

2017 Compensation Survey for Engineers, Engineering Specialists, Land Surveyors, and Radio Engineers

Results

**State of Minnesota and the
Minnesota Government Engineering Council
(MGEC)**

August 2017

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Introduction

Purpose

The intent of this survey was to gather compensation data for jobs which match classifications used by the State of Minnesota that are covered by the labor agreements with the Minnesota Government Engineering Council (MGEC). A mix of public and private entities were surveyed for the purpose of comparing the State of Minnesota's compensation levels to those of other public jurisdiction and private companies that do engineering work for the State of Minnesota.

Methods

An invitation e-mail and link to the survey was sent by MGEC in January 2017 to potential participants. The survey data was collected using "Survey Monkey" from January and February 2017. The State of Minnesota contacted several organizations between March 2017 and July 2017 to follow-up on duplicate entries, and missing data. A total of 30 organizations provided data for the survey.

Job descriptions were provided for each position so participants could match on job duties, rather than by title. Data collected included average salary, salary range minimum and salary range maximum. Survey respondents consisted of a variety of organization types and sizes. Therefore, it was necessary to weight the responses based on the number of employees represented. This is necessary to insure that all employees reported contributed appropriately to a final average. In other words employers that reported a larger number of incumbents to the survey influenced the results for that position more than an organization that reported fewer or a single incumbent. Weighting is a method to more accurately portray the labor market.

The following explanation describes the process used to calculate the weighted average salary for each position. This process was also used for the weighted range minimum and the range maximum.

Example: Company X reported 2 employees for the Sr. Engineer position with an average salary of \$70,000. Company Y reported 15 employees for Sr. Engineer with an average salary of \$80,000. To calculate the weighted average (mean) for each survey job the following formula was used:

Weighted average, step 1 = $(2 \times 70,000) + (15 \times 80,000) / (2 + 15)$

Weighted average, step 2 = $(140,000) + (1,200,000) / 17$

Weighted average, step 3 = $(1,340,000) / 17 = \$78,824$

The data summarized in this report represents simple summary statistics from only those organizations that were asked to participate and responded. While this provides a snapshot of a section of the labor market, it may not represent the competitive labor market for these positions as a whole.

While we have strived to make the survey results accurately reflect input, we do not have the analytical capabilities of a third party survey organization. Organizations that specialize in surveys typically have staff that follow-up with survey participants to thoroughly review data input, including matches. Those organizations also have past surveys to compare input, and statistical tools to spot anomalies in the data and ensure that the input is consistent. Also while survey organizations do publish results of the weighted average or mean, the more common central tendency measure used by compensation professionals is median. Gathering information necessary to report on median is beyond the scope of this survey.

Data are current as of the input date of January-February 2017.

A Note on Salary Ranges

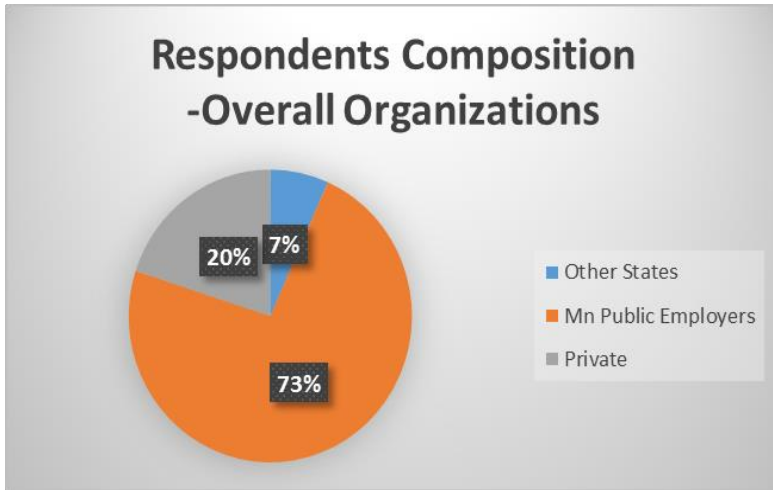
Organizations use salary ranges in different ways. There may be no actual incumbents at either the minimum or the maximum, or there may be many. In merit based pay systems, an employee's progression beyond a range midpoint is limited. In step based systems, incumbents typically progress towards a range maximum. Some organizations may have many salary grades that are narrow from minimum to maximum, while others have salary bands that are much wider and cover multiple positions. Organizations also have varying compensation philosophies, promotional policies, rules about pay under minimums and over maximums, etc., so salary ranges are not a good measure of the actual market.

Results

Overall number of organizations who responded to the survey

Sector	# Organizations
Other States	2
Mn Public Employers	22
Private	6
Total	30

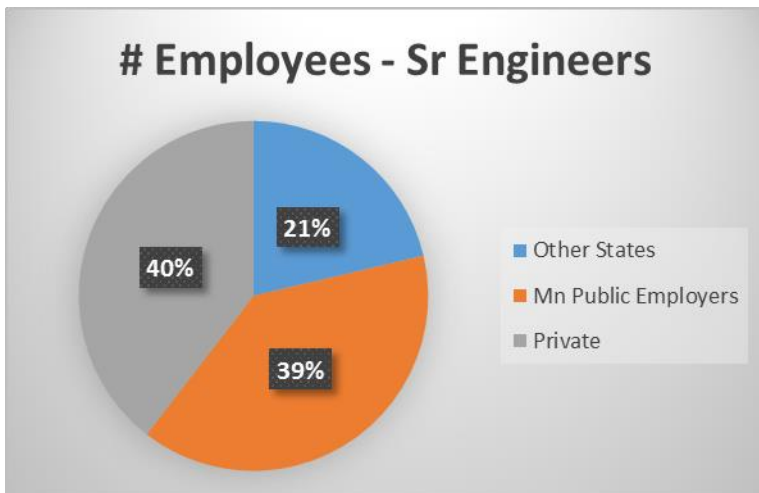
(Mn Public Employers consists of 13 cities, 7 counties, and 2 other public organizations)



While the numbers above indicate that Mn Public Employers make up the majority of organizations responding, the table and figure below demonstrate more of a balance. Below are the actual number of employees by sector for the survey position with the greatest response – Senior Engineer.

Sr Engineers by sector

Sector	# Employees
Other States	55
Mn Public Employers	101
Private	102
Total	258



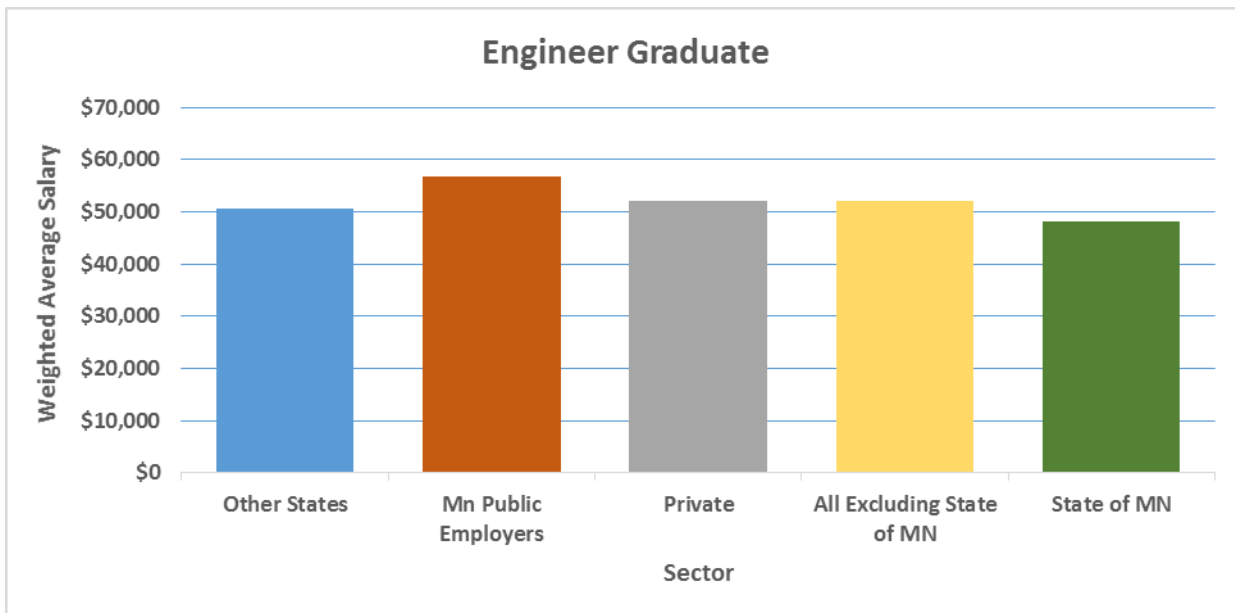
Direct Compensation – Salary

Engineer Graduate or Trainee – Requires a bachelor’s degree in the field or engineering. Beginner level engineering work.

