HIGHWAY 101: CARPINTERIA TO SANTA BARBARA

CONSTRUCTION MANAGER / GENERAL CONTRACTOR NOMINATION FACT SHEET | FEBRUARY 2018

Caltrans

SBCAG
santa barbara county association of governments

CM / GC
NOMINATION FACT SHEET
05-SB-101-KP (PM 1.4 / 12.3)
Project EA: EA 05-0N700

PROJECT DESCRIPTION

The Santa Barbara County Association of Governments (SBCAG) and the California Department of Transportation (Caltrans), in cooperation with the City of Santa Barbara, City of Carpinteria, and the County of Santa Barbara, propose to extend existing High Occupancy Vehicle (HOV) lanes on U.S. Route 101 (US 101) in each direction from post mile (PM) 1.4 to PM 12.3. The Highway 101: Carpinteria to Santa Barbara Project (Project) proposes to widen US 101 to six lanes from 0.22 miles south of Bailard Avenue (PM 1.4) in the City of Carpinteria to Sycamore Creek (PM 12.3) in the City of Santa Barbara. The two new lanes will be part-time (peak period), continuous access HOV lanes. The Project will also reconstruct interchanges at Cabrillo Boulevard and Sheffield Road as well as replace and/or widen a number of creek bridges and undercrossing structures. The Project also includes rehabilitation of the US 101 mainline to replace existing pavement, widen shoulders and improve ramps from Casitas Pass Road (PM 2.6) to Sheffield Avenue (PM 9.2). In March 2017, the SBCAG Board adopted a phasing approach (described in the Project Proposal section) for implementing the Project by phasing the work into five geographic segments as shown in the figure below:

The limits of each of the five segments are as follows:

1. **Segment 4A** (PM 1.4 to 4.6): Bailard Avenue to Carpinteria City Limit
2. **Segment 4B** (PM 4.6 to 7.5): Carpinteria City Limit to north of North Padaro Interchange
3. **Segment 4C** (PM 7.5 to 9.2): North of North Padaro to North of Sheffield Interchange
4. **Segment 4D and 4E** (PM 9.2 to 12.3): North of Sheffield Interchange to Sycamore Creek

BACKGROUND

To develop a vision for long-term mobility and congestion relief on a sixteen-mile portion of US 101 that stretches from approximately the City of Santa Barbara in Santa Barbara County to Mussel Shoals in Ventura County, a two-year corridor study called “101 In Motion” was completed by SBCAG in July 2006. This study evaluated a range of multimodal improvement options, involving extensive community outreach, and resulted in a consensus recommendation to implement part-time continuous access HOV Lanes, peak hour passenger rail service, and transit service improvements in the corridor.

The HOV lane component evolved into a four-phase strategy for implementing mainline 101 improvements within the corridor. The purpose of these improvements is to eliminate the four-lane bottleneck by widening US 101 to six lanes, conforming to the cross sections north and south of Santa Barbara and Carpinteria. Upon completion, the corridor will be part of a continuous forty-mile, six-lane facility, extending from the Ventura / Oxnard urbanized area through Carpinteria and Santa Barbara to the City of Goleta in southern Santa Barbara County.

Phase 1, completed in 2012, widened US 101 for two miles. Phase 2, completed in 2015, constructed six miles of HOV lanes of which four miles were in Ventura County and two miles were in Santa Barbara County. Phase 3 is currently under construction and scheduled for completion in 2020, and will focus on key interchanges and bridges that require widening and upgrades. In total, these three phases will have improved four major interchanges, added six miles of HOV lanes, and improved mainline and local operations. Phase 4, which is not fully funded, will construct the remaining 10.9 miles of HOV lanes. The following figure shows the four phases of the 101 HOV implementation strategy.

PROJECT PROPOSAL

In March 2015, SBCAG Board approved advancing Phase 4's HOV design to approximately 35 percent design, and integrating SHOPP funded rehabilitation components into the Highway 101: Carpinteria to Santa Barbara Project. The effort, defined as the Decision Point Document (DPD) phase, was used to develop recommendations for the next phases of the Project including design, right-of-way and permitting, and ultimately construction; the DPD effort was completed in December 2016. During the DPD phase, a number of technical reports were completed including surveying and mapping, geotechnical work, preliminary highway and bridge design, hydraulic analysis, and value and cost analyses, among others. Preliminary cost estimates were also developed.

