Report No. CDOT-DTD-R-2005-8
Final Report

HOT BITUMINOUS PAVEMENT VOIDS ACCEPTANCE REVIEW OF QC/QA DATA 2000 THROUGH 2003

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March 2005

COLORADO DEPARTMENT OF TRANSPORTATION
RESEARCH BRANCH

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Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
CDOT-DTD-R-2005-8		

4. Title and Subtitle	5. Report Date
HOT BITUMINOUS PAVEMENT VOIDS ACCEPTANCE REVIEW OF QC/QA DATA 2000 THROUGH 2003	March 2005
	6. Performing Organization Code

7. Author(s)	8. Performing Organization Report No.
Eric Chavez	CDOT-DTD-R-2005-8

9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
Colorado Department of Transportation 4201 E. Arkansas Ave. Denver, Colorado 80222	11. Contract or Grant No.

12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered
Colorado Department of Transportation - Research 4201 E. Arkansas Ave. Denver, CO 80222	14. Sponsoring Agency Code

15. Supplementary Notes

Prepared in cooperation with the US Department of Transportation, Federal Highway Administration

16. Abstract

This report analyzes the Quality Control/Quality Assurance (QC/QA) data for hot bituminous pavements using voids acceptance as the testing criteria awarded in the years 2000 through 2003. Analysis of the overall performance of the projects is accomplished by reviewing the Calculated Pay Factor Composite (CPFC) and Incentive/Disincentive Payments (I/DP). Analysis of each of the test elements: asphalt content, voids in mineral aggregate, air voids, mat density, and joint density is presented in tables, figures, and reports. Various data groupings are used to evaluate the data including: year, region, & grading.

The specification and the projects are performing reasonably well. The results for the data show that it is remaining fairly constant. No definite upward or downward trends can be seen in the data. Over the four-year time period more projects have received incentive payments than disincentive payments. The average pay over the four years is 1.00660. The quality levels in the individual elements are at reasonable to high levels. The VMA and mat density elements show the best results being above 93% in specification. The asphalt content and air voids elements are at approximately 90%. The joint density specification which was added to the calculations for I/DP in December of 2002 was used on thirteen projects and is showing reasonable results. The average pay factor for this element is just under 1.0 but is expected to rise as contractors gain experience in this area.

17. Keywords	18. Distribution Statement
Quality Control/Quality Assurance (QC/QA), quality levels, percent within limits, Incentive/Disincentive Payments (I/DP), voids acceptance, asphalt content, voids in mineral aggregates, air voids, mat density, joint density	No restrictions. This document is available to the public through the National Technical Information Service Springfield, VA 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	190	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

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by

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Prepared by
Colorado Department of Transportation
Research Branch

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

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1.0 INTRODUCTION AND COMMENTS

The Colorado Department of Transportation (CDOT) began Quality Control/Quality Assurance (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 (several projects were held over and completed in 1995). Three test elements were included in the calculations for pay factors, percent asphalt, mat density, and aggregate gradation.

In 1993 CDOT announced their intent to adopt a QC/QA voids acceptance (VA) specification for HBP. Under Phase 1 of the VA pilot program nine VA pilot projects were completed by the end of 1996. Three additional projects were constructed in 1997.

In 1998 a series of VA projects were let to contract under Phase 2 of the pilot specification. Four test elements were included in the calculations for pay factors under Phase 2, percent asphalt, voids in mineral aggregate, air voids, and mat density.

In December of 2002 joint density testing was added as the fifth element included in the calculation for Incentive/Disincentive Payment (I/DP). The weights of the original elements were adjusted to account for the new element.

This report analyzes the voids acceptance data for the years 2000 through 2003. Reports evaluating the asphalt content, voids in mineral aggregate, air voids, mat density, & joint density elements sorted by grading & region are presented in this report. Recap reports of the same data sorted by region are also presented. Charts comparing the quality level and pay factor information for the years 2000 through 2003 are displayed for the percent asphalt, voids in mineral aggregate, air voids, and mat density elements. The joint density test information is also covered for the projects that contained that specification. Detailed reports which show all the process data for each of the years 2000 through 2003 are included in Appendices B, C, D, & E.

The general format and presentation of data in this report are similar to that used in previous QC/QA reports published by the department. Information on the background, development, philosophy and rationale involved can be found in the previous reports and is not repeated here.

2.0 SPECIFICATIONS

Specifications - Revision of Sections 105 and 106, Quality of Hot Bituminous Pavement (Voids Acceptance). The Revision to Sections 105 & 106 governs the QC/QA calculations. A major change to the specification was made with the release of the specification dated December 20, 2002. Joint density testing was included in the calculation for Incentive/Disincentive Payments (I/DP) in this release. The joint density element accounts for 15 percent of the total in the calculation for I/DP. The weights associated with the other test elements were adjusted to account for the new testing element. Table 1 shows the old and new weights and test elements. No other changes were made in the specification that effected the calculations for quality level, pay factor, or I/DP.

Table 1. "W" Factors For Various Elements

	W Factor				
Specification	**Percent Asphalt**	**VMA**	**Air Voids**	**Mat Density**	**Joint Density**
10/4/01 & Older	10	10	40	40	
12/20/02 & Newer	10	10	30	35	15

The Revision of Sections 105 and 106 has been revised numerous times over the years but the changes were in other areas and did not affect the QC/QA calculations. The calculation for quality levels has remained unchanged since the beginning. Use of CDOT's QC/QA computer program is a requirement of the specification. The computer program is based on this specification.

3.0 CALCULATIONS AND DEFINITIONS

Process Quantities – Process quantities are used for all calculations in this report except for the calculation of the Calculated Pay Factor Composite. In general, processes group like material or construction techniques together. As long as the material being evaluated remains unchanged it will be added to the current process. If a change to the material or the construction technique occurs then a new process will be created. Please see the Revision to Sections 105 & 106, Quality of Hot Bituminous Pavement (Voids Acceptance) for details on processes.

Calculated Pay Factor Composite – The Calculated Pay Factor Composite (CPFC) is a way to evaluate the overall performance of the project. The CPFC represents the percentage increase or decrease to the unit price for hot bituminous pavement paid on the project. Projects with a CPFC greater than 1.0 will have received an incentive payment. Projects with a CPFC less than 1.0 will have received a disincentive payment. The CPFC is back calculated from the project's Final Incentive/Disincentive Payment (I/DP). This calculation is used rather than an overall quality level calculation since a project can contain processes in which no quality level is calculated, processes with less than three tests. The calculation used here also addresses the problem which occurred in some of the reported projects in which the final element quantities were not equal. The main reason this calculation is used is to avoid the problems associated with averaging of the data. The calculation is as follows:

$$CPFC = (I/DP / ((UP_P) * (QR_P))) + 1$$

Where: CPFC = Calculated Pay Factor Composite.

I/DP = Incentive/Disincentive Payment for the project.

UP_P = Calculated Unit Price for the project.

QR_P = Quantity Represented Project, average of the tons reported in the percent asphalt, VMA, and air voids elements.

$$UP_P = (\sum (UP_n * T_n)) / \sum T_n$$

Where: UP_n = Unit Price for the process.

T_n = Tons represented by the process, average of the tons reported in the percent asphalt, VMA, and air voids elements.

Note: The quantities used in the calculation of average tons and average price are the quantities reported in the in the percent asphalt, VMA, and air voids elements. After reviewing the project data it was determined that these quantities most accurately represented the actual produced quantity when the reported quantities were not equal in the test elements.

CTS (Compaction Test Section) – A compaction pavement test section used to establish the number of rollers and rolling pattern needed to achieve specified densities, see Revision of Section 401, Compaction Test Section for details.

CTS Tons (Compaction test section tons) – Tons of material accounted for in the mat density test element by the construction of compaction test sections within the project.

CTS I/DP (Compaction test section Incentive/Disincentive payment) – The calculated I/DP for compaction test sections.

I/DP (Incentive/Disincentive Payment) - The amount of increase or decrease paid for a quantity of material within a test element, based on the calculated pay factor. The I/DP for a project is the summation of all calculated element I/DPs.

Joint Density – Density measurements taken on the longitudinal joint between paving passes, see Revision of Section 401, Plant Mix Pavements – General for details.

Mean to TV - The absolute value of the difference between the calculated mean for the process and the target value for the test element. The lower the value the closer the mean approaches the target value of the specification. One of the two factors that effects the quality level calculation. The other factor being the standard deviation for the process.

Pay Factor - The amount of increase or decrease, displayed as a percentage, applied to the unit price of the pavement. Multiplied by the W factor for the element to calculate I/DP for an element.

PF 1.0 Tons (Pay factor 1.0 tons) – Used in the mat density element to account for tons of material in which the pay factor is set to 1.0 by specification. Usually used on a project when the thickness of the mat being placed becomes too thin to be accurately tested.

Quality Level – Quality Levels (Percent within limits) are calculated in accordance with Colorado Procedure 71. Quality Level analysis is a statistical procedure for estimating the percent compliance to specification limits and is affected by shifts in the arithmetic mean and by the sample standard deviation. Analysis of both factors is essential whenever evaluating quality level results.

Std. Dev. (Standard Deviation) equation: $s = \sqrt{\frac{\sum (X - \overline{X})^2}{n - 1}}$

Std. Dev. – V (Standard Deviation minus the V Factor) - A comparison of the standard deviation for the process to the historical standard deviation for the element, the V factor. Negative values indicate that the process has a smaller standard deviation than historically reported. The lower the number the better. One of the two factors that effects the quality level calculation. The other factor being the mean for the process as it relates to the target value for the specification.

TV (Target Value) - The midpoint of the specification range.

V (V Factor) - One standard deviation for the test element based on historical data.

VA – Voids Acceptance

VMA – Voids in Mineral Aggregate

Weighted Average – The weighted average used in this report is calculated on the tons of material represented.

2V Adj. (2V adjustment) – Test results in the asphalt content or mat density test elements that are greater than 2 x V outside the tolerance limits are designated as a separate process and the quantity it represents are price reduced according to 105.03(d). A price reduction is applied to all of the test elements for the quantity of material represented. This requires that adjustments are made to the original calculations for I/DP in the other test elements. The amount shown as the 2V Adj. is the total amount of adjustment applied to the original calculations.

4.0 DESCRIPTION OF REPORTS

Report Criteria – At the beginning of each report the selection criteria are listed for the data contained in the report. The primary grouping of projects is by their bid date. Quality levels are not calculated on processes that contain less than three test results. Therefore, those processes are excluded from the reports that contain quality level calculations. Other justifications as to why a project or process is excluded from the report are detailed in the report criteria.

Sample Size – Not too many conclusions should be drawn when the number of observations, sample size, is small. Generally speaking, an evaluation of five or less samples is not considered very reliable. Always check the number of samples included in the evaluation when doing comparisons of the data. Most of the reports presented here will indicate the number of samples included in the various data groupings. Figures that appear in this report will have associated tables that will give the number of samples included in the data groupings.

Reports 1 to 4 - *Test Element Reports, Recap by Grading/Year/Region 2000 through 2003: Asphalt Content, Voids in Mineral Aggregate, Air Voids, & Mat Density,* Appendix A. For each of the test elements a report that recaps the information is presented. The information is grouped first by grading and then by year. Region information is displayed for each year. Information presented includes: processes, tons, and tests along with the weighted averages for price, quality level, pay factor, mean to target value, standard deviation, and standard deviation minus the V value. Totals are calculated for each year. These reports are very useful for tracking the performance of a grading of HBP through the years and by each region. Detailed reports for the information contained in these reports can be found in Appendices B through E.

REPORTS BY YEAR 2000 through 2003, Appendices B, C, D, & E

A series of detailed reports is presented for each year in the appendices

Project Listing by Region/Subaccount. This report contain information for the projects included in the evaluation for a single year. The subaccount, project code, location, region, supplier, bid date, total bid, and plan quantity are listed for each project. The report groups the projects by region and contains a region recap. A statewide recap is given at the end of the report.

Project Data. The Project Data report displays all of the QC/QA data reported for each project. The projects are sorted by subaccount number. Each project's data is detailed by mix design and process number. The number of tests, quantity in tons, quality levels, pay factors, and Incentive/Disincentive Payment are given for each mix design and process. A summary for each project is also displayed and shows the CPFC. This report contains all of the project's data and is the best report to review when concerned about an individual project. All of a project's data may not be contained in other reports if the data does not meet that report's individual criteria.

Calculated Pay Factor Composite and I/DP by Region. This report evaluates two key calculations for each project, the Calculated Pay Factor Composite (CPFC) and the project Incentive/Disincentive Payment (I/DP). The Calculated Pay Factor Composite gives an index of the overall quality of the project; see Calculations for details on the calculation of the CPFC. The I/DP is the incentive or disincentive amount the project received for the HBP. The report groups the projects by region and contains a region recap. A statewide recap of the information is given at the end of the report.

Note: There is not a direct correlation between Calculated Pay Factor Composite and Incentive/Disincentive Payment. The calculations for pay factors are dependent on the number of tests and the quantity of material associated with each process. Larger runs of production, processes, have the potential to receive higher pay factors. This is a benefit of producing uniform material. Differences in the process quantity can result in a different calculation for pay factor even if the quality levels are the same. Please refer to the Revision to Sections 105 and 106 for details on the calculations.

Asphalt Content – Process Information. Asphalt Content information is detailed in this report. The information is grouped by grading and sorted by quality level. For each process the quality level, pay factor, target value, mean, and standard deviation are given. The mean to target value and standard deviation minus V factor calculations are important whenever evaluating the quality level for the process. A recap for each grading is calculated. A recap that combines the information for all of the gradings is given at the end of the report.

Voids In Mineral Aggregate – Process Information. Voids in Mineral Aggregate information is detailed in this report. The information is grouped by grading and sorted by quality level. For each process the quality level, pay factor, target value, mean, and standard deviation are given. The mean to target value and standard deviation minus V factor calculations are important whenever evaluating the quality level for the process. A recap for each grading is calculated. A recap that combines the information for all of the gradings is given at the end of the report.

Air Voids – Process Information. Air Voids information is detailed in this report. The information is grouped by grading and sorted by quality level. For each process the quality level, pay factor, target value, mean, and standard deviation are given. The mean to target value and standard deviation minus V factor calculations are important whenever evaluating the quality level for the process. A recap for each grading is calculated. A recap that combines the information for all of the gradings is given at the end of the report.

Mat Density – Process Information. Mat Density information is detailed in this report. The information is grouped by grading and sorted by quality level. For each process the quality level, pay factor, target value, mean, and standard deviation are given. The mean to target value and standard deviation minus V factor calculations are important whenever evaluating the quality level for the process. A recap for each grading is calculated. A recap that combines the information for all of the gradings is given at the end of the report.

Joint Density – Process Information by Grading. Joint density information is detailed in this report for the projects that contained that specification. The information is grouped by grading and sorted by quality level. For each process the quality level, pay factor, target value, mean, and standard deviation are given. The mean to target value and standard deviation minus V factor calculations are important whenever evaluating the quality level for the process. A recap for each grading is calculated. A recap that combines the information for all of the gradings is given at the end of the report.

5.0 DISCUSSION OF THE DATA

5.1 Projects Evaluated

Table 2 displays the number of projects and tons of material awarded by year. The projects that have been evaluated are separated by the acceptance criteria, voids or gradation. The gradation acceptance projects are covered in a separate report. The data for only three submitted projects has been evaluated for projects constructed in 2001. In the other years a sufficient number of projects have been included for practical evaluations. Additional project data will be added to the database as they are received by the Pavement Design Unit.

Table 2. Projects Evaluated

			Evaluated			
	Awarded		**Voids Acceptance**		Gradation Acceptance	
Year	Projects	Tons	**Projects**	**Tons**	Projects	Tons
2000	78	2,258,407	**10**	**663,818**	49	1,167,563
2001	54	1,321,609	**3**	**155,270**	39	870,042
2002	71	1,974,106	**20**	**811,523**	41	868,182
2003	74	2,327,464	**15**	**569,645**	28	734,770

5.2 Calculated Pay Factor Composite

The Calculated Pay Factor Composite (CPFC) information for the years 2000 through 2003 is displayed in Table 3. The information is sorted by year and then by grading. The CPFC represents the percentage increase or decrease to the unit price for hot bituminous pavement paid on the project, see the section Calculations and Definitions for details on the calculation of the CPFC. A CPFC above 1.0 indicates that an incentive payment was paid for the HBP. A CPFC below 1.0 indicates that a disincentive was applied to the pavement. The weighted average is calculated for each

data grouping. The maximum and minimum values are also displayed. Figure 1 displays the overall CPFC, all gradings of HBP included, by year for the years 2000 through 2003. Figure 2 displays the CPFC results for gradings S and SX over the same time period. The results for 2001 show the best performance with an average incentive of just over 4% being awarded. However, only three projects are included in the evaluation for this year. In the other years the averages range between positive 1.8% and negative 1.2% of the neutral pay factor of 1.0. The averages when evaluating the pavements by grading are still within the plus and minus 2% range from the neutral amount. The overall average for the four-years is 1.00660. More projects received incentive payments than disincentive payments over this time period.

Table 3. Calculated Pay Factor Composite by Year and Grading

Criteria: Projects with Bid Dates from 1/1/00 to 12/31/03.
Projects that contain more than one grading are EXCLUDED from this Report
PFC is back calculated from the Project's I/DP.

Year 2000		Projects	Tons	CPFC Average:	CPFC Maximum:	CPFC Minimum:
	Grading: S	10	639,778	**1.01800**	1.03974	0.98801
	Totals: 2000	10	639,778	**1.01800**	1.03974	0.98801

Year 2001		Projects	Tons	CPFC Average:	CPFC Maximum:	CPFC Minimum:
	Grading: S	3	158,375	**1.04109**	1.05302	1.02334
	Totals: 2001	3	158,375	**1.04109**	1.05302	1.02334

Year 2002		Projects	Tons	CPFC Average:	CPFC Maximum:	CPFC Minimum:
	Grading: S	16	534,093	**0.98352**	1.04162	0.76392
	Grading: SX	4	293,822	**1.00530**	1.04132	0.97720
	Totals: 2002	20	827,915	**0.98788**	1.04162	0.76392

Year 2003		Projects	Tons	CPFC Average:	CPFC Maximum:	CPFC Minimum:
	Grading: S	12	454,972	**1.02133**	1.04771	0.96642
	Grading: SX	3	105,685	**0.99998**	1.00431	0.99270
	Totals: 2003	15	560,657	**1.01706**	1.04771	0.96642

Results for all Projects 1/1/00 to 12/31/03.

Tons	CPFC Average:	CPFC Maximum:	CPFC Minimum:
2,186,725	**1.00660**	1.05302	0.76392

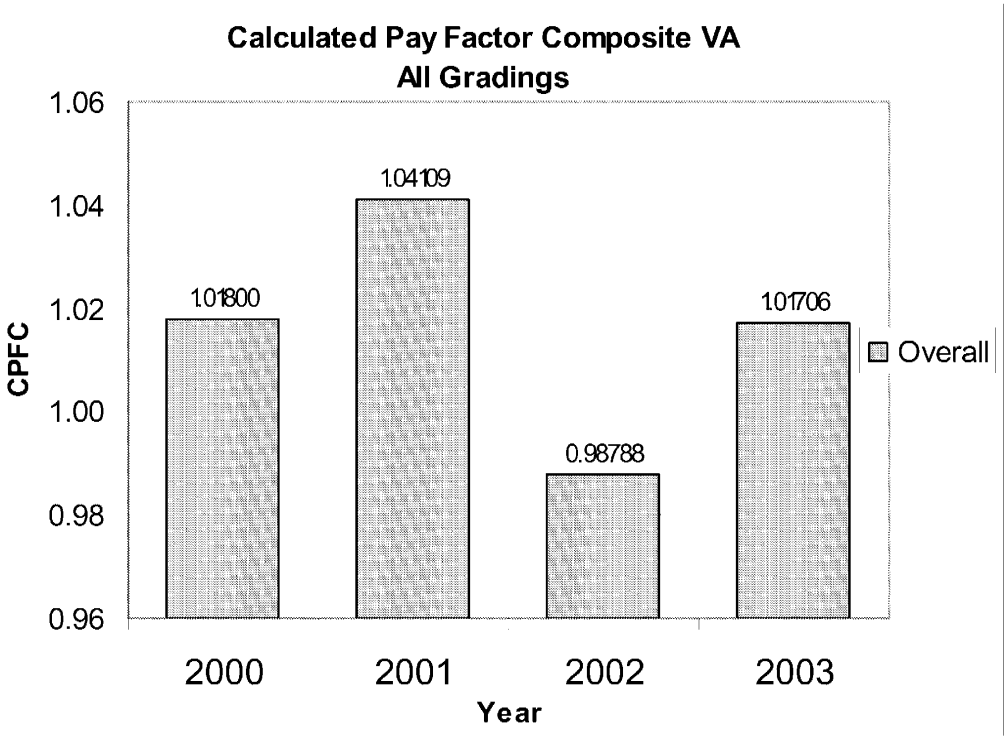

Figure 1. Calculated Pay Factor Composite by Year

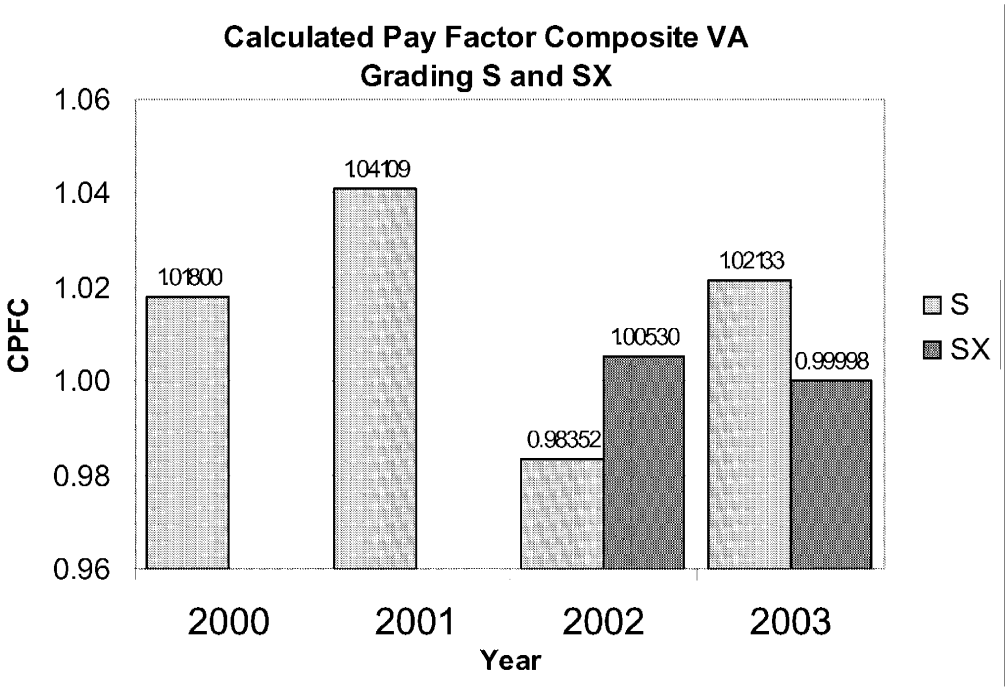

Figure 2. Calculated Pay Factor Composite by Year, Grading S & SX

5.3 Calculated Pay Factor Composite by Year and Region

The Calculated Pay Factor Composite information is also sorted by region for each of the years 2000 through 2003 and is displayed in Table 4. The weighted average is calculated for each data grouping. The maximum and minimum values are also displayed. Most of the groupings contain fewer than five projects. Nine of the groupings contain less than three. The number of projects is really too small to make significant conclusions about the performance within a region for the year. The overall results for the four time period are shown at the end of the report. A better indication of the region's performance can be obtained by reviewing these results. Figure 3 shows the overall results for each region for the four-year time period, 2000 through 2003. Region 1 shows the best results but only has three projects included in their evaluations. Regions 4 & 6 have the next best results both being above the 1.0 mark. Regions 2, 3, & 5 have averages below 1.0 showing that more disincentives were applied than incentives. The average disincentive amount is less than 1% in these regions. Region 5 has completed only one VA project at this time. Region 2 has completed the most with nineteen. Region 6 has next highest completed with fifteen.

Table 4. Calculated Pay Factor Composite by Year/Region

Criteria: Projects with Bid Dates from 1/1/00 to 12/31/03.
PFC is back calculated from the Project's I/DP
A Calculated Average Unit Price is used in the calculation

				Calculated Pay Factor Composite		
2000	**Region**	**Projects**	**Tons**	**Average**	**Maximum**	**Minimum**
	1	1	12,317	1.03974	1.03974	1.03974
	2	4	282,442	1.00678	1.02100	0.99521
	4	4	325,178	1.02010	1.03414	0.98801
	6	1	19,841	1.03272	1.03272	1.03272
	Totals	10	639,778	1.01800	1.03974	0.98801

				Calculated Pay Factor Composite		
2001	**Region**	**Projects**	**Tons**	**Average**	**Maximum**	**Minimum**
	2	2	104,496	1.03818	1.05302	1.02334
	6	1	53,879	1.04691	1.04691	1.04691
	Totals	3	158,375	1.04109	1.05302	1.02334

				Calculated Pay Factor Composite		
2002	**Region**	**Projects**	**Tons**	**Average**	**Maximum**	**Minimum**
	1	2	88,382	1.02090	1.04132	1.00047
	2	6	167,262	0.94879	1.02820	0.76392
	3	2	109,123	0.99324	1.00929	0.97720
	4	2	154,411	1.02562	1.03317	1.01807
	5	1	113,295	0.99338	0.99338	0.99338
	6	7	195,442	0.99884	1.04162	0.83698
	Totals	20	827,915	0.98788	1.04162	0.76392

				Calculated Pay Factor Composite		
2003	**Region**	**Projects**	**Tons**	**Average**	**Maximum**	**Minimum**
	2	7	346,124	1.01274	1.02979	0.96642
	3	2	78,685	0.99781	1.00292	0.99270
	6	6	135,848	1.02851	1.04771	1.00830
	Totals	15	560,657	1.01706	1.04771	0.96642

				Calculated Pay Factor Composite		
2000 to 2003	**Region**	**Projects**	**Tons**	**Average**	**Maximum**	**Minimum**
	1	3	100,699	1.02718	1.04132	1.00047
	2	19	900,324	0.99397	1.05302	0.76392
	3	4	187,808	0.99553	1.00929	0.97720
	4	6	479,589	1.02194	1.03414	0.98801
	5	1	113,295	0.99338	0.99338	0.99338
	6	15	405,010	1.01617	1.04771	0.83698
	Totals	48	2,186,725	1.00660	1.05302	0.76392

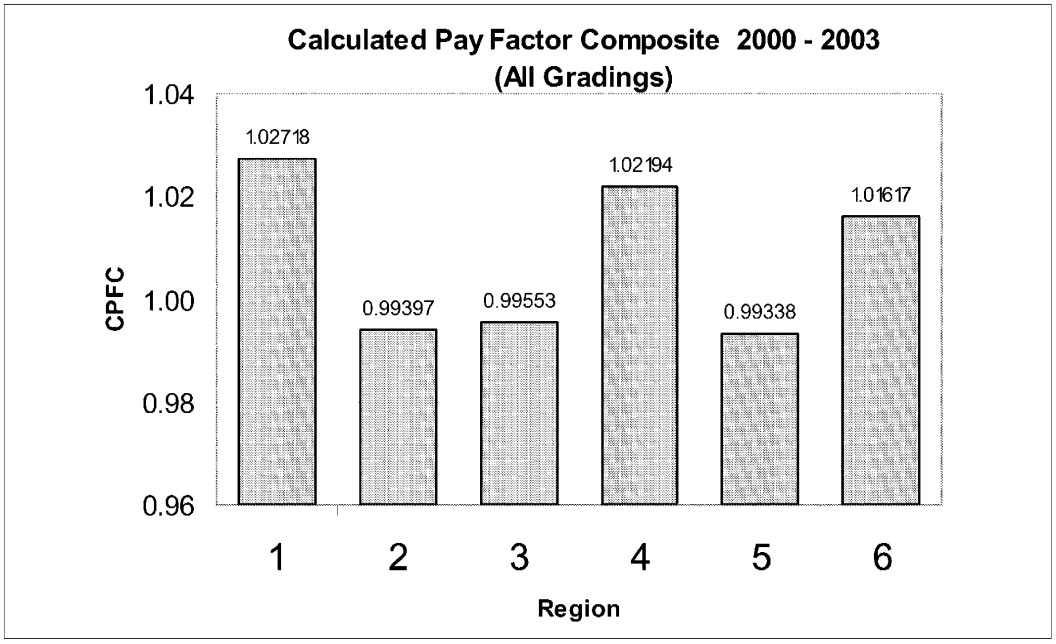

Figure 3. Calculated Pay Factor Composite 2000 to 2003 by Region

5.4 Incentive/Disincentive Payments

A recap of the Incentive/Disincentive Payments (I/DP) for the years 2000 through 2003 is presented in Table 5. For each year, the total number of projects, the number that had incentive payments, and number with disincentive payments is displayed. The summation of the I/DPs, the maximum, minimum and average are given for each year. The I/DP is the total dollar amount of incentive or disincentive payment the project received for the hot bituminous pavement and is directly related to the of tons of material used in the project. The size of the projects, tons of HBP, included in the evaluations can skew the results. Large projects being compared to smaller projects will have different I/DPs purely based on the multiplication of the pay factor times the tons of material. The projects with the largest I/DPs do not necessarily equate to the projects with the best quality levels. It is important to consider the dollar amounts being paid but a better way of evaluating the projects performance is to review the Calculated Pay Factor Composite.

Table 5. Incentive/Disincentive Payments – Recap by Year

2000			Incentive/Disincentive Payment	
	Number of Projects	10	Sum I/DPs	$401,328.51
	Positive I/DPs	7	Maximum	$119,561.18
	Negative I/DPs	3	Minimum	($34,248.47)
	Total Tons	639,778	Average I/DP	$40,132.85

2001			Incentive/Disincentive Payment	
	Number of Projects	3	Sum I/DPs	$197,383.57
	Positive I/DPs	3	Maximum	$94,773.91
	Negative I/DPs	0	Minimum	$49,401.46
	Total Tons	158,375	Average I/DP	$65,794.52

2002			Incentive/Disincentive Payment	
	Number of Projects	20	Sum I/DPs	$196,853.67
	Positive I/DPs	12	Maximum	$99,877.90
	Negative I/DPs	8	Minimum	($95,998.88)
	Total Tons	827,915	Average I/DP	$9,842.68

2003			Incentive/Disincentive Payment	
	Number of Projects	15	Sum I/DPs	$266,282.00
	Positive I/DPs	13	Maximum	$63,108.44
	Negative I/DPs	2	Minimum	($53,185.02)
	Total Tons	560,657	Average I/DP	$17,752.13

5.5 Review of Yearly Data by Test Element 2000 through 2003 - Percent Asphalt, Voids in Mineral Aggregate, Air Voids, & Mat Density

The overall results, all grading included, for each of the test elements for the years 2000 through 2003 are listed in Table 6. The quality level, pay factor, and standard deviation are shown for each element. The mean to target value and standard deviation minus V factor are also calculated. The mean to target value calculation shows the relationship between the mean for the processes in comparison to the midpoint of the specification limits, the target value. The calculated value is the absolute difference between the mean and the target value. The lower the value the closer the mean is to the target value and increases the probability that the material will be within specification. The standard deviation minus V factor shows the comparison of the standard deviation for the processes to the historical standard deviation, the V factor. A negative number indicates that the standard deviation for the processes is less than the historical value increasing the probability that the material will be within specification. Positive values show that the standard deviations have exceeded the historical values. The calculation of quality levels is dependent on the relationship of both of these values as they relate to the specification limits. Quality levels are not calculated on processes with less than three tests. Therefore, these processes are excluded from the evaluations which include the quality level calculation.

All of the yearly quality levels for each of the elements show good results. The lowest quality level is 88.303 in the Air Voids element in 2002. This related to an average pay factor just under the 1.0 value. All of the other pay factors are above the 1.0 mark showing that on average incentive payments have been paid on those elements. The mean to target value calculations show that the material is being produced close to the midpoint of the specification, calculated values approaching zero, increasing the probability that the material will be within specification limits. The standard deviations for the test results show that the material being produced is below the variation of the historical data, negative values in the standard deviation minus V value column. All of the calculated values in this column except one are negative numbers. The quality

levels and pay factors for each of the elements are displayed in Figures 4 – 11. The best results are shown in 2001 but only three projects are included in the evaluations for that year. Excluding the year 2001, a downward trend in is shown in the quality levels of both the percent asphalt and VMA elements. In the percent asphalt element the decrease is not very significant, less than 2.5%. In the VMA element the decrease is greater at slightly more than 5%. However, the quality levels of this element are the best of any element. These decreases are not dramatic and may be caused more by the newness of the specification and the number of projects completed. The air voids element has remained essentially constant with a small amount of movement up and down each year. Improvements in the mat density element are indicated by an upward trend shown in this element. The quality levels for this element are very good with an overall average of 93.165.

Table 6. Recap of Yearly Data by Test Element, All Gradings

Percent Asphalt

Year	Proj.	Tons	Tests	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	St. Dev. - V
2000	10	638,915	644	91.565	1.01618	0.08	0.146	0.200	-0.054
2001	3	158,375	159	94.376	1.03610	0.04	0.150	0.200	-0.050
2002	20	817,311	861	89.665	1.00949	0.06	0.167	0.200	-0.033
2003	15	554,538	563	89.123	1.00428	0.08	0.163	0.200	-0.037

VMA

Year	Proj.	Tons	Tests	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	St. Dev. - V
2000	10	638,914	644	97.072	1.04344	0.27	0.406	0.600	-0.194
2001	3	158,375	159	98.510	1.05412	0.20	0.398	0.600	-0.202
2002	20	813,311	858	94.065	1.02340	0.28	0.498	0.600	-0.102
2003	15	559,516	568	91.683	1.01404	0.48	0.396	0.600	-0.204

Air Voids

Year	Proj.	Tons	Tests	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	St. Dev. - V
2000	10	617,914	623	89.931	1.00546	0.35	0.564	0.600	-0.036
2001	3	158,375	159	93.581	1.03033	0.34	0.514	0.600	-0.086
2002	20	813,311	844	88.303	0.99706	0.26	0.651	0.600	0.051
2003	15	558,551	567	90.878	1.01680	0.35	0.564	0.600	-0.036

Mat Density

Year	Proj.	Tons	Tests	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	St. Dev. - V
2000	10	609,582	1,232	92.145	1.01344	0.694	0.894	1.100	-0.206
2001	3	157,375	315	95.661	1.03911	0.417	0.812	1.100	-0.288
2002	20	747,606	1,513	93.171	1.02358	0.452	0.919	1.100	-0.181
2003	15	515,088	1,060	93.600	1.02606	0.468	0.900	1.100	-0.200