Survey Title Engineer Graduate

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States	2	23	\$50,489	(\$2,298)	-4.8%	\$43,316	\$73,962
Mn Public Employers	4	8	\$56,705	(\$8,514)	-17.7%	\$53,749	\$74,187
Private	4	60	\$52,187	(\$3,996)	-8.3%	\$48,150	\$56,724
All Excluding State of MN	10	91	\$52,155	(\$3,964)	-8.2%	\$47,420	\$62,616
State of MN	1	40	\$48,191			\$43,911	\$62,737

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression beyond a range midpoint is limited. In step based systems, incumbents typically progress towards a range maximum.

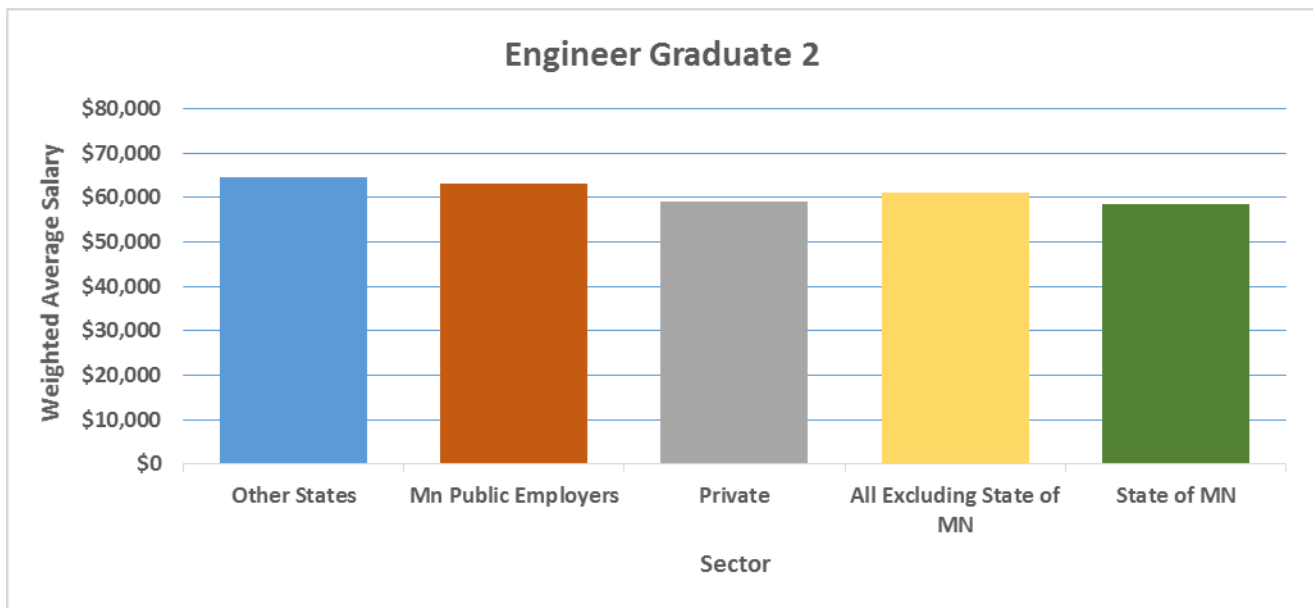


Engineer Graduate 2 – Requires a bachelor’s degree in the field of engineering and may include completion of the Fundamental of Engineering exam. Typically has 1-3 years’ experience in engineering. *(Please see Appendix A for complete job description).*

Survey Title Engineer Graduate 2

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States	1	42	\$64,460	(\$5,988)	-10.2%	\$56,004	\$93,336
Mn Public Employers	13	40	\$63,171	(\$4,699)	-8.0%	\$55,285	\$77,718
Private	5	97	\$59,068	(\$596)	-1.0%	\$52,755	\$73,304
All Excluding State of MN	19	179	\$61,250	(\$2,778)	-4.8%	\$54,083	\$78,990
State of MN	1	63	\$58,472			\$49,360	\$67,317

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

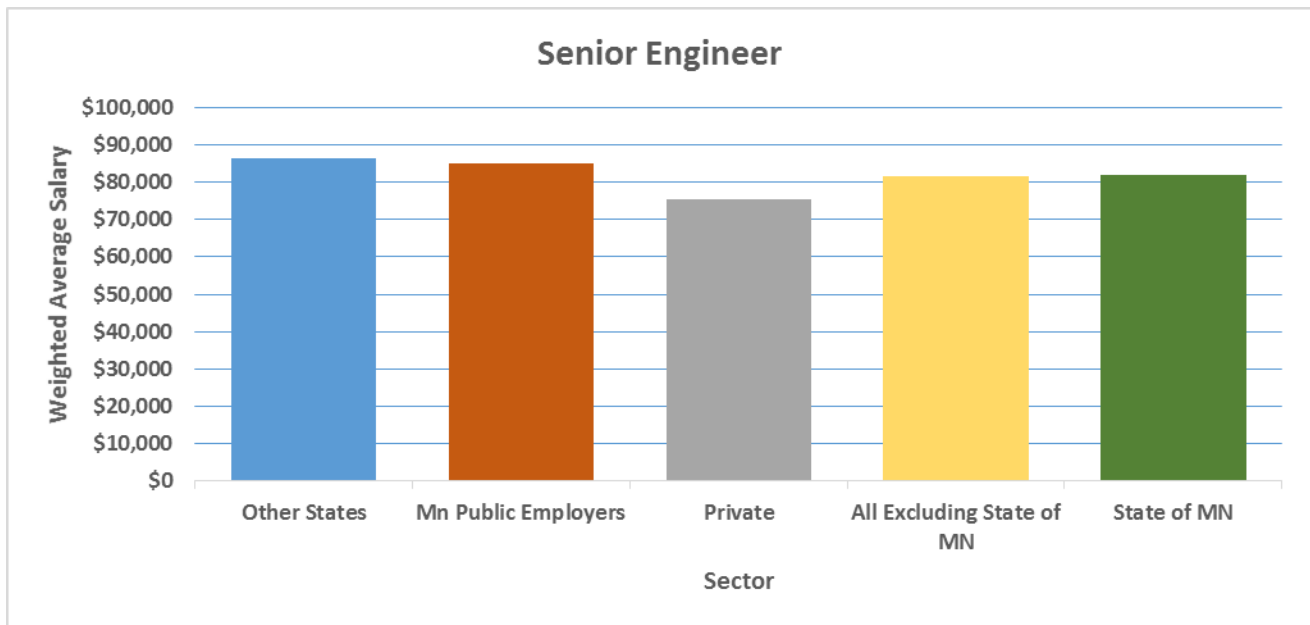


Senior Engineer – Requires a bachelor’s degree in engineering and a Professional Engineer License.
 (Please see Appendix A for complete job description).

