

Proposed Timaru District Plan

Signs Chapter - Transportation Advice

Prepared for	Timaru District Council
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1. Introduction

Timaru District Council (Council) notified the Proposed Timaru District Plan (PDP) on 22 September 2022. The Summary of Decisions Requested on the PDP was renotified on 4 March 2024 due to several errors in the original summary previously advertised. The further submissions period closed 18 March 2024. Hearings have been ongoing throughout 2024 and are scheduled to finish October 2025.

The reporting officer for Council is currently preparing a Section 42A report for the Signs Chapter of the PDP. Submissions have been received relating to the impact of signage rules on traffic safety. Abley Limited (Abley) was engaged by Council to review those submissions and provide expert transportation advice to assist with preparation of the S42A report.

1.1 Submissions

Submissions on the Signs Chapter have been received from the parties listed in Table 1.1.

Table 1.1 Submitters and Submission Numbers

Submitter	Submission Number(s)
Go Media Limited (Go Media)	18.3, 18.4, 18.5, 18.6 & 18.8
ANSTAR Limited (ANSTAR)	47.1 & 47.2
Fi Glass Products Limited (Mr Boats)	161.3, 161.4, 161.5, 161.6 & 161.8
Out of Home Media Association of Aotearoa (OHMAA)	188.6, 188.7, 188.8, 188.9 & 188.13
Griff Simpson Family Trust (GSFT)	199.3, 199.4, 199.5 & 199.8
Red Sky Holdings (Red Sky)	233.3, 233.4, 233.5 & 233.8
Waka Kotahi NZ Transport Agency (NZTA)	143.125, 143.129 & 143.130

1.2 Note Structure

We (Logan Copland and Jeanette Ward) have been asked eight (8) specific questions by the reporting officer and these questions form the basis of this technical note. We have answered each question individually and subsequently have commented on any other parts of the submissions where these may not have been included in the questions but are still considered relevant from a traffic safety perspective. The questions are outlined below in italics. Section 2 outlines the detail of each answer and Section 4 includes a summary table of our recommendations.

- **Q1** – *SIGN-S1.3 / SIGN-Table 27 - Waka Kotahi [143.125] supports the intent of SIGN-S1 but seeks amendments to SIGN-S1.3 to ensure all signs visible from a road comply with the minimum lettering sizes in Table 27 as opposed to signs within 10 horizontal metres – do you agree with Waka Kotahi or is the 10m horizontal setback sufficient to maintain traffic safety?*
- **Q2** – *SIGN-S1 Waka Kotahi [143.125] have asked Council to consider whether additional standards should be included within SIGN-S1 to maintain traffic safety including sight distances based on posted/operating speeds, setbacks from Traffic Control Devices, or maximum numbers of words/elements. Waka Kotahi [143.125] refer to the Traffic Control Devices Manual (TCD Manual Part 3) which gives direction to these standards to reduce potential traffic safety effects. Do you agree with Waka Kotahi that additional standards should be included within SIGN-S1 to maintain public safety or are the standards, as notified, sufficient? If you recommend additional standards which ones and why?*
- **Q3** - *Waka Kotahi suggests amendments to SIGN-Table 27 to better reflect Table 6.2 of the TCD Manual. Do you agree with the amendments sought by Waka Kotahi, or are the minimum lettering heights, as notified, in your opinion sufficient to maintain public safety?*
- **Q4** *Waka Kotahi seek amendments to SIGN-Table 28 to better reflect Table 5.3 of the TCD Manual. Other submitters, however, oppose the minimum setback **[actually relating to separation]** distances as they consider them to be onerous and impracticable, particularly in lower speed urban and commercial areas (less than 70km) where advertising is prevalent and generally anticipated. Do you consider the minimum separation distances in Table 28 to be necessary to maintain traffic safety? Could a less onerous minimum separation distance be applied in commercial and urban areas with a lower speed limit? Is a minimum separation distance needed or is it sufficient to control the number and area of signs per site.*
- **Q5** *Submitters oppose the 30 second dwell time for digital images in SIGN-S2.2, do you consider it appropriate from a traffic safety perspective for the dwell time to be reduced. Is 10s acceptable? The Christchurch and Selwyn District Plans include dwell times of 7-10 seconds.*
- **Q6** *A submission has been received to delete SIGN-S2.3 which sets a 100m setback from intersections [for illuminated, moving, flashing and digital signs only]. Do you consider the 100m distance from an intersection to be necessary to maintain traffic safety, if so, why? Could a shorter distance be included? Is the 100m setback based on evidence?*
- **Q7** *Submitters oppose the level of illumination in SIGN-S2.6 and seek for this to be increased to 5000cd/m². Do you consider this appropriate? The submitters highlight that 5000cd/m² has been applied in other District Plans such as the Auckland Unitary Plan and Christchurch City District Plan*
- **Q8** *The PDP, as notified, seeks to avoid new off-site signs and categorises off-site signs as a Non-Complying Activity in all zones (excluding the Open Space and Recreation Zones where they a DIS). Various submitters oppose the PDP approach to off-site signs and seek for off-site signs to be better enabled in the SIGN chapter and in appropriate zones (e.g. commercial/industrial areas). In your opinion do off-site signs pose a greater risk regarding traffic safety or would the effects on traffic safety be comparable with on-site signs. Is it more important for the sign to be of an appropriate size, design and location as opposed to being directly on the site the activity is located.*

1.3 Safety considerations and review method

From a traffic safety perspective, signs require two primary considerations.

The first consideration is that when signs are installed near roads, they have the potential to be a physical obstruction and can therefore have a direct effect on road users' ability to safely navigate the transport network. For example, a sign that is installed in a location that blocks a regulatory road sign is an obvious problem that must be avoided. Another example is the blocking of intersection sightlines. The effects of this are tangible and accordingly are easier to assess and set appropriate guidelines based on well-established traffic engineering standards, such as those outlined in Austroads guides.