Caltrans completed the Phase 4 HOV project environmental document in August 2014. Two California Environmental Quality Act (CEQA) lawsuits were filed in September 2014, regarding noise analysis and traffic analysis, respectively. The lawsuit regarding noise analysis was ruled in favor of Caltrans in November 2015. The second lawsuit, regarding traffic analysis, was ruled against Caltrans in December 2015. Caltrans revised the traffic related items and released the revised draft environmental impact report (EIR) in December 2016. Final environmental certification was approved in October 2017.

In March 2017, the SBCAG Board approved advancing project construction by separating Phase 4 into five segments beginning in the south and continuing north, as described in the Project Description. Based upon these recommendations, construction of the Project is expected to begin in the south with Segment 4A. Detailed design, right-of-way and permitting for Segment 4B and 4C will be completed concurrently so that these segments can proceed to construction as soon as funding becomes available. Segment 4D and 4E are more challenging and will take longer than the southern segments to become ready for construction. If Segment 4D and 4E can be advanced, especially from a permitting perspective, they will proceed to construction subject to funding availability.

With respect to implementation, Caltrans will complete the Plans, Specifications, and Estimates (PS&E) for Segments 4A and 4B. Additionally, Caltrans will complete the right-of-way associated work (right-of-way engineering, mapping, appraisals and acquisitions and utility coordination). Other technical work that support design such as hydraulics, geotechnical, and surveying is shared among SBCAG consultants and Caltrans. For Segment 4C, the PS&E, right-of-way associated work, and some technical work will be led by an SBCAG selected consultant, including right-of-way engineering, and utility coordination. Other technical services such as mapping, hydraulic, 3D modeling, geotechnical, and surveying work will be shared among the SBCAG consultants and Caltrans.

Segment 4A includes improvements primarily in the median with no interchange reconstruction, which should help expedite this segment to be construction-ready by no later than fiscal year 2019/20; consistent with State Transportation Improvement Program (STIP) programming. Also this segment overlaps with the Phase 3 Linden-Casitas project, currently under construction. Coordination between Phase 3 and Segment 4A is critical. Construction for Segment 4A would follow completion of design, right of way, and permitting.

Segments 4B and 4C include interior and exterior widening, bridge replacements at two locations, replacement of an undercrossing at South Padaro, and reconstruction of one interchange (at Sheffield Boulevard). SBCAG and Caltrans have begun coordination with the County of Santa Barbara and the California Coastal Commission (CCC) on a Local Coastal Program Amendment (LCPA), which is required for wetland buffer policy conflict associated with work in Segments 4B

and 4C. Critical path items for completing Segments 4A, 4B, and 4C are environmental clearance, coastal permitting and funding.

Segments 4D and 4E include interior and exterior widening, multiple bridge replacements over creeks, and reconstruction of one interchange (at Cabrillo Boulevard). These segments are the most challenging portions of the corridor with regards to design, cost estimates, and construction readiness, and require additional engagement with the City and County of Santa Barbara to clarify the scope from the DPD process. Additionally, there are three parallel projects in Segments 4D and 4E that will require close coordination with the Project in order to advance the two segments' construction readiness, and to clarify any required coastal permitting processes.

During the DPD phase, a comprehensive qualitative and quantitative cost risk assessment was completed for all five Segments. The primary area of risk exposure resides in the schedule. Schedule risks are primarily associated with coastal development permitting, other environmental permits, public and stakeholder coordination, right-of-way acquisition, utility relocation, and coordination with other planned projects in the area. Each segment also contains risks that could occur in the construction phase. A copy of the Risk Register is being submitted with this nomination.

SCHEDULE

Phase 3 (the Linden and Casitas Pass Interchanges project), which is within the limits of Segment 4A, is currently under construction and scheduled for completion in 2020. The coordination of the construction Phase 3 with Segment 4A is critical, as construction of Segment 4A would coincide with completion of Phase 3 construction. Having input from a construction manager would be helpful. Segment 4C is currently scheduled to begin construction after Segment 4A and could be advanced depending on funding availability and progress with the coastal permitting process. Construction of Segment 4B would follow, though all three segments may potentially be completed at the same time.

