

620.01 General

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620.01 General

Detailed criteria and methods that govern pavement design are in the Washington State Department of Transportation (WSDOT) Pavement Policy, which is available from the Pavements website:

<https://wsdot.wa.gov/engineering-standards/construction-materials/pavement-design-management>

The pavement design for all Design-Build project Request for Proposals (RFPs) will be conducted by the State Materials Lab, Pavement Division.

620.02 Estimating Tables

The tables in [Exhibit 620-1](#) through [Exhibit 620-12](#) are for developing estimates of quantities for pavement sections, shoulder sections, stockpiles, asphalt distribution, and fog seal.

Exhibit 620-1 Estimating: Miscellaneous Tables

| Unit Dry Weight – Gravel Base and Surfacing | | | | |
|---|---------------|------|----------------------|----------------|
| Type of Material | Truck Measure | | Compacted on Roadway | |
| | lb/cy | T/cy | lb/cy | T/cy |
| Ballast | 3,100 | 1.55 | 3,900 | 1.95 |
| Crushed Surfacing Top Course | 2,850 | 1.43 | 3,700 | 1.85 |
| Crushed Surfacing Base Course | 2,950 | 1.48 | 3,700 | 1.85 |
| Screened Gravel Surfacing | | | 3,700 | 1.85 |
| *Gravel Base | | | 3,400 – 3,800 | 1.70 – 1.90 |
| Permeable Ballast | | | 2,800 | 1.40 |

*3,700 lb/cy (1.85 tons/cy) is recommended as the most suitable factor; however, if the grading approaches the coarseness of ballast, the factor would approach 3,800 lb/cy (1.90 tons/cy), and if the grading contains more than 45% sand, the factor would decrease, approaching 3,400 lb/cy (1.70 tons/cy) for material that is essentially all sand.

Notes:

- Weights shown are dry weights and corrections are required for water contents.
- The tabulated weights for the materials are reasonably close; however, apply corrections in the following order:
 - For specific gravity: $wt. = \frac{(tabular\ wt.) \times (specific\ gravity\ on\ surface\ report)}{2.65}$
 - For water content: $wt. = (tabular\ wt.) \times (1 + free\ water\ \% \text{ in decimals})$
- If material is to be stockpiled, increase required quantities by 10% to allow for waste.
- Consider the inclusion of crushed surfacing top course material for keystone when estimating quantities for projects having ballast course.

Exhibit 620-2 Estimating: Hot Mix Asphalt Pavement and Asphalt Distribution Tables

| Fog Seal | | | | | | |
|-------------|----------------------------|-------------------------|--------------|----------------------|-----|-----|
| Asphalt | | | | | | |
| Application | Type of Emulsified Asphalt | Application gal* per sy | Tons* per sy | Tons/Mile Width (ft) | | |
| | | | | 10 | 11 | 12 |
| Fog Seal | CSS-1/CSS-1h | 0.07 | 0.000292 | 1.7 | 1.9 | 2.1 |

*Quantities shown are retained (residual) asphalt.

| Specific Data[1][2] | | | | | | | | | | | | | | |
|--|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Hot Mix Asphalt Paving Quantities (tons/mile)* | | | | | | | | | | | | | | |
| Width (ft) | Depth of Pavement (ft) | | | | | | | | | | | | | |
| | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 |
| 4 | 161 | 241 | 321 | 402 | 482 | 563 | 643 | 723 | 804 | 884 | 964 | 1045 | 1125 | 1206 |
| 6 | 241 | 362 | 482 | 603 | 723 | 844 | 964 | 1085 | 1206 | 1326 | 1447 | 1567 | 1688 | 1808 |
| 8 | 321 | 482 | 643 | 804 | 964 | 1125 | 1286 | 1447 | 1607 | 1768 | 1929 | 2090 | 2250 | 2411 |
| 10 | 402 | 603 | 804 | 1005 | 1206 | 1407 | 1607 | 1808 | 2009 | 2210 | 2411 | 2612 | 2813 | 3014 |
| 11 | 442 | 663 | 884 | 1105 | 1326 | 1547 | 1768 | 1989 | 2210 | 2431 | 2652 | 2873 | 3094 | 3315 |
| 12 | 482 | 723 | 964 | 1206 | 1447 | 1688 | 1929 | 2170 | 2411 | 2652 | 2893 | 3135 | 3376 | 3617 |
| 22 | 884 | 1326 | 1768 | 2210 | 2652 | 3094 | 3536 | 3978 | 4421 | 4863 | 5305 | 5747 | 6189 | 6631 |
| 24 | 964 | 1447 | 1929 | 2411 | 2893 | 3376 | 3858 | 4340 | 4822 | 5305 | 5787 | 6269 | 6751 | 7234 |

*Based on 137 lbs/sy (0.0685 tons/sy) of 0.10 ft compacted depth = 2.05 tons/cy

Notes:

- [1] The specific gravity of the aggregate will affect the weight of aggregate in the completed mix.
- [2] Quantities shown do not provide for widening, waste from stockpile, or thickened edges.

Exhibit 620-3 Estimating: Bituminous Surface Treatment

| Bituminous Surface Treatment[1] | | | | | | | | | | | | | | | | |
|---------------------------------|---------------------|-------|-------------------|-------|-------|-------|-------|-------|----------------|---------------|------|--------|------|--------|------|-----------------------|
| Type of Application | Average Application | | Mineral Aggregate | | | | | | Average Spread | Asphalt[2][4] | | | | | | Basic[3] Asphalt Used |
| | | | 10 ft | | 11 ft | | 12 ft | | | 10 ft | | 11 ft | | 12 ft | | |
| | lb/sy | cy/sy | T/mi | cy/mi | T/mi | cy/mi | T/mi | cy/mi | gal/sy | gal/mi | T/mi | gal/mi | T/mi | gal/mi | T/mi | |

| New Construction 3/4 inch – 1/2 inch | | | | | | | | | | | | | | | | |
|--|----|--------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|--------|
| First Application | | | | | | | | | 0.50 | 2933 | 11.8 | 3227 | 13.0 | 3520 | 14.1 | CRS-2P |
| Crushed Screenings 3/4 inch – 1/2 inch | 35 | 0.0146 | 103 | 86 | 113 | 94 | 123 | 103 | | | | | | | | |
| Second Application | | | | | | | | | 0.48 | 2787 | 11.2 | 3065 | 12.3 | 3344 | 13.4 | CRS-2P |
| Crushed Screenings 1/2 inch – No. 4 | 32 | 0.0121 | 93 | 71 | 103 | 78 | 113 | 85 | | | | | | | | |
| Choke Stone No. 4 – 0 | 5 | 0.0017 | 15 | 10 | 16 | 11 | 18 | 12 | | | | | | | | |
| Totals | 72 | 0.0284 | 211 | 167 | 232 | 183 | 254 | 200 | 0.98 | 5720 | 23.0 | 6292 | 25.3 | 6864 | 27.5 | |

| New Construction 1/2 inch – No. 4 | | | | | | | | | | | | | | | | |
|-------------------------------------|----|--------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|--------|
| First Application | | | | | | | | | 0.50 | 2933 | 11.8 | 3227 | 13.0 | 3520 | 14.1 | CRS-2P |
| Crushed Screenings 1/2 inch – No. 4 | 35 | 0.0132 | 102 | 77 | 113 | 85 | 123 | 93 | | | | | | | | |
| Second Application | | | | | | | | | 0.48 | 2787 | 11.2 | 3065 | 12.3 | 3344 | 13.4 | CRS-2P |
| Crushed Screenings 1/2 inch – No. 4 | 32 | 0.0121 | 93 | 71 | 103 | 78 | 113 | 85 | | | | | | | | |
| Choke Stone No. 4 – 0 | 5 | 0.0017 | 15 | 10 | 16 | 11 | 18 | 12 | | | | | | | | |
| Totals | 72 | 0.0270 | 210 | 158 | 232 | 174 | 254 | 190 | 0.98 | 5720 | 23.0 | 6292 | 25.3 | 6864 | 27.5 | |

| Seal Coats 5/8 inch – No. 4 | | | | | | | | | | | | | | | | | |
|-------------------------------------|---------------------|--------|-------------------|-------|-------|-------|-------|-------|----------------|---------------|------|--------|------|--------|------|-----------------------|--------|
| Seal Coat | | | | | | | | | | 0.53 | 3109 | 12.5 | 3420 | 13.7 | 3731 | 15.0 | CRS-2P |
| Crushed Screenings 5/8 inch – No. 4 | 35 | 0.0130 | 102 | 76 | 113 | 84 | 124 | 92 | | | | | | | | | |
| Choke Stone No. 4 – 0 | 5 | 0.0017 | 15 | 10 | 16 | 11 | 18 | 12 | | | | | | | | | |
| Totals | 40 | 0.0147 | 117 | 86 | 129 | 95 | 142 | 104 | 0.53 | 3109 | 12.5 | 3420 | 13.7 | 3731 | 15.0 | | |
| Type of Application | Average Application | | Mineral Aggregate | | | | | | Average Spread | Asphalt[2][4] | | | | | | Basic[3] Asphalt Used | |
| | | | 10 ft | | 11 ft | | 12 ft | | | 10 ft | | 11 ft | | 12 ft | | | |
| | lb/sy | cy/sy | T/mi | cy/mi | T/mi | cy/mi | T/mi | cy/mi | gal/sy | gal/mi | T/mi | gal/mi | T/mi | gal/mi | T/mi | | |

