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# HOT BITUMINOUS PAVEMENT QC&QA PROJECTS CONSTRUCTED IN 1996 UNDER QPM 2 SPECIFICATIONS

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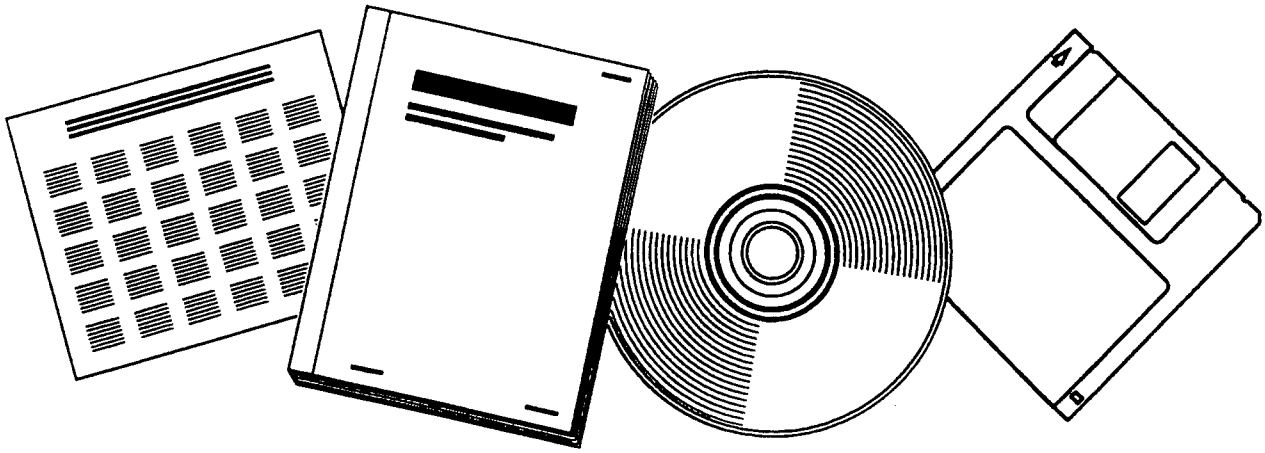

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# Hot Bituminous Pavement QC&QA Projects Constructed in 1996 Under QPM 2 Specifications

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**Fifth Annual Report**
**May, 1997**

**Prepared in cooperation with the**
**U. S. Department of Transportation**
**Federal Highway Administration**

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This report presents Tables and Figures which summarize the HBP Quality Level Analysis (QLA) for projects completed in 1996, the second season using the latest significant revision to the specifications. The Quality Level (QL) for the elements (sieve analysis, asphalt content, and pavement density) and the item composites are summarized. While QL determines Pay Factor (PF), it is also used to rank contractors' performance. The item QL improved 1.3 percentage points in 1996 over 1995. But the incentive/disincentive payments were not sufficient to cause some of the contractors to improve their process control. Both, the better and poorer performing contractors show up with similar rankings from year to year. The QLA specifications essentially are serving satisfactorily.

Implementation:

The PF formulas were modified for the 1997 season so as to make the PF continuous in relation to the QL, rather than in steps as has been the procedure. It is suggested the methods of applying weight factors to the element QL's for PF calculations be reviewed for possible changes. Some other changes in the specification and computer software are needed.

**14. SUBJECT TERMS**

Assurance, Quality, Level, Analysis, Statistics, Incentive

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# CDOT REPORT FOR THE HBP QC/QA PROJECTS CONSTRUCTED IN 1996 UNDER QPM 2 SPECIFICATIONS

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# CDOT FIFTH ANNUAL REPORT FOR THE HBP QC&QA PROJECTS CONSTRUCTED IN 1996

## INTRODUCTION AND COMMENTS

CDOT began QC&QA construction for hot bituminous pavement (HBP) in 1992 with the implementation of a three-year pilot program which was essentially completed in 1994 (there were a number of projects held over and completed in 1995). The Pilot project computer software was designated QPM 1 and that designation is used herein for projects built under the Pilot specifications.

In 1994 a revised and updated specification was written, designated as QPM 2[2] and used on a limited number of projects completed in 1995 and essentially all HBP projects completed in 1996. Four previous reports have been made, for 1992 through 1995, [3, 4, 5 & 6] which are available from the CDOT library, or through the Pavement Unit located in the Central Laboratory. The report on 1995 construction contained summaries for both QPM 1 & 2.

The general format and presentation of data in this Fifth Annual report is similar to that used in the previous reports. Information on the background, development, philosophy and rationale involved with QC&QA specifications can be found in the previous reports and is not being repeated here. The total tons placed each year under each specification and the summarized data can be found in Tables 4 and 5. Also, relationships of yearly summaries to the 1991 historical base are depicted in the tables and figures 5 - 8

## DISCUSSION OF THE DATA

### *Description of Tables and Figures.*

Table 1, comprising 7 pages is a listing of each complete process (referred to in the column heading as Mix Design) summary. Each element, asphalt content, density and gradation is listed, along with a composite calculation (Totals & Weighed Means) for the applicable columns. Tons, test "n" and the incentive or disincentive payments (I/DP) are totaled. Quality Level (QL) and pay factor (PF) are the average of the element values weighted by their "W" factors (see previous reports and the QPM 2 specifications). The projects summaries are listed numerically by subaccount (SA) and mix design numbers. This table is summarized data for information only.

The three elements and mix design item summaries (composite) have been grouped together in Table 2. The data is listed by SA. Each element is totaled and averaged (weighted by tons). The 1995 QPM 2 summaries are presented immediately below the 1996 data and the differences follow. The composite is the final grouping and presents summaries for all projects reported for the 1996 season. The information in Table 2, except for the summary data at the end of each group, is the same as in Table 1, except it has been sorted by element and composite in order to do the analysis.

The summary values from Table 2 have been transferred to Tables 3 and 4 as 1996 QPM 2 data. Table 3 is the consolidated data for each project listed by SA. If there was only one process, the project data is the same. If there were two or more processes, the bid price, QL and PF are averages weighted by tons. The tons and dollars I/DP are totals. All additional tables in the Table 3 group are presentations of the same information, sorted and sub-grouped differently to aid in review and understanding.

Table 4 is the summarized element and composite data for 1991 historical and the QC&QA data for 1992 through 1996. Included are the overall summaries for all QPM 1 and all QPM 2 projects. The tons and number of tests for group are also shown. Table 5 is taken from table 4 and presented in a different mode. It groups the elements and composites together. Also, the data has been "normalized" by comparing each element for each year with the historical data, shown as a percentage of 1991. The SD column is the

inverse percentage in order to portray each of the four columns as over 100% when there has been improvement (i.e., the smaller the SD, the better the performance would be and the higher the inverse percentage). For the other columns, direct percentages are used, and over 100% indicates improvement over 1991.

Figures 1 and 2 are plotted from Table 3D and show contractors' performance by QL and PF in relation to the percentage of the overall 1996 production by each. Figures 3 - 6 are plotted from the data in Table 5. Figures 7 - 12 are frequency histograms of 1995 and 1996 element test values. For asphalt content and the No. 8 sieve (in most cases the controlling sieve for the gradation element), the field test values for each process were adjusted to a common target value equal (average for the year). The density test target remains the same for all processes, consequently no adjustment was necessary.

### *Significance of Data and Comments*

Table 1 is merely a listing and requires no comment. The significance of the element and composite summaries shown in Table 2 is discussed below with Table 4 and 5 discussion. In Table 3A the projects are sorted by QL. The information is grouped by CDOT Region in 3B. The QL rankings probably have more to do with which contractors did the work, and various intangible factors, than it has to do with the CDOT region personnel. In Table 3C projects have been sorted by contractor, with each group ordered by QL. In Table 3D each contractor's group has been totaled and averaged, then sorted by QL; where the work was performed is not obvious, but can readily be determined by glancing at 3C.

The ranking of the contractors by QL along with tonnage represented is of interest to many. A review of the 1993 -1995 reports revealed that most of the same contractors keep showing up with similar QL rankings. That is, the better performers repeat year after year and likewise, so do the poor performers. There are occasional extenuating circumstances, such as experimental projects or other factors, that shift the rankings to some degree. Apparently, the incentives, or disincentives are not great enough to persuade some contractors to perform at a higher level. But other factors may be involved, such as location of the project in relation to the home base of potential bidders. Competition will not always guarantee the best performing, most efficient contractors will be the lowest bidders.

From Table 4, the QLs of all three elements, and the composite, have improved in 1996 over 1995 QPM 1 and 2. The 1996 composite QL is 1.3 percentage points higher than 1995 QPM 2 and 6.7 percent above 1995 QPM 1. This is a significant improvement, but a few projects with low QLs can easily have a negative effect on the yearly average. It is suggested that the element weighting (W) factors be changed to have a greater disincentive effect when any process element has a PF below 1.0. For PFs of above 1.0, there would be no change. Some preliminary study has been done with various factors applied to 1996 data. Such a change appears feasible and not too difficult to implement. It would have minimal impact on contractors performing at higher quality levels.

Figures 7 and 8, and 11 and 12 show there has been some improvement in the distribution of the field test results for asphalt content and the No 8 sieve respectively, in 1996 over 1995. Figures 9 and 10 for asphalt density show the distribution for 1996 is not as good as in 1995. There is a lack of test values just below the lower tolerance limit of 92 and a larger percentage of values just inside the specifications than is normal. This tendency has been evident to greater or lesser degrees from the beginning of the QC&QA program. All persons involved with random sampling procedures for CDOT should be thoroughly trained in proper procedures.

Other than the above comments, the HBP QC&QA program appears to be proceeding satisfactorily. Some changes in the computer software are currently in process that should reduce the QPM data manipulation problems evident in the past.

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1. Revisions of the Standard Specifications, Sections 105, Control of Work and 106, Control of Material; to be used with the 1992 Pilot Projects, by the Staff Materials Branch, CDOT, March, 1992. (QPM 1)

2. Revision of Sections 105 and 106, Quality of Hot Bituminous Pavement, April 25, 1995 (Reissued with minor editorial changes, March 7, 1996). CDOT, 4201 East Arkansas Avenue, Denver, CO 80222. (QPM 2)

3. HBP QA/QC Pilot Projects Construction in 1992, Interim Report. Report No. CDOT-DTD-R-93-14, by Bud A. Brakey, Colorado Department of Transportation, 4201 East Arkansas Avenue, Denver, CO 80222.

4. HBP QA/QC Pilot Projects Construction in 1993, Second Interim Report, by Bud A. Brakey, Colorado Department of Transportation, 4201 East Arkansas Avenue, Denver, CO 80222.

5. Hot Bituminous Pavement QC/QA Projects Constructed in 1994 and Summary of the 1992-1994 QC/QA Pilot Program, Final Report, June 1995, by Bud A. Brakey,

6. HBP QC&QA Projects Constructed in 1995 Under QPM 1 and QPM 2 Specifications, (1996 fourth annual report by Bud A Brakey, Colorado Department of Transportation, 4201 East Arkansas Avenue, Denver, CO 80222.), Report No. CDOT-R-96-9.

# TABLES AND FIGURES

COMPRISING 26 PAGES NUMBERED 1 - 26

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TABLE 1

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 1(95)

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE-MENT | BID $/TON | TONS 1000 | TEST "n" | PRCE SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 96 | | Gradation is CONTROLLING Sieve | | | | |
| CC C110-002 | | 10304 | 64268-1 | a | | | | | | | | | A1 | C |
| Lena Gulch | 6 | 10304 | 64268-1 | AC% | $25.00 | 12.4 | 12 | 0.18 | 0.02 | 98.7 | 1.050 | $4,658 | A1 | C |
| Lena Gulch | 6 | 10304 | 64268-1 | Dn% | $25.00 | 12.4 | 25 | 0.77 | -0.40 | 98.5 | 1.050 | $7,763 | A1 | C |
| Lena Gulch | 6 | 10304 | 64268-1 | Grad | $25.00 | 12.4 | 6 | 3.50 | 0.30 | 69.4 | 0.944 | ($3,460) | A1 | C |
| TOTALS & W'TED MEANS | | 10304 | 64268-1 | ITEM | $25.00 | 12.4 | NA | NA | NA | 92.7 | 1.029 | $8,960 | A1 | C |
| CC 0931-018 | | 10306 | 64268-1 | a | | | | | | | | | A1 | C |
| SH 93 & Golden Gate C | 6 | 10306 | 64268-1 | AC% | $27.00 | 10.0 | 10 | 0.13 | 0.16 | 86.3 | 1.016 | $1,303 | A1 | C |
| SH 93 & Golden Gate C | 6 | 10306 | 64268-1 | Dn% | $27.00 | 10.0 | 20 | 0.73 | -0.88 | 94.3 | 1.043 | $5,839 | A1 | C |
| SH 93 & Golden Gate C | 6 | 10306 | 64268-1 | Grad | $27.00 | 10.0 | 5 | 0.89 | 2.40 | 100.0 | 1.030 | $1,620 | A1 | C |
| TOTALS & W'TED MEANS | | 10306 | 64268-1 | ITEM | $27.00 | 10.0 | NA | NA | NA | 93.0 | 1.032 | $8,762 | A1 | C |
| HB 042-041 | | 10395 | 90860-1 | a | | | | | | | | | C4 | CX |
| West of Granby W | 3 | 10395 | 90860-1 | AC% | $27.31 | 24.0 | 24 | 0.17 | -0.07 | 90.4 | 1.021 | $4,035 | C4 | CX |
| West of Granby W | 3 | 10395 | 90860-1 | Dn% | $27.31 | 24.0 | 47 | 0.98 | -0.57 | 92.5 | 1.022 | $7,295 | C4 | CX |
| West of Granby W | 3 | 10395 | 90860-1 | Grad | $27.31 | 24.0 | 12 | 0.94 | 1.20 | 97.4 | 1.050 | $6,554 | C4 | CX |
| TOTALS & W'TED MEANS | | 10395 | 90860-1 | ITEM | $27.31 | 24.0 | NA | NA | NA | 92.9 | 1.027 | $17,884 | C4 | CX |
| C 2571-002 | | 10595 | 81701A | a | | | | | | | | | C2 | C |
| SH 257, US 34-Poudre | 4 | 10595 | 81701A | AC% | $27.60 | 9.4 | 10 | 0.17 | 0.14 | 81.1 | 0.993 | ($585) | C2 | C |
| SH 257, US 34-Poudre | 4 | 10595 | 81701A | Dn% | $27.60 | 9.4 | 19 | 0.66 | -1.04 | 92.9 | 1.035 | $4,608 | C2 | C |
| SH 257, US 34-Poudre | 4 | 10595 | 81701A | Grad | $27.60 | 9.4 | 5 | 2.30 | -2.20 | 85.2 | 1.027 | $1,393 | C2 | C |
| TOTALS & W'TED MEANS | | 10595 | 81701A | ITEM | $27.60 | 9.4 | NA | NA | NA | 88.5 | 1.021 | $5,416 | C2 | C |
| NH 0503-045 | | 10652 | 87163A-1 | a | | | | | | | | | H1 | C |
| Royal Gorge - East | 2 | 10652 | 87163A-1 | AC% | $24.89 | 35.8 | 36 | 0.17 | 0.13 | 83.4 | 0.976 | ($6,494) | H1 | C |
| Royal Gorge - East | 2 | 10652 | 87163A-1 | Dn% | $24.89 | 35.8 | 72 | 0.83 | -0.27 | 98.0 | 1.060 | $26,674 | H1 | C |
| Royal Gorge - East | 2 | 10652 | 87163A-1 | Grad | $24.89 | 35.8 | 18 | 1.62 | 1.60 | 89.2 | 1.021 | $3,718 | H1 | C |
| TOTALS & W'TED MEANS | | 10652 | 87163A-1 | ITEM | $24.89 | 35.8 | NA | NA | NA | 91.9 | 1.027 | $23,898 | H1 | C |
| C 0062-009 | | 10679 | 64248A-1 | a | | | | | | | | | B1 | C |
| 6TH & Union | 6 | 10679 | 64248A-1 | AC% | $29.53 | 4.9 | 5 | 0.12 | -0.22 | 96.3 | 1.030 | $1,313 | B1 | C |
| 6TH & Union | 6 | 10679 | 64248A-1 | Dn% | $29.53 | 4.9 | 10 | 0.85 | 0.14 | 99.5 | 1.040 | $2,919 | B1 | C |
| 6TH & Union | 6 | 10679 | 64248A-1 | Grad | $29.53 | 4.9 | 3 | 1.73 | -3.00 | 75.6 | 1.020 | $594 | B1 | C |
| TOTALS & W'TED MEANS | | 10679 | 64248A-1 | ITEM | $29.53 | 4.9 | NA | NA | NA | 93.7 | 1.033 | $4,826 | B1 | C |
| C 0062-009 | | 10679 | 64254C-1 | a | | | | | | | | | B1 | C |
| 6TH & Union | 6 | 10679 | 64254C-1 | AC% | $29.53 | 22.6 | 23 | 0.15 | -0.02 | 99.5 | 1.050 | $10,032 | B1 | C |
| 6TH & Union | 6 | 10679 | 64254C-1 | Dn% | $29.53 | 22.6 | 46 | 1.18 | -0.67 | 86.1 | 0.975 | ($8,403) | B1 | C |
| 6TH & Union | 6 | 10679 | 64254C-1 | Grad | $29.53 | 22.6 | 12 | 1.44 | -1.90 | 99.2 | 0.970 | ($4,037) | B1 | C |
| TOTALS & W'TED MEANS | | 10679 | 64254C-1 | ITEM | $29.53 | 22.6 | NA | NA | NA | 92.7 | 0.996 | ($2,408) | B1 | C |
| IM 0252-278 | | 10768 | 65442-1 | a | | | | | | | | | K1 | C |
| Greenland - North | 1 | 10768 | 65442-1 | AC% | $32.00 | 16.6 | 17 | 0.22 | 0.02 | 82.8 | 0.987 | ($2,078) | K1 | C |
| Greenland - North | 1 | 10768 | 65442-1 | Dn% | $32.00 | 16.6 | 34 | 1.09 | -0.81 | 85.8 | 0.991 | ($2,321) | K1 | C |
| Greenland - North | 1 | 10768 | 65442-1 | Grad | $32.00 | 16.6 | 9 | 3.06 | 0.10 | 92.0 | 1.035 | $3,726 | K1 | C |
| TOTALS & W'TED MEANS | | 10768 | 65442-1 | ITEM | $32.00 | 16.6 | NA | NA | NA | 86.1 | 0.999 | ($672) | K1 | C |
| Greenland - North | 1 | 10768 | 65442A-1 | AC% | $33.00 | 7.2 | 8 | 0.22 | -0.21 | 78.9 | 0.981 | ($1,332) | K1 | C |
| Greenland - North | 1 | 10768 | 65442A-1 | Dn% | $33.00 | 7.2 | NA | NA | NA | NA | 1.000 | $0 | K1 | C |
| Greenland - North | 1 | 10768 | 65442A-1 | Grad | $33.00 | 7.2 | 4 | 1.83 | 1.20 | 84.0 | 1.030 | $1,431 | K1 | C |
| TOTALS & W'TED MEANS | | 10768 | 65442A-1 | ITEM | $33.00 | 7.2 | NA | NA | NA | 81.0 | 1.000 | $99 | K1 | C |
| Greenland - North | 1 | 10768 | 65442B-1 | AC% | $32.00 | 13.1 | 13 | 0.17 | 0.12 | 85.3 | 1.001 | $120 | K1 | C |
| Greenland - North | 1 | 10768 | 65442B-1 | Dn% | $32.00 | 13.1 | NA | NA | NA | NA | 1.000 | $0 | K1 | C |
| Greenland - North | 1 | 10768 | 65442B-1 | Grad | $32.00 | 13.1 | 7 | 3.24 | 1.90 | 83.0 | 1.012 | $982 | K1 | C |
| TOTALS & W'TED MEANS | | 10768 | 65442B-1 | ITEM | $32.00 | 13.1 | NA | NA | NA | 84.4 | 1.003 | $1,101 | K1 | C |
| Greenland - North | 1 | 10768 | 83239-1 | AC% | $33.00 | 13.2 | 14 | 0.19 | 0.04 | 89.6 | 1.023 | $2,977 | K1 | C |
| Greenland - North | 1 | 10768 | 83239-1 | Dn% | $33.00 | 13.2 | NA | NA | NA | NA | 1.000 | $0 | K1 | C |
| Greenland - North | 1 | 10768 | 83239-1 | Grad | $33.00 | 13.2 | 7 | 7.00 | -2.10 | 83.8 | 1.015 | $1,293 | K1 | C |
| TOTALS & W'TED MEANS | | 10768 | 83239-1 | ITEM | $33.00 | 13.2 | NA | NA | NA | 87.3 | 1.010 | $4,270 | K1 | C |

TABLE 1

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 1(95)