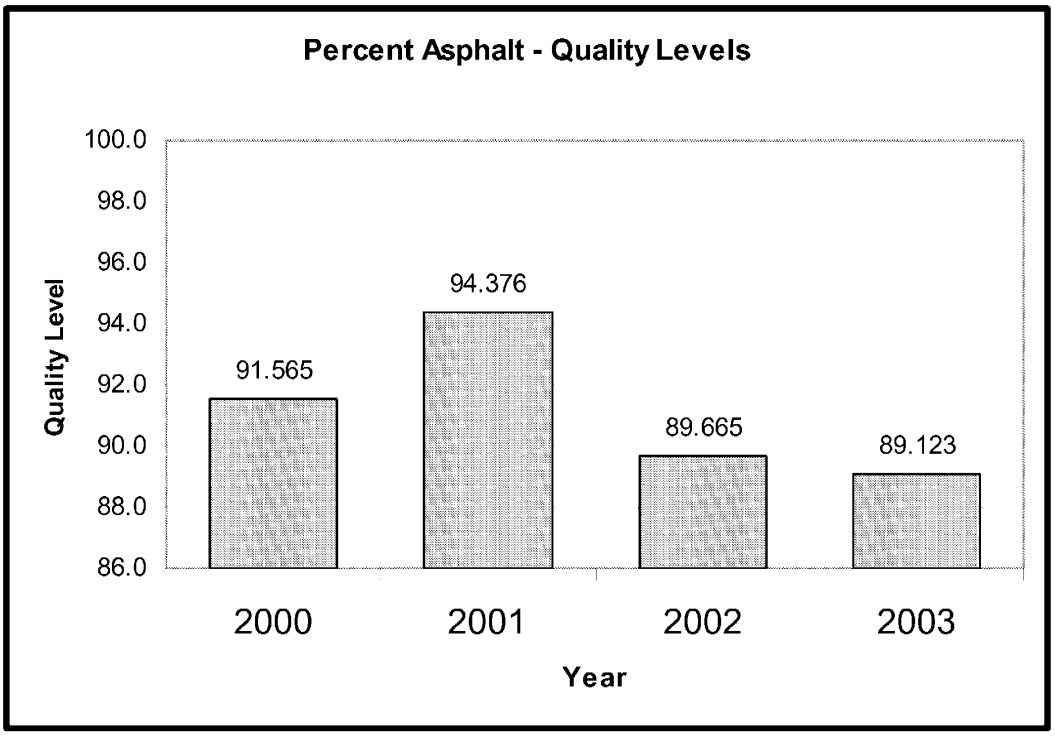

Figure 4. Percent Asphalt Quality Levels

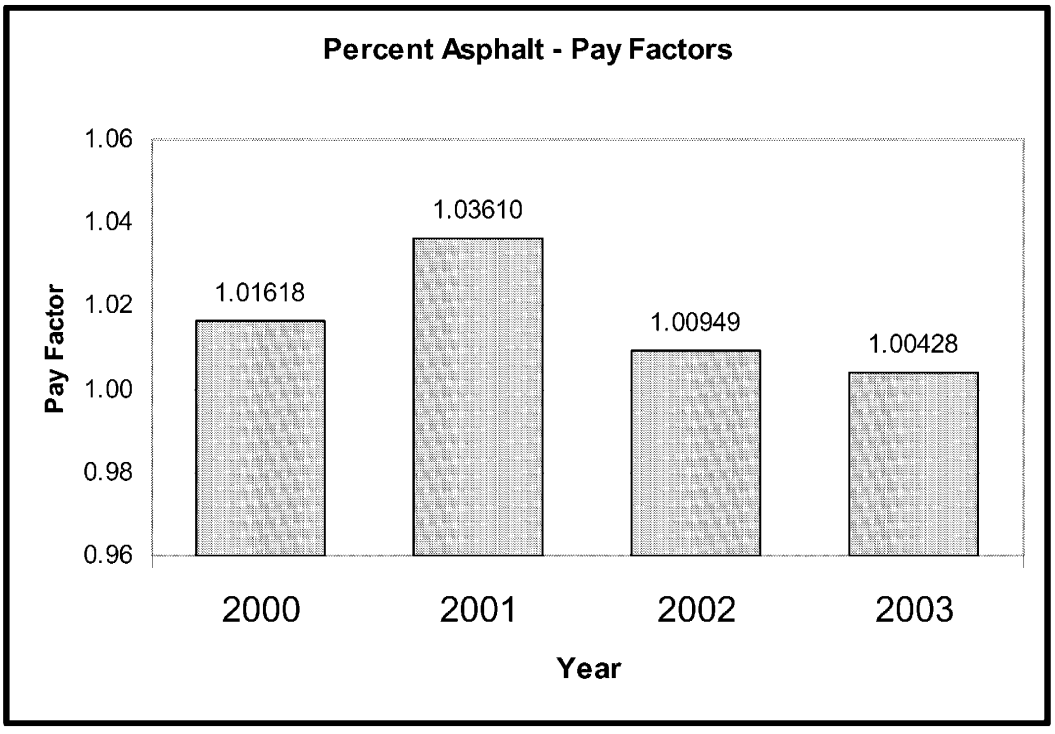

Figure 5. Percent Asphalt Pay Factors

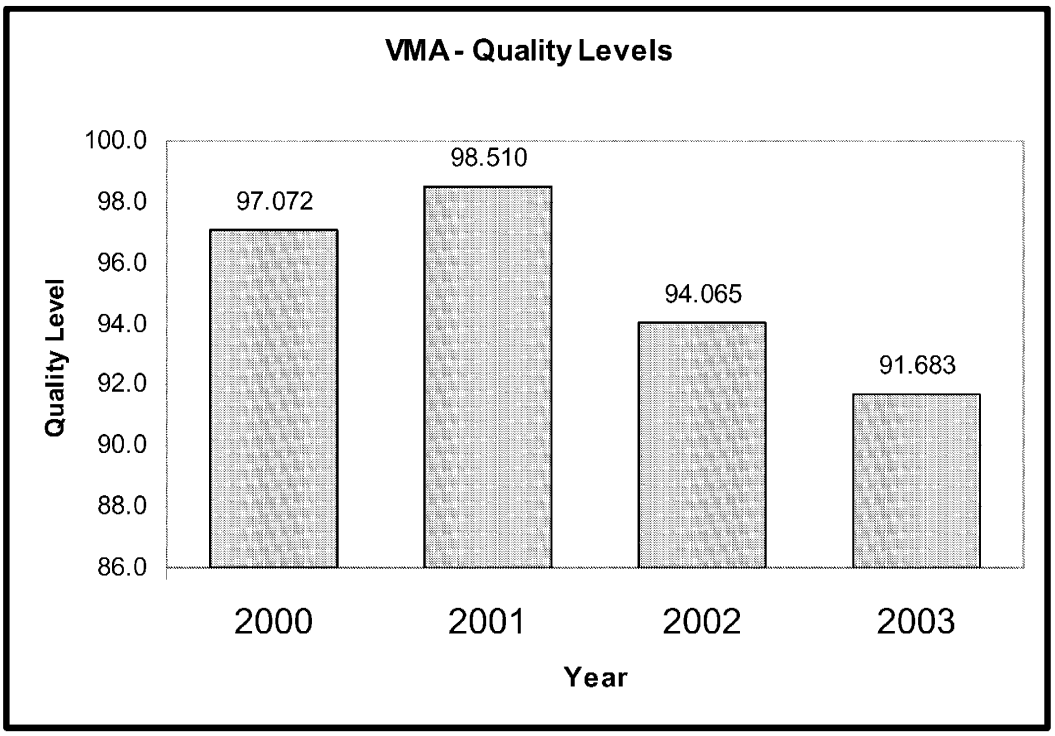

Figure 6. VMA Quality Levels

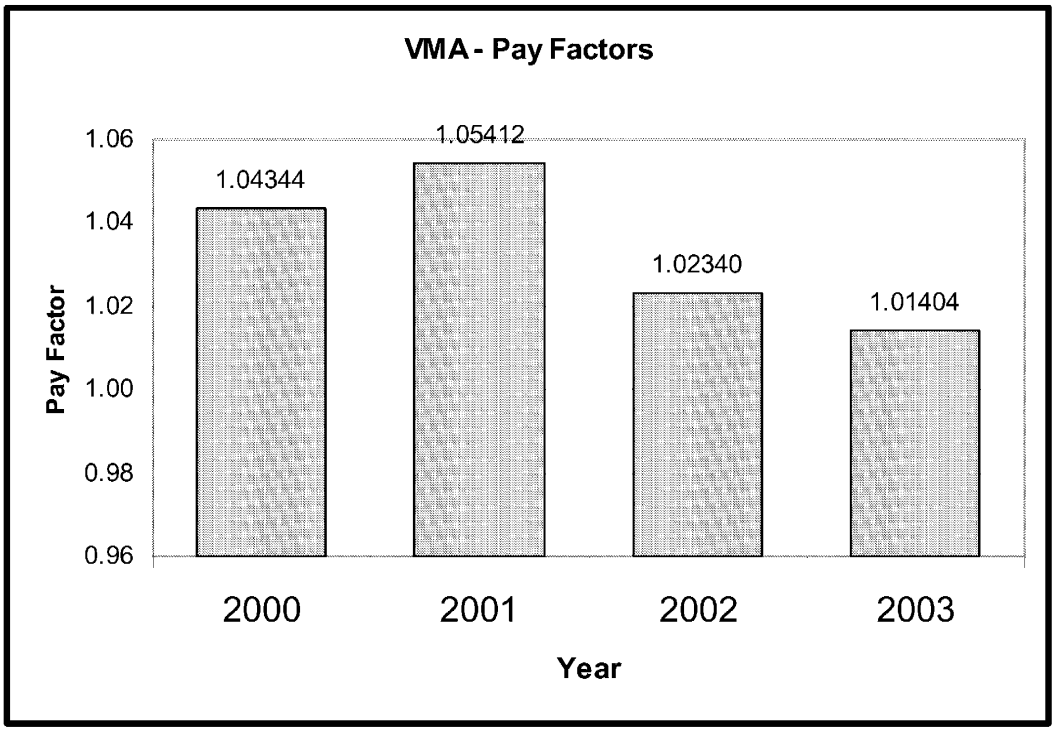

Figure 7. VMA Pay Factors

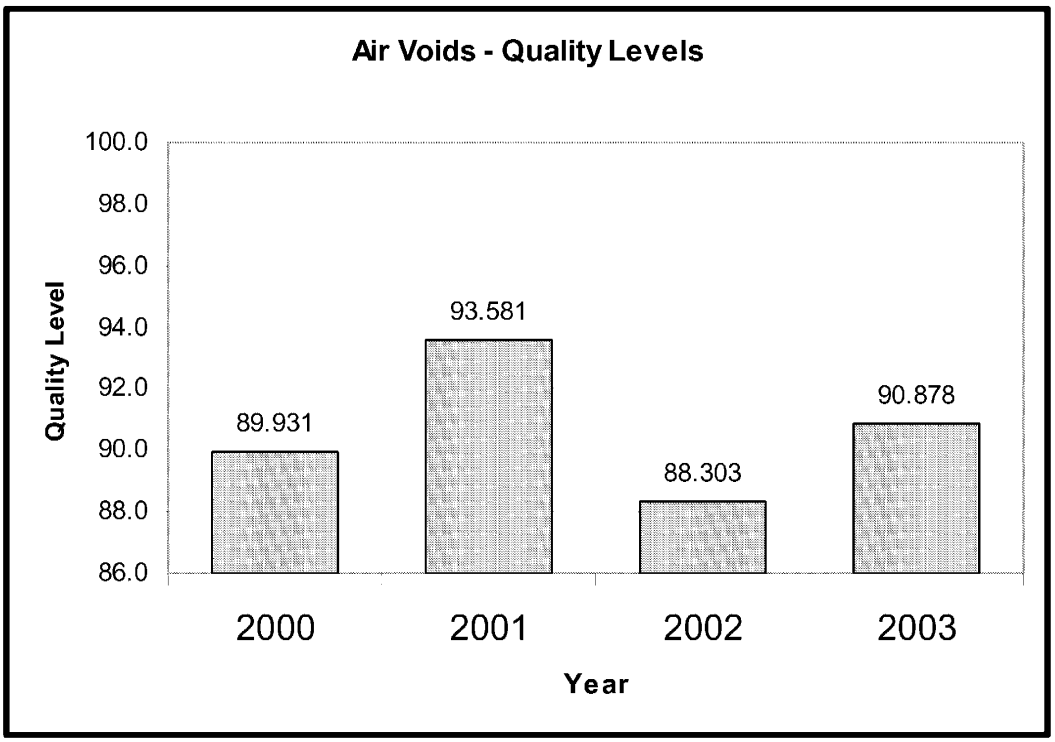

Figure 8. Air Voids Quality Levels

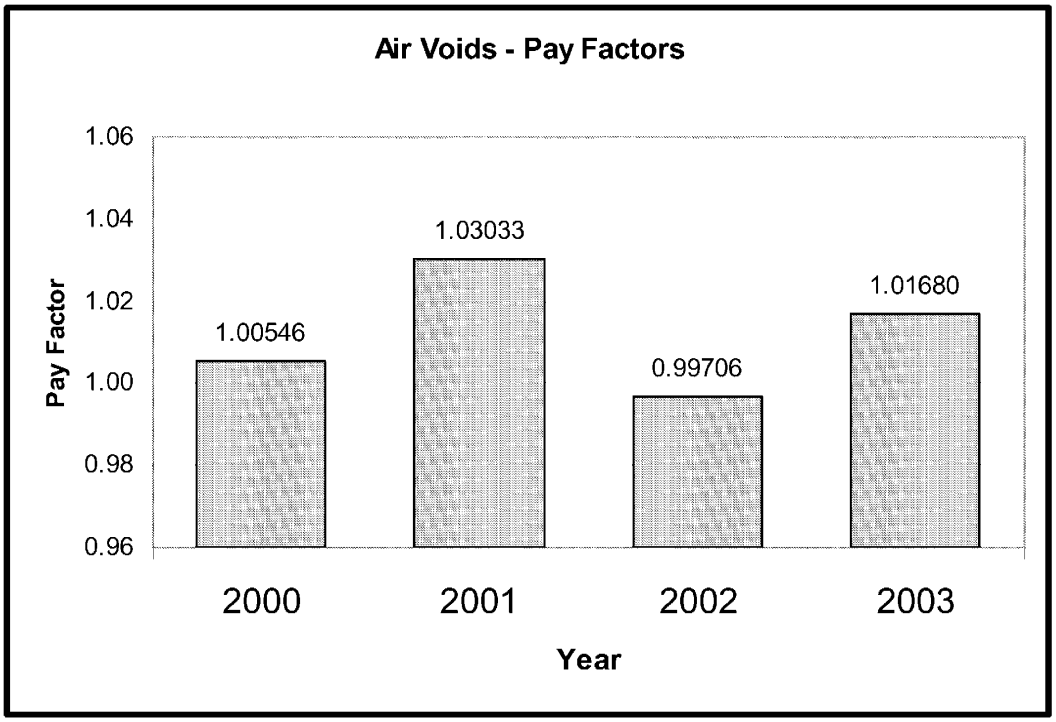

Figure 9. Air Voids Pay Factors

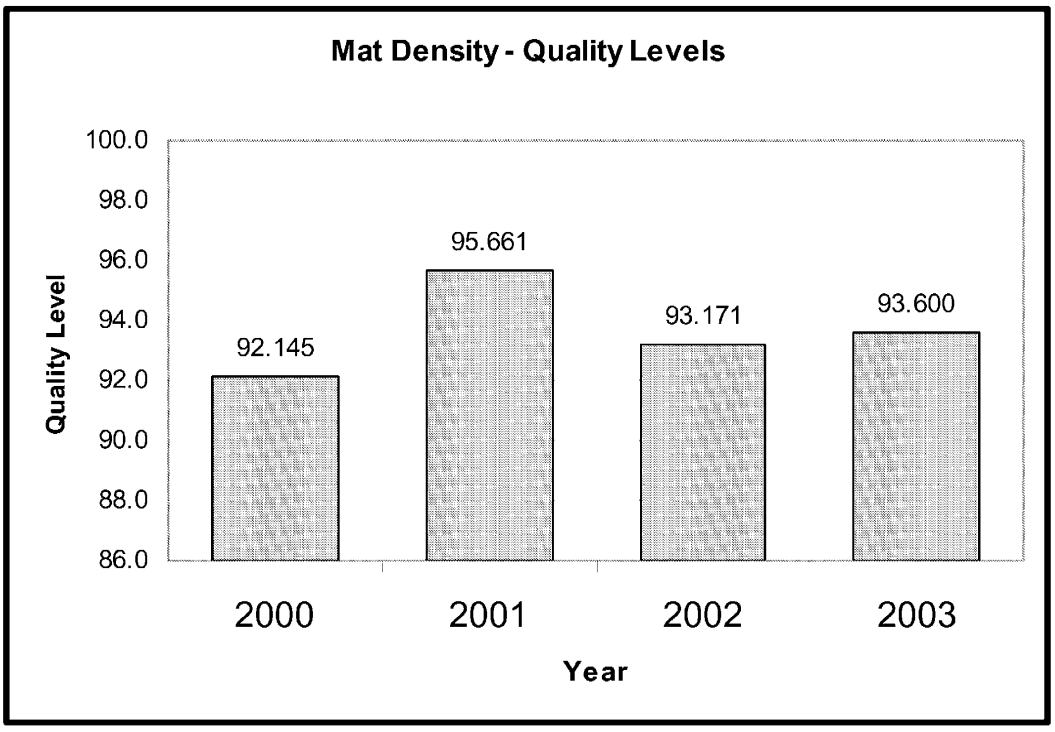

Figure 10. Mat Density Quality Levels

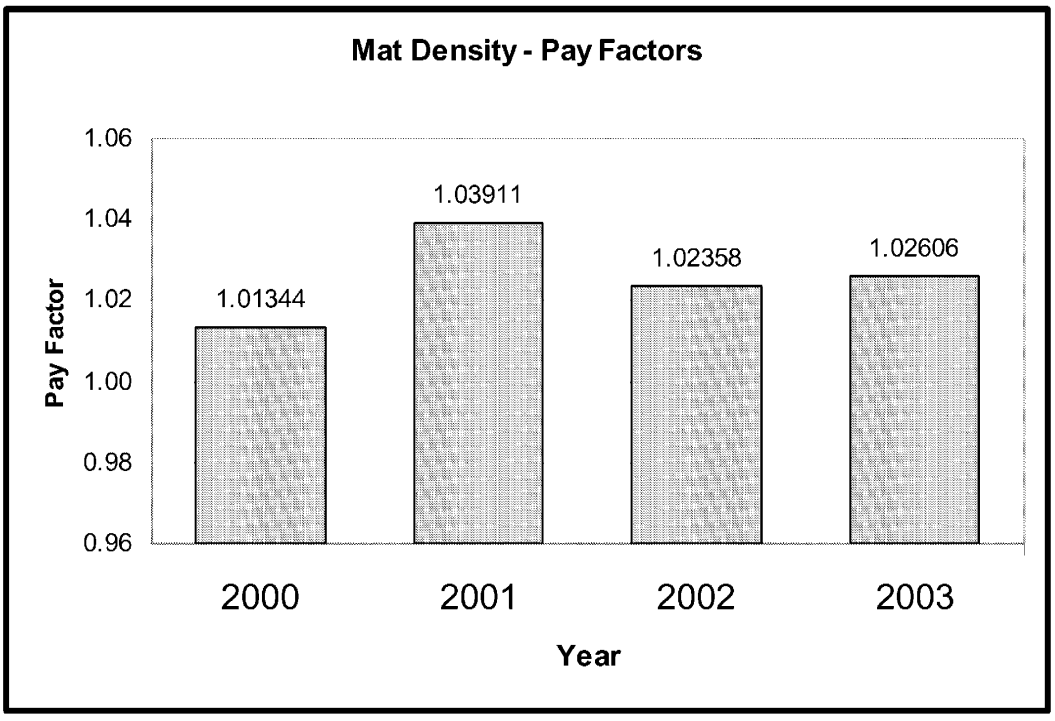

Figure 11. Mat Density Pay Factors

5.6 Comparison Between Test Element Quality Levels 2000 through 2003

The quality levels for each of the elements by year 2000 through 2003 are displayed in Figure 12. This figure shows the relationship of the quality levels between test elements. The results for VMA and Mat Density elements are consistently better than those of the other two elements. The VMA results are the highest in the first three years followed by the mat density element. In 2003 that order is reversed. The percent asphalt element has the third best results in the first three years and the fourth best in 2003. The air voids element has the worst results in the first three years and third best in 2003. Figure 13 shows the results for elements over the four-year period. The order of ranking from best to worst is: VMA, mat density, percent asphalt, and then air voids.

One of the factors that might influence the quality level results is the importance given to that test element in the specification, the weight assigned to the element. Table 1, "W" Factors for Various Elements displays the weights given to each of the elements.

Table 1. "W" Factors for Various Elements

	W Factor				
Specification	**Percent Asphalt**	**VMA**	**Air Voids**	**Mat Density**	**Joint Density**
10/4/01 & Older	10	10	40	40	
12/20/02 & Newer	10	10	30	35	15

A high importance is given to the mat density element and its W factor is equal to or better than the other elements. This element ranks second in reported quality levels. The air voids element has the second highest W factor but ranks lowest in quality levels. The VMA element with a weight of 10% ranks first in reported quality levels. The weight given the element and its quality level shows a relationship in the mat density and percent asphalt elements. This relationship is not shown in the results for the air voids and VMA elements. There is a significant difference between the quality levels reported in the test elements which is not related to the weight given the element.

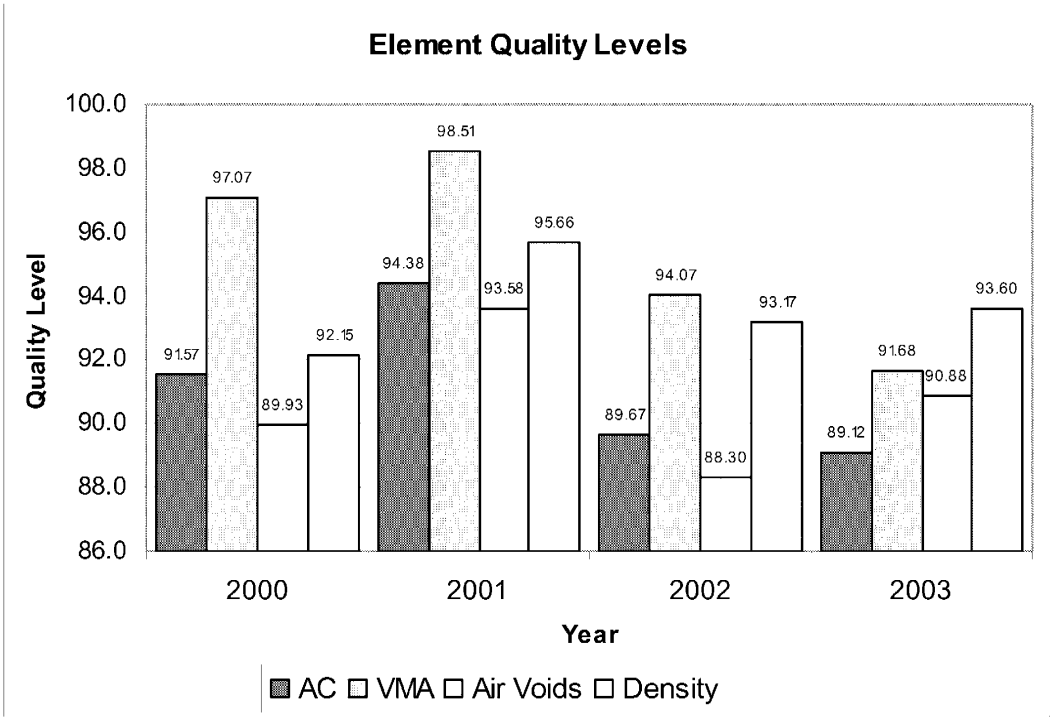

Figure 12. Quality Levels by Test Element

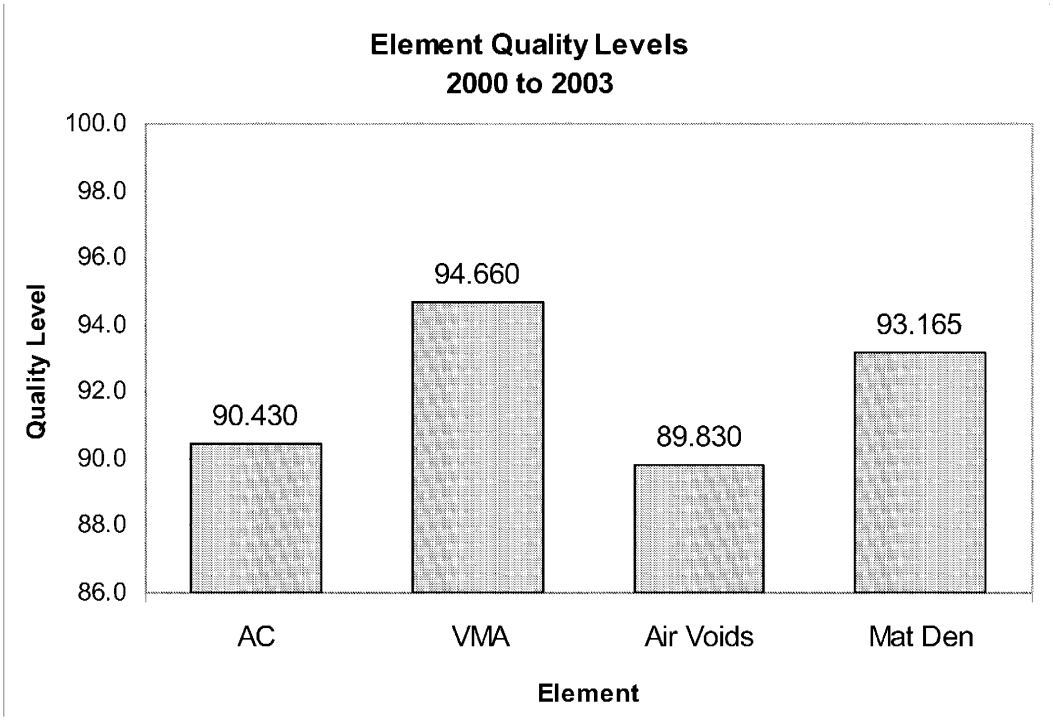

Figure 13. 2000 to 2003 Quality Levels by Test Element

5.7 Test Element Quality Levels For Gradings S & SX 2000 through 2003

The quality level information by year for each of the test elements is separated into gradings S and SX and presented in Table 5. Figures 14 to 17 graphically present the quality level information for each element. The results for grading SX are slightly below that of S but the differences in most cases is relatively small. Only seven projects have been completed which used grading SX. Four projects were completed in 2002. Only three were completed in 2003. The number of evaluated projects is too small for significant analysis. No conclusions on the difference between the two gradings should be made until more data is available.

Table 7. Review of Test Elements – Gradings S & SX

Percent Asphalt

Year	Grading	Processes	Tests	Tons	Quality Level	Pay Factor
2000	**S**	31	644	638,915	91.565	1.01618
2001	**S**	5	159	158,375	94.376	1.03610
2002	**S**	35	553	516,489	89.838	1.01441
	SX	10	308	300,822	89.369	1.00103
2003	**S**	20	444	435,853	90.942	1.01575
	SX	6	119	118,685	82.441	0.96218

VMA

Year	Grading	Processes	Tests	Tons	Quality Level	Pay Factor
2000	**S**	31	644	638,914	97.072	1.04344
2001	**S**	5	159	158,375	98.510	1.05412
2002	**S**	34	550	512,489	94.296	1.02513
	SX	10	308	300,822	93.672	1.02046
2003	**S**	20	448	439,831	95.841	1.04129
	SX	7	120	119,685	76.402	0.91389

Air Voids

Year	Grading	Processes	Tests	Tons	Quality Level	Pay Factor
2000	**S**	29	623	617,914	89.931	1.00546
2001	**S**	5	159	158,375	93.581	1.03033
2002	**S**	34	536	512,489	87.872	0.99643
	SX	10	308	300,822	89.036	0.99812
2003	**S**	20	447	438,866	93.321	1.03026
	SX	7	120	119,685	81.922	0.96742

Mat Density

Year	Grading	Processes	Tests	Tons	Quality Level	Pay Factor
2000	**S**	31	1,232	609,582	92.145	1.01344
2001	**S**	5	315	157,375	95.661	1.03911
2002	**S**	39	1,048	517,946	93.859	1.03064
	SX	8	465	229,660	91.619	1.00767
2003	**S**	20	849	411,331	93.782	1.02741
	SX	4	211	103,757	92.875	1.02070

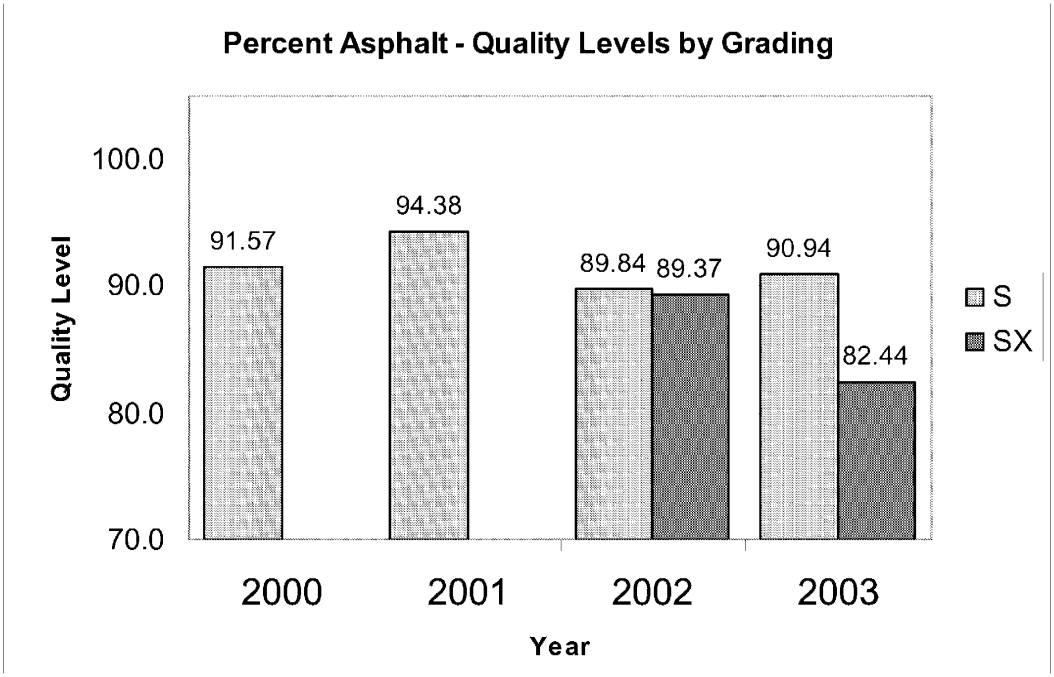

Figure 14. Percent Asphalt Quality Levels – Gradings S & SX

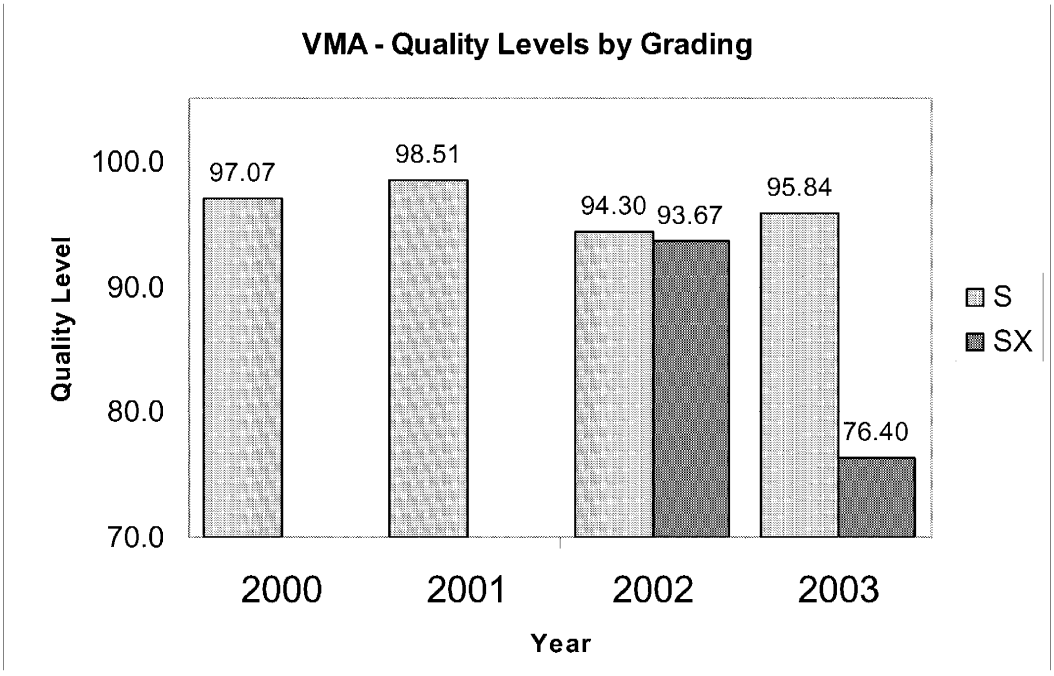

Figure 15. VMA Quality Levels – Gradings S & SX

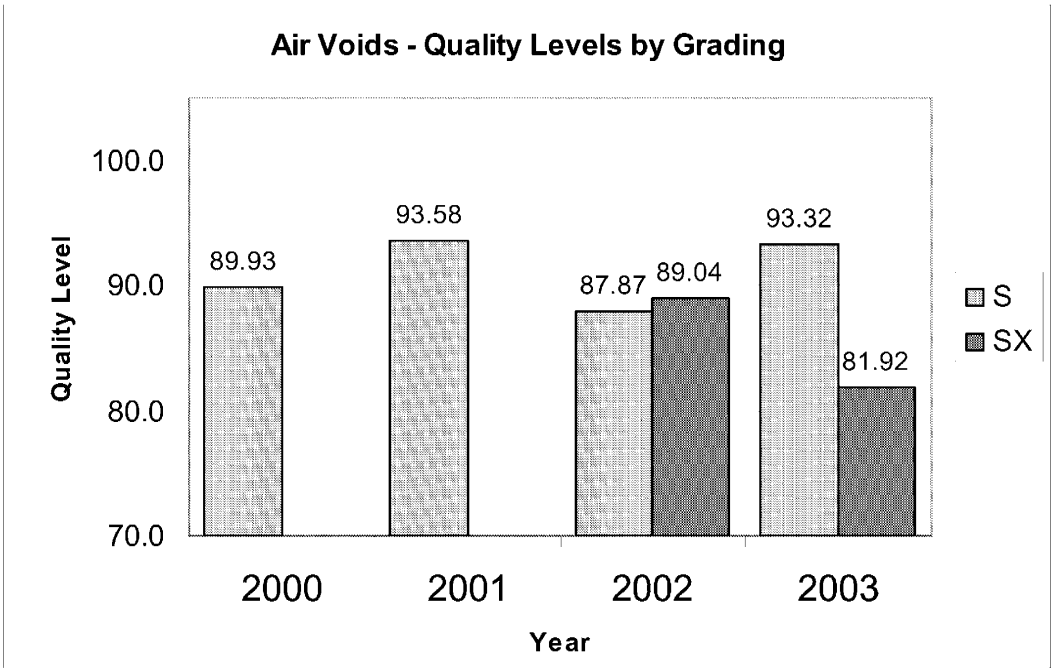

Figure 16. Air Voids Quality Levels – Gradings S & SX

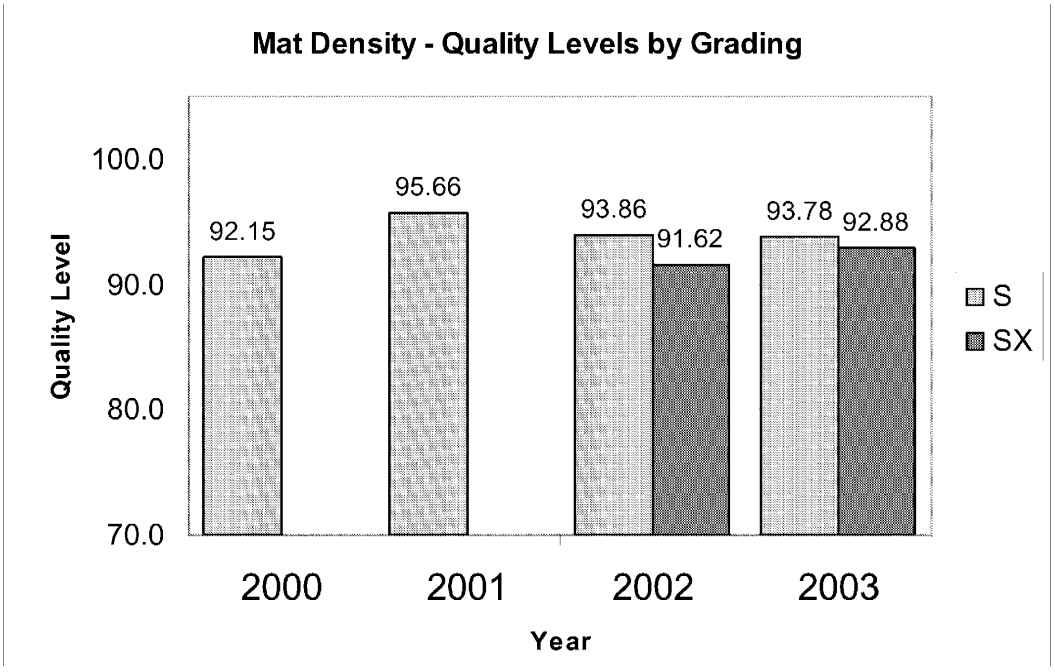

Figure 17. Mat Density Quality Levels – Gradings S & SX

5.8 Joint Density Test Information

Joint density testing was incorporated into the calculations for I/DP with the release of the Revision to Sections 105 and 106 dated December 20, 2002. Fourteen projects were evaluated that contained the joint density specification. The joint density testing was waived on one of these projects. The results for all of the projects are displayed in Table 8.

Table 8. Joint Density Test Information – Gradings S & SX

Joint Density

Grading	Projects	Processes	Tests	Tons	Quality Level	Pay Factor
S	10	16	211	386,132	85.509	0.98425
SX	3	3	56	102,289	93.654	1.02815
Totals	13	19	267	488,421	87.215	0.99344

The overall average pay factor for joint density is just slightly under the neutral amount of 1.0. Grading SX has higher quality levels as compared to grading S but only three projects were constructed using SX. At this early stage there does not seem to be any problems with the joint density test element or specification. The results represent the first projects that have been constructed in which joint density testing has been a requirement. The quality levels and pay factors are creditable for a new specification. As more projects are constructed with the specification it is expected that the results will increase.

5.9 Recap Reports, 2000 through 2003 Data

A series of recap reports for the information contained in this report 2000 through 2003 is presented in Appendix A. For each of the test elements, excluding joint density, a report is presented in which the data is grouped by grading and then by year. The region's results are given for each year. The weighted averages are calculations for: price, quality level, pay factor, mean to target value, standard deviation, and standard deviation minus the V factor. These reports help evaluate the data by individual region but for the most part the number of projects included in the data groupings is too small to make conclusive comparisons.

5.10 Yearly Reports 2000 though 2003

A series of detailed reports are presented in Appendices B, C, D, & E that cover the test information by year. These are detailed reports which contain all of the data and calculations not contained in previous reports. Specific information about each process can be found in these reports. Report number 5 details the project information by region and displays the total bid amount and the plan quantity. The Project Data report, report number 6, contains all of the test data for each project broken out by mix design and process number. This is a complete listing of the reported tests associated with the project. Calculations are displayed for: target value, mean, mean to target value, standard deviation, and standard deviation minus the V value. The Calculated Pay Factor Composite and Incentive/Disincentive Payment information is also detailed. This is the best report to review when concerned about any single project. The Calculated Pay Factor Composite and Incentive/Disincentive Payment information by region are presented in report 7. For each region the number of projects and tons of material are displayed. The maximum, minimum, and average values are given for both CPFC and I/DP. Reports 8 through 11 detail the asphalt content, VMA, air voids & mat density elements by year. These reports contain all of the process information that is included in the evaluations. Calculations are given for each process which show the target value, mean, mean to target value, standard deviation, and standard deviation minus the V value. The reports are grouped by grading and grading results are calculated which show the best, worst and weighted average values. At the end of the report the overall results are given for the year showing the best, worst, and weighted averages.

All of the joint density information is detailed in Report 12, Appendix F. All but one of the projects was constructed in 2003. All of the project data was combined in this report. Calculations are given for each process that show the target value, mean, mean to target value, standard deviation, and standard deviation minus the V value. The reports are grouped by grading and grading results are calculated which show the best, worst and weighted average values. At the end of the report the overall results are given showing the best, worst, and weighted averages.

6.0 SUMMARY

The specification and the projects are performing reasonably well. No major problem areas can be found in reviewing the project data. No definite trends can be seen in the data showing marked improvements or declines in quality. Most of the values reviewed are within a small range of numbers at acceptable levels. More projects received incentive payments as compared to disincentive payments. The average Calculated Pay Factor Composite over the four-year period is 1.00660. The year 2001 showed the best overall results with a CPFC of 1.04109 but only three projects were included in that evaluation. The worst results were in 2002 which showed a 1.2% average disincentive. The average quality levels in the VMA and mat density elements over the four-year period are at high levels, 94.66 and 93.17 respectively. The results in the asphalt content and air voids elements are approximately 90 percent. The yearly quality levels reported in the individual elements showed good results. The lowest reported value is 88.303 in the Air Voids element for 2002. This relates to an average pay factor just under the 1.0 value. All of the other pay factors are above the 1.0 mark showing that incentive payments have been paid. The mean to target value calculations show that the material is being produced close to the midpoint of the specification, calculated values approaching zero. Producing material close to the target value increases the likelihood that the material will be within specification limits. The standard deviations for the test results show that the material being produced is below the variation of the historical data, negative values in the standard deviation minus V value calculations. The difference in the quality levels between the test elements appeared high in the first two years. This difference has decreased in 2003 and now appears at reasonable intervals. Thirteen projects were reviewed that contained the joint density specification. The average pay factor for these projects was just under 1.0. This is a respectable level considering that these are the first projects constructed using the specification. It is expected that the results will increase as more projects are constructed using the specification.

7.0 UPDATES AND CONTACT

The QC database will be updated as additional project data is received. Project data that was received after the cut-off date was not able to be included in this report. If you have any questions concerning this report please contact Eric Chavez at 303 757-9308, Eric.Chavez@dot.state.co.us. If you find any errors in the project data please report them to Eric Chavez.

REFERENCES

1. Hot Bituminous Pavement Gradation Acceptance Review of QC/QA Data 2000 to 2002, (March 2004, Eric Chavez, Colorado Department of Transportation, 4201 East Arkansas Ave, Denver, CO 80222), Report No. CDOT-DTD-R-2004-04.

2. Standard Recommended Practice for *Acceptance Sampling Plans for Highway Construction*, AASHTO Designation: R9-97 (2000)

Appendix A

Recap Reports for Project Data 2000 through 2003

Asphalt Content - Recap by Grading/Year/Region, VA

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2003.

Processes with less than 3 tests not included.

Grading: S

					Weighted Average						
		Processes	Tons	Tests	Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
2000											
	Region: 1	2	12,317	16	$49.20	85.903	1.01275	0.16	0.129	0.200	-0.071
	Region: 2	8	282,442	283	$28.14	93.610	1.02287	0.06	0.144	0.200	-0.056
	Region: 4	20	324,315	325	$41.61	90.684	1.01407	0.09	0.143	0.200	-0.057
	Region: 6	1	19,841	20	$46.00	80.347	0.95762	0.08	0.220	0.200	0.020
Totals 2000		31	638,915	644	$35.94	91.565	1.01618	0.08	0.146	0.200	-0.054
2001											
	Region: 2	4	104,496	105	$30.74	92.539	1.02636	0.05	0.160	0.200	-0.040
	Region: 6	1	53,879	54	$37.50	97.940	1.05500	0.01	0.131	0.200	-0.069
Totals 2001		5	158,375	159	$33.04	94.376	1.03610	0.04	0.150	0.200	-0.050
2002											
	Region: 1	4	16,978	24	$36.39	76.824	0.97074	0.10	0.211	0.200	0.011
	Region: 2	11	165,298	192	$33.80	90.552	1.01972	0.10	0.155	0.200	-0.045
	Region: 4	7	154,411	156	$36.40	90.461	1.01519	0.06	0.165	0.200	-0.035
	Region: 6	13	179,802	181	$38.86	89.875	1.01298	0.07	0.160	0.200	-0.040
Totals 2002		35	516,489	553	$36.42	89.838	1.01441	0.08	0.162	0.200	-0.038
2003											
	Region: 2	11	301,983	306	$31.56	90.174	1.00928	0.09	0.155	0.200	-0.045
	Region: 6	9	133,870	138	$36.77	92.674	1.03035	0.08	0.144	0.200	-0.056
Totals 2003		20	435,853	444	$33.16	90.942	1.01575	0.09	0.152	0.200	-0.048

Totals Grading: S

				Weighted Average						
Processes	Tons	Tests	Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
91	1,749,632	1800	$35.13	91.154	1.01735	0.08	0.152	0.200	-0.048

Grading: SX

	Processes	Tons	Tests	Weighted Average Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
2002										
Region: 1	2	71,404	73	$33.86	97.826	1.05314	0.04	0.124	0.200	-0.076
Region: 3	6	109,123	111	$32.23	86.380	0.99652	0.06	0.190	0.200	-0.010
Region: 5	1	113,295	117	$31.30	87.504	0.97305	0.02	0.195	0.200	-0.005
Region: 6	1	7,000	7	$42.75	79.880	0.99276	0.11	0.214	0.200	0.014
Totals 2002	10	300,822	308	$32.51	89.369	1.00103	0.04	0.177	0.200	-0.023
2003										
Region: 2	3	40,000	40	$32.52	77.711	0.92887	0.11	0.195	0.200	-0.005
Region: 3	3	78,685	79	$35.92	84.846	0.97912	0.03	0.208	0.200	0.008
Totals 2003	6	118,685	119	$34.77	82.441	0.96218	0.05	0.204	0.200	0.004

Totals Grading: SX

Processes	Tons	Tests	Weighted Average Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
16	419,507	427	$33.15	87.409	0.99004	0.05	0.184	0.200	-0.016

Asphalt Content - Totals 1/1/2000 to 12/31/2003.

Processes	Tons	Tests	Weighted Average Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
107	2,169,139	2,227	$34.75	90.430	1.01207	0.07	0.158	0.200	-0.042

VMA - Recap by Grading/Year/Region

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2003.

Processes with less than 3 tests not included.

Grading: S

					Weighted Average:						
		Processes	Tons	Tests	Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
2000											
	Region: 1	2	12,317	16	$49.20	100.000	1.04260	0.07	0.318	0.600	-0.282
	Region: 2	8	282,442	283	$28.14	96.663	1.04642	0.35	0.448	0.600	-0.152
	Region: 4	19	324,314	325	$41.61	98.265	1.04586	0.19	0.357	0.600	-0.243
	Region: 6	2	19,841	20	$46.00	81.561	0.96184	0.51	0.669	0.600	0.069
Totals	*2000*	31	638,914	644	$35.94	97.072	1.04344	0.27	0.406	0.600	-0.194
2001											
	Region: 2	4	104,496	105	$30.74	99.151	1.05366	0.19	0.339	0.600	-0.261
	Region: 6	1	53,879	54	$37.50	97.266	1.05500	0.21	0.514	0.600	-0.086
Totals	*2001*	5	158,375	159	$33.04	98.510	1.05412	0.20	0.398	0.600	-0.202
2002											
	Region: 1	4	16,978	24	$36.39	98.666	1.03911	0.13	0.556	0.600	-0.044
	Region: 2	11	161,298	189	$33.93	86.628	0.97825	0.32	0.646	0.600	0.046
	Region: 4	7	154,411	156	$36.40	99.850	1.05231	0.16	0.320	0.600	-0.280
	Region: 6	12	179,802	181	$38.86	95.993	1.04252	0.26	0.503	0.600	-0.097
Totals	*2002*	34	512,489	550	$36.49	94.296	1.02513	0.25	0.495	0.600	-0.105
2003											
	Region: 2	11	303,983	308	$31.56	95.497	1.03864	0.44	0.354	0.600	-0.246
	Region: 6	9	135,848	140	$36.79	96.611	1.04721	0.32	0.477	0.600	-0.123
Totals	*2003*	20	439,831	448	$33.18	95.841	1.04129	0.40	0.392	0.600	-0.208

Totals Grading: S

				Weighted Average:						
Processes	Tons	Tests	Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
90	1,749,609	1,801	$35.14	96.079	1.03850	0.29	0.428	0.600	-0.172

Grading: SX

	Processes	Tons	Tests	Weighted Average: Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
2002										
Region: 1	2	71,404	73	$33.86	99.734	1.05500	0.31	0.334	0.600	-0.266
Region: 3	6	109,123	111	$32.23	92.505	1.01961	0.39	0.481	0.600	-0.119
Region: 5	1	113,295	117	$31.30	90.584	0.99861	0.32	0.646	0.600	0.046
Region: 6	1	7,000	7	$42.75	100.000	1.03500	0.33	0.340	0.600	-0.260
Totals 2002	10	300,822	308	$32.51	93.672	1.02046	0.34	0.505	0.600	-0.095
2003										
Region: 2	3	41,000	41	$32.53	58.976	0.79556	1.12	0.268	0.600	-0.332
Region: 3	4	78,685	79	$35.92	85.482	0.97555	0.56	0.487	0.600	-0.113
Totals 2003	7	119,685	120	$34.76	76.402	0.91389	0.75	0.412	0.600	-0.188

Totals Grading: SX

Processes	Tons	Tests	Weighted Average: Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
17	420,507	428	$33.15	88.756	0.99013	0.46	0.479	0.600	-0.121

VMA - Totals 1/1/2000 to 12/31/2003.

Processes	Tons	Tests	Weighted Average: Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
107	2,170,116	2,229	$34.76	94.660	1.02913	0.32	0.438	0.600	-0.162

Air Voids - Recap by Grading/Year/Region

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2003.

Processes with less than 3 tests not included.

Grading: S

				Weighted Average:						
	Process	Tons	Tests	Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
2000										
Region: 1	2	12,317	16	$49.20	98.668	1.04260	0.39	0.416	0.600	-0.184
Region: 2	7	261,442	262	$28.31	88.022	0.98700	0.33	0.627	0.600	0.027
Region: 4	19	324,314	325	$41.61	90.750	1.01620	0.37	0.523	0.600	-0.077
Region: 6	1	19,841	20	$46.00	96.268	1.05000	0.31	0.513	0.600	-0.087
Totals: 2000	29	617,914	623	$36.28	89.931	1.00546	0.35	0.564	0.600	-0.036
2001										
Region: 2	4	104,496	105	$30.74	93.538	1.03061	0.27	0.531	0.600	-0.069
Region: 6	1	53,879	54	$37.50	93.666	1.02977	0.47	0.482	0.600	-0.118
Totals: 2001	5	158,375	159	$33.04	93.581	1.03033	0.34	0.514	0.600	-0.086
2002										
Region: 1	4	16,978	24	$36.39	77.461	0.96446	0.32	0.893	0.600	0.293
Region: 2	11	161,298	175	$33.91	79.050	0.93359	0.41	0.734	0.600	0.134
Region: 4	7	154,411	156	$36.40	95.054	1.03362	0.19	0.553	0.600	-0.047
Region: 6	12	179,802	181	$38.86	90.601	1.02388	0.27	0.631	0.600	0.031
Totals: 2002	34	512,489	536	$36.48	87.872	0.99643	0.29	0.649	0.600	0.049
2003										
Region: 2	11	303,983	308	$31.56	93.181	1.02815	0.28	0.533	0.600	-0.067
Region: 6	9	134,883	139	$36.78	93.637	1.03502	0.33	0.543	0.600	-0.057
Totals: 2003	20	438,866	447	$33.17	93.321	1.03026	0.30	0.536	0.600	-0.064

Totals Grading: S

			Weighted Average:						
Process	Tons	Tests	Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
88	1,727,644	1765	$35.25	90.516	1.01136	0.32	0.578	0.600	-0.022

Grading: SX

	Process	Tons	Tests	Weighted Average: Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
2002										
Region: 1	2	71,404	73	$33.86	98.602	1.05500	0.20	0.423	0.600	-0.177
Region: 3	6	109,123	111	$32.23	83.014	0.97334	0.45	0.689	0.600	0.089
Region: 5	1	113,295	117	$31.30	88.851	0.98425	0.01	0.757	0.600	0.157
Region: 6	1	7,000	7	$42.75	88.339	1.02885	0.03	0.818	0.600	0.218
Totals: 2002	10	300,822	308	$32.51	89.036	0.99812	0.22	0.655	0.600	0.055
2003										
Region: 2	3	41,000	41	$32.53	80.616	0.96658	0.87	0.441	0.600	-0.159
Region: 3	4	78,685	79	$35.92	82.602	0.96786	0.38	0.786	0.600	0.186
Totals: 2003	7	119,685	120	$34.76	81.922	0.96742	0.55	0.668	0.600	0.068

Totals Grading: SX

Process	Tons	Tests	Weighted Average: Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
17	420,507	428	$33.15	87.011	0.98939	0.31	0.658	0.600	0.058

Air Voids - Totals 1/1/2000 to 12/31/2003.

Process	Tons	Tests	Weighted Average: Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
105	2,148,151	2,193	$34.84	89.830	1.00706	0.32	0.593	0.600	-0.007

Mat Density - Recap by Grading/Year/Region, VA

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2003.

Processes with less than 3 tests not included.

Compaction Test Sections not included.