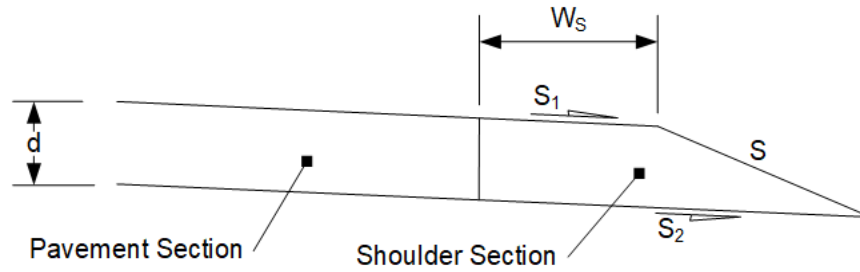
| Seal Coats 1/2 inch – No. 4 | | | | | | | | | | | | | | | | | |
|-------------------------------------|----|--------|----|----|-----|----|-----|----|------|------|------|------|------|------|------|------|--------|
| Seal Coat | | | | | | | | | | 0.45 | 2640 | 10.6 | 2904 | 11.7 | 3168 | 12.7 | CRS-2P |
| Crushed Screenings 1/2 inch – No. 4 | 28 | 0.0106 | 81 | 62 | 89 | 68 | 97 | 74 | | | | | | | | | |
| Choke Stone No. 4 – 0 | 5 | 0.0017 | 15 | 10 | 16 | 11 | 18 | 12 | | | | | | | | | |
| Totals | 33 | 0.0123 | 96 | 72 | 105 | 79 | 115 | 86 | 0.45 | 2640 | 10.6 | 2904 | 11.7 | 3168 | 12.7 | | |

| Seal Coats 3/8 inch – No. 4 | | | | | | | | | | | | | | | | | |
|-------------------------------------|----|--------|-----|----|-----|----|-----|----|------|------|------|------|------|------|------|------|--------|
| Seal Coat | | | | | | | | | | 0.45 | 2640 | 10.6 | 2904 | 11.7 | 3168 | 12.7 | CRS-2P |
| Crushed Screenings 3/8 inch - No. 4 | 30 | 0.0106 | 88 | 62 | 96 | 68 | 106 | 75 | | | | | | | | | |
| Choke Stone No. 4 – 0 | 5 | 0.0017 | 15 | 10 | 16 | 11 | 18 | 12 | | | | | | | | | |
| Totals | 35 | 0.0123 | 103 | 72 | 112 | 79 | 124 | 74 | 0.45 | 2640 | 10.6 | 2904 | 11.7 | 3168 | 12.7 | | |

Notes:

- [1] Quantities shown do not provide for widening, waste from stockpile, or thickened edges.
- [2] Quantities of asphalt shown are based on 60°F temperature. Recompute to the application temperature for the particular grade.
- [3] The column “Basic Asphalt Used” is shown for the purpose of conversion to proper weights for the asphalt being used and does not imply that the particular grade shown is required for the respective treatment.
- [4] For stress-absorbing membrane (rubberized asphalt), increase asphalt by 25%.

Exhibit 620-4 Estimating: Base and Surfacing Typical Section Formulae and Example



- WS = Shoulder Width (Varies 4 ft, 6 ft, 8 ft, 10 ft, 12 ft)
- d = Depth of Section (Varies 0.05 ft to 2 ft)
- S = Side Slope (H:V) (Varies 2:1, 3:1, 4:1, and 6:1)
- S1 = Top Shoulder Slope (Varies -0.02 ft/ft or -0.05 ft/ft)
- S2 = Bottom Shoulder Slope (Varies -0.02 ft/ft or -0.05 ft/ft)

| Formula for Shoulder Section | | |
|---|------------------------------------|---|
| Tons/mile = (A)(K) | | |
| $K = \left(\frac{5280}{27}\right) \left(1.85 \frac{\text{tons}}{\text{cy}}\right)$ $A = \frac{\left[d + W_s \left(\frac{1}{S} - S_1\right)\right]^2 S}{2(1 - SS_1)} - \frac{W_s^2}{2} \left(\frac{1}{S} - S_1\right)$ | | |
| Case 1 | S1 = S2 = -0.02 ft/ft | $A = \frac{\left[d + W_s \left(\frac{1}{S} - 0.02\right)\right]^2 S}{2(1 - 0.02S)} - \frac{W_s^2}{2} \left(\frac{1}{S} - 0.02\right)$ |
| Case 2 | S1 = -0.02 ft/ft, S2 = -0.05 ft/ft | $A = \frac{\left[d + W_s \left(\frac{1}{S} - 0.02\right)\right]^2 S}{2(1 - 0.05S)} - \frac{W_s^2}{2} \left(\frac{1}{S} - 0.02\right)$ |
| Case 3 | S1 = -0.05 ft/ft, S2 = -0.02 ft/ft | $A = \frac{\left[d + W_s \left(\frac{1}{S} - 0.05\right)\right]^2 S}{2(1 - 0.02S)} - \frac{W_s^2}{2} \left(\frac{1}{S} - 0.05\right)$ |
| Case 4 | S1 = S2 = -0.05 ft/ft | $A = \frac{\left[d + W_s \left(\frac{1}{S} - 0.05\right)\right]^2 S}{2(1 - 0.05S)} - \frac{W_s^2}{2} \left(\frac{1}{S} - 0.05\right)$ |

*Limit: Positive Values of A only when d = WS(0.03)

EXAMPLE: Shoulder Section

Given:

- Shoulder Width (WS) = 8 ft
- Top Course = 0.25 ft
- Base Course = 0.80 ft
- Total Depth (d) = 1.05 ft
- Side Slope (S) = 3:1
- Shoulder Slope (S1) = -0.05
- Subgrade Slope (S2) = -0.02
- Depth 1.05 ft (Case 3) = 3,070 tons/mile
- Top Course 0.25 ft (Case 4) = - 763 tons/mile
- Base Course = 2,307 tons/mile
- Top Course = 763 tons/mile
- Base Course = 2,307 tons/mile

