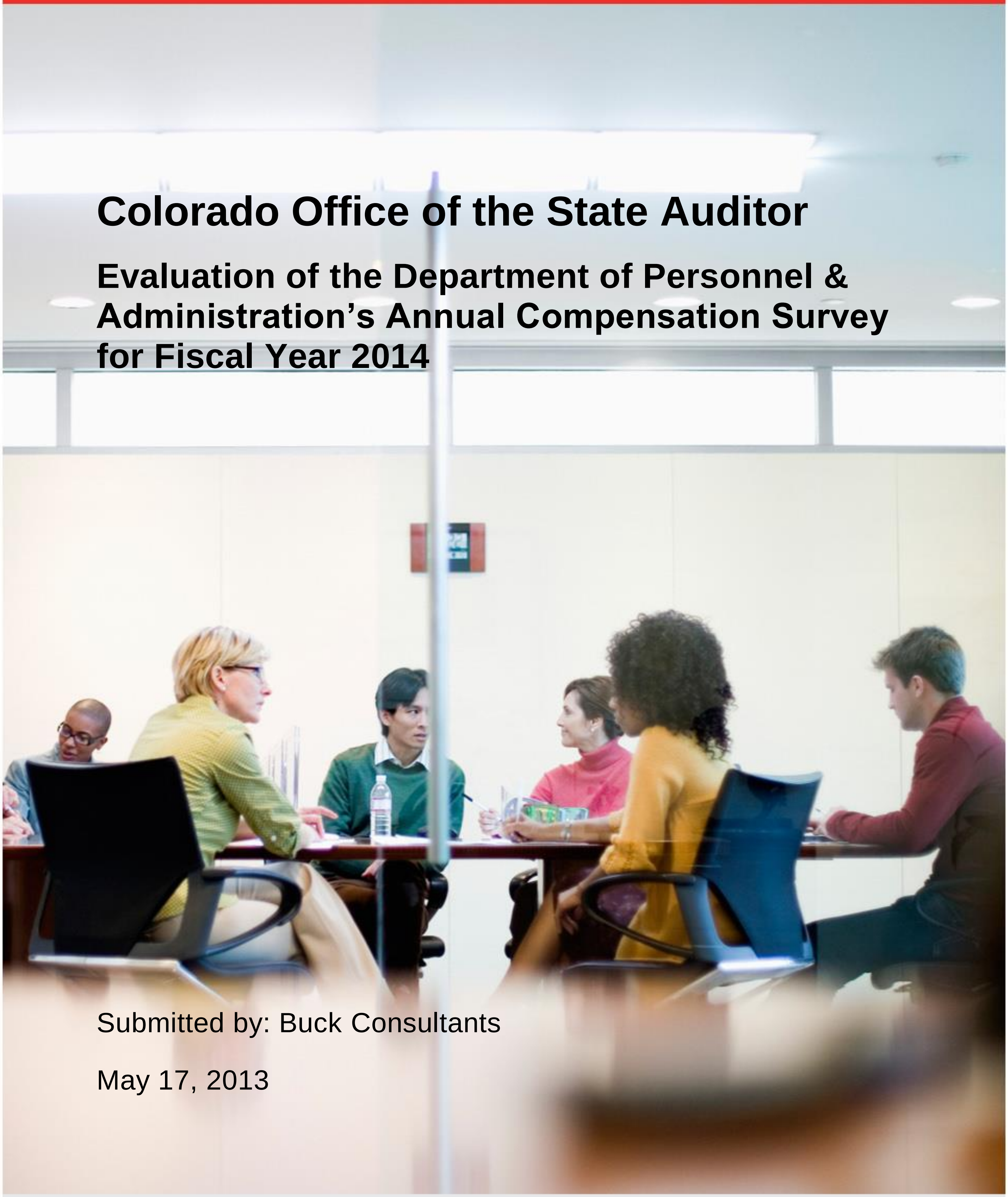
Colorado Office of the State Auditor

Evaluation of the Department of Personnel & Administration's Annual Compensation Survey for Fiscal Year 2014



Submitted by: Buck Consultants

May 17, 2013

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May 17, 2013

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This report contains the results of a performance evaluation of the Annual Compensation Survey conducted by the Department of Personnel & Administration. The evaluation was conducted pursuant to Section 24-50-104(b)(I), C.R.S., which requires the State Auditor to contract with a private firm every four years to evaluate the Department's procedures and application of data when conducting the Annual Compensation Survey. The Office of the State Auditor contracted with Buck Consultants, LLC, for this evaluation. The report presents our findings, conclusions, and recommendations, and the responses of the Department of Personnel & Administration.

Andrew S. Rosen
Principal

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Annual Compensation Survey – Report Highlights

Performance Evaluation, May 2013
Report Highlights

Department of Personnel & Administration

Purpose

Evaluate the Department's procedures and application of data with respect to its Annual Compensation Survey process

Background

- Statute defines Colorado's total compensation philosophy as providing "prevailing" total compensation that ensures the recruitment, motivation, and retention of a qualified and competent work force. Statute defines "total compensation as including salary, group benefit plans, retirement benefits, merit pay, incentives, premium pay practices, and leave."
- Statute requires the Department to annually review the results of appropriate outside surveys to determine if the State's salaries, employer contributions to benefit plans, and merit pay are comparable with other public and private employers.
- The Department's Fiscal Year 2014 survey found that state salaries would need to be increased by 7.2 percent to achieve prevailing market compensation.
- State salaries are estimated to total $1.77 billion in Fiscal Year 2013 for 32,300 state employees.

Our Recommendations

The Department of Personnel & Administration should improve its annual compensation survey by:

- Comparing state salaries to the market using average state salaries and median market salaries as the point of comparison.
- Considering all non-salary elements of total compensation when recommending increases in state salaries and contributions to employees' medical and dental plans.
- Improving its methodology for estimating the budget cost of increasing state salaries to prevailing market wages.
- Better defining the competitive market for state jobs.
- Allowing more time for data analysis.

The Department generally agreed with all of these recommendations.

Audit Concern

The Department's Annual Compensation Survey contains inaccurate and incomplete information about how state salaries and benefits compare to the market.

Key Facts and Findings

- The Department's methodology for comparing state salaries to the market does not follow industry best practices and, as a result, overstated the gap between the two. Specifically, the Department compared median state salaries to median market salaries, when best practice would have been to compare average state salaries to median market salaries. We reperformed this analysis and found that state salaries would need to be increased by 5.5 percent to achieve prevailing market compensation, as opposed to the 7.2 percent reported in the Department's Fiscal Year 2014 survey.
- The survey does not take into account all potential benefits (e.g., retirement, leave, and disability) when assessing the competitiveness of employees' total compensation, which does not allow for an accurate comparison with the market.
- Incorrect aging of survey market data resulted in an overstatement of the gap between state salaries and the market by 1.68 percentage points.
- The Department's methodology for estimating the budget cost of bringing state salaries in line with prevailing market salaries is imprecise and may lead to an overstatement or understatement of the cost of aligning state salaries with the market.
- The Department's methodology for defining the competitive market for state jobs does not:
  - Always use an adequate number of survey market comparisons for each benchmark state job.
  - Consistently weight survey data from public and private market sources when combining those data for analysis.
  - Further define the generic state job classifications of General Professional and IT Professional to allow for more accurate comparisons with jobs in the survey market data.
  - Include variable pay (e.g., bonuses) in its market assessment analysis.
- The time frame for the Department's analysis of survey data is limited by the statutory deadline to complete the survey by August 1 of each year.