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE- MENT | BID $/TON | TONS 1000 | TEST "n" | PRCE SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is #8 | | Gradation is CONTROLLING Sieve | | | | |
| Greenland - North | 1 | 10768 | 83239A-1 | AC% | $34.00 | 5.5 | 6 | 0.30 | 0.14 | 63.6 | 0.907 | ($5,225) | K1 | C |
| Greenland - North | 1 | 10768 | 83239A-1 | Dn% | $34.00 | 5.5 | NA | NA | NA | NA | 1.000 | $0 | K1 | C |
| Greenland - North | 1 | 10768 | 83239A-1 | Grad | $34.00 | 5.5 | 3 | 1.15 | -3.70 | 83.3 | 1.025 | $938 | K1 | C |
| TOTALS & W'TED MEANS | | 10768 | 83239A-1 | ITEM | $34.00 | 5.5 | NA | NA | NA | 71.5 | 0.977 | ($4,288) | K1 | C |
| STA 03851-008 | | 10769 | 88600-1 | | | | | | | | | | H1 | C |
| SH385, 20 Mi S of I 70 N | 1 | 10769 | 88600-1 | AC% | $30.28 | 26.9 | 27 | 0.10 | 0.06 | 99.5 | 1.050 | $12,232 | H1 | C |
| SH385, 20 Mi S of I 70 N | 1 | 10769 | 88600-1 | Dn% | $30.28 | 26.9 | 54 | 0.71 | -0.55 | 98.1 | 1.055 | $22,425 | H1 | C |
| SH385, 20 Mi S of I 70 N | 1 | 10769 | 88600-1 | Grad | $30.28 | 26.9 | 14 | 1.96 | 1.00 | 89.6 | 1.023 | $3,691 | H1 | C |
| TOTALS & W'TED MEANS | | 10769 | 88600-1 | ITEM | $30.28 | 26.9 | NA | NA | NA | 96.8 | 1.047 | $38,347 | H1 | C |
| BR 3851-009 | | 10790 | 88600-1 | a | | | | | | | | | G1 | C |
| 10 M N Cheyenne Wells | 1 | 10790 | 88600-1 | AC% | $38.00 | 3.0 | 3 | 0.02 | 0.01 | 100.0 | 1.025 | $848 | G1 | C |
| 10 M N Cheyenne Wells | 1 | 10790 | 88600-1 | Dn% | $38.00 | 3.0 | 6 | 0.90 | -0.90 | 89.5 | 1.035 | $1,967 | G1 | C |
| 10 M N Cheyenne Wells | 1 | 10790 | 88600-1 | Grad | $38.00 | 3.0 | 3 | 1.53 | 1.70 | 100.0 | 1.025 | $565 | G1 | C |
| TOTALS & W'TED MEANS | | 10790 | 88600-1 | ITEM | $38.00 | 3.0 | NA | NA | NA | 94.8 | 1.030 | $3,381 | G1 | C |
| STr 0853-029 | | 10857 | 81942a | a | | | | | | | | | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942a | AC% | $22.50 | 13.7 | 14 | 0.14 | -0.04 | 97.4 | 1.050 | $4,620 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942a | Dn% | $22.50 | 13.7 | 28 | 0.78 | -1.10 | 87.6 | 1.003 | $443 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942a | Grad | $22.50 | 13.7 | 7 | 1.13 | -1.60 | 82.4 | 1.009 | $563 | W2 | C |
| TOTALS & W'TED MEANS | | 10857 | 81942a | ITEM | $22.50 | 13.7 | NA | NA | NA | 91.3 | 1.018 | $5,626 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942b | AC% | $22.50 | 1.4 | 2 | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942b | Dn% | $22.50 | 1.4 | 0 | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942b | Grad | $22.50 | 1.4 | 1 | NA | NA | NA | 1.000 | $0 | W2 | C |
| TOTALS & W'TED MEANS | | 10857 | 81942b | ITEM | $22.50 | 1.4 | | | | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699A | AC% | $28.85 | 3.0 | 3 | 0.12 | 0.15 | 100.0 | 1.025 | $641 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699A | Dn% | $28.85 | 3.0 | 6 | 0.54 | -1.43 | 85.2 | 1.020 | $861 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699A | Grad | $28.85 | 3.0 | 2 | NA | NA | NA | 1.000 | $0 | W2 | C |
| TOTALS & W'TED MEANS | | 10857 | 80699A | ITEM | $28.85 | 3.0 | NA | NA | NA | 90.8 | 1.018 | $1,502 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699B | AC% | $28.85 | 21.6 | 22 | 0.08 | 0.06 | 100.0 | 1.050 | $9,341 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699B | Dn% | $28.85 | 21.6 | 44 | 0.85 | -0.74 | 93.3 | 1.028 | $8,653 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699B | Grad | $28.85 | 21.6 | 11 | 2.42 | 0.50 | 97.5 | 1.040 | $4,982 | W2 | C |
| TOTALS & W'TED MEANS | | 10857 | 80699B | ITEM | $28.85 | 21.6 | NA | NA | NA | 99.0 | 1.037 | $22,977 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942C | AC% | $23.50 | 2.0 | 2 | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942C | Dn% | $23.50 | 2.0 | 0 | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942C | Grad | $23.50 | 2.0 | 1 | NA | NA | NA | 1.000 | $0 | W2 | C |
| TOTALS & W'TED MEANS | | 10857 | 81942C | ITEM | $23.50 | 2.0 | NA | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699C | AC% | $29.85 | 5.0 | 5 | 0.07 | 0.14 | 100.0 | 1.030 | $1,335 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699C | Dn% | $29.85 | 5.0 | 10 | 0.95 | -0.08 | 98.5 | 1.040 | $2,968 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699C | Grad | $29.85 | 5.0 | 3 | 1.15 | 0.70 | 50.0 | 0.889 | ($3,294) | W2 | C |
| TOTALS & W'TED MEANS | | 10857 | 80699C | ITEM | $29.85 | 5.0 | NA | NA | NA | 80.0 | 1.007 | $1,009 | W2 | C |
| STR 1192-006 | 4 | 10858 | 81470 | a | | | | | | | | | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 81470 | AC% | $24.90 | 0.9 | 1 | NA | NA | NA | 1.000 | $0 | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 81470 | Dn% | $24.90 | 0.9 | 2 | NA | NA | NA | 1.000 | $0 | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 81470 | Grad | $24.90 | 0.9 | 1 | NA | >2V | NA | 0.500 | ($2,219) | B1 | C |
| TOTALS & W'TED MEANS | | 10858 | 81470 | ITEM | $24.90 | 0.9 | NA | NA | NA | | 0.900 | ($2,219) | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 74544 | AC% | $24.90 | 10.9 | 10 | 0.20 | 0.04 | 86.4 | 1.017 | $1,348 | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 74544 | Dn% | $24.90 | 10.9 | 21 | 1.22 | -0.71 | 84.4 | 0.982 | ($2,405) | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 74544 | Grad | $24.90 | 10.9 | 5 | 1.30 | -2.20 | 66.1 | 0.939 | ($3,295) | B1 | C |
| TOTALS & W'TED MEANS | | 10858 | 74544 | ITEM | $24.90 | 10.9 | NA | NA | NA | 78.3 | 0.984 | ($4,353) | B1 | C |

TABLE 1

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 1(95)

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE- MENT | BID $/TON | TONS 1000 | TEST "n" | PRCE SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is #8 | | Gradation is CONTROLLING Sieve | | | | |
| Martin St (Longmont)- I 2 | 4 | 10858 | 61496 | AC% | $24.90 | 19.0 | 19 | 0.21 | 0.04 | 85.2 | 0.987 | ($1,801) | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 61496 | Dn% | $24.90 | 19.0 | 38 | 1.10 | -0.29 | 92.7 | 1.023 | $5,488 | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 61496 | Grad | $24.90 | 19.0 | 10 | 2.10 | -0.40 | 92.3 | 1.039 | $3,720 | B1 | C |
| TOTALS & W'TED MEANS | | 10858 | 61496 | ITEM | $24.90 | 19.0 | NA | NA | NA | 88.0 | 1.016 | $7,406 | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 101896 | AC% | $29.00 | 1.1 | 1 | NA | NA | NA | 1.000 | $0 | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 101896 | Dn% | $29.00 | 1.1 | 2 | NA | NA | NA | 1.000 | $0 | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 101896 | Grad | $29.00 | 1.1 | 1 | NA | NA | NA | 0.968 | ($203) | B1 | C |
| TOTALS & W'TED MEANS | | 10858 | 101896 | ITEM | $29.00 | 1.1 | NA | NA | NA | | 0.994 | ($203) | B1 | C |
| Martin St (Longmont)- I 2 | 4 | 10858 | 89309 | AC% | $20.00 | 5.0 | 5 | 0.31 | -0.04 | 64.4 | 0.929 | ($2,124) | B1 | CX |
| Martin St (Longmont)- I 2 | 4 | 10858 | 89309 | Dn% | $20.00 | 5.0 | 1 | NA | NA | NA | 1.000 | $0 | B1 | CX |
| Martin St (Longmont)- I 2 | 4 | 10858 | 89309 | Grad | $20.00 | 5.0 | 3 | 1.00 | 0.00 | 100.0 | 1.025 | $500 | B1 | CX |
| TOTALS & W'TED MEANS | | 10858 | 89309 | ITEM | $20.00 | 5.0 | NA | NA | NA | 78.6 | 0.984 | ($1,624) | B1 | CX |
| Martin St (Longmont)- I 2 | 4 | 10858 | 89309A | AC% | $20.00 | 1.2 | 1 | NA | >2V | NA | 0.750 | ($1,800) | B1 | CX |
| Martin St (Longmont)- I 2 | 4 | 10858 | 89309A | Dn% | $20.00 | 1.2 | 0 | NA | NA | NA | 0.750 | ($3,000) | B1 | CX |
| Martin St (Longmont)- I 2 | 4 | 10858 | 89309A | Grad | $20.00 | 1.2 | 0 | NA | NA | NA | 0.750 | ($1,200) | B1 | CX |
| TOTALS & W'TED MEANS | | 10858 | 89309A | ITEM | $20.00 | 1.2 | NA | NA | NA | 0.0 | 0.750 | ($6,000) | B1 | CX |
| CR 200-022 | | 10944 | 82457-1A | a | | | | | | | | | | |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82453-1 | AC% | $32.31 | 6.5 | 7 | 0.24 | -0.13 | 74.0 | 0.970 | ($1,908) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82453-1 | Dn% | $32.31 | 6.5 | 13 | 0.56 | -0.22 | 100.0 | 1.050 | $5,250 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82453-1 | Grad | $32.31 | 6.5 | 4 | 1.71 | 0.30 | 96.8 | 1.030 | $1,260 | R1 | C |
| TOTALS & W'TED MEANS | | 10944 | 82453-1 | ITEM | $32.31 | 6.5 | NA | NA | NA | 91.6 | 1.022 | $4,602 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82454-1 | AC% | $32.31 | 6.6 | 7 | 0.19 | 0.02 | 91.8 | 1.035 | $2,240 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82454-1 | Dn% | $32.31 | 6.6 | 14 | 0.74 | -0.59 | 97.9 | 1.050 | $5,334 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82454-1 | Grad | $32.31 | 6.6 | 4 | 0.50 | -0.20 | 100.0 | 1.030 | $1,280 | R1 | C |
| TOTALS & W'TED MEANS | | 10944 | 82454-1 | ITEM | $32.31 | 6.6 | NA | NA | NA | 96.5 | 1.042 | $8,855 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1 | AC% | $28.38 | 22.3 | 23 | 0.14 | 0.02 | 97.4 | 1.050 | $9,474 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1 | Dn% | $28.38 | 22.3 | 46 | 0.77 | -0.50 | 97.5 | 1.055 | $17,368 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1 | Grad | $28.38 | 22.3 | 12 | 1.90 | 1.20 | 98.4 | 1.050 | $6,316 | R1 | C |
| TOTALS & W'TED MEANS | | 10944 | 82455-1 | ITEM | $28.38 | 22.3 | NA | NA | NA | 97.7 | 1.053 | $33,157 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1A | AC% | $28.38 | 0.7 | 1 | NA | >2xV | NA | 0.750 | ($1,469) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1A | Dn% | $28.38 | 0.7 | NA | NA | NA | NA | 0.750 | ($2,448) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1A | Grad | $28.38 | 0.7 | NA | NA | NA | NA | 0.750 | ($979) | R1 | C |
| TOTALS & W'TED MEANS | | 10944 | 82455-1A | ITEM | $28.38 | 0.7 | NA | NA | NA | 0.0 | 0.750 | ($4,896) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82456-1 | AC% | $32.31 | 2.4 | 3 | 0.13 | -0.16 | 86.3 | 1.025 | $585 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82456-1 | Dn% | $32.31 | 2.4 | 5 | 0.53 | -0.36 | 93.6 | 1.030 | $1,169 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82456-1 | Grad | $32.31 | 2.4 | 2 | NA | NA | NA | 1.000 | $0 | R1 | C |
| TOTALS & W'TED MEANS | | 10944 | 82456-1 | ITEM | $32.31 | 2.4 | NA | NA | NA | 90.9 | 1.023 | $1,754 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1 | AC% | $32.31 | 6.3 | 7 | 0.19 | -0.06 | 89.6 | 1.035 | $2,154 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1 | Dn% | $32.31 | 6.3 | 13 | 0.86 | -0.61 | 95.4 | 1.048 | $4,929 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1 | Grad | $32.31 | 6.3 | 4 | 3.80 | 0.00 | 75.2 | 1.002 | $77 | R1 | C |
| TOTALS & W'TED MEANS | | 10944 | 82457-1 | ITEM | $32.31 | 6.3 | NA | NA | NA | 89.6 | 1.035 | $7,159 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1A | AC% | $32.31 | 5.9 | 6 | 0.08 | -0.03 | 100.0 | 1.035 | $2,010 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1A | Dn% | $32.31 | 5.9 | 12 | 0.90 | -0.22 | 98.3 | 1.050 | $4,785 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1A | Grad | $32.31 | 5.9 | 3 | 2.00 | -1.00 | 100.0 | 1.025 | $957 | R1 | C |
| TOTALS & W'TED MEANS | | 10944 | 82457-1A | ITEM | $32.31 | 5.9 | NA | NA | NA | 99.2 | 1.041 | $7,752 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82458-1 | AC% | $28.38 | 0.6 | 1 | NA | NA | NA | 1.000 | $0 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82458-1 | Dn% | $28.38 | 0.6 | 2 | NA | NA | NA | 0.996 | ($34) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82458-1 | Grad | $28.38 | 0.6 | 1 | NA | NA | NA | 1.000 | $0 | R1 | C |
| TOTALS & W'TED MEANS | | 10944 | 82458-1 | ITEM | $28.38 | 0.6 | NA | NA | NA | 0.0 | 0.998 | ($34) | R1 | C |

TABLE 1

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 1(95)

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE- MENT | BID $/TON | TONS 1000 | TEST "n" | PRCE SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is #6 | | Gradation is CONTROLLING Sieve | | | | |
| C 1601-037 | | 10996 | HillG1 | a | | | | | | | | | N1 | G |
| Farmington Hill | 5 | 10996 | HillG1 | AC% | $25.00 | 0.5 | 1 | NA | 0.00 | NA | 1.000 | $0 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG1 | Dn% | $25.00 | 0.5 | 1 | NA | 0.00 | NA | 1.000 | $0 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG1 | Grad | $25.00 | 0.5 | 1 | NA | 0.00 | NA | 1.000 | $0 | N1 | G |
| TOTALS & W'TED MEANS | | 10996 | HillG1 | ITEM | $25.00 | 0.5 | NA | NA | NA | 0.0 | 1.000 | $0 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-1 | AC% | $25.00 | 7.8 | 8 | 0.15 | 0.14 | 84.7 | 1.009 | $527 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-1 | Dn% | $25.00 | 7.8 | 16 | 1.17 | -0.18 | 92.0 | 1.034 | $3,289 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-1 | Grad | $25.00 | 7.8 | 4 | 1.50 | 0.20 | 98.2 | 1.030 | $1,169 | N1 | G |
| TOTALS & W'TED MEANS | | 10996 | HillG2-1 | ITEM | $25.00 | 7.8 | | | | 91.0 | 1.026 | $4,985 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-2 | AC% | $25.00 | 11.9 | 12 | 0.20 | 0.17 | 73.8 | 0.931 | ($6,152) | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-2 | Dn% | $25.00 | 11.9 | 24 | 0.87 | -0.85 | 93.2 | 1.037 | $5,479 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-2 | Grad | $25.00 | 11.9 | 6 | 85.60 | -1.50 | 85.6 | 1.021 | $1,282 | N1 | G |
| TOTALS & W'TED MEANS | | 10996 | HillG2-2 | ITEM | $25.00 | 11.9 | | | | 85.8 | 1.002 | $609 | N1 | G |
| Farmington Hill | 5 | 10996 | 80398 | AC% | $24.50 | 17.4 | 18 | 0.22 | 0.04 | 81.7 | 0.981 | ($2,425) | N1 | C |
| Farmington Hill | 5 | 10996 | 80398 | Dn% | $24.50 | 17.4 | 35 | 0.77 | -0.71 | 95.6 | 1.050 | $10,653 | N1 | C |
| Farmington Hill | 5 | 10996 | 80398 | Grad | $24.50 | 17.4 | 9 | 2.40 | 0.30 | 87.3 | 1.020 | $1,715 | N1 | C |
| TOTALS & W'TED MEANS | | 10996 | 80398 | ITEM | $24.50 | 17.4 | NA | NA | NA | 89.8 | 1.023 | $9,943 | N1 | C |
| C 0131 - 034 | | 11073 | 76410 | a | | | | | | | | | E1 | CX |
| Rifle - North | 3 | 11073 | 76410 | AC% | $27.18 | 28.5 | 29 | 0.11 | 0.06 | 99.2 | 1.050 | $11,638 | E1 | CX |
| Rifle - North | 3 | 11073 | 76410 | Dn% | $27.18 | 28.5 | 58 | 1.05 | -0.47 | 92.1 | 1.019 | $7,263 | E1 | CX |
| Rifle - North | 3 | 11073 | 76410 | Grad | $27.18 | 28.5 | 15 | 1.10 | -1.50 | 99.7 | 1.050 | $7,759 | E1 | CX |
| TOTALS & W'TED MEANS | | 11073 | 76410 | ITEM | $27.18 | 28.5 | NA | NA | NA | 95.8 | 1.034 | $26,660 | E1 | |
| MC R600-054 | | 11124 | 64271-1 | a | | | | | | | | | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-1 | AC% | $27.00 | 10.0 | 10 | 0.18 | 0.05 | 91.4 | 1.036 | $2,922 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-1 | Dn% | $27.00 | 10.0 | 21 | 0.77 | -0.85 | 93.5 | 1.039 | $5,229 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-1 | Grad | $27.00 | 10.0 | 5 | 1.79 | -2.20 | 86.1 | 1.013 | $682 | W2 | CX |
| TOTALS & W'TED MEANS | | 11124 | 64257-1 | ITEM | $27.00 | 10.0 | NA | NA | NA | 91.4 | 1.033 | $8,832 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-2 | AC% | $27.00 | 10.7 | 11 | 0.18 | -0.02 | 92.6 | 1.040 | $3,464 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-2 | Dn% | $27.00 | 10.7 | 21 | 0.90 | -0.55 | 95.1 | 1.048 | $6,882 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-2 | Grad | $27.00 | 10.7 | 6 | 1.75 | -0.70 | 100.0 | 1.035 | $2,021 | W2 | CX |
| TOTALS & W'TED MEANS | | 11124 | 64257-2 | ITEM | $27.00 | 10.7 | NA | NA | NA | 95.3 | 1.043 | $12,367 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-1 | AC% | $29.00 | 4.0 | 3 | 0.10 | 0.17 | 100.0 | 1.025 | $870 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-1 | Dn% | $29.00 | 4.0 | 5 | 0.78 | -0.80 | 97.0 | 1.030 | $1,740 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-1 | Grad | $29.00 | 4.0 | 2 | NA | NA | NA | 1.000 | $0 | W2 | CX |
| TOTALS & W'TED MEANS | | 11124 | 64271-1 | ITEM | $29.00 | 4.0 | NA | NA | NA | 98.1 | 1.023 | $2,610 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-2 | AC% | $29.00 | 19.0 | 20 | 0.13 | -0.06 | 96.7 | 1.050 | $8,275 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-2 | Dn% | $29.00 | 19.0 | 42 | 1.23 | 0.17 | 89.8 | 1.002 | $623 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-2 | Grad | $29.00 | 19.0 | 10 | 1.34 | -1.30 | 88.7 | 1.026 | $2,877 | W2 | CX |
| TOTALS & W'TED MEANS | | 11124 | 64271-2 | ITEM | $29.00 | 19.0 | NA | NA | NA | 91.7 | 1.021 | $11,775 | W2 | CX |
| STA 0471-020 | | 11169 | 85901-1 | a | | | | | | | | | K2 | C |
| SH 47, Troy Av E & W | 2 | 11169 | 85901-1 | AC% | $29.00 | 37.9 | 38 | 0.18 | -0.11 | 83.9 | 0.958 | ($13,895) | K2 | C |
| SH 47, Troy Av E & W | 2 | 11169 | 85901-1 | Dn% | $29.00 | 37.9 | 65 | 1.23 | -0.58 | 86.0 | 0.974 | ($14,038) | K2 | C |
| SH 47, Troy Av E & W | 2 | 11169 | 85901-1 | Grad | $29.00 | 37.9 | 19 | 2.73 | 2.90 | 77.8 | 0.937 | ($13,965) | K2 | C |
| TOTALS & W'TED MEANS | | 11169 | 85901-1 | ITEM | $29.00 | 37.9 | NA | NA | NA | 83.7 | 0.962 | ($41,898) | K2 | C |
| C 0142-028 | 4 | 11318 | 89976 | a | | | | | | | | | W2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976 | AC% | $18.23 | 9.7 | 10 | 0.11 | 0.09 | 98.4 | 1.040 | $2,114 | W2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976 | Dn% | $18.23 | 9.7 | 0 | NA | NA | NA | 1.000 | $0 | W2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976 | Grad | $18.23 | 9.7 | 5 | 3.50 | -1.40 | 84.4 | 1.024 | $847 | W2 | C |
| TOTALS & W'TED MEANS | | 11318 | 89976 | ITEM | $18.23 | 9.7 | NA | NA | NA | 92.8 | 1.017 | $2,961 | W2 | C |

TABLE 1

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 1(95)