Exhibit 620-5 Estimating: Base and Surfacing Quantities

| Shoulder Section | | | | | | | | | | | | |
|----------------------|----------------|------|----------------------------|------|------|------|------|------|------|------|------|------|
| Shldr. Width Ws (ft) | Side Slope S:1 | Case | Quantity in Tons Per Mile* | | | | | | | | | |
| | | | Surfacing Depth (ft) | | | | | | | | | |
| | | | 0.05 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| 4 | 2 | 1 | 73 | 148 | 226 | 304 | 385 | 468 | 553 | 639 | 728 | 818 |
| | | 2 | 171 | 251 | 333 | 417 | 504 | 592 | 682 | 774 | 869 | 965 |
| | | 3 | N/A | N/A | 131 | 205 | 281 | 360 | 440 | 522 | 605 | 691 |
| | | 4 | 73 | 149 | 226 | 306 | 387 | 470 | 556 | 643 | 733 | 824 |
| | 3 | 1 | 74 | 150 | 230 | 313 | 398 | 486 | 577 | 671 | 768 | 868 |
| | | 2 | 178 | 262 | 350 | 442 | 536 | 634 | 734 | 838 | 945 | 1056 |
| | | 3 | N/A | N/A | 131 | 206 | 285 | 366 | 450 | 537 | 627 | 720 |
| | | 4 | 74 | 151 | 231 | 315 | 402 | 492 | 585 | 681 | 780 | 883 |
| | 4 | 1 | 74 | 153 | 235 | 321 | 411 | 505 | 603 | 705 | 810 | 920 |
| | | 2 | 185 | 275 | 370 | 469 | 572 | 681 | 793 | 910 | 1032 | 1158 |
| | | 3 | N/A | N/A | 131 | 208 | 288 | 373 | 461 | 554 | 650 | 750 |
| | | 4 | 75 | 154 | 237 | 326 | 418 | 516 | 617 | 724 | 834 | 950 |
| | 6 | 1 | 75 | 157 | 245 | 339 | 439 | 545 | 658 | 776 | 901 | 1032 |
| | | 2 | 204 | 307 | 417 | 535 | 661 | 794 | 936 | 1085 | 1242 | 1406 |
| | | 3 | N/A | N/A | 131 | 210 | 296 | 387 | 485 | 589 | 699 | 815 |
| | | 4 | 76 | 160 | 252 | 351 | 459 | 574 | 696 | 827 | 965 | 1111 |
| 6 | 2 | 1 | 109 | 221 | 334 | 449 | 566 | 685 | 806 | 929 | 1053 | 1180 |
| | | 2 | 325 | 444 | 565 | 688 | 812 | 939 | 1068 | 1199 | 1332 | 1467 |
| | | 3 | N/A | N/A | N/A | 239 | 349 | 461 | 575 | 691 | 809 | 929 |
| | | 4 | 110 | 221 | 335 | 450 | 568 | 687 | 809 | 933 | 1058 | 1186 |
| | 3 | 1 | 110 | 223 | 339 | 457 | 579 | 703 | 830 | 961 | 1094 | 1230 |
| | | 2 | 338 | 462 | 590 | 722 | 856 | 994 | 1134 | 1278 | 1426 | 1576 |
| | | 3 | N/A | N/A | N/A | 239 | 350 | 464 | 581 | 701 | 824 | 949 |
| | | 4 | 110 | 223 | 340 | 460 | 583 | 709 | 838 | 970 | 1106 | 1245 |
| | 4 | 1 | 110 | 225 | 343 | 466 | 592 | 722 | 856 | 994 | 1136 | 1282 |
| | | 2 | 352 | 483 | 619 | 760 | 905 | 1055 | 1209 | 1368 | 1531 | 1699 |
| | | 3 | N/A | N/A | N/A | 239 | 351 | 467 | 587 | 711 | 839 | 971 |
| | | 4 | 111 | 226 | 346 | 470 | 599 | 733 | 871 | 1013 | 1160 | 1311 |
| | 6 | 1 | 112 | 229 | 353 | 483 | 620 | 762 | 911 | 1066 | 1227 | 1394 |
| | | 2 | 386 | 534 | 690 | 853 | 1025 | 1204 | 1391 | 1585 | 1788 | 1998 |
| | | 3 | N/A | N/A | N/A | 239 | 353 | 474 | 600 | 733 | 871 | 1016 |
| | | 4 | 112 | 233 | 360 | 496 | 640 | 791 | 950 | 1116 | 1291 | 1473 |
| 8 | 2 | 1 | 146 | 293 | 443 | 594 | 747 | 902 | 1059 | 1218 | 1379 | 1541 |
| | | 2 | 526 | 683 | 843 | 1004 | 1167 | 1333 | 1500 | 1670 | 1841 | 2015 |
| | | 3 | N/A | N/A | N/A | N/A | 376 | 522 | 670 | 820 | 972 | 1125 |
| | | 4 | 146 | 293 | 443 | 595 | 749 | 904 | 1062 | 1222 | 1384 | 1548 |
| | 3 | 1 | 146 | 295 | 447 | 602 | 760 | 920 | 1084 | 1250 | 1419 | 1591 |
| | | 2 | 546 | 711 | 879 | 1050 | 1224 | 1402 | 1583 | 1766 | 1954 | 2144 |
| | | 3 | N/A | N/A | N/A | N/A | 376 | 523 | 673 | 825 | 981 | 1139 |
| | | 4 | 146 | 296 | 448 | 604 | 763 | 926 | 1091 | 1260 | 1432 | 1607 |
| | 4 | 1 | 147 | 297 | 452 | 610 | 773 | 939 | 1109 | 1284 | 1462 | 1644 |
| | | 2 | 568 | 741 | 919 | 1101 | 1288 | 1479 | 1675 | 1875 | 2080 | 2290 |
| | | 3 | N/A | N/A | N/A | N/A | 376 | 524 | 675 | 831 | 990 | 1153 |
| | | 4 | 147 | 298 | 454 | 615 | 780 | 950 | 1124 | 1302 | 1486 | 1673 |
| | 6 | 1 | 148 | 302 | 462 | 628 | 801 | 979 | 1164 | 1355 | 1552 | 1755 |
| | | 2 | 622 | 816 | 1017 | 1226 | 1443 | 1668 | 1900 | 2140 | 2388 | 2643 |
| | | 3 | N/A | N/A | N/A | N/A | 376 | 525 | 681 | 842 | 1009 | 1183 |
| | | 4 | 149 | 305 | 469 | 641 | 820 | 1008 | 1203 | 1406 | 1616 | 1835 |