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Recommendation Locator

Agency Addressed: Department of Personnel & Administration

Rec. No.	Page No.	Recommendation Summary	Agency Response	Implementation Date
1	13	The Department of Personnel & Administration should change its calculation method for comparing state salaries to the market by using the average state salary and the median market salary as the point of comparison for each benchmark job classification.	Partially Agree	August 2013
2	15	The Department of Personnel & Administration should improve how its annual total compensation survey process evaluates non-salary compensation by (a) ensuring that all non-salary elements of total compensation, such as contributions by both the State and employees for medical benefits, dental benefits, other benefits, retirement benefits, and leave benefits are included in the annual compensation survey; (b) collecting necessary data for those elements identified in part "a"; and (c) accounting for differences in the State's and state employees' contributions to benefits when making recommendations for increases in state employees salaries' and contributions to employees' medical and dental premiums.	a. Agree b. Agree c. Agree	a. August 2013 b. August 2013 c. August 2014
3	18	The Department of Personnel & Administration should change its market aging calculation to age all market salary survey data to a common historical date that is consistent with state salary data.	Agree	August 2013
4	18	The Department of Personnel & Administration should use the WorldatWork Salary Budget Increase survey results to determine appropriate projection assumptions for movement in market salaries based on planned state salary structure changes for the upcoming fiscal year.	Agree	August 2013
5	20	The Department of Personnel & Administration should correct the mathematical errors in its survey normalization calculations for other states' salaries.	Agree	August 2013
6	21	The Department of Personnel & Administration should change its methodology for calculating the budget cost estimate of bringing state salaries up to prevailing market wages to account for employee position within his or her salary range and performance and for those individual job classifications that are already competitive with the market.	Agree	August 2013

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Recommendation Locator

Agency Addressed: Department of Personnel & Administration

Rec. No.	Page No.	Recommendation Summary	Agency Response	Implementation Date
7	24	The Department of Personnel & Administration should expand its current portfolio of survey sources to achieve a target of three independent survey source comparisons for each benchmark job in the annual compensation survey.	Agree	August 2014
8	26	The Department of Personnel & Administration should modify its external market analysis process for assessing the State's competitive position against the private and public market sectors by establishing a specific weighting policy and mechanism for combining survey market results for both sectors.	Agree	August 2013
9	28	The Department of Personnel & Administration should refine its use of generic classifications for General Professional and IT Professional to improve the precision of market comparisons between specific jobs within these classifications and the different survey market jobs to which they are matched.	Agree	August 2014
10	29	The Department of Personnel & Administration should expand its market assessment process to include variable pay in its analysis of total cash compensation.	Agree	August 2014
11	31	The Department of Personnel & Administration should improve the thoroughness of its annual compensation survey process by taking steps to allow more time for data analysis, such as aging prior year's data and/or performing market assessments for more stable job classifications on a less than annual basis.	Agree	August 2014

Overview of the Annual Compensation Survey

Section 24-50-104, C.R.S. establishes Colorado's total compensation philosophy which is to provide "prevailing total compensation to officers and employees in the State personnel system to ensure the recruitment, motivation, and retention of a qualified and competent work force." According to statute, "total compensation" includes but is not limited to salary, group benefit plans, retirement benefits, merit pay, incentives, premium pay practices, and leave.

The Department of Personnel & Administration (the Department) is required by statute [Section 24-50-104(1)(a)(II), C.R.S.] to annually review the results of appropriate surveys conducted by other organizations or conduct its own surveys to assess prevailing total compensation practices, levels, and costs. The purpose of this survey process is to determine if the State's salaries, employer contributions to benefit plans, and merit pay are comparable with other public and private employers.

To make this determination, the Department uses data from published market surveys that contain information on salaries and benefits from both the public and private sectors to benchmark against the state system. In addition to salary comparisons, the Department uses these surveys to compare the State's benefit practices and expenses with those in the market. For example, the Department compares the State's contribution to health insurance and other premium amounts to the contributions made by employers in the market and determines the adjustments needed for the State to remain competitive.

Statute [Sections 24-50-104(4)(b) and (c), C.R.S.] requires the Department to report its survey findings and recommendations by August 1 of each year to the Governor and the Joint Budget Committee of the General Assembly. The purpose of the report is to reflect all adjustments necessary to maintain the competitiveness of the State's (1) salary structure, (2) contributions for group benefit plans, and (3) merit pay for the upcoming fiscal year. The report is also required to include the State Personnel Director's recommendations and estimated costs for state employee compensation for the next fiscal year. According to statute, the recommendations shall consider the results of the annual compensation survey, fiscal constraints, the ability to recruit and retain state employees, and appropriate adjustments with respect to state employee compensation.

In response to recommendations in the *Annual Compensation Survey Performance Evaluation* from May 2009, the Department significantly modified its process to evaluate state salaries directly against comparable jobs in the external market. Previously the Department had measured the annual percentage change in market salary structures, using the midpoints of salary ranges, and recommended adjusting state salary structures by a similar percentage to the Joint Budget Committee. As discussed in the 2009 report, this approach was neither best practice nor an accurate primary measure of market competitiveness of pay.

We conducted an extensive review of the Department's working documents both to map the Department's annual compensation survey process and to validate process calculations. While the process has a number of discrete steps, the workflow can be summarized in six key activities culminating in the Department's compensation survey report published annually in August. Those steps include:

- **Establish the survey's parameters.** Select the state jobs for benchmarking against the market, define the relevant markets, and determine the relevant market surveys.
- **Calculate the benchmark data.** Select survey jobs with comparable requirements and responsibilities to state benchmark jobs. Age market survey data to be consistent with state data and compute market composite salaries that represent the average of selected survey records.
- **Perform salary comparison.** Compare state salaries for benchmark jobs to market composites computed in the previous step and calculate the State's salary difference with the market.
- **Develop salary structures.** Using the market assessment from the previous step, develop salary structures for each of the State's occupational groups composed of multiple pay grades with minimum, maximum, and midpoint salary amounts. The State's occupational groups include Enforcement & Protective Services (including the Trooper subgroup); Health Care Services; Labor, Trades, and Crafts; Administrative Support & Related; Professional Services; and Physical Sciences and Engineering.
- **Calculate budget cost estimate.** Determine the budget costs associated with bridging any gaps between state salaries and the market as a result of the market assessment performed in the previous steps.
- **Prepare report and recommendations.** Prepare the annual compensation survey report and the State Personnel Director's recommendations outlining state salary differences with the market, calculated changes in state salaries and salary structure, budget cost estimates, and recommendations for action to the Governor and the Joint Budget Committee.

Fiscal Year 2014 Annual Compensation Survey Results

The Department's findings for the Fiscal Year 2014 survey indicate that the median of the State's salaries is 9.2 percent below the projected median of market salaries. Further, the Department found that the State's aggregate salaries would need to be increased by 7.2 percent to achieve prevailing market compensation. The difference between these two numbers is that the 9.2 percent figure represents the average percentage by which the median salaries in the State's job classifications (e.g., General Professional III or Program Assistant I) are below market median salaries, while the 7.2 percent figure represents the aggregate cost adjustment needed to move all state salaries to prevailing market wages.

For the Fiscal Year 2014 survey, the Department also compared median salaries for 174 of the State's job classifications to the median salaries reported in the market to determine the competitiveness of the state's salaries. The Department has identified salaries as being competitive if they are within 7.5 percent (plus or minus) of market levels. The Department found that 58 of the benchmark jobs (33 percent) were within the 7.5 percent threshold; 93 (54 percent) were at least 7.5 percent below market levels, including 42 job classes that were at least 20 percent below market levels; and 23 (13 percent) job classes were at least 7.5 percent above market levels, including six job classes that were at least 20 percent above market levels. The table below summarizes these results. We identified an issue with how the Department uses this 7.5 percent threshold analysis which we discuss in Recommendation No. 6.

Distribution of Competitive Market Position for Benchmark Jobs			
		# of Benchmarks	**Share**
Below Competitive Threshold	20%>	42	24%
	15%-19%	20	11%
	7.5%-14%	31	18%
	Subtotal	**93**	**53%**
Fully Competitive Range		58	33%
Above Competitive Threshold	7.5%-14%	13	7%
	15%-19%	4	2%
	20%>	6	3%
	Subtotal	**23**	**12%**
		174	**100% ***

Source: Buck Consultants' analysis of Department data
****Note: Total does not add to 100% due to rounding.***

With respect to group benefit contributions, the Department's survey found that the State currently provides prevailing market contribution levels for medical premiums, but the State's contribution for dental premiums is projected to be below prevailing market levels for Fiscal Year 2014. In addition, the Department's survey found that medical and dental costs are projected to increase by 10 percent and 5 percent respectively during Fiscal Year 2014, which the Department's report concluded means that the State's contribution levels for medical and dental premiums would need to increase for the State to meet prevailing market contribution levels in Fiscal Year 2014.

