



TECHNICAL REVIEW OF INDUSTRY DEMOGRAPHICS

Auditor

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A L R Merrifield, Contractor

Reviewed By

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J Chisnall, Technical Audit Manager

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D Miller, National Manager Performance Monitoring

DISCLAIMER

This is a final report. It has been prepared in the discharge of the NZ Transport Agency's legal responsibility to audit the performance of approved organisations in relation to activities approved by the NZ Transport Agency (NZTA).

The findings, opinions and recommendations in the report are based on an examination of a sample only, and may not address all issues existing at the time of the review. So readers are urged to seek specific advice on particular matters and not rely solely on the report.

While every effort has been made to ensure the accuracy of the report, it is made available strictly on the basis that anyone relying on it does so at their own risk without any liability to the NZ Transport Agency.

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Appendix A - Review Plan 2009/10: Industry Demographics

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1 EXECUTIVE SUMMARY

1.1 Review Dates

This review of industry demographics was carried out between 12 October, 2009 and 3 December, 2009. This review was conducted as part of Performance Monitoring Unit's business plan for 2009/10.

1.2 Scope of Review

- To determine an age profile for staff employed in road asset management and related professional services across all territorial local authorities (TLAs).
- Look for gaps in the profiles and assess where training needs to be targeted.
- Assess vacancies in relation to road controlling authorities' (RCA's) staff establishments and impacts of any policies for freezing of recruitment.
- Recommendations for New Zealand Transport agency (NZTA, the Agency) action.

1.3 Review Conclusions

- The age distribution of the total population employed on road asset management, network management and supervision of maintenance appears satisfactory.
- Any problems of recruitment appear to relate to the size of the available pool of staff in the industry; the geographical location of the recruiting organisation; and to the perceived organisational culture of the recruiting organisation.
- No clear training needs not being met from existing courses were identified during the survey.
- Reported staffing levels are considered by asset managers surveyed to be satisfactory. The findings of recent technical reviews are that generally the asset management task is being better performed than formerly. This conclusion is supported by successive annual road condition assessments based on Road Asset Maintenance Management system (RAMM) reports.

2 RECOMMENDATIONS

The following is a summary of my recommendations and suggestions. In some cases, this section of the report may carry an abbreviation of the full wording. The appropriate section of the report should always be referred to for the full statement in its context.

2.1 Recommendations

I recommend that:

- (a) The Chief Executive of New Zealand Transport Agency continue to strongly support present and future industry training schemes and suppliers both from a funding and from an institutional standpoint (section 3.1.4);
- (b) Councils carry out gap analyses of available skills and capacities, and where appropriate, investigate opportunities for skills-sharing with neighbouring authorities (section 3.2.6).

2.2 Suggestions

I suggest that:

- (a) New Zealand Transport Agency continue to provide financial assistance towards appropriate activities undertaken by industry training organisations (section 3.2.7).

3 REVIEW FINDINGS

3.1 Review Objectives and Principal Findings

3.1.1 *Objective 1: Age Profile of Staff Employed*

There appears to be a reasonable age distribution within the present pool of asset management and professional services staff working in the roading industry. Problems appear to relate more to the size of that labour pool and to individuals' willingness to work in particular locations. This last problem may be based in part, at least, on geographical and organisational culture considerations.

3.1.2 *Objective 2: Gaps in the Age Profile and Training Needs*

Gaps in the age profile relate mainly to specific segments within the industry, rather than across the whole road asset management and professional services roles. The 45-49 age group (people who would have graduated in the period about 1985-90, when recruitment of school leavers and graduates was at a minimum as government reforms began) is under-represented as a whole.

No clear training needs not being met from existing courses were identified during the survey. Asset managers expressed a wish for a return to former Government's policies of central government organisations acting as training organisations from which people could filter out into the rest of the industry. Such is not practicable under present circumstances. A third of respondents had cadet training schemes that included engineering in their scopes. Not all council cadet schemes were being funded by the councils.

3.1.3 *Objective 3: Assess Recruitment Needs*

Reported staffing levels are considered by asset managers surveyed to be satisfactory. The survey did not test the adequacy of staff establishments in relation to workloads or to network sizes.

Over half (54%) of respondents reported that they had difficulty in recruiting suitable candidates with relevant skills. I concluded that their problems related to any one or more of:

- The size of the available pool of staff in the industry;
- The geographical location of the council;
- The perceived organisational culture of the recruiting council; and
- The perceived reputation of the council as an employer (which may be affected by perceptions of Council level or organisational policies and relationships).

Some councils have alleviated or overcome recruitment difficulties by employing either staff who had previously retired, or by employing migrants who may be new to working in New Zealand.

3.1.4 Objective 4: Recommendations for NZTA Action

As no specific recruitment or training needs have been identified that the Agency can assist with directly, I recommend that the Agency continue to strongly support present and future industry training schemes and suppliers both from a funding and from an institutional standpoint.

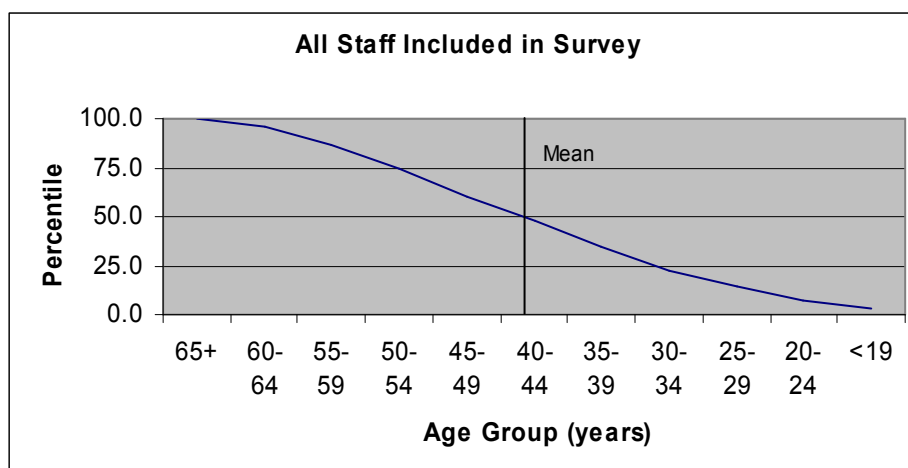
3.2 Findings

3.2.1 Demographics – Staff Age Distribution

Graphs C.1-5 and Table C.1 (see Appendix C, section C.2) show an overall age distribution among technical staff that is slightly skewed towards an older group and that has a dip in the proportion of staff in the 45-49 age group. This dip seems likely to relate to a period around 1985-90 when New Zealand civil engineering graduates were not being recruited by organisations in a period when they were undergoing major reorganisations. Two examples of policy actions that caused a hiatus in recruitment into the civil engineering industry include the disestablishment of Ministry of Works and Development (1987), and the reorganisation of local government in 1989.

The peak in the age distribution for all staff considered occurs in the 50-54 age group. The mean occurs in the 40-44 age group (see Graph 1, below), mid-career for most people.

Graph 1: Age Distribution for All Staff Included in Sample



Individual segments within the industry have variations from the overall distribution, as shown on Graph 2 on the next page. For example, asset management staff tend to be slightly older than other groups. Consultants' and contractors' staff tend to be marginally younger than council staff. The highest proportion of professional services business unit staff occurs in the 45-49 age group, again with a lesser peak in the 35-39 group. Consultants' staff engaged on contracted professional services to councils also have a peak in numbers in the 35-54 age range.

