



Department of Property & Procurement

Government of the United States Virgin Islands

3274 ESTATE RICHMOND, CHRISTIANSTED, U. S. VIRGIN ISLANDS 00820

8201 SUB BASE, SUITE 4, ST. THOMAS, U. S. VIRGIN ISLANDS 00802

ST. CROIX MAIN OFFICE: 340.773.1561 | ST. THOMAS MAIN OFFICE: 340.774.0828

ST. CROIX FAX: 340.773.0986 | ST. THOMAS FAX: 340.777.9587

[HTTP://DPP.VI.GOV](http://DPP.VI.GOV)



AMENDMENT ONE (1)

February 20, 2018

TO:

**SUBJECT: IFB005DPWC18 (C) Melvin Evans Highway
Pavement Rehabilitation and Safety Improvements
from West Airport Intersection to Industrial Park
Intersection, St. Croix.**

INSERT: New Bid Sheet & Pre Bid Minutes Response

DELETE: Old Bid Sheet

All other terms and conditions remain the same.

A copy of this amendment must be returned with your bid.

PRE-BID CONFERENCE

February 8, 2018

10:00 AM

VI-66(015)

**Melvin Evans Highway Pavement
Rehabilitation and Safety Improvements
Segment Number 4, St. Croix
IFB-005 DPWC 18(C)**

Agenda

Bid Opening Date:	At 10:00 am on February 21, 2018
Contract Time:	165 Calendar Days (Contract Book, D-1)
DBE Goal:	19%
Project Management & Inspection by:	DPW – Office of Highway Engineering John Paul David P.E, Construction Program Manager Bradford Marshall Jr, Project Engineer Frederick Mohammed Jr, Materials Control/Construction Inspector, Rishaun Burke, Construction Inspector
DBE Program Management:	Shelton Schulterbrandt, DBE Program Coordinator
Funding:	100% Funded by Federal Highway Administration (GARVEE)
Office of Civil Rights:	Sharon Challenger-OJT Program

Discussion Items:

Bidders attention is directed to the following Sections: General Provisions (F1-F48), Supplemental Specifications (S1 – S12), and Special Specifications (T1 – T20).- ***Paragraph 40 (C) of the General Provisions of the contract which references the 20% of the liquidated damages specified in the table above should be deleted.***

Paragraph 14 (a) page C-7 which reads “ In the event of tied bids....” Should be deleted.

The successful bidder will be provided with a copy of the current Earth Change and Building Permits issued by Department of Planning and Natural Resources (DPNR).

Utility Agreements have not been executed with utility companies as no utilities would be impacted by this project. Where pipe crossings or similar installations are being completed it would be necessary to coordinate with utilities to determine the depths and alignments of such installations in order to complete the necessary tasks.-

Item 15201-Construction Survey and Stakeout- Bidders must pay attention to the full scope of this item as per FP-14 and as amended by the Special Specifications. Survey work must be undertaken by a professionally qualified land surveyor. In order to properly execute this project, it is necessary that the surveyor establish a centerline profile of the existing roadway as the basis of construction to establish horizontal and vertical control for construction according to the typical cross section details. The cross sections of the new asphalt surfaces are to be constructed as per the detail sheets and should effectively tie in to the existing drainage structures and cross pipes.

Item 40301 - Hot Asphalt Concrete Pavement- Warm mix Asphalt should be used in all applications as part of the implementation of Every Day Count initiative (EDC). In addition, safety edge should be used on paving machines so as to bring out the desired effects. This is the second EDC initiative to be implemented in this project.

A brochure on warm mix asphalt will be issued as an addendum to this meeting as ADDENDUM NUMBER 1. Further information can be obtained from the materials control manager Mr. Frederick Mohammed.

Information on the application of safety edge may be obtained at https://www.youtube.com/watch?v=wjqCLp_KqN8

A second brochure on the EDC initiative on application of safety edge will be issued as ADDENDUM NUMBER 2.

Specifications for WMA will be issued as Addendum Number 3

Bidders must take note that item numbers 63501 and 63502 are to include traffic control according to MUTCD. These items are to take into account the need to regulate speed during construction to safety limits due to increased risk of plucking of aggregates and damage to windscreens. The use of Virgin Islands Police Department for traffic control must also be taken into account.

Addendum number 4 is the amended bid schedule to address typographical errors in the original bid schedule.

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Discussion Items by Contracting Officer (Property and Procurement):

The deadline for submission of queries on this IFB is the close of business on February 15, 2018. All queries should be addressed to: Dynell.williams@dpp.vi.gov

Questions / Comments / Clarifications

The meeting was adjourned until February 21, 2017 at 10:00 am.

All other terms and conditions of this IFB remains the same.

