

## Plumbing, Gasfitting and Drainlaying 2017

### 1. Introduction

This document provides data and statistics about those working in the plumbing gasfitting and drainlaying trades during the period 2010-2017. The information is drawn from the registration and licensing records of the Plumbers Gasfitters and Drainlayers Board (Board).

### 2. Registration and Licensing November 2017

#### (a) Registrations

Graph 1 shows the total number of registrations. These figures are not representative of the number of people actually working in the trades as registration is effectively for life and people retain registration after they have ceased working.

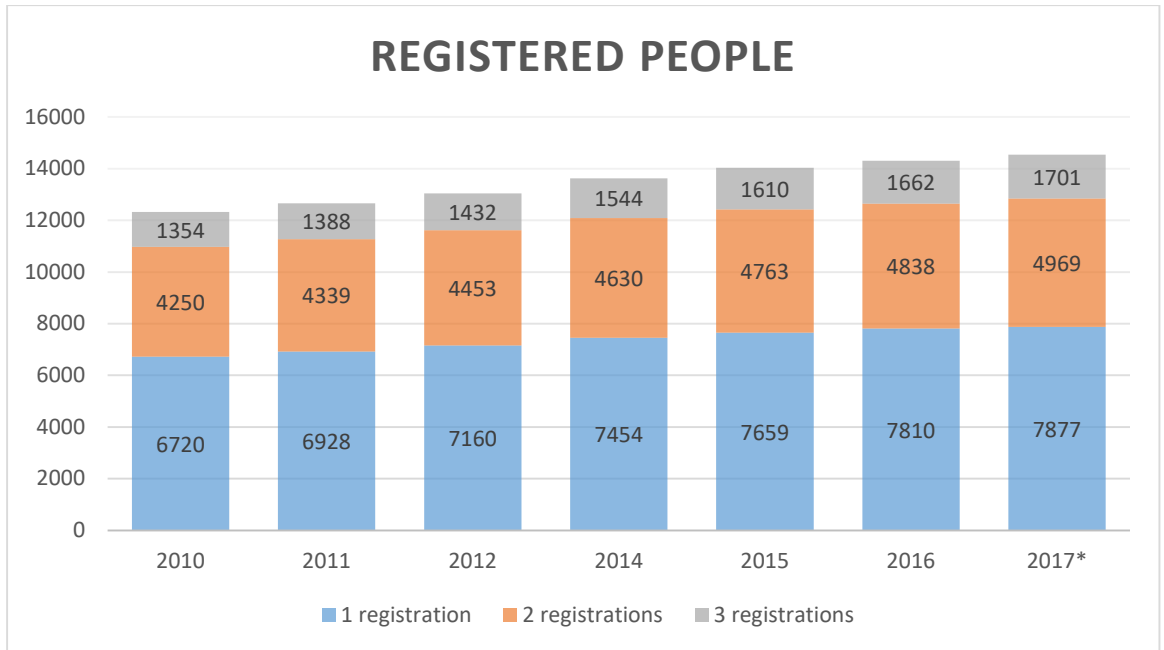
Graph 1: No. of Registered People 2010-2017



*Nb: The Board records for 2013 are not complete and have therefore been excluded.*

Some people working in the trades hold registration in more than one trade. Table 1 shows the number of different trade registrations held by the individuals who are registered.

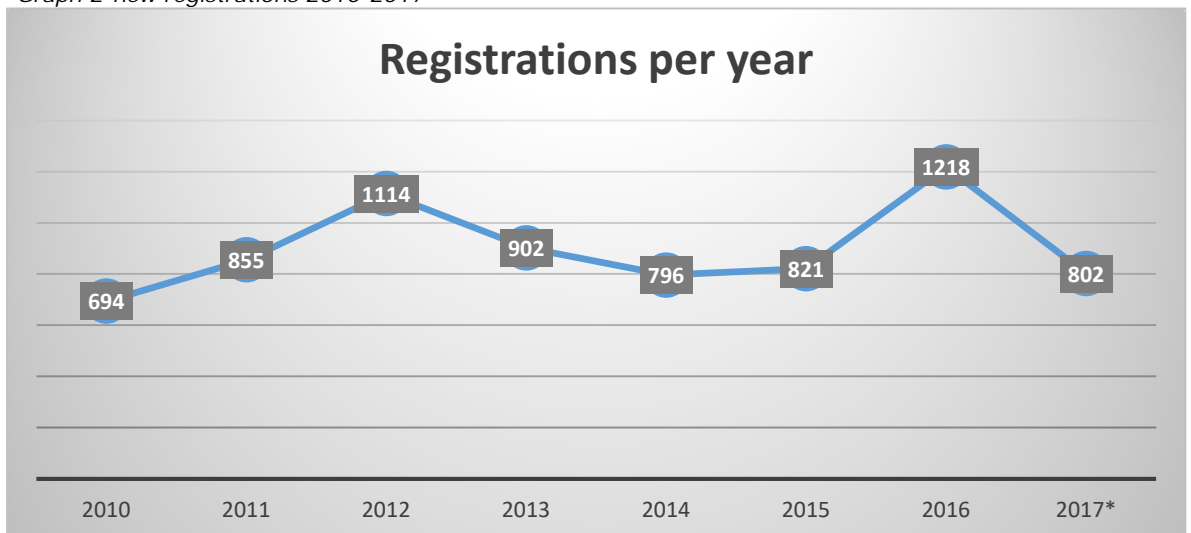
Table 1: No. of trade registrations held by registered people 2010-2017



Nb: The Board records for 2013 are not complete and have therefore been excluded.

Graph 2 shows the number of new registrations (Tradesman and Certifying classes) in each of the years 2010-2017.

Graph 2-new registrations 2010-2017



\*As at November 2017-Not including 132 registrations in Journeyman class.

Table 2 is a breakdown of the new registrations totals for each class during the period 2010-2017.

