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TO: All Planholders and Prospective Bidders  
FROM: City of Capitola Public Works  
DATE: July 22, 2016  
RE: **ADDENDUM NO. 1**  
**2016 STREET REHABILITATION PROJECT**

### **ADDENDUM NO. 1**

#### **City of Capitola, California**

This Addendum shall be considered as a part of the bid documents for the subject project as though it had been issued at the same time and shall be incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original documents, this Addendum shall govern and take precedence.

Contractors are hereby notified that they shall make any necessary adjustments in their proposals on account of this Addendum. It will be construed that each proposal is submitted with full knowledge of all modifications and supplemental data specified herein.

Receipt of this Addendum must be acknowledged in the space provided on the Required Contactor Information (page 7). Signature on said Bid Form indicates acknowledgement of receipt of Addendum No. 1, and that said Addendum was properly evaluated in bidder's proposal. Any proposal not in compliance with this requirement may be rejected.

The following is hereby added and/or amended:

**COLD IN-PLACE RECYCLING – (EAM) EXPANDED ASPHALT METHOD (optional)**  
(BID ITEMS No. 33 AND No. 34)

**GENERAL**

This work shall consist of milling the existing asphalt concrete pavement to the length, depth and width as shown on the plans, sizing the Cold In-Place Recycled material to an evenly graded aggregate blend with 100 percent passing the 1 ½ inch sieve and no more than five (5) percent retained on the one (1) inch sieve. As part of the Expanded Asphalt Method, the properly graded RAP will be recycled using hot asphalt cement, water, and other additives, as required by the Contractor's Mix Design, to produce a roadway base course. This material shall be placed and compacted in accordance with the Plans and Specifications, and as directed by the Engineer.

**JUST IN-TIME TRAINING**

Just In Time Training: Attending a 2-hour minimum Just-In-Time Training (JITT) shall be mandatory, and consist of a formal joint training class on cold recycled asphalt materials, required special equipment, placement and compaction methods, and quality control. Construction operations for cold recycling shall not begin until the Contractor's and the Engineer's personnel have completed the JITT. The JITT training class shall be conducted at a project field location convenient for both the Contractor and the Engineer. The JITT class shall be completed not more than 7 days prior to the start of cold recycling operations, but ideally the JITT class will be held immediately prior to the first day's production run. The class shall be held during normal working hours. The Contractor shall provide the JITT instructor. The instructor shall be experienced in the construction methods, materials, and test methods associated with construction of cold recycle asphalt projects, and shall have successfully completed three CCPR or CIR projects within the last twelve months. A copy of the course syllabus, handouts, and presentation material shall be submitted to the Engineer at least 7 days before the day of the training. The Contractor and the Engineer shall mutually agree to the course instructor, course content, and training site. Just-In-Time Training shall not relieve the Contractor of responsibility under the contract for the successful completion of the work in conformance with the requirements of the plans and specifications.

**Mix Design**

A minimum of 14 days prior starting the Cold in Place Recycling the contractor will take samples of the existing pavement, prepare, and submit a mix design for the Engineers approval. The mix design shall be prepared in a lab certified to perform the tests specified.

The design submittal must indicate the following information:

- Cold in Place Recycling CIR equipment and method proposed
- Gradation (ASTM D422 ) (CTM 202)
- Bitumen Grade
- Bitumen Content
- Bitumen Source

- Water Content
- Cement Content
- Cement Source
- Cement Grade
- Any other additives or emulsifiers
- Results of Mix Design indicating strength
- Bitumen Foaming Half-life vs. Expansion
- Optimum Foaming Water Content Required (to produce a half-life of 6 seconds and an expansion ratio of 8:1)
- Maximum Density per CTM 216
- Bulk Density of recommended oil content CTM 371
- Marshall Stability and Flow (ASTM D6927) (CTM 371)
- Theoretical Maximum Specific gravity of Bituminous Materials (Cal 309)
- Test results of the mix design

Minimum criteria used for acceptance of the proposed mix design will be:

Dry Indirect Tensile Strength	>250 kPa (37 PSI)
Soaked (Wet) Indirect Tensile Strength	>225 kPa (33 PSI)

Gradation of Reclaimed Asphalt Pavement (RAP): 1 inch maximum

### **Quality Control and Assurance**

Provide a quality control plan (QCP) that describes the organization, responsible parties, and procedures you will use to:

1. Control quality
2. Determine when corrective actions are needed (action limits)
3. Implement corrective actions

The QCP must contain copies of the forms that will be used to provide all required inspection records and sampling and testing results. On the form used to record and report the quality control measurements, also show the job mix formula information.

