

# Full Report on Smokefree Signage at Railway Stations: A Survey of 54 Stations in 11 Local Government Areas

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## Background

There is a wide literature on the use and significance of railway stations. Part of the significance lies in the large numbers of pedestrians who flow through the stations, particularly from commuter lines.<sup>1</sup> Another aspect of this significance lies in the importance of arrival and departure places within social life and travel.<sup>2-4</sup> Railway stations can have a wide range of social, health and other impacts,<sup>5</sup> and they provide opportunities for promoting health in heavily used environments.<sup>6</sup> They are ‘public spaces that are a gateway between diverse communities. Stations are also meeting places .... somewhere to socialize or as a way to access local activities... [They] add to the economic, sociability and diverse vibrancy of communities’.<sup>7</sup>

Within the literature on railway stations, there is a considerable focus on design and other features to reduce adverse behaviour, across a spectrum from litter and loud music to violence.<sup>8</sup> Some of the research around the use of, and behaviour at, railway stations has also looked at ways to communicate to station users.<sup>9 10</sup>

Settings at which crowds can gather are relatively high priority areas for smokefree policies, given the potential for exposure to secondhand smoke and smoking normalisation. Making these settings smokefree should contribute to denormalising smoking, which helps quitting and reduces uptake.<sup>11 12</sup> For railway stations, there is very limited research around the smokefree status, despite the large numbers of people using them in many countries. Some countries have prohibited smoking in the outdoor areas of mass transit systems such as for trains and buses, eg, over 500 US municipalities and three US states,<sup>13</sup> and 80% of such settings in a US study.<sup>14</sup>

It has also been reported that general smokefree laws may decrease smoking in outdoor venues such as transit stations, even if these are not specifically covered by the laws.<sup>15</sup> At least for railway stations, there is also some evidence for majority public support for smokefree stations by both smokers and non-smokers, as per a survey in France.<sup>16</sup> There is also limited evidence that smokefree signage is effective in changing outdoor smoking behaviours – although some favourable evidence exists for signage in smokefree parks.<sup>17</sup>

There has been relatively rapid growth of commuter train use in both Auckland and Wellington,<sup>18</sup> making this a domain of interest from a public health and wider research perspective.<sup>19</sup> This is likely to continue as the focus on sustainability and carbon reduction increases in importance.<sup>20 21</sup> However, we found little New Zealand research specifically on railway stations and their platforms. A discussion of the potential role of the Karangahape Road

Station in Auckland's inner city development explored 'how best to stitch together the heritage of the site and the function of the train station'.<sup>7</sup> Analysis of the spatial aspects of increased land values around Auckland stations found varied effects<sup>22</sup> and an examination of the Christchurch railway station considered the 'potential for train journeys and railway stations to be considered as metaphors for spiritual journeys and milestones'.<sup>23</sup> Nevertheless, much of such New Zealand research has been about accessibility.<sup>24 25</sup>

In New Zealand, indoor areas which workers or the public use, plus the outdoor areas of schools and pre-schools, are required by law to be smokefree at all times. Businesses, hospitals and tertiary education campuses are increasingly requiring their outdoor areas to be smokefree, but very few local government authorities use the law for such policies.<sup>26</sup> Rather, they generally use "educational" policies that indicate smokefree outdoor areas with signs, but are not backed by laws.<sup>26 27</sup> Many deficits in outdoor smokefree signage exist eg, at schools,<sup>28</sup> playgrounds<sup>29 30</sup> sports grounds and racecourses,<sup>31</sup> and various other outdoor settings.<sup>32</sup> Given this background, we therefore aimed to identify the extent and nature of outdoor smokefree signage at a sample of railway stations in an area of New Zealand.

## Methods

We surveyed all 54 passenger railway stations in the lower half of the North Island of New Zealand (from National Park in the middle of the island, south to Wellington). This was 47% (54/114) of all such stations in New Zealand. The selection of this area was based largely on convenience. Nevertheless, this area provided a wide mix of stations in urban, small town and rural settings (eg, Figure A1 below), and it also included the capital city. The railway stations in this area are run by Metlink<sup>33</sup> for the Wellington region (the cities of Wellington, Hutt, Upper Hutt, Porirua and Kapiti; and the Wairarapa line), and by New Zealand Rail (for stations from Otaki northwards).

