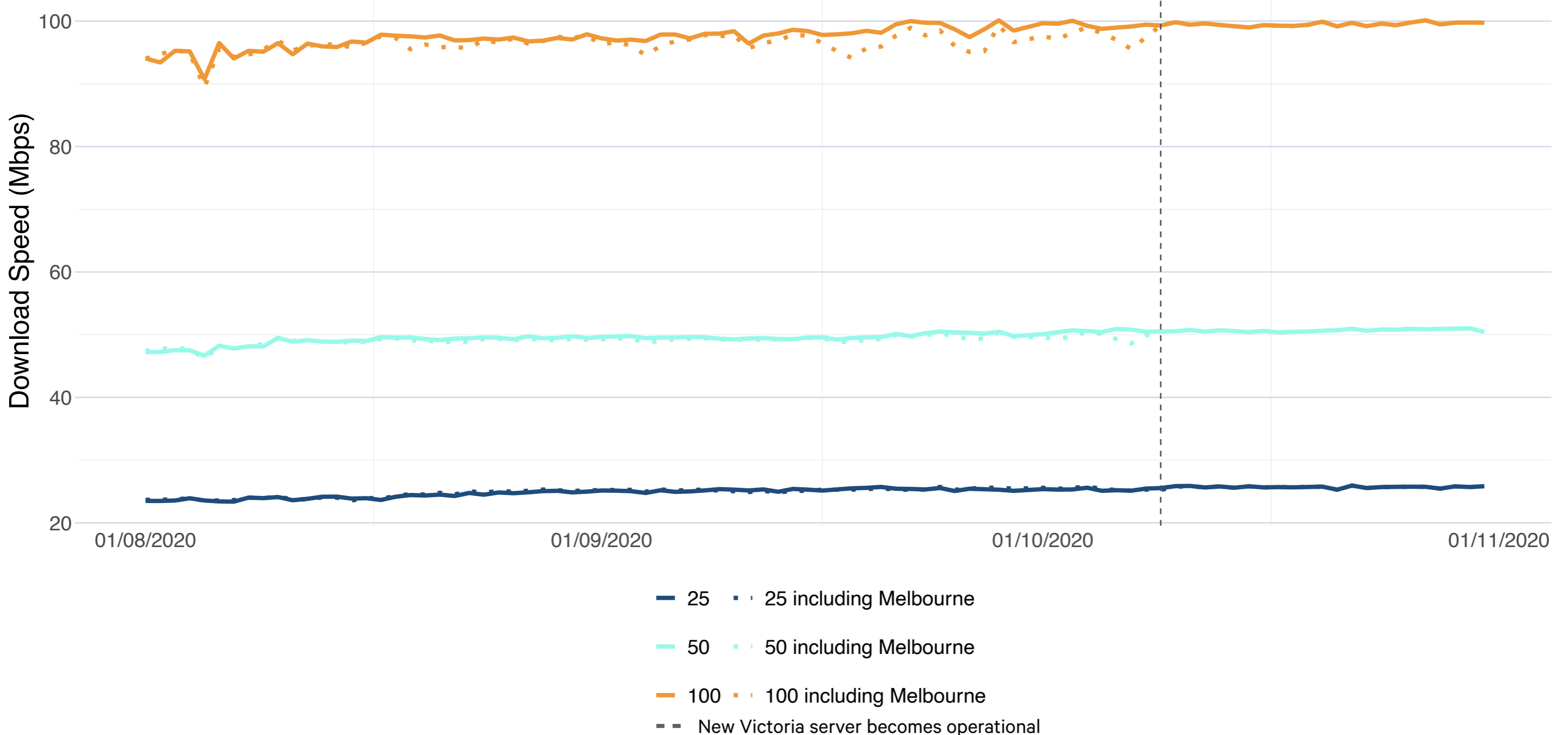


Figure 2: Average Daily NBN download speeds during busy hours by plan

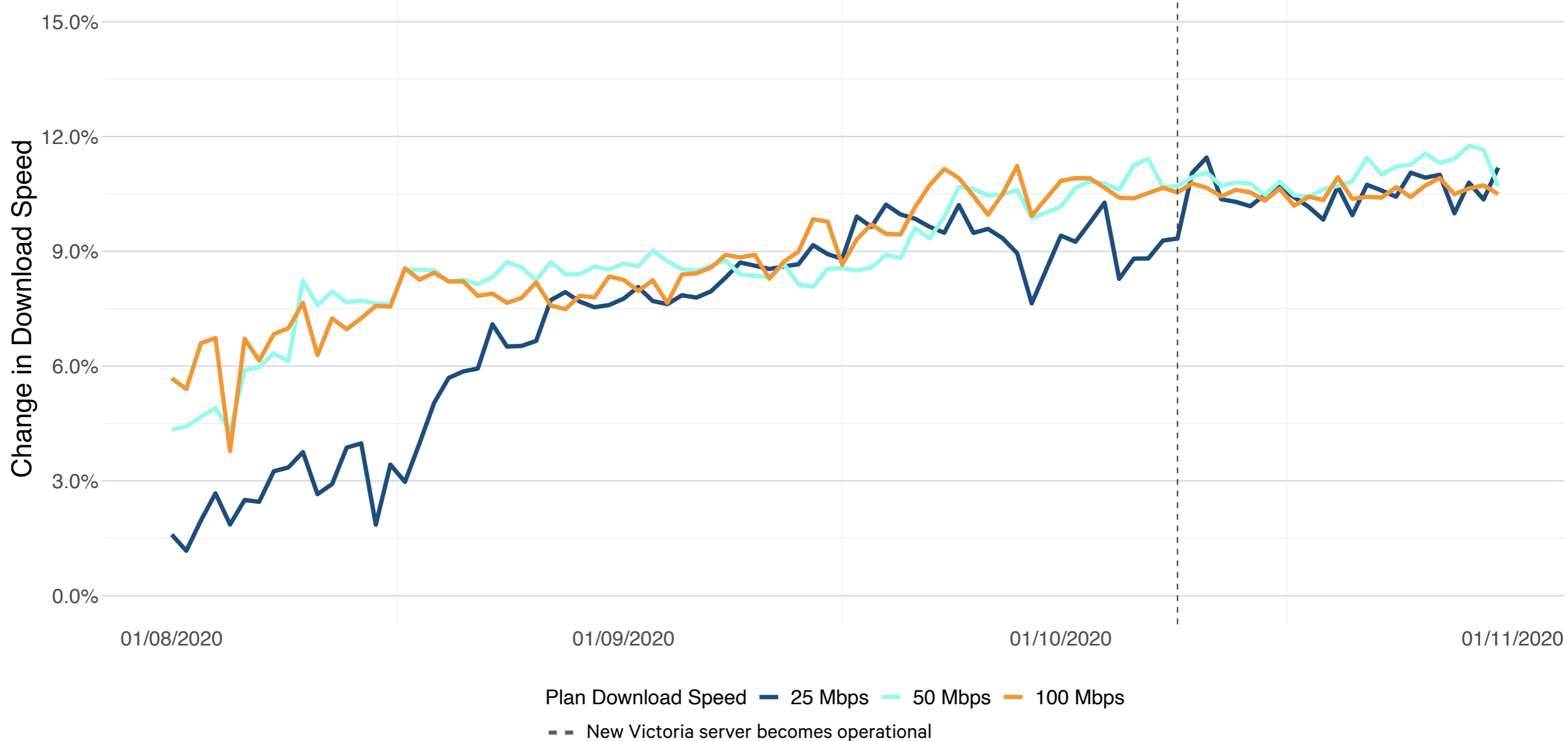


Figures 3 and 4 track the percentage change in download speed recorded each day over the period by plan speed and compared against a pre-COVID baseline of February 2020. Both charts exclude impaired and underperforming units.

