

**DEPARTMENT OF TRANSPORTATION**  
DIVISION OF ENGINEERING SERVICES  
OFFICE ENGINEER, MS 43  
1727 30<sup>TH</sup> STREET  
P.O. BOX 168041  
SACRAMENTO, CA 95816-8041  
FAX (916) 227-6214  
TTY 711



*Flex your power!*  
*Be energy efficient!*

July 8, 2010

04-CC-680-0.0/R12.8  
04-4470U4  
Project ID 0400001085  
ACIM-680-1(067)E

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN CONTRA COSTA COUNTY FROM ALCOSTA BOULEVARD OVERCROSSING TO 0.2 MILE NORTH OF RUDGEAR ROAD UNDERCROSSING.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on Wednesday, August 4, 2010.

This addendum is being issued to revise the Project Plans, the Notice to Bidders and Special Provisions and the Bid book.

Project Plan Sheets 2, 4, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 45, 63, 64, 74, 78, 224, 225, 235, 278, 350, 351, 366, 383, 389, 400, 403 and 406 are revised. Copies of the revised sheets are attached for substitution for the like-numbered sheets.

In the Notice to Bidders, the fifteenth paragraph is revised as follows:

"The estimated cost of the project is \$66,300,000."

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," the second, third and fourth paragraphs are deleted.

In the Special Provisions, Section 10-1.15, "MAINTAINING TRAFFIC," the third, fourth, fifth, and sixth paragraphs are deleted.

In the Special Provisions, Section 10-1.15, "MAINTAINING TRAFFIC," Chart Nos. 49 and 50 are revised as attached.

In the Special Provisions, Section 10-1.195, "TEMPORARY PULL BOX PROTECTION," is added as attached.

In the Special Provisions, Section 10-1.22, "MOVEABLE CONCRETE BARRIER," is deleted.

In the Special Provisions, Section 10-1.41, "HOT MIX ASPHALT," subsection "MATERIALS," the sentence under subsection "Aggregate" is revised as follows:

"The aggregate for HMA Type A must comply with the 1/2-inch grading."

In the Special Provisions, Section 10-1.505, "REPLACE CONCRETE PAVEMENT (RAPID STRENGTH CONCRETE)," is added as attached.

Addendum No. 1  
Page 2  
July 8, 2010

04-CC-680-0.0/R12.8  
04-4470U4  
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In the Special Provisions, Section 10-1.54, "REPLACE JOINT SEAL (EXISTING CONCRETE PAVEMENT)," subsection, "MEASUREMENT AND PAYMENT," is revised as follows:

**"MEASUREMENT AND PAYMENT**

The contract price paid per linear foot for replace joint seal (existing concrete pavement) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in replacing joint seals in existing concrete pavement, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer."

In the Special Provisions, Section 10-3.14, "PAYMENT," is revised as attached.

In the Bid book, in the "Bid Item List," Items 64, 65, 80, 81, 82 and 85 are revised, Items 155, 156, 157 and 158 are added and Items 21 and 154 are deleted as attached.

To Bid book holders:

Replace pages 4, 6, 7 and 10 of the "Bid Item List" in the Bid book with the attached revised pages 4, 6, 7 and 10 of the Bid Item List. The revised Bid Item List is to be used in the bid.

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the Notice to Bidders section of the Notice to Bidders and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the Bid book.

Submit bids in the Bid book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This addendum and attachments are available for the Contractors' download on the Web site:

**[http://www.dot.ca.gov/hq/esc/oe/project\\_ads\\_addenda/04/04-4470U4](http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/04/04-4470U4)**

If you are not a Bid book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

IGNACIO SANCHEZ DEL REAL  
Acting Office Chief  
Office of Plans, Specifications & Estimates  
Office Engineer  
Division of Engineering Services

Attachments

Chart No. 49  
 Freeway/Expressway Lane Requirements for Extended Weekend Closure

County: Contra Costa	Route/Direction: I-680-NB	PM: 0.0-12.8
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Closure Limits: North of San Ramon-Alcosta Blvd Interchange to Danville-Rudgear Rd Interchange

FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays	1	1	1	1	1																					
Fridays																										
Saturdays																						3	2	2	2	
Sundays	2	1	1	1	1	1	1	2	2	2												3	2	2	2	

Legend:

- 1 Provide at least one through freeway lane open in direction of travel
- 2 Provide at least two adjacent through freeway lanes open in direction of travel
- 3 Provide at least three adjacent through freeway lanes open in direction of travel
- No work permitted

**REMARKS:**  
 Extended Weekend Closure (EWC) is defined as the closure, in one direction of travel, of traffic lanes, including shoulder, within a single traffic control system.  
 Use of EWC is limited to mainline work to remove and replace concrete pavement.  
 Up to twelve EWCs are permitted in a calendar year.  
 At an interchange, two EWCs shall not be allowed simultaneously.

Chart No. 50  
 Freeway/Expressway Lane Requirements for Extended Weekend Closure

County: Contra Costa	Route/Direction: I-680-SB	PM: 0.0-12.8																								
Closure Limits: North of San Ramon-Alcosta Blvd Interchange to Danville-Rudgear Rd Interchange																										
FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays	1	1	1	1	1																					
Fridays																										
Saturdays																						3	2	2	2	
Sundays	2	1	1	1	1	1	1	1	2	2	2										3	2	2	2		

Legend:

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## **10-1.195 TEMPORARY PULL BOX PROTECTION**

### **GENERAL**

This work includes removing and reinstalling the existing pull box cover in the median, furnishing, installing, and removing a steel plate, placing and removing hot mix asphalt and pavement reinforcing fabric, and adjusting pull box to grade, as shown on the plans.

### **MATERIALS**

#### **Steel Plate**

Metal for the fabrication of the steel plate must comply with Section 75-1.02, "Miscellaneous Iron and Steel" of the Standard Specifications.