Table 2: New Registrations per year by class: 2010-2017

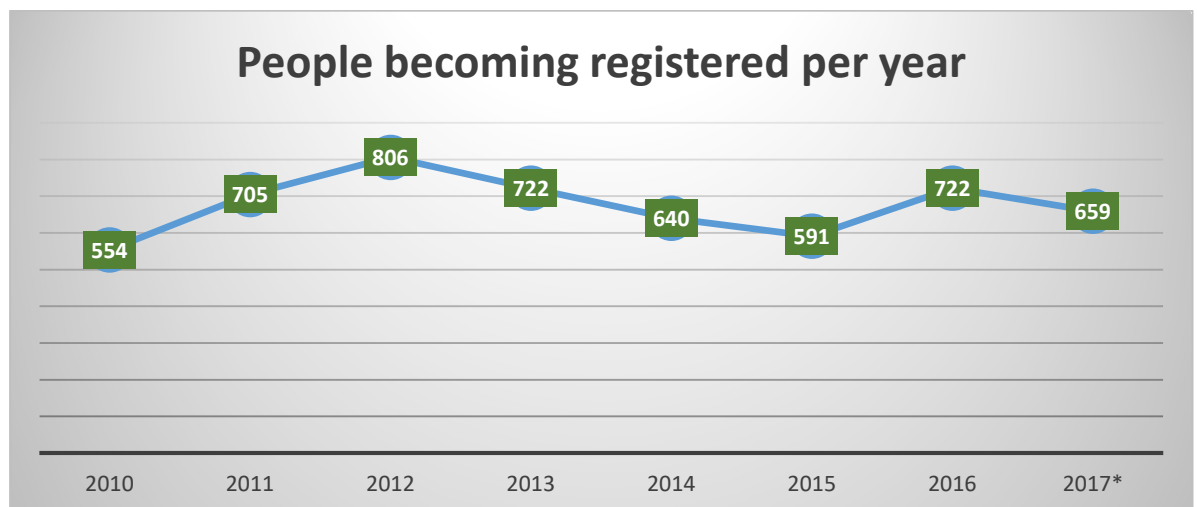
Year	New CP	New CG	New CD	New TP	New TG	New TD	Total	People
2010	78	70		262	120	164	694	554
2011	110	73		393	160	119	855	705
2012	187	112	102	401	162	150	1114	806
2013	220	130	66	264	117	105	902	722
2014	182	101	53	236	110	114	796	640
2015	172	107	48	255	124	115	821	591
2016	217	102	57	444	206	192	1218	722
2017*	181	99	60	188	112	162	802^	659^

\*As at November 2017-Not including 132 registrations in Journeyman class by 81 people.

Index: CP=Certifying Plumber, CG=Certifying Gasfitter, CD= Certifying Drainlayer, TP= Tradesman Plumber, TG=Tradesman Gasfitter, TD=Tradesman Drainlayer.

Graph 3 shows how many people made applications to become registered in each year during the period 2010-2017 (recognising that some people registered into more than one class).

Graph 3- Number of people becoming registered: 2010-2017



\*As at November 2017-Not including 81 registrations in Journeyman class.

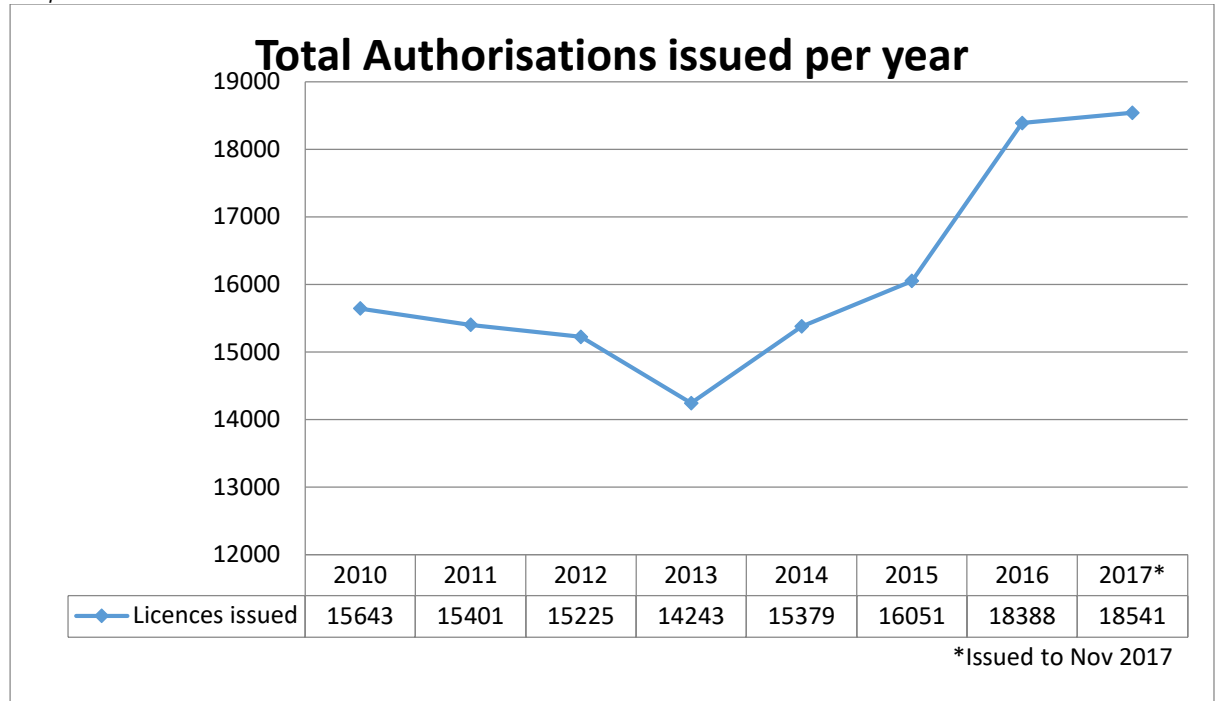
(b) Total authorisations

Once a person is registered into a trade they must, if they want to practice in the trade, pick up a licence on an annual basis for each trade. Even those working as labourers work under a form of authorisation called an "Exemption under Supervision".

Collectively, the licences and exemptions are referred to by the Board as authorisations. These authorisations are an indicator of how many people are working legally in the industry at any point in time.

Total authorisations issued by the Board, across the three trades, shown in graph 4, dropped between 2010 (15643) and 2013 (14243) by 9%. Growth since 2013 has been steady with the total in 2017 (18541) representing a 19% increase overall since 2010 and a 30% increase since the low in 2013.