The current project milestone schedule for Segments 4A through 4C is as follows:

MILESTONE	SEGMENT 4A	SEGMENT 4B	SEGMENT 4C
Right-of-Way Certification	Feb. 2019	Feb. 2020	Dec. 2019
Ready to List (End Design)	Mar. 2019	Mar. 2020	Jan. 2020
Construction Contract Acceptance	Sept. 2023	Sept. 2024	Sept. 2023
Construction Closeout	Nov. 2025	Nov. 2026	Nov. 2025

The above schedule assumes no unforeseen delays and is contingent upon all phases being fully funded. These dates reflect the intent to concurrently develop Segment 4A, 4B, and 4C, while continuing to identify opportunities that could expedite the delivery of Segments 4B and 4C.

Preliminary target start dates for final design, right of way, and coastal permitting in Segments 4D and 4E are in FY 2023 / 2024, but are subject to change upon the determination of a final scope for each respective segment made and coordinated with the City and County of Santa Barbara.

COST AND FUNDING

The total Project cost through construction for all segments is estimated to be $585.4 million as shown in the table below. Funding for all segments are proposed to be programmed through a combination of sources including the State Transportation Improvement Program (STIP), State Highway Operation and Protection Program (SHOPP), and the Santa Barbara Transportation sales tax, Measure A. Additional state and federal funding from sources such as Senate Bill 1's (SB-1) programs approved in April 2017 are also being pursued. With anticipated 2018 STIP programming Segments 4A, 4B, and 4C will be fully funded through design, right-of-way and permitting. Applications for construction funding for Segments 4A thru 4C has been submitted for Cycle 1 of SB-1's Solutions for Congested Corridors, Trade Corridor Enhancement, and Local Partnership Programs and the project appears to be well positioned to receive funding through these programs. Construction funding for Segments 4D and 4E will be requested from Cycle 2 of the aforementioned SB-1 programs. A combination of SHOPP, STIP, and Measure A funds has been or will be programmed for construction to match SB-1's programs for all segments. The costs for the Highway 101: Carpinteria to Santa Barbara Project as estimated are shown below. Support costs for PS&E have been adjusted to account for anticipated CM/GC costs.

	SEGMENT*				
WORK PHASE	**4A**	**4B**	**4C**	**4D / 4E**	**TOTAL**
CONSTRUCTION	$77.4	$116.2	$71.7	$146.0	$411.2
RIGHT OF WAY	$6.9	$10.5	$3.4	$11.7	$32.6
CAPITAL TOTAL	**$84.3**	**$126.7**	**$75.1**	**$157.7**	**$443.8**
ENVIRONMENTAL	$5.8	$6.2	$3.8	$6.0	$21.9
DESIGN (100%)	$11.1	$15.8	$8.3	$16.5	$51.7
CONSTRUCTION	$12.5	$18.4	$11.3	$22.6	$64.8
RIGHT OF WAY	$0.7	$1.1	$0.3	$1.2	$3.3
SUPPORT TOTAL	**$30.1**	**$41.5**	**$23.8**	**$46.2**	**$141.6**
HIGHWAY 101 TOTAL	**$114.4**	**$168.2**	**$98.9**	**$203.9**	**$585.4**

***2016 DOLLARS ($ MILLIONS)**

PERMITS AND AGREEMENTS

The Project is entirely within the coastal zone and each of the agencies, the City of Carpinteria, County of Santa Barbara, and the City of Santa Barbara, have adopted local coastal programs. In Segments 4A, 4B, and 4C, work is underway to secure regulatory and coastal permitting with resource agencies such as coastal development permits (CDP) and Local Coastal Program Amendments (LCPA). For Segments 4D and 4E, coordination is underway with corridor related projects to advance their construction readiness and clarify coastal permitting processes and requirements.