Grading: S

					Weighted Average:					
	Process	Tons	Tests	Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
2000										
Region: 1	2	12,317	31	$49.20	94.174	1.04331	0.458	0.989	1.100	-0.111
Region: 2	8	281,442	565	$28.13	91.476	1.00083	0.695	0.917	1.100	-0.183
Region: 4	19	295,982	596	$42.09	92.412	1.02161	0.724	0.868	1.100	-0.232
Region: 6	2	19,841	40	$46.00	96.410	1.05194	0.386	0.892	1.100	-0.208
Totals 2000	31	609,582	1,232	$35.92	92.145	1.01344	0.694	0.894	1.100	-0.206
2001										
Region: 2	4	103,496	207	$30.74	93.956	1.02823	0.550	0.830	1.100	-0.270
Region: 6	1	53,879	108	$37.50	98.934	1.06000	0.160	0.777	1.100	-0.323
Totals 2001	5	157,375	315	$33.06	95.661	1.03911	0.417	0.812	1.100	-0.288
2002										
Region: 1	4	16,978	41	$36.39	92.332	1.03273	0.530	0.856	1.100	-0.244
Region: 2	12	163,762	331	$33.49	94.888	1.03650	0.524	0.820	1.100	-0.280
Region: 4	9	154,411	318	$36.40	91.721	1.01304	0.572	0.921	1.100	-0.179
Region: 6	14	182,795	358	$38.95	94.884	1.04006	0.442	0.809	1.100	-0.291
Totals 2002	39	517,946	1,048	$36.38	93.859	1.03064	0.509	0.847	1.100	-0.253
2003										
Region: 2	11	275,983	557	$31.81	92.819	1.02173	0.569	0.897	1.100	-0.203
Region: 6	9	135,348	292	$36.81	95.746	1.03899	0.235	0.838	1.100	-0.262
Totals 2003	20	411,331	849	$33.45	93.782	1.02741	0.459	0.878	1.100	-0.222

Totals - Grading: S

				Weighted Average:					
Process	Tons	Tests	Price	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
95	1,696,234	3,444	$35.20	93.392	1.02446	0.555	0.868	1.100	-0.232

Grading: SX

	Process	Tons	Tests	Price	Weighted Average: Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
2002										
Region: 1	1	37,338	76	$36.05	95.177	1.03804	0.317	0.972	1.100	-0.128
Region: 3	4	76,715	151	$32.14	88.584	0.99363	0.435	1.177	1.100	0.077
Region: 5	1	107,489	221	$31.30	92.700	1.00664	0.149	1.108	1.100	0.008
Region: 6	2	8,118	17	$42.75	89.610	1.01415	1.552	0.313	1.100	-0.787
Totals 2002	8	229,660	465	$32.76	91.619	1.00767	0.322	1.081	1.100	-0.019
2003										
Region: 2	1	27,000	54	$32.41	95.771	1.04500	0.585	0.825	1.100	-0.275
Region: 3	3	76,757	157	$35.93	91.857	1.01215	0.479	1.044	1.100	-0.056
Totals 2003	4	103,757	211	$35.01	92.875	1.02070	0.507	0.987	1.100	-0.113

Totals - Grading: SX

Process	Tons	Tests	Price	Weighted Average: Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
12	333,417	676	$33.46	92.010	1.01172	0.379	1.052	1.100	-0.048

Mat Density - Totals 1/1/2000 to 12/31/20

Process	Tons	Tests	Price	Weighted Average: Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
107	2,029,651	4,120	$34.91	93.165	1.02237	0.526	0.898	1.100	-0.202

Appendix B

Reports for 2000 Projects

Project Listing by Region/Subaccount - Voids Acceptance

Projects with Bid Dates from 1/1/2000 to 12/31/2000.

Region: **1**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
12312	STA 1192-008	Black Hawk - North	45	02/24/00	$2,713,984.00	12,307

Number of Projects 1 *Total Quantity* 12,307

Region: **2**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
12599	NH 1603-014	SH 10 & 160, Walsenburg	20	01/06/00	$2,959,600.17	69,398
12685	NH 0505-033	US 50 West of Granada	32	12/07/00	$2,397,947.45	69,821
13051	NH 050A-005	W. McCulloch to Baltimore	32	01/13/00	$2,815,677.70	49,323
13440	NH 0242-033	Hwy 24 Manitou	49	12/07/00	$4,231,645.82	107,295

Number of Projects 4 *Total Quantity* 295,837

Region: **4**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
11990	STA 0362-019	Jct SH 71 East	14	11/16/00	$5,330,589.10	99,098
12401	STA C030-02	SH 52 & 85 Weld Co. FY 01	14	11/09/00	$6,048,484.40	101,694
12402	STR 0343-01	SH 34	14	01/06/00	$3,693,844.43	65,592
13009	NH 0343-020	Brush to Akron	14	05/18/00	$8,022,767.29	69,629

Number of Projects 4 *Total Quantity* 336,013

Region: **6**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
12282	IM 0252-318	I-25, US 6 N of 15 St	10	02/10/00	$2,489,911.80	19,661

Number of Projects 1 *Total Quantity* 19,661

Totals: Projects with Bid Dates from 1/1/2000 to 12/31/2000.

Number of Projects 10 *Total Plan Quantity* 663,818

Project Data, Voids Acceptance

Projects with Bid Dates from 1/1/2000 to 12/31/2000.

Subaccount: 11990 ***STA 0362-019*** ***Jct SH 71 East*** ***Region: 4*** ***Supplier: 14***

Mix Design No 102396a ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $42.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	43	42,387	88.138	0.99290	($1,264.58)	5.000	4.892	0.108	0.160	0.200	-0.040
Density	85	42,387	99.335	1.06000	$42,726.10	94.000	93.221	0.779	0.501	1.100	-0.599
VMA	43	42,387	99.995	1.05500	$9,791.40	13.500	13.491	0.009	0.325	0.600	-0.275
Air Voids	43	42,387	96.099	1.04864	$34,633.27	3.500	3.363	0.137	0.576	0.600	-0.024
				I/DP:	$85,886.19						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 121418B ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	40	40,000	93.767	1.03334	$5,067.50	5.200	5.195	0.005	0.163	0.200	-0.037
Density	53	26,500	97.379	1.05500	$22,154.00	94.000	93.511	0.489	0.787	1.100	-0.313
VMA	40	40,000	99.898	1.05500	$8,360.00	14.300	14.107	0.193	0.345	0.600	-0.255
Air Voids	40	40,000	94.678	1.03949	$24,012.53	4.000	3.692	0.308	0.552	0.600	-0.048
				I/DP:	$59,594.03						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	13,000
2V Adj.	$0.00

Mix Design No 121418B ***Process No*** 2 ***Grading*** S () PG ***Price Per Ton*** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	15	14,105	80.204	0.96726	($1,755.00)	5.200	5.344	0.144	0.180	0.200	-0.020
Density	30	14,605	98.884	1.05500	$12,209.78	94.000	93.517	0.483	0.689	1.100	-0.411
VMA	15	14,105	95.280	1.04750	$2,546.13	14.300	13.747	0.553	0.400	0.600	-0.200
Air Voids	15	14,105	60.243	0.81847	($38,919.95)	4.000	2.973	1.027	0.654	0.600	0.054
				I/DP:	($25,919.04)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Totals: 11990

	Tests	Tons	I/DP	
AC	98	96,492	$2,047.92	CTS I/DP
Density	168	96,492	$77,089.88	$0.00
VMA	98	96,492	$20,697.53	2V Adj
Air Voids	98	96,492	$19,725.85	$0.00
Joint Density				
Plan Quant	99,098		Project I/DP $119,561.18	CPFC 1.03117

Comments:

Subaccount: 12282 *IM 0252-318* *I-25, US 6 N of 15 St* *Region: 6* *Supplier: 10*

Mix Design No 1058511 *Process No* 1 *Grading* S () PG *Price Per Ton* $46.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	20	19,841	80.347	0.95762	($3,867.89)	5.100	5.019	0.081	0.220	0.200	0.020	CTS Tons	0
Density	10	5,000	93.748	1.04284	$3,941.12	94.000	93.350	0.650	0.916	1.100	-0.184	I/DP	$0.00
VMA	17	17,000	78.479	0.95129	($3,808.85)	15.400	15.988	0.588	0.755	0.600	0.155	PF 1.0	
Air Voids	20	19,841	96.268	1.05000	$18,253.72	4.100	3.789	0.311	0.513	0.600	-0.087	Tons	0
				I/DP:	$14,518.10							2V Adj.	$0.00

Mix Design No 1058511 *Process No* 2 *Grading* S () PG *Price Per Ton* $46.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC					$0.00					0.200		CTS Tons	0
Density	30	14,841	97.307	1.05500	$15,019.09	94.000	93.703	0.297	0.884	1.100	-0.216	I/DP	$0.00
VMA					$0.00					0.600		PF 1.0	
Air Voids					$0.00					0.600		Tons	0
				I/DP:	$15,019.09							2V Adj.	$0.00

Mix Design No 1058512 *Process No* 1 *Grading* S () PG *Price Per Ton* $46.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC					$0.00					0.200		CTS Tons	0
Density		0			$0.00	94.000				1.100		I/DP	$0.00
VMA	3	2,841	100.000	1.02500	$326.71	16.500	16.467	0.033	0.153	0.600	-0.447	PF 1.0	
Air Voids					$0.00					0.600		Tons	0
				I/DP:	$326.71							2V Adj.	$0.00

Totals: 12282

	Tests	Tons	I/DP			
AC	20	19,841	($3,867.89)	CTS I/DP		
Density	40	19,841	$18,960.21	$0.00		
VMA	20	19,841	($3,482.14)	2V Adj		
Air Voids	20	19,841	$18,253.72	$0.00		
Joint Density						
Plan Quant		19,661	Project I/DP	$29,863.90	CPFC	1.03272

Comments:

Subaccount: 12312 *STA 1192-008* *Black Hawk - North* *Region: 1* *Supplier: 45*

Mix Design No 97313A *Process No* 1 *Grading* S () PG *Price Per Ton* $53.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	6	2,951	86.390	1.02445	$382.41	5.300	5.213	0.087	0.194	0.200	-0.006	CTS Tons	0
Density	12	2,951	91.722	1.03363	$2,103.77	94.000	93.592	0.408	1.130	1.100	0.030	I/DP	$0.00
VMA	6	2,951	100.000	1.03500	$547.41	16.600	16.533	0.067	0.367	0.600	-0.233	PF 1.0	
Air Voids	6	2,951	96.853	1.03500	$2,189.64	4.000	4.348	0.348	0.530	0.600	-0.070	Tons	0
				I/DP:	$5,223.23							2V Adj.	$0.00

Mix Design No 97313B *Process No* 1 *Grading* S () PG *Price Per Ton* $48.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	10	9,366	85.749	1.00906	$407.34	5.400	5.585	0.185	0.108	0.200	-0.092	CTS Tons	0
Density	19	9,366	94.946	1.04636	$8,336.23	94.000	93.526	0.474	0.944	1.100	-0.156	I/DP	$0.00
VMA	10	9,366	100.000	1.04500	$2,023.06	16.500	16.570	0.070	0.302	0.600	-0.298	PF 1.0	
Air Voids	10	9,366	99.240	1.04500	$8,092.22	4.000	3.596	0.404	0.380	0.600	-0.220	Tons	0
				I/DP:	$18,858.85							2V Adj.	$0.00

Totals: 12312

	Tests	Tons	I/DP			
AC	16	12,317	$789.75	CTS I/DP		
Density	31	12,317	$10,440.00	$0.00		
VMA	16	12,317	$2,570.47	2V Adj		
Air Voids	16	12,317	$10,281.86	$0.00		
Joint Density						
Plan Quant		12,307	Project I/DP	$24,082.08	CPFC	1.03974

Comments:

Subaccount: 12401 *STA C030-020* *SH 52 & 85 Weld Co. FY 01* *Region: 4* *Supplier: 14*

Mix Design No **109888** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	6	6,000	91.324	1.03500	$798.00	5.200	5.100	0.100	0.154	0.200	-0.046
Density	12	6,000	99.759	1.04500	$4,104.00	94.000	91.192	2.808	0.757	1.100	-0.343
VMA	6	6,000	100.000	1.03500	$798.00	14.000	14.050	0.050	0.176	0.600	-0.424
Air Voids	6	6,000	44.770	0.75557	($22,291.59)	4.100	2.817	1.283	0.585	0.600	-0.015
				I/DP:	($16,591.59)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **109889** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $28.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	17	16,890	93.540	1.03928	$1,857.45	5.000	5.050	0.050	0.161	0.200	-0.039
Density	17	8,242	94.163	1.04237	$3,910.89	94.000	93.265	0.735	0.825	1.100	-0.275
VMA	17	16,890	100.000	1.05000	$2,364.60	14.400	14.312	0.088	0.245	0.600	-0.355
Air Voids	17	16,890	87.100	1.00476	$901.06	4.100	3.288	0.812	0.344	0.600	-0.256
				I/DP:	$9,034.00						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **131604** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $45.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	57	56,840	91.184	1.01065	$2,770.37	5.000	4.878	0.122	0.132	0.200	-0.068
Density	114	56,840	96.136	1.04421	$45,984.64	94.000	93.614	0.386	0.896	1.100	-0.204
VMA	57	56,840	99.746	1.05500	$14,302.36	14.000	13.726	0.274	0.341	0.600	-0.259
Air Voids	57	56,840	98.114	1.05500	$57,209.46	4.000	3.802	0.198	0.483	0.600	-0.117
				I/DP:	$120,266.83						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Totals: 12401

	Tests	Tons	I/DP	
AC	80	79,730	$5,425.82	CTS I/DP
Density	143	71,082	$53,999.53	$0.00
VMA	80	79,730	$17,464.96	2V Adj
Air Voids	80	79,730	$35,818.93	$0.00
Joint Density				
Plan Quant	101,694		Project I/DP $112,709.24	CPFC 1.03414

Comments:

Subaccount: 12402 *STR 0343-017* *SH 34* *Region: 4* *Supplier: 14*

Mix Design No **123705** ***Process No*** 1 ***Grading*** S (96) PG ***Price Per Ton*** $36.25

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	23	22,656	80.021	0.95113	($4,013.37)	5.000	5.185	0.185	0.136	0.200	-0.064
Density	47	22,656	78.598	0.91833	($26,829.79)	94.000	92.862	1.138	1.079	1.100	-0.021
VMA	23	22,656	99.957	1.05000	$4,106.40	15.000	14.900	0.100	0.371	0.600	-0.229
Air Voids	23	22,656	94.092	1.04100	$13,467.64	4.000	4.366	0.366	0.541	0.600	-0.059
				I/DP:	($13,269.12)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **123705a** ***Process No*** 1 ***Grading*** S (96) PG ***Price Per Ton*** $36.25

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	12	12,481	79.749	0.97263	($1,238.15)	5.150	5.313	0.163	0.162	0.200	-0.038
Density	24	12,481	90.608	1.01992	$3,605.50	94.000	93.592	0.408	1.144	1.100	0.044
VMA	12	12,481	99.282	1.04500	$2,035.96	15.000	14.708	0.292	0.419	0.600	-0.181
Air Voids	12	12,481	97.879	1.04500	$8,143.85	4.000	3.898	0.102	0.566	0.600	-0.034
				I/DP:	$12,547.16						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **123705b** ***Process No*** 1 ***Grading*** S (96) PG ***Price Per Ton*** $36.25

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	5	4,963	94.460	1.03000	$539.73	5.150	5.212	0.062	0.168	0.200	-0.032
Density	8	4,185	81.072	0.99212	($477.91)	94.000	93.062	0.938	1.187	1.100	0.087
VMA	5	4,963	71.628	0.96966	($545.83)	15.000	14.240	0.760	0.709	0.600	0.109
Air Voids	5	4,963	82.128	1.01595	$1,147.84	4.000	3.530	0.470	0.769	0.600	0.169
				I/DP:	$663.83						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **15100** ***Process No*** 1 ***Grading*** S (96) PG ***Price Per Ton*** $41.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	7	6,975	99.685	1.03500	$1,000.91	5.100	5.177	0.077	0.110	0.200	-0.090
Density	14	6,975	77.935	0.95580	($5,055.53)	94.000	92.764	1.236	0.982	1.100	-0.118
VMA	7	6,975	100.000	1.03500	$1,000.91	14.300	14.400	0.100	0.370	0.600	-0.230
Air Voids	7	6,975	83.806	1.01073	$1,227.76	4.200	3.669	0.531	0.671	0.600	0.071
				I/DP:	($1,825.95)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **15100a** ***Process No*** 1 ***Grading*** S (96) PG ***Price Per Ton*** $41.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	13	13,193	95.745	1.04500	$2,434.11	5.100	5.108	0.008	0.158	0.200	-0.042
Density	26	13,193	85.469	0.98511	($3,221.69)	94.000	93.454	0.546	1.273	1.100	0.173
VMA	13	13,193	96.054	1.04500	$2,434.11	14.300	14.154	0.146	0.605	0.600	0.005
Air Voids	13	13,193	62.472	0.84803	($32,881.32)	4.200	3.295	0.905	0.883	0.600	0.283
				I/DP:	($31,234.79)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 15100b **Process No** 1 **Grading** S (96) PG **Price Per Ton** $41.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	5	5,000	95.344	1.03000	$615.00	5.100	5.024	0.076	0.154	0.200	-0.046
Density	10	5,000	82.406	0.99253	($612.75)	94.000	93.770	0.230	1.495	1.100	0.395
VMA	5	5,000	100.000	1.03000	$615.00	14.300	13.940	0.360	0.305	0.600	-0.295
Air Voids	5	5,000	59.634	0.89851	($8,322.40)	4.200	3.050	1.150	0.184	0.600	-0.416
				I/DP:	($7,705.15)						

Other: CTS Tons 0; I/DP $0.00; PF 1.0 Tons 0; 2V Adj. $0.00

Mix Design No 15100c **Process No** 1 **Grading** S (96) PG **Price Per Ton** $41.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	9	9,024	100.000	1.04000	$1,479.94	5.100	5.050	0.050	0.085	0.200	-0.115
Density	17	9,024	83.661	0.98443	($2,304.07)	94.000	93.112	0.888	1.123	1.100	0.023
VMA	9	9,024	100.000	1.04000	$1,479.94	14.300	14.211	0.089	0.310	0.600	-0.290
Air Voids	9	9,024	99.602	1.04000	$5,919.74	4.200	3.707	0.493	0.327	0.600	-0.273
				I/DP:	$6,575.55						

Other: CTS Tons 0; I/DP $0.00; PF 1.0 Tons 0; 2V Adj. $0.00

Totals: 12402

	Tests	Tons	I/DP	
AC	74	74,292	$818.17	CTS I/DP
Density	146	73,514	($34,896.24)	$0.00
VMA	74	74,292	$11,126.49	2V Adj
Air Voids	74	74,292	($11,296.89)	$0.00
Joint Density				
Plan Quant		65,592	**Project I/DP**	($34,248.47)

CPFC **0.98801**

Comments: Final quantity not equal.

Subaccount: 12599 ***NH 1603-014*** ***SH 10 & 160, Walsenburg*** ***Region: 2*** ***Supplier: 20***

Mix Design No 601100 **Process No** 1 **Grading** S () PG **Price Per Ton** $29.77

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	82	81,538	96.243	1.04619	$11,212.75	6.000	5.916	0.084	0.122	0.200	-0.078
Density	164	81,538	87.978	0.97205	($27,133.36)	94.000	93.118	0.882	0.948	1.100	-0.152
VMA	82	81,538	96.699	1.04978	$24,168.09	14.300	14.630	0.330	0.475	0.600	-0.125
Air Voids	82	81,538	93.777	1.02668	$19,427.07	4.000	4.153	0.153	0.630	0.600	0.030
				I/DP:	$27,674.55						

Other: CTS Tons 0; I/DP $0.00; PF 1.0 Tons 0; 2V Adj. $0.00

Totals: 12599

	Tests	Tons	I/DP	
AC	82	81,538	$11,212.75	CTS I/DP
Density	164	81,538	($27,133.36)	$0.00
VMA	82	81,538	$24,168.09	2V Adj
Air Voids	82	81,538	$19,427.07	$0.00
Joint Density				
Plan Quant		69,398	**Project I/DP**	$27,674.55

CPFC **1.01140**

Comments:

Subaccount: 12685 *NH 0505-033* *US 50 West of Granada* *Region: 2* *Supplier: 32*

Mix Design No **161** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $25.90

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	21	21,000	98.841	1.05000	$2,719.50	4.800	4.744	0.056	0.113	0.200	-0.087	CTS Tons	0
Density	42	21,000	93.874	1.03367	$7,324.33	94.000	93.462	0.538	0.942	1.100	-0.158	I/DP	$0.00
VMA	21	21,000	99.277	1.05000	$2,719.50	14.000	13.695	0.305	0.390	0.600	-0.210	PF 1.0	
Air Voids	21	21,000	92.540	1.03300	$7,114.99					0.600		Tons	0
				I/DP:	$19,878.32							2V Adj.	$0.00

Mix Design No **164** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $25.90

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	3	3,000	100.000	1.02500	$194.25	4.800	4.787	0.013	0.055	0.200	-0.145	CTS Tons	0
Density	6	3,000	99.984	1.03500	$1,087.80	94.000	94.433	0.433	0.779	1.100	-0.321	I/DP	$0.00
VMA	3	3,000	100.000	1.02500	$194.25	14.000	13.567	0.433	0.231	0.600	-0.369	PF 1.0	
Air Voids	3	3,000	100.000	1.02500	$777.00	4.000	3.200	0.800	0.265	0.600	-0.335	Tons	0
				I/DP:	$2,253.30							2V Adj.	$0.00

Mix Design No **165** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $25.90

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	37	36,746	99.640	1.05500	$5,234.47	4.800	4.758	0.042	0.100	0.200	-0.100	CTS Tons	0
Density	74	36,746	95.630	1.04167	$15,865.00	94.000	93.550	0.450	0.898	1.100	-0.202	I/DP	$0.00
VMA	37	36,746	90.787	1.01396	$1,328.13	14.000	13.341	0.659	0.409	0.600	-0.191	PF 1.0	
Air Voids	37	36,746	84.562	0.96972	($11,526.50)	4.000	3.349	0.651	0.539	0.600	-0.061	Tons	0
				I/DP:	$10,901.10							2V Adj.	$0.00

Totals: 12685

	Tests	Tons	I/DP		
AC	61	60,746	$8,148.22	CTS I/DP	
Density	122	60,746	$24,277.13	$0.00	
VMA	61	60,746	$4,241.88	2V Adj	
Air Voids	61	60,746	($3,634.51)	$0.00	
Joint Density					
Plan Quant		69,821	Project I/DP	$33,032.72	CPFC 1.02100

Comments: Missing page 5 of report, Air Voids data.

Subaccount: 13009	*NH 0343-020*	*Brush to Akron*	*Region: 4*	*Supplier: 14*

Mix Design No 3301 **Process No** 1 **Grading** S () PG **Price Per Ton** $47.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	3	2,535	75.902	1.02120	$252.44	5.300	5.433	0.133	0.199	0.200	-0.001
Density	6	2,534	84.342	1.01691	$805.74	94.000	93.333	0.667	1.308	1.100	0.208
VMA	3	2,534	100.000	1.02500	$297.74	14.000	13.800	0.200	0.100	0.600	-0.500
Air Voids	3	2,534	76.995	1.02427	$1,156.17	4.000	3.100	0.900	0.346	0.600	-0.254
				I/DP:	$2,512.09						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 780901 **Process No** 1 **Grading** S () PG **Price Per Ton** $49.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	1	863		1.00000	$0.00	5.200				0.200	
Density	1	863		1.00000	$0.00	94.000				1.100	
VMA	1	863		1.00000	$0.00	14.400				0.600	
Air Voids	1	863		1.00000	$0.00	4.400				0.600	
				I/DP:	$0.00						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 781001 **Process No** 1 **Grading** S () PG **Price Per Ton** $46.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	6	6,672	88.630	1.03202	$982.82	5.300	5.115	0.185	0.097	0.200	-0.103
Density	5	2,308	100.000	1.03000	$1,274.02	94.000	94.340	0.340	0.650	1.100	-0.450
VMA	6	6,672	60.702	0.88725	($3,460.57)	14.200	13.133	1.067	0.455	0.600	-0.145
Air Voids	6	6,672	68.452	0.93840	($7,562.09)	4.200	3.200	1.000	0.390	0.600	-0.210
				I/DP:	($8,765.82)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	4,364
2V Adj.	$0.00

Mix Design No 7853201 **Process No** 1 **Grading** S () PG **Price Per Ton** $49.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	6	5,950	69.390	0.94402	($1,632.07)	5.300	5.078	0.222	0.145	0.200	-0.055
Density	12	5,950	99.687	1.04500	$5,247.90	94.000	93.017	0.983	0.434	1.100	-0.666
VMA	6	5,950	98.173	1.03500	$1,020.42	14.000	13.683	0.317	0.515	0.600	-0.085
Air Voids	6	5,950	97.315	1.03500	$4,081.70	4.000	4.233	0.233	0.589	0.600	-0.011
				I/DP:	$8,717.95						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 7853301 **Process No** 1 **Grading** S () PG **Price Per Ton** $46.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	28	29,681	93.571	1.03641	$4,971.14	5.300	5.256	0.044	0.160	0.200	-0.040
Density	57	28,139	87.183	0.98024	($10,233.41)	94.000	93.068	0.932	0.940	1.100	-0.160
VMA	28	29,681	99.949	1.05500	$7,509.29	14.000	13.929	0.071	0.374	0.600	-0.226
Air Voids	28	29,681	98.300	1.05500	$30,037.17	4.000	3.907	0.093	0.516	0.600	-0.084
				I/DP:	$32,284.19						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	1,542
2V Adj.	$0.00

Mix Design No **7856901** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $49.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	15	14,874	99.848	1.05000	$3,644.13	5.100	5.238	0.138	0.063	0.200	-0.137	CTS Tons	0
Density	30	14,874	95.996	1.05064	$14,761.88	94.000	93.377	0.623	0.800	1.100	-0.300	I/DP	$0.00
VMA	15	14,874	99.999	1.05000	$3,644.13	14.100	14.213	0.113	0.342	0.600	-0.258	PF 1.0 Tons	0
Air Voids	15	14,874	99.560	1.05000	$14,576.52	4.000	3.747	0.253	0.403	0.600	-0.197		
				I/DP:	$36,626.66							2V Adj.	$0.00

Mix Design No **853201A** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $49.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	15	14,089	99.936	1.05000	$3,451.81	5.200	5.185	0.015	0.105	0.200	-0.095	CTS Tons	0
Density	29	14,089	90.147	1.01416	$3,909.90	94.000	93.086	0.914	0.847	1.100	-0.253	I/DP	$0.00
VMA	15	14,089	100.000	1.05000	$3,451.81	14.000	14.040	0.040	0.250	0.600	-0.350	PF 1.0 Tons	0
Air Voids	15	14,089	99.989	1.05000	$13,807.22	4.000	4.067	0.067	0.385	0.600	-0.215		
				I/DP:	$24,620.74							2V Adj.	$0.00

Totals: 13009

	Tests	Tons	I/DP	
AC	74	74,664	$11,670.27	CTS I/DP
Density	140	74,663	$15,766.03	$0.00
VMA	74	74,663	$12,462.82	2V Adj
Air Voids	74	74,663	$56,096.69	$0.00
Joint Density				
Plan Quant		69,629	Project I/DP	$95,995.81

CPFC 1.02708

Comments:

Subaccount: 13051 *NH 050A-005* *W. McCulloch to Baltimore* *Region: 2* *Supplier: 32*

Mix Design No **13051A** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $30.20

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	24	24,000	79.131	0.94334	($4,106.78)	5.300	5.193	0.107	0.214	0.200	0.014	CTS Tons	0
Density	48	24,000	98.102	1.05500	$15,945.60	94.000	94.225	0.225	0.843	1.100	-0.257	I/DP	$0.00
VMA	24	24,000	97.038	1.05000	$7,248.00	14.000	13.679	0.321	0.479	0.600	-0.121	PF 1.0	
Air Voids	24	24,000	59.950	0.78842	($46,005.58)	4.000	2.937	1.063	0.538	0.600	-0.062	Tons	0
				I/DP:	($26,918.76)							2V Adj.	$0.00

Mix Design No **13051B** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $30.20

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	13	13,000	98.806	1.04500	$1,766.70	5.100	5.089	0.011	0.134	0.200	-0.066	CTS Tons	0
Density	25	12,500	98.711	1.05000	$7,550.00	94.000	93.580	0.420	0.739	1.100	-0.361	I/DP	$0.00
VMA	13	13,000	99.993	1.04500	$3,533.40	14.000	13.892	0.108	0.380	0.600	-0.220	PF 1.0	
Air Voids	13	13,000	91.533	1.03191	$3,758.90	4.000	3.559	0.441	0.563	0.600	-0.037	Tons	0
				I/DP:	$16,609.00							2V Adj.	$0.00

Mix Design No **13051C** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $30.20

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	5	4,236	90.975	1.03000	$383.78	5.500	5.682	0.182	0.093	0.200	-0.107	CTS Tons	0
Density	9	4,236	97.336	1.04000	$2,046.84	94.000	93.389	0.611	0.790	1.100	-0.310	I/DP	$0.00
VMA	5	4,236	100.000	1.03000	$767.56	14.300	13.780	0.520	0.303	0.600	-0.297	PF 1.0	
Air Voids	5	4,236	86.924	1.03000	$1,151.34	4.000	3.220	0.780	0.377	0.600	-0.223	Tons	0
				I/DP:	$4,349.52							2V Adj.	$0.00

Totals: 13051

	Tests	Tons	I/DP	
AC	42	41,236	($1,956.30)	CTS I/DP
Density	82	40,736	$25,542.44	$0.00
VMA	42	41,236	$11,548.96	2V Adj
Air Voids	42	41,236	($41,095.34)	$0.00
Joint Density				
Plan Quant		49,323	**Project I/DP**	($5,960.24)

CPFC **0.99521**

Comments:

Subaccount: 13440 *NH 0242-033* *Hwy 24 Manitou* *Region: 2* *Supplier: 49*

Mix Design No 153 *Process No* 1 *Grading* S () PG *Price Per Ton* $27.30

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	98	98,922	90.839	1.00197	$531.55	5.000	5.045	0.045	0.173	0.200	-0.027
Density	197	98,422	89.265	0.98023	($21,245.82)	94.000	93.175	0.825	0.943	1.100	-0.157
VMA	98	98,922	97.489	1.05561	$30,037.14	14.000	14.288	0.288	0.467	0.600	-0.133
Air Voids	98	98,922	90.597	1.00000	($2.92)	4.000	4.127	0.127	0.709	0.600	0.109
				I/DP:	$9,319.95						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 153 *Process No* 2 *Grading* S () PG *Price Per Ton* $27.30

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC					($1,054.77)					0.200	
Density	1	500		0.22727	($4,219.09)	94.000				1.100	
VMA					($2,109.55)					0.600	
Air Voids					($3,164.32)					0.600	
				I/DP:	($10,547.73)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	($154.48)

Totals: 13440

	Tests	Tons	I/DP	
AC	98	98,922	($523.22)	CTS I/DP
Density	198	98,922	($25,464.91)	$0.00
VMA	98	98,922	$27,927.59	2V Adj
Air Voids	98	98,922	($3,167.24)	($154.48)
Joint Density				
Plan Quant	107,295		Project I/DP	($1,382.26)

CPFC 0.99955

Comments: One test 2 x V out.

Totals for all Projects

Projects with Bid Dates from 1/1/2000 to 12/31/2000.

Number of Projects: 10

	Tests	*Tons*	*I/DP*	
AC	645	639,778	$33,765.49	*CTS I/DP*
Density	1234	629,851	$138,580.71	$0.00
VMA	645	639,777	$128,726.65	*2V Adj*
Air Voids	645	639,777	$100,410.14	($154.48)
Joint Density				
Plan Quant	663,818		*Total I/DP*	$401,328.51

Calculated Pay Factor Composite and I/DP by Region, VA

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2000.

PFC is back calculated from the Project's I/DP.

A Calculated Average Unit Price is used in the calculation.

Region 1

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
12312	02/24/00	STA 1192-008	1	S	12,317	$49.20	1.03974	$24,082.08	45

Region 1

Number of Projects: 1 **CPFC: Maximum:** 1.03974

Total Tons: 12,317 **Minimum:** 1.03974

Average: 1.03974

Incentive/Disincentive Payments

Positive I/DPs: 1 ***Sum I/DPs:*** $24,082.08

Negative I/DPs: 0 ***Maximum:*** $24,082.08

Minimum: $24,082.08

Average IDP: $24,082.08

Region 2

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
12685	12/07/00	NH 0505-033	2	S	60,746	$25.90	1.02100	$33,032.72	32
12599	01/06/00	NH 1603-014	2	S	81,538	$29.77	1.01140	$27,674.55	20
13440	12/07/00	NH 0242-033	2	S	98,922	$27.30	0.99949	($1,382.26)	49
13051	01/13/00	NH 050A-005	2	S	41,236	$30.20	0.99521	($5,960.24)	32

Region 2

Number of Projects: 4 **CPFC: Maximum:** 1.02100

Total Tons: 282,442 **Minimum:** 0.99521

Average: 1.00678

Incentive/Disincentive Payments

Positive I/DPs: 2 ***Sum I/DPs:*** $53,364.77

Negative I/DPs: 2 ***Maximum:*** $33,032.72

Minimum: ($5,960.24)

Average IDP: $13,341.19

Region 4

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
12401	11/09/00	STA C030-02	4	S	79,730	$41.41	1.03414	$112,709.24	14
11990	11/16/00	STA 0362-019	4	S	96,492	$39.76	1.03117	$119,561.18	14
13009	05/18/00	NH 0343-020	4	S	74,664	$47.47	1.02708	$95,995.81	14
12402	01/06/00	STR 0343-017	4	S	74,292	$38.44	0.98801	($34,248.47)	14

Region 4

Number of Projects: 4 **CPFC: Maximum:** 1.03414
Total Tons: 325,178 **Minimum:** 0.98801
Average: 1.02010

Incentive/Disincentive Payments

Positive I/DPs:	3	***Sum I/DPs:***	$294,017.76
Negative I/DPs:	1	***Maximum:***	$119,561.18
		Minimum:	($34,248.47)
		Average IDP:	$73,504.44

Region 6

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
12282	02/10/00	IM 0252-318	6	S	19,841	$46.00	1.03272	$29,863.90	10

Region 6

Number of Projects: 1 **CPFC: Maximum:** 1.03272
Total Tons: 19,841 **Minimum:** 1.03272
Average: 1.03272

Incentive/Disincentive Payments

Positive I/DPs:	1	***Sum I/DPs:***	$29,863.90
Negative I/DPs:	0	***Maximum:***	$29,863.90
		Minimum:	$29,863.90
		Average IDP:	$29,863.90

Statewide Totals: 1/1/2000 to 12/31/2000.

Number of Projects: 10 **CPFC Maximum:** 1.03974
Total Tons: 639,778 **Minimum:** 0.98801
Average: 1.01800

Incentive/Disincentive Payments

Positive I/DPs:	7	***Sum I/DPs:***	$401,328.51
Negative I/DPs:	3	***Maximum:***	$119,561.18
		Minimum:	($34,248.47)
		Average IDP:	$40,132.85

Asphalt Content - Process Information, VA

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2000.

Processes with less than 3 tests not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean:	Mean to TV	St. Dev.	V	StDev - V
12402	4	65,592	15100c	$41.00	1	9,024	9	100.000	1.04000	5.10	5.05	0.05	0.085	0.20	-0.12
12685	2	69,821	164	$25.90	1	3,000	3	100.000	1.02500	4.80	4.79	0.01	0.055	0.20	-0.15
13009	4	69,629	853201A	$49.00	1	14,089	15	99.936	1.05000	5.20	5.18	0.01	0.105	0.20	-0.10
13009	4	69,629	7856901	$49.00	1	14,874	15	99.848	1.05000	5.10	5.24	0.14	0.063	0.20	-0.14
12402	4	65,592	15100	$41.00	1	6,975	7	99.685	1.03500	5.10	5.18	0.08	0.110	0.20	-0.09
12685	2	69,821	165	$25.90	1	36,746	37	99.640	1.05500	4.80	4.76	0.04	0.100	0.20	-0.10
12685	2	69,821	161	$25.90	1	21,000	21	98.841	1.05000	4.80	4.74	0.06	0.113	0.20	-0.09
13051	2	49,323	13051B	$30.20	1	13,000	13	98.806	1.04500	5.10	5.09	0.01	0.134	0.20	-0.07
12599	2	69,398	601100	$29.77	1	81,538	82	96.243	1.04619	6.00	5.92	0.08	0.122	0.20	-0.08
12402	4	65,592	15100a	$41.00	1	13,193	13	95.745	1.04500	5.10	5.11	0.01	0.158	0.20	-0.04
12402	4	65,592	15100b	$41.00	1	5,000	5	95.344	1.03000	5.10	5.02	0.08	0.154	0.20	-0.05
12402	4	65,592	123705b	$36.25	1	4,963	5	94.460	1.03000	5.15	5.21	0.06	0.168	0.20	-0.03
11990	4	99,098	121418B	$38.00	1	40,000	40	93.767	1.03334	5.20	5.20	0.00	0.163	0.20	-0.04
13009	4	69,629	7853301	$46.00	1	29,681	28	93.571	1.03641	5.30	5.26	0.04	0.160	0.20	-0.04
12401	4	101,694	109889	$28.00	1	16,890	17	93.540	1.03928	5.00	5.05	0.05	0.161	0.20	-0.04
12401	4	101,694	109888	$38.00	1	6,000	6	91.324	1.03500	5.20	5.10	0.10	0.154	0.20	-0.05
12401	4	101,694	131604	$45.75	1	56,840	57	91.184	1.01065	5.00	4.88	0.12	0.132	0.20	-0.07
13051	2	49,323	13051C	$30.20	1	4,236	5	90.975	1.03000	5.50	5.68	0.18	0.093	0.20	-0.11
13440	2	107,295	153	$27.30	1	98,922	98	90.839	1.00197	5.00	5.05	0.05	0.173	0.20	-0.03
13009	4	69,629	781001	$46.00	1	6,672	6	88.630	1.03202	5.30	5.11	0.19	0.097	0.20	-0.10
11990	4	99,098	102396a	$42.00	1	42,387	43	88.138	0.99290	5.00	4.89	0.11	0.160	0.20	-0.04
12312	1	12,307	97313A	$53.00	1	2,951	6	86.390	1.02445	5.30	5.21	0.09	0.194	0.20	-0.01
12312	1	12,307	97313B	$48.00	1	9,366	10	85.749	1.00906	5.40	5.59	0.19	0.108	0.20	-0.09
12282	6	19,661	1058511	$46.00	1	19,841	20	80.347	0.95762	5.10	5.02	0.08	0.220	0.20	0.02
11990	4	99,098	121418B	$38.00	2	14,105	15	80.204	0.96726	5.20	5.34	0.14	0.180	0.20	-0.02
12402	4	65,592	123705	$36.25	1	22,656	23	80.021	0.95113	5.00	5.18	0.18	0.136	0.20	-0.06
12402	4	65,592	123705a	$36.25	1	12,481	12	79.749	0.97263	5.15	5.31	0.16	0.162	0.20	-0.04
13051	2	49,323	13051A	$30.20	1	24,000	24	79.131	0.94334	5.30	5.19	0.11	0.214	0.20	0.01
13009	4	69,629	3301	$47.00	1	2,535	3	75.902	1.02120	5.30	5.43	0.13	0.199	0.20	0.00
13009	4	69,629	7853201	$49.00	1	5,950	6	69.390	0.94402	5.30	5.08	0.22	0.145	0.20	-0.06

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean:	Mean to TV	St. Dev.	V	StDev - V

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	638,915	Best:	100.000	1.05500	0.00	0.055	0.20	-0.15
Processes:	30	Worst:	69.390	0.94334	0.22	0.220	0.20	0.02
Tests:	644	Weighted Average:	91.565	1.01618	0.08	0.146	0.20	-0.05

Asphalt Content - Totals 1/1/2000 to 12/31/2000.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	638,915	Best:	100.000	1.05500	0.00	0.055	0.20	-0.15
Processes:	30	Worst:	69.390	0.94334	0.22	0.220	0.20	0.02
Tests:	644	Weighted Average:	91.565	1.01618	0.08	0.146	0.20	-0.05

VMA - Process Information

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2000.

Processes with less than 3 tests not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
12401	4	101,694	109889	$28.00	1	16,890	17	100.000	1.05000	14.40	14.31	0.09	0.245	0.60	-0.355
13009	4	69,629	853201A	$49.00	1	14,089	15	100.000	1.05000	14.00	14.04	0.04	0.250	0.60	-0.350
12312	1	12,307	97313B	$48.00	1	9,366	10	100.000	1.04500	16.50	16.57	0.07	0.302	0.60	-0.298
12402	4	65,592	15100c	$41.00	1	9,024	9	100.000	1.04000	14.30	14.21	0.09	0.310	0.60	-0.290
12401	4	101,694	109888	$38.00	1	6,000	6	100.000	1.03500	14.00	14.05	0.05	0.176	0.60	-0.424
12312	1	12,307	97313A	$53.00	1	2,951	6	100.000	1.03500	16.60	16.53	0.07	0.367	0.60	-0.233
12402	4	65,592	15100	$41.00	1	6,975	7	100.000	1.03500	14.30	14.40	0.10	0.370	0.60	-0.230
13051	2	49,323	13051C	$30.20	1	4,236	5	100.000	1.03000	14.30	13.78	0.52	0.303	0.60	-0.297
12402	4	65,592	15100b	$41.00	1	5,000	5	100.000	1.03000	14.30	13.94	0.36	0.305	0.60	-0.295
13009	4	69,629	3301	$47.00	1	2,534	3	100.000	1.02500	14.00	13.80	0.20	0.100	0.60	-0.500
12282	6	19,661	1058512	$46.00	1	2,841	3	100.000	1.02500	16.50	16.47	0.03	0.153	0.60	-0.447
12685	2	69,821	164	$25.90	1	3,000	3	100.000	1.02500	14.00	13.57	0.43	0.231	0.60	-0.369
13009	4	69,629	7856901	$49.00	1	14,874	15	99.999	1.05000	14.10	14.21	0.11	0.342	0.60	-0.258
11990	4	99,098	102396a	$42.00	1	42,387	43	99.995	1.05500	13.50	13.49	0.01	0.325	0.60	-0.275
13051	2	49,323	13051B	$30.20	1	13,000	13	99.993	1.04500	14.00	13.89	0.11	0.380	0.60	-0.220
12402	4	65,592	123705	$36.25	1	22,656	23	99.957	1.05000	15.00	14.90	0.10	0.371	0.60	-0.229
13009	4	69,629	7853301	$46.00	1	29,681	28	99.949	1.05500	14.00	13.93	0.07	0.374	0.60	-0.226
11990	4	99,098	121418B	$38.00	1	40,000	40	99.898	1.05500	14.30	14.11	0.19	0.345	0.60	-0.255
12401	4	101,694	131604	$45.75	1	56,840	57	99.746	1.05500	14.00	13.73	0.27	0.341	0.60	-0.259
12402	4	65,592	123705a	$36.25	1	12,481	12	99.282	1.04500	15.00	14.71	0.29	0.419	0.60	-0.181
12685	2	69,821	161	$25.90	1	21,000	21	99.277	1.05000	14.00	13.69	0.31	0.390	0.60	-0.210
13009	4	69,629	7853201	$49.00	1	5,950	6	98.173	1.03500	14.00	13.68	0.32	0.515	0.60	-0.085
13440	2	107,295	153	$27.30	1	98,922	98	97.489	1.05561	14.00	14.29	0.29	0.467	0.60	-0.133
13051	2	49,323	13051A	$30.20	1	24,000	24	97.038	1.05000	14.00	13.68	0.32	0.479	0.60	-0.121
12599	2	69,398	601100	$29.77	1	81,538	82	96.699	1.04978	14.30	14.63	0.33	0.475	0.60	-0.125
12402	4	65,592	15100a	$41.00	1	13,193	13	96.054	1.04500	14.30	14.15	0.15	0.605	0.60	0.005
11990	4	99,098	121418B	$38.00	2	14,105	15	95.280	1.04750	14.30	13.75	0.55	0.400	0.60	-0.200
12685	2	69,821	165	$25.90	1	36,746	37	90.787	1.01396	14.00	13.34	0.66	0.409	0.60	-0.191
12282	6	19,661	1058511	$46.00	1	17,000	17	78.479	0.95129	15.40	15.99	0.59	0.755	0.60	0.155
12402	4	65,592	123705b	$36.25	1	4,963	5	71.628	0.96966	15.00	14.24	0.76	0.709	0.60	0.109
13009	4	69,629	781001	$46.00	1	6,672	6	60.702	0.88725	14.20	13.13	1.07	0.455	0.60	-0.145

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	638,914	Best:	100.000	1.05561	0.01	0.100	0.60	-0.500
Processes:	31	Worst:	60.702	0.88725	1.07	0.755	0.60	0.155
Tests:	644	Weighted Average:	97.072	1.04344	0.27	0.406	0.60	-0.194

VMA - Totals 1/1/2000 to 12/31/2000.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	638,914	Best:	100.000	1.05561	0.01	0.100	0.60	-0.500
Processes:	31	Worst:	60.702	0.88725	1.07	0.755	0.60	0.155
Tests:	644	Weighted Average:	97.072	1.04344	0.27	0.406	0.60	-0.194

Air Voids - Process Information

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2000.

Processes with less than 3 tests not included.