Based on the survey results, the Department found that the costs for bringing the State's total compensation to prevailing market levels would be about $122 million, which includes about $104 million for salary adjustments and $18 million for increased medical, life and dental premium contributions. For Fiscal Year 2013, state salaries are estimated to total about $1.77 billion, and the State's medical and dental premium contributions are estimated to total about $184 million for the approximately 32,300 employees of the State. However, the Department concluded that increasing the State's salary base by 7.2 percent was not realistic because of competing demands on the State's budget. As a result, the Department recommended an increase of $58 million for salary adjustments. The Department also recommended $21 million for increases in medical, life, and dental premium contributions. The recommended increase for medical, life, and dental premium contributions was increased by $3 million due to the introduction of an expanded dental plan and a vision plan to have these plan designs match the market plus updated survey trend increases to both medical and dental costs. According to the Department, the $58 million for salary increases represents an increase of 3.6 percent. The $58 million for salary increases represents less than 3.6 percent of the $1.77 billion in estimated state salaries for Fiscal Year 2013 since employees would not see the full 3.6 percent increase if the increase would push their salary above their pay range maximum. The Department proposed to distribute the 3.6 percent as:

- A 3.1 percent increase in actual salaries, divided as follows:
  - A 1.5 percent cost-of-living adjustment for all employees.
  - Merit pay increases ranging from 0.6 percent to 2.4 percent, depending on the employee's performance rating and placement within salary range. These increases may be base-building or non-base-building depending on where the employee falls in his or her salary range. House Bill 12-1321 replaced the State's "pay-for-performance" system with a new merit pay system that is designed to ensure that deserving state employees receive salaries that cluster around the midpoint of salary ranges rather than at the bottom of these ranges.
- A statutorily required 0.5 percent contribution increase to stabilize employee pensions through the Supplemental Amortization Equalization Disbursement.

The Department's Fiscal Year 2014 survey estimated that it would cost about $23 million to adjust the salaries of about 6,800 employees to the minimum of their respective salary ranges. Salary structures are used to administer employee pay and are comprised of multiple salary grades (i.e., levels) with minimum and maximum salary rates. To ensure equity within a salary grade, employees with salaries below the minimum are increased to the minimum salary rate. This salary adjustment was included in the $79 million in recommended salary and benefit adjustments discussed above. According to the Department, the State's pay structures have fallen out of alignment with the market because of factors such as the pay freezes in place for the past four fiscal years and a minimum amount of refinements made to the State's pay structures since the State adopted open salary ranges (i.e., employees can be paid anywhere within the salary range rather than moving through the range in "steps.") in 1998. The purpose of the pay structure realignment is to ensure that the State has a salary framework that is market competitive, which will help ensure that actual salaries are appropriately competitive and that salary levels are internally equitable so that state agencies are paying employees similarly for jobs with comparable duties.

Evaluation Scope

Statute [Section 24-50-104(4)(b), C.R.S.] requires the State Auditor to contract with a private firm every 4 years to conduct an evaluation of the Department's procedures and application of data with respect to the annual compensation survey process. The Office of the State Auditor contracted with Buck Consultants, LLC, to complete the evaluation, which included assessing the Department's:

- Total compensation philosophy, such as its definition of its competitive markets and selection of benchmark jobs.
- Selection of benchmark jobs and organization and employee coverage.
- Process for selecting comparative surveys and the quality of the data used by the Department.
- Methodology for determining the competitiveness of the State's base pay, total cash compensation, and benefits.
- Methodology for aging of market survey data.
- Proposals for merit pay and pay structure realignment.

Summary of Findings

Overall, we found that the Department has substantially improved its process since the 2009 evaluation for comparing state total compensation levels to the market, and we found that the process is reasonable. However, we have identified four main areas in which the Department can improve its annual compensation survey process. The summary of the four key findings are as follows:

Comparing state salaries and benefits to the market. The methodologies used by the Department to analyze competitive market salary and benefits data do not follow accepted industry practices and resulted in an overstatement of the gap between state salaries and the market for the Fiscal Year 2014 survey. In addition, the survey did not consider all aspects of employee benefits when comparing state employee compensation to the market, which may have over- or understated the differences between state employee benefits and the market.

Calculating the budget cost estimate of bringing state salaries up to market levels. The Department's calculation of estimated costs to bring salaries up to market is imprecise and may lead to an overstating or understating the costs to increase state salaries to market levels.

Analyzing the competitive market for state jobs. The Department's survey methodology does not always follow best practices for defining the competitive market for state jobs and, therefore, is not adequate to assure an accurate picture of this market.

Conducting the survey more efficiently. The Department's timeframe for comprehensive analysis of the market is very compressed and insufficient for careful analysis of the most current survey data within the existing reporting timetable.

The following sections of this report will discuss specific activities and processes that the Department can enhance to ensure that the annual compensation survey process provides valuable information to policymakers.

Comparison of State Salaries and Benefits to the Market

The first area in which we found concerns was with the Department's comparison of state salaries and benefits to the market. One of the most important outcomes of the Department's annual compensation survey is the determination of whether state salaries and benefits are competitive with the market. Based in part on this analysis, the Department makes a recommendation to the Joint Budget Committee and the Governor on state salary and benefit adjustments for the upcoming fiscal year. For example, if the Department's analysis indicates that state salaries are significantly below market levels, this conclusion may lead the Department to recommend salary adjustments to address this gap. Conversely, if the Department's analysis shows that state salaries are competitive with the market, the Department may recommend that no salary adjustments are necessary. As a result, it is important that the Department reach valid conclusions about the competitiveness of state salaries and benefits with the market through the annual compensation survey.

We reviewed the process used by the Department to compare state salaries and benefits and identified ways in which the Department's processes did not follow best practices including (1) comparing median state salaries to the market instead of average state salaries, (2) not considering all types of benefits in the comparison with the market, (3) incorrectly aging market compensation data, and (4) incorrectly normalizing other states' compensation data. We discuss these issues in the next four sections of the report.

Comparison of State Salaries to the Market

Organizations compare their salaries against the market to assess whether their (1) employees' salaries are competitive relative to the comparable market and (2) unit labor costs are in line with the competition. Industry standards prescribe that the most effective way to compare an organization's salaries with the external market is to compare the organization's average salary for each benchmark job against the market median salary for each benchmark job because it addresses both of the issues identified above. The reason for using the organization's average salary statistics is that the average provides a stronger measure of unit costs than median salary statistics. For example, when organizations compare their salaries to the external market, they are interested in assuring that their labor costs on a unit basis are competitive with the market. As a result, organizations use actual costs for each benchmark job divided by the number of employees to calculate their average employee costs.

The reason that organizations then compare their average cost for each benchmark job against the market median is because survey market data are a sample of salaries within the entire labor market for a classification, and the median represents the "middle or most-likely value" in the distribution of pay. The median as a statistic, because it is the exact middle value, is a more stable and reliable measure of survey sample data than other measures, including the average of the sample. If the organization had complete data about market salaries, instead of survey data, using the average market salary costs would be a more applicable measure of salary costs than the median.

We reviewed the Department's methodology for calculating the difference between state salaries and the external competitive markets and found that it is not following best practices for all occupational groups, except for the Trooper subgroup. Specifically, the Department's methodology for most groups compares

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median state salaries to median market salaries for each benchmark job, instead of comparing average state salaries to market median salaries. For the Trooper subgroup, the Department did compare average Trooper subgroup salaries to the average of the market as stipulated by statute.

The example below illustrates the differences in the calculation methods. The comparable market for the Health Care Tech II job is represented by three survey market records with market salaries measured at the median (e.g., 50th percentile) of the market. The market median is calculated as the average of the three survey records and equals $3,511.

