

National Compensation Matrix (NCM)

Questions and Answers

1. What is the National Compensation Matrix (NCM), and who developed it?

State DOTs must obtain reasonable assurance that executive compensation costs claimed by engineering consultants are reasonable and otherwise allowable. To promote consistency in this process, a group was formed to prepare a National Compensation Matrix (NCM) for use in determining reasonable levels of executive compensation for engineering consultants in compliance with the criteria established in Section 7.5 of the *AASHTO Uniform Audit & Accounting Guide*.¹ The NCM Team began its deliberations on October 24, 2011, and the NCM was issued in final form on May 8, 2012. The group (NCM Team) included representatives from AASHTO, various State DOTs, the FHWA, ACEC, and independent CPAs. Additionally, an independent Certified Compensation Professional (CCP) provided input and guidance to the Team throughout the project.

2. What are the general rules and requirements regarding how to establish the reasonableness of executive compensation for engineering consultants?

Executive compensation is discussed in detail in Chapter 7 of the AASHTO Guide. In summary, engineering consultants are responsible for demonstrating that claimed compensation costs are reasonable, and otherwise allowable, in compliance with FAR 31.205-6 and related case law. To meet this burden, consultants may either: (a) prepare a compensation analysis² in accordance with procedures set forth in Section 7.5 of the Guide; or (b) use the NCM, a tool that establishes compensation amounts presumed reasonable for certain executive positions based on an engineering consultant's gross revenue levels.³

The options described above are mutually exclusive. Thus, for example, in preparing a compliant compensation analysis, it would *not* be permissible for an engineering consultant to combine data from two nationally-published surveys with data from the NCM being used as a third survey source.

If an engineering consultant prepares a compensation analysis using multiple survey sources, and the analysis is otherwise fully compliant with the criteria discussed in Section 7.5 of the Guide, then State DOTs will be required to accept the consultant's analysis. The NCM may *not* be used by a State DOT or other auditor as a basis, or benchmark, to refute, question, or otherwise disallow compensation for a consultant that has performed an appropriate, compliant compensation analysis in accordance with Section 7.5 of the Guide.

¹ 2010 Edition, as now updated to 2012 Edition. Hereinafter referred to as "the AASHTO Guide" or "the Guide."

² In this context, "analysis" requires the engineering consultant to review executive compensation in comparison to data from two or more relevant, nationally-published compensation surveys. The engineering consultant must base its determinations on widely-accepted surveys that represent the relevant market or industry.

³ Note: Amounts generated from the NCM are composite values, based on data reported in several nationally-published surveys; accordingly, the NCM is not a self-standing survey.

3. Do the amounts presented on the NCM represent a “floor”, or expected amount of compensation that executives will receive in consulting engineering firms?

No. The compensation amounts generated by the NCM merely establish a general presumption of reasonableness, based on a statistical analysis of compensation data presented in a collection of published compensation surveys. The amounts presented in the NCM must not be construed as an entitlement or guaranteed amount of cost recovery.

Additionally, before applying the NCM, the engineering consultant must first examine all elements of each executive’s compensation and eliminate all expressly unallowable compensation elements⁴ and costs associated with unallowable activities.⁵ See the **NCM Instructions** for further details and a sample schedule for use in demonstrating compliance with the NCM.

4. What survey data was used to develop the NCM, and how were the surveys selected?

The NCM Team diligently reviewed all the potentially-relevant data sources, and the Team selected the most optimal, practical mix of survey data that provided the best predictive quality for the NCM model. The surveys were selected to provide a diverse set of relevant compensation data, including data from four surveys specific to the A/E industry, and three other surveys, that, although they are not limited to the A/E industry, are well known national surveys that can be narrowed to the services industry, which included A/E firms. The NCM Team made a concerted effort to include as much relevant data as available but ultimately included only survey data that did not degrade the predictive value of the model.

5. How were the survey results adjusted to allow for comparability?

Generally, surveys report compensation based on company gross revenue, staff size, or both. The NCM Team used gross revenue as the primary determinant of executive compensation. For surveys that reported staff size only, the Team applied a conversion factor, computed based on the average company gross revenue generated by each full time equivalent (FTE) position in surveys where these data were available. This resulted in gross revenue amounts with corresponding median compensation data for all the surveys. Each survey was equally weighted in the analysis. Additionally, since the various surveys had different effective dates, data from each of the surveys were aged to a common midpoint of July 1.