Grading: S

Sub.	Reg.	Plan Quant.	Mix Design	Price	Process No	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev -V
12685	2	69,821	164	$25.90	1	3,000	3	100.000	1.02500	4.00	3.20	0.80	0.265	0.60	-0.335
13009	4	69,629	853201A	$49.00	1	14,089	15	99.989	1.05000	4.00	4.07	0.07	0.385	0.60	-0.215
12402	4	65,592	15100c	$41.00	1	9,024	9	99.602	1.04000	4.20	3.71	0.49	0.327	0.60	-0.273
13009	4	69,629	7856901	$49.00	1	14,874	15	99.560	1.05000	4.00	3.75	0.25	0.403	0.60	-0.197
12312	1	12,307	97313B	$48.00	1	9,366	10	99.240	1.04500	4.00	3.60	0.40	0.380	0.60	-0.220
13009	4	69,629	7853301	$46.00	1	29,681	28	98.300	1.05500	4.00	3.91	0.09	0.516	0.60	-0.084
12401	4	101,694	131604	$45.75	1	56,840	57	98.114	1.05500	4.00	3.80	0.20	0.483	0.60	-0.117
12402	4	65,592	123705a	$36.25	1	12,481	12	97.879	1.04500	4.00	3.90	0.10	0.566	0.60	-0.034
13009	4	69,629	7853201	$49.00	1	5,950	6	97.315	1.03500	4.00	4.23	0.23	0.589	0.60	-0.011
12312	1	12,307	97313A	$53.00	1	2,951	6	96.853	1.03500	4.00	4.35	0.35	0.530	0.60	-0.070
12282	6	19,661	1058511	$46.00	1	19,841	20	96.268	1.05000	4.10	3.79	0.31	0.513	0.60	-0.087
11990	4	99,098	102396a	$42.00	1	42,387	43	96.099	1.04864	3.50	3.36	0.14	0.576	0.60	-0.024
11990	4	99,098	121418B	$38.00	1	40,000	40	94.678	1.03949	4.00	3.69	0.31	0.552	0.60	-0.048
12402	4	65,592	123705	$36.25	1	22,656	23	94.092	1.04100	4.00	4.37	0.37	0.541	0.60	-0.059
12599	2	69,398	601100	$29.77	1	81,538	82	93.777	1.02668	4.00	4.15	0.15	0.630	0.60	0.030
13051	2	49,323	13051B	$30.20	1	13,000	13	91.533	1.03191	4.00	3.56	0.44	0.563	0.60	-0.037
13440	2	107,295	153	$27.30	1	98,922	98	90.597	1.00000	4.00	4.13	0.13	0.709	0.60	0.109
12401	4	101,694	109889	$28.00	1	16,890	17	87.100	1.00476	4.10	3.29	0.81	0.344	0.60	-0.256
13051	2	49,323	13051C	$30.20	1	4,236	5	86.924	1.03000	4.00	3.22	0.78	0.377	0.60	-0.223
12685	2	69,821	165	$25.90	1	36,746	37	84.562	0.96972	4.00	3.35	0.65	0.539	0.60	-0.061
12402	4	65,592	15100	$41.00	1	6,975	7	83.806	1.01073	4.20	3.67	0.53	0.671	0.60	0.071
12402	4	65,592	123705b	$36.25	1	4,963	5	82.128	1.01595	4.00	3.53	0.47	0.769	0.60	0.169
13009	4	69,629	3301	$47.00	1	2,534	3	76.995	1.02427	4.00	3.10	0.90	0.346	0.60	-0.254
13009	4	69,629	781001	$46.00	1	6,672	6	68.452	0.93840	4.20	3.20	1.00	0.390	0.60	-0.210
12402	4	65,592	15100a	$41.00	1	13,193	13	62.472	0.84803	4.20	3.30	0.90	0.883	0.60	0.283
11990	4	99,098	121418B	$38.00	2	14,105	15	60.243	0.81847	4.00	2.97	1.03	0.654	0.60	0.054
13051	2	49,323	13051A	$30.20	1	24,000	24	59.950	0.78842	4.00	2.94	1.06	0.538	0.60	-0.062
12402	4	65,592	15100b	$41.00	1	5,000	5	59.634	0.89851	4.20	3.05	1.15	0.184	0.60	-0.416
12401	4	101,694	109888	$38.00	1	6,000	6	44.770	0.75557	4.10	2.82	1.28	0.585	0.60	-0.015

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	617,914	**Best:**	100.000	1.05500	0.07	0.184	0.60	-0.416
Processes:	29	**Worst:**	44.770	0.75557	1.28	0.883	0.60	0.283
Tests:	623	**Weighted Average:**	89.931	1.00546	0.35	0.564	0.60	-0.036

Air Voids - Totals 1/1/2000 to 12/31/2000.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	617,914	**Best:**	100.000	1.05500	0.07	0.184	0.60	-0.416
Processes:	29	**Worst:**	44.770	0.75557	1.28	0.883	0.60	0.283
Tests:	623	**Weighted Average:**	89.931	1.00546	0.35	0.564	0.60	-0.036

Mat Density - Process Information, Voids Acceptance

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2000.

Processes with less than 3 tests not included.

Compaction Test Sections not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13009	4	69,629	781001	$46.00	1	2,308	5	100.000	1.03000	94.000	94.340	0.340	0.650	1.100	-0.450
12685	2	69,821	164	$25.90	1	3,000	6	99.984	1.03500	94.000	94.433	0.433	0.779	1.100	-0.321
12401	4	101,694	109888	$38.00	1	6,000	12	99.759	1.04500	94.000	91.192	2.808	0.757	1.100	-0.343
13009	4	69,629	7853201	$49.00	1	5,950	12	99.687	1.04500	94.000	93.017	0.983	0.434	1.100	-0.666
11990	4	99,098	102396a	$42.00	1	42,387	85	99.335	1.06000	94.000	93.221	0.779	0.501	1.100	-0.599
11990	4	99,098	121418B	$38.00	2	14,605	30	98.884	1.05500	94.000	93.517	0.483	0.689	1.100	-0.411
13051	2	49,323	13051B	$30.20	1	12,500	25	98.711	1.05000	94.000	93.580	0.420	0.739	1.100	-0.361
13051	2	49,323	13051A	$30.20	1	24,000	48	98.102	1.05500	94.000	94.225	0.225	0.843	1.100	-0.257
11990	4	99,098	121418B	$38.00	1	26,500	53	97.379	1.05500	94.000	93.511	0.489	0.787	1.100	-0.313
13051	2	49,323	13051C	$30.20	1	4,236	9	97.336	1.04000	94.000	93.389	0.611	0.790	1.100	-0.310
12282	6	19,661	1058511	$46.00	2	14,841	30	97.307	1.05500	94.000	93.703	0.297	0.884	1.100	-0.216
12401	4	101,694	131604	$45.75	1	56,840	114	96.136	1.04421	94.000	93.614	0.386	0.896	1.100	-0.204
13009	4	69,629	7856901	$49.00	1	14,874	30	95.996	1.05064	94.000	93.377	0.623	0.800	1.100	-0.300
12685	2	69,821	165	$25.90	1	36,746	74	95.630	1.04167	94.000	93.550	0.450	0.898	1.100	-0.202
12312	1	12,307	97313B	$48.00	1	9,366	19	94.946	1.04636	94.000	93.526	0.474	0.944	1.100	-0.156
12401	4	101,694	109889	$28.00	1	8,242	17	94.163	1.04237	94.000	93.265	0.735	0.825	1.100	-0.275
12685	2	69,821	161	$25.90	1	21,000	42	93.874	1.03367	94.000	93.462	0.538	0.942	1.100	-0.158
12282	6	19,661	1058511	$46.00	1	5,000	10	93.748	1.04284	94.000	93.350	0.650	0.916	1.100	-0.184
12312	1	12,307	97313A	$53.00	1	2,951	12	91.722	1.03363	94.000	93.592	0.408	1.130	1.100	0.030
12402	4	65,592	123705a	$36.25	1	12,481	24	90.608	1.01992	94.000	93.592	0.408	1.144	1.100	0.044
13009	4	69,629	853201A	$49.00	1	14,089	29	90.147	1.01416	94.000	93.086	0.914	0.847	1.100	-0.253
13440	2	107,295	153	$27.30	1	98,422	197	89.265	0.98023	94.000	93.175	0.825	0.943	1.100	-0.157
12599	2	69,398	601100	$29.77	1	81,538	164	87.978	0.97205	94.000	93.118	0.882	0.948	1.100	-0.152
13009	4	69,629	7853301	$46.00	1	28,139	57	87.183	0.98024	94.000	93.068	0.932	0.940	1.100	-0.160
12402	4	65,592	15100a	$41.00	1	13,193	26	85.469	0.98511	94.000	93.454	0.546	1.273	1.100	0.173
13009	4	69,629	3301	$47.00	1	2,534	6	84.342	1.01691	94.000	93.333	0.667	1.308	1.100	0.208
12402	4	65,592	15100c	$41.00	1	9,024	17	83.661	0.98443	94.000	93.112	0.888	1.123	1.100	0.023
12402	4	65,592	15100b	$41.00	1	5,000	10	82.406	0.99253	94.000	93.770	0.230	1.495	1.100	0.395
12402	4	65,592	123705b	$36.25	1	4,185	8	81.072	0.99212	94.000	93.062	0.938	1.187	1.100	0.087
12402	4	65,592	123705	$36.25	1	22,656	47	78.598	0.91833	94.000	92.862	1.138	1.079	1.100	-0.021
12402	4	65,592	15100	$41.00	1	6,975	14	77.935	0.95580	94.000	92.764	1.236	0.982	1.100	-0.118

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V

Totals - Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	609,582	**Best:**	100.000	1.06000	0.225	0.434	1.100	-0.666
Processes:	31	**Worst:**	77.935	0.91833	2.808	1.495	1.100	0.395
Tests:	1,232							
		Weighted Average:	92.145	1.01344	0.694	0.894	1.100	-0.206

Mat Density - Totals 1/1/2000 to 12/31/2000.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	609,582	**Best:**	100.000	1.06000	0.225	0.434	1.100	-0.666
Processes:	31	**Worst:**	77.935	0.91833	2.808	1.495	1.100	0.395
Tests:	1,232							
		Weighted Average:	92.145	1.01344	0.694	0.894	1.100	-0.206

Appendix C

Reports for 2001 Projects

Project Listing by Region/Subaccount - Voids Acceptance

Projects with Bid Dates from 1/1/2001 to 12/31/2001.

Region: **2**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
13437	STA 165A-00	SH 165 N of Rye	17	01/18/01	$1,583,235.40	28,723
13445	NH 1603-018	SH 160A w/o La Veta	14	05/10/01	$3,059,738.54	73,678

Number of Projects 2 ***Total Quantity*** 102,401

Region: **6**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
12019	NH 4701-088	C-470 SH 8 to Ken Caryl	13	01/18/01	$4,160,823.01	52,869

Number of Projects 1 ***Total Quantity*** 52,869

Totals: Projects with Bid Dates from 1/1/2001 to 12/31/2001.

Number of Projects 3 ***Total Plan Quantity*** 155,270

Project Data, Voids Acceptance

Projects with Bid Dates from 1/1/2001 to 12/31/2001.

Subaccount: 12019 *NH 4701-088* *C-470 SH 8 to Ken Caryl* *Region: 6* *Supplier: 13*

Mix Design No 150884 ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $37.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	54	53,879	97.940	1.05500	$11,112.54	5.000	4.985	0.015	0.131	0.200	-0.069
Density	108	53,879	98.934	1.06000	$48,491.10	94.000	93.840	0.160	0.777	1.100	-0.323
VMA	54	53,879	97.266	1.05500	$11,112.54	14.100	13.893	0.207	0.514	0.600	-0.086
Air Voids	54	53,879	93.666	1.02977	$24,057.73	4.100	3.631	0.469	0.482	0.600	-0.118
				I/DP:	$94,773.91						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Totals: 12019

	Tests	Tons	I/DP	
AC	54	53,879	$11,112.54	CTS I/DP
Density	108	53,879	$48,491.10	$0.00
VMA	54	53,879	$11,112.54	2V Adj
Air Voids	54	53,879	$24,057.73	$0.00
Joint Density				
Plan Quant		52,869	Project I/DP	$94,773.91

CPFC 1.04691

Comments:

Subaccount: 13437 *STA 165A-009* *SH 165 N of Rye* *Region: 2* *Supplier: 17*

Mix Design No 180 ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $32.70

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	29	28,496	93.435	1.03516	$3,276.41	6.100	6.082	0.018	0.166	0.200	-0.034
Density	57	28,496	99.284	1.05500	$20,500.02	94.000	93.516	0.484	0.633	1.100	-0.467
VMA	29	28,496	100.000	1.05500	$10,250.01	15.700	15.497	0.203	0.224	0.600	-0.376
Air Voids	29	28,496	99.941	1.05500	$15,375.02	4.000	4.072	0.072	0.376	0.600	-0.224
				I/DP:	$49,401.46						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Totals: 13437

	Tests	Tons	I/DP	
AC	29	28,496	$3,276.41	CTS I/DP
Density	57	28,496	$20,500.02	$0.00
VMA	29	28,496	$10,250.01	2V Adj
Air Voids	29	28,496	$15,375.02	$0.00
Joint Density				
Plan Quant		28,723	Project I/DP	$49,401.46

CPFC 1.05302

Comments:

Subaccount: 13445 *NH 1603-018* *SH 160A w/o La Veta* *Region: 2* *Supplier: 14*

Mix Design No **181A** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $30.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	35	35,000	91.622	1.02068	$2,170.94	5.800	5.701	0.099	0.145	0.200	-0.055	CTS Tons	0
Density	67	33,500	93.518	1.02594	$10,428.55	94.000	93.972	0.028	1.093	1.100	-0.007	I/DP	$0.00
VMA	35	35,000	99.984	1.05500	$5,775.00	14.600	14.514	0.086	0.337	0.600	-0.263	PF 1.0	
Air Voids	35	35,000	93.415	1.03260	$13,690.70	4.000	3.523	0.477	0.484	0.600	-0.116	Tons	0
				I/DP:	$32,065.19							2V Adj.	$0.00

Mix Design No **181C** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $30.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	14	14,000	97.784	1.04500	$1,890.00	5.800	5.814	0.014	0.142	0.200	-0.058	CTS Tons	0
Density	30	15,000	88.615	1.00341	$613.35	94.000	93.350	0.650	1.097	1.100	-0.003	I/DP	$0.00
VMA	14	14,000	100.000	1.04500	$1,890.00	14.300	14.486	0.186	0.293	0.600	-0.307	PF 1.0	
Air Voids	14	14,000	90.580	1.02649	$4,450.57	4.000	3.457	0.543	0.506	0.600	-0.094	Tons	0
				I/DP:	$8,843.92							2V Adj.	$0.00

Mix Design No **181D** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $30.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	27	27,000	90.062	1.01477	$1,196.23	5.600	5.639	0.039	0.181	0.200	-0.019	CTS Tons	0
Density	53	26,500	91.805	1.01639	$5,211.36	94.000	92.774	1.226	0.558	1.100	-0.542	I/DP	$0.00
VMA	27	27,000	96.734	1.05500	$4,455.00	14.300	14.626	0.326	0.485	0.600	-0.115	PF 1.0	
Air Voids	27	27,000	88.473	1.00443	$1,436.51	4.000	3.919	0.081	0.769	0.600	0.169	Tons	0
				I/DP:	$12,299.10							2V Adj.	$0.00

Totals: 13445

	Tests	Tons	I/DP	
AC	76	76,000	$5,257.17	CTS I/DP
Density	150	75,000	$16,253.26	$0.00
VMA	76	76,000	$12,120.00	2V Adj
Air Voids	76	76,000	$19,577.78	$0.00
Joint Density				
Plan Quant	73,678		Project I/DP	$53,208.21

CPFC 1.02334

Comments: Final quantities not equal.

Totals for all Projects

Projects with Bid Dates from 1/1/2001 to 12/31/2001.

Number of Projects: 3

	Tests	*Tons*	*I/DP*	
AC	159	158,375	$19,646.12	***CTS I/DP***
Density	315	157,375	$85,244.38	$0.00
VMA	159	158,375	$33,482.55	***2V Adj***
Air Voids	159	158,375	$59,010.53	$0.00
Joint Density				
	Plan Quant	155,270	***Total I/DP***	$197,383.58

Calculated Pay Factor Composite and I/DP by Region, VA

Criteria: Projects with Bid Dates from 1/1/2001 to 12/31/2001.

PFC is back calculated from the Project's I/DP.

A Calculated Average Unit Price is used in the calculation.

Region 2

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
13437	01/18/01	STA 165A-00	2	S	28,496	$32.70	1.05302	$49,401.46	17
13445	05/10/01	NH 1603-018	2	S	76,000	$30.00	1.02334	$53,208.20	14

Region 2

Number of Projects: 2 **CPFC: Maximum:** 1.05302

Total Tons: 104,496 **Minimum:** 1.02334

Average: 1.03818

Incentive/Disincentive Payments

Sum I/DPs: $102,609.66

Positive I/DPs: 2 ***Maximum:*** $53,208.20

Negative I/DPs: 0 ***Minimum:*** $49,401.46

Average IDP: $51,304.83

Region 6

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
12019	01/18/01	NH 4701-088	6	S	53,879	$37.50	1.04691	$94,773.91	13

Region 6

Number of Projects: 1 **CPFC: Maximum:** 1.04691

Total Tons: 53,879 **Minimum:** 1.04691

Average: 1.04691

Incentive/Disincentive Payments

Sum I/DPs: $94,773.91

Positive I/DPs: 1 ***Maximum:*** $94,773.91

Negative I/DPs: 0 ***Minimum:*** $94,773.91

Average IDP: $94,773.91

Statewide Totals: 1/1/2001 to 12/31/2001.

Number of Projects: 3 **CPFC Maximum:** 1.05302

Total Tons: 158,375 **Minimum:** 1.02334

Average: 1.04109

Incentive/Disincentive Payments

Sum I/DPs: $197,383.57

Positive I/DPs: 3 ***Maximum:*** $94,773.91

Negative I/DPs: 0 ***Minimum:*** $49,401.46

Average IDP: $65,794.52

Asphalt Content - Process Information, VA

Criteria: Projects with Bid Dates from 1/1/2001 to 12/31/2001.

Processes with less than 3 tests not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean:	Mean to TV	St. Dev.	V	StDev - V
12019	6	52,869	150884	$37.50	1	53,879	54	97.940	1.05500	5.00	4.99	0.01	0.131	0.20	-0.07
13445	2	73,678	181C	$30.00	1	14,000	14	97.784	1.04500	5.80	5.81	0.01	0.142	0.20	-0.06
13437	2	28,723	180	$32.70	1	28,496	29	93.435	1.03516	6.10	6.08	0.02	0.166	0.20	-0.03
13445	2	73,678	181A	$30.00	1	35,000	35	91.622	1.02068	5.80	5.70	0.10	0.145	0.20	-0.06
13445	2	73,678	181D	$30.00	1	27,000	27	90.062	1.01477	5.60	5.64	0.04	0.181	0.20	-0.02

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	158,375	**Best:**	97.940	1.05500	0.01	0.131	0.20	-0.07
Processes:	5	**Worst:**	90.062	1.01477	0.10	0.181	0.20	-0.02
Tests:	159	**Weighted Average:**	94.376	1.03610	0.04	0.150	0.20	-0.05

Asphalt Content - Totals 1/1/2001 to 12/31/2001.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	158,375	**Best:**	97.940	1.05500	0.01	0.131	0.20	-0.07
Processes:	5	**Worst:**	90.062	1.01477	0.10	0.181	0.20	-0.02
Tests:	159	**Weighted Average:**	94.376	1.03610	0.04	0.150	0.20	-0.05

VMA - Process Information

Criteria: Projects with Bid Dates from 1/1/2001 to 12/31/2001.

Processes with less than 3 tests not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13437	2	28,723	180	$32.70	1	28,496	29	100.000	1.05500	15.70	15.50	0.20	0.224	0.60	-0.376
13445	2	73,678	181C	$30.00	1	14,000	14	100.000	1.04500	14.30	14.49	0.19	0.293	0.60	-0.307
13445	2	73,678	181A	$30.00	1	35,000	35	99.984	1.05500	14.60	14.51	0.09	0.337	0.60	-0.263
12019	6	52,869	150884	$37.50	1	53,879	54	97.266	1.05500	14.10	13.89	0.21	0.514	0.60	-0.086
13445	2	73,678	181D	$30.00	1	27,000	27	96.734	1.05500	14.30	14.63	0.33	0.485	0.60	-0.115

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	158,375	**Best:**	100.000	1.05500	0.09	0.224	0.60	-0.376
Processes:	5	**Worst:**	96.734	1.04500	0.33	0.514	0.60	-0.086
Tests:	159	**Weighted Average:**	98.510	1.05412	0.20	0.398	0.60	-0.202

VMA - Totals 1/1/2001 to 12/31/2001.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	158,375	**Best:**	100.000	1.05500	0.09	0.224	0.60	-0.376
Processes:	5	**Worst:**	96.734	1.04500	0.33	0.514	0.60	-0.086
Tests:	159	**Weighted Average:**	98.510	1.05412	0.20	0.398	0.60	-0.202

Air Voids - Process Information

Criteria: Projects with Bid Dates from 1/1/2001 to 12/31/2001.

Processes with less than 3 tests not included.

Grading: S

Sub.	Reg.	Plan Quant.	Mix Design	Price	Process No	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev -V
13437	2	28,723	180	$32.70	1	28,496	29	99.941	1.05500	4.00	4.07	0.07	0.376	0.60	-0.224
12019	6	52,869	150884	$37.50	1	53,879	54	93.666	1.02977	4.10	3.63	0.47	0.482	0.60	-0.118
13445	2	73,678	181A	$30.00	1	35,000	35	93.415	1.03260	4.00	3.52	0.48	0.484	0.60	-0.116
13445	2	73,678	181C	$30.00	1	14,000	14	90.580	1.02649	4.00	3.46	0.54	0.506	0.60	-0.094
13445	2	73,678	181D	$30.00	1	27,000	27	88.473	1.00443	4.00	3.92	0.08	0.769	0.60	0.169

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	158,375	**Best:**	99.941	1.05500	0.07	0.376	0.60	-0.224
Processes:	5	**Worst:**	88.473	1.00443	0.54	0.769	0.60	0.169
Tests:	159	**Weighted Average:**	93.581	1.03033	0.34	0.514	0.60	-0.086

Air Voids - Totals 1/1/2001 to 12/31/2001.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	158,375	**Best:**	99.941	1.05500	0.07	0.376	0.60	-0.224
Processes:	5	**Worst:**	88.473	1.00443	0.54	0.769	0.60	0.169
Tests:	159	**Weighted Average:**	93.581	1.03033	0.34	0.514	0.60	-0.086

Mat Density - Process Information, Voids Acceptance

Criteria: Projects with Bid Dates from 1/1/2001 to 12/31/2001.

Processes with less than 3 tests not included.

Compaction Test Sections not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13437	2	28,723	180	$32.70	1	28,496	57	99.284	1.05500	94.000	93.516	0.484	0.633	1.100	-0.467
12019	6	52,869	150884	$37.50	1	53,879	108	98.934	1.06000	94.000	93.840	0.160	0.777	1.100	-0.323
13445	2	73,678	181A	$30.00	1	33,500	67	93.518	1.02594	94.000	93.972	0.028	1.093	1.100	-0.007
13445	2	73,678	181D	$30.00	1	26,500	53	91.805	1.01639	94.000	92.774	1.226	0.558	1.100	-0.542
13445	2	73,678	181C	$30.00	1	15,000	30	88.615	1.00341	94.000	93.350	0.650	1.097	1.100	-0.003

Totals - Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	157,375	**Best:**	99.284	1.06000	0.028	0.558	1.100	-0.542
Processes:	5	**Worst:**	88.615	1.00341	1.226	1.097	1.100	-0.003
Tests:	315	**Weighted Average:**	95.661	1.03911	0.417	0.812	1.100	-0.288

Mat Density - Totals 1/1/2001 to 12/31/2001.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	157,375	**Best:**	99.284	1.06000	0.028	0.558	1.100	-0.542
Processes:	5	**Worst:**	88.615	1.00341	1.226	1.097	1.100	-0.003
Tests:	315	**Weighted Average:**	95.661	1.03911	0.417	0.812	1.100	-0.288

Appendix D

Reports for 2002 Projects

Project Listing by Region/Subaccount - Voids Acceptance

Projects with Bid Dates from 1/1/2002 to 12/31/2002.

Region: 1

Subacct.	Project Code	Location	Supplier	Bid Date	Total Bid	Plan Quant.
13817	NH 0405-029	SH 40 Kansas - W	19	03/28/02	$3,143,089.80	58,231
14127	STA 030A-02	SH 30, Quincy North	41	12/19/02	$1,077,005.96	18,105

Number of Projects 2 ***Total Quantity*** 76,336

Region: 2

Subacct.	Project Code	Location	Supplier	Bid Date	Total Bid	Plan Quant.
12834	STA 012A-03	Weston - East	17	06/13/02	$3,714,553.86	23,845
13439	NH 0504-039	SH 50 Jct I-25 to Troy	32	02/14/02	$2,299,963.60	24,169
13480	STA 1151-013	SH 115 Roca Roja	55	01/24/02	$1,856,026.01	17,036
13578	BR 385A-013	Bridge Over Wolf Creek	11	10/10/02	$1,981,378.60	6,415
13931	IM 0251-159	Walsenburg - North	11	02/07/02	$2,749,967.79	63,299
13936	STA 1604-007	Beshour Junction - West	53	02/07/02	$826,389.35	15,841

Number of Projects 6 ***Total Quantity*** 150,605

Region: 3

Subacct.	Project Code	Location	Supplier	Bid Date	Total Bid	Plan Quant.
13534	IM 0701-156	Debeque East & West	16	08/29/02	$2,972,311.96	69,728
13863	STA R300-08	Montrose - Var Locations	12	02/21/02	$2,001,740.80	36,348

Number of Projects 2 ***Total Quantity*** 106,076

Region: 4

Subacct.	Project Code	Location	Supplier	Bid Date	Total Bid	Plan Quant.
12404	STA 1131-004	Junction 138 - North	19	04/25/02	$3,958,666.79	75,105
13906	STA 071A-01	SH 71 N of SH 14 S of Neb.	19	04/25/02	$3,960,222.95	79,140

Number of Projects 2 ***Total Quantity*** 154,245

***Region:* 5**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
13522	NH 2852-012	US 285 Jct SH 17 PH 2	11	09/19/02	$6,129,972.67	110,324

Number of Projects 1 ***Total Quantity*** 110,324

***Region:* 6**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
12287	NH 0853-038	Santa Fe, Church to C470	45	08/01/02	$7,850,406.60	59,892
12864	IM 0761-179	I-76, York St to US 6	33	02/21/02	$2,234,663.10	28,694
13067	IM 0703-268	I 70 Wads to Pecos	19	06/27/02	$3,796,020.05	29,601
13278	STA 2873-112	US 287, Colfax to I-70	33	12/12/02	$2,648,202.40	12,367
13354	STA 2854-087	Hampden: Dahlia to Yosemite	10	02/14/02	$2,077,336.02	19,145
13355	STA 177A-00	SH 177, Arapahoe to Bellevie	33	12/12/02	$873,294.23	8,522
13356	STA 0704-199	I-70, I-270 to E	13	01/24/02	$3,480,101.00	55,716

Number of Projects 7 ***Total Quantity*** 213,937

Totals: Projects with Bid Dates from 1/1/2002 to 12/31/2002.

Number of Projects 20 ***Total Plan Quantity*** 811,523

Project Data, Voids Acceptance

Projects with Bid Dates from 1/1/2002 to 12/31/2002.

Subaccount: 12287 ***NH 0853-038*** ***Santa Fe, Church to C470*** ***Region: 6*** ***Supplier: 45***

Mix Design No **1470001** ***Process No*** 1 ***Grading*** S (100) PG 64-22 ***Price Per Ton*** $33.65

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	24	24,649	79.617	0.94682	($4,410.60)	5.400	5.339	0.061	0.230	0.200	0.030	CTS Tons	0
Density	49	24,649	99.763	1.05500	$18,247.66	94.000	93.978	0.022	0.687	1.100	-0.413	I/DP	$0.00
VMA	24	24,649	99.541	1.05000	$4,147.19	14.600	14.429	0.171	0.421	0.600	-0.179	PF 1.0 Tons	0
Air Voids	24	24,649	92.664	1.03237	$10,739.07	3.000	3.192	0.192	0.658	0.600	0.058		
				I/DP:	$28,723.32						2V Adj.		$0.00

Mix Design No **147038** ***Process No*** 1 ***Grading*** S (100) PG 76-28 ***Price Per Ton*** $41.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	3	3,000	100.000	1.02500	$307.50	5.400	5.430	0.030	0.178	0.200	-0.022	CTS Tons	0
Density	6	3,000	81.669	1.00619	$304.42	94.000	93.000	1.000	1.081	1.100	-0.019	I/DP	$0.00
VMA	3	3,000	100.000	1.02500	$307.50	14.000	14.167	0.167	0.551	0.600	-0.049	PF 1.0 Tons	0
Air Voids	3	3,000	100.000	1.02500	$1,230.00	3.300	3.233	0.067	0.462	0.600	-0.138		
				I/DP:	$2,149.42						2V Adj.		$0.00

Mix Design No **147038** ***Process No*** 2 ***Grading*** S (100) PG 76-28 ***Price Per Ton*** $41.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	18	17,213	93.369	1.03820	$2,695.66	5.400	5.312	0.088	0.143	0.200	-0.057	CTS Tons	0
Density	35	17,213	99.047	1.05500	$15,526.13	94.000	93.986	0.014	0.805	1.100	-0.295	I/DP	$0.00
VMA	18	17,213	94.496	1.04400	$3,105.06	14.000	13.528	0.472	0.466	0.600	-0.134	PF 1.0 Tons	0
Air Voids	18	17,213	90.674	1.02377	$6,710.35	3.300	2.872	0.428	0.589	0.600	-0.011		
				I/DP:	$28,037.20						2V Adj.		$0.00

Mix Design No **147064** ***Process No*** 1 ***Grading*** SX (100) PG 64-22 ***Price Per Ton*** $42.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	7	7,000	79.880	0.99276	($216.73)	5.800	5.690	0.110	0.214	0.200	0.014	CTS Tons	0
Density	13	6,500	87.024	1.01020	$1,133.65	94.000	92.423	1.577	0.377	1.100	-0.723	I/DP	$0.00
VMA	7	7,000	100.000	1.03500	$1,047.37	14.800	15.129	0.329	0.340	0.600	-0.260	PF 1.0 Tons	0
Air Voids	7	7,000	88.339	1.02885	$3,453.51	3.400	3.371	0.029	0.818	0.600	0.218		
				I/DP:	$5,417.80						2V Adj.		$0.00

Mix Design No **147067** ***Process No*** 1 ***Grading*** SX (100) PG 64-22 ***Price Per Ton*** $42.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	2	1,618		1.00000	$0.00	5.900				0.200		CTS Tons	0
Density	4	1,618	100.000	1.03000	$830.03	94.000	92.550	1.450	0.058	1.100	-1.042	I/DP	$0.00
VMA	2	1,618		0.79167	($1,441.03)	14.800				0.600		PF 1.0 Tons	0
Air Voids	2	1,618		0.77083	($6,340.54)	3.200				0.600			
				I/DP:	($6,951.54)						2V Adj.		$0.00

Totals: 12287		Tests	Tons	I/DP			
	AC	54	53,480	($1,624.17)	CTS I/DP		
	Density	107	52,980	$36,041.89	$0.00		
	VMA	54	53,480	$7,166.09	2V Adj		
	Air Voids	54	53,480	$15,792.39	$0.00		
	Joint Density						
	Plan Quant		59,892	Project I/DP	$57,376.20	CPFC	1.02831

Comments:

Subaccount: 12404 *STA 1131-004* *Junction 138 - North* *Region: 4* *Supplier: 19*

Mix Design No **10615** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $35.29

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	5	4,012	78.829	1.00302	$42.69	5.700	5.542	0.158	0.169	0.200	-0.031
Density	10	4,012	82.639	0.99372	($355.41)	94.000	93.760	0.240	1.486	1.100	0.386
VMA	5	4,012	100.000	1.03000	$424.75	14.500	14.180	0.320	0.432	0.600	-0.168
Air Voids	5	4,012	81.634	1.01411	$799.01	3.000	2.600	0.400	0.857	0.600	0.257
				I/DP:	$911.04						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **131343** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $35.29

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	36	36,197	91.386	1.01857	$2,372.65	5.300	5.404	0.104	0.144	0.200	-0.056
Density	72	36,197	85.516	0.96127	($19,790.15)	94.000	93.043	0.957	0.982	1.100	-0.118
VMA	36	36,197	100.000	1.05500	$7,025.66	14.900	14.969	0.069	0.257	0.600	-0.343
Air Voids	36	36,197	99.719	1.05500	$28,102.63	4.100	4.247	0.147	0.397	0.600	-0.203
				I/DP:	$17,710.79						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **131344** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $39.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	17	16,689	99.045	1.05000	$3,296.08	5.300	5.396	0.096	0.093	0.200	-0.107
Density	33	16,689	87.075	0.99082	($2,421.80)	94.000	92.852	1.148	0.755	1.100	-0.345
VMA	17	16,689	100.000	1.05000	$3,296.08	14.800	14.835	0.035	0.335	0.600	-0.265
Air Voids	17	16,689	97.570	1.05000	$13,184.31	4.300	4.000	0.300	0.478	0.600	-0.122
				I/DP:	$17,354.67						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **152279** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $39.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	18	18,171	93.554	1.03916	$2,810.55	5.300	5.366	0.066	0.154	0.200	-0.046
Density	36	17,541	86.604	0.98529	($4,078.01)	94.000	93.144	0.856	1.027	1.100	-0.073
VMA	18	18,171	100.000	1.05000	$3,588.77	14.000	14.211	0.211	0.245	0.600	-0.355
Air Voids	18	18,171	99.751	1.05000	$14,355.09	3.400	3.456	0.056	0.444	0.600	-0.156
				I/DP:	$16,676.40						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **TS** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $39.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC					$0.00					0.200	
Density	7	630	50.000	0.78655	($2,124.66)	94.000	92.000	2.000	0.983	1.100	-0.117
VMA					$0.00					0.600	
Air Voids					$0.00					0.600	
				I/DP:	($2,124.66)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Totals: 12404		Tests	Tons	I/DP	
	AC	76	75,069	$8,521.97	CTS I/DP
	Density	158	75,069	($28,770.03)	$0.00
	VMA	76	75,069	$14,335.26	2V Adj
	Air Voids	76	75,069	$56,441.04	$0.00
	Joint Density				
	Plan Quant	75,105		Project I/DP $50,528.24	CPFC 1.01807

Comments:

Subaccount: 12834 *STA 012A-034* *Weston - East* *Region: 2* *Supplier: 17*

Mix Design No 227 *Process No* 1 *Grading* S () PG *Price Per Ton* $40.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	5	5,000	51.738	0.84102	($3,219.28)	5.800	5.510	0.290	0.205	0.200	0.005	CTS Tons	0
Density	11	5,500	95.748	1.04500	$4,009.50	94.000	93.473	0.527	0.901	1.100	-0.199	I/DP	$0.00
VMA	5	5,000	94.214	1.03000	$607.50	14.400	14.620	0.220	0.698	0.600	0.098	PF 1.0	
Air Voids	5	5,000	53.518	0.85472	($11,767.85)	3.000	4.140	1.140	0.607	0.600	0.007	Tons	0
				I/DP:	($10,370.13)							2V Adj.	$0.00

Mix Design No 227B *Process No* 1 *Grading* S () PG *Price Per Ton* $40.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	18	18,000	94.375	1.04338	$3,162.30	5.800	5.763	0.037	0.159	0.200	-0.041	CTS Tons	0
Density	35	17,500	96.697	1.05378	$15,247.43	94.000	93.666	0.334	0.901	1.100	-0.199	I/DP	$0.00
VMA	18	18,000	98.682	1.05000	$3,645.00	14.400	14.339	0.061	0.519	0.600	-0.081	PF 1.0	
Air Voids	18	18,000	98.571	1.05000	$14,580.00	3.500	3.583	0.083	0.520	0.600	-0.080	Tons	0
				I/DP:	$36,634.73							2V Adj.	$0.00

Totals: 12834		Tests	Tons	I/DP	
	AC	23	23,000	($56.98)	CTS I/DP
	Density	46	23,000	$19,256.93	$0.00
	VMA	23	23,000	$4,252.50	2V Adj
	Air Voids	23	23,000	$2,812.15	$0.00
	Joint Density				
	Plan Quant	23,845		Project I/DP $26,264.60	CPFC 1.02820

Comments:

Subaccount: 12864 *IM 0761-179* *I-76, York St to US 6* *Region: 6* *Supplier: 33*

Mix Design No **105886** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $42.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	1	1,000		1.00000	$0.00	4.800				0.200		CTS Tons	0
Density	2	1,000		0.96591	($572.73)	94.000	91.900	2.100		1.100		I/DP	$0.00
VMA	1	1,000		1.00000	$0.00	14.100				0.600		PF 1.0 Tons	0
Air Voids	1	1,000		0.75000	($4,200.00)	3.900				0.600			
				I/DP:	($4,772.73)							2V Adj.	$0.00

Mix Design No **105886** ***Process No*** 2 ***Grading*** S () PG ***Price Per Ton*** $42.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	2	2,105		1.00000	$0.00	4.800				0.200		CTS Tons	0
Density	4	2,105	62.122	0.93602	($2,262.71)	94.000	93.000	1.000	2.146	1.100	1.046	I/DP	$0.00
VMA	2	2,105		1.00000	$0.00	14.100				0.600		PF 1.0 Tons	0
Air Voids	2	2,105		1.00000	$0.00	3.900				0.600			
				I/DP:	($2,262.71)							2V Adj.	$0.00

Mix Design No **105886A** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $42.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	2	1,917		1.00000	$0.00	4.800				0.200		CTS Tons	0
Density	3	1,917	46.462	0.86211	($4,440.83)	94.000	91.833	2.167	1.301	1.100	0.201	I/DP	$0.00
VMA	2	1,917		1.00000	$0.00	14.100				0.600		PF 1.0 Tons	0
Air Voids	2	1,917		1.00000	$0.00	3.900				0.600			
				I/DP:	($4,440.83)							2V Adj.	$0.00

Mix Design No **146992** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $42.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	13	12,615	84.457	0.99672	($173.73)	4.800	4.772	0.028	0.214	0.200	0.014	CTS Tons	0
Density	25	12,615	89.730	1.01385	$2,936.23	94.000	93.480	0.520	1.128	1.100	0.028	I/DP	$0.00
VMA	13	12,615	85.742	1.00357	$189.15	14.400	13.777	0.623	0.540	0.600	-0.060	PF 1.0 Tons	0
Air Voids	13	12,615	85.684	1.00327	$692.13	4.400	3.846	0.554	0.606	0.600	0.006		
				I/DP:	$3,643.78							2V Adj.	$0.00

Totals: 12864

	Tests	Tons	I/DP	
AC	18	17,637	($173.73)	CTS I/DP
Density	34	17,637	($4,340.04)	$0.00
VMA	18	17,637	$189.15	2V Adj
Air Voids	18	17,637	($3,507.87)	$0.00
Joint Density				
Plan Quant		28,694	Project I/DP	($7,832.49)

CPFC 0.98943

Comments:

Subaccount: 13067 *IM 0703-268* *I 70 Wads to Pecos* *Region: 6* *Supplier: 19*

Mix Design No **147004** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $39.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	18	18,902	87.089	1.00338	$253.95	5.200	5.219	0.019	0.201	0.200	0.001	CTS Tons	0
Density	32	18,902	94.621	1.04149	$12,470.62	94.000	93.437	0.563	0.899	1.100	-0.201	I/DP	$0.00
VMA	18	18,902	99.395	1.05000	$3,756.77	14.300	13.844	0.456	0.451	0.600	-0.149	PF 1.0	
Air Voids	18	18,902	88.891	1.01380	$4,147.98	3.000	3.311	0.311	0.701	0.600	0.101	Tons	0
				I/DP:	$20,629.32							2V Adj.	$0.00

Mix Design No **990-2** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $39.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	15	15,228	98.999	1.05000	$3,026.57	4.900	4.885	0.015	0.128	0.200	-0.072	CTS Tons	0
Density	29	15,228	99.023	1.05500	$13,316.89	94.000	94.690	0.690	0.585	1.100	-0.515	I/DP	$0.00
VMA	15	15,228	93.839	1.04103	$2,483.64	14.900	14.507	0.393	0.536	0.600	-0.064	PF 1.0	
Air Voids	15	15,228	96.825	1.05000	$12,106.26	4.000	3.880	0.120	0.583	0.600	-0.017	Tons	0
				I/DP:	$30,933.36							2V Adj.	$0.00

Totals: 13067

	Tests	Tons	I/DP			
AC	33	34,130	$3,280.52	CTS I/DP		
Density	61	34,130	$25,787.51	$0.00		
VMA	33	34,130	$6,240.41	2V Adj		
Air Voids	33	34,130	$16,254.24	$0.00		
Joint Density						
Plan Quant		29,601	Project I/DP	$51,562.68	CPFC	1.03801

Comments: Gradation & Voids, see 13066

Subaccount: 13278 *STA 2873-112* *US 287, Colfax to I-70* *Region: 6* *Supplier: 33*

Mix Design No **147010** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	3	2,500	69.059	0.99734	($25.26)	5.100	4.843	0.257	0.067	0.200	-0.133
Density	3	1,500	39.336	0.80149	($4,526.10)	94.000	91.733	2.267	0.702	1.100	-0.398
VMA	3	2,500	100.000	1.02500	$237.50	14.100	14.600	0.500	0.200	0.600	-0.400
Air Voids	3	2,500	75.612	1.02035	$773.19	3.000	3.900	0.900	0.361	0.600	-0.239
				I/DP:	($3,540.67)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	1,000
2V Adj.	$0.00

Mix Design No **147010B** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	11	10,049	98.035	1.04500	$1,718.38	5.100	5.140	0.040	0.137	0.200	-0.063
Density	20	10,049	99.994	1.05000	$7,637.24	94.000	94.060	0.060	0.600	1.100	-0.500
VMA	11	10,049	91.930	1.03521	$1,344.39	14.600	14.309	0.291	0.655	0.600	0.055
Air Voids	11	10,049	87.779	1.01696	$2,590.11	3.000	3.100	0.100	0.799	0.600	0.199
				I/DP:	$13,290.12						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Totals: 13278

	Tests	Tons	I/DP	
AC	14	12,549	$1,693.12	CTS I/DP
Density	23	12,549	$3,111.14	$0.00
VMA	14	12,549	$1,581.89	2V Adj
Air Voids	14	12,549	$3,363.30	$0.00
Joint Density				
Plan Quant		12,367	Project I/DP	$9,749.45

CPFC 1.02045

Comments:

Subaccount: 13354 *STA 2854-087* *Hampden: Dahlia to Yosemite* *Region: 6* *Supplier: 10*

Mix Design No 105894 *Process No* 1 *Grading* S () PG *Price Per Ton* $41.10

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	1	2,000			$0.00	5.200				0.200		CTS Tons	0
Density	2	1,000		0.98864	($186.82)	94.000				1.100		I/DP	$0.00
VMA	1	1,000			$0.00	15.100				0.600		PF 1.0 Tons	0
Air Voids	1	1,000			$0.00	4.000				0.600			
				I/DP:	($186.82)						2V Adj.		$0.00

Mix Design No 105895 *Process No* 1 *Grading* S () PG *Price Per Ton* $44.90

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	17	17,000	85.731	0.99683	($242.11)	5.100	4.944	0.156	0.134	0.200	-0.066	CTS Tons	0
Density	35	17,500	98.550	1.05500	$17,286.50	94.000	94.506	0.506	0.704	1.100	-0.396	I/DP	$0.00
VMA	17	17,000	99.456	1.05000	$3,816.50	14.600	14.671	0.071	0.474	0.600	-0.126	PF 1.0 Tons	0
Air Voids	17	17,000	94.488	1.04396	$13,422.55	4.000	4.088	0.088	0.647	0.600	0.047		
				I/DP:	$34,283.44						2V Adj.		$0.00

Totals: 13354

	Tests	Tons	I/DP	
AC	18	19,000	($242.11)	CTS I/DP
Density	37	18,500	$17,099.68	$0.00
VMA	18	18,000	$3,816.50	2V Adj
Air Voids	18	18,000	$13,422.55	$0.00
Joint Density				
Plan Quant		19,145	Project I/DP	$34,096.62

CPFC 1.04162

Comments: Final quantities not equal.