U.S. Department of Transportation

Federal Highway Administration

1200 New Jersey Avenue, SE

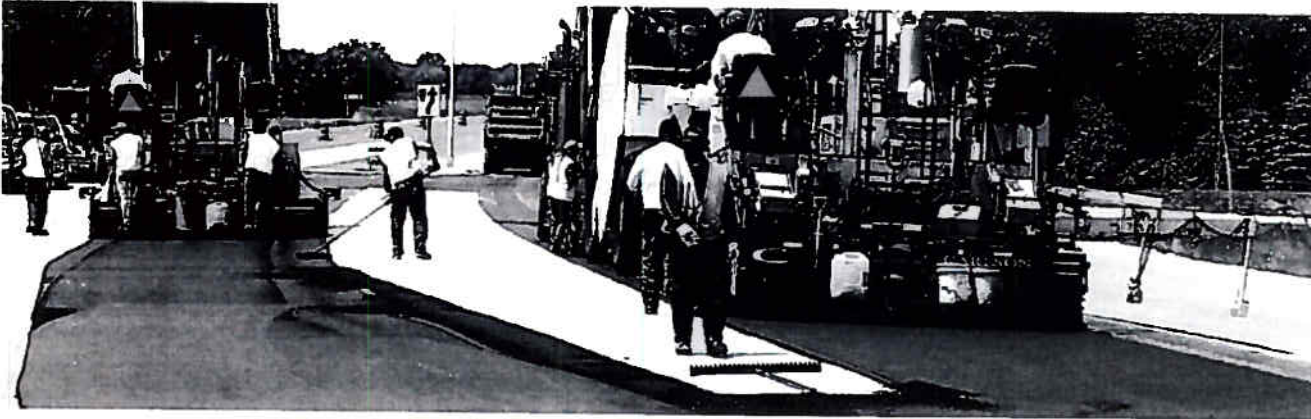
Washington, DC 20590

202-366-4000

Add 1

Center for Accelerating Innovation

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**Warm Mix Asphalt**

Warm Mix Asphalt (WMA) is the generic term for a variety of technologies that allow producers of Hot Mix Asphalt (HMA) pavement material to lower temperatures at which the material is mixed and placed on the road. It is a proven a technology that can:

- Reduce paving costs.
- Extend the paving season.
- Improve asphalt compaction.
- Allow asphalt mix to be hauled longer distances.
- Improve working conditions by reducing exposure to fuel emissions, fumes, and odors.

Lower temperatures, lower costs, more opportunities.

WMA production methods use temperatures 30 to 120 degrees Fahrenheit lower than traditional hot-mix asphalt. Because less energy is needed to heat the asphalt mix, less fuel is needed to produce WMA. Fuel consumption during WMA manufacturing is typically reduced by 20percent.

In paving projects, the greater the temperature difference between the asphalt mix and the outside temperature, the faster the mix cools. Since faster cooling effects durability, cold ambient temperatures adversely affect hot-mix asphalt. Relative to HMA, WMA cools more slowly allowing WMA to be successfully placed in lower temperatures. As a result, WMA extends the paving season. It also makes night paving more feasible.

Additionally, WMA saves time in production as well as in surfacing roads. Because WMA makes compaction easier, cost savings are achieved by reducing time and labor spent compacting the mix. Lower temperatures also permit more asphalt mix to be hauled for longer distances, reducing transportation costs.

How does it work? WMA technologies reduce the viscosity (the thickness) of the asphalt binder so that asphalt aggregates can be coated at lower temperatures. The key is the addition of additives (water-based, organic, chemical, or hybrids) to the asphalt mix. The additives allow the asphalt binders and asphalt aggregates to be mixed at the lower temperatures. Reducing the viscosity also makes the mixture easier to manipulate and compact at the lower temperature.

Better performance

Proper compaction is critical to well-performing pavements. One indication of proper compaction is density. Achieving proper density is important because most asphalt paved Federally-funded highways are accepted based on their density. WMA is a compaction tool that can help achieve proper density and improve pavement performance goals.

WMA is also versatile. It has been used successfully in a range of pavement thicknesses. It is durable enough to withstand high traffic demands. WMA has been used in all types of asphalt concrete: dense-graded, stone matrix, porous, and mastic asphalt. Multiple WMA technologies are available, so the choice can be adapted to the temperatures and materials required.

Warm-mix asphalt has been used successfully in Europe for more than 10 years. In the United States, WMA projects are now in more than 40 States.

Add

Good for workers, good for the environment.



Working conditions are much healthier with WMA. Both at the production plant and on the construction site, workers inhale far less smoke and dust. This reduction is particularly important in tunnels, where ventilation is reduced. Comments from workers have been highly positive. According to Brad Neitzke, a Materials Engineer for the Federal Lands Highway, a Division of FHWA, "Certainly, warm-mix improved working conditions at the paving site. The crew's first reaction was to say, 'There's no smoke!'"

WMA also produces fewer emissions, making it possible for paving to be done on some days when the air quality would typically put a halt to paving. A State transportation official recently attested that "On non-attainment days, when the air quality is bad, we often get shut down and are unable to pave. But with warm-mix [asphalt], because the emissions are reduced, we might be able to pave even on days when the air quality is not the best."