Several NZTA documents have been referred to in our response, these use Austroads engineering standards:

- The NZTA Traffic Control Devices Manual, Part 3 Advertising Signs (TCD Manual)¹ (We also note that an addendum to Part 3 of the TCD manual (Digital billboard guidance) has been withdrawn following industry feedback and is currently under review)
- The NZTA Planning Policy Manual, Third party signs on and visible from the state highway corridor (PPM)²

The second consideration is that signs can be a source of road user distraction. The intent of a sign (whether it is a regulatory sign, a site related sign, a geographical sign, or a third-party advertising sign) is for it to be read/observed, and therefore where they face a road, they are generally specifically designed in a way that encourages road users to look at them. This means that signs, by their nature, can draw attention of drivers away from the driving task. In the case of regulatory signs though, these are generally designed to supplement the driving task by providing clarity to users on how the road is intended to function, if required (for example, a Give Way sign at an intersection). As such drivers are familiar with them and only need to briefly glance at them to digest the simple imagery and messaging that often is on those signs. According to the NZTA website, anything that diverts a driver's attention for more than two seconds can significantly increase the likelihood of a crash or near-crash³.

By way of contrast, advertising signs / billboards or onsite signs typically display images or messaging that is unrelated to the driving task (except where an on-site sign gives instructions to find a destination). There has been an increase in electronic advertising billboards in New Zealand in recent years, however there is limited available research relating to the effects of digital billboards on road safety (and available research can be conflicting). As a result of this, we consider a precautionary, yet pragmatic approach, is needed when setting district plan rules relating to them. Where publicly available research has informed our response, we have referenced this.

Comparison with other, predominantly South Island, District Plans has also been undertaken during the review as these plans have been through the same process around establishing sign rules. We have primarily referred to the following District Plans in our review:

- The PDP⁴
- The Partially Operative Dunedin Second Generation District Plan (Dunedin Plan)⁵
- The Partially Operative Selwyn District Plan (Selwyn Plan)⁶
- The Proposed Waimakariri District Plan (Waimakariri Plan)⁷

¹ <https://www.nzta.govt.nz/assets/resources/traffic-control-devices-manual/docs/digital-billboard-guidance-review-note.pdf>

² <https://www.nzta.govt.nz/assets/resources/third-party-advertising-signs/planning-policy-manual-third-party-advertising-signs.pdf>

³ Driver distraction | NZ Transport Agency Waka Kotahi

⁴ <https://timaru.isoplan.co.nz/eplan/rules/0/204/0/0/0/93>

⁵ <https://2gp.dunedin.govt.nz/plan/pages/plan/book.aspx?exhibit=DCC2GP>

⁶ <https://eplan.selwyn.govt.nz/review/>

⁷ <https://waimakariri.isoplan.co.nz/draft/>

We have also referred to the Christchurch District Plan and Auckland Unitary Plan on specific occasions, either where submissions have referred to these, or where the other District Plans we have referred to did not contain relevant standards.

2. Questions Raised by Reporting Officer

2.1 Question 1 – SIGN-S1.3 / SIGN-Table 27

Waka Kotahi [143.125] supports the intent of SIGN-S1 but seeks amendments to SIGN-S1.3 to ensure all signs visible from a road comply with the minimum lettering sizes in Table 27 as opposed to signs within 10 horizontal metres – do you agree with Waka Kotahi or is the 10m horizontal setback sufficient to maintain traffic safety?

NZTA proposed the following amendment:

3. All signs ~~within 10 horizontal metres of~~ visible from a road must comply with the minimum lettering sizes in Table 27 – Minimum lettering size.

Abley Response:

We agree with NZTA's amendments because we are not aware of any evidence to suggest that signs greater than 10m (horizontally) from a road are not designed to be read by drivers. In fact, we are aware of examples of signs that have been installed outside this distance, yet they are still designed to be read by passing motorists. Therefore, in our view, they should be subject to the same traffic safety standards.

To validate this approach, we have reviewed similar standards from other District Plans and note the following:

- Rule 6.7.3 of The Dunedin Second Generation District Plan specifies minimum letter heights of signs (except for lettering which authorises an election sign) designed to be read by passing motorists
- SIGN-REQ7.2 of the Partially Operative Selwyn District Plan states that all signs visible from a State Highway must comply with the minimum lettering sizes listed in SIGN-TABLE 2 *Design Standards for Signs that are Visible from a State Highway*
- SIGN-S1 of the Proposed Waimakariri District Plan requires any sign, other than a transport sign or signal to comply with the minimum lettering sizes in Table SIGN-1 where the sign is visible from a strategic road or arterial road with speed limits of 70km/h or higher.
- The Traffic Control Devices Manual – Part 3 Advertising Signs sets out that the size of the lettering for any words on an advertising sign should be increased as the speed of passing traffic increases, but it does not treat signs differently if they are within 10m of a road, or further away.

Moreover, our review of three other District Plans reveals that it is commonplace to have wording such as “visible from a road” or “designed to be read by motorists”.

Conclusion: In our view, signs greater than 10m from a road can meet those definitions and accordingly we suggest that SIGN-S1.3 be reworded as suggested by NZTA.

2.2 Question 2 – SIGN-S1

Waka Kotahi [143.125] have asked Council to consider whether additional standards should be included within SIGN-S1 to maintain traffic safety including sight distances based on posted/operating speeds, setbacks from Traffic Control Devices, or maximum numbers of words/elements. Waka Kotahi [143.125] refer to the Traffic Control Devices Manual (TCD Manual Part 3) which gives direction to these standards to reduce potential traffic safety effects. Do you agree with Waka Kotahi that additional standards should be included

within SIGN-S1 to maintain public safety or are the standards, as notified, sufficient? If you recommend additional standards which ones and why?

Abley Response: The submission requests Council to consider whether additional standards should be included (similar to SIGN-Table 27 and 28).