Subaccount: 13355 *STA 177A-003* *SH 177, Arapahoe to Belleview* *Region: 6* *Supplier: 33*

Mix Design No **147032** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $42.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	3	3,285	31.023	0.71988	($3,864.80)	4.500	4.937	0.437	0.211	0.200	0.011	CTS Tons	0
Density	6	2,756	65.988	0.92305	($3,562.75)	94.000	92.683	1.317	1.546	1.100	0.446	I/DP	$0.00
VMA	3	3,285	100.000	1.02500	$344.92	14.300	14.300	0.000	0.100	0.600	-0.500	PF 1.0 Tons	0
Air Voids	3	3,285	63.326	0.97124	($1,587.37)	3.000	2.013	0.987	0.454	0.600	-0.146		
				I/DP:	($8,670.00)							2V Adj.	$0.00

Mix Design No **147032** ***Process No*** 2 ***Grading*** S () PG ***Price Per Ton*** $42.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC				0.34091	($1,464.37)					0.200		CTS Tons	0
Density	1	529		0.34091	($5,857.47)	94.000				1.100		I/DP	$0.00
VMA				0.34091	($2,928.74)					0.600		PF 1.0 Tons	0
Air Voids				0.34091	($4,393.10)					0.600			
				I/DP:	($14,643.68)							2V Adj.	$822.45

Totals: 13355

	Tests	Tons	I/DP			
AC	3	3,285	($5,329.17)	CTS I/DP		
Density	7	3,285	($9,420.22)	$0.00		
VMA	3	3,285	($2,583.82)	2V Adj		
Air Voids	3	3,285	($5,980.47)	$822.45		
Joint Density						
Plan Quant		8,522	Project I/DP	($22,491.23)	CPFC	0.83102

Comments: 2 x V out test, 529 tons price reduced.

Subaccount: 13356 *STA 0704-199* *I-70, I-270 to E* *Region: 6* *Supplier: 13*

Mix Design No 105884 **Process No** 1 **Grading** S () PG **Price Per Ton** $37.55

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	51	50,477	96.388	1.04974	$9,426.91	5.000	5.055	0.055	0.135	0.200	-0.065
Density	101	50,477	98.510	1.06000	$45,489.87	94.000	93.609	0.391	0.743	1.100	-0.357
VMA	51	50,477	96.276	1.04895	$9,277.47	14.100	14.155	0.055	0.583	0.600	-0.017
Air Voids	51	50,477	93.736	1.03089	$23,419.64	4.100	3.933	0.167	0.630	0.600	0.030
				I/DP:	$87,613.89						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 146978 **Process No** 1 **Grading** S () PG **Price Per Ton** $34.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	5	4,884	100.000	1.03000	$509.16	5.000	5.110	0.110	0.076	0.200	-0.124
Density	10	4,884	70.516	0.92214	($5,285.40)	94.000	92.620	1.380	1.118	1.100	0.018
VMA	5	4,884	89.575	1.03000	$509.16	14.600	15.300	0.700	0.412	0.600	-0.188
Air Voids	5	4,884	59.977	0.90081	($6,733.45)	4.100	5.140	1.040	0.568	0.600	-0.032
				I/DP:	($11,000.53)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Totals: 13356

	Tests	Tons	I/DP	
AC	56	55,361	$9,936.07	CTS I/DP
Density	111	55,361	$40,204.47	$0.00
VMA	56	55,361	$9,786.63	2V Adj
Air Voids	56	55,361	$16,686.19	$0.00
Joint Density				
Plan Quant		55,716	Project I/DP	$76,613.36

CPFC 1.03710

Comments:

Subaccount: 13439 *NH 0504-039* *SH 50 Jct I-25 to Troy* *Region: 2* *Supplier: 32*

Mix Design No **64-22** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $37.25

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	11	7,821	84.424	1.00062	$18.11	5.300	5.252	0.048	0.211	0.200	0.011	CTS Tons	0
Density	16	7,821	99.717	1.05000	$5,826.65	94.000	93.556	0.444	0.631	1.100	-0.469	I/DP	$0.00
VMA	16	7,821	93.688	1.04017	$1,170.38	14.200	13.706	0.494	0.473	0.600	-0.127	PF 1.0	
Air Voids	16	7,821	57.665	0.79182	($24,260.05)	4.000	2.918	1.082	0.599	0.600	-0.001	Tons	0
				I/DP:	($17,244.91)							2V Adj.	$0.00

Mix Design No **64-22-2** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $37.25

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	9	4,194	75.541	0.95693	($672.82)	3.500	5.047	1.547	0.256	0.200	0.056	CTS Tons	0
Density	9	4,194	98.102	1.04000	$2,499.62	94.000	93.511	0.489	0.816	1.100	-0.284	I/DP	$0.00
VMA	9	4,194	85.641	1.01012	$158.13	14.200	14.000	0.200	0.828	0.600	0.228	PF 1.0	
Air Voids	9	4,194	70.088	0.92233	($4,850.34)	4.000	4.137	0.137	1.146	0.600	0.546	Tons	0
				I/DP:	($2,865.41)							2V Adj.	$0.00

Mix Design No **QC7628** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $42.80

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	29	12,366	69.028	0.85776	($7,528.01)	5.000	4.819	0.181	0.222	0.200	0.022	CTS Tons	0
Density	26	12,366	100.000	1.05500	$11,643.83	94.000	93.969	0.031	0.471	1.100	-0.629	I/DP	$0.00
VMA	25	12,366	68.091	0.85617	($7,612.51)	14.000	13.032	0.968	0.489	0.600	-0.111	PF 1.0	
Air Voids	11	12,366	50.658	0.75738	($51,364.10)	4.000	2.809	1.191	0.534	0.600	-0.066	Tons	0
				I/DP:	($54,860.79)							2V Adj.	$0.00

Totals: 13439

	Tests	Tons	I/DP	
AC	49	24,381	($8,182.72)	CTS I/DP
Density	51	24,381	$19,970.10	$0.00
VMA	50	24,381	($6,284.00)	2V Adj
Air Voids	36	24,381	($80,474.49)	$0.00
Joint Density				
Plan Quant	24,169	Project I/DP	($74,971.11)	CPFC 0.92325

Comments:

Subaccount: 13480 *STA 1151-013* *SH 115 Roca Roja* *Region: 2* *Supplier: 55*

Mix Design No 237RR *Process No* 1 *Grading* S () PG *Price Per Ton* $35.82

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	4	3,255	69.884	0.97822	($253.91)	5.400	5.643	0.243	0.096	0.200	-0.104
Density	7	3,255	90.682	1.03500	$1,428.28	94.000	92.843	1.157	0.658	1.100	-0.442
VMA	4	3,255	100.000	1.03000	$349.78	14.400	14.125	0.275	0.126	0.600	-0.474
Air Voids	4	3,255	100.000	1.03000	$1,049.35	3.000	3.025	0.025	0.096	0.600	-0.504
				I/DP:	$2,573.50						

Other: CTS Tons 0; I/DP $0.00; PF 1.0 Tons 0; 2V Adj. $0.00

Mix Design No 239RR *Process No* 1 *Grading* S () PG *Price Per Ton* $30.27

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	4	4,000	95.015	1.03000	$363.24	5.400	5.570	0.170	0.096	0.200	-0.104
Density	8	4,000	76.633	0.96898	($1,314.55)	94.000	92.737	1.263	0.987	1.100	-0.113
VMA	4	4,000	100.000	1.03000	$363.24	14.000	13.275	0.725	0.126	0.600	-0.474
Air Voids	4	4,000	61.471	0.93207	($2,467.40)	3.000	1.950	1.050	0.436	0.600	-0.164
				I/DP:	($3,055.47)						

Other: CTS Tons 0; I/DP $0.00; PF 1.0 Tons 0; 2V Adj. $0.00

Mix Design No 240RR *Process No* 1 *Grading* S () PG *Price Per Ton* $30.27

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	2	1,964		1.00000	$0.00	5.600				0.200	
Density	4	1,964	84.995	1.03000	$624.23	94.000	92.975	1.025	0.929	1.100	-0.171
VMA	2	1,964		0.91667	($495.42)	14.400				0.600	
Air Voids	2	1,964		1.00000	$0.00	3.000				0.600	
				I/DP:	$128.81						

Other: CTS Tons 0; I/DP $0.00; PF 1.0 Tons 0; 2V Adj. $0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	*Quality Level*	*Pay Factor*	I/DP	TV	Mean	*Mean to TV*	Std Dev	V	*St Dev. - V*
S	$30.27	1	3	5,964	100.000	1.02500	$676.99	92.000	91.270	0.730	2.511	1.600	0.911
S	$35.82	2	3	2,389	44.379	0.84528	($1,985.94)	92.000	87.770	4.230	1.150	1.600	-0.450
S	$35.82	3	1	866		0.35938	($2,980.82)	92.000				1.600	

Totals: 13480

	Tests	Tons	I/DP	
AC	10	9,219	$109.33	CTS I/DP
Density	19	9,219	$737.96	$0.00
VMA	10	9,219	$217.60	2V Adj
Air Voids	10	9,219	($1,418.05)	$0.00
Joint Density	7	9,219	($4,289.77)	
Plan Quant		17,036	Project I/DP	($4,642.93)

CPFC 0.98437

Comments: Second half in 13479

Subaccount: 13522 *NH 2852-012* *US 285 Jct SH 17 PH 2* *Region: 5* *Supplier: 11*

Mix Design No **13522** ***Process No*** 1 ***Grading*** SX () PG ***Price Per Ton*** $31.30

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	117	113,295	87.504	0.97305	($9,557.70)	7.600	7.582	0.018	0.195	0.200	-0.005	CTS Tons	0
Density	221	107,489	92.700	1.00664	$8,934.45	94.000	93.851	0.149	1.108	1.100	0.008	I/DP	$0.00
VMA	117	113,295	90.584	0.99861	($494.11)	16.700	17.016	0.316	0.646	0.600	0.046	PF 1.0	
Air Voids	117	113,295	88.851	0.98425	($22,346.21)	3.500	3.491	0.009	0.757	0.600	0.157	Tons	5,806
				I/DP:	($23,463.57)							2V Adj.	$0.00

Totals: 13522

	Tests	Tons	I/DP	
AC	117	113,295	($9,557.70)	CTS I/DP
Density	221	113,295	$8,934.45	$0.00
VMA	117	113,295	($494.11)	2V Adj
Air Voids	117	113,295	($22,346.21)	$0.00
Joint Density				
Plan Quant		110,324	Project I/DP	($23,463.57)

CPFC 0.99338

Comments:

Subaccount: 13534 *IM 0701-156* *Debeque East & West* *Region: 3* *Supplier: 16*

Mix Design No **104503** ***Process No*** 1 ***Grading*** SX (100) PG ***Price Per Ton*** $30.42

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	8	7,278	84.130	1.00657	$145.51	5.900	5.761	0.139	0.160	0.200	-0.040	CTS Tons	493
Density	9	4,500	94.151	1.04000	$2,190.24	94.000	93.556	0.444	1.038	1.100	-0.062	I/DP	($888.44)
VMA	8	7,278	73.779	0.95274	($1,046.27)	16.300	15.450	0.850	0.532	0.600	-0.068	PF 1.0	
Air Voids	8	7,278	82.324	0.99819	($160.37)	3.600	2.812	0.788	0.439	0.600	-0.161	Tons	2,816
				I/DP:	$240.67							2V Adj.	$0.00

Mix Design No **104503-2** ***Process No*** 1 ***Grading*** SX (100) PG ***Price Per Ton*** $30.20

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	7	7,067	89.952	1.03462	$738.83	5.800	5.851	0.051	0.190	0.200	-0.010	CTS Tons	500
Density	13	6,500	79.504	0.96842	($2,479.89)	94.000	93.315	0.685	1.439	1.100	0.339	I/DP	1,245.81)
VMA	7	7,067	100.000	1.03500	$746.98	16.300	16.557	0.257	0.244	0.600	-0.356	PF 1.0	
Air Voids	7	7,067	74.176	0.96287	($3,170.03)	3.600	4.429	0.829	0.550	0.600	-0.050	Tons	0
				I/DP:	($5,409.92)							2V Adj.	$0.00

Mix Design No **4503-3** ***Process No*** 1 ***Grading*** SX (100) PG ***Price Per Ton*** $30.42

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	40	39,374	92.354	1.02368	$2,835.94	5.900	5.873	0.027	0.170	0.200	-0.030	CTS Tons	500
Density	79	39,374	89.905	0.99597	($1,931.39)	94.000	93.409	0.591	1.072	1.100	-0.028	I/DP	$214.44
VMA	40	39,374	87.065	0.98630	($1,640.90)	16.300	15.660	0.640	0.497	0.600	-0.103	PF 1.0	
Air Voids	40	39,374	81.428	0.94434	($26,665.64)	3.600	3.067	0.533	0.725	0.600	0.125	Tons	0
				I/DP:	($27,187.55)							2V Adj.	$0.00

Mix Design No **64-22** ***Process No*** 1 ***Grading*** SX (100) PG 64-22 ***Price Per Ton*** $28.56

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	16	16,776	73.197	0.91749	($3,953.45)	5.700	5.811	0.111	0.248	0.200	0.048	CTS Tons	0
Density		0			$0.00	94.000				1.100		I/DP	$0.00
VMA	16	16,776	99.028	1.05000	$2,395.61	16.300	16.256	0.044	0.510	0.600	-0.090	PF 1.0	
Air Voids	16	16,776	74.359	0.92576	($14,228.64)	3.600	4.337	0.737	0.697	0.600	0.097	Tons	16,776
				I/DP:	($15,786.48)							2V Adj.	$0.00

Totals: 13534

	Tests	Tons	I/DP	
AC	71	70,495	($233.17)	CTS I/DP
Density	101	71,459	($2,221.04)	($1,919.81)
VMA	71	70,495	$455.42	2V Adj
Air Voids	71	70,495	($44,224.68)	$0.00
Joint Density				
Plan Quant		69,728	Project I/DP	($48,143.28)

CPFC 0.97720

Comments: Final quantities not equal

Subaccount: 13578 *BR 385A-013* *Bridge Over Wolf Creek* *Region: 2* *Supplier: 11*

Mix Design No 253 *Process No* 1 *Grading* S () PG *Price Per Ton* $46.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	7	6,415	100.000	1.03500	$1,032.81	5.300	5.361	0.061	0.084	0.200	-0.116
Density	6	2,915	66.831	0.92840	($3,840.18)	94.000	92.583	1.417	1.251	1.100	0.151
VMA	7	6,415	100.000	1.03500	$1,032.81	14.400	14.600	0.200	0.200	0.600	-0.400
Air Voids	7	6,415	94.870	1.03500	$4,131.26	3.100	3.743	0.643	0.369	0.600	-0.231
				I/DP:	$2,356.70						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	3,500
2V Adj.	$0.00

Totals: 13578

	Tests	Tons	I/DP			
AC	7	6,415	$1,032.81	CTS I/DP		
Density	6	6,415	($3,840.18)	$0.00		
VMA	7	6,415	$1,032.81	2V Adj		
Air Voids	7	6,415	$4,131.26	$0.00		
Joint Density						
Plan Quant		6,415	Project I/DP	$2,356.70	CPFC	1.00799

Comments: 3335 tons tested under gradation acceptance sub 13579.

Subaccount: 13817 *NH 0405-029* *SH 40 Kansas - W* *Region: 1* *Supplier: 19*

Mix Design No **1372021** ***Process No*** 1 ***Grading*** SX () PG ***Price Per Ton*** $36.05

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	38	37,338	99.240	1.05500	$7,403.19	5.400	5.372	0.028	0.113	0.200	-0.087
Density	76	37,338	95.177	1.03804	$20,480.34	94.000	93.683	0.317	0.972	1.100	-0.128
VMA	38	37,338	99.708	1.05500	$7,403.19	15.000	14.718	0.282	0.349	0.600	-0.251
Air Voids	38	37,338	99.754	1.05500	$29,652.42	4.000	3.961	0.039	0.417	0.600	-0.183
				I/DP:	$64,939.14						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **1372022** ***Process No*** 1 ***Grading*** SX () PG ***Price Per Ton*** $31.45

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	35	34,066	96.276	1.05111	$5,475.92	5.400	5.347	0.053	0.137	0.200	-0.063
Density		0			$0.00	94.000				1.100	
VMA	35	34,066	99.763	1.05500	$5,892.57	15.000	14.649	0.351	0.317	0.600	-0.283
Air Voids	35	34,066	97.340	1.05500	$23,570.27	4.000	3.614	0.386	0.430	0.600	-0.170
				I/DP:	$34,938.76						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	34,066
2V Adj.	$0.00

Totals: 13817

	Tests	Tons	I/DP	
AC	73	71,404	$12,879.11	CTS I/DP
Density	76	71,404	$20,480.34	$0.00
VMA	73	71,404	$13,295.76	2V Adj
Air Voids	73	71,404	$53,222.69	$0.00
Joint Density				
Plan Quant	58,231		Project I/DP	$99,877.90

CPFC 1.04132

Comments: MD 2022 leveling course.

Subaccount: 13863 *STA R300-089* *Montrose - Var Locations* *Region: 3* *Supplier: 12*

Mix Design No **294** ***Process No*** 1 ***Grading*** SX () PG ***Price Per Ton*** $38.34

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	13	12,287	74.850	0.93907	($2,870.45)	6.200	6.181	0.019	0.262	0.200	0.062	CTS Tons	0
Density		0			$0.00	94.000				1.100		I/DP	$0.00
VMA	13	12,287	99.911	1.04500	$2,119.88	15.400	15.415	0.015	0.447	0.600	-0.153	PF 1.0	
Air Voids	13	12,287	84.272	0.99572	($806.26)	4.000	4.300	0.300	0.811	0.600	0.211	Tons	12,287
				I/DP:	($1,556.83)							2V Adj.	$0.00

Mix Design No **299** ***Process No*** 1 ***Grading*** SX () PG ***Price Per Ton*** $35.47

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	27	26,341	90.887	1.02004	$1,872.57	6.200	6.113	0.087	0.158	0.200	-0.042	CTS Tons	0
Density	50	26,341	87.899	0.98844	($4,318.63)	94.000	94.140	0.140	1.292	1.100	0.192	I/DP	$0.00
VMA	27	26,341	96.191	1.05257	$4,912.01	15.400	15.081	0.319	0.506	0.600	-0.094	PF 1.0	
Air Voids	27	26,341	92.873	1.03250	$12,147.73	4.000	3.989	0.011	0.680	0.600	0.080	Tons	0
				I/DP:	$14,613.68							2V Adj.	$0.00

Totals: 13863

	Tests	Tons	I/DP			
AC	40	38,628	($997.88)	CTS I/DP		
Density	50	38,628	($4,318.63)	$0.00		
VMA	40	38,628	$7,031.89	2V Adj		
Air Voids	40	38,628	$11,341.47	$0.00		
Joint Density						
Plan Quant		36,348	Project I/DP	$13,056.85	CPFC	1.00929

Comments:

Subaccount: 13906 *STA 071A-014* *SH 71 N of SH 14 S of Neb.* *Region: 4* *Supplier: 19*

Mix Design No **06014BA** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $37.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	29	29,276	90.901	1.01905	$2,091.52	5.300	5.275	0.025	0.179	0.200	-0.021
Density	59	29,276	98.238	1.05500	$24,152.70	94.000	94.371	0.371	0.779	1.100	-0.321
VMA	29	29,276	99.935	1.05500	$6,038.17	13.700	13.514	0.186	0.343	0.600	-0.257
Air Voids	29	29,276	95.357	1.04702	$20,650.12	3.000	2.941	0.059	0.616	0.600	0.016
				I/DP:	$52,932.51						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **106014A** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $34.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	44	43,066	88.999	0.99877	($180.72)	5.300	5.315	0.015	0.189	0.200	-0.011
Density	12	6,000	99.152	1.04500	$3,672.00	94.000	94.025	0.025	0.876	1.100	-0.224
VMA	44	43,066	99.506	1.05500	$8,053.34	14.100	13.859	0.241	0.384	0.600	-0.216
Air Voids	44	43,066	88.461	0.99486	($3,008.79)	3.000	3.343	0.343	0.686	0.600	0.086
				I/DP:	$8,535.83						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **106014A** ***Process No*** 2 ***Grading*** S () PG ***Price Per Ton*** $34.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC					$0.00					0.200	
Density	75	37,066	96.486	1.04833	$24,363.97	94.000	94.101	0.101	0.955	1.100	-0.145
VMA					$0.00					0.600	
Air Voids					$0.00					0.600	
				I/DP:	$24,363.97						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No **106014B** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $37.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	7	7,000	71.014	0.94437	($1,460.20)	5.200	5.283	0.083	0.273	0.200	0.073
Density	14	7,000	97.800	1.04500	$4,725.00	94.000	94.364	0.364	0.862	1.100	-0.238
VMA	7	7,000	100.000	1.03500	$918.75	13.700	13.543	0.157	0.244	0.600	-0.356
Air Voids	7	7,000	99.723	1.03500	$3,675.00	3.000	2.974	0.026	0.569	0.600	-0.031
				I/DP:	$7,858.55						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Totals: 13906

	Tests	Tons	I/DP	
AC	80	79,342	$450.60	CTS I/DP
Density	160	79,342	$56,913.67	$0.00
VMA	80	79,342	$15,010.26	2V Adj
Air Voids	80	79,342	$21,316.33	$0.00
Joint Density				
Plan Quant	79,140	Project I/DP	$93,690.86	CPFC 1.03317

Comments:

Subaccount: 13931 *IM 0251-159* *Walsenburg - North* *Region: 2* *Supplier: 11*

Mix Design No **193** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $30.43

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	5	5,000	79.318	1.00503	$76.50	5.400	5.294	0.106	0.226	0.200	0.026	CTS Tons	0
Density	10	5,000	100.000	1.04500	$2,738.70	94.000	93.800	0.200	0.620	1.100	-0.480	I/DP	$0.00
VMA	5	5,000	47.726	0.80858	($2,912.53)	14.000	15.280	1.280	1.252	0.600	0.652	PF 1.0	
Air Voids	4	4,000	65.612	0.95609	($2,137.86)	4.000	4.600	0.600	1.219	0.600	0.619	Tons	0
				I/DP:	($2,235.19)							2V Adj.	$0.00

Mix Design No **193** ***Process No*** 2 ***Grading*** S () PG ***Price Per Ton*** $30.43

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC					($2,535.83)					0.200		CTS Tons	0
Density		0			($10,143.33)	94.000				1.100		I/DP	$0.00
VMA					($5,071.67)					0.600		PF 1.0	
Air Voids	1	1,000		0.16667	($7,607.50)	4.000				0.600		Tons	0
				I/DP:	($25,358.33)							2V Adj.	$19.47

Mix Design No **198** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $30.43

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	85	84,999	97.562	1.05649	$14,612.00	5.600	5.571	0.029	0.132	0.200	-0.068	CTS Tons	0
Density	170	84,999	95.427	1.03610	$37,345.92	94.000	93.359	0.641	0.805	1.100	-0.295	I/DP	$0.00
VMA	85	84,999	88.467	0.98382	($4,184.72)	14.000	14.132	0.132	0.754	0.600	0.154	PF 1.0	
Air Voids	85	84,999	83.205	0.94078	($61,264.49)	4.000	3.821	0.179	0.854	0.600	0.254	Tons	0
				I/DP:	($13,491.29)							2V Adj.	$0.00

Totals: 13931

	Tests	Tons	I/DP	
AC	90	89,999	$12,152.67	CTS I/DP
Density	180	89,999	$29,941.29	$0.00
VMA	90	89,999	($12,168.92)	2V Adj
Air Voids	90	89,999	($71,009.85)	$19.47
Joint Density				
Plan Quant	63,299		Project I/DP ($41,065.34)	CPFC 0.98500

Comments: 1000 tons 2 x V out.

Subaccount: 13936 *STA 1604-007* *Beshour Junction - West* *Region: 2* *Supplier: 53*

Mix Design No **124A** ***Process No*** 2 ***Grading*** S () PG ***Price Per Ton*** $28.54

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC				0.16700	($2,378.33)					0.200		CTS Tons	0
Density				0.16700	($9,513.33)	94.000				1.100		I/DP	$0.00
VMA		1,000		0.16700	($4,756.67)					0.600		PF 1.0 Tons	0
Air Voids		1,000		0.16700	($7,135.00)					0.600			
				I/DP:	($23,783.33)							2V Adj.	($671.46)

Mix Design No **124A** ***Process No*** 4 ***Grading*** S () PG ***Price Per Ton*** $28.54

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC					($2,854.00)					0.200		CTS Tons	0
Density					($11,416.00)	94.000				1.100		I/DP	$0.00
VMA		1,000			($5,708.00)					0.600		PF 1.0 Tons	0
Air Voids		1,000			($8,562.00)					0.600			
				I/DP:	($28,540.00)							2V Adj.	$0.00

Mix Design No **124A** ***Process No*** 5 ***Grading*** S () PG ***Price Per Ton*** $28.54

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC				0.45800	($1,545.92)					0.200		CTS Tons	0
Density				0.45800	($6,183.67)	94.000				1.100		I/DP	$0.00
VMA		1,000		0.45800	($3,091.83)					0.600		PF 1.0 Tons	0
Air Voids				0.45800	($4,637.75)					0.600			
				I/DP:	($15,459.17)							2V Adj.	$0.00

Mix Design No **214A** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $28.54

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	15	14,248	87.139	1.00760	$309.18	5.500	5.418	0.082	0.184	0.200	-0.016	CTS Tons	0
Density	29	14,248	92.482	1.02917	$4,743.88	94.000	94.048	0.048	1.145	1.100	0.045	I/DP	$0.00
VMA	11	10,248	65.031	0.87846	($3,554.88)	14.000	13.018	0.982	0.549	0.600	-0.051	PF 1.0 Tons	0
Air Voids	12	11,248	73.125	0.93126	($8,827.27)	4.000	3.250	0.750	0.715	0.600	0.115		
				I/DP:	($7,329.09)							2V Adj.	$0.00

Mix Design No **214A** ***Process No*** 3 ***Grading*** S () PG ***Price Per Ton*** $28.54

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC				0.29200	($2,021.58)					0.200		CTS Tons	0
Density				0.29200	($8,086.33)	94.000				1.100		I/DP	$0.00
VMA		1,000		0.29200	($4,043.17)					0.600		PF 1.0 Tons	0
Air Voids		1,000		0.29200	($6,064.75)					0.600			
				I/DP:	($20,215.83)							2V Adj.	$0.00

Totals: 13936		Tests	Tons	I/DP			
	AC	15	14,248	($8,490.65)	CTS I/DP		
	Density	29	14,248	($30,455.45)	$0.00		
	VMA	11	14,248	($21,154.55)	2V Adj		
	Air Voids	12	14,248	($35,226.77)	($671.46)		
	Joint Density						
	Plan Quant		15,841	Project I/DP	($95,998.88)	CPFC	0.76557

Comments: 4000 tons 2 x V out.

Subaccount: 14127 *STA 030A-023* *SH 30, Quincy North* *Region: 1* *Supplier: 41*

Mix Design No **137122** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $41.89

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	5	2,776	56.209	0.87461	($1,458.16)	5.300	5.040	0.260	0.229	0.200	0.029	CTS Tons	0
Density	10	2,776	96.755	1.04500	$2,093.16	94.000	93.640	0.360	0.952	1.100	-0.148	I/DP	$0.00
VMA	5	2,776	100.000	1.03000	$348.86	13.800	13.900	0.100	0.245	0.600	-0.355	PF 1.0	
Air Voids	5	2,776	99.477	1.03000	$1,395.44	3.500	3.360	0.140	0.619	0.600	0.019	Tons	0
				I/DP:	$2,379.30							2V Adj.	$0.00

Mix Design No **137123** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $35.32

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	3	2,238	58.054	0.94231	($456.05)	5.300	5.543	0.243	0.196	0.200	-0.004	CTS Tons	0
Density	5	2,238	74.421	0.98343	($523.80)	94.000	92.580	1.420	0.823	1.100	-0.277	I/DP	$0.00
VMA	3	2,238	100.000	1.02500	$197.62	15.000	15.033	0.033	0.981	0.600	0.381	PF 1.0	
Air Voids	3	2,238	59.880	0.95286	($1,490.50)	3.500	4.367	0.867	0.945	0.600	0.345	Tons	0
				I/DP:	($2,272.73)							2V Adj.	$0.00

Mix Design No **137123B** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $35.32

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	4	907	100.000	1.03000	$96.11	5.300	5.370	0.070	0.133	0.200	-0.067	CTS Tons	0
Density	3	907	52.429	0.90624	($1,201.41)	94.000	92.067	1.933	0.757	1.100	-0.343	I/DP	$0.00
VMA	4	907	100.000	1.03000	$96.11	15.000	15.200	0.200	0.594	0.600	-0.006	PF 1.0	
Air Voids	4	907	43.689	0.80027	($2,559.42)	3.500	4.825	1.325	0.660	0.600	0.060	Tons	0
				I/DP:	($3,568.61)							2V Adj.	$0.00

Mix Design No **137123C** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $35.32

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	12	11,057	83.897	0.99577	($165.09)	5.300	5.332	0.032	0.216	0.200	0.016	CTS Tons	0
Density	23	11,057	98.120	1.05000	$7,810.66	94.000	93.722	0.278	0.847	1.100	-0.253	I/DP	$0.00
VMA	12	11,057	97.952	1.04500	$1,757.40	14.000	14.158	0.158	0.545	0.600	-0.055	PF 1.0	
Air Voids	12	11,057	78.262	0.96382	($5,651.89)	3.500	3.667	0.167	0.970	0.600	0.370	Tons	0
				I/DP:	$3,751.08							2V Adj.	$0.00

Totals: 14127

	Tests	Tons	I/DP	
AC	24	16,978	($1,983.19)	CTS I/DP
Density	41	16,978	$8,178.61	$0.00
VMA	24	16,978	$2,399.99	2V Adj
Air Voids	24	16,978	($8,306.37)	$0.00
Joint Density				
Plan Quant	18,105		Project I/DP	$289.04

CPFC 1.00047

Comments:

Totals for all Projects

Projects with Bid Dates from 1/1/2002 to 12/31/2002.

Number of Projects: 20

	Tests	*Tons*	*I/DP*	
AC	871	827,915	$13,184.73	***CTS I/DP***
Density	1518	827,879	$203,292.45	($1,919.81)
VMA	868	826,915	$44,126.76	***2V Adj***
Air Voids	855	826,915	($57,711.15)	$170.46
Joint Density	7	9,219	($4,289.77)	
	Plan Quant	811,523	***Total I/DP***	$196,853.67

Calculated Pay Factor Composite and I/DP by Region, VA

Criteria: Projects with Bid Dates from 1/1/2002 to 12/31/2002.

PFC is back calculated from the Project's I/DP.

A Calculated Average Unit Price is used in the calculation.

Region 1

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
13817	03/28/02	NH 0405-029	1	SX	71,404	$33.86	1.04132	$99,877.90	19
14127	12/19/02	STA 030A-02	1	S	16,978	$36.39	1.00047	$289.04	41

Region 1

Number of Projects: 2 **CPFC: Maximum:** 1.04132

Total Tons: 88,382 **Minimum:** 1.00047

Average: 1.02090

Incentive/Disincentive Payments

Sum I/DPs: $100,166.94

Positive I/DPs: 2 ***Maximum:*** $99,877.90

Negative I/DPs: 0 ***Minimum:*** $289.04

Average IDP: $50,083.47

Region 2

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
12834	06/13/02	STA 012A-03	2	S	23,000	$40.50	1.02820	$26,264.60	17
13578	10/10/02	BR 385A-013	2	S	6,415	$46.00	1.00799	$2,356.70	11
13931	02/07/02	IM 0251-159	2	S	89,999	$30.43	0.98500	($41,065.34)	11
13480	01/24/02	STA 1151-013	2	S	9,219	$32.23	0.98437	($4,642.93)	55
13439	02/14/02	NH 0504-039	2	S	24,381	$40.06	0.92325	($74,971.11)	32
13936	02/07/02	STA 1604-007	2	S	14,248	$28.54	0.76392	($95,998.88)	53

Region 2

Number of Projects: 6 **CPFC: Maximum:** 1.02820

Total Tons: 167,262 **Minimum:** 0.76392

Average: 0.94879

Incentive/Disincentive Payments

Sum I/DPs: ($188,056.96)

Positive I/DPs: 2 ***Maximum:*** $26,264.60

Negative I/DPs: 4 ***Minimum:*** ($95,998.88)

Average IDP: ($31,342.83)

Region 3

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
13863	02/21/02	STA R300-08	3	SX	38,628	$36.38	1.00929	$13,056.85	12
13534	08/29/02	IM 0701-156	3	SX	70,495	$29.96	0.97720	($48,143.28)	16

Region 3

Number of Projects: 2 **CPFC: Maximum:** 1.00929
Total Tons: 109,123 **Minimum:** 0.97720
Average: 0.99324

Incentive/Disincentive Payments

Positive I/DPs:	1	***Sum I/DPs:***	($35,086.43)
Negative I/DPs:	1	***Maximum:***	$13,056.85
		Minimum:	($48,143.28)
		Average IDP:	($17,543.22)

Region 4

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
13906	04/25/02	STA 071A-01	4	S	79,342	$35.60	1.03317	$93,690.86	19
12404	04/25/02	STA 1131-004	4	S	75,069	$37.25	1.01807	$50,528.24	19

Region 4

Number of Projects: 2 **CPFC: Maximum:** 1.03317
Total Tons: 154,411 **Minimum:** 1.01807
Average: 1.02562

Incentive/Disincentive Payments

Positive I/DPs:	2	***Sum I/DPs:***	$144,219.10
Negative I/DPs:	0	***Maximum:***	$93,690.86
		Minimum:	$50,528.24
		Average IDP:	$72,109.55

Region 5

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
13522	09/19/02	NH 2852-012	5	SX	113,295	$31.30	0.99338	($23,463.57)	11

Region 5

Number of Projects: 1 **CPFC: Maximum:** 0.99338
Total Tons: 113,295 **Minimum:** 0.99338
Average: 0.99338

Incentive/Disincentive Payments

Positive I/DPs:	0	***Sum I/DPs:***	($23,463.57)
Negative I/DPs:	1	***Maximum:***	($23,463.57)
		Minimum:	($23,463.57)
		Average IDP:	($23,463.57)

Region 6

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
13354	02/14/02	STA 2854-087	6	S	19,000	$44.50	1.04162	$34,096.62	10
13067	06/27/02	IM 0703-268	6	S	34,130	$39.75	1.03801	$51,562.68	19
13356	01/24/02	STA 0704-199	6	S	55,361	$37.30	1.03710	$76,613.36	13
12287	08/01/02	NH 0853-038	6	S	53,480	$37.89	1.02831	$57,376.20	45
13278	12/12/02	STA 2873-112	6	S	12,549	$38.00	1.02045	$9,749.45	33
12864	02/21/02	IM 0761-179	6	S	17,637	$42.00	0.98943	($7,832.49)	33
13355	12/12/02	STA 177A-00	6	S	3,285	$42.00	0.83698	($22,491.23)	33

Region 6

Number of Projects: 7 **CPFC:** **Maximum:** 1.04162
Total Tons: 195,442 **Minimum:** 0.83698
Average: 0.99884

Incentive/Disincentive Payments

Positive I/DPs:	5	***Sum I/DPs:***	$199,074.59
Negative I/DPs:	2	***Maximum:***	$76,613.36
		Minimum:	($22,491.23)
		Average IDP:	$28,439.23

Statewide Totals: 1/1/2002 to 12/31/2002.

Number of Projects: 20 **CPFC** **Maximum:** 1.04162
Total Tons: 827,915 **Minimum:** 0.76392
Average: 0.98788

Incentive/Disincentive Payments

Positive I/DPs:	12	***Sum I/DPs:***	$196,853.67
Negative I/DPs:	8	***Maximum:***	$99,877.90
		Minimum:	($95,998.88)
		Average IDP:	$9,842.68

Asphalt Content - Process Information, VA

Criteria: Projects with Bid Dates from 1/1/2002 to 12/31/2002.

Processes with less than 3 tests not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean:	Mean to TV	St. Dev.	V	StDev - V
13578	2	6,415	253	$46.00	1	6,415	7	100.000	1.03500	5.30	5.36	0.06	0.084	0.20	-0.12
13356	6	55,716	146978	$34.75	1	4,884	5	100.000	1.03000	5.00	5.11	0.11	0.076	0.20	-0.12
14127	1	18,105	137123B	$35.32	1	907	4	100.000	1.03000	5.30	5.37	0.07	0.133	0.20	-0.07
12287	6	59,892	147038	$41.00	1	3,000	3	100.000	1.02500	5.40	5.43	0.03	0.178	0.20	-0.02
12404	4	75,105	131344	$39.50	1	16,689	17	99.045	1.05000	5.30	5.40	0.10	0.093	0.20	-0.11
13067	6	29,601	990-2	$39.75	1	15,228	15	98.999	1.05000	4.90	4.89	0.01	0.128	0.20	-0.07
13278	6	12,367	147010B	$38.00	1	10,049	11	98.035	1.04500	5.10	5.14	0.04	0.137	0.20	-0.06
13931	2	63,299	198	$30.43	1	84,999	85	97.562	1.05649	5.60	5.57	0.03	0.132	0.20	-0.07
13356	6	55,716	105884	$37.55	1	50,477	51	96.388	1.04974	5.00	5.05	0.05	0.135	0.20	-0.06
13480	2	17,036	239RR	$30.27	1	4,000	4	95.015	1.03000	5.40	5.57	0.17	0.096	0.20	-0.10
12834	2	23,845	227B	$40.50	1	18,000	18	94.375	1.04338	5.80	5.76	0.04	0.159	0.20	-0.04
12404	4	75,105	152279	$39.50	1	18,171	18	93.554	1.03916	5.30	5.37	0.07	0.154	0.20	-0.05
12287	6	59,892	147038	$41.00	2	17,213	18	93.369	1.03820	5.40	5.31	0.09	0.143	0.20	-0.06
12404	4	75,105	131343	$35.29	1	36,197	36	91.386	1.01857	5.30	5.40	0.10	0.144	0.20	-0.06
13906	4	79,140	06014BA	$37.50	1	29,276	29	90.901	1.01905	5.30	5.28	0.03	0.179	0.20	-0.02
13906	4	79,140	106014A	$34.00	1	43,066	44	88.999	0.99877	5.30	5.32	0.01	0.189	0.20	-0.01
13936	2	15,841	214A	$28.54	1	14,248	15	87.139	1.00760	5.50	5.42	0.08	0.184	0.20	-0.02
13067	6	29,601	147004	$39.75	1	18,902	18	87.089	1.00338	5.20	5.22	0.02	0.201	0.20	0.00
13354	6	19,145	105895	$44.90	1	17,000	17	85.731	0.99683	5.10	4.94	0.16	0.134	0.20	-0.07
12864	6	28,694	146992	$42.00	1	12,615	13	84.457	0.99672	4.80	4.77	0.03	0.214	0.20	0.01
13439	2	24,169	64-22	$37.25	1	7,821	11	84.424	1.00062	5.30	5.25	0.05	0.211	0.20	0.01
14127	1	18,105	137123C	$35.32	1	11,057	12	83.897	0.99577	5.30	5.33	0.03	0.216	0.20	0.02
12287	6	59,892	1470001	$33.65	1	24,649	24	79.617	0.94682	5.40	5.34	0.06	0.230	0.20	0.03
13931	2	63,299	193	$30.43	1	5,000	5	79.318	1.00503	5.40	5.29	0.11	0.226	0.20	0.03
12404	4	75,105	10615	$35.29	1	4,012	5	78.829	1.00302	5.70	5.54	0.16	0.169	0.20	-0.03
13439	2	24,169	64-22-2	$37.25	1	4,194	9	75.541	0.95693	3.50	5.05	1.55	0.256	0.20	0.06
13906	4	79,140	106014B	$37.50	1	7,000	7	71.014	0.94437	5.20	5.28	0.08	0.273	0.20	0.07
13480	2	17,036	237RR	$35.82	1	3,255	4	69.884	0.97822	5.40	5.64	0.24	0.096	0.20	-0.10
13278	6	12,367	147010	$38.00	1	2,500	3	69.059	0.99734	5.10	4.84	0.26	0.067	0.20	-0.13
13439	2	24,169	QC7628	$42.80	1	12,366	29	69.028	0.85776	5.00	4.82	0.18	0.222	0.20	0.02
14127	1	18,105	137123	$35.32	1	2,238	3	58.054	0.94231	5.30	5.54	0.24	0.196	0.20	0.00
14127	1	18,105	137122	$41.89	1	2,776	5	56.209	0.87461	5.30	5.04	0.26	0.229	0.20	0.03
12834	2	23,845	227	$40.50	1	5,000	5	51.738	0.84102	5.80	5.51	0.29	0.205	0.20	0.00

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean:	Mean to TV	St. Dev.	V	StDev - V
13355	6	8,522	147032	$42.00	1	3,285	3	31.023	0.71988	4.50	4.94	0.44	0.211	0.20	0.01

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	516,489	Best:	100.000	1.05649	0.01	0.067	0.20	-0.13
Processes:	34	Worst:	31.023	0.71988	1.55	0.273	0.20	0.07
Tests:	553	Weighted Average:	89.838	1.01441	0.08	0.162	0.20	-0.04

Grading: SX

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean:	Mean to TV	St. Dev.	V	StDev - V
13817	1	58,231	1372021	$36.05	1	37,338	38	99.240	1.05500	5.40	5.37	0.03	0.113	0.20	-0.09
13817	1	58,231	1372022	$31.45	1	34,066	35	96.276	1.05111	5.40	5.35	0.05	0.137	0.20	-0.06
13534	3	69,728	4503-3	$30.42	1	39,374	40	92.354	1.02368	5.90	5.87	0.03	0.170	0.20	-0.03
13863	3	36,348	299	$35.47	1	26,341	27	90.887	1.02004	6.20	6.11	0.09	0.158	0.20	-0.04
13534	3	69,728	104503-2	$30.20	1	7,067	7	89.952	1.03462	5.80	5.85	0.05	0.190	0.20	-0.01
13522	5	110,324	13522	$31.30	1	113,295	117	87.504	0.97305	7.60	7.58	0.02	0.195	0.20	-0.01
13534	3	69,728	104503	$30.42	1	7,278	8	84.130	1.00657	5.90	5.76	0.14	0.160	0.20	-0.04
12287	6	59,892	147064	$42.75	1	7,000	7	79.880	0.99276	5.80	5.69	0.11	0.214	0.20	0.01
13863	3	36,348	294	$38.34	1	12,287	13	74.850	0.93907	6.20	6.18	0.02	0.262	0.20	0.06
13534	3	69,728	64-22	$28.56	1	16,776	16	73.197	0.91749	5.70	5.81	0.11	0.248	0.20	0.05

Totals Grading: SX

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	300,822	Best:	99.240	1.05500	0.02	0.113	0.20	-0.09
Processes:	10	Worst:	73.197	0.91749	0.14	0.262	0.20	0.06
Tests:	308	Weighted Average:	89.369	1.00103	0.04	0.177	0.20	-0.02

Asphalt Content - Totals 1/1/2002 to 12/31/2002.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	817,311	Best:	100.000	1.05649	0.01	0.067	0.20	-0.13
Processes:	44	Worst:	31.023	0.71988	1.55	0.273	0.20	0.07
Tests:	861	Weighted Average:	89.665	1.00949	0.06	0.167	0.20	-0.03

VMA - Process Information

Criteria: Projects with Bid Dates from 1/1/2002 to 12/31/2002.

