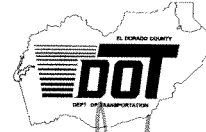




COUNTY OF EL DORADO
DEPARTMENT OF TRANSPORTATION

INTEROFFICE MEMORANDUM



Date: February 3, 2011
To: Allyn Bulzomi, Director of Human Resources
From: James W. Ware, P.E., Director of Transportation

A handwritten signature in black ink, appearing to read "James W. Ware", written over the DOT logo.

**Subject: Deviation from Retention Points
Senior Civil Engineers in the Department of Transportation's
Construction Division**

Dear Allyn,

The proposed reorganization of the Department of Transportation (Department) will result in layoffs and demotions of several employee classifications. Two of the employees that will be impacted by this action are currently employed as Senior Civil Engineers (SCE) in the Department's Construction Division. The Department has determined that layoffs and demotions based solely on retention points would cause the Department to retain staff that would be unable to maintain a satisfactory level of performance in the Department's existing Construction Division.

Therefore, with this memorandum, and in accordance with Article 12, Part E of the Memorandum of Understanding between the County of El Dorado and the El Dorado County Employees' Association, Local #1, the Department requests your approval of deviations from retention points for the purpose of determining reductions in force or demotions for two SCEs in the Department's Construction Division. The Department has determined that this is necessary to protect public safety, minimize County liability associated with large construction projects, and because there is no time to train other staff without the requisite experience to perform the work in question. Since these positions are required to supervise staff, these positions must be staffed with SCEs.

This memorandum will cover what sets construction work apart from other aspects of civil engineering, what critical skills are possessed by the people currently holding these positions in the Construction Division, consequences associated with mistakes that might be made by SCEs without the requisite construction experience, and other reasons the Department feels this request is justified.

Construction Distinctions

Civil engineering is comprised of several distinct areas of discipline, some of which include design, maintenance, planning, land development, hydrology, environmental, geotechnical, and construction. Construction is set apart from other civil engineering disciplines for several reasons, including but not limited to the following:

- Safety – Decisions made by SCEs on construction sites often have direct and immediate impacts on public safety and worker safety. Maintaining a safe work zone for the traveling public, County personnel, and contractor personnel is of paramount importance on every construction project. While no transportation improvement can justify the injury or death of any person, transportation construction projects are by their very nature dangerous places, for many reasons. Most of the responsibility for project safety ultimately lies with the SCE serving as Resident Engineer (RE). The RE must ensure that the contractor complies with all aspects of the contract, including the applicable construction safety standards and regulations. Contractors will take risks that compromise safety in order to maximize profits. SCEs without significant construction experience will have a far more difficult time evaluating contractor operations and determining when a contractor is pushing the safety envelope in order to save money. Placing a SCE without the requisite construction experience in charge of large construction projects would result in job sites that are less safe, if only for the reason that their inexperience would preclude them from having the proper frame of reference to allow them to accurately determine whether or not a construction activity was as safe as it could be. The increased liability to the County in such a scenario is both substantial and obvious.
- Public convenience – If a SCE in the Construction Division makes a wrong decision about allowing a contractor to close a traffic lane, serious backups can form very quickly, which can result in very unsafe conditions if the backups are in places where motorists do not expect it. Complaints regarding traffic impacts often go straight to the Board of Supervisors. Also, traffic impacts on local streets near U.S. 50 can have a very real impact on local businesses.
- Dynamics and pace – Construction projects are very fluid and dynamic. More often than not, decisions must be made quickly in order to minimize liability for the County, and the decisions must often contemplate several perspectives and strategic goals that change quickly.
- Immediate consequences of bad decisions – In construction, if a bad decision is made, it can easily cost the County tens of thousands of dollars per day. In other branches of civil engineering, immediate consequences are the exception, not the rule.
- Antagonists – One of the clearest challenges that SCEs in the Construction Division face is the contractor's project manager – usually an educated, experienced, intelligent person on the other side of the table who is working day in and day out to maximize profits for their company, nearly always at the expense of the project owner (in this case, the County). This goal of maximizing profits can often place the contractor's project manager at odds with the SCE.

