

# **Presence and Quality of Drinking Water Fountains in Taranaki Public Parks, Playgrounds and Major Walkways**



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## **Abstract:**

Health organisations such as the Ministry of Health recommend that plain water should be the beverage of choice for children and adults for reasons of preventing dental decay and reducing the prevalence of obesity. The lack of access to drinking water in areas where children exercise and play is therefore potentially an important health problem particularly in the context of higher summer temperatures and climate change. 88 public parks, playgrounds and major walkways over the 3 districts of Taranaki were surveyed for the presence of a drinking water fountain. It was found that only an average of one in five (19.3%) parks, playgrounds and major walkways in the Taranaki region provided a drinking water fountain for public use. 6 of the 17 (35%) drinking water fountains in Taranaki were also covered in moss or mould around the nozzle. The recommendation from this study is for the Taranaki Public Health Unit to work with District Councils to encourage health in all policies and to increase the number of playgrounds and public areas with well maintained drinking water fountains. It was found that the study methodology was a quick and efficient way of collecting data on this particular health issue.

## **Introduction**

In recent years there has been an increasing focus on the role of sugar sweetened beverages in the development of non-communicable diseases such as obesity, type II diabetes and tooth decay (New Zealand Beverage Guidance Panel, 2014). Many health organisations such as the Ministry of Health recommend that plain water should be the beverage of choice for children and adults (Ministry of Health, 2012).

The Taranaki District Health Board's position statement on sugar sweetened beverages supports measures and policies that "promote the availability of drinking water in workplaces, the community, schools and sports facilities and wherever possible this should be tap water and/or water fountains" (Taranaki District Health Board, 2017). A recent paper by Thomson and Wilson however found that only about a fifth (20 per cent) of children's playgrounds in the lower North Island had drinking fountains (Thomson and Wilson, 2018).

The purpose of this research is to repeat the methodology of Thomson and Wilson to assess the prevalence and quality of drinking water fountains in Taranaki. The findings will be of use as Taranaki has one of highest rates of childhood obesity in New Zealand and extracting decayed teeth from children aged less than 5 years under general anaesthesia costs the Taranaki District Health Board over \$200,000 per year (Taranaki District Health Board, 2017). Lack of access to drinking water means that children are more likely to consume bottled sugary drinks (Patel and Hampton, 2011). The recent heatwave in Taranaki and predicted climate change makes this research particularly relevant (Daly, 2018). Temperatures in the high 20s mean people have a greater need to drink more water than normal.

### **Method:**

To survey the presence, quality and operation of drinking fountains in public parks, playgrounds and major walkways in Taranaki. “Playgrounds” were defined as, public parks, playgrounds and major walkways: ‘Where children can be active and engage in recreational physical activity with their families’. This study does not include water fountains on school property.

This study was a field observation study consisting of going out to the playgrounds and collecting data with a data collection table as well as photographic evidence of the drinking water fountains. The location of public playgrounds was determined from the three district council websites, and also via email from the three district councils. All New Plymouth District, South Taranaki District and Stratford District parks, playgrounds and major walkways were visited by a solo observer over a four week period during November to December 2017. At playgrounds, the observer walked around the perimeter and surveyed the area within 100 metres of the play equipment.

The data was collected using a data collection table located below. Photographic evidence was all taken on an iPhone and all measurements were taken using the iOS app “Easy Measure”. The duration of each assessment was also timed.