The steel plate must be 1 inch thick steel and sized to fit the inside dimensions of the existing frame to be covered. Include two 1-inch diameter lift holes. Locations of lift holes will be determined by the Engineer.

#### **Pavement Reinforcing Fabric**

Pavement reinforcing fabric must comply with Section 39-4.03, "Pavement reinforcing fabric," of the Standard Specifications.

#### **Hot Mix Asphalt**

Hot mix asphalt must comply with Section 39, "Hot Mix Asphalt," of the Standard Specifications, and these special provisions.

Hot mix asphalt shall have a  $\frac{3}{4}$  inch maximum aggregate size.

### **CONSTRUCTION**

Remove and reinstall pull box covers in the work.

Cover the lift holes of the steel plate with pavement reinforcing fabric during placement of hot mix asphalt.

Remove temporary pull box protection, reconstruct pull boxes, and reinstall the pull box covers once staging no longer allows for traffic within the median or as directed by the Engineer.

### **MEASUREMENT AND PAYMENT**

Temporary pull box protection will be measured by the unit.

The contract unit price paid for temporary pull box protection includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in temporary pull box protection, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## **10-1.505 REPLACE CONCRETE PAVEMENT (RAPID STRENGTH CONCRETE)**

### **GENERAL**

#### **Summary**

This work includes removing existing concrete pavement and underlying cement treated base and constructing rapid strength concrete (RSC) pavement.

Comply with Section 40, "Concrete Pavement," of the Standard Specifications.

#### **Definitions**

early age: Time less than 10 times the concrete's final set time.

final set time: Time a specific penetration resistance of 4,000 psi is achieved, determined under ASTM C 403.

opening age: Time the concrete achieves the specified strength for opening to traffic.

#### **Submittals**

##### **Quality Control Plan**

At least 20 days before placing trial slabs, submit a written Quality Control Plan (QCP). The QCP must detail the methods used to ensure the quality of the work. You or the Engineer may request a meeting with you, the Quality Control Managers (QCMs), and the Engineer to discuss the QCP. Allow the Engineer 15 days to accept the QCP.

##### **Mix Design**

At least 10 days before use in a trial slab, submit a mix design for RSC that includes:

1. Opening age
2. Proposed aggregate gradation
3. Proportions of hydraulic cement and aggregate
4. Types and amounts of chemical admixtures
5. Maximum time allowed between batching and placing
6. Range of ambient temperatures over which the mix design is effective
7. Final set time
8. Any special instructions or conditions such as water temperature requirements

Submit more than 1 mix design to plan for ambient temperature variations anticipated during RSC placement. Each mix design must have a maximum ambient temperature range of 18 °F.

Submit modulus of rupture development data for each mix design. You may use modulus of rupture development data from laboratory-prepared samples. The testing ages for modulus of rupture development data must include 1 hour before opening age, opening age, one hour after opening age, 24 hours, 7 days, and 28 days.

##### **Trial Slab**

Submit split aggregate samples taken during trial slab construction.

##### **Calibration Testing Certificates of Compliance**

Submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications with each delivery of aggregate, cement, and admixtures to be used for calibration tests. Submit certified copies of the weight of each delivery. The Certificate of Compliance must state the source of materials used for the calibration tests is from the same source to be used in the work. The Certificate of Compliance must be signed by your authorized representative.

##### **Cement and Admixtures**

At least 45 days before intended use, submit a sample of cement from each proposed lot and samples of proposed admixtures in the quantities ordered by the Engineer.

During RSC pavement operations, submit uniformity reports for hydraulic cement at least once every 30 days to the Transportation Laboratory, Attention: Cement Laboratory. Uniformity reports must comply with ASTM C 917, except testing age and water content may be modified to suit the particular material.

### **Chemical Adhesive (Drill and Bond)**

At least 7 days before the start of dowel bar (drill and bond) work, submit a copy of the chemical adhesive manufacturer's recommended installation procedure.

### **Quality Control and Assurance**

#### **Pre-operation Conference**

Meet with the Engineer at a pre-operation conference at a mutually agreed time and place. Make the arrangements for the conference facility. Discuss methods of performing the work.

Pre-operation conference attendees must sign an attendance sheet provided by the Engineer. The pre-operation conference must be attended by your:

1. Project superintendent
2. Project manager
3. Quality control manager
4. Paving foreman
5. Concrete plant manager
6. Concrete plant operator
7. Personnel performing saw cutting and joint sealing
8. Plant inspector
9. Paving machine operators
10. Inspectors
11. Samplers
12. Testers
13. Subcontractor's workers

Do not start paving activities including test strips until the listed personnel have attended a pre-operation conference.

The purpose of the pre-operation conference is to familiarize personnel with the project's requirements. Items to be discussed include the processes for:

1. Production
2. Transportation
3. Placement
4. Replacing pavement
5. Contingency plan
6. Sampling
7. Testing

#### **Trial Slabs**

Before starting work on replacement concrete pavement, complete one trial slab for each rapid strength concrete mix design. Trial slabs demonstrate that you are capable of producing replacement concrete pavement in compliance with the specifications within the specified time periods including delivery, placement, finishing, and curing times, and under similar atmospheric and temperature conditions expected during replacement operations.

The trial slab must be at least 10' x 20'. If the planned replacement pavement thickness is less than 10 inches, the trial slab thickness must be at least 9 inches. If the planned replacement pavement thickness is greater than 10 inches, the trial slab thickness must be at least 10 inches. If the thickness of some planned slab replacements is greater than 10 inches and some are less than 10 inches, construct 1 trial slab 10 inches thick and another 9 inches thick. Place trial slabs near the job site at a mutually-agreed location that is neither on the roadway nor within the project limits.

Within 20 minutes after rapid strength concrete delivery for trial slabs, fabricate test beams under California Test 524. Use beams to determine early age and 7-day modulus of rupture values.