Graph 4: Total Authorisations: All three trades: 2010-2017



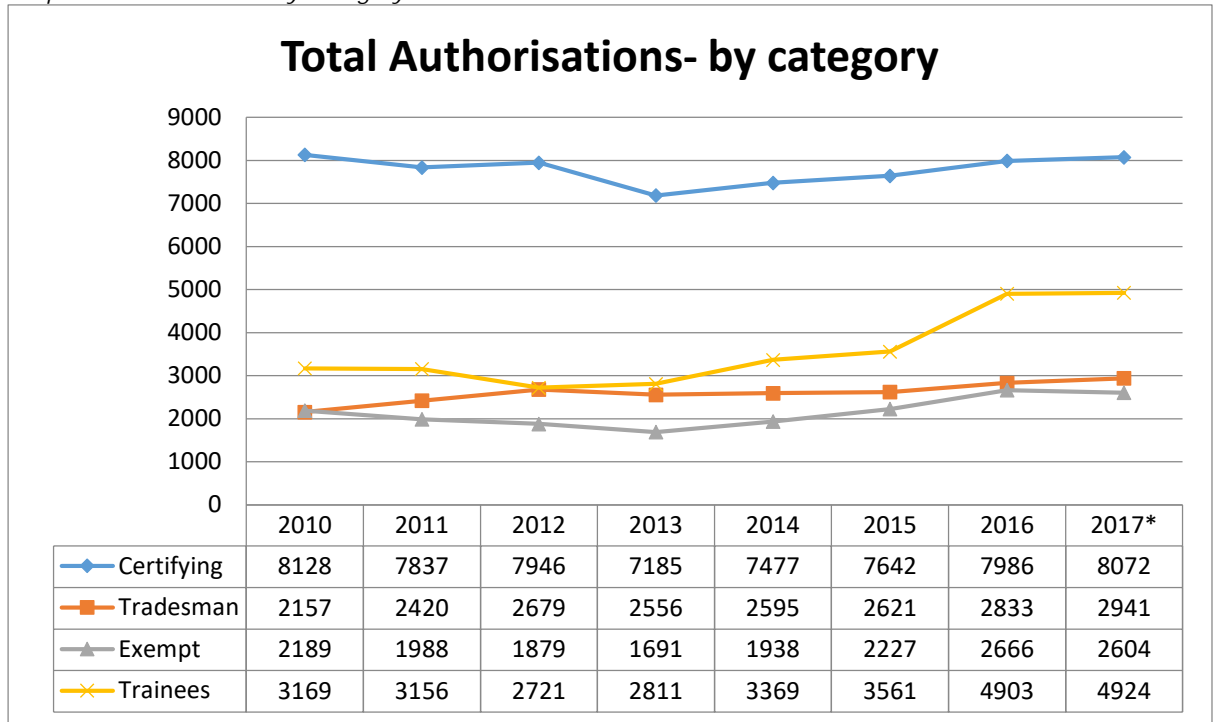
(c) Authorisations by category

Graph 5 shows the Authorisations by category. Certifiers are those registered at the highest level in each trade. They have completed two years in the trade after being registered at a Tradesman level and have passed the certifying level exam. Tradesman are those who have completed an apprenticeship and attained the relevant level 4 National Certificate. They have also passed the Tradesman level exam. Trainees are the apprentices in each trade. Exemption holders are labourers working under the supervision of a Certifier.

Across all three trades there was a drop in the number of Certifiers between 2010 (8128) and 2017 (8072) of 1%. This fall was largely in Drainlaying, with both Plumbing and Gasfitting actually showing gains in the number of Certifiers in that period.

All other authorisation categories had gains overall during the 2010-2017 period with Tradesman licences increasing 36%, exemptions by 19% and Trainee Limited Certificates for Apprentices by 55%.

Graph 5: Authorisations by Category of Authorisation: 2010-2017



(d) Auckland

Auckland has the highest percentage in New Zealand of total authorisations and of each category of authorisation.

Table 3: Authorisations in Auckland: November 2017

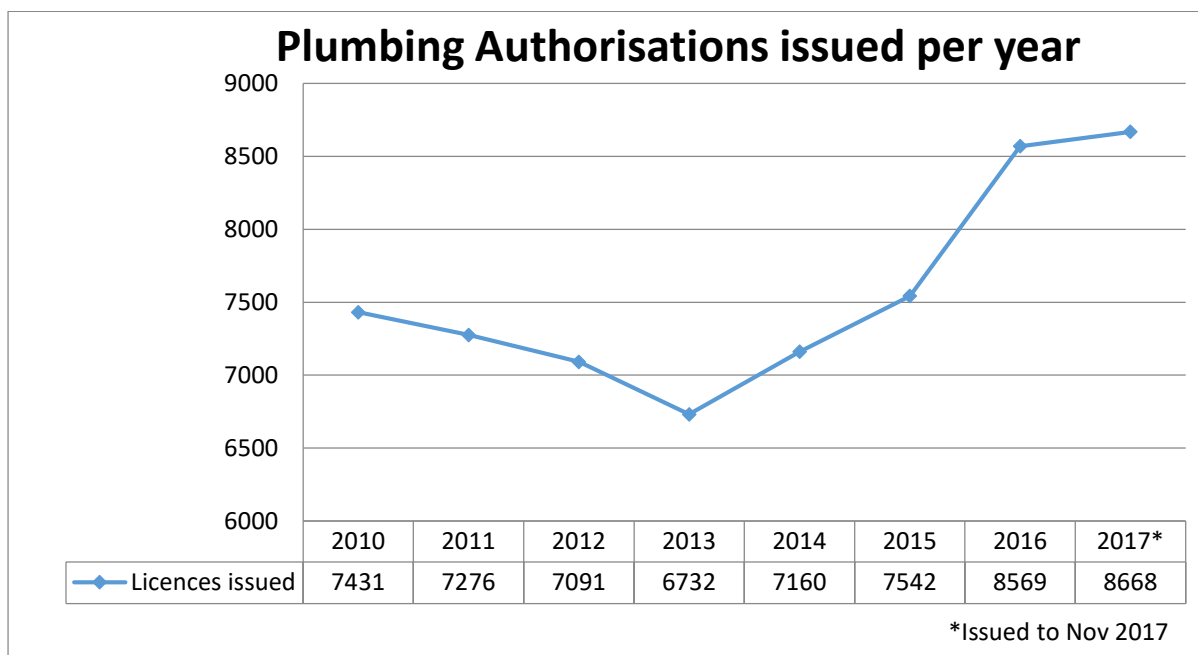
Authorisation Type	Number of authorisation holders in Auckland	Percentage of the total nationwide number of authorisation holders
Certifying	2063	26%
Tradesman	773	26%
Exempt	961	37%
Trainee	1973	40%
TOTAL	5770	31%

**3. Plumbing**

(a) Authorisations: Plumbing

Graph 6 shows the number of plumbing authorisations issued by the Board since 2010. There was 9.5% decline in authorisations between 2010 (7431) and 2013 (6732). Numbers then grew consistently each year with the total as at November 2017 reaching 8668. This represents a percentage increase of 17% since 2010 and 28% since the low point in 2013.