Field observations were conducted between November 2017 and January 2018 by both authors (initially together while developing the methods and then separately). On these visits, the pedestrian entrances to the railway station (specifically where the path meets the platform) and on the platform (when walking around the outside of all the built structures) were photographed and examined for smokefree signage. Any signage was then photographed and measured. Essentially, we were focused on studying signage related to smokefree outside areas, including under verandas or under roofs open at the sides. Platforms were counted as being separate when these were separated by railway lines at the station.

From the collected photographs we examined qualitative issues (eg, evidence of vandalism), along with selected aspects of sign design and content. The latter built on what is known about size and issues around clutter from research on tobacco and alcohol warning labels.<sup>34-36</sup>

Since Google Street View (GSV) is becoming increasingly used for this type of research,<sup>37 38</sup> we also plan to evaluate its use for detecting smokefree signage was performed. Nevertheless, this

was abandoned after pilot work, owing to its fairly limited utility. That is, while many of the observed railway stations do have GSV imagery available for them, it was typically of just one point on the station platform or from an adjacent street which was often quite distant or which did not permit views of the station platform.

## Results

**Station descriptions:** The 54 surveyed railway stations provided passenger services on seven different train lines (Table A1). These stations were run by two different train companies and the stations were located in 11 different local government jurisdictions (territorial authorities) in the southern half of the North Island. They were in five cities (population of 40,000+ and including the capital: Wellington), nine towns and three rural areas. These comprise 47% of all of the functioning railway stations used by rail passengers in New Zealand (54/114).

The stations typically had just one platform (80%; 43/54), with the rest having two platforms (except for the Central Wellington station with 9). There were an average of 2.9 well-defined pedestrian entrances to the platform/s per station (range: 1 to 10) but also less well defined areas at an average of 0.5 per station (range: 0 to 3). An example of such a less defined entrance area where there is pedestrian access from an adjoining grassed area is in Figure A1.

**Station use of smokefree signage:** At the studied stations there were a total of 301 outdoor smokefree signs, and 77.8% (42/54) of the stations had some smokefree signage (although 18.5% [10/54], had only one sign for the whole station). The median number of signs per station was 2.0, but the range was up to a very large total of 192 (Wellington station, which had 9 platforms). The Capital Connection Line had the most such stations with no signs within the surveyed area at five stations, followed by the Northern Explorer Line at four stations. Each of the seven train lines had at least one station with no smokefree signs.

When considering separate platforms, 76.4% (55/72) of these had some smokefree signage. The median number of signs per platform was also 2.0 (range: 0 to 21.3). There were no smokefree signs at the 186 pedestrian entrances to all the platforms (ie, 0/159 for well-defined entrances and 0/27 for more general areas where pedestrians could access the platform). Most signage was attached to the outside of platform structures at 88.1% (37/42), the rest being on just poles (4.8%, 2/42) or a mix of both (7.1%, 3/42) (eg, see Figures A2, A3 and A4 for examples).

We found no well-defined areas where smoking was or wasn't allowed on any of the outside areas of the platforms. However, signs at the main Wellington station implied there was one or more "designated" smoking areas (Figure A5). Indeed, observations were made of staff smoking in an unmarked area off to the side of one of the nine platforms (probably such a designated smoking area).

**Sign characteristics:** There were 10 different types of smokefree sign observed (see Figures A2, A5 and A6 for examples). The median number of sign types per station was one, but it ranged up to eight different types (Wellington station). Most signs in the Wellington region and on the

Wairarapa line had the name of the regional government public transport agency (“Metlink”) on them, though some also had the name of a specific local government (Hutt City).

Smokefree signage was often part of other signage (eg, prohibiting skateboarding and cycling) and was also located near to other types of signs (Figures A2, A3, and A4). The smokefree signs were sometimes positioned quite high off the ground (eg, Figures A3 and A4). There was no smokefree signage painted on the actual platform or entrance surface, in contrast to Figure A7 for a sign banning alcohol.

Sign size was relatively modest overall (median = 300 cm<sup>2</sup> [Figure A8] similar to “A4” size) and ranged from 50 cm<sup>2</sup> (Figure A9) to a very large 18,000 cm<sup>2</sup> (Figure A6). Vandalism levels were relatively high for the signs that were just small stickers (at 63% [10/16], Figure A9) but were extremely low for all the other signs (0.4%, 1/285).