- **Sight distances based on posted / operating speeds – we assume this relates to access/intersection sight distance and forward sight distance to signs.**

Regarding access/intersection sight distance, PDP SIGN-S1 – Traffic safety (all zones) requires the following:

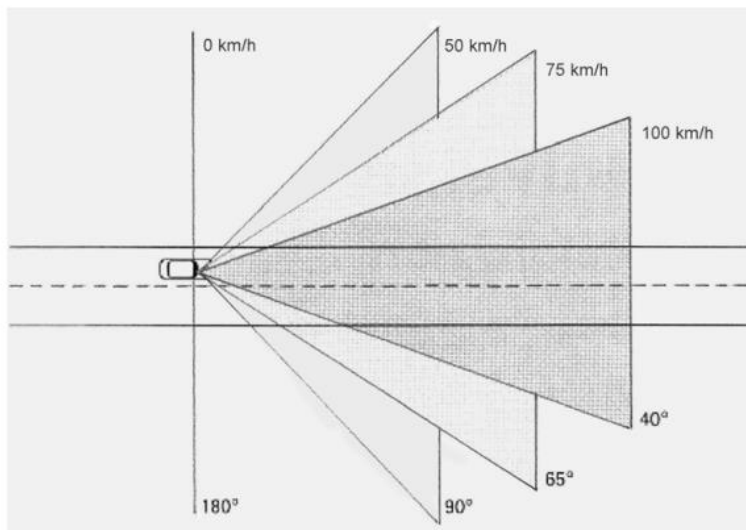
No sign shall be erected adjacent to a road in a manner that will:

- a. *obstruct the line of sight of any road corner, bend or intersection, or vehicle crossing; or...*

Hence, the PDP as notified already addresses access/intersection sight distance requirements with respect to sign location.

As highlighted by NZTA, the PDP as notified does not have any rules relating to forward sight distance to roadside advertising signs. Traffic speeds are an important factor to consider when locating advertising signs for two main reasons; firstly, as the speed increases, a driver's focus shifts further away (the point of concentration) so signs generally need to be visible from a greater distance on roads with higher operating speeds. Secondly, as the speed increases a driver's peripheral vision decreases (referred to as the 'field of vision', refer to Figure 2.1).

Figure 5.1 Extent of a drivers field of vision



Note: To make allowances for drivers to move their heads, 15° may be added to both the left and right hand sides of the fields of view.

Figure 2.1 Field of vision illustration from TCD Manual.

As a result of these two factors, the TCD Manual sets out that signs should be placed “as close as possible to drivers’ line of sight...”⁸. Forward sight distance values (distance that provides an unrestricted view to the approaching motorist), are outlined in Table 5.1 of the TCD Manual, shown below in Figure 2.2. The key issue when signs are located outside the field of vision is that drivers will need to turn their head to read the sign, which is likely to increase the glance time. As noted earlier, longer glance times generally increase the chance of a crash occurring. When signs are located in the

⁸ TCD Manual, Section 5.3 *Visibility of signs*

field of vision (and are unobstructed), drivers do not need to turn their head and can easily read the sign, this is important from a road safety perspective.

Table 5.1 Minimum forward sight distance to roadside advertising signs

Posted speed limit (km/h)	Minimum visibility (m)
50	80
60	105
70	130
80	175
100	250

Figure 2.2 Snippet showing forward sight distance to roadside advertising signs in TCD Manual

As illustrated by Figure 2.1, the field of vision in urban environments is large (in 50km/h and 60km/h environments, but there is also generally more clutter which may reduce the effectiveness of a particular advertising sign. The traffic safety risks relating to forward sight distances to signs are less significant in lower speed urban areas (less than 70km/h) as signs are a typical part of the environment especially in commercial areas. Additionally, lower speeds result in increased reaction time, and reduced severity in the event of a crash (the chance of which is also lower due to increased reaction times).

We note that none of Selwyn, Dunedin, Waimakariri or Christchurch Plans have forward sight distance requirements. Although the concept is important, we consider it can be addressed where the traffic safety risks are higher by making off-site signs, at a minimum, a restricted discretionary activity where facing a road with a speed of 70km/h or greater (refer to our discussion in Section 2.8). However as discussed in that section, we understand the reporting officer is recommending that all off-site signs require consent, and in that context we support Council retaining discretion over traffic safety effects.

■ **Setbacks from traffic control devices**

It is preferable that signs are placed mid-block and away from key driver decision-making points (namely, intersections and pedestrian crossings).

Standard SIGN-S1.2 as notified requires:

2. *No sign shall be erected adjacent to a road in a manner that will:*
 - a. *obstruct the line of sight of any road corner, bend or intersection, or vehicle crossing; or*
 - b. *obstruct, obscure or impair the view of any traffic sign or signal; or*
 - c. *resemble or be likely to be confused with any traffic sign or signal; or*
 - d. *use reflective materials that may interfere with a road user's vision.*

The implication of SIGN-S1.2 is that is that if any sign obstructs, interferes with, or resembles any traffic signal or sign (traffic control devices), a resource consent would be required.

In terms of setbacks, our discussion below in Section 2.6 recommends that digital billboards be setback at least 50m from a signalised intersection or pedestrian crossing. We consider that addresses the key risks associated with setbacks from traffic control devices.

On that basis, and noting our discussion on off-site signs in Section 2.8 (which recommends, at a minimum, any off-site facing a road with a speed limit of 70km/h or greater be a restricted discretionary activity), we consider that this matter is addressed. As above though, we understand the reporting officer is recommending that all off-site signs require consent, and in that context, we support Council retaining discretion over traffic safety effects.

■ **Maximum number of words / elements**

We note that none of Selwyn, Dunedin, Waimakariri or Christchurch Plans have an equivalent standard.

Conclusion: Based on our review, and subject to our discussion in Section 2.6 / Question 6 (separation from intersections), we suggest rejecting the part of the submission point which requests additional standards be added to the PDP, but this submission is addressed by recommendations in other parts of this report in relation to other standards in the PDP.

2.3 Question 3 - SIGN-Table 27

Waka Kotahi suggests amendments to SIGN-Table 27 to better reflect Table 6.2 of the TCD Manual. Do you agree with the amendments sought by Waka Kotahi, or are the minimum lettering heights, as notified, in your opinion sufficient to maintain public safety?