Key regulatory permits for all segments include, but are not limited to:

- LCPA in the City of Carpinteria (Segment 4A);
- CDP in the City of Carpinteria (Segment 4A);
- LCPA in the County of Santa Barbara (Segment 4B and 4C);
- CDP in the County of Santa Barbara (Segment 4B, 4C, and 4D);
- CDP in the City of Santa Barbara (Segment 4E);
- Section 401 Certification from the California State Water Resources Control Board;
- Section 1602 from the California Department of Fish and Wildlife;
- Section 404 from the U.S. Army Corp of Engineers.

RIGHT-OF-WAY AND UTILITIES

SEGMENT 4A

Right-of-Way Involvement

Eight (8) parcels require temporary construct easements (TCE) to construct one soundwall on the right-of-way line and adjacent to private property.

Utility Involvement

Preliminary utility conflict plans indicate two soundwalls with longitudinal conflicts: 8” gas line and overhead power, phone and/or cable including physical pole conflicts. There are no physical transverse underground conflicts; currently investigating adequate clearances below grading plane for water, gas and sewer.

Longitudinal encroachment exceptions will be pursued for three utilities: 10” sewer line near Nipomo Drive that could not be relocated out of the right-of-way by the Linden Casitas team from PM 3.1 to PM 3.2, and a 16” high pressure gas line and AT&T fiber optic cable both from PM 4.3 to PM 4.6.

SEGMENT 4B

Right-of-Way Involvement

There is one parcel that requires TCE, from Union Pacific (UP) Railroad to construct bridges at Arroyo Parida (Arroyo Paredon) Creek and Toro Creek.

Utility Involvement

No physical transverse underground conflicts are anticipated and adequate clearances below the grading plane are being investigated. Longitudinal encroachment exceptions will be pursued for 16” high-pressure gas line from PM 4.6 to PM 7.2 and AT&T fiber optic cable from PM 4.6 to PM 6.6. Additionally, the 16” high-pressure gas line may need to be relocated at PM 6.8 if found to be too near to the proposed bridge replacement. This will need to be resolved by modifying the bridge

design to conform the wingwalls to the concrete channel lining prior to reaching the downstream utility bridge structure that crosses the creek.

SEGMENT 4C, SEGMENT 4D, SEGMENT 4E

Right-of-Way Involvement
The project will require TCEs on over fifteen (15) privately owned parcels.

Utility Involvement
There are seven (7) existing longitudinal encroachments through controlled right-of-way:

(1) *Segment D:* A Frontier U/G Cable crosses US 101 at an angle greater than 30 degrees just north of the San Ysidro Road Interchange southbound (SB) off-ramp. The utility conflicts with the proposed soundwalls on both sides of US 101;
(2) *Segment E:* A Southern California Gas 16" high-pressure gas line crosses US 101 at an angle greater than 30 degrees at the Olive Mill SB off-ramp. The utility is in conflict with the highway pavement which is being lowered;
(3) *Segment E:* Two (2) Southern California Gas 16" high-pressure gas lines crossing US 101 at an angle greater than 30 degrees across the Cabrillo Boulevard SB on-ramp. Both gas lines are in conflict with proposed retaining walls;
(4) *Segment E:* An AT&T UG Fiber Optic cable conflicts with a proposed retaining wall along the south side of US 101. The conflict is with a proposed retaining wall;
(5) *Segment E:* A City of Santa Barbara Water 8" water line encroaches along the south side of US 101. No conflicts with the Project;
(6) *Segment E:* A Southern California Gas 8" high-pressure gas line encroaches along the south side of US 101. No conflicts with the Project.

Railroad Involvement
Railroad right-of-way affected by the Project is Union Pacific Railroad's Santa Barbara Subdivision track from approximately PM 369.36 to PM 369.58 and from PM 371.66 to PM 371.93. More specifically, the affected right of way adjoins the State right-of-way on the north side of the railroad right of way. Strips of railroad right-of-way of varied width will be temporarily occupied during construction between the aforementioned limits. Much of the affected right-of-way is within the 25-foot operational envelope adjacent to the track.

