

ASPHALT PAVEMENTS
and
SURFACE TREATMENTS

Asphalt Pavements and Surface Treatments

SECTION 400 - ASPHALT PAVEMENT GENERAL)

General: Contractor Quality Control and Testing - All allowances shall be subsidiary to other pay items. Generally contractor quality control is applicable for Items 403 through 406, 409, 410, and 412. Contractor sampling is applicable for Items 407, 408, and 413. Refer to R-1 SPS 160 for details. Refer to "Asphalt Products" (Table 400-2) for price data.

SECTION 403 - HOT ASPHALT CONCRETE PAVEMENT (Contract Item)

Estimates should be based upon current local prices, remoteness and size of project, haul distance of materials, adequacy of worksite, etc.

Compare the cost of on-site production with feasible commercial sources in the area. Move-in and move-out costs of a portable plant will often control prices on small projects.

The in-place compacted density and asphalt content used for calculating quantities should be based on a preliminary mix design. In lieu of other information, use 150 pounds per cubic foot for in-place compacted density and 6.5 percent asphalt cement based on weight of total mix.

Add \$10 to \$15 per ton of asphalt if antistripping additive is required.

SECTION 410 - SLURRY SEAL

Obtain costs from supplier.

SECTION 411 - PRIME COAT (Contract Item)

Obtain current quotes from local suppliers. Asphalt costs dependent upon quantity and location. Application costs are about \$10 to \$15 per ton of asphalt.

For application rates see "Application Rate Tables" (Table 400-1).

For price data see "Asphalt Products" (Table 400-2)..

SECTION 412 - TACK COAT (Contract Item)

Costs dependent upon quantity and location. Application, exclusive of materials, is about \$.20/gallon. Include surface preparation and brooming cost.

For application rates see "Application Rate Tables" (Table 400-1).

For price data see "Asphalt Products" (Table 400-2).

SECTION 414 - ALPHALT PAVEMENT CRACK AND JOINT SEALING (Contract Item)

Obtain costs from supplier.

SECTION 415 - PAVING GEOTEXTILES (Contract Item)

Obtain costs

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SECTION 430 – ASPHALT SURFACE TREATMENT (Contract Item)

Construction Costs:

A. Aggregate. Costs are dependent upon quantity and location. Include the following:

1. Crush and Stockpile: (Sections 330 and 649). Crushing costs can vary widely depending on the gradation selected, whether aggregates are produced as a by-product of other crushing operations or produced separately, and availability of commercial sources. Chips average weight is 2300 lbs/cy (loose).
2. Loading Aggregate: (use cost from Section 330).
3. Weighing: (platform scales) ID and MT, \$0.25/ton. Include cost for scale move-in, set-up and certification, \$2000 - \$2500 per instructions under Section 151. If bin or belt scales are used, allow \$500-\$1000 for certification. For small projects consider using lump sum or cubic yard measurement.
4. Hauling: Develop haul cost from haul section in this costguide
5. Road Surface Preparation, Brooming & Other Prep Work: (if req'd) Estimate the number of passes for power broom. (Travel speed of 5-7 miles per hour). Rough cost \$0.0065/sq. yd.
6. Aggregate Application: Include cost of self-propelled aggregate spreader and truck time while waiting and spreading.
7. Rolling: Immediately after application of aggregate. Estimate using pneumatic-tired roller (self-propelled).
8. Traffic control: Determine if traffic count and type of traffic warrant the need for pilot car and/or flag persons. Special or unusual construction signing should also be considered.
9. Surface Maintenance: Determine maintenance and brooming during and at the end of the curing period.
10. Temporary Centerline Marking: Price range is \$250.00 to \$350.00 per mile.

B. Bituminous Material. Obtain current quotes from local suppliers (refer to Table 400-3). See "Asphalt Products" (Table 400-2) for price data. Asphalt costs are dependent upon quantity and location. Application rates for emulsified and liquid asphalts may be determined by two methods, depending on the type of table used for estimating:

1. Total Quantities. Application rates for total quantities are given under Section 409 in the "Application Rate Tables" (Table 400-1) included in this Guide, and no adjustment is necessary, if asphalt emulsions are specified.
2. Residual Quantities. Application rates for residual quantities are given in Tables 409-1, 409-2 and 409-3 of the FP-03, Section 403, and actual application rates for cutback and emulsified asphalts are determined by dividing the asphalt residual rates by the percent asphalt from the applicable AASHTO materials specification for the selected type and grade.

Include:

1. Application cost of \$10 to \$15 per ton of bituminous materials for uninterrupted work. Consider location of tanker trucks or temporary storage tank and time to re-fill distributor. Small, irregular areas such as in campgrounds or parking areas should be estimated using hourly rates for a distributor and hand spraying.
2. Add \$10 to \$15 per ton of liquid asphalt for antistriping additive, if required for cut-back asphalts.

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Table 400-1 - Application Rates

Item	Rate	Remarks
412	0.03 - 0.15 gal/yd ²	Typical rate for tack coat using 1:1 diluted CSS-1 emulsion
4411	0.10 - 0.50 gal/yd ²	Typical rate for prime coat using MC-70

430 - Bituminous Surface Treatments and Seal Coats Using Emulsified Asphalts

Application Rates for Total Quantities. No Adjustment is Necessary. For estimating use the highest rates for aggregate and asphalt emulsion shown for the type of treatment desired. Final rates should be determined by testing the aggregate after contract award - coordinate with RO Materials Engineering Center for assistance. Use rock size (gradation) that is similar to local State requirements to obtain more competitive bids. For campgrounds and administrative sites that have a buildup of dirt and pine needles along the shoulder, increase the costs for cleanup.

