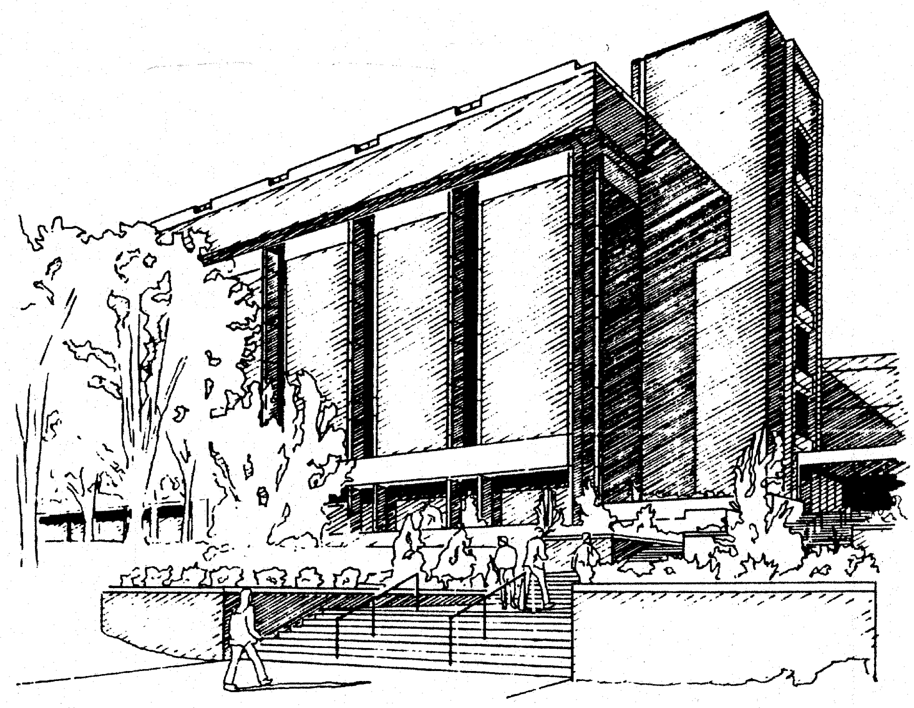

UNIVERSITY OF CINCINNATI
COLLEGE OF ENGINEERING
Department of Civil and Environmental Engineering

Ohio Route 50 Joint Sealant Experiment

State Job No.: 14668(0)

FINAL REPORT

Prepared in cooperation with the
Ohio Department of Transportation and the
U.S. Department of Transportation,
Federal Highway Administration.

April 2002

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16. Abstract

This research project entailed the construction and evaluation to date of a stretch of a four-lane highway near Athens, Ohio. The main purpose of this project has been to evaluate concrete pavement performance in connection with various sealant types and joint configurations in the Wet-Freeze climatic zone. Fifteen different material-joint configuration combinations have been used. The new pavement consists of a 250-mm (10-in.) jointed reinforced concrete slab with 21-ft joint spacing, placed over a 100-mm (4-in.) free-draining base layer, constructed over a 150-mm (6-in.) crushed aggregate subbase, resting over the predominantly silty clay local subgrade. The highway has a twenty year design period, with design traffic level of 11 million ESALs. The eastbound lanes were constructed first and have been open to traffic since Spring 1998, whereas the westbound lanes have been serving traffic only since Spring 1999. Three joint sealant, profilometer and pavement performance surveys are described in this Report. These evaluations were conducted in October 2000, June 2001, and October 2001 in accordance with an evaluation plan developed by the University of Cincinnati research team based on statistical principles. Sealant effectiveness values are calculated and treatments are ranked according to a rating scheme that describes each sealant type very good, good, fair, poor, or very poor. Results from these evaluations are analyzed and compared to those from earlier inspections to delineate the major trends exhibited by the test pavement. During the March 2000 evaluation, a significant flooding event was witnessed. The Hocking River, which runs along the highway, could not handle the amount of water from the storm. Several fields adjacent to the roadway were flooded and the drainage ditches overflowed. Following the flooding several transverse cracks were noticed in the pavement. Both the development of structural distresses and the drainage features of the pavement system are also examined in this Report. It is reported that significant mid-slab cracking has been observed in the test pavement, but that this distress appears unrelated to the performance of the sealant treatments. It is anticipated that pavement and sealant performance monitoring will continue for several years. Several recommendations for future investigations are formulated.

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by

University of Cincinnati
Cincinnati Infrastructure Institute
Department of Civil and Environmental Engineering
Cincinnati, OH

April 2002

Research Team: Anastasios M. Ioannides and Issam A. Minkarah *(co-PIs)*
Allen R. Long, Jason A. Sander and Bryan K. Hawkins *(Research Assistants)*

DISCLAIMER

The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Ohio Department of Transportation or the Federal Highway Administration. This report does not constitute a standard, specification or regulation.

FOREWORD

The investigation described in this Report was sponsored by the Ohio Department of Transportation (ODOT) and by the Federal Highway Administration (FHWA) as Ohio State Job No.: 14668(0); Contract No.: 8527, under project "Ohio Route 50 Joint Sealant Experiment." The Principal Investigators were Drs Anastasios M. Ioannides and Issam A. Minkarah, Department of Civil and Environmental Engineering, University of Cincinnati. The ODOT Technical Monitor was Mr Roger Green, the Administrator for the Office of Research and Development at ODOT was Ms. Monique Evans, and the FHWA liaison in Columbus, OH was Mr Herman Rodrigo. The ODOT Site Engineer was Mr Greg Wright, the Site Manager for the Contractor (*Kokosing Construction Company, Inc.*) was Mr John Householder, the Contractor's Supervisor for Sealants was Mr Steve Geb. The assistance, cooperation and friendship of these individuals was a major contributor to the success of the study, and their support is gratefully acknowledged. Special thanks are also extended to the following persons: Messrs Jim Sargent and Brian Schleppi of ODOT, together with their able profilometer crews; Mr Ed Malone and the rest of the Contractor's sealant installation personnel; and MR Kurt D. Smith of *Applied Pavement Technology, Inc.*. The personal communications of Messrs. Greg Wright, Neil McKown, Aric Morse of ODOT, MR Bob McQuiston of FHWA-Columbus, OH, and of MR Lynn D. Evans of *ERES Consultants, Inc.* are acknowledged in the text of this Report.

Portions of this Report will be submitted by Allen R. Long to the Division of Research and Advanced Studies of the University of Cincinnati in partial fulfillment of the requirements for the degree of Master of Science in the Department of Civil and Environmental Engineering, in 2002.

ABSTRACT

This is the third and Final Report for a research project that entailed the construction and evaluation to date of a stretch of a four-lane highway near Athens, Ohio. The main purpose of this project has been to evaluate concrete pavement performance in connection with various sealant types and joint configurations in the Wet-Freeze climatic zone. A detailed description of previous work conducted from Fall 1996 to March 2000 can be found in Hawkins (1999) and in Sander (2002).

Fifteen different material-joint configuration combinations have been used. The new pavement consists of a 250-mm (10-in.) jointed reinforced concrete slab with 21-ft joint spacing, placed over a 100-mm (4-in.) free-draining base layer, constructed over a 150-mm (6-in.) crushed aggregate subbase, resting over the predominantly silty clay local subgrade. The highway has a twenty year design period, with design traffic level of 11 million ESALs. The eastbound lanes were constructed first and have been open to traffic since Spring 1998, whereas the westbound lanes have been serving traffic only since Spring 1999.

Three joint sealant, profilometer and pavement performance surveys are described in this Report. These evaluations were conducted in October 2000, June 2001, and October 2001 in accordance with an evaluation plan developed by the University of Cincinnati research team based on statistical principles. Sealant effectiveness values are calculated and treatments are ranked according to a rating scheme that describes each sealant type very good, good, fair, poor, or very poor. Results from these evaluations are

analyzed and compared to those from earlier inspections to delineate the major trends exhibited by the test pavement.

During the March 2000 evaluation, a significant flooding event was witnessed. Apparently in the days prior to the evaluation substantial amounts of rainfall had occurred. The Hocking River, which runs along the highway, could not handle the amount of water from the storm. Several fields adjacent to the roadway were flooded and the drainage ditches overflowed. The extensive flooding concerned the UC research team and an investigation of the drainage aspects of the test pavement was initiated soon after. Following the flooding several transverse cracks were noticed in the pavement. Both the development of structural distresses and the drainage features of the pavement system are also examined in this Report. It is reported that significant mid-slab cracking has been observed in the test pavement, but that this distress appears unrelated to the performance of the sealant treatments.

It is anticipated that pavement and sealant performance monitoring will continue for several years. Several recommendations for future investigations are formulated.

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LIST OF ABBREVIATIONS

°C	Degrees Celsius
°F	Degrees Fahrenheit
AASHTO	American Association of State Highway and Transportation Officials
AC	Asphalt Concrete
ADT	Average Daily Traffic
BSG	Bulk Specific Gravity
C	Drainage Coefficient
COV	Coefficient of Variation
EB	Eastbound
EBNV99	November 1999 sealant evaluation in the eastbound lanes
EBMR00	March 2000 sealant evaluation in the eastbound lanes
EBOC00	October 2000 sealant evaluation in the eastbound lanes
EBJN01	June 2001 sealant evaluation in the eastbound lanes
EBOC01	October 2001 sealant evaluation in the eastbound lanes
E_c	Modulus of Elasticity
ESAL	Equivalent Single Axle Load
F	Fair
FDB	Free Draining Base
FHWA	Federal Highway Administration
ft	feet

G	Good
GGBFS	Ground Granulated Blast Furnace Slag
HPCP	High Performance Concrete Pavements
in.	inches
IRI	International Roughness Index
IRIbh	International Roughness Index, both wheel tracks
IRIlf	International Roughness Index, left wheel tracks
IRIrt	International Roughness Index, right wheel tracks
J	Load transfer Coefficient
JPCP	Jointed Plain Concrete Pavements
JRCP	Jointed Reinforced Concrete Pavement
k	Modulus of Subgrade Reaction
km	kilometers
l	Radius of Relative Stiffness
L	Slab Length
m	meters
MAX	Maximum Value
MAYS	Mays Number
MIN	Minimum Value
mm	millimeters
M_R	Modulus of Rupture
NCDC	National Climatic Data Center

NSDB	Non-Stabilized Drainable Base
ODOT	Ohio Department of Transportation
P	Poor
PCC	Portland Cement Concrete
pci	Pounds per Cubic Inch
PEBNV99	November 1999 profilometer survey in the eastbound lanes
PEBMR00	March 2000 profilometer survey in the eastbound lanes
PEBOC00	October 2000 profilometer survey in the eastbound lanes
PEBJN01	June 2001 profilometer survey in the eastbound lanes
PEBOC01	October 2001 profilometer survey in the eastbound lanes
PIARC	Permanent International Association of Road Congresses
psi	Pounds per Square Inch
PSI	Present Serviceability Index
PWBNV99	November 1999 profilometer survey in the westbound lanes
PWBMR00	March 2000 profilometer survey in the westbound lanes
PWBOC00	October 2000 profilometer survey in the westbound lanes
PWBJN01	June 2001 profilometer survey in the westbound lanes
PWBOC01	October 2001 profilometer survey in the westbound lanes
SHRP	Strategic Highway Research Program
SL	Self Leveling
SPS	Specific Pavement Studies
Sta	Station

StDev	Standard Deviation
UC	University of Cincinnati
U.S.	United States
VG	Very Good
VP	Very Poor
WB	Westbound
WBNV99	November 1999 sealant evaluation in the westbound lanes
WBMR00	March 2000 sealant evaluation in the westbound lanes
WBOC00	October 2000 sealant evaluation in the westbound lanes
WBJN01	June 2001 sealant evaluation in the westbound lanes
WBOC01	October 2001 sealant evaluation in the westbound lanes

1 INTRODUCTION

1.1 Introduction

In 1992, a number of state, federal and industry pavement engineers from the United States (U.S.) participated in a tour of several European countries for the purpose of reviewing their practices and experiences with regard to improving Portland cement concrete (PCC) pavement performance. In the aftermath of this tour, a program was formulated by the Federal Highway Administration (FHWA) for assessing the effectiveness of a number of innovative concrete pavement design and construction features. The ultimate aim of the program is the design and construction of high performance concrete pavements (HPCP). These pavements will be characterized by three attributes: incorporation of innovative design and construction features and materials; enhanced construction techniques that lead to increased productivity; and ride quality and prolonged service life, resulting in lower life cycle costs. The immediate goal of the HPCP program is to construct selected highway projects across the U.S. to investigate innovative PCC pavement design and construction concepts. The long-term objective is to improve PCC pavement performance through innovations and research into their design, materials, construction technology and equipment, as well as evaluation of promising pavement technology developments from other countries.

Fifteen projects have been approved for funding under the HPCP program since its inception in 1996, including three in the state of Ohio. All three Ohio projects, developed by the Ohio Department of Transportation (ODOT) in collaboration with the FHWA, are located along a stretch of reconstructed PCC pavement on U.S. 50, outside the city of Athens, Ohio. One of these projects is designed to evaluate PCC pavement performance in connection with various sealant types and joint configurations, including unsealed transverse joints.

Since the early 1940s, joint sealants have been an integral part of practically all jointed plain concrete pavements (JPCP) or jointed reinforced concrete pavements (JRCP). Previous studies in Ohio and elsewhere have demonstrated that joint sealing techniques have the potential of making a significant contribution to the performance of such pavements. Sealants are thought to provide protection to the pavement in two important ways. First, by sealing joints, infiltration of moisture into the pavement base and subgrade is reduced. Such moisture would otherwise lead to softening, pumping, and erosion of these layers, resulting in joint faulting and corner breaks in the slab. Secondly, sealing the joints prevents incompressible materials, such as small stones, from entering them and becoming lodged. Such incompressibles can inhibit thermal slab movement, increasing the stresses in pavement slabs and leading to joint spalling and transverse cracking.

Serious consideration, however, must be given to the practical aspects of joint sealing if the sealant is to work effectively. Most importantly, the process of sealing joints requires careful and experienced installation and inspection. The joint must be washed, sandblasted, and cleaned before the backer rod and sealant are introduced, in order to prepare vertical, intact and clean bonding surfaces that are dry and free of contaminants. If proper construction procedures are not followed carefully, the sealant may not form a good bond with the concrete slab and infiltrating moisture may not be reduced as effectively. Improperly installed sealants are also subject to premature deterioration from the weather and traffic. If the sealants are installed too far below the pavement surface, incompressibles are likely to enter the joints. Conversely, if installed at or slightly above the pavement surface, vehicle tires are likely to damage or destroy the sealant. Moreover, the sealant must be installed under suitable weather conditions, with virtually no moisture present in any form. Given the stringency of cleaning and installation procedures, it is advisable to have someone inspecting these operations as they proceed. Without such inspection, a great deal of effort and money could be wasted on ineffective seals.

This is the Final Report submitted in fulfillment of the contractual obligations of the University of Cincinnati research team, selected by ODOT to conduct the sealant experiment under the TE-30 High Performance Concrete Pavement initiative of the FHWA. The Report describes the design and construction of the U.S. 50 test pavement, together with the experimental design for the sealant investigation. Monitoring activities are discussed and the sealant and pavement performance to date is presented, thereby providing an update to two prior publications published in the technical Literature (Hawkins, *et al.*, 2001; Ioannides, *et al.*, 2001), as well as two previous interim reports submitted to ODOT by the research team (Hawkins, 1999; Sander, 2002).

1.2 Project Objectives

This Report describes the research experiment near Athens, Ohio involving the installation of various joint sealants in the transverse joints of a newly constructed PCC pavement. The experimental design for this project was developed in 1997 by the FHWA and ODOT to provide data for the evaluation of the performance of various joint seals and joint configurations. Fifteen combinations of materials and joint configurations are used in the experiment, which includes unsealed control sections. The purpose of these pavement test sections, located in the Wet-Freeze climatic zone, is to duplicate and complement similar sections constructed in other states under the Strategic Highway Research Program (SHRP) Specific Pavement Studies (SPS)-4 experiment. The test pavement is divided into fifteen test sections, each section typically being 183 m (600 ft) in length, but also includes some longer sections. Each test section incorporates about thirty joints. In accordance with the experimental design, two replicates of each of fifteen chosen material-joint configuration combinations are provided. Two of these combinations involve unsealed joints. In each case, one replicate is in the eastbound lanes, built during the 1997-98 construction season, and the other in the westbound lanes, placed during the 1998-99 construction season. In constructing the test sections, the following objectives were established:

(a) To assess the effectiveness of a variety of joint sealing practices employed after the initial sawing of joints, and to examine their repercussions in terms of reduced construction time and life cycle costs;

(b) To identify those materials and procedures that are most cost effective; and

(c) To determine the effect of joint sealing techniques on pavement performance.

1.3 Literature Survey

1.3.1 Conventional Wisdom

Joint sealants are currently used in highway pavements in order to minimize passage of surface water through joints and cracks, in conjunction with a permeable subbase designed to remove water from the pavement system (Voigt, 1997). This leads to the question of whether both these lines of defense are necessary, or whether it might be more cost effective not to seal the joints, and to rely instead on the permeable subbase and on other associated subsurface drainage features to remove the water. The answer to this question has been the subject of increasing controversy in the U.S. in recent years.

In a survey of state highway agencies (McGhee, 1995), the following philosophies on drainage were recorded. Thirty states strive to seal pavements as well as possible, while also attempting to control the water through use of a drainage layer, other subsurface drainage, or both. Nine states try to seal the pavement as well as possible, but are not concerned with subsurface drainage. The remaining eleven states take the position that water will inevitably enter the pavement system, and seek only to control it through use of a drainage layer, other subsurface drainage, or both, rather than relying on the effectiveness of joint sealants. Only one of these eleven states, Wisconsin, dispenses with joint sealing entirely.

1.3.2 The Wisconsin Experience

The state of Wisconsin has been performing research on the desirability of joint sealing for the past fifty years. They have investigated this problem from a variety of angles, and have considered locations in both urban and rural areas, various traffic levels and weights, base courses and subgrades, joint spacings, load transfer means, and so on. From this voluminous research, the conclusion was drawn that joint sealing does not enhance pavement performance (Shober, 1997) and that contraction joint sealing costs cannot be justified (Shober, 1986). Thus, in 1990 the state of Wisconsin determined there were sufficient data to warrant the decision not to seal cracks or joints in PCC pavements. The state of Wisconsin began this research by questioning the assertion that joint seals enhance pavement performance by keeping incompressibles out of the joints and by preventing the infiltration of water. It was argued that this theory might have had merit when PCC slabs were constructed above the bare subgrade, but that with the present use of subbase and base courses to provide drainage, it may no longer be entirely true. If an unsealed pavement remains in as good a condition as a sealed pavement, then it is obvious that sealing is not a cost-effective procedure. In their research, Wisconsin investigators evaluated both sealed and unsealed PCC pavements in terms of distress development, ride quality, bridge encroachment, and materials integrity. Their findings indicate that joint sealing has no significant effect on any of these parameters, and reaffirm that pavements with shorter joint spacings perform better than pavements with longer joint spacings (Shober, 1997).

Earlier published literature from Europe had suggested similar conclusions. In

1979, at the 16th World Congress of the Permanent International Association of Road Congresses (PIARC), the Technical Committee on Concrete Roads presented a report, which concluded that for joint spacings of 4 to 6 m (13 to 20 ft), there was no disadvantage in leaving narrow transverse joints unsealed when: (a) traffic is light; (b) traffic is heavy but the climate is dry; and (c) traffic is heavy and the climate is wet, but the pavement is doweled (Ray, 1980).

1.3.3 The SHRP SPS-4 Experiment

The answer to the question of whether or not joint sealing can or does improve pavement performance remains the subject of intense debate. There are many variables at work and a myriad of questions and unknowns surrounding this issue. The SHRP SPS-4 supplemental joint seal experiment was designed to provide valuable information on the subject of joint sealing. Long-term monitoring was performed on six research sites in the western United States (Smith, *et al.*, 1999) . An interesting trend can be observed in the data that reflect the overall performance of transverse joint seals at each site. In preparing the joints for sealant placement, water- and air-blasting were the only means of joint cleaning at three of the test sites (in Utah), whereas at the other test sites sandblasting was required, as well. The three Utah sites clearly exhibit inferior performance compared to the other sites. This suggests that sandblasting is probably an important factor in ensuring high quality, long-lasting sealed joints. It is worth noting that the experimental factorial adopted at the U.S. 50 joint sealant project is intended to replicate the corresponding factorials developed for the SHRP SPS-4 studies, so that comparable data are collected in the Wet-Freeze climatic zone, heretofore absent from similar considerations elsewhere.

1.4 Report Organization

This Report summarizes the monitoring and evaluation activities performed by the University of Cincinnati research team at the U.S. 50 joint sealant test site throughout the contract period (November 1996-May 2002). A brief literature review focusing on the recent controversy regarding the use of joint sealant materials and procedures has been presented in this first Chapter. Chapter 2 provides a description of the U.S. 50 test site, detailing the layout of the project and including the test pavement cross-section and the subdivision of the highway stretch into sealant test sections. Both design considerations and construction procedures are examined. Summarized in Chapter 3 are early sealant and pavement performance evaluations, i.e., two visual inspections undertaken in Fall 1998 and Spring 1999, and two quantitative evaluations performed in Fall of 1999 and Spring 2000. The latter two were conducted in accordance to a performance evaluation plan that calls for the use of specially developed form in monitoring activities and data collection. Chapter 4 presents summaries of the field performance data collected in Fall 2000, Spring 2001 and Fall 2001, pertaining to both the sealant and the overall pavement condition. In Chapter 5, results from a detailed statistical analysis of the sealant and pavement performance data are given. Trends in sealant performance are examined and the effectiveness of each material and joint configuration to date is summarized. An evaluation of the drainage features at the U.S. 50 test site is presented in Chapter 6, along with some recommendations formulated in order to ensure their continued effectiveness. Finally, Chapter 7 summarizes the outcomes of this study and provides a list of recommendations for future investigations.

2 THE U.S. 50 TEST SITE

2.1 Project Location and Description

The test site under investigation is a 3.3-km (2.0-mile) section of a new 10.5-km (6.5-mile), four-lane divided highway constructed along a stretch of United States (U.S.) Route 50 approximately 1.3-km (0.8-mile) east of the city of Athens, in Athens County, southeast Ohio. The experimental pavement is part of a 10.5-km (6.5-mile) stretch of U.S. 50 under reconstruction. The project lies in the Wet-Freeze climatic zone, where the local mean annual precipitation is 980 mm (38.6 in.). Of this, 533 mm (21 in.) usually accumulates between the months of April and September. In the higher elevations of Athens County, winters are cold and snowy, with a mean annual snowfall of 447 mm (17.6 in.). In the valleys, it is also frequently cold, but intermittent thaws prevent a long-lasting snow cover. During the winter months, the average temperature is 0°C (32°F) and the average daily minimum temperature is -6°C (21°F). The average summer temperature is 22°C (71°F), with an average daily maximum temperature of 29°C (85°F). The mean monthly average temperature is 12°C (53°F). The low average monthly temperature is 0°C (32°F), whereas the high average monthly temperature is 24°C (75°F). Construction of the U.S. 50 test site in the Wet-Freeze zone eliminates a gap in the on-going Strategic Highway Research Program (SHRP) Specific Pavement Studies (SPS)-4 experiment, which is investigating the effectiveness of various joint sealing techniques in different climatic regions across the United States.

This reconstructed four-lane highway has a twenty year design period, with current (1993) average daily traffic (ADT) of 7820 and design year (2013) ADT of 10950. The design traffic level is 11 million Equivalent Single Axle Loads (ESALs) and the truck percentage is 9%. The pavement cross-section consists of a 250-mm (10-in.) plain, jointed, wire-reinforced Portland cement concrete (PCC) slab (Item 451), placed over a 100-mm (4-in.) crushed aggregate, free-draining base layer (Item Special), constructed over a 150-mm (6-in.) crushed aggregate subbase (Item 304), resting over the predominantly silty clay local subgrade.

In both the eastbound and westbound directions, the highway consists of two 3.7-m (12-ft) wide lanes having tied PCC shoulders. On the inner (i.e., abutting the median) and outer sides of the pavement, the shoulders are 1.2 and 3-m (4 and 10-ft) wide, respectively. Transverse joints, spaced every 6.4 m (21 ft), are fitted with epoxy-coated steel dowels that are 38 mm (1.5 in.) in diameter and 460 mm (18 in.) in length. The dowels are supported on baskets and are placed 305 mm (12 in.) on center, starting at 150-mm (6-in.) from the shoulder joint. The longitudinal center line and shoulder joints are tied with 16-mm (0.625-in.) diameter, 760 mm (30 in.) long deformed steel bars spaced every 760 mm (30 in.).

In addition to the sealants experiment, the pavement accommodates two other tests, all conducted under the TE-30 High Performance Concrete Pavement (HPCP) initiative of the Federal Highway Administration (FHWA). For the purposes of these tests, 25% of the cement in the PCC slab mix was replaced by ground granulated blast furnace slag. For freeze-thaw durability purposes, the coarse aggregate in the mix was

No. 8 gravel (9.5-mm or 3/8-in. maximum size). Some of the steel dowels in the slab were replaced by fiberglass ones or by stainless steel tubing filled with concrete.

2.2 Joint Sealant Test Sections

Test sections are the numbered portions of the highway pavement that encompass one of fifteen specific sealant material and joint configuration combinations, referred to as a treatments, for some distance or number of joints. For this experiment, the pavement is divided into thirty different test sections, which are typically 183 m (600 ft) in length, with approximately thirty transverse joints per section. In general, two replicate sections of each treatment were constructed, one in the eastbound and the other in the westbound lanes. One of the primary objectives of the experiment is to determine whether or not there is a distinct advantage in using one type of treatment over another as it relates to pavement performance. In the eastbound lanes of the project, the test sections are located between Stations 154+00 and 290+00, while those in the westbound lanes begin at Station 133+60 and end at 290+00. Transverse joints between Stations 231+00 and 260+00 in both directions are not included in the experimental design nor in the performance evaluations. This stretch corresponds to the location of the batch plant and of the headquarters of the project contractor (*Kokosing Construction Company, Inc.*), an area of intense and heavy truck traffic.

Table 2.1 shows the sealant type, test section stations, joint width, length, and number of joints in each of the test sections. Ten different joint sealants are used in the test sections, in addition to those intentionally left unsealed. Of the ten sealant types, two are single component, hot-applied sealants, four are silicone sealants, and three are pre-formed compression seals, as follows: Crafco 221 and Crafco 444; Crafco 903-SL, Dow 890-SL, Crafco 902, and Dow 888; and Delastic V-687, Watson Bowman WB-687 and 812, and Techstar W-050. Four test sections were intentionally left unsealed to evaluate the effects of unsealed joints on pavement performance. In this experiment, six joint configurations or designs (numbered 1 through 6) were used, as shown in Figure 2.1. Only configurations 1, 3 and 5 received a secondary cut, and backer rod was placed in designs 1, 3 and 4 only. Configurations 2 and 6 were used in unsealed test sections, whereas designs 1, 3 and 4 were used for liquid sealants. All transverse joints requiring the use of a compression seal had joint configuration 5. By combining the various sealant materials and joint configurations, a total of fifteen different treatments were formed. A detailed description of each sealant material and joint configuration installed at the U.S. 50 project can be found in Hawkins (1999), which also presents manufacturer supplied product literature in the accompanying appendix.

The two hot-applied sealants are both manufactured by *Crafco Inc.* of Chandler, Arizona. The first is the *Crafco Superseal 444/777*, a fuel resistant sealant specifically intended for sealing PCC pavements in moderate to hot climates. This sealant is initially liquid and is poured into a melter application unit, which heats the sealant to the application temperature. The product data sheet advises that this sealant should only be applied when ambient air temperature is between 10°C (50°F) and 32°C (90° F).
The second hot-applied sealant used is the *Crafco Roadsaver 221*. This petroleum-based

pavement crack and joint sealant is intended for use in moderate to cooler climates. It is initially in solid block form, and is heated before application using either a pressure feed melter applicator unit or a pour pot. The product data sheet recommends that application should be at pavement temperatures of 4°C (40°F) or higher, and that the joint should be shaped so that the sealant reservoir depth-to-width ratio does not exceed 2:1.

Of the four silicone sealants used, two are also manufactured by *Crafco, Inc.* The first is *the Roadsaver Silicone SL* (also designated as Crafco 903-SL), a self-leveling, jet-blast resistant, silicone sealant that can be used in all climates. It is applied using a bulk dispensing system unit and requires neither tooling nor the use of primers.

The second silicone joint sealant manufactured by *Crafco, Inc.* is the *Roadsaver Silicone Sealant* (also called Crafco 902). This is a low modulus, non-sag silicone sealant intended for use in PCC pavements without requiring any primers. It possesses the same qualities as the Crafco 903-SL, except that it is not self-leveling but must be tooled to ensure adequate contact and adhesion with the joint walls.

The other two silicone sealants used are manufactured by *Dow Corning Corporation* of Midland, Michigan. The first is the Dow 888, a one-part, cold-applied silicone joint sealant that requires no use of primers and is virtually unaffected by sunlight, rain, snow, ozone or temperature extremes. The product data sheet recommends that the sealant should not be applied to damp concrete or installed in inclement weather. Since it is a non-sag silicone sealant, it must be tooled to ensure adequate contact and adhesion to an appropriate depth. It is applied directly from a bulk container into the joint by a hand- or an air-powered pump.

The last silicone sealant is the self-leveling, one-part, cold-applied Dow 890-SL, which requires no use of primers and is resistant to climatic extremes. It has the same restriction as the Dow 888, i.e., that it should not be applied if moisture is present in any form. Since it is self-leveling, it requires no tooling and is applied using a hand- or air-powered pump.

Turning now to the compression seals included in this experiment, the Delastic V-687 compression seal is manufactured by *The D.S. Brown Company* of North Baltimore, Ohio and has a width of 17.5-mm (11/16-in.). It is a preformed neoprene compression seal and is installed with the help of an adhesive lubricant, either by hand or with the help of an installation machine. The data sheet advises that the seal must be installed with 3% or less stretch to prevent premature failure.

Two of the compression seal types used are manufactured by *Watson Bowman Acme* of Amherst, New York. In the eastbound lanes, the WB-687 compression seal was installed, whereas in the westbound lanes the WB-812 was called for. These are preformed neoprene compression seals, distinguished mainly in their width and height dimensions: the WB-687 is 17 mm (11/16 in.) wide by 17 mm (11/16 in.) high, whereas the WB-812 is 21 mm (13/16 in.) wide by 22 mm (7/8 in.) high. According to the product data sheet, the recommended installation procedures include cleaning the joint with compressed air and applying *BonLastic* adhesive to the inner faces of the joint. The sealant is then placed along the joint and compressed into place to the desired depth.

The Techstar W-050 *W-Seal* is manufactured by *Techstar, Inc.* of Findlay, OH. Strictly speaking, this is not a compression seal, but it is included in this category for the sake of convenience. It is made of Santoprene thermoplastic and is installed after a Techstar adhesive has been applied to the joint. The seal is initially flat but it is folded as it is fed into an installation tool, which inserts the seal into the adhesive-lined joint. The contractor's crew reported some difficulties with the placement of this seal in the eastbound lanes (Steve Geib and Ed Malone, 1998: personal communication); the manufacturer's representatives oversaw its installation in the westbound direction. Information provided by the manufacturer claims that this seal is stretch-proof and requires less recess from the pavement surface than other seals.

2.3 Pavement Design Considerations

2.3.1 Input Parameters

The 1993 American Association of State Highway and Transportation Officials (AASHTO) design procedure for rigid pavements was used by *Parsons Brinkerhoff, Inc.* as contractor to the Ohio Department of Transportation (ODOT) in determining the required slab thickness. Expected 80-kN (18-kip) equivalent single axle loads (ESALs) over the anticipated twenty year design period of the pavement were estimated based on traffic survey data collected in 1991. At the start of the design period, the average daily traffic (ADT) count was 7820 vehicles. At that time, the percentage of trucks, T, in the ADT was 16%. The directional distribution factor, D, was assumed to be 50% for the analysis. The design year (2011) ADT was estimated to be 10,950. Interpolating between the 1991 and 2011 ADTs, the 20-year average (2007) ADT was determined to be 10,324.

The U.S. 50 test pavement was given the functional classification rural principal arterial. Based on the information above, it was determined that the pavement would be subjected to approximately 11 million ESALs over the twenty year design life of the pavement.

Design variables unique to concrete pavements include modulus of rupture, M_R, concrete modulus of elasticity, E_c, modulus of subgrade reaction, k, as well as the load transfer coefficient, J, and drainage coefficient, C. Values of E_c and M_R selected for the pavement design were 24.8 GPa (3,600,000 psi) and 4.8 MPa (700 psi), respectively. To characterize subgrade support, a k-value of 27 MN/m^3 (100 pci) was conservatively chosen to represent seasonal changes in the condition of the underlying soil and the impact it may have on design slab thickness. The load transfer coefficient is intended to reflect the ability of a concrete pavement to transfer load across joints and cracks. Due to the presence of tied concrete shoulders and dowel reinforced transverse joints in the pavement, a load transfer coefficient of 2.80 was selected. The quality of drainage and the duration of saturation levels in the underlying granular layers are reflected in the drainage coefficient. A coefficient of 1.0 was selected as appropriate for the drainage provisions at the test pavement, which include an open graded base layer. According to the AASHTO Guide, a value of 1.0 may characterize a material that has good to poor drainage and exhibits saturated moisture levels 1 to 25% of the time.

The level of reliability selected was 85.0%, with a standard deviation of 0.39. Initial and terminal serviceability indices used in the design equations were selected as a function of pavement type and construction quality. Based on the pavement surface texture and expected traffic volumes for the pavement, initial and terminal serviceability indices of 4.20 and 2.50, respectively, were chosen.

2.3.2 Design Features Affecting Pavement Performance

Several key elements of sound pavement design are considered below in order to examine whether the pavement can continue to maintain high performance levels even if joint sealants were to deteriorate, allowing the infiltration of moisture and debris into the subbase, base and subgrade. Conversely, the probability that the pavement might deteriorate rapidly even if all sealants continued to function properly may also be assessed. A more detailed discussion of these and of several additional features affecting pavement performance is provided by Sander (2002).

Drainage

Drainage at the U.S. 50 test pavement is accomplished through the use of a 100-mm (4-in.) open-graded aggregate base course, a 100-mm (4-in.) longitudinal pipe underdrain, as well as transverse collector pipes, spaced at 152 m (500 ft) intervals, evacuating moisture out of the pavement system into adjacent drainage ditches. The ditches are primarily designed to transport storm water away from the pavement and into the nearby Hocking River.

The design for the eastbound and westbound lanes of the test pavement called for the construction of a non-stabilized open-graded drainage base (NSDB), Item Special, placed in a single 100-mm (4-in.) lift directly beneath the 250-mm (10-in.) thick PCC slab (Item 451). The aggregate used for the base is an unbound crushed limestone. In the eastbound lanes, a "New Jersey" type NSDB satisfying the aforementioned specifications was placed, whereas in the westbound lanes, an "Iowa" type NSDB was used, because of its perceived superior long-term performance with regard to cracking of the PCC. Located between the subgrade and base is a blanket of granular subbase material, consisting of 150-mm (6-in.) of crushed aggregate (Item 304), which meets ODOT filter criteria. As an additional line of defense against the migration of silt- and clay-size particles into the overlying drainage base layer, the surface of the subbase was treated with a bituminous prime coat (Item 408), which was sprayed onto the surface of the compacted subbase and allowed to cure before placement of the base. Without this protective coating, the voids in the base might become clogged over time, thereby reducing or completely eliminating the drainage capacity of this layer.

Drainage design details for the test pavement called for the installation of longitudinal drains placed at the bottom of two trenches, one along the edge of the mainline PCC pavement slab and the other parallel to the outer edge of the shoulder. The outermost trench extended to a depth of approximately twice that of the drainage trench located below the PCC slab edge. The deeper trench primarily is intended to drain the subgrade, whereas the shallow trench is designed to evacuate water from the base and subbase layers. The trenches were excavated to a minimum width of twice the pipe diameter, or 205 mm (8 in.), and were lined with filter fabric underdrain wrap to prevent future clogging of the pipe. The filter fabric (Spec. 712.09, Type A) prevents fine-sized soil particles from entering the drain and choking the voids that would allow free passage of water. Granular material was used as backfill in the trenches and was placed to a minimum height of 300 mm (12 in.) above the top of the pipe. All longitudinal drains were constructed using a 102-mm (4-in.) diameter shallow pipe (Item 605) that was installed continuously as it was unwound from a large spool. The underdrain pipes were then connected with transverse outlets spaced at approximately 152 m (500 ft) intervals.

Extensive flooding occurred in March 2000, following several days of intense rainfall. To the south of the pavement, the Hocking River overflowed its banks, with the highway embankment itself serving as the river bank in many locations, where the water level rose to less than 1.5 m (5 ft) of the pavement surface. Extensive flooding was also observed to the north of the test pavement, covering several acres of farmland and woods. The pavement ditches disappeared under the flood pool and seemed unable to conduct the water under the pavement section and into the Hocking River for several days.

Joint Load Transfer

For the pavement-as-built at the U.S. 50 test site, load transfer across transverse joints is accomplished through regularly spaced epoxy-coated steel dowels. For the purposes of another experiment, these dowels are replaced at some of the joints by fiberglass bars or by stainless steel tubes filled with concrete. All dowels are 38-mm (1.5-in.) in diameter and 460-mm (18-in.) in length, are spaced 305 mm (12 in.) on center and are supported on baskets located every 6.4 m (21 ft). To evaluate the effectiveness of this design, finite element computer program *ILSL2* (Ioannides and Khazanovich, 1994) is used to calculate stress and deflection load transfer efficiencies, as well as maximum values of deflection, bending stress, subgrade stress and concrete bearing stress. Adopting typical and reasonable values for the joint opening and the modulus of dowel reaction, calculated values of deflection load transfer efficiency range from 81 to 93%, while those for stress load transfer efficiency vary between 39 and 61%. Bearing stress values as high as 8 MPa (1150 psi) are obtained, the highest values being associated with improved load transfer efficiencies. This may result in concrete crushing under the dowel and may jeopardize the long-term effectiveness of the load transfer system.

Transverse Joint Spacing

Ioannides and Salsilli-Murua (1989) suggested that the spacing of transverse joints should be based on the non-dimensional ratio (L/l), of the slab length, L, to the radius of relative stiffness, l, of the slab-subgrade system, and recommended joint spacings corresponding to an (L/l) ratio ranging between 4 and 6 (with 5 being "a promising alternative"). Subsequently, on the basis of extensive field investigations, Smith, *et al.* (1997) recommended that in order to minimize transverse cracking in jointed plain concrete pavements, slab lengths should be designed such that the (L/l) ratio is less than about 4.5. The concrete pavement at the U.S. 50 test site is constructed with transverse contraction joints spaced every 6.4 m (21 ft). In order to assess the impact of this design on pavement performance, the (L/l) ratio may be calculated. A range of values, representative of materials at the test site, may be chosen for this purpose. Pavement design parameters noted above included a concrete modulus of elasticity, E_c, of 24.8 GPa (3,600,000 psi) and a modulus of subgrade reaction, k., of 27 MN/m^3 (100 pci) had been assumed. The corresponding (L/l) ratio using these values is approximately 6.1. Retaining the k-value noted, the (L/l) ratio is reduced to 5.3 when E_c increases to 41 GPa (6,000,000 psi). On the other hand, (L/l) values up to 7 or 8 are also within the realm of reasonable probability. Whether the amount of temperature steel reinforcement provided in the test pavement slab warrants exceeding the recommended (L/*l*) limit so much is rather debatable.

Tied PCC Shoulders

The new highway at the U.S. 50 test site incorporates tied PCC shoulders of variable width. The shoulders are designed with the same thickness as the mainline PCC slab, i.e., 250 mm (10 in.). On the outer side of the pavement (adjoining the driving lane), the shoulders are 3-m (10-ft) wide, whereas on the inner side (adjoining the passing lane), the shoulders are 1.2-m (4-ft) wide. The longitudinal shoulder joints are tied with 16-mm (0.625-in.) diameter steel reinforcing bars, 760 mm (30 in.) in length, and spaced every 760 mm (30 in.). In each slab, tie bars begin and end 305 and 457 mm (12 and 18 in.), respectively, from the transverse joints. A mechanistic analysis using *ILSL2* indicates that shoulder ties lower the free-edge bending stress by about 11 to 20%. Reductions in free-edge deflection range from 27 to 33%, whereas the free-edge subgrade stress is decreased by 26 to 33%. Thus, reductions in the stress and deflection levels experienced by the concrete slab on account of the presence of tied shoulders can be quite significant.

Reliability

The reliability level can be the most significant input parameter in the design because it defines the overall confidence level concerning the primary assertion of the engineer, i.e., that the pavement will serve applied traffic effectively during its projected life. A pavement engineer could produce a strong and economical design, yet a low reliability is certain to undermine confidence that the pavement will last its full design life. Although a lower level of reliability may be attractive because it dictates a thinner pavement slab, consideration of life-cycle costs associated with long-term maintenance often demonstrates the folly of seeking a lower initial cost in this manner. For highways with the functional classification of rural principal arterial, AASHTO recommends a design reliability between 75 and 95%, a range that encompasses the level of reliability selected in the design of the U.S. 50 test pavement.

Using the AASHTO design procedure, analyses are performed to study the effect of the selected reliability level on pavement slab thickness. It is found that upon increasing the reliability to 90%, the design slab thickness remains 250 mm (10 in.). Selecting a 95% level, however, yields a slab thickness greater than 250 mm (10 in.); for 99% reliability, the design slab thickness is over 280 mm (11 in.). Selecting such a low reliability level, therefore, makes the pavement more likely to experience early distress compared to a similar pavement designed using a reliability level of 95% or higher.

Construction Issues

Two pavement construction related issues may contribute to a number of premature signs of distress, such as mid-slab transverse cracks and surface roughness, uncharacteristic of newly constructed pavements. These are the cold weather pouring of the PCC pavement slab and the use of ground granulated blast furnace slag in the mix design.

The PCC slab for the eastbound lane test sections was cast between October 16 and October 22, 1997, while concrete for the westbound test sections was placed from September 30 to October 7, 1998. National Climatic Data Center (NCDC) air temperature observations recorded from 10/16 to 10/22/97 for the area surrounding

Athens, Ohio, show minimum and maximum daily temperatures of -4 and 19° C (25 and 66° F), respectively. In the westbound lanes, the minimum and maximum air temperatures recorded between 9/30 and 10/7/98 were 1 and 28° C (34 and 83° F), respectively. For such maximum daytime temperatures, the base was probably warm prior to being covered with concrete. As nighttime air temperatures approached and eventually fell below freezing on several occasions, the top of the newly placed concrete slab must have cooled excessively. This may have resulted in a large thermal gradient between the cold concrete surface and the warmer slab bottom, leading to upward curling during curing. Moreover, concrete placed and cured in cold weather may exhibit an increase in the time required to initial set, loss of durability and a slowed rate of strength gain.

For the purposes of a separate study at the U.S. 50 test site, the PCC pavement slab was constructed using a mix design in which 25% of the required Portland cement content was replaced with ground granulated blast furnace slag (GGBFS). Blast furnace slag is a by-product from the production of iron and primarily consists of silicates, alumino-silicates and calcium alumina silicates. When crushed or processed to cement fineness, slag has cementitious properties which make it a suitable replacement for Portland cement, and is usually substituted on a 1:1 basis. Use of GGBFS usually improves the workability of fresh concrete, yet at the same time decreases the water demand due to the additional paste volume. The use of slag cement in fresh concrete tends to retard cement hydration, thereby slowing the time to initial set and concomitant rate of strength gain. When compared to normal concrete, the presence of slag cement tends to slow early age strength development, but increases the ultimate strength after 28 days. The delay in setting time caused by the use of GGBFS, coupled with the cold weather conditions during curing, may have contributed to upward slab warping, compounding the curling gradient discussed above.

2.4 Pavement Construction

Construction of the test pavement occurred in two phases, the first involving the eastbound and the second the westbound lanes. Construction of the eastbound lanes began in the Summer of 1997 and these lanes were opened to traffic in Spring of 1998. Concreting and first sawing was completed in October 1997, while the secondary cut—where needed—was made in October and November, and sealing occurred in November. During this construction phase, both directions of traffic were served by the existing pavement, which incorporated a PCC slab with an asphalt concrete (AC) overlay. Subsequently, traffic was diverted from the existing highway to the newly constructed eastbound lanes. This allowed the second phase of construction to begin in the Summer of 1998. Concrete placement occurred between the months of September and October 1998, and secondary joint sawing operations occurred in December 1998. By that time, only eight of the ten joint sealant types had been installed, but sealing was suspended due to low temperatures. The remaining two (hot-pour) sealants were not placed until April 1999, when the slab temperature was above the manufacturer's suggested minimum for installation. The westbound lanes were opened to traffic in May 1999.

2.4.1 Pavement Layers

The test site is located on the flood plain of the Hocking River, in an area of unglaciated uplands. Bedrock in this area typically consists of shales, sandstones, and limestones of the Conemaugh and Monangahela formations, Pennsylvanian age, but it was not encountered in any of the borings made in the vicinity of the test site. The subgrade material present in the vicinity of the test site consists predominantly of reddish brown and grey silty clays and clays, in the A-6(11) and A-7-6(15) AASHTO classifications, with some sand and gravel. The upper 0.3 m (1 ft) of subgrade was compacted and brought to grade. The minimum compaction requirement was 100% of the standard Proctor maximum dry unit weight. Any soft soil encountered was removed and replaced with more desirable material. Compaction of the subgrade was performed using sheepsfoot vibratory rollers.

The subbase consists of a single 150-mm (6-in.) lift of crushed, well-graded aggregate (Item 304), purchased from a local coal strip mine, with gradation as indicated in Table 2.2 (a), .The minimum compaction requirement was set at 98% of the maximum density value obtained from an in situ test that involved the compaction of a test section, 30 m (100 ft) long by 2.5 m (8 ft) wide. The material was delivered in dump-trucks, then spread to grade using a self-propelled spreader. The subbase was compacted using a single, smooth drum vibratory roller with a static weight of 3.6 tonnes (4 tons). To prevent migration of fines into the overlying base layer, a bituminous prime coat (Item 408) was applied to the top of the compacted subbase. A 100-mm (4-in.) pipe underdrain was installed through the subbase layer.

The base for the eastbound lanes consists of a "New Jersey" type non-stabilized drainable base, constructed in a single 100-mm (4-in.) lift. For the westbound lanes, a similar lift of "Iowa" type non-stabilized drainable base was used.. The gradations for both base types are reproduced in Tables 2.2 (b). A procedure similar to that used for the subbase, involving the construction of a test section to determine maximum density and optimum moisture content, was employed. A 100-mm (4-in.) shallow pipe underdrain utilizing filter fabric was installed through this layer. The material was delivered by dump-trucks, was placed using an asphalt paver with automatic grade control in order to minimize segregation, and was compacted to the level specified by ODOT using a smooth drum roller without vibration.

The mix design for the PCC slab as developed by the contractor is presented in Table 2.3, calling for the following material quantities: 244 kg/m^3 (412 lb/yd^3) of Type I cement; 82 kg/m^3 (138 lb/yd^3) of ground granulated blast furnace slag; 847 kg/m^3 (1428 lb/yd^3) of river sand with a bulk specific gravity (BSG) of 2.61; and, 810 kg/m^3 (1365 lb/yd^3) of #8 gravel with a BSG of 2.57. The water/cement ratio was kept at 0.44, with the help of a water reducer (Sargand, 2000). The #8 gravel was used because the #57 gravel originally considered did not pass the freeze-thaw test for this area. For the sake of completeness, it is noted that a control mix without ground granulated blast furnace slag was used between stations 92+34.25 and 104+40 in the westbound lanes, i.e., beyond the limits of the joint sealant experiment. The components of the control mix were as follows: 356 kg/m^3 (600 lb/yd^3) of cement; 762 kg/m^3 (1285 lb/yd^3) of fine aggregate; 967 kg/m^3 (1630 lb/yd^3) of coarse aggregate; and 178 kg/m^3 (300 lb/yd^3) of water (Sargand, 2002).

The concrete was delivered by dump-trucks and the slab was cast by a three-paver slipform train, in an operation that involved a crew of about 25 people. Dowel bars on baskets, wire mesh reinforcement, as well as longitudinal and shoulder tie bars were provided. Artificial turf was dragged over the slab to give texture to the pavement surface, which was subsequently grooved transversely by a self-propelled grooving machine. Finally, a curing compound was sprayed onto the slab to seal its surface. Testing of the concrete was performed by ODOT technicians and consisted of slump and air tests performed in the field, as well as laboratory tests on beams cast in the field. The specified strength of these beams was a modulus of rupture of 4.2 MPa (600 psi), from a third-point loading test. A random sample of ten five-day breaks on these beams yielded an average modulus of rupture of 5.4 MPa (789 psi), with a standard deviation of 0.6 MPa (87 psi).

2.4.2 Pavement Joints

Initial saw cutting took place a few hours after the paving operations, as soon as the concrete had developed enough strength to support the saws. Typically two saws were used, with one operator per saw. As a result of prevailing cold temperatures and the mix design adopted, it was sometimes found that the concrete had not set up uniformly through the slab thickness by the time the original joint cut was made, and this resulted in considerable joint spalling. It appeared that the concrete was setting from the bottom up, since the underside of the slab was warmer than its top, and some shrinkage cracks were initiated prior to the initial cut. After very few joints had been cut, therefore, a lighter

Soff-Cut saw was used, which enabled the crew to make the cuts as specified. A number of short sections in which premature shrinkage cracks had formed prior to the first saw-cut, or in which excessive joint spalling had developed, were removed and replaced after the concrete had cured.

The widening cut was made with a 65-HP Core Cut saw, typically one day before sealant installation. Usually two saws were used, with one operator per saw. Following joint widening, the joints were cleaned with pressurized water and air. Joints were first flushed clean with water at 14 MPa (2000 psi), and then air-blasted at 0.7 MPa (100 psi), before being allowed to dry. Sandblasting was not deemed necessary in the interest of practical expediency, since the joints had already been thoroughly cleaned of all residue. Manufacturer specifications for some of the materials used are silent regarding the need for sandblasting, whereas for others they suggest it as an option, or even require it for the purpose of removing "remaining traces of sawing residue". This variability is probably explained by the logistical cost sandblasting will inevitably add to the use of any particular product. The *Plan Notes* from ODOT, reproduced in Figure 2.2, stipulate that sealants "shall be installed in accordance with the manufacturer's recommendations". Backer rod was installed into those cleaned joints that were to be sealed with silicone or hot-applied sealants, after such joints had been allowed to dry, typically overnight. Backer rod sizes of 6, 8 and 13 mm (1/4, 5/16 and ½ in.) were used, depending on the joint configuration. Typically, the backer rod was 3 mm (1/8 in.) larger than the joint opening. The backer rod was laid out across the pavement surface and rolled into place using a special hand tool.

In order to verify compliance with specifications pertaining to joint width and depth to backer rod, several series of measurements were made at randomly selected test section locations, on three separate days during the second construction phase (1998-99 season). Most of the joint widths were within the specified tolerance, but two sections were found to be outside of the specified tolerance, both exceeding the specified dimensions. The average measured depth to backer rod was within the specified dimensions for each of the four sections in which this measurement was made.

2.5 Joint Sealing Operations

2.5.1 Installation of Silicone Joint Sealants

Dow 890-SL

This self-leveling silicone sealant was used in joints of three test sections differing with regard to joint width and backer rod diameter, in each of the two directions. The general installation routine started a few days prior to sealing, when joints were widened (if needed) and then cleaned using water- and air-blasting. After the joints were dry, the backer rod was installed. Immediately before the installation of the sealant, the joints were air-blasted clean again. The placement of this sealant typically involved three laborers. One drove a truck to which the sealant pump was mounted and which towed an air compressor. Another air-blasted joints in front of the truck, while the third sealed joints behind the truck. A supervisor monitored the operation periodically.

Crafco 903-SL

This self-leveling silicone sealant was installed in three test sections in the westbound lanes that differed with regard to joint width and backer rod diameter, but in only two sections in the eastbound lanes. Joints in a third test section in the eastbound lanes were filled with Crafco 902 non-sag silicone sealant, instead. The general installation routine for the Crafco 903-SL and the personnel involved were identical to those pertaining to the Dow 890-SL, described in the preceding section.

Dow 888

Owing to changes in the experimental plan, precipitated by the unavailability of certain specified materials, this non-sag silicone sealant was installed in two identical test sections in each of the two directions. The general installation routine began with water- and air-blasting of the joints after they had been widened, typically several days prior to sealing. Backer rod was placed in clean and dry joints, usually on the day of sealing. Air-blasting was performed again immediately ahead of the sealing operation, which generally involved four laborers. The first drove the truck carrying the sealant pump and towing the air compressor. Another one air-blasted joints in front of the truck, while the third sealed joints behind the truck. A supervisor monitored the operation periodically. A fourth laborer tooled the sealant in the joint, using a piece of rubber-tubing.

Crafco 902

This non-sag silicone sealant was installed only in one eastbound section (Sta 200+00 to 206+00). The installation procedure was identical to that employed for the Dow 888, described in the previous paragraph.

2.5.2 Installation of Hot-Pour Sealants

Crafco 444

This hot-pour, self-leveling sealant was installed in one section in each of the two directions. The sealant was supplied in liquid form and was heated to between 132°C (270°F) and 143°C (290°F) in the melter applicator unit. Joint widening and cleaning had been performed several days prior to sealing. Backer rod was inserted shortly before sealing. Two laborers were involved in the installation. One drove the truck which towed the melter applicator unit, while the other delivered the sealant using a hose fitted with a special metal tip.

Crafco 221

The second hot-pour, self-leveling sealant included in this experiment was used in one section of joints in each of the two directions. The typical installation procedure was practically identical to that of the Crafco 444, described above. Note, however, that Crafco 221 is supplied in solid block form and must be heated to between 193°C (380°F) and 210°C (410°F) at installation.

2.5.3 Installation of Preformed Compression Seals

Watson Bowman WB-812 and WB-687

The Watson Bowman WB-812 was installed in one section of the westbound lanes, whereas the WB-687 was installed in one section of the eastbound lanes. The only difference between the two seals is that WB-812 is slightly larger in cross-section than WB-687. The typical installation procedure began with joint widening, followed by cleaning using water- and air-blasting. After the joints were clean and dry, an installation machine was used to apply the adhesive to the preformed seal and insert it into the joint. Three laborers were engaged in sealing: one operated the installation machine and guided it along the joint, while another held the seal as it was drawn into the machine and cut off the excess seal length. The third laborer passed over the seal with a roller device designed to set the seal to the desired depth. Occasionally, problems with the machine were encountered and seal installation was performed manually. Accordingly, one laborer used his hands to coat the seal with adhesive, another squeezed the seal into the joint, and the last used the roller device to set the seal to the appropriate depth.