Internationally recognized. WMA is clearly an important technology for the 21st century. The World of Asphalt's "People, Plants, and Paving Training Program" focused attention to WMA, with multiple sessions at its 2010 conference. At least 14 State Highway Agencies have adopted specifications to accommodate WMA, and more than 40 States have roads paved with WMA. This green technology is increasing the quality of our roads and our environment.

Contact

Matthew Corrigan
FHWA Office of Infrastructure
(202) 366-1549
Matthew.Corrigan@dot.gov

Resources

[Brochure](#)

[FAQs](#)

[NCHRP Report 691: Mix Design Practices for WMA](#)

[Warm Mix Asphalt: European Practice](#)

Articles

[Public Roads article \(07 10\)](#)

Links

[Office of Infrastructure Warm Mix Asphalt](#)

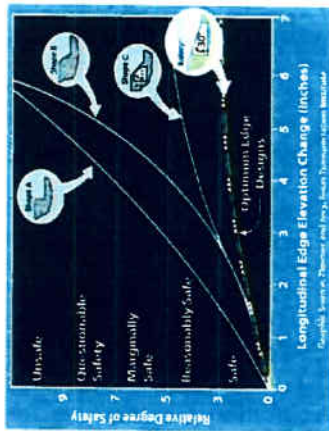
[Warm Mix Asphalt](#)

Page last modified on November 14, 2016

FAQs

Why should I change my current process to include the Safety Edge?

The Safety Edge improves the short- and long-term safety of the roadway. Studies show that severe crashes may occur when a vehicle drops a tire over the edge of a nearly vertical pavement. The research shows that virtually all drivers can recover, even at high speeds, when the pavement edge is a 30-degree wedge. Using the Safety Edge also improves the durability of the pavement edge.



Do I need to modify my paving process to install the Safety Edge on asphalt?

Very few changes are needed. The key item is to add a specially designed shoe, per manufacturer's instructions, to the paver to create the Safety Edge. While paving, the shoe should be monitored and adjusted to keep the bottom edge of the device in contact with the road shoulder surface. Using the Safety Edge should not affect the rate of production.

How much will the addition of the Safety Edge cost per mile?

It will be almost negligible for hot-mix asphalt. It does depend somewhat on the specific design and construction parameters, but typically the process compacts asphalt that often otherwise would break off because it was loose. When measured, it has been calculated to be less than 1 percent additional asphaltic material.



This diagram shows how the Safety Edge is created during a repaving project. As the new graded material begins to settle or erode, the angled and more durable Safety Edge prevents a vertical edge from forming, making the pavement edge safer for drivers and cyclists.

Contact Information

For training or more information on this Every Day Counts Initiative, please contact your local FHWA Division Office.

To learn more about EDC, visit:
<https://www.fhwa.dot.gov/everydaycounts>

About Every Day Counts

Every Day Counts is designed to identify and deploy innovation aimed at shortening project delivery, enhancing the safety of our roadways, and protecting the environment.



Publication Number: FHWA-SA-10-034

What is the Safety Edge?

The Safety Edge is a simple but effective solution that can help save lives by allowing drivers who drift off highways to return to the road safely. Instead of a vertical drop-off, the Safety Edge shapes the edge of the pavement to 30 degrees. Research has shown this is the optimal angle to allow drivers to re-enter the roadway safely. The asphalt Safety Edge provides a strong, durable transition for all vehicles. Even at higher speeds, vehicles can return to the paved road smoothly and easily. The FHWA's goal is to accelerate the use of the Safety Edge technology working with States to develop specifications and adopt this pavement edge treatment as a standard practice on all new paving and resurfacing projects.



The Safety Edge is shown here in the main photo during construction. Upon project completion, the adjacent unpaved material should be graded flush with the top of the pavement (inset photo). The Safety Edge creates a more durable pavement edge and makes recovery from any future drop of much easier and safer.



The Safety Edge

A Pavement Edge Drop-Off Treatment



U.S. Department
of Transportation
**Federal Highway
Administration**

How Does It Work?

Drivers leave the paved road for many reasons. When steering the tires back onto the pavement, a vertical edge can make it difficult for a driver to safely re-enter the travel lane. Drivers may over-steer and lose control of the vehicle, leading to severe crashes. The challenge is that a drop-off is created during most paving projects. Even when the unpaved shoulder is reggraded to eliminate the drop-off, the edge often becomes exposed within a few months. The edge also may deteriorate.

The Safety Edge is an effective solution to reduce pavement edge-related crashes. By shaping the edge of the pavement to 30 degrees using a commercially available device, called a shoe, that can be attached to the paver. The asphalt is extruded under the shoe, resulting in a durable edge that resists edge raveling. Research has shown this 30-degree shape allows drivers to re-enter the roadway safely.

After paving with the Safety Edge, the adjacent material should be reggraded flush with the top of the pavement. This is considered the best practice, and provides the safest pavement edge. The difference is that when the edge becomes exposed, this shape can be more safely traversed than a vertical edge.



The shoe that creates the Safety Edge is a special edging device that asphalt paving contractors can install on new or existing resurfacing equipment.