As part of the QCP the contractor will provide a contingency plan that describes the corrective actions you will take in the event of equipment break down or material out of compliance.

### **Contingency Plan**

The contingency plan must include any corrective actions including repairing and reopening the roadway to traffic using hot mix asphalt in compliance with Section 39, "Hot Mix Asphalt," of the Standard Specifications or temporary bituminous surfacing in compliance with these special provisions.

Hot mix asphalt must:

1. Be hot mix asphalt (Type A)
2. Use 1/2-inch aggregate grading

3. Use asphalt binder grade PG 64-10 or PG 64-16

Temporary bituminous surfacing must:

1. Be commercial quality bituminous material
2. Contain aggregate using 1/2-inch HMA grading in compliance with Section 39-1.02E, "Aggregate," of the 2010 Standard Specifications.
3. Use liquid asphalt SC-800 in compliance with Section 93, "Liquid Asphalts," of the Standard Specifications.

Meet with the Engineer at least 7 days before starting cold-in-place recycling work to review the QCP and contingency plan.

### **QC Laboratory**

Provide a certified testing laboratory and personnel to perform quality control inspection, sampling and testing. Provide the Engineer with unrestricted access to the laboratory, sampling and testing sites, and all information resulting from job mix formula and quality control inspection and testing activities. Proficiency of testing laboratories and sampling and testing personnel must be reviewed, qualified, and accredited by Caltrans Independent Assurance Program before starting cold-in-place recycling work. Perform inspection, sampling and testing at a rate sufficient to ensure that cold-in-place recycling mixture, placement, compaction, and finishing complies with the specifications.

### **Test Strip and Startup Procedures**

The first day of operations, the Contractor shall construct, within the project limits, a test strip of a single lane width and no more than 1500 feet in length. The test strip section shall:

- A. Demonstrate that the equipment, materials, and processes proposed can produce a recycled pavement material layer that conforms to the requirements of these Contract Specifications;
- B. Determine the optimal rates for asphalt binder, water, and any additives recommended for the reclaimed asphalt pavement; and
- C. Determine the sequence and manner of rolling necessary to obtain the density requirements of these Contract Specifications.

The Contractor shall provide a sequence and manner of rolling which will define maximum compaction by establishing a rolling vs. density chart that shows the progress of densification from initial lay down through maximum obtainable density at the "break over point". The Contractor shall determine relative compaction on the quantity within the test strip by measurement with a properly calibrated nuclear density gauge. If the relative compaction of quantity within the test strip or any lot does not meet the density requirements of these Contract Specifications, the Contractor shall construct additional test strips to determine the maximum density obtainable for the recycled material being produced and site conditions.

CIR operations may continue through the first day, unless the Contractor's equipment and process fail to meet the requirements for successful completion of CIR operations in

conformance with these Contract Specifications. Recycling operations shall not continue beyond the first day unless a test strip conforming to the Contract Specifications has been constructed and approved by the Engineer. Test strips that do not conform to the Contract Specifications shall be reworked, re-compacted, or removed and replaced at the Contractor's expense.

Upon acceptance of the test strip by the Engineer, the Contractor shall use the same equipment, materials, and construction methods for the remainder of recycling operations, unless adjustments made by the Contractor are approved by the Engineer. If adjustments are made, the Contractor will produce a new test strip to define the maximum density.

**Cold In-Place Recycling (CIR) material shall not be exposed to traffic for more than ninety-six (96) hours.**

### **CONSTRUCTION METHODS**

Surface Preparation: Before any recycling work begins, the Contractor shall prepare the existing roadway by:

- 1) Removing from the roadway dirt, vegetation, standing water, combustible materials, oils, raised reflective pavement markers, and other objectionable materials by sweeping, motor grader or another approved method.
- 2) Lowering manholes, valves, monuments frames and covers, or accommodating for utilities prior to recycling by other means to the satisfaction of the Engineer.
- 3) Cold mill along gutters and at the beginning and ending of the street section to prepare for the final overlay. These header cuts shall be six (6) feet wide along gutters and thirty (30) feet long at the beginning and ending of the street section with a depth of 2-1/2 inches at the gutter face and street section begin and end limits and transitioning to zero (daylighting) within the existing pavement. Milling shall not take place adjacent to "fresh" concrete until concrete has been allowed to cure for a minimum of three (3) days.