Delastic V-687

This compression seal was installed in one section in each of the two directions. The typical installation procedure was identical to that for the Watson Bowman seals, described in the previous section.

Techstar W-050

This compression seal was installed in one section in each of the two directions. The joints had been widened and cleaned using water- and air-blasting one or two days prior to sealing, and they were air-blasted again on the day of seal installation. A special adhesive from the seal manufacturer, *Techstar, Inc.*, was used to hold the seals in place. The procedure involved two or three laborers, monitored by a supervisor.

Table 2.1 Sealant type, sealant name, joint configuration, stationing and number of joints

(a) Eastbound test sections

Type	Sealant	Joint Config.	Stations	No. of Joints
Self-leveling silicone	Crafco 903-SL	1	188+00 to 194+00	29
Self-leveling silicone	Crafco 903-SL	4	206+00 to 213+00	33
Self-leveling silicone	Dow 890-SL	3	166+00 to 172+00	29
Self-leveling silicone	Dow 890-SL	4	213+00 to 219+00	29
Self-leveling silicone	Dow 890-SL	1	266+00 to 272+00	28
Non-sag silicone	Crafco 902	1	200+00 to 206+00	29
Non-sag silicone	Dow 888	1a	272+00 to 284+00	57
Non-sag silicone	Dow 888	1b	284+00 to 290+00	29
Hot-pour	Crafco 221	1	260+00 to 266+00	29
Hot-pour	Crafco 444	1	172+00 to 188+00	76
Compression Seal	Delastic V-687	5	225+00 to 231+00	29
Compression Seal	Watson Bowman WB-687	5	194+00 to 200+00	27
Compression Seal	Techstar W-050	5	154+00 to 160+00	29
Unsealed	No Sealant	6	160+00 to 166+00	29
Unsealed	No Sealant	2	219+00 to 225+00	28

Table 2.1 (continued)

(b) Westbound test sections

Type	Sealant	Joint Config.	Stations	No. of Joints
Self-leveling silicone	Crafco 903-SL	1a	188+00 to 194+00	29
Self-leveling silicone	Crafco 903-SL	1b	194+00 to 200+00	29
Self-leveling silicone	Crafco 903-SL	4	266+00 to 272+00	28
Self-leveling silicone	Dow 890-SL	3	166+00 to 172+00	29
Self-leveling silicone	Dow 890-SL	1	200+00 to 206+00	28
Self-leveling silicone	Dow 890-SL	4	272+00 to 284+00	57
Non-sag silicone	Dow 888	1a	213+00 to 219+00	28
Non-sag silicone	Dow 888	1b	260+00 to 266+00	29
Hot-pour	Crafco 221	1	172+00 to 188+00	76
Hot-pour	Crafco 444	1	206+00 to 213+00	33
Compression Seal	Delastic V-687	5	219+00 to 225+00	29
Compression Seal	Watson Bowman WB-812	5	225+00 to 231+00	28
Compression Seal	Techstar W-050	5	133+60 to 139+60	29
Unsealed	No Sealant	2	139+60 to 166+00	126
Unsealed	No Sealant	6	284+00 to 290+00	29

Table 2.2 Specified aggregate gradations used for the pavement subbase and base materials

a) Gradation specifications for ODOT Item 304 subbase material (ODOT, 1995)

Sieve No.	Allowable % Passing
2 in.	100
1 in.	70 - 100
0.75 in.	50 - 90
No. 4	30 - 60
No. 30	9 - 33
No. 200	0 - 13

b) Gradations and specifications for "New Jersey" (NJ) Type and "Iowa" (IA) Type NSDB materials placed in eastbound and westbound lanes, respectively (Sargand, 2000)

Sieve No.	NJ Type % Passing	NJ Type (Eastbound Lanes) Specified Gradation	IA Type % Passing	IA Type (Westbound Lanes) Specified Gradation
1.5 in.	100	100	-	-
1 in.	100	95 - 100	100	100
0.5 in.	65	60 - 80	56	50 - 80
No. 4	42	40 - 55	31	-
No. 8	14	5 - 25	25	10 - 35
No. 16	4	0 - 8	14	-
No. 50	1	0 - 5	3	0 - 15
No. 200	-	-	1.3	0 - 6

Table 2.3 Portland cement concrete mix design used for the U.S. 50 High Performance Concrete pavement slab (Sargand, 2000)

PCC Mix Component	Quantity
Fine Aggregate (dry) - natural concrete sand -	1428 lb/yd^3
Coarse Aggregate (dry) - #8 gravel -	1365 lb/yd^3
Cement	412 lb/yd^3
Water	316 lb/yd^3
GGBFS	138 lb/yd^3
Water Reducer	2 oz/cwt
Air Entrainer	4.2 oz/cwt

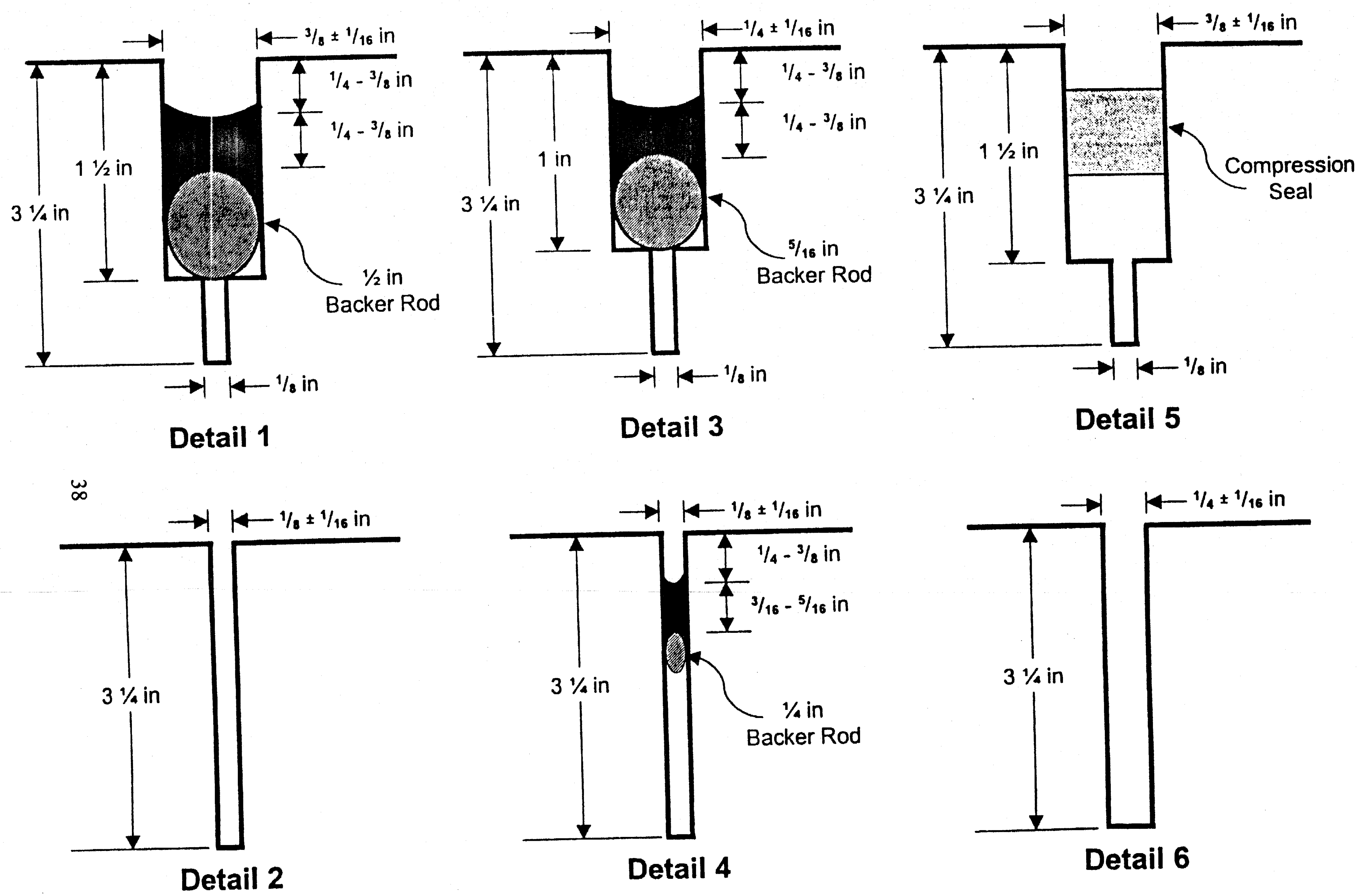
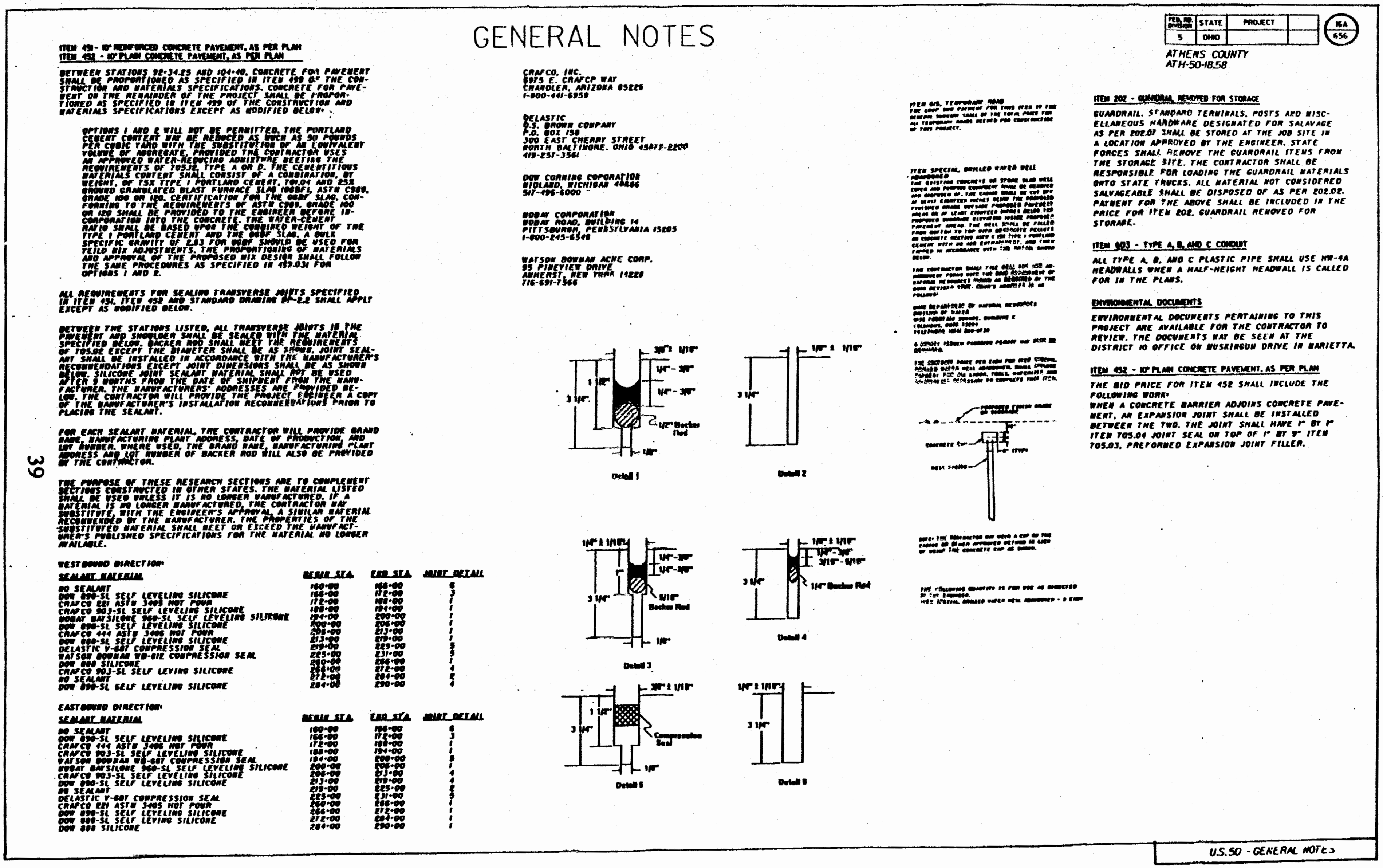


Figure 2.1 Joint configuration details used on the U.S. 50 experiment (Smith, 2000)



GENERAL NOTES

FED. RD. DIVISION: 5 | STATE: OHIO | PROJECT

ATHENS COUNTY
ATH-50-18.58

ITEM 451 - 10" REINFORCED CONCRETE PAVEMENT, AS PER PLAN
ITEM 452 - 10" PLAIN CONCRETE PAVEMENT, AS PER PLAN

BETWEEN STATIONS 92+34.25 AND 104+40, CONCRETE FOR PAVEMENT SHALL BE PROPORTIONED AS SPECIFIED IN ITEM 499 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS. CONCRETE FOR PAVEMENT ON THE REMAINDER OF THE PROJECT SHALL BE PROPORTIONED AS SPECIFIED IN ITEM 499 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS EXCEPT AS MODIFIED BELOW:

OPTIONS 1 AND 2 WILL NOT BE PERMITTED. THE PORTLAND CEMENT CONTENT MAY BE REDUCED AS MUCH AS 50 POUNDS PER CUBIC YARD WITH THE SUBSTITUTION OF AN EQUIVALENT VOLUME OF AGGREGATE, PROVIDED THE CONTRACTOR USES AN APPROVED WATER-REDUCING ADMIXTURE MEETING THE REQUIREMENTS OF 705.12, TYPE A OR D. THE CEMENTITIOUS MATERIALS CONTENT SHALL CONSIST OF A COMBINATION, BY WEIGHT, OF 75% TYPE 1 PORTLAND CEMENT, 701.04 AND 25% GROUND GRANULATED BLAST FURNACE SLAG (GGBF), ASTM C989, GRADE 100 OR 120. CERTIFICATION FOR THE GGBF SLAG, CONFORMING TO THE REQUIREMENTS OF ASTM C989, GRADE 100 OR 120 SHALL BE PROVIDED TO THE ENGINEER BEFORE INCORPORATION INTO THE CONCRETE. THE WATER-CEMENT RATIO SHALL BE BASED UPON THE COMBINED WEIGHT OF THE TYPE 1 PORTLAND CEMENT AND THE GGBF SLAG. A BULK SPECIFIC GRAVITY OF 2.83 FOR GGBF SHOULD BE USED FOR YEILD MIX ADJUSTMENTS. THE PROPORTIONING OF MATERIALS AND APPROVAL OF THE PROPOSED MIX DESIGN SHALL FOLLOW THE SAME PROCEDURES AS SPECIFIED IN 452.031 FOR OPTIONS 1 AND 2.

ALL REQUIREMENTS FOR SEALING TRANSVERSE JOINTS SPECIFIED IN ITEM 451, ITEM 452 AND STANDARD DRAWING BP-2.2 SHALL APPLY EXCEPT AS MODIFIED BELOW.

BETWEEN THE STATIONS LISTED, ALL TRANSVERSE JOINTS IN THE PAVEMENT AND SHOULDER SHALL BE SEALED WITH THE MATERIAL SPECIFIED BELOW. BACKER ROD SHALL MEET THE REQUIREMENTS OF 705.02 EXCEPT THE DIAMETER SHALL BE AS SHOWN. JOINT SEALANT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS EXCEPT JOINT DIMENSIONS SHALL BE AS SHOWN BELOW. SILICONE JOINT SEALANT MATERIAL SHALL NOT BE USED AFTER 9 MONTHS FROM THE DATE OF SHIPMENT FROM THE MANUFACTURER. THE MANUFACTURERS' ADDRESSES ARE PROVIDED BELOW. THE CONTRACTOR WILL PROVIDE THE PROJECT ENGINEER A COPY OF THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS PRIOR TO PLACING THE SEALANT.

FOR EACH SEALANT MATERIAL, THE CONTRACTOR WILL PROVIDE BRAND NAME, MANUFACTURING PLANT ADDRESS, DATE OF PRODUCTION, AND LOT NUMBER. WHERE USED, THE BRAND NAME, MANUFACTURING PLANT ADDRESS AND LOT NUMBER OF BACKER ROD WILL ALSO BE PROVIDED BY THE CONTRACTOR.

THE PURPOSE OF THESE RESEARCH SECTIONS ARE TO COMPLEMENT SECTIONS CONSTRUCTED IN OTHER STATES. THE MATERIAL LISTED SHALL BE USED UNLESS IT IS NO LONGER MANUFACTURED. IF A MATERIAL IS NO LONGER MANUFACTURED, THE CONTRACTOR MAY SUBSTITUTE, WITH THE ENGINEER'S APPROVAL, A SIMILAR MATERIAL RECOMMENDED BY THE MANUFACTURER. THE PROPERTIES OF THE SUBSTITUTED MATERIAL SHALL MEET OR EXCEED THE MANUFACTURER'S PUBLISHED SPECIFICATIONS FOR THE MATERIAL NO LONGER AVAILABLE.

WESTBOUND DIRECTION:

SEALANT MATERIAL	BEGIN STA.	END STA.	JOINT DETAIL
NO SEALANT	160+00	166+00	6
DOW 890-SL SELF LEVELING SILICONE	166+00	172+00	3
CRAFCO 221 ASTM 3405 HOT POUR	172+00	188+00	1
CRAFCO 903-SL SELF LEVELING SILICONE	188+00	194+00	1
MOBAY BAYSILONE 960-SL SELF LEVELING SILICONE	194+00	200+00	1
DOW 890-SL SELF LEVELING SILICONE	200+00	206+00	1
CRAFCO 444 ASTM 3406 HOT POUR	206+00	213+00	1
DOW 888-SL SELF LEVELING SILICONE	213+00	219+00	1
DELASTIC V-687 COMPRESSION SEAL	219+00	225+00	5
WATSON BOWMAN WB-812 COMPRESSION SEAL	225+00	231+00	5
DOW 888 SILICONE	260+00	266+00	1
CRAFCO 903-SL SELF LEVING SILICONE	266+00	272+00	4
NO SEALANT	272+00	284+00	2
DOW 890-SL SELF LEVELING SILICONE	284+00	290+00	4

EASTBOUND DIRECTION:

SEALANT MATERIAL	BEGIN STA.	END STA.	JOINT DETAIL
NO SEALANT	160+00	166+00	6
DOW 890-SL SELF LEVELING SILICONE	166+00	172+00	3
CRAFCO 444 ASTM 3406 HOT POUR	172+00	188+00	1
CRAFCO 903-SL SELF LEVELING SILICONE	188+00	194+00	1
WATSON BOWMAN WB-687 COMPRESSION SEAL	194+00	200+00	5
MOBAY BAYSILONE 960-SL SELF LEVELING SILICONE	200+00	206+00	1
CRAFCO 903-SL SELF LEVELING SILICONE	206+00	213+00	4
DOW 890-SL SELF LEVELING SILICONE	213+00	219+00	4
NO SEALANT	219+00	225+00	2
DELASTIC V-687 COMPRESSION SEAL	225+00	231+00	5
CRAFCO 221 ASTM 3405 HOT POUR	260+00	266+00	1
DOW 890-SL SELF LEVELING SILICONE	266+00	272+00	1
DOW 888-SL SELF LEVING SILICONE	272+00	284+00	1
DOW 888 SILICONE	284+00	290+00	1

CRAFCO, INC.
6975 E. CRAFCO WAY
CHANDLER, ARIZONA 85226
1-800-441-6959

DELASTIC
D.S. BROWN COMPANY
P.O. BOX 158
300 EAST CHERRY STREET
NORTH BALTIMORE, OHIO 45872-2200
419-257-3561

DOW CORNING CORPORATION
MIDLAND, MICHIGAN 48686
517-496-6000

MOBAY CORPORATION
MOBAY ROAD, BUILDING 14
PITTSBURGH, PENNSYLVANIA 15205
1-800-245-6548

WATSON BOWMAN ACME CORP.
95 PINEVIEW DRIVE
AMHERST, NEW YORK 14228
716-691-7566

ITEM 615, TEMPORARY ROAD

ITEM SPECIAL, DRILLED WATER WELL ABANDONED

ITEM 202 - GUARDRAIL, REMOVED FOR STORAGE

GUARDRAIL. STANDARD TERMINALS, POSTS AND MISCELLANEOUS HARDWARE DESIGNATED FOR SALVAGE AS PER 202.07 SHALL BE STORED AT THE JOB SITE IN A LOCATION APPROVED BY THE ENGINEER. STATE FORCES SHALL REMOVE THE GUARDRAIL ITEMS FROM THE STORAGE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOADING THE GUARDRAIL MATERIALS ONTO STATE TRUCKS. ALL MATERIAL NOT CONSIDERED SALVAGEABLE SHALL BE DISPOSED OF AS PER 202.02. PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE PRICE FOR ITEM 202, GUARDRAIL REMOVED FOR STORAGE.

ITEM 603 - TYPE A, B, AND C CONDUIT

ALL TYPE A, B, AND C PLASTIC PIPE SHALL USE HW-4A HEADWALLS WHEN A HALF-HEIGHT HEADWALL IS CALLED FOR IN THE PLANS.

ENVIRONMENTAL DOCUMENTS

ENVIRONMENTAL DOCUMENTS PERTAINING TO THIS PROJECT ARE AVAILABLE FOR THE CONTRACTOR TO REVIEW. THE DOCUMENTS MAY BE SEEN AT THE DISTRICT 10 OFFICE ON MUSKINGUM DRIVE IN MARIETTA.

ITEM 452 - 10" PLAIN CONCRETE PAVEMENT, AS PER PLAN

THE BID PRICE FOR ITEM 452 SHALL INCLUDE THE FOLLOWING WORK:
WHEN A CONCRETE BARRIER ADJOINS CONCRETE PAVEMENT, AN EXPANSION JOINT SHALL BE INSTALLED BETWEEN THE TWO. THE JOINT SHALL HAVE 1" BY 1" ITEM 705.04 JOINT SEAL ON TOP OF 1" BY 9" ITEM 705.03, PREFORMED EXPANSION JOINT FILLER.

U.S. 50 - GENERAL NOTES

Figure 2.2 General Notes from Project 180/97: US Route 50, Athens, OH (ODOT, 1995)

3 EARLY SEALANT AND PAVEMENT PERFORMANCE

3.1 Introduction

The importance of continuous monitoring throughout all phases of the United States (U.S.) Route 50 joint sealant experiment has been recognized since the beginning of the project. Field notes were kept and video records were made during each stage of pavement construction, including subgrade preparation, Portland Cement Concrete (PCC) slab placement and joint sealant installation. Following the opening of the new pavement to traffic, the performance of the test sections included in the sealant experiment has been evaluated twice a year by the University of Cincinnati research team. Prior to the Fall of 1999, the University of Cincinnati research team had conducted two visual inspections of the eastbound lanes, as well as a single visual inspection of the westbound lanes. In this Chapter, results from these early performance evaluations are summarized first, providing the context for a discussion of the data collected from the site in Fall 1999 and Spring 2000. The latter field inspections involved the use of a quantitative statistical evaluation plan, developed by the University of Cincinnati research team in order to standardize joint sealant and PCC pavement performance data collection and interpretation, in a manner analogous to that followed in similar experiments elsewhere in the U.S. Three more recent quantitative field evaluations conducted in Fall 2000, Spring 2001 and Fall 2001 are discussed in detail in Chapters 4, 5 and 6.

3.2 Visual Inspections (Fall 1998 and Spring 1999)

Visual inspections of the condition of the joint sealants in the test sections were performed on two occasions. Since the project is concerned with the long-term performance and effectiveness of each joint sealant treatment, these early visual inspections provide an indicator of the initial condition, or early age performance.

The first visual inspection occurred in October, 1998, when the University of Cincinnati research team accompanied by Mr Lynn Evans, of *ERES Consultants, Inc.*, surveyed the newly constructed eastbound lanes, from Sta 154+00 to Sta 290+00. Since both lanes served traffic at the time (one in each direction), the inspection was conducted from the shoulder adjacent to the outer (driving) lane. The air temperature was 21°C (70°F) under partly cloudy weather conditions. A second visual inspection, which included both the eastbound and westbound lanes, occurred over two days in May 1999. Both days were hot and dry. The pavement temperature on the first day was recorded as 41°C (105°F) at 4 PM, while on the second day it was 21°C (69°F) at 9 AM, and 27°C (80°F) at 12 noon. The eastbound lanes had been open to traffic for over a year by the time of the second inspection, while the westbound lanes had been operational for about two weeks. Due to continuing striping operations, only one lane was opened to traffic in each direction and the evaluations were conducted again from the shoulder.

Information recorded is primarily in the form of visual observations made on three transverse joints in each test section. The joint sealant condition was described and visual estimates were made of the percentage of observed adhesive, cohesive or spall failures.

Also noted was the depth to which the sealant was recessed below the pavement surface and the intrusion of any incompressible debris into the joint.

The following is a summary of the observations concerning the condition of the eastbound lanes only, at the time of the second visual inspection (May 1999).

Crafco 903-SL (Sta 188+00 to 194+00)

The sealant in this section was in fair condition, exhibiting loss of adhesion or sunken seal over about 20% of the joint length. The typical recess was approximately 3 mm (1/8 in.), with the sealant exposed at the surface intermittently.

Crafco 903-SL (Sta 206+00 to 213+00)

The sealant in this section was in poor condition. It was estimated that over about 30% of the joint length, the sealant had developed full-depth adhesion loss and had been pulled away by traffic or had sunk into the joint. The remainder of the sealant was frequently exposed at the pavement surface, exhibiting no recess. The narrow joint design (3 mm =1/8 in.) seems to have hindered proper sealant installation with the conventional sealing devices employed, which was reflected in unsatisfactory sealant condition.

Dow 890-SL (Sta 166+00 to 172+00)

The sealant in this section was in fair condition. The sealant was recessed to less than 3 mm (1/8 in.) over more than 50% of the joint length and was intermittently exposed at the surface of the pavement. Full-depth adhesion loss was evident over about 10% of the joint length, over which the sealant had sunk into the joint.

Dow 890-SL (Sta 213+00 to 219+00)

The sealant in this section was observed to be in poor condition. Some of it had been pulled away by traffic or had sunk completely into the joint. The sealant was exposed at the pavement surface over approximately 50% of the joint length, with the remainder showing a recess of less than 3 mm (1/8 in.). Once again, the narrow design of the joints (3 mm =1/8 in.) seems to have hampered effective sealant installation, resulting in the poor condition noted.

Dow 890-SL (Sta 266+00 to 272+00)

The sealant in this section was in poor condition. Inadequate recess (3 mm =1/8 in., or less) was typically noted, with the sealant exposed to traffic wear over approximately 50% of the joint length. Full-depth adhesion failures were also quite common, typically over 40% of the joint length.

Crafco 902 (Sta 200+00 to 206+00)

This sealant was observed to be in fair condition, reflecting somewhat better sealant installation in the 10 mm (3/8 in.) joints, yet exhibiting many of the same distresses as the previous silicone sealant sections. The sealant had sunk over approximately 20% of the joint length. Elsewhere the sealant material shows uneven recess, sometimes less than 3 mm (1/8 in.), and is intermittently exposed at the slab surface.

Dow 888 (Sta 272+00 to 284+00)

Whereas the design of the two Dow 888 sections is identical, the sealant here appeared to be in worse condition. Full-depth adhesion failure accounted for at least 30% of the joint length, sometimes much more. Inadequate recess was common, with the sealant sometimes exposed to traffic wear.

Dow 888 (Sta 284+00 to 290+00)

The sealant in this section was in fair condition. It had experienced full-depth adhesion failure and had sunk over approximately 20% of the joint length, the remainder typically being recessed about 3 mm (1/8 in.).

Crafco 444 (Sta 172+00 to 188+00)

This hot-pour sealant section was in fair condition. Full-depth adhesion loss was estimated at about 20% of the joint length, and small bubbles were evident in the surface of the sealant. The typical recess was approximately 3 mm (1/8 in.), with the sealant exposed at the pavement surface over approximately 10% of the joint length.

Crafco 221 (Sta 260+00 to 266+00)

The hot-pour sealant in this section was in poor condition. Over a considerable length of the joint (occasionally in excess of 50%) exhibited adhesive failure, with the sealant sometimes not even touching the joint walls. In several places (typically about 20% of the joint length) the sealant had sunk into the joint. Bubbles were evident in the sealant surface.

Watson Bowman WB-687 (Sta 194+00 to 200+00)

In contrast to the preceding silicone sealant sections, the compression seal in this section was in very good condition. No signs of compression set were observed and the seal remained tight and untwisted against the joint walls. The seal was typically recessed 3 to 6 mm (1/8 to 1/4 in.), with a minimal amount of debris accumulation above the seal.

Delastic V-687 (Sta 225+00 to 231+00)

The compression seal in this section was in very good condition with no obvious distresses or signs of compression set. The sealant appeared to be adequately recessed to approximately 3 to 6 mm (1/8 to 1/4 in.), and remained tight and untwisted against the joint walls. Some debris accumulation, consisting of sand and organic matter from nearby trees, was found in most joints.

Techstar W-050 (Sta 154+00 to 160+00)

The condition of the compression seal in these joints was poor. Loss of adhesion between the seal and the joint walls was evident over about 30% of the joint length, with the seal sinking deep into the joint; elsewhere, the seal exhibited a typical recess of 3 mm (1/8 in.). In many locations, the hardened adhesive that used to hold the seal was still visible close to the pavement surface.

No Sealant (Sta 219+00 to 225+00)

The joints were observed to be in very good condition with no signs of spalling or joint related distresses. Only a limited amount of debris accumulation was observed but the joints still remained open, possibly due to the narrow design of the joint. It is recalled that the joints in this section were originally cut to 3 mm (1/8 in.) using a Soff-Cut sawing system and received no additional cut.

No Sealant (Sta 160+00 to 166+00)

The unsealed joints in this section were in very good condition, with no spalling or other distresses observed. In the driving lanes, the joints appeared open and clean with no major infiltration of incompressibles. Over the shoulders width, however, the joints were almost full of sand and other debris.

From this information, conclusions have been made concerning premature aging and the relative rate of joint seal deterioration. It has been pointed out that "serious consideration needs to be given to the joint cleaning and sealant placing operations employed." More specifically, "the most significant shortcomings [at the U.S. 50 test site] appear to have been the omission of sandblasting at placement and inadequate sealant recess" (Hawkins, *et al.*, 2001).

3.3 Performance Evaluation Plan

In the Fall of 1999, the University of Cincinnati research team developed a methodology to be used in acquiring performance data in a consistent and organized fashion (Sander, 2002). Thus, a joint seal evaluation form was generated suitable for recording the types, extents and locations of failure and distress manifestations noted in each sealant, both numerically and schematically. Reproduced in Figure 3.1, the form includes the treatment type, the number and relative location of sampled joints, the beginning and ending stations, as well as measured distress and failure lengths, along with a legend of symbols used. This form was first used during the visual inspection of November 1999, and is to be used for all subsequent evaluations of joint sealant performance.

Because of the large number of transverse joints in each test section, which ranges from as few as 27 to as many as 126, it is necessary to devise a statistical sampling plan for performance monitoring. This allows investigators to evaluate a representative number of joint seals in each test section and to make inferences from these as to the condition of the entire section. To guarantee that no bias will be introduced into the results, the selection of a subset, or sample, is made on the basis of random sampling. The statistical sampling plan used for evaluations at the U.S. 50 project involves the examination of six randomly selected transverse joints in each of the thirty test sections. It is considered that a sample of size six combines the qualities of being large enough to be representative of the entire set, or population, while also being small enough to allow the evaluation of the test sections in two full working days by the available research project personnel. The same six joints in each test section will be evaluated throughout the duration of the experiment. The first, second, second to last and last joints in every test section were intentionally excluded from the selection process in order to eliminate possible overlap effects from adjacent sections.

The methodology developed for visual field inspections entails the following steps. Within each test section, six transverse joints are selected randomly for continual monitoring. Each joint selected is examined for signs of sealant failure and distress over a length of 1.83 m (6 ft), beginning at the outer shoulder joint and covering the right wheel-path of the driving lane. Each failure or distress type is identified according to a list of definitions and carried to the site by the inspector for instant reference (Table 3.1). The length of any noticeable distress or failure is measured and recorded on the field evaluation form in the space allocated to that particular joint. The record includes a schematic indicating the position of each distress feature along the joint length surveyed. In the case of adhesive and spall distresses, the side of the joint, approach or leave, is also noted. These data collection activities follow closely the model established by similar investigations, primarily studies performed by *ERES Consultants, Inc.* conducted under the Strategic Highway Research Program (SHRP) (Smith, *et al.*, 1999).

The lengths of each observed feature are summed to give the total failure length of that particular joint seal. Dividing the total failure length by the overall length inspected, i.e., 1.83 m (6 ft), the percent overall effectiveness can be determined for each joint. From these values, an average effectiveness figure is determined for each section, and a seal performance rating category is assigned to the section according to the scheme developed by Belangie and Anderson (1985). Sealants exhibiting effectiveness levels between 90 and 100% are classified as being in very good condition, whereas those sealants showing less than 50% overall effectiveness are in very poor condition and are considered to have failed. Performance ratings of poor, fair and good are assigned appropriately to sealants having effectiveness levels ranging between 50 and 90%. Such a system ensures that the performance and condition rankings assigned to each sealant are consistent between evaluations. It is noted that the same ranking scheme was also used during the SHRP H-106 and SPS-4 experiments (Specific Pavement Sections) (Smith, *et al.*, 1999; Evans, *et al.*, 1999). Consequently, results obtained in Ohio will be directly comparable to those from other national studies.

3.4 Quantitative Field Evaluations (Fall 1999 and Spring 2000)

3.4.1 Treatment Effectiveness in the Eastbound Lanes

Quantitative data on joint seal effectiveness in the eastbound lanes in accordance to the aforementioned evaluation plan were first collected in November 1999. This data set is code-named EBNV99. In March 2000, the University of Cincinnati research team collected a second set of performance data in the eastbound lanes. The corresponding data set code-name is EBMR00. These observations are discussed in detail by Sander (2002). The EBNV99 data set indicates that the Watson Bowman WB-687 (Joint Configuration 5) treatment exhibited the highest overall effectiveness (97.8%). The worst performing treatment in this data set was the Crafco 444 (1), which exhibited a sealant effectiveness of only 14.4%. Compression seals, with the exception of the Techstar W-050 (5) treatment, were in very good condition, showing greater than 95% effectiveness. Both of the non-sag silicone sealant treatments, namely the Dow 888 (1) and Crafco 902 (1), showed poor performance, having less than 65% effectiveness. Results from the EBMR00 evaluation show that the Watson Bowman WB-687 (5) and the Delastic V-687 (5) treatments continued to exhibit very little deterioration, both having an overall effectiveness of 95.3%. With an effectiveness of only 9.7%, the Crafco 444 (1) remained the worst performing treatment. The other hot-pour section, Crafco 221 (1), experienced no deterioration over the four month period between evaluations, retaining an effectiveness of 71.9%. The section of Crafco 903-SL (4) between Stations 206+00 and 213+00 exhibited the largest deterioration, decreasing approximately 38 percentage points in effectiveness (from 62.5 to 24.2%), whereas the Crafco 903-SL (1) treatment declined by nearly 14 points (from 66.1 to 51.9%). The three Dow 890-SL silicone treatments (3, 4, 1) continued to show fair to poor performance, ranging between 55.0 and 67.8% in effectiveness.

Another way of evaluating the performance of experimental joint sealants is through analysis of deterioration over time. It is assumed that all treatments exhibited an effectiveness level of 100% immediately after installation. Deterioration is indicative of a sealant treatment's performance with time, and more importantly, of its longevity while maintaining a minimum acceptable level of effectiveness. At the time of the EBNV99 performance evaluation, the eastbound lanes had been exposed to traffic and weather for approximately twenty months. Of the four silicone sealants, the Dow 890-SL (1, 3, 4) treatments showed the best performance, exhibiting the lowest average joint seal deterioration over the four-month period between evaluations. Crafco 903-SL (1, 4) treatments had the second lowest average deterioration at the time of the EBNV99 evaluation, yet deteriorated rapidly in the time period between the EBNV99 and EBMR00 surveys. Performance trends of the Dow 888 (1, 1) and Crafco 902 (1) silicone sealants indicate that their effectiveness has continued to decrease steadily over their approximate twenty four months of service.

The two hot-pour sealant treatments exhibited a significant difference in performance with age. Since installation, the Crafco 444 (1) treatment has shown a considerably faster deterioration as compared to the Crafco 221 (1) treatment. At the age of twenty months, Crafco 221 (1) was undoubtedly the better performing hot-pour sealant in terms of overall effectiveness, maintaining its resistance to environmental factors and traffic. Approximately twenty four months after installation, the Crafco 221 (1) sealant treatment continued to display a constant level of performance, whereas the Crafco 444 (1) deteriorated further, exhibiting a slight decrease in effectiveness over the four month period between evaluations EBNV99 and EBMR00.

Compression seals, with the notable exception of the Techstar W-050 (5) section, experienced minor deterioration over the twenty four month service period. Of the three compression seal sections in the eastbound lanes, the Techstar W-050 (5) treatment had the highest rate of deterioration, casting doubts concerning its long-term durability. In contrast, the other two sections exhibited excellent short-term behavior and are likely to continue to perform well in the future.

Deterioration rates of all three sealant classes installed in the eastbound lanes suggest that silicone and hot-pour sealant treatments deteriorated more rapidly than the compression seals. Compression seal treatments as a group outperformed silicone and hot-pour treatments by about 23 and 33 percentage points, respectively. Hot-pour sealants showed the highest rate of deterioration up to the age of twenty months. In contrast, their performance between twenty and twenty four months was relatively constant, showing very little joint seal deterioration over that time period. Unfortunately, the sealant had already deteriorated into very poor condition.

Each of the 13 sealed treatments may be ranked according to its level of overall effectiveness as of each of the two visual inspection surveys (EBNV99 and EBMR00). Additionally, depending on the percentage deterioration of each treatment in the four months between these inspections, a corresponding deterioration rank may be assigned. Note that a high rank is only desirable with regard to effectiveness, but not with regard to deterioration. The best performing sealant treatment is ranked as No. 1 in Effectiveness, whereas the worst performing one is ranked No. 13. In contrast, the most rapidly deteriorating treatment is ranked as No. 1 in Deterioration, whereas the treatment with the slowest or no deterioration is ranked No. 13. Information collected shows that at the time of the EBNV99 evaluation, the best and worst performing treatments in terms of overall effectiveness were the Watson Bowman WB-687 (5) and the Crafco 444 (1), respectively. In terms of deterioration rate, the Crafco 903-SL (4) treatment was ranked as No. 1 and the Techstar W-050 (5) as No. 2. Crafco 221 (1) treatment exhibited the least amount of deterioration between the EBNV99 and EBMR00 evaluations, earning the most desirable deterioration rank of 13.

These observations reaffirm the preliminary conclusions reached following the early inspections by the research team that "the worst of the sealed sections [are] those with a narrow joint width of 3 mm (1/8 in.). In most joints with such a configuration, the sealant material had overflowed... thereby being exposed to tire traffic... Special nozzles or applicators need to be used, so that the sealant will be placed from the bottom up at a slow rate, so that the joints are not overfilled" (Hawkins, *et al.*, 2001).

3.4.2 Treatment Effectiveness in the Westbound Lanes

At the time of the November 1999 inspection of the westbound lanes (data set: WBNV99), four of the treatments, namely Dow 890-SL (1), Delastic V-687 (5), Watson Bowman WB-687 (5) and Dow 888 (1, Replicate a), showed no distress, having an overall effectiveness of 100%. In fact, ten of the thirteen sealant treatments were found to be in Very Good condition, with an overall effectiveness above 90%, and these included all three compression seal types. This may be explained by the relatively early age of these sections: at the time of the inspection, the westbound lanes had been exposed to traffic for less than six months. The Crafco 903-SL (1) and the Dow 890-SL (4) treatments had an overall effectiveness of 83.9 and 83.3%, respectively, i.e., they were in Good condition. In contrast, hot-pour sealant Crafco 221 (1) treatment exhibited an effectiveness of only 62.5%, and was the only treatment found to be in Poor condition at the time of the WBNV99 evaluation.

The largest decrease in effectiveness occurring in the four months between the WBNV99 observations and the March 2000 inspection of the westbound lanes (data set: WBMR00) was recorded in the Techstar W-050 (5) treatment. Compression seals in this section showed a 29-point reduction in overall effectiveness, dropping from 98.3 to 69.7%. Several sealant treatments continued to remain in Very Good condition, all exhibiting less than a four percentage point decrease in effectiveness at the time of the WBMR00 inspection. These included both silicone sealants, Dow 890-SL (1), Dow 890-SL (3), Crafco 903-SL (1a) and Dow 888 (1a and b), and compression seals, Delastic V-687 (5) and Watson Bowman WB-812 (5). The latter treatment exhibited the smallest decrease in effectiveness, dropping from 100% to 99.7% between the two evaluations. The sealant treatment showing the worst performance was the Crafco 221 (1) hot-pour section. The overall sealant effectiveness of this treatment was 49.7% at the time of the WBMR00 inspection.

Treatments in the westbound lanes may also be ranked according to their overall effectiveness and rate of deterioration. Four treatments shared the No. 1 ranking for effectiveness at the time of the WBNV99 evaluation, namely, Dow 890-SL (1), Dow 888

(1a), Delastic V-687 (5) and Watson Bowman WB-812 (5). Following the WBMR00 inspection, however, only the Watson Bowman WB-812 (5) retained the honor of being No. 1, the other three treatments having fallen to the 4th, 3rd and 6th spots, respectively. The Crafco 221 (1) treatment earned the lowest rank, No. 13, during both westbound lane evaluations. Over the four months between the WBNV99 and WBMR00 inspections, two of the three Dow 890-SL treatments, namely, Dow 890-SL (3) and Dow 890-SL (4) exhibited the smallest deterioration (dropping by less than 1 percentage point), gaining the desirable ranks of Nos. 12 and 13, respectively, for Deterioration. Eleven of the thirteen sealed treatments, including all eight silicone treatments and the Watson Bowman WB-812 (5), showed deterioration rates of fewer than 10 points over the four months between the two evaluations.

3.5 PCC Pavement Performance

To determine whether sealing transverse joints has an effect on concrete pavement performance, the sealant inspection plan calls for the recording of distresses occurring in the immediate vicinity of joints, which may be indicative of joint seal inefficiency or failure. The first signs of such pavement distress were noticed on the first day of the EBMR00 evaluation, primarily in the form of mid-slab transverse cracks revealed in several of the test sections in the eastbound lanes as the wet pavement surface began to dry. The significant frequency and widespread distribution of these transverse cracks, however, did not suggest that their occurrence was necessarily related to the deterioration of any particular sealant treatment. Although their usual location at mid-slab was not as anticipated by the original sealant evaluation plan, it now appeared unjustifiable to simply ignore their presence altogether. Consequently, it was decided to conduct a pilot study into the frequency and distribution of transverse cracks, beginning with the evaluation of the westbound lanes the following day. Accordingly, all transverse cracks and corner breaks occurring in the driving lane over the entire length of the project were counted and recorded by section. It is anticipated that such observations will continue in both the eastbound and westbound directions during future evaluations.

Regarding the development of transverse cracks in jointed reinforced concrete slabs, Yoder and Witczak (1975) indicate that "the designer assumes a crack will form, generally at the center of the slab, and temperature steel is provided to keep this crack intact so that it will not open." Similarly, Bradbury (1938) notes that "the strengthening or so-called 'reinforcing' of concrete members, through the medium of embedded steel, cannot be expected to actually prevent the concrete from cracking, since in any case—whether the structure be a building, a bridge, or a pavement—accomplishment of such a result would require the use of steel at such a low unit stress as to be decidedly uneconomical. Hence, the economical adaptation of reinforcing steel to any type of structure is fundamentally a problem of preventing what may be termed 'objectionable' cracking." Monitoring of transverse cracks at the U.S. 50 test site, therefore, aims at assessing whether such cracks become objectionable from a functional viewpoint and, if so, whether this development is related to sealant performance in any way.

3.5.1 Transverse Cracking

During the WBMR00 evaluation, a distress survey of PCC slabs in the westbound driving lane of the Project, which stretches from Sta 133+60 and to Sta 290+00 skipping the slabs between Sta 231+00 and 260+00, was conducted. A total of 592 slabs were inspected and transverse cracks were observed in ten of the fifteen test sections. In some slabs, cracks had propagated across both the driving and passing lanes, whereas in others, cracking had been arrested by the longitudinal joint. Nearly every crack noted had developed at approximately the middle of the 6.4-m (21-ft) long slabs. The section displaying the greatest frequency of mid-slab cracks and the top percentage of slabs cracked was the one with the Dow 890-SL (1) treatment; a total of 9 cracks were noted, accounting for 33.3% of the 27 slabs. The section sealed with the Watson Bowman WB-687 (5) treatment showed the second highest percentage of cracked slabs, with 18.5% slabs cracked. The following sections exhibited no signs of mid-slab cracking at the time of the WBMR00 evaluation: Crafco 903-SL (1a); Dow 888 (1a); Crafco 903-SL (4); and Dow 890-SL (4). In addition, no transverse cracks were evident in the No Sealant (6) section.

When one considers that the majority of the joint seals in the relatively "young" westbound driving lane were in good to very good condition, it is rather unlikely that the transverse cracks observed in ten of the fifteen westbound test sections were related to poor joint sealant performance. Rather, it appears possible that structural factors may have been responsible for the premature cracking observed in a significant number of slabs. For this reason, a variety of pavement design features affecting pavement performance is discussed in a subsequent section.

3.5.2 Corner Cracking

Every transverse joint in the westbound driving lane of the Project was examined for evidence of corner cracking. There were no visible signs of corner breaks at any of the transverse joints in eight sections, including one that had unsealed joints. These are the two sections with the Crafco 903-SL (1) treatment, both sections with the Dow 888 (1) treatment, as well as the section of Watson Bowman WB-812 installed in joint configuration No. 5; the final unscathed section was the No Sealant (6) section. The other unsealed section in the westbound direction also fared quite well, exhibiting a single corner crack in one of its 125 slabs, accounting for 0.8% slabs cracked. The section with the Dow 890-SL (3) treatment had developed the highest percentage of slabs with corner cracks: four corner breaks were observed in its 28 slabs, accounting for 14.3% slabs cracked.

Table 3.1 Description of joint sealant failure and distress types
(Lynn D. Evans, 1999: personal communication)

Distresses	
Field-Molded Sealants	
Partial Depth Adhesion Loss	Separation of the sealant from one or both edges of the joint, but the separation does not extend through the entire sealant depth.
Partial Depth Spalling	Cracking, breaking, or chipping of a PCC slab from one or both edges within 0.6 m (2 ft) of the joint which does not extend vertically through the depth of the joint sealant.
Partial Depth Cohesion Loss	Splitting of the sealant due to elongation which exceeds the tensile strength of the sealant, but the splitting does not extend vertically through the entire sealant depth. May be either tensile failure, or failure due to bubbles contained within the sealant.
Stone Intrusion	The embedment of stones with a diameter greater than 6 mm (0.25 in.) into the seal material such that they are incapable of being easily removed.
Preformed Compression Seals	
Partial Depth Adhesion Loss	Separation of the sealant from one or both edges of the joint, but the separation does not extend through the entire sealant depth.
Partial Depth Spalling	Cracking, breaking, or chipping of a PCC slab from one or both edges within 0.6 m (2 ft) of the joint which does not extend vertically through the depth of the joint sealant.
Stone Intrusion	The embedment of stones with a diameter greater than 6 mm (0.25 in.) into the seal material such that they are incapable of being easily removed.
Surface Extrusion	The neoprene seal distends above the pavement surface as a result of twisting or high placement.

Table 3.1 (continued)

Failures	
Field-Molded Sealants	
Full Depth Adhesion Loss	The sealant has separated completely from one or both edges of the joint, allowing infiltration of moisture and incompressibles.
Full Depth Spalling	Cracking, breaking, or chipping of a PCC slab edge within 0.6 m (2 ft) of the joint that vertically extends below the depth of the joint sealant.
Full Depth Cohesion Loss	The sealant has split vertically through its entire depth allowing infiltration of moisture and incompressibles.
Sunken Seal	Sealant has completely separated from both edges and sunken into the joint leaving a low area that is not watertight.
Preformed Compression Seals	
Full Depth Adhesion Loss	Compression seal has separated completely from one or both walls of the joint, allowing infiltration of moisture and/or incompressibles.
Full Depth Spalling	Cracking, breaking, or chipping of a PCC slab edge within 0.6 m (2 ft) of the joint that vertically extends below the depth of the compression seal.
Twisted/rolled Seal	Condition in which the neoprene seal is twisted, rolled, or turned in the joint leaving the surface edges of the seal at different elevations.
Compression Set	When the neoprene web structure loses its ability to exert outward pressure as a result of being in compression for a very long duration.
Gap	Joint opens wider than the compression seal is able to span, allowing stones to become lodged between the edge of the compression seal and the edge of the joint.
Sunken Seal	Seal has sunken into the joint leaving a low area that is not watertight.

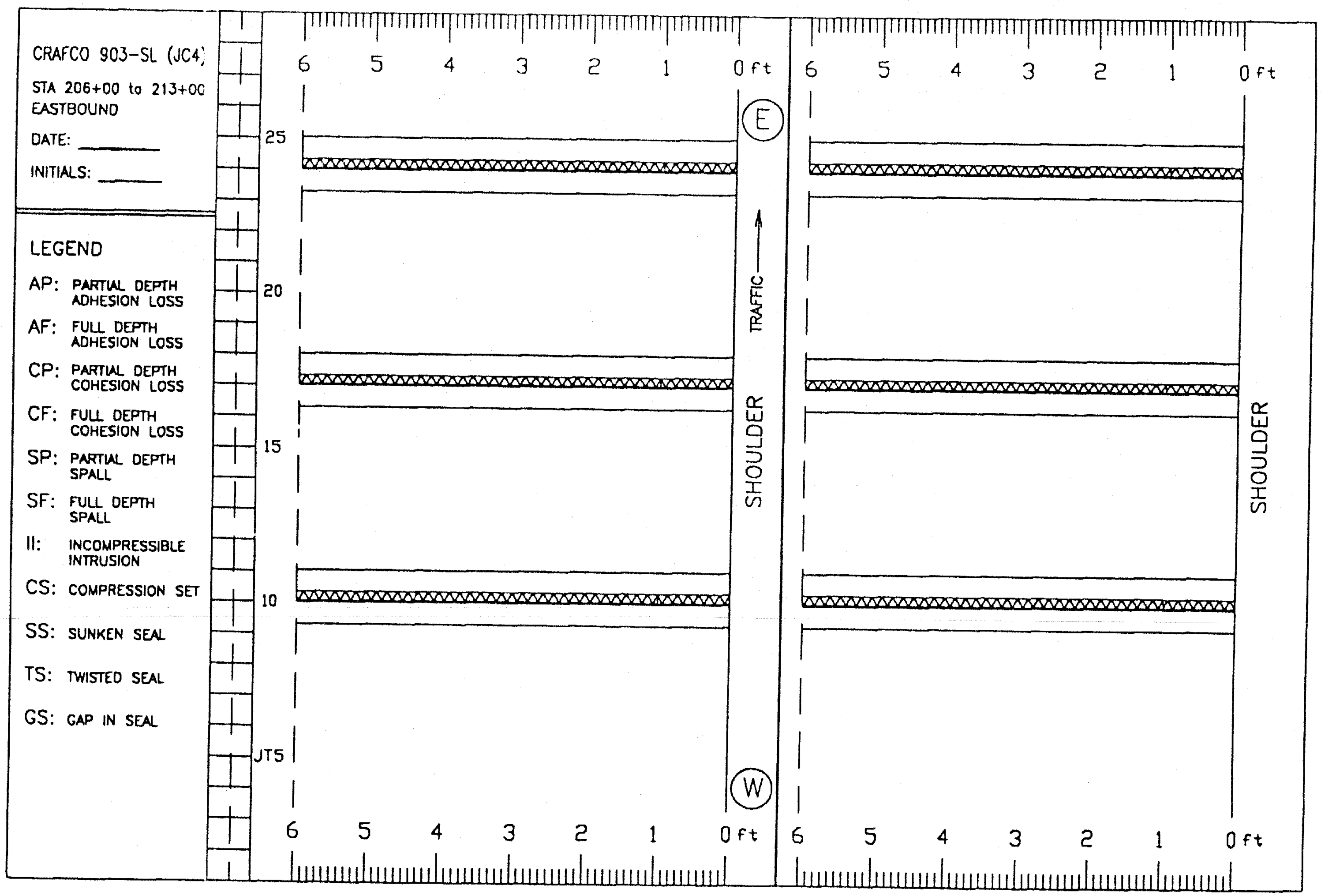


Figure 3.1 Joint sealant evaluation form used during field inspections

4 RECENT PERFORMANCE EVALUATION DATA

4.1 Introduction

In October 2000, June 2001, and October 2001, the University of Cincinnati (UC) research team conducted three joint sealant evaluations in accordance to the quantitative statistical methodology described in the previous Chapter. Six joints, selected randomly, are closely inspected to determine the percentage of the sealant maintaining a water-tight bond with the joint. The evaluation process involves members of the UC research team on their hands and knees examining the sealant and joint using their fingers and a small pocketknife (Figure 4.1). The joints are inspected over a 1.83 m (6.0 ft) length, beginning at the shoulder and proceeding towards the centerline. With the assistance of Ohio Department of Transportation (ODOT) personnel, the driving lane is blocked and traffic is diverted onto the passing lane.

The length of the joint in which the sealant maintained a water-tight bond is divided by the length of the joint measured (1.83 m) and expressed as a percentage, which is referred to as the effectiveness of the sealant. Rating categories, identical to those proposed by Belangie and Anderson (1985), are used to classify the sealants' effectiveness. These categories are provided in Table 4.1.

The findings of the evaluations from the eastbound and westbound lanes are explained in detail in the following sections. When appropriate, comparisons are made between the results of these surveys and two prior evaluations conducted in March 2000 and November 1999, which are described in detail by Sander (2002); the data sets from the latter are code named EBMR00, WBMR00 and EBNV99, WBNV99, respectively. Each sub-section is titled with the name of the sealant, the joint configuration in parentheses, and the stationing interval in brackets. In the case of twin sections, the joint configuration is followed by either an "a" or "b" to distinguish between the two. The treatment evaluations are code-named by their lane direction for the first two letters (EB: eastbound, WB: westbound), and the month and year of the evaluation for the last four digits.