Cure beams fabricated for early age testing so that the monitored temperatures in the beams and the trial slab are always within 5 °F. Monitor and record the internal temperatures of trial slabs and early age beams at intervals of at least 5 minutes. Install thermocouples or thermistors connected to strip-chart recorders or digital data loggers to monitor the temperatures. Temperature recording devices must be accurate to within  $\pm 2$  °F. Measure internal temperatures at 1 inch from the top, 1 inch from the bottom, and no closer than 3 inches from any edge until early age testing is completed.

Cure beams fabricated for 7-day testing under California Test 524 except place them into sand at a time that is from 5 to 10 times the final set time, or 24 hours, whichever is earlier.

Nine-inch thick trial slabs must have an early age modulus of rupture of not less than 400 psi and a 7-day modulus of rupture of not less than 600 psi. Ten-inch thick trial slabs must have an early age modulus of rupture of not less than 333 psi and a 7-day modulus of rupture of not less than 600 psi.

Dispose of trial slabs and test specimens for trial slabs under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

**Weighmaster Certificates**

Weighmaster certificates for RSC, regardless of the proportioning method used, must include the information necessary to trace the manufacturer and the manufacturer's lot number for the cement being used. If proportioned into fabric containers, the weighmaster certificates for the cement must contain date of proportioning, location of proportioning, and actual net draft cement weight. If proportioned at the pour site from a storage silo, the weighmaster certificates must contain date of proportioning, location of proportioning, and the net draft cement weight used in the load.

**Engineer's Acceptance for Modulus of Rupture**

RSC pavement must develop a minimum modulus of rupture of 400 psi before opening to traffic. RSC pavement must develop a minimum modulus of rupture of 600 psi 7 days after placement. The Engineer may accept RSC pavement that does not attain the specified moduli of rupture as specified in "Pay Factor Adjustment for Low Modulus of Rupture." The Engineer determines the modulus of rupture by testing 3 beam specimens under California Test 524 and averaging the results. You may fabricate beam specimens using an internal vibrator under ASTM C 31. No single test represents more than that day's production or 100 cubic yards, whichever is less.

If modulus of rupture at early age is determined using beam specimens, cure them under atmospheric conditions that are within 5 °F of the pavement. The Engineer determines modulus of rupture at other ages using beams cured and tested under California Test 524 except place them in sand from 5 to 10 times the final set time or 24 hours, whichever is earlier. The Engineer performs the testing to determine modulus of rupture values of the RSC pavement.

**Pay Factor Adjustment for Low Modulus of Rupture**

If planned replacement pavement thickness is less than 10 inches, the Engineer adjusts payment for RSC for modulus of rupture as follows:

1. Payment for RSC with a modulus of rupture of 400 psi or greater before opening to traffic and 7-day modulus of rupture of 600 psi or greater is not adjusted.
2. Payment for RSC with a 7-day modulus of rupture less than 500 psi is not adjusted and no payment is made. Remove this RSC and replace it at your expense with RSC that complies with the specifications.
3. Payment for RSC with a modulus of rupture less than 300 psi before opening to traffic is not adjusted and no payment is made. Remove this RSC and replace it at your expense with RSC that complies with the specifications.
4. Payment for RSC with a modulus of rupture of 300 psi or greater before opening to traffic and a 7-day modulus of rupture greater than or equal to 500 psi is reduced by the percentage in the pay table for the quantity represented by the tests.

Percentage Pay Table

Modulus of Rupture (psi) at opening to traffic	7-Day Modulus of Rupture (psi)		
	Greater than or equal to 600	Less than 600 and greater than or equal to 550	Less than 550 and greater than or equal to 500
Greater than or equal to 400	100%	95%	90%
Less than 400 and greater than or equal to 350	95%	95%	90%
Less than 350 and greater than or equal to 300	80% <sup>a</sup>	80% <sup>a</sup>	80% <sup>a</sup>

<sup>a</sup> The Engineer rejects any RSC area that develops 1 or more transverse cracks within 21 days after placement. Remove this RSC at your expense and replace it with RSC that complies with the specifications. A transverse crack is a crack running from one longitudinal edge of the panel to the other.

Where planned replacement pavement nominal thickness is 10 inches or greater, the Engineer adjusts payment for RSC for low modulus of rupture tests as follows:

1. RSC with modulus of rupture of 333 psi or greater before the lane is opened to the traffic and 7-day modulus of rupture of 600 psi or greater is not adjusted.
2. Payment for RSC with a 7-day modulus of rupture of less than 500 psi is not adjusted and no payment is made. Remove this RSC and replace it at your expense with RSC that complies with the specifications.
3. Payment for RSC with modulus of rupture of less than 260 psi before opening to traffic is not adjusted and no payment is made. Remove this RSC and replace it at your expense with RSC that complies with the specifications.
4. Payment for RSC with modulus of rupture of 260 psi or greater before opening to traffic and a 7-day modulus of rupture greater than or equal to 500 psi will be reduced by the percentage in the pay table for the quantity represented by the tests.

Percentage Pay Table

Modulus of Rupture (psi) at opening to traffic	7-Day Modulus of Rupture (psi)		
	Greater than or equal to 600	Less than 600 and greater than or equal to 550	Less than 550 and greater than or equal to 500
Greater than or equal to 333	100%	95%	90%
Less than 333 and greater than or equal to 290	95%	95%	90%
Less than 290 and greater than or equal to 260	80% <sup>a</sup>	80% <sup>a</sup>	80% <sup>a</sup>

Note:

- <sup>a</sup> The Engineer rejects any RSC area that develops 1 or more transverse cracks within 21 days after placement. Remove this RSC at your expense and replace it with RSC that complies with the specifications. A transverse crack is a crack running from one longitudinal edge of the panel to the other.

## MATERIALS

### Temporary Roadway Structural Section

#### Aggregate Base

Aggregate base for temporary roadway structural section must be produced from any combination of broken stone, crushed gravel, natural rough-surfaced gravel, reclaimed concrete and sand. Grading of aggregate base must comply with the 3/4-inch maximum grading specified in Section 26-1.02A, "Class 2 Aggregate Base," of the Standard Specifications.