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE- MENT | BID $/TON | TONS 1000 | TEST "n" | PRCE SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 95 | | Gradation is CONTROLLING Sieve | | | | |
| Buckingham - Raymer | 4 | 11318 | 89976R | AC% | $28.58 | 23.0 | 23 | 0.14 | 0.00 | 97.4 | 1.050 | $9,843 | W2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976R | Dn% | $28.58 | 23.0 | 46 | 1.00 | -0.67 | 90.6 | 1.009 | $2,805 | W2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976R | Grad | $28.58 | 23.0 | 12 | 2.60 | 0.20 | 86.0 | 1.005 | $639 | W2 | C |
| TOTALS & W'TED MEANS | | 11318 | 89976R | ITEM | $28.58 | 23.0 | NA | NA | NA | 91.7 | 1.020 | $13,287 | W2 | C |
| C 0063-011 | 4 | 11319 | 87453-1 | a | | | | | | | | | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87453-1 | AC% | $29.00 | 21.1 | 21 | 0.12 | -0.04 | 98.6 | 1.050 | $9,178 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87453-1 | Dn% | $29.00 | 21.1 | NA | NA | NA | NA | 1.000 | $0 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87453-1 | Grad | $29.00 | 21.1 | 11 | 1.90 | -0.50 | 99.7 | 1.040 | $4,895 | W2 | C |
| TOTALS & W'TED MEANS | | 11319 | 87453-1 | ITEM | $29.00 | 21.1 | NA | NA | NA | 99.0 | 1.023 | $14,073 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452-1 | AC% | $34.00 | 22.0 | 22 | 0.15 | 0.01 | 96.6 | 1.050 | $11,220 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452-1 | Dn% | $34.00 | 22.0 | 44 | 1.15 | -0.77 | 85.1 | 0.968 | ($12,155) | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452-1 | Grad | $34.00 | 22.0 | 11 | 2.00 | -0.60 | 98.3 | 1.040 | $5,984 | W2 | C |
| TOTALS & W'TED MEAN | 4 | 11319 | 87452-1 | ITEM | $34.00 | 22.0 | NA | NA | NA | 91.2 | 1.007 | $5,049 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452a | AC% | $34.00 | 16.0 | 16 | 0.13 | -0.04 | 98.2 | 1.050 | $8,160 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452a | Dn% | $34.00 | 16.0 | 32 | 0.95 | -0.71 | 91.2 | 1.025 | $6,786 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452a | Grad | $34.00 | 16.0 | 8 | 1.10 | -0.60 | 100.0 | 1.040 | $4,352 | W2 | C |
| TOTALS & W'TED MEAN | 4 | 11319 | 87452a | ITEM | $34.00 | 16.0 | NA | NA | NA | 95.1 | 1.035 | $19,298 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452b | AC% | $34.00 | 4.5 | 5 | 0.09 | -0.15 | 98.4 | 1.030 | $1,388 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452b | Dn% | $34.00 | 4.5 | 9 | 0.60 | -1.36 | 85.9 | 1.014 | $1,098 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452b | Grad | $34.00 | 4.5 | 3 | 0.60 | -2.30 | 100.0 | 1.025 | $771 | W2 | C |
| TOTALS & W'TED MEAN | 4 | 11319 | 87452b | ITEM | $34.00 | 4.5 | NA | NA | NA | 92.5 | 1.021 | $3,257 | W2 | C |
| CR 200-040 | | 11358 | 88600-1 | a | | | | | | | | | | C |
| Lamar Area-MP | 2 | 11358 | 88600-1 | AC% | $32.89 | 16.4 | 17 | 0.11 | -0.07 | 98.5 | 1.050 | $8,091 | H1 | C |
| Lamar Area-MP | 2 | 11358 | 88600-1 | Dn% | $32.89 | 16.4 | 33 | 0.75 | -0.55 | 97.6 | 1.050 | $13,486 | H1 | C |
| Lamar Area-MP | 2 | 11358 | 88600-1 | Grad | $32.89 | 16.4 | 9 | 3.03 | 1.80 | 85.4 | 1.012 | $1,298 | H1 | C |
| TOTALS & W'TED MEANS | | 11358 | 88600-1 | ITEM | $32.89 | 16.4 | NA | NA | NA | 95.4 | 1.042 | $22,875 | H1 | C |
| C R200-041 | | 11359 | 82459-1 | a | | | | | | | | | B2 | C |
| Mach Pat/Pueblo Area | 2 | 11359 | 82459-1 | AC% | $31.25 | 13.3 | 14 | 0.10 | -0.15 | 93.5 | 1.040 | $5,013 | B2 | C |
| Mach Pat/Pueblo Area | 2 | 11359 | 82459-1 | Dn% | $31.25 | 13.3 | 27 | 0.77 | -0.20 | 99.2 | 1.050 | $10,361 | B2 | C |
| Mach Pat/Pueblo Area | 2 | 11359 | 82459-1 | Grad | $31.25 | 13.3 | 7 | 1.27 | 1.60 | 93.3 | 1.035 | $2,901 | B2 | C |
| TOTALS & W'TED MEANS | | 11359 | 82459-1 | ITEM | $31.25 | 13.3 | NA | NA | NA | 96.3 | 1.044 | $18,275 | B2 | C |
| STA 0852-072 | | 11369 | 83560-1 | a | | | | | | | | | B2 | SP3/4 |
| C 470 - South | 1 | 11369 | 83560-1 | AC% | $28.50 | 25.5 | 26 | 0.40 | 0.15 | 52.0 | 0.750 | ($54,575) | B2 | SP3/4 |
| C 470 - South | 1 | 11369 | 83560-1 | Dn% | $28.50 | 25.5 | 51 | 0.79 | -0.34 | 98.3 | 1.055 | $20,011 | 0.00 | SP3/4 |
| C 470 - South | 1 | 11369 | 83560-1 | Grad | $28.50 | 25.5 | 13 | 3.85 | 2.80 | 69.6 | 0.901 | ($14,430) | B2 | SP3/4 |
| TOTALS & W'TED MEANS | | 11369 | 83560-1 | ITEM | $28.50 | 25.5 | NA | NA | NA | 78.6 | 0.933 | ($48,993) | B2 | SP3/4 |
| STA 385A-011 | | 11374 | 88600-1 | a | | | | | | | | | 0.00 | C |
| Sheridan Lake-North | 2 | 11374 | 88600-1 | AC% | $27.75 | 22.6 | 23 | 0.10 | 0.00 | 99.9 | 1.050 | $9,419 | H1 | C |
| Sheridan Lake-North | 2 | 11374 | 88600-1 | Dn% | $27.75 | 22.6 | 46 | 0.62 | -1.07 | 93.4 | 1.028 | $8,889 | H1 | C |
| Sheridan Lake-North | 2 | 11374 | 88600-1 | Grad | $27.75 | 22.6 | 12 | 1.30 | 2.70 | 93.1 | 1.039 | $4,873 | H1 | C |
| TOTALS & W'TED MEANS | | 11374 | 88600-1 | ITEM | $27.75 | 22.6 | NA | NA | NA | 95.3 | 1.037 | $23,181 | H1 | C |
| IM 073-233 | | 11438 | 84415-1 | a | | | | | | | | | W2 | SP3/4 |
| Geogetown - East | 1 | 11438 | 84415-1 | AC% | $36.00 | 53.0 | 53 | 0.14 | 0.02 | 97.4 | 1.055 | $31,482 | W2 | SP3/4 |
| Geogetown - East | 1 | 11438 | 84415-1 | Dn% | $36.00 | 53.0 | 106 | 1.06 | 0.21 | 93.7 | 1.023 | $21,513 | W2 | SP3/4 |
| Geogetown - East | 1 | 11438 | 84415-1 | Grad | $36.00 | 53.0 | 27 | 1.28 | -1.20 | 94.4 | 1.044 | $16,676 | W2 | SP3/4 |
| TOTALS & W'TED MEANS | | 11438 | 84415-1 | ITEM | $36.00 | 53.0 | NA | NA | NA | 94.9 | 1.037 | $69,671 | W2 | SP3/4 |
| C 0503-051 | | 11499 | 61393-1 | a | | | | | | | | | | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1 | AC% | $23.84 | 13.1 | 16 | 0.23 | 0.11 | 76.0 | 0.946 | ($5,096) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1 | Dn% | $23.84 | 13.1 | NA | NA | NA | NA | NA | $0 | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1 | Grad | $23.84 | 13.1 | 7 | 1.99 | NA | 77.5 | 0.987 | ($792) | A2 | CX |
| TOTALS & W'TED MEANS | | 11499 | 61393-1 | ITEM | $23.84 | 13.1 | NA | NA | NA | 76.6 | 0.962 | ($5,889) | A2 | CX |

TABLE 1

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 1(95)

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE- MENT | BID $/TON | TONS 1000 | TEST "n" | PRCE SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is #8 | | Gradation is CONTROLLING Sieve | | | | |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1A | AC% | $23.84 | 2.0 | NA | NA | NA | NA | 0.750 | ($3,576) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1A | Dn% | $23.84 | 2.0 | NA | NA | NA | NA | 0.750 | ($5,960) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1A | Grad | $23.84 | 2.0 | 1 | >2V | NA | NA | 0.750 | ($2,384) | A2 | CX |
| TOTALS & W'TED MEANS | | 11499 | 61393-1A | ITEM | $23.84 | 2.0 | NA | NA | NA | 0.0 | 0.750 | ($11,920) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393A-1 | AC% | $23.84 | 1.5 | 2 | NA | NA | NA | 1.000 | $0 | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393A-1 | Dn% | $23.84 | 1.5 | NA | NA | NA | NA | NA | $0 | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393A-1 | Grad | $23.84 | 1.5 | 1 | NA | NA | NA | 1.000 | $0 | A2 | CX |
| TOTALS & W'TED MEANS | | 11499 | 61393A-1 | ITEM | $23.84 | 1.5 | NA | NA | NA | 0.0 | 1.000 | $0 | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393B | AC% | $23.84 | 33.6 | 34 | 0.23 | 0.01 | 81.4 | 0.962 | ($9,118) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393B | Dn% | $23.84 | 33.6 | 64 | 1.09 | -1.08 | 79.9 | 0.927 | ($29,050) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393B | Grad | $23.84 | 33.6 | 17 | 1.74 | 1.80 | 84.8 | 0.998 | ($320) | A2 | CX |
| TOTALS & W'TED MEANS | | 11499 | 61393B | ITEM | $23.84 | 33.6 | NA | NA | NA | 81.4 | 0.952 | ($38,489) | A2 | CX |
| CX-CY 11-0121-75 | | 90448 | 64257-1 | a | | | | | | | | | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1 | AC% | $24.00 | 13.0 | 14 | 0.21 | 0.15 | 75.9 | 0.945 | ($5,148) | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1 | Dn% | $24.00 | 13.0 | 26 | 1.00 | -1.22 | 78.0 | 0.938 | ($9,642) | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1 | Grad | $24.00 | 13.0 | 7 | 1.95 | 1.10 | 91.1 | 1.035 | $2,184 | W2 | C |
| TOTALS & W'TED MEANS | | 90448 | 64257-1 | ITEM | $24.00 | 13.0 | NA | NA | NA | 80.0 | 0.960 | ($12,606) | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 0 | 64257-1A | AC% | $24.00 | 1.0 | NA | NA | NA | NA | 0.500 | ($3,600) | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 0 | 64257-1A | Dn% | $24.00 | 1.0 | 2 | NA | NA | NA | 0.500 | ($6,000) | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 0 | 64257-1A | Grad | $24.00 | 1.0 | NA | NA | NA | NA | 0.500 | ($2,400) | W2 | C |
| TOTALS & W'TED MEANS | | 0 | 64257-1A | ITEM | $24.00 | 1.0 | NA | NA | NA | NA | 0.500 | ($12,000) | W2 | C |
| STR-SR(CX) 0086-024 | | 91052 | 66486-1 | a | | | | | | | | | S1 | C |
| Kiowa - East | 1 | 91052 | 66486-1 | AC% | $27.27 | 9.3 | 10 | 0.12 | -0.07 | 98.6 | 1.040 | $3,040 | S1 | C |
| Kiowa - East | 1 | 91052 | 66486-1 | Dn% | $27.27 | 9.3 | 19 | 1.21 | -0.24 | 90.5 | 1.021 | $2,645 | S1 | C |
| Kiowa - East | 1 | 91052 | 66486-1 | Grad | $27.27 | 9.3 | 5 | 2.28 | 0.80 | 94.4 | 1.030 | $1,520 | S1 | C |
| TOTALS & W'TED MEANS | | 91052 | 66486-1 | ITEM | $27.27 | 9.3 | NA | NA | NA | 93.7 | 1.028 | $7,204 | S1 | C |
| CX 56-0550-12 | 3 | 91416 | 84776 | a | | | | | | | | | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776 | AC% | $25.00 | 6.8 | 7 | 0.16 | 0.20 | 72.2 | 0.960 | ($2,040) | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776 | Dn% | $25.00 | 6.8 | 14 | 1.04 | -0.21 | 95.3 | 1.048 | $4,069 | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776 | Grad | $25.00 | 6.8 | 4 | 1.30 | -1.50 | 97.5 | 1.030 | $1,021 | U1 | C |
| TOTALS & W'TED MEANS | | 91416 | 84776 | ITEM | $25.00 | 6.8 | NA | NA | NA | 86.6 | 1.018 | $3,050 | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776A | AC% | $25.00 | 11.8 | 12 | 0.19 | -0.05 | 88.5 | 1.018 | $1,549 | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776A | Dn% | $25.00 | 11.8 | 24 | 1.00 | -0.30 | 95.1 | 1.048 | $7,024 | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776A | Grad | $25.00 | 11.8 | 6 | 1.40 | -1.70 | 98.4 | 1.035 | $2,056 | U1 | C |
| TOTALS & W'TED MEANS | | 91416 | 84776A | ITEM | $25.00 | 11.8 | | | | 93.8 | 1.036 | $10,629 | U1 | C |

TABLE 1

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 1(95)

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE- MENT | BID $/TON | TONS 1000 | TEST "n" | PRCE SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is #8 | | Gradation is CONTROLLING Sieve | | | | |
| CY 06-0034-14 | | 92303 | 82246-1 | a | | | | | | | | | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246-1 | AC% | $27.50 | 4.7 | 5 | 0.21 | -0.16 | 73.5 | 0.979 | ($814) | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246-1 | Dn% | $27.50 | 4.7 | 9 | 0.71 | -0.56 | 99.2 | 1.040 | $2,599 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246-1 | Grad | $27.50 | 4.7 | 2 | NA | -3.50 | NA | 1.000 | $0 | C2 | C |
| TOTALS & W'TED MEANS | | 92303 | 82246-1 | ITEM | $27.50 | 4.7 | NA | NA | NA | 89.6 | 1.014 | $1,784 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246A | AC% | $27.50 | 6.1 | 6 | 0.11 | 0.19 | 100.0 | 1.035 | $1,758 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246A | Dn% | $27.50 | 6.1 | 12 | 0.98 | -0.80 | 89.2 | 1.028 | $2,369 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246A | Grad | $27.50 | 6.1 | 4 | 0.00 | -5.00 | 88.7 | 1.030 | $1,005 | C2 | C |
| TOTALS & W'TED MEANS | | 92303 | 82246A | ITEM | $27.50 | 6.1 | NA | NA | NA | 92.3 | 1.031 | $5,132 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1 | AC% | $32.50 | 4.6 | 5 | 0.10 | -0.10 | 100.0 | 1.030 | $1,337 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1 | Dn% | $32.50 | 4.6 | 10 | 0.51 | -0.97 | 98.9 | 1.040 | $2,971 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1 | Grad | $32.50 | 4.6 | 2 | NA | -5.50 | NA | 0.984 | ($473) | C2 | C |
| TOTALS & W'TED MEANS | | 92303 | 82245-1 | ITEM | $32.50 | 4.6 | NA | NA | NA | 99.3 | 1.026 | $3,834 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1A | AC% | $32.50 | 0.2 | 1 | >2V | NA | NA | 0.500 | ($1,136) | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1A | Dn% | $32.50 | 0.2 | NA | NA | NA | NA | 0.500 | ($1,893) | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1A | Grad | $32.50 | 0.2 | NA | NA | NA | NA | 0.500 | ($757) | C2 | C |
| TOTALS & W'TED MEANS | | 92303 | 82245-1A | ITEM | $32.50 | 0.2 | NA | NA | NA | | 0.500 | ($3,786) | C2 | C |
| STU 030A-019 | | 92319 | R6018-1 | a | | | | | | | | | K1 | C |
| Parker Road | 6 | 92319 | R6018-1 | AC% | $32.00 | 6.2 | 7 | 0.12 | -0.13 | 93.0 | 1.035 | $2,075 | K1 | C |
| Parker Road | 6 | 92319 | R6018-1 | Dn% | $32.00 | 6.2 | 13 | 0.94 | -1.08 | 83.8 | 0.993 | ($735) | K1 | C |
| Parker Road | 6 | 92319 | R6018-1 | Grad | $32.00 | 6.2 | 4 | 2.80 | -2.20 | 83.3 | 1.030 | $1,186 | K1 | C |
| TOTALS & W'TED MEANS | | 92319 | R6018-1 | ITEM | $32.00 | 6.2 | NA | NA | NA | 86.4 | 1.013 | $2,526 | K1 | C |

TABLE 2

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY ELEMENT, PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

| PROJECT LOCATION | REG NO. | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE-MENT | BID $/TON | TONS 1000 | TEST "n" | PRCES SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 98 | | Gradation is CONTROLLING Sieve | | | | |
| **ASPHALT CONTENT** | | | | | | | | | | | | | | |
| Lena Gulch | 6 | 10304 | 64268-1 | AC% | $25.00 | 12.4 | 12 | 0.18 | 0.02 | 98.7 | 1.050 | $4,658 | A1 | C |
| SH 93 & Golden Gate C | 6 | 10306 | 64268-1 | AC% | $27.00 | 10.0 | 10 | 0.13 | 0.16 | 86.3 | 1.016 | $1,303 | A1 | C |
| West of Granby W | 3 | 10395 | 90860-1 | AC% | $27.31 | 24.0 | 24 | 0.17 | -0.07 | 90.4 | 1.021 | $4,035 | C4 | CX |
| SH 257, US 34-Poudre | 4 | 10595 | 81701A | AC% | $27.60 | 9.4 | 10 | 0.17 | 0.14 | 81.1 | 0.993 | ($585) | C2 | C |
| Royal Gorge - East | 2 | 10652 | 87163A-1 | AC% | $24.89 | 35.8 | 36 | 0.17 | 0.13 | 83.4 | 0.976 | ($6,494) | H1 | C |
| 6TH & Union | 6 | 10679 | 64248A-1 | AC% | $29.53 | 4.9 | 5 | 0.12 | -0.22 | 96.3 | 1.030 | $1,313 | B1 | C |
| 6TH & Union | 6 | 10679 | 64254C-1 | AC% | $29.53 | 22.6 | 23 | 0.15 | -0.02 | 99.5 | 1.050 | $10,032 | B1 | C |
| Greenland - North | 1 | 10768 | 65442-1 | AC% | $32.00 | 16.6 | 17 | 0.22 | 0.02 | 82.8 | 0.987 | ($2,078) | K1 | C |
| Greenland - North | 1 | 10768 | 65442A-1 | AC% | $33.00 | 7.2 | 8 | 0.22 | -0.21 | 78.9 | 0.981 | ($1,332) | K1 | C |
| Greenland - North | 1 | 10768 | 65442B-1 | AC% | $32.00 | 13.1 | 13 | 0.17 | 0.12 | 85.3 | 1.001 | $120 | K1 | C |
| Greenland - North | 1 | 10768 | 83239-1 | AC% | $33.00 | 13.2 | 14 | 0.19 | 0.04 | 89.6 | 1.023 | $2,977 | K1 | C |
| Greenland - North | 1 | 10768 | 83239A-1 | AC% | $34.00 | 5.5 | 6 | 0.30 | 0.14 | 63.6 | 0.907 | ($5,225) | K1 | C |
| SH385, 20 Mi S of I 70 N | 1 | 10769 | 88600-1 | AC% | $30.28 | 26.9 | 27 | 0.10 | 0.06 | 99.5 | 1.050 | $12,232 | H1 | C |
| 10 M N Cheyenne Wells | 1 | 10790 | 88600-1 | AC% | $38.00 | 3.0 | 3 | 0.02 | 0.01 | 100.0 | 1.025 | $848 | G1 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699A | AC% | $28.85 | 3.0 | 3 | 0.12 | 0.15 | 100.0 | 1.025 | $641 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699B | AC% | $28.85 | 21.6 | 22 | 0.08 | 0.06 | 100.0 | 1.050 | $9,341 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699C | AC% | $29.85 | 5.0 | 5 | 0.07 | 0.14 | 100.0 | 1.030 | $1,335 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942C | AC% | $23.50 | 2.0 | 2 | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942a | AC% | $22.50 | 13.7 | 14 | 0.14 | -0.04 | 97.4 | 1.050 | $4,620 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942b | AC% | $22.50 | 1.4 | 2 | NA | NA | NA | 1.000 | $0 | W2 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 101896 | AC% | $29.00 | 1.1 | 1 | NA | NA | NA | 1.000 | $0 | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 61496 | AC% | $24.90 | 19.0 | 19 | 0.21 | 0.04 | 85.2 | 0.987 | ($1,801) | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 74544 | AC% | $24.90 | 10.9 | 10 | 0.20 | 0.04 | 86.4 | 1.017 | $1,348 | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 81470 | AC% | $24.90 | 0.9 | 1 | NA | NA | NA | 1.000 | $0 | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 89309 | AC% | $20.00 | 5.0 | 5 | 0.31 | -0.04 | 64.4 | 0.929 | ($2,124) | B1 | CX |
| Martin St (Longmont)- I 25 | 4 | 10858 | 89309A | AC% | $20.00 | 1.2 | 1 | NA | >2V | NA | 0.750 | ($1,800) | B1 | CX |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82453-1 | AC% | $32.31 | 6.5 | 7 | 0.24 | -0.13 | 74.0 | 0.970 | ($1,908) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82454-1 | AC% | $32.31 | 6.6 | 7 | 0.19 | 0.02 | 91.8 | 1.035 | $2,240 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1 | AC% | $28.38 | 22.3 | 23 | 0.14 | 0.02 | 97.4 | 1.050 | $9,474 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1A | AC% | $28.38 | 0.7 | 1 | NA | >2xV | NA | 0.750 | ($1,469) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82456-1 | AC% | $32.31 | 2.4 | 3 | 0.13 | -0.16 | 86.3 | 1.025 | $585 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1 | AC% | $32.31 | 6.3 | 7 | 0.19 | -0.06 | 89.6 | 1.035 | $2,154 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1A | AC% | $32.31 | 5.9 | 6 | 0.08 | -0.03 | 100.0 | 1.035 | $2,010 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82458-1 | AC% | $28.38 | 0.6 | 1 | NA | NA | NA | 1.000 | $0 | R1 | C |
| Farmington Hill | 5 | 10996 | A80398 | AC% | $24.50 | 17.4 | 18 | 0.22 | 0.04 | 81.7 | 0.981 | ($2,425) | N1 | C |
| Farmington Hill | 5 | 10996 | HillG1 | AC% | $25.00 | 0.5 | 1 | NA | 0.00 | NA | 1.000 | $0 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-1 | AC% | $25.00 | 7.8 | 8 | 0.15 | 0.14 | 84.7 | 1.009 | $527 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-2 | AC% | $25.00 | 11.9 | 12 | 0.20 | 0.17 | 73.8 | 0.931 | ($6,152) | N1 | G |
| Rifle - North | 3 | 11073 | 76410 | AC% | $27.18 | 28.5 | 29 | 0.11 | 0.06 | 99.2 | 1.050 | $11,638 | E1 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-1 | AC% | $27.00 | 10.0 | 10 | 0.18 | 0.05 | 91.4 | 1.036 | $2,922 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-2 | AC% | $27.00 | 10.7 | 11 | 0.18 | -0.02 | 92.6 | 1.040 | $3,464 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-1 | AC% | $29.00 | 4.0 | 3 | 0.10 | 0.17 | 100.0 | 1.025 | $870 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-2 | AC% | $29.00 | 19.0 | 20 | 0.13 | -0.06 | 96.7 | 1.050 | $8,275 | W2 | CX |
| SH 47, Troy Av E & W | 2 | 11169 | 85901-1 | AC% | $29.00 | 37.9 | 38 | 0.18 | -0.11 | 83.9 | 0.958 | ($13,895) | K2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976 | AC% | $18.23 | 9.7 | 10 | 0.11 | 0.09 | 98.4 | 1.040 | $2,114 | W2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976R | AC% | $28.58 | 23.0 | 23 | 0.14 | 0.00 | 97.4 | 1.050 | $9,843 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452-1 | AC% | $34.00 | 22.0 | 22 | 0.15 | 0.01 | 96.6 | 1.050 | $11,220 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452a | AC% | $34.00 | 16.0 | 16 | 0.13 | -0.04 | 98.2 | 1.050 | $8,160 | W2 | C |