4.2 Fall 2000 Performance Evaluation of the Eastbound Lanes (EBOC00)

The eastbound lanes were surveyed for the third time on Tuesday, October 10, 2000, when the sealants were approximately 35 months old and the pavement had served traffic for 29 months. The survey began at 9:30 a.m. at Station 154+00 and proceeded east. The air temperature was recorded as 8.3°C (47°F) at the early stages of the survey; by the end of the survey (2:15 p.m.), the air temperature had risen to 17.8°C (64°F) under clear skies. The pavement temperature was measured as 9.4°C (49°F) at the beginning of the survey, and 26.1°C (79°F) near the completion of the survey.

4.2.1 Techstar W-050 (5) [Sta 154+00 to 160+00]

The effectiveness of the compression seals in this section has deteriorated by 6%

since the EBMR00 survey. The notation % indicates that performance has decreased from 33 to 27%. The six joints in this section have sunken seals over one-third of the measured length and adhesion failure over 38%. Joints 13, 22, and 26 are by far the worst. Joint 13 has adhesion failure over 95% of the measured span, whereas Joints 22 and 26 experience sunken seal failure over 100 and 93% of the length, respectively. Joints 7, 9, and 11 have no sunken seal failure but averaged 48% adhesion failure.

4.2.2 No Sealant (6) [Sta 160+00 to 166+00]

These unsealed joints are in very good condition; five of the six joints surveyed show no distress. Joint 6 experiences some spalling at two separate locations, totaling 102 mm (4 in.). Joints 6 and 20 opened to a width of 11 mm (7/16 in.) from a nominal width of 6 ± 2 mm (1/4 ± 1/16 in.). A few small incompressibles are noted in all six joints. Some vegetation is growing in Joints 7, 15, and 26, over a total length of 584 mm (23 in.).

4.2.3 Dow 890-SL (3) [Sta 166+00 to 172+00]

The effectiveness of the silicone sealant in this section has deteriorated by 12%, from 68% during EBMR00 to 56% in EBOC00. Joints 22 and 26 have experienced 75 and 80% full-depth adhesion failure, respectively. Joint 25 has some small vegetation growth where the seal has sunk, accounting for 25 mm (1 in.). Joints 5 and 7 have 76 mm (3 in.) and 51 mm (2 in.) of spalling on the lip, respectively. In contrast, during the EBMR00 survey, 102 mm (4 in.) and 51 mm (2 in.) of spalling are recorded for Joints 5 and 7, respectively, suggesting a small inconsistency between successive evaluation crews.

4.2.4 Crafco 444 (1) [Sta 172+00 to 188+00]

This sealant continues to exhibit the lowest effectiveness among the sealants tested. The joints containing this hot-applied sealant are noted to be in very poor condition, achieving an effectiveness rating of only 6%. During the EBMR00 survey, this seal had an effectiveness of 10%, and its deterioration has been 4% since then. Four of the six joints (Joints 31, 40, 44, and 51) currently have an effectiveness of 0%. Joints 5, 31, 40, and 44 each have sunken seal over 30% of the measured length. In Joint 55 over 50% of the seal is completely missing. Some small incompressibles are observed in the portions of the joints where the seal has either sunk into the joint or is completely missing.

4.2.5 Crafco 903-SL (1) [Sta 188+00 to 194+00]

The sealant in these joints is observed to be in very poor condition, having an effectiveness of 48%. This section has lost 4% effectiveness from its previous 52% value, recorded in EBMR00. The six joints surveyed average 47% adhesion failure. Joints 12, 17, and 21 have a combined length of 0.3 m (1 ft) of sunken seal in the joints. Since the EBMR00 survey, Joint 10 has developed some new spalling in the first 51 mm (2 in.) of the joint near the shoulder. No incompressibles are noted in any of the joints.

4.2.6 Watson Bowman 687 (5) [Sta 194+00 to 200+00]

The compression seals in this section have experienced no deterioration since the EBMR00 survey reported by Sander (2002). The effectiveness is, in fact, recorded as 97% in the EBOC00 survey, compared to 95% calculated after the EBMR00 survey. Five of the six joints exhibit no distresses. Joint 23 has 254 mm (10 in.) of the seal missing, but this appears to be the result of poor workmanship rather than deterioration under traffic. Some small incompressibles are noted on top of the seal in all the surveyed joints with the exception of Joint 18.

4.2.7 Crafco 902 (1) [Sta 200+00 to 206+00]

Sealed with non-sag silicone sealant, this section is noted to be in very poor condition. The sealant maintains an effectiveness of 37%, down from 41% measured previously in EBMR00. Individual joints, however, exhibit a wide range of effectiveness. Joints 6 and 11 have failed completely (i.e., exhibit 0% effectiveness) and Joint 8 has an effectiveness of only 5%. These three joints have a combined span of 3.4 m (11 ft) of sunken seal failure, accounting for 62% of the measured length; Joint 6 has 13% of its seal completely missing. In contrast, Joints 16, 19, and 24 has effectiveness ratings of 68, 92, and 58%, respectively.

4.2.8 Crafco 903-SL (4) [Sta 206+00 to 213+00]

The sealants in this section have deteriorated by 18% since the EBMR00 survey. With an effectiveness of only 7%, these silicone-filled joints are observed to be in very poor condition. Joints 8, 10, 15, and 18 exhibit 0% effectiveness, averaging 81% full-depth adhesion and 1% sunken seal failures. Some small vegetation growth is noted in Joint 15 near the shoulder, where the seal has sunk into the joint; sunken seal failure accounts for 23% of this joint's measured length.

4.2.9 Dow 890-SL (4) [Sta 213+00 to 219+00]

Since the EBMR00 survey, these silicone-filled joints have deteriorated the most among all joints surveyed, losing 43% of their effectiveness value. The sealant is observed to be in very poor condition, with an effectiveness of only 13%. Joints 8, 10, and 13 have failed completely, with full-depth adhesion failure accounting for an average of 76% over the span examined. Joints 9 and 24 have effectiveness values of 8 and 10%, respectively. Sunken seal failure is measured over 23% of the length of all six joints surveyed in this section.

4.2.10 No Sealant (2) [Sta 219+00 to 225+00]

The joints in this unsealed section are performing very well. The only distress observed is over a 25-mm (1-in.) segment of Joint 9, where some spalling is noted. This spalling failure has also been noted in both the EBNV99 and EBMR00 surveys and can be attributed to a poor joint cut. At this point, both sides of the joint exhibit spalling failure. All the joints are observed to be clean and tight.

4.2.11 Delastic V-687 (5) [Sta 225+00 to 231+00]

This compression seal has the second highest overall effectiveness among the eastbound sections, maintaining a value of 97%. The seal appears to have gained 2% in effectiveness since the EBMR00 survey, during which an effectiveness of 95% had been recorded. Five of the six joints surveyed exhibit no distresses whatsoever. Joint 15 is observed to have a sunken seal over 15% of the measured length. This may be attributed to poor workmanship during the installation of the seal, as had also been postulated in the previous two surveys (Sander, 2002). A few small incompressibles are noted on top of the seal in Joints 5 and 7.

4.2.12 Crafco 221 (1) [Sta 260+00 to 266+00]

The hot-applied sealants in this section have deteriorated just over 1% since the previous survey; they are observed to be in fair condition with 71% effectiveness. Small bubbles are frequently noted and appear to have contributed to partial-depth cohesion and adhesion failures. In such areas of partial-depth failure, the sealant is still water tight, and its effectiveness rating is not affected. Joints 18, 19, and 25 have effectiveness values of 90, 97, and 98%, respectively. With 38% effectiveness, Joint 8 has some small vegetation growing over 51 mm (2 in.) near the shoulder, where the seal has sunken to the bottom of the joint. Some small incompressibles are also noted on top of the seal. Joint 21 is in very poor condition (27% effectiveness), exhibiting major spalling and corner cracking. The poor appearance of the joint appears to be the result of poor workmanship during the cut. Sealant is present in the corner cracks and in the areas of spalling, confirming that these distresses predate the seal application.

4.2.13 Dow 890-SL (1) [Sta 266+00 to 272+00]

This sealant has an overall effectiveness of 64% and is in poor condition. The silicone-filled joints have deteriorated only 4% since EBMR00. Their effectiveness values range from 52 to 82%. Joints 19 and 23 have seal missing near the shoulder over 51 mm

(2 in.) and 127 mm (5 in.), respectively. In the six joints surveyed, the average full-depth adhesion and sunken seal failures are 27 and 8%, respectively. No incompressibles are observed in the joints.

4.2.14 Dow 888 (1a) [Sta 272+00 to 284+00]

The silicone sealants in this section are very poor, maintaining 41% effectiveness. This is down 9% since the EBMR00 survey, when these sealants were described as poor, and had an effectiveness of 50% (Sander, 2002). Full-depth adhesion and sunken seal failures are equally responsible for the loss in effectiveness recorded; no spalling is observed. A small area of incompressibles is noted in Joint 52, whereas the remaining joints contain no incompressibles.

4.2.15 Dow 888 (1b) [Sta 284+00 to 290+00]

The last section of the eastbound lanes is in very poor condition, with an average effectiveness of 41%. These silicone sealants have lost 8% effectiveness since the previous survey, when an effectiveness of 49% had been noted. No spalling is observed in this section either. All of the effectiveness loss is attributed to full-depth adhesion and sunken seal failures, which total 44 and 15% of the measured length, respectively. Effectiveness values range from 13% in Joint 12, to 97% in Joint 26. Some small incompressibles are noted in Joint 12, where the seal has sunken into the joint. No incompressibles are observed in the rest of the joints.

4.3 Spring 2001 Performance Evaluation of the Eastbound Lanes (EBJN01)

The eastbound lanes were surveyed for the fourth time on Monday, June 4, 2001, when the sealants were 43 months old and the pavement had served traffic for 37 months. The survey began at 8:00 a.m. at Station 154+00 and proceeded eastward; the air temperature at this time was 13.3°C (56°F) under sunny skies. By 1:40 p.m., when the survey ended, the air temperature had only risen to 18.9°C (66°F) due to cloudy conditions. The pavement temperature was measured as 16.1°C (61°F) at the beginning of the survey and 25.6°C (78°F) near the completion of the survey, although temperatures up to 29.4°C (85°F) were recorded during the course of the survey.

4.3.1 Techstar W-050 (5) [Sta 154+00 to 160+00]

The seals in this section have the worst performance among the compression seals and nearly the worst one overall, maintaining only 22% effectiveness. These sealants also have the highest deterioration at 5% since the last inspection. Joints 22 and 26 have failures over 100% of the measured length of the joint. In these two joints, the seal is sunken for 1.73 and 1.70 m (5.7 and 5.6 ft.) of the measured length, respectively. Joints 7, 9, and 13 have adhesion failure over 1.40, 1.35, and 1.37 m (4.6, 4.4, and 4.5 ft.) of their respective measured lengths. Several of the joints inspected have large amounts of sand and gravel in their joints.

4.3.2 No Sealant (6) [Sta 160+00 to 166+00]

These unsealed joints are in very good condition; five of the six joints surveyed show no distress. Joint 6 exhibits some minor spalling at two separate locations, totaling 127 mm (5 in.). Joint 20 has small longitudinal cracks forming near the middle of the measured joint length. Most of the joints have large amounts of sand and gravel at their bottoms. Joints 7, 15, and 26 have some vegetation growing in them. Joint 15 is open to a width of 11 mm (7/16 in.) from a nominal width of 6 ± 2 mm (1/4 ± 1/16 in.).

4.3.3 Dow 890-SL (3) [Sta 166+00 to 172+00]

The silicone filled joints in this section are found to be in poor condition, maintaining only 62% effectiveness. Joints 25 and 26 have a combined span of 178 mm (7 in.) over which the sealant is completely missing. Joints 5, 7, and 13 are in relatively good condition, with only a combined loss of adhesion of 762 mm (30 in.), whereas Joints 22, 25, and 26 have a combined adhesion loss of 2.96 m (9.7 ft.).

4.3.4 Crafco 444 (1) [Sta 172+00 to 188+00]

This sealant continues to exhibit the lowest effectiveness among those tested. The joints containing this hot-applied sealant are in very poor condition, with an effectiveness rating of only 11%. Joints 40 and 51 have 0% effectiveness, and Joint 44 is only 3% effective. These three joints have a combined total of 2.77 m (9.1 ft.) of their sealants completely missing. Joint 40 is found with its backer rod protruding, and with large amounts of sand and gravel in its place. In all the joints, the sealant is very brittle and large pieces of the sealant are found along the shoulder. A 102 mm (4 in.) spall, 13 mm (½ in.) deep, is found in Joint 12. A random measurement indicates that Joint 31 is 11 mm (7/16 in.) wide, a value that is within the nominal width dimensions of 10 ± 2 mm (3/8 ± 1/16 in.).

4.3.5 Crafco 903-SL (1) [Sta 188+00 to 194+00]

This silicone sealant averaged 63% effectiveness, indicating that it is in poor condition. Joints 10 and 21 have a combined 279 mm (11 in.) of their sealant missing. These two joints also have 102 mm (4 in.) of spalling failures, measuring 6 mm (1/4 in.) and 10 mm (3/8 in.) deep, respectively. Joints 12 and 21 exhibit rare cohesion failures, accounting for 102 mm (4 in.) of measured length. Joint 17 has a width of 13 mm (½ in.), which is wider than the nominal 10 ± 2 mm (3/8 ± 1/16 in.). In all the joints, the measured failures are intermittent rather than continuous. No incompressibles are noted in any of the joints.

4.3.6 Watson Bowman 687 (5) [Sta 194+00 to 200+00]

The compression seals in this section remain the most effective sealant treatment, being 95% effective and losing only 3% since EBOC00. Joints 6 and 7 have no distresses at all. Joints 9 and 18 have two spalls accounting for 51 mm (2 in.); both are only 6 mm (1/4 in.) deep. Joint 23 has 152 mm (6 in.) of adhesion failure, but this seems to be the result of a poor cut. One half of the joint is cut wider than the other half, and instead of a smooth transition between the two widths there is a sudden sharp change, making it difficult for the seal to conform to the edge. At this transition point, the wider portion of the joint is measured at a remarkable 22 mm (7/8 in.). No incompressibles are noted in any of the joints.

4.3.7 Crafco 902 (1) [Sta 200+00 to 206+00]

This non-sag silicone sealant maintained nearly all of its effectiveness since the previous survey, losing only 1%. The section remained in very poor condition, however, achieving only 36% effectiveness. Most of the sealants suffer from sunken seal failure, which measures a total of 4.54 m (14.9 ft.) of the 10.97 m (36 ft) measured length. In many of the joints, the sealant wavers as it loses and gains adhesion. Joints 6 and 24 have 483 mm (19 in.) of their sealants completely missing. No incompressibles are noted in any of the joints.

4.3.8 Crafco 903-SL (4) [Sta 206+00 to 213+00]

These sealants are found in poor condition with an effectiveness of 56%. This comes as a surprise since they had been only 7% effective during the last survey, EBOC00. Such a dramatic rise in effectiveness is observed in other sections with joint configuration No. 4 as well and will be explained subsequently. Half on the joints, namely, Joints 5, 15, and 18, have portions of their sealants missing, totaling 279 mm (11 in.). Joints 5, 8, and 10 each have a small spalling failure on their edge, measuring no more than 13 mm (½ in.) deep. No incompressibles are noted in any of the joints.

4.3.9 Dow 890-SL (4) [Sta 213+00 to 219+00]

Between EBMR00 and EBOC00, this section had the largest decrease in effectiveness (43%), yet since EBOC00 this section has had the largest increase in effectiveness (53%). This silicone section has gone from very poor in EBOC00 to a fair rating in EBJN01, currently having an effectiveness value of 65%. No missing sealant or spalling failures are observed in the joints. These sealants have predominantly sunken seal failures, accounting for 3.35 m (11.0 ft.) of the total 3.84 m (12.6 ft.) measured length of failures. Joint 13 has a small spall failure measuring 51 mm (2 in.) long and 13 mm (½ in.) deep. A randomly measured joint width of 3 mm (1/8 in.) in Joint 8 is found to be within the nominal dimension range.

4.3.10 No Sealant (2) [Sta 219+00 to 225+00]

Two spalling failures are found in this section, one in each of Joints 9 and 18. The spall in Joint 18 is 25 mm (1 in.) long and 10 mm (3/8 in.) deep, while the spall in Joint 9 is 25 mm (1 in.) long and 32 mm (1 1/4 in.) deep. Joint 9 is found to have some incompressibles lodged in it, as well. Most of the other joints found in this section are relatively clean, with just a few small incompressibles found at their bottom.

4.3.11 Delastic V-687 (5) [Sta 225+00 to 231+00]

This compression seal has the second highest overall effectiveness in the eastbound lanes, maintaining a value of 94%. Three of the joints exhibit no sealant failures whatsoever. Joints 9, 10, and 15 have a combined length of 559 mm (22 in.) over which the seal has sunken into the joint. Joints 10 and 15 have some minor spalling failures, measuring 25 and 51 mm (1 and 2 in.), respectively. These two joints have maximum widths of 16 and 14 mm (5/8 and 9/16 in.), respectively, which are outside the nominal dimensions of 10 mm ± 2 mm (3/8 in. ± 1/16 in.). A few small incompressibles are noted on top of the seal in Joint 5.

4.3.12 Crafco 221 (1) [Sta 260+00 to 266+00]

The hot-applied sealants in this section have maintained their fair rating, gaining, in fact, nearly 5%. Joints 18, 19, and 25 are in very good condition, maintaining effectiveness values of 97, 98, and 95%, respectively. Joint 25 has a very small spalling failure. Joints 4 and 8 exhibit rare cohesion failures, each measuring 102 mm (4 in.). Joint 21 is badly cut and has 965 mm (38 in.) of spalling failure, as well as 178 mm (7 in.) of adhesion failure. Joints 18 and 19 have partial adhesion and cohesion failures over nearly their entire measured length, attributable to bubbles in the sealant. No incompressibles are noted in any of the joints.

4.3.13 Dow 890-SL (1) [Sta 266+00 to 272+00]

Averaging 79.7% effectiveness, these silicone sealants are in fair condition. During the last survey, they were found to be in poor condition, with an effectiveness of 64%. Joints 18, 19, and 23 have sealants missing over a combined length of 279 mm (11 in.). Joints 8, 12, and 23 have sunken seal failure over 51, 356, and 152 mm (2, 14, and 6 in.), respectively. Joint 17 has a remarkable 406 mm (16 in.) of full-depth cohesion failure. The rest of the effectiveness loss is attributed to adhesion failure. Joint 23 has a measured width of 16 mm, which is more than the nominal width of 10 mm ± 2 mm (3/8 in. ± 1/16 in.). Two very small longitudinal cracks are beginning to form at the edges of Joints 17 and 18. No incompressibles are noted in any of the joints.

4.3.14 Dow 888 (1a) [Sta 272+00 to 284+00]

This silicone sealant section is in poor condition, maintaining 56% effectiveness. During the last survey, these sealants had only a 41% effectiveness value. With the exception of Joint 4, every joint had sunken seal failure, which totaled 3.75 m (12.3 ft.). Joint 52 experiences sunken seal failure over nearly its entire measured length or 1.63 m (5.3 ft.). Joint 4 is in very good condition (95%), but is the only joint to have part of its sealant missing. Joint 20 has 102 mm (4 in.) of cohesion failure. A small spalling failure measuring 25 mm (1 in.) long and 6 mm (1/4 in.) deep is found in Joint 10. Joint 20 has a width of 13 mm (½ in.), slightly wider than its nominal width.

4.3.15 Dow 888 (1b) [Sta 284+00 to 290+00]

The last section of the eastbound lanes is in poor condition, with an average effectiveness of 61%. Like its twin in the previous section, this silicone sealant has improved its effectiveness rating; in this case by 20%. Every joint has experienced some adhesion failure, ranging from 25 mm (1 in.) in Joint 26, to 914 mm (36 in.) in Joint 20. The aforementioned Joint 26 is in very good condition, maintaining 98% effectiveness. Joint 12 is in very poor condition with 1.42 m (4.7 ft.) of sunken seal failure. Joints 4, 5, and 13 have 102, 152, and 203 mm (4, 6, and 8 in.) of sunken seal failure, respectively. Joint 4 has a measured width of 13 mm (½ in.), which is wider than the nominal width. No incompressibles are noted in any of the joints.

4.4 Fall 2001 Performance Evaluation of the Eastbound Lanes (EBOC01)

On Monday, October 15, 2001, the fifth and final test site evaluation for the eastbound lanes was conducted. The sealants are nearly four years old and the pavement has served traffic for 3 1/3 years. The survey began at 8:45 a.m. under partly cloudy skies and an air temperature of 6.7°C (44°F); it was concluded at 2:45 p.m. under sunny skies and an air temperature of 18.3°C (65°F). Pavement temperatures ranged from 7.2°C (45°F) at the beginning of the day to 27.8°C (82°F) at the end. The University of Cincinnati research team began the inspection at Station 154+00, proceeded eastward and finished at Station 290+00. The stretch corresponding to the location of the batch plant and of the headquarters of the project contractor (*Kokosing Construction Company, Inc.*), an area of intense and heavy truck traffic (Stations 231+00 to 260+00), was not included in the evaluation. The paragraphs below give general descriptions of the sealants' condition.

4.4.1 Techstar W-050 (5) [Sta 154+00 to 160+00]

These sealants remain the worst of the pre-formed compression seals, maintaining only 19% effectiveness, which is down 3<u>%</u> from the previous survey (June 2001). Two of the joints, 22 and 26, have failure over 100% of their measured length. Most of their failure is attributed to sunken seal, accounting for 94 and 93%, respectively. The remaining four joints have mostly adhesion failure. Large incompressibles are found on top of all the joints, and some small vegetation growth is seen in Joint 7. Joint 26 has a measured width of 13 mm (½ in.), which is larger than the nominal width of 10 ± 2 mm (3/8 ± 1/16 in.).

4.4.2 No Sealant (6) [Sta 160+00 to 166+00]

These unsealed joints are in very good condition; five of the six joints surveyed show no distress. Joint 6 has some minor spalling at two separate locations, totaling 51 mm (2 in.). Most of the joints have large amounts of sand and gravel at their bottom. Joints 7, 15, and 26 have small amounts of vegetation growing in them. They also had vegetation in them during the last survey. Joint 6 has opened to a width of 11 mm (7/16 in.) from a nominal width of 6 ± 2 mm (1/4 ± 1/16 in.).

4.4.3 Dow 890-SL (3) [Sta 166+00 to 172+00]

These silicone sealants have lost only 5% since the previous survey, but remain in poor condition with an effectiveness value of 57%. Joints 5, 7, and 13 are in good condition (>80%), but the remaining joints, 22, 25, and 26, are less than 40% effective. Nearly all of the failure in this section is attributed to loss of adhesion. Joint 26 has a 25-mm (1-in.) spalling failure. A random measurement of the width of this joint found it to be within its nominal specification.

4.4.4 Crafco 444 (1) [Sta 172+00 to 188+00]

For the fifth consecutive evaluation, the sealants in this section have the lowest effectiveness values in the eastbound lanes. These hot-poured sealants deteriorated 2% to 9% since the previous survey. Two joints, 40 and 44, are 0% effective, and Joints 31 and 51 are only 3 and 7% effective, respectively. The sealants are dry, hard, and brittle, which prevents them from maintaining a bond with the joint wall. Parts of the sealant can be found along the shoulder of the highway. Joints 40, 44, and 51 have missing sealant over a total of 2.90 m (9.5 ft.) of the length inspected. At these locations, the joint is filled with sand and gravel.

4.4.5 Crafco 903-SL (1) [Sta 188+00 to 194+00]

This silicone filled section has lost only 5% since the previous survey, but remains in poor condition with an effectiveness value of 58%. Most of the failure comes from small incremental losses of adhesion, which account for 91% of the length inspected. Joints 10 and 21 have a total of 279 mm (11 in.) of missing sealant. Joint 17 has a joint width of 13 mm (½ in.), which is more than the nominal width of 10 ± 2 mm (3/8 ± 1/16 in.). No incompressibles are noted in any of the joints.

4.4.6 Watson Bowman 687 (5) [Sta 194+00 to 200+00]

These compression seals are no longer the single most effective sealant treatment, as they now share that title with the Delastic V-687 (5) section: both sections have effectiveness values of 94%. The Watson Bowman 687 (5) section has three joints (6, 7, and 9) with no failures whatsoever. Joint 12 is nearly failure free, with only 25 mm (1 in.) of adhesion failure. Joint 23 has some small vegetation growth where the sealant has sunken into the joint. At one location, this joint has been either cut or expanded to a width of 22 mm (7/8 in.); 203 mm (8 in.) of adhesion failure is found here. There is some minor spalling in Joint 18, accounting for 25 mm (1 in.). No incompressibles are found in any of the joints.

4.4.7 Crafco 902 (1) [Sta 200+00 to 206+00]

This section is only 31% effective but has lost only 5% since the previous survey. Two of these non-sag silicone filled joints, 6 and 11, have failed over at least 95% of the length inspected. Most of the failures are attributed to sunken seal in this section. No incompressibles are noted in any of the joints.

4.4.8 Crafco 903-SL (4) [Sta 206+00 to 213+00]

These sealants have by far the largest amount of deterioration (44%) and currently average 12% effectiveness. Joint 5 has failed over its entire length and Joint 8 is only 3% effective. The remaining joints range in effectiveness from 13 to 23%. Several of the joints have rough lips, probably due to their narrow joint width. A random measurement of Joint 13 found its width to be 6 mm (1/4 in.), which is larger than the nominal range of 3 mm ± 2 mm (1/8 in. ± 1/16 in.). Because the joint is completely filled with the sealant, no incompressibles are found in it.

4.4.9 Dow 890-SL (4) [Sta 213+00 to 219+00]

This is another section with the narrow No. 4 joint configuration; it has lost a significant amount of effectiveness (23%) since the previous survey. Effectiveness values varied widely from 32% in Joint 24 to 77% in Joint 25. Sunken seal and adhesion failures account for all loss of effectiveness in this section. Some vegetation growth is observed in Joint 24 near the shoulder. No incompressibles are found in these joints.

4.4.10 No Sealant (2) [Sta 219+00 to 225+00]

There are several small spalling failures in this unsealed section. Joints 9, 12, 18, and 25 each have 25-mm (1-in.) spalls on their edges. No incompressibles or vegetation growth is found in this section. Joint 18 has a joint width of 3 mm (1/8 in.), which is within the nominal range for this joint configuration.

4.4.11 Delastic V-687 (5) [Sta 225+00 to 231+00]

This sealant continues to average a high effectiveness value (94%); no effectiveness has been lost since the previous survey. Joints 7, 9, and 20 have no failures whatsoever. Joints 10 and 15 have a combined length of 508 mm (20 in.) over which the seal has sunk, but this is probably the result of poor installation. A few small incompressibles are noted on top of the seal in Joint 9; no other joint has incompressibles observed in them.

4.4.12 Crafco 221 (1) [Sta 260+00 to 266+00]

These hot-applied sealants essentially maintain their original effectiveness value of 79% measured two years earlier during the EBNV99 survey. Joint 19 is 100% effective, while Joints 4, 18, and 25 are all over 95% effective. Joint 21 is the result of a bad cut and has spalling failures over 60% of its measured length.

4.4.13 Dow 890-SL (1) [Sta 266+00 to 272+00]

The sealants in this section are in fair condition with an effectiveness value of 71%. All of the joints are performing very similarly. With the exception of Joint 18, all the joints range in effectiveness from 67 to 70%; Joint 18 is 88% effective. About half of the effectiveness loss is attributed to adhesion failure. Joints 18, 19, and 23 have a combined measured length of 330 mm (13 in.) of missing sealants. Joint 17 has a rare cohesion failure, measuring 406 mm (16 in.) in length. It appears that the sealant has corroded at this point. No incompressibles are found in any of these joints.

4.4.14 Dow 888 (1a) [Sta 272+00 to 284+00]

The first of two identical silicone sections in this stretch is in very poor condition, achieving only 47% sealant effectiveness. Joints 45 and 52 have 1.52 m (5.0 ft) and 1.65 (5.4 ft.) of sunken seal failure, respectively. Joints 10 and 20 combine for 1.50 m (4.9 ft.) of sunken seal failure. Joint 4 has 127 mm (5 in.) of its sealant missing and Joint 21 has 813 mm (32 in.) of adhesion failure. No incompressibles are noted in these joints.

4.4.15 Dow 888 (1b) [Sta 284+00 to 290+00]

The second Dow 888 section continues to perform like its identical twin. It is 49% effective, losing 12% since the previous survey. Sealant effectiveness values range from 5% in Joint 12 to 90% in Joint 26. Loss of adhesion accounts for 53% of the failures, while sunken seal contributes 43%. Joint 5 has 203 mm (8 in.) of its sealant missing. A random measurement of Joint 4 found its width to be within the tolerances for the No. 1 joint configuration. No incompressibles are found in these joints.

4.5 Fall 2000 Performance Evaluation of the Westbound Lanes (WBOC00)

The westbound lanes were surveyed for the third time on Wednesday, October 11, 2000, when the sealants were approximately 22 months old and the pavement had served traffic for 17 months. The hot-applied sealants were not installed until 4 months after the others and are that much younger. The survey began at approximately 8:00 a.m. at Station 133+60 and proceeded eastward. The weather was unseasonably cold that morning, with an air temperature of -1.7°C (29°F). This rose to 21.7°C (71°F) by the end of the survey, approximately at 1:30 p.m., under clear skies.

4.5.1 Techstar W-050 (5) [Sta 133+60 to 138 +60]

The compression seals in this section have deteriorated much more rapidly than any of the westbound sections since the previous survey, earning the lowest effectiveness rating of 27%. At the time of WBMR00, the seals had been noted to be in fair condition, with an effectiveness of 70%. Joints 22 and 25 have full-depth adhesion failure of 92 and 100%, respectively. The four other joints average 62% effectiveness. All failures in this section are attributed to full-depth adhesion failure; no sunken seals or spalling failures are encountered. Many incompressibles are observed in all joints in this section.

4.5.2 No Sealant (2) [Sta 139+60 to 166+00]

This section is observed to be in very good condition. Joints 37, 46, 84, and 106 have no visible distresses. Small vegetation growth is observed in Joint 84 over a length of 51 mm (2 in.). Joints 50 and 60 are each observed to have 25 mm (1 in.) of spalling on their leave-sides. These spalling distresses were not recorded in the previous survey. An interesting observation is made in Joint 37: during the WBMR00 survey, a 25-mm (1-in.) spalling failure had been noted, yet during WBOC00 no spalling failure is observed. As long as such inconsistencies are small and infrequent, they have no significant repercussions.

4.5.3 Dow 890-SL (3) [Sta 166+00 to 172+00]

The silicone sealants in this section exhibit essentially no deterioration, averaging 99.7% effectiveness; during the WBMR00 survey, an effectiveness of 99.4% had been measured. Five of the six joints surveyed currently have no distresses. Three of these five joints, however, Joints 11, 15, and 18, have corner breaks, but these do not affect sealant effectiveness since the sealant maintains its water-tight bond with the joint. Joint 10 is the only joint that exhibits some form of sealant distress: it has 25 mm (1 in.) of full-depth adhesion failure.

4.5.4 Crafco 221 (1) [Sta 172+00 to 188+00]

These hot-applied sealants are in very poor condition, maintaining only 46% effectiveness. This is down 4% since the WBMR00 survey, when the section had an effectiveness rating of 50%. The sealant effectiveness varies widely, from zero to 95%. Full-depth adhesion failure occurs over the entire measured length of Joint 22; Joint 40 experiences only 5% full-depth cohesion failure. Joints 60 and 68 have 10 and 8% effectiveness, respectively. Joints 56 and 70 have effectiveness values of 92 and 72%, respectively. Several of the seals are noted to have small bubbles, which account for some partial-depth cohesion loss. These bubbles are also noted in the WBNV99 survey, six months after the installation of the sealant (Sander, 2002).

4.5.5 Crafco 903-SL (1a) [Sta 188+00 to 194+00]

The six silicone sealants evaluated in this section are 98% effective during this survey (WBOC00), whereas during the WBMR00 evaluation they had been only 95% effective. Small differences like this may be considered insignificant, arising from inevitable discrepancies in the rating practices of individual research team members. Joints 4 and 5 have no distresses, and the four other joints (Joints 10, 14, 25, and 26) average 97% effectiveness. Joint 26 has experienced spalling in a 51-mm (2-in.) area, as previously reported in the WBMR00 survey (Sander, 2002). No incompressibles are observed in any of the joints.

4.5.6 Crafco 903-SL (1b) [Sta 194+00 to 200+00]

The silicone sealants in this section have not performed nearly as well as those in their previously discussed twin section. The sealants in this section may be described as fair, with 79% effectiveness, up 2% from 77% measured during the WBMR00 survey. Joint performance ranges from 60% (Joint 26) to 98% (Joint 12). Joint width measurements were randomly taken in Joints 12 and 18, whose widths are both 11 mm (7/16 in.), a value within the specified range for this joint configuration, i.e., 10 mm ± 2 mm (3/8 in. ± 1/16 in.). Joint 26 has a measured width of 16 mm (5/8 in.), which is well outside the corresponding specification, suggesting an expansion of the joint. Joint 10 has a spalling failure measured over 51 mm (2 in.). During the WBMR00 survey, spalling has been observed in Joint 10, as well as in Joints 12 and 26. The latter two joints had been noted as having 203 mm (8 in.) of spalling, but this is not observed in the WBOC00 survey. This discrepancy accounts for the apparent 2% improvement in effectiveness between the two surveys noted above.

4.5.7 Dow 890-SL (1) [Sta 200+00 to 206+00]

The joints in this silicone filled section are performing very well, achieving 97% effectiveness. The sealants have deteriorated only 1% since the WBMR00 survey. Three of the joints (Joints 5, 17, and 24) sustain no distresses over the entire measured length. Joints 4, 9, and 25 have 88, 98, and 97% effectiveness, respectively. Some small incompressibles are noted on top of the seal in Joint 9; no other incompressibles are observed in the section. Joints 4 and 25 have experienced some spalling failure at the joint lips. Only the spalling in Joint 25 had been observed in the WBMR00 survey, as well.

4.5.8 Crafco 444 (1) [Sta 206+00 to 213+00]

These hot-applied sealants are 96% effective, and may be described as very good. Observations in this section suggest the highest effectiveness increase, up 7% since the previous survey. Consequently, the rating description changes from good during the WBMR00 survey, to very good during WBOC00. Most of the difference in effectiveness is attributed to Joints 18 and 25, in which 787 mm (31 in.) and 279 mm (11 in.), respectively, of adhesion failure were noted during WBMR00, yet during WBOC00 there was only 559 mm (22 in.) and 0 mm (0 in.). The field logs for WBOC00 note that these joints have partial-depth adhesion failure over much of their sealants. Recall that this type of sealant distress does not count towards loss of effectiveness.

Four of the six joints surveyed (Joints 4, 21, 24, and 25) suffer from no distresses. Joint 18 has corner breaks on both sides of the joint at the shoulder, yet it maintains 90% effectiveness with failures in the form of full-depth adhesion failure. Some small incompressibles are noted on top of the seal in Joints 4, 21, 24, and 28.

4.5.9 Dow 888 (1a) [Sta 213+00 to 219+00]

The silicone sealant in this section maintains 96% effectiveness, achieving a very good condition rating. The joints examined have deteriorated only 3% since the previous survey when they were 99% effective. Every joint surveyed has an effectiveness value above 90%; Joint 18 has no recorded distresses. On its approach side, Joint 21 suffers from a spalling failure, which had not been observed in previous surveys.

4.5.10 Delastic V-687 (5) [Sta 219+00 to 225+00]

These compression seals may be described as being in very good condition. They achieve an effectiveness of 99%, which represents an increase of 3% compared to the value of 96% recorded during the WBMR00 survey. Four of the six joints examined have no recorded distresses; these are Joints 8, 10, 18, and 22. The two other joints (Joints 9 and 13) are 93 and 98% effective, respectively. Joint 13 has spalling failure for a measured length of 25 mm (1 in.) on the approach side of the joint; during WBMR00, a gap in the seal was observed, instead. It is apparent that spalling occurred after the WBMR00 survey, as a result of the missing seal. Some small incompressibles are noted on top of the seal in Joints 8, 9, and 13.

4.5.11 Watson Bowman 812 (5) [Sta 225+00 to 231+00)]

No distresses are observed in any of the joints examined and, therefore, this compression seal section achieves a remarkable 100% effectiveness. The same observation had been made in the WBMR00 survey, as well. Joints 19 and 24 are noted to have some small incompressible intrusions, although there are no distresses. The other joints have small incompressibles lying on the top of the seals. Joint 7 has a measured width of 13 mm (½ in.), which is greater than the nominal width of 10 ± 2 mm (3/8 ± 1/16 in.).

4.5.12 Dow 888 (1b) [Sta 260+00 to 266+00]

These silicone sealants have sustained no deterioration since the previous survey, achieving 98% effectiveness. The sealants in Joints 8 and 24 show no distress. The remaining four joints maintain at least 95% effectiveness. Joints 12, 15, and 21 have 25 mm (1 in.) of spalling failure each. The spalling in Joint 12 had been noted in the WBNV99 and WBMR00 surveys, as well, and can be attributed to a poor initial cut. In contrast, the spalling in Joints 15 and 21 is more recent, since no previous mention of it has been made. No incompressibles are observed in any of the joints surveyed.

4.5.13 Crafco 903-SL (4) [Sta 266+00 to 272+00]

The silicone sealants in this section may be described as being in very good condition, having 91% effectiveness. This is up 2<u>%</u> since the WBMR00 survey, when these sealants had been 89% effective and had been described to be in good condition. The recorded increase in effectiveness is insignificant, yet the apparent improvement in rating description may influence an engineer's perception of sealant performance.

The six joints in this section average 8% adhesion failure, the remaining 1% effectiveness loss being due to sunken seal and spalling distresses. Joints 8 and 14 each show 25 mm (1 in.) of spalling over their measured length. Both spalling incidents are recent, occurring since WBMR00. The width of Joint 8 is measured to be 6 mm (1/4 in.), which is larger than the joint's specified cut configuration of 3 ± 2 mm (1/8 ± 1/16 in.). No incompressibles are observed in any of the joints examined.

4.5.14 Dow 890-SL (4) [Sta 272+00 to 284+00]

The silicone sealants in these joints have lost 29% effectiveness since the WBMR00 survey. Following WBOC00, the sealants may be described as poor, being 57% effective. Full-depth adhesion and sunken seal failures account for 34 and 8% loss of effectiveness, respectively; the remaining 1% is due to spalling. Joint 7 causes some concern to the survey team. This joint is in very poor condition, having only 13% effectiveness. The dismal appearance of this joint is evidently the result of very poor workmanship. As noted in previous surveys (Sander, 2002), severe spalling, sunken seal, and full-depth adhesion failures are evident. The width of the joint varies from 0 mm (0 in.) to 32 mm (1 ¼ in.), whereas the nominal width of the joint is 3 ± 2 mm (1/8 ± 1/16 in.). The remainder of the joints average 27 and 7% loss of effectiveness due to full-depth adhesion and sunken seal failures, respectively. No incompressibles are observed in any of the joints surveyed.

4.5.15 No Sealant (6) [Sta 284+00 to 290+00]

Five of the six joints examined show no distresses. Joint 20 suffers from 25 mm (1 in.) of spalling over its measured length, as reported in the previous survey, as well. Some small vegetation growth is observed in Joints 7, 12, 20, and 21, accounting for 4% of the measured length. Several small incompressibles are observed at the bottom of all the joints examined.

4.6 Spring 2001 Performance Evaluation of the Westbound Lanes (WBJN01)

The westbound lanes were surveyed for the fourth time on Tuesday, June 5, 2001, when the sealants were 30 months old and the pavement had served traffic for 25 months. Recall that the hot-applied sealants are 4 months younger than the other sealants due to a later installation date. The survey began at approximately 8:05 a.m. at Station 133+60 and proceeded eastward. Under partly cloudy skies, the air temperature was recorded at 16.7°C (62°F), whereas the pavement temperature was slightly higher, at 17.8°C (64°F). With variable cloudiness throughout the day, the air temperature was 23.9°C (75°F) when the survey was concluded, at approximately 1:30 p.m. The pavement temperature, warmed by periods of clear skies, had risen to a maximum of 31.7°C (89°F).

4.6.1 Techstar W-050 (5) [Sta 133+60 to 138 +60]

These compression seals are the worst performing sealants in the westbound lanes and have also deteriorated more than any other section since the last survey. This section has an average effectiveness of 14%, down 13% from the previous survey. Joints 23 and 25 have failed completely and Joint 22 is only 3% effective. Joint 23 even has some small vegetation growth in it. The majority of the failure comes in the form of adhesion loss, which combines to 3.44 m (11.3 ft.). Joints 5 and 15 each have 25 mm (1 in.) long spalling failures. Many incompressibles are noted in some of the joints.

4.6.2 No Sealant (2) [Sta 139+60 to 166+00]

This section is observed to be in very good condition. No spalls are noted in any of the joints, although Joint 50 and 60 are observed to have very rough lips, which may appear as minor spalling. Joints 37 and 46 are found to be nearly filled to the surface with sand and fine gravel. No vegetation growth is noted in any of the joints.

4.6.3 Dow 890-SL (3) [Sta 166+00 to 172+00]

These silicone sealants remain in very good condition, maintaining 98% effectiveness and losing only less than 2% effectiveness since the previous survey. Four of the six joints have no distresses (Joints 7, 11, 15, and 18). Joint 10 has 152 mm (6 in.) of adhesion failure and Joint 22 has 104 (4 in.) of sunken seal failure. Joints 11 and 18 have corner breaks measuring 610 x 152 mm (24 x 6 in.) and 76 x 51 mm (3 x 2 in.), respectively, but these corner breaks do not count against effectiveness values. In most of the joints, the sealant is found to be near or at the surface of the pavement, yet no failures are occurring at these locations, which is remarkable.

4.6.4 Crafco 221 (1) [Sta 172+00 to 188+00]

These hot-applied sealants averaged 58% effectiveness, up 12% from the last survey. This apparent rise in effectiveness improved the rating category from very poor to poor. The bond between the sealant and joint wall is very weak. When inspecting the sealant, it is very easy to break the bond, which makes it very difficult to distinguish between full- or partial-depth adhesion loss. This may be the cause of the apparent increase in effectiveness.

Joints 60, 68, and 70 have 203, 432, and 203 mm (8, 17, and 8 in.) of sunken seal failure, respectively. Joint 60 has 330 mm (13 in.) of its sealant missing. Joint 22 has full-depth adhesion loss over nearly all of its length. All of the joints have small bubbles in their sealants; the sealants are also brittle. No spalls or incompressibles have been observed in any of the joints.

4.6.5 Crafco 903-SL (1a) [Sta 188+00 to 194+00]

The six silicone sealants evaluated in this section remain in very good condition. They have only lost 2% effectiveness since the last survey, giving them a 96% effectiveness value. The joints have a combined 279 mm (51 in.) of adhesion failure. Joint 14 has two 25 mm (1 in.) long spalling failures, measuring no more than 13 mm (½ in.) deep. Joint 26 has a 51 mm (2 in.) long spalling failure, also less than 13 mm (½ in.) deep. Joint 5 is the only joint suffering from sunken seal failure, with only 25 mm (1 in.) measured. No incompressibles are observed in any of the joints.

4.6.6 Crafco 903-SL (1b) [Sta 194+00 to 200+00]

The silicone sealants in this duplicate section have not deteriorated very much either, but continue to perform inferior to their counterparts in the previous section. The sealants have lost less than 1% effectiveness, but are still only 79% effective. Joints 18 and 24 have 152 mm (6 in.) and 51 mm (2 in.) of sunken seal failure, respectively. Both Joints 10 and 26 have 51 mm (2 in.) long spalling failures measuring no more than 6 mm

(1/4 in.) deep. Joint 12 has no sealant failures whatsoever. No incompressibles are observed in any of the joints.

4.6.7 Dow 890-SL (1) [Sta 200+00 to 206+00]

The joints in this silicone filled section are performing very well, achieving 97% effectiveness. The sealants have deteriorated less than 1% since the WBOC00 survey. Joints 9 and 17 sustain no distresses over their entire measured length. The remaining joints (4, 5, 17, and 25) are all 95% effective. Joints 5, 24, and 25 all have 102 mm (4 in.) of spalling failure. Joint 5 has two spalls, measuring 25 and 51 mm (1 and 2 in.) long and each 13 mm (½ in.) deep. Joint 24 also has two spalls, measuring 25 and 51 mm (1 and 2 in.) long and each 6 mm (1/4 in.) deep. Joint 25 has one spalling failure measuring 102 mm (4 in.) long and 13 mm (½ in.) deep. This joint also has some incompressibles lodged in its sealant. Joint width measurements in Joints 4 and 17 indicate that the joints are within the given tolerances. With the exception of Joint 25, no incompressibles are observed in any of the joints.

4.6.8 Crafco 444 (1) [Sta 206+00 to 213+00]

These hot-applied sealants are 98% effective, and may be described as very good. During the previous survey these sealants had been found to be 96% effective. Four of the six joints measured (21, 24, 25, and 28) have no distresses in their sealants. The only sealant distresses are found in Joints 4 and 18 in the form of full-depth adhesion failure, which measures 25 and 178 mm (1 and 7 in.), respectively. Joint 18 also has corner breaks on both sides of the joint at the northern shoulder. These breaks are 51 and 102 mm (2 and 4 in.) long and both 76 mm (3 in.) wide. The sealant in all joints is very soft due to the high pavement temperatures ranging from 28.3 to 29.4°C (83 to 85°F). Joint 24 has some small incompressibles lodged in its sealant.

4.6.9 Dow 888 (1a) [Sta 213+00 to 219+00]

The sealants in these silicone section are in very good condition, maintaining 99.7% effectiveness. This is up from 96.4% measured during the previous survey. The only distress observed is a 25 mm (1 in.) spalling failure in Joint 21, which is 13 mm (½ in.) deep. Joint width measurements in Joints 7 and 20 reveal widths of 10 mm and 8 mm (3/8 and 5/16 in.), respectively. Both of these are within the nominal width range of 10 ± 2 mm (3/8 ± 1/16 in.). Joint 20 has a small incompressible lodged in it; no other incompressibles are observed in any of the joints.

4.6.10 Delastic V-687 (5) [Sta 219+00 to 225+00]

These compression seals have maintained 99.7% effectiveness, up 1% from WBOC00. These seals are in very good condition, only Joint 13 has a sealant distress. A 25 mm (1 in.) spalling failure, measuring less than 6 mm (1/4 in.) is found. Some standing water is found on top of the seal in Joint 18, verifying its water tightness. Joint 22 has some of its seal at the pavement surface, but the joint is distress free. Joint 9 has a few incompressibles on top of its seal, but no other incompressibles are observed in any of the joints.

4.6.11 Watson Bowman 812 (5) [Sta 225+00 to 231+00)]

Like the previous section, this compression seal section only has one distress in one of its joints, making it 99.7% effective. Joint 20 has the only distress, 25 mm (1 in.) of adhesion loss. Some incompressibles are found on top of the seal in many of the joints. Moisture is also found on the surface of the sealants, confirming the effectiveness of the seal in preventing water infiltration. A measurement of Joint 24's width found it to be 11 mm (7/16 in.), within the tolerable dimensions.

4.6.12 Dow 888 (1b) [Sta 260+00 to 266+00]

Like those in the other Dow 888 (1) section, these silicone sealants are in very good condition. The sealants average 98.1% effectiveness, essentially experiencing no loss since the previous survey. Joints 8 and 24 have no distresses whatsoever, remaining 100% effective. Joints 15 and 22 have 25 and 127 mm (1 and 5 in.) of adhesion failure, respectively. Joints 12 and 21 each have 25 mm (1 in.) of spalling failure, measuring no more than 6 mm (1/4 in.) deep. Both spalls had been noted during the WBOC00 survey. No incompressibles are observed in any of the joints.

4.6.13 Crafco 903-SL (4) [Sta 266+00 to 272+00]

The silicone sealants in this section are in very good condition, having an effectiveness of 96%, up 5% since WBOC00. Joints 8, 13, and 17 have a combined adhesion loss length of 152 mm (6 in.). Joints 7 and 11 have 25 and 279 mm (1 and 11 in.) of sunken seal failure, respectively. In most of the joints, the sealant is observed to be at the surface of the joint. Joint 7 has a measured width of 5 mm (3/16 in.), which is within the nominal joint width of 3 ± 2 mm (1/8 ± 1/16 in.).

4.6.14 Dow 890-SL (4) [Sta 272+00 to 284+00]

The silicone sealants in these joints averaged 79% effectiveness, rating their condition as fair. This section has increased in effectiveness by 23% since the previous survey when their condition was described as poor. All of the sealants have a wavy, "up-and-down" pattern to them, indicating that the sealant suffers from small incremental sunken seal failures; this form of distress accounts for 1.63 m (5.3 ft.). Only Joints 7 and 43 exhibit adhesion failure, measuring 25 and 102 mm (1 and 4 in.), respectively. Joint 7 has 559 mm (22 in.) of spalling failure and is the result of a poor initial cut. The joint lip is very rough and the joint width varies from 0 mm (0 in.) to 19 mm (3/4 in.). A width measurement of Joint 31 reveals it to be 6 mm (1/4 in.), which is more than the tolerable amount. Some surface extrusion is found in the sealants of many of the joints surveyed. No incompressibles are observed in any of the joints.

4.6.15 No Sealant (6) [Sta 284+00 to 290+00]

Five of the six joints examined show no distresses. Joint 20 suffers from 51 mm (2 in.) of spalling over its measured length. Some small vegetation growth is also observed in this joint. Several small incompressibles are observed at the bottom of all the joints examined. Joint 21 is observed to have a large amount of sand and gravel in the bottom. A joint width of 6 mm (1/4 in.) exists in Joint 12; the nominal width is 6 ± 2 mm (1/4 ±

1/16 in.).

4.7 Fall 2001 Performance Evaluation of the Westbound Lanes (WBOC01)

The westbound lanes were surveyed for the fifth and final time on Tuesday, October 16, 2001. The sealants in this direction are nearly three years old and the pavement has served traffic for about 2 ½ years. The survey did not begin until 10:00 a.m. due to rainy weather. The remainder of the day was cold and blustery, with short periods of rainfall. The air temperature at the beginning of the survey was 9.4°C (49°F), and ranged from 7.8°C (46°F) to 10.6°C (51°F) throughout the day under cloudy skies. The survey concluded at 3:00 p.m. with an air temperature of 8.3°C (47°F). Pavement temperatures ranged from 8.3°C (47°F) to 13.9°C (57°F). As in previous surveys, the current evaluation started at Station 133+60, proceeded eastward, and finished at Station 290+00. The stretch corresponding to the location of the batch plant and of the headquarters of the project contractor (*Kokosing Construction Company, Inc.*), an area of intense and heavy truck traffic (Stations 231+00 to 260+00), was not included in the evaluation.

4.7.1 Techstar W-050 (5) [Sta 133+60 to 138 +60]

These pre-formed compression seals are the worst performing seals anywhere on the project. Only 4% of the measured length of these sealants remains effective. The section continues to deteriorate; it is down 10% from the previous survey. Three joints, 22, 23, and 25, have failures over 100% of their length. The remaining joints, 4, 5, and 15, are 8, 2, and 17% effective, respectively. Adhesion failure accounts for 94% of the failures in this section. A spalling failure, measuring 51 mm (2 in.), is found in Joint 15. Joints 4, 5, and 15 are filled with sand and gravel. A random joint width measurement in Joint 22 found it to be within the specified tolerances of 10 ± 2 mm (3/8 ± 1/16 in.).

4.7.2 No Sealant (2) [Sta 139+60 to 166+00]

No spalling failures are observed in this section, although Joint 46 has a segment exhibiting a rough lip. Joints 37 and 106 are nearly filled to the top with sand and gravel. Standing water is visible in Joint 84 from a passing shower that halted the survey temporarily. A measurement of Joint 46 found its joint width to be within the allowable limits of 3 ± 2 mm (1/8 ± 1/16 in.). No vegetation growth is noted in any of the joints.

4.7.3 Dow 890-SL (3) [Sta 166+00 to 172+00]

This section, whose joints contain a self-leveling silicone sealant, is the best performing one in the westbound lanes. Only 51 mm (2 in.) of failure are found, giving the section an effectiveness value of 99%, which is essentially unchanged since the previous survey. Joints 7 and 10 each have 25-mm (1-in.) adhesion failures, which are the only failures in this section. Some minor chipping is observed in the corners of Joints 15 and 18 along the shoulder. No incompressible are found in these joints. Standing water is observed on top of all the sealants.

4.7.4 Crafco 221 (1) [Sta 172+00 to 188+00]

This hot-pour section has suffered the second largest effectiveness loss (15%) since the previous survey making its current effectiveness value 43%. Joint 22 is completely failed and Joint 68 is 97% ineffective. Joint 40 is in very good condition with only 25 mm (1 in.) of adhesion failure and 102 mm (4 in.) of spalling failure, the latter being due to a poor cut. Joints 56 and 79 have tiny bubbles in their sealants, created during the installation of the sealant. No incompressibles are found in these joints.

4.7.5 Crafco 903-SL (1a) [Sta 188+00 to 194+00]

These silicone sealants have essentially lost no effectiveness since the last survey, maintaining their 96% value. Every measured joint in this section has an effectiveness value above 90%; in fact, Joint 5 is 100% effective. Nearly all of the failures are small incremental losses of adhesion (≤ 25 mm). Joint 25 is the only one with a substantial length of failure: a 127-mm (5-in.) span of adhesion failure. Joint 26 has 51 mm (2 in.) of spalling failure. No incompressibles are observed in this section.

4.7.6 Crafco 903-SL (1b) [Sta 194+00 to 200+00]

This duplicate sealant section is identical to the previous one, but continues to perform less adequately. It has deteriorated 6% since the previous survey to exhibit 72% effectiveness and receive a fair rating. All failures are attributed to loss of adhesion. Individual joint sealant effectiveness values range from 45% in Joint 18 to 97% in Joint 12. No incompressibles are found in this section.

4.7.7 Dow 890-SL (1) [Sta 200+00 to 206+00]

The sealants in this section have not deteriorated at all since the previous survey and maintain a 97% effectiveness value. Every joint has sealants that are more than 90% effective, including Joint 25, which is 100% effective. The most common failure, however, is spalling. Joints 5, 17, and 24 have spalls of 51 mm (2 in.), 25 mm (1 in.), and 152 mm (6 in.), respectively. Joints 4 and 9 have 127 mm (5 in.) and 25 mm (1 in.) of adhesion failure, respectively. No joints are observed to have incompressibles.