#### Hot Mix Asphalt

For hot mix asphalt:

1. Choose the 3/8-inch or 1/2-inch HMA Type A or Type B aggregate gradation under Section 39-1.02E, "Aggregate," of the Standard Specifications.
2. Minimum asphalt binder content must be 6.8 percent for 3/8-inch aggregate gradation and 6.0 percent for 1/2-inch aggregate gradation.
3. Choose asphalt binder Grade PG 64-10, PG 64-16, or PG 70-10 under Section 92, "Asphalts," of the Standard Specifications.

#### Bond Breaker

Bond breaker must be one of the following:

1. White curing paper under ASTM C 171
2. White opaque polyethylene film under ASTM C 171, except that the minimum thickness must be 6 mils
3. Paving asphalt, Grade PG 64-10, under Section 92, "Asphalts," of the Standard Specifications
4. Curing compound (5) under Section 90-7.01b, "Curing Compound Method," of the Standard Specifications

## Rapid Strength Concrete

Section 40-3.03, "Proportioning," and Section 90-1.01, "Description," of the Standard Specifications do not apply to RSC.

Choose the combined aggregate grading for RSC from either the 1-1/2 inch maximum or the 1-inch maximum combined grading under Section 90-3.04, "Combined Aggregate Gradings," of the Standard Specifications.

Produce RSC with hydraulic cement. Hydraulic cement must comply with ASTM C 219 and:

### Hydraulic Cement

Test Description	Test Method	Requirement
Contraction in air	California Test 527, W/C Ratio = 0.39 ±0.010	0.053 %, max.
Mortar expansion in water	ASTM C 1038	0.04 %, max.
Soluble chloride <sup>a</sup>	California Test 422	0.05 %, max.
Soluble sulfates <sup>a</sup>	California Test 417	0.30 %, max.
Thermal stability	California Test 553	60 %, min.
Compressive strength @ 3 days	ASTM C 109	2,500 psi

Note:

<sup>a</sup> Perform test on a cube specimen fabricated under ASTM C 109. Cure the specimen at least 14 days and then pulverized to 100 percent passing the No. 50 sieve.

You may use Type C accelerating chemical admixtures as specified in Section 90-4, "Admixtures," of the Standard Specifications. In addition to the admixtures listed on the Department's current list of approved admixtures, you may request citric acid or borax. If used, include chemical admixtures in any specified testing.

## CONSTRUCTION

### Removing Existing Pavement and Base Materials

The Engineer determines the exact limits of replace concrete pavement.

Remove existing concrete pavement and underlying base material and replaced it with base material and concrete pavement within the same work period. If you remove existing pavement or base materials and you are unable to construct, finish, and cure concrete pavement before the specified traffic opening time, construct a temporary roadway structural section.

Saw cut the outline of concrete pavement to be removed with a power-driven saw except where adjacent to an asphalt concrete shoulder. Do not saw cut within concrete pavement slabs more than 2 days before concrete pavement slab removal. If you saw cut in work shifts that are before the actual removal work shift, do not make saw cuts parallel or diagonal to the traveled way. Saw cut so that traffic will not dislodge any pieces or segments.

Saw through tie bars and dowel bars before concrete pavement slab removal.

Inside the sawed outline, do not impact the surface within 18 inches of pavement to remain in place. Remove pavement and base without damage to pavement or base remaining in place.

Dispose of removed materials under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

After removing pavement and base to the required depth, grade to a uniform plane. Water and compact the material remaining in place to a firm and stable base. The finished surface of the remaining material must not extend above the grade established by the Engineer. At your expense, fill areas that were over-excavated during base removal with replacement material in the same operation as the base replacement.

### Temporary Roadway Structural Section

Place hot mix asphalt and aggregate base where existing pavement is replaced for construction of a temporary roadway structural section. The quantity must be equal to the quantity of pavement removed during the work shift. If you place temporary roadway structural section, it must be maintained and later removed as the first order of work when replace concrete pavement activities resume. The temporary roadway structural section must consist of 3-1/2 inch thick hot mix asphalt over aggregate base. RSC not conforming to the specifications may be used for temporary roadway structural section with the Engineer's approval.

Spread and compact aggregate base and hot mix asphalt by methods that produce a well-compacted, uniform base, with a surface of uniform smoothness, texture and density. Surfaces must be free from pockets of coarse or fine material. You may spread aggregate base and hot mix asphalt each in one layer. The finished surface of hot mix asphalt must not vary more than 0.05 foot from the lower edge of a 12-foot long straightedge placed parallel with the centerline and must match the elevation of existing concrete pavement along the joints between the existing pavement and temporary surfacing.

After removing temporary roadway structural section, you may stockpile removed aggregate base at the project site and reuse it for temporary roadway structural sections. When no longer required, dispose of standby material or stockpiled material for temporary roadway structural sections under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

**Rapid Strength Concrete**

**General**

Concrete pavement penetration specified in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications does not apply to RSC.

RSC must develop the specified opening age and 7-day modulus of rupture strengths.

**Proportioning**

Weighing, measuring, and metering devices used for proportioning materials must comply with Section 9-1.01, "Measurement of Quantities," of the Standard Specifications.

For central batch plants, indicators for weighing and measuring systems such as over and under dials must be grouped so that each indicator's smallest increment can be accurately read from the control point of the proportioning operation. In addition, indicators for weighing and measuring cement batched from a remote weighing system must be placed so that each indicator can be accurately read from the control point of the proportioning operation.

Weighing equipment must be insulated from other equipment's vibration or movement. When the plant is operating, each draft's material weight must not vary from the designated weight by more than the specified tolerances. Each scale graduation must be 0.001 of the usable scale capacity.