None of the signs found indicated that railway staff could or would enforce the outdoor smokefree policy, with no references to any legislation that would empower staff to require non-smoking behaviour in outdoor areas.

## Discussion

**Main findings and interpretation:** The results for this survey of railway stations indicate highly diverse, but generally poor levels of smokefree signage at both stations and at the platform level. Particularly problematic was that there were no such signs at any of the 186 pedestrian entrances to the platforms – which means that train users could easily miss seeing those smokefree signs that did exist, typically on the platform buildings. Added to this were the problems that some of the signs were placed high up on buildings or poles above eye level, and were sometimes very small (ie, only 5 x 10 cm).

So overall this situation suggests substantial scope for improvements to smokefree signage by relevant agencies (transport authorities, local or central government) in these particular settings. Such improvements could specifically include:

- Ensuring that all railway station platforms have at least some smokefree signage (eg, up from the current 76% of platforms as per this study).
- Ensuring that the signage is frequent enough to be readily visible for people arriving via the main entrances to the platform (ie, improving on the current level of zero entrances with signage found in this study). This could involve using signs painted onto the pavement (as per Figure A7 for alcohol), as these might be relatively low-cost compared to normal signs.
- Considering ways to reduce the visual clutter of signage – possibly by separating the different types of signs so that each stand out more.
- Considering ways to improve signage visibility by lowering sign height, while recognising that this may also increase the risk of vandalism.
- A national standard for the minimum size and legibility of smokefree signs in all outdoor settings.

The observed pattern of suboptimal smokefree signage (both quantity and quality) is consistent with other outdoor smokefree areas in New Zealand (see *Background above*). Nevertheless, some railway stations did stand out as having extensive signage: particularly Wellington station with 192 outdoor signs (with even yet more signs on the entrance to various underground passageways leading to the station that were not included in this study given its “outdoor” focus).

**Study strengths and limitations:** A strength of this study is that it is the first one anywhere internationally of railway station smokefree signage, that we know of. It also covered nearly half of all the passenger railway stations in the country. The methods provide a simple way of examining signage for railway stations. We considered such basic aspects of sign design such as size, and the level of visual clutter when combined with other signage etc (as per the *Methods*).

Nevertheless, the results may not be readily generalisable to the other 60 passenger railway stations in New Zealand – many of which (n=39) are in the Auckland Region (only 18 are in the South Island). Other limitations included the lack of research data on what comprises an optimal

smokefree sign design – which could be used to more formally evaluate the 10 different smokefree signs we identified.

Research is also needed on the effectiveness of the signs used, and the wider communication about smoking in public places. There appears to be no research using field observation to get objective data on the extent of smoking outdoors at New Zealand railway stations. This could be achieved by observing smokers (eg, as per these type of studies: <sup>39-42</sup>) and/or by assessing cigarette butt litter on platforms and adjacent tracks (eg, as per this type of study: <sup>43</sup>).

***Possible implications:*** The presence of some smokefree signs indicates that a number of New Zealand health promoters and transport authorities have grasped the potential for health promotion in transport environments.<sup>6</sup> A potentially fruitful direction for New Zealand transport planners and managers would be to move beyond the incorporation of physical exercise into their plans, to a wider consideration of how to make healthy spaces.<sup>44</sup> Such broader elements of healthy spaces include ease of access to public transport and an environment free of adverse behaviour (eg, littering, playing loud music, and violence<sup>8</sup>). A particularly rigorous assessment of improving such settings may also consider the greater use of public art works to improve the experience of using the train network.

In addition to the dot points above for improving smokefree signage at railway stations in this area, there is probably a strong case for national leadership on smokefree signage in a wide range of outdoor settings (ie, railway stations, but also all: bus stops, all childrens' playgrounds, sports fields, all outdoor dining areas, etc). This could be done by amending national laws (eg, the Smoke-Free Environments Act in New Zealand) to require all such settings to be completely smokefree, along with signage requirements. There may also be a need to give local government powers to pass smokefree bylaws for other areas where there is a case for localised decision-making (eg, smokefree beaches and shopping streets). This type of efficient national-level approach, including a signage requirement, has already been successfully taken for New Zealand settings such as smokefree school grounds.<sup>45</sup> Such national legislation could also define optimal signage placement, minimal levels of signage size, and quality of signage. For example, small smokefree stickers (as per Figure A9), should probably not be permitted, as these appear to be at high risk of vandalism. All such actions would be consistent with moving towards the New Zealand Government's goal of achieving a Smokefree Nation by 2025.<sup>46</sup> Nevertheless, if central government failed to act in the above way, then local governments could still consider trying to upgrade their own bylaws around smokefree signage for settings such as railway stations.