PUBLIC AND POLITICAL SUPPORT OF PROJECT

The project has public and political support both locally and statewide. Specific to Segment 4A, there is broad political support from the City of Carpinteria and local businesses. Additionally, Measure A passed with support from 79 percent of the voters with the Highway 101 HOV Project being the flagship congestion relief project. The Project was also submitted by Governor Jerry Brown to President Trump, as one of only six state highway projects statewide, for expedited environmental and regulatory review, and as one of fifty projects submitted by the Governor to the National Governors Association for federal funding. The City of Carpinteria, the City of Santa Barbara, and the County of Santa Barbara all have been included in the development of this project and have provided invaluable input and support for the entire project.

WHY IS THIS PROJECT A GOOD CM / GC CANDIDATE?

The opportunity to utilize the CM / GC delivery method will provide beneficial assistance in advancing design, minimizing risks identified during the cost risk assessment and completing construction of the Project. Early identification and resolution of the right-of-way, and permitting constraints will improve schedule performance. In addition CM / GC could be a tool to facilitate the option of extending the construction limits further north resulting in more HOV lane miles being available sooner, specifically in Segments 4D and 4E. Furthermore, daily travel conditions in this corridor are highly congested and there will be substantial local pressure to minimize the construction duration, ramp closures, and travel delays during the construction period. Some of the anticipated benefits of delivering the project via CM / GC include:

- *Enhanced project readiness to begin construction.* There are many complexities associated with the design of this project as well as coordination needs associated with parallel project in the same corridor. The CM / GC delivery method could allow early construction phase consultation, added cost and funding certainty, and greater readiness with regards to constructability.

- *Early input on potential design innovation and constructability.* While opportunities for innovative changes on Segment 4A are limited, CM / GC input into Phase 3 coordination and input on traffic handling could still be beneficial. Including all segments (4A thru 4E) would maximize the advantages associated with CM / GC since segments 4B thru 4E are at a lower level of design development.

- *Qualification based procurement for prime contractor.* With a CM / GC approach, the design team and the general contractor develop an early and ongoing working relationship. This avoids the uncertainty associated with a low-bid contractor.

- *Flexibility in developing and changing specific construction packages and contracts.* The Project is expected to be constructed in multiple phases. Assuming the same contractor would be responsible for adjacent construction efforts, construction contracts can be customized and initiated in close proximity without increasing the likelihood of competing contractor interests and related construction claims.

- *Reduced construction disruption and contractual risk.* Due to high existing congestion levels, traffic handling and lane closure management will be challenging for projects in this corridor. Construction conflicts and claims will be a reality if multiple unrelated contractors are working in close proximity. The CM / GC process will provide a great an opportunity for collaboration between the department, resource agencies and the construction industry prior to construction contract execution.

- *Improved construction phase risk management.* An open dialog between team and CM / GC occurs in the design phase on risks that will influence construction costs. The team can then jointly analyze, allocate, and mitigate risk that can adversely impact schedule and budget. Under a traditional Design-Bid-Build approach, some risks are not discovered until the construction phase. These risks then become the basis for costly change orders.

- *Ability to provide input and assistance with resource agencies and communities during the design and permitting process.* Requests are often made during the coastal development permitting (CDP) process associated with construction phase activities. Additional feedback and clarification from the CM / GC during this time could be beneficial.

PROPOSED CM / GC APPROACH

It is recommended that the CM / GC nomination include Segment 4A, with the understanding there would be less opportunity for design changes due to the design being 60 percent complete. At the same time, it is important to include Segment 4A to facilitate coordination with Segment 4B and other related projects in the area. Expediting Segment 4A delivery is a priority and having input from the CM / GC should still prove to be helpful. The level of CM / GC involvement in Segment 4A therefore, will most likely be at a lower level than what is expected for Segment 4B through 4E.

CM / GC involvement is expected to be significant for Segments 4B and 4C as those segments have not reached 60 percent design completion and are just initiating the coastal permitting process. The opportunity for innovation and other benefits from CM / GC is expected to be helpful in the delivery of these segments in the near term. Segments 4D and 4E are more challenging and will take longer than the southern segments to become ready for construction. Constructability reviews, coordination with parallel corridor projects, and traffic handling are a few of the key areas that may benefit from CM / GC input when efforts are initiated on these segments. If Segments 4D and E can be advanced, especially from a permitting perspective, they should proceed to construction subject to funding availability.