Survey Title Senior Engineer

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States	2	55	\$86,174	(\$4,202)	-5.1%	\$63,007	\$101,914
Mn Public Employers	15	101	\$84,801	(\$2,829)	-3.5%	\$67,099	\$96,738
Private	5	102	\$75,404	\$6,568	8.0%	\$60,405	\$95,052
All Excluding State of MN	22	258	\$81,379	\$593	0.7%	\$63,580	\$97,175
State of MN	1	172	\$81,972			\$59,905	\$87,780

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

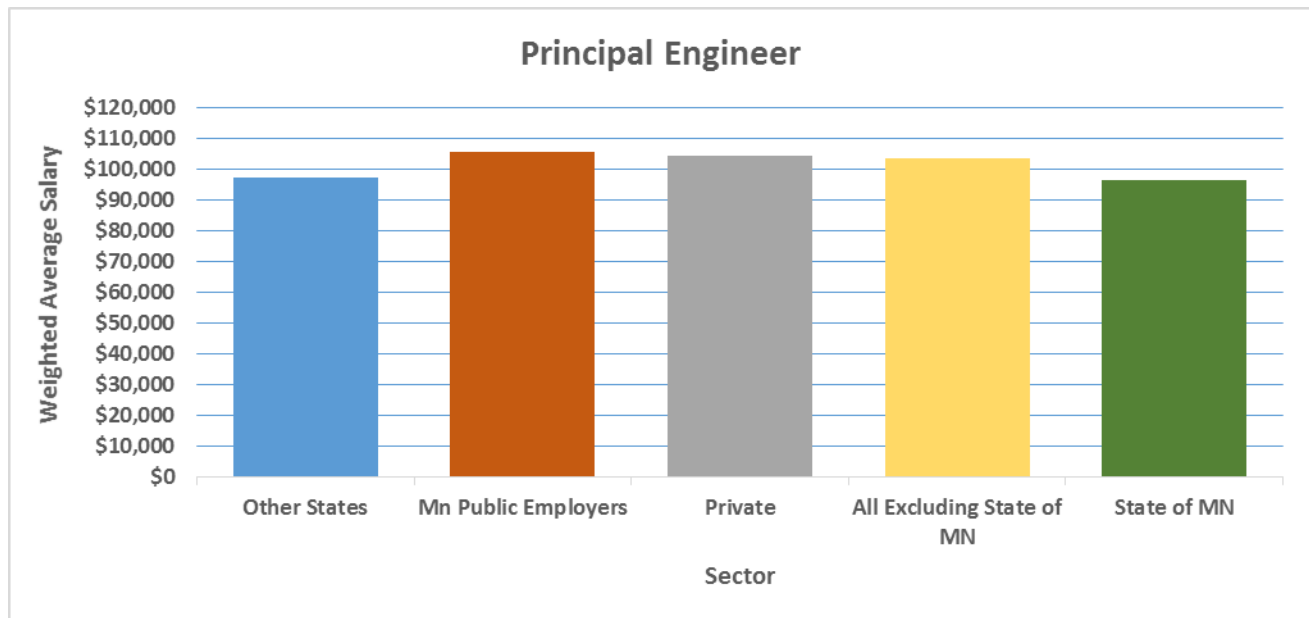


Principal Engineer – Requires a bachelor’s degree in engineering and a Professional Engineer License. Performs advanced engineering work. *(Please see Appendix A for complete job description).*

Survey Title Principal Engineer

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States	1	23	\$96,977	(\$662)	-0.7%	\$65,686	\$101,026
Mn Public Employers	18	43	\$105,339	(\$9,024)	-9.4%	\$83,044	\$110,640
Private	5	65	\$104,083	(\$7,768)	-8.1%	\$84,780	\$132,518
All Excluding State of MN	24	131	\$103,248	(\$6,933)	-7.2%	\$80,858	\$119,807
State of MN	1	210	\$96,315			\$64,770	\$98,595

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

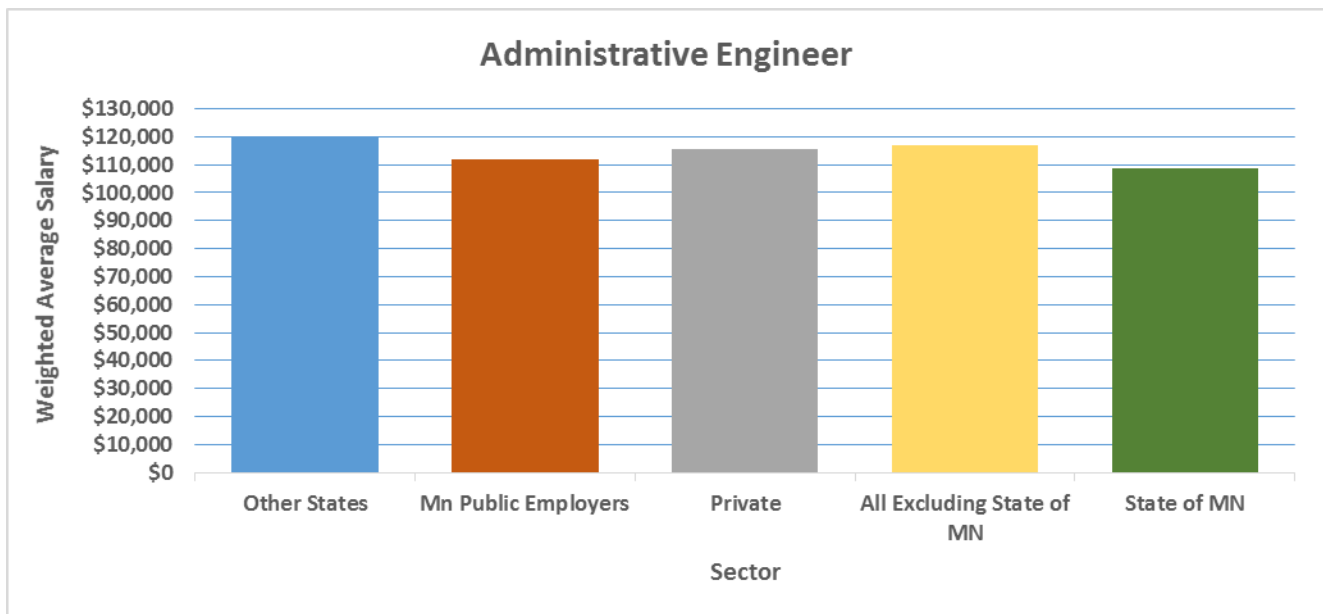


Administrative Engineer – Requires a bachelor’s degree in engineering and a Professional Engineer License. Typically has at least ten years of experience in a specific technical area. *(Please see Appendix A for complete job description).*

Survey Title Administrative Engineer

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States	2	32	\$119,577	(\$10,948)	-10.1%	\$80,424	\$125,791
Mn Public Employers	9	9	\$111,950	(\$3,321)	-3.1%	\$96,717	\$128,735
Private	3	21	\$115,598	(\$6,969)	-6.4%	\$101,089	\$132,141
All Excluding State of MN	14	62	\$117,122	(\$8,493)	-7.8%	\$89,789	\$128,369
State of MN	1	72	\$108,629			\$72,725	\$109,244