Incremental Cost to Achieve Market 50th Percentile – Example
State Average Salary vs. State Median Salary

Job Code	Survey Code	Position / Survey Title	Data Cut	# Firms	# Empl	Medium Base Salary (50th %tile)
C6R2	**Health Care Tech II**					
State Median Salary			$3,121			
State Average Salary			$3,140			
	MSEC09	Licensed Practical Nurse	CO-Health/Mer	11	24	3,332
	CSCA01	Licensed Practical Nurse	State Govt	24	5,319	3,418
	MSEC06	Licensed Practical Nurse	All Colorado	31	333	3,784
Market Composite Average						$3,511
Incremental Cost to Achieve Market 50th Percentile						
State Median Salary						12.5%
State Average Salary						11.8%

Source: Buck Consultants' analysis of Department data

As the example also shows, the State's median salary ($3,121) for this job is lower than the State's average salary ($3,140). As a result, comparing the median state salary to the market median indicates that state salaries are further below the market (12.5 percent to reach parity with the market) than if the average state salary was used (11.8 percent to reach parity with the market).

We recalculated the Department's survey results using average state salaries as the point of comparison instead of median state salaries for each benchmark job and found that the Department's method overstates the gap between state salaries and the market.

Incremental Cost to Achieve Market 50th Percentile Comparison of Calculation Methodology		
Current Occupational Group	**DPA Published % Diff Median Salaries**	**Buck % Diff Average Salaries**
Enforcement & Protective Services (Excludes Trooper Subgroup)	4.7%	0.2%
Trooper Subgroup		
State Patrol Trooper	30.3%	30.3%
State Patrol Supervisor	7.7%	7.7%
State Patrol Administrator I	9.4%	9.4%
State Patrol Administrator II	13.0%	13.0%
Health Care Services	9.1%	7.3%
Labor, Trades & Crafts	10.7%	7.4%
Administrative Support & Related	20.4%	16.6%
Professional Services	6.4%	5.0%
Physical Sciences & Engineering	-3.8%	-2.9%
Overall Average % Difference	***9.2%***	***6.5%***

Source: Buck Consultants' analysis of Department data

As the table above illustrates, using average state salaries in this calculation shows that state salaries trail market salaries overall by about 6.5 percent, a difference of 2.7 percentage points from the Department's conclusion that state salaries trail the market salaries overall by 9.2 percent. In other words, comparing average state salaries to the market instead of median salaries results in a salary gap that is 29 percent smaller.

This smaller gap is a result of the fact that state average pay for most benchmark jobs is greater than median pay because there are a significant number of long tenured employees who receive salaries in the upper part of their jobs' salary ranges. As the table also shows, our recalculation resulted in a smaller salary gap for all the personnel system's main occupational groups except the Trooper subgroup, for which, as we discussed above, the Department used average state salaries to measure the salary gap with the market.

We also recalculated the Department's survey results for the aggregate difference between state salary costs and the total salary cost at market rates. This calculation is more precise because it accounts for the variation in employee levels within the benchmark jobs. The Department calculated the aggregate difference to total salary costs to be 7.2 percent for the Fiscal Year 2014 survey. As we discussed in the Overview, the difference between this 7.2 percent figure and 9.2 percent figure referenced above is that the 9.2 percent figure represents the average difference between salaries in each of the State's job classifications and the market, while the 7.2 percent figure represents the aggregate base salary adjustment after calculating the impact of the market increase for individual employees. Using average state salaries instead of median state salaries as the point of comparison and calculating the total salary, we found that the aggregate difference between state salaries and the market was 5.5 percent instead of 7.2 percent, a difference of 1.7 percentage points. This means that the aggregate gap using average state salaries as the comparison point reduces the gap between state salaries and the market by 24 percent.

The recalculated aggregate gap of 5.5 percent between state salaries and the market is significant because the Department uses the aggregate gap as the basis for recommending employee salary increases for the next fiscal year. As we have discussed, the Department recommended overall salary increases of 3.6 percent for state employees costing $58 million. Department staff indicated that this recommendation was largely based on the 3.4 percent annual increase in the Consumer Price index for the Denver metropolitan area reported in March 2012. Therefore, the Department's recommendation may not have changed this year had the aggregate salary budget gap been calculated correctly. However, an inaccurate aggregate salary budget gap may result in a different recommendation in future years, which could result in policy makers not having accurate information to make informed decisions.

The Department's use of median state salaries to compare with the market represents a departure from its process in the previous year. Specifically, the Department's Fiscal Year 2013 survey compared weighted average state salaries to market median salaries and found that state salaries were 5.2 percent below the market. The Fiscal Year 2013 survey also compared weighted average state salaries to weighted average market salaries and found that salaries were 7.1 percent below the market. The Department reported that the calculation method was changed to comparing median state salaries to market median salaries for the Fiscal Year 2014 survey based on a staff recommendation. Staff's reasoning supporting this change was based on a faulty "apples-to-apples" methodological comparison that suggested that since markets were based on the median calculation, the state salary comparison should also be based on the median. However as discussed above, the most effective comparison is average state salary costs to the median of the sample market, which is the best estimator of unit labor costs for the sample data.

1. **Recommendation: The Department of Personnel & Administration should change its calculation method for comparing state salaries to the market by using the average state salary and the median market salary as the point of comparison for each benchmark job classification.**

Department of Personnel & Administration Response:

Partially Agree. Implementation Date: August 2013

The Department of Personnel & Administration will consider comparing average state salaries to median market salaries for benchmark job classifications for future compensation surveys. As recognized by the audit, the Department has modified its survey methodology in recent years in order to improve the quality and accuracy of the survey findings. One of the methodology changes has been to evaluate changes to the comparative calculation. As such, the Department has reported both the comparison of average state salaries to weighted average salaries in the market and average state salaries to median salaries in the market in the past few years. In 2012, the Department obtained the services of an independent consulting firm to analyze our survey methodology practices. Based upon the input of this firm, the Department refined the methodology to compare median state salaries to median market salaries. The Department will seek additional clarification from our independent consulting firm in order to determine market practices and the best calculation method for comparing state salaries to the market.

Comparison of State Benefits to the Market

As we discussed, the Department's Fiscal Year 2014 annual compensation survey resulted in recommendations from the Department to increase state salaries by $58 million and state contributions to employees' medical, life, and dental premium contributions by $21 million for Fiscal Year 2014. We reviewed the process used by the Department to determine the differences in these benefit levels between the State and the market and to account for those differences in its recommendations to the Joint Budget Committee and the Governor. We found that the annual compensation survey does not include all benefits relevant to employees' total compensation. As mentioned previously, statute [Section 24-50-104(1)(a)(I), C.R.S.] defines total compensation as including, but not being limited to, salary, group benefit plans, retirement benefits, merit pay, incentives, premium pay practices, and leave. However, statute [Section 24-50-104(4)(a), C.R.S.] states that the purpose of the annual compensation process is to determine adjustments that need to be made to "state employee salaries, state contributions for group benefit plans, and merit pay."

Although statute does not require the Department to consider compensation other than salaries, benefit plan contributions, and merit pay as part of the annual compensation process, failing to take into account all potential benefits in assessing the competitiveness of employees' total compensation does not allow for an accurate comparison to the market and may understate or overstate the value of state employees' total compensation. As a result, the State may look less (or more) competitive than it actually is. Specific elements of total compensation that the Department does not factor into its recommendation to the Joint Budget Committee and the Governor include:

Retirement Benefits. The Department collects and reports information on employer contributions for retirement benefits by the State and the market as part of the annual compensation survey. However, the Department does not factor the retirement benefit contributions made by the State (which was 15.2 percent according to the Fiscal Year 2014 survey compared to the average market contributions of 12.1 percent according to the survey) in its recommendations for salary and benefit increases for state employees. Specifically, the Department does not calculate how higher retirement benefit contributions by the State might offset differences in state salaries as compared to the market. These percentages are shown in the chart below.

The Department's Findings Related to Employer Contributions to Retirement Benefits
Fiscal Year 2014 Annual Compensation Survey

Retirement Benefit Components	Market	State
Social Security	6.20%	-
Medicare	1.45%	1.45%
PERA	-	10.15%
Amortization Equalization Disbursement (AED) for PERA	-	3.60%
Average Tax Deferred matching	4.45%	-
Total	**12.10%**	**15.20%**

Source: The Department's Fiscal Year 2014 Annual Compensation Survey

In addition, the Department does not factor in the higher mandatory retirement contributions made by state employees (currently 8 percent) compared to private sector employees who must contribute to Social Security (6.2 percent).