Aggregate must be weighed cumulatively. Equipment for weighing aggregate must have a zero tolerance of  $\pm 0.5$  percent of the aggregate's designated total batch weight. Equipment for the separate weighing of the cement must have a zero tolerance of  $\pm 0.5$  percent of the cement's designated individual batch draft. Equipment for measuring water must have a zero tolerance of  $\pm 0.5$  percent of the water's designated weight or volume.

The weight indicated for any individual batch of material must not vary from the preselected scale setting by more than:

Batch Weight Tolerances

Material	Tolerance
Aggregate	$\pm 1.0$ percent of designated batch weight
Cement	$\pm 0.5$ percent of designated batch weight
Water	$\pm 1.5$ percent of designated batch weight or volume

Proportioning consists of dividing the aggregate into the specified sizes and storing them in separate bins, and then combining the aggregate with cement and water. Proportion dry ingredients by weight. Proportion liquid ingredients by weight or volume.

Handle and store aggregates under Section 90-5.01, "Storage of Aggregates," of the Standard Specifications. Proportion liquid admixtures under Section 90-4.10, "Proportioning and Dispensing Liquid Admixtures," of the Standard Specifications.

Control aggregate discharged from several bins with gates or mechanical conveyors. The means of discharge from the bins and from the weigh hopper must be interlocked so that no more than 1 bin can discharge at a time, and the weigh hopper cannot be discharged until the required quantity from each of the bins has been deposited in the weigh hopper.

At the time of batching, dry and drain aggregates to a stable moisture content. Do not proportion aggregates with visible separation of water from the aggregate during proportioning. At the time of batching, the free moisture content of fine aggregate must not exceed 8 percent of its saturated, surface-dry weight.

If the proportioning plant has separate supplies of the same size group of aggregate with different moisture content, specific gravity, or surface characteristics affecting workability, exhaust 1 supply before using another supply.

Keep cement separated from the aggregate until discharged into the mixer. When discharged into the mixer, cement must be free of lumps and clods. Before reuse, clean fabric containers used for transportation or proportioning of cement.

Weigh systems for proportioning aggregate and cement must be individual and distinct from other weigh systems. Each weigh system must have a hopper, a lever system, and an indicator.

For batches with a volume of 1 cubic yard or more, proportioning must comply with one of the following methods:

1. Batch the ingredients at a central batch plant and charge them into a mixer truck for transportation to the pour site. Proportion ingredients under Section 90-5, "Proportioning," of the Standard Specifications.
2. Batch the ingredients except the cement at a central batch plant and charge them into a mixer truck for transportation to a cement silo and weigh system, which must proportion cement for charging into the mixer truck.

3. Batch ingredients except the cement at a central batch plant and charge them into a mixer truck for transportation to a location where pre-weighed containerized cement is added to the mixer truck. The cement pre-weighing operation must utilize a platform scale. The platform scale must have a maximum capacity of 2.75 tons with a maximum graduation size of 1 pound. Pre-weigh cement into a fabric container. The minimum amount of cement to be proportioned into any single container must be 1/2 of the total amount required for the load of RSC being produced.
4. Cement, water, and aggregate are proportioned volumetrically.

When ordered by the Engineer, determine the gross weight and tare weight of truck mixers on scales designated by the Engineer.

Install and maintain in operating condition an electrically actuated moisture meter. The meter must indicate on a readily visible scale the changes in the fine aggregate moisture content as it is batched. The meter must have a sensitivity of 0.5 percent by weight of the fine aggregate.

Obtain the Engineer's acceptance before mixing water into the concrete during hauling or after arrival at the delivery point. If the Engineer accepts additional water be incorporated into the concrete, the drum must revolve not less than 30 revolutions at mixing speed after the water is added and before starting discharge. Measure water added to the truck mixer at the job site through a meter in compliance with Section 9-1.01, "Measurement of Quantities," of the Standard Specifications.

### **Volumetric Proportioning**

You may choose to proportion RSC by volume.

Handle and store aggregates under Section 90-5.01, "Storage of Aggregates," of the Standard Specifications. Proportion liquid admixtures under Section 90-4.10, "Proportioning and Dispensing Liquid Admixtures," of the Standard Specifications.

Batch-mixer trucks must proportion cement, water, aggregate, and additives by volume. Aggregate feeders must be connected directly to the drive on the cement vane feeder. The cement feed rate must be tied directly to the feed rate for the aggregate and other ingredients. Only change the ratio of cement to aggregate by changing the gate opening for the aggregate feed. The drive shaft of the aggregate feeder must have a revolution counter reading to the nearest full or partial revolution of the aggregate delivery belt.

Proportion aggregate with a belt feeder operated with an adjustable cutoff gate delineated to the nearest quarter increment. The gate opening height must be readily determinable. Proportion cement by any method that complies with the accuracy tolerance specifications. Proportion water with a meter under Section 9-1.01, "Measurement and Payment," of the Standard Specifications.

Calibrate the cutoff gate for each batch-mixer truck used and for each aggregate source. Calibrate batch-mixer trucks at 3 different aggregate gate settings that are commensurate with production needs. Perform at least 2 calibration runs for each aggregate gate.

Individual aggregate delivery rate check-runs must not deviate more than 1.0 percent from the mathematical average of all runs for the same gate and aggregate type. Each test run must be at least 1,000 pounds.

At the time of batching, dry and drain aggregates to a stable moisture content. Do not proportion aggregates with visible separation of water from the aggregate during proportioning. At the time of batching, the free moisture content of fine aggregate must not exceed 8 percent of its saturated, surface-dry weight.

If the proportioning plant has separate supplies of the same size group of aggregate with different moisture content, specific gravity, or surface characteristics affecting workability, exhaust 1 supply before using another supply.

Cover rotating and reciprocating equipment on batch-mixer trucks with metal guards.

Individual cement delivery rate check-runs must not deviate more than 1.0 percent of the mathematical average of 3 runs of at least 1,000 pounds each.

When the water meter operates from 50 to 100 percent of production capacity, the indicated weight of water delivered must not differ from the actual weight delivered by more than 1.5 percent for each of 2 runs of 300 gallons. Calibrate the water meter under California Test 109. The water meter must be equipped with a resettable totalizer and display the operating rate.