TABLE 2

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY ELEMENT, PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

| PROJECT LOCATION | REG NO. | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE-MENT | BID $/TON | TONS 1000 | TEST "n" | PRCES SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 96 | | Gradation is CONTROLLING Sieve | | | | |
| Hollyoke-Neb State Line | 4 | 11319 | 87452b | AC% | $34.00 | 4.5 | 5 | 0.09 | -0.15 | 98.4 | 1.030 | $1,388 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87453-1 | AC% | $29.00 | 21.1 | 21 | 0.12 | -0.04 | 98.6 | 1.050 | $9,178 | W2 | C |
| Lamar Area-MP | 2 | 11358 | 88600-1 | AC% | $32.89 | 16.4 | 17 | 0.11 | -0.07 | 98.5 | 1.050 | $8,091 | H1 | C |
| Mach Pat/Pueblo Area | 2 | 11359 | 82459-1 | AC% | $31.25 | 13.3 | 14 | 0.10 | -0.15 | 93.5 | 1.040 | $5,013 | B2 | C |
| C 470 - South | 1 | 11369 | 83560-1 | AC% | $28.50 | 25.5 | 26 | 0.40 | 0.15 | 52.0 | 0.750 | ($54,575) | B1 | SP3/4 |
| Sheridan Lake-North | 2 | 11374 | 88600-1 | AC% | $27.75 | 22.6 | 23 | 0.10 | 0.00 | 99.9 | 1.050 | $9,419 | H1 | C |
| Geogetown - East | 1 | 11438 | 84415-1 | AC% | $36.00 | 53.0 | 53 | 0.14 | 0.02 | 97.4 | 1.055 | $31,482 | W2 | SP3/4 |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1 | AC% | $23.84 | 13.1 | 16 | 0.23 | 0.11 | 76.0 | 0.946 | ($5,096) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1A | AC% | $23.84 | 2.0 | NA | NA | NA | NA | 0.750 | ($3,576) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393A-1 | AC% | $23.84 | 1.5 | 2 | NA | NA | NA | 1.000 | $0 | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393B | AC% | $23.84 | 33.6 | 34 | 0.23 | 0.01 | 81.4 | 0.962 | ($9,118) | A2 | CX |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1 | AC% | $24.00 | 13.0 | 14 | 0.21 | 0.15 | 75.9 | 0.945 | ($5,148) | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1A | AC% | $24.00 | 1.0 | NA | NA | NA | NA | 0.500 | ($3,600) | W2 | C |
| Kiowa - East | 1 | 91052 | 66486-1 | AC% | $27.27 | 9.3 | 10 | 0.12 | -0.07 | 98.6 | 1.040 | $3,040 | S1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776 | AC% | $25.00 | 6.8 | 7 | 0.16 | 0.20 | 72.2 | 0.960 | ($2,040) | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776A | AC% | $25.00 | 11.8 | 12 | 0.19 | -0.05 | 88.5 | 1.018 | $1,549 | U1 | C |
| Estes Park East & West | 4 | 92303 | 82245-1 | AC% | $32.50 | 4.6 | 5 | 0.10 | -0.10 | 100.0 | 1.030 | $1,337 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1A | AC% | $32.50 | 0.2 | 1 | >2V | NA | NA | 0.500 | ($1,136) | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246-1 | AC% | $27.50 | 4.7 | 5 | 0.21 | -0.16 | 73.5 | 0.979 | ($814) | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246A | AC% | $27.50 | 6.1 | 6 | 0.11 | 0.19 | 100.0 | 1.035 | $1,758 | C2 | C |
| Parker Road | 6 | 92319 | R6018-1 | AC% | $32.00 | 6.2 | 7 | 0.12 | -0.13 | 93.0 | 1.035 | $2,075 | K1 | C |
| | | | | | $28.59 | 829.6 | 847 | 0.164 | 0.018 | 89.794 | 1.0077 | $72,239 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ASPHALT PERCENT TOTALS & AVG (ALL GRADINGS) 1996 | $28.59 | 829.6 | 847 | 0.164 | 0.018 | 89.794 | 1.0077 | $72,239 |
| ASPHALT PERCENT TOTALS & AVG (ALL GRADINGS) 1995 | $30.36 | 327.9 | 342 | 0.178 | 0.017 | 88.658 | 1.0005 | $1,443 |
| Differences: 1996-1995 | ($1.77) | 501.8 | 505 | -0.014 | 0.001 | 1.136 | 0.0073 | $70,796 |
| | | | | Absolute | 0.070 | | | |

TABLE 2

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY ELEMENT, PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

| PROJECT LOCATION | REG NO. | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE-MENT | BID $/TON | TONS 1000 | TEST "n" | PRCES SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 96 | | Gradation is CONTROLLING Sieve | | | | |
| **IN-PLACE DENSITY** | | | | | | | | | | | | | | |
| Lena Gulch | 6 | 10304 | 64268-1 | Dn% | $25.00 | 12.4 | 25 | 0.77 | -0.40 | 98.5 | 1.050 | $7,763 | A1 | C |
| SH 93 & Golden Gate C | 6 | 10306 | 64268-1 | Dn% | $27.00 | 10.0 | 20 | 0.73 | -0.88 | 94.3 | 1.043 | $5,839 | A1 | C |
| West of Granby W | 3 | 10395 | 90860-1 | Dn% | $27.31 | 24.0 | 47 | 0.98 | -0.57 | 92.5 | 1.022 | $7,295 | C4 | CX |
| SH 257, US 34-Poudre | 4 | 10595 | 81701A | Dn% | $27.60 | 9.4 | 19 | 0.66 | -1.04 | 92.9 | 1.035 | $4,608 | C2 | C |
| Royal Gorge - East | 2 | 10652 | 87163A-1 | Dn% | $24.89 | 35.8 | 72 | 0.83 | -0.27 | 98.0 | 1.060 | $26,674 | H1 | C |
| 6TH & Union | 6 | 10679 | 64248A-1 | Dn% | $29.53 | 4.9 | 10 | 0.85 | 0.14 | 99.5 | 1.040 | $2,919 | B1 | C |
| 6TH & Union | 6 | 10679 | 64254C-1 | Dn% | $29.53 | 22.6 | 46 | 1.18 | -0.67 | 86.1 | 0.975 | ($8,403) | B1 | C |
| Greenland - North | 1 | 10768 | 65442-1 | Dn% | $32.00 | 16.6 | 34 | 1.09 | -0.81 | 85.8 | 0.991 | ($2,321) | K1 | C |
| Greenland - North | 1 | 10768 | 65442A-1 | Dn% | $33.00 | 7.2 | NA | NA | NA | NA | 1.000 | $0 | K1 | C |
| Greenland - North | 1 | 10768 | 65442B-1 | Dn% | $32.00 | 13.1 | NA | NA | NA | NA | 1.000 | $0 | K1 | C |
| Greenland - North | 1 | 10768 | 83239-1 | Dn% | $33.00 | 13.2 | NA | NA | NA | NA | 1.000 | $0 | K1 | C |
| Greenland - North | 1 | 10768 | 83239A-1 | Dn% | $34.00 | 5.5 | NA | NA | NA | NA | 1.000 | $0 | K1 | C |
| SH385, 20 Mi S of I 70 N | 1 | 10769 | 88600-1 | Dn% | $30.28 | 26.9 | 54 | 0.71 | -0.55 | 98.1 | 1.055 | $22,425 | H1 | C |
| 10 M N Cheyenne Wells | 1 | 10790 | 88600-1 | Dn% | $38.00 | 3.0 | 6 | 0.90 | -0.90 | 89.5 | 1.035 | $1,967 | G1 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699A | Dn% | $28.85 | 3.0 | 6 | 0.54 | -1.43 | 85.2 | 1.020 | $861 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699B | Dn% | $28.85 | 21.6 | 44 | 0.85 | -0.74 | 93.3 | 1.028 | $8,653 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699C | Dn% | $29.85 | 5.0 | 10 | 0.95 | -0.08 | 98.5 | 1.040 | $2,968 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942C | Dn% | $23.50 | 2.0 | 0 | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942a | Dn% | $22.50 | 13.7 | 28 | 0.78 | -1.10 | 87.6 | 1.003 | $443 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942b | Dn% | $22.50 | 1.4 | 0 | NA | NA | NA | 1.000 | $0 | W2 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 101896 | Dn% | $29.00 | 1.1 | 2 | NA | NA | NA | 1.000 | $0 | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 61496 | Dn% | $24.90 | 19.0 | 38 | 1.10 | -0.29 | 92.7 | 1.023 | $5,488 | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 74544 | Dn% | $24.90 | 10.9 | 21 | 1.22 | -0.71 | 84.4 | 0.982 | ($2,405) | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 81470 | Dn% | $24.90 | 0.9 | 2 | NA | NA | NA | 1.000 | $0 | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 89309 | Dn% | $20.00 | 5.0 | 1 | NA | NA | NA | 1.000 | $0 | B1 | CX |
| Martin St (Longmont)- I 25 | 4 | 10858 | 89309A | Dn% | $20.00 | 1.2 | 0 | NA | NA | NA | 0.750 | ($3,000) | B1 | CX |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82453-1 | Dn% | $32.31 | 6.5 | 13 | 0.56 | -0.22 | 100.0 | 1.050 | $5,250 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82454-1 | Dn% | $32.31 | 6.6 | 14 | 0.74 | -0.22 | 97.9 | 1.050 | $5,334 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1 | Dn% | $28.38 | 22.3 | 46 | 0.77 | -0.61 | 97.5 | 1.055 | $17,368 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1A | Dn% | $28.38 | 0.7 | NA | NA | NA | NA | 0.750 | ($2,448) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82456-1 | Dn% | $32.31 | 2.4 | 5 | 0.53 | -0.36 | 93.6 | 1.030 | $1,169 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1 | Dn% | $32.31 | 6.3 | 13 | 0.86 | -0.50 | 95.4 | 1.048 | $4,929 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1A | Dn% | $32.31 | 5.9 | 12 | 0.90 | -0.59 | 98.3 | 1.050 | $4,785 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82458-1 | Dn% | $28.38 | 0.6 | 2 | NA | NA | NA | 0.996 | ($34) | R1 | C |
| Farmington Hill | 5 | 10996 | A80398 | Dn% | $24.50 | 17.4 | 35 | 0.77 | -0.71 | 95.6 | 1.050 | $10,653 | N1 | C |
| Farmington Hill | 5 | 10996 | HillG1 | Dn% | $25.00 | 0.5 | 1 | NA | NA | NA | 1.000 | $0 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-1 | Dn% | $25.00 | 7.8 | 16 | 1.17 | -0.18 | 92.0 | 1.034 | $3,289 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-2 | Dn% | $25.00 | 11.9 | 24 | 0.87 | -0.85 | 93.2 | 1.037 | $5,479 | N1 | G |
| Rifle - North | 3 | 11073 | 76410 | Dn% | $27.18 | 28.5 | 58 | 1.05 | -0.47 | 92.1 | 1.019 | $7,263 | E1 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-1 | Dn% | $27.00 | 10.0 | 21 | 0.77 | -0.80 | 93.5 | 1.039 | $5,229 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-2 | Dn% | $27.00 | 10.7 | 21 | 0.90 | 0.17 | 95.1 | 1.048 | $6,882 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-1 | Dn% | $29.00 | 4.0 | 5 | 0.78 | -0.85 | 97.0 | 1.030 | $1,740 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-2 | Dn% | $29.00 | 19.0 | 42 | 1.23 | -0.55 | 89.8 | 1.002 | $623 | W2 | CX |
| SH 47, Troy Av E & W | 2 | 11169 | 85901-1 | Dn% | $29.00 | 37.9 | 65 | 1.23 | -0.58 | 86.0 | 0.974 | ($14,038) | K2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976 | Dn% | $18.23 | 9.7 | 0 | NA | NA | NA | 1.000 | $0 | W2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976R | Dn% | $28.58 | 23.0 | 46 | 1.00 | -0.67 | 90.6 | 1.009 | $2,805 | W2 | C |
| Lamar Area-MP | 2 | 11358 | 88600-1 | Dn% | $32.89 | 16.4 | 33 | 0.75 | -0.55 | 97.6 | 1.050 | $13,486 | H1 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452-1 | Dn% | $34.00 | 22.0 | 44 | 1.15 | -0.77 | 85.1 | 0.968 | ($12,155) | W2 | C |

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| PROJECT LOCATION | REG NO. | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE-MENT | BID $/TON | TONS 1000 | TEST "n" | PRCES SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 96 | | Gradation is CONTROLLING Sieve | | | | |
| Hollyoke-Neb State Line | 4 | 11319 | 87452a | Dn% | $34.00 | 16.0 | 32 | 0.95 | -0.71 | 91.2 | 1.025 | $6,786 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452b | Dn% | $34.00 | 4.5 | 9 | 0.60 | -1.36 | 85.9 | 1.014 | $1,098 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87453-1 | Dn% | $29.00 | 21.1 | NA | NA | NA | NA | 1.000 | $0 | W2 | C |
| Mach Pat/Pueblo Area | 2 | 11359 | 82459-1 | Dn% | $31.25 | 13.3 | 27 | 0.77 | -0.20 | 99.2 | 1.050 | $10,361 | B2 | C |
| C 470 - South | 1 | 11369 | 83560-1 | Dn% | $28.50 | 25.5 | 51 | 0.79 | -0.34 | 98.3 | 1.055 | $20,011 | B1 | SP3/4 |
| Sheridan Lake-North | 2 | 11374 | 88600-1 | Dn% | $27.75 | 22.6 | 46 | 0.62 | -1.07 | 93.4 | 1.028 | $8,889 | H1 | C |
| Geogetown - East | 1 | 11438 | 84415-1 | Dn% | $36.00 | 53.0 | 106 | 1.06 | 0.21 | 93.7 | 1.023 | $21,513 | W2 | SP3/4 |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1 | Dn% | $23.84 | 13.1 | NA | NA | NA | NA | 1.000 | $0 | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1A | Dn% | $23.84 | 2.0 | NA | NA | NA | NA | 0.750 | ($5,960) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393A-1 | Dn% | $23.84 | 1.5 | NA | NA | NA | NA | 1.000 | $0 | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393B | Dn% | $23.84 | 33.6 | 64 | 1.09 | -1.08 | 79.9 | 0.927 | ($29,050) | A2 | CX |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1 | Dn% | $24.00 | 13.0 | 26 | 1.00 | -1.22 | 78.0 | 0.938 | ($9,642) | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1A | Dn% | $24.00 | 1.0 | 2 | NA | NA | NA | 0.500 | ($6,000) | W2 | C |
| Kiowa - East | 1 | 91052 | 66486-1 | Dn% | $27.27 | 9.3 | 19 | 1.21 | -0.24 | 90.5 | 1.021 | $2,645 | S1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776 | Dn% | $25.00 | 6.8 | 14 | 1.04 | -0.21 | 95.3 | 1.048 | $4,069 | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776A | Dn% | $25.00 | 11.8 | 24 | 1.00 | -0.30 | 95.1 | 1.048 | $7,024 | U1 | C |
| Estes Park East & West | 4 | 92303 | 82245-1 | Dn% | $32.50 | 4.6 | 10 | 0.51 | -0.97 | 98.9 | 1.040 | $2,971 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1A | Dn% | $32.50 | 0.2 | NA | NA | NA | NA | 0.500 | ($1,893) | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246-1 | Dn% | $27.50 | 4.7 | 9 | 0.71 | -0.56 | 99.2 | 1.040 | $2,599 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246A | Dn% | $27.50 | 6.1 | 12 | 0.98 | -0.80 | 89.2 | 1.028 | $2,369 | C2 | C |
| Parker Road | 6 | 92319 | R6018-1 | Dn% | $32.00 | 6.2 | 13 | 0.94 | -1.08 | 83.8 | 0.993 | ($735) | K1 | C |
| | | | | | $28.59 | 829.6 | 1465 | 0.911 | -0.562 | 91.943 | 1.0150 | $186,434 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DENSITY PERCENT TOTALS & AVG (ALL GRADINGS) 1996 | $28.59 | 829.6 | 1465 | 0.91 | -0.56 | 91.94 | 1.0150 | $186,434 |
| DENSITY PERCENT TOTALS & AVG (ALL GRADINGS) 1995 | $29.79 | 313.6 | 625 | 0.99 | -0.38 | 91.70 | 1.0171 | $84,866 |
| Differences: 1996-1995 | ($1.20) | 516.0 | 840 | -0.08 | -0.18 | 0.247 | -0.0020 | $101,568 |
| | | | | Absolute | 0.60 | | | |