Graph 2: Age Distribution for All Staff Included in Sample by Industry Segments

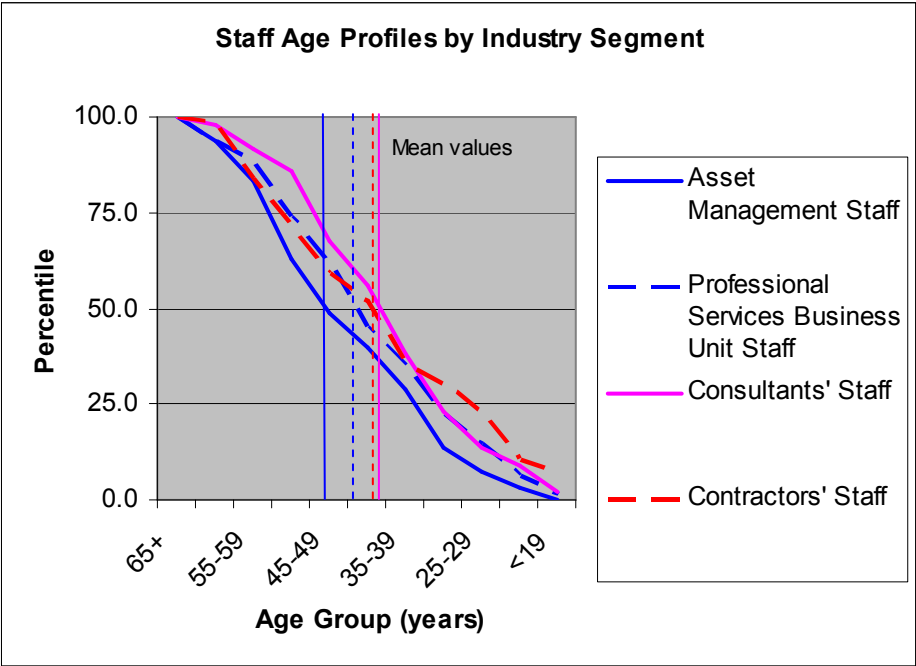


Table 1: Age Distribution for All Staff Included in Sample by Industry Segments

Age Group	Cumulative Proportion (%)				Total Staff
	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	
65+	100.0	100.0	100.0	100.0	100.0
60-64	94.0	93.6	97.6	98.2	95.9
55-59	83.4	88.0	91.8	83.9	87.2
50-54	63.0	73.6	85.9	71.4	74.4
45-49	48.6	61.6	67.6	58.9	59.8
40-44	39.6	44.8	55.9	51.8	48.5
35-39	28.7	35.2	38.2	35.7	34.7
30-34	13.6	22.4	22.9	30.4	22.1
25-29	7.6	14.4	13.5	23.2	14.3
20-24	3.0	6.4	8.8	10.7	7.2
<19	0.0	1.6	2.4	7.1	2.6

The distribution by age of staff involved in road management and maintenance has a bias towards the older end of the spectrum of ages. Table 2 opposite illustrates this point. This bias is a positive factor, as experience is a necessary attribute for the roles under consideration, provided that there is a reservoir of younger staff in the industry as a whole from whom recruitment can come. It is likely to be influenced by the trend for younger staff still building their careers to be concentrated on activities such as design and construction of projects.

Table 2: Proportion (%) of Total Staff Included in Sample (Full Time Equivalents)

Age Group	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	Total Staff
60+	16.6	12.0	8.2	16.1	12.8
50+	51.4	38.4	32.4	41.1	40.2
40+	71.3	64.8	61.8	64.3	65.3

Graph C.5 (see Appendix C) appears to show there is a reasonable age distribution across the industry as a whole. I believe the dip at staff aged 45-49 relates to a pause in recruitment to the industry following commencement of the public sector reforms after 1984.

3.2.2 Staff Experience in Present Role

More than half (53%) of the staff reported have occupied their present positions for less than five years. Graphs C.6-10 and Table C.2 in Appendix C illustrate this very clearly. This trend is especially strong in councils' professional services business units, where 74% of present staff reported have been in their present position for less than five years. One contributory reason for this may be a result of councils establishing business units after a period during which contracting out of the provision of professional services was strongly encouraged by Government policy. A further likely contributing reason is churning of staff through administration reorganisations.

Council representatives have repeatedly commented that they have found in-house staff to be able to relate to councillors and ratepayers better than do most consultants' staff; to be a more economical provider of routine professional services; and to be worthwhile support to asset managers as councils seek to become smarter buyers of all engineering services.

Graphs C.6-10 appear to reflect a strong mobility within the industry. Local government staff appear to have been more mobile than their private sector counterparts (Graphs C.6-7 vs Graphs C.8-9).

3.2.3 Staff Total Experience Relevant to Present Role

Some 80% of local authority and consultants' staff are reported as having up to 24 years of experience relevant to their present roles. There is a trend of people with less relevant experience to be working for contractors – see Graphs C.11-15 and Table C.3 in Appendix C. 93% have less than 24 years experience relevant to their present positions. This is likely to be related to the rise of the road maintenance industry following the introduction of contracting out of this work under the competitive pricing policy required by the Transit New Zealand Act 1989.

Graph 15 shows there is a good spread of lengths of relevant experience. This tendency appears strongest in local government (Graphs 11-12), with 26% of business unit and 22% of asset management staff recording relevant experience in excess of 25 years. For all staff included in the survey, 16% is the equivalent figure.

Conversely, contractors and consultants have staffs with the highest proportion of people with less than 25 years of relevant experience (89 and 88%, respectively), which may be compared with 84% for the full sample.

3.2.4 Staff Responsibilities Levels

See Graphs C.16-19 and Table C.4 in Appendix C.

Graph 16 shows relatively few support staff to be employed as part of the asset management team (ratio to asset managers 1.04:1 – see Table C.4). It is clear from Graphs 17 and 18 that the asset managers’ support role is largely provided by professional services business units and by consultants. Numerically more people are employed by consultants than by professional services business units – 88 full-time equivalents within the sample, versus 50.5 FTEs respectively.

3.2.5 Staff Qualifications

Graphs C.20-23 and Table C.5 summarise the response to the survey.

A surprisingly high proportion of business unit staff is recorded as having no formal qualification. Trainees in business units (see Graph C.17) amount to 14% of the staff considered; lower than 28% recorded as having no formal qualification (see graph C.21). From observation, I consider that the difference represents older staff drawn from former councils’ workforces who are able to bring their practical work skills to the management of maintenance contracts.

Contrasts are apparent in the levels of qualifications held by the majority of people working in various parts of the industry as follows:

Table 3: Qualifications Levels Related to Employment Role

Role	Diploma or Engineering Associate Level	Bachelor’s Degree and/or MIPENZ	Master’s Degree
Asset management	24.8	58.5	8.3
Business unit	40.0	27.4	4.2
Consultant	80.3	38.1	0.0

The marked disparity between the levels of qualifications held by incumbents in the asset management role from those in a professional services or contract management role is apparent in Table 3. This is likely to reflect the emphasis on management skills needed in asset management and the more practical skills that are appropriate to assessing contractors’ proposals and work performance.

3.2.6 Staffing and Recruitment

Graph 3 and Table 4 report asset managers' assessments of staffing levels against councils' approved establishments. No shortage of staff is indicated at present, though 54% of the respondents reported difficulty in recruiting applicants with relevant skills.

Graph C.23 and Table C.6 in Appendix C report staffing levels based on the answers to age profiles (see section 3.4.1 above). Responses were provided to questions about contactors' staffing levels, but these had a significantly lower response rate than did replies to questions relating to other sectors of the industry. Answers received do not appear sufficiently reliable to report here.

Graph 3: Staffing Levels Reported in Survey

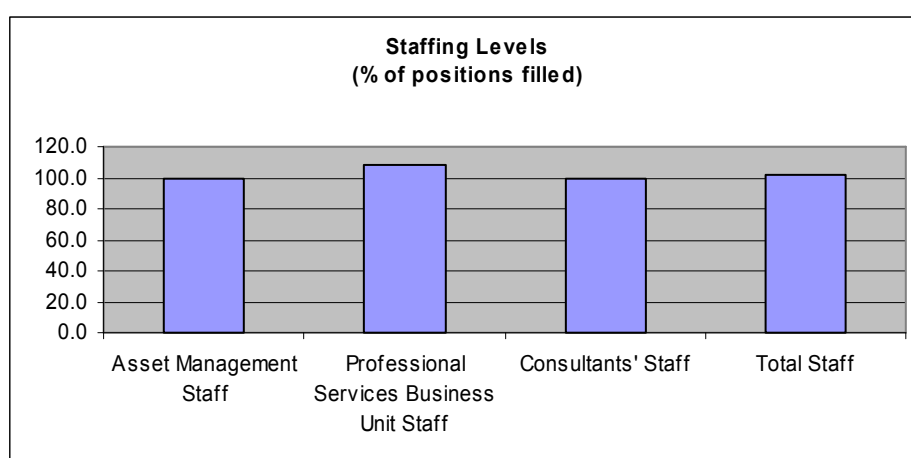


Table 4: Staffing Levels Reported in Survey

Qualification level	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Total Staff
Positions filled	66.2	62.5	85.0	213.7
Establishments	66.2	57.5	85.0	208.7
% filled:	100.0	108.7	100.0	102.4

When asked if their Council had difficulty recruiting suitable candidates with relevant skills, 13 respondents (54%) stated that they did. Those councils reporting difficulty ranged across the full spectrum of authorities from low population density rural Districts to large metropolitan Cities.

Some councils have been employing staff who had previously retired, or have been able to keep operating by recruiting migrant engineers.

Clustering of local government services into one resource base across a number of individual councils has been proposed as a means of alleviating recruitment problems. Such arrangements are possible providing they satisfy the best value for money test in Section 25 of the Land Transport Management Act.