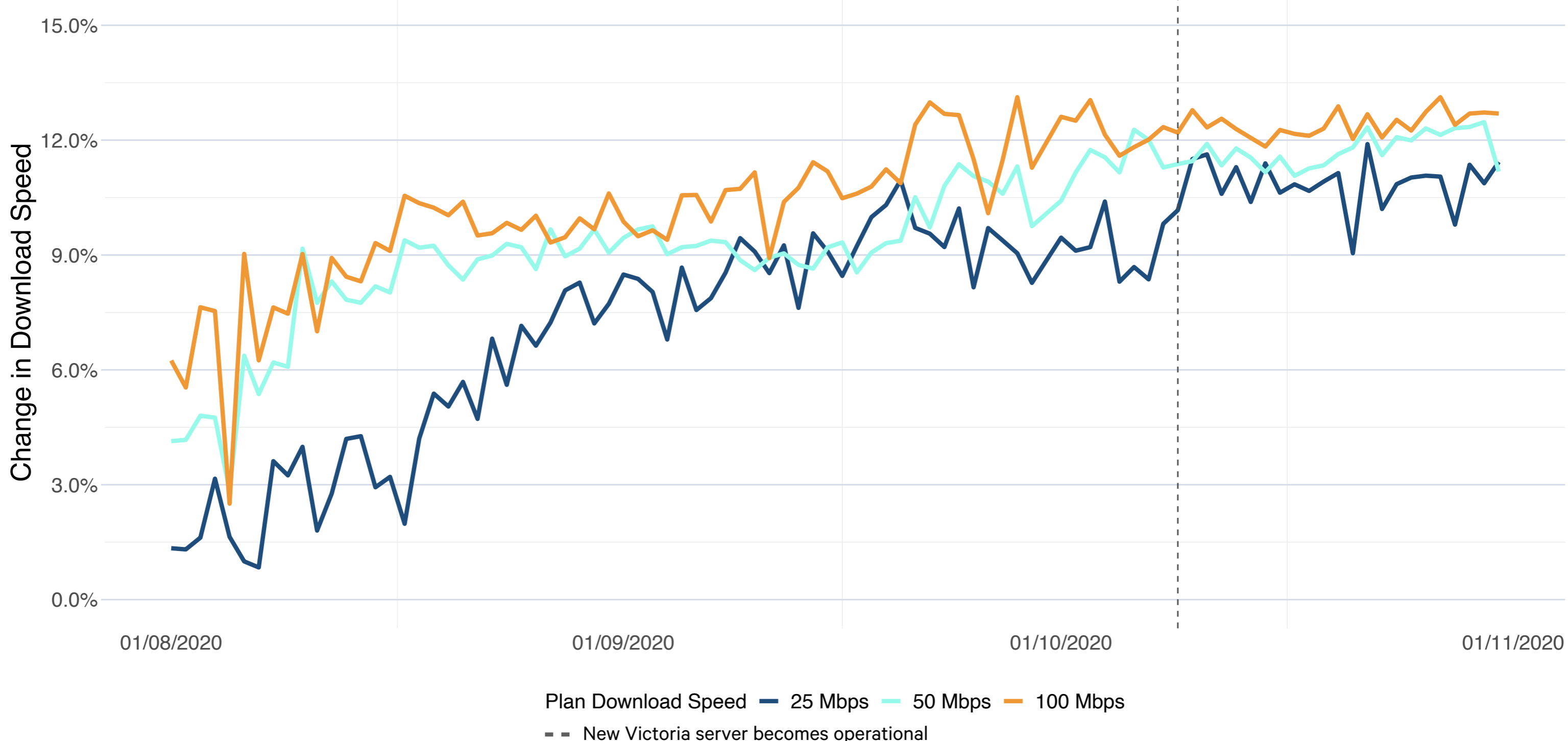
During all hours (figure 3), download speeds for the period were consistently above the February 2020 pre-COVID baseline, due to the over-provisioning which was implemented from between June and August 2020. At the start of the period, performance increased by between 1.5% and 6% compared to the baseline but stabilised from early-October onwards, to be around 10% above baseline levels for all plans.

Network download speed performance during busy hours follows a similar upward pattern to that of all hours. All tiers also end the period having performed more than 10% better than their busy hour baseline.

**Figure 3: Average Daily NBN download speeds during all hours by plan**



**Figure 4: Average Daily NBN download speeds during busy hours by plan**



# Monthly report

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Fixed-wireless services

This is the first edition of the monthly report where data on fixed-wireless services is being released. Much like the approach with fixed-line services, the results for fixed-wireless services are presented, split by speed tier for the months August - October 2020. The total number of fixed-wireless Whiteboxes is considerably lower than that for fixed-line services. The results presented here are solely indicative and firm conclusions about the performance of fixed-wireless products should not be inferred from these results.