*Tabulated quantities are based on compacted weight of 1.85 tons/yd3

Exhibit 620-6 Estimating: Base and Surfacing Quantities

| Shoulder Section | | | | | | | | | | | | |
|----------------------|----------------|------|----------------------------|------|------|------|------|------|------|------|------|------|
| Shldr. Width Ws (ft) | Side Slope S:1 | Case | Quantity in Tons Per Mile* | | | | | | | | | |
| | | | Surfacing Depth (ft) | | | | | | | | | |
| | | | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1.00 |
| 4 | 2 | 1 | 910 | 1004 | 1100 | 1198 | 1297 | 1399 | 1502 | 1608 | 1715 | 1824 |
| | | 2 | 1063 | 1163 | 1266 | 1370 | 1476 | 1585 | 1695 | 1807 | 1922 | 2038 |
| | | 3 | 779 | 868 | 960 | 1053 | 1148 | 1245 | 1344 | 1445 | 1548 | 1652 |
| | | 4 | 918 | 1013 | 1110 | 1210 | 1311 | 1415 | 1520 | 1628 | 1738 | 1849 |
| | 3 | 1 | 971 | 1076 | 1185 | 1296 | 1410 | 1527 | 1647 | 1770 | 1896 | 2024 |
| | | 2 | 1169 | 1286 | 1406 | 1529 | 1655 | 1785 | 1918 | 2053 | 2193 | 2335 |
| | | 3 | 816 | 914 | 1016 | 1120 | 1228 | 1338 | 1451 | 1567 | 1686 | 1807 |
| | | 4 | 989 | 1098 | 1210 | 1326 | 1444 | 1566 | 1691 | 1820 | 1951 | 2086 |
| | 4 | 1 | 1034 | 1151 | 1273 | 1398 | 1528 | 1661 | 1798 | 1939 | 2085 | 2234 |
| | | 2 | 1289 | 1424 | 1564 | 1708 | 1857 | 2010 | 2168 | 2330 | 2497 | 2668 |
| | | 3 | 855 | 963 | 1075 | 1191 | 1311 | 1435 | 1562 | 1694 | 1830 | 1969 |
| | | 4 | 1070 | 1194 | 1323 | 1456 | 1594 | 1737 | 1884 | 2035 | 2191 | 2352 |
| | 6 | 1 | 1169 | 1312 | 1462 | 1617 | 1779 | 1947 | 2121 | 2301 | 2488 | 2680 |
| | | 2 | 1579 | 1759 | 1947 | 2142 | 2346 | 2557 | 2776 | 3002 | 3237 | 3479 |
| | | 3 | 937 | 1066 | 1200 | 1341 | 1488 | 1641 | 1800 | 1966 | 2138 | 2315 |
| | | 4 | 1265 | 1426 | 1596 | 1773 | 1957 | 2150 | 2350 | 2558 | 2774 | 2998 |
| 6 | 2 | 1 | 1308 | 1438 | 1570 | 1704 | 1840 | 1978 | 2117 | 2259 | 2402 | 2548 |
| | | 2 | 1603 | 1742 | 1883 | 2026 | 2171 | 2318 | 2467 | 2618 | 2771 | 2926 |
| | | 3 | 1050 | 1174 | 1299 | 1426 | 1555 | 1686 | 1819 | 1954 | 2090 | 2229 |
| | | 4 | 1315 | 1447 | 1581 | 1716 | 1854 | 1994 | 2135 | 2279 | 2425 | 2573 |
| | 3 | 1 | 1369 | 1510 | 1655 | 1802 | 1953 | 2106 | 2262 | 2421 | 2583 | 2748 |
| | | 2 | 1729 | 1886 | 2046 | 2209 | 2376 | 2545 | 2718 | 2894 | 3073 | 3255 |
| | | 3 | 1078 | 1209 | 1343 | 1480 | 1620 | 1763 | 1909 | 2058 | 2209 | 2363 |
| | | 4 | 1387 | 1532 | 1681 | 1832 | 1987 | 2145 | 2306 | 2471 | 2638 | 2809 |
| | 4 | 1 | 1432 | 1586 | 1743 | 1905 | 2070 | 2240 | 2413 | 2591 | 2772 | 2957 |
| | | 2 | 1871 | 2048 | 2229 | 2415 | 2606 | 2801 | 3000 | 3204 | 3412 | 3625 |
| | | 3 | 1106 | 1246 | 1389 | 1537 | 1688 | 1843 | 2003 | 2166 | 2333 | 2504 |
| | | 4 | 1467 | 1628 | 1793 | 1963 | 2137 | 2315 | 2499 | 2686 | 2878 | 3075 |
| | 6 | 1 | 1567 | 1746 | 1932 | 2124 | 2322 | 2526 | 2736 | 2953 | 3175 | 3404 |
| | | 2 | 2215 | 2441 | 2674 | 2916 | 3164 | 3421 | 3685 | 3957 | 4237 | 4525 |
| | | 3 | 1167 | 1325 | 1488 | 1658 | 1833 | 2015 | 2203 | 2398 | 2598 | 2805 |
| | | 4 | 1663 | 1861 | 2066 | 2279 | 2500 | 2729 | 2965 | 3209 | 3461 | 3721 |
| 8 | 2 | 1 | 1706 | 1872 | 2040 | 2211 | 2383 | 2557 | 2732 | 2910 | 3090 | 3271 |
| | | 2 | 2190 | 2367 | 2547 | 2728 | 2912 | 3097 | 3285 | 3475 | 3666 | 3860 |
| | | 3 | 1281 | 1438 | 1597 | 1758 | 1921 | 2086 | 2253 | 2422 | 2592 | 2765 |
| | | 4 | 1713 | 1881 | 2051 | 2223 | 2397 | 2573 | 2751 | 2930 | 3112 | 3296 |
| | 3 | 1 | 1766 | 1944 | 2125 | 2309 | 2495 | 2685 | 2877 | 3072 | 3271 | 3472 |
| | | 2 | 2338 | 2534 | 2734 | 2937 | 3144 | 3353 | 3566 | 3782 | 4001 | 4223 |
| | | 3 | 1300 | 1464 | 1631 | 1801 | 1974 | 2149 | 2328 | 2509 | 2693 | 2880 |
| | | 4 | 1785 | 1966 | 2151 | 2339 | 2530 | 2724 | 2921 | 3122 | 3326 | 3533 |
| | 4 | 1 | 1830 | 2020 | 2214 | 2411 | 2613 | 2819 | 3028 | 3242 | 3459 | 3681 |
| | | 2 | 2504 | 2722 | 2945 | 3172 | 3404 | 3641 | 3882 | 4128 | 4378 | 4632 |
| | | 3 | 1320 | 1491 | 1666 | 1845 | 2028 | 2215 | 2405 | 2600 | 2799 | 3001 |
| | | 4 | 1865 | 2062 | 2263 | 2469 | 2679 | 2894 | 3114 | 3337 | 3566 | 3799 |
| | 6 | 1 | 1965 | 2181 | 2402 | 2630 | 2864 | 3105 | 3351 | 3604 | 3863 | 4128 |
| | | 2 | 2907 | 3178 | 3457 | 3743 | 4038 | 4340 | 4650 | 4967 | 5292 | 5626 |
| | | 3 | 1363 | 1549 | 1741 | 1940 | 2144 | 2355 | 2572 | 2795 | 3024 | 3259 |
| | | 4 | 2061 | 2295 | 2536 | 2786 | 3043 | 3308 | 3580 | 3861 | 4149 | 4445 |

*Tabulated quantities are based on compacted weight of 1.85 tons/yd3

Exhibit 620-7 Estimating: Base and Surfacing Quantities

| Shoulder Section | | | | | | | | | | | | |
|----------------------|----------------|------|----------------------------|------|------|------|------|------|------|------|------|------|
| Shldr. Width Ws (ft) | Side Slope S:1 | Case | Quantity in Tons Per Mile* | | | | | | | | | |
| | | | Surfacing Depth (ft) | | | | | | | | | |
| | | | 0.05 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| 10 | 2 | 1 | 182 | 366 | 551 | 739 | 928 | 1119 | 1312 | 1507 | 1704 | 1903 |
| | | 2 | 773 | 969 | 1167 | 1367 | 1569 | 1773 | 1979 | 2187 | 2397 | 2609 |
| | | 3 | N/A | N/A | N/A | N/A | N/A | 543 | 724 | 908 | 1094 | 1281 |
| | | 4 | 182 | 366 | 552 | 740 | 930 | 1122 | 1315 | 1511 | 1709 | 1909 |
| | 3 | 1 | 182 | 368 | 556 | 747 | 941 | 1137 | 1337 | 1539 | 1745 | 1953 |
| | | 2 | 802 | 1007 | 1215 | 1426 | 1640 | 1858 | 2079 | 2303 | 2530 | 2760 |
| | | 3 | N/A | N/A | N/A | N/A | N/A | 543 | 725 | 910 | 1098 | 1289 |
| | | 4 | 182 | 368 | 557 | 749 | 944 | 1143 | 1344 | 1549 | 1757 | 1968 |
| | 4 | 1 | 183 | 370 | 560 | 755 | 954 | 1156 | 1363 | 1573 | 1787 | 2006 |
| | | 2 | 834 | 1049 | 1268 | 1492 | 1721 | 1954 | 2191 | 2433 | 2679 | 2930 |
| | | 3 | N/A | N/A | N/A | N/A | N/A | 543 | 726 | 912 | 1103 | 1298 |
| | | 4 | 183 | 371 | 563 | 760 | 961 | 1167 | 1377 | 1592 | 1811 | 2035 |
| | 6 | 1 | 184 | 374 | 570 | 773 | 982 | 1196 | 1417 | 1644 | 1878 | 2117 |
| | | 2 | 913 | 1153 | 1399 | 1654 | 1916 | 2186 | 2464 | 2750 | 3043 | 3344 |
| | | 3 | N/A | N/A | N/A | N/A | N/A | 543 | 727 | 917 | 1113 | 1316 |
| | | 4 | 185 | 377 | 578 | 786 | 1001 | 1225 | 1456 | 1695 | 1942 | 2197 |
| 12 | 2 | 1 | 218 | 438 | 660 | 883 | 1109 | 1336 | 1566 | 1797 | 2030 | 2265 |
| | | 2 | 1066 | 1301 | 1537 | 1776 | 2016 | 2259 | 2504 | 2750 | 2999 | 3249 |
| | | 3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 956 | 1175 | 1397 |
| | | 4 | 218 | 438 | 660 | 884 | 1110 | 1339 | 1569 | 1801 | 2035 | 2271 |
| | 3 | 1 | 219 | 440 | 664 | 891 | 1121 | 1354 | 1590 | 1829 | 2071 | 2315 |
| | | 2 | 1106 | 1351 | 1599 | 1850 | 2104 | 2362 | 2623 | 2887 | 3154 | 3424 |
| | | 3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 956 | 1177 | 1401 |
| | | 4 | 219 | 441 | 666 | 894 | 1125 | 1360 | 1598 | 1839 | 2083 | 2330 |
| | 4 | 1 | 219 | 442 | 669 | 900 | 1134 | 1373 | 1616 | 1862 | 2113 | 2367 |
| | | 2 | 1151 | 1407 | 1668 | 1933 | 2203 | 2478 | 2757 | 3040 | 3328 | 3621 |
| | | 3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 956 | 1179 | 1405 |
| | | 4 | 219 | 443 | 672 | 904 | 1142 | 1384 | 1630 | 1881 | 2137 | 2397 |
| | 6 | 1 | 220 | 446 | 679 | 918 | 1162 | 1413 | 1671 | 1934 | 2203 | 2479 |
| | | 2 | 1259 | 1544 | 1836 | 2136 | 2444 | 2759 | 3083 | 3414 | 3752 | 4099 |
| | | 3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 957 | 1182 | 1413 |
| | | 4 | 221 | 450 | 686 | 930 | 1182 | 1442 | 1709 | 1985 | 2268 | 2558 |
| Pavement Section | | | | | | | | | | | | |
| Width WP (ft) | | | 0.05 | 0.10 | 0.15 | 0.20 | 0.25 | 0.30 | 0.35 | 0.40 | 0.45 | 0.50 |
| 11 | | | 199 | 398 | 597 | 796 | 995 | 1194 | 1393 | 1592 | 1791 | 1990 |
| 12 | | | 217 | 434 | 651 | 868 | 1085 | 1302 | 1519 | 1737 | 1954 | 2171 |
| 22 | | | 398 | 796 | 1194 | 1592 | 1990 | 2388 | 2786 | 3184 | 3582 | 3980 |
| 24 | | | 434 | 868 | 1302 | 1737 | 2171 | 2605 | 3039 | 3473 | 3907 | 4341 |