TABLE 2

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY ELEMENT, PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

| PROJECT LOCATION | REG NO. | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE-MENT | BID $/TON | TONS 1000 | TEST "n" | PRCES SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 96 | | Gradation is CONTROLLING Sieve | | | | |
| **GRADATION** | | | | | | | | | | | | | | |
| Lena Gulch | 6 | 10304 | 64268-1 | Grad | $25.00 | 12.4 | 6 | 3.50 | 0.30 | 69.4 | 0.944 | ($3,460) | A1 | C |
| SH 93 & Golden Gate C | 6 | 10306 | 64268-1 | Grad | $27.00 | 10.0 | 5 | 0.89 | 2.40 | 100.0 | 1.030 | $1,620 | A1 | C |
| West of Granby W | 3 | 10395 | 90860-1 | Grad | $27.31 | 24.0 | 12 | 0.94 | 1.20 | 97.4 | 1.050 | $6,554 | C4 | CX |
| SH 257, US 34-Poudre | 4 | 10595 | 81701A | Grad | $27.60 | 9.4 | 5 | 2.30 | -2.20 | 85.2 | 1.027 | $1,393 | C2 | C |
| Royal Gorge - East | 2 | 10652 | 87163A-1 | Grad | $24.89 | 35.8 | 18 | 1.62 | 1.60 | 89.2 | 1.021 | $3,718 | H1 | C |
| 6TH & Union | 6 | 10679 | 64248A-1 | Grad | $29.53 | 4.9 | 3 | 1.73 | -3.00 | 75.6 | 1.020 | $594 | B1 | C |
| 6TH & Union | 6 | 10679 | 64254C-1 | Grad | $29.53 | 22.6 | 12 | 1.44 | -1.90 | 99.2 | 0.970 | ($4,037) | B1 | C |
| Greenland - North | 1 | 10768 | 65442-1 | Grad | $32.00 | 16.6 | 9 | 3.06 | 0.10 | 92.0 | 1.035 | $3,726 | K1 | C |
| Greenland - North | 1 | 10768 | 65442A-1 | Grad | $33.00 | 7.2 | 4 | 1.83 | 1.20 | 84.0 | 1.030 | $1,431 | K1 | C |
| Greenland - North | 1 | 10768 | 65442B-1 | Grad | $32.00 | 13.1 | 7 | 3.24 | 1.90 | 83.0 | 1.012 | $982 | K1 | C |
| Greenland - North | 1 | 10768 | 83239-1 | Grad | $33.00 | 13.2 | 7 | 7.00 | -2.10 | 83.8 | 1.015 | $1,293 | K1 | C |
| Greenland - North | 1 | 10768 | 83239A-1 | Grad | $34.00 | 5.5 | 3 | 1.15 | -3.70 | 83.3 | 1.025 | $938 | K1 | C |
| SH385, 20 MI S of I 70 N | 1 | 10769 | 88600-1 | Grad | $30.28 | 26.9 | 14 | 1.96 | 1.00 | 89.6 | 1.023 | $3,691 | H1 | C |
| 10 M N Cheyenne Wells | 1 | 10790 | 88600-1 | Grad | $38.00 | 3.0 | 3 | 1.53 | 1.70 | 100.0 | 1.025 | $565 | G1 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699A | Grad | $28.85 | 3.0 | 2 | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699B | Grad | $28.85 | 21.6 | 11 | 2.42 | 0.50 | 97.5 | 1.040 | $4,982 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699C | Grad | $29.85 | 5.0 | 3 | 1.15 | 0.70 | 50.0 | 0.889 | ($3,294) | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942C | Grad | $23.50 | 2.0 | 1 | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942a | Grad | $22.50 | 13.7 | 7 | 1.13 | -1.60 | 82.4 | 1.009 | $563 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942b | Grad | $22.50 | 1.4 | 1 | NA | NA | NA | 1.000 | $0 | W2 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 101896 | Grad | $29.00 | 1.1 | 1 | NA | NA | NA | 0.968 | ($203) | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 61496 | Grad | $24.90 | 19.0 | 10 | 2.10 | -0.40 | 92.3 | 1.039 | $3,720 | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 74544 | Grad | $24.90 | 10.9 | 5 | 1.30 | -2.20 | 66.1 | 0.939 | ($3,295) | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 81470 | Grad | $24.90 | 0.9 | 1 | NA | >2V | NA | 0.500 | ($2,219) | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 89309 | Grad | $20.00 | 5.0 | 3 | 1.00 | 0.00 | 100.0 | 1.025 | $500 | B1 | CX |
| Martin St (Longmont)- I 25 | 4 | 10858 | 89309A | Grad | $20.00 | 1.2 | 0 | NA | NA | NA | 0.750 | ($1,200) | B1 | CX |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82453-1 | Grad | $32.31 | 6.5 | 4 | 1.71 | 0.30 | 96.8 | 1.030 | $1,260 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82454-1 | Grad | $32.31 | 6.6 | 4 | 0.50 | -0.20 | 100.0 | 1.030 | $1,280 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1 | Grad | $28.38 | 22.3 | 12 | 1.90 | 1.20 | 98.4 | 1.050 | $6,316 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1A | Grad | $28.38 | 0.7 | NA | NA | NA | NA | 0.750 | ($979) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82456-1 | Grad | $32.31 | 2.4 | 2 | NA | NA | NA | 1.000 | $0 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1 | Grad | $32.31 | 6.3 | 4 | 3.80 | 0.00 | 75.2 | 1.002 | $77 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1A | Grad | $32.31 | 5.9 | 3 | 2.00 | -1.00 | 100.0 | 1.025 | $957 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82458-1 | Grad | $28.38 | 0.6 | 1 | NA | NA | NA | 1.000 | $0 | R1 | C |
| Farmington Hill | 5 | 10996 | A80398 | Grad | $24.50 | 17.4 | 9 | 2.40 | 0.30 | 87.3 | 1.020 | $1,715 | N1 | C |
| Farmington Hill | 5 | 10996 | HillG1 | Grad | $25.00 | 0.5 | 1 | NA | 0.00 | NA | 1.000 | $0 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-1 | Grad | $25.00 | 7.8 | 4 | 1.50 | 0.20 | 98.2 | 1.030 | $1,169 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-2 | Grad | $25.00 | 11.9 | 6 | 1.26 | -1.50 | 85.6 | 1.021 | $1,282 | N1 | G |
| Rifle - North | 3 | 11073 | 76410 | Grad | $27.18 | 28.5 | 15 | 1.10 | -1.50 | 99.7 | 1.050 | $7,759 | E1 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-1 | Grad | $27.00 | 10.0 | 5 | 1.79 | -2.20 | 86.1 | 1.013 | $682 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-2 | Grad | $27.00 | 10.7 | 6 | 1.75 | -0.70 | 100.0 | 1.035 | $2,021 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-1 | Grad | $29.00 | 4.0 | 2 | NA | 0.00 | NA | 1.000 | $0 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-2 | Grad | $29.00 | 19.0 | 10 | 1.34 | -1.30 | 88.7 | 1.026 | $2,877 | W2 | CX |
| SH 47, Troy Av E & W | 2 | 11169 | 85901-1 | Grad | $29.00 | 37.9 | 19 | 2.73 | 2.90 | 77.8 | 0.937 | ($13,965) | K2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976 | Grad | $18.23 | 9.7 | 5 | 3.50 | -1.40 | 84.4 | 1.024 | $847 | W2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976R | Grad | $28.58 | 23.0 | 12 | 2.60 | 0.20 | 86.0 | 1.005 | $639 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452-1 | Grad | $34.00 | 22.0 | 11 | 2.00 | -0.60 | 98.3 | 1.040 | $5,984 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452a | Grad | $34.00 | 16.0 | 8 | 1.10 | -0.60 | 100.0 | 1.040 | $4,352 | W2 | C |

TABLE 2

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY ELEMENT, PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

| PROJECT LOCATION | REG NO. | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE-MENT | BID $/TON | TONS 1000 | TEST "n" | PRCES SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 96 | | Gradation is CONTROLLING Sieve | | | | |
| Hollyoke-Neb State Line | 4 | 11319 | 87452b | Grad | $34.00 | 4.5 | 3 | 0.60 | -2.30 | 100.0 | 1.025 | $771 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87453-1 | Grad | $29.00 | 21.1 | 11 | 1.90 | -0.50 | 99.7 | 1.040 | $4,895 | W2 | C |
| Lamar Area-MP | 2 | 11358 | 88600-1 | Grad | $32.89 | 16.4 | 9 | 3.03 | 1.80 | 85.4 | 1.012 | $1,298 | H1 | C |
| Mach Pat/Pueblo Area | 2 | 11359 | 82459-1 | Grad | $31.25 | 13.3 | 7 | 1.27 | 1.60 | 93.3 | 1.035 | $2,901 | B2 | C |
| C 470 - South | 1 | 11369 | 83560-1 | Grad | $28.50 | 25.5 | 13 | 3.85 | 2.80 | 69.6 | 0.901 | ($14,430) | B1 | SP3/4 |
| Sheridan Lake-North | 2 | 11374 | 88600-1 | Grad | $27.75 | 22.6 | 12 | 1.30 | 2.70 | 93.1 | 1.039 | $4,873 | H1 | C |
| Geogetown - East | 1 | 11438 | 84415-1 | Grad | $36.00 | 53.0 | 27 | 1.28 | -1.20 | 94.4 | 1.044 | $16,676 | W2 | SP3/4 |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1 | Grad | $23.84 | 13.1 | 7 | 1.99 | 3.40 | 77.5 | 0.987 | ($792) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1A | Grad | $23.84 | 2.0 | 1 | >2V | 0.00 | NA | 0.750 | ($2,384) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393A-1 | Grad | $23.84 | 1.5 | 1 | NA | 0.00 | NA | 1.000 | $0 | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393B | Grad | $23.84 | 33.6 | 17 | 1.74 | 1.80 | 84.8 | 0.998 | ($320) | A2 | CX |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1 | Grad | $24.00 | 13.0 | 7 | 1.95 | 1.10 | 91.1 | 1.035 | $2,184 | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1A | Grad | $24.00 | 1.0 | NA | NA | NA | NA | 0.500 | ($2,400) | W2 | C |
| Kiowa - East | 1 | 91052 | 66486-1 | Grad | $27.27 | 9.3 | 5 | 2.28 | 0.80 | 94.4 | 1.030 | $1,520 | S1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776 | Grad | $25.00 | 6.8 | 4 | 1.30 | -1.50 | 97.5 | 1.030 | $1,021 | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776A | Grad | $25.00 | 11.8 | 6 | 1.40 | -1.70 | 98.4 | 1.035 | $2,056 | U1 | C |
| Estes Park East & West | 4 | 92303 | 82245-1 | Grad | $32.50 | 4.6 | 2 | NA | -5.50 | NA | 0.984 | ($473) | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1A | Grad | $32.50 | 0.2 | NA | NA | NA | NA | 0.500 | ($757) | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246-1 | Grad | $27.50 | 4.7 | 2 | NA | -3.50 | NA | 1.000 | $0 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246A | Grad | $27.50 | 6.1 | 4 | 0.00 | -5.00 | 88.7 | 1.030 | $1,005 | C2 | C |
| Parker Road | 6 | 92319 | R6018-1 | Grad | $32.00 | 6.2 | 4 | 2.80 | -2.20 | 83.3 | 1.030 | $1,186 | K1 | C |
| | | | | | $28.59 | 829.6 | 438 | 1.984 | 0.146 | 89.593 | 1.0119 | $61,663 | | |
| GRADATION TOTALS & AVERAGES (ALL GRADINGS) 1996 | | | | | $28.59 | 829.6 | 438 | 1.96 | 0.15 | 89.59 | 1.0119 | $61,663 | | |
| GRADATION TOTALS & AVERAGES (ALL GRADINGS) 1996 | | | | | $30.36 | 327.9 | 191 | 2.76 | 0.55 | 85.13 | 0.9904 | ($19,106) | | |
| Differences: 1996-1995 | | | | | ($1.77) | 501.8 | 247 | -0.78 | -0.40 | 4.46 | 0.0215 | $80,769 | | |
| | | | | | | | | Absolute | 1.53 | | | | | |

TABLE 2

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY ELEMENT, PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

| PROJECT LOCATION | REG NO. | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE-MENT | BID $/TON | TONS 1000 | TEST "n" | PRCES SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 98 | | Gradation is CONTROLLING Sieve | | | | |
| **COMPOSITE ITEM** | | | | | | | | | | | | | | |
| Lena Gulch | 6 | 10304 | 64268-1 | ITEM | $25.00 | 12.4 | NA | NA | NA | 92.7 | 1.029 | $8,960 | A1 | C |
| SH 93 & Golden Gate C | 6 | 10306 | 64268-1 | ITEM | $27.00 | 10.0 | NA | NA | NA | 93.0 | 1.032 | $8,762 | A1 | C |
| West of Granby W | 3 | 10395 | 90860-1 | ITEM | $27.31 | 24.0 | NA | NA | NA | 92.9 | 1.027 | $17,884 | C4 | CX |
| SH 257, US 34-Poudre | 4 | 10595 | 81701A | ITEM | $27.60 | 9.4 | NA | NA | NA | 88.5 | 1.021 | $5,416 | C2 | C |
| Royal Gorge - East | 2 | 10652 | 87163A-1 | ITEM | $24.89 | 35.8 | NA | NA | NA | 91.9 | 1.027 | $23,898 | H1 | C |
| 6TH & Union | 6 | 10679 | 64248A-1 | ITEM | $29.53 | 4.9 | NA | NA | NA | 93.7 | 1.033 | $4,826 | B1 | C |
| 6TH & Union | 6 | 10679 | 64254C-1 | ITEM | $29.53 | 22.6 | NA | NA | NA | 88.8 | 0.996 | ($2,408) | B1 | C |
| Greenland - North | 1 | 10768 | 65442-1 | ITEM | $32.00 | 16.6 | NA | NA | NA | 86.1 | 0.999 | ($672) | K1 | C |
| Greenland - North | 1 | 10768 | 65442A-1 | ITEM | $33.00 | 7.2 | NA | NA | NA | 81.0 | 1.000 | $99 | K1 | C |
| Greenland - North | 1 | 10768 | 65442B-1 | ITEM | $32.00 | 13.1 | NA | NA | NA | 84.4 | 1.003 | $1,101 | K1 | C |
| Greenland - North | 1 | 10768 | 83239-1 | ITEM | $33.00 | 13.2 | NA | NA | NA | 87.3 | 1.010 | $4,270 | K1 | C |
| Greenland - North | 1 | 10768 | 83239A-1 | ITEM | $34.00 | 5.5 | NA | NA | NA | 71.5 | 0.977 | ($4,288) | K1 | C |
| SH385, 20 MI S of I 70 N | 1 | 10769 | 88600-1 | ITEM | $30.28 | 26.9 | NA | NA | NA | 96.8 | 1.047 | $38,347 | H1 | C |
| 10 M N Cheyenne Wells | 1 | 10790 | 88600-1 | ITEM | $38.00 | 3.0 | NA | NA | NA | 94.8 | 1.030 | $3,381 | G1 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699A | ITEM | $28.85 | 3.0 | NA | NA | NA | 90.8 | 1.018 | $1,502 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699B | ITEM | $28.85 | 21.6 | NA | NA | NA | 99.0 | 1.037 | $22,977 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 80699C | ITEM | $29.85 | 5.0 | NA | NA | NA | 80.0 | 1.007 | $1,009 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942C | ITEM | $23.50 | 2.0 | NA | NA | NA | NA | 1.000 | $0 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942a | ITEM | $22.50 | 13.7 | NA | NA | NA | 91.3 | 1.018 | $5,626 | W2 | C |
| So Rockport- Wyo St Line | 4 | 10857 | 81942b | ITEM | $22.50 | 1.4 | NA | NA | NA | NA | 1.000 | $0 | W2 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 101896 | ITEM | $29.00 | 1.1 | NA | NA | NA | NA | 0.994 | ($203) | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 61496 | ITEM | $24.90 | 19.0 | NA | NA | NA | 88.0 | 1.016 | $7,406 | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 74544 | ITEM | $24.90 | 10.9 | NA | NA | NA | 78.3 | 0.984 | ($4,353) | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 81470 | ITEM | $24.90 | 0.9 | NA | NA | NA | NA | 0.900 | ($2,219) | B1 | C |
| Martin St (Longmont)- I 25 | 4 | 10858 | 89309 | ITEM | $20.00 | 5.0 | NA | NA | NA | 78.6 | 0.984 | ($1,624) | B1 | CX |
| Martin St (Longmont)- I 25 | 4 | 10858 | 89309A | ITEM | $20.00 | 1.2 | NA | NA | NA | 0.0 | 0.750 | ($6,000) | B1 | CX |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82453-1 | ITEM | $32.31 | 6.5 | NA | NA | NA | 91.6 | 1.022 | $4,602 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82454-1 | ITEM | $32.31 | 6.6 | NA | NA | NA | 96.5 | 1.042 | $8,855 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1 | ITEM | $28.38 | 22.3 | NA | NA | NA | 97.7 | 1.053 | $33,157 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82455-1A | ITEM | $28.38 | 0.7 | NA | NA | NA | NA | 0.750 | ($4,896) | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82456-1 | ITEM | $32.31 | 2.4 | NA | NA | NA | 90.9 | 1.023 | $1,754 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1 | ITEM | $32.31 | 6.3 | NA | NA | NA | 89.6 | 1.035 | $7,159 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82457-1A | ITEM | $32.31 | 5.9 | NA | NA | NA | 99.2 | 1.041 | $7,752 | R1 | C |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | 82458-1 | ITEM | $28.38 | 0.6 | NA | NA | NA | NA | 0.998 | ($34) | R1 | C |
| Farmington Hill | 5 | 10996 | A80398 | ITEM | $24.50 | 17.4 | NA | NA | NA | 89.8 | 1.023 | $9,943 | N1 | C |
| Farmington Hill | 5 | 10996 | HillG1 | ITEM | $25.00 | 0.5 | NA | NA | NA | 0.0 | 1.000 | $0 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-1 | ITEM | $25.00 | 7.8 | NA | NA | NA | 91.0 | 1.026 | $4,985 | N1 | G |
| Farmington Hill | 5 | 10996 | HillG2-2 | ITEM | $25.00 | 11.9 | NA | NA | NA | 85.8 | 1.002 | $609 | N1 | G |
| Rifle - North | 3 | 11073 | 76410 | ITEM | $27.18 | 28.5 | NA | NA | NA | 95.8 | 1.034 | $26,660 | E1 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-1 | ITEM | $27.00 | 10.0 | NA | NA | NA | 91.4 | 1.033 | $8,832 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64257-2 | ITEM | $27.00 | 10.7 | NA | NA | NA | 95.3 | 1.043 | $12,367 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-1 | ITEM | $29.00 | 4.0 | NA | NA | NA | 98.1 | 1.023 | $2,610 | W2 | CX |
| Reg 6 Machine Patch | 6 | 11124 | 64271-2 | ITEM | $29.00 | 19.0 | NA | NA | NA | 91.7 | 1.021 | $11,775 | W2 | CX |
| SH 47, Troy Av E & W | 2 | 11169 | 85901-1 | ITEM | $29.00 | 37.9 | NA | NA | NA | 83.7 | 0.962 | ($41,898) | K2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976 | ITEM | $18.23 | 9.7 | NA | NA | NA | 92.8 | 1.017 | $2,961 | W2 | C |
| Buckingham - Raymer | 4 | 11318 | 89976R | ITEM | $28.58 | 23.0 | NA | NA | NA | 91.7 | 1.020 | $13,287 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452-1 | ITEM | $34.00 | 22.0 | NA | NA | NA | 91.2 | 1.007 | $5,049 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87452a | ITEM | $34.00 | 16.0 | NA | NA | NA | 95.1 | 1.035 | $19,298 | W2 | C |

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# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY ELEMENT, PROJECT AND MIX DESIGN FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

| PROJECT LOCATION | REG NO. | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE-MENT | BID $/TON | TONS 1000 | TEST "n" | PRCES SD | MEAN -TC | QUAL LEVL | PAY FACT | Incent/ Disinc$ | Contr Code | HBP Grad |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Gradation is 98 | | Gradation is CONTROLLING Sieve | | | | |
| Hollyoke-Neb State Line | 4 | 11319 | 87452b | ITEM | $34.00 | 4.5 | NA | NA | NA | 92.5 | 1.021 | $3,257 | W2 | C |
| Hollyoke-Neb State Line | 4 | 11319 | 87453-1 | ITEM | $29.00 | 21.1 | NA | NA | NA | 99.0 | 1.023 | $14,073 | W2 | C |
| Lamar Area-MP | 2 | 11358 | 88600-1 | ITEM | $32.89 | 16.4 | NA | NA | NA | 95.4 | 1.042 | $22,875 | H1 | C |
| Mach Pat/Pueblo Area | 2 | 11359 | 82459-1 | ITEM | $31.25 | 13.3 | NA | NA | NA | 96.3 | 1.044 | $18,275 | B2 | C |
| C 470 - South | 1 | 11369 | 83560-1 | ITEM | $28.50 | 25.5 | NA | NA | NA | 78.6 | 0.933 | ($48,993) | B1 | SP3/4 |
| Sheridan Lake-North | 2 | 11374 | 88600-1 | ITEM | $27.75 | 22.6 | NA | NA | NA | 95.3 | 1.037 | $23,181 | H1 | C |
| Geogetown - East | 1 | 11438 | 84415-1 | ITEM | $36.00 | 53.0 | NA | NA | NA | 94.9 | 1.037 | $69,671 | W2 | SP3/4 |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1 | ITEM | $23.84 | 13.1 | NA | NA | NA | 76.6 | 0.962 | ($5,889) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393-1A | ITEM | $23.84 | 2.0 | NA | NA | NA | NA | 0.750 | ($11,920) | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393A-1 | ITEM | $23.84 | 1.5 | NA | NA | NA | NA | 1.000 | $0 | A2 | CX |
| Poncha Spgs-Coaldale | 5 | 11499 | 61393B | ITEM | $23.84 | 33.6 | NA | NA | NA | 81.4 | 0.952 | ($38,489) | A2 | CX |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1 | ITEM | $24.00 | 13.0 | NA | NA | NA | 80.0 | 0.960 | ($12,606) | W2 | C |
| Wads. Blvd, 58th to 64th | 6 | 90448 | 64257-1A | ITEM | $24.00 | 1.0 | NA | NA | NA | NA | 0.500 | ($12,000) | W2 | C |
| Kiowa - East | 1 | 91052 | 66486-1 | ITEM | $27.27 | 9.3 | NA | NA | NA | 93.7 | 1.028 | $7,204 | S1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776 | ITEM | $25.00 | 6.8 | NA | NA | NA | 86.6 | 1.018 | $3,050 | U1 | C |
| S Montrose - Co Line | 3 | 91416 | 84776A | ITEM | $25.00 | 11.8 | NA | NA | NA | 93.8 | 1.036 | $10,629 | U1 | C |
| Estes Park East & West | 4 | 92303 | 82245-1 | ITEM | $32.50 | 4.6 | NA | NA | NA | 99.3 | 1.026 | $3,834 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82245-1A | ITEM | $32.50 | 0.2 | NA | NA | NA | NA | 0.500 | ($3,786) | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246-1 | ITEM | $27.50 | 4.7 | NA | NA | NA | 89.6 | 1.014 | $1,784 | C2 | C |
| Estes Park East & West | 4 | 92303 | 82246A | ITEM | $27.50 | 6.1 | NA | NA | NA | 92.3 | 1.031 | $5,132 | C2 | C |
| Parker Road | 6 | 92319 | R6018-1 | ITEM | $32.00 | 6.2 | NA | NA | NA | 86.4 | 1.013 | $2,526 | K1 | C |
| HBP ITEM TOTALS & AVERAGES, ALL GRADINGS (1996) | | | | | $28.59 | 829.6 | NA | NA | NA | 90.829 | 1.0122 | $320,336 | | |
| HBP ITEM TOTALS & AVERAGES, ALL GRADINGS (1995) | | | | | $30.36 | 327.9 | NA | NA | NA | 89.472 | 1.0062 | $67,203 | | |
| Differences: 1996-1995 | | | | | ($1.77) | 501.8 | NA | NA | NA | 1.356 | 0.0060 | $253,133 | | |