Leave Benefits. The Department's annual compensation survey does not include an analysis of leave benefits, such as leave accruals, carryovers or paid holidays, in comparison to the market.

Disability Benefits. The State pays 100 percent of employees' short-term disability premiums and no part of employees' long-term disability premiums. While the Department collects data to compare the State's short-term disability benefits to market, it does not include premium information, or any information about long-term disability benefits as seen in the market, as part of the analysis of total compensation competitiveness.

Other Benefits. Other benefits such as tuition reimbursement, vehicle allowance, shift differentials, and overtime pay are not considered as part of the calculation of total compensation.

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2. Recommendation: The Department should improve how its annual total compensation survey process evaluates non-salary compensation by:

a. Ensuring that all non-salary elements of total compensation, such as contributions by both the State and employees for medical benefits, dental benefits, other benefits, retirement benefits, and leave benefits are included in the annual compensation survey.

b. Collecting necessary data for those elements identified in part "a."

c. Accounting for differences in the State's and state employees' contributions to benefits when making recommendations for increases in state employee salaries and to contributions to group benefit plans, if any.

Department of Personnel & Administration Response:

a. Agree. Implementation Date: August 2013

As indicated in the August 2012 annual compensation recommendation letter, the Department of Personnel & Administration has historically focused on the statutorily required elements of employee salaries and state contributions for group benefit plans for the survey. Although the Department annually monitors market practices of other elements of total compensation, such as leave, retirement benefits, and premium pay practices, these elements have only been reported when significant deviation from market findings exists or when special topics or areas of interest are identified. However, the Department recognizes the value of providing an overall measure of total compensation or remuneration in order to assess the overall competitiveness of the State total compensation package.

As such, the Department includes a comparison of the State's contribution toward retirement benefits to the employer contribution to retirement in the market, the coverage of short-term and long-term disability benefits, and coverage of life insurance and accidental death and dismemberment for FY 2013-14. The Department will include non-salary elements of total compensation in the annual compensation survey.

b. Agree. Implementation Date: August 2013

The Department will collect market survey data on all elements of total compensation to compare to the State's practices.

c. Agree. Implementation Date: August 2014

The Department will continue to work toward implementing a comprehensive measure of total compensation in future years, including recommending appropriate adjustments in state employee salaries and to contributions to group benefit plans, if any, that take into account differences in the State's and state employees' contributions to benefits compared to the market.

Aging Market Survey Data

Aging market survey data is an adjustment made to account for differences in the timing of survey data collection (i.e., not all survey data are collected on the exact same date) and to ensure that an organization's salaries and the comparable market salaries are being measured at a single, consistent point in time.

The Department used the nine different surveys listed in the table below for its Fiscal Year 2014 survey to compare state salaries to the market, and the collection dates for these surveys ranged from July 2010 to March 2012. Aging these data reduces the risk of inconsistencies in data gathered at various times by accounting for external factors, such as the labor supply, labor demand, and labor costs that may have fluctuated during the periods between the survey dates and the aged-to date.

List of Compensation Market Surveys	
Survey	**Collection Date**
Central States Compensation Association	
General Employees	7/1/2010
Executive Employees	7/1/2010
Mountain States Employers Council	
Healthcare Compensation – Summer	7/1/2011
Mental Health Compensation	9/1/2011
Colorado Compensation Benchmark	3/1/2012
Information Technology Compensation	3/1/2011
Public Employers Compensation	3/1/2012
Public Library Compensation	2/18/2012
Hotel Industry Compensation	7/1/2011

Source: Buck Consultants' analysis of Department data

We reviewed the Department's process for aging data for the Fiscal Year 2014 survey and identified one error in this process and one improvement that the Department can make for subsequent surveys. First, we found that the Department did not correctly age market salary data for the Fiscal Year 2014 survey. At the time that the Department completed its survey analysis, the most currently available state salary data available was complete as of July 1, 2012. Therefore, the Department should have aged its survey market data to July 1, 2012. However, the Department aged its survey market data to July 1, 2013 instead. According to Department staff, the survey market data were aged to 2013 to project necessary salary adjustments for the implementation date of July 1, 2013.

The Department's error means that it overstated the survey market data used in the comparison with state salaries and, therefore, misstated the gap between state salaries and the market. Specifically, the Department used an escalation factor of 1.68 percent, based on the federal Bureau of Labor Statistics' Employment Cost Index for Wages and Salaries (ECI), to age its survey market data. By aging the market data to July 2013 instead of July 2012, the Department calculated that market salaries were 1.68 percent higher than they actually were. As a result, the Department's previously discussed conclusion that state salaries need to be increased by 7.2 percent to reach prevailing market levels is also overstated. If the Department had aged the data only to July 2012, we calculated that the Department would have found that state salaries needed to be increased by 5.5 percent to reach prevailing market levels.

Second, we found that the Department could improve how it sets salary budget increase projections. For the Fiscal Year 2014 survey, the Department used the ECI's escalation rate of 1.68 percent to project market data into the future. However, this escalation rate should only be used to ensure historical consistency between state salary and market data because the ECI, which measures employment cost rather than competitive market rates, is highly influenced by changes in employment levels and is, therefore, not a good measure of expected changes in market salaries. To illustrate the issue, if a company has 10 workers with an average salary of $40,000 per year, the firm's labor costs for those workers would be $400,000. If the employer laid off one worker to reduce costs, the new labor cost would be $360,000. While an ECI index for this employer would drop 10 percent, average salaries for the remaining workers would still be $40,000.

A better source for expected salary changes in the market is the WorldatWork Salary Budget Survey, because this survey collects data on expected changes in salary pay rates rather than employment costs. WorldatWork is the international association for compensation and benefit professionals, and the association conducts an annual salary budget increase survey. The WorldatWork survey is the largest such salary budget increase survey in the United States, and its published results are used throughout the industry to project future changes in market pay rates. Since the State has expressed a policy of measuring the broad public and private sector markets, we believe that a broad market salary increase projection, such as WorldatWork's All Industries' measure, is appropriate.

3. **Recommendation: The Department of Personnel & Administration should change its market aging calculation to age all market salary survey data to a common historical date that is consistent with state salary data.**

   Department of Personnel & Administration Response:

   Agree. Implementation Date: August 2013

   The Department of Personnel & Administration will adjust the market aging calculation to a common date to correspond with the state salary data.

4. **Recommendation: The Department of Personnel & Administration should use the WorldatWork Salary Budget Increase survey results to determine appropriate projection assumptions for movement in market salaries based on planned state salary structure changes for the upcoming fiscal year.**

   Department of Personnel & Administration Response:

   Agree. Implementation Date: August 2013.

   The Department of Personnel & Administration will use the WorldatWork Salary Budget Increase survey data to determine appropriate projections for movement in market salaries.

Normalizing of Other States' Salaries

The Department normalizes, or adjusts, market salary survey data from other states to eliminate any variation in the data due to geographic differences. Specifically, the Department uses data from the Economic Research Institute (ERI), a nationally recognized source for geographic pay differentials, to normalize regional differences in state government salary data published in the Central States Compensation Association survey, which is the source for benchmark data from other state governments. The normalization factor represents the percentage adjustment that must be made to individual state salaries to create a Colorado-based equivalent. For example, the ERI data indicate that salaries in Arizona are, on average, 95.6 percent of salaries in Colorado. To normalize Arizona's salary levels to Colorado, Colorado's reference differential (100 percent) is divided by the Arizona differential (95.6 percent), which equals 104.6 percent. The Colorado equivalent market pay is calculated by multiplying the normalization factor (104.6 percent) times the state salary ($44,780) published by the Central States Compensation Association survey for the benchmark job in Arizona. These normalization calculations were performed for each state in the survey (24 states total) and for 315 survey jobs. The table below illustrates this example.