⁴ For example, unallowable elements of compensation include, but are not limited to: compensation incidental to business acquisitions (FAR 31.205-6(l)); distributions of profits to owners of closely-held companies (FAR 31.205-6(a)(6)(ii)(B)); and compensation based on changes in the prices of corporate securities or corporate security ownership, such as stock options, stock appreciation rights, phantom stock plans, and junior stock conversions (FAR 31.205-6(i)).

⁵ Unallowable activities include, but are not limited to, time spent on advertising, lobbying, entertainment, and charitable activities. For more details, see Chapter 7 of the AASHTO Guide, FAR 31.205-6, and other related FAR cost principles.

6. What type of statistical analysis was performed on the survey data?

The NCM Team prepared data tables to summarize compensation data from the selected surveys. The Team analyzed the data for each position using both linear and logarithmic regression models, and the coefficient of determination (R squared) was computed to determine the predictive quality of the regression models. Additionally, the Team graphed the results of the regression equations to provide a visual representation of how well the data values were predicted by the resulting regression curves. Logarithmic regression was recommended by the independent compensation consultant, and it yielded the best results; accordingly, the final NCM model employs logarithmic regression algorithms.

7. What type of validation was performed to ensure the predictive integrity of the NCM regression model?

The NCM Team analyzed the impact of each individual survey in relation to the overall predictive quality of the regression model, and data that degraded the predictive value of the model were removed. More specifically, the Team reviewed data for the various positions (e.g., CEO/President, Senior Vice President, Vice President, etc.) and eliminated data sets with R squared values lower than 0.5. The remaining survey data represented the most practical and relevant mix of data diversity and reliability.

8. How does the logarithmic regression approach differ from the approach originally envisioned for the NCM and discussed in Section 7.5 of the AASHTO Guide?

The approach advocated in Section 7.5 of the 2010 Edition of the AASHTO Guide is based on the requirements of FAR 31.205-6, as interpreted by two major Armed Services Board of Contract Appeals (ASBCA) decisions dealing with compensation: *Techplan Corporation*,⁶ and *Information Systems and Networks Corporation*.⁷ This resulted in a methodology in which reasonableness limits for executive compensation were effectively computed as 110 percent⁸ of the composite median amounts of multiple survey data points. The composite median amount was developed by computing a simple average of aged⁹ median total compensation amounts from multiple surveys.

Since the AASHTO Guide was issued in 2010, a new ASBCA decision, *J.F. Taylor, Inc.*,¹⁰ was issued. In this decision, the ASBCA ruled in favor of the appellant, who challenged the DCAA's procedures of computing maximum allowable (reasonable) compensation levels as 110 percent of composite median compensation data. In *Taylor*, the appellant's expert argued that a more robust statistical

⁶ *Techplan Corporation*, ASBCA Nos. 41470, 45387, and 45388, 1996 ASBCA LEXIS 141. Techplan is the seminal case that established a methodology for applying the reasonableness provisions of FAR 31.205-6 to compensation issues.

⁷ *Information Systems and Networks Corporation*, ASBCA No. 47849, 1997 WL 381263 (A.S.B.C.A.), 97-2 BCA P 29132.

⁸ In common practice, 10 percent (a "range of reasonableness") was added to the composite median amounts.

⁹ The survey data were aged to a common mid-year point.

¹⁰ *J.F. Taylor, Inc.*, ASBCA Nos. 56105, 56322 (January 18, 2012).

analysis was appropriate, including a detailed analysis of data dispersion to determine the reliability of the survey data used to establish compensation limits.

The logarithmic regression used in the NCM represents a more robust statistical approach designed to eliminate the issues associated with assessing reasonableness solely based on comparing an executive's compensation to 110 percent of the composite median compensation for his or her position. Regression analysis is a statistical tool used to describe and predict the relationship between two variables. As applied to compensation analysis, the logarithmic regression equation allows for the prediction of estimated reasonable compensation limits at any given revenue point.

9. Does the NCM include any kind of indexing to account for geographic differentials (i.e., the differences in wage markets across the nation)?

No. The data points used as inputs to develop the NCM regression equations were based on actual observations from the various surveys listed previously. As such, the data were collected from a range of companies, nationwide. No indexing was applied to adjust any of the survey data to specific geographic locations.

During the development of the NCM, the Team discussed whether it was necessary, or even appropriate, to include indexing by geographic location. The various surveys all collect compensation data from a range of geographically-dispersed companies; however, the surveys do not uniformly disclose geographic information.

The NCM Team concluded that continued debate regarding geographic differentials would unduly delay the completion of the 2012 NCM; however, the issue will be revisited when the NCM is updated in future periods.