The Construction Manager's tasks should be evaluated by the project team with input from the appropriate functional units. Select the tasks for which the Construction Manager's assistance will be needed and discuss its benefits to delivering the project. (Note: This initial selection will be used to assist in understanding how the district intends to use the construction manager and can be modified prior to release of the RFQ).

DESIGN RELATED

- ☐ Validate Department/Consultant design
- ☒ Assist/input to Department/Consultant design
- ☒ Design reviews
- ☐ Design charrettes
- ☒ Constructability reviews
- ☐ Operability reviews
- ☐ Regulatory reviews
- ☒ Market surveys for design decisions
- ☒ Verify/take-off quantities
- ☐ Assistance shaping scope of work
- ☒ Feasibility studies
- ☒ Encourage innovation

COST RELATED

- ☒ Validate agency/consultant estimates
- ☒ Prepare project estimates
- ☒ Cost engineering reviews
- ☐ Early award of critical bid packages
- ☐ Life cycle cost analysis
- ☒ Value analysis/engineering
- ☒ Material cost forecasting
- ☒ Cost risk analysis
- ☐ Cash flow projections/Cost control
- ☒ Shape the project scope to meet the budget

PRECONSTRUCTION WORK RELATED

- ☒ Utility Relocation
- ☒ Potholing
- ☐ Preliminary soil and geotech studies
- ☐ Right of Way Demolition
- ☐ Preliminary Surveying

SCHEDULE RELATED

- ☒ Validate agency/consultant schedules
- ☐ Prepare and manage project schedules
- ☐ Develop sequence of design work
- ☒ Construction phasing
- ☒ Schedule risk analysis/control

ADMINISTRATION RELATED

- ☐ Prepare Document Control
- ☒ Coordinate contract documents
- ☒ Coordinate with 3rd party stakeholders
- ☒ Subcontractor bid packaging
- ☒ Attend public meetings
- ☒ Bidability reviews
- ☒ Assist in right-of-way acquisition
- ☐ Assist in permitting actions
- ☐ Study labor availability/conditions
- ☐ Prepare sustainability certification application
- ☒ Follow environmental commitments
- ☐ Follow terms of Federal Grant
- ☐ Coordinate site visits for subcontractors
- ☒ Teamwork/Partnering meetings/sessions
- ☒ Develop Quality and Safety plans

Glossary of Preconstruction Services Terms

Design-Related Preconstruction Services

- **Validate agency/consultant design**—Construction Manager evaluates the design as it is originally intended and compares it to the scope of work with both the required budget and schedule to determine if the scope can be executed within those constraints. A validated design is one that can be constructed within the budget and schedule constraints of the project.
- **Assist/input to agency/consultant design**— Construction Manager will offer ideas/cost information to the designer to be evaluated during the design phase. Ultimately, the designer is still responsible for the design.
- **Design reviews**—done to identify errors, omissions, ambiguities, and with an eye to improving the constructability and economy of the design submittal.
- **Design charrettes**—Construction Manager would participate in structured brain-storming sessions with the designer and owner to generate ideas to solve design problems associated with the project.
- **Constructability reviews**—review of the capability of the industry to determine if the required level of tools, methods, techniques, and technology are available to permit a competent and qualified construction contractor to build the project feature in question to the level of quality required by the contract.
- **Operability reviews**—bringing in the agency's operations and maintenance personnel and providing them with an opportunity to make suggestions that will improve the operations and maintenance of the completed projects.
- **Regulatory reviews**—a check to verify that the design complies with current codes and will not have difficulty obtaining the necessary permits.
- **Market surveys for design decisions**—furnish designers with alternative materials or equipment along with current pricing data and availability to assist them in making informed design decisions early in the process to reduce the need to change the design late in the process resulting from budget or schedule considerations.
- **Verify/take-off quantities**—Construction Manager verifies the quantities generated by the designer for the engineer's estimate.
- **Assistance shaping scope of work**— Construction Manager generates priced alternatives from the designer and owner to ensure that the scope of work collates to the constraints dictated by the budget and/or schedule.
- **Feasibility studies**— Construction Manager investigates the feasibility of possible solutions to resolve design issue on the project.