Graph 6: Total Authorisations: Plumbing: 2010-2017



*(b) Authorisations by category: Plumbing*

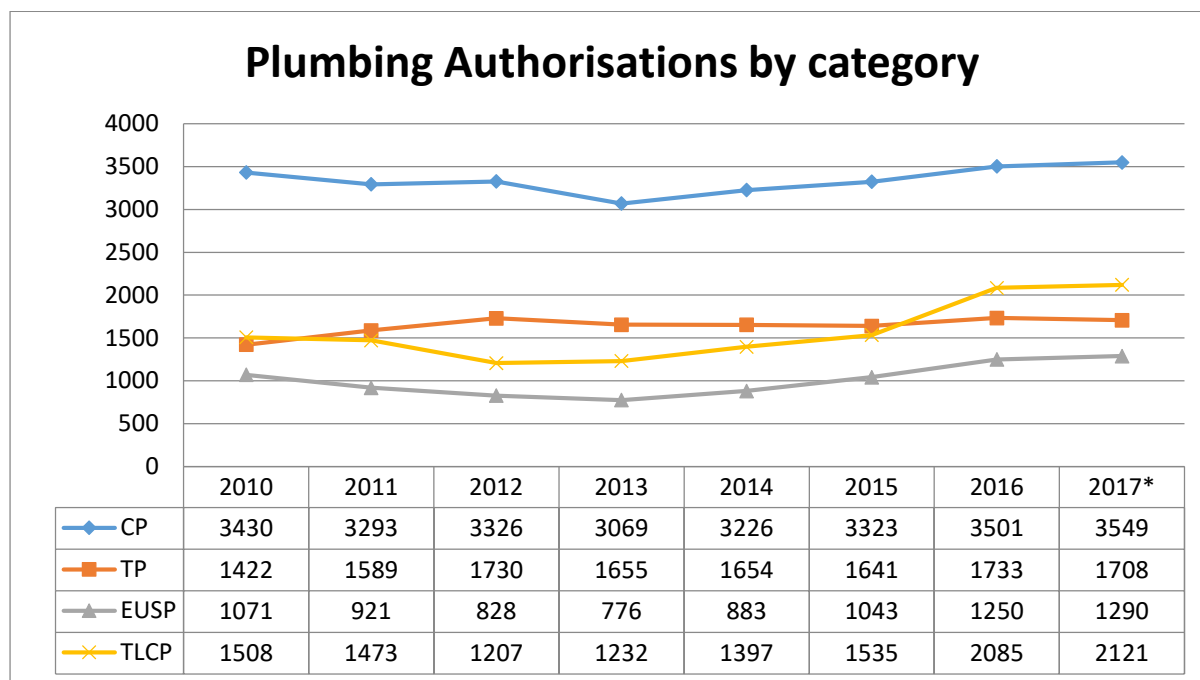
Graph 7 shows the authorisations broken down into their different categories. The number of certifying plumbers dropped by 10% between 2010 (3430) and the low point of 2013 (3069). The total number of certifying plumbers as at November 2017 (3549) represents an increase of 3% since 2010 and 16% since 2013.

The number of Tradesman plumbers has grown slowly but steadily since 2010. The total number of Tradesman plumbers as at 2017 (1708) is an increase of 20% since 2010 but only 3% since 2013.

Exemptions under Supervision grew by 17% between 2010 (1071) and 2013 (776). The number of Exemptions as at November 2017 (1290) is an increase of 20% since 2010 and 66% since 2013.

Between 2010 (1508) and 2013 (1232) there was a decrease of 18% in the number of apprentices issued Training Limited Certificates. The total as at November 2017 (2121) represents an increase since 2010 of 40% and since 2013 of 72%.

Graph 7: Authorisations by category: Plumbing: 2010-2017



Index: CP=Certifying Plumber, TP=Tradesman Plumber, EUSP=Exemption Under Supervision, TLCP=Trainee Limited Certificate Plumber

(c) *Auckland: Plumbing*

Auckland has the largest number of plumbers with 33% based there. The percentage working under exemptions and as apprentices is much higher than in the Certifying and Tradesman classes. This probably reflects businesses employing labourers under exemptions, as well as taking on increased numbers of apprentices, in response to the shortage of skilled workers.

Table 4: Plumbing in Auckland: November 2017

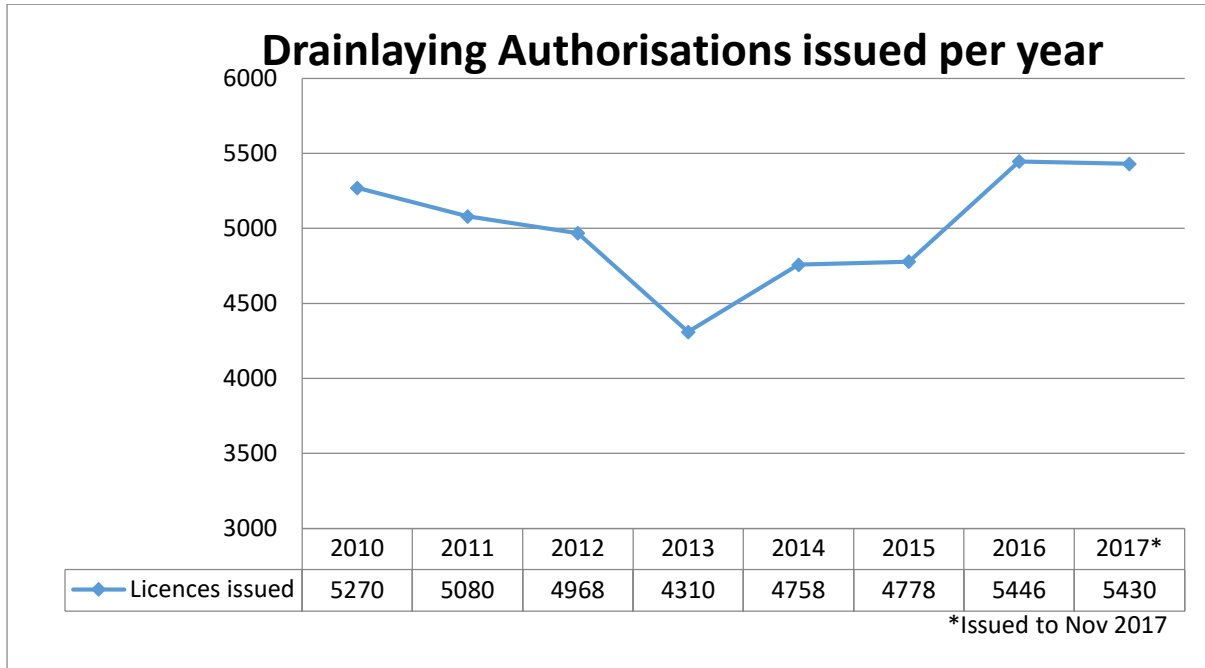
Authorisation Type	Number of authorisation holders in Auckland	Percentage of the total nationwide number of authorisation holders
Certifying Plumbers	946	27%
Tradesman Plumbers	469	27%
Exempt plumbers	583	45%
Trainee Plumbers	875	41%
TOTAL	2873	33%

#### 4. Drainlaying

##### (a) Authorisations: Drainlaying

Numbers holding authorisations for drainlaying dropped after 2010 before rising again after 2013. The drop between 2010 (5270) and 2013 (4310) was 18%. The 2017 total (5430) is a 3% increase from 2010 and a 25% increase since 2013.