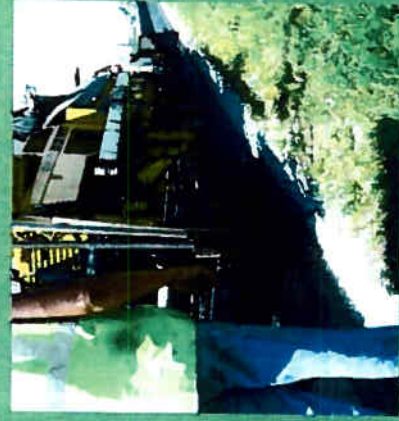
Quick Facts



Sharp, steep pavement edge drop-offs can contribute to crashes.

- The Safety Edge can help decrease highway fatalities and serious injuries on our Nation's highways.
- Because the Safety Edge provides an additional level of consolidation on the edge, edge raveling is decreased. This contributes to longer pavement life.
- The Safety Edge involves minimal time and cost to implement. Typically, less than 1 percent additional asphalt is needed. The Safety Edge shoe, which creates the edge, can be installed on existing equipment.
- The Safety Edge also can be installed on Portland Cement concrete pavements. (Several differences should be considered. For more information, visit the Safety Edge Web site for details.)
- Best practice is to maintain a flush edge, so that no drop-off exists. The Safety Edge reduces the risk of drop-offs when maintenance forces cannot keep up with erosion or tire wear.
- Vertical and near vertical pavement edge drop-offs have been a factor in a substantial percentage of severe crashes in which vehicles leave the road, particularly on rural roads with unpaved shoulders. The Safety Edge reduces this problem, providing a safer transition back to the road.
- The Safety Edge is a safer design for motorcycles and bicyclists, as well as motorists.

Case Study: Iowa Adopts Safety Edge Policy



Safety Edge treatment being applied during an asphalt overlay.

The Iowa FHWA Division and the Iowa Department of Transportation (IDOT) recently began working with counties to install the Safety Edge on projects with a history of roadway departure crashes. The Safety Edge was included at the county level on project plans or incorporated as change orders on already-let projects. During one of these county projects, the contractor's safety officer felt positive about the results because the Safety Edge potentially reduced the contractor's liability by providing immediate elimination of the vertical drop-off.

After seeing how easily even large vehicles could traverse the pavement edge without loss of control or damaging the edge, the county decided its typical practice of bringing in a gravel wedge before nightfall was not necessary when the Safety Edge was present. The results were so positive that IDOT decided to use the Safety Edge on one of its State paving projects on a narrow road. Since then, IDOT has decided to adopt the Safety Edge as standard practice across the entire State.

Pavement Edge Drop-Offs Can Contribute to Crashes

Roadway departures account for 33 percent of fatal crashes. State-level studies point to the life-saving potential of the Safety Edge. For example, researchers studying crashes in Missouri during 2007-2004 reported that pavement edges may have been a contributing factor in as many as 24 percent of rural run-off-road crashes on paved roadways with unpaved shoulders. This type of crash was twice as likely to include a fatality than rural crashes overall on similar roads.

When a driver drifts off the roadway and tries to steer back onto the pavement, a vertical pavement edge can create a "tire scrubbing" condition that may result in oversteering. If drivers oversteer to return to the roadway without reducing speed, they are prone to lose control of the vehicle. The resulting crashes tend to be more severe than other crash types. The vehicle may veer into the adjacent lane, where it may collide with oncoming cars, overturn or run off the opposite side of the roadway and strike a fixed object or overturn on a slope.



This is a typical diagram for a crash caused by the scrubbing. The vehicle at left scrubbed the edge of the pavement, and when it returned, the driver overcorrected, lost control, crossed into the adjacent lane, and struck an oncoming vehicle.

(Graphic source: AAA Foundation for Highway Safety)

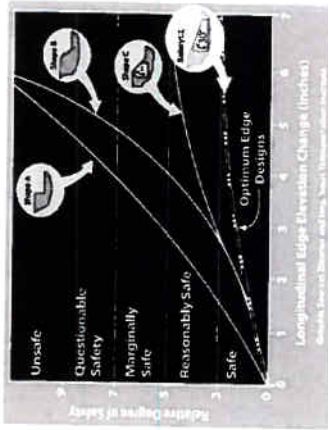
Inexperienced drivers are not the only victims of tire scrubbing. Smaller, lighter vehicles have a harder time climbing a steep pavement edge. At high speeds, the climb is particularly dangerous. According to insurance evaluations, a vertical or near vertical drop-off of 2.5 inches or greater has been shown to pose a significant risk, while pavements built with the Safety Edge showed reductions of more than 5 percent of total crashes.

Mahmoud et al., Safety Impacts of Pavement Edge Drop-Offs, AAA Foundation for Highway Safety, Washington, DC, September 2006.