*Tabulated quantities are based on compacted weight of 1.85 tons/yd³

Exhibit 620-8 Estimating: Base and Surfacing Quantities

| Shoulder Section | | | | | | | | | | | | |
|----------------------|----------------|------|----------------------------|------|------|------|------|------|------|------|------|------|
| Shldr. Width Ws (ft) | Side Slope S:1 | Case | Quantity in Tons Per Mile* | | | | | | | | | |
| | | | Surfacing Depth (ft) | | | | | | | | | |
| | | | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1.00 |
| 10 | 2 | 1 | 2104 | 2306 | 2511 | 2717 | 2925 | 3135 | 3347 | 3561 | 3777 | 3995 |
| | | 2 | 2823 | 3039 | 3257 | 3477 | 3699 | 3923 | 4149 | 4378 | 4608 | 4840 |
| | | 3 | 1471 | 1662 | 1855 | 2050 | 2247 | 2446 | 2646 | 2849 | 3053 | 3260 |
| | | 4 | 2111 | 2315 | 2521 | 2729 | 2939 | 3151 | 3366 | 3582 | 3800 | 4020 |
| | 3 | 1 | 2164 | 2378 | 2595 | 2815 | 3038 | 3264 | 3492 | 3724 | 3958 | 4195 |
| | | 2 | 2994 | 3230 | 3470 | 3714 | 3960 | 4209 | 4462 | 4718 | 4977 | 5239 |
| | | 3 | 1483 | 1680 | 1880 | 2082 | 2288 | 2496 | 2707 | 2921 | 3138 | 3358 |
| | | 4 | 2183 | 2401 | 2621 | 2845 | 3072 | 3303 | 3536 | 3773 | 4013 | 4256 |
| | 4 | 1 | 2228 | 2454 | 2684 | 2918 | 3156 | 3398 | 3643 | 3893 | 4147 | 4404 |
| | | 2 | 3186 | 3446 | 3710 | 3980 | 4253 | 4531 | 4814 | 5101 | 5393 | 5689 |
| | | 3 | 1496 | 1699 | 1905 | 2116 | 2330 | 2548 | 2770 | 2996 | 3227 | 3460 |
| | | 4 | 2263 | 2496 | 2734 | 2976 | 3222 | 3473 | 3729 | 3989 | 4253 | 4522 |
| | 6 | 1 | 2363 | 2615 | 2873 | 3137 | 3407 | 3684 | 3966 | 4255 | 4550 | 4851 |
| | | 2 | 3653 | 3969 | 4294 | 4626 | 4965 | 5313 | 5668 | 6031 | 6402 | 6781 |
| | | 3 | 1524 | 1739 | 1960 | 2187 | 2420 | 2660 | 2906 | 3157 | 3415 | 3679 |
| | | 4 | 2459 | 2729 | 3007 | 3292 | 3585 | 3887 | 4195 | 4512 | 4836 | 5168 |
| 12 | 2 | 1 | 2502 | 2740 | 2981 | 3224 | 3468 | 3714 | 3962 | 4212 | 4464 | 4718 |
| | | 2 | 3502 | 3757 | 4013 | 4272 | 4533 | 4795 | 5060 | 5327 | 5596 | 5866 |
| | | 3 | 1620 | 1845 | 2072 | 2301 | 2532 | 2765 | 2999 | 3236 | 3474 | 3714 |
| | | 4 | 2509 | 2750 | 2992 | 3236 | 3482 | 3730 | 3981 | 4233 | 4487 | 4743 |
| | 3 | 1 | 2562 | 2813 | 3066 | 3322 | 3581 | 3843 | 4107 | 4375 | 4645 | 4919 |
| | | 2 | 3698 | 3975 | 4255 | 4538 | 4824 | 5114 | 5406 | 5702 | 6001 | 6304 |
| | | 3 | 1627 | 1857 | 2089 | 2324 | 2562 | 2803 | 3047 | 3294 | 3544 | 3796 |
| | | 4 | 2581 | 2835 | 3092 | 3352 | 3615 | 3882 | 4151 | 4424 | 4700 | 4980 |
| | 4 | 1 | 2626 | 2888 | 3154 | 3424 | 3698 | 3976 | 4258 | 4544 | 4834 | 5128 |
| | | 2 | 3918 | 4220 | 4526 | 4837 | 5152 | 5472 | 5796 | 6125 | 6458 | 6796 |
| | | 3 | 1635 | 1869 | 2107 | 2348 | 2594 | 2844 | 3098 | 3355 | 3617 | 3882 |
| | | 4 | 2661 | 2930 | 3204 | 3482 | 3765 | 4052 | 4344 | 4640 | 4941 | 5246 |
| | 6 | 1 | 2761 | 3049 | 3343 | 3643 | 3950 | 4262 | 4581 | 4906 | 5237 | 5575 |
| | | 2 | 4453 | 4815 | 5185 | 5562 | 5948 | 6341 | 6742 | 7150 | 7566 | 7991 |
| | | 3 | 1651 | 1894 | 2144 | 2400 | 2662 | 2930 | 3205 | 3485 | 3772 | 4065 |
| | | 4 | 2857 | 3163 | 3477 | 3799 | 4128 | 4465 | 4810 | 5163 | 5524 | 5892 |
| Pavement Section | | | | | | | | | | | | |
| Width WP (ft) | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1.00 | | |
| 11 | 2189 | 2388 | 2587 | 2786 | 2985 | 3184 | 3383 | 3582 | 3781 | 3980 | | |
| 12 | 2388 | 2605 | 2822 | 3039 | 3256 | 3473 | 3690 | 3907 | 4124 | 4341 | | |
| 22 | 4378 | 4775 | 5173 | 5571 | 5969 | 6367 | 6765 | 7163 | 7561 | 7959 | | |
| 24 | 4775 | 5210 | 5644 | 6078 | 6512 | 6946 | 7380 | 7814 | 8249 | 8683 | | |