Graph 8: Total Authorisations: Drainlaying: 2010-2017



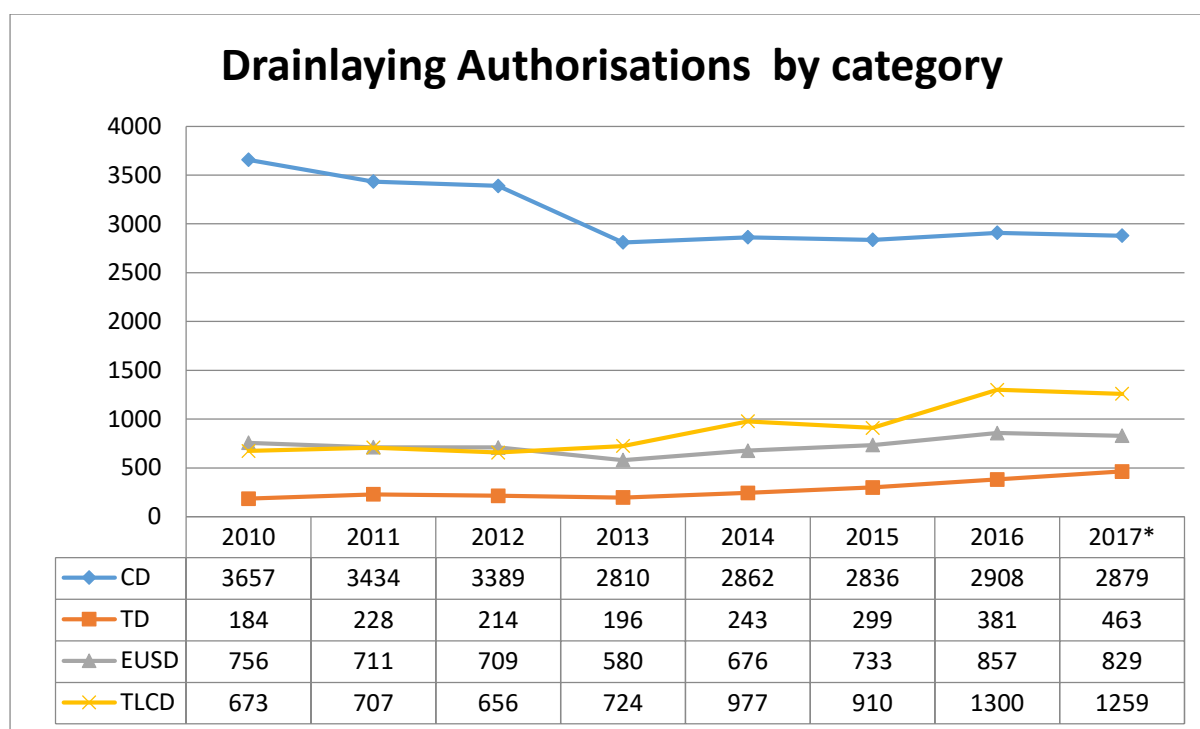
##### (b) Authorisations by Category: Drainlaying.

Graph 9 shows the breakdown of drainlaying authorisations. The number of certifying drainlayers dropped between 2010 (3657) and 2013 (2810) by 23%. In contrast to plumbing, the number of certifying drainlayers has not recovered significantly since 2013 with the 2017 figure (2879) still amounting to a 21% decrease since 2010.

The number of Tradesman Drainlayers in 2017 (463) is 151% higher than the 2010 (184) and there are 9% more Exemptions under Supervision in 2017 (829) than in 2010 (756). The number of apprentices authorised in 2017 (1259) is a 87% increase from the number authorised in 2010 (673).



Graph 9: Authorisations by Category: Drainlaying 2010-2017



Index: CD=Certifying Drainlayer, TD=Tradesman Drainlayer, EUSD=Exemption Under Supervision Drainlayer, TLCD=Trainee Limited Certificate Drainlayer.

(c) Auckland: Drainlaying

26% of drainlayers are located in Auckland.

Table 5: Drainlaying in Auckland November 2017

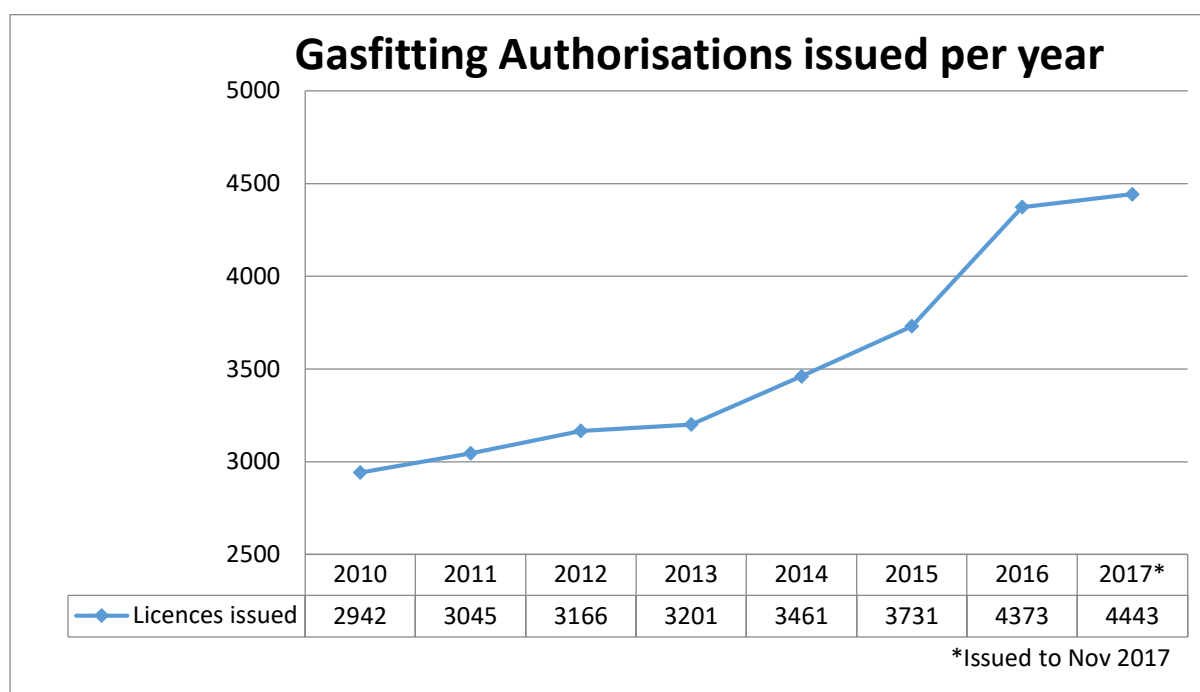
Authorisation Type	Number of authorisation holders in Auckland	Percentage of the total nationwide number of authorisation holders
Certifying Drainlayers	668	23%
Tradesman Drainlayers	105	23%
Exempt Drainlayers	204	25%
Trainee Drainlayers	441	35%
TOTAL	1418	26%

## 5. Gasfitting

### (a) Authorisations: Gasfitting

In contrast to both Plumbing and Drainlaying, Gasfitting authorisations grew throughout the 2010-2017 period with the number of authorisations growing by 51% in that period.