10. Most surveys report total compensation, which is likely to include some unallowable costs per FAR Part 31. Does the NCM account for this issue?

The question of unallowable compensation was considered by the NCM Team; however, the various surveys lacked details that would allow the Team to distinguish between total compensation and compensation allowable in accordance with FAR Part 31. Accordingly, unallowable compensation could not be estimated without degrading the statistical validity and reliability of the survey data used for the current NCM. As such, the NCM does not make allowances for any unallowable costs that may be included, but not separately reported, in the various surveys used.

The NCM Team, ACEC, and AASHTO, have committed to provide recommendations to survey companies for improvement in the surveys, and the identification of FAR unallowable compensation is one of the prime areas for discussion.

11. Is a retirement contribution included in the NCM?

Yes, for surveys that did not include pension in the total compensation figure, the NCM Team added a factor representing the average company retirement contribution.

12. Does the NCM include an allowance for a “range of reasonableness” (RoR) as discussed in Section 7.5 of the AASHTO Guide?

Yes, the NCM includes an RoR computed based on the value of one-half of one standard deviation, with an additional allowance of up to 2.5-percent of one standard deviation on the basis of each position’s underlying data quality, denoted by the number of observations for each position.¹¹ This approach in determining RoR is significantly different than the DCAA’s methodology, which assumes that RoR will be expressed as a fixed percentage.¹² The NCM Team believed a more statistically-robust approach to computing RoR was necessary to work in tandem with the logarithmic regression analysis approach used for the NCM. The Team also believed that, in comparison with using a fixed percentage for RoR, the new NCM’s RoR approach was more consistent with the ASBCA’s ruling in the *Taylor* case.

13. How should the NCM be applied? (What is the effective date for the NCM?)

The NCM applies to indirect cost schedules prepared from actual costs incurred in the year prior to the year listed in the NCM title. For example, the 2013 NCM is applicable to costs incurred during 2012. For engineering consultants not on a calendar year reporting period, the NCM in effect at the time of year-end development of the indirect cost schedule or commencement of final indirect cost rate audit fieldwork should be used. Generally, the indirect cost rate will be used as a provisional rate for billings and cost proposals on contracts with the various State departments of transportation (DOTs). The rate also may be used during incurred cost audits to reconcile contract costs billed based on provisional rates to actual costs.

14. Is the NCM applicable to all firm sizes (revenue ranges)?

The predictive value of the NCM is accurate in revenues ranges from \$1 million to \$500 million. When a revenue amount below the \$1M floor is entered, the logarithmic equations use \$1 million as the input revenue, by default; accordingly, engineering consultants with less than \$1 million of actual revenue are given the benefit of \$1 million revenue for purposes of the NCM computations.

On the other hand, engineering consultants with revenues in excess of \$500 million are expected to prepare their own compensation analyses. It should be noted that, if a firm’s revenue creates

¹¹ Note: The RoR amounts presented in the NCM are specifically related to the underlying data used to prepare the NCM; accordingly, engineering consultants that perform their own compensation analyses may not use the NCM’s RoR values.

¹² Generally, the DCAA allows a 10-percent fixed range of reasonableness, which does not vary per position.

computed compensation in excess of the Benchmark Compensation Amount (BCA)¹³ of \$952,308, the NCM limits compensation to \$952,308. In addition, the Bipartisan Budget Act of 2013 established a cap on compensation (direct and indirect) for all employees of \$487,000, to be applied to contracts executed on or after June 24, 2014. In the event a firm's revenue amount creates computed compensation in excess of this limit, the NCM will produce a message noting the limit. For contracts executed before June 24, 2014, the Benchmark Compensation Amount of \$952,308 will apply. The NCM does not currently produce amounts exceeding the BCA of \$952,308.

15. How frequently will the NCM be updated? If the NCM is not updated each year, may I escalate the numbers generated by the NCM to account for annual increases in the wage market?

The NCM Team anticipates updating the NCM annually; however, if an update does not occur in a given year, the Team will issue detailed instructions regarding escalation/indexing at that time.

16. My company submitted an indirect cost schedule prior to the issuance of the initial 2012 NCM, and this schedule was approved by my home State DOT. Do I need to resubmit anything to my home State DOT?

The timing of indirect cost submissions and application of the NCM is likely to vary among the various State DOTs, especially in the first year of the NCM's use; accordingly, you should contact the home State DOT for further guidance.

¹³ The BCA is a statutory cap on the amount of executive compensation that may be charged to Government contracts. The BCA is determined by the Office of Federal Procurement Policy (OFPP), under Section 808(b) of Public Law 105-85.