*Tabulated quantities are based on compacted weight of 1.85 tons/yd³

Exhibit 620-9 Estimating: Base and Surfacing Quantities

| Shoulder Section | | | | | | | | | | | | |
|----------------------|----------------|------|----------------------------|------|------|------|------|------|------|------|------|------|
| Shldr. Width Ws (ft) | Side Slope S:1 | Case | Quantity in Tons Per Mile* | | | | | | | | | |
| | | | Surfacing Depth (ft) | | | | | | | | | |
| | | | 1.05 | 1.10 | 1.15 | 1.20 | 1.25 | 1.30 | 1.35 | 1.40 | 1.45 | 1.50 |
| 4 | 2 | 1 | 1935 | 2048 | 2163 | 2279 | 2398 | 2518 | 2640 | 2765 | 2891 | 3019 |
| | | 2 | 2157 | 2277 | 2399 | 2524 | 2650 | 2779 | 2909 | 3042 | 3176 | 3312 |
| | | 3 | 1759 | 1867 | 1977 | 2089 | 2203 | 2319 | 2437 | 2557 | 2678 | 2802 |
| | | 4 | 1963 | 2078 | 2196 | 2315 | 2437 | 2561 | 2686 | 2814 | 2943 | 3075 |
| | 3 | 1 | 2156 | 2290 | 2428 | 2568 | 2711 | 2857 | 3006 | 3157 | 3312 | 3470 |
| | | 2 | 2480 | 2629 | 2781 | 2936 | 3094 | 3255 | 3420 | 3588 | 3759 | 3933 |
| | | 3 | 1932 | 2059 | 2190 | 2323 | 2459 | 2598 | 2740 | 2885 | 3033 | 3183 |
| | | 4 | 2223 | 2364 | 2509 | 2656 | 2806 | 2960 | 3117 | 3277 | 3441 | 3607 |
| | 4 | 1 | 2387 | 2543 | 2704 | 2869 | 3038 | 3210 | 3387 | 3567 | 3752 | 3940 |
| | | 2 | 2844 | 3025 | 3210 | 3399 | 3593 | 3792 | 3995 | 4202 | 4415 | 4631 |
| | | 3 | 2113 | 2260 | 2412 | 2567 | 2726 | 2890 | 3057 | 3228 | 3403 | 3582 |
| | | 4 | 2517 | 2686 | 2860 | 3039 | 3222 | 3410 | 3602 | 3799 | 4000 | 4206 |
| | 6 | 1 | 2879 | 3084 | 3295 | 3513 | 3736 | 3966 | 4201 | 4443 | 4691 | 4946 |
| | | 2 | 3729 | 3986 | 4252 | 4525 | 4806 | 5094 | 5391 | 5695 | 6007 | 6327 |
| | | 3 | 2499 | 2689 | 2886 | 3088 | 3297 | 3512 | 3733 | 3960 | 4193 | 4433 |
| | | 4 | 3229 | 3468 | 3715 | 3969 | 4232 | 4502 | 4779 | 5065 | 5358 | 5659 |
| 6 | 2 | 1 | 2695 | 2844 | 2995 | 3147 | 3302 | 3459 | 3617 | 3778 | 3940 | 4104 |
| | | 2 | 3083 | 3242 | 3403 | 3566 | 3731 | 3898 | 4067 | 4238 | 4411 | 4586 |
| | | 3 | 2369 | 2511 | 2655 | 2802 | 2949 | 3099 | 3251 | 3404 | 3560 | 3717 |
| | | 4 | 2722 | 2874 | 3028 | 3184 | 3341 | 3501 | 3663 | 3827 | 3993 | 4160 |
| | 3 | 1 | 2916 | 3086 | 3260 | 3436 | 3615 | 3798 | 3983 | 4170 | 4361 | 4555 |
| | | 2 | 3440 | 3629 | 3821 | 4016 | 4214 | 4416 | 4620 | 4828 | 5039 | 5253 |
| | | 3 | 2521 | 2681 | 2844 | 3010 | 3179 | 3351 | 3525 | 3703 | 3883 | 4067 |
| | | 4 | 2983 | 3160 | 3341 | 3524 | 3711 | 3901 | 4094 | 4290 | 4490 | 4692 |
| | 4 | 1 | 3146 | 3339 | 3536 | 3737 | 3942 | 4151 | 4364 | 4580 | 4801 | 5026 |
| | | 2 | 3843 | 4065 | 4291 | 4523 | 4758 | 4998 | 5243 | 5492 | 5746 | 6004 |
| | | 3 | 2679 | 2858 | 3041 | 3228 | 3418 | 3613 | 3812 | 4014 | 4221 | 4431 |
| | | 4 | 3276 | 3482 | 3692 | 3907 | 4127 | 4350 | 4579 | 4812 | 5049 | 5291 |
| | 6 | 1 | 3639 | 3880 | 4127 | 4381 | 4640 | 4906 | 5178 | 5456 | 5741 | 6031 |
| | | 2 | 4820 | 5123 | 5434 | 5753 | 6079 | 6413 | 6755 | 7105 | 7462 | 7827 |
| | | 3 | 3017 | 3236 | 3461 | 3693 | 3930 | 4174 | 4423 | 4679 | 4941 | 5210 |
| | | 4 | 3989 | 4264 | 4547 | 4837 | 5136 | 5442 | 5756 | 6078 | 6407 | 6745 |
| 8 | 2 | 1 | 3454 | 3640 | 3827 | 4016 | 4207 | 4399 | 4594 | 4791 | 4989 | 5189 |
| | | 2 | 4055 | 4253 | 4452 | 4654 | 4858 | 5063 | 5271 | 5480 | 5692 | 5906 |
| | | 3 | 2939 | 3115 | 3293 | 3473 | 3655 | 3839 | 4024 | 4212 | 4401 | 4592 |
| | | 4 | 3482 | 3670 | 3860 | 4052 | 4246 | 4442 | 4640 | 4840 | 5042 | 5246 |
| | 3 | 1 | 3675 | 3882 | 4092 | 4304 | 4520 | 4738 | 4959 | 5183 | 5410 | 5640 |
| | | 2 | 4449 | 4677 | 4909 | 5144 | 5382 | 5624 | 5869 | 6116 | 6367 | 6622 |
| | | 3 | 3070 | 3263 | 3459 | 3658 | 3859 | 4064 | 4271 | 4481 | 4695 | 4911 |
| | | 4 | 3743 | 3956 | 4173 | 4392 | 4615 | 4841 | 5071 | 5303 | 5539 | 5778 |
| | 4 | 1 | 3906 | 4135 | 4368 | 4606 | 4847 | 5092 | 5341 | 5593 | 5850 | 6111 |
| | | 2 | 4891 | 5155 | 5423 | 5696 | 5973 | 6255 | 6541 | 6832 | 7127 | 7427 |
| | | 3 | 3208 | 3418 | 3632 | 3851 | 4073 | 4299 | 4529 | 4763 | 5001 | 5243 |
| | | 4 | 4036 | 4278 | 4524 | 4775 | 5031 | 5291 | 5556 | 5825 | 6098 | 6376 |
| | 6 | 1 | 4399 | 4676 | 4959 | 5249 | 5545 | 5847 | 6155 | 6469 | 6790 | 7116 |
| | | 2 | 5966 | 6315 | 6671 | 7035 | 7407 | 7787 | 8174 | 8569 | 8972 | 9383 |
| | | 3 | 3501 | 3749 | 4002 | 4262 | 4529 | 4801 | 5079 | 5364 | 5655 | 5952 |
| | | 4 | 4748 | 5060 | 5379 | 5706 | 6040 | 6383 | 6733 | 7091 | 7456 | 7830 |