Weather Limitations: CIR operations shall not be performed during wet conditions or if rain or cold conditions (less than 45°F) are imminent or predicted to exist. "Imminent or predicted" is defined as being forecasted within a 48-hour period on the National Weather Service Web Site <http://www.wrh.noaa.gov> for the most representative and nearest location listed where recycling is to begin and end.

Recycling and placement operations shall not be performed unless the ambient temperature is a minimum of 45°F and unless the National Weather Service Web Site forecasts that the ambient temperature will be a minimum of 60°F within 3 hours after the start of placement operations and will remain above 60°F throughout the recycling operation until all initial compaction and protection efforts have been completed for that day's run.

Recycling operations shall be ceased if actual ambient temperatures drop below 60°F

anytime after the initial 3-hour window following start-up. In the event CIR operations are initiated and weather conditions deteriorate soon after, it is then a requirement that all traffic stay off the recycled mat until weather conditions improve (temperature rises and humidity drops) and the recycled section has "cured" sufficiently for secondary compaction to take place in accordance with the Cure and Maintenance requirements of this specification. The Contractor will be responsible for maintaining and protecting the recycled surface. Any recycled asphalt surfacing damaged by inclement weather shall be replaced by the Contractor at the Contractor's expense as directed by the Engineer.

All CIR reclaiming/placement operations shall be completed a minimum of two (2) hours before sunset to allow for compaction and protection operations.

### **Production**

Divide the project into 3,000-square yard lots. For each lot:

1. Determine the actual recycle depth at each end of the milling drum at least once every 300 feet along the cut length
2. Take and split a sample of the CIR Mixture from a location approved by the engineer. Split the samples into 2 parts and label the containers with locations and station. Submit 1 split part to the Engineer and use 1 part for your testing. Briquettes samples shall be prepared within two (2) Hours.
3. On every third sample taken, perform a field gradation for material passing the 1-inch through No. 4 sieves.
4. Determine in place density and relative compaction of 10 random locations per Cal 231. Use the submitted Job Mix density as the basis of comparison for initial test.

For each lot, measure or calculate and record the following information:

1. Length, width, depth of cut and calculated weight in tons of material processed
2. Weight of recycling agent added in tons
3. Percentage of added recycling agent in the lot's CIR mixture by weight
4. Weight of recycling additive used in tons (if used)
5. Percentage of recycling additive in the lot's CIR mixture by weight (if used)
6. Maximum particle size of the RAP
7. Maximum obtainable density used for relative compaction calculation.
8. Nuclear gauge in-place density and relative compaction at 10 random locations.
9. Ambient and compacted recycled pavement surface temperatures
10. Rate of fog seal coat application
11. Rate of sand cover application
12. Half-life and Expansion Ratio of Foamed Bitumen.

Once per working day, measure and record the half-life and expansion ratio of the bitumen to be used during recycling operations. The bitumen sample must be taken from a test nozzle that is controlled by the recycler. Bitumen must provide an expansion ratio of at least 8:1 and a half-life of at least 6 seconds.

Any time the bitumen temperature drops below 160 degrees C, the half-life and expansion must be tested for each lot at the beginning of each lot.

If the bitumen cannot achieve the required half-life and expansion properties, CIR shall be suspended until a satisfactory result can be achieved.

On the form used to record and report the quality control measurements, also show the job mix formula information.

Make adjustments during CIR operations for optimum quality. If adjustments are made, document the reason for the change and identify on the daily quality control inspection records and sampling and test results.

Daily, take and split a sample of the CIR mixture from a location approved by the Engineer. Split the samples into 2 parts and label the containers with location and station. Submit 1 split part to the Engineer and use 1 part for your testing. Determine maximum theoretical density under California Test 309. Use the maximum theoretical density and calculate void ratio for each nuclear gauge site and lot. Report on daily quality control inspection records and sampling and test results. The Engineer does not use your California Test 309 test results and void ratio to determine specification compliance.