FAQs

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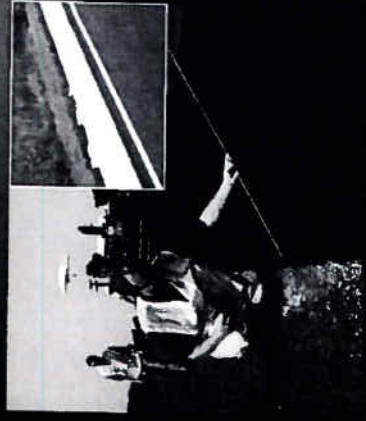
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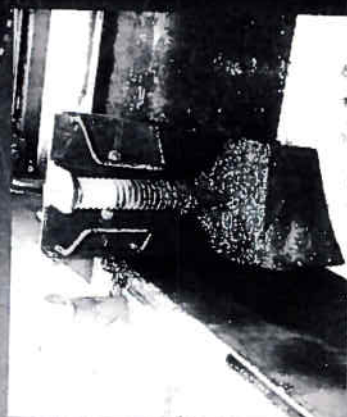
U.S. Department
of Transportation
Federal Highway
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(Graphic source: AAA Foundation for Highway Safety)

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¹Hallmark et al. Safety Impacts of Pavement Edge Drop-Offs, AAA Foundation for Highway Safety, Washington, DC, September 2006.

2/8/17

#3274 ESTATE RICHMOND

February 8, 2018 Pre Bid 10:00 am

IFB005DPWC18 (C) Melvin Evans Highway Pavement Rehabilitation & Safety Improvements Project # VI0066(015), St. Croix.

[illegible]

Warm Mix Asphalt (WMA) Guide Specification for Highway Construction

Division 400 - Asphalt Pavements and Surface Treatments

SECTION 406 - WARM MIX ASPHALT (WMA) PAVEMENT

Warm mix asphalt (WMA) is the generic term used to describe the reduction in production, paving, and compaction temperatures achieved through the application of one of several WMA technologies.

Some modifications to HMA plants may be necessary to accommodate the WMA technologies as noted in Section 406.03 Construction.

Production and paving temperatures may need to be increased for higher recycled asphalt pavement (RAP) contents, increased haul distances, decreased ambient temperatures, or other WMA project specific conditions.

All provisions for the production and placement of conventional HMA mixtures as stipulated in Standard Specification for Construction and Bridges on Federal Highway Projects (FP), Section 403 are in force except as noted below.

406.01 Description

Construct one or more courses of plant produced warm mix asphalt (WMA) pavement on a prepared foundation, using virgin aggregate or a combination of virgin and/or reclaimed aggregate material (RAM) and prescribed manufactured WMA additives and/or WMA plant process modifications. Use of RAP materials, consisting of cold milled, crushed, or processed bituminous asphalt mixture are permitted at the current 25 percentages, provided that the mixture meets all the requirements of these specifications.

406.02 Material

WMA may be produced by one or a combination of several technologies involving HMA plant foaming processes and equipment, mineral additives, or chemicals that allow the reduction of mix production temperatures to within 185°F to 275°F. *(Note: The upper temperature range is appropriate for modified asphalt binders and WMA mixtures which include higher percentages of reclaimed asphalt pavement.)*

Provide materials as specified in:

Aggregate	Subsection 703.07 or 703.17
Antistrip additive	Subsection 702.08
Asphalt binder	Subsection 702.01
Mineral Filler	Subsection 725.05
Recycled Asphalt Pavement	Subsection 703.19
Recycling Agent	Subsection 702.06

406.03 Construction

A. *Mix Design.* Develop and submit a job mix formula for each mixture according to AASHTO R 35. Each job mix formula must be capable of being produced, placed, and compacted as specified. Apply all mix design requirements for HMA to the development of the WMA mix design.

Submit a written job mix formula for review and approval at least 28 days before production, or when sources of asphalt binder, aggregates, WMA additives, or other components of the mix change.

Submit the following information:

1. All information required in the report section of AASHTO R 35.
2. WMA technology and/or WMA additives information.
3. WMA technology manufacturer's established recommendations for usage.
4. WMA technology manufacturer's established target rate for water and additives, the acceptable variation for production, and documentation showing the impact of excessive production variation.
5. WMA technology material safety data sheets (MSDS).
6. Documentation of past WMA technology field applications including project type, project owner, tonnage, location, mix design, mixture volumetrics, field density, and performance.
7. Temperature range for mixing.
8. Temperature range for compacting.
9. Asphalt binder performance grade test data over the range of WMA additive percentages proposed for use.
10. WMA mixture performance test results.
11. Laboratory test data, samples and sources of all mixture components, and asphalt binder viscosity-temperature relationships.

B. *Additives.* Use anti-stripping additives, silicone additives, WMA additives, and WMA technologies as specified. Comply with approved mix design quantities. Confirm the addition rate through field tests performed during production. Comply with the manufacturer's recommendations for incorporating additives and WMA technologies into the mix. Comply with manufacturer's recommendations regarding receiving, storage, and delivery of additives. Maintain supplier recommendations on file at the asphalt mixing plant and make available for reference while producing WMA.

C. *Sampling.* Perform sampling according to the following standards:

1. *Aggregate.* AASHTO T 2.
2. *Asphalt Binder.* AASHTO T 40.
3. *Warm Mix Asphalt (WMA) Plant Mix.* AASHTO T 168.