Processes with less than 3 tests not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
12404	4	75,105	131343	$35.29	1	36,197	36	100.000	1.05500	14.90	14.97	0.07	0.257	0.60	-0.343
12404	4	75,105	152279	$39.50	1	18,171	18	100.000	1.05000	14.00	14.21	0.21	0.245	0.60	-0.355
12404	4	75,105	131344	$39.50	1	16,689	17	100.000	1.05000	14.80	14.84	0.03	0.335	0.60	-0.265
13578	2	6,415	253	$46.00	1	6,415	7	100.000	1.03500	14.40	14.60	0.20	0.200	0.60	-0.400
13906	4	79,140	106014B	$37.50	1	7,000	7	100.000	1.03500	13.70	13.54	0.16	0.244	0.60	-0.356
13480	2	17,036	239RR	$30.27	1	4,000	4	100.000	1.03000	14.00	13.27	0.73	0.126	0.60	-0.474
13480	2	17,036	237RR	$35.82	1	3,255	4	100.000	1.03000	14.40	14.13	0.27	0.126	0.60	-0.474
14127	1	18,105	137122	$41.89	1	2,776	5	100.000	1.03000	13.80	13.90	0.10	0.245	0.60	-0.355
12404	4	75,105	10615	$35.29	1	4,012	5	100.000	1.03000	14.50	14.18	0.32	0.432	0.60	-0.168
14127	1	18,105	137123B	$35.32	1	907	4	100.000	1.03000	15.00	15.20	0.20	0.594	0.60	-0.006
13355	6	8,522	147032	$42.00	1	3,285	3	100.000	1.02500	14.30	14.30	0.00	0.100	0.60	-0.500
13278	6	12,367	147010	$38.00	1	2,500	3	100.000	1.02500	14.10	14.60	0.50	0.200	0.60	-0.400
12287	6	59,892	147038	$41.00	1	3,000	3	100.000	1.02500	14.00	14.17	0.17	0.551	0.60	-0.049
14127	1	18,105	137123	$35.32	1	2,238	3	100.000	1.02500	15.00	15.03	0.03	0.981	0.60	0.381
13906	4	79,140	06014BA	$37.50	1	29,276	29	99.935	1.05500	13.70	13.51	0.19	0.343	0.60	-0.257
12287	6	59,892	1470001	$33.65	1	24,649	24	99.541	1.05000	14.60	14.43	0.17	0.421	0.60	-0.179
13906	4	79,140	106014A	$34.00	1	43,066	44	99.506	1.05500	14.10	13.86	0.24	0.384	0.60	-0.216
13354	6	19,145	105895	$44.90	1	17,000	17	99.456	1.05000	14.60	14.67	0.07	0.474	0.60	-0.126
13067	6	29,601	147004	$39.75	1	18,902	18	99.395	1.05000	14.30	13.84	0.46	0.451	0.60	-0.149
12834	2	23,845	227B	$40.50	1	18,000	18	98.682	1.05000	14.40	14.34	0.06	0.519	0.60	-0.081
14127	1	18,105	137123C	$35.32	1	11,057	12	97.952	1.04500	14.00	14.16	0.16	0.545	0.60	-0.055
13356	6	55,716	105884	$37.55	1	50,477	51	96.276	1.04895	14.10	14.15	0.05	0.583	0.60	-0.017
12287	6	59,892	147038	$41.00	2	17,213	18	94.496	1.04400	14.00	13.53	0.47	0.466	0.60	-0.134
12834	2	23,845	227	$40.50	1	5,000	5	94.214	1.03000	14.40	14.62	0.22	0.698	0.60	0.098
13067	6	29,601	990-2	$39.75	1	15,228	15	93.839	1.04103	14.90	14.51	0.39	0.536	0.60	-0.064
13439	2	24,169	64-22	$37.25	1	7,821	16	93.688	1.04017	14.20	13.71	0.49	0.473	0.60	-0.127
13278	6	12,367	147010B	$38.00	1	10,049	11	91.930	1.03521	14.60	14.31	0.29	0.655	0.60	0.055
13356	6	55,716	146978	$34.75	1	4,884	5	89.575	1.03000	14.60	15.30	0.70	0.412	0.60	-0.188
13931	2	63,299	198	$30.43	1	84,999	85	88.467	0.98382	14.00	14.13	0.13	0.754	0.60	0.154
12864	6	28,694	146992	$42.00	1	12,615	13	85.742	1.00357	14.40	13.78	0.62	0.540	0.60	-0.060
13439	2	24,169	64-22-2	$37.25	1	4,194	9	85.641	1.01012	14.20	14.00	0.20	0.828	0.60	0.228

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13439	2	24,169	QC7628	$42.80	1	12,366	25	68.091	0.85617	14.00	13.03	0.97	0.489	0.60	-0.111
13936	2	15,841	214A	$28.54	1	10,248	11	65.031	0.87846	14.00	13.02	0.98	0.549	0.60	-0.051
13931	2	63,299	193	$30.43	1	5,000	5	47.726	0.80858	14.00	15.28	1.28	1.252	0.60	0.652

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	512,489	**Best:**	100.000	1.05500	0.00	0.100	0.60	-0.500
Processes:	34	**Worst:**	47.726	0.80858	1.28	1.252	0.60	0.652
Tests:	550	**Weighted Average:**	94.296	1.02513	0.25	0.495	0.60	-0.105

Grading: SX

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13534	3	69,728	104503-2	$30.20	1	7,067	7	100.000	1.03500	16.30	16.56	0.26	0.244	0.60	-0.356
12287	6	59,892	147064	$42.75	1	7,000	7	100.000	1.03500	14.80	15.13	0.33	0.340	0.60	-0.260
13863	3	36,348	294	$38.34	1	12,287	13	99.911	1.04500	15.40	15.41	0.02	0.447	0.60	-0.153
13817	1	58,231	1372022	$31.45	1	34,066	35	99.763	1.05500	15.00	14.65	0.35	0.317	0.60	-0.283
13817	1	58,231	1372021	$36.05	1	37,338	38	99.708	1.05500	15.00	14.72	0.28	0.349	0.60	-0.251
13534	3	69,728	64-22	$28.56	1	16,776	16	99.028	1.05000	16.30	16.26	0.04	0.510	0.60	-0.090
13863	3	36,348	299	$35.47	1	26,341	27	96.191	1.05257	15.40	15.08	0.32	0.506	0.60	-0.094
13522	5	110,324	13522	$31.30	1	113,295	117	90.584	0.99861	16.70	17.02	0.32	0.646	0.60	0.046
13534	3	69,728	4503-3	$30.42	1	39,374	40	87.065	0.98630	16.30	15.66	0.64	0.497	0.60	-0.103
13534	3	69,728	104503	$30.42	1	7,278	8	73.779	0.95274	16.30	15.45	0.85	0.532	0.60	-0.068

Totals Grading: SX

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	300,822	**Best:**	100.000	1.05500	0.02	0.244	0.60	-0.356
Processes:	10	**Worst:**	73.779	0.95274	0.85	0.646	0.60	0.046
Tests:	308	**Weighted Average:**	93.672	1.02046	0.34	0.505	0.60	-0.095

VMA - Totals 1/1/2002 to 12/31/2002.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	813,311	**Best:**	100.000	1.05500	0.00	0.100	0.60	-0.500
Processes:	44	**Worst:**	47.726	0.80858	1.28	1.252	0.60	0.652
Tests:	858	**Weighted Average:**	94.065	1.02340	0.28	0.498	0.60	-0.102

Air Voids - Process Information

Criteria: Projects with Bid Dates from 1/1/2002 to 12/31/2002.

Processes with less than 3 tests not included.

Grading: S

Sub.	Reg.	Plan Quant.	Mix Design	Price	Process No	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev -V
12287	6	59,892	147038	$41.00	1	3,000	3	100.000	1.02500	3.30	3.23	0.07	0.462	0.60	-0.138
13480	2	17,036	237RR	$35.82	1	3,255	4	100.000	1.03000	3.00	3.03	0.03	0.096	0.60	-0.504
12404	4	75,105	152279	$39.50	1	18,171	18	99.751	1.05000	3.40	3.46	0.06	0.444	0.60	-0.156
13906	4	79,140	106014B	$37.50	1	7,000	7	99.723	1.03500	3.00	2.97	0.03	0.569	0.60	-0.031
12404	4	75,105	131343	$35.29	1	36,197	36	99.719	1.05500	4.10	4.25	0.15	0.397	0.60	-0.203
14127	1	18,105	137122	$41.89	1	2,776	5	99.477	1.03000	3.50	3.36	0.14	0.619	0.60	0.019
12834	2	23,845	227B	$40.50	1	18,000	18	98.571	1.05000	3.50	3.58	0.08	0.520	0.60	-0.080
12404	4	75,105	131344	$39.50	1	16,689	17	97.570	1.05000	4.30	4.00	0.30	0.478	0.60	-0.122
13067	6	29,601	990-2	$39.75	1	15,228	15	96.825	1.05000	4.00	3.88	0.12	0.583	0.60	-0.017
13906	4	79,140	06014BA	$37.50	1	29,276	29	95.357	1.04702	3.00	2.94	0.06	0.616	0.60	0.016
13578	2	6,415	253	$46.00	1	6,415	7	94.870	1.03500	3.10	3.74	0.64	0.369	0.60	-0.231
13354	6	19,145	105895	$44.90	1	17,000	17	94.488	1.04396	4.00	4.09	0.09	0.647	0.60	0.047
13356	6	55,716	105884	$37.55	1	50,477	51	93.736	1.03089	4.10	3.93	0.17	0.630	0.60	0.030
12287	6	59,892	1470001	$33.65	1	24,649	24	92.664	1.03237	3.00	3.19	0.19	0.658	0.60	0.058
12287	6	59,892	147038	$41.00	2	17,213	18	90.674	1.02377	3.30	2.87	0.43	0.589	0.60	-0.011
13067	6	29,601	147004	$39.75	1	18,902	18	88.891	1.01380	3.00	3.31	0.31	0.701	0.60	0.101
13906	4	79,140	106014A	$34.00	1	43,066	44	88.461	0.99486	3.00	3.34	0.34	0.686	0.60	0.086
13278	6	12,367	147010B	$38.00	1	10,049	11	87.779	1.01696	3.00	3.10	0.10	0.799	0.60	0.199
12864	6	28,694	146992	$42.00	1	12,615	13	85.684	1.00327	4.40	3.85	0.55	0.606	0.60	0.006
13931	2	63,299	198	$30.43	1	84,999	85	83.205	0.94078	4.00	3.82	0.18	0.854	0.60	0.254
12404	4	75,105	10615	$35.29	1	4,012	5	81.634	1.01411	3.00	2.60	0.40	0.857	0.60	0.257
14127	1	18,105	137123C	$35.32	1	11,057	12	78.262	0.96382	3.50	3.67	0.17	0.970	0.60	0.370
13278	6	12,367	147010	$38.00	1	2,500	3	75.612	1.02035	3.00	3.90	0.90	0.361	0.60	-0.239
13936	2	15,841	214A	$28.54	1	11,248	12	73.125	0.93126	4.00	3.25	0.75	0.715	0.60	0.115
13439	2	24,169	64-22-2	$37.25	1	4,194	9	70.088	0.92233	4.00	4.14	0.14	1.146	0.60	0.546
13931	2	63,299	193	$30.43	1	4,000	4	65.612	0.95609	4.00	4.60	0.60	1.219	0.60	0.619
13355	6	8,522	147032	$42.00	1	3,285	3	63.326	0.97124	3.00	2.01	0.99	0.454	0.60	-0.146
13480	2	17,036	239RR	$30.27	1	4,000	4	61.471	0.93207	3.00	1.95	1.05	0.436	0.60	-0.164
13356	6	55,716	146978	$34.75	1	4,884	5	59.977	0.90081	4.10	5.14	1.04	0.568	0.60	-0.032
14127	1	18,105	137123	$35.32	1	2,238	3	59.880	0.95286	3.50	4.37	0.87	0.945	0.60	0.345
13439	2	24,169	64-22	$37.25	1	7,821	16	57.665	0.79182	4.00	2.92	1.08	0.599	0.60	-0.001
12834	2	23,845	227	$40.50	1	5,000	5	53.518	0.85472	3.00	4.14	1.14	0.607	0.60	0.007
13439	2	24,169	QC7628	$42.80	1	12,366	11	50.658	0.75738	4.00	2.81	1.19	0.534	0.60	-0.066

14127	1	18,105	137123B	$35.32	1	907	4	43.689	0.80027	3.50	4.82	1.32	0.660	0.60	0.060

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	512,489	Best:	100.000	1.05500	0.03	0.096	0.60	-0.504
Processes:	34	Worst:	43.689	0.75738	1.32	1.219	0.60	0.619
Tests:	536	Weighted Average:	87.872	0.99643	0.29	0.649	0.60	0.049

Grading: SX

Sub.	Reg.	Plan Quant.	Mix Design	Price	Process No	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev -V
13817	1	58,231	1372021	$36.05	1	37,338	38	99.754	1.05500	4.00	3.96	0.04	0.417	0.60	-0.183
13817	1	58,231	1372022	$31.45	1	34,066	35	97.340	1.05500	4.00	3.61	0.39	0.430	0.60	-0.170
13863	3	36,348	299	$35.47	1	26,341	27	92.873	1.03250	4.00	3.99	0.01	0.680	0.60	0.080
13522	5	110,324	13522	$31.30	1	13,295	117	88.851	0.98425	3.50	3.49	0.01	0.757	0.60	0.157
12287	6	59,892	147064	$42.75	1	7,000	7	88.339	1.02885	3.40	3.37	0.03	0.818	0.60	0.218
13863	3	36,348	294	$38.34	1	12,287	13	84.272	0.99572	4.00	4.30	0.30	0.811	0.60	0.211
13534	3	69,728	104503	$30.42	1	7,278	8	82.324	0.99819	3.60	2.81	0.79	0.439	0.60	-0.161
13534	3	69,728	4503-3	$30.42	1	39,374	40	81.428	0.94434	3.60	3.07	0.53	0.725	0.60	0.125
13534	3	69,728	64-22	$28.56	1	16,776	16	74.359	0.92576	3.60	4.34	0.74	0.697	0.60	0.097
13534	3	69,728	104503-2	$30.20	1	7,067	7	74.176	0.96287	3.60	4.43	0.83	0.550	0.60	-0.050

Totals Grading: SX

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	300,822	Best:	99.754	1.05500	0.01	0.417	0.60	-0.183
Processes:	10	Worst:	74.176	0.92576	0.83	0.818	0.60	0.218
Tests:	308	Weighted Average:	89.036	0.99812	0.22	0.655	0.60	0.055

Air Voids - Totals 1/1/2002 to 12/31/2002.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	813,311	Best:	100.000	1.05500	0.01	0.096	0.60	-0.504
Processes:	44	Worst:	43.689	0.75738	1.32	1.219	0.60	0.619
Tests:	844	Weighted Average:	88.303	0.99706	0.26	0.651	0.60	0.051

Mat Density - Process Information, Voids Acceptance

Criteria: Projects with Bid Dates from 1/1/2002 to 12/31/2002.

Processes with less than 3 tests not included.

Compaction Test Sections not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13439	2	24,169	QC7628	$42.80	1	12,366	26	100.000	1.05500	94.000	93.969	0.031	0.471	1.100	-0.629
13931	2	63,299	193	$30.43	1	5,000	10	100.000	1.04500	94.000	93.800	0.200	0.620	1.100	-0.480
13278	6	12,367	I47010B	$38.00	1	10,049	20	99.994	1.05000	94.000	94.060	0.060	0.600	1.100	-0.500
12287	6	59,892	I470001	$33.65	1	24,649	49	99.763	1.05500	94.000	93.978	0.022	0.687	1.100	-0.413
13439	2	24,169	64-22	$37.25	1	7,821	16	99.717	1.05000	94.000	93.556	0.444	0.631	1.100	-0.469
13906	4	79,140	I06014A	$34.00	1	6,000	12	99.152	1.04500	94.000	94.025	0.025	0.876	1.100	-0.224
12287	6	59,892	147038	$41.00	2	17,213	35	99.047	1.05500	94.000	93.986	0.014	0.805	1.100	-0.295
13067	6	29,601	990-2	$39.75	1	15,228	29	99.023	1.05500	94.000	94.690	0.690	0.585	1.100	-0.515
13354	6	19,145	105895	$44.90	1	17,500	35	98.550	1.05500	94.000	94.506	0.506	0.704	1.100	-0.396
13356	6	55,716	105884	$37.55	1	50,477	101	98.510	1.06000	94.000	93.609	0.391	0.743	1.100	-0.357
13906	4	79,140	I6014BA	$37.50	1	29,276	59	98.238	1.05500	94.000	94.371	0.371	0.779	1.100	-0.321
14127	1	18,105	37123C	$35.32	1	11,057	23	98.120	1.05000	94.000	93.722	0.278	0.847	1.100	-0.253
13439	2	24,169	64-22-2	$37.25	1	4,194	9	98.102	1.04000	94.000	93.511	0.489	0.816	1.100	-0.284
13906	4	79,140	I06014B	$37.50	1	7,000	14	97.800	1.04500	94.000	94.364	0.364	0.862	1.100	-0.238
14127	1	18,105	137122	$41.89	1	2,776	10	96.755	1.04500	94.000	93.640	0.360	0.952	1.100	-0.148
12834	2	23,845	227B	$40.50	1	17,500	35	96.697	1.05378	94.000	93.666	0.334	0.901	1.100	-0.199
13906	4	79,140	I06014A	$34.00	2	37,066	75	96.486	1.04833	94.000	94.101	0.101	0.955	1.100	-0.145
12834	2	23,845	227	$40.50	1	5,500	11	95.748	1.04500	94.000	93.473	0.527	0.901	1.100	-0.199
13931	2	63,299	198	$30.43	1	84,999	170	95.427	1.03610	94.000	93.359	0.641	0.805	1.100	-0.295
13067	6	29,601	147004	$39.75	1	18,902	32	94.621	1.04149	94.000	93.437	0.563	0.899	1.100	-0.201
13936	2	15,841	214A	$28.54	1	14,248	29	92.482	1.02917	94.000	94.048	0.048	1.145	1.100	0.045
13480	2	17,036	237RR	$35.82	1	3,255	7	90.682	1.03500	94.000	92.843	1.157	0.658	1.100	-0.442
12864	6	28,694	146992	$42.00	1	12,615	25	89.730	1.01385	94.000	93.480	0.520	1.128	1.100	0.028
12404	4	75,105	131344	$39.50	1	16,689	33	87.075	0.99082	94.000	92.852	1.148	0.755	1.100	-0.345
12404	4	75,105	152279	$39.50	1	17,541	36	86.604	0.98529	94.000	93.144	0.856	1.027	1.100	-0.073
12404	4	75,105	131343	$35.29	1	36,197	72	85.516	0.96127	94.000	93.043	0.957	0.982	1.100	-0.118
13480	2	17,036	240RR	$30.27	1	1,964	4	84.995	1.03000	94.000	92.975	1.025	0.929	1.100	-0.171
12404	4	75,105	10615	$35.29	1	4,012	10	82.639	0.99372	94.000	93.760	0.240	1.486	1.100	0.386
12287	6	59,892	147038	$41.00	1	3,000	6	81.669	1.00619	94.000	93.000	1.000	1.081	1.100	-0.019
13480	2	17,036	239RR	$30.27	1	4,000	8	76.633	0.96898	94.000	92.737	1.263	0.987	1.100	-0.113
14127	1	18,105	137123	$35.32	1	2,238	5	74.421	0.98343	94.000	92.580	1.420	0.823	1.100	-0.277
13356	6	55,716	146978	$34.75	1	4,884	10	70.516	0.92214	94.000	92.620	1.380	1.118	1.100	0.018
13578	2	6,415	253	$46.00	1	2,915	6	66.831	0.92840	94.000	92.583	1.417	1.251	1.100	0.151

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13355	6	8,522	147032	$42.00	1	2,756	6	65.988	0.92305	94.000	92.683	1.317	1.546	1.100	0.446
12864	6	28,694	105886	$42.00	2	2,105	4	62.122	0.93602	94.000	93.000	1.000	2.146	1.100	1.046
14127	1	18,105	I37123B	$35.32	1	907	3	52.429	0.90624	94.000	92.067	1.933	0.757	1.100	-0.343
12404	4	75,105	TS	$39.50	1	630	7	50.000	0.78655	94.000	92.000	2.000	0.983	1.100	-0.117
12864	6	28,694	I05886A	$42.00	1	1,917	3	46.462	0.86211	94.000	91.833	2.167	1.301	1.100	0.201
13278	6	12,367	147010	$38.00	1	1,500	3	39.336	0.80149	94.000	91.733	2.267	0.702	1.100	-0.398

Totals - Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	517,946	Best:	100.000	1.06000	0.014	0.471	1.100	-0.629
Processes:	39	Worst:	39.336	0.78655	2.267	2.146	1.100	1.046
Tests:	1,048	Weighted Average:	93.859	1.03064	0.509	0.847	1.100	-0.253

Grading: SX

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
12287	6	59,892	147067	$42.75	1	1,618	4	100.000	1.03000	94.000	92.550	1.450	0.058	1.100	-1.042
13817	1	58,231	I372021	$36.05	1	37,338	76	95.177	1.03804	94.000	93.683	0.317	0.972	1.100	-0.128
13534	3	69,728	104503	$30.42	1	4,500	9	94.151	1.04000	94.000	93.556	0.444	1.038	1.100	-0.062
13522	5	110,324	13522	$31.30	1	107,489	221	92.700	1.00664	94.000	93.851	0.149	1.108	1.100	0.008
13534	3	69,728	4503-3	$30.42	1	39,374	79	89.905	0.99597	94.000	93.409	0.591	1.072	1.100	-0.028
13863	3	36,348	299	$35.47	1	26,341	50	87.899	0.98844	94.000	94.140	0.140	1.292	1.100	0.192
12287	6	59,892	147064	$42.75	1	6,500	13	87.024	1.01020	94.000	92.423	1.577	0.377	1.100	-0.723
13534	3	69,728	04503-2	$30.20	1	6,500	13	79.504	0.96842	94.000	93.315	0.685	1.439	1.100	0.339

Totals - Grading: SX

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	229,660	Best:	100.000	1.04000	0.140	0.058	1.100	-1.042
Processes:	8	Worst:	79.504	0.96842	1.577	1.439	1.100	0.339
Tests:	465	Weighted Average:	91.619	1.00767	0.322	1.081	1.100	-0.019

Mat Density - Totals 1/1/2002 to 12/31/2002.

		Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	747,606	**Best:**	100.000	1.06000	0.014	0.058	1.100	-1.042
Processes:	47	**Worst:**	39.336	0.78655	2.267	2.146	1.100	1.046
Tests:	1,513	**Weighted Average:**	93.171	1.02358	0.452	0.919	1.100	-0.181

Appendix E

Reports for 2003 Projects

Project Listing by Region/Subaccount - Voids Acceptance

Projects with Bid Dates from 1/1/2003 to 12/31/2003.

***Region:* 2**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
14200	NH 0243-066	Calhan to Ramah	49	01/30/03	$1,397,351.60	28,607
14201	NH 0504-044	Chico Creek West	14	03/27/03	$2,983,583.95	66,038
14202	NH 0504-045	US 50 Through Rocky Ford	32	02/13/03	$1,497,631.00	30,733
14203	NH 0505-038	Lamar, East	11	02/06/03	$2,589,065.91	40,616
14205	STU 1151-01	Ft Carson to Lake Ave	49	01/23/03	$3,352,657.06	67,200
14207	STA 3851-015	Arkansas River to SH	11	02/27/03	$2,535,390.57	68,335
14210	STA 0831-087	SH 83A from SH 115 to	49	06/05/03	$2,936,599.90	36,954

Number of Projects 7 *Total Quantity* 338,483

***Region:* 3**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
13865	STR 0401-01	E & W of Maybell	19	03/27/03	$3,828,402.85	62,608
14218	STA 0701-161	Fruitvale East	16	03/06/03	$1,463,199.55	18,652

Number of Projects 2 *Total Quantity* 81,260

***Region:* 6**

Subacct.	*Project Code*	*Location*	*Supplier*	*Bid Date*	*Total Bid*	*Plan Quant.*
6033	MTCE 06-033	I-76 Federal to Br	33	08/21/03	$517,079.95	11,055
11210	STA 072A-02	SH 72, I-70 to Gar	13	01/30/03	$1,645,634.68	20,258
12021	NH 0404-032	US 40, I-70 to US 6	19	01/09/03	$1,657,695.05	23,310
13348	STA 0881-012	SH 88 University to I-25	10	01/16/03	$1,344,295.43	17,224
14235	STA 4701-104	C-470 Ken Caryl to Wadswort	10	02/06/03	$1,859,303.18	25,651
14244	STA 0361-072	US 36 Wads to Lowe	33	05/22/03	$3,148,630.10	52,404

Number of Projects 6 *Total Quantity* 149,902

Totals: Projects with Bid Dates from 1/1/2003 to 12/31/2003.

Number of Projects 15 *Total Plan Quantity* 569,645

Project Data, Voids Acceptance

Projects with Bid Dates from 1/1/2003 to 12/31/2003.

Subaccount: 6033 ***MTCE 06-033*** ***I-76 Federal to Br*** ***Region: 6*** ***Supplier: 33***

Mix Design No 147010-1 ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $32.25

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	11	10,804	91.870	1.03495	$1,217.91	5.100	5.121	0.021	0.180	0.200	-0.020	CTS Tons	500
Density	24	10,304	94.694	1.04428	$5,149.78	94.000	94.167	0.167	1.052	1.100	-0.048	I/DP	$197.53
VMA	11	10,804	97.404	1.04500	$1,567.93	14.200	13.873	0.327	0.484	0.600	-0.116	PF 1.0	
Air Voids	11	10,804	89.953	1.02678	$2,799.54	3.000	2.618	0.382	0.646	0.600	0.046	Tons	0
				I/DP:	$10,932.69							2V Adj.	$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	Std Dev	V	St Dev. - V
S	$32.25	1	13	10,804	64.982	0.86802	($6,897.84)	92.000	88.880	3.120	2.247	1.600	0.647

Totals: 6033

	Tests	Tons	I/DP	
AC	11	10,804	$1,217.91	CTS I/DP
Density	24	10,804	$5,149.78	$197.53
VMA	11	10,804	$1,567.93	2V Adj
Air Voids	11	10,804	$2,799.54	$0.00
Joint Density	13	10,804	($6,897.84)	
Plan Quant		11,055	Project I/DP	$4,034.85

CPFC 1.01158

Comments:

Subaccount: 11210 ***STA 072A-026*** ***SH 72, I-70 to Gar*** ***Region: 6*** ***Supplier: 13***

Mix Design No 147014 ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $31.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	21	21,000	96.996	1.05000	$3,307.50	5.100	5.200	0.100	0.110	0.200	-0.090	CTS Tons	0
Density	42	21,000	99.036	1.05500	$12,733.87	94.000	93.881	0.119	0.791	1.100	-0.309	I/DP	$0.00
VMA	21	21,000	97.478	1.05000	$3,307.50	14.200	14.210	0.010	0.565	0.600	-0.035	PF 1.0	
Air Voids	21	21,000	93.117	1.03599	$7,142.36	3.000	2.900	0.100	0.672	0.600	0.072	Tons	0
				I/DP:	$26,491.23							2V Adj.	$0.00

Totals: 11210

	Tests	Tons	I/DP	
AC	21	21,000	$3,307.50	CTS I/DP
Density	42	21,000	$12,733.87	$0.00
VMA	21	21,000	$3,307.50	2V Adj
Air Voids	21	21,000	$7,142.36	$0.00
Joint Density				
Plan Quant		20,258	Project I/DP	$26,491.23

CPFC 1.04005

Comments: Joint density waived per project engr.

Subaccount: 12021 *NH 0404-032* *US 40, I-70 to US 6* *Region: 6* *Supplier: 19*

Mix Design No 147004 *Process No* 1 *Grading* S () PG *Price Per Ton* $40.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	24	20,000	86.499	0.99756	($197.60)	5.200	5.187	0.013	0.204	0.200	0.004	CTS Tons	0
Density	48	20,000	92.057	1.02163	$6,131.74	94.000	93.600	0.400	1.082	1.100	-0.018	I/DP	$0.00
VMA	24	20,000	98.016	1.05000	$4,050.00	14.000	13.785	0.215	0.498	0.600	-0.102	PF 1.0	
Air Voids	24	20,000	96.007	1.05000	$12,150.00	3.000	3.235	0.235	0.558	0.600	-0.042	Tons	0
				I/DP:	$22,134.14							2V Adj.	$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	*Quality Level*	*Pay Factor*	I/DP	TV	Mean	*Mean to TV*	Std Dev	V	*St Dev. - V*
S	$40.50	1	12	20,000	85.672	1.00503	$1,833.01	92.000	91.270	0.730	2.709	1.600	1.109

Totals: 12021

	Tests	Tons	I/DP	
AC	24	20,000	($197.60)	CTS I/DP
Density	48	20,000	$6,131.74	$0.00
VMA	24	20,000	$4,050.00	2V Adj
Air Voids	24	20,000	$12,150.00	$0.00
Joint Density	12	20,000	$1,833.01	
Plan Quant		23,310	Project I/DP	$23,967.15

CPFC 1.02959

Comments: Adjustment to JD quantity made. Reported quant. 60000.

Subaccount: 13348 *STA 0881-012* *SH 88 University to I-25* *Region: 6* *Supplier: 10*

Mix Design No 1470031 *Process No* 1 *Grading* S () PG *Price Per Ton* $36.50

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	17	16,161	95.386	1.04831	$2,849.70	5.400	5.494	0.094	0.126	0.200	-0.074	CTS Tons	0
Density	33	16,161	100.000	1.05500	$12,977.28	94.000	94.300	0.300	0.439	1.100	-0.661	I/DP	$0.00
VMA	17	16,161	96.494	1.05000	$2,949.38	16.400	16.206	0.194	0.565	0.600	-0.035	PF 1.0	
Air Voids	17	16,161	87.134	1.00496	$1,169.54	3.000	3.600	0.600	0.532	0.600	-0.068	Tons	0
				I/DP:	$19,945.90							2V Adj.	$0.00

Totals: 13348

	Tests	Tons	I/DP	
AC	17	16,161	$2,849.70	CTS I/DP
Density	33	16,161	$12,977.28	$0.00
VMA	17	16,161	$2,949.38	2V Adj
Air Voids	17	16,161	$1,169.54	$0.00
Joint Density				
Plan Quant		17,224	Project I/DP	$19,945.90

CPFC 1.03381

Comments:

Subaccount: 13865 *STR 0401-018* *E & W of Maybell* *Region: 3* *Supplier: 19*

Mix Design No 76103B *Process No* 1 *Grading* SX () PG *Price Per Ton* $36.30

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	51	51,264	88.684	0.99393	($1,129.27)	5.600	5.595	0.005	0.191	0.200	-0.009	CTS Tons	500
Density	102	50,764	91.604	1.00790	$5,096.94	94.000	93.542	0.458	1.069	1.100	-0.031	I/DP	$86.15
VMA	25	25,000	70.215	0.87350	($11,479.94)	14.400	13.528	0.872	0.613	0.600	0.013	PF 1.0	
Air Voids	25	25,000	84.268	0.97800	($5,989.01)	3.500	3.072	0.428	0.736	0.600	0.136	Tons	0
				I/DP:	($13,415.13)							2V Adj.	$0.00

Mix Design No 76103B *Process No* 2 *Grading* SX () PG *Price Per Ton* $36.30

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC					$0.00					0.200		CTS Tons	0
Density		0			$0.00	94.000				1.100		I/DP	$0.00
VMA	26	26,264	97.585	1.05500	$5,243.81	14.400	14.431	0.031	0.554	0.600	-0.046	PF 1.0	
Air Voids	26	26,264	74.293	0.90385	($27,500.47)	3.500	3.731	0.231	1.036	0.600	0.436	Tons	0
				I/DP:	($22,256.66)							2V Adj.	$0.00

Mix Design No 78103 *Process No* 1 *Grading* SX () PG *Price Per Ton* $36.33

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	9	9,000	68.104	0.90880	($2,982.27)	5.700	5.613	0.087	0.288	0.200	0.088	CTS Tons	500
Density	18	8,500	97.900	1.05000	$5,404.66	94.000	93.772	0.228	0.892	1.100	-0.208	I/DP	$222.54
VMA	9	9,000	99.922	1.04000	$1,308.02	14.400	13.867	0.533	0.283	0.600	-0.317	PF 1.0	
Air Voids	9	9,000	81.166	0.98829	($1,149.15)	3.500	3.033	0.467	0.798	0.600	0.198	Tons	0
				I/DP:	$2,803.80							2V Adj.	$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	*Quality Level*	*Pay Factor*	I/DP	TV	Mean	*Mean to TV*	Std Dev	V	*St Dev. - V*
SX	$37.38	1	22	60,264	99.133	1.05000	$16,895.01	92.000	91.890	0.110	1.633	1.600	0.033

Totals: 13865

	Tests	Tons	I/DP	
AC	60	60,264	($4,111.54)	CTS I/DP
Density	120	60,264	$10,501.60	$308.69
VMA	60	60,264	($4,928.11)	2V Adj
Air Voids	60	60,264	($34,638.63)	$0.00
Joint Density	22	60,264	$16,895.01	
Plan Quant		62,608	Project I/DP	($15,972.98)

CPFC 0.99270

Comments:

Subaccount: 14200 *NH 0243-066* *Calhan to Ramah* *Region: 2* *Supplier: 49*

Mix Design No 236 *Process No* 1 *Grading* SX () PG *Price Per Ton* $32.41

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	27	27,000	80.816	0.95161	($4,234.07)	6.500	6.438	0.062	0.223	0.200	0.023
Density	54	27,000	95.771	1.04500	$13,781.58	94.000	93.415	0.585	0.825	1.100	-0.275
VMA	27	27,000	71.178	0.87796	($10,678.94)	16.800	15.767	1.033	0.296	0.600	-0.304
Air Voids	27	27,000	89.665	1.01220	$3,203.31	3.000	2.211	0.789	0.327	0.600	-0.273
				I/DP:	$2,071.88						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	*Quality Level*	*Pay Factor*	I/DP	TV	Mean	*Mean to TV*	Std Dev	V	*St Dev. - V*
SX	$32.41	1	18	23,604	89.075	1.01484	$1,703.36	92.000	90.150	1.850	1.759	1.600	0.159

Totals: 14200

	Tests	Tons	I/DP			
AC	27	27,000	($4,234.07)	CTS I/DP		
Density	54	27,000	$13,781.58	$0.00		
VMA	27	27,000	($10,678.94)	2V Adj		
Air Voids	27	27,000	$3,203.31	$0.00		
Joint Density	18	23,604	$1,703.36			
Plan Quant		28,607	Project I/DP	$3,775.24	CPFC	1.00431

Comments: Final quantities not equal.

Subaccount: 14201 *NH 0504-044* *Chico Creek West* *Region: 2* *Supplier: 14*

Mix Design No 14201B *Process No* 1 *Grading* S () PG *Price Per Ton* $30.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	33	32,735	94.356	1.03946	$3,875.51	5.300	5.233	0.067	0.146	0.200	-0.054
Density	65	32,235	95.389	1.04067	$13,766.76	94.000	93.648	0.352	0.951	1.100	-0.149
VMA	33	32,735	99.998	1.05500	$5,401.27	13.600	13.600	0.000	0.318	0.600	-0.282
Air Voids	33	32,735	90.770	1.01602	$4,721.15	3.400	2.936	0.464	0.557	0.600	-0.043
				I/DP:	$25,327.20						

Other: CTS Tons 500; I/DP 2,437.49); PF 1.0 Tons 0; 2V Adj. $0.00

Mix Design No 14201T *Process No* 1 *Grading* S () PG *Price Per Ton* $33.70

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	45	44,062	90.614	1.01006	$1,493.07	5.200	5.120	0.080	0.162	0.200	-0.038
Density	87	43,062	91.140	1.00526	$2,669.84	94.000	93.395	0.605	1.015	1.100	-0.085
VMA	45	44,062	96.823	1.05332	$7,917.91	13.500	13.951	0.451	0.409	0.600	-0.191
Air Voids	45	44,062	95.516	1.04441	$19,783.94	3.500	3.553	0.053	0.606	0.600	0.006
				I/DP:	$32,071.17						

Other: CTS Tons 500; I/DP $206.41; PF 1.0 Tons 0; 2V Adj. $0.00

Mix Design No 14201T *Process No* 2 *Grading* S () PG *Price Per Ton* $33.70

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC					$0.00					0.200	
Density	1	500		0.17000	($5,361.36)	94.000				1.100	
VMA					$0.00					0.600	
Air Voids					$0.00					0.600	
				I/DP:	($5,361.36)						

Other: CTS Tons 0; I/DP $0.00; PF 1.0 Tons 0; 2V Adj. $0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	Std Dev	V	St Dev. - V
S	$30.00	1	19	32,735	99.619	1.05000	$7,365.38	92.000	90.540	1.460	1.038	1.600	-0.562
S	$33.70	2	19	44,062	89.554	1.01664	$3,706.05	92.000	89.690	2.310	1.355	1.600	-0.245

Totals: 14201

	Tests	Tons	I/DP	
AC	78	76,797	$5,368.58	CTS I/DP
Density	153	76,797	$11,075.24	($2,231.08)
VMA	78	76,797	$13,319.18	2V Adj
Air Voids	78	76,797	$24,505.09	$0.00
Joint Density	38	76,797	$11,071.43	
Plan Quant		66,038	Project I/DP	$63,108.44

CPFC 1.02558

Comments: One test 2 x V out.

Subaccount: 14202 *NH 0504-045* *US 50 Through Rocky Ford* *Region: 2* *Supplier: 32*

Mix Design No **14202** *Process No* 1 *Grading* S () PG *Price Per Ton* $32.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	14	13,455	98.006	1.04500	$1,937.52	5.600	5.587	0.013	0.140	0.200	-0.060	CTS Tons	0
Density	27	13,455	89.336	1.01008	$1,518.40	94.000	94.015	0.015	1.259	1.100	0.159	I/DP	$0.00
VMA	14	13,455	99.597	1.04500	$1,937.52	14.900	14.693	0.207	0.423	0.600	-0.177	PF 1.0	
Air Voids	14	13,455	93.746	1.04113	$5,312.39	3.500	3.400	0.100	0.669	0.600	0.069	Tons	0
				I/DP:	$10,705.83							2V Adj.	$0.00

Mix Design No **14202T** *Process No* 1 *Grading* S () PG *Price Per Ton* $36.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	17	16,961	83.197	0.98158	($1,124.48)	5.600	5.464	0.136	0.169	0.200	-0.031	CTS Tons	0
Density	34	16,961	95.388	1.04573	$9,772.01	94.000	94.556	0.556	0.866	1.100	-0.234	I/DP	$0.00
VMA	17	16,961	87.783	1.00864	$527.49	14.900	14.194	0.706	0.426	0.600	-0.174	PF 1.0	
Air Voids	17	16,961	92.460	1.03381	$6,193.04	3.500	3.141	0.359	0.592	0.600	-0.008	Tons	0
				I/DP:	$15,368.06							2V Adj.	$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	*Quality Level*	*Pay Factor*	I/DP	TV	Mean	*Mean to TV*	Std Dev	V	*St Dev. - V*
S	$32.00	1	5	13,115	86.776	1.03000	$1,888.56	92.000	94.180	2.180	1.641	1.600	0.041
S	$36.00	2	7	16,161	97.611	1.03500	$3,054.43	92.000	91.130	0.870	1.817	1.600	0.217

Totals: 14202

	Tests	Tons	I/DP		
AC	31	30,416	$813.04	CTS I/DP	
Density	61	30,416	$11,290.41	$0.00	
VMA	31	30,416	$2,465.01	2V Adj	
Air Voids	31	30,416	$11,505.43	$0.00	
Joint Density	12	29,276	$4,942.99		
Plan Quant		30,733	Project I/DP	$31,016.88	CPFC 1.02979

Comments: Joint density quantities

Subaccount: 14203 *NH 0505-038* *Lamar, East* *Region: 2* *Supplier: 11*

Mix Design No **244** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $30.43

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	22	21,545	99.231	1.05000	$3,278.07	5.200	5.256	0.056	0.107	0.200	-0.093	CTS Tons	0
Density	44	21,545	93.560	1.03110	$7,135.28	94.000	93.205	0.795	0.799	1.100	-0.301	I/DP	$0.00
VMA	22	21,545	98.776	1.05000	$3,278.07	14.100	13.482	0.618	0.272	0.600	-0.328	PF 1.0	
Air Voids	22	21,545	91.674	1.02733	$5,374.54	3.000	2.514	0.486	0.521	0.600	-0.079	Tons	0
				I/DP:	$19,065.96							2V Adj.	$0.00

Mix Design No **249** ***Process No*** 1 ***Grading*** S () PG ***Price Per Ton*** $34.15

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	21	20,124	96.794	1.05000	$3,436.17	5.000	4.999	0.001	0.147	0.200	-0.053	CTS Tons	0
Density	41	20,124	85.268	0.97271	($6,565.19)	94.000	92.812	1.188	0.775	1.100	-0.325	I/DP	$0.00
VMA	21	20,124	93.594	1.03866	$2,656.98	12.900	13.410	0.510	0.461	0.600	-0.139	PF 1.0	
Air Voids	21	20,124	96.100	1.05000	$10,308.52	3.400	3.186	0.214	0.563	0.600	-0.037	Tons	0
				I/DP:	$9,836.48							2V Adj.	$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	*Quality Level*	*Pay Factor*	I/DP	TV	Mean	*Mean to TV*	Std Dev	V	*St Dev. - V*
S	$30.43	1	10	21,545	96.612	1.04500	$4,425.40	92.000	90.670	1.330	1.568	1.600	-0.032
S	$34.15	2	10	20,124	97.379	1.04500	$4,638.83	92.000	90.970	1.030	1.665	1.600	0.065

Totals: 14203

	Tests	Tons	I/DP			
AC	43	41,669	$6,714.24	CTS I/DP		
Density	85	41,669	$570.09	$0.00		
VMA	43	41,669	$5,935.05	2V Adj		
Air Voids	43	41,669	$15,683.06	$0.00		
Joint Density	20	41,669	$9,064.23			
Plan Quant		40,616	Project I/DP	$37,966.67	CPFC	1.02827

Comments:

Subaccount: 14205 *STU 1151-016* *Ft Carson to Lake Ave* *Region: 2* *Supplier: 49*

Mix Design No 237 *Process No* 1 *Grading* S () PG *Price Per Ton* $32.13

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	31	30,659	81.562	0.95315	($4,614.98)	5.400	5.526	0.126	0.186	0.200	-0.014
Density	62	30,659	96.673	1.05070	$17,481.22	94.000	93.710	0.290	0.907	1.100	-0.193
VMA	31	30,659	98.595	1.05500	$5,417.91	14.400	13.813	0.587	0.288	0.600	-0.312
Air Voids	31	30,659	97.485	1.05500	$16,253.72	3.000	2.671	0.329	0.455	0.600	-0.145
				I/DP:	$34,537.87						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 239 *Process No* 1 *Grading* S () PG *Price Per Ton* $27.26

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	18	18,000	83.755	0.98318	($825.21)	5.400	5.486	0.086	0.200	0.200	0.000
Density	38	19,000	95.216	1.04340	$7,867.86	94.000	94.382	0.382	0.956	1.100	-0.144
VMA	19	19,000	82.258	0.97169	($1,466.05)	14.000	13.100	0.900	0.323	0.600	-0.277
Air Voids	19	19,000	64.211	0.83715	($25,303.34)	3.000	1.989	1.011	0.513	0.600	-0.087
				I/DP:	($19,726.74)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 239 *Process No* 2 *Grading* S () PG *Price Per Ton* $27.26

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	1	1,000		0.47500	($1,431.15)					0.200	
Density		0			$0.00	94.000				1.100	
VMA					$0.00					0.600	
Air Voids					$0.00					0.600	
				I/DP:	($1,431.15)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 240 *Process No* 1 *Grading* S () PG *Price Per Ton* $27.26

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	6	5,750	64.737	0.91494	($1,333.35)	5.600	5.362	0.238	0.152	0.200	-0.048
Density	12	5,750	96.926	1.04500	$2,468.73	94.000	93.317	0.683	0.748	1.100	-0.352
VMA	6	5,750	76.678	0.98347	($259.04)	14.400	13.333	1.067	0.175	0.600	-0.425
Air Voids	6	5,750	90.418	1.03500	$1,645.82	3.000	2.533	0.467	0.582	0.600	-0.018
				I/DP:	$2,522.16						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	Std Dev	V	St Dev. - V
S	$27.26	1	22	24,750	78.360	0.94084	($5,987.14)	92.000	89.740	2.260	2.194	1.600	0.594
S	$32.13	2	28	30,659	96.270	1.05279	$7,800.97	92.000	91.030	0.970	1.724	1.600	0.124

Totals: 14205

	Tests	Tons	I/DP	
AC	56	55,409	($8,204.69)	CTS I/DP
Density	112	55,409	$27,817.81	$0.00
VMA	56	55,409	$3,692.82	2V Adj
Air Voids	56	55,409	($7,403.80)	$0.00
Joint Density	50	55,409	$1,813.83	
Plan Quant		67,200	Project I/DP	$17,715.97

CPFC 1.01067

Comments: AC 1 test 2 x V out.