The Contractor shall be responsible for the quality of construction and materials incorporated into the Project. The Contractor's QC measures shall ensure that operational techniques and activities provide integral and finished material of acceptable quality. Contractor sampling and testing shall be performed to control the processes and ensure material compliance with the requirements of the Contract.

The Contractor shall perform all Quality Control testing and sampling for the project. All QC sampling and testing shall be performed by technicians certified by the State of California for that particular material and all laboratory testing shall be performed by laboratories accredited by AASHTO Materials Reference Laboratory (AMRL) and Cement and Concrete Reference Laboratory (CCRL) for the test methods required.

Contractor shall furnish copies of all test results to the Engineer or other authorized Department representative within 24 hours of completing the test of the acquired sample or the next day of business.

### **Placement**

CIR shall be to a depth as stated on the projects plans within the lines and grades of the project plans and specifications or as directed by the Engineer.

The CIR machine must rear load directly into the paver receiving the hopper or the paver's loading equipment must pick up the CIR Mixture and deposit it in the paving machine without waste. Placement of the CIR mixture must be placed by a self-propelled paver equipped with a hopper that automatically feeds the screed. The paving equipment must be equipped with automatic screed controls and sensing devices that control the thickness, longitudinal grade, and transverse screed slope.

The CIR Material shall be capable of holding traffic at the end of each day's production without deformation or damage occurring to the surface. No rutting or raveling shall be tolerated and corrective action per these special provisions shall be applied when either occurs.

The cement shall be spread in a manner that will minimize and maintain dust control within the roadway area. The contractor shall provide and implement measures to prevent dust exposure to the public. Longitudinal joints shall coincide with changes in the existing cross slope at the centerline and edge of the travel way. The Contractor shall ensure that there are no gaps of unrecycled material created between successive cuts (along the same longitudinal cut line), nor any untreated wedges created by the entry of the milling drum into the existing material.

### **Recycling Equipment**

A single-unit self-propelled cold recycling machine with a down cutting cutter head shall be capable of pulverizing and recycling the existing hot-mix asphalt pavement to a maximum depth of 6 inches (0.12m), incorporate the foamed asphalt and compaction water, and mix the materials to produce a homogeneous material.

The milling and mixing unit must be equipped with a gradation control bar that will stabilize the milled surface during milling to prevent the pavement from chunking. The minimum power of this machine shall be 950 hp. The machine shall be capable of pulverizing and recycling not less than 12ft 6ins (3.8m) wide in each pass.



Existing asphalt concrete pavement shall be pulverized to conform to the following gradation:

Sieve Size	Percentage Passing
1 1/2-Inch	100
1-Inch	95

The machine shall have two independent systems for adding foamed asphalt and metered water with each system having a full width spray bar with a positive displacement pump interlocked to the machine's ground speed to insure that the amount of foamed asphalt and compaction water being added is automatically adjusted with the changes to the machine's ground speed. Each additive system shall have its own spray bar equipped with 2 nozzles per foot of spray bar. The foamed asphalt spray bar must be electrically heated. Individual valves on the spray bar shall be capable of being turned off (in pairs) as necessary both foamed asphalt and water to minimize overlap on subsequent passes.

#### **Fog Seal and Sand Spreading**

If directed by the Engineer at the end of each day's production the contractor shall apply a fog seal to the surface at a rate of 0.12 gal/sy and shall meet City Standard Specification. If directed by the Engineer, sand shall be spread at a rate of 1.0 to 2.0 pounds per square yard. Remove excess sand from the CIR surface by sweeping within twenty four (24) hours. Sand cover shall be spread by means of a self-propelled spreader equipped with a mechanical device that will spread the sand at a uniform rate over the CIR surface. The area treated shall be capable of holding traffic at the end of each day's production without any deformation or damage to the surface.

#### **Measurement.**

Quantities of seal coat to be paid for will be measured by the square yard installed in place.

#### **Payment.**

The quantities of fog seal will be paid for at the contract unit price per square yard. Certified weigh tags shall be submitted with payment application. The price shall include preparation for treatment. Furnishing, mixing and applying the fog seal.

The above price and payment shall include full compensation for furnishing all labor, materials (including sand), tools, equipment, and incidentals, and for doing all the work involved in applying fog seal coat, complete in place, as shown on the plans and as specified in these specifications and as directed by the Engineer.