**Table 1: Data Collection: What we were looking for at each site,**

<ul style="list-style-type: none"> <li>• District Council</li> </ul>	<ul style="list-style-type: none"> <li>• Photo Number</li> </ul>	<ul style="list-style-type: none"> <li>• Vandalism</li> </ul>	<ul style="list-style-type: none"> <li>• Time taken at site</li> </ul>
<ul style="list-style-type: none"> <li>• Suburb</li> <li>• Special Features</li> </ul>	<ul style="list-style-type: none"> <li>• Functionality</li> <li>• Height from ground to drinking nozzle</li> </ul>	<ul style="list-style-type: none"> <li>• Proximity to Bathroom (more than 5 metres)</li> </ul>	<ul style="list-style-type: none"> <li>• Date Visited</li> <li>• Within 100m from Playground equipment</li> </ul>
<ul style="list-style-type: none"> <li>• Park Name</li> </ul>	<ul style="list-style-type: none"> <li>• Cleanliness</li> </ul>		

## **Results:**

A total of 88 Public Parks, Playgrounds and Major Walkways were visited:

- New Plymouth District- 49
- Stratford- 5
- South Taranaki- 34

All three district councils had a similar proportion of playgrounds with drinking water fountains present – New Plymouth District had 18.3%, Stratford District had 20.0% and South Taranaki District had 20.6%.

**Table 2: Total Public Parks, Playgrounds and Major Walkways with and without Drinking Water Fountains Present.**

<b><u>District Council</u></b>	<b><u>Parks with NO Fountain Present</u></b>	<b><u>Parks with Fountain Present</u></b>	<b><u>Total Parks in District</u></b>
New Plymouth District Council	40	9 (18.3%)	49
Stratford District Council	4	1 (20.0%)	5
South Taranaki District Council	27	7 (20.6%)	34
<b><u>TOTAL:</u></b>	<b><u>71</u></b>	<b><u>17 (19.3%)</u></b>	<b><u>88</u></b>

Out of the total 88 public parks, playgrounds and major walkways surveyed a total of 17 (19.3%) were found to have a drinking water fountain present. 3 of the 17 drinking water fountains did not work or only had minimal water flow. None of the public parks, playgrounds or major walkways surveyed had multiple fountains.

6 out of the 17 (35%) playgrounds had a fountain with a second tap. All of the fountains with a second tap were all found in either Stratford or South Taranaki Districts.

**Photo 1: Fountain with second side tap (on left side) for filling dog drinking bowl (and tap for Council staff in front):**



*"Soldiers Memorial Park-Eltham"*

2 of the 17 fountains were found to have vandalism, although it did not affect the functionality of the water fountains and they were still deemed useable and safe to drink from. Although safe to drink from they could pose psychological consequences and people may feel they are dirty or unhygienic to drink from.

**Photo 2: Vandalism**



*“New Plymouth Coastal Walkway”*

Of the 17 drinking water fountains 14 were found to be within 100m of the playground equipment making them both visible from the playground and easily accessible to those using the playground. Photo 3 is also a prime example of good quality ground surface below the drinking water fountain. It provides drainage and concrete so that the ground below is not turned to mud after continued use.

**Photo 3: Proximity to playground:**



*“Okato Neighbourhood Park and Community Orchard”*

Another factor that came into the analysis was the proximity to the toilet, the desired outcome was that the toilets were all at least 5m away from drinking water fountains. The data collection found that 9 of the 17 (53%) of the drinking water fountains were more than 5 metres away. 6 of the 17 playgrounds (35%) did not have a toilet and 2 of the 17 (12%) water fountains were attached to the side wall of the toilet.

**Photo 4: Fountain attached to toilet wall:**



*“Hawera King Edward Park”*

16 of the 17 drinking water fountains were measured and were all around 1 - 1.2 metres tall. This height is from the ground to the drinking nozzle. This makes the water fountains accessible to most children. Only one fountain, the historic honey field fountain on the New Plymouth Coastal Walkway was higher than 1.2 metres but it did have steps up to the nozzle to make it more accessible to everyone.