Eight councils (33%) reported that they had cadetship schemes. One respondent reported that the council had resolved to establish a cadetship scheme but had yet to fund this. Not all cadets were in engineering training courses. Those eight that responded had a total of 20 cadets, of whom 13 were engaged in various parts of engineering activities. Half each of the cadets were studying towards graduate or sub-graduate qualifications. Two councils commented that they had had engineering cadets either continue their studies beyond Bachelor level, or buy themselves out of the cadetship after graduating. In either case, the council's objective of recruiting younger staff through offering training had not been achieved. Another major objective, of offering assistance with higher education for local youngsters from the local community, was achieved.

A surprising finding is that professional services business units showed to have staffing levels above approved establishments. I think this is likely to be a presentational consequence of the common practice of staff members splitting their time between different functions.

Report No. PM06/1236T, "Review of Professional Services", found across all councils' Land Transport Programmes that expenditure per person engaged on asset management and professional services, as upgraded using the NZTA cost adjustment factor from 2006 to 2009 values, was:

- High band: \$1.6-2.0 millions per person;
- Middle band: \$0.9-1.3 millions per person; and
- Low band: <\$0.7 millions per person.

Although this relationship was not tested in the present review, it seems likely that this relationship between maintenance expenditure and staffing levels continues to be valid for most councils with effective roading programmes. The findings of recent technical reviews are that generally the asset management task is being better performed than formerly. Annual assessments of road condition data derived from RAMM show that condition of the national roading system is being increasingly well controlled.

A third of councils surveyed had cadetship schemes designed to offer opportunities to local school leavers and to be a recruitment tool to help meet councils' needs. Not all cadetship schemes were funded after being adopted by councils. Not all cadets undertook engineering training. Some cadets, who continued their study beyond undergraduate level, found that they had progressed beyond a level that they considered related to the best use of their skills when working for their employing council, or in accordance with the councils' needs.

When considering staffing needs, good practice is for councils to review workloads (the above guidelines may be helpful in this) and to evaluate gaps between needed and available skills and capacities.

Recommendation: That Councils:

(i) carry out gap analyses of available skills and capacities, and

(ii) where appropriate, investigate opportunities for skills-sharing with neighbouring authorities.

3.2.7 Training Needs

Training needs for existing staff need to be kept in mind by councils. Especially when change is being driven by external agencies, or when staff are overloaded, ongoing training to keep abreast of developments may be put aside, “for attention when time permits”. This is not in councils’ best interests.

No clear need that the Agency should support emerged from the survey. Three questions were asked about unmet training needs. Nine councils (37%) responded to these questions. NZTA’s Highways & Networks Operations has its own graduate recruitment programme. Two councils foresaw a shortage of trained technical staff and a need to encourage entrants to the industry.

In response to the survey question, “How may NZTA assist meeting identified needs for roading engineers?”, five responses were received. Respondents looked to the Agency to provide a lead, but were not clear in how this might be done. Suggestions offered included:

- A return to policies where Government agencies acted as training organisations in the interests of the wider industry; and
- Funding incentives to road controlling organisations to encourage the taking on and training of cadets.

The first option identified is no longer viable as promoted because of the fragmentation and differing objectives of government or former government organisations. A number of those organisations have established training schemes in co-operation with other branches of the civil engineering industry, in their own interests. Councils may be able to participate in those co-operative training schemes, or to establish similar relationships for the training of their own cadets.

LTP On-line was the sole specific activity of the Agency where specific training was sought by one respondent.

NZTA can best provide financial assistance towards appropriate activities undertaken by industry training organisations. Support and assistance is given in various ways to these associations at the national level; I suggest this remains the most effective way NZTA can continue to contribute to this important need.

3.3 Sample

A sample of 19 territorial local authorities and three regions of Highways & Network Operations of NZTA being visited and surveyed in a parallel exercise were asked to answer questions concerning their road asset management, professional services business unit, consultants' and contractors' technical staff. Ten TLAs (53%) and one HNO Region (33%) answered the questionnaire.

Additionally, all 54 other territorial local authorities were sent the questionnaire with a request that they complete it. A further 14 responses (26%) were received.

4 METHODOLOGY

4.1 Scope of Review

This review was commissioned to report to the NZ Transport Agency on the demographics of asset management and professional services staff, primarily on local government, and a perception that there are difficulties in obtaining suitably trained staff for these positions.

The objectives of the review were as detailed in the Performance Monitoring Group's programme of audits and reviews for 2009/10 and the attached Audit Plan (refer Appendix A).

4.2 Authority to Review (NZ Transport Agency Requirement to Audit)

The Land Transport Management Act 2003, section 95(1)(e)(ii), requires the NZ Transport Agency ("the Agency") to audit the performance of approved organisations in relation to activities approved by the Agency. The NZ Transport Agency's Performance Monitoring Unit's Charter describes the way this statutory requirement will be performed. The charter refers to regular procedural audits and regular technical reviews of road controlling authorities. This report is a technical review.

The Land Transport Management Act 2003, section 95(1)(g), requires Agency staff to assist and advise approved organisations. Technical reviews provide one opportunity for this.

4.3 Review Team

- The review was carried out by Rob. Merrifield, contractor.

4.4 Fieldwork

A total of 22 road controlling authorities (including three regions of Highways & Network Operations, NZTA) were visited and asked for information in the course of this review. All other territorial local authorities were requested to complete the questionnaire and to return their responses electronically.

4.5 Consultation on the Draft Report

Road controlling authorities including Regional staff of NZTA Highways & Network Operations, were invited to comment on the draft report if they so wished. Replies were received from four councils advising that they had no comment on the final draft. In the absence of any comment on the final draft, no changes of substance have been made to the report.

5 ACKNOWLEDGEMENTS

I am grateful for the time and effort spent by road controlling authorities' staff in preparing for and taking part in the review. The time they spent in discussion with me was appreciated.

*Rob. Merrifield,
Contractor.*

APPENDIX A

Review Plan 2009/10: Industry Demographics

Sponsor: Performance Monitoring Manager

Project Manager: Julian Chisnall, Technical Audit Manager

Intended Outputs of the Review:

A report to the NZ Transport Agency Group Manager, Regional Partnerships & Planning, assessing the findings of the review.

Review Objectives:

1. To determine an age profile for staff employed in road asset management and related professional services across all TLAs.
2. Look for gaps in the profiles and assess where training needs to be targeted.
3. Assess vacancies in relation to RCA's staff establishments and impacts of any policies for freezing of recruitment.
4. Recommendations for NZTA action.

Background to Review:

This review results from a concern that the pool of staff available and experienced in road asset management may have some demographic aberrations. It seeks to identify any such aberration or problem so that these can be addressed by the industry as a whole.

Target Audience:

NZ Transport Agency Group Manager, Regional Partnerships & Planning, all road controlling authorities.

Reviewer:

Rob. Merrifield, Contractor.

Methodology:

- Survey all RCAs to get age, experience, qualifications profile in five-year blocks by age (include relevant consultants' staff); staff establishments, vacancies, and RCA's policies for recruitment and cadet schemes.
- Create database of information received and analyse.
- Cross-match positions/vacancies and population, gaps of training needs.
- Report findings.

Projected timing:

Stage/task	Begin	End
Define objectives, methodology	Immediate	Immediate
Arrangement of fieldwork	Immediate	Immediate
Fieldwork	October 2009	November 2009
Prepare draft report for comment by Council	After fieldwork	December 2009
Preparation of final report after council comment	After receipt of Council comments.	

APPENDIX B

Questionnaire

Respondent road controlling authority:										
Industry Demographics	Information supplied by:					Date:				
		Position:								
		Establishment:				Positions filled:				Estimated profile for contractors
		Asset management	In-house PSBU	Consultants	Total	Asset management	In-house PSBU	Consultants	Total	
1 Demographic Profile:	65+									
	60-64									
	55-59									
	50-54									
	45-49									
	40-45									
	35-39									
	30-34									
	25-29									
	20-24									
<19										
Totals:		0	0	0	0	0	0	0	0	0
		Years in present role:				Years in roles relevant to present role:				Estimated profile for contractors
		Asset management	In-house PSBU	Consultants	Total	Asset management	In-house PSBU	Consultants	Total	
2 Experience Profile:	<5									
	5-9									
	10-14									
	15-19									
	20-24									
	25-29									
	30-34									
	35-39									
	40+									
	Totals:		0	0	0	0	0	0	0	
		Establishment:				Positions filled:				
		Asset management	In-house PSBU	Consultants	Total	Asset management	In-house PSBU	Consultants	Total	
3 Responsibility levels:	Trainee or assistant to area engineer, to contract supervisor, or to designer									
	(after IPENZ) Area engineer, contract supervisor, designer									
	Contract manager, designer									
	Roading asset manager, network manager									
	Overall asset manager, professional services manager									
	Totals:		0	0	0	0	0	0	0	
		Establishment (as sought by employer):				Incumbant's qualifications:				
		Asset management	In-house PSBU	Consultants	Total	Asset management	In-house PSBU	Consultants	Total	
4 Relevant professional qualifications levels:	No formal									
	Other (Please specify)									
	Engineering Associate									
	Bachelors degree									
	Masters or higher degree									
	MIPENZ or equal FIPENZ or equal									
Totals:		0	0	0	0	0	0	0	0	

5	Does Council have difficulty recruiting the staff with relevant skills it needs? (Yes/No)						
6	Does council have a cadetship scheme? (Yes/No)						
	How many engineering cadets are working in:						
7	asset management?						
8	professional services?						
9	physical works management?						
10	other parts of Council's organisation?						
	What qualifications levels are cadets studying for:						
11	post-graduate?						
12	graduate?						
13	sub-graduate?						
14	What training needs does Council have that are not being met?						
15	How may NZTA assist meeting identified needs for roading engineers?						
16	What other comments do you wish to add to the survey?						