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

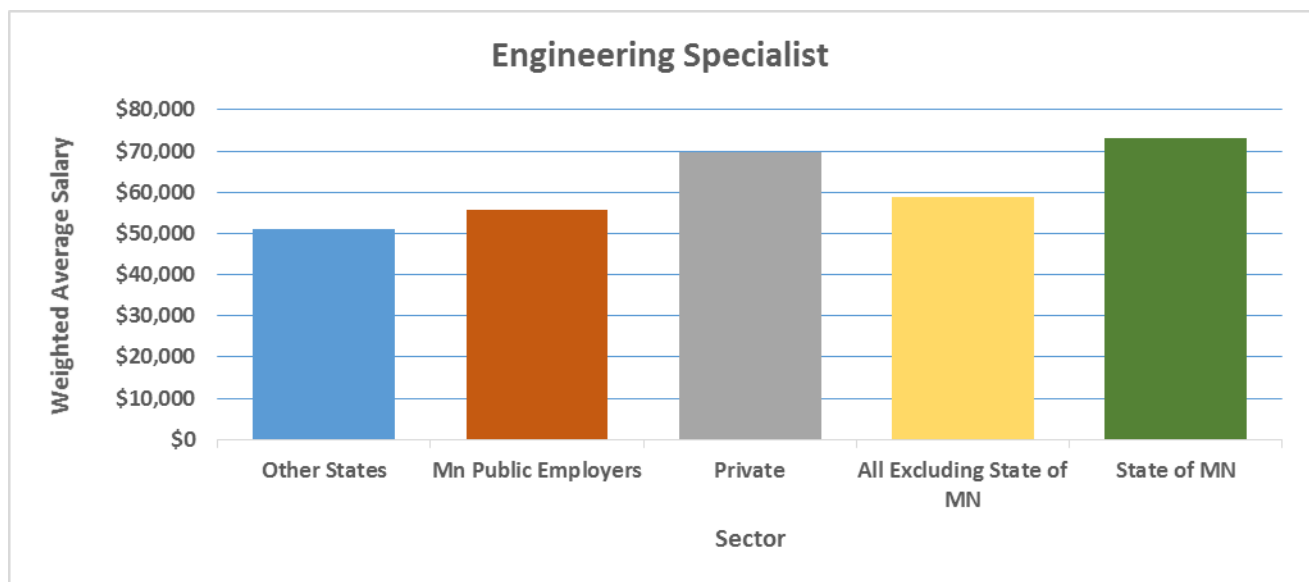


Engineering Specialist – Does not require a bachelor’s degree in engineering or a Professional Engineer License. Applies civil engineering knowledge and skills to engineering activities in a variety of engineering areas. *(Please see Appendix A for complete job description).*

Survey Title Engineering Specialist

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States	2	13	\$51,018	\$22,088	30.2%	\$38,724	\$62,571
Mn Public Employers	13	57	\$55,762	\$17,344	23.7%	\$46,308	\$65,390
Private	3	27	\$69,556	\$3,550	4.9%	\$54,667	\$78,815
All Excluding State of MN	18	97	\$58,966	\$14,140	19.3%	\$47,618	\$68,749
State of MN	1	199	\$73,106			\$51,302	\$75,836

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

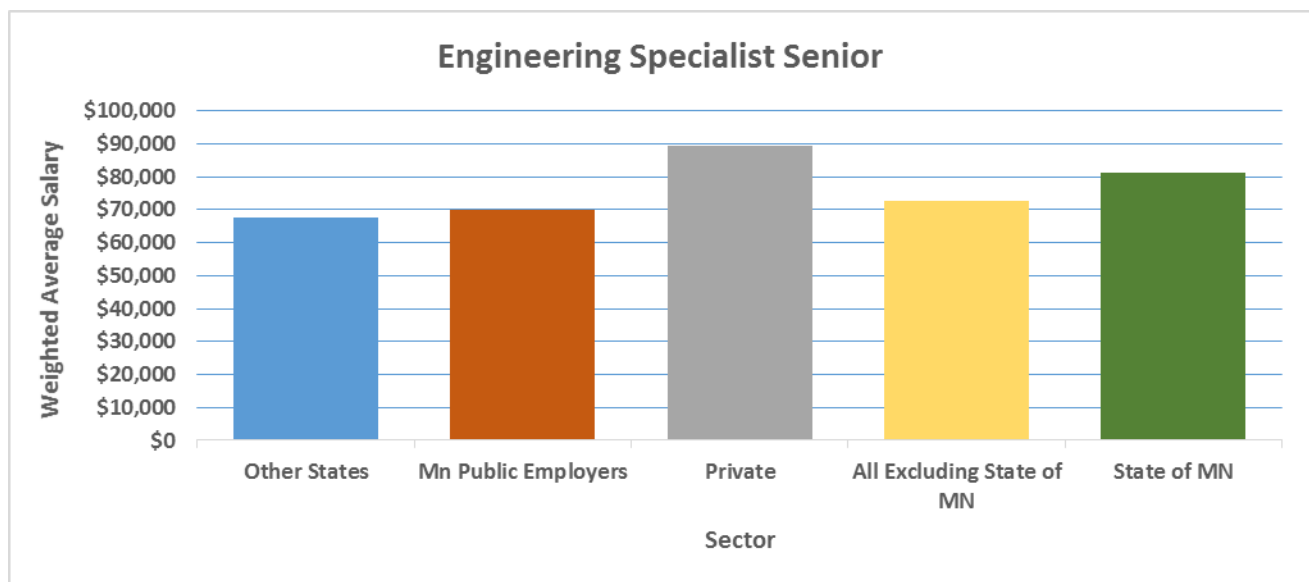


Engineering Specialist Senior – Does not require a bachelor’s degree in engineering or a Professional Engineer License. Works on moderate to major scale projects, or other specialty engineering activities. (Please see Appendix A for complete job description).

Survey Title Engineering Specialist Senior

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States	2	54	\$67,750	\$13,442	16.6%	\$47,735	\$77,637
Mn Public Employers	14	76	\$69,952	\$11,240	13.8%	\$54,224	\$76,684
Private	3	29	\$89,239	(\$8,047)	-9.9%	\$70,828	\$107,215
All Excluding State of MN	19	159	\$72,722	\$8,470	10.4%	\$55,048	\$82,576
State of MN	1	156	\$81,192			\$55,499	\$81,912

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

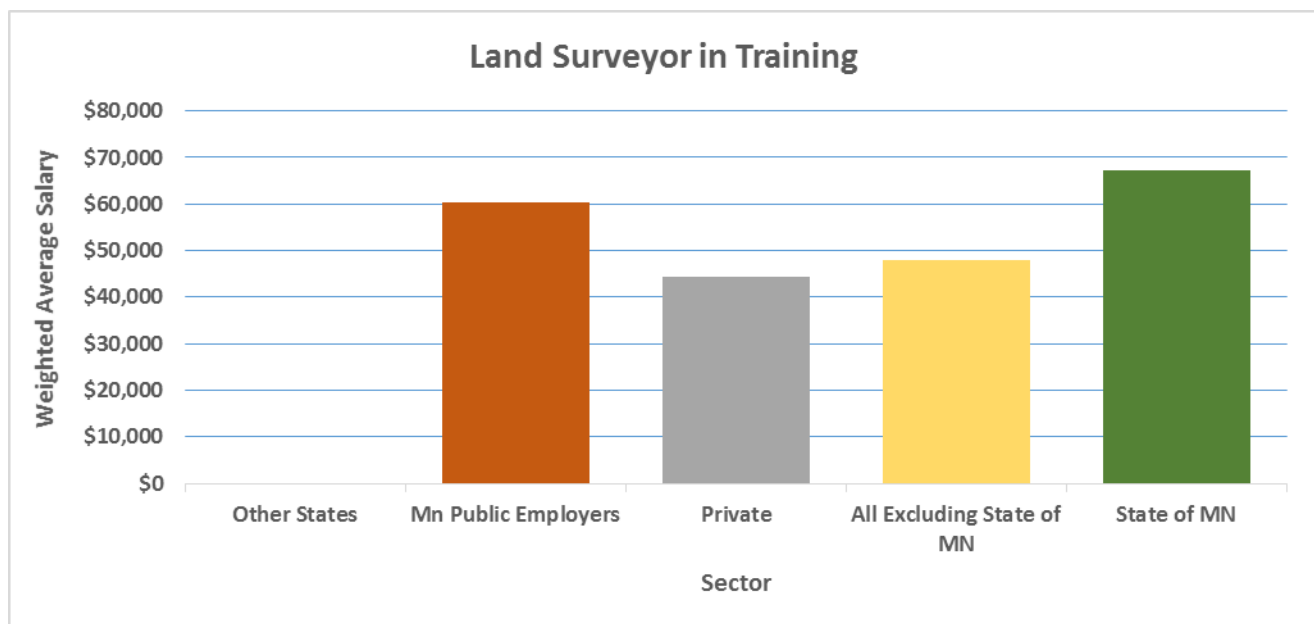


Land Surveyor in Training - Requires certification with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design as a Land Surveyor in training. Beginner-level land surveyor work.