## **Conclusions**

In this sample covering nearly half of the passenger railway stations in the country, there appeared to be substantial scope for improvement in the quantity, placement and size of smokefree signage. Policy options to achieve more complete smokefree status of such settings include an upgraded central government law, or use of bylaws by local governments.

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Table A1: Full list of the 54 railway stations providing passenger services that were surveyed (with some stations on the same lines)

| <b>Train line</b>               | <b>Station name</b> | <b>Territorial Authority (local government)</b> | <b>Railway operator/s</b> |
|---------------------------------|---------------------|---|---------------------------|
| <b><i>Melling Line</i></b>      |                     |   |                           |
|                                 | Wellington          | Wellington City                                 | Metlink / KiwiRail        |
|                                 | Ngauranga           | Wellington City                                 | Metlink                   |
|                                 | Petone              | Hutt City                                       | Metlink                   |
|                                 | Western Hutt        | Hutt City                                       | Metlink                   |
|                                 | Melling             | Hutt City                                       | Metlink                   |
| <b><i>Johnsonville Line</i></b> |                     |   |                           |
|                                 | Wellington          | Wellington City                                 | Metlink / KiwiRail        |
|                                 | Crofton Downs       | Wellington City                                 | Metlink                   |
|                                 | Ngaio               | Wellington City                                 | Metlink                   |
|                                 | Awarua Street       | Wellington City                                 | Metlink                   |
|                                 | Simla Crescent      | Wellington City                                 | Metlink                   |
|                                 | Box Hill            | Wellington City                                 | Metlink                   |
|                                 | Khandallah          | Wellington City                                 | Metlink                   |
|                                 | Raroa               | Wellington City                                 | Metlink                   |
|                                 | Johnsonville        | Wellington City                                 | Metlink                   |
| <b><i>Hutt Valley Line</i></b>  |                     |   |                           |
|                                 | Wellington          | Wellington City                                 | Metlink / KiwiRail        |
|                                 | Ngauranga           | Wellington City                                 | Metlink                   |
|                                 | Petone              | Hutt City                                       | Metlink                   |
|                                 | Ava                 | Hutt City                                       | Metlink                   |
|                                 | Woburn              | Hutt City                                       | Metlink                   |
|                                 | Waterloo            | Hutt City                                       | Metlink                   |
|                                 | Epuni               | Hutt City                                       | Metlink                   |
|                                 | Naenae              | Hutt City                                       | Metlink                   |
|                                 | Wingate             | Hutt City                                       | Metlink                   |
|                                 | Taita               | Hutt City                                       | Metlink                   |
|                                 | Pomare              | Hutt City                                       | Metlink                   |
|                                 | Manor Park          | Hutt City                                       | Metlink                   |
|                                 | Silverstream        | Upper Hutt City                                 | Metlink                   |
|                                 | Heretaunga          | Upper Hutt City                                 | Metlink                   |
|                                 | Trentham            | Upper Hutt City                                 | Metlink                   |