**Photo 5: Height of drinking water fountain 1.2 metres:**



*“Taranaki Cycle Park-Bell  
Block”*

Cleanliness of the fountains was a major factor looked into, this was to ensure that the water was not just accessible to the public but also safe and clean to drink. Of all of the fountains surveyed 6 out of the 17 (35%) of the fountains were found to be unclean most with moss around the nozzle, making it not appealing to want to drink from. This was found to be caused by the fountains being placed in parts of the park which were shaded or covered by trees. It also appears that the fountains are not well maintained or cleaned often which is not helping with the overall uncleanliness. One was found covered in bird faeces and 2 others on the New Plymouth coastal walkway with lime scale. Most of the bottoms of the drinking water fountains were also dirty with mud, moss and lime scale, this appeared to be caused by water streaming too far out of the fountain making a muddy wet ground.

**Photo 6: Biofilm surrounding nozzle:**



*“Hawera Skate Park”*

**Photo 7: Discolouration at bottom of fountain from possible algal growth**



*“Hawera Skate Park”*

Different designs of drinking water fountains were noted. The design of the fountains was all the same in the South Taranaki and Stratford districts, these were all the fountains with a second side tap, with the exception of two fountains in Hawera. All of the fountains found in the New Plymouth region were also the same design which was a standard drinking fountain with one tap except for the Honeyfield fountain on the New Plymouth Coastal Walkway which is a historic fountain which has been preserved.

**Photo 8: South Taranaki**



**Photo 9: South Taranaki**



**Photo 10: New Plymouth**



**Photo 11: New Plymouth**



**Photo 12: Hawera Town Square**



**Photo 13: Hawera King Edward**



**Photo 14: Hawera King Edward Park**



**Photo 15: Honey field Fountain**



The data collection and analysis all worked with little to no problem. The analysis at each site took less than 5 minutes, this included locating the fountain, photographing the fountain and looking for any special features. The analysis also included testing the fountains to ensure that they both worked and the water flow quality. The photographs taken were to show evidence of cleanliness or lack off, and the water flow.

### **Discussion:**

This survey of public parks, playgrounds and major walkways in Taranaki in November and December 2017 found that only one in five (19.3%) had drinking water fountains. All three Taranaki district councils had a similar proportion of public parks, playgrounds and major walkways with drinking water fountains present – New Plymouth District had 18.3% (9 out of 40), Stratford District had 20.0% (1 out of 5) and South Taranaki District had 20.6% (7 out of 34). These results are almost identical to the overall findings of Thomson and Wilson (2018) in their assessment of children’s playgrounds in the lower North Island which found that 20.4% had drinking water fountains. It is of concern that a high proportion of the fountains (35%) in Taranaki were not clean mostly with discolouration and algal growth around the nozzle. Drinking water fountains that are inconveniently located and poorly maintained discourage use (Patel and Hampton, 2011).

The lack of access to drinking water in areas where children exercise and play is an important public health problem. Patel and Hampton (2011) argue that providing access to free drinking water throughout the day encourages the normalization of water vs. sugary drinks. In Taranaki the childhood obesity rates are double those of the national average of New Zealand (Ministry of Health, 2015). We suggest that a lack of drinking water fountains may play a role in this issue as where free plain water is not accessible children may turn to cheap sugary drinks instead.

As with Thomson and Wilson (2018), this study also found that using a field observation study was the method that worked the best. This study was quick and efficient way of collecting and analyzing this particular data. iPhones provided both a cost effective and high quality camera for taking photographic evidence and also access to apps for free.

The recommendation from this study is for the Taranaki Public Health Unit to work with District Councils to encourage health in all policies and to increase the number of playgrounds and public areas with well maintained drinking water fountains. Health in All Policies is an approach to public policies that systematically takes into account the health implications of decisions, seeks synergies, and avoids harmful health impacts in order to improve population health and health equity (Canterbury Health in All Policies Partnership, 2015). More drinking water fountains is a highly suitable way to promote drinking water as a social norm for all types of communities and a free way to stay healthy. Stand alone drinking water fountains are not expensive to install if near existing water reticulation and are likely to be much lower cost than the playground equipment itself. The installation of more drinking water fountains in public areas also makes sense as summer temperatures around New Zealand increase due to climate change.

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