Subaccount: 14207 *STA 3851-015* *Arkansas River to SH* *Region: 2* *Supplier: 11*

Mix Design No 243 *Process No* 1 *Grading* S () PG *Price Per Ton* $28.95

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	69	68,938	92.677	1.01894	$3,779.00	5.300	5.410	0.110	0.131	0.200	-0.069
Density	85	42,438	87.838	0.97872	($9,151.66)	94.000	92.858	1.142	0.736	1.100	-0.364
VMA	69	68,938	99.924	1.05500	$10,976.65	14.400	14.232	0.168	0.336	0.600	-0.264
Air Voids	69	68,938	99.357	1.05500	$32,929.96	3.100	3.075	0.025	0.450	0.600	-0.150
				I/DP:	$38,533.95						

Other

CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	26,500
2V Adj.	$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	*Quality Level*	*Pay Factor*	I/DP	TV	Mean	*Mean to TV*	Std Dev	V	*St Dev. - V*
S	$28.95	1	28	68,938	92.895	1.03221	$9,641.34	92.000	89.590	2.410	1.097	1.600	-0.503

Totals: 14207

	Tests	Tons	I/DP	
AC	69	68,938	$3,779.00	CTS I/DP
Density	85	68,938	($9,151.66)	$0.00
VMA	69	68,938	$10,976.65	2V Adj
Air Voids	69	68,938	$32,929.96	$0.00
Joint Density	28	68,938	$9,641.34	
Plan Quant		68,335	Project I/DP	$48,175.29

CPFC 1.02414

Comments:

Subaccount: 14210	*STA 0831-087*	*SH 83A from SH 115 to*	*Region: 2*	*Supplier: 49*

Mix Design No 12410RAP **Process No** 1 **Grading** S () PG **Price Per Ton** $35.38

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	30	29,754	86.196	0.98696	($1,372.92)	5.300	5.371	0.071	0.191	0.200	-0.009
Density	62	30,754	97.789	1.05500	$20,945.47	94.000	94.010	0.010	0.889	1.100	-0.211
VMA	31	30,754	88.898	1.00466	$507.14	14.200	13.474	0.726	0.390	0.600	-0.210
Air Voids	31	30,754	91.978	1.02500	$8,160.29	3.500	3.090	0.410	0.565	0.600	-0.035
				I/DP:	$28,239.98						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 12410RAP **Process No** 2 **Grading** S () PG **Price Per Ton** $35.38

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	1	1,000		0.45000	($1,945.90)	5.300				0.200	
Density		0			$0.00	94.000				1.100	
VMA					$0.00					0.600	
Air Voids					$0.00					0.600	
				I/DP:	($1,945.90)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 14210LEV **Process No** 1 **Grading** SX () PG **Price Per Ton** $32.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	7	7,000	98.613	1.03500	$802.37	6.500	6.586	0.086	0.117	0.200	-0.083
Density		0			$0.00	94.000				1.100	
VMA	8	8,000	26.672	0.53111	($12,284.95)	16.800	15.463	1.337	0.213	0.600	-0.387
Air Voids	8	8,000	52.296	0.79639	($16,003.87)	3.000	1.850	1.150	0.825	0.600	0.225
				I/DP:	($27,486.45)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	8,000
2V Adj.	$0.00

Mix Design No 14210LEV **Process No** 2 **Grading** SX () PG **Price Per Ton** $32.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	1	1,000		0.45000	($1,801.25)	6.500				0.200	
Density		0			$0.00	94.000				1.100	
VMA					$0.00					0.600	
Air Voids					$0.00					0.600	
				I/DP:	($1,801.25)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 14210LEVA **Process No** 1 **Grading** SX () PG **Price Per Ton** $32.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	6	6,000	39.354	0.70269	($5,842.21)	6.400	6.053	0.347	0.160	0.200	-0.040
Density		0			$0.00	94.000				1.100	
VMA	6	6,000	47.136	0.77738	($4,374.51)	17.000	15.783	1.217	0.214	0.600	-0.386
Air Voids	6	6,000	77.658	0.98821	($694.89)	4.000	3.150	0.850	0.442	0.600	-0.158
				I/DP:	($10,911.61)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	7,141
2V Adj.	$0.00

Mix Design No 14210LEVA **Process No** 2 **Grading** SX () PG **Price Per Ton** $32.75

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	1	1,141			$0.00	6.400				0.200		CTS Tons	0
Density		0			$0.00	94.000				1.100		I/DP	$0.00
VMA	1	1,141			$0.00	17.000				0.600		PF 1.0 Tons	0
Air Voids	1	1,141			$0.00	4.000				0.600			
				I/DP:	$0.00						2V Adj.		$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	Std Dev	V	St Dev. - V
S	$35.38	1	16	30,754	54.135	0.75933	($39,279.79)	92.000	88.190	3.810	1.770	1.600	0.170
SX	$35.38	2	1	15,141			$0.00	92.000				1.600	

Totals: 14210

	Tests	Tons	I/DP	
AC	46	45,895	($10,159.91)	CTS I/DP
Density	62	45,895	$20,945.47	$0.00
VMA	46	45,895	($16,152.32)	2V Adj
Air Voids	46	45,895	($8,538.47)	$0.00
Joint Density	17	45,895	($39,279.79)	
Plan Quant		36,954	Project I/DP	($53,185.02)

CPFC 0.96642

Comments: 2 tests 2 x V out

Subaccount: 14218 ***STA 0701-161*** ***Fruitvale East*** ***Region: 3*** ***Supplier: 16***

Mix Design No 102303 **Process No** 1 **Grading** SX () PG **Price Per Ton** $34.65

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	19	18,421	82.343	0.97225	($1,771.38)	5.600	5.539	0.061	0.216	0.200	0.016	CTS Tons	500
Density	37	17,493	89.653	1.00611	$1,295.80	94.000	93.338	0.662	1.046	1.100	-0.054	I/DP	$107.18
VMA	19	18,421	81.891	0.96929	($1,960.14)	15.300	14.395	0.905	0.322	0.600	-0.278	PF 1.0 Tons	428
Air Voids	19	18,421	92.889	1.03537	$6,772.27	3.500	3.011	0.489	0.492	0.600	-0.108		
				I/DP:	$4,443.73						2V Adj.		$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	Std Dev	V	St Dev. - V
SX	$35.54	1	16	18,421	81.597	0.97371	($2,581.77)	92.000	89.620	2.380	1.789	1.600	0.189

Totals: 14218

	Tests	Tons	I/DP	
AC	19	18,421	($1,771.38)	CTS I/DP
Density	37	18,421	$1,295.80	$107.18
VMA	19	18,421	($1,960.14)	2V Adj
Air Voids	19	18,421	$6,772.27	$0.00
Joint Density	16	18,421	($2,581.77)	
Plan Quant		18,652	Project I/DP	$1,861.96

CPFC 1.00292

Comments:

Subaccount: 14235 *STA 4701-104* *C-470 Ken Caryl to Wadsworth* *Region: 6* *Supplier: 10*

Mix Design No 1470032 *Process No* 1 *Grading* S () PG *Price Per Ton* $38.35

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V	Other	
AC	23	23,751	88.429	1.00706	$643.07	5.400	5.500	0.100	0.165	0.200	-0.035	CTS Tons	0
Density	54	23,751	100.000	1.05500	$20,038.72	94.000	94.067	0.067	0.447	1.100	-0.653	I/DP	$0.00
VMA	23	23,751	98.057	1.05000	$4,554.25	16.400	16.022	0.378	0.413	0.600	-0.187	PF 1.0	
Air Voids	23	23,751	99.398	1.05000	$18,217.02	3.000	3.222	0.222	0.414	0.600	-0.186	Tons	0
				I/DP:	$43,453.06							2V Adj.	$0.00

Totals: 14235

	Tests	Tons	I/DP			
AC	23	23,751	$643.07	CTS I/DP		
Density	54	23,751	$20,038.72	$0.00		
VMA	23	23,751	$4,554.25	2V Adj		
Air Voids	23	23,751	$18,217.02	$0.00		
Joint Density						
Plan Quant		25,651	Project I/DP	$43,453.06	CPFC	1.04771

Comments:

Subaccount: 14244 *STA 0361-072* *US 36 Wads to Lowe* *Region: 6* *Supplier: 33*

Mix Design No 147010 **Process No** 1 **Grading** S (100) PG **Price Per Ton** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	9	8,912	95.482	1.04000	$1,354.62	5.100	4.993	0.107	0.122	0.200	-0.078
Density	18	8,912	93.522	1.03899	$4,621.63	94.000	93.639	0.361	1.058	1.100	-0.042
VMA	9	8,912	90.661	1.03134	$1,061.30	13.100	13.744	0.644	0.430	0.600	-0.170
Air Voids	9	8,912	96.982	1.04000	$4,063.87	3.000	2.722	0.278	0.536	0.600	-0.064
				I/DP:	$11,101.42						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 147010-1 **Process No** 1 **Grading** S (100) PG **Price Per Ton** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	7	7,096	92.793	1.03500	$943.77	5.100	5.013	0.087	0.153	0.200	-0.047
Density	16	8,109	97.550	1.05000	$5,392.49	94.000	93.112	0.888	0.594	1.100	-0.506
VMA	8	8,109	93.845	1.04000	$1,232.57	13.700	14.287	0.587	0.419	0.600	-0.181
Air Voids	8	8,109	79.188	0.98262	($1,606.87)	3.000	3.675	0.675	0.632	0.600	0.032
				I/DP:	$5,961.96						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 147010-1 **Process No** 2 **Grading** S (100) PG **Price Per Ton** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	1	1,013		0.26250	($2,838.93)	5.100				0.200	
Density		0			$0.00	94.000				1.100	
VMA					$0.00					0.600	
Air Voids					$0.00					0.600	
				I/DP:	($2,838.93)						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 147059 **Process No** 1 **Grading** S (100) PG **Price Per Ton** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	3	2,890	100.000	1.02500	$274.55	4.700	4.563	0.137	0.074	0.200	-0.126
Density	8	3,855	88.780	1.02620	$1,343.26	94.000	93.313	0.687	1.096	1.100	-0.004
VMA	4	3,855	90.038	1.03000	$439.47	13.900	14.525	0.625	0.479	0.600	-0.121
Air Voids	3	2,890	100.000	1.02500	$823.65	3.000	3.500	0.500	0.436	0.600	-0.164
				I/DP:	$2,880.93						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 147059 **Process No** 2 **Grading** S (100) PG **Price Per Ton** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	1	965		1.00000	$0.00	4.700				0.200	
Density		0			$0.00	94.000				1.100	
VMA					$0.00					0.600	
Air Voids	1	965		1.00000	$0.00	3.000				0.600	
				I/DP:	$0.00						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Mix Design No 147059-1 **Process No** 1 **Grading** S (100) PG **Price Per Ton** $38.00

	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	St Dev.	V	St Dev. - V
AC	23	23,256	94.885	1.04551	$4,021.68	4.700	4.577	0.123	0.110	0.200	-0.090
Density	49	23,256	90.492	1.00794	$2,454.46	94.000	93.996	0.004	1.210	1.100	0.110
VMA	23	23,256	97.192	1.05000	$4,418.64	14.500	14.074	0.426	0.418	0.600	-0.182
Air Voids	23	23,256	95.378	1.04828	$12,800.59	3.200	2.809	0.391	0.491	0.600	-0.109
				I/DP:	$23,695.37						

Other	
CTS Tons	0
I/DP	$0.00
PF 1.0 Tons	0
2V Adj.	$0.00

Joint Density

Grad.	Price	Proc. No	Tests	Tons	Quality Level	Pay Factor	I/DP	TV	Mean	Mean to TV	Std Dev	V	St Dev. - V
S	$38.00	1	8	17,021	45.512	0.73450	($25,759.03)	92.000	87.790	4.210	1.791	1.600	0.191
S	$38.00	2	8	27,111	81.207	0.99279	($1,114.38)	92.000	89.340	2.660	1.486	1.600	-0.114

Totals: 14244

	Tests	Tons	I/DP	
AC	44	44,132	$3,755.69	CTS I/DP
Density	91	44,132	$13,811.84	$0.00
VMA	44	44,132	$7,151.98	2V Adj
Air Voids	44	44,132	$16,081.24	$0.00
Joint Density	16	44,132	($26,873.41)	
Plan Quant		52,404	Project I/DP	$13,927.34

CPFC 1.00830

Comments:

Totals for all Projects

Projects with Bid Dates from 1/1/2003 to 12/31/2003.

Number of Projects: 15

	Tests	*Tons*	*I/DP*	
AC	569	560,657	($230.46)	*CTS I/DP*
Density	1061	560,657	$158,969.57	($1,617.68)
VMA	569	560,657	$26,250.24	*2V Adj*
Air Voids	569	560,657	$101,577.92	$0.00
Joint Density	262	495,209	($18,667.61)	
Plan Quant		569,645	*Total I/DP*	$266,281.98

Calculated Pay Factor Composite and I/DP by Region, VA

Criteria: Projects with Bid Dates from 1/1/2003 to 12/31/2003.

PFC is back calculated from the Project's I/DP.

A Calculated Average Unit Price is used in the calculation.

Region 2

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
14202	02/13/03	NH 0504-045	2	S	30,416	$34.23	1.02979	$31,016.88	32
14203	02/06/03	NH 0505-038	2	S	41,669	$32.23	1.02827	$37,966.69	11
14201	03/27/03	NH 0504-044	2	S	76,797	$32.12	1.02558	$63,108.44	14
14207	02/27/03	STA 3851-015	2	S	68,938	$28.95	1.02414	$48,175.29	11
14205	01/23/03	STU 1151-016	2	S	55,409	$29.95	1.01067	$17,715.97	49
14200	01/30/03	NH 0243-066	2	SX	27,000	$32.41	1.00431	$3,775.24	49
14210	06/05/03	STA 0831-087	2	S	45,895	$34.51	0.96642	($53,185.02)	49

Region 2

Number of Projects: 7 **CPFC: Maximum:** 1.02979

Total Tons: 346,124 **Minimum:** 0.96642

Average: 1.01274

Incentive/Disincentive Payments

Positive I/DPs: 6 ***Sum I/DPs:*** $148,573.49

Negative I/DPs: 1 ***Maximum:*** $63,108.44

Minimum: ($53,185.02)

Average IDP: $21,224.78

Region 3

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
14218	03/06/03	STA 0701-161	3	SX	18,421	$34.65	1.00292	$1,861.96	16
13865	03/27/03	STR 0401-018	3	SX	60,264	$36.30	0.99270	($15,972.98)	19

Region 3

Number of Projects: 2 **CPFC: Maximum:** 1.00292

Total Tons: 78,685 **Minimum:** 0.99270

Average: 0.99781

Incentive/Disincentive Payments

Positive I/DPs: 1 ***Sum I/DPs:*** ($14,111.02)

Negative I/DPs: 1 ***Maximum:*** $1,861.96

Minimum: ($15,972.98)

Average IDP: ($7,055.51)

Region 6

Subacct.	Bid Date	Project Code	Reg.	Grading	Total Tons	Average Price	Pay Factor Composite	Project I/DP	Supplier
14235	02/06/03	STA 4701-104	6	S	23,751	$38.35	1.04771	$43,453.06	10
11210	01/30/03	STA 072A-02	6	S	21,000	$31.50	1.04005	$26,491.23	13
13348	01/16/03	STA 0881-012	6	S	16,161	$36.50	1.03381	$19,945.90	10
12021	01/09/03	NH 0404-032	6	S	20,000	$40.50	1.02959	$23,967.15	19
6033	08/21/03	MTCE 06-033	6	S	10,804	$32.25	1.01158	$4,034.85	33
14244	05/22/03	STA 0361-072	6	S	44,132	$38.00	1.00830	$13,927.34	33

Region 6

Number of Projects: 6 **CPFC: Maximum:** 1.04771
Total Tons: 135,848 **Minimum:** 1.00830
Average: 1.02851

Incentive/Disincentive Payments

Positive I/DPs:	6	***Sum I/DPs:***	$131,819.53
Negative I/DPs:	0	***Maximum:***	$43,453.06
		Minimum:	$4,034.85
		Average IDP:	$21,969.92

Statewide Totals: 1/1/2003 to 12/31/2003.

Number of Projects: 15 **CPFC Maximum:** 1.04771
Total Tons: 560,657 **Minimum:** 0.96642
Average: 1.01706

Incentive/Disincentive Payments

Positive I/DPs:	13	***Sum I/DPs:***	$266,282.00
Negative I/DPs:	2	***Maximum:***	$63,108.44
		Minimum:	($53,185.02)
		Average IDP:	$17,752.13

Asphalt Content - Process Information, VA

Criteria: Projects with Bid Dates from 1/1/2003 to 12/31/2003.

Processes with less than 3 tests not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean:	Mean to TV	St. Dev.	V	StDev - V
14244	6	52,404	147059	$38.00	1	2,890	3	100.000	1.02500	4.70	4.56	0.14	0.074	0.20	-0.13
14203	2	40,616	244	$30.43	1	21,545	22	99.231	1.05000	5.20	5.26	0.06	0.107	0.20	-0.09
14202	2	30,733	14202	$32.00	1	13,455	14	98.006	1.04500	5.60	5.59	0.01	0.140	0.20	-0.06
11210	6	20,258	147014	$31.50	1	21,000	21	96.996	1.05000	5.10	5.20	0.10	0.110	0.20	-0.09
14203	2	40,616	249	$34.15	1	20,124	21	96.794	1.05000	5.00	5.00	0.00	0.147	0.20	-0.05
14244	6	52,404	147010	$38.00	1	8,912	9	95.482	1.04000	5.10	4.99	0.11	0.122	0.20	-0.08
13348	6	17,224	1470031	$36.50	1	16,161	17	95.386	1.04831	5.40	5.49	0.09	0.126	0.20	-0.07
14244	6	52,404	147059-1	$38.00	1	23,256	23	94.885	1.04551	4.70	4.58	0.12	0.110	0.20	-0.09
14201	2	66,038	14201B	$30.00	1	32,735	33	94.356	1.03946	5.30	5.23	0.07	0.146	0.20	-0.05
14244	6	52,404	147010-1	$38.00	1	7,096	7	92.793	1.03500	5.10	5.01	0.09	0.153	0.20	-0.05
14207	2	68,335	243	$28.95	1	68,938	69	92.677	1.01894	5.30	5.41	0.11	0.131	0.20	-0.07
6033	6	11,055	147010-1	$32.25	1	10,804	11	91.870	1.03495	5.10	5.12	0.02	0.180	0.20	-0.02
14201	2	66,038	14201T	$33.70	1	44,062	45	90.614	1.01006	5.20	5.12	0.08	0.162	0.20	-0.04
14235	6	25,651	1470032	$38.35	1	23,751	23	88.429	1.00706	5.40	5.50	0.10	0.165	0.20	-0.03
12021	6	23,310	147004	$40.50	1	20,000	24	86.499	0.99756	5.20	5.19	0.01	0.204	0.20	0.00
14210	2	36,954	2410RAP	$35.38	1	29,754	30	86.196	0.98696	5.30	5.37	0.07	0.191	0.20	-0.01
14205	2	67,200	239	$27.26	1	18,000	18	83.755	0.98318	5.40	5.49	0.09	0.200	0.20	0.00
14202	2	30,733	14202T	$36.00	1	16,961	17	83.197	0.98158	5.60	5.46	0.14	0.169	0.20	-0.03
14205	2	67,200	237	$32.13	1	30,659	31	81.562	0.95315	5.40	5.53	0.13	0.186	0.20	-0.01
14205	2	67,200	240	$27.26	1	5,750	6	64.737	0.91494	5.60	5.36	0.24	0.152	0.20	-0.05

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	435,853	**Best:**	100.000	1.05000	0.00	0.074	0.20	-0.13
Processes:	20	**Worst:**	64.737	0.91494	0.24	0.204	0.20	0.00
Tests:	444	**Weighted Average:**	90.942	1.01575	0.09	0.152	0.20	-0.05

Grading: SX

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean:	Mean to TV	St. Dev.	V	StDev - V
14210	2	36,954	4210LEV	$32.75	1	7,000	7	98.613	1.03500	6.50	6.59	0.09	0.117	0.20	-0.08
13865	3	62,608	76103B	$36.30	1	51,264	51	88.684	0.99393	5.60	5.59	0.01	0.191	0.20	-0.01
14218	3	18,652	102303	$34.65	1	18,421	19	82.343	0.97225	5.60	5.54	0.06	0.216	0.20	0.02
14200	2	28,607	236	$32.41	1	27,000	27	80.816	0.95161	6.50	6.44	0.06	0.223	0.20	0.02
13865	3	62,608	78103	$36.33	1	9,000	9	68.104	0.90880	5.70	5.61	0.09	0.288	0.20	0.09
14210	2	36,954	210LEVA	$32.75	1	6,000	6	39.354	0.70269	6.40	6.05	0.35	0.160	0.20	-0.04

Totals Grading: SX

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	118,685	**Best:**	98.613	1.03500	0.01	0.117	0.20	-0.08
Processes:	6	**Worst:**	39.354	0.70269	0.35	0.288	0.20	0.09
Tests:	119	**Weighted Average:**	82.441	0.96218	0.05	0.204	0.20	0.00

Asphalt Content - Totals 1/1/2003 to 12/31/2003.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	554,538	**Best:**	100.000	1.05000	0.00	0.074	0.20	-0.13
Processes:	26	**Worst:**	39.354	0.70269	0.35	0.288	0.20	0.09
Tests:	563	**Weighted Average:**	89.123	1.00428	0.08	0.163	0.20	-0.04

VMA - Process Information

Criteria: Projects with Bid Dates from 1/1/2003 to 12/31/2003.

Processes with less than 3 tests not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
14201	2	66,038	14201B	$30.00	1	32,735	33	99.998	1.05500	13.60	13.60	0.00	0.318	0.60	-0.282
14207	2	68,335	243	$28.95	1	68,938	69	99.924	1.05500	14.40	14.23	0.17	0.336	0.60	-0.264
14202	2	30,733	14202	$32.00	1	13,455	14	99.597	1.04500	14.90	14.69	0.21	0.423	0.60	-0.177
14203	2	40,616	244	$30.43	1	21,545	22	98.776	1.05000	14.10	13.48	0.62	0.272	0.60	-0.328
14205	2	67,200	237	$32.13	1	30,659	31	98.595	1.05500	14.40	13.81	0.59	0.288	0.60	-0.312
14235	6	25,651	1470032	$38.35	1	23,751	23	98.057	1.05000	16.40	16.02	0.38	0.413	0.60	-0.187
12021	6	23,310	147004	$40.50	1	20,000	24	98.016	1.05000	14.00	13.78	0.22	0.498	0.60	-0.102
11210	6	20,258	147014	$31.50	1	21,000	21	97.478	1.05000	14.20	14.21	0.01	0.565	0.60	-0.035
6033	6	11,055	147010-1	$32.25	1	10,804	11	97.404	1.04500	14.20	13.87	0.33	0.484	0.60	-0.116
14244	6	52,404	147059-1	$38.00	1	23,256	23	97.192	1.05000	14.50	14.07	0.43	0.418	0.60	-0.182
14201	2	66,038	14201T	$33.70	1	44,062	45	96.823	1.05332	13.50	13.95	0.45	0.409	0.60	-0.191
13348	6	17,224	1470031	$36.50	1	16,161	17	96.494	1.05000	16.40	16.21	0.19	0.565	0.60	-0.035
14244	6	52,404	147010-1	$38.00	1	8,109	8	93.845	1.04000	13.70	14.29	0.59	0.419	0.60	-0.181
14203	2	40,616	249	$34.15	1	20,124	21	93.594	1.03866	12.90	13.41	0.51	0.461	0.60	-0.139
14244	6	52,404	147010	$38.00	1	8,912	9	90.661	1.03134	13.10	13.74	0.64	0.430	0.60	-0.170
14244	6	52,404	147059	$38.00	1	3,855	4	90.038	1.03000	13.90	14.52	0.63	0.479	0.60	-0.121
14210	2	36,954	2410RAP	$35.38	1	30,754	31	88.898	1.00466	14.20	13.47	0.73	0.390	0.60	-0.210
14202	2	30,733	14202T	$36.00	1	16,961	17	87.783	1.00864	14.90	14.19	0.71	0.426	0.60	-0.174
14205	2	67,200	239	$27.26	1	19,000	19	82.258	0.97169	14.00	13.10	0.90	0.323	0.60	-0.277
14205	2	67,200	240	$27.26	1	5,750	6	76.678	0.98347	14.40	13.33	1.07	0.175	0.60	-0.425

Totals Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	439,831	**Best:**	99.998	1.05500	0.00	0.175	0.60	-0.425
Processes:	20	**Worst:**	76.678	0.97169	1.07	0.565	0.60	-0.035
Tests:	448	**Weighted Average:**	95.841	1.04129	0.40	0.392	0.60	-0.208

Grading: SX

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13865	3	62,608	78103	$36.33	1	9,000	9	99.922	1.04000	14.40	13.87	0.53	0.283	0.60	-0.317
13865	3	62,608	76103B	$36.30	2	26,264	26	97.585	1.05500	14.40	14.43	0.03	0.554	0.60	-0.046
14218	3	18,652	102303	$34.65	1	18,421	19	81.891	0.96929	15.30	14.40	0.90	0.322	0.60	-0.278
14200	2	28,607	236	$32.41	1	27,000	27	71.178	0.87796	16.80	15.77	1.03	0.296	0.60	-0.304
13865	3	62,608	76103B	$36.30	1	25,000	25	70.215	0.87350	14.40	13.53	0.87	0.613	0.60	0.013
14210	2	36,954	210LEVA	$32.75	1	6,000	6	47.136	0.77738	17.00	15.78	1.22	0.214	0.60	-0.386
14210	2	36,954	4210LEV	$32.75	1	8,000	8	26.672	0.53111	16.80	15.46	1.34	0.213	0.60	-0.387

Totals Grading: SX

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	119,685	**Best:**	99.922	1.05500	0.03	0.213	0.60	-0.387
Processes:	7	**Worst:**	26.672	0.53111	1.34	0.613	0.60	0.013
Tests:	120	**Weighted Average:**	76.402	0.91389	0.75	0.412	0.60	-0.188

VMA - Totals 1/1/2003 to 12/31/2003.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	559,516	**Best:**	99.998	1.05500	0.00	0.175	0.60	-0.425
Processes:	27	**Worst:**	26.672	0.53111	1.34	0.613	0.60	0.013
Tests:	568	**Weighted Average:**	91.683	1.01404	0.48	0.396	0.60	-0.204

Air Voids - Process Information

Criteria: Projects with Bid Dates from 1/1/2003 to 12/31/2003.

Processes with less than 3 tests not included.

Grading: S

Sub.	Reg.	Plan Quant.	Mix Design	Price	Process No	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev -V
14244	6	52,404	147059	$38.00	1	2,890	3	100.000	1.02500	3.00	3.50	0.50	0.436	0.60	-0.164
14235	6	25,651	1470032	$38.35	1	23,751	23	99.398	1.05000	3.00	3.22	0.22	0.414	0.60	-0.186
14207	2	68,335	243	$28.95	1	68,938	69	99.357	1.05500	3.10	3.08	0.03	0.450	0.60	-0.150
14205	2	67,200	237	$32.13	1	30,659	31	97.485	1.05500	3.00	2.67	0.33	0.455	0.60	-0.145
14244	6	52,404	147010	$38.00	1	8,912	9	96.982	1.04000	3.00	2.72	0.28	0.536	0.60	-0.064
14203	2	40,616	249	$34.15	1	20,124	21	96.100	1.05000	3.40	3.19	0.21	0.563	0.60	-0.037
12021	6	23,310	147004	$40.50	1	20,000	24	96.007	1.05000	3.00	3.23	0.23	0.558	0.60	-0.042
14201	2	66,038	14201T	$33.70	1	44,062	45	95.516	1.04441	3.50	3.55	0.05	0.606	0.60	0.006
14244	6	52,404	147059-1	$38.00	1	23,256	23	95.378	1.04828	3.20	2.81	0.39	0.491	0.60	-0.109
14202	2	30,733	14202	$32.00	1	13,455	14	93.746	1.04113	3.50	3.40	0.10	0.669	0.60	0.069
11210	6	20,258	147014	$31.50	1	21,000	21	93.117	1.03599	3.00	2.90	0.10	0.672	0.60	0.072
14202	2	30,733	14202T	$36.00	1	16,961	17	92.460	1.03381	3.50	3.14	0.36	0.592	0.60	-0.008
14210	2	36,954	2410RAP	$35.38	1	30,754	31	91.978	1.02500	3.50	3.09	0.41	0.565	0.60	-0.035
14203	2	40,616	244	$30.43	1	21,545	22	91.674	1.02733	3.00	2.51	0.49	0.521	0.60	-0.079
14201	2	66,038	14201B	$30.00	1	32,735	33	90.770	1.01602	3.40	2.94	0.46	0.557	0.60	-0.043
14205	2	67,200	240	$27.26	1	5,750	6	90.418	1.03500	3.00	2.53	0.47	0.582	0.60	-0.018
6033	6	11,055	147010-1	$32.25	1	10,804	11	89.953	1.02678	3.00	2.62	0.38	0.646	0.60	0.046
13348	6	17,224	1470031	$36.50	1	16,161	17	87.134	1.00496	3.00	3.60	0.60	0.532	0.60	-0.068
14244	6	52,404	147010-1	$38.00	1	8,109	8	79.188	0.98262	3.00	3.67	0.67	0.632	0.60	0.032
14205	2	67,200	239	$27.26	1	19,000	19	64.211	0.83715	3.00	1.99	1.01	0.513	0.60	-0.087

Totals Grading: S

		Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	438,866	**Best:**	100.000	1.05500	0.03	0.414	0.60	-0.186
Processes:	20	**Worst:**	64.211	0.83715	1.01	0.672	0.60	0.072
Tests:	447	**Weighted Average:**	93.321	1.03026	0.30	0.536	0.60	-0.064

Grading: SX

Sub.	Reg.	Plan Quant.	Mix Design	Price	Process No	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev -V
14218	3	18,652	102303	$34.65	1	18,421	19	92.889	1.03537	3.50	3.01	0.49	0.492	0.60	-0.108
14200	2	28,607	236	$32.41	1	27,000	27	89.665	1.01220	3.00	2.21	0.79	0.327	0.60	-0.273
13865	3	62,608	76103B	$36.30	1	25,000	25	84.268	0.97800	3.50	3.07	0.43	0.736	0.60	0.136
13865	3	62,608	78103	$36.33	1	9,000	9	81.166	0.98829	3.50	3.03	0.47	0.798	0.60	0.198
14210	2	36,954	210LEVA	$32.75	1	6,000	6	77.658	0.98821	4.00	3.15	0.85	0.442	0.60	-0.158
13865	3	62,608	76103B	$36.30	2	26,264	26	74.293	0.90385	3.50	3.73	0.23	1.036	0.60	0.436
14210	2	36,954	4210LEV	$32.75	1	8,000	8	52.296	0.79639	3.00	1.85	1.15	0.825	0.60	0.225

Totals Grading: SX

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	119,685	**Best:**	92.889	1.03537	0.23	0.327	0.60	-0.273
Processes:	7	**Worst:**	52.296	0.79639	1.15	1.036	0.60	0.436
Tests:	120	**Weighted Average:**	81.922	0.96742	0.55	0.668	0.60	0.068

Air Voids - Totals 1/1/2003 to 12/31/2003.

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	558,551	**Best:**	100.000	1.05500	0.03	0.327	0.60	-0.273
Processes:	27	**Worst:**	52.296	0.79639	1.15	1.036	0.60	0.436
Tests:	567	**Weighted Average:**	90.878	1.01680	0.35	0.564	0.60	-0.036

Mat Density - Process Information, Voids Acceptance

Criteria: Projects with Bid Dates from 1/1/2003 to 12/31/2003.

Processes with less than 3 tests not included.

Compaction Test Sections not included.

Grading: S

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13348	6	17,224	1470031	$36.50	1	16,161	33	100.000	1.05500	94.000	94.300	0.300	0.439	1.100	-0.661
14235	6	25,651	1470032	$38.35	1	23,751	54	100.000	1.05500	94.000	94.067	0.067	0.447	1.100	-0.653
11210	6	20,258	147014	$31.50	1	21,000	42	99.036	1.05500	94.000	93.881	0.119	0.791	1.100	-0.309
14210	2	36,954	410RAP	$35.38	1	30,754	62	97.789	1.05500	94.000	94.010	0.010	0.889	1.100	-0.211
14244	6	52,404	47010-1	$38.00	1	8,109	16	97.550	1.05000	94.000	93.112	0.888	0.594	1.100	-0.506
14205	2	67,200	240	$27.26	1	5,750	12	96.926	1.04500	94.000	93.317	0.683	0.748	1.100	-0.352
14205	2	67,200	237	$32.13	1	30,659	62	96.673	1.05070	94.000	93.710	0.290	0.907	1.100	-0.193
14201	2	66,038	14201B	$30.00	1	32,235	65	95.389	1.04067	94.000	93.648	0.352	0.951	1.100	-0.149
14202	2	30,733	14202T	$36.00	1	16,961	34	95.388	1.04573	94.000	94.556	0.556	0.866	1.100	-0.234
14205	2	67,200	239	$27.26	1	19,000	38	95.216	1.04340	94.000	94.382	0.382	0.956	1.100	-0.144
6033	6	11,055	47010-1	$32.25	1	10,304	24	94.694	1.04428	94.000	94.167	0.167	1.052	1.100	-0.048
14203	2	40,616	244	$30.43	1	21,545	44	93.560	1.03110	94.000	93.205	0.795	0.799	1.100	-0.301
14244	6	52,404	147010	$38.00	1	8,912	18	93.522	1.03899	94.000	93.639	0.361	1.058	1.100	-0.042
12021	6	23,310	147004	$40.50	1	20,000	48	92.057	1.02163	94.000	93.600	0.400	1.082	1.100	-0.018
14201	2	66,038	14201T	$33.70	1	43,062	87	91.140	1.00526	94.000	93.395	0.605	1.015	1.100	-0.085
14244	6	52,404	47059-1	$38.00	1	23,256	49	90.492	1.00794	94.000	93.996	0.004	1.210	1.100	0.110
14202	2	30,733	14202	$32.00	1	13,455	27	89.336	1.01008	94.000	94.015	0.015	1.259	1.100	0.159
14244	6	52,404	147059	$38.00	1	3,855	8	88.780	1.02620	94.000	93.313	0.687	1.096	1.100	-0.004
14207	2	68,335	243	$28.95	1	42,438	85	87.838	0.97872	94.000	92.858	1.142	0.736	1.100	-0.364
14203	2	40,616	249	$34.15	1	20,124	41	85.268	0.97271	94.000	92.812	1.188	0.775	1.100	-0.325

Totals - Grading: S

			Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Tons:	411,331	**Best:**	100.000	1.05500	0.004	0.439	1.100	-0.661
Processes:	20	**Worst:**	85.268	0.97271	1.188	1.259	1.100	0.159
Tests:	849							
		Weighted Average:	93.782	1.02741	0.459	0.878	1.100	-0.222

Grading: SX

Subacct.	Reg.	Plan Quant.	Mix Design	Price	Process No.	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
13865	3	62,608	78103	$36.33	1	8,500	18	97.900	1.05000	94.000	93.772	0.228	0.892	1.100	-0.208
14200	2	28,607	236	$32.41	1	27,000	54	95.771	1.04500	94.000	93.415	0.585	0.825	1.100	-0.275
13865	3	62,608	76103B	$36.30	1	50,764	102	91.604	1.00790	94.000	93.542	0.458	1.069	1.100	-0.031
14218	3	18,652	102303	$34.65	1	17,493	37	89.653	1.00611	94.000	93.338	0.662	1.046	1.100	-0.054

Totals - Grading: SX

Tons: 103,757
Processes: 4
Tests: 211

	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Best:	97.900	1.05000	0.228	0.825	1.100	-0.275
Worst:	89.653	1.00611	0.662	1.069	1.100	-0.031
Weighted Average:	92.875	1.02070	0.507	0.987	1.100	-0.113

Mat Density - Totals 1/1/2003 to 12/31/2003.

Tons: 515,088
Processes: 24
Tests: 1,060

	Quality Level	Pay Factor	Mean to TV	St. Dev.	V	StDev - V
Best:	100.000	1.05500	0.004	0.439	1.100	-0.661
Worst:	85.268	0.97271	1.188	1.259	1.100	0.159
Weighted Average:	93.600	1.02606	0.468	0.900	1.100	-0.200

Appendix F

Joint Density Information 2000 through /2003

Joint Density - Process Information by Grading, VA

Criteria: Projects with Bid Dates from 1/1/2000 to 12/31/2003.

Processes with less than 3 tests not included.

Grading S

Sub.	Reg.	Price	Proc. No	Tons	Tests	*Quality Level*	*Pay Factor*	TV	Mean	*Mean to TV*	Std Dev	V	*St Dev. - V*
13480	2	$30.27	1	5,964	3	100.000	1.02500	92.00	91.270	0.730	2.511	1.60	0.911
14201	2	$30.00	1	32,735	19	99.619	1.05000	92.00	90.540	1.460	1.038	1.60	-0.562
14202	2	$36.00	2	16,161	7	97.611	1.03500	92.00	91.130	0.870	1.817	1.60	0.217
14203	2	$34.15	2	20,124	10	97.379	1.04500	92.00	90.970	1.030	1.665	1.60	0.065
14203	2	$30.43	1	21,545	10	96.612	1.04500	92.00	90.670	1.330	1.568	1.60	-0.032
14205	2	$32.13	2	30,659	28	96.270	1.05279	92.00	91.030	0.970	1.724	1.60	0.124
14207	2	$28.95	1	68,938	28	92.895	1.03221	92.00	89.590	2.410	1.097	1.60	-0.503
14201	2	$33.70	2	44,062	19	89.554	1.01664	92.00	89.690	2.310	1.355	1.60	-0.245
14202	2	$32.00	1	13,115	5	86.776	1.03000	92.00	94.180	2.180	1.641	1.60	0.041
12021	6	$40.50	1	20,000	12	85.672	1.00503	92.00	91.270	0.730	2.709	1.60	1.109
14244	6	$38.00	2	27,111	8	81.207	0.99279	92.00	89.340	2.660	1.486	1.60	-0.114
14205	2	$27.26	1	24,750	22	78.360	0.94084	92.00	89.740	2.260	2.194	1.60	0.594
6033	6	$32.25	1	10,804	13	64.982	0.86802	92.00	88.880	3.120	2.247	1.60	0.647
14210	2	$35.38	1	30,754	16	54.135	0.75933	92.00	88.190	3.810	1.770	1.60	0.170
14244	6	$38.00	1	17,021	8	45.512	0.73450	92.00	87.790	4.210	1.791	1.60	0.191
13480	2	$35.82	2	2,389	3	44.379	0.84528	92.00	87.770	4.230	1.150	1.60	-0.450

Totals Grading: S

			Weighted Average:							
Processes	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
16	386,132	211	85.509	0.98425	92.00	90.032	2.116	1.595	1.60	-0.005

Grading SX

Sub.	Reg.	Price	Proc. No	Tons	Tests	*Quality Level*	*Pay Factor*	TV	Mean	*Mean to TV*	Std Dev	V	*St Dev. - V*
13865	3	$37.38	1	60,264	22	99.133	1.05000	92.00	91.890	0.110	1.633	1.60	0.033
14200	2	$32.41	1	23,604	18	89.075	1.01484	92.00	90.150	1.850	1.759	1.60	0.159
14218	3	$35.54	1	18,421	16	81.597	0.97371	92.00	89.620	2.380	1.789	1.60	0.189

Totals Grading: SX

			Weighted Average:							
Processes	Tons	Tests	Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
3	102,289	56	93.654	1.02815	92.00	91.080	0.920	1.690	1.60	0.090

Joint Density Totals 1/1/2000 to 12/31/2003

			Quality Level	Pay Factor	TV	Mean	Mean to TV	St. Dev.	V	StDev - V
Processes:	19	**Best:**	100.000	1.05279	92.00	94.180	0.110	1.038	1.60	-0.562
Tests:	267	**Worst:**	44.379	0.73450	92.00	87.770	4.230	2.709	1.60	1.109
Total Tons:	488,421	**Weighted Average:**	87.215	0.99344	92.00	90.251	1.866	1.615	1.60	0.015

Appendix G

Revision to Sections 105, & 106, Quality of HBP (Voids Acceptance)

REVISION OF SECTIONS 105 AND 106
QUALITY OF HOT BITUMINOUS PAVEMENT (VOIDS ACCEPTANCE)

Sections 105 and 106 of the Standard Specifications are hereby revised for this project as follows:

Subsection 105.03 shall include the following:

Conformity to the Contract of all Hot Bituminous Pavement, Item 403, except Hot Bituminous Pavement (Patching) and temporary pavement will be determined by tests and evaluations of elements that include asphalt content, voids in the mineral aggregate, air voids in-place density, and joint density in accordance with the following:

All work performed and all materials furnished shall conform to the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown in the Contract.

For those items of work where working tolerances are not specified, the Contractor shall perform the work in a manner consistent with reasonable and customary manufacturing and construction practices.

When the Engineer finds the materials or work furnished, work performed, or the finished product are not in conformity with the Contract and has resulted in an inferior or unsatisfactory product, the work or material shall be removed and replaced or otherwise corrected at the expense of the Contractor.

Materials will be sampled randomly and tested by the Department in accordance with Section 106 and with the applicable procedures contained in the Department's Field Materials Manual. The approximate maximum quantity represented by each sample will be as set forth in Section 106. Additional samples may be selected and tested at the Engineer's discretion.

A process will consist of either a test value or a series of test values resulting from related tests of an element of the Contractor's work and materials. An element is a material and/or workmanship property that can be tested and evaluated for quality level by the Department approved sampling, testing, and analytical procedures. All materials produced will be assigned to a process of each element being tested and evaluated. A change in process is defined as a change that affects the element involved. A process for any element normally will include all produced materials associated with that element prior to a change in the job mix formula (CDOT Form 43) with the exception of the process for joint density element. For joint density, a new process will be established for each new layer of pavement or for changes in joint construction. Density measurements taken within each compaction test section will be a separate process. The Engineer may separate a process in order to accommodate small quantities or unusual variations.

Evaluation of materials for pay factors (PF) will be done using only the Department's acceptance test results. Each process will have a PF computed in accordance with the requirements of this Section. Test results determined to have sampling or testing errors will not be used.

Except for density measurements taken within a compaction test section, any test result for the asphalt content, in-place density and/or joint density element greater than the distance 2 x V (see Table 105-2) outside the tolerance limits will be designated as a separate process and the quantity it represents will be evaluated in accordance with subsection 105.03(a). An element pay factor less than zero shall be zero. The calculated PF will be used to determine the Incentive/Disincentive Payment (I/DP) for the process.

Any test result for the air voids or VMA elements greater than the distance 2 x V (see Table 105-2) outside the tolerance limits will be designated as a separate process and the quantity it represents shall be removed and replaced with specification material at the Contractor's expense.

REVISION OF SECTIONS 105 AND 106
QUALITY OF HOT BITUMINOUS PAVEMENT (VOIDS ACCEPTANCE)

In the case of in-place density or joint density, the Contractor will be allowed to core the exact location (or immediately adjacent location for joint density) of a test result more than 2 x V outside the tolerance limit. The core must be taken and furnished to the Engineer within eight hours after notification by the Engineer of the test result. The result of this core will be used in lieu of the previous test result. Cores not taken within eight hours after notification by the Engineer will not be used in lieu of the test result. All costs associated with coring will be at the Contractor's expense.

(a) *Representing Small Quantities.* When it is necessary to represent a process by only one or two test results, PF will be the average of PFs resulting from the following:

If the test result is within the tolerance limits then PF = 1.00. If the test result is above the maximum specified limit, then

$$PF = 1.00 - [0.25(T_0 - T_U)/V]$$

If the test result is below the minimum specified limit, then

$$PF = 1.00 - [0.25(T_L - T_0)/V]$$

Where: PF = pay factor.
V = V factor from Table 105-2.
T_0 = the individual test result.
T_U = upper specification limit.
T_L = lower specification limit.

If the pay factor of any of the above calculations is less than 0.75 for any element, the acceptance of the work will be evaluated according to subsection 105.03(f).

(b) *Determining Quality Level.* Each process with three or more test results will be evaluated for a quality level (QL) in accordance with Colorado Procedure 71.

(c) *Joint Density Element.* Joint density will be tested according to 401.17.

(d) *Process Pay Factor.* Using the calculated QL for the process, compute the PF as follows: The final number of random samples (Pn) in each process will determine the final pay factor. As test values are accumulated for each process, Pn will change accordingly. When the process has *been* completed, the number of random samples it contains will determine the computation of PF, based on Table 105-3 and formula (1) below. When Pn is from 3 to 9, or greater than 200, PF will be computed using the formulas designated in Table 105-3. Where Pn is equal to or greater than 10 and less than 201, PF will be computed by formula (1):

$$(1)\ PF = \frac{(PF_1 + PF_2)}{2} + \left[\frac{(PF_2 + PF_3)}{2} - \frac{(PF_1 + PF_2)}{2}\right] \bullet \frac{(Pn_2 - Pn_X)}{(Pn_2 - Pn_3)}$$

Where, when referring to Table 105-3:
PF_1= PF determined at the next lowest Pn formula using process QL

PF_2 = PF determined using the Pn formula shown for the process QL
PF_3 = PF determined at the next highest Pn formula using process QL
Pn_2 = the lowest Pn in the spread of values listed for the process Pn formula
Pn_3 = the lowest Pn in the spread of values listed for the next highest Pn formula
Pn_X = the actual number of test values in the process

When evaluating the item of Furnish Hot Bituminous Pavement, the PF for the element of In-Place Density shall be 1.0.

Regardless of QL, the maximum PF in relation to Pn is limited in accordance with Table 105-3.

As test results become available, they will be used to calculate QL and PF numbers for each process. The process I/DP's will then be calculated and accumulated for each element and for the item. The test results and the accumulated calculations will be made available to the Contractor upon request.

Numbers from the calculations will be carried to significant figures and rounded according to AASHTO Standard Recommended Practice R-11, Rounding Method.

(e) *Evaluation of Work.* When the PF of a process is 0.75 or greater, the finished quantity of work represented by the process will be accepted at the appropriate pay factor. If the PF for the air voids or VMA elements within *any* process is less than 0.75, the Contractor shall remove and replace the material with specification material at the Contractor's expense. If PF for the asphalt content or in-place density elements within any process is less than 0.75, the Engineer may:

1. Require complete removal and replacement with specification material at the Contractor's expense, or;

2. Where the finished product is found to be capable of performing the intended purpose and the value of the finished product is not affected, permit the Contractor to leave the material in place. If the material is permitted to remain in place, the PF for the process shall not be greater than 0.75. The Region Materials Engineer (RME) will be consulted prior to determining the material will be allowed to remain in place. The RME will also be consulted to assist in determining an appropriate pay factor.