## TABLE 3
## HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT
## (PROCESS AVGS FOR ITEM) FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE- MENT | BID $/TON | TONS 1000 | QUALITY LEVEL | PAY FACT | Incent/ Disinc$ | Contr Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Gradation is CONTROLLING Sieve | | | |
| **LISTED BY SUBACCOUNT NUMBER** | | | | | | | | | | |
| Lena Gulch | 6 | 10304 | PROJECT | ITEM | $25.00 | 12.4 | 92.7 | 1.029 | $8,960 | A1 |
| SH 93 & Golden Gate C | 6 | 10306 | PROJECT | ITEM | $27.00 | 10.0 | 93.0 | 1.032 | $8,762 | A1 |
| West of Granby W | 3 | 10395 | PROJECT | ITEM | $27.31 | 24.0 | 92.9 | 1.027 | $17,884 | C4 |
| SH 257, US 34-Poudre | 4 | 10595 | PROJECT | ITEM | $27.60 | 9.4 | 88.5 | 1.021 | $5,416 | C2 |
| Royal Gorge - East | 2 | 10652 | PROJECT | ITEM | $24.89 | 35.8 | 91.9 | 1.027 | $23,898 | H1 |
| 6TH & Union | 6 | 10679 | PROJECT | ITEM | $29.53 | 27.6 | 92.9 | 1.003 | $2,418 | B1 |
| Greenland - North | 1 | 10768 | PROJECT | ITEM | $32.56 | 55.8 | 83.9 | 1.000 | $510 | K1 |
| SH385, 20 Mi S of I 70 N | 1 | 10769 | PROJECT | ITEM | $30.28 | 26.9 | 96.8 | 1.047 | $38,347 | H1 |
| 10 M N Cheyenne Wells | 1 | 10790 | PROJECT | ITEM | $38.00 | 3.0 | 94.8 | 1.030 | $3,381 | G1 |
| So Rockport- Wyo St Line | 4 | 10857 | PROJECT | ITEM | $26.67 | 46.6 | 93.8 | 1.024 | $31,114 | W2 |
| Martin St (Longmont)- I 25 | 4 | 10858 | PROJECT | ITEM | $24.22 | 38.0 | 83.7 | 0.991 | ($6,992) | B1 |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | PROJECT | ITEM | $30.51 | 51.3 | 95.5 | 1.038 | $58,350 | R1 |
| Farmington Hill | 5 | 10996 | PROJECT | ITEM | $24.77 | 37.6 | 88.8 | 1.017 | $15,538 | N1 |
| Rifle - North | 3 | 11073 | PROJECT | ITEM | $27.18 | 28.5 | 95.8 | 1.034 | $26,660 | E1 |
| Reg 6 Machine Patch | 6 | 11124 | PROJECT | ITEM | $29.00 | 19.0 | 91.7 | 1.021 | $11,775 | W2 |
| Reg 6 Machine Patch | 6 | 11124 | PROJECT | ITEM | $27.32 | 24.7 | 94.2 | 1.035 | $23,809 | W2 |
| SH 47, Troy Av E & W | 2 | 11169 | PROJECT | ITEM | $29.00 | 37.9 | 83.7 | 0.962 | ($41,898) | K2 |
| Buckingham - Raymer | 4 | 11318 | PROJECT | ITEM | $25.51 | 32.6 | 92.0 | 1.019 | $16,248 | W2 |
| Hollyoke-Neb State Line | 4 | 11319 | PROJECT | ITEM | $32.34 | 63.6 | 94.9 | 1.020 | $41,678 | W2 |
| Lamar Area-MP | 2 | 11358 | PROJECT | ITEM | $32.89 | 16.4 | 95.4 | 1.042 | $22,875 | H1 |
| Mach Pat/Pueblo Area | 2 | 11359 | PROJECT | ITEM | $31.25 | 13.3 | 96.3 | 1.044 | $18,275 | B2 |
| C 470 - South | 1 | 11369 | PROJECT | ITEM | $28.50 | 25.5 | 78.6 | 0.933 | ($48,993) | B1 |
| Sheridan Lake-North | 2 | 11374 | PROJECT | ITEM | $27.75 | 22.6 | 95.3 | 1.037 | $23,181 | H1 |
| Geogetown - East | 1 | 11438 | PROJECT | ITEM | $36.00 | 53.0 | 94.9 | 1.037 | $69,671 | W2 |
| Poncha Spgs-Coaldale | 5 | 11499 | PROJECT | ITEM | $23.84 | 50.2 | 80.0 | 0.948 | ($56,297) | A2 |
| Wads. Blvd, 58th to 64th | 6 | 90448 | PROJECT | ITEM | $24.00 | 14.0 | 80.0 | 0.927 | ($24,606) | W2 |
| Kiowa - East | 1 | 91052 | PROJECT | ITEM | $27.27 | 9.3 | 93.7 | 1.028 | $7,204 | S1 |
| S Montrose - Co Line | 3 | 91416 | PROJECT | ITEM | $25.00 | 18.6 | 91.2 | 1.029 | $13,679 | U1 |
| Estes Park East & West | 4 | 92303 | PROJECT | ITEM | $29.04 | 15.6 | 93.6 | 1.016 | $6,964 | C2 |
| Parker Road | 6 | 92319 | PROJECT | ITEM | $32.00 | 6.2 | 86.4 | 1.013 | $2,526 | K1 |
| **HBP ITEM TOTALS & AVERAGES, ALL GRADINGS** | | | | | **$28.59** | **829.6** | **90.829** | **1.0122** | **$320,336** | |

## TABLE 3A
## SORTED BY QUALITY LEVEL

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| C 470 - South | 1 | 11369 | PROJECT | ITEM | $28.50 | 25.5 | 78.6 | 0.933 | ($48,993) | B1 |
| Wads. Blvd, 58th to 64th | 6 | 90448 | PROJECT | ITEM | $24.00 | 14.0 | 80.0 | 0.927 | ($24,606) | W2 |
| Poncha Spgs-Coaldale | 5 | 11499 | PROJECT | ITEM | $23.84 | 50.2 | 80.0 | 0.948 | ($56,297) | A2 |
| Martin St (Longmont)- I 25 | 4 | 10858 | PROJECT | ITEM | $24.22 | 38.0 | 83.7 | 0.991 | ($6,992) | B1 |
| SH 47, Troy Av E & W | 2 | 11169 | PROJECT | ITEM | $29.00 | 37.9 | 83.7 | 0.962 | ($41,898) | K2 |
| Greenland - North | 1 | 10768 | PROJECT | ITEM | $32.56 | 55.8 | 83.9 | 1.000 | $510 | K1 |
| Parker Road | 6 | 92319 | PROJECT | ITEM | $32.00 | 6.2 | 86.4 | 1.013 | $2,526 | K1 |
| SH 257, US 34-Poudre | 4 | 10595 | PROJECT | ITEM | $27.60 | 9.4 | 88.5 | 1.021 | $5,416 | C2 |
| Farmington Hill | 5 | 10996 | PROJECT | ITEM | $24.77 | 37.6 | 88.8 | 1.017 | $15,538 | N1 |
| S Montrose - Co Line | 3 | 91416 | PROJECT | ITEM | $25.00 | 18.6 | 91.2 | 1.029 | $13,679 | U1 |
| Reg 6 Machine Patch | 6 | 11124 | PROJECT | ITEM | $29.00 | 19.0 | 91.7 | 1.021 | $11,775 | W2 |
| Royal Gorge - East | 2 | 10652 | PROJECT | ITEM | $24.89 | 35.8 | 91.9 | 1.027 | $23,898 | H1 |
| Buckingham - Raymer | 4 | 11318 | PROJECT | ITEM | $25.51 | 32.6 | 92.0 | 1.019 | $16,248 | W2 |
| Lena Gulch | 6 | 10304 | PROJECT | ITEM | $25.00 | 12.4 | 92.7 | 1.029 | $8,960 | A1 |
| West of Granby W | 3 | 10395 | PROJECT | ITEM | $27.31 | 24.0 | 92.9 | 1.027 | $17,884 | C4 |
| 6TH & Union | 6 | 10679 | PROJECT | ITEM | $29.53 | 27.6 | 92.9 | 1.003 | $2,418 | B1 |
| SH 93 & Golden Gate C | 6 | 10306 | PROJECT | ITEM | $27.00 | 10.0 | 93.0 | 1.032 | $8,762 | A1 |
| Estes Park East & West | 4 | 92303 | PROJECT | ITEM | $29.04 | 15.6 | 93.6 | 1.016 | $6,964 | C2 |
| Kiowa - East | 1 | 91052 | PROJECT | ITEM | $27.27 | 9.3 | 93.7 | 1.028 | $7,204 | S1 |
| So Rockport- Wyo St Line | 4 | 10857 | PROJECT | ITEM | $26.67 | 46.6 | 93.8 | 1.024 | $31,114 | W2 |
| Reg 6 Machine Patch | 6 | 11124 | PROJECT | ITEM | $27.32 | 24.7 | 94.2 | 1.035 | $23,809 | W2 |
| 10 M N Cheyenne Wells | 1 | 10790 | PROJECT | ITEM | $38.00 | 3.0 | 94.8 | 1.030 | $3,381 | G1 |
| Hollyoke-Neb State Line | 4 | 11319 | PROJECT | ITEM | $32.34 | 63.6 | 94.9 | 1.020 | $41,678 | W2 |
| Geogetown - East | 1 | 11438 | PROJECT | ITEM | $36.00 | 53.0 | 94.9 | 1.037 | $69,671 | W2 |
| Sheridan Lake-North | 2 | 11374 | PROJECT | ITEM | $27.75 | 22.6 | 95.3 | 1.037 | $23,181 | H1 |
| Lamar Area-MP | 2 | 11358 | PROJECT | ITEM | $32.89 | 16.4 | 95.4 | 1.042 | $22,875 | H1 |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | PROJECT | ITEM | $30.51 | 51.3 | 95.5 | 1.038 | $58,350 | R1 |
| Rifle - North | 3 | 11073 | PROJECT | ITEM | $27.18 | 28.5 | 95.8 | 1.034 | $26,660 | E1 |
| Mach Pat/Pueblo Area | 2 | 11359 | PROJECT | ITEM | $31.25 | 13.3 | 96.3 | 1.044 | $18,275 | B2 |
| SH385, 20 Mi S of I 70 N | 1 | 10769 | PROJECT | ITEM | $30.28 | 26.9 | 96.8 | 1.047 | $38,347 | H1 |
| **HBP ITEM TOTALS & AVERAGES, ALL GRADINGS** | | | | | **$28.59** | **829.6** | **90.829** | **1.0122** | **$320,336** | |

TABLE 3B

# HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT (PROCESS AVGS FOR ITEM) FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

## SORTED & AVERAGED BY CDOT REGION

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBER | MIX DESIGN /PRCSS | ELE- MENT | BID $/TON | TONS 1000 | QUALITY LEVEL | PAY FACT | Incent/ Disinc$ | Contr Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Gradation is CONTROLLING Sieve | | | |
| C 470 - South | 1 | 11369 | PROJECT | ITEM | $28.50 | 25.5 | 78.6 | 0.933 | ($48,993) | B1 |
| Greenland - North | 1 | 10768 | PROJECT | ITEM | $32.56 | 55.8 | 83.9 | 1.000 | $510 | K1 |
| Kiowa - East | 1 | 91052 | PROJECT | ITEM | $27.27 | 9.3 | 93.7 | 1.028 | $7,204 | S1 |
| 10 M N Cheyenne Wells | 1 | 10790 | PROJECT | ITEM | $38.00 | 3.0 | 94.8 | 1.030 | $3,381 | G1 |
| Geogetown - East | 1 | 11438 | PROJECT | ITEM | $36.00 | 53.0 | 94.9 | 1.037 | $69,671 | W2 |
| SH385, 20 Mi S of I 70 N | 1 | 10769 | PROJECT | ITEM | $30.28 | 26.9 | 96.8 | 1.047 | $38,347 | H1 |
| | | | | | **$32.47** | **173.5** | **89.2** | **1.011** | **$70,119** | |
| SH 47, Troy Av E & W | 2 | 11169 | PROJECT | ITEM | $29.00 | 37.9 | 83.7 | 0.962 | ($41,898) | K2 |
| Royal Gorge - East | 2 | 10652 | PROJECT | ITEM | $24.89 | 35.8 | 91.9 | 1.027 | $23,898 | H1 |
| Sheridan Lake-North | 2 | 11374 | PROJECT | ITEM | $27.75 | 22.6 | 95.3 | 1.037 | $23,181 | H1 |
| Lamar Area-MP | 2 | 11358 | PROJECT | ITEM | $32.89 | 16.4 | 95.4 | 1.042 | $22,875 | H1 |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | PROJECT | ITEM | $30.51 | 51.3 | 95.5 | 1.038 | $58,350 | R1 |
| Mach Pat/Pueblo Area | 2 | 11359 | PROJECT | ITEM | $31.25 | 13.3 | 96.3 | 1.044 | $18,275 | B2 |
| | | | | | **$28.97** | **177.4** | **92.3** | **1.020** | **$104,681** | |
| S Montrose - Co Line | 3 | 91416 | PROJECT | ITEM | $25.00 | 18.6 | 91.2 | 1.029 | $13,679 | U1 |
| West of Granby W | 3 | 10395 | PROJECT | ITEM | $27.31 | 24.0 | 92.9 | 1.027 | $17,884 | C4 |
| Rifle - North | 3 | 11073 | PROJECT | ITEM | $27.18 | 28.5 | 95.8 | 1.034 | $26,660 | E1 |
| | | | | | $26.65 | 71.1 | 93.6 | 1.031 | $58,223 | |
| Hollyoke-Neb State Line | 4 | 11319 | PROJECT | ITEM | $32.34 | 63.6 | 94.9 | 1.020 | $41,678 | W2 |
| Estes Park East & West | 4 | 92303 | PROJECT | ITEM | $29.04 | 15.6 | 93.6 | 1.016 | $6,964 | C2 |
| SH 257, US 34-Poudre | 4 | 10595 | PROJECT | ITEM | $27.60 | 9.4 | 88.5 | 1.021 | $5,416 | C2 |
| So Rockport- Wyo St Line | 4 | 10857 | PROJECT | ITEM | $26.67 | 46.6 | 93.8 | 1.024 | $31,114 | W2 |
| Martin St (Longmont)- I 25 | 4 | 10858 | PROJECT | ITEM | $24.22 | 38.0 | 83.7 | 0.991 | ($6,992) | B1 |
| Buckingham - Raymer | 4 | 11318 | PROJECT | ITEM | $25.51 | 32.6 | 92.0 | 1.019 | $16,248 | W2 |
| | | | | | **$28.01** | **205.9** | **91.7** | **1.015** | **$94,428** | |
| Poncha Spgs-Coaldale | 5 | 11499 | PROJECT | ITEM | $23.84 | 50.2 | 80.0 | 0.948 | ($56,297) | A2 |
| Farmington Hill | 5 | 10996 | PROJECT | ITEM | $24.77 | 37.6 | 88.8 | 1.017 | $15,538 | N1 |
| | | | | | **$24.24** | **87.9** | **83.8** | **0.977** | **($40,760)** | |
| Wads. Blvd. 58th to 64th | 6 | 90448 | PROJECT | ITEM | $24.00 | 14.0 | 80.0 | 0.927 | ($24,606) | W2 |
| Parker Road | 6 | 92319 | PROJECT | ITEM | $32.00 | 6.2 | 86.4 | 1.013 | $2,526 | K1 |
| Reg 6 Machine Patch | 6 | 11124 | PROJECT | ITEM | $29.00 | 19.0 | 91.7 | 1.021 | $11,775 | W2 |
| Lena Gulch | 6 | 10304 | PROJECT | ITEM | $25.00 | 12.4 | 92.7 | 1.029 | $8,960 | A1 |
| 6TH & Union | 6 | 10679 | PROJECT | ITEM | $29.53 | 27.6 | 92.9 | 1.003 | $2,418 | B1 |
| SH 93 & Golden Gate C | 6 | 10306 | PROJECT | ITEM | $27.00 | 10.0 | 93.0 | 1.032 | $8,762 | A1 |
| Reg 6 Machine Patch | 6 | 11124 | PROJECT | ITEM | $27.32 | 24.7 | 94.2 | 1.035 | $23,809 | W2 |
| | | | | | **$24.75** | **113.9** | **91.0** | **1.010** | **($47,874)** | |
| **HBP ITEM TOTALS & AVERAGES, ALL GRADINGS** | | | | | **$28.59** | **829.6** | **90.829** | **1.0122** | **$320,336** | |

## TABLE 3C
## HOT BITUMINOUS PAVEMENT QC/QA DETAILS & SUMMARY BY PROJECT
## (PROCESS AVGS FOR ITEM) FOR 1996 CONSTRUCTION SEASON USING QPM 2 (95)

| PROJECT LOCATION | REG/ UNIT | SUBAC NUMBR | MIX DESIGN /PRCSS | ELE- MENT | BID $/TON | TONS 1000 | QUALITY LEVEL | PAY FACT | Incent/ Disinc$ | Contr Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Gradation is CONTROLLING Sieve | | | |
| **SORTED BY CONTRACTOR & QL** | | | | | | | | | | |
| Lena Gulch | 6 | 10304 | PROJECT | ITEM | $25.00 | 12.4 | 92.7 | 1.029 | $8,960 | A1 |
| SH 93 & Golden Gate C | 6 | 10306 | PROJECT | ITEM | $27.00 | 10.0 | 93.0 | 1.032 | $8,762 | A1 |
| Poncha Spgs-Coaldale | 5 | 11499 | PROJECT | ITEM | $23.84 | 50.2 | 80.0 | 0.948 | ($56,297) | A2 |
| C 470 - South | 1 | 11369 | PROJECT | ITEM | $28.50 | 25.5 | 78.6 | 0.933 | ($48,993) | B1 |
| Martin St (Longmont)- I 25 | 4 | 10858 | PROJECT | ITEM | $24.22 | 38.0 | 83.7 | 0.991 | ($6,992) | B1 |
| 6TH & Union | 6 | 10679 | PROJECT | ITEM | $29.53 | 27.6 | 92.9 | 1.003 | $2,418 | B1 |
| Mach Pat/Pueblo Area | 2 | 11359 | PROJECT | ITEM | $31.25 | 13.3 | 96.3 | 1.044 | $18,275 | B2 |
| SH 257, US 34-Poudre | 4 | 10595 | PROJECT | ITEM | $27.60 | 9.4 | 88.5 | 1.021 | $5,416 | C2 |
| Estes Park East & West | 4 | 92303 | PROJECT | ITEM | $29.04 | 15.6 | 93.6 | 1.016 | $6,964 | C2 |
| West of Granby W | 3 | 10395 | PROJECT | ITEM | $27.31 | 24.0 | 92.9 | 1.027 | $17,884 | C4 |
| Rifle - North | 3 | 11073 | PROJECT | ITEM | $27.18 | 28.5 | 95.8 | 1.034 | $26,660 | E1 |
| 10 M N Cheyenne Wells | 1 | 10790 | PROJECT | ITEM | $38.00 | 3.0 | 94.8 | 1.030 | $3,381 | G1 |
| Royal Gorge - East | 2 | 10652 | PROJECT | ITEM | $24.89 | 35.8 | 91.9 | 1.027 | $23,898 | H1 |
| Sheridan Lake-North | 2 | 11374 | PROJECT | ITEM | $27.75 | 22.6 | 95.3 | 1.037 | $23,181 | H1 |
| Lamar Area-MP | 2 | 11358 | PROJECT | ITEM | $32.89 | 16.4 | 95.4 | 1.042 | $22,875 | H1 |
| SH385, 20 Mi S of I 70 N | 1 | 10769 | PROJECT | ITEM | $30.28 | 26.9 | 96.8 | 1.047 | $38,347 | H1 |
| Greenland - North | 1 | 10768 | PROJECT | ITEM | $32.56 | 55.8 | 83.9 | 1.000 | $510 | K1 |
| Parker Road | 6 | 92319 | PROJECT | ITEM | $32.00 | 6.2 | 86.4 | 1.013 | $2,526 | K1 |
| SH 47, Troy Av E & W | 2 | 11169 | PROJECT | ITEM | $29.00 | 37.9 | 83.7 | 0.962 | ($41,898) | K2 |
| Farmington Hill | 5 | 10996 | PROJECT | ITEM | $24.77 | 37.6 | 88.8 | 1.017 | $15,538 | N1 |
| Mach Ptc-C Sps-Pueb | 2 | 10944 | PROJECT | ITEM | $30.51 | 51.3 | 95.5 | 1.038 | $58,350 | R1 |
| Kiowa - East | 1 | 91052 | PROJECT | ITEM | $27.27 | 9.3 | 93.7 | 1.028 | $7,204 | S1 |
| S Montrose - Co Line | 3 | 91416 | PROJECT | ITEM | $25.00 | 18.6 | 91.2 | 1.029 | $13,679 | U1 |
| Wads. Blvd, 58th to 64th | 6 | 90448 | PROJECT | ITEM | $24.00 | 14.0 | 80.0 | 0.927 | ($24,606) | W2 |
| Reg 6 Machine Patch | 6 | 11124 | PROJECT | ITEM | $29.00 | 19.0 | 91.7 | 1.021 | $11,775 | W2 |
| Buckingham - Raymer | 4 | 11318 | PROJECT | ITEM | $25.51 | 32.6 | 92.0 | 1.019 | $16,248 | W2 |
| So Rockport- Wyo St Line | 4 | 10857 | PROJECT | ITEM | $26.67 | 46.6 | 93.8 | 1.024 | $31,114 | W2 |
| Reg 6 Machine Patch | 6 | 11124 | PROJECT | ITEM | $27.32 | 24.7 | 94.2 | 1.035 | $23,809 | W2 |
| Hollyoke-Neb State Line | 4 | 11319 | PROJECT | ITEM | $32.34 | 63.6 | 94.9 | 1.020 | $41,678 | W2 |
| Geogetown - East | 1 | 11438 | PROJECT | ITEM | $36.00 | 53.0 | 94.9 | 1.037 | $69,671 | W2 |
| **HBP ITEM TOTALS & AVERAGES, ALL GRADINGS** | | | | | **$28.59** | **829.6** | **90.829** | **1.0122** | **$320,336** | |