4.7.8 Crafco 444 (1) [Sta 206+00 to 213+00]

Unlike its counterpart in the eastbound lanes, this hot-pour section is performing very well. These sealants have lost only 6% effectiveness and currently have a 93% value. Three of the joints have no failures at all; these are Joints 4, 21, and 25. Joints 24 and 28 are 93 and 98% effective, respectively. Joint 18 is the exception in this section with an effectiveness of only 63%. Along with its 660 mm (26 in.) of adhesion failure, it exhibits a corner break at the shoulder joint. All failures in all of these sealants are attributed to loss of adhesion. No incompressibles are found in these joints.

4.7.9 Dow 888 (1a) [Sta 213+00 to 219+00]

These silicone sealants lost 9% since the WBJN01 survey, but are still in very good condition with a 91% effectiveness value. The joint sealants in this section are all performing very similarly, ranging from 88% to 97% effectiveness. Nearly all of the failure is due to loss of adhesion. Joint 21 has a small 25-mm (1-in.) spalling failure. No incompressibles are noted in this section.

4.7.10 Delastic V-687 (5) [Sta 219+00 to 225+00]

These pre-formed compression seals continue to comprise one of the best performing sections. Only 3% effectiveness has been lost since the last survey and this section now has a 97% value. Every joint is at least 90% effective and Joints 8, 13, and 22 have no failures whatsoever. Adhesion failure is the only contributor to loss of effectiveness. No incompressibles are found in these joints.

4.7.11 Watson Bowman 812 (5) [Sta 225+00 to 231+00)]

Also containing compression seals, this section has the second largest effectiveness value in the westbound lanes at 98%. These seals have lost only 2% since WBJN01. Joints 10 and 24 are 100% effective, while the remaining joint sealants are at least 95% effective. The lone failure type found in all of the joints is loss of adhesion. No incompressibles are present on these seals.

4.7.12 Dow 888 (1b) [Sta 260+00 to 266+00]

This section has essentially lost no effectiveness since the previous survey, maintaining 98% effectiveness. Every joint is in very good condition ($\geq$ 90%) and two joints, namely Joints 8 and 21, have no failures at all. Joint 12 has 51 mm (2 in.) of spalling failure. All other failures in this sealant section are attributed to loss of adhesion. No incompressibles are noted in these joints.

4.7.13 Crafco 903-SL (4) [Sta 266+00 to 272+00]

These silicone sealants are in good condition after losing 11% effectiveness since the last survey; they currently stand at 85%. Mostly adhesion failure is found in these sealants, although Joint 11 has 254 mm (10 in.) of sunken seal and 25 mm (1 in.) of spalling failure. Joint 7 also has 25 mm (1 in.) of spalling failure. Sealant effectiveness values range from 77% in Joint 13 to 95% in Joint 14. No incompressibles are found in any of the selected joints.

4.7.14 Dow 890-SL (4) [Sta 272+00 to 284+00]

This section has the largest decrease in effectiveness, losing 35% since June 2001. This section is currently averaging 44% effectiveness, rating it as very poor. Joints 31, 43, and 54 account for a total of 610 mm (24 in.) of sunken seal failure. All joints average 46% of adhesion failure. Joint 7 is the result of a very poor cut, and exhibits 508 mm (20 in.) of spalling failure and 1.07 m (3.5 ft.) of adhesion failure. In most of these sealants, a color difference is observed in those portions where adhesion failure has taken place. The normal color for these sealants is light gray, but the failed portions are black.

4.7.15 No Sealant (6) [Sta 284+00 to 290+00]

Only one joint in this section shows any sign of distress: Joint 20 has a 51-mm (2-in.) spalling failure. All of the joints have large amounts of sand and gravel at their bottoms. Joints 12, 20, and 25 have small vegetation growing in them.

4.8 Profilometer Surveys

Along with the sealant evaluations, pavement surface profilometer surveys were conducted. These surveys were performed by ODOT personnel at about the same time as the sealant evaluations, using the K.J. Law Non-Contact Inertial Profilometer, Model 690DNC. The profilometer van made three passes along the driving and three along the passing lane, in each of the eastbound and westbound directions, recording relative pavement surface elevations every 50 mm (2 in.) of distance traveled. Through the use of a mathematical algorithm, these elevation data permit the calculation of the left wheel-track International Roughness Index (IRIlf), of the right wheel-track International Roughness Index (IRIrt), and of the average of both values of International Roughness Index (IRIbh). Additional mathematical manipulations can then be used to establish supplementary indices, purporting to simulate the Mays Number (MAYS)–originally obtained using a suspension response vehicle–as well as the highly empirical Present Serviceability Index (PSI), originally established with reference to road user panel ratings that were correlated through statistical regression to measured pavement distresses. The data generated in this manner on each occasion at the U.S. 50 joint sealant test pavement were later sent by ODOT to the University of Cincinnati research team for analysis. Values are recorded over the entire length of the test pavement (Stations 133+60 to 260+00), except for the stretch corresponding to the location of the batch plant and of the headquarters of the project contractor (*Kokosing Construction Company, Inc.*), an area of intense and heavy truck traffic (Stations 231+00 to 260+00). Higher profilometer index values are associated with rougher surfaces, except when PSI values are considered: these decrease with increasing roughness. It is noted, however, that for the sake of convenience and clarity in the discussion below, a rougher surface is referred to as having a "higher" index (i.e., a "higher-roughness" index), even when the PSI is concerned (for which such an index is numerically lower). A detailed yet succinct presentation of the profilometer data from each traveling lane collected during the three most recent surveys, conducted in October 2000, June 2001 and October 2001, is provided below. In each case, values are calculated of the average, maximum and minimum values, standard deviation, and coefficient of variation for the five indices noted above, as well as of the average, maximum and minimum values for each sealant section. It is acknowledged that unlike the IRI, for which the relationship between profile variations and its values is linear, the PSI and Mays Number are highly non-linear indices (Karamihas, 1998). This introduces an inherent shortcoming in any discussion of changes in the value of these two measures, and in any calculation of their statistics, such as the mean and the standard deviation. Such mathematical figures are presented here for the sake of completeness, and need not introduce any confusion if they are interpreted merely as such. Hawkins (1999) and Sander (2002) have each presented similar information from two earlier profilometer evaluations, performed in June 1998, May 1999, December 1999, and March 2000, respectively. It is recalled that the June 1998 survey included only the eastbound lanes, since the westbound lanes had not been constructed yet.

4.8.1 Fifth Profile Survey of Eastbound Lanes (PEBOC00)

Table 4.2 presents a statistical analysis of the profilometer readings for the fifth profile survey of the eastbound lanes, the data set from which is code-named PEBOC00. The top portion of the Table gives averages, maximum and minimum values, standard deviations, and coefficients of variation for the five indices noted above. The lower portion of Table 4.2 contains average values for each sealant section. The maximum and minimum values of the section averages are also provided.

Data for the eastbound driving lane is listed in Tables 4.2 (a) and (b). It is difficult to compare the various profile indices for each section, although there are a few sections that stand out. The Crafco 221 (1) section in the driving lane, located between Stations 260+00 and 266+00, is the roughest section. Four out of its five indices captured the highest roughness rating, even though the sealant has the third best effectiveness ranking with 71%. The smoothest section observed is the No Sealant (6) section located between Stations 160+00 to 166+00; four of its five indices attain the lowest roughness ratings. This section achieved the smoothest ride without containing any sealants in its joints.

Tables 4.2 (c) and (d) show the results from the eastbound passing lane, which exhibits similar trends to those found in the driving lane. As in the driving lane, the Crafco 221 (1) section exhibits the roughest surface, but in the passing lane the Delastic V-687 (5) section is the smoothest.

The preceding examples show that a correlation between sealant effectiveness and surface roughness does not exist. The section with the highest amount of roughness contains the third most effective sealant, and the section that has the lowest measured roughness contains no sealants whatsoever. This would lead the research team to believe that the degree of roughness or smoothness is unrelated to joint sealant ineffectiveness.

4.8.2 Sixth Profile Survey of Eastbound Lanes (PEBJN01)

Data collected in the driving lane during the PEBJN01 survey are averaged and compared in Tables 4.3 (a) and (b). The section containing Dow 890-SL (4) between Stations 213+00 and 219+00 is the smoothest section, as indicated by all but one indices (IRIrt). The roughest section in this lane is found between Stations 260+00 and 266+00, and is sealed with Crafco 221 (1). All five indices recorded attain their highest values in this section, and these values are significantly higher than in any other section. This stretch has also had significantly higher values in all previous surveys to date (Hawkins, 1999; Sander, 2002). A review of the raw data collected from the profilometer shows very large values (e.g., IRI between 105 and 135) towards the latter half of this section, between Stations 263+00 and 266+00. Some of these are more than twice the measured overall average of the test pavement. Figure 4.2 shows Joint 21, which is poorly cut with several large cracks and spalls. This joint is located within the latter half of the section, yet it cannot be the only source of these high profilometer values. Interestingly, transverse and corner cracking levels in this section are among the lowest. It is postulated that other contributors to roughness include faulting, warping, curling, and built-in gradients at the time of construction. The Crafco 221 (1) and Dow 890-SL (4) sections have similar sealant effectiveness rankings (viz. fourth and fifth, respectively), yet their profilometer values could not be more different. This is further evidence that sealant effectiveness does not correlate to surface smoothness.

Tables 4.3 (c) and (d) list the results from the data taken in the passing lane and show that the Crafco 221 (1) section exhibits the roughest surface, as well. All five indices reach their highest averages here. The passing lane in this section also had the highest roughness measurement during the previous profilometer survey.

The smoothest section recorded in Table 4.3 (d) is Delastic V-687 (5), in which three of the five indices (MAYS, IRIrt, and IRIbh) attain their lowest values. This section also had the smoothest average in the previous survey (PEBOC00). In both the previous and current surveys, this section has had a sealant effectiveness above 94%, evincing a match between surface smoothness and sealant effectiveness in this case.

4.8.3 Seventh Profile Survey of Eastbound Lanes (PEBOC01)

On Tuesday, October 9, 2001, profilometer data were collected by an ODOT crew from all traffic lanes. The statistical summary of the seventh profilometer survey conducted in the eastbound driving lane is presented in Tables 4.4 (a) and (b).

The roughest section continues to be Crafco 221 (1). Four of the five indices recorded their highest values here, while the fifth, PSI, attained the second roughest value. The smoothest section is No Sealant (6), between Stations 160+00 and 166+00. The MAYS and IRIlf recorded their smoothest value here. In PEBOC00, this section was also the smoothest one, but it was not the smoothest during the previous survey (PEBJN01).

Considering the passing lane, Tables 4.4 (c) and (d) show that Crafco 221 (1) has again the roughest surface. All indices exhibit their roughest values here. This section has been the roughest in both directions for all profilometer surveys to date, i.e., the three in this Report, and all the previous ones reported by Hawkins (1999) and Sander (2002). Delastic V-687 (5) exhibits the smoothest profile, as it did in the previous survey; three indices (MAYS, IRIrt, and IRIbh) record their smallest values in this section.

4.8.4 Fourth Profile Survey of Westbound Lanes (PWBOC00)

The profilometer survey of October 2000 (PWBOC00) is the fourth one conducted in the westbound lanes. The results from the survey are listed in Tables 4.5 (a) and (b). The driving lane section between Stations 260+00 and 266+00, containing Dow 888 (1b), exhibits the roughest surface. Three of the five indices reach their highest averages in this section. The Watson Bowman 812 (5) compressive seal section, located between Stations 225+00 and 231+00, has the smoothest surface in Table 4.5 (b). Three of the five indices have their lowest averages in this section. The westbound driving lane is significantly rougher than the passing lane.

The passing lane Dow 888 (1b) section located between Stations 260+00 and 266+00 also exhibits the highest amount of roughness, yet it has a sealant effectiveness of 98%. The Crafco 903-SL (1a) section between Stations 188+00 and 194+00 also shows an effectiveness of 98%, but exhibits the lowest amount of roughness in the passing lane. These two sealant sections have identical joint configurations and effectiveness values, yet their respective surface roughness profiles are completely different.

4.8.5 Fifth Profile Survey of Westbound Lanes (PWBJN01)

The results of the fifth profilometer survey in the westbound lanes, conducted in June 2001, are presented in Table 4.6. The roughest section in the driving lane again is found between Stations 260+00 and 266+00, where it is filled with Dow 888 (1b) sealant. All but one indices (PSI) achieved their highest values in this section. It is noted that the International Roughness Indices in the two wheel-paths are practically identical. The values of the IRIlf and IRIrt are 73.35 and 73.63, respectively. The IRIbh, which is the average of these two, is therefore also very similar, with a value of 73.49. This trend persists throughout the entire length of the test pavement. The averages for IRIlf, IRIrt, and IRIbh over the length of the project in Table 4.6 (a) are 66.60, 65.40, and 66.00, respectively.

The smoothest driving lane section is Crafco 903-SL (1b), for which four of the five indices (MAYS, IRIlf, IRIrt, and IRIbh) show their lowest values. This section is located between Stations 194+00 and 200+00. Recall that Crafco 903-SL (1a), the twin of this section and located adjacent to it, had the smoothest section during PWBOC00. The Techstar W-050 (5) section, is a close second in terms of smoothness in the driving lane.

In the passing lane, the section containing the sealant Dow 888 (1b) between Stations 260+00 and 266+00 is once again the roughest section: all indices but the PSI show their highest roughness averages in this section. In contrast, the sealants in this stretch exhibited an effectiveness of 98%, which is the fourth highest value in the westbound lanes.

The smoothest section is found between Stations 133+60 and 139+60, which contains Techstar W-050 (5). Three of the five indices (MAYS, PSI, and IRIrt) show their lowest roughness values here. Recall that this section has the worst sealant performance in the westbound lanes, maintaining only 14% effectiveness.

4.8.6 Sixth Profile Survey of Westbound Lanes (PWBOC01)

The results of the sixth profilometer survey in the westbound lanes are tabulated in Table 4.7. The averages for the westbound driving lane are given in Table 4.7 (a), and the statistics for each individual sealant section are presented in Table 4.7 (b). It is apparent that the roughest section is Dow 890-SL (4). The IRIlf and IRIbh record their highest values in this section, while the MAYS, PSI, and IRIrt record their second roughest values here. The Dow 888 (1b) section had been the roughest section for the three previous surveys.

The smoothest section is again Crafco 903-SL (1b). Three of the five indices (MAYS, IRIrt, and IRIbh) exhibit their lowest values in this section, which is located between Stations 194+00 and 200+00. During the current sealant survey, this section exhibits one of the lowest effectiveness values (72%).

Table 4.7 (c) and (d) lists the results of the profilometer survey in the westbound passing lane. The Dow 888 (1b) section is again the roughest, as it had been for all four preceding surveys to date in the westbound passing lane. Four of the five indices (MAYS, IRIlf, IRIrt, and IRIbh) show their highest values in this section, which has the second highest effectiveness ranking 98%. Recall that this lane could not be visually evaluated in detail at the time of the first profilometer survey (PWBMR99), due to continuing construction activity (Hawkins, 1999).

Whereas in the westbound driving lane Crafco 903-SL (1b) is the smoothest section, its twin, Crafco 903-SL (1a), claims the honor in the passing lane, exhibiting slightly smoother values for all but the PSI measure. This has been the smoothest section during two of the three most recent surveys (PWBOC00 and PWBOC01), and followed as a close second smoothest the Techstar W-050 section during the third (PWBJN01).

Table 4.1 Sealant performance rating categories (Belangie and Anderson, 1985)

Rating	Overall Effectiveness Level, %
Very Good	90 to 100
Good	80.0 to 89.9
Fair	65.0 to 79.9
Poor	50.0 to 64.9
Very Poor (Failed)	0 to 49.9

Table 4.2 Statistical summary of profile survey PEBOC00 of the eastbound lanes

a) Statistics of individual values for all three passes in the driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	64.28	3.94	69.66	65.31	67.49
Maximum	138.53	4.33	145.30	147.40	145.17
Minimum	36.20	2.95	38.50	34.87	40.37
StDev	15.22	0.18	16.15	16.09	15.30
COV%	23.69	4.56	23.19	24.63	22.68

b) Statistics of the means for each test section in the driving lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	67.63	3.95	74.33	66.25	70.29
206+00 - 213+00	Crafco 903-SL (4)	66.79	4.00	73.70	65.02	69.35
166+00 - 172+00	Dow 890-SL (3)	59.24	3.92	65.20	59.89	62.54
213+00 - 219+00	Dow 890-SL (4)	62.98	4.04	67.31	64.36	65.84
266+00 - 272+00	Dow 890-SL (1)	66.15	3.87	69.53	67.53	68.52
200+00 - 206+00	Crafco 902 (1)	62.62	3.88	66.51	66.81	66.66
272+00 - 284+00	Dow 888 (1a)	58.95	4.04	63.03	60.61	61.82
284+00 - 290+00	Dow 888 (1b)	61.17	3.96	62.65	64.71	63.69
260+00 - 266+00	Crafco 221 (1)	82.11	3.81	88.55	84.27	86.41
172+00 - 188+00	Crafco 444 (1)	67.46	3.92	73.90	66.96	70.43
225+00 - 231+00	Delastic V-687 (5)	63.44	3.95	66.40	66.82	66.59
194+00 - 200+00	Watson Bowman 687 (5)	65.35	3.93	70.46	66.90	68.68
154+00 - 160+00	Techstar W-050 (5)	69.08	3.76	70.09	75.00	72.54
219+00 - 225+00	No Sealant (2)	65.68	3.86	71.94	65.85	68.89
160+00 - 166+00	No Sealant (6)	56.10	3.95	60.54	58.46	59.51
	AVG	64.98	3.92	69.61	66.63	68.12
	MAX	82.11	4.04	88.55	84.27	86.41
	MIN	56.10	3.76	60.54	58.46	59.51

Table 4.2 (continued)

c) Statistics of individual values for all three passes in the passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	75.29	3.81	86.06	69.93	78.00
Maximum	177.20	4.29	179.43	220.20	179.57
Minimum	38.80	2.21	42.97	37.27	41.70
StDev	18.20	0.23	20.15	19.79	18.14
COV%	24.18	5.94	23.42	28.27	23.25

d) Statistics of the means for each test section in the passing lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	74.08	3.90	82.15	70.26	76.21
206+00 - 213+00	Crafco 903-SL (4)	74.16	3.93	80.13	72.80	76.47
166+00 - 172+00	Dow 890-SL (3)	68.11	3.90	80.15	62.53	71.35
213+00 - 219+00	Dow 890-SL (4)	65.51	4.01	72.32	63.34	67.84
266+00 - 272+00	Dow 890-SL (1)	71.29	3.83	82.78	64.00	73.38
200+00 - 206+00	Crafco 902 (1)	79.25	3.73	91.32	72.08	81.70
272+00 - 284+00	Dow 888 (1a)	66.90	3.92	76.93	60.91	68.92
284+00 - 290+00	Dow 888 (1b)	63.63	3.92	76.07	56.46	66.27
260+00 - 266+00	Crafco 221 (1)	94.43	3.61	107.39	86.79	97.08
172+00 - 188+00	Crafco 444 (1)	77.04	3.81	85.36	74.15	79.75
225+00 - 231+00	Delastic V-687 (5)	57.05	4.04	66.74	54.35	60.55
194+00 - 200+00	Watson Bowman 687 (5)	77.30	3.79	86.94	72.75	79.84
154+00 - 160+00	Techstar W-050 (5)	67.09	3.83	75.87	64.08	69.98
219+00 - 225+00	No Sealant (2)	72.28	3.89	79.01	70.81	74.91
160+00 - 166+00	No Sealant (6)	72.14	3.76	87.12	65.19	76.16
	AVG	72.02	3.86	82.02	67.37	74.69
	MAX	94.43	4.04	107.39	86.79	97.08
	MIN	57.05	3.61	66.74	54.35	60.55

Table 4.3 Statistical summary of profile survey PEBJN01 of the eastbound lanes

a) Statistics of individual values for all three passes in the driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	66.15	3.88	70.13	67.78	68.96
Maximum	142.10	4.28	148.10	141.90	143.70
Minimum	31.10	3.08	31.40	36.70	36.60
StDev	16.26	0.21	16.77	16.63	15.81
COV%	24.58	5.42	23.91	24.53	22.93

b) Statistics of the means for each test section in the driving lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	65.56	3.89	68.98	68.03	68.48
206+00 - 213+00	Crafco 903-SL (4)	55.55	4.08	62.63	54.83	58.74
166+00 - 172+00	Dow 890-SL (3)	66.72	3.79	70.05	68.84	69.46
213+00 - 219+00	Dow 890-SL (4)	54.97	4.10	60.74	55.29	58.02
266+00 - 272+00	Dow 890-SL (1)	79.00	3.71	82.52	79.66	81.08
200+00 - 206+00	Crafco 902 (1)	67.99	3.79	68.32	73.94	71.12
272+00 - 284+00	Dow 888 (1a)	63.81	3.93	68.12	64.41	66.27
284+00 - 290+00	Dow 888 (1b)	62.55	3.90	64.38	66.24	65.29
260+00 - 266+00	Crafco 221 (1)	93.46	3.63	98.77	92.27	95.52
172+00 - 188+00	Crafco 444 (1)	65.20	3.91	71.26	64.60	67.93
225+00 - 231+00	Delastic V-687 (5)	63.25	3.94	65.41	66.43	65.92
194+00 - 200+00	Watson Bowman 687 (5)	70.05	3.86	74.43	71.16	72.79
154+00 - 160+00	Techstar W-050 (5)	65.02	3.75	65.58	71.25	68.42
219+00 - 225+00	No Sealant (2)	63.34	3.83	68.73	65.07	66.90
160+00 - 166+00	No Sealant (6)	59.64	3.87	61.51	63.92	62.71
	AVG	66.41	3.87	70.09	68.40	69.24
	MAX	93.46	4.10	98.77	92.27	95.52
	MIN	54.97	3.63	60.74	54.83	58.02

Table 4.3 (continued)

c) Statistics of individual values for all three passes in the passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	70.67	3.87	83.28	63.94	73.61
Maximum	136.40	4.33	162.10	136.40	141.00
Minimum	32.50	3.06	33.60	29.30	34.50
StDev	16.57	0.20	19.42	15.40	16.46
COV%	23.45	5.17	23.32	24.09	22.36

d) Statistics of the means for each test section in the passing lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	68.61	3.92	81.16	62.06	71.60
206+00 - 213+00	Crafco 903-SL (4)	63.48	4.03	70.12	62.11	66.10
166+00 - 172+00	Dow 890-SL (3)	69.79	3.90	85.09	62.13	73.62
213+00 - 219+00	Dow 890-SL (4)	60.82	4.05	70.64	57.04	63.84
266+00 - 272+00	Dow 890-SL (1)	75.25	3.79	88.51	67.01	77.76
200+00 - 206+00	Crafco 902 (1)	78.96	3.75	93.34	69.55	81.44
272+00 - 284+00	Dow 888 (1a)	68.73	3.89	79.63	62.07	70.85
284+00 - 290+00	Dow 888 (1b)	63.98	3.91	78.47	55.31	66.89
260+00 - 266+00	Crafco 221 (1)	92.94	3.64	108.47	83.18	95.83
172+00 - 188+00	Crafco 444 (1)	74.10	3.83	85.24	68.66	76.95
225+00 - 231+00	Delastic V-687 (5)	59.94	3.96	72.89	52.68	62.79
194+00 - 200+00	Watson Bowman 687 (5)	79.48	3.73	95.42	70.58	83.00
154+00 - 160+00	Techstar W-050 (5)	63.97	3.85	75.35	59.70	67.52
219+00 - 225+00	No Sealant (2)	62.42	4.00	73.75	56.92	65.33
160+00 - 166+00	No Sealant (6)	72.93	3.76	91.72	62.62	77.18
	AVG	70.36	3.87	83.32	63.44	73.38
	MAX	92.94	4.05	108.47	83.18	95.83
	MIN	59.94	3.64	70.12	52.68	62.79

Table 4.4 Statistical summary of profile survey PEBOC01 of the eastbound lanes

a) Statistics of individual values for all three passes in the driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	65.86	3.90	72.31	64.95	68.63
Maximum	139.70	4.29	142.20	141.90	140.60
Minimum	37.30	2.63	40.00	37.80	42.10
StDev	15.41	0.19	15.66	16.09	15.02
COV%	23.40	5.00	21.66	24.78	21.88

b) Statistics of the means for each test section in the driving lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	66.87	3.94	74.92	63.95	69.43
206+00 - 213+00	Crafco 903-SL (4)	61.27	4.01	72.49	55.62	64.04
166+00 - 172+00	Dow 890-SL (3)	64.14	3.85	69.15	64.40	66.78
213+00 - 219+00	Dow 890-SL (4)	60.31	4.05	67.19	59.70	63.44
266+00 - 272+00	Dow 890-SL (1)	73.77	3.77	76.18	75.45	75.81
200+00 - 206+00	Crafco 902 (1)	66.96	3.82	70.61	70.18	70.39
272+00 - 284+00	Dow 888 (1a)	60.26	4.01	65.87	59.67	62.77
284+00 - 290+00	Dow 888 (1b)	62.79	3.91	66.69	64.38	65.54
260+00 - 266+00	Crafco 221 (1)	84.78	3.75	91.33	84.03	87.68
172+00 - 188+00	Crafco 444 (1)	66.53	3.92	75.97	62.65	69.31
225+00 - 231+00	Delastic V-687 (5)	63.42	3.95	66.93	64.62	65.77
194+00 - 200+00	Watson Bowman 687 (5)	68.16	3.91	76.50	65.15	70.82
154+00 - 160+00	Techstar W-050 (5)	69.12	3.71	72.07	71.73	71.92
219+00 - 225+00	No Sealant (2)	64.07	3.87	72.32	62.21	67.27
160+00 - 166+00	No Sealant (6)	59.97	3.88	65.67	60.78	63.22
	AVG	66.16	3.89	72.26	65.63	68.94
	MAX	84.78	4.05	91.33	84.03	87.68
	MIN	59.97	3.71	65.67	55.62	62.77

Table 4.4 (continued)

c) Statistics of individual values for all three passes in the passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	69.39	3.88	81.86	62.17	72.01
Maximum	136.80	4.43	155.10	130.30	142.70
Minimum	30.30	3.18	35.00	31.30	33.10
StDev	17.30	0.22	20.30	15.94	17.14
COV%	24.93	5.60	24.80	25.64	23.80

d) Statistics of the means for each test section in the passing lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	66.18	3.92	79.82	58.18	69.00
206+00 - 213+00	Crafco 903-SL (4)	59.72	4.09	67.72	56.74	62.23
166+00 - 172+00	Dow 890-SL (3)	66.91	3.93	82.57	56.84	69.71
213+00 - 219+00	Dow 890-SL (4)	58.77	4.08	68.92	54.04	61.48
266+00 - 272+00	Dow 890-SL (1)	78.98	3.72	92.48	70.32	81.41
200+00 - 206+00	Crafco 902 (1)	78.47	3.74	90.46	70.93	80.70
272+00 - 284+00	Dow 888 (1a)	67.19	3.90	78.18	60.04	69.11
284+00 - 290+00	Dow 888 (1b)	66.42	3.87	80.91	56.34	68.62
260+00 - 266+00	Crafco 221 (1)	93.15	3.65	107.44	84.06	95.73
172+00 - 188+00	Crafco 444 (1)	72.99	3.84	84.65	66.71	75.68
225+00 - 231+00	Delastic V-687 (5)	57.09	4.00	69.44	50.79	60.12
194+00 - 200+00	Watson Bowman 687 (5)	77.98	3.73	92.35	69.79	81.06
154+00 - 160+00	Techstar W-050 (5)	61.36	3.86	72.01	56.88	64.44
219+00 - 225+00	No Sealant (2)	61.52	4.00	72.76	56.06	64.40
160+00 - 166+00	No Sealant (6)	70.32	3.78	87.78	58.76	73.28
	AVG	69.14	3.88	81.83	61.77	71.80
	MAX	93.15	4.09	107.44	84.06	95.73
	MIN	57.09	3.65	67.72	50.79	60.12

Table 4.5 Statistical summary of profile survey PWBOC00 of the westbound lanes

a) Statistics of individual values for all three passes in the driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	73.55	3.77	78.39	75.44	76.91
Maximum	147.50	4.14	151.03	163.27	152.13
Minimum	42.23	2.99	47.87	43.07	46.90
StDev	15.21	0.17	15.38	16.19	14.89
COV%	20.68	4.49	19.62	21.46	19.36

b) Statistics of the means for each test section in the driving lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	65.88	3.80	70.97	66.49	68.73
194+00 - 200+00	Crafco 903-SL (1b)	65.64	3.80	70.79	67.15	68.97
266+00 - 272+00	Crafco 903-SL (4)	66.89	3.83	72.08	68.87	70.48
166+00 - 172+00	Dow 890-SL (3)	67.08	3.80	74.65	66.75	70.70
200+00 - 206+00	Dow 890-SL (1)	69.23	3.87	73.24	69.27	71.26
272+00 - 284+00	Dow 890-SL (4)	80.29	3.71	85.42	82.23	83.82
213+00 - 219+00	Dow 888 (1a)	66.68	3.82	72.10	69.31	70.70
260+00 - 266+00	Dow 888 (1b)	80.79	3.78	85.75	82.76	84.25
172+00 - 188+00	Crafco 221 (1)	68.74	3.63	76.04	71.46	73.76
206+00 - 213+00	Crafco 444 (1)	68.82	3.86	73.38	69.99	71.68
219+00 - 225+00	Delastic V-687 (5)	68.06	3.63	69.57	73.93	71.75
225+00 - 231+00	Watson Bowman 812 (5)	64.22	3.79	70.76	64.33	67.54
133+60 - 139+60	Techstar W-050 (5)	80.86	3.79	84.89	80.55	82.72
139+60 - 166+00	No Sealant (2)	74.08	3.81	78.84	74.55	76.70
284+00 - 290+00	No Sealant (6)	75.84	3.73	77.81	82.38	80.10
	AVG	70.87	3.78	75.75	72.67	74.21
	MAX	80.86	3.87	85.75	82.76	84.25
	MIN	64.22	3.63	69.57	64.33	67.54

Table 4.5 (continued)

c) Statistics of individual values for all three passes in the passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	62.51	3.92	66.83	66.13	66.48
Maximum	230.37	4.40	409.60	124.80	247.90
Minimum	27.47	1.56	27.30	37.73	36.23
StDev	18.69	0.25	29.28	14.14	19.02
COV%	29.92	6.27	43.74	21.38	28.61

d) Statistics of the means for each test section in the passing lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	53.30	3.96	56.06	57.92	56.99
194+00 - 200+00	Crafco 903-SL (1b)	55.16	3.98	59.13	58.02	58.57
266+00 - 272+00	Crafco 903-SL (4)	55.27	3.97	58.32	58.59	58.45
166+00 - 172+00	Dow 890-SL (3)	60.25	4.02	61.82	64.22	63.02
200+00 - 206+00	Dow 890-SL (1)	57.66	3.99	61.30	60.98	61.14
272+00 - 284+00	Dow 890-SL (4)	66.67	3.88	69.02	69.74	69.38
213+00 - 219+00	Dow 888 (1a)	61.34	3.91	64.46	64.68	64.58
260+00 - 266+00	Dow 888 (1b)	71.41	3.88	74.23	75.54	74.89
172+00 - 188+00	Crafco 221 (1)	59.20	3.92	63.16	62.70	62.93
206+00 - 213+00	Crafco 444 (1)	57.24	3.95	62.49	63.09	62.79
219+00 - 225+00	Delastic V-687 (5)	55.78	3.88	60.12	59.42	59.78
225+00 - 231+00	Watson Bowman 812 (5)	59.17	3.92	61.02	63.51	62.27
133+60 - 139+60	Techstar W-050 (5)	71.10	3.90	74.22	70.86	72.53
139+60 - 166+00	No Sealant (2)	64.87	3.97	67.50	66.59	67.04
284+00 - 290+00	No Sealant (6)	59.91	3.92	78.46	63.35	70.90
	AVG	60.56	3.94	64.75	63.95	64.35
	MAX	71.41	4.02	78.46	75.54	74.89
	MIN	53.30	3.88	56.06	57.92	56.99

Table 4.6 Statistical summary of profile survey PWBJN01 of the westbound lanes

a) Statistics of individual values for all three passes in the driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	63.27	3.84	66.60	65.40	66.00
Maximum	151.30	4.29	147.00	167.90	156.30
Minimum	30.10	2.80	32.50	33.30	34.10
StDev	15.61	0.21	15.89	16.53	15.57
COV%	24.67	5.47	23.85	25.28	23.59

b) Statistics of the means for each test section in the driving lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	58.96	3.82	63.50	59.94	61.72
194+00 - 200+00	Crafco 903-SL (1b)	52.73	3.90	57.86	53.72	55.79
266+00 - 272+00	Crafco 903-SL (4)	57.40	3.86	59.97	59.71	59.84
166+00 - 172+00	Dow 890-SL (3)	67.75	3.79	73.25	67.29	70.27
200+00 - 206+00	Dow 890-SL (1)	59.56	3.93	63.11	59.58	61.34
272+00 - 284+00	Dow 890-SL (4)	67.05	3.79	68.48	70.75	69.62
213+00 - 219+00	Dow 888 (1a)	62.62	3.88	66.22	64.35	65.28
260+00 - 266+00	Dow 888 (1b)	70.41	3.85	73.35	73.63	73.49
172+00 - 188+00	Crafco 221 (1)	67.06	3.61	71.31	69.65	70.48
206+00 - 213+00	Crafco 444 (1)	63.26	3.88	67.99	62.81	65.40
219+00 - 225+00	Delastic V-687 (5)	62.38	3.69	64.73	68.03	66.38
225+00 - 231+00	Watson Bowman 812 (5)	64.44	3.75	71.21	62.56	66.87
133+60 - 139+60	Techstar W-050 (5)	55.65	4.02	58.60	57.09	57.84
139+60 - 166+00	No Sealant (2)	58.63	3.93	61.55	60.95	61.25
284+00 - 290+00	No Sealant (6)	60.69	3.90	64.21	63.73	63.97
	AVG	61.91	3.84	65.69	63.59	64.64
	MAX	70.41	4.02	73.35	73.63	73.49
	MIN	52.73	3.61	57.86	53.72	55.79

Table 4.6 (continued)

c) Statistics of individual values for all three passes in the passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	57.73	3.98	62.56	61.79	62.18
Maximum	115.20	4.57	133.20	145.30	120.60
Minimum	23.10	3.25	30.40	25.00	36.10
StDev	13.89	0.19	14.69	14.27	13.11
COV%	24.07	4.71	23.49	23.10	21.08

d) Statistics of the means for each test section in the passing lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	51.83	3.98	54.56	56.83	55.70
194+00 - 200+00	Crafco 903-SL (1b)	51.36	3.99	54.82	56.87	55.85
266+00 - 272+00	Crafco 903-SL (4)	53.73	3.94	56.23	57.67	56.96
166+00 - 172+00	Dow 890-SL (3)	56.47	4.11	65.21	62.37	63.79
200+00 - 206+00	Dow 890-SL (1)	55.98	4.01	59.49	58.59	59.03
272+00 - 284+00	Dow 890-SL (4)	61.54	3.92	63.71	65.26	64.48
213+00 - 219+00	Dow 888 (1a)	60.18	3.96	67.31	61.62	64.48
260+00 - 266+00	Dow 888 (1b)	65.59	3.92	68.54	71.24	69.89
172+00 - 188+00	Crafco 221 (1)	58.81	3.95	67.04	64.56	65.81
206+00 - 213+00	Crafco 444 (1)	56.70	3.99	61.68	59.90	60.79
219+00 - 225+00	Delastic V-687 (5)	56.27	3.88	64.78	56.83	60.80
225+00 - 231+00	Watson Bowman 812 (5)	59.15	3.91	59.28	65.76	62.51
133+60 - 139+60	Techstar W-050 (5)	50.26	4.15	61.08	53.73	57.40
139+60 - 166+00	No Sealant (2)	52.48	4.13	64.16	55.04	59.60
284+00 - 290+00	No Sealant (6)	55.26	4.01	56.25	60.09	58.17
	AVG	56.37	3.99	61.61	60.42	61.02
	MAX	65.59	4.15	68.54	71.24	69.89
	MIN	50.26	3.88	54.56	53.73	55.70

Table 4.7 Statistical summary of profile survey PWBOC01 of the westbound lanes

a) Statistics of individual values for all three passes in the driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	69.25	3.75	75.97	68.87	72.42
Maximum	169.30	4.20	301.50	180.10	186.30
Minimum	37.10	1.63	40.20	33.20	38.80
StDev	17.92	0.31	23.44	17.66	18.33
COV%	25.87	8.33	30.85	25.65	25.31

b) Statistics of the means for each test section in the driving lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	62.91	3.66	74.84	58.26	66.56
194+00 - 200+00	Crafco 903-SL (1b)	59.95	3.71	70.86	57.05	63.95
266+00 - 272+00	Crafco 903-SL (4)	64.04	3.79	67.48	65.79	66.64
166+00 - 172+00	Dow 890-SL (3)	65.38	3.82	72.59	62.94	67.76
200+00 - 206+00	Dow 890-SL (1)	63.35	3.91	68.72	62.44	65.57
272+00 - 284+00	Dow 890-SL (4)	76.81	3.62	84.85	76.04	80.44
213+00 - 219+00	Dow 888 (1a)	66.81	3.77	72.72	67.60	70.15
260+00 - 266+00	Dow 888 (1b)	77.06	3.80	81.03	79.05	80.04
172+00 - 188+00	Crafco 221 (1)	67.07	3.61	72.22	69.55	70.89
206+00 - 213+00	Crafco 444 (1)	64.26	3.85	71.31	63.05	67.17
219+00 - 225+00	Delastic V-687 (5)	64.51	3.65	69.54	67.48	68.51
225+00 - 231+00	Watson Bowman 812 (5)	62.72	3.78	70.99	60.13	65.56
133+60 - 139+60	Techstar W-050 (5)	69.53	3.89	74.87	67.88	71.38
139+60 - 166+00	No Sealant (2)	68.83	3.85	74.22	68.56	71.39
284+00 - 290+00	No Sealant (6)	68.25	3.80	76.72	68.01	72.36
	AVG	66.76	3.77	73.53	66.26	69.89
	MAX	77.06	3.91	84.85	79.05	80.44
	MIN	59.95	3.61	67.48	57.05	63.95

Table 4.7 (continued)

c) Statistics of individual values for all three passes in the passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
Average	59.26	3.96	63.91	61.15	62.53
Maximum	114.50	4.30	122.20	115.20	116.40
Minimum	32.00	3.35	31.80	33.60	34.50
StDev	13.63	0.15	15.12	13.57	13.46
COV%	23.00	3.90	23.66	22.19	21.53

d) Statistics of the means for each test section in the passing lane

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	49.93	4.01	54.10	53.01	53.56
194+00 - 200+00	Crafco 903-SL (1b)	51.19	4.00	56.40	53.72	55.06
266+00 - 272+00	Crafco 903-SL (4)	52.59	3.96	56.99	54.22	55.61
166+00 - 172+00	Dow 890-SL (3)	59.78	4.00	63.62	62.36	62.99
200+00 - 206+00	Dow 890-SL (1)	54.26	4.03	57.78	56.68	57.23
272+00 - 284+00	Dow 890-SL (4)	62.45	3.92	66.39	64.23	65.31
213+00 - 219+00	Dow 888 (1a)	60.24	3.96	67.73	60.58	64.15
260+00 - 266+00	Dow 888 (1b)	67.47	3.91	71.90	70.62	71.26
172+00 - 188+00	Crafco 221 (1)	61.04	3.88	66.87	62.42	64.65
206+00 - 213+00	Crafco 444 (1)	55.83	3.99	60.38	60.44	60.40
219+00 - 225+00	Delastic V-687 (5)	58.43	3.86	67.88	56.67	62.28
225+00 - 231+00	Watson Bowman 812 (5)	58.91	3.92	62.66	62.86	62.76
133+60 - 139+60	Techstar W-050 (5)	58.40	4.06	62.56	58.00	60.28
139+60 - 166+00	No Sealant (2)	58.95	4.02	64.55	58.41	61.48
284+00 - 290+00	No Sealant (6)	56.38	4.00	58.01	59.65	58.84
	AVG	57.72	3.97	62.52	59.59	61.06
	MAX	67.47	4.06	71.90	70.62	71.26
	MIN	49.93	3.86	54.10	53.01	53.56

Figure 4.1 Members of the UC research team examining a joint

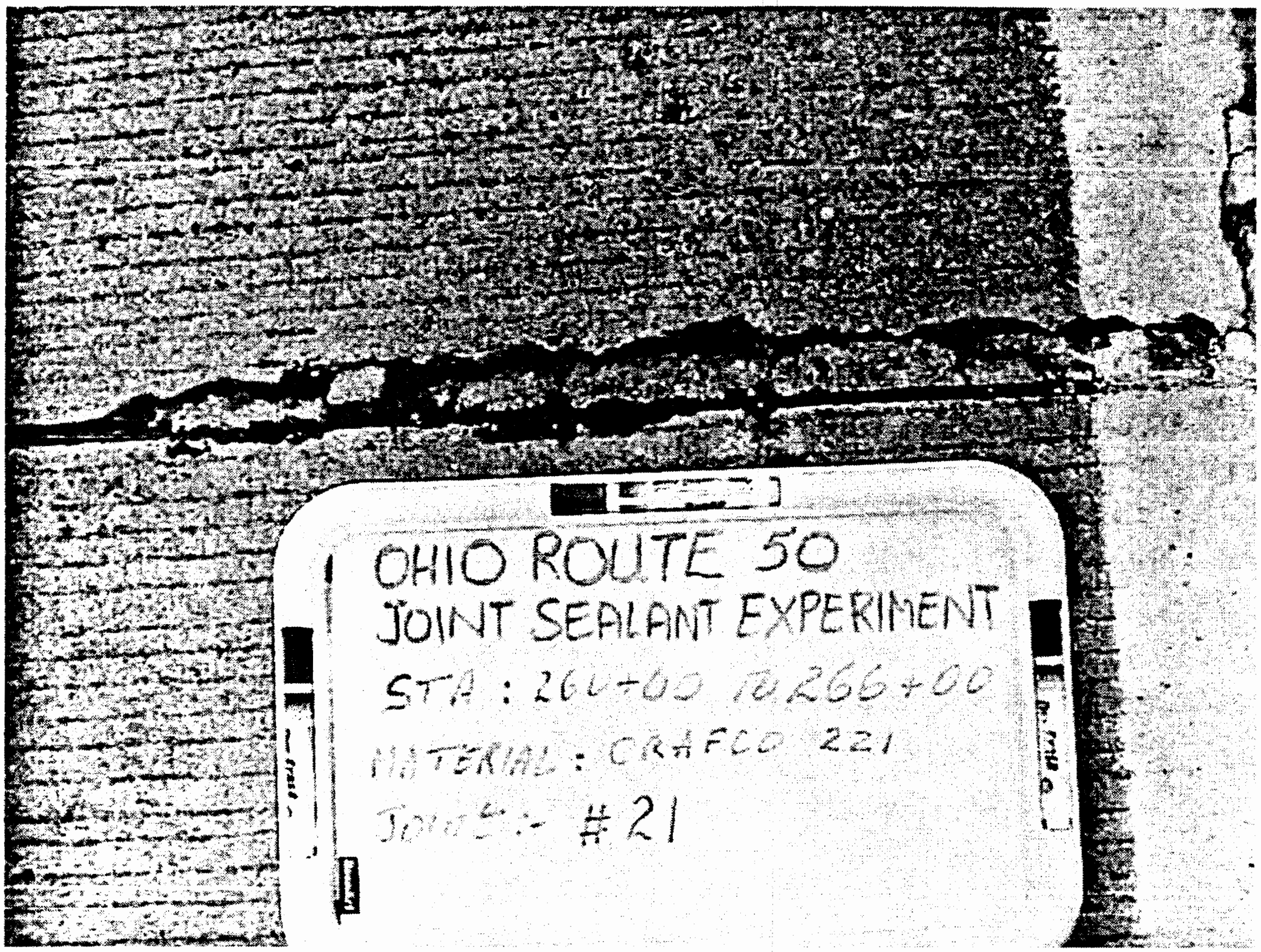


Figure 4.2 Severe cracking and spalling in Joint 21 of the eastbound Crafco 221 (1) section

5 ANALYSIS OF RECENT FIELD PERFORMANCE DATA

5.1 General Information

Since the inception of this project, there have been two initial visual surveys of the eastbound lanes and one of the westbound (Hawkins, 1999), in addition to five subsequent detailed statistical performance evaluations in both directions. Two of the latter have been described in detail by Sander (2002); the three most recent surveys, conducted in October 2000, June 2001, and October 2001, are documented in this Report. Sealant condition as encountered during these three evaluations was detailed in Chapter 4, above.

This Chapter presents an analysis of the data collected during these three most recent surveys. The information is examined to delineate trends in sealant and pavement performance, and to assess a possible correlation between the two. Statistical analyses were conducted immediately following each evaluation and were completed before the next excursion of the research team to the site. Comments in the paragraphs below, therefore, represent opinions and ideas formulated at the time of each performance monitoring activity.

The data sets from the three evaluations considered in this Chapter are code-named EBOC00, EBJN01 and EBOC01 for the eastbound and WBOC00, WBJN01 and WBOC01 for the westbound lanes, respectively. The data collection, analysis and interpretation techniques first used on this project by Sander (2002) are also implemented for the three surveys conducted in the Fall 2000, Spring 2001 and Fall 2001, respectively.

5.2 Joint Sealant Treatment Effectiveness

Joint sealant treatment is defined herein as the combination of a specific sealant type and joint configuration. Each such treatment is referred to by the name of the sealant followed by the joint configuration in parentheses. The following sub-sections analyze the effectiveness of the joint sealant treatments in the eastbound and westbound lanes as encountered during each survey. The effectiveness of a sealant is expressed as a percentage by dividing the measured length of sealant that remains watertight by the total length measured. For this project, a total length of 1.83 m (6 ft) in each of six joints from each of the test sections was selected for inspection; this length represents the outer half-width of the driving lane in each direction. Failures that suggest watertight conditions are no longer present include full-depth adhesion or cohesion failures, sunken seal, missing seal, and spalling at the joint. Deficiencies in the sealant that may still preserve watertight conditions include partial-depth adhesion or cohesion failures, and intrusion of incompressibles.

5.2.1 Treatment Effectiveness in the Eastbound Lanes during the EBOC00 Survey

On Tuesday, October 10, 2000, the University of Cincinnati research team performed the third survey of the condition of the joint sealant in the eastbound driving lane. The data set collected is code-named EBOC00. The evaluation was conducted in the manner described previously by Sander (2002). The effectiveness of the sealants is shown in the bar graph of Figure. 5.1. The sealants are categorized by sealant type, (silicone, hot-applied, or pre-formed compression), for which average effectiveness values are listed. The joint configuration for each sealant is denoted by the number in parentheses.

It is observed that in general the compression seals are performing far better than the hot-applied or silicone sealants. During this survey, the former averaged 74% effectiveness, while each of the latter averaged 38%. This is partly attributable to the fact that compression seals do not rely on adhesive binders for maintaining a bond with the joint walls. Although an adhesive is used with compression seals, it is not the only mechanism for preserving this bond. The compression seal, as its name implies, remains in compression as it expands and contracts, and thus always maintains contact with the joint wall. It is interesting to note that the Techstar W-050 (5) compression seal, which relies partially on the adhesive for maintaining contact with the face of the joint, is not performing as well as the other two compression seals. The deterioration of the Techstar seals to an effectiveness of only 27% as of the EBOC00 survey gives rise to concerns with regard to the procedures used during installation in the eastbound lanes. Even though an employee of *Techstar Inc.* supervised the installation of the seals in the westbound lanes (Hawkins, 1999), a similar deterioration was observed for that section, as well. It is recalled that this is the first installation of Techstar seals in a concrete pavement; the material is manufactured as a sealant for bridge decks. In the case of hot-applied and silicone sealants, a chemical bond is responsible for maintaining contact with the joint wall.

They are thus more susceptible to adhesion failure over time.

The silicone sealants are in very poor condition, averaging only 38% effectiveness. Figure 5.1 suggests that their value is influenced greatly by the joint configuration. In general, silicone sealants with the wider joint configuration No. 1 seem to perform significantly better than those with the narrower joint configuration No. 4. The former are averaging 46% effectiveness, compared to only 10% for the latter. Moreover, self-leveling silicones appear superior to non-sag ones, even when the somewhat narrower joint configuration No. 3 is used: the Dow 890-SL (3) section has an effectiveness value of 56%. Joint configurations 1, 3, and 4 have nominal widths of 10 ± 2 mm (3/8 ± 1/16 in.), 6 ± 2 mm (1/4 ± 1/16 in.), and 3 ± 2 mm (1/8 ± 1/16 in.), respectively.

The two hot-applied sealant sections have very different effectiveness ratings. The Crafco 221 (1) section is 71% effective, whereas the Crafco 444 (1) section is rated at only 6%. The latter is the worst performing sealant in the eastbound sections at the time of EBOC00. Such a difference in effectiveness is surprising, since both sections have identical joint configurations. An explanation may be found in the intended use for each of the two sealants: Crafco 221 is intended for use in moderate to cooler climates, whereas Crafco 444 is intended for moderate to hot climates (Hawkins, 1999). This suggests that Crafco 221 may be better suited for the weather found in the region of the test site than Crafco 444 is, but this assertion is not corroborated by observations in the westbound lanes, which are discussed in a subsequent section.

Figure 5.2 presents a comparison between results obtained during the EBOC00 survey and those collected in the previous one, conducted in Spring 2000 (code-named

EBMR00). The values shown in the Figure are listed in Table 5.1. Each sealant section is ranked according to effectiveness. A ranking of 1 in the Table is assigned to the section with the highest effectiveness and a ranking of 13 to the one with the lowest. The corresponding effectiveness rating category, in accordance with a scheme proposed by Belangie and Anderson (1985), is given in parentheses next to each effectiveness value. The rating categories are: very good (VG), good (G), fair (F), poor (P), and very poor (VP). The last two columns in Table 5.1 examine the percentage reduction in effectiveness (or deterioration) that occurred in each section between the two evaluations. The loss of effectiveness in each section is also ranked. A ranking of 1 corresponds to the sealant with the greatest loss of effectiveness and a ranking of 13 corresponds to the one with the smallest deterioration. A negative loss of effectiveness would suggest a self-healing tendency. Because it is unlikely that a joint would be able to heal itself, such discrepancies can be attributed to small incompatibilities in the survey procedures employed by the two different crews responsible for these surveys. As long as these discrepancies account for a small percentage in the effectiveness (i.e., less than 3<u>%</u>), they are considered negligible. The notation <u>%</u> indicates a percentage point change: for example, 20% to 23% represents a 3<u>%</u> rise.

The two superior compression seal sections, Delastic V-687 (5) and Watson Bowman WB-687 (5), have the least loss in effectiveness, retaining values above 97% as of EBOC00. The remaining compression seal, Techstar W-050 (5), has the sixth highest loss of effectiveness.

Albeit very different in their respective effectiveness values, the two hot-applied sections have experienced a similar loss of effectiveness from the previous survey, amounting to less than 5%. The small loss of effectiveness of the Crafco 444 (1) section, however, requires clarification. The section had only 10% effectiveness during the EBMR00 survey; this fact made it difficult to lose much more.

The two self-leveling silicone sections with a No. 4 joint configuration suffered the highest deterioration losses. In fact, Dow 890-SL (4) has lost over three-fourths of its effectiveness since the EBMR00 survey, dropping by 42%, from 55 to 13%. The two identical sections sealed with the non-sag silicone sealant Dow 888 (1) exhibit a similar performance. They have lost 8 and 9%, respectively, leaving each with 41% effectiveness. The similarity in effectiveness of these twin sections validates the consistency of the evaluation process.

In order to reach sound conclusions regarding the effectiveness of each sealant, monitoring must continue for a substantial period of time. Figure 5.3 shows the effectiveness trends for all sealant sections emerging from the three surveys conducted as of EBOC00. Separate Figures for each sealant type, i.e. compression, hot-applied, and silicone, are provided as well (Figures 5.4 to 5.6).

As noted earlier, the compression seals are exhibiting the smallest degree of deterioration. Two of the compression seal sections, Delastic V-687 (5) and Watson Bowman WB-687 (5), have had essentially no deterioration since the first survey in November 1999 as shown in Figure 5.4. The reliance of the compression seals on mechanical rather than chemical bonding appears to be the major attribute that makes these seals withstand the toll of time.

Figure 5.5 indicates that the Crafco 221 (1) section has experienced no loss of effectiveness since November 1999, yet its current effectiveness is only 71%. This gives rise to a concern that poor workmanship during installation may have resulted in a rather low initial effectiveness. A visual inspection conducted from the pavement shoulder in October 1998, however, indicated an initial effectiveness of this sealant in excess of 95%; by May 1999, this value had decreased significantly (Hawkins, 1999). Evidently, there was a very rapid, if brief, deterioration in the earliest stages of this sealant's service life, but it is not possible to ascertain whether poor workmanship was exclusively responsible for this behavior.

The other hot-applied sealant section, Crafco 444 (1), had a very low effectiveness rating (only 14%) at the time of the earliest of the three surveys (November 1999). Visual inspections conducted from the shoulder in October 1998 and May 1999 suggest that the effectiveness at those times was about 90% and 70%, respectively (Hawkins, 1999). A shallow recess and air bubbles in the sealant had been observed in those early inspections. These characteristics may be responsible for the rapid deterioration of the sealant during the summer of 1999. The current (Fall 2000) sealant effectiveness in this section is 6%.

Silicone sealant sections with the joint configuration No. 1 appear to be undergoing a slow deterioration over time (Figure 5.6). The effectiveness loss of these sealants over the preceding twelve months is only about 10%. Their current mediocre effectiveness seems primarily to be due to the rapid deterioration that occurred prior to the first survey under this Project (Fall 1999). Deficiencies in installation workmanship, reported by Hawkins (1999), appear to be largely responsible for these observations. In contrast, the two silicone sections with joint configuration No. 4 have exhibited rapid loss of effectiveness since the first survey, deteriorating from about 70% to about 10% during the last year of service. The narrower joint configuration width, No. 4, is the most likely attribute responsible for this difference. Among the three sealant types included in this experiment, silicone sealants have suffered the most drastic deterioration since the November 1999 survey, averaging a 13% effectiveness loss as of EBOC00.