   When condition red, as described in Section 106, exists for any element, resolution and correction will be in accordance with Section 106. Material that the Engineer determines is defective may be isolated and rejected without regard to sampling sequence or location within a process.

Table 105-2
"W" and "V" Factors For Various Elements

ELEMENT	V FACTOR	W FACTOR
Asphalt Content	0.20	10
Voids in the Mineral Aggregate	0.60	10
Air Voids	0.60	30
In-place Density	1.10	35
Joint Density	1.60	15

TABLE 105-3
Formulas For Calculating PF Based on Pn

Pn	When Pn as shown at left is 3 to 9, or greater than 200, use designated formula below to calculate Pay Factor, PF = ..., when Pn is 10 to 200, use formula (1) above:	Maximum PF
3	$0.31177 + 1.57878 (QL/100) - 0.84862 (QL/100)^2$	1.025
4	$0.27890 + 1.51471 (QL/100) - 0.73553 (QL/100)^2$	1.030
5	$0.25529 + 1.48268 (QL/100) - 0.67759 (QL/100)^2$	1.030
6	$0.19468 + 1.56729 (QL/100) - 0.70239 (QL/100)^2$	1.035
7	$0.16709 + 1.58245 (QL/100) - 0.68705 (QL/100)^2$	1.035
8	$0.16394 + 1.55070 (QL/100) - 0.65270 (QL/100)^2$	1.040
9	$0.11412 + 1.63532 (QL/100) - 0.68786 (QL/100)^2$	1.040
10 to 11	$0.15344 + 1.50104 (QL/100) - 0.58896 (QL/100)^2$	1.045
12 to 14	$0.07278 + 1.64285 (QL/100) - 0.65033 (QL/100)^2$	1.045
15 to 18	$0.07826 + 1.55649 (QL/100) - 0.56616 (QL/100)^2$	1.050
19 to 25	$0.09907 + 1.43088 (QL/100) - 0.45550 (QL/100)^2$	1.050
26 to 37	$0.07373 + 1.41851 (QL/100) - 0.41777 (QL/100)^2$	1.055
38 to 69	$0.10586 + 1.26473 (QL/100) - 0.29660 (QL/100)^2$	1.055
70 to 200	$0.21611 + 0.86111 (QL/100)$	1.060
$\geq$ 201	$0.15221 + 0.92171 (QL/100)$	1.060

(f) *Process I/DP Computation.*

$$I/DP = (PF - 1)(QR)(UP)(W/100)$$

Where:
- I/DP= Incentive/Disincentive Payment
- PF = Pay Factor
- QR = Quantity in Tons of HBP Represented by the Process
- UP = Unit Bid Price of Asphalt Mix
- W = Element Factor from Table 105-2

When AC is paid for separately UP shall be:

$$UP = [(Ton_{HBP})(UP_{HBP}) + (Ton_{AC})(UP_{AC})] / Ton_{HBP}$$

Where:
- Ton_{HBP} = Tons of Asphalt Mix
- UP_{HBP} = Unit Bid Price of Asphalt Mix
- Ton_{AC} = Tons of Asphalt Cement
- UP_{AC} = Unit Bid Price of Asphalt Cement

For the Joint Density element:

$$UP = UP_{HBP}$$

Where: UP_{HBP} is as defined above.

When AC is paid for separately UP shall be:

$$UP = [(BTon_{HBP})(BUP_{HBP}) + (BTon_{AC})(BUP_{AC})] / BTon_{HBP}$$

Where:
$BTon_{HBP}$ = Bid Tons of Asphalt Mix
BUP_{HBP} = Unit Bid Price of Asphalt Mix
$BTon_{AC}$ = Bid Tons of Asphalt Cement
BUP_{AC} = Unit Bid Price of Asphalt Cement

(g) *Element I/DP.* The I/DP for an element shall be computed by accumulating the process I/DP for that element.

(h) *I/DP for a Mix Design.* The I/DP for a mix design shall be computed by accumulating the process I/DP's for the asphalt content, voids in the mineral aggregate, air voids, and in-place densityelements for that mix design. The accumulated quantities of materials for each element must be the same at the end of I/DP calculations for a mix design.

(i) *Project I/DP.* The I/DP for the project shall be computed by accumulating the mix design I/DP's and the joint density I/DP's. The accumulated quantities of materials for each element must be the same at the end of I/DP calculations for the project.

Subsection 106.03 shall include the following:

All Hot Bituminous Pavement, Item 403, except Hot Bituminous Pavement (Patching) and temporary pavement shall be tested in accordance with the following program of process control testing and acceptance testing:

(a) *Process Control Testing.* The Contractor shall be responsible for process control testing on all elements listed in *Table* 106-1. Process control testing shall be performed at the expense of the Contractor. The Contractor shall develop a quality control plan (QCP) in accordance with the following:

1. Quality Control Plan. For each element listed in Table 106-1, the QCP must provide adequate details to ensure the Contractor will perform process control. The Contractor shall submit the QCP to the Engineer at the preconstruction conference. The Contractor shall not start any work on the project until the Engineer has approved the QCP in writing.

   A. Frequency of Tests or Measurements. The QCP shall indicate a random sampling frequency, which shall not be less than that shown in Table 106-1. The process control tests shall be independent of acceptance tests.

   B. Test Result Chart. Each process control test result, the appropriate tonnage and the tolerance limits shall be plotted. For in-place density tests, only results after final compaction shall be shown. The chart shall be posted daily at a location convenient for viewing by the Engineer.

   C. Quality Level Chart. The Quality Level (QL) for each element used to calculate incentive/disincentive in Table 106-1 and each required sieve size shall be plotted. The QL will be calculated in accordance with the procedure in CP 71 for Determining Quality Level (QL). The QL will be calculated on tests 1

through 3, then tests 1 through 4, then tests 1 through 5, then thereafter the last five consecutive test results. The tonnage of material represented by the last test result shall correspond to the QL. For in-place density tests, only results after final compaction shall be shown. The chart shall be posted daily at a location convenient for viewing by the Engineer.

2. Elements Not Conforming to Process Control. The QL of each discrete group of five test results, beginning with the first group of five test results, shall be a standard for evaluating material not conforming to process control. When the group QL is below 65, the process shall be considered as not conforming to the QCP. In this case, the Contractor shall take immediate action to bring the process back into control. Except where the cause of the problem is readily apparent and corrected without delay, production shall be suspended until the source of the problem is determined and corrected. A written explanation of actions taken to correct control problems shall accompany the test data and be submitted to the Engineer on the day the actions are taken.

3. Point of Sampling. The material for process control testing shall be sampled by the Contractor using approved procedures. Acceptable procedures are Colorado Procedures, AASHTO and ASTM. The order of precedence is Colorado Procedures, AASHTO procedures and then ASTM procedures. The location where material samples will be taken shall be indicated in the QCP.

4. Testing Standards. The QCP shall indicate which testing standards will be followed. Acceptable standards are Colorado Procedures, AASHTO and ASTM. The order of precedence is Colorado Procedures, AASHTO procedures and then ASTM procedures.

5. Testing Supervisor Qualifications. The person responsible for the process control sampling and testing shall be identified in the QCP and be qualified according to the requirements of CP 10.

6. Technician Qualifications. Technicians taking samples and performing tests must be qualified according to the requirements of CP 10.

7. Testing Equipment. All of the testing equipment used to conduct process control testing shall conform to the standards specified in the test procedures and be in good working order. Nuclear testing devices used for process control testing of in-place density do not have to be calibrated on the Department's calibration blocks.

8. Reporting and Record Keeping. The Contractor shall report the results of the process control tests to the Engineer in writing at least once per day. The Contractor shall make provisions such that the Engineer can inspect process control work in progress, including sampling, testing, plants, and the Contractor's testing facilities at any time.

(b) *Acceptance Testing.* Acceptance testing is the responsibility of the Department and shall not be addressed in the QCP. The Department will determine the locations where samples or measurements are to be taken and as designated in Section 403. The maximum quantity of material represented by each test result and the minimum number of test results will be in accordance with Table 106-1. The location or time of sampling will be based on a stratified random procedure. Acceptance sampling and testing procedures will be in accordance with the Schedule for Minimum Materials Sampling, Testing and Inspection in the Department's Field Materials Manual. Samples for project acceptance testing shall be taken by the Contractor in accordance with the designated method. The samples shall be taken in the presence of the Engineer. Where appropriate, the Contractor shall reduce each sample to the size designated by the Engineer. The Contractor may retain a split of each sample which cannot be included as part of the QCP.

All materials being used are subject to inspection and testing at any time prior to, during, or after incorporation into work. Acceptance tests will be made by and at the expense of the Department, except when otherwise provided.

(c) *Check Testing Program (CTP).* Prior to or in conjunction with placing the first 500 metric tons (500 tons) of asphalt pavement, under the direction of the Engineer, a CTP will be conducted between acceptance testing and process control testing programs. The CTP will consist of testing for asphalt content, voids in the mineral aggregate, air voids, in-place density, and joint density in accordance with CP 13 of the Department's Field Materials Manual. The CTP will be continued until the acceptance and process control test results are within the acceptable limits shown in Table 13-1 of CP 13. For joint density, the initial check test will be a comparison of the seven cores tested by CDOT and the seven cores tested by the Contractor. These are the cores from the compaction test section used for nuclear gauge calibration and test section payment.

Element	Column 1	Column 2	Column 3
	σ (Two operator adjacent samples)	δ (Max. difference adjacent samples)	δ' (Acceptable Check Test Limit)
Joint Density	1.10%	2.20%	0.83%

During production a split sample check will be conducted at the frequency shown in Table 106-1. The split samples will be from an acceptance sample obtained in accordance with subsection 106.03(b). Except for joint density, the split samples will be from an acceptance sample obtained in accordance with subsection 106.03(b). The acceptance test result will be compared to the process control test result obtained by the Contractor using the acceptable limits shown in Table 13-1 of CP 13. For joint density, the comparison sample material for testing by the Contractor will be obtained by taking a second core adjacent to the joint density acceptance core. The acceptance test result will be compared to the process control test result obtained by the Contractor using the acceptable limits shown in the above table and following the check testing procedure given in CP 13.

If production has been suspended and then resumed, the Engineer may order a CTP between process control and acceptance testing persons to assure the test results are within the acceptable limits shown in Table 13-1 of CP 13. Check test results shall not be included in process control testing. The Region Materials Engineer shall be called upon to resolve differences if a CTP shows unresolved differences beyond the values shown in Table 13-1 of CP 13.

(d) *Stability Verification Testing.* After the mix design has been approved and production commences, the *Department* will perform a minimum of three stability verification tests to verify that the field produced Hot Bituminous Pavement conforms to the approved mix design:

The test frequency shall be one per day unless altered by the Engineer.

The test results will be evaluated and the Contractor shall make adjustments if required in accordance with the following:

1. The minimum value for stability will be the minimum specified in Table 403-1 of the specifications. There will be no tolerance limit.

2. Quality Level. Calculate a QL for stability.

   If the QL for stability is less than 65, then production shall be halted and the Contractor shall submit a written proposal for a mix design revision to the Engineer. The Engineer shall give written approval to the proposed mix design revision before production continues.

   After a new or revised mix design is approved, three additional stability tests will be performed on asphalt produced with the new or revised mix design. The test frequency shall be one per day unless altered by the Engineer.

   If the stability QL is less than 65, then production shall be halted until a new mix design has been completed and approved using plant produced material or the Contractor shall submit a written proposal

for a mix design revision to the Engineer. The Engineer shall give written approval to the proposed mix design revision before production continues.

3. New or Revised Mix Design. Whenever a new or revised mix design is used and production resumes, three additional stability field verification tests shall be performed and the test results evaluated in accordance with the above requirements. The test frequency shall be one per day unless altered by the Engineer.

4. Field Verification Process Complete. When the field verification process described above is complete and production continues, the sample frequency will revert back to 1/10,000 tons (1/10 000 metric tons).

(e) *Target Values for VMA.* After the mix design has been approved and production commences, the first three *acceptance* tests for Voids in Mineral Aggregate (VMA) will be analyzed to verify and establish a target value for VMA. The Contractor shall make adjustments if required in accordance with the following: The target value for VMA will be the average of the first three volumetric field verification test results on project produced hot bituminous pavement or the target value specified in Table 403-1 and Table 403-2 of the specifications, whichever is higher. The target value for VMA will be set no lower than 1.0% below the VMA target on original Form #43.

Whenever a new or revised mix design is used and production resumes, the next three acceptance tests will be evaluated and a target value for VMA will be established in accordance with the above requirements.

(f) *Independent Assurance Testing.* Independent assurance testing for Asphalt Content and In-Place Density will be in accordance with the Department's Field Materials Manual. Independent assurance testing for *Voids* in the Mineral Aggregate and Air Voids will be performed by the Department's Flexible Pavement laboratory on samples sent from the field at a frequency of one per 10 000 metric tons (10,000 tons).

(g) *Reference Conditions.* Three reference conditions can exist determined by the Moving Quality Level (MQL). The *MQL* will be calculated in accordance with the procedure in CP 71 for Determining Quality Level (QL). The MQL will be calculated using only acceptance tests. The MQL will be calculated on tests 1 through 3, then tests 1 through 4, then tests 1 through 5, then thereafter on the last five consecutive test results. The MQL will not be used to determine pay factors. The three reference conditions and actions that will be taken are described as follows:

1. Condition green will exist for an element when an MQL of 90 or greater is reached, or maintained, and the past five consecutive test results are within the specification limits.

2. Condition yellow will exist for all elements at the beginning of production or when a new process is established because of changes in materials or the job-mix formula, following an extended suspension of work, or when the MQL is less than 90 and equal to or greater than 65. Once an element is at condition green, if the MQL falls below 90 or a test result falls outside the specification limits, the condition will revert to yellow or red as appropriate.

3. Condition red will exist for any element when the MQL is less than 65. The Contractor shall be notified immediately in writing and the process control sampling and testing frequency increased to a minimum rate of 1/250 metric tons (1/250 tons) for that element. The process control sampling and testing frequency shall remain at 1/250 metric tons (1/250 tons) until the process control QL reaches or exceeds 78. If the QL for the next five process control tests is below 65, production will be suspended.

After condition red exists, a new MQL will be started. Acceptance testing will stay at the frequency shown in Table 106-1. After three acceptance tests, if the MQL is less than 65, production will be suspended. Production will remain suspended until the source of the problem is identified and corrected. Each time production is suspended; corrective actions shall be proposed in writing by the Contractor and approved in writing by the Engineer before production may resume.

Upon resuming production, the process control sampling and testing frequency for the elements causing the condition red shall remain at 1/250 metric tons (1/250 tons). If the QL for the next five process control tests is below 65, production will be suspended again.

(h) *Correction Factor.* In determining the air voids and VMA in the materials compacted with the SuperPave Gyratory *Compactor* (SGC), the following correction for bulk specific gravity shall be performed during the CTP:

1. The difference in the average value of bulk specific gravity between the process control testing SGC and acceptance testing SGC will be determined and used as a correction factor for the process control bulk specific gravity.

2. This correction factor shall be used to correlate the process control SGC to the acceptance testing SGC for comparison of air voids and VMA during the CTP and full project production. Values in Table 13-1 of CP 13 apply to SGC comparison after correction factor has been applied.

3. This correction factor shall be applied in correlating the SGC's air voids and VMA test results from process control and acceptance testing to produce comparable data. Any changes in SGC equipment or in the mix design properties, specifically the number of gyrations, asphalt binder grade, aggregate gradation, combination of aggregates, and aggregate sources shall require a new correction factor to be determined under a CTP.

Example: If for the five CTP tests on split samples the process control SGC averages bulk specific gravity of 2.391 and the acceptance SGC averages 2.382, the correction factor would be –0.009 (2.382-2.391) to the process control bulk specific gravities. Each of the five process control CTP bulks would be decreased by 0.009 before CTP result comparison of voids and VMA is made. If the volumetric results satisfy Table 13-1 of CP 13, use corrected bulks to calculate voids and VMA for process control testing program.

If process control and acceptance SGCs are not from the same equipment manufacturer, project-specific material shall be used to perform the CTP and generate the correction factor.

TABLE 106-1
SCHEDULE FOR MINIMUM SAMPLING AND TESTING

ELEMENT	PROCESS CONTROL	ACCEPTANCE[3]	CHECK (CTP)
CP-42 Determining Asphalt Content of Hot Bituminous Mixtures	1/500 metric tons (1/500 tons)	1/1000 metric tons[1] (1/1000 tons)	1/10,000 metric tons (1/10,000 tons)
CPL-5102, CPL-5103 & CPL-5115 Voids in the Mineral Aggregate	1/1000 metric tons (1/1000 tons)	1/1000 metric tons[1] (1/1000 tons)	1/10,000 metric tons (1/10,000 tons)
CPL-5102, CPL-5103 & CPL-5115 Air Voids	1/1000 metric tons (1/1000 tons)	1/1000 metric tons[1] (1/1000 tons)	1/10,000 metric tons (1/10,000 tons)
CPL-5106 & CPL-5115 Hveem Stability	1/10 000 metric tons (1/10,000 tons)	1/10 000 metric tons[2] (1/10,000 tons)	Not applicable.
CPL-5109 Resistance to Moisture Damage (Lottman)	1/10 000 metric tons (1/10,000 tons)	According to subsection 401.02	Not applicable.
CP-31 Gradation	1/10 000 metric tons (1/10,000 tons)	1/10 000 metric tons[2] (1/10,000 tons)	Not applicable.
CP-81 Determining Percent Relative Compaction of Bituminous Pavement 1/500 metric tons	(1/500 tons) 1/500 metric tons[1]	(1/500 tons) 1/500 metric tons	(1/5000 tons)
Joint Density	1 core/2500 linear feet of joint	1 core/5000 linear feet of joint	1 core/50,000 linear feet of joint

Aggregate Percent Moisture [3]	1/2000 metric tons (1/2000 T) or 1/Day if less than 2000 metric tons (2000 T)	1/2000 metric tons (1/2000 T)	Not applicable
Percent Lime [3] [4]	1/Day	Not applicable	Not applicable

Notes for Table 106-1:

(1) The minimum number of acceptance tests will be at least 5 asphalt content, 5 voids in the mineral aggregate, 5 air voids, 10-in-place density and 5 joint densities for all projects.

(2) For information only. These elements are not used to calculate pay factors.

(3) When unscheduled job mix formula changes are made (CDOT 43) acceptance of the elements, except for in-place density, will be based on the actual number of samples that have been selected up to that time, even if the number is below the minimum listed in Table 106-1. At the Engineer's discretion, additional random in-place density test may be taken in order to meet scheduled minimums, provided the applicable pavement layer is available for testing under safe conditions. Beginning with the new job mix formula, the quantity it will represent shall be estimated. A revised schedule of acceptance tests will be based on that estimate.

(4) Not to be used for incentive/disincentive pay. Test according to CP-60B and report results from Form #106 or Form #565 on Form #6.

(5) Verified per Contractor's QC Plan.

Appendix H

Colorado Procedure 71 Determining Quality Level

Colorado Procedure 71-01

Standard Practice for

Determining Quality Level (Percent Within Tolerance Limits)

1. SCOPE

1.1 Use this procedure with Quality Assurance type specifications where Pay Factors or acceptance decisions are based on Quality Level (QL), defined as percent within specification (tolerance) limits. QL is a measure of quality of a lot or process.

1.2 QL represents the percentage of the population (lot or process) that falls above a single lower limit, below a single upper limit, or between the upper and lower limits of double-limit specifications.

1.3 For this procedure to be meaningful, select all samples by random or stratified random procedures. Perform all testing and measuring strictly in accordance with standard acceptable practices. When used for contractual purposes, do all sampling and testing in accordance with the applicable specifications.

1.4 Manual, computer assisted, and mathematical procedures are described. Where contractual pay factors are based on QL, use only the computer assisted procedure.

2. SUMMARY OF METHOD

2.1 The method involves calculating statistical parameters from three or more representative measurements, test results, or values for each specified element in a lot or sample. The arithmetic average (mean) value of the sample is calculated. As a measure of variability, the sample Standard Deviation is calculated. Using these results, the distance from the sample mean to each limit is divided by the standard deviation, which yields the Quality Index.

2.2 The incomplete beta function ratio, using sample sizes and quality indices as variables, is used in the computer version to calculate areas under the beta distribution. With variables typical for QL determinations, the beta distribution (Figure 71-1) is similar to the normal distribution (Figure 71-2).

2.3 The total area under the beta distribution outside the specification limits is the fraction defective which is then multiplied by 100 to yield the percent defective; this subtracted from 100 gives the percent within limits.

2.4 Table 71-1 contains values for percent within limits as related to sample sizes and quality indices. The table was developed from mathematical calculations and is used in the manual method to estimate QL.

3. MANUAL PROCEDURE

3.1 Determine the arithmetic mean and standard deviation for the several test results from the lot for each element being evaluated. Compute these as shown in Equations 3.1 and 3.2.

$$\bar{X} = \frac{\Sigma X}{n} \qquad \textbf{Equation 3.1}$$

$$s = \sqrt{\frac{\Sigma (X - \bar{X})^2}{n - 1}} \qquad \textbf{Equation 3.2}$$

Where:

$\bar{X}$ = Sample mean,
S = Summation of,
X = Individual test value to X_n,
n = Total number of test values,
s = Sample standard deviation.

3.2 Compute the upper quality index (Q_u) per Equation 3.3.

$$Q_u = \frac{T_u - \bar{X}}{s} \qquad \textbf{Equation 3.3}$$

Where:
Q_u = Upper quality index,
T_u = Upper specification limits.

3.2.1 Determine P_u (percent within the upper specification limit which corresponds to a given Q_u) from Table 71-1. If desired, P_u may be interpolated to the nearest 0.1. Where T_u is not specified, P_u will be 100.

3.3 Compute the lower quality index (Q_L) per Equation 3.4.

$$Q_L = \frac{\bar{X} - T_L}{s} \qquad \textbf{Equation 3.4}$$

Where:
Q_L = Lower quality index,
T_L = Lower specification limits.

3.3.1 Determine P_L (percent within the lower specification limit which corresponds to a given Q_L) from Table 71-1. If desired, P_L may be interpolated to the nearest 0.1. Where T_L is not specified, P_L will be 100.

3.4 Compute QL (the total percent within specification limits) per Equation 3.5.

$$QL = (P_u + P_L) - 100 \qquad \textbf{Equation 3.5}$$

3.5 The manual method for determining QL essentially conforms to the applicable portions of AASHTO Standard Recommended Practice R 9, Acceptance Sampling Plans for Highway Construction.

3.6 A sample calculation is provided at the end of this procedure demonstrating the calculation of Quality Level and Pay Factors using this manual procedure.

4. COMPUTER ASSISTED PROCEDURE

4.1 The calculations for determining Quality Level may be performed by using the latest versions of the Departments quality level programs.

4.2 In the quality level programs, the areas under the beta distribution are calculated from the incomplete beta function ratio by assigning the variables used in Equations 3.1 through 3.4. The procedure is as described in *Numerical Recipes in* C_1, *Chapter 6.* A detailed discussion of the theories involved is provided by Willenbrock and Kopac in *TRR 691, Process Control in the Construction Industry*$_2$.

4.3 All numbers from the calculations are carried to significant figures and round according to AASHTO Standard Recommended Practice R 11, using the Rounding Method.

4.4 Where contractual pay factors are based on QL use the computer-assisted procedure only.

MATHEMATICAL PROCEDURE - Adapted from *Resolution of beta-distribution equations for quality level analysis...*[3]

5.1 In order to evaluate the necessary quality parameters, the integral

$$I_n = \frac{1}{B(\frac{n}{2} - 1, \frac{n}{2} - 1)} \int_0^g t^{\frac{n}{2} - 2} (1 - t)^{\frac{n}{2} - 2} dt \qquad \textbf{Equation 5.1}$$

must be evaluated. In equation 5.1 B(n/2-1,n/2-1) is generally referred to as the complete beta-function (or just the beta-function) with parameters n/2-1,n/2-1, and the integral is the incomplete beta-function. Together they form the beta distribution from a random variable. The beta function is defined by

$$B(\frac{n}{2} - 1, \frac{n}{2} - 1) = \int_0^1 t^{\frac{n}{2} - 2} (1 - t)^{\frac{n}{2} - 2} dt, \qquad \textbf{Equation 5.2}$$

and the upper limit ?n 5.1 is given by

$$g = \frac{1}{2} - \frac{Q\sqrt{n}}{2(n - 1)} \qquad \textbf{Equation 5.3}$$

where Q is the quality index defined in Equations 3.3 and 3.4 and n is the sample size.

5.2 For small sample sizes no numerical integration is necessary as the integral may be economically evaluated in close form. In particular we have:

$$I_3 = \frac{1}{2} + \frac{1}{p} \sin^{-1}(2g - 1) \qquad \textbf{Equation 5.4}$$

$$I_4 = g \qquad \textbf{Equation 5.5}$$

$$I_5 = \frac{1}{2} + \frac{1}{p} \sin^{-1}(2g - 1) + \frac{2}{p} \sqrt{g - g^2}\,(2g - 1) \qquad \textbf{Equation 5.6}$$

$$I_6 = 3g^2 - 2g^3 \qquad \textbf{Equation 5.7}$$

$$I_7 = \frac{1}{2} + \frac{1}{p} \sin^{-1}(2g - 1) - \frac{2}{3p} \sqrt{g - g^2}\,(2g - 1)(8g^2 - 8g - 3) \qquad \textbf{Equation 5.8}$$

$$I_8 = 10g^3 - 15g^4 + 6g^5 \qquad \textbf{Equation 5.9}$$

These expressions are small enough to be used with some hand calculators. As the value of n increases the calculations become more complex. With the availability of personal computers, we include the equation for information and recommend the use of personal computers.

TABLE 71-1

Upper Quality Index Qu or Lower Quality Index QL															
P_u or P_L %	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10 to n=11	n=12 to n=14	n=15 to n=18	n=19 to n=25	n=26 to n=37	n=38 to n=69	n=70 to n= 200	n= 201 to n=x
100	1.16	1.50	1.79	2.03	2.23	2.39	2.53	2.65	2.83	3.03	3.20	3.38	3.54	3.70	3.83
99		1.47	1.67	1.80	1.89	1.95	2.00	2.04	2.09	2.14	2.18	2.22	2.26	2.29	2.31
98	1.15	1.44	1.60	1.70	1.76	1.81	1.84	1.86	1.91	1.93	1.96	1.99	2.01	2.03	2.05
97		1.41	1.54	1.62	1.67	1.70	1.72	1.74	1.77	1.79	1.81	1.83	1.85	1.86	1.87
96	1.14	1.38	1.49	1.55	1.59	1.61	1.63	1.65	1.67	1.68	1.70	1.71	1.73	1.74	1.75
95		1.35	1.44	1.49	1.52	1.54	1.55	1.56	1.58	1.59	1.61	1.62	1.63	1.63	1.64
94	1.13	1.32	1.39	1.43	1.46	1.47	1.48	1.49	1.50	1.51	1.52	1.53	1.54	1.55	1.55
93		1.29	1.35	1.38	1.40	1.41	1.42	1.43	1.44	1.44	1.45	1.46	1.46	1.47	1.47
92	1.12	1.26	1.31	1.33	1.35	1.36	1.36	1.36	1.37	1.37	1.39	1.39	1.40	1.40	1.40
91	1.11	1.23	1.27	1.29	1.30	1.30	1.31	1.31	1.32	1.32	1.33	1.33	1.33	1.34	1.34
90	1.10	1.20	1.23	1.24	1.25	1.25	1.26	1.26	1.26	1.27	1.27	1.27	1.28	1.28	1.28
89	1.09	1.17	1.19	1.20	1.20	1.21	1.21	1.21	1.21	1.22	1.22	1.22	1.22	1.22	1.23
88	1.07	1.14	1.15	1.16	1.16	1.16	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
87	1.06	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.13	1.13
86	1.04	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
85	1.03	1.05	1.05	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
84	1.01	1.02	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99
83	1.00	0.99	0.98	0.97	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.95	0.95	0.95
82	0.97	0.96	0.95	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
81	0.96	0.93	0.91	0.90	0.90	0.89	0.89	0.89	0.89	0.88	0.88	0.88	0.88	0.88	0.88
80	0.93	0.90	0.88	0.87	0.86	0.86	0.86	0.85	0.85	0.85	0.85	0.84	0.84	0.84	0.84
79	0.91	0.87	0.85	0.84	0.83	0.82	0.82	0.82	0.82	0.81	0.81	0.81	0.81	0.81	0.81
78	0.89	0.84	0.82	0.80	0.80	0.79	0.79	0.79	0.78	0.78	0.78	0.78	0.77	0.77	0.77
77	0.87	0.81	0.78	0.77	0.76	0.76	0.76	0.75	0.75	0.75	0.75	0.74	0.74	0.74	0.74
76	0.84	0.78	0.75	0.74	0.73	0.73	0.72	0.72	0.72	0.71	0.71	0.71	0.71	0.71	0.71
75	0.82	0.75	0.72	0.71	0.70	0.70	0.69	0.69	0.69	0.68	0.68	0.68	0.68	0.68	0.67
74	0.79	0.72	0.69	0.68	0.67	0.66	0.66	0.66	0.66	0.65	0.65	0.65	0.65	0.64	0.64
73	0.76	0.69	0.66	0.65	0.64	0.63	0.63	0.63	0.62	0.62	0.62	0.62	0.62	0.61	0.61
72	0.74	0.66	0.63	0.62	0.61	0.60	0.60	0.60	0.59	0.59	0.59	0.59	0.59	0.58	0.58
71	0.71	0.63	0.60	0.59	0.58	0.57	0.57	0.57	0.57	0.56	0.56	0.56	0.56	0.55	0.55
70	0.68	0.60	0.57	0.56	0.55	0.55	0.54	0.54	0.54	0.53	0.53	0.53	0.53	0.53	0.52
69	0.65	0.57	0.54	0.53	0.52	0.52	0.51	0.51	0.51	0.50	0.50	0.50	0.50	0.50	0.50
68	0.62	0.54	0.51	0.50	0.49	0.49	0.48	0.48	0.48	0.48	0.47	0.47	0.47	0.47	0.47
67	0.59	0.51	0.47	0.47	0.46	0.46	0.46	0.45	0.45	0.45	0.45	0.44	0.44	0.44	0.44
66	0.56	0.48	0.45	0.44	0.44	0.43	0.43	0.43	0.42	0.42	0.42	0.42	0.41	0.41	0.41
65	0.52	0.45	0.43	0.41	0.41	0.40	0.40	0.40	0.40	0.39	0.39	0.39	0.39	0.39	0.39
64	0.49	0.42	0.40	0.39	0.38	0.38	0.37	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36
63	0.46	0.39	0.37	0.36	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34	0.33	0.33	0.33
62	0.43	0.36	0.34	0.33	0.32	0.32	0.32	0.32	0.31	0.31	0.31	0.31	0.31	0.31	0.31
61	0.39	0.33	0.31	0.30	0.30	0.29	0.29	0.29	0.29	0.29	0.28	0.28	0.28	0.28	0.28
60	0.36	0.30	0.28	0.27	0.27	0.27	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.25	0.25
59	0.32	0.27	0.25	0.25	0.24	0.24	0.24	0.24	0.23	0.23	0.23	0.23	0.23	0.23	0.23
58	0.29	0.24	0.23	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.20	0.20	0.20	0.20	0.20
57	0.25	0.21	0.20	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
56	0.22	0.18	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.15
55	0.18	0.15	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
54	0.14	0.12	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
53	0.11	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
52	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
51	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOTE: When Q_u or Q_L falls between table values, estimate P_u or P_L to the closest 0.10.

TABLE 71-1

Upper Quality Index Qu or Lower Quality Index QL															
P_u or P_L %	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10 to n=11	n=12 to n=14	n=15 to n=18	n=19 to n=25	n=26 to n=37	n=38 to n=69	n=70 to n= 200	n= 201 to n=x
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	-0.04	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02
48	-0.07	-0.06	-0.06	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
47	-0.11	-0.09	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08
46	-0.14	-0.12	-0.11	-0.11	-0.11	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
45	-0.18	-0.15	-0.14	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13
44	-0.22	-0.18	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.16	-0.15	-0.15	-0.15	-0.15	-0.15	-0.15
43	-0.25	-0.21	-0.20	-0.19	-0.19	-0.19	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18
42	-0.29	-0.24	-0.23	-0.22	-0.21	-0.21	-0.21	-0.21	-0.21	-0.21	-0.20	-0.20	-0.20	-0.20	-0.20
41	-0.32	-0.27	-0.25	-0.25	-0.24	-0.24	-0.24	-0.24	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23	-0.23
40	-0.36	-0.30	-0.28	-0.27	-0.27	-0.27	-0.26	-0.26	-0.26	-0.26	-0.26	-0.26	-0.26	-0.25	-0.25
39	-0.39	-0.33	-0.31	-0.30	-0.30	-0.29	-0.29	-0.29	-0.29	-0.29	-0.28	-0.28	-0.28	-0.28	-0.28
38	-0.43	-0.36	-0.34	-0.33	-0.32	-0.32	-0.32	-0.32	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31	-0.31
37	-0.46	-0.39	-0.37	-0.36	-0.35	-0.35	-0.35	-0.34	-0.34	-0.34	-0.34	-0.34	-0.33	-0.33	-0.33
36	-0.49	-0.42	-0.40	-0.39	-0.38	-0.38	-0.37	-0.37	-0.37	-0.36	-0.36	-0.36	-0.36	-0.36	-0.36
35	-0.52	-0.45	-0.43	-0.41	-0.41	-0.40	-0.40	-0.40	-0.40	-0.39	-0.39	-0.39	-0.39	-0.39	-0.39
34	-0.56	-0.48	-0.45	-0.44	-0.44	-0.43	-0.43	-0.43	-0.42	-0.42	-0.42	-0.42	-0.41	-0.41	-0.41
33	-0.59	-0.51	-0.47	-0.47	-0.46	-0.46	-0.46	-0.45	-0.45	-0.45	-0.45	-0.44	-0.44	-0.44	-0.44
32	-0.62	-0.54	-0.51	-0.50	-0.49	-0.49	-0.48	-0.48	-0.48	-0.48	-0.47	-0.47	-0.47	-0.47	-0.47
31	-0.65	-0.57	-0.54	-0.53	-0.52	-0.52	-0.51	-0.51	-0.51	-0.50	-0.50	-0.50	-0.50	-0.50	-0.50
30	-0.68	-0.60	-0.57	-0.56	-0.55	-0.55	-0.54	-0.54	-0.54	-0.53	-0.53	-0.53	-0.53	-0.53	-0.52
29	-0.71	-0.63	-0.60	-0.59	-0.58	-0.57	-0.57	-0.57	-0.57	-0.56	-0.56	-0.56	-0.56	-0.55	-0.55
28	-0.74	-0.66	-0.63	-0.62	-0.61	-0.60	-0.60	-0.60	-0.59	-0.59	-0.59	-0.59	-0.59	-0.58	-0.58
27	-0.76	-0.69	-0.66	-0.65	-0.64	-0.63	-0.63	-0.63	-0.62	-0.62	-0.62	-0.62	-0.62	-0.61	-0.61
26	-0.79	-0.72	-0.69	-0.68	-0.67	-0.66	-0.66	-0.66	-0.66	-0.65	-0.65	-0.65	-0.65	-0.64	-0.64
25	-0.82	-0.75	-0.72	-0.71	-0.70	-0.70	-0.69	-0.69	-0.69	-0.68	-0.68	-0.68	-0.68	-0.68	-0.67
24	-0.84	-0.78	-0.75	-0.74	-0.73	-0.73	-0.72	-0.72	-0.72	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71
23	-0.87	-0.81	-0.78	-0.77	-0.76	-0.76	-0.76	-0.75	-0.75	-0.75	-0.75	-0.74	-0.74	-0.74	-0.74
22	-0.89	-0.84	-0.82	-0.80	-0.80	-0.79	-0.79	-0.79	-0.78	-0.78	-0.78	-0.78	-0.77	-0.77	-0.77
21	-0.91	-0.87	-0.85	-0.84	-0.83	-0.82	-0.82	-0.82	-0.82	-0.81	-0.81	-0.81	-0.81	-0.81	-0.81
20	-0.93	-0.90	-0.88	-0.87	-0.86	-0.86	-0.86	-0.85	-0.85	-0.85	-0.85	-0.84	-0.84	-0.84	-0.84
19	-0.96	-0.93	-0.91	-0.90	-0.90	-0.89	-0.89	-0.89	-0.89	-0.88	-0.88	-0.88	-0.88	-0.88	-0.88
18	-0.97	-0.96	-0.95	-0.94	-0.93	-0.93	-0.93	-0.92	-0.92	-0.92	-0.92	-0.92	-0.92	-0.92	-0.92
17	-1.00	-0.99	-0.98	-0.97	-0.96	-0.96	-0.96	-0.96	-0.96	-0.96	-0.96	-0.96	-0.95	-0.95	-0.95
16	-1.01	-1.02	-1.01	-1.01	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-0.99	-0.99	-0.99
15	-1.03	-1.05	-1.05	-1.04	-1.04	-1.04	-1.04	-1.04	-1.04	-1.04	-1.04	-1.04	-1.04	-1.04	-1.04
14	-1.04	-1.08	-1.08	-1.08	-1.08	-1.08	-1.08	-1.08	-1.08	-1.08	-1.08	-1.08	-1.08	-1.08	-1.08
13	-1.06	-1.11	-1.12	-1.12	-1.12	-1.12	-1.12	-1.12	-1.12	-1.12	-1.12	-1.12	-1.12	-1.13	-1.13
12	-1.07	-1.14	-1.15	-1.16	-1.16	-1.16	-1.17	-1.17	-1.17	-1.17	-1.17	-1.17	-1.17	-1.17	-1.17
11	-1.09	-1.17	-1.19	-1.20	-1.20	-1.21	-1.21	-1.21	-1.21	-1.22	-1.22	-1.22	-1.22	-1.22	-1.23
10	-1.10	-1.20	-1.23	-1.24	-1.25	-1.25	-1.26	-1.26	-1.26	-1.27	-1.27	-1.27	-1.28	-1.28	-1.28
9	-1.11	-1.23	-1.27	-1.29	-1.30	-1.30	-1.31	-1.31	-1.32	-1.32	-1.33	-1.33	-1.33	-1.34	-1.34
8	-1.12	-1.26	-1.31	-1.33	-1.35	-1.36	-1.36	-1.36	-1.37	-1.37	-1.39	-1.39	-1.40	-1.40	-1.40
7		-1.29	-1.35	-1.38	-1.40	-1.41	-1.42	-1.43	-1.44	-1.44	-1.45	-1.46	-1.46	-1.47	-1.47
6	-1.13	-1.32	-1.39	-1.43	-1.46	-1.47	-1.48	-1.49	-1.50	-1.51	-1.52	-1.53	-1.54	-1.55	-1.55
5		-1.35	-1.44	-1.49	-1.52	-1.54	-1.55	-1.56	-1.58	-1.59	-1.61	-1.62	-1.63	-1.63	-1.64
4	-1.14	-1.38	-1.49	-1.55	-1.59	-1.61	-1.63	-1.65	-1.67	-1.68	-1.70	-1.71	-1.73	-1.74	-1.75
3		-1.41	-1.54	-1.62	-1.67	-1.70	-1.72	-1.74	-1.77	-1.79	-1.81	-1.83	-1.85	-1.86	-1.87
2	-1.15	-1.44	-1.60	-1.70	-1.76	-1.81	-1.84	-1.86	-1.91	-1.93	-1.96	-1.99	-2.01	-2.03	-2.05
1		-1.47	-1.67	-1.80	-1.89	-1.95	-2.00	-2.04	-2.09	-2.14	-2.18	-2.22	-2.26	-2.29	-2.31
0	-1.16	-1.50	-1.79	-2.03	-2.23	-2.39	-2.53	-2.65	-2.83	-3.03	-3.20	-3.38	-3.54	-3.70	-3.83

NOTE: When Q_u or Q_L falls between table values, estimate P_u or P_L to the closest 0.10.

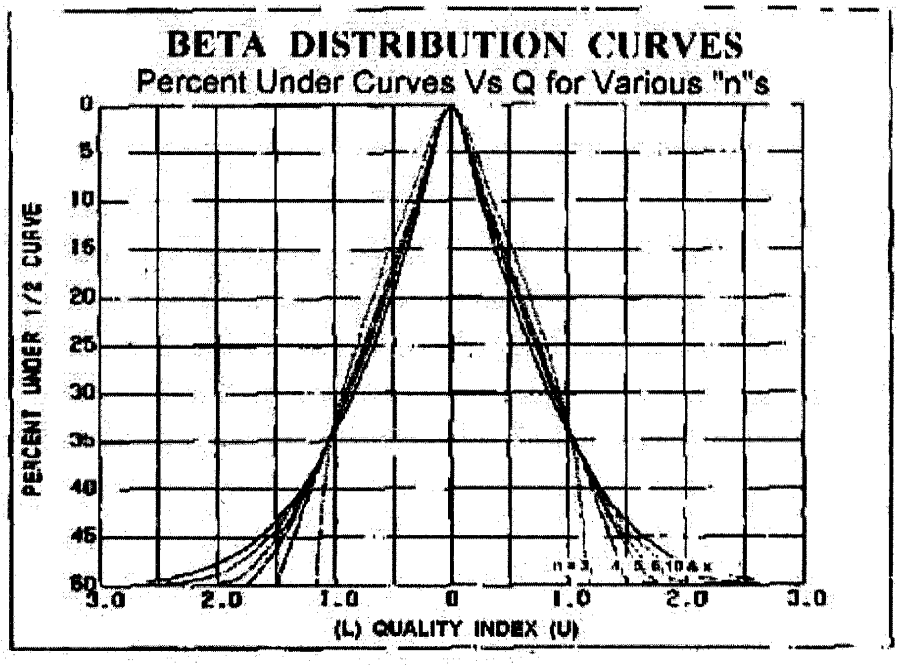

FIGURE 71-1

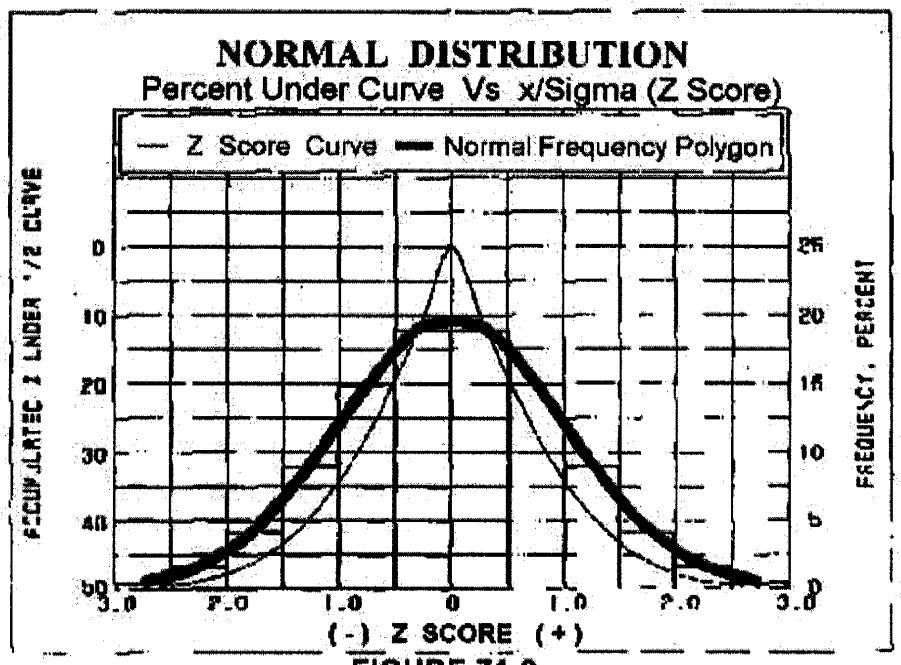

FIGURE 71-2

Footnotes:

1. Numerical Recipes in C, the Art of Scientific Computing; by W. H. Press, B.P. Flannery, S. A. Teukolsky and W.T. Vetterling. Cambridge University Press, The Pitt Bldg, Trumpington Street, CB2 1RP, 40 West 20th St., New York, NY 10011. Copyright 1988.

2. Development of a Highway Acceptance Plan, by Jack H. Willenbrock, Pennsylvania State University and Peter A. Kopac, Federal Highway Administration. TRR 691, Process Control in the Construction Industry, National Academy of Sciences, Washington, D.C. 1978.

3. Resolution of Beta-Distribution Formulas for Quality Level Analysis, a report to the Colorado Department of Transportation from the Colorado Workshop on Mathematical Problems in Industry, prepared by F. Jay Bourland, Department of Mathematics, Colorado State University and Alistair Fitt, Department of Mathematics, University of Southampton.