APPENDIX C

Summary of Data Obtained from Responses

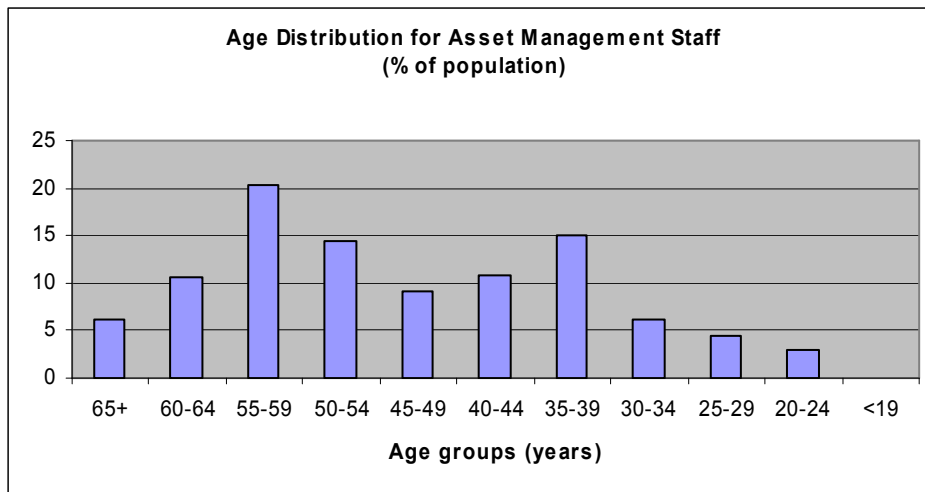
C.1 Data

Data received was collated and tabulated, then graphed as follows.

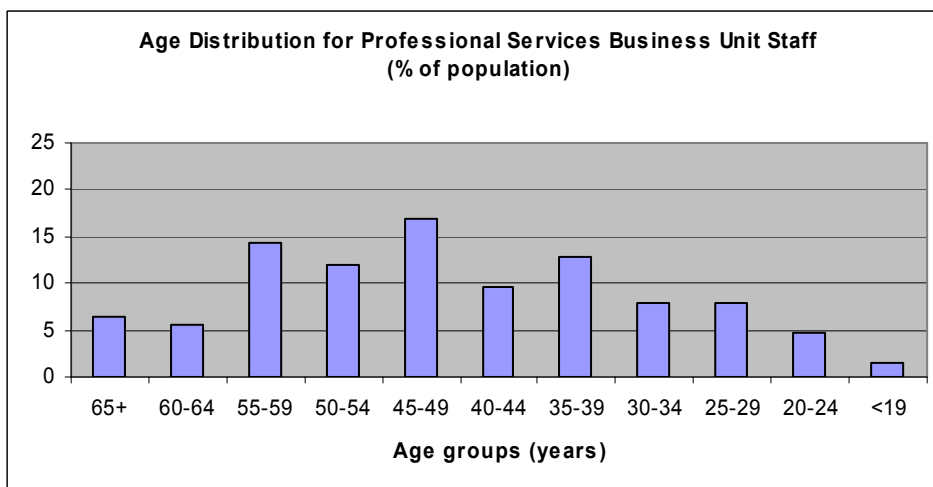
All data returned relates to full-time equivalent staff; in smaller RCAs one person may act in more than one role, as in time-sharing between asset management and professional services business unit functions, for example. Similarly, consultants' staff may not work full time for one client council.

C.2 Demographics – Staff Age Distribution

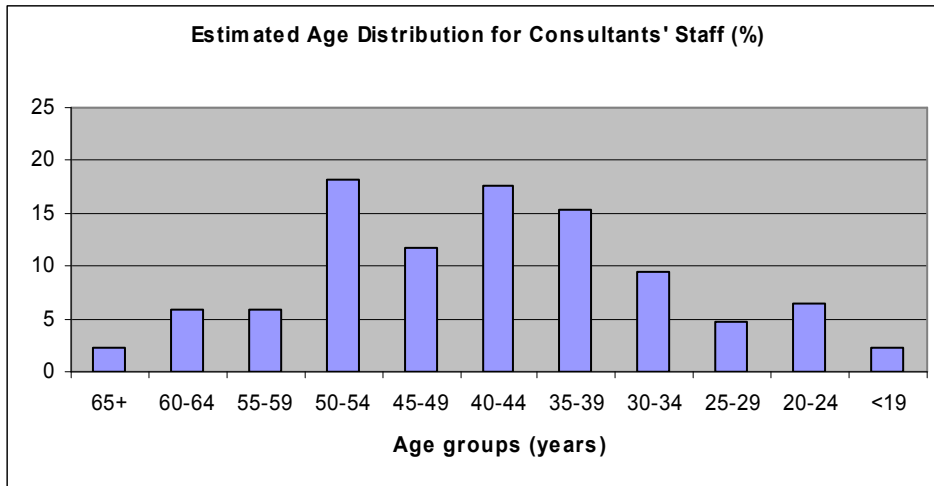
Graph C.1: Asset Management Staff (Full Time Equivalents)



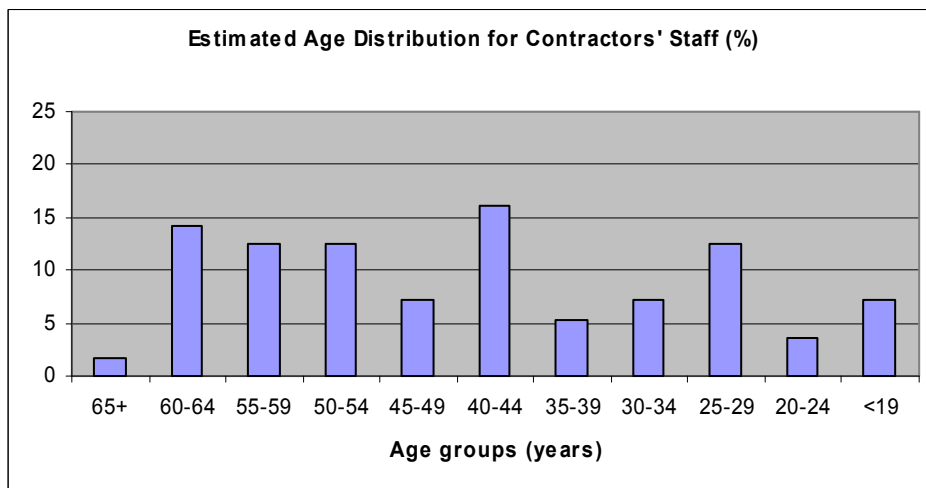
Graph C.2: Professional Services Business Unit Staff