5.2.2 Treatment Effectiveness in the Eastbound Lanes during the EBJN01 Survey

On Monday, June 4, 2001, the University of Cincinnati research team performed the fourth survey of the joint sealants condition in the eastbound driving lane. The data set collected is code-named EBJN01. The evaluation was conducted in the manner described previously by Sander (2002). The effectiveness of the sealants is shown in the bar graph of Figure. 5.7. The sealants are categorized by sealant type, (silicone, hot-applied, or pre-formed compression), for which average effectiveness values are listed. The joint configuration for each sealant is denoted by the number in parentheses.

In general, it is observed that the pre-formed compression seals are superior to the hot-applied and silicone sealants. The average effectiveness of the compression, hot-applied, and silicone sealants are 70, 43, and 60%, respectively. The average of the compression seals, however, rise to 95% with the exclusion of Techstar W-050 (5), which exhibits a very poor effectiveness of 22%. The Watson Bowman 687 (5) and Delastic V-687 (5) compression seals are by far the best performing seals in the eastbound lane; they exhibit 95 and 94%, respectively.

The two hot-applied sealant sections continue to show a remarkable difference in performance. The Crafco 221 (1) section has an effectiveness of 75%, yet the section containing Crafco 444 (1) is exhibiting only 11%, which is the worst effectiveness value in the eastbound lanes. The average effectiveness of these sections is 43%, but since the two values are so different, the average is not very meaningful.

The silicone sealant sections average 60% effectiveness and have a much lower variance than the hot-applied. Dow 890-SL (1) is the best silicone sealant with an effectiveness of 80%, while Crafco 902 (1) is the worst at 36%. The correlation between joint width and sealant performance encountered in the EBOC00 survey is no longer evident. The average effectiveness values for the silicone sealants with joint configuration 1, 3, and 4 are 59, 62, and 61%, respectively. The discussion below will elucidate this observation.

The results of the previous two surveys are shown in Figure 5.8. Table 5.2 lists the effectiveness values for the past two surveys and ranks them accordingly. Differences between the two surveys are also tabulated and ranked; a rank of 1 indicates the greatest loss of effectiveness and a rank of 13 means the least. The most striking observation is that nine of the thirteen sections exhibit increases in effectiveness. The increase is mainly in the silicone and hot-applied sections. The compression seals show a decrease of effectiveness of less than 5%.

The two hot-applied sections (Crafco 221 and Crafco 444) show limited increases in effectiveness (5%). These apparent improvements are too small to cause any concern to the research team.

Several of the silicone sealants, however, exhibit much larger increases in effectiveness. The two sections with joint configuration No. 4 are most notable, displaying 49 and 53% increases of effectiveness, respectively. The effectiveness value of Dow 890-SL (4) rose from 13 to 65%, while that of Crafco 903-SL (4) rose from 7 to 56%. With one exception, the other silicone filled sections reveal somewhat smaller increases in effectiveness, ranging from 6 % in the Dow 890-SL (3) section to 20% in the Dow 888 (1b) section. Crafco 902 (1) is the only silicone section that shows a small decrease in effectiveness (1%).

Effectiveness increases in so many sections are a great concern to the University of Cincinnati research team. The larger increases are confined to the silicone sections, which shows how difficult to evaluate this type of sealant. The very large increases (about 50%) are found in the sections with No. 4 joint configurations. These joints are the narrowest of the test joints, with a nominal width of 3 ± 2 mm (1/8 ± 1/16 in.), a feature that makes it difficult to determine objectively and with confidence whether a water-tight bond exists between the joint walls and the sealant. It should be noted that for the sake of objectivity the University of Cincinnati research team does not refer to previous data sets prior to collecting a new one.

A possible explanation for the apparent improvements in effectiveness is offered in Figure 5.9, which shows the field logs for Joint 15 in the Crafco 903-SL (4) section, recorded during the EBOC00 and EBJN01 evaluations. The latter appears to be more detailed, revealing a series of increments of sunken seal or adhesion failures, interspersed with short intact segments. In contrast, the earlier log shows longer increments of failure with no intact segments. It is apparent from this example that the scale and degree of detail of the observations, as well as the subjective opinion of the evaluator, may play a more significant role than previously realized.

Figure 5.10 graphs the results of all sealant sections and all surveys to date. Figure 5.11 shows the deterioration of the preformed compression seals since their installation. As expected, the two superior seals (Watson Bowman 687 and Delastic V-687) continue to maintain most of their original effectiveness. Techstar W-050, on the other hand, continues to deteriorate, albeit more slowly after each survey.

Figure 5.12 illustrates the corresponding trends for the hot-applied sealants, Crafco 221 (1) and Crafco 444 (1). Both have fluctuated very little since the first survey and have remained within 5$\underline{\%}$ of their EBNV99 value. This lack of variation seems to reinforce the hypothesis that these sections were never at 100% effectiveness, even immediately after installation.

The deterioration of the silicone sealants is plotted in Figure 5.13. The sudden increase in effectiveness recorded in June 2001 does not fit the previous downward trend of these sections. The two No. 4 section configurations regained nearly all of the effectiveness they lost since the first survey. The sections containing Dow 890-SL (1) and Dow 888 (1a) increased to values above their initial EBNV99 values. Only Crafco 902 (1) continues to follow a steady but slow deterioration path.

5.2.3 Treatment Effectiveness in the Eastbound Lanes during the EBOC01 Survey

On Monday, October 15, 2001, the University of Cincinnati research team performed the fifth and final sealant survey in the eastbound lanes. This evaluation, code-named, EBOC01, was conducted in the manner described previously (Sander, 2002). The effectiveness of the sealants is shown in the bar graph of Figure 5.14. The sealants are categorized by sealant type, as silicone sealants, hot-applied sealants, or compression seals, and also by joint configuration, which is denoted by the number in parentheses. Average effectiveness values for each sealant type are listed in the text box.

Excluding Techstar W-050 (5) , the compression seals are once again outstanding, averaging 94% effectiveness. Techstar W-050 (5) is only 19% effective, whereas Watson Bowman 687 (5) and Delastic V-687 (5) are both at 94%.

The two hot-applied sealants continue to differ quite dramatically from one another. Crafco 221 (1) has the third highest effectiveness value (79%), yet Crafco 444 (1) has the lowest value (9%). These two sections average 44% effectiveness, the lowest among the three sealant types.

The silicone sealants average 46% effectiveness, which is only slightly better than the hot-applied. The two self-leveling sealants with the No. 1 joint configuration are the best performing silicone sections to date. Dow 890-SL (1) and Crafco 903-SL (1) have effectiveness values of 71 and 58%, respectively. Only one other silicone section is above 50%, namely Dow 890-SL (3), which is 57% effective. The remaining five sections are below 50% effectiveness, including Crafco 903-SL (4), which is only 12% effective. Any correlation between joint configuration and sealant performance continues to be faint; there is considerably more variance within identical joint configuration sections than in previous surveys.

Figure 5.15 shows the results of the current survey, which are compared to the previous evaluation. Table 5.3 lists the effectiveness values and corresponding rankings for these two surveys, as well as the deterioration of the sealants from the previous survey with corresponding rankings.

The three compression seals lost only a total of 4% effectiveness, although most of this is attributable to the Techstar W-050 (5) section, which lost 3%. Delastic V-687 (5) gained an insignificant 0.2% in effectiveness. The only other section exhibiting an increase in effectiveness is Crafco 221 (1), which gained 4%. Crafco 444 (1) dropped below 10% by losing 2% and has practically no intact sealant left.

The silicone sealants display decreased effectiveness values ranging from 5 to 44%. The largest decreases are found in the two narrow No. 4 joint section configurations, which lost 23 and 44%. Much of the apparent gain in effectiveness recorded during the previous survey (EBJN01) appears to have dissipated. The twin sections of Dow 888 (1) lost 9 and 12%, respectively, while the remaining silicone sections lost less than 10% in effectiveness.

The effectiveness values for all sections and surveys to date are shown in Figure 5.16, which clearly portrays the performance trend over time for these sealants. Similarly, Figure 5.17 tracks the performance of the compression seals. Since a thorough evaluation of the sealants was not possible immediately after their installation (Hawkins, 1999), all effective values are assumed to have been 100% to begin with. This assumption is brought into question by the results of several sections, but it is used for practical purposes. The performance, or lack thereof, of Techstar W-050 (5) is evident, as it falls precipitously well below that of the other compression seals. The Watson Bowman 687 (5) and Delastic V-687 (5) seals emulate each other's excellent performance. The effectiveness values of these two seals never differ by more than 1%. Their long-term performance looks promising, whereas Techstar W-050 (5) seems doomed for a quick ultimate failure.

The performance to date of the hot-applied sealant sections is shown in Figure 5.18. It is apparent that Crafco 444 (1) began deteriorating at a faster rate than the other hot-applied sealant, Crafco 221 (1). The former appears to be at a terminal effectiveness level since it does not have much more effectiveness to lose. The latter is maintaining an effectiveness between 70 and 80%.

Figure 5.19 displays the effectiveness values of the silicone sealants over their life-span to date. The effectiveness increases observed during EBJN01 make the graph difficult to decipher. The majority of the effectiveness apparently gained during the last survey (EBJN01) appears to have been lost during the current survey (EBOC01) and throws into doubt the results of the former survey. Only Crafco 902 (1) exhibits no effectiveness increases at all during its lifetime. The current effectiveness values for almost all sections are still above those from a year ago (EBOC00). Most of the sections, however, are only a few percentage points above their October 2000 value.

5.2.4 Treatment Effectiveness in the Westbound Lanes during the WBOC00 Survey

On Wednesday, October 11, 2000, the University of Cincinnati research team performed the third joint sealant evaluation in the westbound driving lane. The data set collected is code-named WBOC00, and was performed in the same manner as previously described by Sander (2002). Effectiveness values calculated from the results of this survey are shown in Figure 5.20. The sections are grouped by sealant type: silicone, hot-applied, or compression seals. The joint configuration for each sealant is denoted by the number in parentheses. Average effectiveness values for the three sealant types are also displayed in the Figure.

The westbound lanes have been open to traffic for approximately thirteen months fewer than the eastbound lanes, and the sealants here have generally suffered less damage. In the westbound lanes, the silicone sealants have maintained 90% effectiveness, higher than any other sealant type in the westbound lanes. The compression seals and hot-applied sealants average 75 and 71% effectiveness, respectively.

The relatively poor performance of the compression seals compared to the silicone sealants is attributable exclusively to the very poor effectiveness rating of the Techstar W-050 (5) section. As in the eastbound lanes, Techstar W-050 (5) is performing very poorly, achieving only 27% effectiveness. In contrast, the other two compression seals maintain 100 and 99% effectiveness, respectively. If the effectiveness value of Techstar W-050 (5) is excluded from the compression seal average these seals have a nearly perfect effectiveness average (99.5%), which surpasses that of the silicone sealants. The consistent poor performance of the Techstar W-050 seal in both the eastbound and westbound lanes demonstrates its inadequacy as a sealant in a Portland cement concrete (PCC) pavement.

The two hot-applied sealants have very different effectiveness values. The Crafco 444 (1) sealant maintains more than twice the effectiveness of Crafco 221 (1). The former averages 96% effectiveness, while the latter maintains only 46%. In contrast, recall that in the eastbound lanes Crafco 221 (1) performed far better than Crafco 444 (1). Consequently, the argument proposed earlier that Crafco 221 (1) is better suited to the temperature regime at the test site no longer holds.

The majority of the silicone-filled joints maintain at least 90% sealant effectiveness. The Dow 890-SL (3) section exhibits a remarkably high 99.7% effectiveness rating. The correlation between poor sealant performance and joint configuration is again present, although it is not as pronounced here as in the eastbound lanes. Dow 890-SL (4) sealants have the lowest effectiveness among the silicone sections, exhibiting 57% effectiveness. With one exception, there is little difference among the sealants placed in joints with the wider No. 1 configuration. Four of the five silicone sealants with joint configuration No. 1 vary from 96 to 98% effectiveness. The fifth, Crafco 903-SL (1b) has only 79% effectiveness.

As in the previous section, a table is provided to compare the effectiveness of each sealant from the Fall 2000 survey to the previous survey conducted in Spring 2000. Table 5.4 lists the loss of effectiveness and ranks the sealants in a manner analogous to what was described earlier. The rating categories are included again for the reader's convenience. Figure 5.21 graphs these effectiveness values so that the reader can gain a better understanding of the results.

As is the case for the eastbound lanes, the Watson Bowman and Delastic compressive seals are performing better than almost all of the sealants, ranking first and third in the westbound lanes, respectively. The other compression seal, Techstar W-050 (5), is the worst seal in terms of effectiveness and also loss of effectiveness since the previous survey.

The Dow 890-SL (4) silicone sealant section is the only section other than Techstar W-050 (5) to experience significant deterioration (i.e., more than 5%): it has lost 29% of its effectiveness. Most sections have somewhat higher effectiveness values than what was observed in the previous survey. As mentioned previously, these limited increases are the result of inevitable discrepancies in the rating practices of individual research team members.

Figure 5.22 shows the effectiveness trend for each sealant since the first survey conducted in Fall 1999. With few exceptions, all sections have experienced little or no loss in effectiveness.

The deterioration of the compression seals is displayed in Figure 5.23. The Watson Bowman 812 (5) and Delastic V-687 (5) compressive seals continue to exhibit superior effectiveness values, with very little or no deterioration. The former shows no loss of effectiveness in any of the inspected joints. The Techstar W-050 (5) section, on the other hand, is again the exception among the compression seals, losing 43% since Spring 2000 and 72% since Fall 1999.

Due to the fact that the westbound sealants are one year younger than those in the eastbound sections, they can provide valuable information concerning early age performance. The westbound Techstar W-050 (5) section initially had a high effectiveness value but began deteriorating immediately. Therefore, it may be concluded that the poor performance initially observed in the eastbound lanes is a result of rapid sealant deterioration rather than poor installation, as previously suspected.

The two hot-applied sealants have very different deterioration rates again, as shown in Figure 5.24. The Crafco 444 (1) section has experienced no loss of sealant effectiveness since the original survey, whereas the Crafco 221 (1) section has lost nearly 20%. Incidentally, these two sealants are the youngest ones: they were installed four months after the rest in the westbound lanes.

A concern about the installation of the Crafco 221 (1) sealant was discussed earlier, but it is still difficult to decipher if the relatively poor performance of the sealant is due to poor installation or sealant deterioration. The initial evaluation of the sealant in the eastbound lane (EBNV99) was conducted when the sealant had already been in place for two years, and, therefore, the loss of effectiveness could have been caused by distresses related to vehicle traffic. An evaluation of the Crafco 221 (1) sealant in the westbound lanes during the WBNV99 survey allows an evaluation of the sealant at a relatively young age (seven months). In the WBNV99 survey, the Crafco 221 (1) section is found to have maintained only 63% of its effectiveness, a value similar to the initial effectiveness found in the eastbound lane (71%). This may give some additional evidence that the installation of the Crafco 221 sealant may not have yielded an initial effectiveness at or near 100%.

Similar concerns were discussed earlier in conjunction with the silicone sections in the eastbound lanes. Again, the westbound lanes are used as an indication of the sealants' early age performance. The silicone sealants in the westbound lanes are generally observed to have high initial effectiveness values and experience little or no loss of effectiveness in later surveys (Figure 5.25). In view of the lack of deterioration in the westbound lanes, it is likely that it is poor installation led to the loss of effectiveness in the silicone sealants in the eastbound lanes.

The effectiveness on the westbound sections is in great contrast to those in the eastbound lanes. This difference is only partly due to the relative age of the sealants; the sealants in the westbound lanes were installed approximately one year after those in the eastbound lanes and, consequently, the latter have been exposed to the harsh environment for a longer period of time. To evaluate performance at the same age, data from the WBOC00 survey are compared to those from the EBNV99 survey, when both sealants were approximately two years old. A graphical illustration of this comparison is shown in Figure 5.26. In general, the 2-year old westbound sealants (WBOC00) performed much better than the 2-year old eastbound sealants (EBNV99). Note that in Figure 5.26, the comparison in some cases is between similar but not identical sections, in view of small differences in the experimental layout of the eastbound and westbound sealant sections. Thus, Watson Bowman 687 (5) is compared to Watson Bowman 812 (5), and Crafco 902 (1) is contrasted to Crafco 903-SL (1a).

The performance of the westbound compressive seals manufactured by Watson Bowman and Delastic is very similar to their counterparts in the opposite lane direction since none has experienced an effectiveness loss. The Techstar W-050 (5) seals offer one of the few exceptions found in Figure 5.26. The eastbound Techstar seals performed much better than those in the westbound lanes. The former maintained 60% effectiveness and the latter only 27%, despite the fact that the manufacturer's representative was present during installation in the westbound lanes.

The eastbound section of the Crafco 221 (1) sealant achieved 71% effectiveness whereas the westbound attained only 46%. The other hot-applied sections, Crafco 444 (1), are significantly different. The westbound section maintained nearly all of its effectiveness with 96%, yet the eastbound section exhibited only 14% effectiveness.

All but one of the westbound silicone sections exceeded the effectiveness of their counterparts in the eastbound lanes. The WBOC00 sections have surpassed the EBNV99 ones by an average of 17%. Only the westbound Dow 890-SL (4) section achieved a lower effectiveness value than the corresponding eastbound section, maintaining 57 and 76%, respectively.

The superior performance of the westbound over the eastbound sealant sections, even when comparing similar ages, suggests that favorable conditions exist in the westbound lanes. Possible factors contributing to this difference in sealant performance include the experience of the installation crew and weather conditions during sealant installation.

5.2.5 Treatment Effectiveness in the Westbound Lanes during the WBJN01 Survey

On Tuesday, June 5, 2001, the University of Cincinnati research team performed the fourth sealant evaluation in the westbound driving lane. The survey was performed in the same manner as previous inspections (Sander, 2002), and the data set collected is code-named WBJN01. Effectiveness values calculated are shown in Figure 5.27. The sections are grouped by sealant type: silicone, hot-applied, or compression, for which average effectiveness values are listed. The joint configuration is denoted by the number in parentheses.

The compression seals, with the exception of Techstar W-050 (5), have lost very little effectiveness. Watson Bowman 812 (5) and Delastic V-687 (5) have effectiveness values of 99.7%, with only 25 mm (1 in.) of failure in each. The Techstar W-050 (5) seal continues to perform poorly with an effectiveness value of only 14%. The three compression seals average 71% effectiveness, which is not representative of the excellent performance of the two superior compression seals.

The average effectiveness of the hot-applied sealants is 78%. Crafco 444 (1) is 98% effective and Crafco 221 (1) is at 58%. The former value is in great contrast to the effectiveness value in the corresponding eastbound section, which is only 11%. Such a large disparity has been observed in every survey to date. If it is assumed that conditions in the eastbound lane are identical to those in the westbound lane, this would suggest a possible flaw in the installation process in the eastbound section. On the other hand, there is a considerable age difference between the two Crafco 444 (1) sections; this will be discussed subsequently in more detail.

The silicone sealants are far superior to the hot-applied materials and to the Techstar W-050 (5) compression seal. Six silicone sections have effectiveness values above 95%; the other two, Crafco 903-SL (1b) and Dow 890-SL (4), have values of 79% each. In this case, there is no apparent correlation between sealant effectiveness and joint configuration.

The silicone sealants in the westbound lane have two pairs of identical sections; two Dow 888 (1) and two Crafco 903-SL (1) sections. The Dow 888 (1) sections are performing very similarly: one is 99.7% effective and the other 98%. The performance of the Crafco 903-SL sections, however, show a considerable difference in effectiveness. Crafco 903-SL (1a), located between stations 188+00 and 194+00, is 96% effective, whereas Crafco 903-SL (1b), between stations 194+00 and 200+00, is only 79% effective. This is peculiar since both were installed on the same day, immediately following one another (Hawkins, 1999). The sealant installation crew moved eastward and installed Crafco 903-SL (1b) before Crafco 903-SL (1a). It is postulated that the crew gained useful experience with the installation of the former and applied it to the installation of the latter.

The results of the last two surveys are compared in Figure 5.28. Table 5.5 also lists the effectiveness values and differences from the previous two surveys and ranks the sections accordingly. Techstar W-050 (1) lost more effectiveness (13%) than all other sealant sections. The effectiveness values for the compression seal sections, Watson Bowman 812 (5) and Delastic V-687 (5), has varied by only 1%. Both of the hot-applied sections have increased in effectiveness. The 12% increase in Crafco 221 (1) is the second highest; the Crafco 444 (1) apparently improved by 2%. The large increases in effectiveness observed previously in the eastbound lanes are generally nonexistent in the westbound lanes; this is because most of the latter sections are already near 100% effectiveness. Six of the eight silicone sections had previous effectiveness values above

90%, and of these six sections, only three exhibit small increases in effectiveness. Both silicone sections involving a No. 4 joint configuration display increases in effectiveness. Crafco 903-SL (4) has only a 5% increase, but its previous effectiveness was 91%. Dow 890-SL (4) has the largest increase: 23% since the previous survey.

The deterioration of all westbound sealant sections since the first survey (Fall 1999) is displayed in Figure 5.29. The long-term loss of effectiveness for the pre-formed compression seals is also shown in Figure 5.30. Watson Bowman 812 (5) and Delastic V-687 (5) continue to maintain most of their effectiveness. It is unlikely that these two superior seals will lose much effectiveness in the near future. Techstar W-050 (5) has already failed and continues to decline toward 0% effectiveness. After failing in just a short period of time, the Techstar seals in both the eastbound and westbound lanes have no long-term durability.

Figure 5.31 illustrates the results of the past four surveys for the hot-applied sealants. The section containing Crafco 444 (1) has increased slightly in effectiveness during the past two surveys, but this total increase accounts to only 9%. Crafco 221 (1) was thought to be steadily losing effectiveness but it seems to have stabilized and even shows a slight increase.

The trendline for the silicone sealants over the past four surveys is shown in Figure 5.32. With the exception of Dow 890-SL (4) at the time of WBOC00, all of these sections have maintained most of their effectiveness as measured during the first survey (WBNV99). The performance of these sealants is unlike the performance of their counterparts in the eastbound lanes, where a steady loss of effectiveness is observed.

The eastbound and westbound lanes need to be compared at a similar age for the evaluation to be more meaningful. The westbound sealants are approximately one year younger than those in the eastbound lane. As done for the previous survey, the results of the current survey for the westbound lanes (WBJN01) are compared to the results of the survey of the eastbound lanes conducted one year earlier (EBMR00). The age of the sealants at the time of these two surveys is approximately 2.5 years.

Results from these two surveys are compared in Figure 5.33, which shows that the sealants in the westbound lane continue to outperform those in the eastbound. This trend is the same as had been observed in the last comparison. All but two of the westbound sections retain greater effectiveness values than their eastbound counterparts. In fact, the difference between the two lane directions is more pronounced now than before. The average difference is now 31%, up from 17% in the last comparison. This shows that the westbound sealants are not deteriorating nearly as rapidly their counterparts in the eastbound lanes.

The eastbound and westbound performance of the two superior compression seals, Watson Bowman 812/687 (5) and Delastic V-687 (5), remains excellent and very similar since neither seal has deteriorated significantly. The eastbound Techstar W-050 (5) section is performing better than the westbound section, although the difference has decreased since the last survey. This section is one of the few exceptions to the general trend of superior performance in the westbound lanes. The other exception in this comparison is offered by the Crafco 221 (1) sections, for which the eastbound is outperforming the westbound by 14%.

The largest difference in effectiveness is displayed by the Crafco 444 (1) sections; the westbound is nearly 90% more effective. It is noted that because the hot-poured sealants were installed later than the other westbound sections, they are five months younger than the corresponding eastbound sections. It is unlikely, however, that this age difference accounts for the observed disparity. Although it is not possible to ascertain at this time the cause of this large discrepancy, it is reasonable to attribute it to differences in weather conditions and quality of workmanship during installation. It is assumed that traffic loads and other distress causing factors are similar in both directions. The disparity in the hot-poured sealants and possibly other sealant types may be weather related. The installation of the westbound hot-poured sealants was delayed waiting for warmer temperatures; the pavement temperature was recorded at 16° C (61° F), which is within the Crafco specifications of 10-32° C (50-90° F) (Hawkins, 1999). In contrast, since the eastbound hot-poured sections were installed in November, it is possible that the pavement temperature was below the minimum specified temperature, and as a result the sealant did not create a good bond with the joint walls. No pavement temperatures are available for the November 1999 installation. Also, the Crafco 444 sealant applied in the westbound lane was heated to a temperature of 143°C (290°F), which is within the recommended temperature range (Hawkins, 1999). Unfortunately no additional information is available describing the installation process of Crafco 444 in the eastbound lanes.

The silicone-filled sections average a difference of 42% between the westbound and eastbound directions. The largest contrast is found in the Crafco 903-SL (4) sections

(72%). The causes of so many large differences in effectiveness between the eastbound and westbound silicone sections are not clearly understood. The manufacturers' specifications for the silicone sealants make no mention of required temperature ranges (Hawkins, 1999). If temperature is indeed not a factor affecting the performance of these materials, then poor workmanship may be to blame.

5.2.6 Treatment Effectiveness in the Westbound Lanes during the WBOC01 Survey

On the day following the inspection of the eastbound lanes, i.e., on Tuesday, October 16, 2001, the westbound lanes were inspected. Code-named WBOC01, this evaluation was the fifth and final evaluation for these materials. The results of the current survey are presented in Figure 5.34, where the sealants are separated into compression, hot-applied, and silicone sealants, and are further arranged according to their joint configuration. The average effectiveness values for each sealant type are also provided.

The compression seals, with the exception of Techstar W-050 (5), continue to perform exceptionally well. Watson Bowman 812 (5) and Delastic V-687 (5) are 98 and 97% effective, respectively. The average of the compression seals (66%) is depressed due to the ineffectiveness of the Techstar W-050 (5) section. Excluding this section yields an average of 98%, which is best amongst all the sealants. The difference in effectiveness between the two superior compression seal sections and Techstar W-050 (5) could not be greater. The latter is only 4% effective, which indicates that the sealant has failed since it cannot keep any water out of the joint.

The difference between the two hot-applied sections continues to increase: Crafco 444 (1) is 93% effective, yet Crafco 221 (1) is only 43% making the difference 50%. During the previous survey this difference was 40%.

The silicone sealants average 85% effectiveness, which is the best for the westbound lanes (when Techstar W-050 is included for the compression seals). All silicone sealants with the No. 1 configuration, with the exception of Crafco 903-SL (1), are in very good condition (≥ 90%). The only No. 3 configured section, Dow-SL 890 (3), has the highest effectiveness value (99%) out of all the westbound sections. The two No. 4 configured silicone sections, Crafco 903-SL (4) and Dow 890-SL (4), have effectiveness values of 85 and 44%, respectively. It is apparent that the No. 4 joint configuration continues to produce poor effectiveness values.

In Figure 5.35, the results of the current survey are compared to those from the previous one. Numerical values for effectiveness and deterioration, as well as corresponding rankings, are listed in Table 5.6. Watson Bowman 812 (5) and Delastic V-687 (5), which were both 99.7% effective during WBJN01, maintained their excellent performance, each decreasing by only 2%. Techstar W-050 (5), which had little effectiveness left, lost 10%, falling to 4% effectiveness. The Crafco 444 (1) section lost 6%, but it is still in very good condition (≥ 90%). Crafco 221 (1) fell from a poor to very poor rating by losing 15%, and so ranks second in terms of lost effectiveness. The section containing Dow 890-SL (4) exhibits the largest decrease in effectiveness (35%), down from the unexpectedly high value recorded during the previous survey. The other No. 4 configured section, Crafco 903-SL (4), also lost all of its previous apparent gain in effectiveness; it lost 11% since the previous survey. The remaining silicone sections lost less than 10%; Dow 888 (1a), which was 99.7% effective during the last survey (WBJN01), dropped 9% during the current survey (WBOC01). The only section exhibiting an increase in effectiveness is Dow 890-SL (3), which gained 2%.

The performance of all the westbound sections over their entire life to date is shown in Figure 5.36. The sealant type sections are also displayed individually in Figures 5.37 to 5.39 and are examined in detail in the following paragraphs.

Figure 5.37 indicates that Techstar W-050 (5) may have at one time been 100% effective, but deteriorated quickly soon after its installation. It is clear that this section has been steadily declining in effectiveness over the past three years and has virtually no effectiveness left. The other two compression seals, Watson Bowman 812 (5) and Delastic V-687 (5), have maintained nearly all of their original effectiveness and promises excellent performance in the future.

The performance of the hot-applied sealants is shown in Figure 5.38. These sealants were not installed until April 1999, whereas all other seals in the westbound lanes had been installed in December 1998. Unlike the eastbound lanes, where Crafco 444 (1) began deteriorating very rapidly and dramatically, the corresponding westbound section has lost very little in effectiveness. It has generally maintained effectiveness values above 90% for its lifetime. Crafco 221 (1) deteriorated rapidly early on, but more recently it has maintained a steady effectiveness value, the June 2001 evaluation, which produced many effectiveness increases, notwithstanding.

Most of the silicone sealants have maintained much of their original effectiveness throughout their lifetime as shown by Figure 5.39. Four sections, Dow 890-SL (3), Dow 888 (1b), Dow 890-SL (1), and Crafco 903-SL (1a), have never dropped below 95% effectiveness. Dow 888 (1a) recently dropped to 91%, but it had been above 95% in all previous surveys. Crafco 903-SL (4) and Crafco 903-SL (1b) had deteriorated to 89% and 77%, respectively, during EBMR00, but they have essentially maintained those values since then. The two identical Crafco 903-SL (1) sections are performing quite differently. Crafco 903-SL (1a), which is between Stations 188+00 and 194+00, is outperforming its twin by approximately 20% throughout the time span considered. The effectiveness value of Dow 890-SL (4) fluctuates dramatically since it is very hard to survey due to the very narrow joint width, which makes it difficult to determine adhesion failure.

The westbound sections are still performing significantly better than the eastbound sections, even after accounting for the difference in their ages. Figure 5.40 compares the current westbound survey (WBOC01) to the eastbound survey conducted one year earlier (EBOC00). At the time of these two evaluations, all sections were approximately three years old.

The superior performance of the westbound sections is glaring, especially when considering the silicone sealants, where every westbound section outperforms its corresponding eastbound counterpart by at least 30%. The largest difference among silicone sealants is found in the Crafco 903-SL (4) joints, where the westbound lanes are 78% higher than the corresponding eastbound lanes. The largest overall difference is between the two Crafco 444 (1) sections. The westbound section is outperforming the eastbound by 86%, which is actually down from 88% observed during the June 2001 evaluation. The other hot-applied sealant, Crafco 221 (1), does not follow the same trend: the eastbound is outperforming the westbound section by 28%. Similarly, the Techstar W-050 (5) eastbound section is outperforming its westbound counterpart by 23%. The other two compression seals are performing identically in both directions. The Watson Bowman sections are both achieving 98% effectiveness, while both the Delastic V-687 (5) sections are maintaining 97% effectiveness.

It is now possible to compare the eastbound and westbound sections over an extended period of time. The effectiveness of the compression seals in the eastbound and westbound lanes is plotted in Figure 5.41. The ordinate is age in months, measured since the time of installation. The Watson Bowman and Delastic seals in the eastbound and westbound lanes are performing extremely well. The eastbound Techstar section is outperforming its westbound counterpart, but the effectiveness trends of both sections are pitifully poor. In both directions, this material exhibits less than 20% effectiveness, and continues to deteriorate.

Figure 5.42 depicts the hot-applied sealants in the same manner. The large discrepancy between the two Crafco 444 (1) sections is again evident. The eastbound section never performed as well as the westbound, which hints at possible deficiencies in the installation of the former. It is possible that the construction crew gained experience with the installation of the eastbound section, and used this effectively during installation in the westbound sections. Moreover, it is possible that delaying the westbound installation until the following Spring was very beneficial. The Crafco 221 (1) sections, however, do not support these postulates. Just the opposite is observed in these sections, albeit to a much lesser degree: the eastbound are outperforming the westbound. The difference in effectiveness here is about 25%, whereas for the Crafco 444 (1) sections this difference is about 80%.

To elucidate the behavior of the silicone sealants, their performance trends are shown in three separate figures. Figure 5.43 shows the self-leveling sealants with the No. 1 joint configuration. Note, however, that whereas there are two duplicate sections of Crafco 903-SL (1) in the westbound lanes, there is only one such section in the eastbound direction. Consequently, the westbound Crafco 903-SL (1b) section is compared to the eastbound section sealed using Crafco 902 (1), ignoring the fact that the latter is a non-sag silicone sealant. To date, all of the westbound sections are outperforming their eastbound counterparts by a large margin. It is apparent that all eastbound sections never performed as well as their westbound counterparts.

Figure 5.44 displays the performance of the four non-sag Dow 888 (1) sections. It is observed again that the westbound sections are outperforming the eastbound by a considerable margin. The former have never dropped below 90% effectiveness, whereas the latter deteriorated drastically very early on and are about 50% below the westbound lanes as of the WBOC01 survey. This graph strongly suggests that poor workmanship is responsible for the dismal performance of the eastbound silicone sealants.

The performance of the No. 3 and 4 configured self-leveling silicone sealants in the east- and westbound lanes is shown in Figure 5.45. Despite the fluctuations in values from survey to survey, this graph also shows the continuing superior performance trend of the westbound sections. Westbound Dow 890-SL (3) and Crafco 903-SL (4) have outperformed their eastbound counterparts over the entire time span considered. The Dow 890-SL (3) section has maintained an effectiveness of at least 95% in the westbound lanes, yet its counterpart in the eastbound direction has deteriorated steadily to below 60%. The westbound Crafco 903-SL (4) section has never dropped below 80%, yet the corresponding eastbound section began deteriorating quickly and never came close to the westbound performance. The eastbound section of Dow 890-SL (4) had better effectiveness values than the westbound section in early life, yet at approximately 25 months, it began to lose effectiveness very quickly and has since dropped below the latter. Additional surveys are needed to further study the performance of these sealants in view of the strong fluctuations in effectiveness values.

5.3 PCC Pavement Performance

Collection of data pertaining to PCC pavement performance was initiated during the Spring 2000 evaluation, after several mid-slab cracks had been noticed (Sander, 2002). Only the westbound driving lane was included at this initial survey, results from which are discussed by Sander (2002). During the Fall 2000 evaluation, the initial pavement performance survey of the eastbound driving lane and the second such survey of the westbound driving lane were conducted. Additional surveys were conducted during the Spring 2001 and Fall 2001 evaluations; all three data sets are described subsequently. The number of slabs containing transverse cracks and slabs with corner breaks are recorded; examples of these distresses are shown in Figures 5.46 and 5.47, respectively. Slabs containing more than one transverse crack or corner break are counted as just one. The degree of joint spalling, measured by length, is calculated as well; examples of this type of deterioration are shown in Figure 5.48. These three pavement distresses are analyzed in the following subsections.

5.3.1 Pavement Distresses in the Eastbound Lanes during the EBOC00 Survey

The initial pavement performance evaluation in the eastbound lanes was conducted on Wednesday, October 11, 2000. Analysis of the extents of transverse cracking, corner breaking, and joint spalling is provided below.

Transverse Cracking

Table 5.7 shows a summary of transverse cracking observations recorded during the EBOC00 survey in the eastbound lanes. This is the first such pavement performance evaluation in this direction. Every section exhibits transverse cracking to some extent and the test pavement as a whole has 24% cracked slabs.

The section of the non-sag silicone sealant Dow 888 (1a) displays the most transverse cracking (48%). The other non-sag silicone filled sections, Dow 888 (1b) and Crafco 902 (1), have 25 and 32% of the slabs cracked, respectively.

The unsealed section between Stations 219+00 and 225+00 shows the second largest amount of transverse cracking at 48%, as well as the most corner breaks, as noted in a subsequent paragraph. The two Crafco 903-SL sections have the least transverse cracking: Crafco 903-SL (1) has 7% slabs cracked and Crafco 903-SL (4) only 6%.

There is no bias with respect to sealant type when transverse cracking is considered. The top four pavement sections in terms of percentage of cracked slabs, viz. Dow 888 (1a), No Sealant (2), Watson Bowman WB-687 (5) and Crafco 221 (1), each have a different sealant type (silicone, unsealed, compression seal, and hot-applied), as well as a wide range of effectiveness values (41, 0, 98, 71%, respectively). Note that the unsealed section is assigned a 0% sealant effectiveness to facilitate the comparison.

Corner Breaking

The pavement performance evaluation conducted in Fall 2000 was the first time corner breaks were counted in the eastbound lanes. Table 5.8 shows the number of corner breaks and percentage of corner breaks in the eastbound driving lane encountered during the EBOC00 survey.

Corner breaks are observed only in two sections, Techstar W-050 (5) and No Sealant (2). Two broken slabs are found in the former, accounting for 7%. The latter has six slabs with corner breaks, accounting for a remarkably high 22% of the slabs in this section. No other unsealed section in either the eastbound or the westbound lanes was observed to have any corner breaks.

Spalling

Table 5.9 lists the measured length of spalling, spalling increases, and rankings for each sealant section. The total recorded length for this survey is also provided. There are six sections that currently have spalling distresses observed in their joints. Of these, two are silicone filled, two are hot-applied, and two are unsealed. Recall that there are only two hot-applied and two unsealed sections in the eastbound lanes. None of the three compression sections have any spalling failures.

Crafco 221 (1) has significantly more spalling than any other section; it measures 1.25 m (4.1 ft). As shown in Figure 5.48 (a), Joint 21 was poorly cut and exhibits 1.19 m (3.9 ft) of spalling, which accounts for over 95% of the total spalling failure length in this section. The section with the second highest degree of spalling is Dow 890-SL (3), which has a total 152 mm (6 in.) and is limited to just two joints, 5 and 7. Only four other sections have spalling distress in their joints: No Sealant (6), Crafco 444 (1), Crafco 903-SL (1), and No Sealant (2), which have 102 mm (4 in.), 51 mm (2 in.), 51 mm (2 in.), and 25 mm (1 in.), respectively.

A concern to the University of Cincinnati research team is the fluctuations in the measured spalling length. A careful investigation into this problem revealed that nine of the fifteen sections exhibit a decrease in spalling distress length at one time or another. Three of these involve a decrease of only 25 mm (1 in.). The following questions are raised: Are the distresses being overlooked; is the definition of a spall dependent on the inspector; or is it a matter of the length of the spall being measured? Through the investigation of previous surveys, several measuring inconsistencies were found. Of the nine sections containing spalling decreases, four were determined to be length differences. For example, a spalling distress was measured as 51 mm (2 in.) in Spring 2000. During the next survey, the same spall was measured as only 25 mm (1 in.), which causes a decrease in the measured length. The five remaining increases were either overlooked or considered not to be spalling distresses.

5.3.2 Pavement Distresses in the Eastbound Lanes during the EBJN01 Survey

The second pavement performance evaluation in the eastbound lanes was conducted on Monday, June 4, 2001. Analysis of the degree of transverse cracking, corner breaking, and joint spalling is provided below.

Transverse Cracking

The number of transverse cracks, slab percentage, and corresponding rank for the eastbound driving lane is listed in Table 5.10 (a). The No Sealant (2) section, between Stations 219+00 and 225+00, has the largest percentage of cracked slabs with 66.7%. The other unsealed section, found between Stations 160+00 and 166+00, has the fourth highest percentage with 54%. These sections are performing worse than their westbound counterparts, which rank eleventh and fifteenth, respectively. The section with the lowest cracked slab percentage is Crafco 444 (1), which contains ten cracked slabs accounting for only 13% of the slabs in this section. Recall that this section had the lowest effectiveness value (11%) at the same time (June 2001).

Table 5.10 (b) shows the increases in transverse cracks from the previous survey. Negative values indicate a decrease in observed cracking. Ranking is according to percentage of cracked slabs. The Techstar W-050 (5) section has the largest increase in transverse cracks (29%). A different compression seal section, Watson Bowman V-687 (5), has no increase in transverse cracks. The two hot-applied sections, Crafco 221 (1) and Crafco 444 (1), exhibit very little increase in transverse cracking. The two sections each have increases of 4%, ranking 14 and 13, respectively. The two Dow 888 sections also show similar increases with respect to each other. Dow 888 (1a) has a 13% increase and Dow 888 (1b) a 14% increase. These increases rank these sections at 9 and 8, respectively. No section exhibits a decrease in transverse cracks.

Corner Breaking

The number of corner breaks found in the eastbound driving lane is presented in Table 5.11 (a). No Sealant (2) and Techstar W-050 (5) have two corner breaks, more than the other sections, but since the former has one slab less than the latter, its slab percentage is slightly larger. The only other section that exhibits corner breaking is Crafco 902 (1), which has one corner break that accounts for 4% of the slabs.

Table 5.11 (b) lists the increase in breaks from the previous survey. The No Sealant (2) section has a decrease of four corner breaks from the previous survey. A review of the field logs is not insightful because none of the corner breaks are found in any of the evaluated joints. The four missing breaks can be attributed to either oversight or classification interpretation. Chipping can often be mistaken for small corner breaks and may be the reason for the decrease.

The Crafco 902 (1) section is the only one to have an increase in breaks; it has one additional break since the previous survey. Techstar W-050 (5) has the same number of breaks as before.

Spalling

The measured length of spalling failures, as well as the increase in length of spalling, in each section are ranked in Table 5.12. The Crafco 221 (1) section, between Stations 260+00 and 266+00, continues to exhibit more spalling than any other one. This fact is not a surprise because during the previous survey it had at least 1.10 m (3.6 ft) more spalling failure than the other sections. Joint 21 remains in poor condition and is still believed to be the result of poor workmanship. Only 1.00 m (3.3 ft) of spalling failure was measured in this section during this survey, compared to 1.25 m (4.1 ft) measured in October 2000. This discrepancy is due to the extremely bad shape of Joint 21, which is often difficult to evaluate due to its dismal condition. The Dow 890-SL (3) section is also observed to have a significant decrease in spalling failure. The severity of the spalls in this section is so small that the evaluator discounted them during the next survey. In October 2000, five separate spalling failures were found in Joints 5 and 7, accounting for 152 mm (6 in.). During the June 2001 survey, the evaluator noted that there was very minor spalling in these joints and that it is too small to be considered spalling failure. Unfortunately, this example shows how the discretion of the evaluator can affect the outcome of the data.

Five sections have spalling failures that have not been previously recorded. These include Crafco 903-SL (4), Dow 890-SL (4), Dow 888 (1a), and Delastic V-687 (5). The total length of spalling is up by 127 mm (5 in.) since the previous survey, to a current length of 1.78 m (5.8 ft).

5.3.3 Pavement Distresses in the Eastbound Lanes during the EBOC01 Survey

The third and final pavement performance evaluation in the eastbound lanes was conducted on Monday, October 15, 2001. Analysis of the degree of transverse cracking, corner breaking, and joint spalling is provided below.

Transverse Cracking

Table 5.13 (a) lists the number of transverse cracks, percentage of slabs cracked, and corresponding ranking for the eastbound sections. Overall, the eastbound lanes are in better condition than the westbound lanes. This fact is surprising because the eastbound lanes are approximately one year older than the westbound lanes. The eastbound lanes have 39% of their slabs cracked, compared to 44% in the westbound lanes. In the eastbound lanes, there are no sections with more than 75% cracked slabs and only four sections with more than 50%; eleven sections have 25% or more of their slabs cracked.

The compression sealed sections are performing similar to each other, Watson Bowman 687 (5) and Techstar W-050 (5) have 50% of their slabs cracked and Delastic V-687 (5) has 43% cracked. These values rank the two former at fifth and the latter at seventh.

The two unsealed sections are performing on the opposite end of the spectra as their westbound counterparts, which have very little cracking. The eastbound sections rank first and fourth in terms of transverse cracking. The No Sealant (2) section has two out of every three slabs cracked (67%) and No Sealant (6) has 54% cracked.

As stated previously, there does not appear to be a correlation between sealant effectiveness and pavement performance. For example, Dow 890-SL (1) has the fourth highest effectiveness value (71%), but has the largest degree of transverse cracks (67%). Crafco 444 (1), which has the lowest effectiveness value (9%), has a transverse cracking rank of thirteen with 15% of its slabs cracked. These examples, with others, suggest that poor sealant effectiveness does not imply poor pavement performance.

Table 5.13 (b) lists the increase in the number of cracked slabs, increased percentage, and corresponding ranking since the previous survey. The Watson Bowman 687 (5) section, which showed virtually no decrease in effectiveness, has the largest increase in cracked slabs (15%). Delastic V-687 (5) exhibits a 7% increase and Techstar W-050 (5) shows no increase at all. The unsealed sections show no increase in transverse cracking. Four sections, Crafco 903-SL (4), Dow 890-SL (3), Crafco 902 (1), and Dow 888 (1b), exhibit decreases in cracking of 6, 4, 11, and 4%, respectively. Most of the sections exhibit an increase in cracking of less than 10%.

Corner Breaking

Table 5.14 (a) lists the number of slabs experiencing corner breaks, as well as the percentage of slabs with cracks, and the corresponding ranking. As had also been the case during the previous survey, only Crafco 902 (1), Techstar W-050 (5), and No Sealant (2) sections have corner breaks. In fact, Table 5.14 (b) indicates that there have been no changes in the number of corner breaks observed in any of the sealant sections since the previous survey.

Spalling

The length of spalling observed during the EBOC01 evaluation is listed in Table 5.15. The Crafco 221 (1) section continues to exhibit the largest degree of spalling. Recall that this section includes Joint 21, which currently has 1.12 m (3.7 ft) of spalling and accounts for 100% of the observed spalling in this section. This joint is the result of either a bad cut or an end of the day construction joint.

Dow 890-SL (3), which previously did not have any spalling, is observed to have

25 mm (1 in.) of such failure. No Sealant (2), which had 51 mm (2 in.), now has 102 mm (4 in.) and ranks second among the eastbound sections. The increase is the result of two additional spalling failures located in separate joints. The other unsealed section, No Sealant (6), has the third largest degree of spalling with 51 mm (2 in.). It is possible that the lack of sealant may cause spalling in these sections.

Overall, the eastbound joints exhibit 1.47 m (4.8 ft) of spalling, which is 305 mm (12 in.) less than what was observed in the previous survey. Seven sections exhibit decreases in spalling length. The Crafco 903-SL (4) section has the largest decrease in spalling with 152 mm (6 in.); no spalling was observed here during this survey. In the previous survey, three joints accounted for the 152 mm (6 in.) of spalling. It is noted in the field logs that some joints have rough lips, but they are not recorded as spalling failures; previously, however, it was noted that the spalling was minor. This fact shows that a classification discrepancy exists, rather than a lack of care in the evaluation process.

After reviewing all seven sections that have decreases in spalling, three, including Crafco 903-SL (4), are definitely classification discrepancies, three are most likely such discrepancies, and one is a measuring discrepancy, in which spalling failures where recognized but the lengths were measured less than the previous survey.

5.3.4 Pavement Distresses in the Westbound Lanes during the WBOC00 Survey

The second pavement performance evaluation in the westbound lanes was conducted on Wednesday, October 11, 2000. Analysis of the degree of transverse cracking, corner breaking, and joint spalling is provided below.

Transverse Cracking

Table 5.16 (a) lists the number of transverse cracks, percentage of slabs cracked, and corresponding ranking. A slab that exhibits two or more cracks is counted as only one cracked slab. All but two sections in the westbound driving lane have transverse cracking in their slabs; these are Dow 890-SL (4) and No Sealant (6). In contrast, only ten of the fifteen sections had experienced transverse cracking during the previous survey (WBMR00).

The appearance of cracking is minimal in the hot-applied sealant and unsealed sections. In the former category, Crafco 444 (1) and Crafco 221 (1) rank 12th and 13th, respectively, whereas the two unsealed sections rank 10th and 14th, respectively. The majority of the cracking is observed in the superior compressive seal sections, Delastic V-687 (5) and Watson Bowman 812 (5), which rank 1st and 3rd, respectively. This suggests that there is no correlation between sealant performance and transverse cracking, since these seals are highly effective.

The increase in transverse cracking and percentage of slabs cracked from the previous survey are listed and ranked accordingly in Table 5.16 (b). The number of increased slabs cracked, percentage of slabs cracked, and corresponding rank are provided as well. Dow 888 (1a) exhibits the largest increase in transverse cracking (22%). The other Dow 888 (1) section, Dow 888 (1b), has 14% more of its slabs cracked, ranking it the fourth highest. Dow 890-SL (4) and No Sealant (6) have the same number of cracked slabs as in the previous survey. Dow 890-SL (1), Crafco 221 (1), and Crafco 444 (1) have slightly fewer cracks.

Corner Breaking

The number of corner breaks in each section, percentage of slabs cracked, and corresponding rank are presented in Table 5.17 (a). Only four sections in the westbound driving lane exhibit corner breaks: Dow 890-SL (3), Dow 888 (1a), Crafco 444 (1), and Techstar W-050 (5). Among these, Dow 890-SL (3) has the most corner breaks (11%). A total of seven breaks are observed in all the sections.

The occurrence of corner breaks does not appear to correlate with sealant type because the four sections containing corner breaks are well distributed: two silicone sealant sections, one hot-applied sealant section, and one compressive seal section. Also, the effectiveness of the sealant does not appear to be a major factor in the appearance of corner breaks. The sections containing corner breaks, Dow 890-SL (3), Dow 888 (1a), Crafco 444 (1), and Techstar W-050 (5), have effectiveness ratings of 100, 96, 96, and 27%, respectively. Even though the Techstar W-050 (5) section has a very poor effectiveness value, the occurrence of corner breaks in the other highly effective sections suggest that sealant effectiveness is not necessarily a factor.

The increase in observed corner breaks, percentage point increase, and corresponding rank are listed in Table 5.17 (b). Only Dow 888 (1a) and Crafco 444 (1) exhibit increases in the number of breaks. Five sections have fewer corner breaks: Crafco 903-SL (4), Dow 890-SL (3), Crafco 221 (1), Delastic V-687 (5), and No Sealant (2). All of these sections have one fewer break.

Spalling

Table 5.18 lists the measured length and increase in length of spalling in the westbound sections. The total length of spalling in all the sections is also given in the Table.

There are ten sections exhibiting some degree of spalling. Among these, seven are sealed with a silicone and one with a compression seal, whereas the other two are left unsealed. Neither of the two hot-applied sections shows any spalling distress. The Dow 890-SL (4) section has 203 mm (8 in.) of spalling failure, which is the highest in the westbound lanes, however, all of the measured spalling length is found in Joint 7, which is believed to be the result of a very poor initial cut rather than normal pavement deterioration. The Dow 890-SL (1) silicone section exhibits the second largest degree of spalling; 127 mm (5 in.) were recorded. There has been a steady increase in spalling in this section. No spalls were measured in the Fall 1999 survey, 51 mm (2 in.) of spalling in Spring 2000, and now 127 mm (5 in.) in this survey.

Dow 888 (1b) has the third highest degree of spalling with 102 mm (4 in.). There are four sections that have 51 mm (2 in.) of spalling: all three Crafco silicone sections and the No Sealant (6) section. One of these Crafco sections, Crafco 903-SL (1b), has significant differences in measured failure lengths among the three surveys. This section has recordings of 356 mm (14 in.), 279 mm (11 in.), and 51 mm (2 in.), in Fall 2000, Spring 2001, and Fall 2001 surveys, respectively. The decrease of 305 mm (12 in.) from the first survey to this one is a major concern for the research team. The majority of the spalling is located in Joint 10, which was noted to have 305 mm (12 in.) of spalling during the Fall 1999 survey, but only 51 mm (2 in.) in Fall 2000. The difference in length is a combination of a measured length discrepancy and a spalling classification dissimilarity.

Of the ten sections containing spalling distresses, six have decreases in spalling at one point in the surveys. After a thorough investigation, it appears four of these discrepancies were due to differences in length measurement, and two were due to disparities in spall classification.

5.3.5 Pavement Distresses in the Westbound Lanes during the WBJN01 Survey

The third pavement performance evaluation in the westbound lanes was conducted on Tuesday, June 15, 2001. Analysis of the degree of transverse cracking, corner breaking, and joint spalling is provided below.

Transverse Cracking

Table 5.19 (a) lists the number slabs with transverse cracking, percentage of slabs with transverse cracks, and corresponding ranking. The Delastic V-687 (5) section, between Stations 219+00 and 225+00, has the highest percentage of cracked slabs (64%), which accounts for eighteen slabs. This section, however, has a nearly perfect sealant effectiveness (99.7%). The other two compression sealed sections have similar pavement performance results. Techstar W-050 (5) and Watson Bowman 812 (5) have 61 and 48% of their slabs cracked, respectively. Clearly, highly effective sealants do not prevent the occurrence of transverse cracks in the slabs, which is governed more by spacing of the joints as well as other factors.

The unsealed sections remain in good condition. The No. 6 configured section, between Stations 284+00 and 290+00, remains crack free. No transverse cracks were found in this section during the October 2000 survey either. The other unsealed section has 26% of its slabs cracked, ranking it 11 out of the 15 sections.

Table 5.19 (b) compares the number of transverse cracks from the current survey (WBJN01) to the previous one (WBOC00). The section that exhibits the largest increase in cracks is Techstar W-050 (5), which also has the largest increase in the eastbound lanes. Thirteen new cracks, which raise its percentage from 14 to 61%, were observed. The other two sections with compression seals exhibit increases of 32 and 26%, respectively. Twelve of the fifteen sections show increases of at least 15%. No section exhibits a decrease in cracked slabs.

Corner Breaking

The number of corner breaks observed in each section of the westbound driving lane are listed in Table 5.20 (a), along with the percentage of slabs cracked and corresponding rank. The section with the largest percentage of corner breaks is Dow 890-SL (3), between Stations 166+00 and 172+00. This stretch of pavement exhibits two corner breaks, accounting for 7.1% of the slabs. Dow 890-SL (4), between Stations 272+00 and 284+00, also has two corner breaks but since this section is twice as long as Dow 890-SL (3) the percentage of slabs cracked is half as much. Four other sections have only one corner break observed: Dow 888 (1b), Crafco 444 (1), Delastic V-687 (5), and the No Sealant (2) section between Stations 139+60 and 166+00.

Table 5.20 (b) shows the incremental gain or loss of corner breaks since the last survey. It is apparent that four sections exhibit increases in corner breaks, yet four other sections show decreases in breaks. Dow 890-SL (4), Dow 888 (1b), and Delastic V-687 (5) display the largest percentage increase (4%). In addition to these three sections, No

Sealant (2) exhibits a small increase in corner breaks (1%). Four sections have one fewer break observed: Dow 890-SL (3), Dow 888 (1a), Crafco 444 (1), and Techstar W-050 (5).

