Project Delivery Notes

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Project Delivery Through Project Performance

We continue to deliver the Caltrans capital program on time and within budget. Over the past five years we have been successful in delivering 99% of all Contract for Delivery projects on time and within 20% of their budget. This is an accomplishment to be proud of. But during this remarkable delivery accomplishment there has been a need to define and measure project quality.

Quality projects are cost effective, contribute to an effective state highway system, and improve partnerships, relationships, and reputations. Quality projects allow efficient use of funds by enhancing safety, reducing rework, avoiding change orders, and reducing tort liability. Measuring quality drives continuous process improvement. Process improvement can lower costs and improve project delivery.

The Division of Design worked with HQ divisions as well as district leaders statewide to create a definition of project quality that consists of ten characteristics. As you read them you'll think, "Of course, those are the issues that we juggle on projects all the time!" Working with ten functional units: Maintenance, Construction, Right of Way, Traffic Operations, Transportation Planning, Office Engineer, Structure Design, Project Management, Structure Construction, and Environmental, the Division of Design established criteria to evaluate the achievement of each quality characteristic. The quality characteristics and their evaluation criteria are:

1. **Protective Features**
   - Features are incorporated to protect all modes of travel during construction operations.
   - Features are included to protect all modes of travel once construction is complete.
   - The project includes protection and minimizes worker exposure for maintenance field operations.

2. **Purpose and Need**
   - The transportation problem justifies a project and the project solves that transportation problem.
   - The "right" project is being delivered.

3. **Design Standards Compliance**
   - Design standards are met or deviations are adequately justified and appropriately documented.

4. **Environmental Commitments, Minimization, and Compliance**
   - Environmental impacts are avoided or minimized.
   - Environmental commitments are met.
   - The project is in compliance with Environmental requirements.

5. **Right of Way Minimization, and Compliance**
   - The project right of way impacts are minimized and in compliance with Right of Way requirements.

6. **Construction Contract Standards Compliance**
   - The project construction contract complies with construction contract standards.
   - The project construction contract is well thought out so as to encourage competitive bids.

7. **Constructible**
   - The project can be built with minimal contract interruptions and in the fewest working days.

8. **Designed to Operate as Planned**
   - The project proposes to mitigate mobility of all modes during construction.
   - The project will improve mobility for all modes once construction is complete.
   - The project will allow for future improvements.

9. **Maintainable**
   - The project incorporates elements that will ease recurring maintenance operations and resources.
   - The project enhances the State's assets.

10. **Optimization**
    - All performance characteristics are optimized or balanced relative to each other.
    - The project sponsor is engaged in managing the scope.

By adding cost and schedule characteristics we are able to measure a project's performance; a balance or optimization of quality, cost and schedule.

11. Cost Management
    - The capital and support costs are well managed.
    - The project support and capital costs are reasonable.

12. Schedule Management
    - The project schedule is well managed.
    - The project is delivered on time for all phases.
    - The functional units have adequate time to perform their work.
    - The project schedule is sufficiently aggressive so as to allow the public the earliest benefit.

These twelve performance characteristics are one part of the equation to effective and efficient project delivery. The other part is teamwork.

The project development team (PDT) is responsible for managing a project's performance. These performance characteristics can be used at each PDT meeting as an assurance tool by the respective functional areas in identifying issues that will affect the project's performance. The performance characteristics serve to focus the PDT's attention on the entire project and support the collective responsibility and contribution of all PDT members. When issues are identified, they can then be managed by directing resources to resolve them and/or consider elevating the issue to the risk register in accordance with recently updated risk management policy described in Project Delivery Directive PD-09.

Evaluation of the performance characteristics also allows management to assist the team to resolve challenges. At select milestones in the project development process an independent quality assurance team can use the same performance characteristics and evaluation criteria to evaluate the product design.

Additional tools have been developed to help project development teams use these performance characteristics. The *Draft Design Product Evaluation Handbook* includes the performance characteristics, evaluation criteria and a process for using them on a project. It was distributed on January 14, 2013 to District Directors and District Deputies. There is also an on-line course on the same material. Both can be found at http://onramp.dot.ca.gov/hq/design/projdev/pdt.php. The Division of Design is also working on a deputy directive defining design product quality relative to the above performance characteristics, and a related change to the *Project Development Procedures Manual*, the draft of which can be found on the same web page.

Caltrans continues to be challenged to improve the way we do business - whether to answer the call to reduce the taxpayers' burden or to better work with our partners and stakeholders. Many local agencies express a concern that Caltrans holds them to a more stringent standard than we use for our own work. With these performance characteristics there will be a common, transparent, and consistent "ruler" to measure project performance.

These performance characteristics are the foundation for a quality management system for project delivery that will unite suppliers, customers and stakeholders in the collaborative effort to deliver quality projects. To make these characteristics effective, we need to use them to be innovative – to find ways to deliver on time, with higher quality and at less cost. This is our challenge if we are to maintain our vision of efficient and effective project delivery through teamwork.

One such tool to innovate on a project is Value Analysis (VA), which is a systematic application of techniques by a multi-disciplinary team to provide the basic project functions at the lowest overall cost and to improve value.

Congress enacted "Moving Ahead for Progress in the 21st Century" (MAP-21) in 2012, which changed the cost thresholds for performing VA studies. These changes have now been reflected in the revised Deputy Directive 92.

While VA studies are required when the cost thresholds are exceeded, this in no way changes good and proven business practices of performing VA studies on projects, of any cost, which have multiple alternatives, challenging construction staging, significant environmental and right of way impacts, and a need for stakeholder consensus, as early in the project development process as possible.

In the federal 2011/12 fiscal year, 34 project VA studies resulted in savings of nearly $64 million, or about a three (3) percent savings. The savings achieved relative to the resources spent was 44:1. In these tight budgetary times, we must use all available tools to allow projects to come in under budget and ahead of schedule.

Bottom line, VA is a great tool and if used in a timely, effective manner, can prove to be a project saver.