Conduct calibration tests for aggregate, cement, and water proportioning devices with a platform scale located at the calibration site. Platform scales for weighing test-run calibration material must have a maximum capacity of 2.75 tons with maximum graduations of 1 pound. Error test the platform scale within 8 hours of calibrating the batch-mixer truck proportioning devices. Perform error-testing with test weights under California Test 109. Furnish a witness scale that is within 2 graduations of the test weight load. The witness scale must be available for use at the production site throughout the production period. Equipment needed for the calibration of proportioning systems must remain available at the production site throughout the production period.

The batch-mixer truck must be equipped so that accuracy checks can be made. Recalibrate proportioning devices every 30 days after production starts or when you change the source or type of any ingredient.

A spot calibration is calibration of the cement proportioning system only. Perform a 2-run spot calibration each time 55 tons of cement passes through the batch-mixer truck. If the spot calibration shows the cement proportioning system does not comply with the specifications, complete a full calibration of the cement proportioning system before you resume production.

Proportion liquid admixtures with a meter.

Locate cement storage immediately before the cement feeder. Equip the system with a device that automatically shuts down power to the cement feeder and aggregate belt feeder when the cement storage level is less than 20 percent of the total volume.

Submit aggregate moisture determinations, made under California Test 223, at least every 2 hours during proportioning and mixing operations. Record moisture determinations and submit them at the end of each production shift.

Equip each aggregate bin with a device that automatically shuts down the power to the cement feeder and the aggregate belt feeder when the aggregate discharge rate is less than 95 percent of the scheduled discharge rate.

Proportioning device indicators must be in working order before starting proportioning and mixing operations and must be visible when standing near the batch-mixer truck.

Identifying numbers of batch-mixer trucks must be at least 3 inches in height, and be located on the front and rear of the vehicles.

Mix volumetric proportioned RSC in a mechanically operated mixer. You may use auger-type mixers. Operate mixers uniformly at the mixing speed recommended by the manufacturer. Do not use mixers that have an accumulation of hard concrete or mortar.

Do not mix more material than will permit complete mixing. Reduce the volume of material in the mixer if complete mixing is not achieved. Continue mixing until a homogeneous mixture is produced at discharge. Do not add water to the RSC after discharge.

Do not use equipment with components made of aluminum or magnesium alloys that may have contact with plastic concrete during mixing or transporting of RSC.

The Engineer determines uniformity of concrete mixtures by differences in penetration measurements made under California Test 533. Differences in penetration are determined by comparing penetration tests on 2 samples of mixed concrete from the same batch or truck mixer load. The differences must not exceed 5/8 inch. Submit samples of freshly mixed concrete. Sampling facilities must be safe, accessible, clean, and produce a sample that is representative of production. Sampling devices and sampling methods must comply with California Test 125.

Do not use ice to cool RSC directly. If ice is used to cool water used in the mix, it must be melted before entering the mixer.

When proportioning and charging cement into the mixer, prevent variance of the required quantity by conditions such as wind or accumulation on equipment.

Each mixer must have metal plates that provide the following information:

1. Designed usage
2. Manufacturer's guaranteed mixed concrete volumetric capacity
3. Rotation speed

The device controlling the proportioning of cement, aggregate, and water must produce production data. The production data must be captured at 15-minute intervals throughout daily production. Each capture of production data represents production activity at that time and is not a summation of data. The amount of material represented by each production capture is the amount produced in the period from 7.5 minutes before to 7.5 minutes after the capture time. The daily production data must be submitted in electronic or printed media at the end of each production shift. The reported data must be in the order including data titles as follows:

1. Weight of cement per revolution count
2. Weight of each aggregate size per revolution count
3. Gate openings for each used aggregate size
4. Weight of water added to the concrete per revolution count
5. Moisture content of each used aggregate size
6. Individual volume of other admixtures per revolution count
7. Time of day
8. Day of week
9. Production start and stop times
10. Batch-mixer truck identification
11. Name of supplier
12. Specific type of concrete being produced

13. Source of the individual aggregate sizes
14. Source, brand, and type of cement
15. Source, brand and type of individual admixtures
16. Name and signature of operator

You may input production data by hand into a pre-printed form or it may be captured and printed by the proportioning device. Present electronic media containing recorded production data in a tab delimited format on a CD or DVD. Each capture of production data must be followed by a line-feed carriage-return with sufficient fields for the specified data.

#### **Base Replacement Layer**

Replace removed base materials with RSC in a separate and distinct operation from replacing concrete pavement.

Finish the replacement base layer to the grade of the original base layer. Do not texture the surface. Finish to a smooth surface, free of projections such as mortar ridges, voids, and porous areas.

#### **Bond Breaker**

Place bond breaker between replacement pavement and existing lean concrete base, cement treated base, or new base replacement layer.

If you use curing paper or polyethylene film, place it in a wrinkle free manner. Overlap adjacent sheets a minimum of 6 inches.

If you use curing compound or paving asphalt, before application remove foreign and loose materials remaining from slab removal.

If you use paving asphalt, do not add water before applying asphalt to the base surface. Apply the paving asphalt in one even application at a rate from 0.02 to 0.10 gallon per square yard over the entire base surface area. Do not place concrete pavement until the paving asphalt has cured.

If you use curing compound, apply it in 2 separate applications. Apply each application evenly at a rate from 0.07 to 0.11 gallon per square yard over the entire base surface area.

#### **Spreading, Compacting, and Shaping**

The specifications for pavement thickness in Section 40, "Concrete Pavement," of the Standard Specifications do not apply.

You may use metal or wood side forms. Wood side forms must not be less than 1-1/2 inches thick. Side forms must be of sufficient rigidity, both in the form and in the connection with adjoining forms, that movement will not occur under forces from subgrading and paving equipment or from the pressure of concrete.