Abley Response: Minimum lettering heights are important from a road safety perspective because if lettering is too small, the sign content will be more difficult for drivers to read. This may result in drivers glancing at the sign for longer so they can absorb the information, which could lead to a worse road safety outcome compared to if they looked at the sign for a shorter period of time. Helpfully, there is national guidance on minimum lettering height in the TCD Manual Part 3.

We have reviewed similar standards from other District Plans and the TDC Manual and in summary we agree with the amendments requested by NZTA in their submission point. For ease of reference, we have included excerpts showing the notified version of Table 27 of the PDP and Table 6.2 of the TCD Manual (refer to Figure 2.3 and Figure 2.4, respectively).

Regulatory speed limit of adjoining road	Main message	Secondary message
Km/hr	Minimum lettering height (mm)	Minimum lettering height (mm)
0 - 50	100	75
51 - 70	150	100
71 - 80	175	125
81 - 100	200	150

Figure 2.3 Notified version of Table 27 of the PDP

Posted speed limit (km/h)	Letter height (mm)		
	Main message	Property name	Secondary message
50	150	100	75
60	175	125	90
70	200	150	100
80	250	175	125
100	300	200	150

Figure 2.4 Excerpt from TCD Manual showing Table 6.2.

We note the Selwyn and Waimakariri plans essentially replicate Table 6.2 of the TCD Manual except that:

- In the case of Selwyn,
 - the lettering height standards only apply to signs facing State Highways, and

- There is one anomaly in Selwyn for business/property name in 70km/h environments (125mm in Selwyn instead of 150mm in TCD Manual).
- In the case of Waimakariri, the lettering height standards only apply to signs facing strategic or arterial roads with speed limits of 70km/h or greater

We recommend that NZTA's submission is accepted. Specifically, we suggest that the values in SIGN-Table 27 be updated to align with TCD Manual. Even though our review of the Selwyn and Waimakariri plans indicates that minimum lettering heights only apply to signs facing roads of a certain speed / classification, we note that SIGN-Table 27 as notified applies to all roads, and that there are no submissions that oppose this aspect of the table. Accordingly, we consider the change is minor and will ensure alignment with industry best practice.

We note that in aligning the standard with the TCD Manual, that the current speed 'ranges' in SIGN-Table 27 will be replaced with defined speed limits, which we support as in our experience having speed limit ranges is unusual and, in this instance, also unnecessary. Finally, a third column will also be added titled "property name", as this is currently missing (and for completeness we note this column is in both the Selwyn (SIGN-TABLE2) and Waimakariri (SIGN-S2) Plans).

Conclusion: We suggest accepting NZTA's submission, specifically we recommend that Table 27 is adjusted to align with Table 6.2 of the TCD Manual.

2.4 Question 4 – SIGN-Table 28

Waka Kotahi seek amendments to SIGN-Table 28 to better reflect Table 5.3 of the TCD Manual. Other submitters however oppose the minimum setback [actually relating to separation] distances as they consider them to be onerous and impracticable, particularly in lower speed urban and commercial areas (less than 70km) where advertising is prevalent and generally anticipated. Do you consider the minimum separation distances in Table 28 to be necessary to maintain traffic safety? Could a less onerous minimum separation distance be applied in commercial and urban areas with a lower speed limit? Is a minimum separation distance needed or is it sufficient to control the number and area of signs per site.

Abley Response: Sign spacing is intended to reduce visual clutter and ensure that road users have sufficient time to process the information on the sign. If the road environment becomes visually cluttered, road users can become overwhelmed with information. Spacing distances should be based on the time taken for a road user to read and absorb sign information. The NZTA TCD Manual provides industry guidance on minimum desirable separation distances but acknowledges they may not be achievable. We have not found any safety related research on this matter of sign separation distances.

As with SIGN-Table 27, SIGN-Table 28 sets standards based on speed ranges. In the case of SIGN-Table 28, the initial speed range is 0-70km/h, with a separation distance of 60m applied to that range. We note that this is a greater minimum separation distance than is recommended by the TCD Manual for a 50km/h environment (50m) and 60km/h environment (55m). Again, for ease of reference, we have included excerpts showing the notified version of Table 28 of the PDP and Table 5.3 of the TCD Manual (refer to Figure 2.5 and Figure 2.6 respectively).

Regulatory speed limit (km/hr)	Separation distance (m)
0 - 70	60
71 - 80	70
81 - 100	80

Figure 2.5 Notified version of Table 28 of the PDP

Table 5.3 Minimum distances between adjacent roadside advertising signs

Posted speed limit (km/h)	Minimum recommended spacing (m)	Desirable spacing (m)
50	50	80
60	55	100
70	60	150
80	70	200
100	80	250

Figure 2.6 Excerpt from TCD Manual showing Table 5.3.

Therefore, the minimum spacing requirement in the PDP of 60m that applies to 50km/h and 60km/h speed environments is too onerous. Although the TCD Manual also sets out ‘desirable’ spacings, we do not consider it appropriate for ‘desirable’ spacings to be applied as a minimum standard in a District Plan.

We also highlight that the language used in Section 5.4 (below Table 5.3) of the TCD Manual is not directive, and further that it concedes that the recommended spacing may not be achievable in many scenarios. Specifically, it notes:

The spacing is based on the time taken for a road user to read and assimilate signs of the maximum recommended complexity. They may not be achievable in many circumstances, such as those in lower speed, urban areas (eg 60km/h or less). However, where they are, both advertisers and road users will benefit from the resulting layout.

As such, we consider the minimum spacing requirements in SIGN-Table 28 are too onerous and are likely to trigger the need for unnecessary land use consents. We also note that it is not atypical for smaller spacings in busy commercial environments, including along parts of SH1 through Timaru. Moreover, we note that none of the Dunedin, Selwyn or Waimakariri Plans have a rule relating to minimum distances between roadside signs.