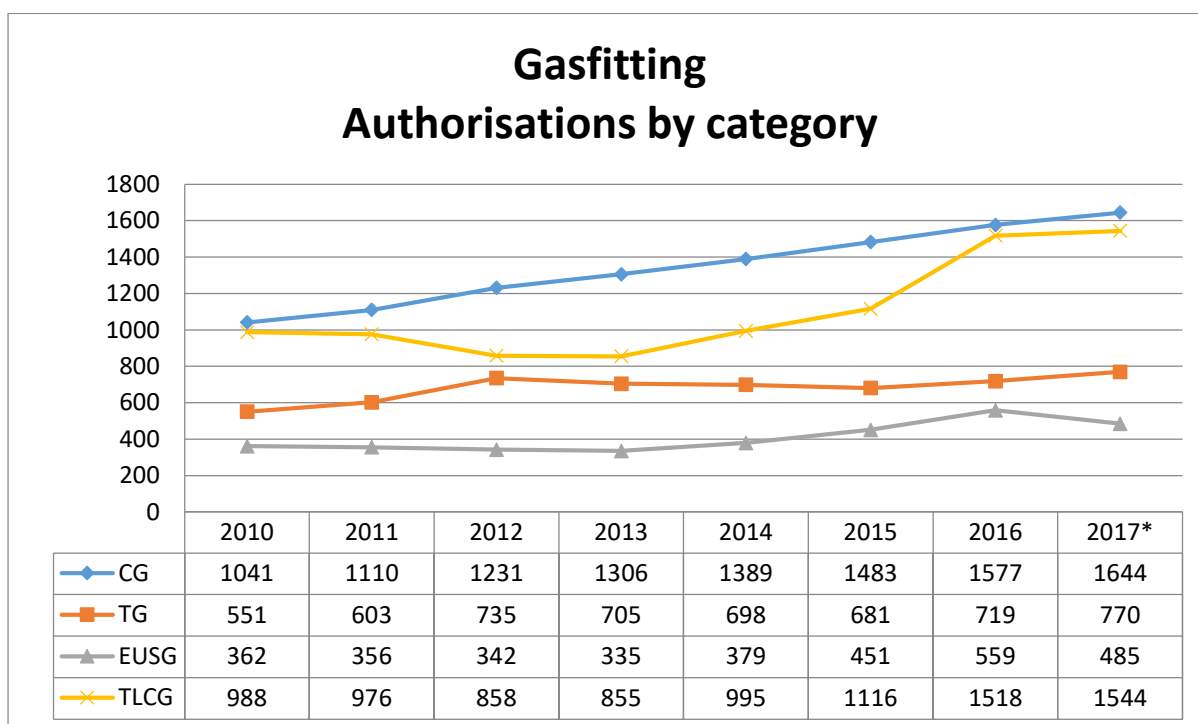
Graph 10: Total Authorisations: Gasfitting 2010-2017



### (b) Authorisations by Category: Gasfitting

There were increases across all of the types of authorisations over the period, with Certifiers increasing 58%, Tradesman Gasfitters 40%, Exemption holders 34% and apprentices 56%.

Graph 11: Total Authorisations: Gasfitting 2010-2017



Index: CG=Certifying Gasfitter, TG=Tradesman Gasfitter, EUSG=Exemption Under Supervision Gasfitter, TLCG=Trainee Limited Certificate Gasfitter.

(c) Auckland: Gasfitting

As displayed on Table 6, 33% of the total authorisations were issued in Auckland, including 43% of the licences issued to apprentices.

Table 6: Gasfitting in Auckland November 2017

Authorisation Type	Number of authorisation holders in Auckland	Percentage of the total nationwide number of authorisation holders
Certifying Gasfitters	449	27%
Tradesman Gasfitters	199	26%
Exempt Gasfitters	174	36%
Trainee Gasfitters	657	43%
TOTAL	1479	33%

## 6. Number of People working in the Trades

Because people hold multiple authorisations across the three trades, the authorisations issued by the Board do not measure the actual number of people working. Graph 12 shows the number of actual people authorised to work in the trades.

Graph 12: People working in the Trades

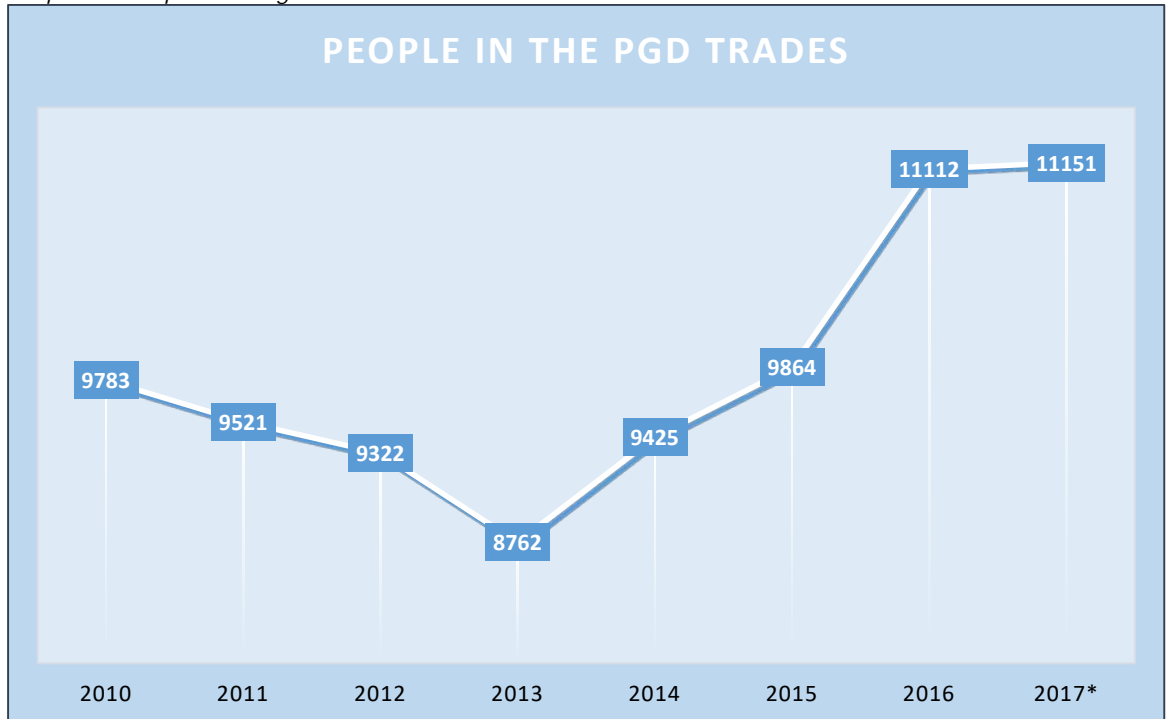


Table 7 shows how many people working in each category. It should be noted that someone who works in a category in one trade may work in a different category in another trade. For instance, a Certifier Plumber may work as a Tradesman Gasfitter. This explains why the figures set out in Table 7 do not match the total number in graph 12 above.