Cost-Related Preconstruction Services

- **Validate agency/consultant estimates**—Construction Manager evaluates the estimate as it is originally intended and determines if the scope can be executed within the constraints of the budget.
- **Prepare project estimates**—Construction Manager provides real-time cost information on the project at different points in the design process to ensure that the project is staying within budget.

- **Cost engineering reviews**—review that includes not only the aspects of pricing but also focuses on the aspect that "time equals money" in construction projects.
- **Early award of critical bid packages**— Construction Manager determines which design packages should be completed first to ensure that pricing can be locked in on the packages.
- **Life-cycle cost analysis**— Construction Manager provides input to design decision that impact the performance of the project over its lifespan.
- **Value analysis**—process that takes place during preconstruction where the CMGC contractor identifies aspects of the design that either do not add value or whose value may be enhanced by changing them in some form or fashion. The change does not necessarily reduce the cost; it may actually decrease the life-cycle costs.
- **Value Engineering**—systematic review by a qualified agency and/or contractor personnel of a project, product, or process so as to improve performance, quality, safety, and life-cycle costs.
- **Material cost forecasting** – Construction Manager utilizes its contacts within the industry to develop estimates of construction material escalation to assist the owner and designer make decisions regarding material selection and early construction packages.
- **Cost risk analysis**—furnishing the agency with information regarding those cost items that have the greatest probability of being exceeded.
- **Cash flow projections/Cost control** – Construction Manager conducts earned value analysis to provide the owner with information on how project financing must be made available to avoid delaying project progress. This also may include an estimate of construction carrying costs to aid the owner in determining projected cash flow decisions.

Schedule-Related Preconstruction Services

- **Validate agency/consultant schedules**— Construction Manager evaluates if the current scope of work can be executed within the constraints of the schedule.
- **Prepare project schedules**— Construction Manager prepares schedules throughout the design phase to ensure that dates will be met, and notify the owner when issues arise.
- **Develop sequence of design work**— Construction Manager sequences the design work to mirror the construction work, so that early work packages can be developed.
- **Construction phasing** – Construction Manager develops a construction phasing plan to facilitate construction progress and ensure maintenance of traffic.
- **Schedule risk analysis/control**— Construction Manager evaluates the risks inherent to design decisions with regard to the schedule and offers alternative materials, means and/or methods to mitigate those risks.

Administrative-Related Preconstruction Services

- **Coordinate contract documents** – Construction Manager evaluates each component to the construction contract against all other components and identifies conflicts than can be resolved before award of the construction phase contract.
- **Coordinate with third-party stakeholders**— Construction Manager communicates with third parties involved in the project including but not limited to utilities, railroads, and the general public.

- **Public information-public relations** – Construction Manager implements a program to identify public relations issues and solve them to ensure the project is not delayed by public protest.
- **Attend public meetings** — Construction Manager can organize and attend public meetings to answer questions from the public about the construction of the project.
- **Bidability reviews** — Construction Manager reviews the design documents to ensure that subcontractor work packages can be bid out and receive competitive pricing. This action reduces the risk to the subcontractors because they are given the specific design product they need for their bids; not just told to find their work inside the full set of construction documents.
- **Subcontractor bid packaging** — Construction Manager coordinates the design work packaging to directly correlate with subcontractor work packages so that early packages can be easily bid out and awarded.
- **Prequalifying subcontractors** – Construction Manager develops a list of qualified subcontractors that are allowed to bid on packages as they are advertised.
- **Assist in right-of-way acquisition** – Construction Manager assists the designer in identifying options for right-of-away acquisitions by providing means and methods input. The primary purpose is to minimize the amount of right-of-way actions that must be undertaken.
- **Assist in permitting actions** – Construction Manager is empowered to meet with resource agencies and develop permit applications with assistance from the designer.
- **Study labor availability/conditions** – Construction Manager furnishes advice during design with regard to the availability of specialty trade subcontractors and the impact of that availability on project budget and schedule constraints.
- **Prepare sustainability certification application**– When certification for sustainability is desired, the Construction Manager is empowered to prepare the necessary paperwork to submit for certification