Graph C.3: Consultants' Staff Working on Roads Maintenance



Graph C.4: Contractors' Staff Working on Roads Maintenance



Graph C.5: Total Staff Included in Sample

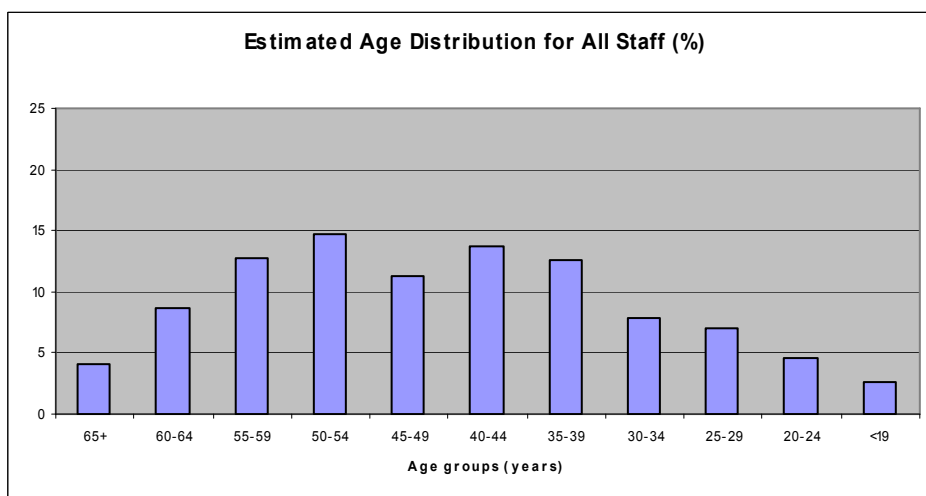
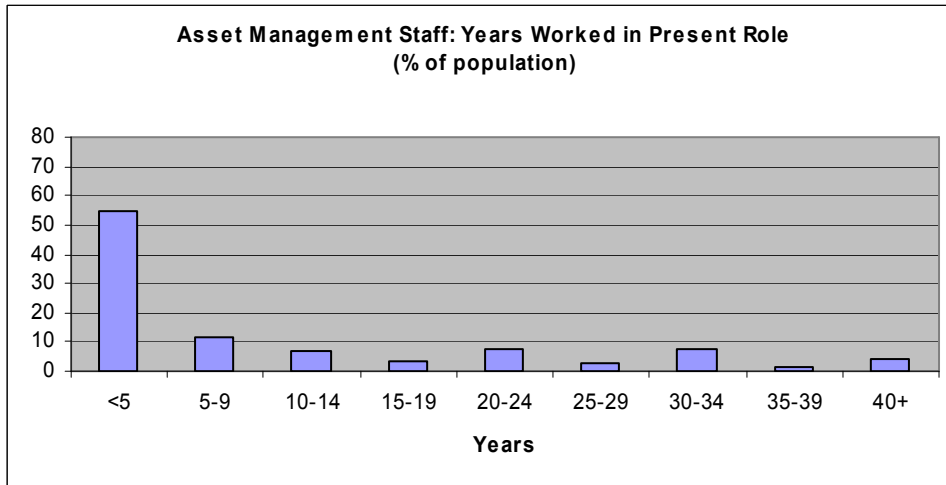


Table C.2: Age Distribution for Total Staff Included in Sample (Full Time Equivalents)

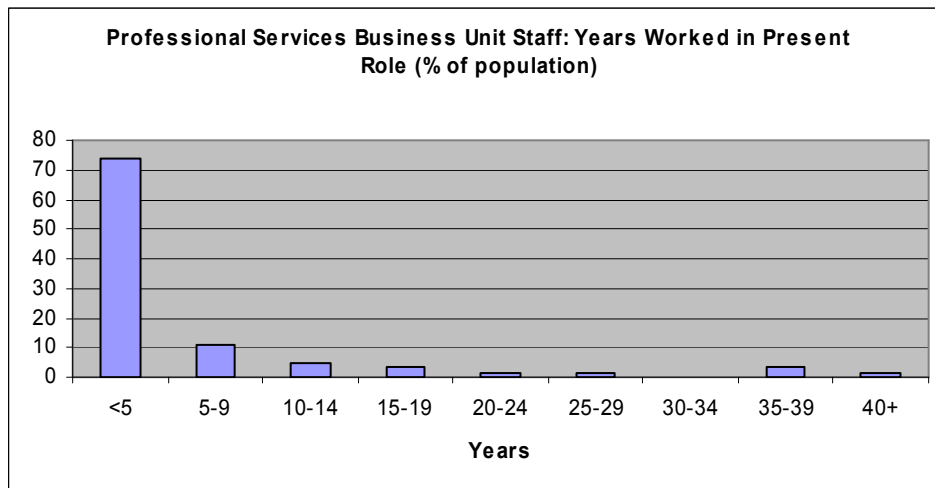
Age Group	Full-time Equivalent Staff					%				
	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	Total Staff	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	Total Staff
65+	4.0	4.0	2.0	1.0	11.0	6.0	6.4	2.4	1.8	4.1
60-64	7.0	3.5	5.0	8.0	23.5	10.6	5.6	5.9	14.3	8.7
55-59	13.5	9.0	5.0	7.0	34.5	20.4	14.4	5.9	12.5	12.8
50-54	9.5	7.5	15.5	7.0	39.5	14.4	12.0	18.2	12.5	14.6
45-49	6.0	10.5	10.0	4.0	30.5	9.1	16.8	11.8	7.1	11.3
40-44	7.2	6.0	15.0	9.0	37.2	10.9	9.6	17.6	16.1	13.8
35-39	10.0	8.0	13.0	3.0	34.0	15.1	12.8	15.3	5.4	12.6
30-34	4.0	5.0	8.0	4.0	21.0	6.0	8.0	9.4	7.1	7.8
25-29	3.0	5.0	4.0	7.0	19.0	4.5	8.0	4.7	12.5	7.0
20-24	2.0	3.0	5.5	2.0	12.5	3.0	4.8	6.5	3.6	4.6
<19	0.0	1.0	2.0	4.0	7.0	0.0	1.6	2.4	7.1	2.6
Totals:	66.2	62.5	85.0	56.0	269.7	100.0	100.0	100.0	100.0	100.0

C.3 Staff Experience in Present Role

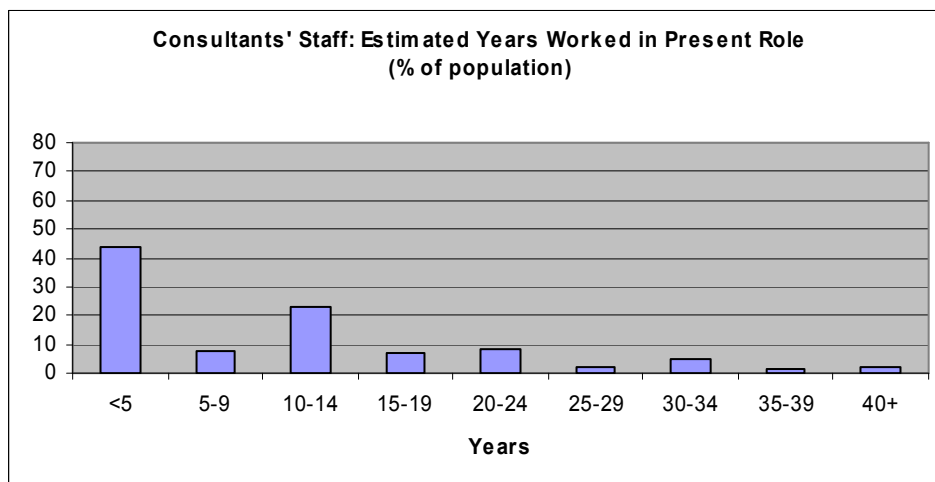
Graph C.6: Asset Management Staff (Full Time Equivalents)



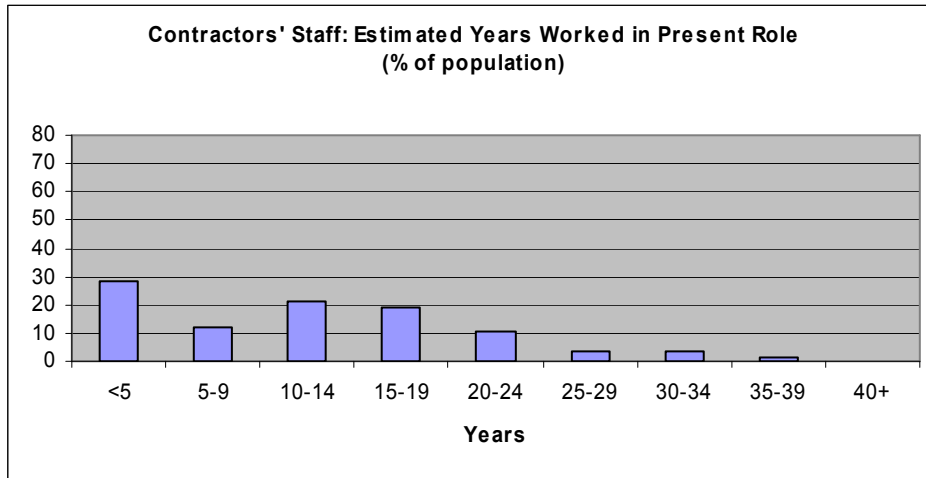
Graph C.7: Professional Services Business Unit Staff