Survey Title Land Surveyor in Training

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States							
Mn Public Employers	3	5	\$60,465	\$6,852	10.2%	\$47,483	\$62,052
Private	2	18	\$44,433	\$22,884	34.0%	\$36,130	\$53,137
All Excluding State of MN	5	23	\$47,918	\$19,399	28.8%	\$38,598	\$55,075
State of MN	1	1	\$67,317			\$49,360	\$67,317

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

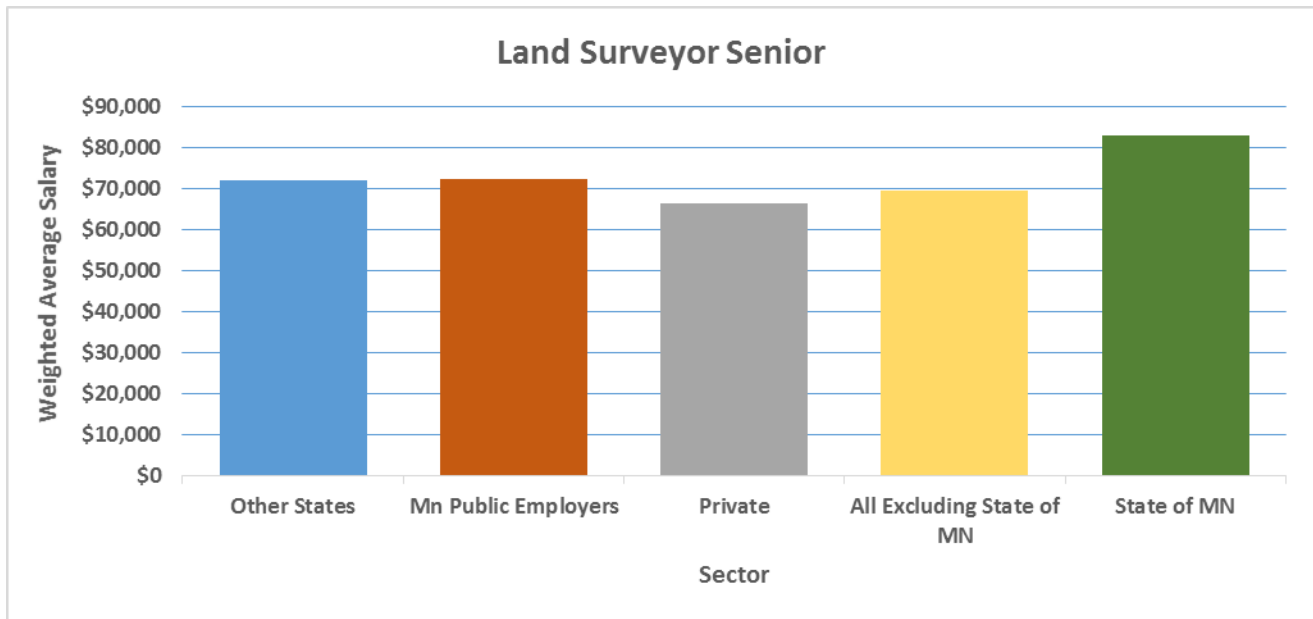


Land Surveyor Senior - Requires registration with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design as a Land Surveyor. Applies professional skill and knowledge to surveying projects in the field or to projects of equal complexity in an office or specialized surveying experience. *(Please see Appendix A for complete job description).*

Survey Title Land Surveyor Senior

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States	2	4	\$72,095	\$10,993	13.2%	\$48,385	\$77,000
Mn Public Employers	4	8	\$72,186	\$10,902	13.1%	\$55,535	\$71,762
Private	3	10	\$66,250	\$16,838	20.3%	\$60,659	\$70,972
All Excluding State of MN	9	22	\$69,471	\$13,617	16.4%	\$56,564	\$72,355
State of MN	1	32	\$83,088			\$59,905	\$87,780

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

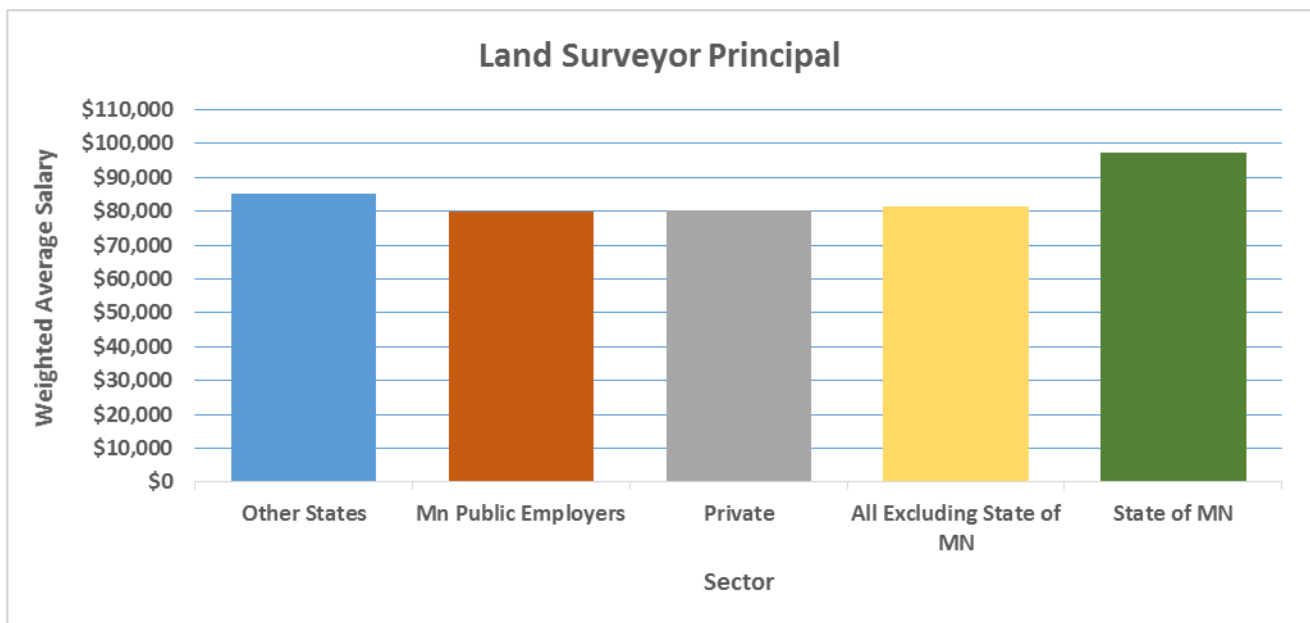


Land Surveyor Principal - Requires registration with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design as a Land Surveyor with approximately three to five years post-registration surveying experience. Similar duties to a Land Surveyor Senior but may work in an area of greater population or has more responsibility with higher profile projects or a larger number of projects. *(Please see Appendix A for complete job description).*

Survey Title Land Surveyor Principal

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States	2	7	\$85,259	\$12,127	12.5%	\$56,517	\$89,320
Mn Public Employers	4	5	\$80,013	\$17,373	17.8%	\$63,850	\$89,845
Private	2	19	\$80,330	\$17,056	17.5%	\$68,787	\$109,578
All Excluding State of MN	8	31	\$81,392	\$15,994	16.4%	\$65,220	\$101,821
State of MN	1	14	\$97,386			\$64,770	\$98,595

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.