EVALUATION OF PROJECT SCOPE AND CHARACTERISTICS		
QUESTION No.	**QUESTION**	**Rating (A, B or C)**
1a)	**Where is the project in the project development process?** **A**. Detailed or final engineering stage **B**. Preliminary design **C**. Conceptual engineering stage	**B**
1b)	**What is the size/complexity of the project?** **A**. Relatively simple, smaller project with no need for specialized outside expertise **B**. Medium size project with more technically complex components and schedule complexity **C**. Large, complex project with significant schedule complexity (e.g. multiple phases, extensive third-party issues, specialized expertise needed)	**C**
1c)	**Does the project involve significant impacts to highway users and local businesses/community during construction?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**C**
1d)	**Does the project present right-of-way limitations that would benefit from the contractor's assistance?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
1e)	**Does the project present environmental permitting issues that would benefit from the contractor's assistance?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**C**
1f)	**Does the project present utility or third-party issues that would benefit from the contractor's assistance?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**C**
1g)	**Does the project present unique work restrictions or traffic maintenance requirements that would benefit from the contractor's assistance?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**C**
1h)	**Would the project benefit by packaging features of work to allow early lock-in of construction materials/labor pricing?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
1i)	**Would the project benefit by raising quality standards/benchmarks to minimize maintenance and achieve lower life-cycle cost?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**

EVALUATION OF SUCCESS CRITERIA		
QUESTION No.	**QUESTION**	**Rating (A, B or C)**
2a) Schedule Issues		
1	**Can time savings be realized through concurrent design and construction activities (fast-tracking)?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
2	**Can the schedule be compressed?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
2b) Opportunity for Innovation		
1	**Will the project scope allow for innovation (e.g., alternate designs, traffic management, construction means and methods, etc.)?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
2	**Must the project scope be primarily defined in terms of prescriptive specifications (i.e., predetermined materials and methods), or can performance specifications (expressing desired end results) be used, or a combination of both?** **A**. Primarily prescriptive specifications **B**. Combination of prescriptive and performance specifications **C**. Performance specifications for significant elements	**B**
2c) Quality Enhancement		
1	**Will there be opportunities for contractors to provide materials or methods that provide greater value than normally specified by the state on similar projects?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
2	**Will there be the opportunity for realization of greater value due to designs tailored to contractor's area of expertise?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
3	**Will warranties or maintenance agreements be used?** **A**. No **B**. Limited to short-term workmanship and materials **C**. Much more than typical	**B**

EVALUATION OF SUCCESS CRITERIA (Continued)		
QUESTION No.	**QUESTION**	**Rating (A, B or C)**
2d) Cost Issues		
1	**Will there be opportunities for contractors to provide designs with lower initial construction costs than those typically specified by the state?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**B**
2	**Will there be opportunities for contractors to provide alternate design concepts with lower lifecycle costs than those typically specified by the state?** **A**. No more than typical **B**. More than typical **C**. Much more than typical	**A**
3	**Is funding for the project committed and available?** **A**. Secured for design phase only or cannot support accelerated construction **B**. Funding can accommodate fast-tracking to some extent **C**. Funding will accommodate compressed schedule/fast-tracking	**B**
4	**Will the cost of procurement affect the number of bidders?** **A.** Procurement cost would significantly limit competition **B.** Procurement cost could affect the number of bidders **C**. Procurement cost would not be a significant issue given the size or complexity of the project	**C**
5	**Will project budget control benefit from the use of formal contingencies?** **A**. No benefit **B**. A formal contingency may permit the Department to add project scope or enhance quality within the constraints of its published budget **C**. A formal contingency is required to allow the Department to maximize project scope and quality within the constraints of its published budget	**B**
2e) Staffing Issues		
1	**Does the Department have the expertise and resources necessary for a complicated procurement process?** **A**. Inadequate resources or expertise **B**. Limited resources or expertise **C**. Adequate resources and expertise	**C**
2	**Are resources available to complete the design?** **A**. Resources are available to complete design **B**. Resources are available for partial design **C**. Specialized expertise, not available in-house, is required	**A**
3	**Are resources available to provide construction oversight?** **A**. Resources are available **B**. Full-time construction oversight could strain staff resources **C**. Resources are unavailable	**A**