Graph C.8: Consultants' Staff Working on Roads Maintenance



Graph C.9: Contractors' Staff Working on Roads Maintenance



Graph C.10: Total Staff Included in Sample

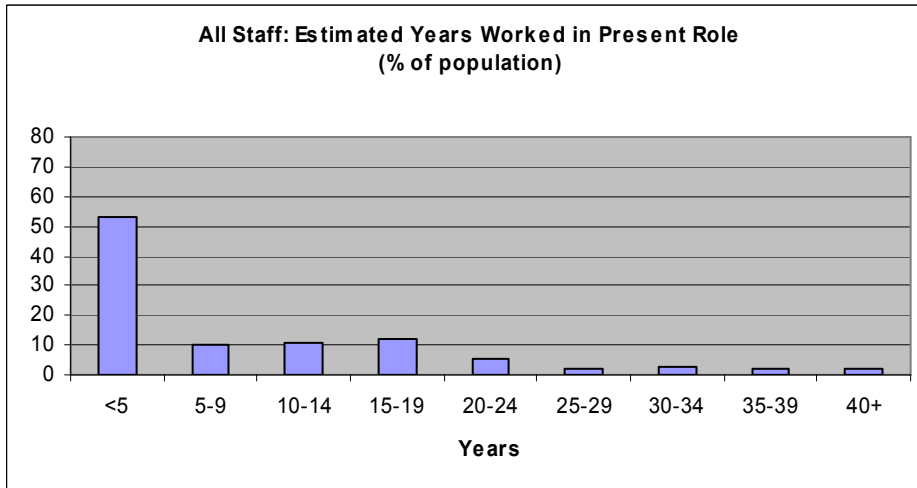
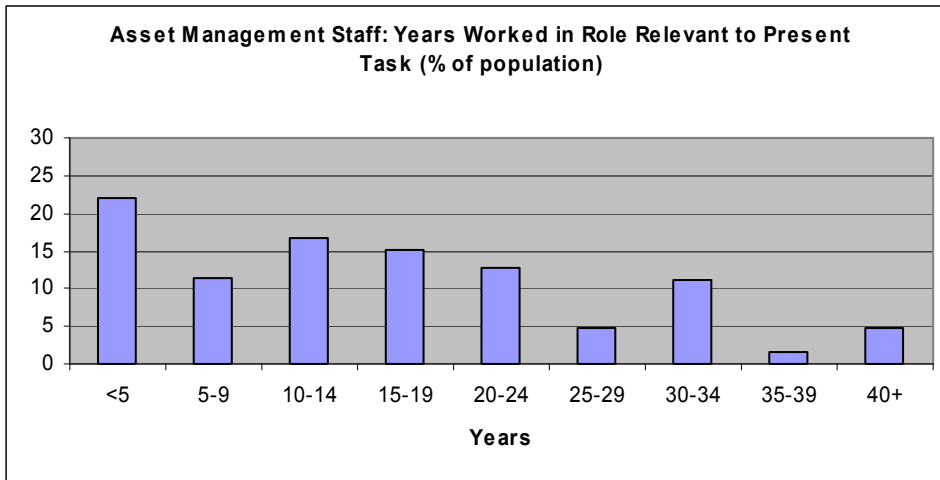


Table C.3: Time in Present Role for Total Staff Included in Sample (FTEs)

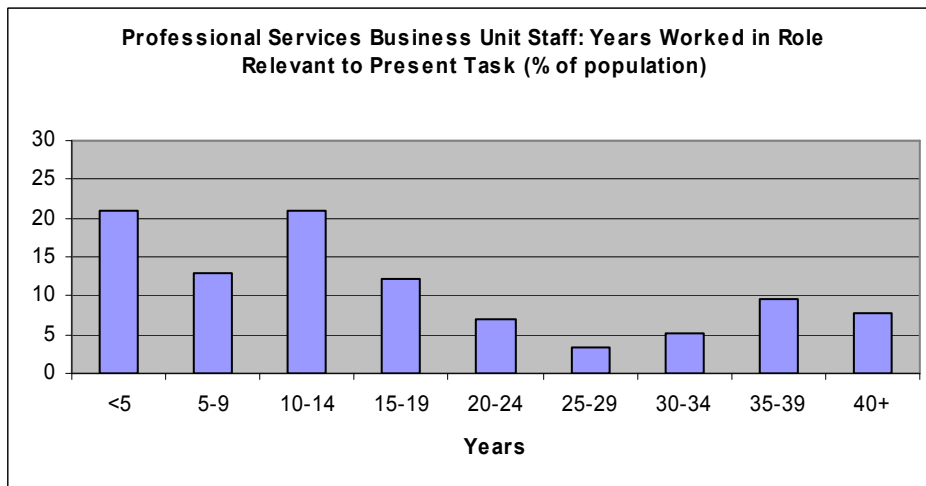
Time (Years)	Full-time Equivalent Staff					%				
	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	Total Staff	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	Total Staff
<5	38.0	119.0	37.0	16.0	210.0	54.9	73.9	43.5	28.1	53.1
5-9	8.2	17.5	6.3	7.0	39.0	11.8	10.9	7.4	12.3	9.9
10-14	4.5	7.5	19.7	12.0	43.7	6.5	4.7	23.2	21.1	11.1
15-19	25.5	6.0	6.0	11.0	48.5	3.6	3.7	7.1	19.3	12.3
20-24	5.0	2.0	7.0	6.0	20.0	7.2	1.2	8.2	10.5	5.1
25-29	2.0	2.0	2.0	2.0	8.0	2.9	1.2	2.4	3.5	2.0
30-34	5.0	0.0	4.0	2.0	11.0	7.2	0.0	4.7	3.5	2.8
35-39	1.0	5.0	1.0	1.0	8.0	1.4	3.1	1.2	1.8	2.0
40+	3.0	2.0	2.0	0.0	7.0	4.3	1.2	2.4	0.0	1.8
Totals:	92.2	161.0	85.0	57.0	395.2	100.0	100.0	100.0	100.0	100.0

C.4 Staff Total Experience Relevant to Present Role

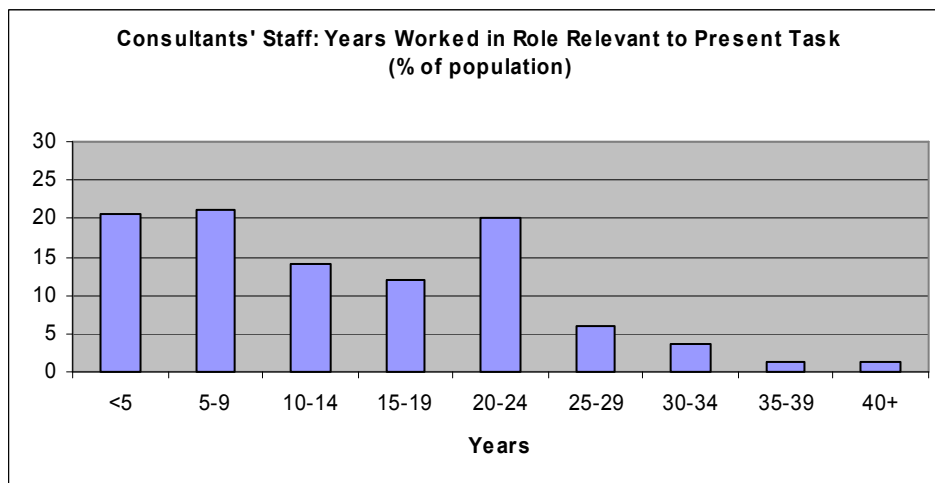
Graph C.11: Asset Management Staff (Full Time Equivalents)



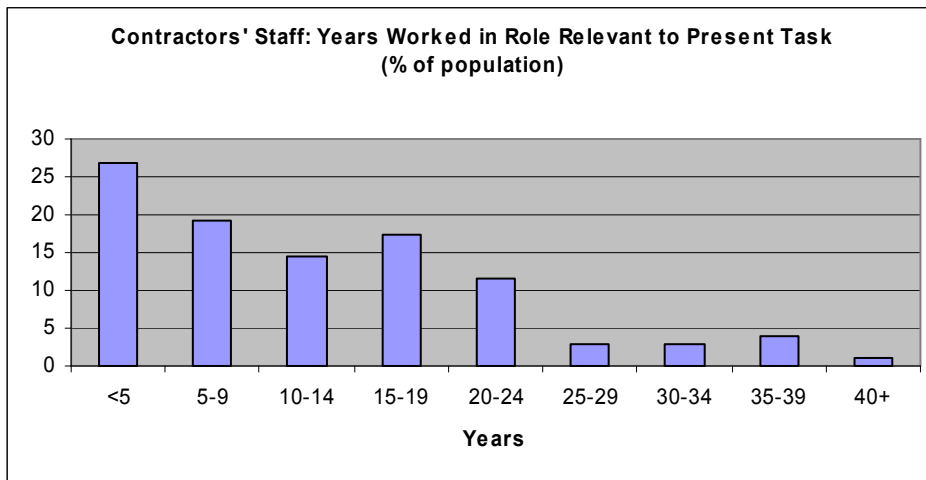
Graph C.12: Professional Services Business Unit Staff