Number & Type of Treatment	Course	Aggregate Grading	Aggregate (lb/yd ²)	Asphalt Emulsion (gal/yd ²)
No. 1 Single	1	NA	None	0.10 - 0.15
No. 2 Single	1	D	18 - 23	0.25 - 0.30
No. 3 Single	1	C	23 - 28	0.35 - 0.40
No. 4 Single	1	B	28 - 33	0.40 - 0.50
No. 5 Double	1 2	A D	40 - 50 15 - 20	0.55 - 0.65 0.25 - 0.30

412	Type	Initial Application	Subsequent Application
	Lignin Sulfonate	0.50 Gallons/Yd ²	0.25 Gallons/Yd ²
	Magnesium Chloride Brine	0.35-0.50 Gallons/Yd ²	0.20 Gallons/Yd ²
	Calcium Chloride Brine	0.28-0.40 Gallons/Yd ²	0.16 Gallons/Yd ²
	Calcium Chloride Flake@77%	1.30-1.90 Lbs/Yd ²	0.75 Lbs/Yd ²

Table 400-2 - Asphalt Products. Summary of Materials Sources and Price Estimates - May 1998

Asphalt Cement

Supplier or Source	Product	Approx Cost Deliver	Notes
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Cutback Asphalt

Supplier or Source	Product	Approx Cost Deliver	Notes
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Emulsified Asphalt

Supplier or Source	Product	Approx Cost Deliver	Notes
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Notes: All costs shown are subject to change - call supplier or source to obtain accurate costs of material delivered to your project location. All prices shown exclude application costs. Refer to cost notes at the end of this table.

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Table 400-3 - Dust Palliative Treatment. Summary of Materials Sources and Price Estimates - May 1995

**Magnesium Chloride
(Concentration Greater than 28% Min.)**

Supplier or Source	Product Form
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Atlas Sand and Rock
3665 Snake River Ave.
Lewiston, ID 83501
208/743-5596
208/743-3516 FAX #

Liquid

Fremont Chemical Co
203 East Main
Riverton, WY 82501
307/856-9626
307/856-1852 FAX #

Liquid

Hyland Enterprises, Inc
P.O. Box 2377
Rawlins, WY 82301
307/328-0668
307/328-9800 FAX #

Liquid

Lyman Dust Control Inc.
P.O. Box 243
Spokane, Wa 99210
509/994-5900
208/772-4787 FAX #

Liquid

T Bar S Enterprises
4700 Hwy 93 S
Missoula, MT 59801
406/251-5995
406/251-5999 FAX #

Liquid

Note: All costs shown are subject to change - Call supplier or source to obtain current costs of material delivered to your project location. All prices shown exclude application costs. Refer to cost notes at the end of this table.

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Calcium Chloride (Concentration Great Than 36% Min)

Supplier or Source	Product Form
Dyce Chemical Inc. P.O. Box 30176 Billings, MT 59107 406/248-3131 406/248-1237 FAX #	Liquid
Hyland Enterprises Inc Liquid P.O. Box 2377 Rawlins, WY 82301 307/328-0668 307/328-9800 FAX #	
Oxford Inc. P.O. Box 764 Moyie Springs, ID 83845 208/267-2297 208/267-9854 FAX #	Solid (77%) Flake Liquid also available
Pulici Contracting P.O. Box 778 Seeley Lake, MT 59868 406/677-2890 406/677-3333 FAX #	Liquid

Lignin Sulfonate

Supplier or Source	Product Form (% Concent.)
Geogria-Pacific Corp 1754 Thorne Rd Tacoma, WA 98421 206/572-8181 206/572-4721 FAX #	Liquid (50%)
Western Feed Supplement 560 Rivergrain Terminal Rd. Pasco, WA 99301 509/547-4186 509/547-1845 FAX #	Liquid (50%)

Note: All costs shown are subject to change - call supplier or source to obtain current costs of material delivered to your project location. All prices shown exclude application costs. Refer to cost notes at the end of this table.

ITEMS TO CONSIDER

1. Base price on 25 Ton truck loads.
2. Base price on 100 Ton rail car loads.
3. Include cost to spread plus MOB to the job.

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SECTION 431 - SEAL FOR LIGHT TRAFFIC PAVEMENTS

Refer to the user notes for the most recent Regional Special Project Specification 417 for detailed information on what application rates and options to select based on your project conditions and the desired surface. Costs vary from a low of \$0.35 per square yard for projects over 10,000 square yards with little pavement cleanup required, to as high as \$1.00 per square yard for smaller projects where the existing pavement surface is at least partially covered with duff and pine needles.

Contacting local contractors is recommended if an accurate estimate is desired. Contractors are listed in the Yellow Pages under "Asphalt and Asphalt Products", and under "Pave Materials". When discussing your project with them, the following items should be reviewed.

1. The specification requires seal material conforming to Section 417.02. Proprietary products like Seal Master, Tuff Coat, and PermaSeal have met this spec on past projects. If they are not familiar with the spec, you should FAX them a copy.
2. Your project size and payment quantity is expressed in square yards, and not square feet.
3. The specification application rates are in pounds solids per square yard, and not gallons per square yard.
4. A site visit by a local contractor is preferred, so they can get a better idea of the amount of crack filling, pavement surface cleanup required, and etc., etc., needed.

SECTION 432 - ASPHALT PAVEMENT PATCHING (*Contract Item*)

Obtain costs

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