D. *Weather Limitations.*

1. Place WMA mixtures only on dry, unfrozen surfaces and only when weather conditions allow for proper production, placement, handling, and compacting.
2. Meet Table 401-2 placement temperatures.

E. *Equipment.* Use equipment and WMA technologies capable of producing an asphalt mixture that meet specification requirements and is workable at the minimum placement and compaction temperature desired, regardless of storage or haul distance considerations.

1. *Asphalt Mixing Plant.* Meet AASHTO M 156 and FP Subsection 401.04.

Modify the asphalt mixing plant as required by the manufacturer to introduce the WMA technology.

Plant modifications may include additional plant instrumentation, the installation of asphalt binder foaming systems and/or WMA additive delivery systems, tuning the plant burner and adjusting the flights in order to operate at lower production temperatures and/or reduced tonnage.

(Note: Implementation of best management practices in the control of aggregate moisture content prior to introduction to the drying or mixing drum is highly recommended in order to achieve the maximum benefit of WMA technology.)

Combine and mix the dried aggregates and asphalt binder to meet the job mix formula. Ensure a minimum of 95 percent uniform coating of aggregates according to AASHTO T 195.

Correct procedures if storing or holding causes segregation, excessive heat loss, or a reduced quality mixture. Properly dispose of mixture which does not meet specifications.

G. *Preparing Base or Existing Surface.* Clear surface of debris and deleterious material. Apply and cure tack coat before placing the WMA. Apply a tack coat on all surfaces, curbs, gutters, manholes, or other structure surfaces, that will be in contact with the WMA.

Repair damaged areas of the base or existing surface. Restore the existing surface or base to a uniform grade and cross section before placing the mix.

H. *Pre-paving Requirements.* Prior to placing any WMA mix, produce a sufficient amount of WMA mix to properly calibrate the plant and procedures using the mix design approved for mainline construction. The Engineer will sample and test the WMA mix thus produced for the following:

1. Voids in mineral aggregate (VMA);
2. Asphalt binder content;
3. Gradation;
4. Air voids; and
5. Tensile strength ratio (or Hamburg wheel tracking test for moisture damage)

Heat WMA field samples, transported to the laboratory, to the field production temperature, or lower, when reheating is required for WMA mixture testing.

(Note: Field produced WMA loose mix samples which are immediately compacted and tested, without reheating, may produce lower voids in mineral aggregate and lower air voids test results when compared to reheated samples. This should be validated during the test strip or initial production lot. One possible remedy is to cool the WMA sample to room temperature and reheat to a temperature that is less than or equal to the WMA field production temperature before laboratory compaction. This will minimize the WMA technology's effects on the test results and ensures the sample is not excessively aged.)

Place no WMA mixture that fails to meet specification requirements. WMA mixture not meeting the requirements may be used in the construction of temporary facilities when approved by the Engineer.

Construct a control strip or initial production lot with production materials and equipment. Select compacting methods to meet the specified density. The Engineer will take random loose mix and core samples to verify compliance with job mix and specification requirements. Reconstruct the test strip or initial production lot if the job mix formula, the compacting method, or compacting equipment changes,

or if results do not meet specifications.

I. *Spreading and Finishing.* Spread and finish the mixture with asphalt pavers to specified grade and thickness.

Hand place material in areas inaccessible to mechanical spreading and finishing equipment. Maintain a consistent supply of mixture to ensure uninterrupted paving.

Minimize inconvenience to traffic and protect existing and finished surfaces. Leave only short lane sections, normally less than [26 ft (8 m)], where the abutting lane is not placed the same day, or according to Manual on Uniform Traffic Control Devices (MUTCD) traffic safety requirements.

J. *Compacting.* Compact immediately after spreading and before the WMA mixture falls below the minimum job mix design compaction temperature. Discontinue paving if unable to achieve the specified density before the mixture cools below the minimum recommended WMA job mix design compaction temperature.

Provide the number, weight, type, and sequence of rollers necessary to compact the mixture without displacing, cracking, or shoving. Roll the WMA mixture parallel to the centerline. Begin rolling superelevated curves at the low side and continue to the high side, overlapping longitudinal passes parallel to the centerline.

Maintain a uniform roller speed with the drive wheels nearest the paver. Operate vibratory rollers uniformly at the manufacturer's recommended speed and frequency.

Continue rolling to eliminate all roller marks and to achieve the minimum 92 percent of laboratory density as determined according to AASHTO T 209.

Maintain the line and grade of the edge during rolling.

Prevent the mixture from adhering to the rollers by using very small quantities of detergent or other approved release material.

Hand compact areas inaccessible to rollers.

The Engineer will take random tests of the compacted pavement to verify specification compliance. At no cost to the Agency, remove and replace mixture that does not meet specification requirements or that becomes contaminated with foreign materials. Remove defective materials for the full thickness of the course by saw cutting the sides perpendicular and parallel to the direction of traffic. Coat saw cut edges with bituminous materials and replace the defective material with specification materials.