On the same matter we note that the PPM states:

“signs in a 50 km/hr speed limit zone can often be located closer than 80 metres apart (one sign per site) as a permitted activity under the relevant District Plan. In these cases, Waka Kotahi will use its discretion where an 80m setback between signs cannot be achieved”.

The direction in the PPM indicates that NZTA anticipates having discretion over minimum spacing of signs, we outline three potential options available to address the competing submissions on SIGN-Table 28:

- Option 1: Remove SIGN-Table 28 on the basis of non-directive language in the TCD Manual and given other DPs we have reviewed do not have equivalent standards. This would address the submission points except for NZTA’s.
- Option 2: Replicate the TCD manual standard (noting that the current 0-70km/h range in the PDP means that signs in 50 and 60km/h zones would be treated the same as those in 70km/h zones but make it apply to SHs only. This would address NZTA’s submission point as it would give them discretion over the spacing of signs facing their network, and may be plausible to other submitters given it reduces the number of roads affected by SIGN-Table 28.
- Option 3: Adjust the standard so it applies to only high-speed roads (70km/h or greater). We suspect that this may be acceptable to NZTA, given the non-directive language in the TCD

Manual and PPM and may be palatable to the other submitters due to the reduced scale of impact of the potentially amended version of SIGN-Table 28.

Conclusion: From a purely transport perspective, we recommend Option 3, as we consider this will ensure that Table 28 applies to scenarios with the greatest risk (i.e., higher speed roads). However, we understand that sign spacing requirements could create a situation where some properties may not be permitted to have a sign, with this potentially being dependent on whether or not a neighbouring property already has one (particularly for sites that have short frontage lengths). For example, a site with less than 60m of frontage to a 70km/h road may not be permitted to have an advertising sign if the neighbouring site already has one.

We understand that a balance is required between what is anticipated by a particular zoning type on a site, and what the traffic safety risks are. As a suggested solution, we understand the reporting officer proposes to manage sign proliferation effects by setting a maximum number of signs per site. We support this approach.

2.5 Question 5 – SIGN-S2.2

Submitters oppose the 30 second dwell time for digital images in SIGN-S2.2, do you consider it appropriate from a traffic safety perspective for the dwell time to be reduced. Is 10s acceptable? The Christchurch and Selwyn District Plans include dwell times of 7-10 seconds.

Abley response: Image transition is a key reason why a digital billboard may be more distracting than a conventional static billboard. Static billboards generally display one image across several weeks, and so drivers that frequent that section of road that is visible to the static billboard are less likely to repeatedly glance at the billboard across that period of time. On the other hand, since variable imagery billboards have constantly changing imagery, they are likely to display a much larger number of images over the same period of time compared to a static billboard. The effect of this is that the digital billboard is likely to result in a much higher number of collective glances than a static billboard. A further consideration is that since drivers will anticipate the imagery on a digital billboard to change, they may glance at it several times as they approach it. In that scenario, the number of glances is not necessarily affected by the image changing, but rather, is affected by the fact that a driver anticipates it to change.

Whether or not these factors result in a reduction in road safety performance is unclear given the limited research available. We consider that this is dependent on the specific characteristics of the road environment, including speed, traffic volumes and existing safety performance (including crash causal factors).

In general terms though, the longer the dwell time, the lesser the proportion of drivers who will see a transition between advertisements and see more than one advertisement. This is likely to be of some benefit although the extent of that benefit is difficult to quantify.

Based on our review of other District Plans, we agree with the submissions that a 30-second dwell time is generally greater than is necessary to manage traffic effects, particularly when billboards are located away from intersections. We note that Christchurch sets a minimum dwell time of seven seconds, whereas Selwyn and Dunedin are each 10 seconds. Waimakariri has a minimum dwell time of one hour, but we are unaware what the rationale is for such an extended minimum dwell time in that instance. We are also aware from our private development work in Waimakariri that minimum dwell times of eight seconds have been recently approved. We are unaware of any national guidance on minimum dwell times but based on our experience with digital billboard assessments and review of other District Plans, we recommend a minimum dwell time of 10 seconds for Timaru.

We also consider that higher dwell times may be warranted where a billboard is near a signalised intersection or signalised pedestrian crossing, to allow coordination with the signal phasing. This should be subject to an assessment, which we note is supported by our subsequent recommendation that digital signs within 50m of a signalised intersection or signalised pedestrian crossing be a restricted discretionary activity, refer Section 2.6.

The reporting officer has also asked us to consider whether billboards facing a state highway should have a higher dwell time than those that do not (given that SH1 runs through Timaru and adjacent to commercial zones). We are not aware of any district plans that specify a higher dwell time for digital signs facing state highways compared to those visible from the local road network, and on that basis, we conclude that this is not necessary for Timaru.

Conclusion: We recommend that submissions requesting a reduced dwell time are accepted, and suggest a minimum dwell time of 10 seconds is appropriate.

2.6 Question 6 – SIGN-S2.3

A submission has been received to delete SIGN-S2.3 which sets a 100m setback from intersections [for illuminated, moving, flashing and digital signs only]. Do you consider the 100m distance from an intersection to be necessary to maintain traffic safety, if so, why? Could a shorter distance be included? Is the 100m setback based on evidence?

Abley Responses: Firstly, we expect that the 100m setback from intersection requirement was sourced from Section 5.5 of the TCD Manual, which states:

“The location of advertising signs or devices in close proximity to traffic control devices may result in the advertising sign obscuring a traffic sign or otherwise detracting from the traffic sign’s effectiveness. Traffic control devices place demands on a driver’s attention and are often located at sites to warn of specific hazards or to control hazardous traffic movements. Distractions caused by advertising signs may result in road safety problems. To help avoid safety issues, advertising signs should not be located within 100m and 200m in urban and rural areas respectively of:

- intersections
- permanent regulatory or warning signs
- curves (with chevron signing)
- pedestrian crossings”

Although we agree with the sentiment of the above, we also acknowledge that there are numerous examples of advertising signs being located within 100m of an intersection. Of course, that in itself does not necessarily suggest that those examples do not result in any adverse traffic safety effects, but it does indicate that signs within 100m of an intersection is not unusual or unanticipated.