Side forms must remain in place until the pavement edge no longer requires the protection of forms. Clean and oil side forms before each use.

After you deposit the RSC on the subgrade, consolidate RSC with high-frequency internal vibrators. Consolidate adjacent to forms and across the full paving width. Place RSC as nearly as possible to its final position. Do not use vibrators for extensive shifting of RSC.

Spread and shape RSC with powered finishing machines supplemented by hand finishing.

After you mix and place RSC, do not add water to the surface to facilitate finishing. Use surface finishing additives as recommended by the manufacturer of the cement after their use is approved by the Engineer.

#### **Joints**

Before placing RSC against existing concrete, place 1/4-inch thick commercial quality polyethylene flexible foam expansion joint filler across the original transverse and longitudinal joint faces and extend the excavation's full depth. Place the top of the joint filler flush with the top of the pavement. Secure joint filler to the joint face of the existing pavement to prevent the joint filler from moving during the placement of RSC.

Construct transverse contraction joints in pavement widenings to match the spacing and skew of the contraction joints in the adjacent existing pavement. Where the existing transverse contraction joint spacing in an adjacent lane exceeds 15 feet, construct an additional transverse contraction joint midway between the existing joints. Complete sawing of contraction joints within 2 hours of completion of final finishing. Cut contraction joints a minimum 3 inches deep.

### **Dowel Bar (Drill and Bond)**

Drill dowel bars and bond with chemical adhesive.

Clean drilled holes in compliance with the chemical adhesive manufacturer's instructions. Holes must be dry at the time of placing the chemical adhesive and dowel bars. Immediately after inserting the dowel bars into the chemical adhesive, support the dowel bars to prevent movement during curing. Leave the supported dowel bars undisturbed until chemical adhesive has cured a minimum time instructed by the manufacturer. If the Engineer rejects dowel bars, drill new holes adjacent to the rejected holes, place new dowel bars, and securely bond to the concrete.

### **Final Finishing**

If the Engineer determines by visual inspection the final texturing may not comply with the specifications for coefficient of friction, the Engineer tests to determine coefficient of friction. Open the pavement to traffic and allow 5 days after concrete placement for the Department to test for coefficient of friction. If pavement does not comply with the specifications for coefficient of friction, groove the pavement under Section 42-1.02, "Construction," of the Standard Specifications. Perform grooving before the installation of any required edge drains adjacent to the areas to be grooved.

Profiles of the completed pavement surface and the Profile Index specified in Section 40-1.03J, "Profilograph Test Procedure," of the Standard Specifications are not required. The Engineer measures smoothness with a straightedge.

Straightedge smoothness specifications do not apply to the pavement surface within 12 inches of existing concrete pavement except you must place a straightedge longitudinally with the midpoint coincident with the transverse contact joint. Correct pavement at contact joints not in compliance with straightedge smoothness specifications within 48 hours by grinding.

### **Curing Method**

Use the curing method recommended by the manufacturer of the cement for replacement pavement.

### **Replace Existing Pavement Delineation**

Replace any existing pavement delineation removed, obliterated, or damaged by the work involved in replacing concrete pavement. Comply with the specifications for new delineation.

### **MEASUREMENT AND PAYMENT**

Replace concrete pavement (Rapid Strength Concrete) is measured and paid for in the same manner specified for concrete pavement in Sections 40-4.01, "Measurement," and 40-4.02, "Payment," of the Standard Specifications.

The Engineer adjusts payment for replace concrete pavement (Rapid Strength Concrete) in compliance with "Pay Factor Adjustment for Low Modulus of Rupture."

Full compensation for the pre-operation conference is included in the contract price paid per cubic yard for replace concrete pavement (Rapid Strength Concrete) and no additional compensation will be allowed therefor.

Full compensation for removing and disposing of existing concrete pavement and underlying base, constructing trial slabs, furnishing and placing bond breaker, furnishing and disposing of standby materials for temporary roadway structural section, constructing, maintaining, removing, and disposing of temporary roadway structural section, furnishing and applying replacement pavement delineation, are included in the contract price paid per cubic yard for replace concrete pavement (Rapid Strength Concrete) and no additional compensation will be allowed therefor.

The contract unit price paid for dowel bar includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in drilling holes, placing epoxy-coated dowel bars, and bonding the dowel bars with chemical adhesive, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

If calibration of volumetric batch-trucks is performed more than 100 miles from the project limits, payment for replace concrete pavement (Rapid Strength Concrete) is reduced \$1,000.

If RSC does not conform to the mix design requirements or the specifications, the Engineer orders you to provide extra samples and testing. The Engineer determines the costs for sampling, fabricating, transporting, and testing extra samples under Section 4-1.03D, "Extra Work," of the Standard Specifications. If the extra samples do not comply with the specifications, these costs are at your expense. If the extra samples comply with the specifications, the Engineer pays you for these costs.