| <b>Train line</b>                | <b>Station name</b> | <b>Territorial Authority (local government)</b> | <b>Railway operator/s</b> |
|----------------------------------|---------------------|---|---------------------------|
|                                  | Wallaceville        | Upper Hutt City                                 | Metlink                   |
|                                  | Upper Hutt          | Upper Hutt City                                 | Metlink                   |
| <b><i>Wairarapa Line</i></b>     |                     |   |                           |
|                                  | Wellington          | Wellington City                                 | Metlink / KiwiRail        |
|                                  | Petone              | Lower Hutt City                                 | Metlink                   |
|                                  | Waterloo            | Lower Hutt City                                 | Metlink                   |
|                                  | Upper Hutt          | Upper Hutt City                                 | Metlink                   |
|                                  | Maymorn             | Upper Hutt City                                 | Metlink                   |
|                                  | Featherston         | South Wairarapa District                        | Metlink                   |
|                                  | Woodside            | South Wairarapa District                        | Metlink                   |
|                                  | Matarawa            | Carterton District                              | Metlink                   |
|                                  | Carterton           | Carterton District                              | Metlink                   |
|                                  | Solway              | Masterton District                              | Metlink                   |
|                                  | Renall Street       | Masterton District                              | Metlink                   |
|                                  | Masterton           | Masterton District                              | Metlink                   |
| <b><i>Kapiti Line</i></b>        |                     |   |                           |
|                                  | Wellington          | Wellington City                                 | Metlink / KiwiRail        |
|                                  | Takapu Road         | Wellington City                                 | Metlink                   |
|                                  | Redwood             | Wellington City                                 | Metlink                   |
|                                  | Tawa                | Wellington City                                 | Metlink                   |
|                                  | Linden              | Wellington City                                 | Metlink                   |
|                                  | Kenepuru            | Porirua City                                    | Metlink                   |
|                                  | Porirua             | Porirua City                                    | Metlink                   |
|                                  | Paremata            | Porirua City                                    | Metlink                   |
|                                  | Mana                | Porirua City                                    | Metlink                   |
|                                  | Plimmerton          | Porirua City                                    | Metlink                   |
|                                  | Pukerua Bay         | Porirua City                                    | Metlink                   |
|                                  | Paekakariki         | Kapiti Coast District                           | Metlink                   |
|                                  | Paraparaumu         | Kapiti Coast District                           | KiwiRail / Metlink        |
|                                  | Waikanae            | Kapiti Coast District                           | KiwiRail / Metlink        |
| <b><i>Capital Connection</i></b> |                     |   |                           |
|                                  | Wellington          | Wellington City                                 | KiwiRail / Metlink        |
|                                  | Paraparaumu         | Kapiti Coast District                           | KiwiRail / Metlink        |
|                                  | Waikanae            | Kapiti Coast District                           | KiwiRail / Metlink        |
|                                  | Otaki               | Kapiti Coast District                           | KiwiRail                  |
|                                  | Levin               | Horowhenua District                             | KiwiRail                  |
|                                  | Shannon             | Horowhenua District                             | KiwiRail                  |



| <b>Train line</b>   | <b>Station name</b> | <b>Territorial Authority (local government)</b> | <b>Railway operator/s</b> |
|---|---------------------|---|---------------------------|
|   | Palmerston North    | Palmerston North City                           | KiwiRail / Metlink        |
| <b><i>Northern Explorer<br/>(going north up to<br/>National Park)</i></b> |                     |   |                           |
|   | Wellington          | Wellington City                                 | KiwiRail / Metlink        |
|   | Paraparaumu         | Kapiti Coast District                           | KiwiRail                  |
|   | Palmerston North    | Palmerston North City                           | KiwiRail                  |
|   | Ohakune             | Ruapehu District                                | KiwiRail                  |
|   | National Park       | Ruapehu District                                | KiwiRail                  |

**Figure A1: Railway platform in a remote rural area which also shows a large grassed area over which pedestrians could easily traverse and which we defined as an “entrance area” (Matarawa railway station, Wairarapa).**



Figure A2: Two common smokefree signs on a railway platform – a dedicated one (on a green background) and one as part of a multi-sign. Note the crowded signage on the wall of this structure on Eponi railway station, Lower Hutt.





**Figure A3: Smokefree signage that is placed high on a railway station structure – possibly to reduce vandalism risk but also probably making it less noticeable (Woburn railway station, Lower Hutt).**



Figure A4: A smokefree sign that is high off the ground on a pole away from the main platform structures but also showing the crowded signage (Khandallah railway station, Wellington, Johnsonville Line).





Figure A5: Sign that implies that designated smoking areas exist (first item in the list on the right)  
(Wellington main railway station, Wellington City).



Figure A6: The largest smokefree sign observed in this study which was at the Wellington main railway station (100 cm x 180 cm).





Figure A7: Liquor-ban sign at a railway station platform entrance – with no such approaches used for smokefree signage in this study (Naenae railway station, Lower Hutt).





Figure A8: Common smokefree signs on many of the supporting posts on Wellington main railway station platforms (n = 164 such signs at this station).



**Figure A9: Smokefree sticker sign showing evidence of vandalism (Waterloo railway station, Lower Hutt). Of note is that such stickers appear to be frequently subject to such vandalism.**



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