*Tabulated quantities are based on compacted weight of 1.85 tons/yd³

Exhibit 620-10 Estimating: Base and Surfacing Quantities

| Shoulder Section | | | | | | | | | | | | |
|----------------------|----------------|------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Shldr. Width Ws (ft) | Side Slope S:1 | Case | Quantity in Tons Per Mile* | | | | | | | | | |
| | | | Surfacing Depth (ft) | | | | | | | | | |
| | | | 1.55 | 1.60 | 1.65 | 1.70 | 1.75 | 1.80 | 1.85 | 1.90 | 1.95 | 2.00 |
| 4 | 2 | 1 | 3148 | 3280 | 3414 | 3549 | 3687 | 3826 | 3967 | 4110 | 4255 | 4402 |
| | | 2 | 3451 | 3591 | 3734 | 3878 | 4025 | 4173 | 4324 | 4477 | 4631 | 4788 |
| | | 3 | 2927 | 3054 | 3183 | 3314 | 3447 | 3582 | 3718 | 3857 | 3997 | 4139 |
| | | 4 | 3209 | 3344 | 3482 | 3622 | 3763 | 3907 | 4053 | 4201 | 4350 | 4502 |
| | 3 | 1 | 3630 | 3793 | 3959 | 4129 | 4300 | 4475 | 4653 | 4834 | 5017 | 5203 |
| | | 2 | 4110 | 4291 | 4475 | 4662 | 4852 | 5045 | 5242 | 5441 | 5644 | 5850 |
| | | 3 | 3337 | 3493 | 3652 | 3814 | 3979 | 4147 | 4318 | 4492 | 4668 | 4848 |
| | | 4 | 3777 | 3950 | 4126 | 4305 | 4488 | 4673 | 4862 | 5054 | 5250 | 5448 |
| | 4 | 1 | 4133 | 4329 | 4529 | 4733 | 4941 | 5153 | 5369 | 5589 | 5812 | 6040 |
| | | 2 | 4852 | 5078 | 5308 | 5543 | 5782 | 6026 | 6274 | 6527 | 6784 | 7046 |
| | | 3 | 3764 | 3951 | 4142 | 4337 | 4535 | 4738 | 4944 | 5155 | 5369 | 5587 |
| | | 4 | 4416 | 4631 | 4850 | 5074 | 5302 | 5535 | 5773 | 6015 | 6261 | 6512 |
| | 6 | 1 | 5206 | 5473 | 5745 | 6024 | 6310 | 6601 | 6898 | 7202 | 7512 | 7828 |
| | | 2 | 6654 | 6989 | 7332 | 7683 | 8041 | 8407 | 8781 | 9163 | 9552 | 9950 |
| | | 3 | 4678 | 4930 | 5188 | 5452 | 5722 | 5999 | 6282 | 6570 | 6865 | 7166 |
| | | 4 | 5968 | 6285 | 6609 | 6941 | 7281 | 7628 | 7984 | 8347 | 8718 | 9096 |
| 6 | 2 | 1 | 4270 | 4438 | 4608 | 4779 | 4953 | 5128 | 5306 | 5485 | 5666 | 5849 |
| | | 2 | 4763 | 4942 | 5123 | 5306 | 5491 | 5678 | 5868 | 6059 | 6252 | 6447 |
| | | 3 | 3876 | 4038 | 4201 | 4365 | 4532 | 4701 | 4871 | 5044 | 5218 | 5394 |
| | | 4 | 4330 | 4502 | 4676 | 4852 | 5030 | 5210 | 5391 | 5575 | 5761 | 5949 |
| | 3 | 1 | 4752 | 4951 | 5153 | 5359 | 5567 | 5778 | 5992 | 6208 | 6428 | 6651 |
| | | 2 | 5471 | 5691 | 5915 | 6142 | 6372 | 6605 | 6842 | 7082 | 7325 | 7571 |
| | | 3 | 4253 | 4442 | 4634 | 4829 | 5026 | 5227 | 5430 | 5637 | 5846 | 6058 |
| | | 4 | 4898 | 5107 | 5320 | 5535 | 5754 | 5976 | 6201 | 6429 | 6660 | 6895 |
| | 4 | 1 | 5254 | 5486 | 5723 | 5963 | 6207 | 6455 | 6707 | 6963 | 7223 | 7487 |
| | | 2 | 6267 | 6534 | 6806 | 7082 | 7363 | 7648 | 7938 | 8233 | 8532 | 8835 |
| | | 3 | 4645 | 4864 | 5086 | 5312 | 5542 | 5776 | 6014 | 6256 | 6501 | 6751 |
| | | 4 | 5537 | 5788 | 6044 | 6304 | 6569 | 6838 | 7111 | 7389 | 7672 | 7959 |
| | 6 | 1 | 6328 | 6630 | 6939 | 7254 | 7576 | 7903 | 8237 | 8577 | 8923 | 9275 |
| | | 2 | 8200 | 8581 | 8969 | 9365 | 9769 | 10181 | 10600 | 11028 | 11463 | 11905 |
| | | 3 | 5484 | 5765 | 6051 | 6344 | 6643 | 6949 | 7260 | 7578 | 7901 | 8231 |
| | | 4 | 7090 | 7442 | 7803 | 8171 | 8547 | 8931 | 9322 | 9721 | 10128 | 10543 |
| 8 | 2 | 1 | 5391 | 5595 | 5801 | 6009 | 6219 | 6431 | 6644 | 6859 | 7077 | 7296 |
| | | 2 | 6121 | 6339 | 6559 | 6780 | 7004 | 7230 | 7457 | 7687 | 7919 | 8153 |
| | | 3 | 4785 | 4980 | 5177 | 5376 | 5577 | 5779 | 5984 | 6190 | 6398 | 6608 |
| | | 4 | 5452 | 5660 | 5870 | 6082 | 6296 | 6512 | 6730 | 6950 | 7172 | 7396 |
| | 3 | 1 | 5873 | 6109 | 6347 | 6589 | 6833 | 7080 | 7330 | 7583 | 7839 | 8098 |
| | | 2 | 6879 | 7140 | 7403 | 7670 | 7940 | 8214 | 8490 | 8770 | 9053 | 9339 |
| | | 3 | 5129 | 5351 | 5576 | 5803 | 6034 | 6267 | 6503 | 6743 | 6985 | 7229 |
| | | 4 | 6020 | 6265 | 6514 | 6765 | 7020 | 7278 | 7539 | 7804 | 8071 | 8342 |
| | 4 | 1 | 6376 | 6644 | 6917 | 7193 | 7473 | 7758 | 8046 | 8338 | 8634 | 8934 |
| | | 2 | 7731 | 8040 | 8354 | 8671 | 8994 | 9321 | 9652 | 9988 | 10329 | 10674 |
| | | 3 | 5488 | 5738 | 5992 | 6249 | 6511 | 6776 | 7046 | 7319 | 7596 | 7877 |
| | | 4 | 6659 | 6946 | 7238 | 7534 | 7835 | 8140 | 8450 | 8764 | 9083 | 9406 |
| | 6 | 1 | 7449 | 7788 | 8133 | 8485 | 8842 | 9206 | 9575 | 9951 | 10333 | 10722 |
| | | 2 | 9801 | 10227 | 10661 | 11103 | 11552 | 12009 | 12474 | 12947 | 13427 | 13915 |
| | | 3 | 6255 | 6565 | 6880 | 7202 | 7530 | 7864 | 8204 | 8550 | 8903 | 9262 |
| | | 4 | 8211 | 8600 | 8997 | 9401 | 9813 | 10233 | 10661 | 11096 | 11539 | 11990 |

*Tabulated quantities are based on compacted weight of 1.85 tons/yd³

Exhibit 620-11 Estimating: Base and Surfacing Quantities

| Shoulder Section | | | | | | | | | | | | | |
|-------------------------|-------------------|------|----------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|------|
| Shldr. Width Ws (ft) | Side Slope S:1 | Case | Quantity in Tons Per Mile* | | | | | | | | | | |
| | | | Surfacing Depth (ft) | | | | | | | | | | |
| | | | 1.05 | 1.10 | 1.15 | 1.20 | 1.25 | 1.30 | 1.35 | 1.40 | 1.45 | 1.50 | |
| 10 | 2 | 1 | 4214 | 4436 | 4659 | 4884 | 5111 | 5340 | 5571 | 5804 | 6038 | 6275 | |
| | | 2 | 5074 | 5310 | 5548 | 5788 | 6031 | 6275 | 6521 | 6769 | 7019 | 7272 | |
| | | 3 | 3468 | 3678 | 3890 | 4104 | 4320 | 4537 | 4757 | 4978 | 5201 | 5427 | |
| | | 4 | 4242 | 4466 | 4692 | 4920 | 5150 | 5382 | 5617 | 5853 | 6091 | 6331 | |
| | 3 | 1 | 4435 | 4678 | 4924 | 5173 | 5424 | 5679 | 5936 | 6196 | 6460 | 6726 | |
| | | 2 | 5505 | 5774 | 6045 | 6320 | 6599 | 6880 | 7165 | 7453 | 7744 | 8038 | |
| | | 3 | 3581 | 3806 | 4035 | 4266 | 4501 | 4738 | 4978 | 5221 | 5467 | 5715 | |
| | | 4 | 4503 | 4752 | 5005 | 5261 | 5520 | 5782 | 6048 | 6316 | 6588 | 6863 | |
| | 4 | 1 | 4666 | 4931 | 5201 | 5474 | 5751 | 6032 | 6317 | 6606 | 6899 | 7196 | |
| | | 2 | 5990 | 6295 | 6605 | 6919 | 7238 | 7561 | 7889 | 8221 | 8558 | 8900 | |
| | | 3 | 3698 | 3940 | 4186 | 4436 | 4689 | 4947 | 5208 | 5474 | 5743 | 6017 | |
| | | 4 | 4796 | 5074 | 5357 | 5644 | 5935 | 6232 | 6532 | 6838 | 7147 | 7462 | |
| | 6 | 1 | 5158 | 5472 | 5792 | 6117 | 6449 | 6787 | 7132 | 7482 | 7839 | 8202 | |
| | | 2 | 7167 | 7561 | 7963 | 8373 | 8790 | 9215 | 9648 | 10088 | 10537 | 10993 | |
| | | 3 | 3950 | 4226 | 4509 | 4798 | 5093 | 5394 | 5701 | 6015 | 6334 | 6660 | |
| | | 4 | 5508 | 5856 | 6211 | 6574 | 6945 | 7323 | 7710 | 8104 | 8506 | 8915 | |
| 12 | 2 | 1 | 4974 | 5231 | 5491 | 5752 | 6015 | 6281 | 6548 | 6816 | 7087 | 7360 | |
| | | 2 | 6139 | 6414 | 6691 | 6969 | 7250 | 7533 | 7818 | 8104 | 8393 | 8684 | |
| | | 3 | 3956 | 4200 | 4446 | 4694 | 4944 | 5195 | 5449 | 5704 | 5961 | 6220 | |
| | | 4 | 5002 | 5262 | 5524 | 5788 | 6055 | 6323 | 6593 | 6866 | 7140 | 7416 | |
| | 3 | 1 | 5195 | 5474 | 5756 | 6041 | 6329 | 6619 | 6913 | 7209 | 7509 | 7811 | |
| | | 2 | 6609 | 6918 | 7230 | 7545 | 7863 | 8184 | 8509 | 8837 | 9168 | 9502 | |
| | | 3 | 4052 | 4310 | 4571 | 4836 | 5103 | 5372 | 5645 | 5921 | 6199 | 6481 | |
| | | 4 | 5262 | 5548 | 5837 | 6129 | 6424 | 6723 | 7024 | 7329 | 7637 | 7948 | |
| | 4 | 1 | 5425 | 5727 | 6033 | 6342 | 6656 | 6973 | 7294 | 7619 | 7948 | 8282 | |
| | | 2 | 7138 | 7485 | 7836 | 8192 | 8553 | 8917 | 9287 | 9661 | 10039 | 10422 | |
| | | 3 | 4151 | 4425 | 4702 | 4983 | 5268 | 5557 | 5850 | 6147 | 6448 | 6753 | |
| | | 4 | 5556 | 5870 | 6189 | 6512 | 6840 | 7172 | 7509 | 7851 | 8197 | 8547 | |
| | 6 | 1 | 5918 | 6268 | 6624 | 6986 | 7354 | 7728 | 8109 | 8495 | 8888 | 9287 | |
| | | 2 | 8422 | 8862 | 9309 | 9764 | 10227 | 10698 | 11176 | 11662 | 12156 | 12657 | |
| | | 3 | 4364 | 4669 | 4981 | 5298 | 5622 | 5952 | 6288 | 6630 | 6979 | 7333 | |
| | | 4 | 6268 | 6652 | 7043 | 7442 | 7849 | 8264 | 8687 | 9117 | 9555 | 10001 | |
| | Pavement Section | | | | | | | | | | | | |
| | Width WP (ft) | | | 1.05 | 1.10 | 1.15 | 1.20 | 1.25 | 1.30 | 1.35 | 1.40 | 1.45 | 1.50 |
| | 11 | | | 4179 | 4378 | 4576 | 4775 | 4974 | 5173 | 5372 | 5571 | 5770 | 5969 |
| | 12 | | | 4558 | 4775 | 4993 | 5210 | 5427 | 5644 | 5861 | 6078 | 6295 | 6512 |
| 22 | | | 8357 | 8755 | 9153 | 9551 | 9949 | 10347 | 10745 | 11143 | 11541 | 11939 | |
| 24 | | | 9117 | 9551 | 9985 | 10419 | 10853 | 11287 | 11722 | 12156 | 12590 | 13024 | |