Graph 7: Numbers in each category of Authorisation

Number of Individuals	Category
5186	Certifiers
2345	Tradesman
3050	Trainees (Apprentices)
81	Journeymen
2023	Exemptions

Of the Certifiers and Tradesman currently working in the trades, 1949 (28%) of them are working in Auckland.

1218 (40%) of the Trainees are based in Auckland.

## 7. Gender

The Board does not collect gender data. However, the Skills Organisation does collect that data on the 2312 (as at November 2017) apprentices registered with that organisation. Of those apprentices, 22(1%) are female.

## 8. Ethnicity

The Board does not collect ethnicity data. However, The Skills Organisation does collect data on the 2312(as at November 2017) apprentices registered with that organisation. Table 8 below provides a breakdown of ethnicity for that group.

Table 8: Ethnicity of the Skills Organisation Apprentices

<b>Ethnicity</b>	<b>Number</b>	<b>Percentage</b>
Australian	17	0.7%
British/Irish	66	2.8%
Maori	261	11%
NZ European/Pakeha	1707	74%
African	30	1.3%
Asian	62	2.7%
Pacific Islander	105	4.5%
Other	64	2.8%
<b>Total</b>	<b>2312</b>	

## 9. Supervision

All those working in the industry at a Tradesman, Apprentice or Exemption level are required to work, to varying degrees, under the supervision of a Certifying level practitioner.

This means that there are 5186 Certifiers available to exercise supervision over the other 5965 working in the industry. This is a ratio of one certifier for every 1.15 people.

Only 2242 Certifiers actually exercise supervision. This means the actual ratio is one supervisor for every 2.5 people in the industry.

## 10. Training

There are 5186 Certifiers throughout New Zealand available to train Apprentices.

The Boards records show that the 3050 apprentices currently working in New Zealand are being supervised by 1496 Certifiers.

## 11. Age of the Industry

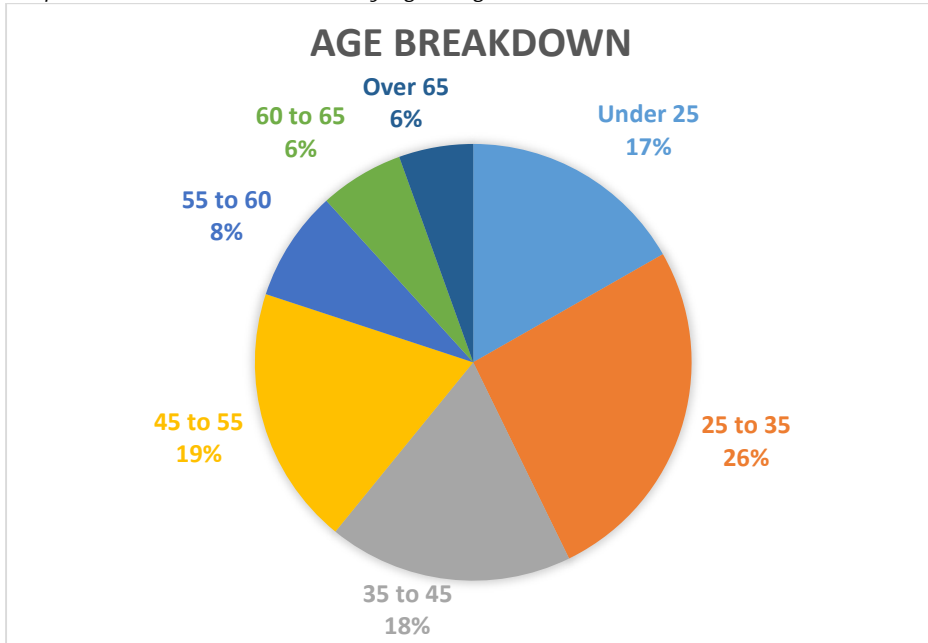
The New Zealand labour force overall is projected to continue ageing. The average age of the New Zealand workforce was 43 in 2015. Half of the labour force is projected to be older than 45 years by the late 2050's. <sup>1</sup>

As shown in tables 9 and 10 and Graph 13, the average for the industry compares favourably with the labour force overall with the average age being 40.

Table 9: Average Age of those holding authorisation from PGDB

Current Licence Type	Average Age	Youngest	Oldest
Certifier	50	23	86
All	40	16	86

Graph 13: Breakdown of Trades by age range



<sup>1</sup> "National Labour Force Projects: 2015-2016, Statistics New Zealand, December 2015

Table 10: Age range for Trades

Age Range	People
Under 25	1844
25 to 35	2863
35 to 45	1993
45 to 55	2111
55 to 60	903
60 to 65	686
Over 65	606

Tables 11, 12 and 13 show the average ages for the three trades broken down into the different category of authorisation.

Table 11: Plumbing: Age of those holding Authorisations

Current Authorisation Type (Plumbing)	Average Age	Youngest	Oldest
Certifier	50	23	86
Tradesman	38	20	71
Exempt	39	16	78
Trainee	25	16	56
All plumbers	40		

Table 12: Drainlaying: Age of those holding Authorisations

Current Authorisation Type (Drainlaying)	Average Age	Youngest	Oldest
Certifier	51	24	86
Tradesman	34	20	66
Exempt	37	17	78
Trainee	28	16	59
All Drainlayers	42		

Table 13: Gasfitting: Age of those holding Authorisations

Current Authorisation Type (Gasfitting)	Average Age	Youngest	Oldest
Certifier	48	23	82
Tradesman	37	21	69
Exempt	38	17	78
Trainee	25	17	60
All gasfitters	37		

## 12. Education

To become registered as a Certifier or Tradesman in each of the trades, a person must pass an exam. The exams are held in June and November of each year but from June 2018 will be able to be sat on a weekly basis at examination centres in major centre and on a monthly basis in regional centres.

The number of Tradesman examinations sat by candidates increased 89% between 2014/15 and 2016/17 with certifying exams only increasing 6% during the same period.

Table 14 below sets out key details of the examinations and there results for the past three financial years:

Table 14: Examination results for past three financial years.