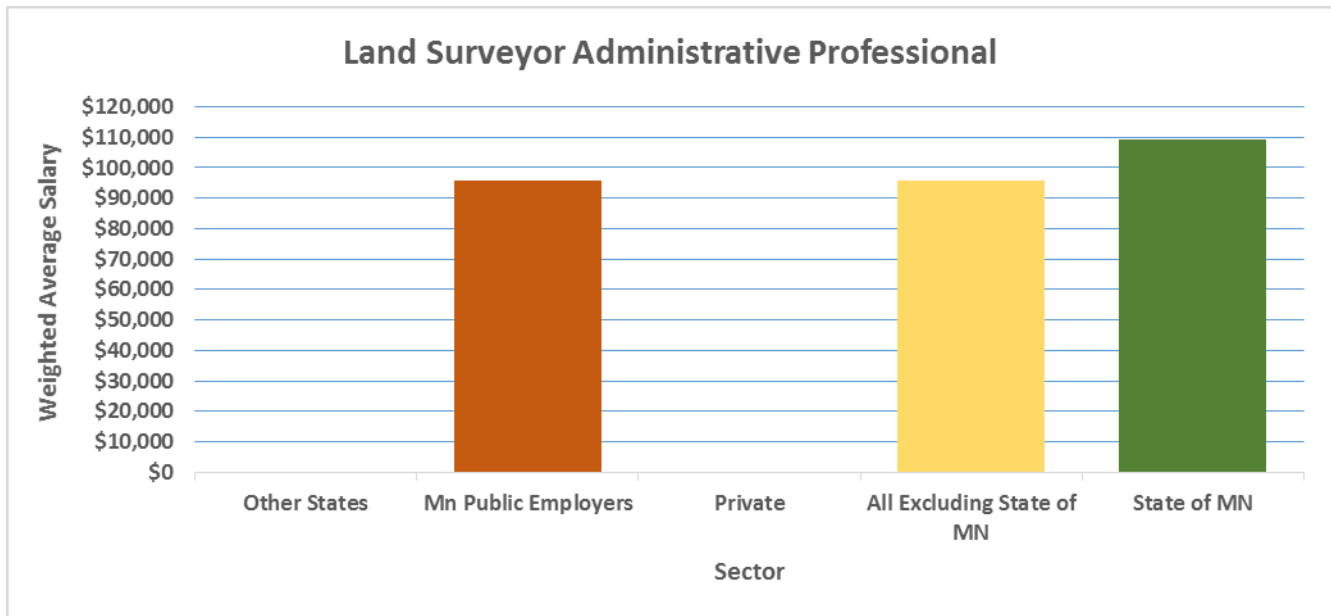
Land Surveyor Administrative Professional - Highest level of specialized surveying work. Requires registration with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design as a Professional Land Surveyor with approximately five to ten years post-registration surveying experience. *(Please see Appendix A for complete job description).*

Survey Title Land Surveyor Administrative Professional

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States							
Mn Public Employers	4	4	\$95,810	\$13,434	12.3%	\$75,982	\$111,033
Private	**	**					
All Excluding State of MN	4	4	\$95,810	\$13,434	12.3%	\$75,982	\$111,033
State of MN	1	1	\$109,244			\$72,725	\$109,244

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

** Single response, only salary range maximum reported.

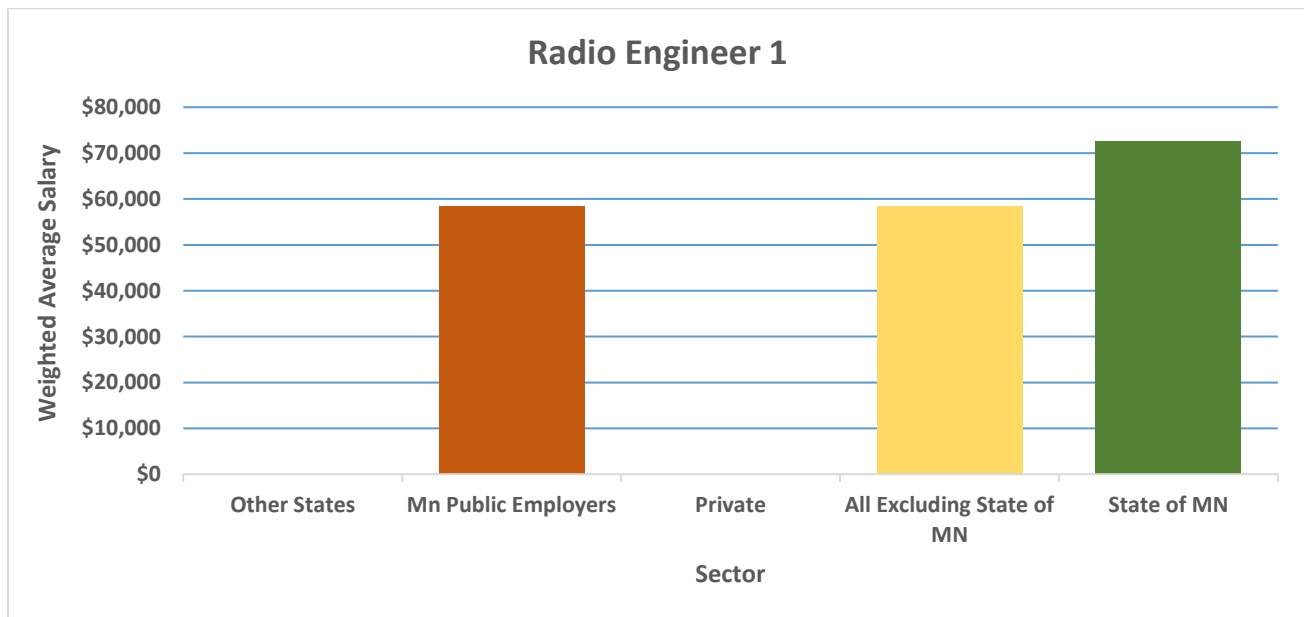


Radio Engineer 1 - Requires a first class federal radio-telephone license. Performs professional radio engineering work developing extension of the present radio system including engineering, cost studies and installation inspections, develops new radio communication systems and supervises system maintenance.

Survey Title Radio Engineer 1

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States							
Mn Public Employers	1	3	\$58,401	\$14,130	19.5%	\$47,920	\$55,541
Private							
All Excluding State of MN	1	3	\$58,401	\$14,130	19.5%	\$47,920	\$55,541
State of MN	1	10	\$72,531			\$51,302	\$75,836

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.



Radio Engineer 2 - Requires a first class federal radio-telephone license. Performs radio communications system design, and supervision of system installation and maintenance work.

Survey Title Radio Engineer 2

Sector	Number of Organizations	Number of Incumbents	Weighted Average Salary	State of MN compared to Sector - Salary Difference \$	State of MN compared to Sector - Salary Difference %	Weighted Salary Range Minimum*	Weighted Salary Range Maximum*
Other States							
Mn Public Employers	**	**					
Private							
All Excluding State of MN							
State of MN	1	7	\$87,780			\$59,905	\$87,780

*There may or may not be any incumbents paid at either the salary range minimum or maximum depending on organization. In merit based pay systems, an employee's progression past a range midpoint is limited. In step based systems incumbents typically progress towards a range maximum.

**Single incumbent job, one organization

Other Compensation Questions

Average Base Pay Increase

Survey Question: For your most recent twelve month period (calendar, fiscal, other), please indicate the average amount of base pay increase as a percent. (Such increases may be due to COLA, steps, longevity, etc...that affect base pay.)