Graph C.13: Consultants' Staff Working on Roads Maintenance



Graph C.14: Contractors' Staff Working on Roads Maintenance



Graph C.15: Total Staff Included in Sample

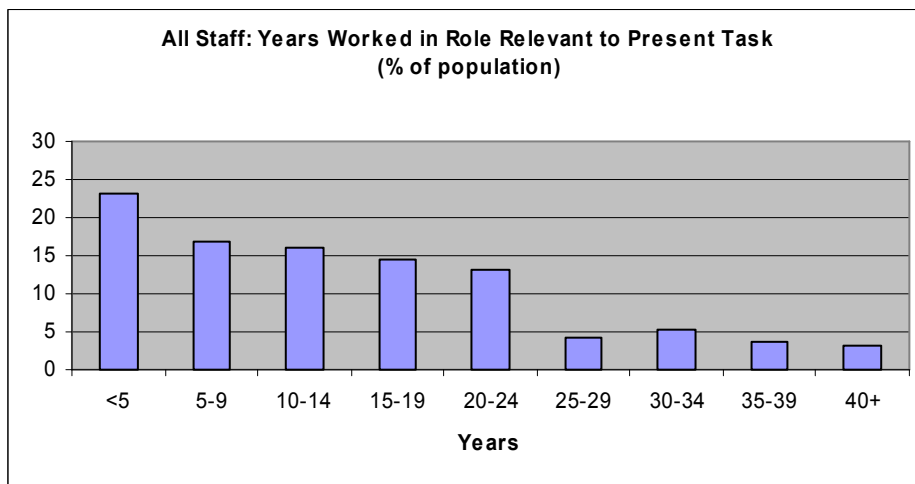
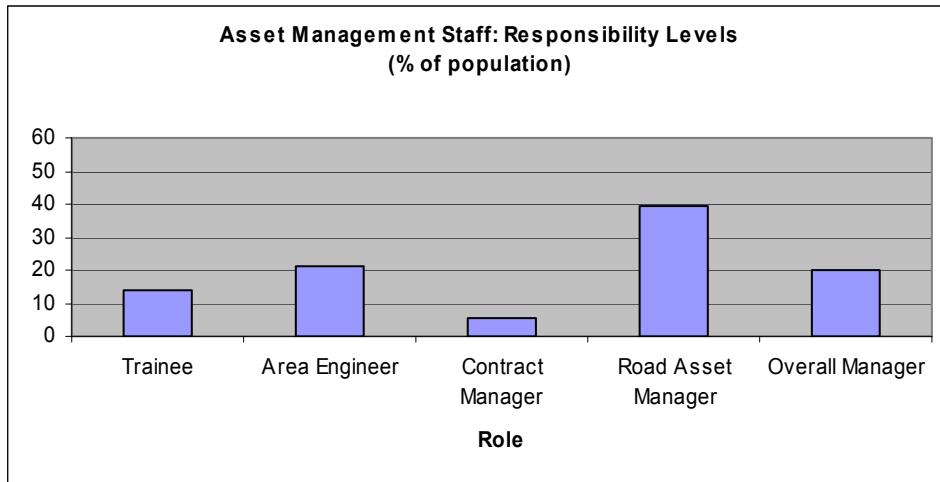


Table C.4: Time in Relevant Roles for Total Staff Included in Sample (FTEs)

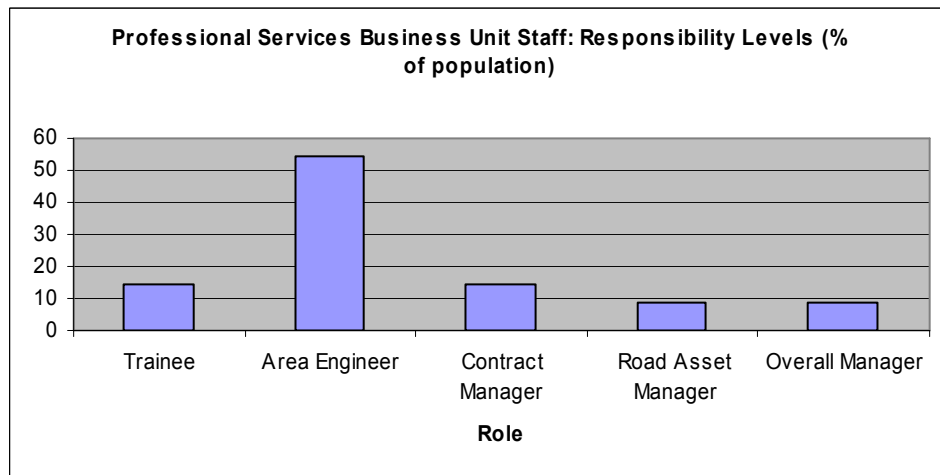
Time (Years)	Full-time Equivalent Staff					Total Staff				
	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	Total Staff	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	Total Staff
<5	14.0	12.0	16.5	28.0	70.5	22.2	20.9	20.6	26.9	23.1
5-9	7.2	7.5	17.0	20.0	51.7	11.4	13.0	21.3	19.2	17.0
10-14	10.5	12.0	11.3	15.0	48.8	16.6	20.9	14.1	14.4	16.0
15-19	9.5	7.0	9.5	18.0	44.0	15.0	12.2	11.9	17.3	14.4
20-24	8.0	4.0	16.0	12.0	40.0	12.7	7.0	20.0	11.5	13.1
25-29	3.0	2.0	4.7	3.0	12.7	4.7	3.5	5.9	2.9	4.2
30-34	7.0	3.0	3.0	3.0	16.0	11.1	5.2	3.8	2.9	5.3
35-39	1.0	5.5	1.0	4.0	11.5	1.6	9.6	1.3	3.8	3.8
40+	3.0	4.5	1.0	1.0	9.5	4.7	7.8	1.3	1.0	3.1
Totals:	63.2	57.5	80.0	104.0	304.7	100.0	100.0	100.0	100.0	100.0

C.5 Staff Responsibilities Levels

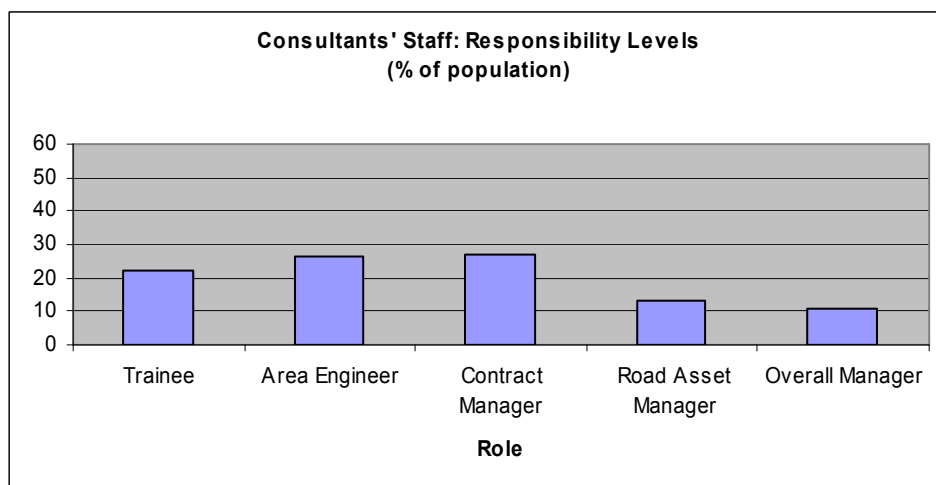
Graph C.16: Asset Management Staff (Full Time Equivalents)