K. *Joints.* Protect ends of a freshly laid mixture from damage by rollers. Form transverse joints to expose the full depth of the course. Apply a tack coat on transverse and longitudinal joint contact surfaces immediately before paving. Construct all longitudinal joints within 12 in. (300 mm) of the lane lines. Offset longitudinal and transverse joints on succeeding lifts 6 inches (150 mm) to 12 inches (300 mm) from the joint in the layer immediately below. Create the longitudinal joint in the top layer along the centerline of two-lane highways or at the lane lines of roadways with more than two lanes.

L. *Surface Tests.* The Engineer will test pavement surfaces to verify compliance with FP Subsection 401.16, smoothness and texture requirements.

Correct pavement surfaces that do not meet specification requirements by cold milling, diamond grinding, overlaying, or removing and replacing according to the following:

a. *Diamond Grinding.* Diamond grind final pavement surfaces exposed to vehicle traffic to the required surface tolerance and cross section. Remove and dispose of all waste material.

b. *Cold Milling.* Cold mill intermediate pavement surfaces to the required surface tolerance and cross section. Remove and dispose of all waste materials.

c. *Overlaying.* Use specification materials for overlays. Overlay the full width of the underlying pavement surface. Place a minimum recommended overlay thickness of [1.6 in. (40 mm)]. Use only one overlay.

d. *Removing and Replacing.* Replace rejected areas with WMA pavement materials that meet specification requirements. Test the corrected surface area. Complete all corrections before determining pavement thickness.

406.04 Measurement

The Engineer will measure work acceptably completed as specified in Subsection 109.02. The Engineer will base quantities of asphalt binder on the theoretical mass incorporated into accepted product as verified by samples taken according to Subsection 702.01.

406.05 Payment

Include costs of plant startup operations, considering both labor and materials, in the price bid for the mixture in place.

The Agency will pay for accepted quantities at the contract unit price as follows:

Pay Item Pay Unit

(A) Asphalt Binder ton (Mg), gal (L)

(B) WMA Plant Mix—Type _____ ton (Mg), yd² (m²)

Such payment is full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

BID SCHEDULE

IFB NO. _____ PROJECT NO. VI-0066(015)

CONTRACTOR'S NAME: _____

CITY

STATE

ZIP CODE

The undersigned Contractor proposed to furnish all labor, tools, equipment, machinery, and supplies for the Melvin Evans Highway between West Airport Intersection and Industrial Park Intersection Route 66 subject to all conditions and requirements of the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14 as revised and amended and the Contract Documents.