Equivalent Colorado Salary Calculation - Arizona					
Comparison States	**ERI Salary Differential**	**Colorado Salary Reference**	**Correct Normalization Factor**	**Published State Salary**	**Equivalent Colorado Salary**
Arizona – Statewide, US	95.6%	100.0%	104.6%	$44,780	$46,840
Normalization Factor = Percentage difference between each state and Colorado					
Arizona Normalization Factor = (100% / 95.6%) = 104.6%					
Normalized Arizona salary for Colorado = $44,780 x 104.6% = $46,840					

Source: Buck Consultants' analysis of Department data

We reviewed the Department's normalization process and found that the Department incorrectly calculated the normalization factor for each state. Specifically, instead of dividing Colorado's reference differential by each state's reference differential to calculate the normalization factor, the Department added the difference between each state's reference differential and Colorado's to 100 percent to get the normalization factor. Using Arizona again as an example, the Department calculated the normalization factor to be 104.4 percent [100 percent + (100 percent - 95.6 percent)]. The table below illustrates this example.

Department Calculation of Equivalent Colorado Salary - Arizona					
Comparison States	**ERI Salary Differential**	**Colorado Salary Reference**	**DPA Normalization Factor**	**Published State Salary**	**Equivalent Colorado Salary**
Arizona – Statewide, US	95.6%	100.0%	104.4%	$44,780	$46,750
Normalization Factor = Difference between each state and Colorado					
Arizona Normalization Factor =1 + (100% - 95.6%) = 104.4%					
Normalized Arizona salary for Colorado = $44,780 x 104.4% = $46,750					

Source: Buck Consultants' analysis of Department data

As the two tables show, the Department's incorrect method resulted in an equivalent Colorado salary of $46,765 for the Arizona job, whereas the correct method yielded an equivalent Colorado salary of $46,841, a small difference of $76.

The Department acknowledged the error in its normalization method when we brought it to staff's attention. To assess the effect of the error, we recalculated the normalization factors for each state as percentage changes and applied those adjustments to the 315 survey jobs published in the Central States Compensation Association survey. We then computed the differences in the resulting market medians under both the Department's normalization method and the correct method. The individual percentage differences for the 315 survey jobs ranged from -2.09 percent to 1.47 percent. The average difference for all 315 survey jobs was -0.5 percent. Since the Department only uses a portion of the 315 survey jobs in its benchmarking and market assessment processes, it is difficult to estimate a reliable overall budget impact from this error.

5. Recommendation: The Department of Personnel & Administration should correct the mathematical errors in its survey normalization calculations for other states' salaries.

Department of Personnel & Administration Response:

Agree. Implementation Date: August 2013

The Department of Personnel & Administration has already adjusted the calculation methodology for survey normalization for other states' salaries. This corrected calculation will be used for the upcoming survey cycle.

Calculating the Budget Cost Estimate

Our second area of concern about the Department's annual compensation survey is the Department's calculation of how much money would be needed to raise state salaries and benefits to market levels, also known as the "budget cost estimate." As discussed in the Overview, the Department's Fiscal Year 2014 survey estimated that it would cost about $122 million to bring state salaries and benefits up to prevailing market levels. We reviewed the Department's process for making this calculation and believe the calculation is imprecise and may lead to an overstating or understating of the cost of aligning state salaries with the market.

The $122 million estimate to bring salaries and benefits to parity with the market included $87 million for incremental salary adjustments, $17 million for associated retirement costs that accrue with salary increases, and $18 million for increases in medical, dental, and life benefits. The effect of this $122 million salary adjustment would be to raise all employees' current salaries to the midpoint of their salary range if the employee's salary is below the salary range midpoint. While this is technically an adjustment to achieve market parity, the $122 million estimate is not the best way to make this calculation for two reasons. First, most employers do not set budgets to guarantee that all employees are paid at the midpoint for numerous reasons, such as an employee's position in his/her salary range or performance, that would make an increase to the midpoint inappropriate. Second, the Department's calculation ignores the 7.5 percent threshold the Department uses to define the "fully competitive range" for salaries. Employee salaries that are within that threshold are competitive and do not require an increase to the midpoint.

As discussed above, the Department calculated that the cost to achieve market parity for salaries was $87 million, or an increase of 5.9 percent. However, when the Department calculated the incremental budget cost for employee salary increases based on performance and employee position within the salary range, the salary increase dropped $29 million from $87 million to $58 million, or an incremental increase of 3.2 percent.

The methodology used by the Department to determine the incremental increases resulting in a 3.2 percent increase is the methodology the Department should use for estimation of budget increases because it accounts for employee position within his or her salary range and performance as well as for those individual job classifications that are already competitive with the market.

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6. **Recommendation: The Department of Personnel & Administration should change its methodology for calculating the budget cost estimate of bringing state salaries up to prevailing market wages to account for employee position within his/her salary range and performance and for those individual job classifications that are already competitive with the market.**

   Department of Personnel & Administration Response:

   Agree. Implementation Date: August 2013

The Department of Personnel & Administration will continue to report the budget cost estimate of reaching prevailing market wages based upon a position by position analysis including employee range placement and performance.

Analyzing the Competitive Market for State Jobs

Our third area of concern regarding the Department's annual compensation survey relates to the Department's methodology for accurately defining the competitive market for state jobs. We identified improvements that the Department can make in (1) the number of market comparisons used for each benchmark job, (2) the methodology for weighting public and private survey market comparisons, (3) the types of market comparisons used for general professional and information technology job classifications, and (4) the market analysis of variable pay. We discuss these issues in the next four sections of the report.

Number of Market Comparisons for Benchmark Jobs

Market surveys provide snapshots of a labor market at a particular point in time. The unique market perspective provided by each survey is driven by the number of participants in the survey, the mix of industry sectors among the participants, the size of the participating organizations, and the participants' economic health. No single survey can properly explain the dynamics of the vibrant, interconnected labor markets in the United States. Therefore, industry best practice is to use multiple survey sources to provide measures of the market from different market perspectives. For example, if an organization uses three survey sources with participants that represent a variety of different organizations and industry sectors, and all three surveys provide similar market estimates for the same benchmark job classification, an analyst will have a fair degree of certainty that he/she has appropriately measured the classification's salary market. A December 2011 poll by WorldatWork indicated that more than 80 percent of respondents use two or more surveys for competitive market assessments for benchmark jobs. Further, an October 2004 article in *WorldatWork Journal* recommends using three or more survey sources as a best practice.

The Department used 178 benchmark job classifications as the basis for its salary structure development, and we evaluated the number of survey matches the Department used for analyzing each of these 178 benchmarks. The table below divides the number of survey matches into three groups: those benchmark jobs with too few survey matches (i.e., two or less), benchmarks with an adequate number of matches (i.e., three to five), and benchmarks with too many survey matches (i.e., more than five).

Survey Market Coverage by Benchmark Job				
	Number Survey Matches	**Benchmark Jobs**	**Match Share**	**Group Share**
Too Few Survey Matches	1	76	42.7%	73.6%
	2	55	30.9%	
Subtotal		131		
Adequate Survey Matches	3	17	9.6%	18.0%
	4	9	5.1%	
	5	6	3.4%	
Subtotal		32		
Too Many Survey Matches	6	5	2.8%	8.4%
	7	3	1.7%	
	8	2	1.1%	
	9	2	1.1%	
	11	1	0.6%	
	18	1	0.6%	
	24	1	0.6%	
Subtotal		15		
Total		**178**		

Source: Buck Consultants' analysis of Department data

As the table shows, 32 (18 percent) of the 178 benchmark jobs had an adequate number of survey matches. The table also shows that 76 (43 percent) of 178 benchmark had only one survey comparison. Further, 55 (31 percent) of 178 benchmark jobs had only two survey comparisons. If the two survey comparisons were based on different survey sources, then an argument can be made that there is acceptable data diversity for such a market comparison, but the number of matches is still not ideal. However, we found that for 28 of the 55 benchmark jobs with two survey comparisons, the data came from two different parts of the Mountain States Employers Council survey suite (e.g., mental health and health care). As a result, the two comparisons may share some of the same survey participants, thus diluting the credibility of the comparison because the two matches are not necessarily independent of each other.

Finally, the table shows that 15 (8 percent) of 178 benchmark jobs had more than five matches. When the number of survey matches exceeds five, it is often because multiple jobs from the same survey or multiple market perspectives for the same job are matched. In both cases, the independent perspective provided by each match is diminished. According to staff, in some cases the large number of survey matches was related to job classifications (e.g., General Professional III) that represent many different types of jobs and, thus, require more matches. While we address the issue of these broad job classifications in more detail in Recommendation No. 9, using more than five survey matches is not best practice and should be avoided.