Water furnished and applied to tacky emulsion and for mixing with asphaltic emulsion fog seal will not be paid for and full compensation there for will be considered as included in the contract price paid for the asphaltic emulsion fog seal.

No adjustment of compensation will be made for any increase or decrease in the quantity of fog seal material required, regardless of the reason for such.

**Acceptance**

The project shall be divided into lots 2500 linear feet long and 12 feet wide extending along the lane lines of the road way. If one day's production will be less than 2500 linear feet that day's production shall be a lot. If one day's production is one lot plus an additional amount, the additional work shall be a separate lot. The Engineer will sample and test each lot prior to acceptance. Frequency of testing will be at the Engineers discretion.

Acceptance will be based on the following criteria:

- A. IDTS soaked results must be greater than 95% of the minimum design strength (250kPa, 37 psi).
- B. The average Relative compaction of a lot shall be a minimum of 98% of the maximum wet density as measured by Cal 216. No single test shall be less than 94% relative compaction.

For lots outside of the acceptance criteria the Engineer determines a deduction for each test result outside the specifications using the reduced payment factors shown in the following tables:

**A- Marshall Test results**

<u>% of Minimum Design Strength (250kPa)</u>	<u>Pay factor</u>
>95%	100%
>94%	95%
>93%	90%
>92%	85%
>91%	80%
>90%	75%
<90%	Remove at Engineers sole discretion

**B- Compaction**

<u>% of Relative Compaction as measured by Cal 216. Average density per Lot</u>	<u>Pay factor</u>
> 98%	100%
> 97%	90%
> 96%	80%
> 95%	70%
< 94%	Remove at Engineers sole discretion

In the event a lot is subject to both pay factors, they will be cumulative. (I.E. An 80% pay factor for Marshall and a 70% pay factor for Compaction equals a 56% cumulative pay factor.  $.80 \times .70 = .56$ )

### **Claims Avoidance Procedures**

If inconsistencies are witnessed during Cold In-Place production or if there are discrepancies between the Contractor's test results and the City's test results, the City may require additional post-mortem acceptance testing per the sections specified as follows:

The ITS of the bitumen stabilized materials (BSM) shall be determined by Section A 1.4 "Testing field samples of bitumen stabilized materials (BSMs)," Section A 1.5 "Determining the strength of BSM core specimens" and other applicable sections of the "Cold Recycling, Wirtgen Cold Recycling Technology" Manual, 2012 edition. The bulk density of the bitumen stabilized materials (BSM) shall be determined by A 1.2.7 "Preparing specimens for testing," and other applicable sections of the "Cold Recycling, Wirtgen Cold Recycling Technology" Manual, 2012 edition. This bulk density will then be used to compute the relative compaction results for each core location.

Where the ITS for specimens manufactured from the field samples are in conflict with those obtained from core specimens manufactured from the field samples are in conflict with those obtained from core specimens, the results for the core specimens should be taken as being the correct values.

If these claims avoidance procedures are required by the City, the Contractor shall make every effort possible to minimize the amount of time that the Cold In-Place Recycling surface is exposed to traffic. Contractor shall core the pavement within three (3) working days from receipt of notification by the City. City's testing lab shall be provided three (3) cores per lot. Upon receipt of the new acceptance testing results, the Contractor shall proceed with resurfacing or remediation work within five (5) working days. Contractor will be assessed a \$1,000 fine for every calendar day beyond this time threshold.

### **Method of Measurement**

The unit of measurement for Cold In-Place Pavement Recycling shall be per square yard for the depth specified in the contract. Additional excavation/recycling performed by the Contractor outside the lines provided in the Plans shall not be measured and compensated by the Department without approval by the Engineer.

### **Basis of Payment**

Cold In-Place Pavement Recycling shall be paid for at the contract unit price per square yard for cold in-place recycling to a depth of two (2) or three (3) inches adjusted by the pay factor. This amount shall be full compensation for all work necessary within the dimensions shown on the Plans or specified herein, including but not limited to JITT training, pulverizing existing pavements, additional materials, stabilizing agent(s), mineral filler, water, grading, compaction, sampling, testing and for all materials, labor, tools, equipment, hauling permits, mobilization and any incidentals necessary to complete the work.