- Fines and penalties – If a SCE fails to compel a contractor to comply with environmental restrictions (especially those regarding water pollution), the project may be hit with a fines that typically run into the hundreds of thousands of dollars.

While it is possible that SCEs without appropriate construction experience could eventually learn to handle these areas that make construction unique, the Department does not have the luxury of time. There are two large County projects underway that require staff with the skills to deal with these areas immediately (see below). Fortunately, the two subject incumbents already possess those skills.

Skills Held by SCEs Experienced in Construction

Simply stated, the experience obtained by the subject incumbents cannot be replicated by education or experience in other disciplines of civil engineering. Both of these SCEs are currently continuing to add to their several years of experience working on large contracts in State right of way by working on Phase 1 of the U.S. 50 HOV Lane Extension in El Dorado Hills and on Phase 1B of the U.S. 50 – Missouri Flat Road Interchange. The construction administration skills held by the SCEs are deep and wide ranging, including but not limited to the following:

- Dealing with contract change orders (CCOs), including but not limited to ensuring that a CCO is necessary and justifiable, method of payment, causes of CCOs, evaluation of contractor proposed CCOs for credit to the County, impacts on safety, impacts on schedule, and impacts on traffic and local businesses.
- Negotiating prices for CCOs that fairly compensate contractors while not paying too much for the work involved.
- Negotiation of simple and complex construction claims filed by contractors. These claims vary in cost from thousands of dollars to several million dollars.
- Performing very quick, sophisticated analyses of complex, shifting problems from several perspectives while under pressure, and making the correct decision the first time.
- Using fundamentals of psychology and sociology to better understand and engage the contractor's project manager.
- Preparation and execution of written and oral arguments at Dispute Review Boards (DRBs). When disputes (i.e., claims) cannot be resolved at the project level, disputes are presented before a DRB, which operates in a manner very similar to an informal trial. SCEs must be well prepared and able to think and react quickly during oral arguments.

Consequences Associated with Mistakes

The potential liability involved with mistakes made by SCEs in the Construction Division is far higher than in any other Division in the Department. This is because the consequences manifest themselves sooner and with greater expense. For example, if a design engineer were to make a mistake performing calculations for a bridge design, there are multiple opportunities for the mistake to be caught via peer review before the bridge is built, and the cost would be primarily be limited to the cost to redesign the

bridge. However, if an engineer in Construction were to make a mistake at the job site and allow a contractor to erect temporary bridge bracing in an unsafe manner, there is little if any opportunity for this type of mistake to be caught, and a significant safety issue could quickly materialize with huge potential costs and liability to the County.

Another area of liability specific to construction relates to contract change orders. For typical changes or issues on construction projects, current Department policy contains checks and balances that ensure that decisions are reviewed by Executive Management when contractors request additional compensation for changed conditions. Notwithstanding the above, there are numerous occasions that require such decisions be made immediately by the RE, due to circumstance, timing, or urgency. In these instances, an incorrect decision can cost the County thousands of dollars per day. Additionally, these decisions can have ripple effects that impact project completion and cause contractors to file extended overhead claims. Therefore, it is critical that the SCE in charge of a project have enough construction experience that they can make the right decision under these circumstances.

Still other areas of liability on construction projects relate to funding sources. Federal and State funding sources require that construction projects (and especially filing on construction projects) be administered in manner consistent with best current practices in the industry. Since 2005, auditors from funding sources (specifically, Federal Highway Administration and Caltrans) have come to County offices and audited construction records on seven County projects. The reason that none of these audits revealed any deficiencies is because the subject incumbents administer their projects in accordance with the 888 page Caltrans Construction Manual. The subject incumbents gained their intimate familiarity with this manual through many years of experience in transportation construction. It is unreasonable to expect that a SCE without construction experience would be able to efficiently keep the records of a large construction project without similar experience. The consequences associated with failing one of these audits can be extreme, including financial penalties and revocation of funding.