*Tabulated quantities are based on compacted weight of 1.85 tons/yd³

Exhibit 620-12 Estimating: Base and Surfacing Quantities

| Shoulder Section | | | | | | | | | | | | | |
|----------------------|------------------|------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Shldr. Width Ws (ft) | Side Slope S:1 | Case | Quantity in Tons Per Mile* | | | | | | | | | | |
| | | | Surfacing Depth (ft) | | | | | | | | | | |
| | | | 1.55 | 1.60 | 1.65 | 1.70 | 1.75 | 1.80 | 1.85 | 1.90 | 1.95 | 2.00 | |
| 10 | 2 | 1 | 6513 | 6753 | 6995 | 7239 | 7485 | 7733 | 7983 | 8234 | 8488 | 8743 | |
| | | 2 | 7526 | 7782 | 8041 | 8301 | 8563 | 8827 | 9094 | 9362 | 9632 | 9905 | |
| | | 3 | 5654 | 5883 | 6113 | 6346 | 6581 | 6817 | 7056 | 7296 | 7538 | 7782 | |
| | | 4 | 6573 | 6818 | 7064 | 7312 | 7562 | 7814 | 8069 | 8325 | 8583 | 8843 | |
| | 3 | 1 | 6995 | 7266 | 7541 | 7819 | 8099 | 8382 | 8669 | 8958 | 9250 | 9545 | |
| | | 2 | 8335 | 8636 | 8940 | 9247 | 9557 | 9870 | 10187 | 10506 | 10829 | 11156 | |
| | | 3 | 5967 | 6221 | 6479 | 6739 | 7002 | 7268 | 7537 | 7809 | 8084 | 8361 | |
| | | 4 | 7141 | 7423 | 7707 | 7995 | 8286 | 8581 | 8878 | 9179 | 9482 | 9789 | |
| | 4 | 1 | 7497 | 7802 | 8111 | 8423 | 8740 | 9060 | 9385 | 9713 | 10045 | 10381 | |
| | | 2 | 9246 | 9596 | 9951 | 10311 | 10675 | 11043 | 11416 | 11794 | 12176 | 12563 | |
| | | 3 | 6294 | 6575 | 6860 | 7149 | 7442 | 7739 | 8040 | 8344 | 8653 | 8966 | |
| | | 4 | 7780 | 8104 | 8432 | 8764 | 9101 | 9442 | 9788 | 10139 | 10494 | 10853 | |
| | 6 | 1 | 8571 | 8946 | 9327 | 9715 | 10108 | 10508 | 10914 | 11326 | 11744 | 12169 | |
| | | 2 | 11457 | 11928 | 12408 | 12895 | 13390 | 13892 | 14403 | 14921 | 15447 | 15980 | |
| | | 3 | 6992 | 7330 | 7674 | 8025 | 8382 | 8744 | 9113 | 9488 | 9870 | 10257 | |
| | | 4 | 9333 | 9758 | 10191 | 10631 | 11079 | 11536 | 11999 | 12471 | 12950 | 13437 | |
| 12 | 2 | 1 | 7634 | 7911 | 8189 | 8469 | 8751 | 9035 | 9321 | 9609 | 9899 | 10190 | |
| | | 2 | 8977 | 9272 | 9569 | 9868 | 10168 | 10471 | 10776 | 11083 | 11392 | 11703 | |
| | | 3 | 6481 | 6744 | 7009 | 7276 | 7544 | 7814 | 8087 | 8361 | 8637 | 8915 | |
| | | 4 | 7695 | 7975 | 8258 | 8542 | 8828 | 9117 | 9407 | 9700 | 9994 | 10291 | |
| | 3 | 1 | 8116 | 8424 | 8735 | 9049 | 9365 | 9685 | 10007 | 10333 | 10661 | 10992 | |
| | | 2 | 9840 | 10180 | 10524 | 10871 | 11221 | 11575 | 11931 | 12291 | 12654 | 13020 | |
| | | 3 | 6765 | 7052 | 7342 | 7635 | 7931 | 8230 | 8532 | 8836 | 9144 | 9454 | |
| | | 4 | 8263 | 8581 | 8901 | 9225 | 9553 | 9883 | 10216 | 10553 | 10893 | 11236 | |
| | 4 | 1 | 8619 | 8960 | 9304 | 9653 | 10006 | 10363 | 10723 | 11088 | 11456 | 11829 | |
| | | 2 | 10810 | 11202 | 11599 | 12000 | 12405 | 12816 | 13230 | 13650 | 14073 | 14502 | |
| | | 3 | 7061 | 7374 | 7691 | 8011 | 8335 | 8664 | 8996 | 9332 | 9672 | 10017 | |
| | | 4 | 8902 | 9262 | 9626 | 9994 | 10367 | 10745 | 11127 | 11514 | 11905 | 12300 | |
| | 6 | 1 | 9692 | 10103 | 10521 | 10945 | 11374 | 11810 | 12253 | 12701 | 13155 | 13616 | |
| | | 2 | 13167 | 13684 | 14209 | 14741 | 15282 | 15830 | 16386 | 16949 | 17521 | 18100 | |
| | | 3 | 7694 | 8061 | 8434 | 8813 | 9199 | 9590 | 9988 | 10392 | 10802 | 11218 | |
| | | 4 | 10454 | 10915 | 11384 | 11861 | 12346 | 12838 | 13338 | 13846 | 14361 | 14885 | |
| | Pavement Section | | | | | | | | | | | | |
| | Width WP (ft) | | | 1.55 | 1.60 | 1.65 | 1.70 | 1.75 | 1.80 | 1.85 | 1.90 | 1.95 | 2.00 |
| | 11 | | | 6168 | 6367 | 6566 | 6765 | 6964 | 7163 | 7362 | 7561 | 7760 | 7959 |
| | 12 | | | 6729 | 6946 | 7163 | 7380 | 7597 | 7814 | 8031 | 8249 | 8466 | 8683 |
| 22 | | | 12337 | 12735 | 13133 | 13530 | 13928 | 14326 | 1472 | 14122 | 15520 | 15918 | |
| 24 | | | 13458 | 13892 | 14326 | 14761 | 15195 | 15629 | 16063 | 16497 | 16931 | 17365 | |

*Tabulated quantities are based on compacted weight of 1.85 tons/yd³