Survey Title	Other States	Mn Public Employers	Private	All Excluding State of MN	State of MN*
Engineer Graduate	3.00%	3.34%	3.30%	3.28%	3.70%
Engineer Graduate 2	3.00%	3.45%	3.80%	3.49%	3.70%
Senior Engineer	3.00%	3.69%	3.60%	3.60%	3.70%
Principal Engineer	3.50%	3.90%	3.40%	3.78%	3.70%
Administrative Engineer	3.00%	3.55%	3.67%	3.50%	3.70%
Engineering Specialist	3.00%	3.74%	2.83%	3.51%	3.70%
Engineering Specialist Sr	3.00%	3.56%	2.83%	3.38%	3.70%
Land Surveyor in Training	-	3.83%	3.00%	3.60%	3.70%
Land Surveyor Senior	3.00%	3.13%	3.00%	3.28%	3.70%
Land Surveyor Principal	3.00%	3.60%	3.67%	3.72%	3.70%
Land Surveyor Admin Professional	-	4.25%	4.00%	4.20%	3.70%
Radio Engineer 1	-	4.00%	-	4.00%	3.70%

This chart was not weighted by number of individuals in a position - simple average of organizations reporting this data

*State of Minnesota Response includes a 2.5% ATB on 7/1/2016, and a step increase of approximately 4.0%.

However about 70% at State of MN are at the range maximum, and would only be eligible for the 2.5% ATB.

For those receiving a step increase and ATB, the total increase would be about 6.5%.

Overtime Pay

Survey Question: Does your organization compensate for approved overtime hours over a standard work week for exempt employees as defined by the Fair Labor Standards Act?

Sector	No	Yes, straight time	Yes, time and a half	Other/Comments
Other States	1			1
Mn Public Employers	14	5	3	3
Private		3	2	2
All Excluding State of MN	15	8	5	6
State of MN				1

Details of Comments

Sector	Other/Comments
Other States	Generally do not pay overtime for exempt employees, but there may be some variation among the agencies.
Mn Public Employers	Straight time as compensatory time (81 hours in a pay period, 1 hour of compensatory time accrued)
Mn Public Employers	Overtime provisions for exempt employees must (be) approved by the County Manager
Mn Public Employers	Some exempt employees ... are eligible for overtime, but none of the positions in the survey are.
Private	We pay overtime for chargeable time (time we can get compensated for from a client) at a straight time rate.
Private	We pay time and a half to all hourly employees. Currently our only salaried employees are those we reported in the "administrative engineer" category. All others are paid time and a half for all hours in excess of 40 in a week.
State of MN	Exempt employees are responsible for managing and accounting for their own hours of work and must account for 80 hours each two week pay period. They may make adjustments in hours of work in subsequent work days and/or payroll periods. With prior approval they may receive straight time overtime pay or accrue compensatory time.

Additional Compensation

Survey Question: Does your organization provide additional compensation in addition to base pay (not overtime)?

Sector	No	Bonus	Profit Sharing	Achievement/ Performance Awards	Employer Paid Vacations	Tickets to Entertainment Events	Longevity or Experience	Other/ Comments
Other States	1							1
Mn Public Employers	15		1				3	4
Private		6	2	2		1	1	2
All Excluding State of MN	16	6	3	2		1	4	7
State of MN				1				1

Details of Comments

Sector	Other/Comments
Other States	Performance based bonuses of up to \$1,000, for no more than 25% of agency staff.
Mn Public Employers	For some contracts, if an employee is at the maximum of his/her salary range, the employee is eligible for a pay-for-performance increase of a minimum of 1% to a maximum of 2% paid as a lump sum amount rather than a recalculation of annual salary.
Mn Public Employers	Merit Pay added to the base wage.
Mn Public Employers	Performance Pay up to 2% of base salary of the performance year.
Mn Public Employers	Longevity steps are earned after 8, 12, 16, 20 and 24 years of service.
Private	Annual bonus and employer contributions from 401(k) employee savings plan.
Private	Bonus is based on individual, departmental, and company performance and can range from 0% to 25% of annual salary - but is completely dependent upon the company meeting minimum financial performance. We give an annual cash bonus to all employees based upon company performance which is the same for all employees. This can range from \$0 to \$1000, depending upon the year.
Private	ESOP
State of MN	Achievement awards - one per fiscal year, up to 35% of employees, maximum \$1,600 cash award or a one-step range adjustment (approximately 4.0%).

Summary

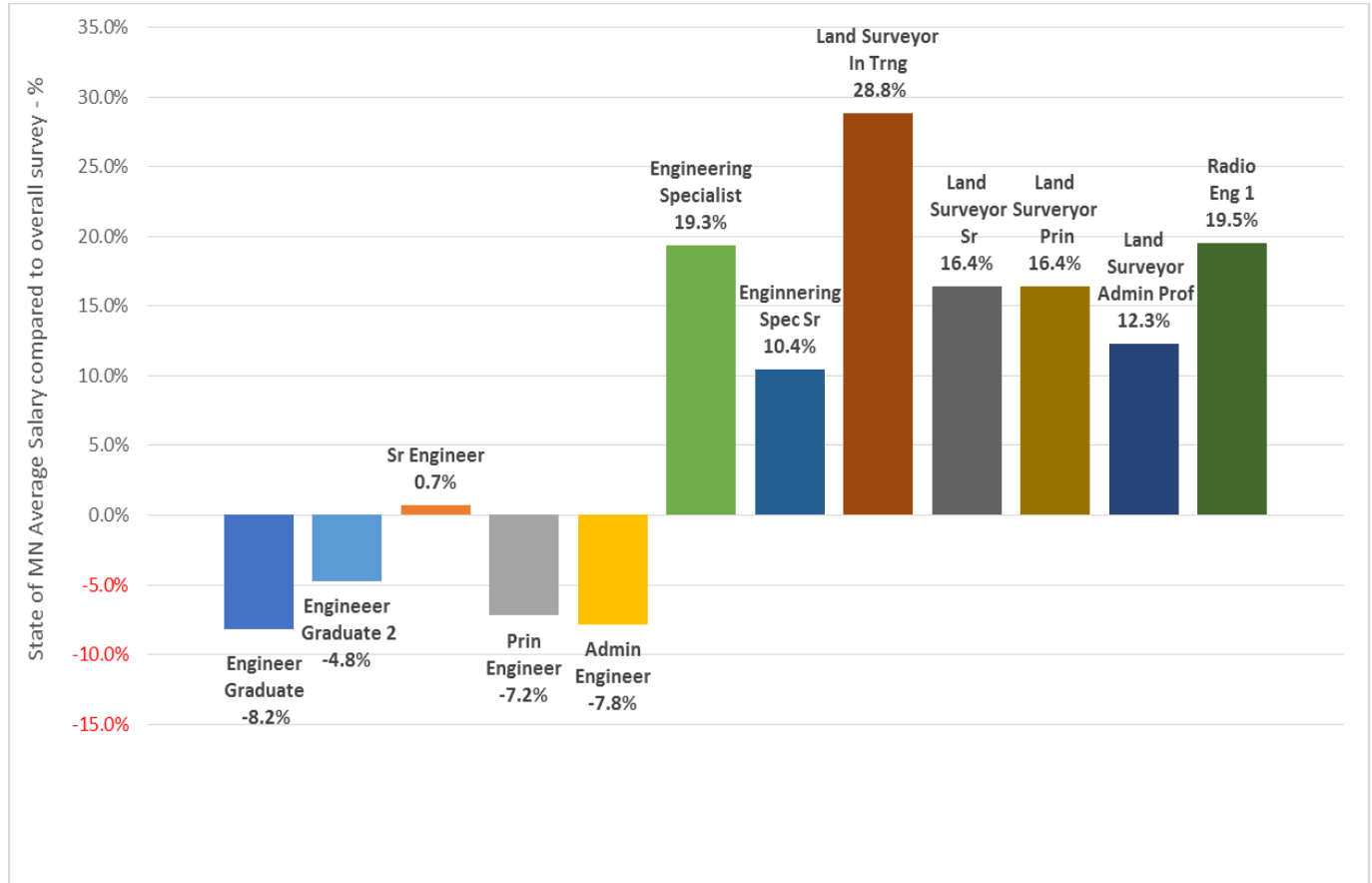
Direct Compensation – Salary

State of Minnesota Average Salary compared to Overall Survey Weighted Average Salary