Spalling

The recorded length of spalling failures in each section and the corresponding rank of each section in the westbound driving lane are listed in Table 5.21. The Dow-890 SL (4) section has an additional 635 mm (25 in.) of spalling, which is attributed to newly observed spalling on the north end of Joint 7. Recall that this joint is poorly cut and as a result contains several distresses. As in the previous survey, this section contains the most spalling failure, which measures 864 mm (34 in.). Another section with a significant increase in spalling is Dow 890-SL (1), which has 152 (6 in.) of additional failure. Joints 5 and 24, which were previously free of spalling, have a combined 152 mm (6 in.) of newly developed failure.

In the first survey, conducted in November 1999, 102 mm (4 in.) of spalling was observed in Joint 15 of the Techstar W-050 (5) section. No spalling was observed in any subsequent surveys until this one, which measures 127 mm (5 in.). Crafco 903-SL (4) exhibits a decrease of 51 mm (2 in.); No Sealant (2) and Delastic V-687 (5) show decreases of 25 mm (1 in.) each. Dow-890 SL (3), Crafco 221 (1), Crafco 444 (1), and Watson Bowman 812 (5) all continue to exhibit no spalling failures. Although there are many increases and decreases in the measured spalling length throughout the Project, the total length remains unchanged from the previous survey.

5.3.6 Pavement Distresses in the Westbound Lanes during the WBOC01 Survey

The fourth pavement performance evaluation in the westbound lanes was conducted on Tuesday, October 16, 2001. Analysis of the degree of transverse cracking, corner breaking, and joint spalling is provided below.

Transverse Cracking

Table 5.22 (a) lists the number slabs with transverse cracking, percentage of slabs, and corresponding rank for the westbound driving lane. The three sections containing compression seals exhibit the most mid-slab transverse cracking. Recall that with the exception of Techstar W-050 (5), these seals have some of the highest effectiveness values. Watson Bowman 812 (5), Techstar W-050 (5), and Delastic V-687 (5) have 89, 82, and 79% of their slabs cracked, respectively. Although it is highly unlikely that the compression seals are aiding premature cracking, it is an issue that may need to be investigated more closely.

The two unsealed sections, which are essentially 0% effective, exhibit some of the lowest transverse cracking. The No Sealant (6) and No Sealant (2) sections have 25 and 30% of their slabs cracked, respectively, which ranks them twelfth and fourteenth. The section with the least transverse cracking is Dow 890-SL (4), which exhibits 16%.

Six sections, including those with compression seals, have over 50% (1 in 2 slabs) of their slabs cracked; eleven of the fifteen sections have at least 33% (1 in 3 slabs); and all but one section have at least 25% (1 in 4 slabs). Overall, 274 of the 592 (44%) slabs are found to have at least one transverse crack.

The degree of cracking increase is shown in Table 5.22 (b). The compression seal

Watson Bowman 812 (5) has 11 additional cracks, accounting for a 41% increase. Another compression section, Techstar W-050 (5), exhibits a 21% increase, which ranks it third. The No Sealant (6) section, between Stations 284+00 and 290+00, has the second highest increase with 25%. The other unsealed section, between Stations 139+60 and 166+00, only shows a 4% increase. Two sections, namely Dow 888 (1b) and Dow 890-SL (3), show a small decrease in the number of cracked slabs.

Corner Breaking

The number of corner breaks observed per section in the westbound driving lane is listed in Table 5.23 (a). Also listed is the percentage of slabs with corner breaks and the corresponding rank. Dow 890-SL (3) and Delastic V-687 (5) have the highest percentage of corner breaks (7%). Recall that both of these sections have effectiveness values above 97%. Three other sections, Dow 890-SL (4), Crafco 444 (1), and No Sealant (2), have two corner breaks but lower percentage values. Five other sections have just one corner break, Crafco 903-SL (1a), Crafco 903-SL (1b), Dow 888 (1b), Crafco 221 (1), and Techstar W-050 (5). All of these sections have percentages less than 4%. The remaining five sections, Crafco 903-SL (4), Dow 890-SL (1), Dow 888 (1a), Watson Bowman 812 (5), and No Sealant (6), have no corner breaks at all. The data presented above suggest no correlation between corner breaks and sealant type.

Table 5.23 (b) lists the sealant sections with corner break increases, percentage point increase, and corresponding rank. Seven of the fifteen sections exhibit increases in corner breaks although no section has an increase of more than one break. Crafco 903-SL (1a), Crafco 903-SL (1b), Crafco 221 (1), and Techstar W-050 (5) developed their first corner break, while Crafco 444 (1), Delastic V-687 (5), and No Sealant (2) developed their second.

Spalling

The measured length of spalling failure in each section and the corresponding rank of each section for the westbound driving lane are listed in Table 5.24. Overall, the westbound lanes have 1.19 m (3.9 ft) of such failure, which is a decrease of 457 mm (18 in.) since the previous survey in June 2001. Most of the decrease in failure comes from the Dow 890-SL (4) section, which has a 330 mm (13 in.) decrease. This decrease is attributed to Joint 7. Recall that this joint is the result of a poor cut or an end of the day construction joint, which is so badly disfigured that it is difficult to measure. Four other sections have decreases as well and most of these are due to classification discrepancies. The discrepancy in the Dow 890-SL (1) section is due to measurement, although it is a decrease of just 25 mm (1 in.) from the previous survey.

Two sections have increases in spalling failure; both of these did not have any spalling recorded during the previous survey. Crafco 221 (1) and Crafco 903-SL (4) were observed with 102 mm (4 in.) and 51 mm (2 in.) of spalling, respectively. The failure in the former, however, appears to have been present before sealing because the sealant is present around it, as shown in Figure 5.48 (b).

5.4 Pavement Surface Profile

At approximately the same time period that the sealant and pavement evaluations are conducted, surface profilometer surveys are performed by Ohio Department of Transportation (ODOT) personnel. Data are collected in the driving and passing lanes in both directions by a profilometer van, which makes three passes in each lane. The data are later sent by ODOT to the University of Cincinnati research team for analysis. Included are three measures of pavement surface roughness calculated using a mathematical algorithm from relative surface elevation data collected using ODOT's K.J. Law Non-Contact Inertial Profilometer, Model 690DNC. These are the left wheel-track International Roughness Index (IRIlf), the right wheel-track International Roughness Index (IRIrt), and the average of both values of International Roughness Index (IRIbh). In addition to these indices, two supplementary sets of values are presented referred to as the Mays Number (MAYS) and the Present Serviceability Index (PSI). This terminology reflects the expectation that these mathematically determined measures somehow simulate the corresponding conventional indices, which should be established instead using a suspension response vehicle, or with reference to road user panel ratings that have been correlated through statistical regression to measured pavement distresses, respectively. Presented below is a detailed analysis of the profilometer data collected since Fall 2000. Hawkins (1999) and Sander (2002) have discussed similar information from four earlier profilometer evaluations.

5.4.1 Profile Trends in the Eastbound Lanes as of October 2000 (PEBOC00)

Table 5.25 shows a comparison of the profilometer values collected during the current (PEBOC00) evaluation, to those from the previous survey (PEBMR00), presented by Sander (2002). The values listed are percentage changes; negative values indicate a rougher surface than the previous survey and positive values represent a smoother surface. The signs in front of the PSI values have been switched so that an increase in smoothness or roughness is shown in the same manner as the other indices.

Table 5.25 (a) lists the percentage change for the passing lane, which exhibits a rougher surface in all the scales. The PSI and IRIrt scales have small percentage decreases in smoothness with 0.94 and 0.36%, respectively. IRIlf has the largest decrease; it measures 14.19%. The MAYS and IRIbh indices record 7.96 and 7.55% decreases, respectively.

The section containing Crafco 903-SL (4) has the largest decrease in smoothness; all but one of the indices exhibit their largest decrease. Percentage decreases range from 2.88% in the PSI to 26.91% in the IRIlf. The largest increase in smoothness is found between Stations 266+00 and 272+00, which contains Dow 890-SL (1). Three of the indices record their largest increase; values range from 0.51 to 10.55%.

The difference and the variability in the indices make it difficult to determine what exactly is happening to the pavement surface in terms of roughness. Some indices may be more sensitive to pavement curling than others, while others are more sensitive to surface texture or cracking. Temperature differences can affect the degree of curling. On the morning of October 10, 2000, the pavement temperature was 9.4° C (49° F). Later on the same day, the pavement temperature was recorded as high as 26.1° C (79° F). This would suggest that the degree of curling in the pavement would vary throughout the day and may influence the results of the profilometer readings.

The pavement surface is expected to get rougher with time (i.e. after several years). The time period between profilometer readings in this project is approximately 6 months, which may not be long enough to observe pavement deterioration; the change in the indices may only be showing the results of cyclic curling. An evaluation of the profilometer data over several years is needed to give an understanding of the condition of the pavement surface.

As of the October 2000 survey (PEBOC00), there have been four profilometer surveys in the eastbound passing lane. A survey in this lane was not conducted in Spring 1999 because it had been closed to traffic. Figure 5.49 presents the profilometer data as a trendline, which plots all five indices versus time. The indices are normalized so that the scale is more representative. For each survey, every index is divided by its respective original value (PEBJN98), because it is assumed that the initial condition of the pavement surface is at 100% of its smoothness potential. The roughness indices (MAYS, IRIrt, IRIlf, and IRIbh) were inverted to represent a downward trend for deterioration. A clearer understanding of the deterioration of the pavement surface can now be obtained. All indices, with the exception of IRIrt, show a general decline in pavement smoothness. The IRIrt continues to show readings above its original profilometer value. Three of the indices, MAYS, IRIlf, and IRIbh, seem to follow a similar trend, meaning if one index increases slightly in roughness so do the others. The IRIrt and PSI, however, do not follow the trend of the other indices. The former increases between June 1998 and December 1999 when the other indices decline, and after December 1999 it changes very little even though the other indices fluctuate somewhat. The latter, after decreasing initially like the three other indices, does not substantially change after December 1999. Given the wavy appearance of the profilometer trendlines, it is difficult to determine how much or at what rate the pavement surface is deteriorating.

Percentage changes for the driving lane are listed in Table 5.25 (b). The Mays Number, IRIlf, and IRIbh show small decreases in smoothness, while the PSI and IRIrt measure increases in smoothness. Observed percentage decreases for the MAYS, IRIlf, and IRIbh are 0.88, 5.25, and 1.07%, respectively. Percentage increases for the PSI and IRIrt indices are 0.61 and 3.05%, respectively.

The Techstar W-050 (5) section displays the largest decrease in smoothness as every index shows its largest decrease here. All of the roughness indices (MAYS, IRIlf, IRIrt, and IRIbh) record changes above 13%, the PSI records a change of only 1.96%. This section, along with Crafco 903-SL (3), has some of the largest decreases in smoothness in both of the eastbound lanes. The section sealed with Crafco 902 (1) shows the largest increase in smoothness. All indices but the IRIlf record their largest increase in this section. Values range from 2.90% in the PSI to 13.66% in the IRIrt.

As of the October 2000 survey, five profilometer surveys have been completed in the eastbound driving lane. The overall profilometer readings from each of these surveys are plotted versus time in Figure 5.50. The IRIrt index increases in smoothness initially, as it also does in the eastbound passing lane (Figure 5.49); all other indices show gradual smoothness decreases. After its initial rise, the IRIrt index follows the trend of the other indices until the survey in March 2000, after which it increases in smoothness again while most of the other indices decrease. Generally, the MAYS, PSI, IRIlf, and IRIbh follow the same trend as they do in the eastbound passing lane.

5.4.2 Profile Trends in the Eastbound Lanes as of June 2001 (PEBJN01)

Table 5.26 (a) lists the percentage change of the profilometer data taken in the eastbound passing lane from PEBOC00 to PEBJN01. Overall, the pavement surface here has gotten smoother, rather than rougher. The average over the entire test pavement ranges from 1.39 to 8.57% in the PSI and IRIrt scales, respectively. The section with the most deterioration is Dow 890-SL (1), which is located between Stations 266+00 and 272+00. Three of the five indices (MAYS, IRIrt, and IRIbh) produce their highest percentage change in this section, with values ranging from -0.96 to -6.93%. Recall, during the previous survey this section had the largest increase in smoothness. Although the pavement surface deteriorated more than any other section during this survey, the sealants in this section have the largest increase in effectiveness. This and other examples like it show the lack of correlation between sealant deterioration and pavement surface deterioration. The largest increase in smoothness is located in the Crafco 903-SL (4) section, which had the largest decrease during the previous survey. This section and Dow 890-SL (1) show the extreme fluctuations in the profilometer data.

Over a span of three years, five profilometer surveys have been collected in this lane. Figure 5.51 plots these results normalized to their original profilometer reading. The roughness indices (MAYS, IRIrt, IRIlf, and IRIbh) are inverted so that a downward trend represents a deterioration of the pavement surface. Over the time span of the entire project, most of the indices show a somewhat downward trend in smoothness. Only the

IRIrt scale remains above its original value, which was recorded in June 1998. This scale only decreased in smoothness two times, both of which accounted for less than 0.5% of the previously recorded value. The IRIrt index is currently 25% above its original value. The other four indices are following a wavy pattern, which means that they decrease in smoothness but then increase after the next survey and so on. After a large initial decrease, they continue to remain below their original profilometer reading. The MAYS and IRIlf, which have respective values of 70 and 64% currently, are considerably lower than the other indices. The PSI and IRIbh are just slightly down from their original reading with values of 92 and 90%, respectively.

Table 5.26 (b) compares the current profilometer readings to those from the previous survey for the eastbound driving lane. Dow 890-SL (1), which is between Stations 266+00 and 272+00, exhibits the largest degree of deterioration. Four of the five indices (MAYS, IRIlf, IRIrt, and IRIbh) show their largest percentage decrease in this section. The decreases for all indices in this section range from 4.34% in the PSI scale to 19.42% in the MAYS scale. Recall that the Dow 890-SL (1) sections in the passing lane also has the largest decrease in smoothness.

The section with the largest increase in smoothness is Crafco 903-SL (4), which is between Stations 206+00 and 213+00. All five scales show their largest increase in smoothness in this section, ranging from 2.07% in the PSI to 16.83% in the MAYS scale. This section also has the largest increase in the passing lane.

Figure 5.52 shows the long-term performance of the pavement surface. The eastbound driving lane has more profilometer surveys than any other lane; a total of six have been conducted. Because of the larger number of profilometer runs, it is easier to get a feel of its long-term performance. All of the indices are currently below their original profilometer readings, but exhibit large increases between the December 1999 and March 2000 surveys, which are only three months apart. The MAYS and PSI scales continue to increase after the March 2000 survey but show a decrease in the current survey (June 2001). The remaining International Roughness Indices (IRIlf, IRIrt, and IRIbh) decline after the March 2000 survey and continue to do so.

5.4.3 Profile Trends in the Eastbound Lanes as of October 2001 (PEBOC01)

Table 5.27 (a) lists the percentage change of the profilometer data taken in the eastbound passing lane from PEBJN01 to PEBOC01. The average profile of the entire passing lane in all five indices has increased in smoothness since the previous survey. Values range from 0.25% in the PSI, to 2.77% in the IRIrt. The Dow 890-SL (1) section exhibits the largest decrease in smoothness, as it did in the previous survey. All five indices measure their largest decrease in this section. Values are very similar in all indices except for the PSI; these values range from -4.48 to -4.96%, whereas the PSI is -1.84%. The Crafco 903-SL (4) section exhibits the largest increase in smoothness in all but one of the indices (IRIlf). This section had the largest increase during the previous survey as well. Although the surface in this section shows the largest improvement, the sealant has the largest decrease in effectiveness (44%).

The current profilometer survey is the sixth in the eastbound passing lane. The averages of all five indices for all six surveys are plotted in Figure 5.53. For the second straight survey, all five indices show an increase in smoothness. Four of these, however, remain below their original reading. Only IRIrt is above its original value; it has increased in smoothness more times than it has decreased and is currently at 128%. The PSI and IRIbh are both at 92% of their original readings, MAYS and IRIlf are at 71 and 64%, respectively.

Table 5.27 (b) compares the current profilometer readings to those from the previous survey for the eastbound driving lane. Crafco 903-SL (4) has the largest decrease in smoothness for this lane. Recall that the same section in the passing lane also has the largest increase in smoothness. It is peculiar that two identical adjacent sections can behave so differently. The data were collected on the same day for both traffic lanes so curling and warping effects would be nearly identical. It is unclear at this point why there is such a discrepancy. The Crafco 444 (1) section exhibits the largest increase in smoothness for the driving lane. Four of the indices (MAYS, PSI, IRIrt, and IRIbh) show their maximum values in this section. Values range from 3.27 to 9.29% in the PSI and MAYS, respectively.

Figure 5.54 shows the long-term performance of the pavement surface by plotting the results of the past seven surveys, which is more than the other three lanes. Since PEBOC00, the profilometer values for all indices have remained relatively stable. All indices except for IRIrt are below their original readings. The IRIrt scale has risen to 102% in the current survey and is the only index to exhibit an increase in smoothness.

5.4.4 Profile Trends in the Westbound Lanes as of October 2000 (PWBOC00)

The percentage changes for the westbound lanes from the previous survey to PWBOC00 are presented in Table 5.28. The passing lane in the westbound direction generally exhibits a decrease in smoothness from the previous survey, as seen in Table 5.28 (a). All but the PSI scale record a decrease in smoothness; the IRIlf scale records the highest change (11.08%). The other two IRI scales, IRIrt and IRIbh, record decreases of 2.65 and 6.73%, respectively. The PSI scale exhibits only a slight increase in smoothness (0.14%), while the MAYS measures a 6.91% decrease.

The unsealed section between Stations 284+00 and 290+00 has the largest decrease in smoothness. Three of the five scales, PSI, IRIlf, and IRIbh, measure their highest percentage decrease in this section. These three have decreases in smoothness of 2.75, 36.04, and 19.89%, respectively. The MAYS and IRIrt record decreases of 5.42 and 4.49%, respectively.

The section with the largest increase in smoothness contains the self-leveling sealant Crafco 903-SL (1a). The Mays Number, IRIlf, and IRIbh record their highest smoothness increases in this section. Values range from 2.13% in the PSI to 13.05% in the IRIrt.

Figure 5.55 is a plot of the results of the three profilometer surveys versus time. Very little can be ascertained because of the relatively short time span it covers. All of the indices increase in smoothness after the second survey and then decrease after the third. Only the IRIrt drops below its initial value.

The percentage change for the westbound driving lane is shown in Table 5.28 (b).

This lane has significantly more surface deterioration since the previous survey than the other lanes in both directions. All profilometer measurements average decreases in smoothness. The highest of these is IRIlf, which has a 21.59% decrease, the MAYS and IRIbh follow with decreases of 15.30 and 14.25%, respectively, and the IRIrt and PSI exhibit smoothness decreases of 7.50 and 1.46%, respectively.

As in the passing lane, the unsealed section between Stations 284+00 and 290+00 experienced the highest degree of surface deterioration. All indices but the IRIlf record their largest value here. The MAYS and IRI scales have decreases over 30%, while the PSI has only a 6.81% decrease.

The section containing Crafco 903-SL (1a) has the highest increase in smoothness. All of the indices, with the exception of IRIlf, show increases. The highest value is found in the IRIrt scale, which measures an 8.96% increase in smoothness. The MAYS, PSI, and IRIbh report increases of 1.40, 2.73, and 2.75%, respectively. The IRIlf exhibits a 3.87% decrease in smoothness.

The trendlines for the four profilometer surveys to date are presented in Figure 5.56. All measurements, except for the PSI scale, follow the same pattern and are remarkably close to each other. The PSI scale, however, does not fluctuate very much. All sections decline in smoothness after March 1999, increase after December 1999, and then decline again after March 2000. The PSI is currently at 98% of its original value and the remaining indices range from 79% to 85%.

5.4.5 Profile Trends in the Westbound Lanes as of June 2001 (PWBJN01)

Table 5.29 (a) lists the percentage changes found in the previous two surveys for the westbound passing lane. Most of the sections exhibit increases in smoothness, only a few show decreases. The averages for the entire test pavement show increases in smoothness for all indices. The Delastic V-687 (5) section located between Stations 219+00 and 225+00 shows slightly more deterioration than the other sections, as measured by the MAYS and IRIlf scales. The percentage changes are -0.88 and -7.76, respectively. Recall that this section has one of the best performing sealants. The section with the largest increase in smoothness is more pronounced. Four of the five indices (MAYS, PSI, IRIrt, and IRIbh) record their largest percentage change in the Techstar W-050 (5) section. Values range from 6.28 to 29.32% in the PSI and MAYS indices, respectively. This section saw the largest decrease in sealant effectiveness over the past two surveys, yet the pavement surface shows the largest increase in smoothness.

The westbound passing lane has the fewest number of profilometer surveys conducted on it due to various construction related reasons (Hawkins, 1999). It is difficult to evaluate the long-term performance of this lane because only 1.5 years have passed since its original survey. Figure 5.57 shows the results of the four surveys conducted to date.

After the current survey, all of the indices are above the their original values. This may be misleading because the original survey, conducted in December 1999, produced very low smoothness values. All four lanes recorded their smoothest values during the December 1999 survey. Because all surveys are normalized to the initial survey, which in this case is very low, it makes subsequent surveys appear to be high. There is very little variation between the MAYS and IRIbh scales, as well as between the PSI and IRIrt scales. Since the original survey, the difference between the MAYS and IRIbh scales is never more than 1%, and 4% for the PSI and IRIrt scales.

Table 5.29 (b) lists the percentage changes for the driving lane. As in the passing lane, the driving lane shows mostly increases in smoothness. Only three sections exhibit some decrease in smoothness in any of the indices: Dow 890-SL (3), Crafco 221 (1) and Watson Bowman 812 (5). The latter section, located between Stations 225+00 and 231+00, exhibits the largest degree of deterioration. Three indices (MAYS, PSI, and IRIlf) record small decreases of 0.35, 0.91, and 0.64%, respectively.

By far the largest increase in smoothness is found in the Techstar W-050 (5) section. All five indices record their largest smoothness increases in this section. The percentages calculated in this section are more than twice the overall averages of the entire project length. Increases in this section range from 6.24 to 31.18% and averages for the entire pavement range from 1.88 to 15.03%.

The results of the past five profilometer surveys are presented in Figure 5.58. The wavy nature of these surveys is very apparent. Each large decline in smoothness is followed by a nearly equal increase in smoothness. The PSI scale increases and decreases as well, although not to the degree of the other scales. It is uncertain if these fluctuations are attributable to seasonal temperature changes. Pavement temperatures can vary widely during a day. Recall that during the WBOC00 survey, pavement temperatures ranged from 1.1 to 21.7° C (34 to 71° F).

5.4.6 Profile Trends in the Westbound Lanes as of October 2001 (PWBOC01)

Table 5.30 (a) lists the percentage changes in the westbound passing lane from the previous survey. Generally, this lane has decreased slightly in surface smoothness. Four of the five indices suggest a decline, while the IRIrt shows an increase. Values range from -2.64 in the MAYS to 1.03 in the IRIrt. The section with the largest decrease in smoothness is Techstar W-050 (5). Three indices (MAYS, IRIrt, and IRIbh) show their largest decrease in this section; values range from -2.06 (PSI) to -16.20% (MAYS). The Crafco 903-SL (1a) section has the largest increase in smoothness; all indices except for the IRIlf scale measure their largest gain. Increases range from 0.84 to 6.73% in the IRIlf and IRIrt, respectively.

The five profilometer surveys to date are shown in Figure 5.59. All five indices remain above their original value and all but one declined during this current survey, which follows the up-and-down pattern that has been observed to date.

Table 5.30 (b) lists the percentage changes for the driving lane. This lane has decreased in smoothness much more than the other three lanes. Values range from -2.22% in the PSI to -14.06% in the IRIlf. The largest decrease in smoothness is found in the Techstar W-050 (5) section. During the previous survey, this section exhibited the largest increase in smoothness, which would suggest that cyclic curling and warping conditions existed in the pavement slab. The indices range in value from -3.28 (PSI) to -27.75% (IRIlf). Dow 890-SL (3) exhibits the largest increase in smoothness; all five indices record their highest gain in this section. Values range from 0.72 to 6.46% in the PSI and IRIrt, respectively.

The results of the past six profilometer surveys are shown in Figure 5.60. As in the passing lane, the wavy nature of the surveys are apparent but to a larger degree. All five indices decreased in smoothness during this survey, yet during the previous survey all five increased. This pattern is repeated throughout the life of the pavement, which would suggest cyclic warping and curling effects as postulated for the passing lane.

Table 5.1 Effectiveness rankings for eastbound lane treatments during the EBOC00 survey

Sealant Type	Description	% Eff in EBMR00	% Eff Rank	% Eff in EBOC00	% Eff Rank	% Deterioration	Rank of % Deterioration
Silicone	Crafco 903-SL (1)	51.9 (P)	7	48.1 (VP)	6	3.8	8
	Crafco 903-SL (4)	24.2 (VP)	12	6.7 (VP)	12	17.5	2
	Dow 890-SL (3)	67.5 (F)	5	55.8 (P)	5	11.7	3
	Dow 890-SL (4)	55.0 (P)	6	12.5 (VP)	11	42.5	1
	Dow 890-SL (1)	67.8 (F)	4	63.6 (P)	4	4.2	7
	Crafco 902 (1)	40.8 (VP)	10	37.2 (VP)	9	3.6	9
	Dow 888 (1a)	50.0 (P)	8	40.6 (VP)	8	9.4	4
	Dow 888 (1b)	48.9 (VP)	9	41.1 (VP)	7	7.8	5
Hot-Applied	Crafco 221 (1)	71.9 (F)	3	70.6 (F)	3	1.3	11
	Crafco 444 (1)	9.7 (VP)	13	6.1 (VP)	13	3.6	9
Compression	Delastic V-687 (5)	95.3 (VG)	1	97.2 (VG)	2	-1.9	12
	Watson Bowman 687 (5)	95.3 (VG)	1	97.8 (VG)	1	-2.5	13
	Techstar W-050 (5)	32.8 (VP)	11	26.9 (VP)	10	5.9	6

Rating	Overall Effectiveness Level, %
Very Good (VG)	90 to 100
Good (G)	80.0 to 89.9
Fair (F)	65.0 to 79.9
Poor (P)	50.0 to 64.9
Very Poor (VP)	0 to 49.9

Table 5.2 Effectiveness rankings for eastbound lane treatments during the EBJN01 survey

Sealant Type	Description	% Eff in EBOC00	% Eff Rank	% Eff in EBJN01	% Eff Rank	% Deterioration	Rank of % Deterioration
Silicone	Crafco 903-SL (1)	48.1 (VP)	6	62.8 (P)	6	-14.7	8
	Crafco 903-SL (4)	6.7 (VP)	12	56.1 (P)	9	-49.4	12
	Dow 890-SL (3)	55.8 (P)	5	62.2 (P)	7	-6.4	7
	Dow 890-SL (4)	12.5 (VP)	11	65.0 (F)	5	-52.5	13
	Dow 890-SL (1)	63.6 (P)	4	79.7 (F)	3	-16.1	10
	Crafco 902 (1)	37.2 (VP)	9	35.8 (VP)	11	1.4	4
	Dow 888 (1a)	40.6 (VP)	8	56.1 (P)	9	-15.5	9
	Dow 888 (1b)	41.1 (VP)	7	60.8 (P)	8	-19.7	11
Hot-Applied	Crafco 221 (1)	70.6 (F)	3	75.3 (F)	4	-4.7	5
	Crafco 444 (1)	6.1 (VP)	13	11.1 (VP)	13	-5.0	6
Compression	Delastic V-687 (5)	97.2 (VG)	2	94.2 (VG)	2	3.0	2
	Watson Bowman 687 (5)	97.8 (VG)	1	95.0 (VG)	1	2.8	3
	Techstar W-050 (5)	26.9 (VP)	10	21.9 (VP)	12	5.0	1

Rating	Overall Effectiveness Level, %
Very Good (VG)	90 to 100
Good (G)	80.0 to 89.9
Fair (F)	65.0 to 79.9
Poor (P)	50.0 to 64.9
Very Poor (VP)	0 to 49.9

Table 5.3 Effectiveness rankings for eastbound lane treatments during the EBOC01 survey

Sealant Type	Description	% Eff in EBJN01	% Eff Rank	% Eff in EBOC01	% Eff Rank	% Deterioration	Rank of % Deterioration
Silicone	Crafco 903-SL (1)	62.8 (P)	6	57.8 (P)	5	5.0	7
	Crafco 903-SL (4)	56.1 (P)	9	11.9 (VP)	12	44.2	1
	Dow 890-SL (3)	62.2 (P)	7	56.9 (P)	6	5.3	6
	Dow 890-SL (4)	65.0 (F)	5	42.5 (VP)	9	22.5	2
	Dow 890-SL (1)	79.7 (F)	3	70.8 (F)	4	8.9	5
	Crafco 902 (1)	35.8 (VP)	11	31.1 (VP)	10	4.7	8
	Dow 888 (1a)	56.1 (P)	9	46.7 (VP)	8	9.4	4
	Dow 888 (1b)	60.8 (P)	8	48.9 (VP)	7	11.9	3
Hot-Applied	Crafco 221 (1)	75.3 (F)	4	79.2 (F)	3	-3.9	13
	Crafco 444 (1)	11.1 (VP)	13	9.4 (VP)	13	1.7	10
Compression	Delastic V-687 (5)	94.2 (VG)	2	94.4 (VG)	1	-0.2	12
	Watson Bowman 687 (5)	95.0 (VG)	1	94.4 (VG)	1	0.6	11
	Techstar W-050 (5)	21.9 (VP)	12	18.6 (VP)	11	3.3	9

Rating	Overall Effectiveness Level, %
Very Good (VG)	90 to 100
Good (G)	80.0 to 89.9
Fair (F)	65.0 to 79.9
Poor (P)	50.0 to 64.9
Very Poor (VP)	0 to 49.9

Table 5.4 Effectiveness rankings for westbound lane treatments after the WBOC00 survey

Sealant Type	Description	% Eff in WBMR00	% Eff Rank	% Eff in WBOC00	% Eff Rank	% Deterioration	Rank of % Deterioration
Silicone	Crafco 903-SL (1a)	95.0 (VG)	7	97.8 (VG)	5	-2.8	11
	Crafco 903-SL (1b)	76.7(F)	11	78.9 (F)	10	-2.2	9
	Crafco 903-SL (4)	88.6 (G)	9	90.8 (VG)	9	-2.2	9
	Dow 890-SL (3)	99.4 (VG)	2	99.7 (VG)	2	-0.3	6
	Dow 890-SL (1)	98.1 (VG)	4	97.2 (VG)	6	0.9	5
	Dow 890-SL (4)	86.1 (G)	10	56.7 (P)	11	29.4	2
	Dow 888 (1a)	99.2 (VG)	3	96.4 (VG)	7	2.8	4
	Dow 888 (1b)	97.8 (VG)	5	98.3 (VG)	4	-0.5	8
Hot-Applied	Crafco 221 (1)	49.7 (VP)	13	46.1 (VP)	12	3.6	3
	Crafco 444 (1)	89.2 (G)	8	96.1 (VG)	8	-6.9	13
Compression	Delastic V-687 (5)	95.6 (VG)	6	98.6 (VG)	3	-3.0	12
	Watson Bowman 812 (5)	99.7 (VG)	1	100.0 (VG)	1	-0.3	6
	Techstar W-050 (5)	69.7 (F)	12	26.7 (VP)	13	43.0	1

Rating	Overall Effectiveness Level, %
Very Good (VG)	90 to 100
Good (G)	80.0 to 89.9
Fair (F)	65.0 to 79.9
Poor (P)	50.0 to 64.9
Very Poor (VP)	0 to 49.9

Table 5.5 Effectiveness rankings for westbound lane treatments during the WBJN01 survey

Sealant Type	Description	% Eff in WBOC00	% Eff Rank	% Eff in WBJN01	% Eff Rank	% Deterioration	Rank of % Deterioration
Silicone	Crafco 903-SL (1a)	97.8 (VG)	5	96.1 (VG)	8	1.7	3
	Crafco 903-SL (1b)	78.9 (F)	10	78.6 (F)	11	0.3	5
	Crafco 903-SL (4)	90.8 (VG)	9	95.8 (VG)	9	-5.0	11
	Dow 890-SL (3)	99.7 (VG)	2	97.8 (VG)	6	1.9	2
	Dow 890-SL (1)	97.2 (VG)	6	96.7 (VG)	7	0.6	4
	Dow 890-SL (4)	56.7 (P)	11	79.2 (F)	10	-22.5	13
	Dow 888 (1a)	96.4 (VG)	7	99.7 (VG)	1	-3.3	10
	Dow 888 (1b)	98.3 (VG)	4	98.1 (VG)	4	0.2	7
Hot-Applied	Crafco 221 (1)	46.1 (VP)	12	57.8 (P)	12	-11.7	12
	Crafco 444 (1)	96.1 (VG)	8	98.1 (VG)	4	-1.9	9
Compression	Delastic V-687 (5)	98.6 (VG)	3	99.7 (VG)	2	-1.1	8
	Watson Bowman 812 (5)	100.0 (VG)	1	99.7 (VG)	2	0.3	5
	Techstar W-050 (5)	26.7 (VP)	13	14.2 (VP)	13	12.5	1

Rating	Overall Effectiveness Level, %
Very Good (VG)	90 to 100
Good (G)	80.0 to 89.9
Fair (F)	65.0 to 79.9
Poor (P)	50.0 to 64.9
Very Poor (VP)	0 to 49.9

Table 5.6 Effectiveness rankings for westbound lane treatments during the WBOC01 survey

Sealant Type	Description	% Eff in WBJN01	% Eff Rank	% Eff in WBOC01	% Eff Rank	% Deterioration	Rank of % Deterioration
Silicone	Crafco 903-SL (1a)	96.1 (VG)	8	95.8 (VG)	6	0.3	10
	Crafco 903-SL (1b)	78.6 (F)	11	72.2 (F)	10	6.4	6
	Crafco 903-SL (4)	95.8 (VG)	9	84.7 (G)	9	11.1	3
	Dow 890-SL (3)	97.8 (VG)	6	99.4 (VG)	1	-1.6	13
	Dow 890-SL (1)	96.7 (VG)	7	96.7 (VG)	5	0.0	12
	Dow 890-SL (4)	79.2 (F)	10	43.9 (VP)	11	35.3	1
	Dow 888 (1a)	99.7 (VG)	1	90.8 (VG)	8	8.9	5
	Dow 888 (1b)	98.1 (VG)	4	97.8 (VG)	3	0.3	10
Hot-Applied	Crafco 221 (1)	57.8 (P)	12	42.8 (VP)	12	15.0	2
	Crafco 444 (1)	98.1 (VG)	4	92.5 (VG)	7	5.6	7
Compression	Delastic V-687 (5)	99.7 (VG)	2	97.2 (VG)	4	2.5	8
	Watson Bowman 812 (5)	99.7 (VG)	2	97.8 (VG)	2	1.9	9
	Techstar W-050 (5)	14.2 (VP)	13	4.4 (VP)	13	9.8	4

Rating	Overall Effectiveness Level, %
Very Good (VG)	90 to 100
Good (G)	80.0 to 89.9
Fair (F)	65.0 to 79.9
Poor (P)	50.0 to 64.9
Very Poor (VP)	0 to 49.9

Table 5.7 EBOC00 survey of transverse cracks in the eastbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks	% Slabs Cracked	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	2	7.1	13
Crafco 903-SL (4)	32	206+00 - 213+00	2	6.3	15
Dow 890-SL (3)	28	166+00 - 172+00	2	7.1	13
Dow 890-SL (4)	28	213+00 - 219+00	8	28.6	7
Dow 890-SL (1)	27	266+00 - 272+00	8	29.6	6
Crafco 902 (1)	28	200+00 - 206+00	9	32.1	4
Dow 888 (1a)	56	272+00 - 284+00	27	48.2	1
Dow 888 (1b)	28	284+00 - 290+00	7	25.0	9
Crafco 221 (1)	28	260+00 - 266+00	9	32.1	4
Crafco 444 (1)	75	172+00 - 188+00	7	9.3	12
Delastic V-687 (5)	28	225+00 - 231+00	3	10.7	11
Watson Bowman 687 (5)	26	194+00 - 200+00	9	34.6	3
Techstar W-050 (5)	28	154+00 - 160+00	6	21.4	10
No Sealant (2)	27	219+00 - 225+00	13	48.1	2
No Sealant (6)	28	160+00 - 166+00	8	28.6	7

Table 5.8 EBOC00 survey of corner breaks in the eastbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks	% Slabs Cracked	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	0	0.0	3
Crafco 903-SL (4)	32	206+00 - 213+00	0	0.0	3
Dow 890-SL (3)	28	166+00 - 172+00	0	0.0	3
Dow 890-SL (4)	28	213+00 - 219+00	0	0.0	3
Dow 890-SL (1)	27	266+00 - 272+00	0	0.0	3
Crafco 902 (1)	28	200+00 - 206+00	0	0.0	3
Dow 888 (1a)	56	272+00 - 284+00	0	0.0	3
Dow 888 (1b)	28	284+00 - 290+00	0	0.0	3
Crafco 221 (1)	28	260+00 - 266+00	0	0.0	3
Crafco 444 (1)	75	172+00 - 188+00	0	0.0	3
Delastic V-687 (5)	28	225+00 - 231+00	0	0.0	3
Watson Bowman 687 (5)	26	194+00 - 200+00	0	0.0	3
Techstar W-050 (5)	28	154+00 - 160+00	2	7.1	2
No Sealant (2)	27	219+00 - 225+00	6	22.2	1
No Sealant (6)	28	160+00 - 166+00	0	0.0	3

Table 5.9 EBOC00 survey of observed spalling in the eastbound lanes

	Sealant	Stations	Fall '00 (ft)	Fall '00 Rank	Increase (ft)	Increase Rank
Silicone	Crafco 903-SL (1)	188+00 - 194+00	0.2	4	0.2	1
	Crafco 903-SL (4)	206+00 - 213+00	0	7	-0.7	15
	Dow 890-SL (3)	166+00 - 172+00	0.5	2	-0.3	11
	Dow 890-SL (4)	213+00 - 219+00	0	7	0	2
	Dow 890-SL (1)	266+00 - 272+00	0	7	0	2
	Crafco 902 (1)	200+00 - 206+00	0	7	0	2
	Dow 888 (1a)	272+00 - 284+00	0	7	0	2
	Dow 888 (1b)	284+00 - 290+00	0	7	0	2
Hot-Applied	Crafco 221 (1)	260+00 - 266+00	4.1	1	-0.5	14
	Crafco 444 (1)	172+00 - 188+00	0.2	4	-0.1	8
Compression	Delastic V-687 (5)	225+00 - 231+00	0	7	-0.3	10
	Watson Bowman 687 (5)	194+00 - 200+00	0	7	-0.4	13
	Techstar W-050 (5)	154+00 - 160+00	0	7	0	2
Unsealed	No Sealant (2)	219+00 - 225+00	0.1	6	-0.1	9
	No Sealant (6)	160+00 - 166+00	0.3	3	-0.4	12
		Σ	5.4	-	-2.6	-

Table 5.10 (a) EBJN01 survey of transverse cracks in the eastbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks	% Slabs Cracked	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	4	14.3	13
Crafco 903-SL (4)	32	206+00 - 213+00	7	21.9	12
Dow 890-SL (3)	28	166+00 - 172+00	4	14.3	13
Dow 890-SL (4)	28	213+00 - 219+00	11	39.3	7
Dow 890-SL (1)	27	266+00 - 272+00	15	55.6	3
Crafco 902 (1)	28	200+00 - 206+00	14	50.0	5
Dow 888 (1a)	56	272+00 - 284+00	34	60.7	2
Dow 888 (1b)	28	284+00 - 290+00	11	39.3	7
Crafco 221 (1)	28	260+00 - 266+00	10	35.7	9
Crafco 444 (1)	75	172+00 - 188+00	10	13.3	15
Delastic V-687 (5)	28	225+00 - 231+00	10	35.7	9
Watson Bowman 687 (5)	26	194+00 - 200+00	9	34.6	11
Techstar W-050 (5)	28	154+00 - 160+00	14	50.0	5
No Sealant (2)	27	219+00 - 225+00	18	66.7	1
No Sealant (6)	28	160+00 - 166+00	15	53.6	4

Table 5.10 (b) Increase in transverse cracks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks Inc.	% Slabs Cracked Inc.	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	2	7.1	11
Crafco 903-SL (4)	32	206+00 - 213+00	5	15.6	7
Dow 890-SL (3)	28	166+00 - 172+00	2	7.1	11
Dow 890-SL (4)	28	213+00 - 219+00	3	10.7	10
Dow 890-SL (1)	27	266+00 - 272+00	7	25.9	2
Crafco 902 (1)	28	200+00 - 206+00	5	17.9	6
Dow 888 (1a)	56	272+00 - 284+00	7	12.5	9
Dow 888 (1b)	28	284+00 - 290+00	4	14.3	8
Crafco 221 (1)	28	260+00 - 266+00	1	3.6	14
Crafco 444 (1)	75	172+00 - 188+00	3	4.0	13
Delastic V-687 (5)	28	225+00 - 231+00	7	25.0	3
Watson Bowman 687 (5)	26	194+00 - 200+00	0	0.0	15
Techstar W-050 (5)	28	154+00 - 160+00	8	28.6	1
No Sealant (2)	27	219+00 - 225+00	5	18.5	5
No Sealant (6)	28	160+00 - 166+00	7	25.0	3

Table 5.11 (a) EBJN01 survey of corner breaks in the eastbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks	% Slabs Cracked	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	0	0.0	4
Crafco 903-SL (4)	32	206+00 - 213+00	0	0.0	4
Dow 890-SL (3)	28	166+00 - 172+00	0	0.0	4
Dow 890-SL (4)	28	213+00 - 219+00	0	0.0	4
Dow 890-SL (1)	27	266+00 - 272+00	0	0.0	4
Crafco 902 (1)	28	200+00 - 206+00	1	3.6	3
Dow 888 (1a)	56	272+00 - 284+00	0	0.0	4
Dow 888 (1b)	28	284+00 - 290+00	0	0.0	4
Crafco 221 (1)	28	260+00 - 266+00	0	0.0	4
Crafco 444 (1)	75	172+00 - 188+00	0	0.0	4
Delastic V-687 (5)	28	225+00 - 231+00	0	0.0	4
Watson Bowman 687 (5)	26	194+00 - 200+00	0	0.0	4
Techstar W-050 (5)	28	154+00 - 160+00	2	7.1	2
No Sealant (2)	27	219+00 - 225+00	2	7.4	1
No Sealant (6)	28	160+00 - 166+00	0	0.0	4

Table 5.11 (b) Increase in corner breaks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks Inc.	% Slabs Cracked Inc.	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	0.0	0.0	2
Crafco 903-SL (4)	32	206+00 - 213+00	0.0	0.0	2
Dow 890-SL (3)	28	166+00 - 172+00	0.0	0.0	2
Dow 890-SL (4)	28	213+00 - 219+00	0.0	0.0	2
Dow 890-SL (1)	27	266+00 - 272+00	0.0	0.0	2
Crafco 902 (1)	28	200+00 - 206+00	1.0	3.6	1
Dow 888 (1a)	56	272+00 - 284+00	0.0	0.0	2
Dow 888 (1b)	28	284+00 - 290+00	0.0	0.0	2
Crafco 221 (1)	28	260+00 - 266+00	0.0	0.0	2
Crafco 444 (1)	75	172+00 - 188+00	0.0	0.0	2
Delastic V-687 (5)	28	225+00 - 231+00	0.0	0.0	2
Watson Bowman 687 (5)	26	194+00 - 200+00	0.0	0.0	2
Techstar W-050 (5)	28	154+00 - 160+00	0.0	0.0	2
No Sealant (2)	27	219+00 - 225+00	-4.0	-14.8	15
No Sealant (6)	28	160+00 - 166+00	0.0	0.0	2

Table 5.12 EBJN01 survey of observed spalling in the eastbound lanes

	Sealant	Stations	Spring '01 (ft)	Spring '01 Rank	Increase (ft)	Increase Rank
Silicone	Crafco 903-SL (1)	188+00 - 194+00	0.3	4	0.1	8
	Crafco 903-SL (4)	206+00 - 213+00	0.5	2	0.5	1
	Dow 890-SL (3)	166+00 - 172+00	0	11	-0.5	14
	Dow 890-SL (4)	213+00 - 219+00	0.2	7	0.2	3
	Dow 890-SL (1)	266+00 - 272+00	0	11	0	10
	Crafco 902 (1)	200+00 - 206+00	0	11	0	10
	Dow 888 (1a)	272+00 - 284+00	0.1	10	0.1	6
	Dow 888 (1b)	284+00 - 290+00	0	11	0	10
Hot-Applied	Crafco 221 (1)	260+00 - 266+00	3.3	1	-0.8	15
	Crafco 444 (1)	172+00 - 188+00	0.3	4	0.1	8
Compression	Delastic V-687 (5)	225+00 - 231+00	0.3	4	0.3	2
	Watson Bowman 687 (5)	194+00 - 200+00	0.2	7	0.2	3
	Techstar W-050 (5)	154+00 - 160+00	0	11	0	10
Unsealed	No Sealant (2)	219+00 - 225+00	0.2	7	0.1	6
	No Sealant (6)	160+00 - 166+00	0.4	3	0.1	5
		Σ	5.8	-	0.4	-

Table 5.13 (a) EBOC01 survey of transverse cracks in the eastbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks	% Slabs Cracked	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	4	14.3	14
Crafco 903-SL (4)	32	206+00 - 213+00	5	15.6	12
Dow 890-SL (3)	28	166+00 - 172+00	3	10.7	15
Dow 890-SL (4)	28	213+00 - 219+00	11	39.3	8
Dow 890-SL (1)	27	266+00 - 272+00	18	66.7	1
Crafco 902 (1)	28	200+00 - 206+00	11	39.3	8
Dow 888 (1a)	56	272+00 - 284+00	35	62.5	3
Dow 888 (1b)	28	284+00 - 290+00	10	35.7	11
Crafco 221 (1)	28	260+00 - 266+00	11	39.3	8
Crafco 444 (1)	75	172+00 - 188+00	11	14.7	13
Delastic V-687 (5)	28	225+00 - 231+00	12	42.9	7
Watson Bowman 687 (5)	26	194+00 - 200+00	13	50.0	5
Techstar W-050 (5)	28	154+00 - 160+00	14	50.0	5
No Sealant (2)	27	219+00 - 225+00	18	66.7	1
No Sealant (6)	28	160+00 - 166+00	15	53.6	4

Table 5.13 (b) Increase in transverse cracks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks Inc.	% Slabs Cracked Inc.	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	0	0.0	7
Crafco 903-SL (4)	32	206+00 - 213+00	-2	-6.3	14
Dow 890-SL (3)	28	166+00 - 172+00	-1	-3.6	13
Dow 890-SL (4)	28	213+00 - 219+00	0	0.0	7
Dow 890-SL (1)	27	266+00 - 272+00	3	11.1	2
Crafco 902 (1)	28	200+00 - 206+00	-3	-10.7	15
Dow 888 (1a)	56	272+00 - 284+00	1	1.8	5
Dow 888 (1b)	28	284+00 - 290+00	-1	-3.6	12
Crafco 221 (1)	28	260+00 - 266+00	1	3.6	4
Crafco 444 (1)	75	172+00 - 188+00	1	1.3	6
Delastic V-687 (5)	28	225+00 - 231+00	2	7.1	3
Watson Bowman 687 (5)	26	194+00 - 200+00	4	15.4	1
Techstar W-050 (5)	28	154+00 - 160+00	0	0.0	7
No Sealant (2)	27	219+00 - 225+00	0	0.0	7
No Sealant (6)	28	160+00 - 166+00	0	0.0	7

Table 5.14 (a) EBOC01 survey of corner breaks in the eastbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks	% Slabs Cracked	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	0	0.0	4.0
Crafco 903-SL (4)	32	206+00 - 213+00	0	0.0	4.0
Dow 890-SL (3)	28	166+00 - 172+00	0	0.0	4.0
Dow 890-SL (4)	28	213+00 - 219+00	0	0.0	4.0
Dow 890-SL (1)	27	266+00 - 272+00	0	0.0	4.0
Crafco 902 (1)	28	200+00 - 206+00	1	3.6	3.0
Dow 888 (1a)	56	272+00 - 284+00	0	0.0	4.0
Dow 888 (1b)	28	284+00 - 290+00	0	0.0	4.0
Crafco 221 (1)	28	260+00 - 266+00	0	0.0	4.0
Crafco 444 (1)	75	172+00 - 188+00	0	0.0	4.0
Delastic V-687 (5)	28	225+00 - 231+00	0	0.0	4.0
Watson Bowman 687 (5)	26	194+00 - 200+00	0	0.0	4.0
Techstar W-050 (5)	28	154+00 - 160+00	2	7.1	2.0
No Sealant (2)	27	219+00 - 225+00	2	7.4	1.0
No Sealant (6)	28	160+00 - 166+00	0	0.0	4.0

Table 5.14 (b) Increase in corner breaks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks Inc.	% Slabs Cracked Inc.	Rank
Crafco 903-SL (1)	28	188+00 - 194+00	0	0	1
Crafco 903-SL (4)	32	206+00 - 213+00	0	0	1
Dow 890-SL (3)	28	166+00 - 172+00	0	0	1
Dow 890-SL (4)	28	213+00 - 219+00	0	0	1
Dow 890-SL (1)	27	266+00 - 272+00	0	0	1
Crafco 902 (1)	28	200+00 - 206+00	0	0	1
Dow 888 (1a)	56	272+00 - 284+00	0	0	1
Dow 888 (1b)	28	284+00 - 290+00	0	0	1
Crafco 221 (1)	28	260+00 - 266+00	0	0	1
Crafco 444 (1)	75	172+00 - 188+00	0	0	1
Delastic V-687 (5)	28	225+00 - 231+00	0	0	1
Watson Bowman 687 (5)	26	194+00 - 200+00	0	0	1
Techstar W-050 (5)	28	154+00 - 160+00	0	0	1
No Sealant (2)	27	219+00 - 225+00	0	0	1
No Sealant (6)	28	160+00 - 166+00	0	0	1

Table 5.15 EBOC01 survey of observed spalling in the eastbound lanes

	Sealant	Stations	Fall '01 (ft)	Fall '01 Rank	Increase (ft)	Increase Rank
Silicone	Crafco 903-SL (1)	188+00 to 194+00	0	7	-0.3	13
	Crafco 903-SL (4)	206+00 to 213+00	0	7	-0.5	15
	Dow 890-SL (3)	166+00 to 172+00	0.1	6	0.1	3
	Dow 890-SL (4)	213+00 to 219+00	0	7	-0.2	11
	Dow 890-SL (1)	266+00 to 272+00	0	7	0	4
	Crafco 902 (1)	200+00 to 206+00	0	7	0	4
	Dow 888 (1a)	272+00 to 284+00	0	7	-0.1	10
	Dow 888 (1b)	284+00 to 290+00	0	7	0	4
Hot-Applied	Crafco 221 (1)	260+00 to 266+00	3.7	1	0.4	1
	Crafco 444 (1)	172+00 to 188+00	0	7	-0.3	13
Compression	Delastic V-687 (5)	225+00 to 231+00	0.2	3	-0.1	9
	Watson Bowman 687 (5)	194+00 to 200+00	0.2	3	0	4
	Techstar W-050 (5)	154+00 to 160+00	0	7	0	4
Unsealed	No Sealant (2)	219+00 to 225+00	0.4	2	0.2	2
	No Sealant (6)	160+00 to 166+00	0.2	3	-0.2	11
		Σ	4.8	-	-1.0	-

Table 5.16 (a) WBOC00 survey of transverse cracks in the westbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks	% Slabs Cracked	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	1	3.6	11
Crafco 903-SL (1b)	28	194+00 - 200+00	5	17.9	7
Crafco 903-SL (4)	27	266+00 - 272+00	5	18.5	6
Dow 890-SL (3)	28	166+00 - 172+00	6	21.4	5
Dow 890-SL (1)	27	200+00 - 206+00	8	29.6	2
Dow 890-SL (4)	56	272+00 - 284+00	0	0.0	14
Dow 888 (1a)	27	213+00 - 219+00	6	22.2	3
Dow 888 (1b)	28	260+00 - 266+00	5	17.9	7
Crafco 221 (1)	75	172+00 - 188+00	1	1.3	13
Crafco 444 (1)	32	206+00 - 213+00	1	3.1	12
Delastic V-687 (5)	28	219+00 - 225+00	9	32.1	1
Watson Bowman 812 (5)	27	225+00 - 231+00	6	22.2	3
Techstar W-050 (5)	28	133+60 - 139+60	4	14.3	9
No Sealant (2)	125	139+60 - 166+00	11	8.8	10
No Sealant (6)	28	284+00 - 290+00	0	0.0	14

Table 5.16 (b) Increase in transverse cracks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks	% Slabs Cracked	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	1	3.6	8
Crafco 903-SL (1b)	28	194+00 - 200+00	1	3.6	8
Crafco 903-SL (4)	27	266+00 - 272+00	5	18.5	2
Dow 890-SL (3)	28	166+00 - 172+00	3	10.7	5
Dow 890-SL (1)	27	200+00 - 206+00	-1	-3.7	15
Dow 890-SL (4)	56	272+00 - 284+00	0	0.0	11
Dow 888 (1a)	27	213+00 - 219+00	6	22.2	1
Dow 888 (1b)	28	260+00 - 266+00	4	14.3	4
Crafco 221 (1)	75	172+00 - 188+00	-2	-2.7	13
Crafco 444 (1)	32	206+00 - 213+00	-1	-3.1	14
Delastic V-687 (5)	28	219+00 - 225+00	5	17.9	3
Watson Bowman 812 (5)	27	225+00 - 231+00	1	3.7	7
Techstar W-050 (5)	28	133+60 - 139+60	2	7.1	6
No Sealant (2)	125	139+60 - 166+00	4	3.2	10
No Sealant (6)	28	284+00 - 290+00	0	0.0	11

Table 5.17 (a) WBOC00 survey of corner breaks in the westbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks	% Slabs Cracked	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	0	0.0	5
Crafco 903-SL (1b)	28	194+00 - 200+00	0	0.0	5
Crafco 903-SL (4)	27	266+00 - 272+00	0	0.0	5
Dow 890-SL (3)	28	166+00 - 172+00	3	10.7	1
Dow 890-SL (1)	27	200+00 - 206+00	0	0.0	5
Dow 890-SL (4)	56	272+00 - 284+00	0	0.0	5
Dow 888 (1a)	27	213+00 - 219+00	1	3.7	3
Dow 888 (1b)	28	260+00 - 266+00	0	0.0	5
Crafco 221 (1)	75	172+00 - 188+00	0	0.0	5
Crafco 444 (1)	32	206+00 - 213+00	2	6.3	2
Delastic V-687 (5)	28	219+00 - 225+00	0	0.0	5
Watson Bowman 812 (5)	27	225+00 - 231+00	0	0.0	5
Techstar W-050 (5)	28	133+60 - 139+60	1	3.6	4
No Sealant (2)	125	139+60 - 166+00	0	0.0	5
No Sealant (6)	28	284+00 - 290+00	0	0.0	5