Figures 5 and 6 track the average daily download speeds by plan for fixed-wireless units for the period of August to October 2020. These fixed-wireless units comprise both 25 Mbps and Fixed Wireless Plus speed plans.

Performance is more variable when compared to fixed-line services and this can be explained by the inherent increased variability in fixed-wireless products compared to fixed-line fibre and the smaller sample of fixed-wireless Whiteboxes. During all hours, performance of the 25 Mbps plan is more stable with a daily average value of around 20 Mbps. During busy hours, performance of both plans is lower and variability in daily performance is slightly higher. The Fixed Wireless Plus plan shows an increase in average speed, increasing from a daily average value of 35 Mbps at the beginning of August to an average of around 40 Mbps at the end of October.

Figure 5: Average Daily Fixed Wireless download speeds during all hours by plan

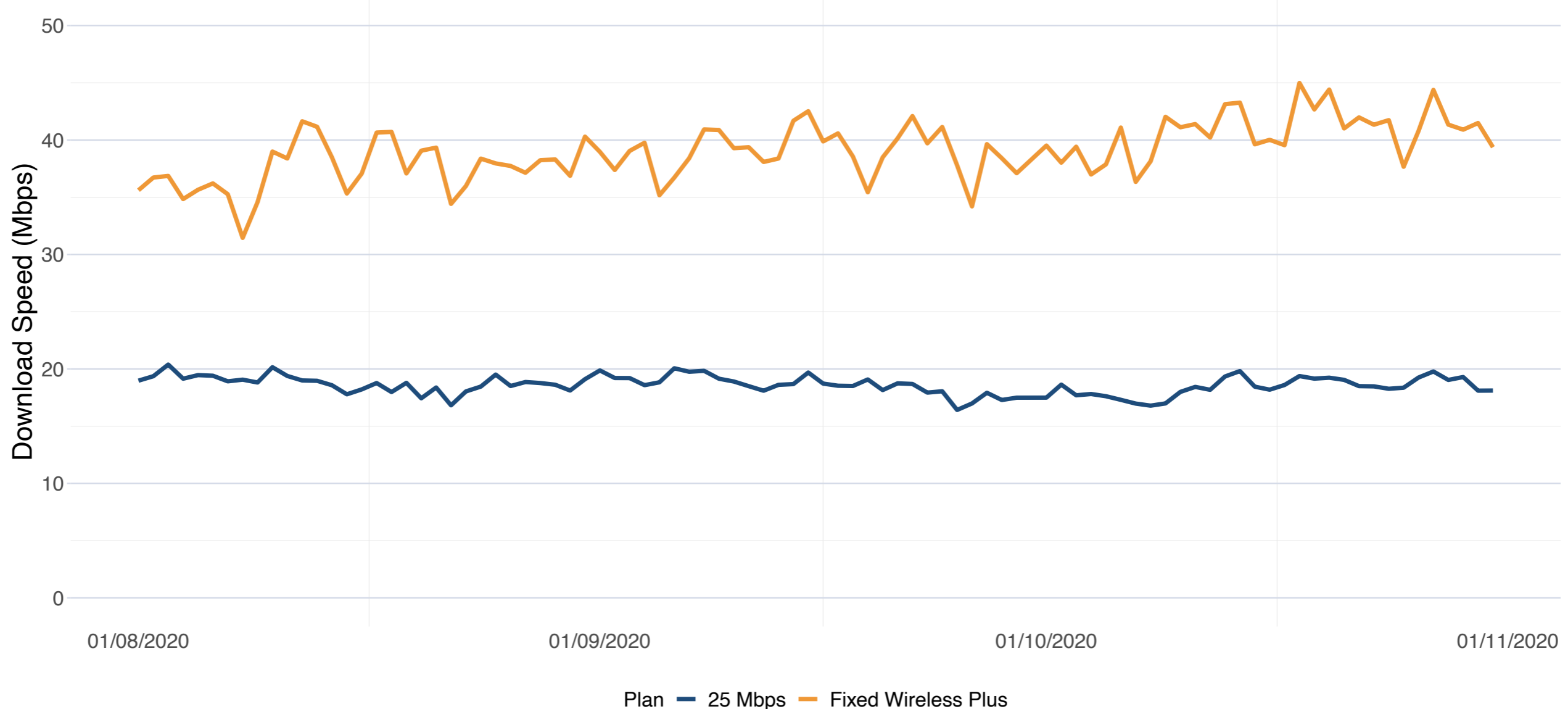
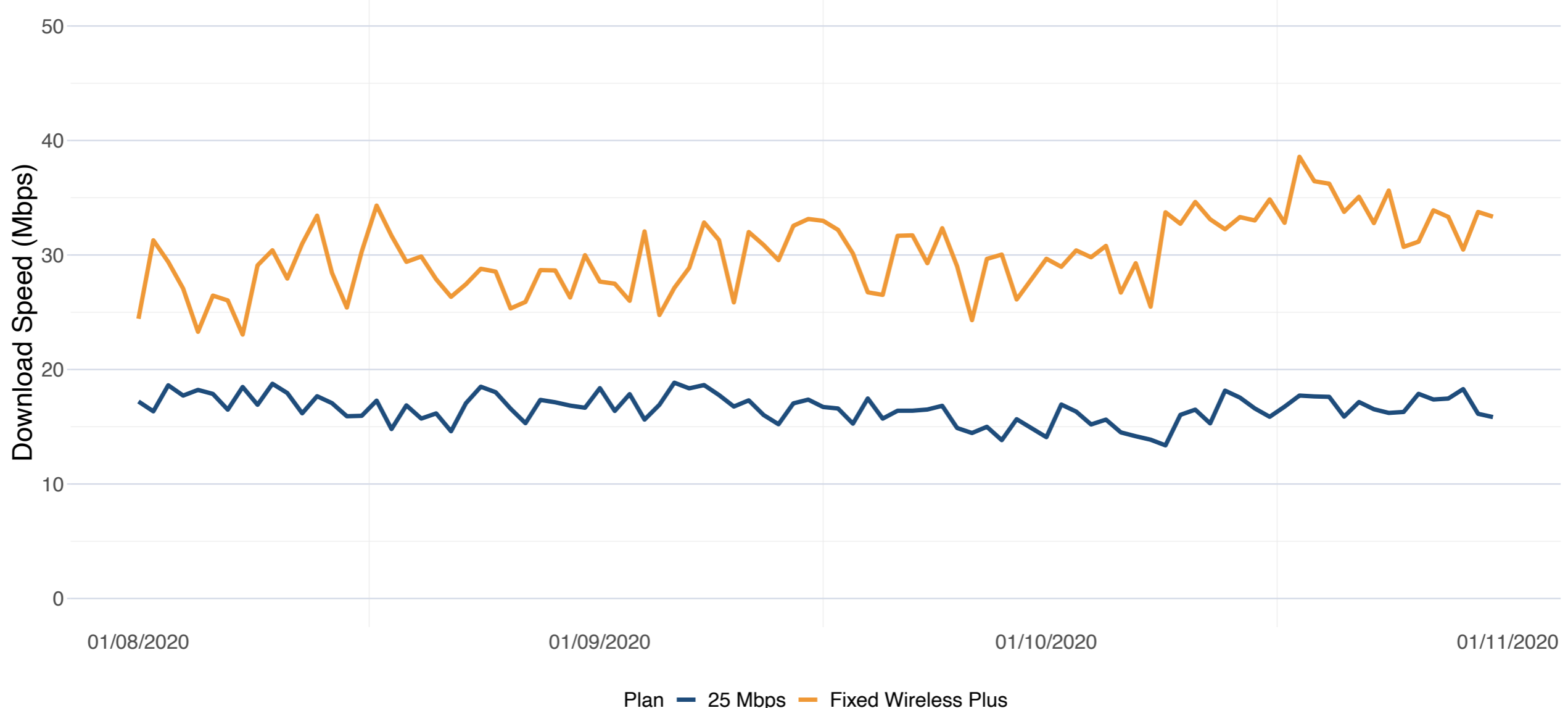