## TABLE 3D
## CONTRACTORS AVERAGES SORTED BY QL

| % '96 TONS | BID $/TON | TONS 1000 | QUALITY LEVEL | PAY FACT | Incent/ Disinc$ | Contr Code |
|---|---|---|---|---|---|---|
| | | | Gradation is CONTROLLING Sieve | | | |
| 6.1 | $23.84 | 50.2 | 80.0 | 0.948 | ($56,297) | A2 |
| 4.6 | $29.00 | 37.9 | 83.7 | 0.962 | ($41,898) | K2 |
| 7.5 | $32.51 | 61.9 | 84.1 | 1.002 | $3,037 | K1 |
| 11.0 | $27.03 | 91.2 | 85.1 | 0.978 | ($53,568) | B1 |
| 4.5 | $24.77 | 37.6 | 88.8 | 1.017 | $15,538 | N1 |
| 2.2 | $25.00 | 18.6 | 91.2 | 1.029 | $13,679 | U1 |
| 3.0 | $28.50 | 25.0 | 91.6 | 1.018 | $12,380 | C2 |
| 2.7 | $25.89 | 22.4 | 92.9 | 1.030 | $17,722 | A1 |
| 2.9 | $27.31 | 24.0 | 92.9 | 1.027 | $17,884 | C4 |
| 30.6 | $29.99 | 253.6 | 93.2 | 1.021 | $169,689 | W2 |
| 1.1 | $27.27 | 9.3 | 93.7 | 1.028 | $7,204 | S1 |
| 12.3 | $28.24 | 101.8 | 94.5 | 1.037 | $108,301 | H1 |
| 0.4 | $38.00 | 3.0 | 94.8 | 1.030 | $3,381 | G1 |
| 6.2 | $30.51 | 51.3 | 95.5 | 1.038 | $58,350 | R1 |
| 3.4 | $27.18 | 28.5 | 95.8 | 1.034 | $26,660 | E1 |
| 1.6 | $31.25 | 13.3 | 96.3 | 1.044 | $18,275 | B2 |
| 100.1 | $28.59 | 829.6 | 90.829 | 1.0122 | $320,336 | |

## TABLE 4
## HBP EVALUATION SUMMARIZED BY YEAR, 1991 HISTORICAL & 1992 - 1996 QC/QA

| IDENTIFICATION YEAR | ELEMENT | TONS 1000s | TESTS "n" | STD DEV | MEAN - TARGET | | QPM 2 QUAL LEV | QPM 1 PAY FACT | QPM 2 PAY FACT |
|---|---|---|---|---|---|---|---|---|---|
| Composites are element values weighted by "W" fact Element data are process averages weighted X tons. Gradation SD & Mean - Target ar | | | | | | | | | |
| 1991 | Asphalt % | 2000 | 4027 | 0.18 | 0.07 | Abs | 87.0 | 1.005 | 1.000 |
| Historical | Density % | 900 | 1885 | 1.05 | 1.00 | Abs | 84.0 | 1.002 | 0.960 |
| Elements | Gradation | 2000 | 2317 | 2.58 | 1.82 | Abs | 85.7 | 1.005 | 0.989 |
| Composite | Item | 2000 | | | | | 85.2 | 1.004 | 0.978 |
| 1992 | Asphalt % | 282 | 214 | 0.14 | 0.06 | Abs | 96.3 | 1.039 | 1.042 |
| QPM 1 | Density % | 282 | 570 | 1.00 | 0.71 | Abs | 88.9 | 1.018 | 0.990 |
| Elements | Gradation | 282 | 180 | 2.11 | 1.21 | Abs | 90.0 | 1.020 | 1.014 |
| Composite | Item | 282 | | | | | 91.3 | 1.025 | 1.010 |
| 1993 | Asphalt % | 482 | 837 | 0.15 | 0.04 | Abs | 93.2 | 1.032 | 1.028 |
| QPM1 | Density % | 482 | 969 | 0.96 | 0.48 | Abs | 92.4 | 1.028 | 1.018 |
| Elements | Gradation | 482 | 309 | 2.31 | 1.53 | Abs | 88.8 | 1.016 | 1.010 |
| Composite | Item | 482 | | | ABS | ALGEB | 91.9 | 1.027 | 1.019 |
| 1994 | Asphalt % | 1496 | 1277 | 0.15 | 0.06 | 0.01 | 90.6 | 1.034 | 1.022 |
| QPM1 | Density % | 1400 | 2812 | 0.96 | 0.57 | -0.47 | 90.3 | 1.023 | 1.007 |
| Elements | Gradation | 1496 | 1053 | 2.05 | 1.12 | -0.93 | 88.3 | 1.021 | 1.014 |
| Composite | Item | 1496 | | | | | 90.0 | 1.026 | 1.013 |
| 1995 | Asphalt % | 776 | 764 | 0.17 | 0.09 | 0.03 | 86.1 | 1.017 | 0.993 |
| QPM1 | Density % | 757 | 1378 | 1.14 | 0.97 | -0.85 | 81.1 | 0.999 | 0.950 |
| Elements | Gradation | 776 | 547 | 2.10 | 1.16 | -0.18 | 88.9 | 1.017 | 1.015 |
| Composite | Item | 776 | | | | | 84.2 | 1.008 | 0.976 |
| **1991 - 1995** | **Asphalt %** | **3036** | **3092** | **0.15** | **0.07** | **0.02** | **90.4** | **1.030** | **1.017** |
| **Summary of** | **Density %** | **2921** | **5729** | **1.01** | **0.67** | **-0.60** | **88.1** | **1.017** | **0.992** |
| **QPM 1 Elements** | **Gradation** | **3036** | **2089** | **2.11** | **1.21** | **-0.67** | **88.7** | **1.019** | **1.014** |
| **SUMMARY QPM1 COMPOSITES** | | **3036** | | | | | **88.9** | **1.021** | **1.004** |
| 1995 | Asphalt % | 328 | 342 | 0.18 | 0.05 | 0.02 | 88.7 | 1.014 | 1.000 |
| QPM 2 | Density % | 314 | 625 | 0.99 | 0.46 | -0.38 | 91.7 | 1.023 | 1.017 |
| Elements | Gradation | 328 | 191 | 2.76 | 1.19 | 0.55 | 85.1 | 1.003 | 0.990 |
| Composite | Item | 328 | | | | | 89.5 | 1.016 | 1.007 |
| 1996 | Asphalt % | 830 | 847 | 0.16 | 0.07 | 0.02 | 89.8 | NA | 1.008 |
| QPM 2 | Density % | 830 | 1465 | 0.91 | 0.60 | -0.56 | 91.9 | NA | 1.015 |
| Elements | Gradation | 830 | 438 | 1.98 | 1.53 | 0.15 | 89.6 | NA | 1.012 |
| Composite | Item | 830 | | | | | 90.8 | NA | 1.012 |
| **1995 - 1996** | **Asphalt %** | **1158** | **1189** | **0.17** | **0.07** | **0.02** | **89.5** | **NA** | **1.006** |
| **Summary of** | **Density %** | **1144** | **2090** | **0.93** | **0.56** | **-0.51** | **91.9** | **NA** | **1.016** |
| **QPM 2 Elements** | **Gradation** | **1158** | **629** | **2.20** | **1.44** | **0.26** | **88.3** | **NA** | **1.006** |
| **SUMM QPM2 COMPOSITES** | | **1158** | | | | | **90.4** | **NA** | **1.011** |
| **SUMM QC/QA PROJECTS** | | **4194** | | | | | **89.3** | **NA** | **1.006** |

## TABLE 5

## QC/QA HBP EVALUATION, SUMMARY BY ELEMENT AND YEARLY COMPOSITES

### 1992 - 1996 Average Values (Weighted by Tons) Related to 1991 Historical

| Year & | Element or | Standard Deviation | | Avg Abs Mean-Tol Lim | | QPM 2 Quality Level | | QPM 2 Pay Factor | |
|---|---|---|---|---|---|---|---|---|---|
| Identity | Composite | Value | Inv % '91 | Value | % of '91 | Value | % of '91 | Value | % of '91 |
| '91 Historical | Asphalt % | 0.18 | 100.0 | 0.23 | 100.0 | 87.0 | 100.0 | 1.000 | 100.0 |
| '92 QPM1 | Asphalt % | 0.14 | 128.6 | 0.24 | 104.3 | 96.3 | 110.7 | 1.042 | 104.2 |
| '93 QPM1 | Asphalt % | 0.15 | 120.0 | 0.26 | 113.0 | 93.2 | 107.1 | 1.028 | 102.8 |
| '94 QPM1 | Asphalt % | 0.15 | 120.0 | 0.24 | 106.1 | 90.6 | 104.1 | 1.022 | 102.2 |
| '95 QPM1 | Asphalt % | 0.17 | 104.0 | 0.21 | 90.0 | 86.1 | 99.0 | 0.993 | 99.3 |
| '95 QPM2 | Asphalt % | 0.18 | 100.6 | 0.25 | 107.0 | 88.6 | 101.8 | 1.000 | 100.0 |
| '96 QPM2 | Asphalt % | 0.16 | 109.8 | 0.23 | 100.0 | 89.8 | 103.2 | 1.008 | 100.8 |
| All QC/QA | Asphalt % | 0.16 | 113.5 | 0.24 | 102.7 | 90.1 | 103.6 | 1.014 | 101.4 |
| | | | | | | | | | |
| '91 Hist. | Density % | 1.05 | 100.0 | 1.00 | 100.0 | 84.0 | 100.0 | 0.960 | 100.0 |
| '92 QPM1 | Density % | 1.00 | 105.0 | 1.29 | 129.0 | 88.9 | 105.8 | 0.990 | 103.1 |
| '93 QPM1 | Density % | 0.96 | 109.4 | 1.52 | 152.0 | 92.4 | 110.0 | 1.018 | 106.0 |
| '94 QPM1 | Density % | 0.96 | 109.4 | 1.43 | 143.0 | 90.3 | 107.5 | 1.007 | 104.9 |
| '95 QPM1 | Density % | 1.14 | 91.9 | 1.03 | 102.8 | 81.1 | 96.5 | 0.949 | 98.9 |
| '95 QPM2 | Density % | 0.99 | 106.1 | 1.54 | 153.6 | 91.7 | 109.2 | 1.017 | 105.9 |
| 96 QPM2 | Density % | 0.91 | 115.3 | 1.40 | 140.1 | 91.9 | 109.5 | 1.015 | 105.7 |
| All QC/QA | Density % | 0.99 | 106.2 | 1.36 | 136.0 | 89.2 | 106.2 | 0.999 | 104.1 |
| | | Based on the N0. 8 Sieve | | | | Based on Gradation (QPM Controlling Sieve) | | | |
| '91 Hist. | Gradation | 2.59 | 100.0 | 3.18 | 100.0 | 85.7 | 100.0 | 0.989 | 100.0 |
| '92 QPM1 | Gradation | 2.11 | 122.7 | 3.79 | 119.2 | 90.0 | 105.0 | 1.014 | 102.5 |
| '93 QPM1 | Gradation | 2.31 | 112.1 | 3.47 | 109.1 | 88.8 | 103.6 | 1.010 | 102.1 |
| '94 QPM1 | Gradation | 2.05 | 126.3 | 3.88 | 122.0 | 88.3 | 103.0 | 1.014 | 102.5 |
| '95 QPM1 | Gradation | 2.10 | 123.3 | 3.84 | 120.6 | 88.9 | 103.7 | 1.016 | 102.8 |
| '95 QPM2 | Gradation | 2.76 | 93.8 | 3.81 | 119.7 | 85.1 | 99.3 | 0.990 | 100.1 |
| '95 QPM2 | Gradation | 1.98 | 130.5 | 3.47 | 109.0 | 89.6 | 104.5 | 1.012 | 102.3 |
| All QC/QA | Gradation | 2.14 | 121.3 | 3.73 | 117.3 | 88.6 | 103.4 | 1.012 | 102.3 |
| | | Values Below Are Composites of Above Values, i.e, Elements Weighted by "W" Factors | | | | | | | |
| 91 Hist. | Composite | — | 100.0 | — | 100.0 | 85.2 | 100.0 | 0.978 | 100.0 |
| 92 QPM1 | Composite | — | 115.6 | — | 119.6 | 91.3 | 107.1 | 1.010 | 103.3 |
| 93 QPM1 | Composite | — | 113.1 | — | 131.7 | 91.9 | 107.9 | 1.019 | 104.3 |
| 94 QPM1 | Composite | — | 116.0 | — | 127.7 | 90.0 | 105.6 | 1.013 | 103.6 |
| 95 QPM1 | Composite | — | 101.8 | — | 102.5 | 84.2 | 98.7 | 0.976 | 99.8 |
| 95 QPM2 | Composite | — | 102.0 | — | 132.8 | 89.5 | 105.0 | 1.007 | 103.0 |
| 96 QPM2 | Composite | — | 116.7 | — | 121.9 | 90.8 | 106.6 | 1.012 | 103.6 |
| All QC/QA | Composite | — | 111.4 | — | 122.3 | 89.4 | 104.8 | 1.006 | 102.9 |

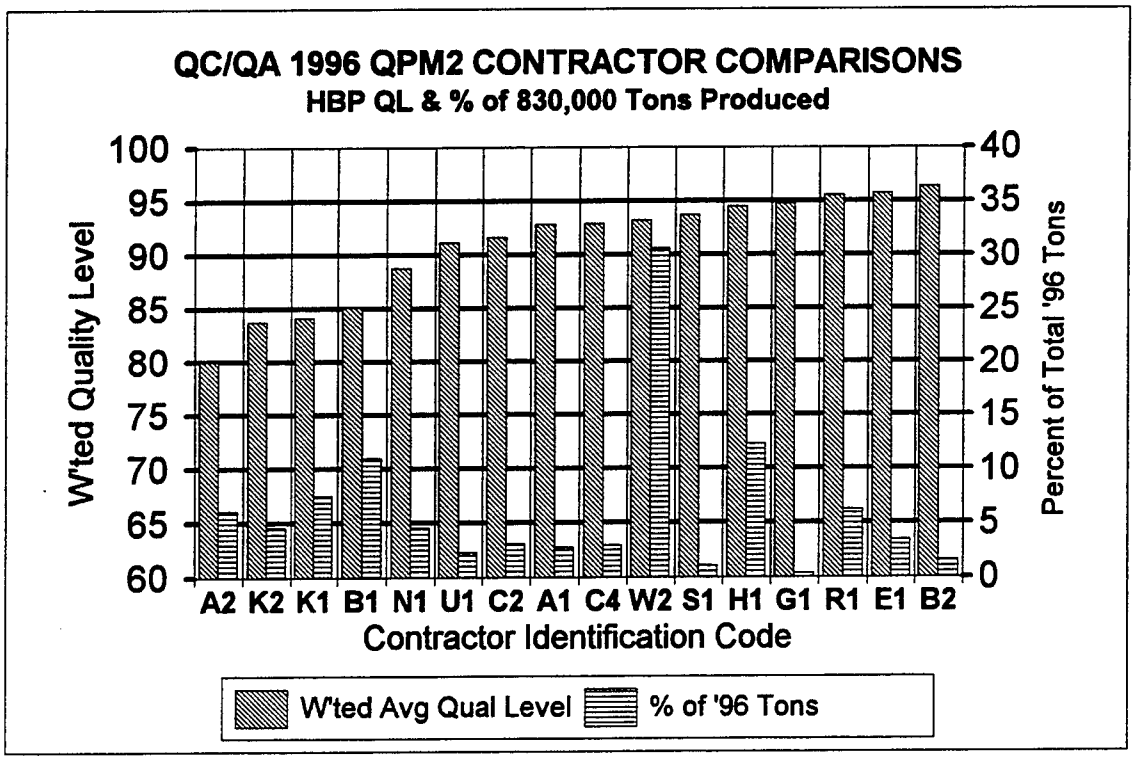



Figure 1

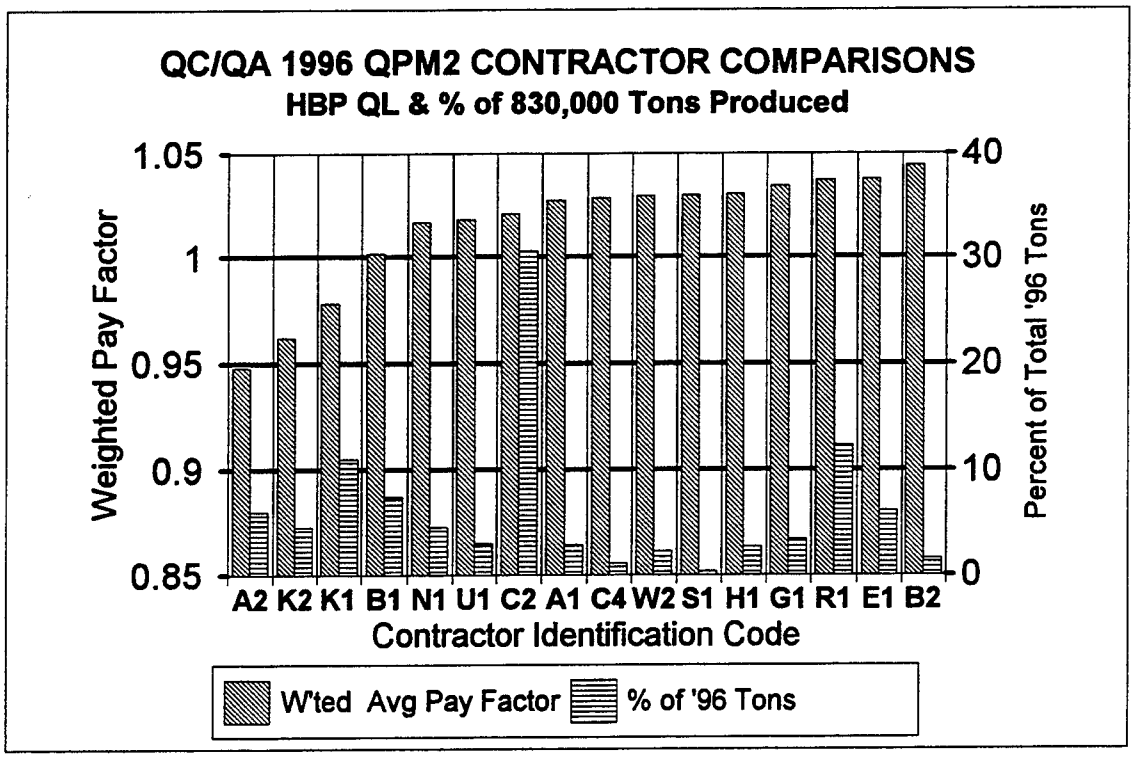
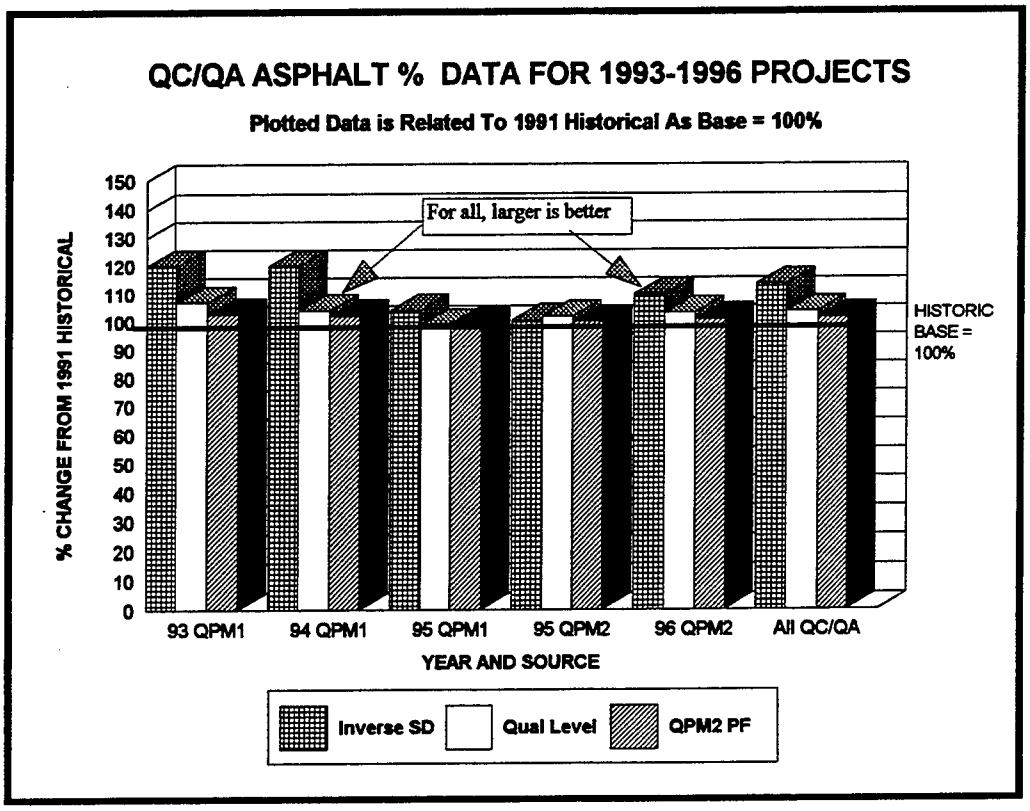



Figure 2

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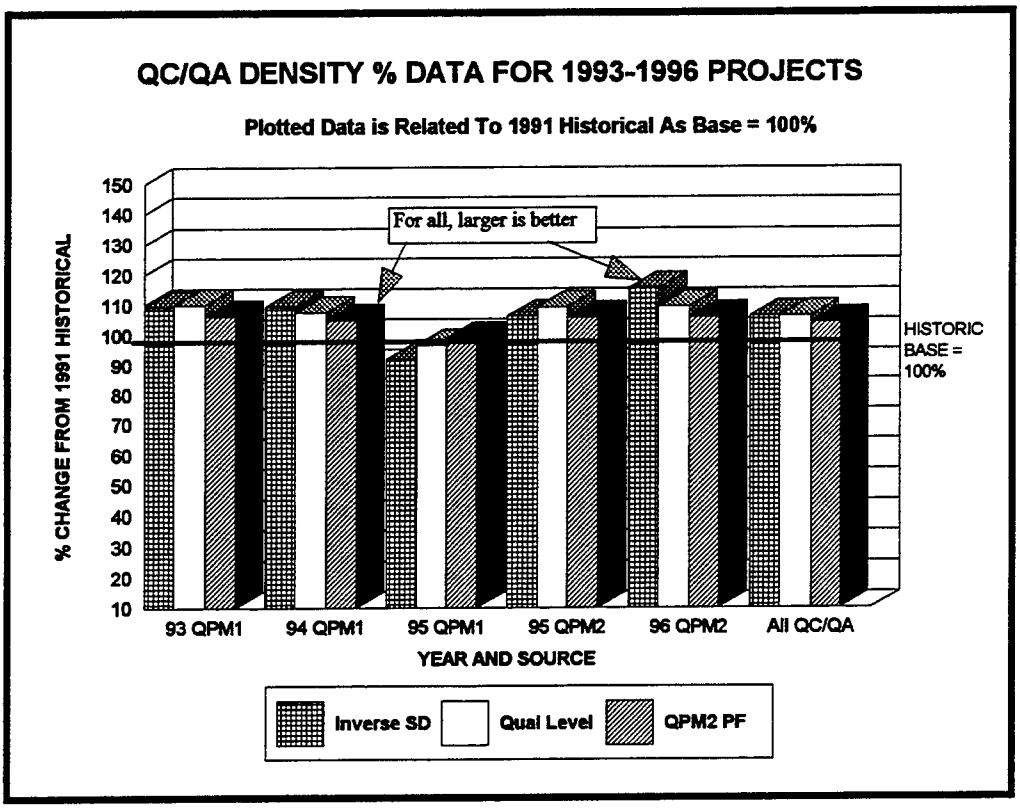