Table 5.17 (b) Increase in corner breaks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks Inc.	% Slabs Cracked Inc.	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	0	0.0	3
Crafco 903-SL (1b)	28	194+00 - 200+00	0	0.0	3
Crafco 903-SL (4)	27	266+00 - 272+00	-1	-3.7	15
Dow 890-SL (3)	28	166+00 - 172+00	-1	-3.6	13
Dow 890-SL (1)	27	200+00 - 206+00	0	0.0	3
Dow 890-SL (4)	56	272+00 - 284+00	0	0.0	3
Dow 888 (1a)	27	213+00 - 219+00	1	3.7	1
Dow 888 (1b)	28	260+00 - 266+00	0	0.0	3
Crafco 221 (1)	75	172+00 - 188+00	-1	-1.3	12
Crafco 444 (1)	32	206+00 - 213+00	1	3.1	2
Delastic V-687 (5)	28	219+00 - 225+00	-1	-3.6	13
Watson Bowman 812 (5)	27	225+00 - 231+00	0	0.0	3
Techstar W-050 (5)	28	133+60 - 139+60	0	0.0	3
No Sealant (2)	125	139+60 - 166+00	-1	-0.8	11
No Sealant (6)	28	284+00 - 290+00	0	0.0	3

Table 5.18 WBOC00 survey of observed spalling in the westbound lanes

	Sealant	Stations	Fall '00 (ft)	Fall '00 Rank	Increase (ft)	Increase Rank
Silicone	Crafco 903-SL (1a)	188+00 - 194+00	0.2	4	-0.1	13
	Crafco 903-SL (1b)	194+00 - 200+00	0.2	4	-0.7	15
	Crafco 903-SL (4)	266+00 - 272+00	0.2	4	0.2	2
	Dow 890-SL (3)	166+00 - 172+00	0	11	0	8
	Dow 890-SL (1)	200+00 - 206+00	0.4	2	0.2	2
	Dow 890-SL (4)	272+00 - 284+00	0.7	1	0.5	1
	Dow 888 (1a)	213+00 - 219+00	0.1	8	0.1	5
	Dow 888 (1b)	260+00 - 266+00	0.3	3	0.2	4
Hot-Applied	Crafco 221 (1)	206+00 - 213+00	0	11	0	8
	Crafco 444 (1)	172+00 - 188+00	0	11	0	8
Compression	Delastic V-687 (5)	219+00 - 225+00	0.1	8	0.1	5
	Watson Bowman 812 (5)	133+60 - 139+60	0	11	0	8
	Techstar W-050 (5)	225+00 - 231+00	0	11	0	8
Unsealed	No Sealant (2)	139+60 - 166+00	0.1	8	-0.1	14
	No Sealant (6)	284+00 - 290+00	0.2	4	0.1	5
		Σ	2.5	-	0.5	-

Table 5.19 (a) WBJN01 survey of transverse cracks in the westbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks	% Slabs Cracked	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	7	25.0	12
Crafco 903-SL (1b)	28	194+00 - 200+00	16	57.1	3
Crafco 903-SL (4)	27	266+00 - 272+00	8	29.6	10
Dow 890-SL (3)	28	166+00 - 172+00	15	53.6	6
Dow 890-SL (1)	27	200+00 - 206+00	15	55.6	4
Dow 890-SL (4)	56	272+00 - 284+00	2	3.6	14
Dow 888 (1a)	27	213+00 - 219+00	15	55.6	4
Dow 888 (1b)	28	260+00 - 266+00	11	39.3	8
Crafco 221 (1)	75	172+00 - 188+00	18	24.0	13
Crafco 444 (1)	32	206+00 - 213+00	10	31.3	9
Delastic V-687 (5)	28	219+00 - 225+00	18	64.3	1
Watson Bowman 812 (5)	27	225+00 - 231+00	13	48.1	7
Techstar W-050 (5)	28	133+60 - 139+60	17	60.7	2
No Sealant (2)	125	139+60 - 166+00	33	26.4	11
No Sealant (6)	28	284+00 - 290+00	0	0.0	15

Table 5.19 (b) Increase in transverse cracks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks Inc.	% Slabs Cracked Inc.	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	6	21.4	10
Crafco 903-SL (1b)	28	194+00 - 200+00	11	39.3	2
Crafco 903-SL (4)	27	266+00 - 272+00	3	11.1	13
Dow 890-SL (3)	28	166+00 - 172+00	9	32.1	5
Dow 890-SL (1)	27	200+00 - 206+00	7	25.9	7
Dow 890-SL (4)	56	272+00 - 284+00	2	3.6	14
Dow 888 (1a)	27	213+00 - 219+00	9	33.3	3
Dow 888 (1b)	28	260+00 - 266+00	6	21.4	11
Crafco 221 (1)	75	172+00 - 188+00	17	22.7	9
Crafco 444 (1)	32	206+00 - 213+00	9	28.1	6
Delastic V-687 (5)	28	219+00 - 225+00	9	32.1	4
Watson Bowman 812 (5)	27	225+00 - 231+00	7	25.9	8
Techstar W-050 (5)	28	133+60 - 139+60	13	46.4	1
No Sealant (2)	125	139+60 - 166+00	22	17.6	12
No Sealant (6)	28	284+00 - 290+00	0	0.0	15

Table 5.20 (a) WBJN01 survey of corner breaks in the westbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks	% Slabs Cracked	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	0	0.0	7
Crafco 903-SL (1b)	28	194+00 - 200+00	0	0.0	7
Crafco 903-SL (4)	27	266+00 - 272+00	0	0.0	7
Dow 890-SL (3)	28	166+00 - 172+00	2	7.1	1
Dow 890-SL (1)	27	200+00 - 206+00	0	0.0	7
Dow 890-SL (4)	56	272+00 - 284+00	2	3.6	2
Dow 888 (1a)	27	213+00 - 219+00	0	0.0	7
Dow 888 (1b)	28	260+00 - 266+00	1	3.6	2
Crafco 221 (1)	75	172+00 - 188+00	0	0.0	7
Crafco 444 (1)	32	206+00 - 213+00	1	3.1	5
Delastic V-687 (5)	28	219+00 - 225+00	1	3.6	2
Watson Bowman 812 (5)	27	225+00 - 231+00	0	0.0	7
Techstar W-050 (5)	28	133+60 - 139+60	0	0.0	7
No Sealant (2)	125	139+60 - 166+00	1	0.8	6
No Sealant (6)	28	284+00 - 290+00	0	0.0	7

Table 5.20 (b) Increase in corner breaks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks Inc.	% Slabs Cracked Inc.	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	0	0.0	5
Crafco 903-SL (1b)	28	194+00 - 200+00	0	0.0	5
Crafco 903-SL (4)	27	266+00 - 272+00	0	0.0	5
Dow 890-SL (3)	28	166+00 - 172+00	-1	-3.6	13
Dow 890-SL (1)	27	200+00 - 206+00	0	0.0	5
Dow 890-SL (4)	56	272+00 - 284+00	2	3.6	1
Dow 888 (1a)	27	213+00 - 219+00	-1	-3.7	15
Dow 888 (1b)	28	260+00 - 266+00	1	3.6	1
Crafco 221 (1)	75	172+00 - 188+00	0	0.0	5
Crafco 444 (1)	32	206+00 - 213+00	-1	-3.1	12
Delastic V-687 (5)	28	219+00 - 225+00	1	3.6	1
Watson Bowman 812 (5)	27	225+00 - 231+00	0	0.0	5
Techstar W-050 (5)	28	133+60 - 139+60	-1	-3.6	13
No Sealant (2)	125	139+60 - 166+00	1	0.8	4
No Sealant (6)	28	284+00 - 290+00	0	0.0	5

Table 5.21 WBJN01 survey of observed spalling in the westbound lanes

	Sealant	Stations	Spring '01 (ft)	Spring '01 Rank	Increase (ft)	Increase Rank
Silicone	Crafco 903-SL (1a)	188+00 - 194+00	0.4	3	0.2	4
	Crafco 903-SL (1b)	194+00 - 200+00	0.4	3	0.2	4
	Crafco 903-SL (4)	266+00 - 272+00	0	9	-0.2	15
	Dow 890-SL (3)	166+00 - 172+00	0	9	0	6
	Dow 890-SL (1)	200+00 - 206+00	0.9	2	0.5	2
	Dow 890-SL (4)	272+00 - 284+00	2.8	1	2.1	1
	Dow 888 (1a)	213+00 - 219+00	0.1	8	0	6
	Dow 888 (1b)	260+00 - 266+00	0.2	6	-0.1	12
Hot-Applied	Crafco 221 (1)	206+00 - 213+00	0	9	0	6
	Crafco 444 (1)	172+00 - 188+00	0	9	0	6
Compression	Delastic V-687 (5)	219+00 - 225+00	0	9	-0.1	13
	Watson Bowman 812 (5)	133+60 - 139+60	0	9	0	6
	Techstar W-050 (5)	225+00 - 231+00	0.4	3	0.4	3
Unsealed	No Sealant (2)	139+60 - 166+00	0	9	-0.1	13
	No Sealant (6)	284+00 - 290+00	0.2	6	0	6
		Σ	5.4	-	2.9	-

Table 5.22 (a) WBOC01 survey of transverse cracks in the westbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks	% Slabs Cracked	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	10	35.7	9
Crafco 903-SL (1b)	28	194+00 - 200+00	21	75.0	4
Crafco 903-SL (4)	27	266+00 - 272+00	9	33.3	11
Dow 890-SL (3)	28	166+00 - 172+00	12	42.9	8
Dow 890-SL (1)	27	200+00 - 206+00	20	74.1	5
Dow 890-SL (4)	56	272+00 - 284+00	9	16.1	15
Dow 888 (1a)	27	213+00 - 219+00	19	70.4	6
Dow 888 (1b)	28	260+00 - 266+00	10	35.7	9
Crafco 221 (1)	75	172+00 - 188+00	21	28.0	13
Crafco 444 (1)	32	206+00 - 213+00	14	43.8	7
Delastic V-687 (5)	28	219+00 - 225+00	22	78.6	3
Watson Bowman 812 (5)	27	225+00 - 231+00	24	88.9	1
Techstar W-050 (5)	28	133+60 - 139+60	23	82.1	2
No Sealant (2)	125	139+60 - 166+00	38	30.4	12
No Sealant (6)	28	284+00 - 290+00	7	25.0	14

Table 5.22 (b) Increase in transverse cracks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Transverse Cracks Inc.	% Slabs Cracked Inc.	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	3	10.7	10
Crafco 903-SL (1b)	28	194+00 - 200+00	5	17.9	5
Crafco 903-SL (4)	27	266+00 - 272+00	1	3.7	13
Dow 890-SL (3)	28	166+00 - 172+00	-3	-10.7	15
Dow 890-SL (1)	27	200+00 - 206+00	5	18.5	4
Dow 890-SL (4)	56	272+00 - 284+00	7	12.5	8
Dow 888 (1a)	27	213+00 - 219+00	4	14.8	6
Dow 888 (1b)	28	260+00 - 266+00	-1	-3.6	14
Crafco 221 (1)	75	172+00 - 188+00	3	4.0	11
Crafco 444 (1)	32	206+00 - 213+00	4	12.5	9
Delastic V-687 (5)	28	219+00 - 225+00	4	14.3	7
Watson Bowman 812 (5)	27	225+00 - 231+00	11	40.7	1
Techstar W-050 (5)	28	133+60 - 139+60	6	21.4	3
No Sealant (2)	125	139+60 - 166+00	5	4.0	12
No Sealant (6)	28	284+00 - 290+00	7	25.0	2

Table 5.23 (a) WBOC01 survey of corner breaks in the westbound lanes

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks	% Slabs Cracked	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	1	3.6	4
Crafco 903-SL (1b)	28	194+00 - 200+00	1	3.6	4
Crafco 903-SL (4)	27	266+00 - 272+00	0	0.0	11
Dow 890-SL (3)	28	166+00 - 172+00	2	7.1	1
Dow 890-SL (1)	27	200+00 - 206+00	0	0.0	11
Dow 890-SL (4)	56	272+00 - 284+00	2	3.6	4
Dow 888 (1a)	27	213+00 - 219+00	0	0.0	11
Dow 888 (1b)	28	260+00 - 266+00	1	3.6	4
Crafco 221 (1)	75	172+00 - 188+00	1	1.3	10
Crafco 444 (1)	32	206+00 - 213+00	2	6.3	3
Delastic V-687 (5)	28	219+00 - 225+00	2	7.1	1
Watson Bowman 812 (5)	27	225+00 - 231+00	0	0.0	11
Techstar W-050 (5)	28	133+60 - 139+60	1	3.6	4
No Sealant (2)	125	139+60 - 166+00	2	1.6	9
No Sealant (6)	28	284+00 - 290+00	0	0.0	11

Table 5.23 (b) Increase in corner breaks since previous survey

Sealant Material (Joint Configuration)	No. of Slabs	Stations	Corner Breaks Inc.	% Slabs Cracked Inc.	Rank
Crafco 903-SL (1a)	28	188+00 - 194+00	1	3.6	1
Crafco 903-SL (1b)	28	194+00 - 200+00	1	3.6	1
Crafco 903-SL (4)	27	266+00 - 272+00	0	0.0	8
Dow 890-SL (3)	28	166+00 - 172+00	0	0.0	8
Dow 890-SL (1)	27	200+00 - 206+00	0	0.0	8
Dow 890-SL (4)	56	272+00 - 284+00	0	0.0	8
Dow 888 (1a)	27	213+00 - 219+00	0	0.0	8
Dow 888 (1b)	28	260+00 - 266+00	0	0.0	8
Crafco 221 (1)	75	172+00 - 188+00	1	1.3	6
Crafco 444 (1)	32	206+00 - 213+00	1	3.1	5
Delastic V-687 (5)	28	219+00 - 225+00	1	3.6	1
Watson Bowman 812 (5)	27	225+00 - 231+00	0	0.0	8
Techstar W-050 (5)	28	133+60 - 139+60	1	3.6	1
No Sealant (2)	125	139+60 - 166+00	1	0.8	7
No Sealant (6)	28	284+00 - 290+00	0	0.0	8

Table 5.24 WBOC01 survey of observed spalling in the westbound lanes

	Sealant	Stations	Fall '01 (ft)	Fall '01 Rank	Increase (ft)	Increase Rank
Silicone	Crafco 903-SL (1a)	188+00 - 194+00	0.2	4	-0.2	12
	Crafco 903-SL (1b)	194+00 - 200+00	0	10	-0.4	14
	Crafco 903-SL (4)	266+00 - 272+00	0.2	4	0.2	2
	Dow 890-SL (3)	166+00 - 172+00	0	10	0	3
	Dow 890-SL (1)	200+00 - 206+00	0.8	2	-0.1	11
	Dow 890-SL (4)	272+00 - 284+00	1.7	1	-1.1	15
	Dow 888 (1a)	213+00 - 219+00	0.1	9	0	3
	Dow 888 (1b)	260+00 - 266+00	0.2	4	0	3
Hot-Applied	Crafco 221 (1)	206+00 - 213+00	0.3	3	0.3	1
	Crafco 444 (1)	172+00 - 188+00	0	10	0	3
Compression	Delastic V-687 (5)	219+00 - 225+00	0	10	0	3
	Watson Bowman 812 (5)	133+60 - 139+60	0	10	0	3
	Techstar W-050 (5)	225+00 - 231+00	0.2	4	-0.2	12
Unsealed	No Sealant (2)	139+60 - 166+00	0	10	0	3
	No Sealant (6)	284+00 - 290+00	0.2	4	0	3
		Σ	3.9	-	-1.5	-

Table 5.25 Percent change in surface roughness for the eastbound lanes (PEBMR00 to PEBOC00)

(a) Eastbound passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	-7.96	-0.94	-14.19	-0.36	-7.55
MAX	-36.20	-2.11	-24.87	-59.45	-28.72
MIN	-44.24	-27.39	-32.61	-30.30	-29.91
STD	-3.64	-0.10	-5.81	-14.52	-4.65
COV%	4.00	0.87	7.34	-14.00	2.69

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	-15.52	-1.89	-19.28	-7.36	-13.47
206+00 - 213+00	Crafco 903-SL (4)	-19.43	-2.88	-26.91	-11.28	-18.94
166+00 - 172+00	Dow 890-SL (3)	-0.13	0.80	-4.05	2.10	-1.26
213+00 - 219+00	Dow 890-SL (4)	-15.77	-1.71	-21.52	-6.32	-13.93
266+00 - 272+00	Dow 890-SL (1)	4.39	1.54	0.51	10.55	5.16
200+00 - 206+00	Crafco 902 (1)	-0.74	0.44	-10.03	10.40	0.03
272+00 - 284+00	Dow 888 (1a)	2.66	1.88	-3.12	9.92	3.09
284+00 - 290+00	Dow 888 (1b)	1.15	2.01	-6.33	11.58	2.13
260+00 - 266+00	Crafco 444 (1)	4.09	1.71	-2.32	10.03	3.60
172+00 - 188+00	Crafco 221 (1)	-5.32	-0.18	-9.77	0.57	-4.70
225+00 - 231+00	Delastic V-687 (5)	-0.17	0.60	-5.96	5.91	-0.31
194+00 - 200+00	Watson Bowman 687 (5)	1.53	1.55	-4.57	8.19	1.67
154+00 - 160+00	Techstar W-050 (5)	-10.46	-0.18	-12.99	-6.16	-9.76
219+00 - 225+00	No Sealant (2)	-16.69	-1.98	-19.22	-11.99	-15.69
160+00 - 166+00	No Sealant (6)	2.11	1.14	-3.50	4.77	0.20
	AVG	-4.55	0.19	-9.94	2.06	-4.15
	MAX	4.39	2.01	0.51	11.58	5.16
	MIN	-19.43	-2.88	-26.91	-11.99	-18.94

Table 5.25 (continued)

(b) Eastbound driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	-0.88	0.61	-5.25	3.05	-1.07
MAX	-3.93	-0.48	-0.69	-5.66	-5.12
MIN	-10.03	-10.33	-16.67	-5.02	-9.99
STD	-3.92	-1.87	-10.13	0.21	-5.80
COV%	-3.03	-2.47	-4.66	-2.94	-4.70

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	-7.17	-1.19	-12.13	-1.18	-6.69
206+00 - 213+00	Crafco 903-SL (4)	-12.00	-0.86	-13.00	-8.81	-11.00
166+00 - 172+00	Dow 890-SL (3)	4.56	0.82	2.52	6.59	4.51
213+00 - 219+00	Dow 890-SL (4)	-14.02	-1.55	-14.68	-10.89	-12.82
266+00 - 272+00	Dow 890-SL (1)	5.54	1.68	-1.61	11.98	5.58
200+00 - 206+00	Crafco 902 (1)	9.35	2.90	3.15	13.66	8.71
272+00 - 284+00	Dow 888 (1a)	1.33	1.35	-3.77	6.55	1.55
284+00 - 290+00	Dow 888 (1b)	-3.69	0.57	-7.79	1.75	-2.74
260+00 - 266+00	Crafco 444 (1)	4.50	2.28	0.18	6.38	3.31
172+00 - 188+00	Crafco 221 (1)	-4.74	-0.41	-7.48	-0.87	-4.23
225+00 - 231+00	Delastic V-687 (5)	-0.06	-0.08	-2.65	-0.62	-1.60
194+00 - 200+00	Watson Bowman 687 (5)	5.34	0.95	3.43	6.12	4.76
154+00 - 160+00	Techstar W-050 (5)	-14.94	-1.96	-15.28	-13.91	-14.57
219+00 - 225+00	No Sealant (2)	-7.42	-1.16	-12.64	-1.87	-7.22
160+00 - 166+00	No Sealant (6)	-1.95	0.45	-5.18	-0.96	-3.09
	AVG	-2.36	0.25	-5.80	0.93	-2.37
	MAX	9.35	2.90	3.43	13.66	8.71
	MIN	-14.94	-1.96	-15.28	-13.91	-14.57

Table 5.26 Percent change in surface roughness for the eastbound lanes (PEBOC00 to PEBJN01)

(a) Eastbound passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	6.13	1.39	3.23	8.57	5.63
MAX	23.02	0.83	9.66	38.06	21.48
MIN	16.24	38.76	21.80	21.38	17.27
STD	8.94	-11.82	3.61	22.18	9.23
COV%	2.99	-13.05	0.39	14.80	3.82

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	7.39	0.64	1.20	11.68	6.04
206+00 - 213+00	Crafco 903-SL (4)	14.40	2.68	12.50	14.69	13.56
166+00 - 172+00	Dow 890-SL (3)	-2.47	-0.03	-6.17	0.64	-3.18
213+00 - 219+00	Dow 890-SL (4)	7.15	0.95	2.32	9.94	5.89
266+00 - 272+00	Dow 890-SL (1)	-5.56	-0.96	-6.93	-4.70	-5.96
200+00 - 206+00	Crafco 902 (1)	0.37	0.56	-2.21	3.51	0.32
272+00 - 284+00	Dow 888 (1a)	-2.74	-0.73	-3.51	-1.91	-2.80
284+00 - 290+00	Dow 888 (1b)	-0.56	-0.23	-3.15	2.04	-0.94
260+00 - 266+00	Crafco 444 (1)	1.57	1.01	-1.01	4.15	1.29
172+00 - 188+00	Crafco 221 (1)	3.82	0.50	0.14	7.41	3.52
225+00 - 231+00	Delastic V-687 (5)	-5.08	-1.81	-9.21	3.06	-3.70
194+00 - 200+00	Watson Bowman 687 (5)	-2.82	-1.52	-9.75	2.98	-3.95
154+00 - 160+00	Techstar W-050 (5)	4.65	0.41	0.69	6.83	3.51
219+00 - 225+00	No Sealant (2)	13.63	2.72	6.65	19.61	12.79
160+00 - 166+00	No Sealant (6)	-1.09	0.14	-5.28	3.94	-1.33
	AVG	2.18	0.29	-1.58	5.59	1.67
	MAX	14.40	2.72	12.50	19.61	13.56
	MIN	-5.56	-1.81	-9.75	-4.70	-5.96

Table 5.26 (continued)

(b) Eastbound driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	-2.91	-1.76	-0.67	-3.79	-2.18
MAX	-2.57	-1.16	-1.93	3.73	1.01
MIN	14.09	4.36	18.44	-5.26	9.33
STD	-6.80	16.95	-3.84	-3.38	-3.30
COV%	-3.76	19.05	-3.12	0.40	-1.08

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	3.06	-1.48	7.20	-2.68	2.57
206+00 - 213+00	Crafco 903-SL (4)	16.83	2.07	15.02	15.67	15.31
166+00 - 172+00	Dow 890-SL (3)	-12.64	-3.17	-7.45	-14.94	-11.06
213+00 - 219+00	Dow 890-SL (4)	12.72	1.35	9.76	14.10	11.88
266+00 - 272+00	Dow 890-SL (1)	-19.42	-4.34	-18.68	-17.95	-18.33
200+00 - 206+00	Crafco 902 (1)	-8.59	-2.25	-2.72	-10.66	-6.68
272+00 - 284+00	Dow 888 (1a)	-8.25	-2.73	-8.08	-6.27	-7.20
284+00 - 290+00	Dow 888 (1b)	-2.27	-1.59	-2.76	-2.36	-2.52
260+00 - 266+00	Crafco 444 (1)	-13.82	-4.79	-11.54	-9.49	-10.54
172+00 - 188+00	Crafco 221 (1)	3.36	-0.13	3.58	3.53	3.56
225+00 - 231+00	Delastic V-687 (5)	0.30	-0.41	1.49	0.58	1.01
194+00 - 200+00	Watson Bowman 687 (5)	-7.18	-1.72	-5.65	-6.37	-5.99
154+00 - 160+00	Techstar W-050 (5)	5.87	-0.06	6.43	4.99	5.68
219+00 - 225+00	No Sealant (2)	3.56	-0.74	4.47	1.20	2.90
160+00 - 166+00	No Sealant (6)	-6.31	-2.09	-1.60	-9.33	-5.38
	AVG	-2.19	-1.47	-0.70	-2.67	-1.65
	MAX	16.83	2.07	15.02	15.67	15.31
	MIN	-19.42	-4.79	-18.68	-17.95	-18.33

Table 5.27 Percent change in surface roughness for the eastbound lanes (PEBJN01 to PEBOC01)

(a) Eastbound passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	1.81	0.25	1.71	2.77	2.17
MAX	-0.29	2.29	4.32	4.47	-1.21
MIN	6.77	3.76	-4.17	-6.83	4.06
STD	-4.36	8.63	-4.50	-3.48	-4.13
COV%	-6.29	8.36	-6.31	-6.43	-6.44

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	3.54	0.01	1.65	6.24	3.63
206+00 - 213+00	Crafco 903-SL (4)	5.92	1.26	3.42	8.64	5.85
166+00 - 172+00	Dow 890-SL (3)	4.13	0.87	2.97	8.51	5.31
213+00 - 219+00	Dow 890-SL (4)	3.38	0.66	2.44	5.27	3.70
266+00 - 272+00	Dow 890-SL (1)	-4.96	-1.84	-4.48	-4.95	-4.69
200+00 - 206+00	Crafco 902 (1)	0.62	-0.20	3.08	-1.99	0.91
272+00 - 284+00	Dow 888 (1a)	2.25	0.28	1.83	3.26	2.45
284+00 - 290+00	Dow 888 (1b)	-3.81	-0.95	-3.11	-1.86	-2.57
260+00 - 266+00	Crafco 444 (1)	-0.22	0.20	0.95	-1.06	0.10
172+00 - 188+00	Crafco 221 (1)	1.50	0.39	0.69	2.83	1.64
225+00 - 231+00	Delastic V-687 (5)	4.76	1.06	4.73	3.59	4.25
194+00 - 200+00	Watson Bowman 687 (5)	1.89	0.13	3.22	1.13	2.33
154+00 - 160+00	Techstar W-050 (5)	4.07	0.38	4.43	4.73	4.56
219+00 - 225+00	No Sealant (2)	1.45	0.11	1.35	1.51	1.42
160+00 - 166+00	No Sealant (6)	3.59	0.43	4.30	6.16	5.06
	AVG	1.87	0.19	1.83	2.80	2.26
	MAX	5.92	1.26	4.73	8.64	5.85
	MIN	-4.96	-1.84	-4.48	-4.95	-4.69

Table 5.27 (continued)

(b) Eastbound driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	0.44	0.67	-3.10	4.18	0.48
MAX	1.69	0.33	3.98	0.00	2.16
MIN	-19.94	-14.63	-27.39	-3.00	-15.03
STD	5.20	-7.27	6.61	3.23	5.00
COV%	4.78	-7.88	9.42	-0.99	4.55

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1)	-2.00	1.22	-8.60	6.00	-1.38
206+00 - 213+00	Crafco 903-SL (4)	-10.29	-1.74	-15.75	-1.44	-9.03
166+00 - 172+00	Dow 890-SL (3)	3.87	1.48	1.29	6.45	3.87
213+00 - 219+00	Dow 890-SL (4)	-9.73	-1.18	-10.61	-7.98	-9.35
266+00 - 272+00	Dow 890-SL (1)	6.62	1.79	7.68	5.28	6.51
200+00 - 206+00	Crafco 902 (1)	1.52	0.70	-3.35	5.08	1.02
272+00 - 284+00	Dow 888 (1a)	5.56	2.06	3.30	7.36	5.28
284+00 - 290+00	Dow 888 (1b)	-0.37	0.20	-3.59	2.80	-0.37
260+00 - 266+00	Crafco 444 (1)	9.29	3.27	7.54	8.93	8.21
172+00 - 188+00	Crafco 221 (1)	-2.05	0.16	-6.62	3.02	-2.04
225+00 - 231+00	Delastic V-687 (5)	-0.26	0.25	-2.33	2.73	0.23
194+00 - 200+00	Watson Bowman 687 (5)	2.69	1.17	-2.77	8.45	2.71
154+00 - 160+00	Techstar W-050 (5)	-6.30	-1.01	-9.90	-0.67	-5.10
219+00 - 225+00	No Sealant (2)	-1.16	1.16	-5.23	4.39	-0.55
160+00 - 166+00	No Sealant (6)	-0.56	0.32	-6.76	4.91	-0.80
	AVG	-0.21	0.66	-3.71	3.69	-0.05
	MAX	9.29	3.27	7.68	8.93	8.21
	MIN	-10.29	-1.74	-15.75	-7.98	-9.35

Table 5.28 Percent change in surface roughness for the westbound lanes (PWBMR00 to PWBOC00)

(a) Westbound passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	-6.91	0.14	-11.08	-2.65	-6.73
MAX	-35.75	2.80	-24.42	-1.88	-31.03
MIN	15.23	-11.33	16.51	-5.99	0.73
STD	-29.60	10.69	-40.12	-4.63	-29.21
COV%	-21.30	10.49	-25.93	-1.94	-21.05

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	10.66	2.13	8.65	13.05	10.94
194+00 - 200+00	Crafco 903-SL (1b)	2.98	3.52	0.05	7.77	4.04
266+00 - 272+00	Crafco 903-SL (4)	6.03	-0.12	2.64	8.20	5.51
166+00 - 172+00	Dow 890-SL (3)	-10.83	1.69	-11.00	-6.37	-8.59
200+00 - 206+00	Dow 890-SL (1)	-4.22	1.66	-7.20	1.13	-2.85
272+00 - 284+00	Dow 890-SL (4)	-14.72	-2.54	-14.41	-11.85	-13.11
213+00 - 219+00	Dow 888 (1a)	-14.15	-1.92	-22.01	-6.25	-13.57
260+00 - 266+00	Dow 888 (1b)	-5.74	5.67	4.97	-11.52	-2.71
172+00 - 188+00	Crafco 221 (1)	8.22	0.21	2.53	13.58	8.36
206+00 - 213+00	Crafco 444 (1)	-5.44	0.68	-16.05	3.29	-5.45
219+00 - 225+00	Delastic V-687 (5)	-8.74	-1.60	-10.60	-3.37	-6.90
225+00 - 231+00	Watson Bowman 812 (5)	-12.22	0.51	-17.21	-2.32	-9.13
133+60 - 139+60	Techstar W-050 (5)	-15.33	1.58	-8.19	-13.53	-10.72
139+60 - 166+00	No Sealant (2)	-9.25	1.18	-12.27	-2.16	-7.01
284+00 - 290+00	No Sealant (6)	-5.42	-2.75	-36.04	-4.49	-19.89
	AVG	-5.21	0.66	-9.08	-0.99	-4.74
	MAX	10.66	5.67	8.65	13.58	10.94
	MIN	-15.33	-2.75	-36.04	-13.53	-19.89

Table 5.28 (continued)

(b) Westbound driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	-15.30	-1.46	-21.59	-7.50	-14.25
MAX	-7.04	-4.21	-9.60	4.52	-6.24
MIN	-29.95	-0.98	-37.55	-8.48	-23.10
STD	-1.79	-16.96	-4.95	4.10	-0.64
COV%	11.72	-15.73	13.70	10.80	11.92

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	1.40	2.73	-3.87	8.96	2.75
194+00 - 200+00	Crafco 903-SL (1b)	-5.41	3.59	-16.48	7.97	-3.14
266+00 - 272+00	Crafco 903-SL (4)	-2.60	1.32	-4.07	-1.63	-2.88
166+00 - 172+00	Dow 890-SL (3)	-11.49	-0.37	-26.99	2.93	-10.85
200+00 - 206+00	Dow 890-SL (1)	-18.15	-0.24	-24.24	-3.36	-13.15
272+00 - 284+00	Dow 890-SL (4)	-26.81	-4.15	-33.41	-20.83	-26.92
213+00 - 219+00	Dow 888 (1a)	-9.54	-2.64	-16.87	-5.33	-10.89
260+00 - 266+00	Dow 888 (1b)	-12.96	7.63	-22.44	-2.44	-11.73
172+00 - 188+00	Crafco 221 (1)	3.00	-5.48	-6.32	8.28	1.28
206+00 - 213+00	Crafco 444 (1)	-11.64	0.04	-14.98	-6.91	-10.92
219+00 - 225+00	Delastic V-687 (5)	-16.51	-5.60	-13.26	-17.29	-15.30
225+00 - 231+00	Watson Bowman 812 (5)	-5.75	-0.53	-18.46	3.94	-6.61
133+60 - 139+60	Techstar W-050 (5)	-29.33	-2.26	-37.25	-11.59	-23.43
139+60 - 166+00	No Sealant (2)	-15.55	-0.60	-21.13	-6.01	-13.28
284+00 - 290+00	No Sealant (6)	-31.44	-6.80	-33.26	-32.63	-32.95
	AVG	-12.85	-0.89	-19.54	-5.06	-11.87
	MAX	3.00	7.63	-3.87	8.96	2.75
	MIN	-31.44	-6.80	-37.25	-32.63	-32.95

Table 5.29 Percent change in surface roughness for the westbound lanes (PWBOC00 to PWBJN01)

(a) Westbound passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	7.64	1.44	6.39	6.57	6.48
MAX	49.99	3.87	67.48	-16.43	51.35
MIN	15.90	108.63	-11.36	33.75	0.37
STD	25.65	-23.82	49.83	-0.96	31.10
COV%	19.55	-24.86	46.31	-8.04	26.31

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	2.76	0.52	2.68	1.88	2.26
194+00 - 200+00	Crafco 903-SL (1b)	6.89	0.32	7.30	1.97	4.64
266+00 - 272+00	Crafco 903-SL (4)	2.79	-0.72	3.59	1.56	2.55
166+00 - 172+00	Dow 890-SL (3)	6.28	2.37	-5.50	2.87	-1.23
200+00 - 206+00	Dow 890-SL (1)	2.91	0.35	2.96	3.93	3.44
272+00 - 284+00	Dow 890-SL (4)	7.68	0.84	7.69	6.43	7.06
213+00 - 219+00	Dow 888 (1a)	1.89	1.21	-4.41	4.75	0.15
260+00 - 266+00	Dow 888 (1b)	8.15	1.07	7.66	5.69	6.67
172+00 - 188+00	Crafco 221 (1)	0.67	0.78	-6.14	-2.97	-4.57
206+00 - 213+00	Crafco 444 (1)	0.94	1.00	1.29	5.05	3.18
219+00 - 225+00	Delastic V-687 (5)	-0.88	0.16	-7.76	4.37	-1.71
225+00 - 231+00	Watson Bowman 812 (5)	0.03	-0.28	2.86	-3.53	-0.39
133+60 - 139+60	Techstar W-050 (5)	29.32	6.28	17.71	24.17	20.86
139+60 - 166+00	No Sealant (2)	19.11	4.15	4.96	17.33	11.10
284+00 - 290+00	No Sealant (6)	7.75	2.20	28.31	5.13	17.96
	AVG	6.42	1.35	4.21	5.24	4.80
	MAX	29.32	6.28	28.31	24.17	20.86
	MIN	-0.88	-0.72	-7.76	-3.53	-4.57

Table 5.29 (continued)

(b) Westbound driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	13.98	1.88	15.03	13.31	14.19
MAX	-2.58	3.72	2.67	-2.84	-2.74
MIN	28.73	-6.27	32.10	22.68	27.29
STD	-2.59	24.08	-3.27	-2.14	-4.58
COV%	-19.27	21.79	-21.57	-17.82	-21.89

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	10.51	0.39	10.52	9.84	10.20
194+00 - 200+00	Crafco 903-SL (1b)	19.67	2.86	18.26	19.99	19.12
266+00 - 272+00	Crafco 903-SL (4)	14.19	0.99	16.80	13.30	15.10
166+00 - 172+00	Dow 890-SL (3)	-1.01	-0.26	1.87	-0.80	0.61
200+00 - 206+00	Dow 890-SL (1)	13.97	1.72	13.84	14.00	13.92
272+00 - 284+00	Dow 890-SL (4)	16.49	2.19	19.83	13.95	16.95
213+00 - 219+00	Dow 888 (1a)	6.08	1.52	8.16	7.16	7.68
260+00 - 266+00	Dow 888 (1b)	12.85	1.76	14.46	11.03	12.77
172+00 - 188+00	Crafco 221 (1)	2.45	-0.54	6.22	2.53	4.44
206+00 - 213+00	Crafco 444 (1)	8.08	0.40	7.34	10.26	8.76
219+00 - 225+00	Delastic V-687 (5)	8.35	1.65	6.95	7.99	7.50
225+00 - 231+00	Watson Bowman 812 (5)	-0.35	-0.91	-0.64	2.75	1.00
133+60 - 139+60	Techstar W-050 (5)	31.18	6.24	30.97	29.13	30.08
139+60 - 166+00	No Sealant (2)	20.86	3.19	21.93	18.24	20.14
284+00 - 290+00	No Sealant (6)	19.97	4.56	17.48	22.65	20.13
	AVG	12.22	1.72	12.93	12.13	12.56
	MAX	31.18	6.24	30.97	29.13	30.08
	MIN	-1.01	-0.91	-0.64	-0.80	0.61

Table 5.30 Percent change in surface roughness for the westbound lanes (PWBJN01 to PWBOC01)

(a) Westbound passing lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	-2.64	-0.50	-2.15	1.03	-0.57
MAX	0.61	-5.89	8.26	20.72	3.48
MIN	-38.53	2.86	-4.61	-34.40	4.43
STD	1.91	-17.50	-2.90	4.93	-2.71
COV%	4.44	-17.08	-0.73	3.93	-2.13

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	3.67	0.88	0.84	6.73	3.84
194+00 - 200+00	Crafco 903-SL (1b)	0.32	0.24	-2.88	5.54	1.41
266+00 - 272+00	Crafco 903-SL (4)	2.13	0.39	-1.36	5.99	2.37
166+00 - 172+00	Dow 890-SL (3)	-5.85	-2.67	2.45	0.01	1.26
200+00 - 206+00	Dow 890-SL (1)	3.08	0.59	2.88	3.26	3.06
272+00 - 284+00	Dow 890-SL (4)	-1.46	0.07	-4.21	1.57	-1.29
213+00 - 219+00	Dow 888 (1a)	-0.11	-0.03	-0.63	1.67	0.50
260+00 - 266+00	Dow 888 (1b)	-2.86	-0.17	-4.89	0.87	-1.95
172+00 - 188+00	Crafco 221 (1)	-3.80	-1.73	0.25	3.31	1.75
206+00 - 213+00	Crafco 444 (1)	1.52	-0.12	2.11	-0.90	0.63
219+00 - 225+00	Delastic V-687 (5)	-3.84	-0.71	-4.79	0.27	-2.44
225+00 - 231+00	Watson Bowman 812 (5)	0.41	0.23	-5.72	4.40	-0.40
133+60 - 139+60	Techstar W-050 (5)	-16.20	-2.06	-2.44	-7.95	-5.02
139+60 - 166+00	No Sealant (2)	-12.34	-2.54	-0.61	-6.11	-3.16
284+00 - 290+00	No Sealant (6)	-2.03	-0.26	-3.14	0.73	-1.15
	AVG	-2.49	-0.53	-1.48	1.29	-0.04
	MAX	3.67	0.88	2.88	6.73	3.84
	MIN	-16.20	-2.67	-5.72	-7.95	-5.02

Table 5.30 (continued)

(b) Westbound driving lane

	MAYS	PSI	IRIlf	IRIrt	IRIbh
AVG	-9.45	-2.22	-14.06	-5.31	-9.73
MAX	-11.90	-2.28	-105.10	-7.27	-19.19
MIN	-23.26	-41.89	-23.69	0.30	-13.78
STD	-14.80	49.06	-47.55	-6.84	-17.69
COV%	-4.88	52.44	-29.36	-1.45	-7.26

Station	Material	MAYS	PSI	IRIlf	IRIrt	IRIbh
188+00 - 194+00	Crafco 903-SL (1a)	-6.70	-4.05	-17.86	2.81	-7.84
194+00 - 200+00	Crafco 903-SL (1b)	-13.70	-5.01	-22.46	-6.19	-14.63
266+00 - 272+00	Crafco 903-SL (4)	-11.57	-1.85	-12.54	-10.18	-11.36
166+00 - 172+00	Dow 890-SL (3)	3.49	0.72	0.91	6.46	3.57
200+00 - 206+00	Dow 890-SL (1)	-6.36	-0.60	-8.89	-4.81	-6.89
272+00 - 284+00	Dow 890-SL (4)	-14.56	-4.49	-23.90	-7.47	-15.56
213+00 - 219+00	Dow 888 (1a)	-6.68	-2.61	-9.82	-5.05	-7.46
260+00 - 266+00	Dow 888 (1b)	-9.44	-1.18	-10.46	-7.36	-8.90
172+00 - 188+00	Crafco 221 (1)	-0.02	0.04	-1.27	0.13	-0.58
206+00 - 213+00	Crafco 444 (1)	-1.58	-0.57	-4.88	-0.39	-2.71
219+00 - 225+00	Delastic V-687 (5)	-3.41	-1.04	-7.43	0.81	-3.21
225+00 - 231+00	Watson Bowman 812 (5)	2.67	0.68	0.31	3.89	1.96
133+60 - 139+60	Techstar W-050 (5)	-24.95	-3.28	-27.75	-18.91	-23.40
139+60 - 166+00	No Sealant (2)	-17.40	-2.08	-20.59	-12.47	-16.56
284+00 - 290+00	No Sealant (6)	-12.45	-2.65	-19.48	-6.73	-13.12
	AVG	-8.18	-1.87	-12.41	-4.36	-8.45
	MAX	3.49	0.72	0.91	6.46	3.57
	MIN	-24.95	-5.01	-27.75	-18.91	-23.40

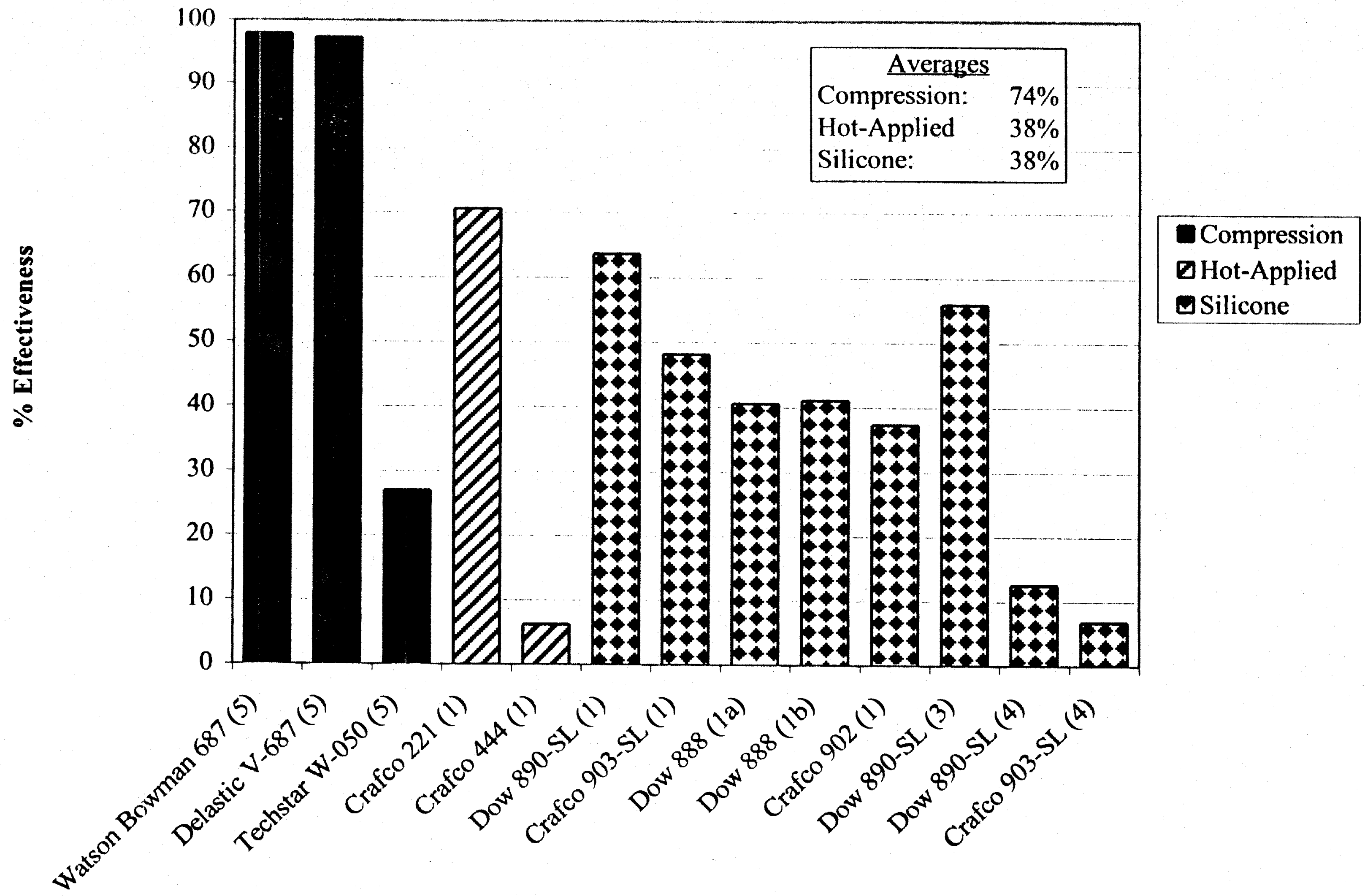


Figure 5.1 Comparison between silicone, hot-applied, and compression sealants during EBOC00

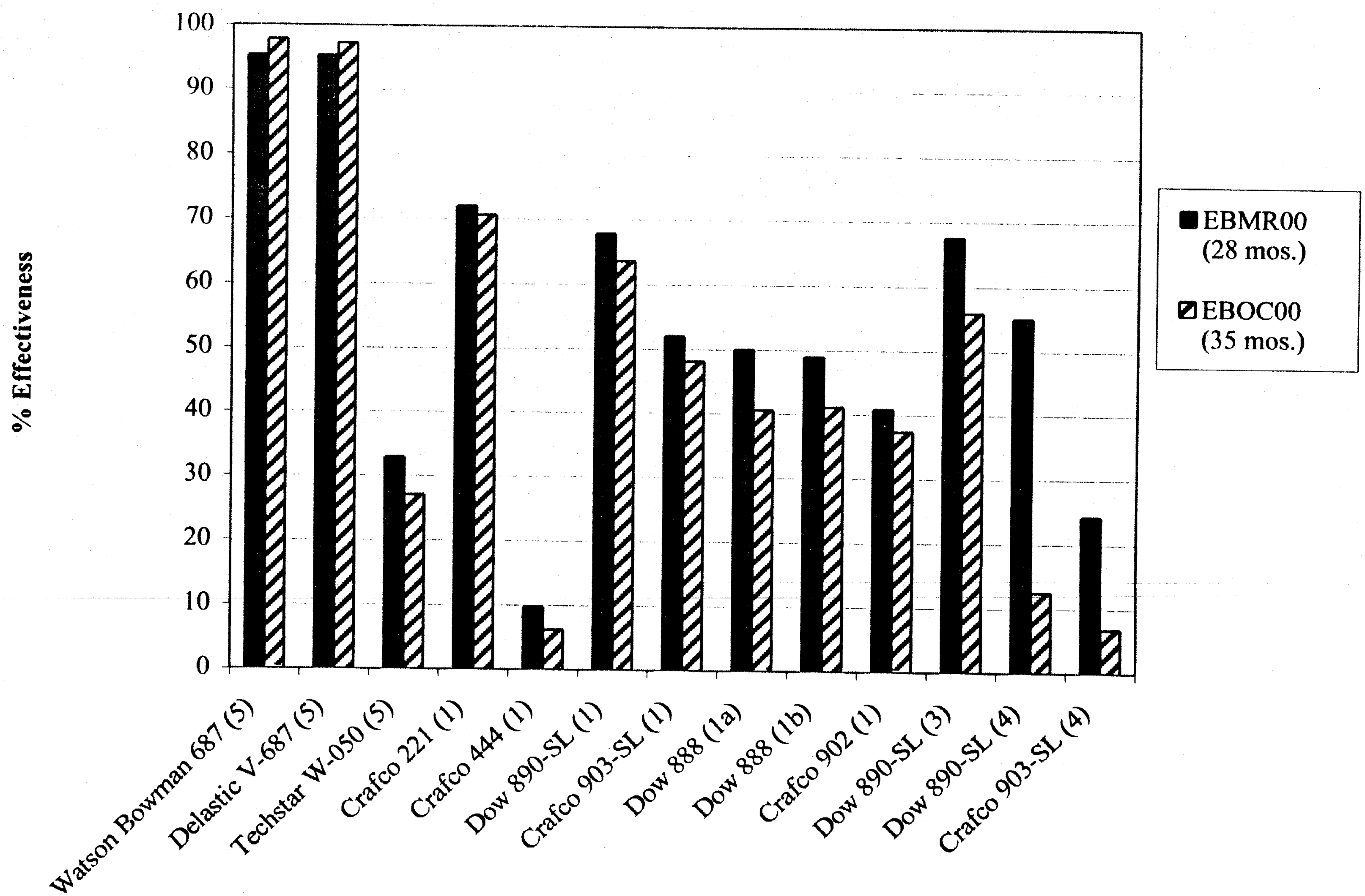


Figure 5.2 Deterioration of sealants from EBMR00 to EBOC00

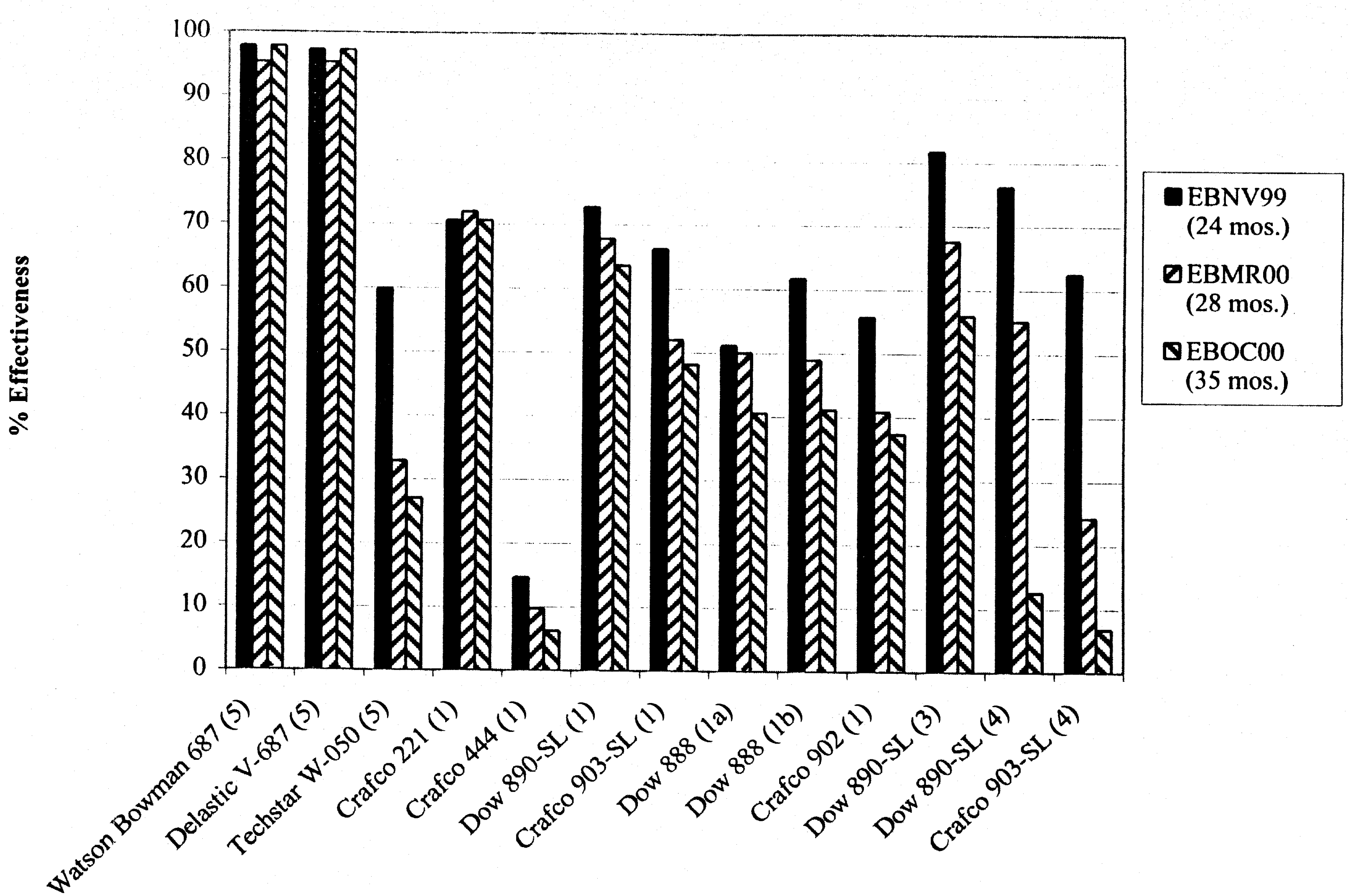


Figure 5.3 Deterioration of sealants from EBNV99 to EBOC00

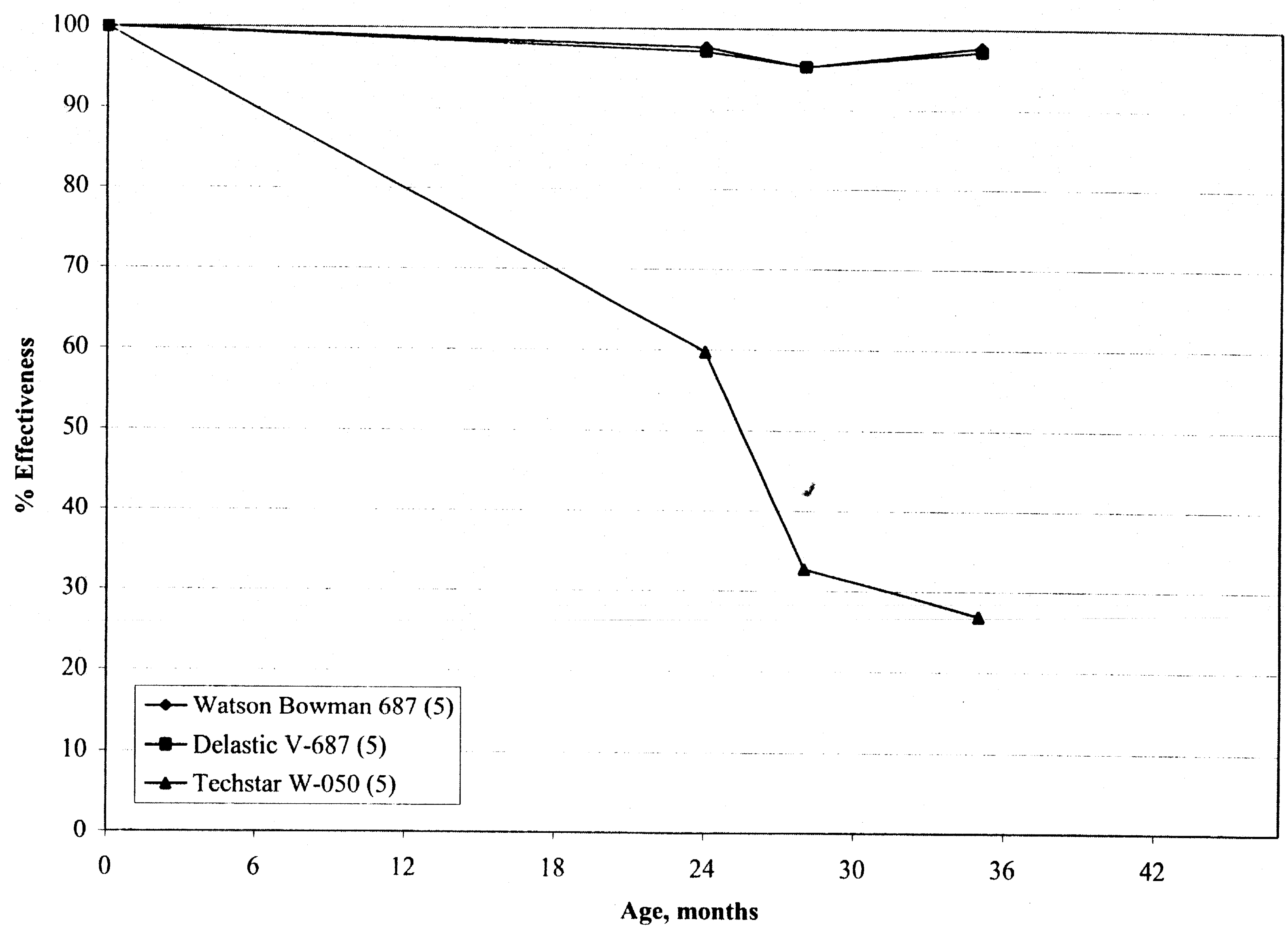


Figure 5.4 Deterioration of compression seals in the eastbound lanes as of EBOC00