7. Recommendation: The Department of Personnel & Administration should expand its current portfolio of survey sources to achieve a target of three independent survey source comparisons for each benchmark job in the annual compensation survey.

Department of Personnel & Administration Response:

Agree. Implementation Date: August 2014

The Department of Personnel & Administration will utilize additional survey sources to achieve three independent survey source comparisons whenever possible. The Department will attempt to include additional survey sources for the Fiscal Year 2014-15 survey cycle. However, given the timing and budgetary constraints, additional surveys to reach the target of three sources for each benchmark may not be possible until the Fiscal Year 2015-16 survey cycle.

Weighting Public & Private Survey Market Comparisons

The Department's philosophy regarding assessing the market is to consider both the public and private sectors in which the State's benchmark job classifications compete. The Department uses three public sector surveys (i.e., two Central States Compensation Surveys and Mountain States Employers Council – Public Employers Compensation) and six additional Mountain States Employers Council surveys that focus on the private sector. We reviewed the methodology used by the Department to combine public and private sector information into a composite picture of market salary levels for its benchmark job classifications. We found that currently the Department does not apply any market preference weighting (e.g., 60 percent public sector and 40 percent private or 50 percent each) when calculating the overall market composite. Such weighting may be important if the public and private markets for a particular job are different in character.

Instead, for benchmarks where both public and private sector data are available and applied, the Department combines both public and private sector market data to compute the market composite, as illustrated in the benchmark pricing example below.

Public vs. Private Market Assessment – Department's Methodology								
Job Code	**Survey**	**Position / Survey Title**	**Unique ID**	**Private/ Public**	**Base Salary 50th %tile**	**State Pay as % of Market Median**	**Market Midpoint**	**State Pay as % of Market Midpoint**
C6R2	Health Care Tech II							
	CSCA01	Licensed Practical Nurse	CSCA01-4255	Public	3,418.19	92%	3,479.53	90%
	MSEC09	Licensed Practical Nurse	MSEC09-14	Private	3,331.94	94%	3,417.70	92%
	MSEC06	Licensed Practical Nurse	MSEC06-44	Private	3,783.64	83%	3,563.29	88%
	State Pay	**$3,140.12**		**Average**	**$3,511.26**	**89%**	**$3,486.84**	**90%**

Source: Buck Consultants' analysis of Department data

As this example shows, for the Health Care Tech II classification, the State's average salary of $3,140 is compared to an external market composite using three market comparisons, two from the private sector and one from the public sector. The analysis indicates that the State's pay is 89 percent (i.e., $3,140 / $3,511) of the market's salaries for this position. In the example above the effective weighting is 33 percent public sector and 67 percent private sector, because there is one public sector comparison and two private sector comparisons. However, this weighting is not based on a formal labor market philosophy or on a systematic analysis of the available survey sources and matches indicating the optimum weighting between public and private survey data.

Prevailing salary levels and an organization's ability to compete effectively in the public or private market may (and likely will) be different. The composite market, which is computed as the average of all market matches for a particular job, may be influenced significantly by the number of public sector or private sector matches from each survey, which changes the effective weighting of the market composite (e.g., one match from a public sector survey and three matches from a public/private hybrid survey results in a market value driven 25 percent by the public sector and 75 percent by public/private data). This situation could result in a potential over- or understatement of market value but, in any case, does result in comparative data that is not consistent with an agreed-upon labor market philosophy.

In a tight labor market, a public sector organization needs to be aware of any applicable differences between the two distinct markets of public sector and private sector jobs. For some jobs, market supply and demand issues might dictate that the State give greater consideration to the higher of the two markets if it hopes to succeed in its recruitment efforts.

For public sector clients, we recommend that organizations segregate the market assessment analysis to measure the public and private markets separately and then bring the two markets together to create an overall composite, based on a clearly defined weighting philosophy for the organization, for the class series, for the "type" of job, and/or for each job. This approach provides a more robust assessment and a more realistic snapshot of the different competitive forces in play and facilitates the development of a flexible, competitive response to labor market realities, particularly for those markets that are rapidly changing.

To illustrate our point, we have recreated our Health Care Tech II example from above. The example on the following table recasts the market composite assessment cited above into distinct measurements for the public sector and the private sector.

Public vs. Private Market Assessment – Recommended Methodology C6R2 Health Care Tech II									
Job Code and Title		Survey	Position / Survey Title	Unique ID	Base Salary 50th %tile	State Pay as % of Market Median	Market Midpoint	State Pay as % of Market Midpoint
Health Care Tech II	Public	CSCA01	Licensed Practical Nurse	CSCA01-4255	3,418.19	92%	3,479.53	90%
				Public Average	3,418.19	92%	3,479.53	90%
	Private	MSEC09	Licensed Practical Nurse	MSEC09-14	3,331.94	94%	3,417.70	92%
		MSEC06	Licensed Practical Nurse	MSEC06-44	3,783.64	83%	3,563.29	88%
				Private Average	3,557.79	88%	3,490.49	90%
						Averages		
C6R2		**State Pay**	**$3,140.12**	**Public**	**3,418.19**	**92%**	**$3,479.53**	**90%**
				Private	**3,557.79**	**88%**	**$3,490.49**	**90%**
				Combined	**3,511.26**	**89%**	**$3,486.84**	**90%**

Source: Buck Consultants' analysis of Department data

As the table shows, the State's average salary of $3,140 for this position is more competitive against the public sector (i.e., 92 percent) than against the private sector (i.e., 88 percent). Recall that our earlier example showed that this position's salary was at 89 percent of the market overall. As a result, if the Department were more interested in comparing this position to other public sector positions, relying on the overall analysis would overstate the salary gap between this position and similar public sector positions elsewhere by three percentage points (i.e., 92 percent versus 89 percent).

We believe there is value in assessing and understanding the difference between the public and private markets. Differentiating between the two markets would also enable the Department to apply a specific compensation philosophy regarding the State's preferred competitive position relative to these two markets that purposefully prioritizes these markets, rather than allowing that preference to be determined by the mix of market comparisons available through surveys.

8. Recommendation: The Department of Personnel & Administration should modify its external market analysis process for assessing the State's competitive position against the private and public market sectors by establishing a specific weighting policy and mechanism for combining survey market results for both sectors.

Department of Personnel & Administration Response:

Agree. Implementation Date: August 2013

The Department of Personnel & Administration will incorporate a weighting policy and mechanism for combining survey market results from both the private and public sectors into the survey methodology.

General Professional & Information Technology Classifications

One of the key requirements for a credible competitive market assessment is the ability to demonstrate comparability between an organization's benchmark jobs and the survey positions used to test the market. When comparability cannot be demonstrated convincingly, the analysis findings can be appropriately called into question.

Survey vendors typically request that organizations submitting data for the survey match, at a minimum, 70-80 percent of a survey job's duties and responsibilities to ensure the comparability of each participant's salary data. These are also the protocols that most consulting firms use when conducting market assessment projects for clients.

The State has two large occupational classifications, General Professional and Information Technology (IT) Professional, each of which includes a variety of different work functions or roles (e.g., Human Resources Generalist and Contracting Supervisor are both roles within the General Professional classification) that are nonetheless collected within these two generic classifications. These two generic classifications, General Professional and IT Professional, comprise nearly 20 percent of all Professional and 85 percent of IT employees in their respective occupational groups. Survey vendors collect employee salary or average job salary data each year from their participants including the State of Colorado. However, for the General Professional and IT Professional classes, the Department cannot provide salary data to vendor surveys because the range of responsibilities for these classes is too broad to represent "matchable" jobs.

While the Department cannot submit pay data from these generic job classifications to vendors, it uses the survey market data from these vendors to assess market competitiveness for the General Professional and IT Professional classifications. The General Profession career ladder includes seven job levels (i.e., General Professional I-VI and Management); four of those levels, representing more than 80 percent of all General Professional employees, were designated benchmark jobs. The IT Professional career ladder has seven job levels (i.e., IT Professional I-VII), all of which were designated as benchmark jobs, in addition to two IT Technician levels within the same job classification series.