ITEM NO.	APPROX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
15101-0000	1 LS	MOBILIZATION		
15201-0000	1 LS	CONSTRUCTION SURVEY AND STAKING		
15401-0000	1 LS	CONTRACTOR SAMPLING AND TESTING		
15705-0100	700 LF	SOIL EROSION CONTROL - SILT FENCE PROTECTION		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
15706-0100	25 EA.	SOIL EROSION CONTROL - STRAW BALE _____		
15706-1200	3 EA.	SOIL EROSION CONTROL - TEMPORARY INLET PROTECTON TYPE B _____		
15706-1500	12 EA.	SOIL EROSION CONTROL - TEMPORARY INLET PROTECTON TYPE E _____		
15901-0000	1 LS	ON THE JOB TRAINING _____		
20220-1000	1 EA.	GLEARING AND GRUBBING - REMOVAL OF TREE _____		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	ITEM NO. DOLLARS/CENTS
20301-1200	3 EA.	REMOVAL OF STRUCTURES - REMOVAL OF BASINS AND HEADWALLS _____ _____		
20302-1200	21,150 LF	REMOVAL OF STRUCTURES - REMOVAL OF GUARDRAIL _____ _____		
20401-0000	950 CY	EXCAVATION AND EMBANKMENT - ROADWAY AND SLOPE EXCAVATION _____ _____		
20425-2000	130 LF	EXCAVATION AND EMBANKMENT - EXCAVATE AND FURROW DITCH _____ _____		
25101-0200	20 CY	RIP RAP - GROUTED RIP RAP, CLASS I METHOD "A" _____ _____		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
30101-1000	1,200 SY	UNTREATED AGGEGATE COURSE - AGGREGATE GRADING "C" (12" DEPTH) _____		
30301-3000	94 STA	ROAD RECONDITONING – MEDIAN, SHOULDER AND DITCH RECONDITIONING _____		
40301-0100	7,650 TON	WARM ASPHALT CONCRETE PAVEMENT – CLASS "A" GRADING "E", TYPE 1 (SURFACE) _____		
40301-0110	2,625 TON	WARM ASPHALT CONCRETE PAVEMENT – CLASS "A" GRADING "C", TYPE 1 (BASE) _____		
41101-1000	1,200 SY	ASPHALT PRIME COAT - GRADE RS-1 METHOD "1" _____		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
41202-0000	13,500 GAL	ASPHALT TACK COAT – GRADE RS-1 _____		
41301-0600	60,500 SY	ASPHALT PAVEMENT MILLING – MILL VARIABLE DEPTH (2 1/4" TO 3 1/4") _____		
41801-2000	200 SY	ASPHALT PAVEMENT PATCHING – PARTIAL DEPTH PATCH TYPE 2 _____		
41801-3000	400 SY	ASPHALT PAVEMENT PATCHING – DEPTH PATCH TYPE 3 _____		
60202-0400	20 LF	CULVERT AND DRAINS – 30" X 19" ELLIPTICAL REINFORCED CONCRETE PIPE, CLASS III _____		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
60201-0800	8 LF	CULVERT AND DRAINS – 24" REINFORCED CONCRETE PIPE, CLASS III _____		
60210-0800	2 EA	CULVERT AND DRAINS – 24" REINFORCED CONCRETE PIPE END SECTION, CLASS III _____		
60403-1400	1 EA	MANHOLES, INLETS AND CATCH BASINS - INLET TYPE 5B WITH 5'X5' METAL FRAME AND GRATE _____		
60405-0000	1 EA	MANHOLES, INLETS AND CATCH BASINS – ADJUST MANHOLE _____		
60707-0500	600 LF	CLEANING, RECONDITIONING AND REPAIRING EXISTING DRAINAGE STRUCTURE _____		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
60815-0400	250 SY	WATERWAY – RECONDITION CONCRETE PAVED WATERWAY TYPE 4 _____		
61701-1350	20,500 LF	GUARDRAIL – SYSTEM G-4, TYPE II CLASS B WITH BUTTON REFLECTORS _____		
61701-1360	450 LF	GUARDRAIL – SYSTEM G-4, TYPE II CLASS B WITH BUTTON REFLECTORS (DUAL RAIL) _____		
61702-0600	7 EA	GUARDRAIL – TERMINAL SECTION, TYPE FLARED _____		
61702-0800	8 EA	GUARDRAIL – TERMINAL SECTION, TYPE TANGENT _____		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
61703-2000	4 EA	GUARDRAIL – TERMINAL SECTION, ROUNDED END SECTION _____		
61711-0000	2 EA	GUARDRAIL – TERMINAL SECTION, TYPE MEDIAN IMPACT ATTENUATER _____		
63304-1200	370 SF	PERMANENT TRAFFIC CONTROL – SIGNS ALUMINUM, TYPE IX REFLECTIVE SHEETING _____		
63316-1000	4 EA	PERMANENT TRAFFIC CONTROL – REMOVE AND RESET SIGN _____		
63401-1500	39,230 LF	PERMANENT PAVEMENT MARKINGS – THERMOPLASTIC, TYPE H (4" WHITE) _____		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
63401-1510	19,600 LF	PERMANENT PAVEMENT MARKINGS – THERMOPLASTIC, TYPE H (4" YELLOW) _____		
63401-1520	275 LF	PERMANENT PAVEMENT MARKINGS – THERMOPLASTIC, TYPE H (24" WHITE) _____		
63405-2900	684 SF	PERMANENT PAVEMENT MARKINGS – THERMOPLASTIC, TYPE H (ARROW/ONLY) _____		
63406-0200	1,400 EA	PERMANENT PAVEMENT MARKINGS – RAISED PAVEMENT MARKERS _____		
63501-0000	1 LS	TEMPORARY TRAFFIC CONTROL – TAFFIC CONTROL MANAGEMENT _____		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
63502-0500	4 EA	TEMPORARY TRAFFIC CONTROL – BARRICADE, TYPE II, REFLECT TYPE IV _____ _____		
63502-0600	8 EA	TEMPORARY TRAFFIC CONTROL – BARRICADE, TYPE III, REFLECT TYPE IV _____ _____		
63502-1000	50 EA	TEMPORARY TRAFFIC CONTROL – CONES, REFLECT TYPE IV (36" HEIGHT) _____ _____		
63502-1300	120 EA	TEMPORARY TRAFFIC CONTROL – DRUMS, TYPE IV REFLECTIVITY _____ _____		
63502-1500	40 EA	TEMPORARY TRAFFIC CONTROL – WARNING LIGHT TYPE "A" _____ _____		

PROJECT NO. VI-0066(015)

ITEM NO.	APPRX. QUANT.	ITEM AND UNIT PRICE BIDS (IN WORDS)	UNIT PRICE DOLLARS/CENTS	AMOUNT DOLLARS/CENTS
63504-1000	945 SF	TEMPORARY TRAFFIC CONTROL - CONSTRUCTION SIGNS, TYPE IV REFLECTIVITY _____		
63602-6000	4 EA	SYSTEM INSTALLATION - VIDEO CAMERA TRAFFIC DETECTION SYSTEM WITH CABLES _____		

IFB NO. _____ **PROJECT NO. VI-0066(015)** _____

ATTENTION: See notes at the beginning of this unit price schedule.

TOTAL AMOUNT OF THIS PROPOSAL, BASED ON ENGINEER'S ESTIMATE OF QUANTITIES IS AS FOLLOWS:

_____ DOLLARS _____ CENTS

\$ _____

BIDDER'S SIGNATURE