On the other hand, intersections, by their nature, are a component of the road network that places high cognitive demands on drivers as they need to make critical decisions (such as whether to stop). They are a source of conflict between different turning movements and in many cases different transport modes. Additionally, intersections (especially signalised intersections) are a source of queuing and platooning.

We consider that a separation of 100m is arbitrary, and the TCD Manual does not provide any direct guidance as to why 100m is appropriate, or conversely, why 90m (for example) is not. In our opinion, the most critical aspect is to ensure that if a digital sign is located near an intersection that it does not obstruct regulatory traffic control devices, form a backdrop to them, replicate them, affect driver visibility, or increase the level of distraction where there is high risk. We consider that the risk of signs affecting visibility or interfering with regulatory traffic control devices is greater the closer to an intersection they become. This is because intersections, especially signalised intersections, require infrastructure (namely traffic signal lanterns and poles) to support the safe operation of the roading network, and so drivers are heavily reliant on that infrastructure being visible and easily legible. The same logic applies to signalised pedestrian crossings that are not at intersections (mid-block).

In terms of other District Plans, Dunedin does not have specific rules relating to sign location relative to intersections, but we note that commercial advertising is not a permitted activity in Dunedin. Hence, if a

commercial advertising sign was located near an intersection (or anywhere for that matter) in Dunedin, then a resource consent would be required and that would include consideration of traffic effects. We therefore do not consider a lack of a specific standard in that instance to be of any significant weight to this assessment.

For temporary signs, off-site directional signs⁹ and off-site signs, Waimakariri requires a separation of 200m from an intersection where it is adjacent to a road with a speed limit greater than 60km/h. Interestingly, this does not apply to onsite sites, and we also note that off-site signs are, at best, a restricted discretionary activity so would be subject to a traffic assessment.

Finally, we note that both Christchurch and Selwyn require digital off-site signs / billboards to be set back at least 50m from any signalised traffic intersection¹⁰. Note also that Rule 6.8.4.2.2 *traffic safety – applies to all signs* of the Christchurch District Plan does not permit any signs to be located adjacent to state highways or arterial roads where all of the following criteria are met:

- the road has a speed limit of 70km/h or greater; and
- the sign is located within a road boundary building setback required by a built form standard for the relevant zone; and
- the sign is located within 100 metres (in urban zones) or 200 metres (in rural or open space zones) in front of any official regulatory or warning sign or traffic signal.

Hence in the case of Christchurch, the 100m setback in urban zones only applies where the sign faces a state highway or arterial road with a speed limit of 70km/h or greater (although this applies to any sign, not just digital signs as is the case for SIGN-2.3 of the PDP).

Overall, we find that SIGN-S2.3 is more onerous than any other district plan we have reviewed. For the avoidance of doubt, SIGN-S2.3 reads: *no illuminated, moving, flashing or digital display sign must be visible to vehicles travelling on a legal road within 100 metres of an intersection*. We suggest that a standard similar to that of Christchurch or Selwyn (minimum 50m separation between digital signs and signalised intersections) would be an appropriate approach for the PDP. This would be more permissive than the notified version SIGN-S2.3 (as it would only apply to signalised intersections and the distance would be halved), but equally we think it is sufficient to enable assessment of traffic effects where the safety risk is likely to be higher (i.e., at decision making points).

We also note that SIGN-S2.8 states that no digital sign is to be located adjoining a state highway. Refer to our discussion in Section 3.1 on this matter.

Conclusion: We recommend the submission be accepted in part, in that some relief can be applied to the standard. Specifically, we conclude that it is important that where billboards are in proximity to signalised intersections and signalised pedestrian crossings that the traffic effects are assessed by a suitably qualified and experienced professional (such as assessing potential for signal lantern overlap / backdrop, consideration of traffic signal phasing and relation to timing of image changes on the sign, consideration of crash history and safety for all transport modes). Where the intersection is not signalised, there is no potential of a digital sign obstructing a signal lantern and we consider that other standards will adequately control transport effects in those scenarios (in particular SIGN-S1).

We therefore recommend that digital signs within 50m of a signalised intersection or signalised pedestrian crossing are a restricted discretionary activity with discretion over traffic safety. We note that 'intersection' is not defined in the PDP. We suggest that intersection be defined as it is in the CDP, which states *'in relation to two or more intersecting or meeting roadways or railway lines, means that area contained within the prolongation or connection of the lateral boundary lines of each roadway or railway'*. This will provide clarity to plan users as to how the separation is to be measured.

⁹ means any sign limited to directional related words or symbols along with the name of the activity only that is located on a site that is not where the activity is occurring.

¹⁰ Note as per Rule 6.8.4.2.2 *Traffic Safety – applies to all signs* of the Christchurch District Plan, no sign adjacent to a state highway or arterial road may be located within 100m (in urban zones) or 200m (in rural or open space zones) in front of any regulatory or warning sign or traffic signal.

2.7 Question 7 – SIGN-S2.6 and 2.7

Submitters oppose the level of illumination in SIGN-S2.6 and seek for this to be increased to 5000cd/m². Do you consider this appropriate? The submitters highlight that 5000cd/m² has been applied in other District Plans such as the Auckland Unitary Plan and Christchurch City District Plan

Abley Response: Illumination levels are important because if signs are too bright, they can:

- Create glare and affect road users' ability to see.
- Draw road users' attention away from the road for too long.
- Make it difficult for drivers to be able to adjust between the sign brightness levels and ambient lighting conditions.

SIGN-S2.6 and SIGN-S2.7 permit maximum illumination levels 250cd/m² between sunset and sunrise (or in other words, during hours of darkness) and 2,000cd/m² between sunrise and sunset (or in other words, during hours of daylight). Table 6.1 of the TCD Manual Part 3 provides maximum luminance levels based on the size of the illuminated area, and values for areas with street lighting and a separate one for those that do not (areas with street lighting allow a greater illumination than areas without streetlighting), refer to Figure 2.7.