Figure 6: Average Daily Fixed Wireless download speeds during busy hours by plan



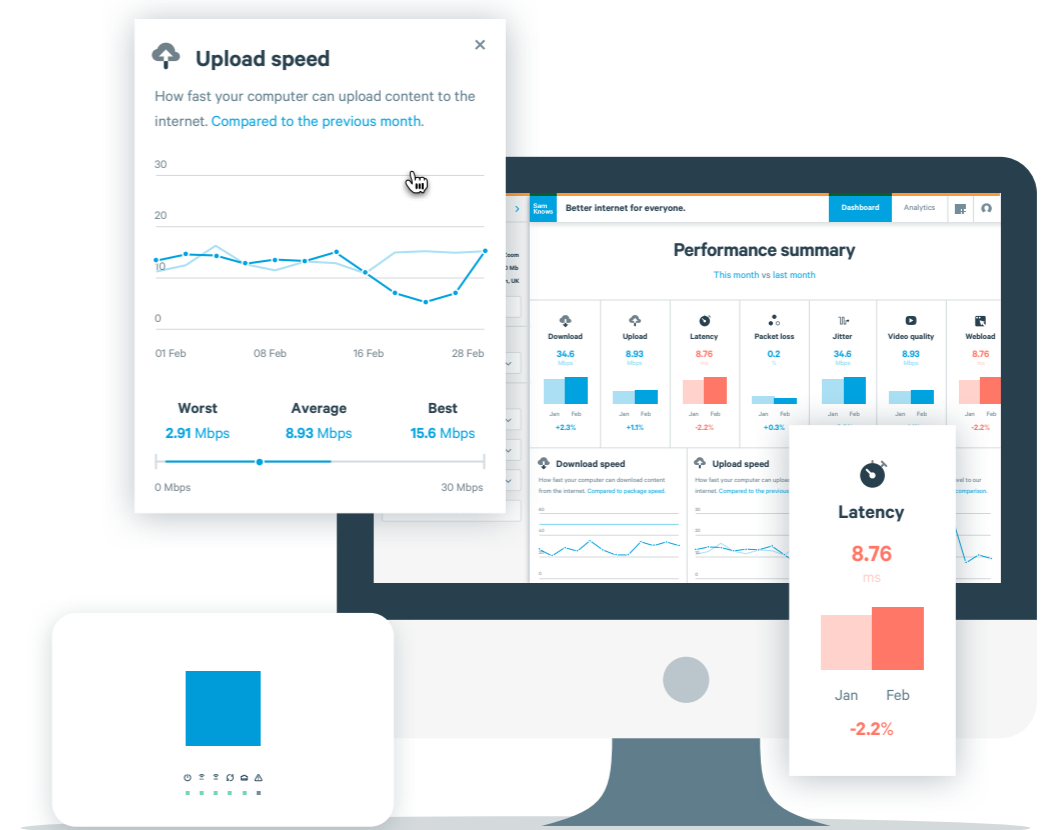
# How we test

## SamKnows One analytics

- View all your data in one place.
- Create customised charts and save the results that mean the most to you.
- Track changes in your connection over time.












## Measuring homes across Australia

- The SamKnows Whitebox is a purpose-built testing agent that connects to your router.
- Measures every aspect of your internet service delivered to your home.
- Runs at regular intervals when you're not using the internet.



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## Tests

Metric	Definition
 <b>Download</b>	The speed data travels from our test server to your device, measured in bits per second.
 <b>Upload</b>	The speed data travels from your device to our test server, measured in bits per second.
 <b>Latency</b>	How long it takes a data packet to go from your device to our test server and back to your device.
 <b>Jitter</b>	Measures the amount of difference between packet delays, or the stability of your latency.
 <b>Packet Loss</b>	When a packet of data becomes lost (does not arrive for two seconds) measured as a percentage of packets lost out of packets sent.
 <b>Outage</b>	The outages metric tracks how many times per day your broadband connection goes offline for at least 30 seconds.
 <b>YouTube</b>	Measures the highest bitrate you can reliably stream for the most popular video in your country.
 <b>Netflix</b>	An application-specific test, supporting the streaming of binary data from Netflix's servers using the same CDN selection logic as their real client uses. The test has been developed in direct cooperation with Netflix.
 <b>Web browsing</b>	Measures how long it takes to fetch the HTML and referenced resources of a popular website.
 <b>CDN measurements</b>	Measures download performance for the same (or very similar) object from a variety of popular Content Delivery Networks over HTTP.
 <b>Voice over IP</b>	Measures the suitability of a broadband connection for VoIP calls.