Graph C.17: Professional Services Business Unit Staff



Graph C.18: Consultants' Staff Working on Roads Maintenance



Graph C.19: Total Staff Included in Sample

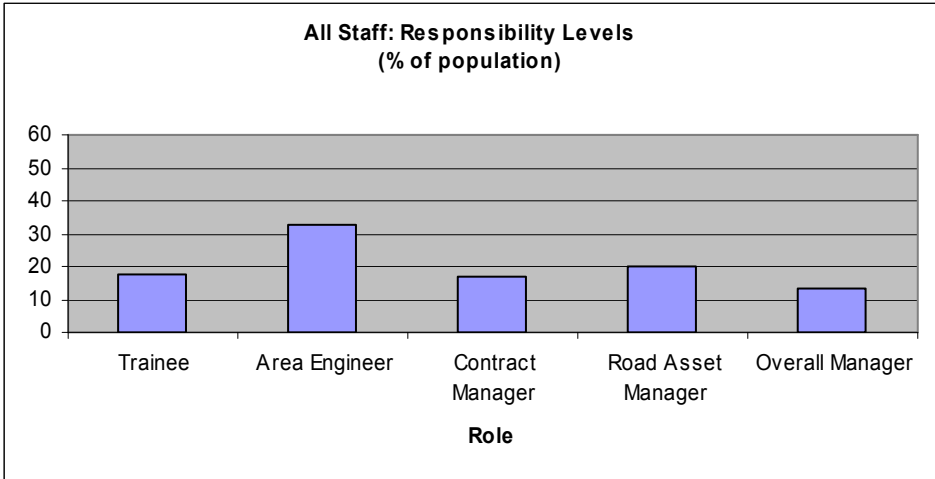
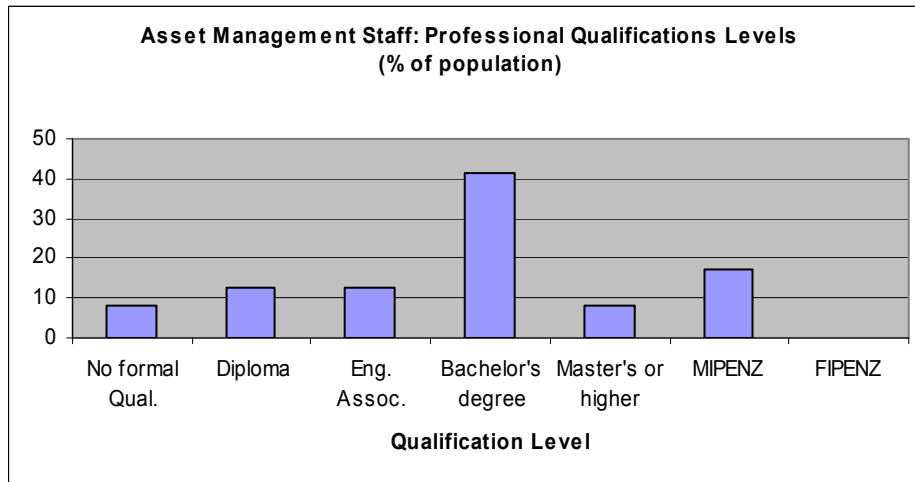


Table C.5: Responsibility Levels for Total Staff Included in Sample (FTEs)

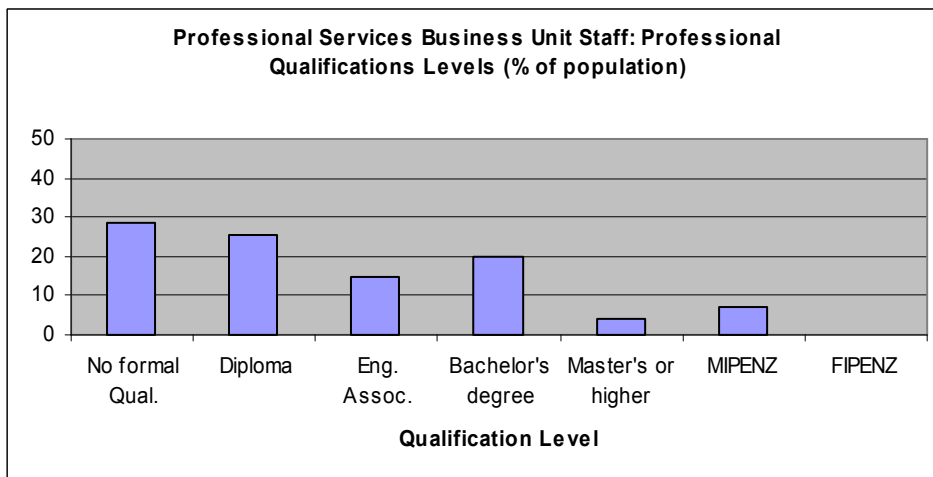
Role	Full-time Equivalent Staff				Total Staff	%				Total Staff
	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff		Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	
Trainee	9.0	8.5	19.8	0.0	37.3	13.8	14.4	22.5	0.0	18.3
Area Engineer	14.0	32.0	23.2	0.0	69.2	21.5	54.2	26.4	0.0	34.0
Contract Manager	3.5	0.0	24.0	0.0	27.5	5.4	14.4	27.3	0.0	13.5
Road Asset Manager	25.5	5.0	11.5	0.0	42.0	39.1	8.5	13.1	0.0	20.6
Overall AM, PS Manager	13.2	5.0	9.5	0.0	27.7	20.2	8.5	10.8	0.0	13.6
Totals:	65.2	50.5	88.0	0.0	203.7	100.0	100.0	100.0	0.0	100.0

C.6 Staff Qualifications

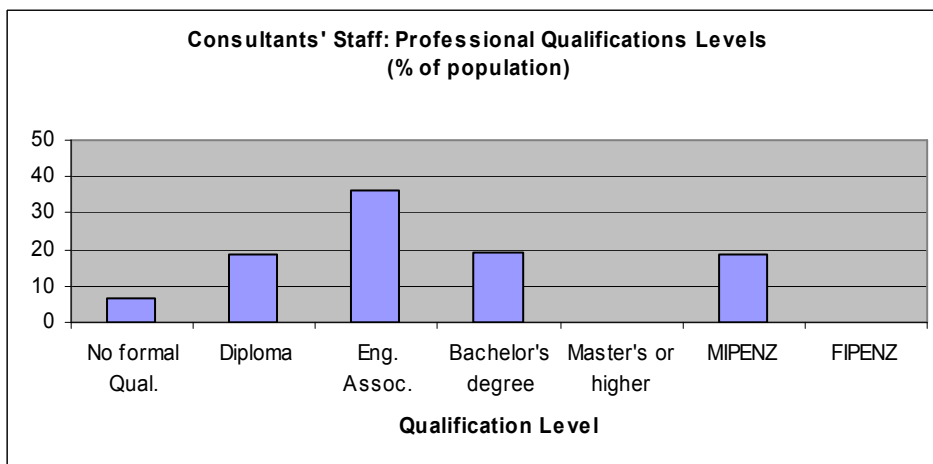
Graph C.20: Asset Management Staff (Full Time Equivalents)



Graph C.21: Professional Services Business Unit Staff



Graph C.22: Consultants' Staff Working on Roads Maintenance



Graph C.23: Total Staff Included in Sample

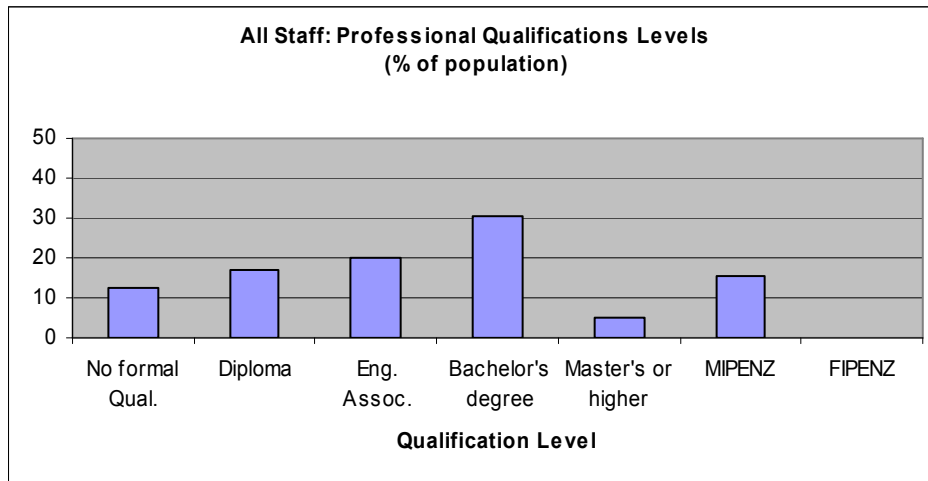


Table C.6: Qualification Levels for Total Staff Included in Sample (FTEs)

Qualification level	Full-time Equivalent Staff				Total Staff	%				Total Staff
	Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff		Asset Management Staff	Professional Services Business Unit Staff	Consultants' Staff	Contractors' Staff	
No formal Qual.	4.0	13.5	4.0	0.0	21.5	8.3	28.4	6.8	0.0	13.9
Diploma	6.0	12.0	11.0	0.0	29.0	12.4	25.3	18.6	0.0	18.7
Eng. Assoc.	6.0	7.0	21.5	0.0	34.5	12.4	14.7	36.4	0.0	22.3
Bachelor's degree	20.0	9.5	11.5	0.0	41.0	41.5	20.0	19.5	0.0	26.5
Master's or higher	4.0	2.0	0.0	0.0	6.0	8.3	4.2	0.0	0.0	3.9
MIPENZ	8.2	3.5	11.0	0.0	22.7	17.0	7.4	18.6	0.0	14.7
FIPENZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Totals:	48.2	47.5	59.0	0.0	154.7	100.0	100.0	100.0	0.0	100.0