Table 6.1 Maximum luminance (cd/m²) of illuminated advertising devices (Source: UK Institution of Lighting Engineers)

Illuminated area (m ²)	Areas with street lighting	Areas without street lighting
up to 0.5	2000	1000
0.5 to 2.0	1600	800
2.0 to 5.0	1200	600
5.0 to 10.0	1000	600
Over 10.0	800	400

Figure 2.7 Excerpt from TCD Manual showing Table 6.1

It is important to note that we are not lighting experts, however, our advice is provided from a road safety perspective whereby a high luminance level may have the potential to distract drivers especially at night time. Research undertaken by Domke et al (2012) suggests maximum luminance of billboard surfaces should not exceed 400cd/m² at night at 5,000cd/m² during the day¹¹.

Our review of other District Plans identified:

- Selwyn permits up to:
 - 5,500cd/m² during daytime, and
 - 250cd/m² during night time (with a 150cd/m² average)
- Waimakariri does not have any specific rules that control maximum digital sign luminance (other than light spill via the LIGHT chapter) but we note that off-site signs require resource consent.
- Dunedin does not distinguish between daytime and night time hours, but replicates the values given for “areas with street lighting” in the TCD Manual.
- Auckland permits up to:
 - 5,000cd/m² during daytime hours, and
 - 250cd/m² during night time hours, and

¹¹ Large-Sized Digital Billboards Hazard, Article in International Journal of Design & Nature and Ecodynamics, December 2012

- 250cd/m² during twilight¹²

We note that in our experience working on digital billboard projects throughout New Zealand that standard values we apply are 250cd/m² during hours of darkness and 5,000cd/m² during daytime hours. Despite the research referred to above suggesting a higher luminance level of 400cd/m² being appropriate during hours of darkness, based on our review of other district plans and experience, we suggest a maximum of 250cd/m² is more appropriate.

On this basis, and noting there is precedent for higher daytime luminance values being permitted (in Auckland and Selwyn), we consider there is scope to accept a higher value in Timaru.

Conclusion: We recommend that the submission be accepted, and specifically that SIGN-S2.7 be amended as follows:

1. *Illumination levels of any sign must not exceed 25000 candelas per square metre between sunrise and sunset.*

2.8 Question 8 – SIGN-P3

The PDP, as notified, seeks to avoid new off-site signs and categorises off-site signs as a Non-Complying Activity in all zones (excluding the Open Space and Recreation Zones where they are a DIS). Various submitters oppose the PDP approach to off-site signs and seek for off-site signs to be better enabled in the SIGN chapter and in appropriate zones (e.g. commercial/industrial areas). In your opinion do off-site signs pose a greater risk regarding traffic safety or would the effects on traffic safety be comparable with on-site signs. Is it more important for the sign to be of an appropriate size, design and location as opposed to being directly on the site the activity is located.

An example of an off-site sign would be a billboard advertising third-party product(s), and an example of an on-site sign is a pylon at a service station that displays fuel prices or saying “hot food and coffee served here”. In our view, the intent of both of those types of signs is to ‘grab’ the attention of drivers and as such, both sign types therefore are likely to distract drivers from the driving task. However, there are also some on-site signs that assist with drivers finding their destination which could potentially improve safety.

The difficulty with off-site signs is that they may not be anticipated like on-site signs are. For example, a service station is expected to have ancillary signage and is therefore typically expected by drivers. By way of contrast, off-site signs are less likely to be anticipated as they are not associated with any particular activity on the site. This means that without any regulation of off-site signs, they could be installed anywhere and in large numbers.

We note from our review of other District Plans throughout New Zealand there is at least one example (Selwyn) where off-site signs are a permitted activity in certain zones subject to compliance with standards (including maximum area, height, traffic safety (including not being visible from a state highway). Christchurch also takes this approach for small off-site signs only, but we note that it only allows a maximum area of 1.4m² including the border, among other requirements.

Conversely, Dunedin treats commercial advertising as non-complying in all zones, and accordingly takes a similar approach to that in the PDP as notified. Waimakariri does not permit any off-site signs and instead treats them as a restricted discretionary activity in Industrial Zones¹³, and non-complying in all other zones.

We consider as a result of this that it is appropriate from a traffic safety perspective that Council retains discretion over the location and design of off-site signage to ensure that traffic safety effects are

¹² Defined as astronomical dawn to sunrise and from sunset until astronomical dusk with the times for sunrise, sunset and astronomical dusk (night) being those specified in the US Naval Portal).

¹³ With discretion over transport safety and amenity values

assessed. It therefore considered that, at a minimum, off-site signs should be a restricted discretionary activity in the following scenarios:

- Where they face any road with a speed limit of 70km/h or greater

We consider the traffic safety risks are higher as the speed environment increases, and as such, it is appropriate that an assessment is done in those scenarios. Similarly, though, it would be beneficial for assessments to also be done at lower speed environments as there may be contextual issues that impact safety even at a low speed.

We also understand that there are other planning related reasons why a third party advertising sign might need to be controlled in a district plan, such as effects on amenity / urban design. These matters are not within our area expertise as transportation experts, and as such we defer to the reporting officer to consider those aspects.

Conclusion: Overall, while it is plausible that an on-site sign presents similar traffic safety risks to an off-site sign, the additional risk posed by off-site signs is in part due to the fact that they are unanticipated. The traffic safety risks are also significantly higher in higher speed areas due to reduced reaction times which increases the chance of a crash occurring and means that the severity of any crash would be higher due to the speed at which it could occur. For those reasons, we recommend that off-site signs that face any road with a speed limit of 70km/h or greater be a restricted discretionary activity. That said, we understand that the reporting officer proposes that off-site signs would be, at a minimum, a restricted discretionary activity in certain zones (commercial and industrial zones), irrespective of the speed environment. In that context we consider that there should be discretion over traffic safety effects regardless of the speed environment. It would be beneficial for assessments to also be done at lower speed environments in certain situations as there may be contextual issues that impact safety even at a low speed.