Need for Experienced SCEs in Construction based on the Department's Current and Future Projects

The need for SCEs with deep experience in transportation construction is immediate. The County is currently engaged in two of the largest and contractually complex transportation projects that have been undertaken by El Dorado County – Phase 1 of the U.S. 50 HOV Lane Widening in El Dorado Hills (\$33M) and Phase 1B of the U.S. 50 – Missouri Flat Interchange Reconstruction (\$25M). Both projects share the following characteristics:

- Located in Caltrans right-of-way
- Subject to personnel provisions in cooperative agreements between the County and Caltrans
- Large, multi-year projects
- Complex project staging
- Dangerous work in freeway traffic on U.S. 50 (both projects)

- Dangerous work at great height (U.S. 50 - Missouri Flat project)
- Unusual, complex steel girder bridge widening and retrofit (U.S. 50 - Missouri Flat project)

Assignment of a SCE without the requisite experience and expertise to be in responsible charge of either of these projects would cause major disruptions to the County's relationships with the projects' contractors. Furthermore, it could expose the County to a significant increase in liability from fiscal and safety perspectives. Training less experienced SCEs is not viable due the sheer volume of material that would need to be learned relative to an immediate project need, and due to the fact that appropriate experience is the key component required.

Aggressively deceptive project managers for contractors pose still another challenge. Since the current economic downturn caused a near cessation of new home construction in northern California, contractors have been focusing their bidding efforts on projects being advertised by public owners like Caltrans, counties, and cities. This increased competition for less work has caused contractors to bid these projects very aggressively, often reducing or eliminating profit margins in order to improve their chances to be low bidder. The upside of this phenomenon is that the County has seen a dramatic decrease in the bid price of CIP projects, with most projects receiving a low bid of 66% - 75% of the Department's estimate. However, the downside lies with contractors still attempting to meet their profit goals by employing assertively antagonistic contract management strategies against the County. Simply put, a crafty project manager can easily take advantage of an inexperienced SCE, and the consequences would certainly result in contractors receiving compensation that was not contractually justified.

Additionally, each project in Caltrans right-of-way with an estimated construction cost greater than \$5 million requires that the County execute a project-specific cooperative agreement (co-op) with Caltrans that sets the terms under which the County and Caltrans will work together to construct the project. The provisions of each co-op include the following:

County agrees to furnish, at County's expense and subject to the approval of State, a field site representative who is a licensed civil engineer in the State of California, to perform the functions of a Resident Engineer. The Resident Engineer shall not be an employee or subcontractor of the entity, if any that prepared the project PS&E (plans, specifications, and estimate) or an employee of the construction contractor.

The Department's Construction Division has worked with Caltrans for several years on several projects, and on three large County projects in Caltrans right-of-way, Caltrans personnel directly participated (at the Department's invitation) in the selection of consultant resident engineers (RE) and structure representatives (SR). Caltrans has made it clear that they will not allow any RE or SR to administer projects in their right-of-way who does have extensive experience running past projects.

Finally, the Department will have a primary need for SCEs with extensive construction experience because the County plans to construct numerous large projects located within Caltrans right-of-way. The 2010 Capital Improvement Plan (CIP), approved by the Board of Supervisors on April 27, 2010 includes eight such projects to be constructed over the next ten years, two of which are currently under construction, and another two of which will occur too soon for other SCEs to gain the experience necessary to administer the projects.

Conclusions

If a SCE had spent his or her career specializing in transportation construction, it would be irresponsible for the Department to abruptly assign that SCE to design a high use arterial roadway with complex geometrics. Doing so would expose the County to risk associated with the SCE's inexperience in transportation design. As is explained in this memo, the converse is also true – the Department cannot expect a SCE that has spent his or her career specializing in transportation design to take charge of a complex, unusual, large, high-dollar, potentially dangerous transportation construction project. When considering the significant differences between the consequences associated with the two aforementioned “fish out of water” scenarios, it becomes even more apparent that construction projects must be staffed by SCEs that are experienced in transportation construction.

The Department does not make this request lightly. It is understood that other SCEs with more retention points that are qualified in other disciplines of civil engineering may face demotion or possibly termination if this request is approved. However, the Department believes that in order to best protect the County from the liabilities inherent in transportation construction projects, those projects must be staffed by the two SCEs with the most construction experience.

Please contact me at extension 7533 if you have any questions.