Survey Title	Number of Organizations	Number of Incumbents	Number of State of MN Employees	State of MN compared to overall survey* - \$	State of MN compared to overall survey* - %
Engineer Graduate	10	91	40	(\$3,964)	-8.2%
Engineer Graduate 2	19	179	63	(\$2,778)	-4.8%
Senior Engineer	22	258	172	\$593	0.7%
Principal Engineer	24	131	210	(\$6,933)	-7.2%
Administrative Engineer	14	62	72	(\$8,493)	-7.8%
Engineering Specialist	18	97	199	\$14,140	19.3%
Engineering Specialist Sr	19	159	156	\$8,470	10.4%
Land Surveyor in Training	5	23	1	\$19,399	28.8%
Land Surveyor Senior	9	22	32	\$13,617	16.4%
Land Surveyor Principal	8	31	14	\$15,994	16.4%
Land Surveyor Admin Professional	4	4	1	\$13,434	12.3%
Radio Engineer 1	1	3	10	\$14,130	19.5%

*Overall survey does not include State of Minnesota responses

Graph of State of Minnesota Average Salary compared to Overall Survey Weighted Average Salary



Appendix A – Complete survey job descriptions

Engineer Graduate or Trainee: Requires a bachelor's degree in the field of engineering. Beginner level engineering work.

Engineer Graduate 2: Requires a bachelor's degree in the field of engineering and may include completion of the Fundamentals of Engineering exam. An employee in this class applies engineering skill and knowledge to engineering projects. Work may involve the supervision of technical employees and management of work projects. Typically has 1-3 years' experience in engineering. Examples: Acts as project supervisor in charge of the design or construction phase of a highway construction project or assists in the supervision of several engineering projects. Reviews preliminary plans and specifications for sanitary sewer extension, municipal sewage treatment plans and solid waste disposal sites and facilities. Prepares water or air classifications and standards of quality based on present and future uses. Reviews plans for water supply systems and advises officials on operation of water treatment plants.

Senior Engineer: Requires a bachelor's degree in engineering and a Professional Engineer License. Responsibilities may include coordinating the engineering activities, and/or the supervision of technicians, non-registered engineers or other para-professionals. Work may be periodically reviewed by a higher level engineer. Examples: An employee in this classification leads a design squad for multiple projects simultaneously and or personally oversees multiple construction projects. Is a subject matter expert in specific areas providing technical support and expertise to others. Conducts investigations and technical reviews for pipeline safety, water systems, treatment systems, air quality, natural bodies of water, etc.

Principal Engineer: Requires a bachelor's degree in engineering and a Professional Engineer License. Performs advanced engineering work. Duties include developing specific policies and procedures necessary to execute a program and coordinating the engineering activities of professional engineers, graduate engineers and technical support staff in the field or office. Work requires the independent selection of courses of action and the resolution of problems within the framework of broad engineering and administrative guidelines. Work is reviewed by an administrative supervisor for overall effectiveness and satisfactory completion of assigned projects rather than for engineering decisions. Likely to have three to five years of post-registration experience. Confers and communicates with industry, regulators and the public. Examples: Oversees multiple senior engineers in design or construction. Developing specific policies and procedures to execute a program and coordinate engineering activities. Program level expertise in varying areas.

Administrative Engineer: Requires a bachelor's degree in engineering and a Professional Engineer License. The incumbent is responsible for making expert technical engineering decisions in a particular area of expertise in the review, analysis and coordination of the activities of professional engineers and technical support staff in an assigned area of engineering responsibility and for ensuring that programs and procedures are effectively and efficiently administered in accordance with established engineering standards. Typically has at least ten years of experience in a specific technical area. Examples: Deep subject matter expert. Major project manager for substantial risk and complexity. Directs the activities of a specific technical engineering program to ensure work is completed in an effective and timely manner.

Engineering Specialist: Does not require a bachelor's degree in engineering or a Professional Engineer License. Applies civil engineering knowledge and skills to engineering/surveying activities in a variety of engineering areas including the development of preliminary or detailed construction plans and or projects such as complex construction inspection oversight, mapping, etc. Examples: Develops geometric layout, expert in engineering software such as Geopak and CADD. Project supervisor for smaller scale construction projects. Oversees construction work of contractors on smaller projects. Develops accurate land surveys. Develops agreements with other organizations. May be responsible for putting plan set together and supervising technicians. Conduct initial investigation into infrastructure system failures.

Engineering Specialist Senior: Does not require a bachelor's degree in engineering or a Professional Engineer License. Under limited supervision, applies engineering skills to preliminary or final design of plans. Works on moderate to major scale projects, or other specialty engineering activities. Duties are similar to a Senior Engineer, but individuals in this position cannot sign the plans specification, or reports which must be reviewed and signed by a licensed engineer. Work must be periodically reviewed by a licensed engineer. Examples: Leads a design squad for multiple projects simultaneously. Oversees multiple construction projects simultaneously. May be a specific subject matter expert. Conducts investigations and technical reviews for pipeline safety, water systems, treatments systems and other areas. Responsibilities may include supervision of technicians, non-registered engineers or other para-professionals. Consults and coordinates with other organizations offering engineering expertise.

Land Surveyor in Training: Requires certification with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design as a Land Surveyor in training. Beginner-level land surveyor work.

Land Surveyor Senior: Requires registration with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design as a Land Surveyor. Applies professional skill and knowledge to surveying projects in the field or to projects of equal complexity in an office or specialized surveying experience. Supervise survey crews in collecting survey data, certifying land corners, boundary surveys, and right-of-way plats. Examples: May be a project manager

for multiple survey projects. Supervise survey crews and technicians. Duties may include: parcel mapping, platting, legal description writing. May oversee entire regional survey needs.

Land Surveyor Principal: Requires registration with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design as a Land Surveyor with approximately three to five years post-registration surveying experience. Similar duties to a Land Surveyor Senior but may work in an area of greater population or has more responsibility with higher profile projects or a larger number of projects. Responsible for developing and maintaining land surveying standards for the agency. This position may have official public contact outside the agency for property right's needs. Supervises other Land Surveyors and technical staff. Considerable knowledge of principles and laws in specialized field of surveying. Examples: May be a project manager for multiple survey projects. Supervise multiple survey crews and technicians in collecting survey data. Duties may include parcel mapping, platting, legal description writing. Will oversee entire regional survey needs.

Land Surveyor Administrative Professional: Highest level of specialized surveying work. Requires registration with the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design as a Professional Land Surveyor with approximately five to ten years post-registration surveying experience. Responsible for making expert technical surveying decisions in the review, analysis and coordination of land surveying activities of professional and technical support staff. Supervision is received from a higher level administration the form of conferences and review of reports and recommendations in terms of overall effectiveness of results achieved.

Radio Engineer 1: Requires a first class federal radio-telephone license. Performs professional radio engineering work developing extension of the present radio system including engineering, cost studies and installation inspections, develops new radio communication systems and supervises system maintenance.

Radio Engineer 2: Requires a first class federal radio-telephone license. Performs radio communications system design, and supervision of system installation and maintenance work.

END OF REPORT

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