Since a consent is required, this will not create any additional administrative consenting burden to applicants and will provide Council with the ability to apply judgement as to whether a traffic assessment is necessary in certain situations.

3. Other matters

We met with the reporting officer on 5 February 2025 which prompted further questions/areas of contention for us to consider and provide a response to. This was because either:

- The questions outlined in Section 1 were deemed to not encompass all aspects of the submissions, or
- The reporting officer felt that additional consideration was required to address a particular submission point, or clarification that a particular part of a submission was not relevant from a traffic effects perspective.

These additional considerations are set out in the subheadings below.

3.1 Digital signs facing the state highway network (SIGN-S2.8)

Various submitters oppose SIGN-S2.8 which states that digital signs must not be located adjoining a state highway. They state that other regions apply permitted rules and standards and only include NZTA [as part of a consent process] when permitted standards are breached.

In our review of other District Plans, we find that:

- Christchurch does not permit any sign to be located adjacent to a state highway or arterial road where the speed limit is 70km/h or more if the sign is within 100m (urban) or 200m (rural) from any official regulatory or warning sign or traffic signal (Rule 6.8.4.2.2). In addition, digital billboards are not permitted adjacent to a state highway where the speed limit is 70km/h or greater (P15, activity standard n). Where the state highway speed limit is less than 70km/h, digital display boards are permitted (in certain zones) subject to other performance standards.
- Waimakariri does not specifically prohibit signs adjacent to a state highway, but note our discussion under Section 2.6 which discusses the activity status of off-site signs (meaning that a consent is required for any off-site sign).
- SIGN-R5 of the Selwyn Plan applies to *off-site signs*, which are permitted in certain zones subject to performance standards, one of which is that the sign must not be visible from a state highway. The same applies to SIGN-R6 *digital off-site signs*. Hence, any off-site sign that is visible from a state highway in the Selwyn District requires a restricted discretionary consent.
- Dunedin does not specifically prohibit signs adjacent to a state highway but refer to our discussion in Section 2.8 which discusses the activity status of commercial advertising signs (meaning that a consent is required for any off-site sign).

Our review indicates that a variety of approaches are taken with respect to digital billboards facing the state highway network. We see that there may be grounds for a more permissive approach to be adopted, such as that which has been adopted in Christchurch. That approach could permit digital signs adjacent to the state highway network at certain speed limits (less than 70km/h), subject to compliance with the other standards (such as intersection separation, dwell time, illumination levels, letter height etc). These would also be subject to the SIGN-S1 *Traffic Safety* and SIGN-S2 *Illuminated, moving and flashing digital signs*.

3.2 Maximum sign height and area (SIGN-S3 & 4)

Several submissions discuss SIGN-S3 and SIGN-S4 which set out standards for sign heights and areas. SIGN-S3.2 sets out a maximum height of 4m for free standing signs in various zones, and SIGN-S4.2 sets out a maximum area of 5m² for free standing signs in Commercial and Mixed-Use zones.

Sign size is important for two main reasons. Firstly, wherever a sign overhangs an area used by pedestrians it is important that it maintains an appropriate vertical clearance, and that the sign does not obstruct visibility for road users. Secondly, the larger a sign is the more drivers are likely to look at it

(especially for billboards). We are not aware of research that would suggest the size at which this is likely to become a problem, however we note that Christchurch requires that “*the maximum area of any single billboard [static and digital billboards in fronting arterial and collector roads within the several zones] shall be 18m². In the case of two sided billboards, the area shall be calculated as being that visible from one direction only provided that such billboards are joined at the apex and are separated by an angle of 30 degrees or less*”. We suggest this would be an appropriate base-line to consider for Timaru. This could be addressed by adding a further clause SIGN-S2 *Illuminated, moving, flashing and digital signs*.

4. Summary

Abley Limited (Abley) was engaged by Council to review those submissions and provide expert transportation advice to assist with preparation of the S42A report. This technical note encompasses that advice. Refer to Table 4.1 for a summary of our recommendations in response to each question raised by the Reporting Officer.

Table 4.1 Recommendation summary

Reporting Officer Question	PDP Provision	Relevant Submission Numbers	Abley recommendation
Q1	SIGN-S1.3 & SIGN-Table 27	143.125 (NZTA)	Accept, refer to our discussion in Section 2.1
Q2	SIGN-S1	143.125 (NZTA)	Reject, refer to our discussion in Section 2.2.
Q3	SIGN-Table 27	143.129 (NZTA)	Accept, refer to our discussion in Section 2.3.
Q4	SIGN-Table 28	143.130 (NZTA) 18.8 (Go Media) 161.8 (Mr Boats) 188.13 (OHMAA) 199.8 (GSFT) 233.8 (Red Sky)	Competing submissions received and several options proposed, refer to our discussion in Section 2.4.
Q5	SIGN-S2.2	18.5 (Go Media) 161.5 (Mr Boats) 199.5 (GSFT) 233.5 (Red Sky)	Accept in part, refer to our discussion in Section 2.5.
Q6	SIGN-S2.3	188.9 (OHMAA)	Accept in part, refer to our discussion in Section 2.6
Q7	SIGN-S2.6 & 2.7	18.5 (Go Media) 161.5 (Mr Boats) 188.9 (OHMAA) 199.5 (GSFT) 233.5 (Red Sky)	Accept, refer to our discussion in Section 0

Reporting Officer Question	PDP Provision	Relevant Submission Numbers	Abley recommendation
Q8	SIGN-P3 & SIGN-R4	18.3 (Go Media) 47.2 (ANSTAR) 161.3 (Mr Boats) 188.6 (OHMAA) 199.3 (GSFT) 233.3 (Red Sky) 18.4 (Go Media) 47.1 (ANSTAR) 161.4 (Mr Boats) 188.7 (OHMAA) 199.4 (GSFT) 233.4 (Red Sky)	Accept in part, refer to our discussion in Section 2.8.

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