The General Professional and IT Professional classifications are significant in their representation of classified employees, but these generic classifications restrict the Department's ability to compare state salaries directly against the market.

An example will help illustrate the issue. The Department has selected nine different jobs from the market surveys it uses to represent the market for the IT Professional II classification. As the table below shows, these jobs include Web Administrator, Database Administrator, and Information Security Analyst. The Department has to take this approach because the surveys do not include salary data related to a generic IT Professional classification. As a result, the Department may be using survey data for a Web Administrator to create market assessments for a state Database Administrator job or vice versa, which increases the risk that these assessments will not be accurate.

Market Pricing Department Generic Classifications - Example						
H2I4	**IT Professional II**	**Employees**	**Average Base Salary**			**% Diff State Avg to Market**
		369	**$5,299**			
Survey	**Position / Survey Title**	**Date Scope**	**Companies**	**# Empl**	**50th %tile**	
MSEC14	Webmaster/Web Administrator (Journey)	All Colorado	38	61	$5,519	4.2%
MSEC14	Network Administrator (Journey)	All Colorado	66	113	$5,741	8.3%
MSEC14	Systems Administrator (Journey)	All Colorado	90	265	$6,088	14.9%
MSEC14	System Analyst (Journey)	All Colorado	38	152	$6,157	16.2%
MSEC06	PACS Administrator	All Colorado	21	30	$6,405	20.9%
MSEC14	Database Administrator (Journey)	All Colorado	40	80	$6,739	27.2%
MSEC14	Software Engineer II (Journey)	All Colorado	15	100	$6,492	22.5%
MSEC14	ERP Systems Analyst (Journey)	All Colorado	17	73	$6,488	22.4%
MSEC14	Information Security Analyst	All Colorado	22	35	$7,028	32.6%
		Average			**$6,295**	**18.8%**

Source: Buck Consultants' analysis of Department data

The lack of distinction within general classifications such as General Professional or IT Professional is also a concern because different jobs within these classifications can command significantly different salaries. For example, as the table above shows, market salaries for the nine survey matches used by the Department for the IT Professional II classification range from $5,519 to $7,028, representing more than a 25 percent spread from the low end of the range to the high end. The table also shows that the Department calculated that the IT Professional II class overall needed an 18.8 percent increase in salary to achieve market parity. However, the percentage increase necessary to achieve market parity varies significantly across these nine matches, ranging from 4.2 percent to 32.6 percent. Although the Department may classify its own IT jobs as being relatively equal, the focus of its annual compensation survey is to determine accurate market values for each benchmark job. The grouping together of these jobs impedes the development of an accurate market match for most jobs in the in the General Professional and IT Professional classifications and may contribute to an inaccurate estimate of budget increases necessary to achieve market parity.

9. Recommendation: The Department of Personnel & Administration should refine its use of generic classifications for General Professional and IT Professional to improve the precision of market comparisons between specific jobs within these classifications and the different survey market jobs to which they are matched.

Department of Personnel & Administration Response:

Agree. Implementation Date: August 2014

The Department of Personnel & Administration will evaluate the General Professional and IT Professional job classifications to determine if the specific jobs within these classifications should be separated out into individual job classifications to provide additional precision for job matching.

Variable Pay

The 2009 evaluation report recommended that the Department consider variable pay (e.g., bonuses) in its analysis of market competitiveness for the State's benchmark jobs, which the Department agreed to do. Our review of the Department's market assessment analysis for the 2014 annual compensation survey did not find any evidence that the Department included variable pay in this analysis.

The State competes with both the public and private sectors for talent. Variable pay is a well-established component of total compensation in private industry and is gaining importance in the public sector. In the WorldatWork's 2012-13 survey, over 2,600 participants provided data on their 2013 budgets for variable pay. The table below shows the average amount of variable pay received by employees at public and private sector employers expressed as a percentage of the employees' base salaries.

2013 Variable Pay Budgets		
	All Public & Private Sector	**Public Administration**
Nonexempt Hourly	5.60%	2.5%
Nonexempt Salaried	6.00%	2.8%
Exempt Salaried	12.80%	3.9%
Officer / Executive	38.10%	7.0%
All Categories	18.8%	4.6%

Source: WorldatWork 2012-2013 Salary Budget Survey

As the table shows, for all public and private sector employees, the survey found that employees on average receive variable pay bonuses equal to about 19 percent of their base salaries. The average variable pay bonus for just public sector employees was about 5 percent of the employees' base salaries. Although variable pay percentage for the public sector is significantly smaller than the percentage for the private sector, it still represents a significant addition to total compensation for state employees.

Variable pay is an important component of total compensation in the private sector and is a component within the public sector that is increasingly important, as it enables the State to compete more effectively with the private sector in recruitment and retention of critical talent. By not including variable pay as part of the annual compensation survey, the Department's market analysis is incomplete and may provide an inaccurate picture of the gap between total compensation for state employees and the market.

10. Recommendation: The Department of Personnel & Administration should expand its market assessment process to include variable pay in its analysis of total cash compensation.

Department of Personnel & Administration Response:

Agree. Implementation Date: August 2014

The Department of Personnel & Administration will include an assessment of variable pay practices within the market to augment the cash compensation analysis currently included in the annual compensation survey.

Timing of the Compensation Survey Process

Our final areas of concern involves the timing of the annual compensation survey process. As discussed previously, statute requires the Department to complete and provide to the Joint Budget Committee and Governor a full analysis of the competitiveness of the State's salaries and benefits by August 1 each year. The compensation survey process summarized in the Overview is a comprehensive process that incorporates a significant amount of analysis in multiple discrete models to determine market competitiveness for state salaries and benefits and to calculate the resulting incremental budget costs for bringing state salaries and medical benefits up to market levels.

We reviewed the Department's working documents to map the annual compensation survey workflow process, evaluate the Department's analytical methodologies, validate computations, and assess how the Department translated its analysis into policy recommendations. Based on our review, we made the previous recommendations in this report to improve methodologies, expand the data used to evaluate the State's total compensation, and to correct computational errors.

We also identified a concern with the timing of the Department's workflow process. Specifically, we found that the time frame for the Department's analysis of the survey market data is limited by the statutory deadline to complete the annual compensation survey by August 1 of each year.

For example, much of the essential market survey data used by the Department is not available until the June-to-October time frame each year. As a result, some current-year data are not available to the Department until after the survey's required completion date of August 1, and the Department has a very limited time frame to conduct its analysis of the data that are available. Market assessment analysis of this type typically takes a minimum of 8-12 weeks, particularly in the case of a large and complex organization, such as the State.

The compressed time frame for the annual compensation survey increases the risk that the Department will not be able to do a complete analysis by the August 1 deadline and to make appropriate recommendations for state salary and benefit increases to the Joint Budget Committee and the Governor. Although we could not directly tie any of the problems previously discussed in the report to this compressed time frame, we identified several tactics that the Department can employ to modify the analysis process and provide more time for a thorough review of the survey market data, as described below:

- If a survey publication date is unreasonably close to the annual compensation survey due date of August 1, the Department could use the previous year's data with an appropriate aging factor. Aging the survey data would allow the Department to begin its analysis earlier.
- The Department could time the competitive market analysis and salary structure assessment for each occupational group when the majority of the required market data is available. For example, the analysis for the professional occupational group could begin in December after the publication of the Mountain States Employer Council benchmark survey and other national surveys.
- The Department could limit its annual survey analysis to jobs in markets where recruiting and retention are difficult, such as information technology. For jobs in stable markets, the Department could change to conducting full market assessments only every other year.

By implementing one or more of these modifications to its process, the Department could increase the amount of time it has to complete the analysis and thereby improve the thoroughness of the analysis and the reliability of the results.

11. **Recommendation: The Department of Personnel & Administration should improve the thoroughness of its annual compensation survey process by taking steps to allow more time for data analysis, such as aging prior year's data and/or performing market assessments for more stable job classifications on a less than annual basis.**

    Department of Personnel & Administration Response:

    Agree. Implementation Date: August 2014

    The Department of Personnel & Administration will use appropriate aging factors to age prior year's data and, where possible, use the most current survey reports, given the timing of release, so that analysis can begin earlier in order to meet the August 1st deadline for submission.

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