2016/17		Number of candidates sitting exam		Number of candidates who passed exam		Pass rate	
Examination	June	November	June	November	June	November	
Certifying plumbing	130	164	77	89	59%	54%	
Certifying gasfitting	43	81	27	67	63%	83%	
Certifying drainlaying	34	48	27	40	79%	83%	
Tradesman plumbing	162	266	125	161	77%	61%	
Tradesman gasfitting	80	132	66	96	83%	73%	
Tradesman drainlaying	87	180	72	148	83%	82%	

2015/2016		Number of candidates sitting exam		Number of candidates who passed exam		Pass rate	
Examination	June	November	June	November	June	November	
Certifying plumbing	120	168	86	106	72%	63%	
Certifying gasfitting	48	72	36	53	75%	74%	
Certifying drainlaying	26	24	24	21	92%	87%	
Tradesman plumbing	97	120	65	80	67%	67%	
Tradesman gasfitting	52	67	36	38	69%	57%	
Tradesman drainlaying	69	113	63	98	91%	87%	

2014/2015		Number of candidates sitting exam		Number of candidates who passed exam		Pass rate	
Examination	June	November	June	November	June	November	
Certifying plumbing	113	183	58	151	51%	83%	
Certifying gasfitting	53	73	42	66	79%	90%	
Certifying drainlaying	19	29	19	28	100%	97%	
Tradesman plumbing	183	78	105	59	57%	76%	
Tradesman gasfitting	78	41	49	27	63%	66%	
Tradesman drainlaying	46	55	40	44	87%	80%	



### 13. Skill demand forecast.

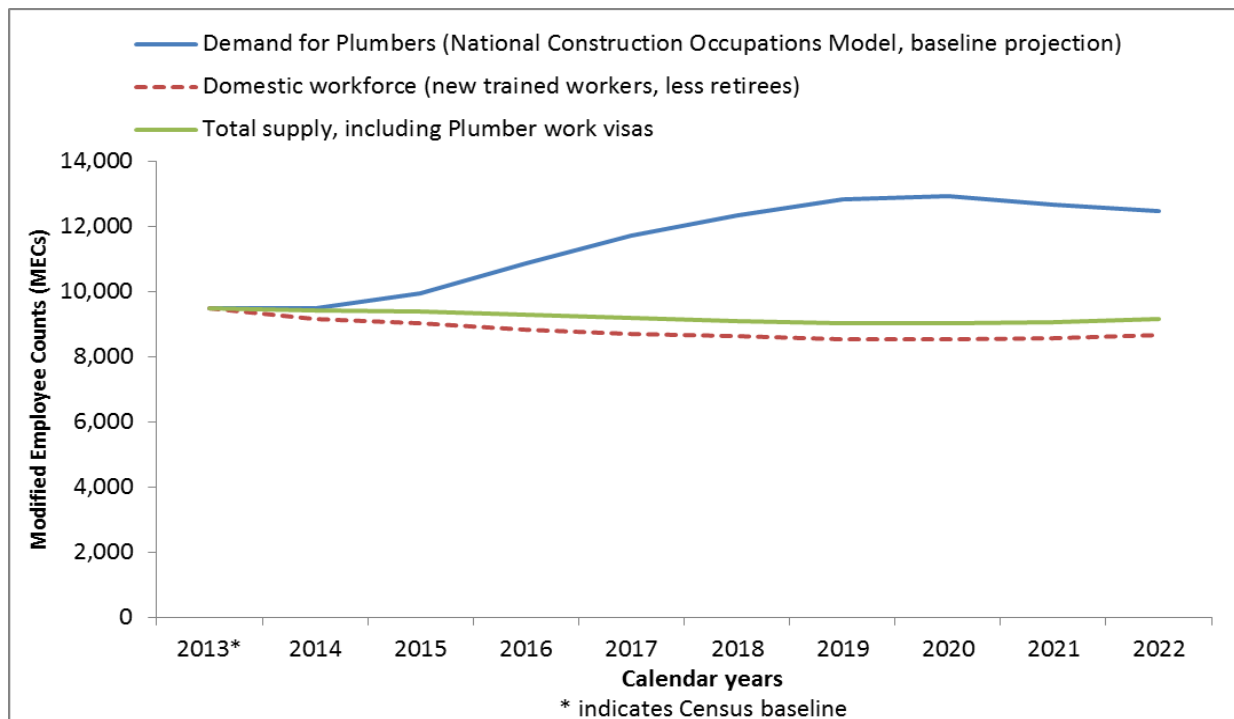
Anecdotally the industry appears to be in agreement that there is a shortfall in skilled workers. This anecdotal evidence is supported by external data.

In July 2017, the Ministry of Business Innovation and Employment (MBIE) published projections for future demand for construction workers based on their National Construction Occupations Model.<sup>2</sup> Their modelling projects that demand for construction related occupations will increase by 11% between 2016 and 2022. Occupations that are expected to experience the largest growth to 2022 include plumbers (15%). In Auckland, where demand for construction related occupations will increase by 18% between 2016 and 2022, the demand for plumbers is expected to increase by 32%.

Graph 14 shows that the demand for plumbers is higher than supply, and this shortfall will probably worsen. The trend in training and low migration shown on the graph indicates a growing shortfall.

This projected shortfall is supported by Statistics NZ data on the trend in the producer's price index (PPI) for "water, plumbing and Drainlaying services" outputs. This index rose 42.7% from quarter 4 in 2009 (the base period) to quarter 3 in 2017. This is a significant rise above the PPI for 'residential construction services' which rose 32.4% over the same period. The higher rise in the price index indicates that demand is already greater than supply of Plumbers.

Graph 14: Projected demand and supply for Plumbers in 2022



<sup>2</sup> "Future demand for Construction Workers: Projections from the National Construction Occupations Model" Second edition, July 2017, Ministry of Business Innovation and Employment.

The projected shortfall is also shown in Table 15, taken from the National Construction Occupations model. Using Ministry of Education figures for apprenticeship completions and numbers from Immigration New Zealand for work applications the table indicates that the industry is not going to be able to meet the projected shortfall in demand based on current rates of apprenticeship completions and migration.

Table 15: Supply and demand for plumbers

Supply & Demand for Plumbers	Calendar Years											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<i>Assumes growth in qualifications based on prior % change in trainees</i>												
<b>Total demand for Plumbers (NCOM 2017)</b>			9,057		9,953	10,866	11,736	12,356	12,838	12,925	12,678	12,488
<b>Total Trainees</b>												
<i>PGD Apprenticeships</i>	1,720	1,630	1,820	2,185	2,200	2,575						
<i>Actual annual percentage changes of trainees</i>		-5%	12%	20%	1%	17%						
Total qualifications: % growth from 2017							12%	20%	1%	17%	10%	10%
<i>PGD Apprentices with qualifications</i>	405	280	240	365	310	290	325	390	394	461	507	557
<i>Sub-total: Additional trained workers</i>	405	280	240	365	310	290	325	390	394	461	507	557
<i>Trained workers added to Census baseline</i>				9,646	9,490	9,314	9,173	9,097	9,024	9,019	9,060	9,151
<i>Less: 2013 stock of Plumbers aged over 65 (4.9%)</i>			466	466	466	466	466	466	466	466	466	466
<b>Sub-total: Domestic workforce</b>				9,180	9,024	8,848	8,707	8,631	8,558	8,553	8,594	8,685
<i>Plumber Work Visas* annual approvals</i>	52	46	82	111	183	157	157	157	157	157	157	157
<i>Add: Cumulative 3-year total work visas</i>			180	239	376	451	497	471	471	471	471	471
<b>Total supply of trained Plumbers</b>				9,419	9,400	9,299	9,204	9,102	9,029	9,024	9,065	9,156

\*Financial years only. Assumed to be based on the Long Term Skill Shortage List Work Visa conditions.