### **10-3.14 PAYMENT**

The contract lump sum price paid for high speed weigh-in-motion system shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in installing high speed weigh-in-motion system, complete in place, including all the foundations, poles, manuals and testing, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract lump sum price paid for traffic operations system shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in installing traffic operations system, complete in place, including all the foundations, poles, manuals and testing, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract lump sum price paid for loop detector replacement shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in installing loop detector replacement, complete in place, including all the foundations, poles, manuals and testing, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract lump sum price paid for pedestrian push button replacement shall include full compensation for furnishing all labor, materials (except items covered by other bid items), tools, equipment, and incidentals, and for doing all the work involved in installing push button replacement, complete in place, including all the foundations, poles, manuals and testing, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**BID ITEM LIST**  
**04-4470U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21	BLANK					
22	129100	TEMPORARY CRASH CUSHION MODULE	EA	520		
23	148005	NOISE MONITORING	LS	LUMP SUM	LUMP SUM	
24	018473	VIBRATION MONITORING	LS	LUMP SUM	LUMP SUM	
25	150662	REMOVE METAL BEAM GUARD RAILING	LF	9,400		
26	150704	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE	LF	55,800		
27	150714	REMOVE THERMOPLASTIC TRAFFIC STRIPE	LF	40,500		
28	150715	REMOVE THERMOPLASTIC PAVEMENT MARKING	SQFT	1,010		
29	150722	REMOVE PAVEMENT MARKER	EA	17,000		
30	150745	REMOVE ROADSIDE SIGN (METAL POST)	EA	25		
31	150760	REMOVE SIGN STRUCTURE	EA	1		
32	150771	REMOVE ASPHALT CONCRETE DIKE	LF	44,800		
33	150801	REMOVE OVERSIDE DRAIN	EA	1		
34	018474	REMOVE EDGE DRAIN	LF	88,000		
35	150805	REMOVE CULVERT	LF	40		
36	150820	REMOVE INLET	EA	1		
37	152320	RESET ROADSIDE SIGN	EA	6		
38	152430	ADJUST INLET	EA	180		
39	152438	ADJUST FRAME AND COVER TO GRADE	EA	14		
40	152472	ADJUST UTILITY COVER	EA	9		

**BID ITEM LIST**  
**04-4470U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61	250401	CLASS 4 AGGREGATE SUBBASE	CY	4,460		
62	260201	CLASS 2 AGGREGATE BASE	CY	50		
63	260210	AGGREGATE BASE (APPROACH SLAB)	CY	71		
64	280000	LEAN CONCRETE BASE	CY	2,750		
65	018476	LEAN CONCRETE BASE (RAPID SETTING)	CY	7,220		
66	370120	ASPHALT-RUBBER BINDER	TON	22		
67	375030	SCREENINGS (HOT-APPLIED)	TON	75		
68	390095	REPLACE ASPHALT CONCRETE SURFACING	CY	440		
69	390131	HOT MIX ASPHALT	TON	104,000		
70	390134	HOT MIX ASPHALT (OPEN GRADED)	TON	27,300		
71	390140	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)	TON	88,400		
72	393003	GEOSYNTHETIC PAVEMENT INTERLAYER	SQYD	207,000		
73	394060	DATA CORE	LS	LUMP SUM	LUMP SUM	
74	394074	PLACE HOT MIX ASPHALT DIKE (TYPE C)	LF	3,490		
75	394075	PLACE HOT MIX ASPHALT DIKE (TYPE D)	LF	34,400		
76	394076	PLACE HOT MIX ASPHALT DIKE (TYPE E)	LF	18,100		
77	394077	PLACE HOT MIX ASPHALT DIKE (TYPE F)	LF	14,200		
78	394090	PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA)	SQYD	13		
79	397005	TACK COAT	TON	590		
80	018477	PRECAST CONCRETE PAVEMENT	CY	4,390		

**BID ITEM LIST**  
**04-4470U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81	401050	JOINTED PLAIN CONCRETE PAVEMENT	CY	7,830		
82	018478	PRECAST POST-TENSIONED CONCRETE PAVEMENT	CY	5,400		
83	404092	SEAL PAVEMENT JOINT	LF	16,100		
84	404093	SEAL ISOLATION JOINT	LF	17,300		
85	018479	REPLACE JOINT SEAL (EXISTING CONCRETE PAVEMENT)	LF	311,000		
86	415101	CRACK EXISTING CONCRETE PAVEMENT	SQYD	202,000		
87	420201	GRIND EXISTING CONCRETE PAVEMENT	SQYD	308,000		
88	510050	STRUCTURAL CONCRETE	CY	7		
89 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	CY	13		
90 (F)	510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	43		
91 (F)	510087	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE R)	CY	710		
92	510502	MINOR CONCRETE (MINOR STRUCTURE)	CY	32		
93	510800	PAVING NOTCH EXTENSION	CF	1,053		
94	511106	DRILL AND BOND DOWEL	LF	309		
95	511118	CLEAN EXPANSION JOINT	LF	3,047		
96	511124	RAPID SETTING CONCRETE (PATCH)	CF	255		
97	042612	CORE TREATED BRIDGE DECK	EA	8		
98	519088	JOINT SEAL (MR 1")	LF	2,792		
99	519091	JOINT SEAL (MR 1 1/2")	LF	860		
100	519094	JOINT SEAL ASSEMBLY (MR 3 1/2")	LF	208		

**BID ITEM LIST**  
**04-4470U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
141 (F)	839727	CONCRETE BARRIER (TYPE 736 MODIFIED)	LF	1,806		
142	840504	4" THERMOPLASTIC TRAFFIC STRIPE	LF	750,000		
143	840506	8" THERMOPLASTIC TRAFFIC STRIPE	LF	33,100		
144	840508	8" THERMOPLASTIC TRAFFIC STRIPE (BROKEN 12-3)	LF	16,200		
145	840515	THERMOPLASTIC PAVEMENT MARKING	SQFT	13,600		
146	840526	4" THERMOPLASTIC TRAFFIC STRIPE (BROKEN 17-7)	LF	14,900		
147	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	34,300		
148	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	15,700		
149	860090	MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION	LS	LUMP SUM	LUMP SUM	
150	860460	LIGHTING AND SIGN ILLUMINATION	LS	LUMP SUM	LUMP SUM	
151	018484	LOOP DETECTOR REPLACEMENT	LS	LUMP SUM	LUMP SUM	
152	861203	HIGH SPEED WEIGH-IN-MOTION SYSTEM	LS	LUMP SUM	LUMP SUM	
153	018485	TRAFFIC OPERATIONS SYSTEM	LS	LUMP SUM	LUMP SUM	
154	BLANK					
155	019081	TEMPORARY PULL BOX PROTECTION	EA	220		
156	401108	REPLACE CONCRETE PAVEMENT (RAPID STRENGTH CONCRETE)	CY	890		
157	019082	PEDESTRIAN PUSH BUTTON REPLACEMENT	LS	LUMP SUM	LUMP SUM	
158	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	