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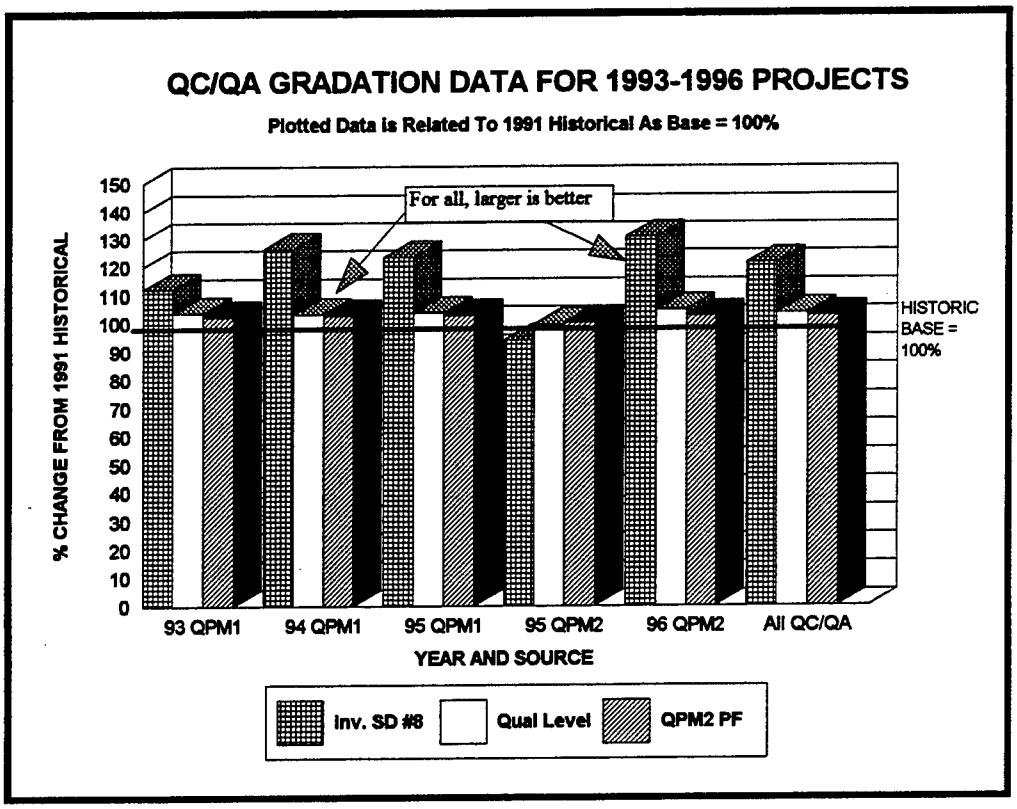


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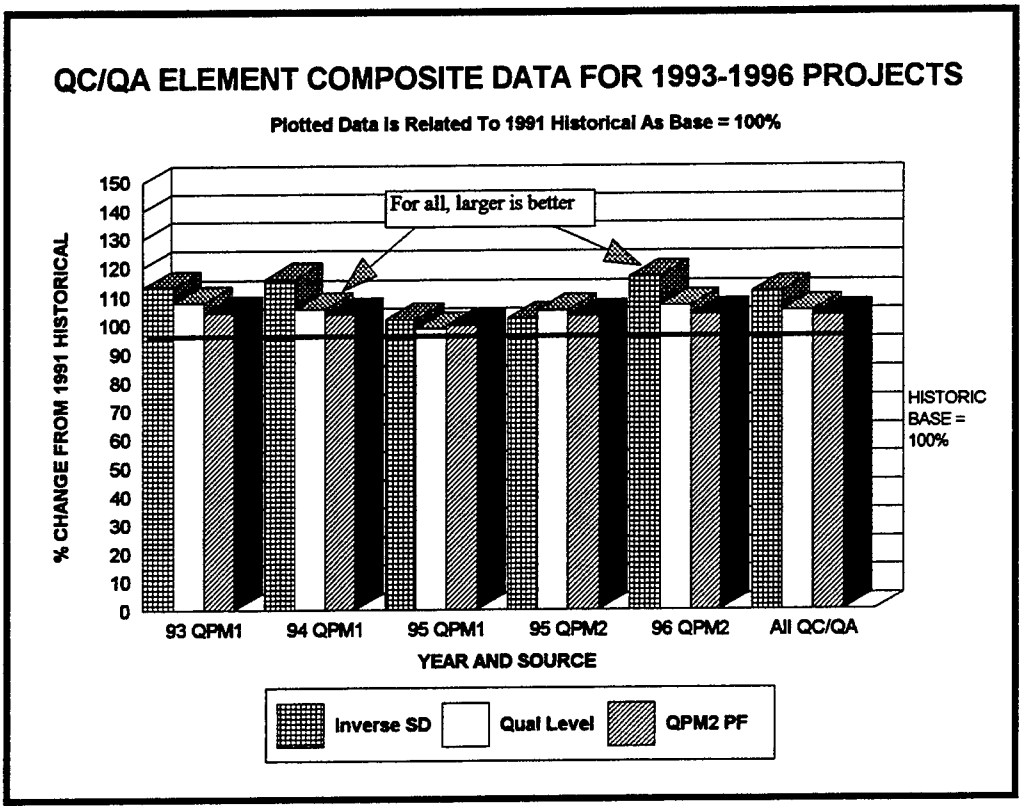


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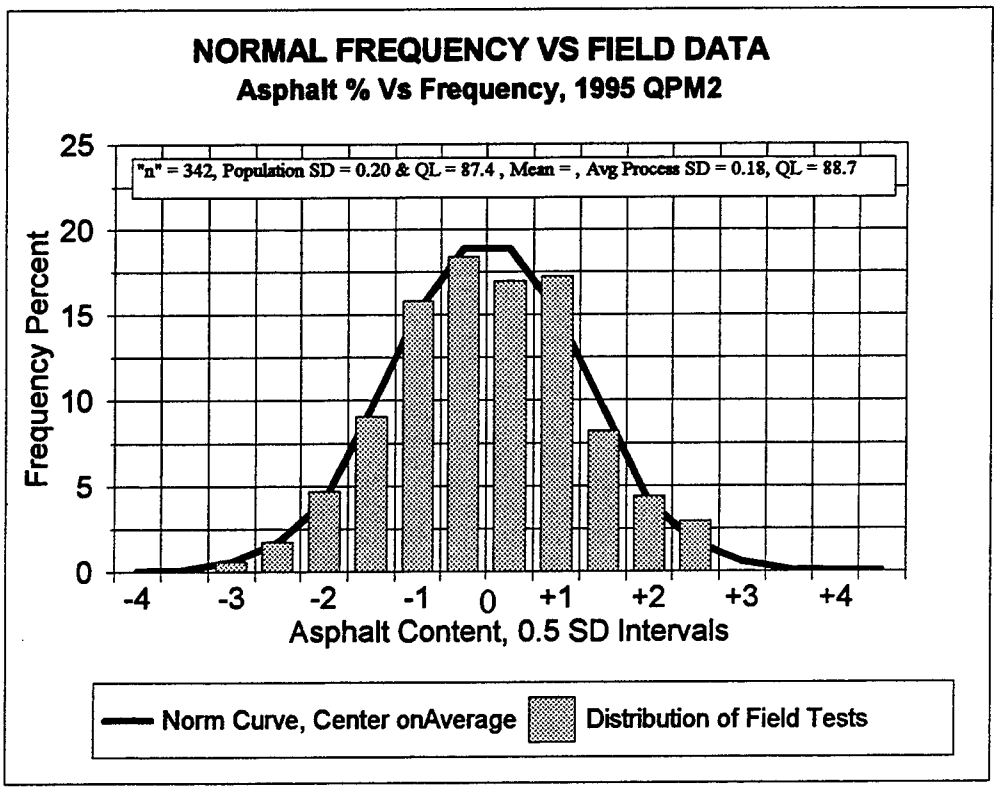


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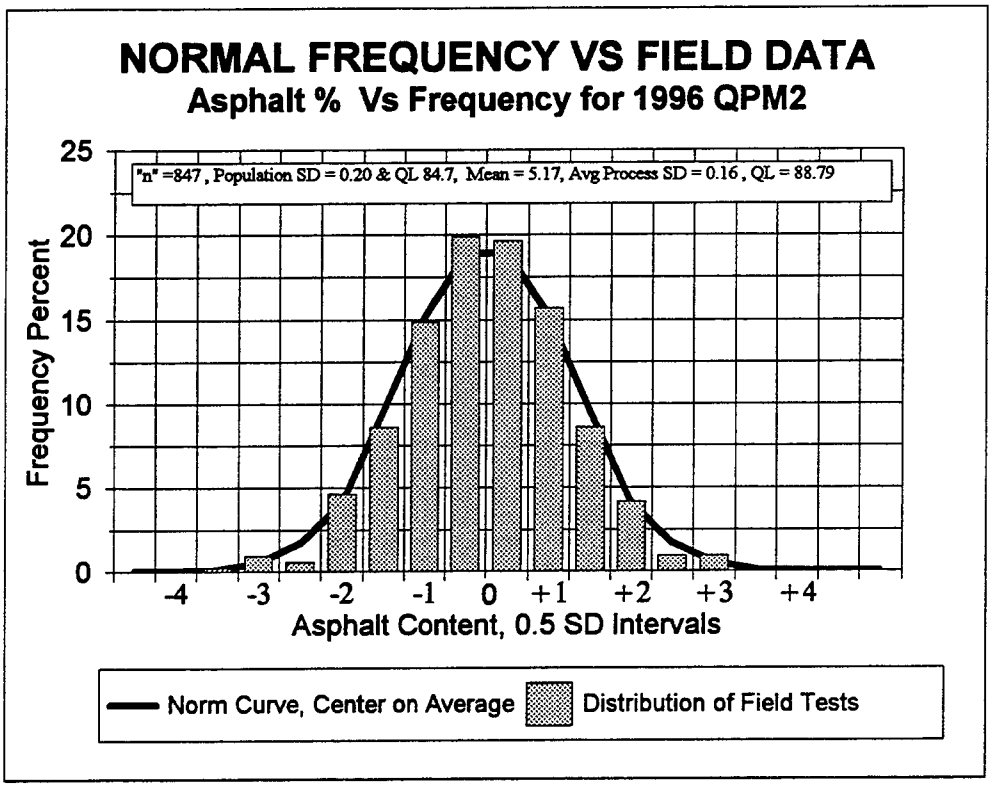


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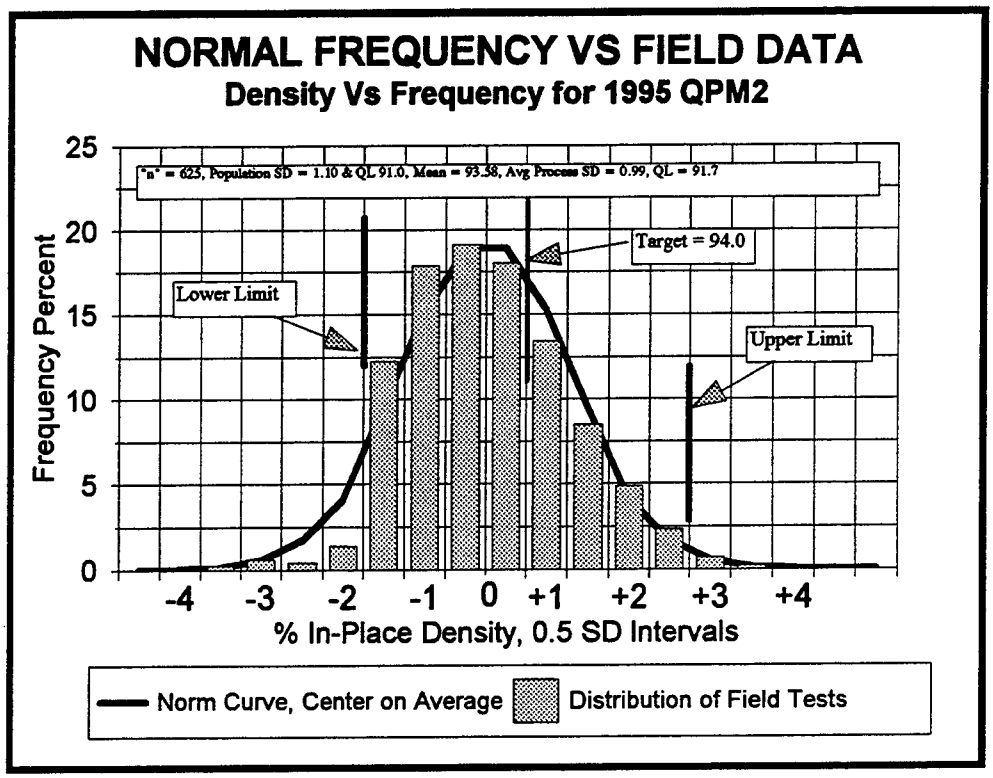


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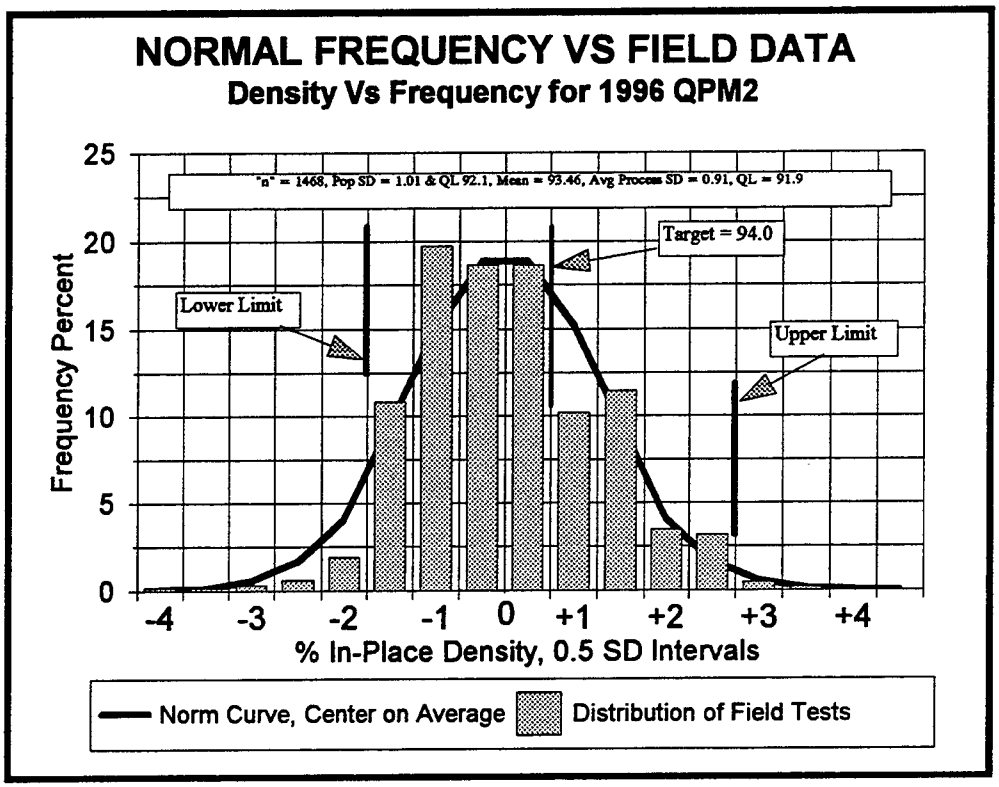


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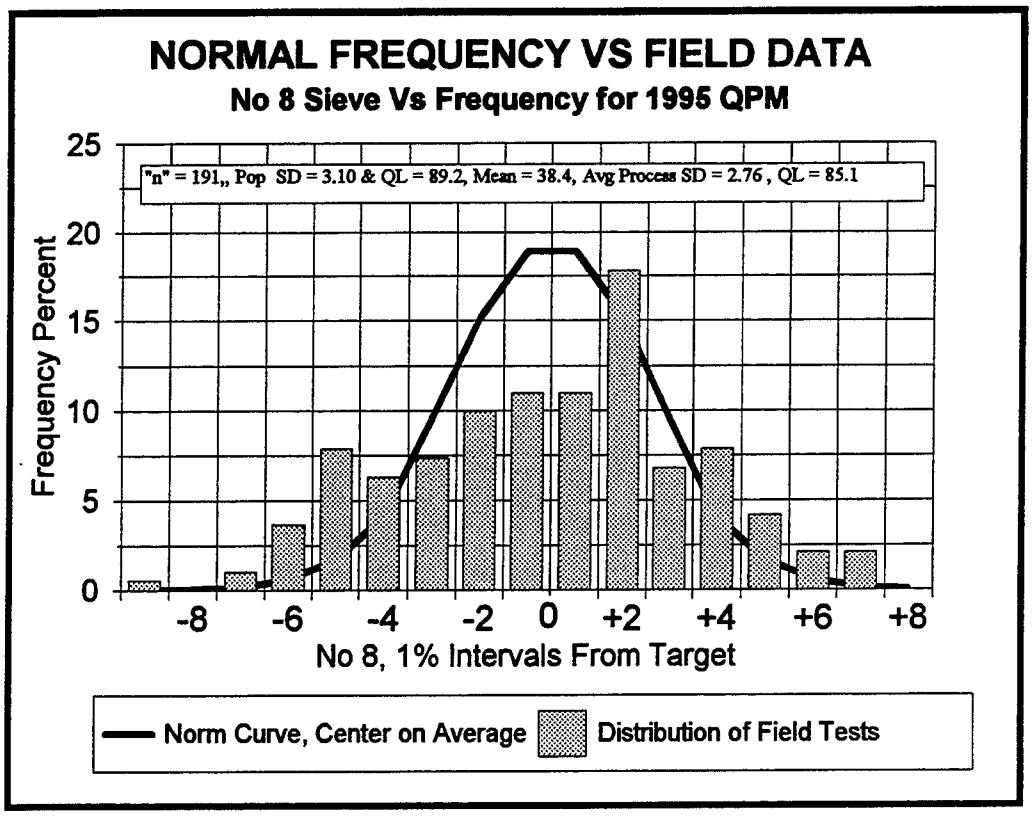


Figure 11

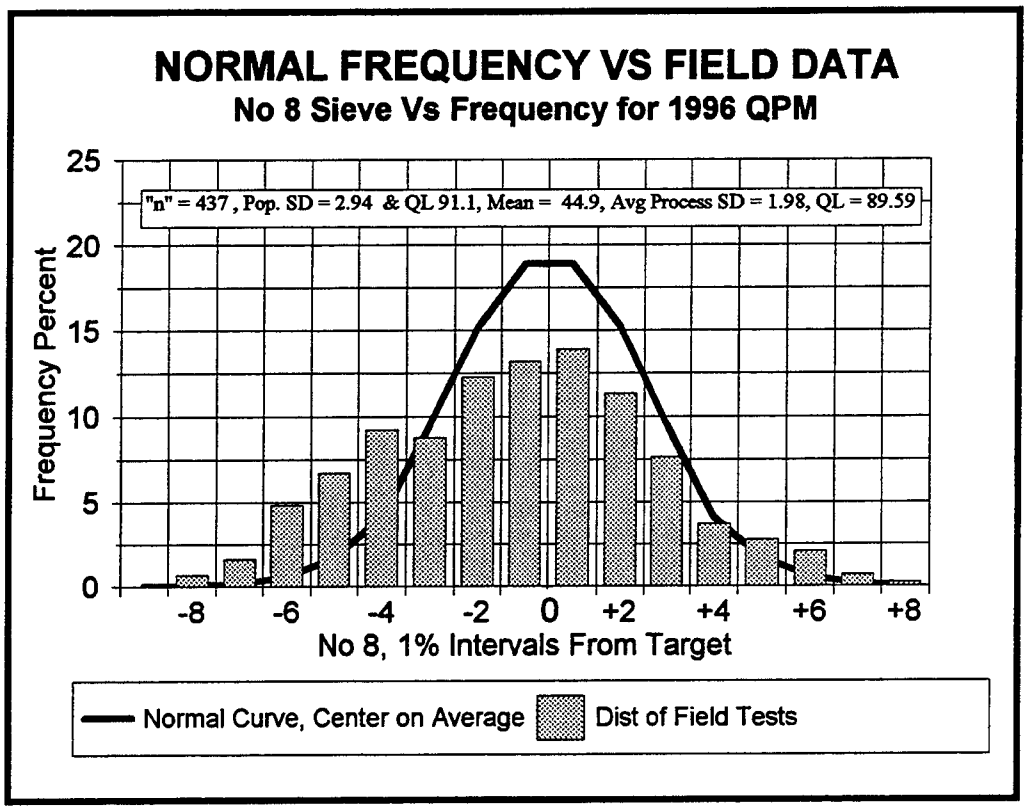


Figure 12

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97-8 HBP Pilot Void Acceptance Projects Completed in 1993-1996 (Interim Report)

97-9 QC & QA Projects Constructed in 1996 Under QPM2 Specifications (Fifth Annual Report)

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