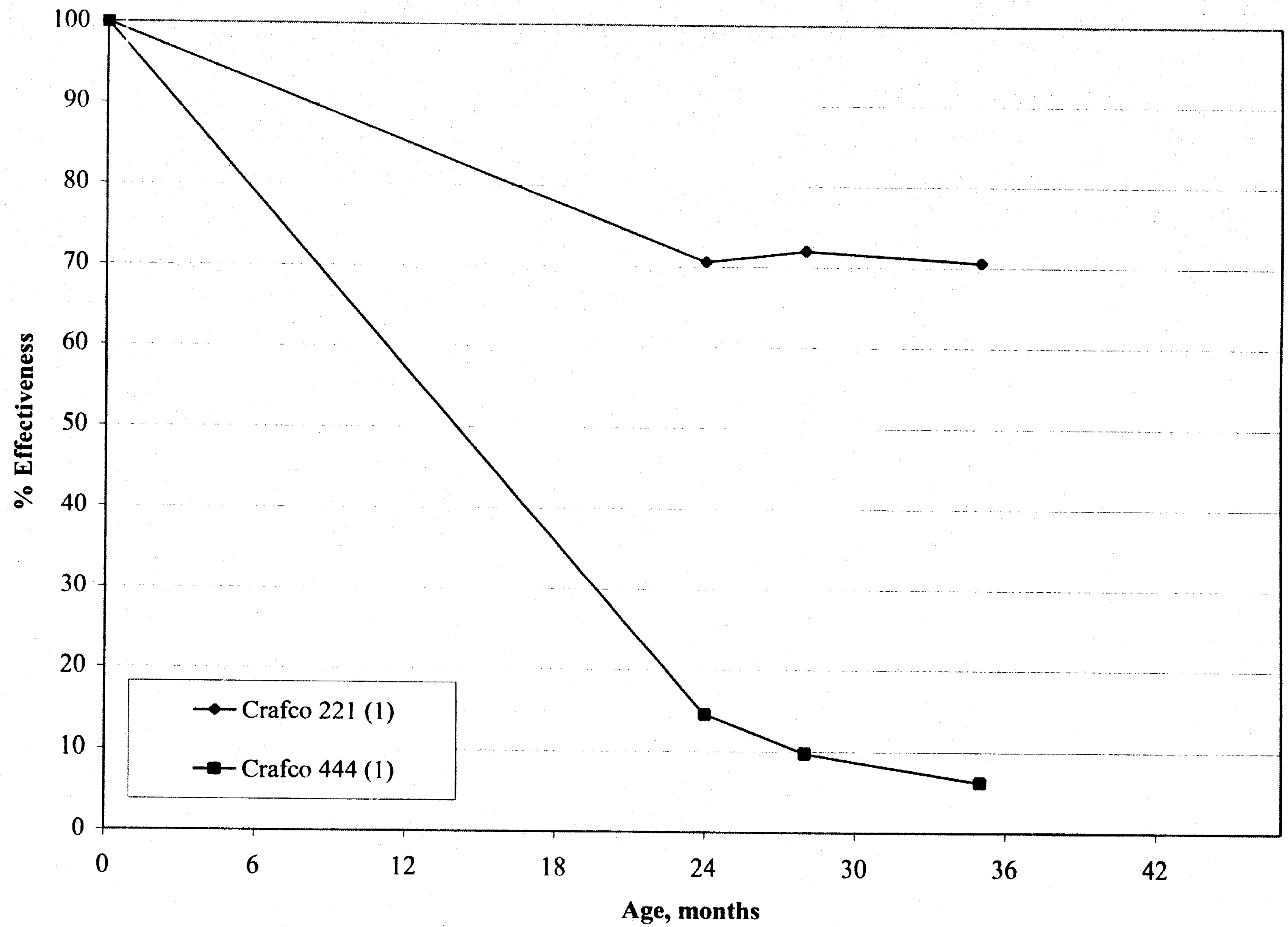


Figure 5.5 Deterioration of hot-applied sealants in the eastbound lanes as of EBOC00

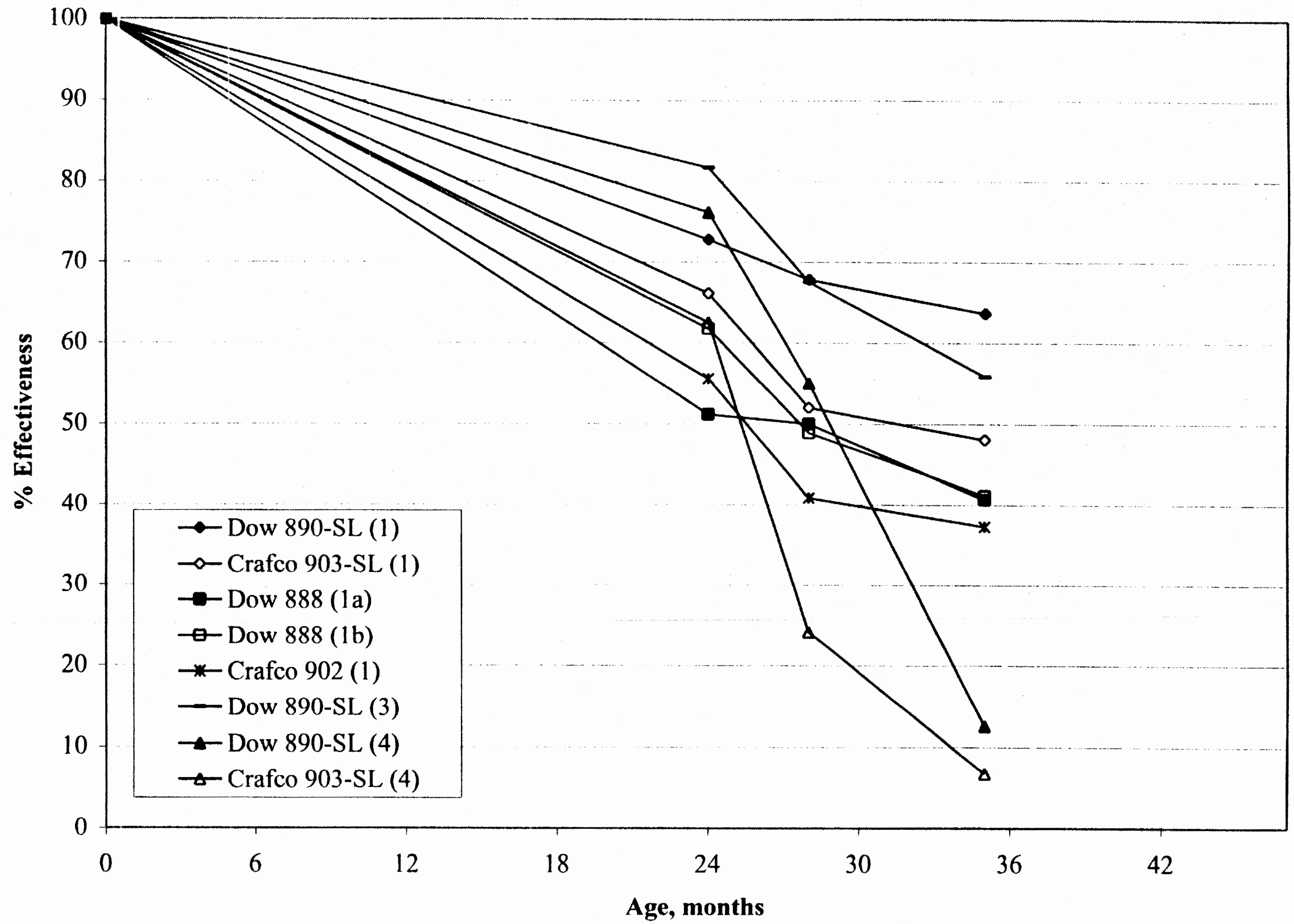


Figure 5.6 Deterioration of silicone sealants in the eastbound lanes as of EBOC00

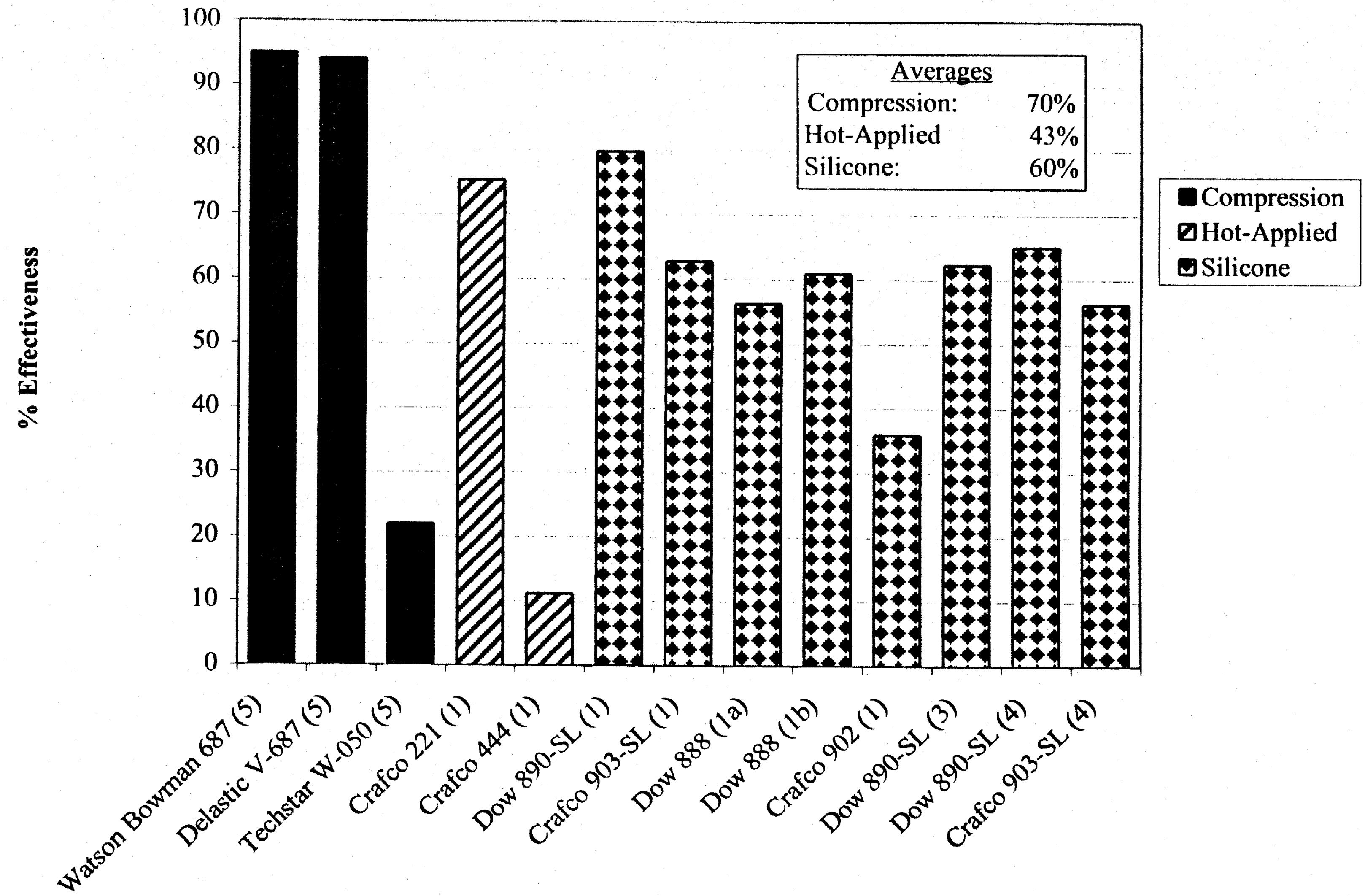


Figure 5.7 Comparison between silicone, hot-applied, and compression sealants during EBJN01

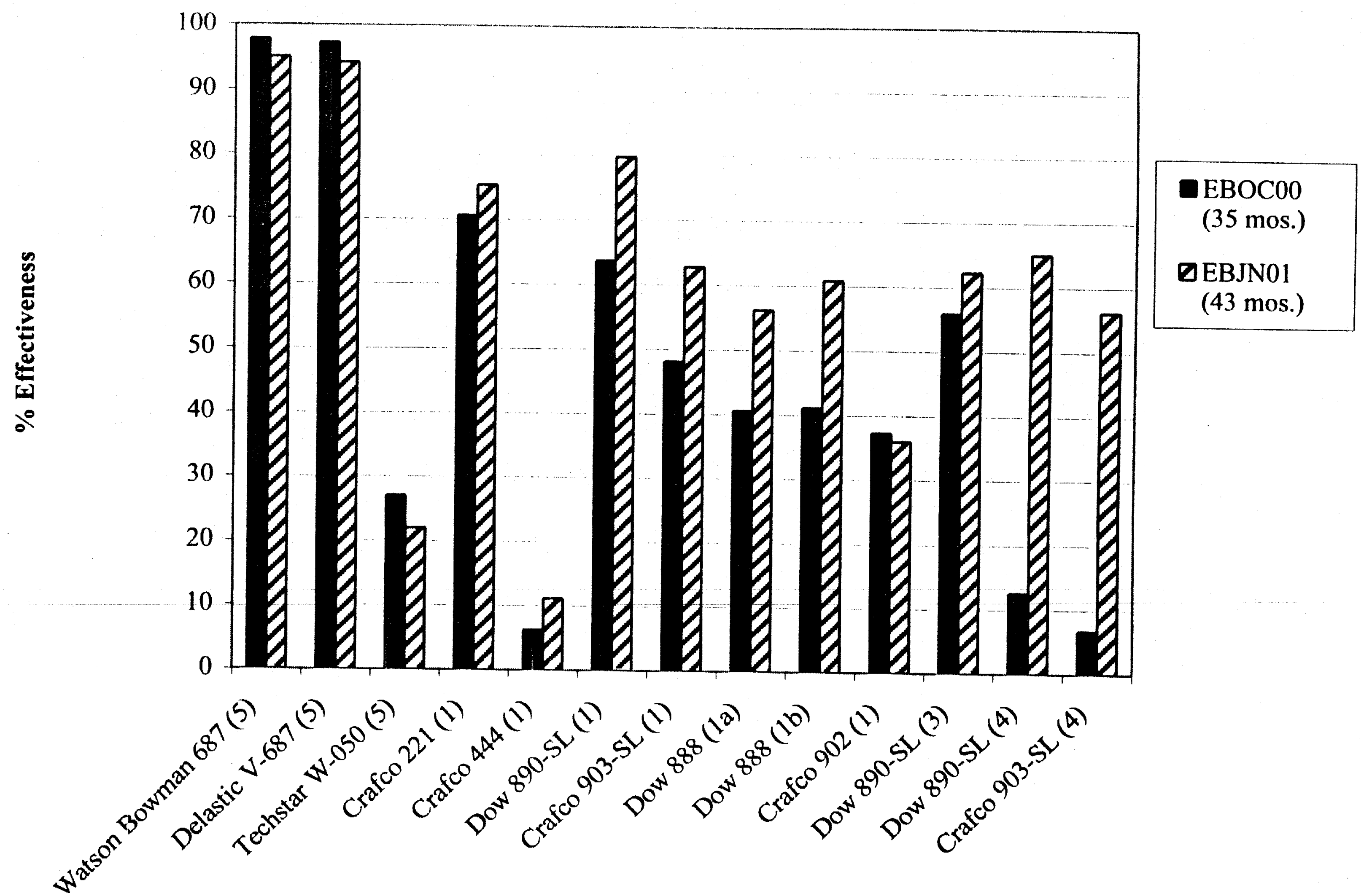
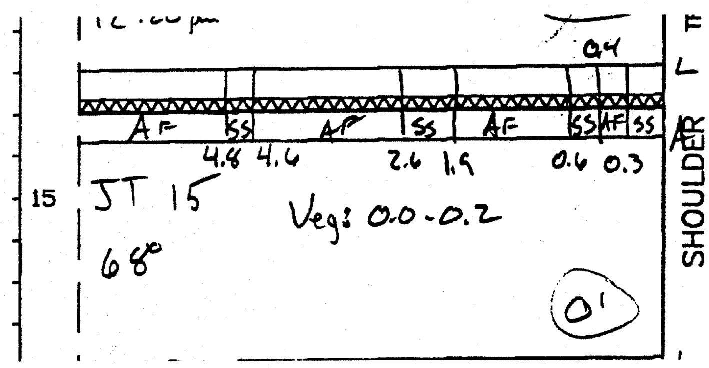
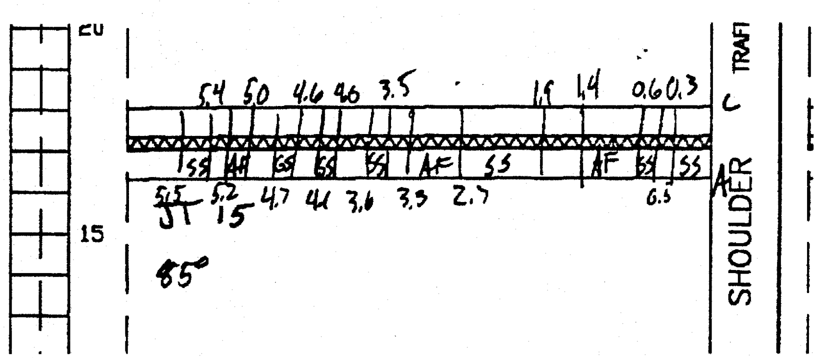


Figure 5.8 Deterioration of sealants from EBOC00 to EBJN01



(a) From Survey EBOC00



(b) From Survey EBJN01

Figure 5.9 Comparison between field logs from EBOC00 and EBJN01 for Joint 15 in the Crafco 903-SL (4) section.

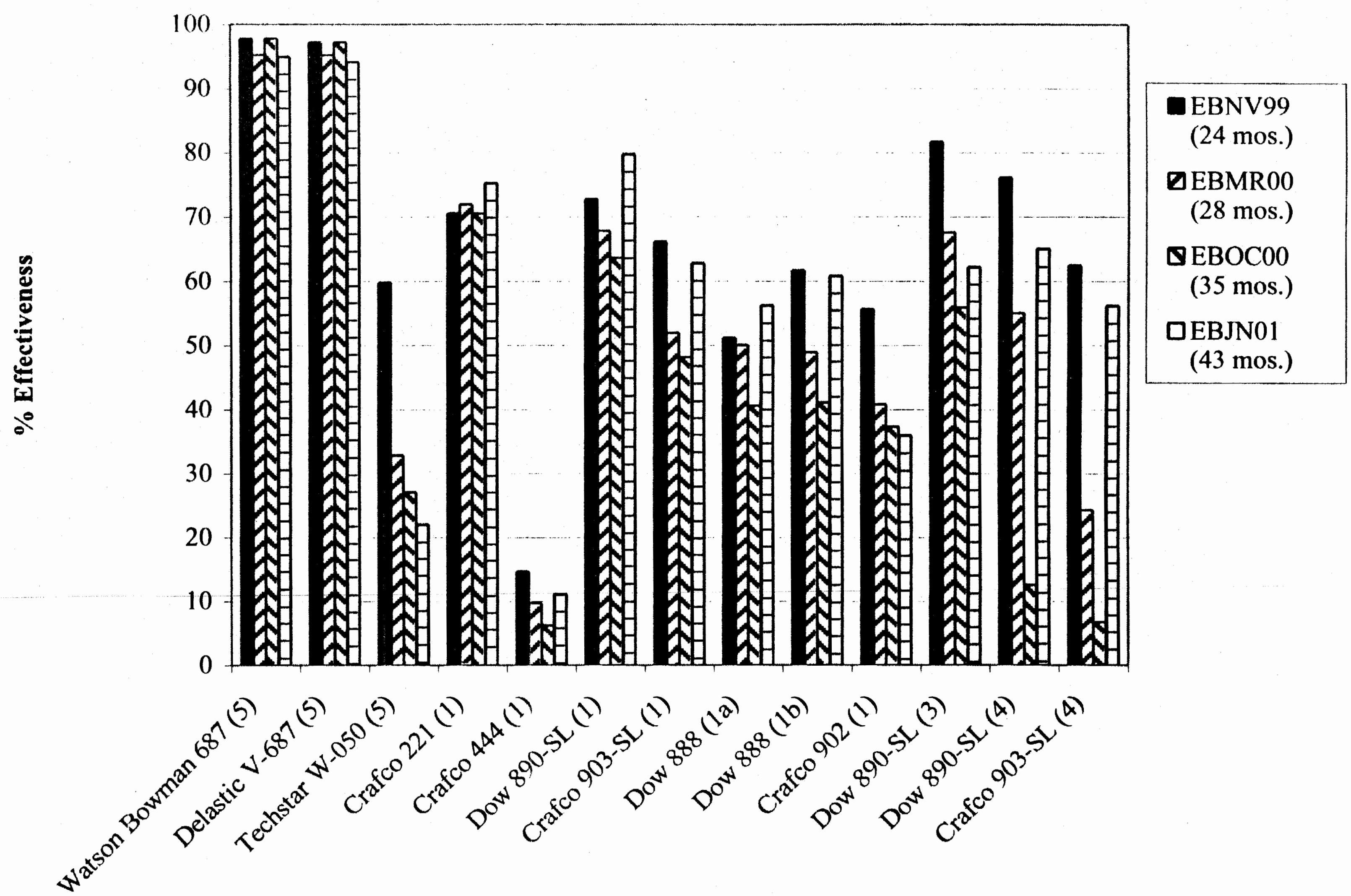


Figure 5.10 Deterioration of sealants from EBNV99 to EBJN01

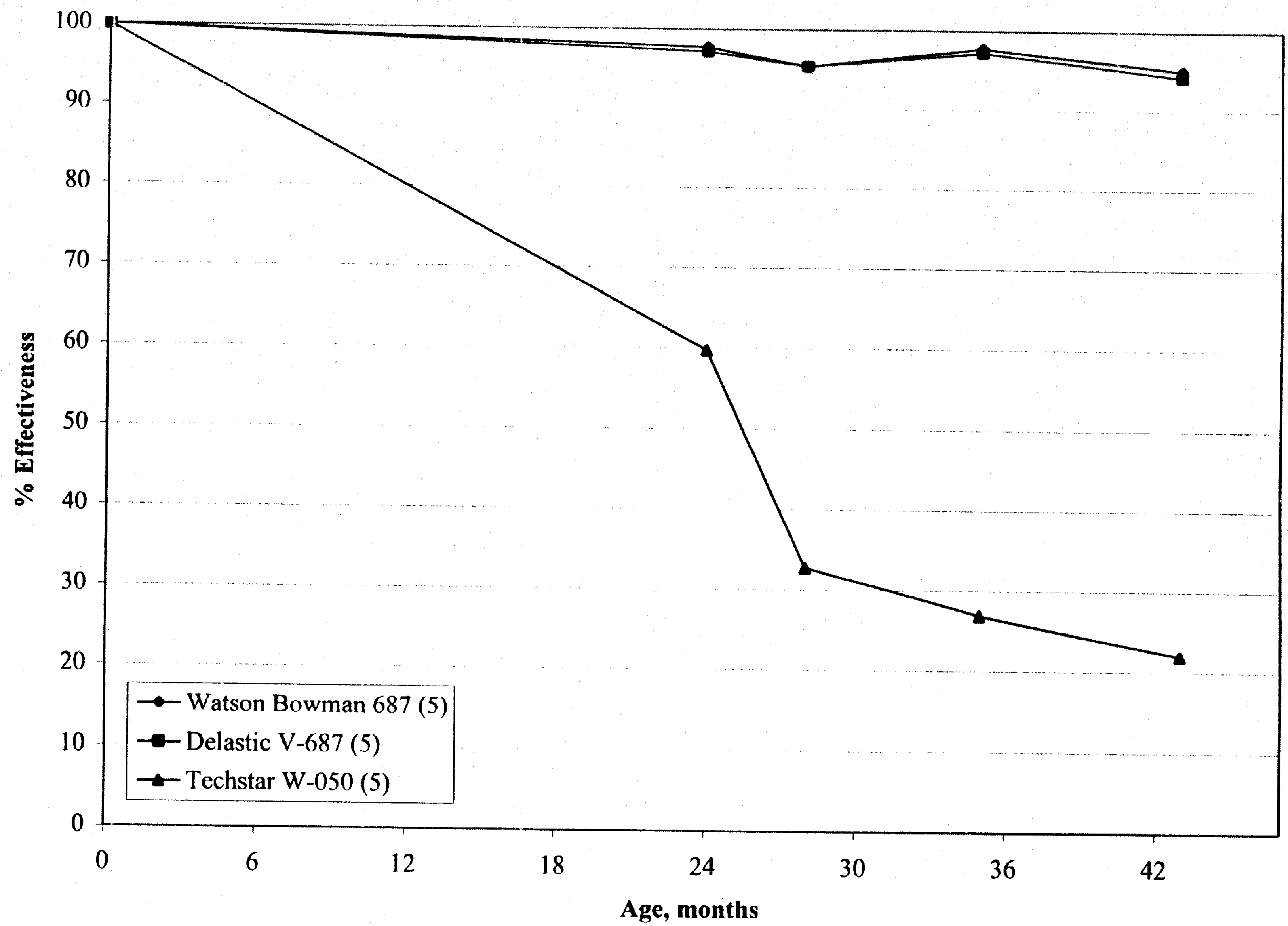


Figure 5.11 Deterioration of compression seals in the eastbound lanes as of EBJN01

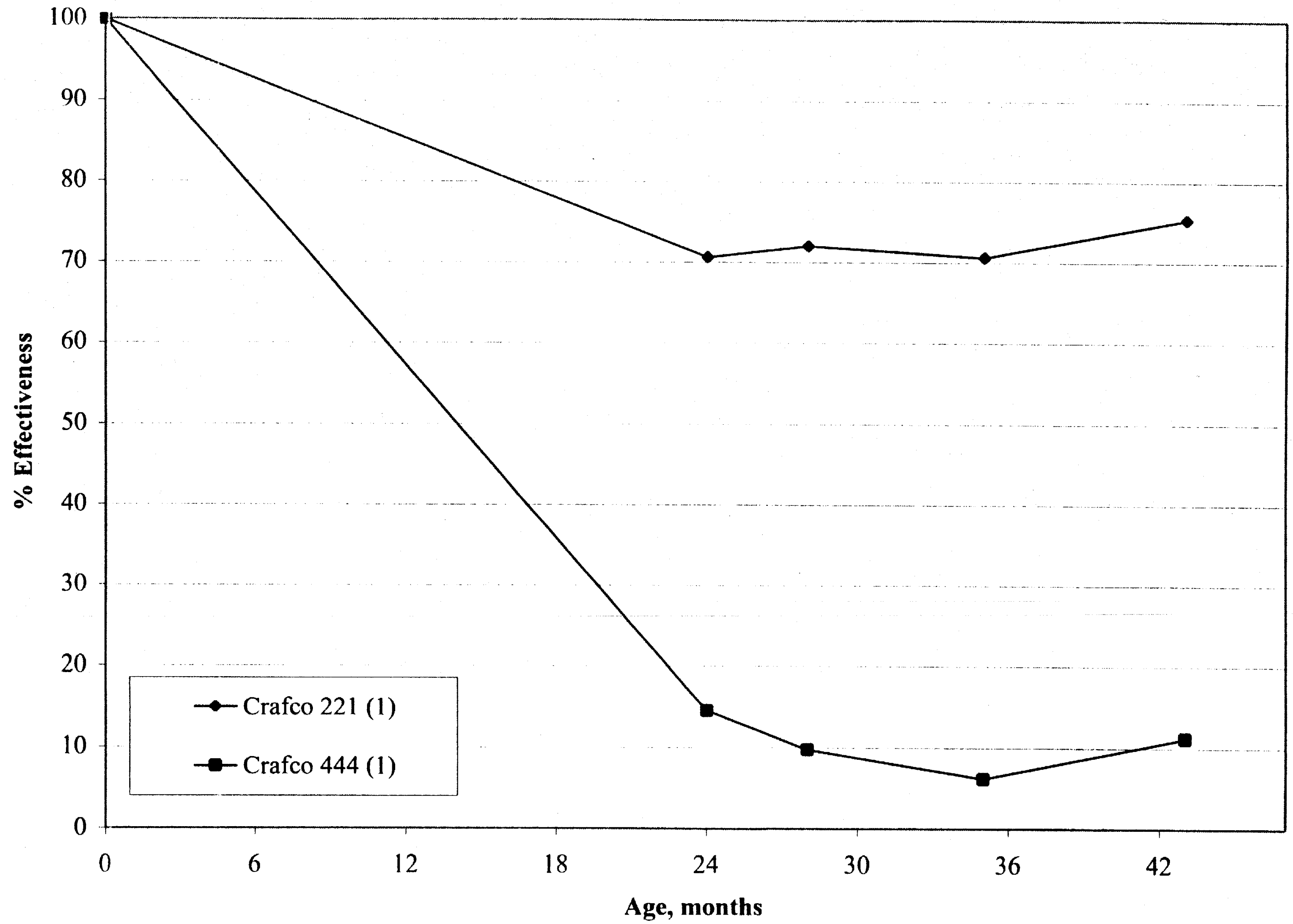


Figure 5.12 Deterioration of hot-applied sealants in the eastbound lanes as of EBJN01

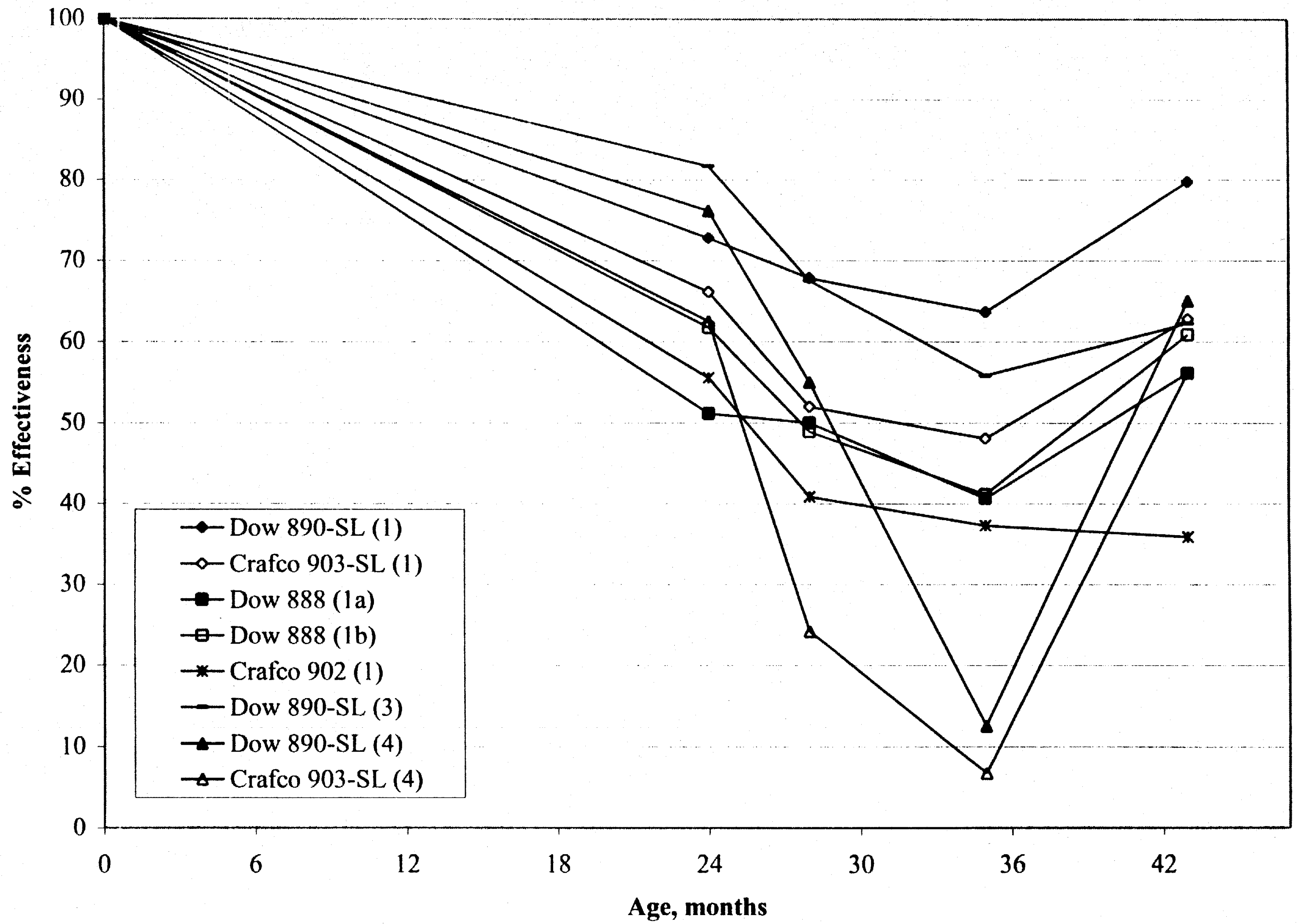


Figure 5.13 Deterioration of silicone sealants in the eastbound lanes as of EBJN01

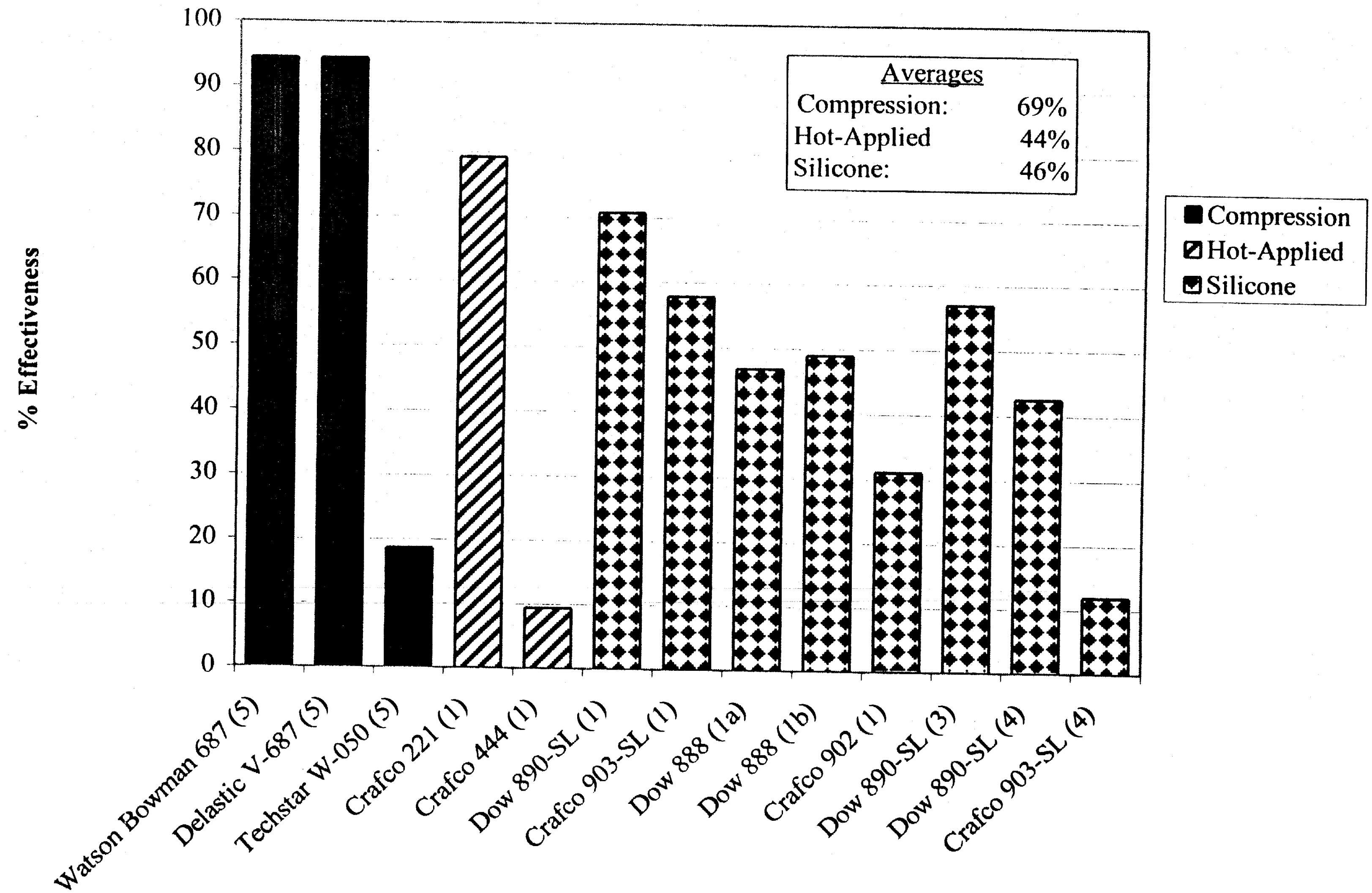


Figure 5.14 Comparison between silicone, hot-applied, and compression sealants during EBOC01

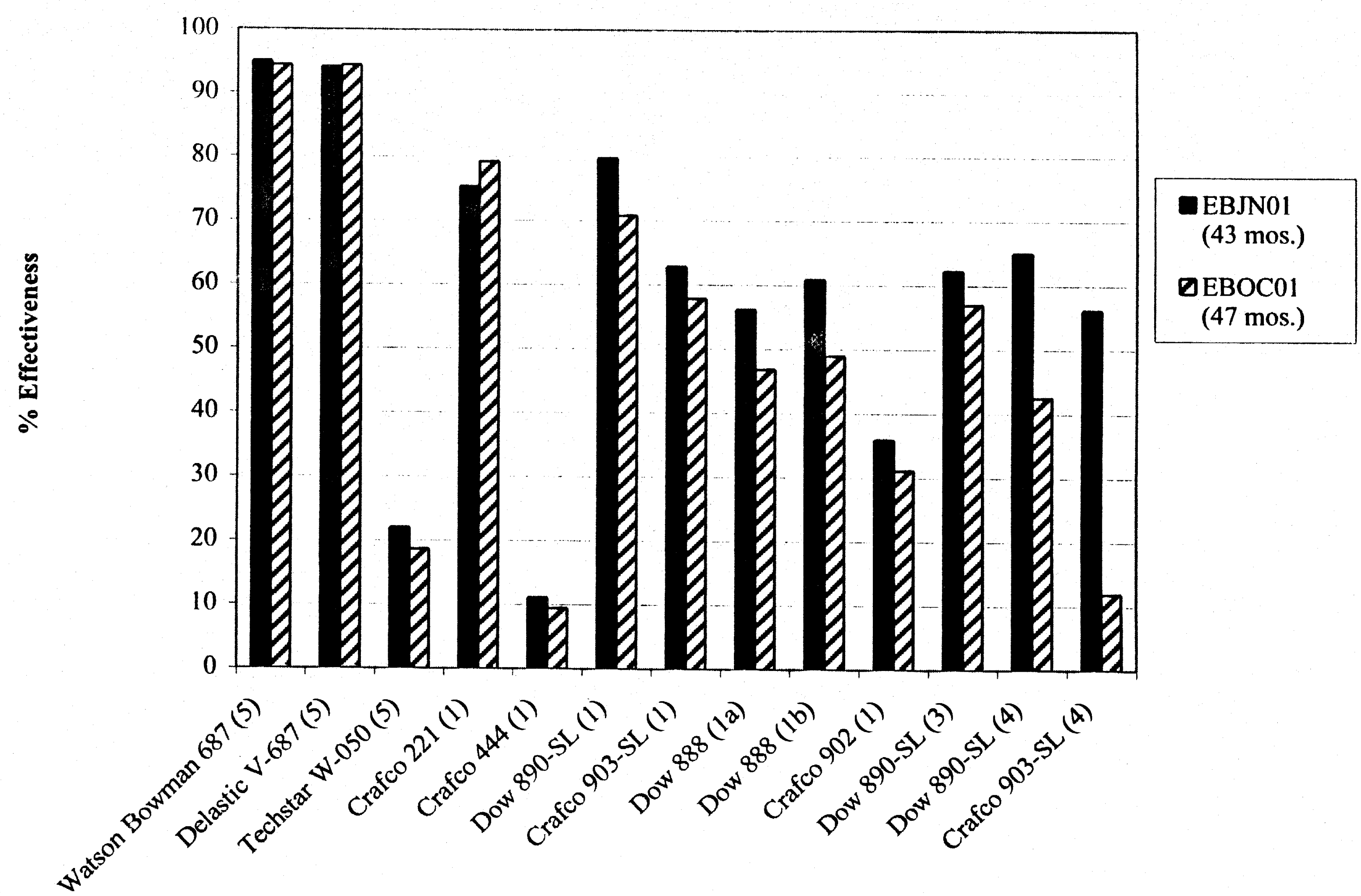


Figure 5.15 Deterioration of sealants from EBJN01 to EBOC01

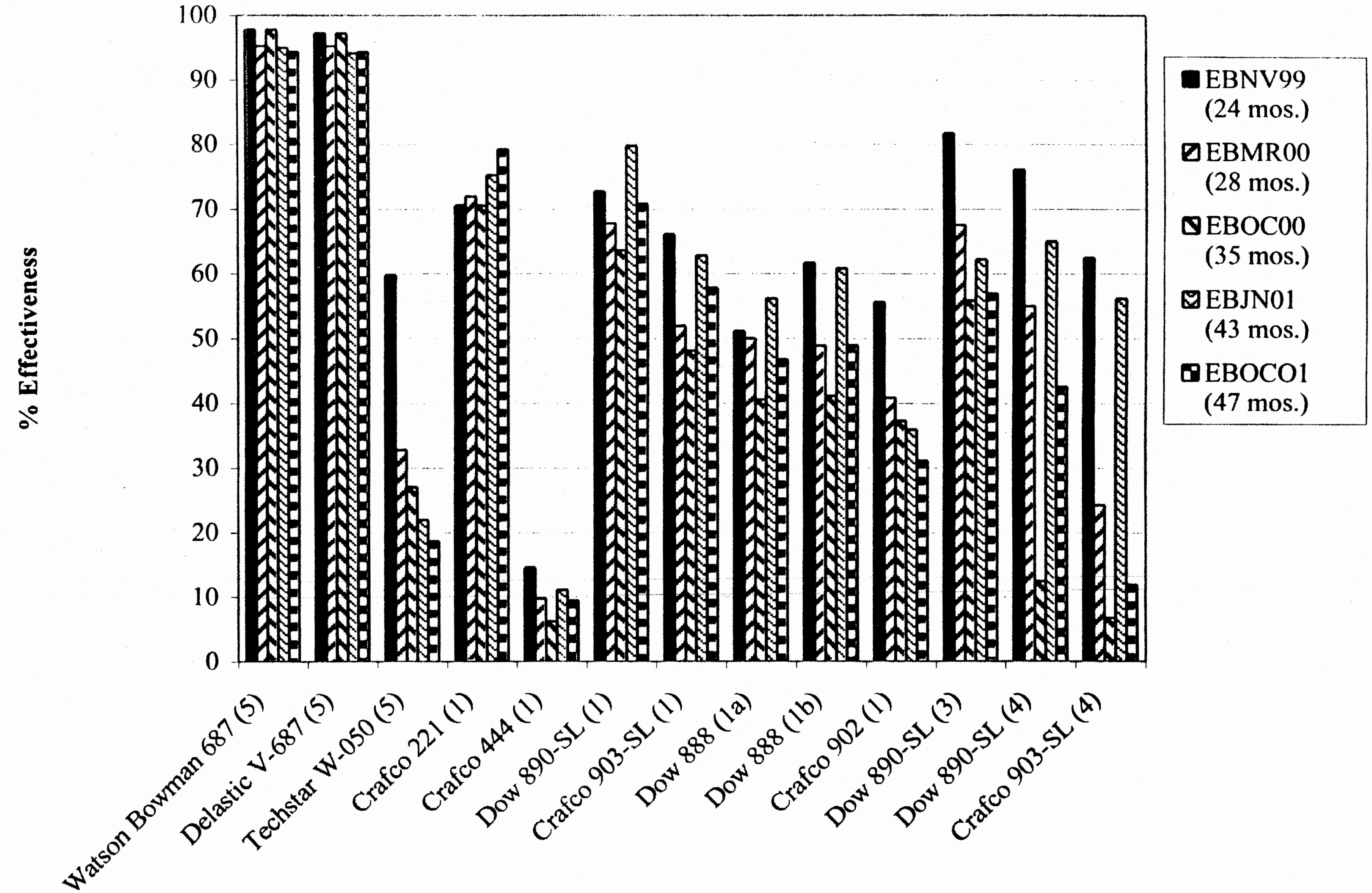


Figure 5.16 Deterioration of sealants from EBNV99 to EBOC01

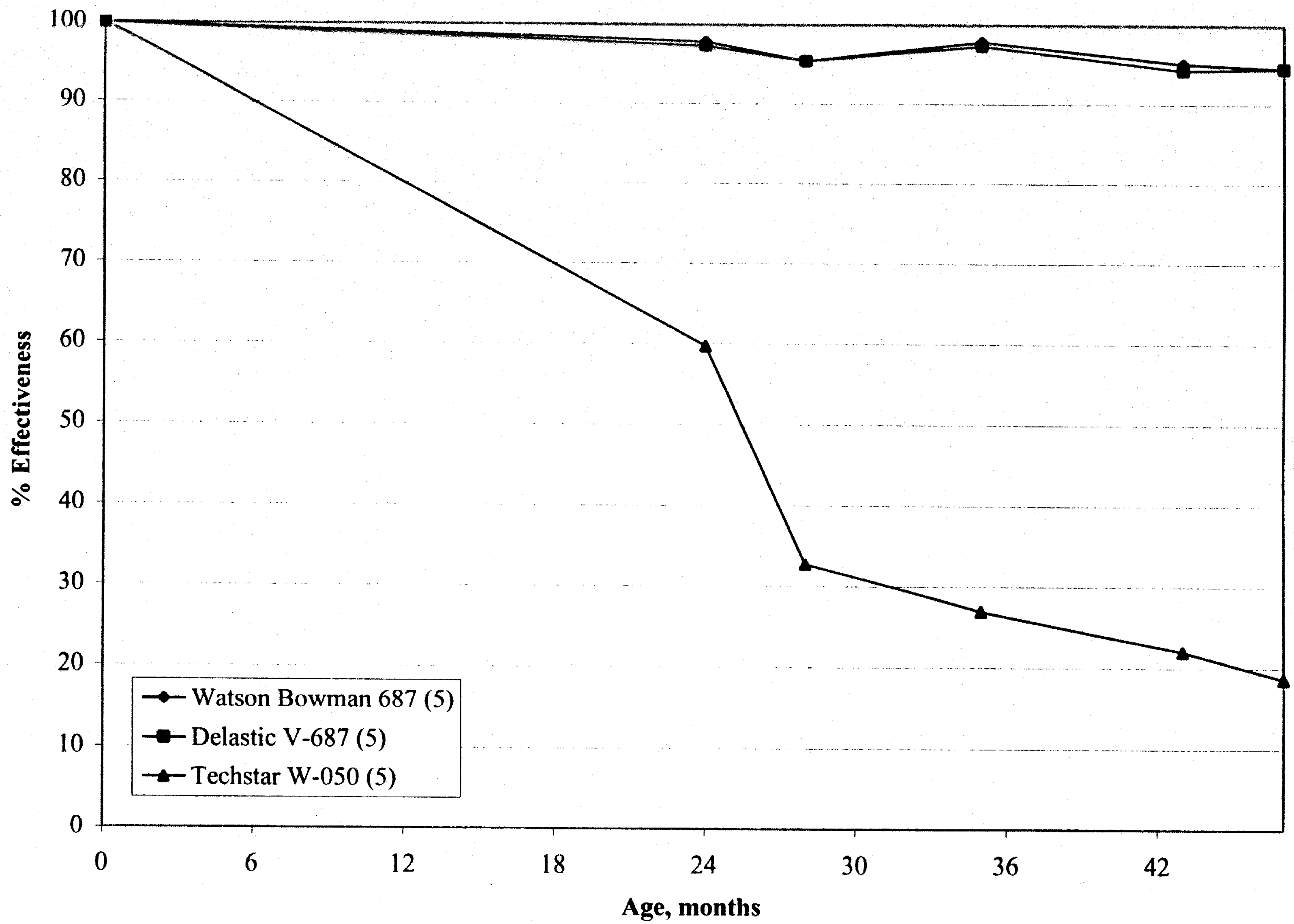


Figure 5.17 Deterioration of compression seals in the eastbound lanes as of EBOC01

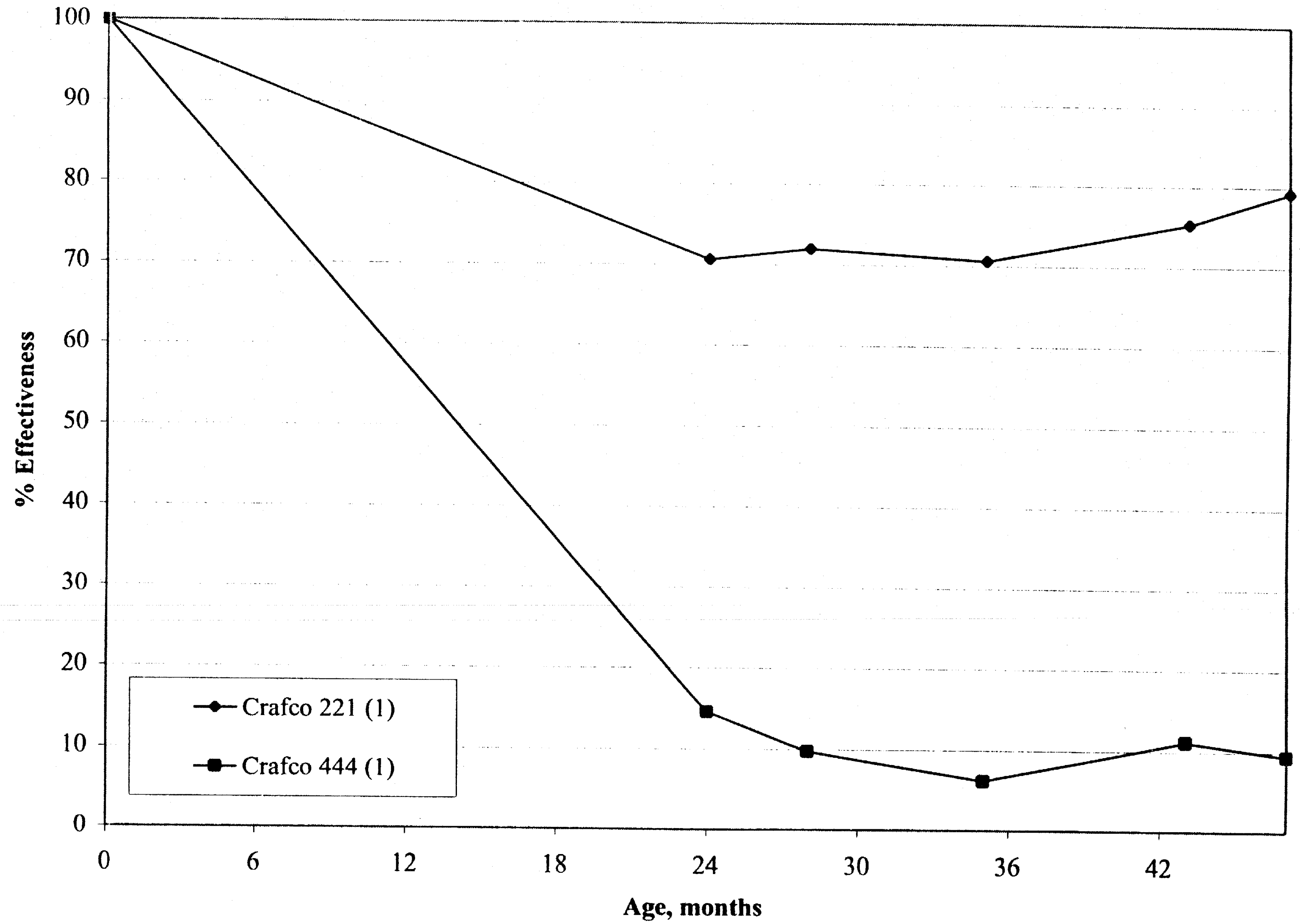


Figure 5.18 Deterioration of hot-applied sealants in the eastbound lanes as of EBOC01

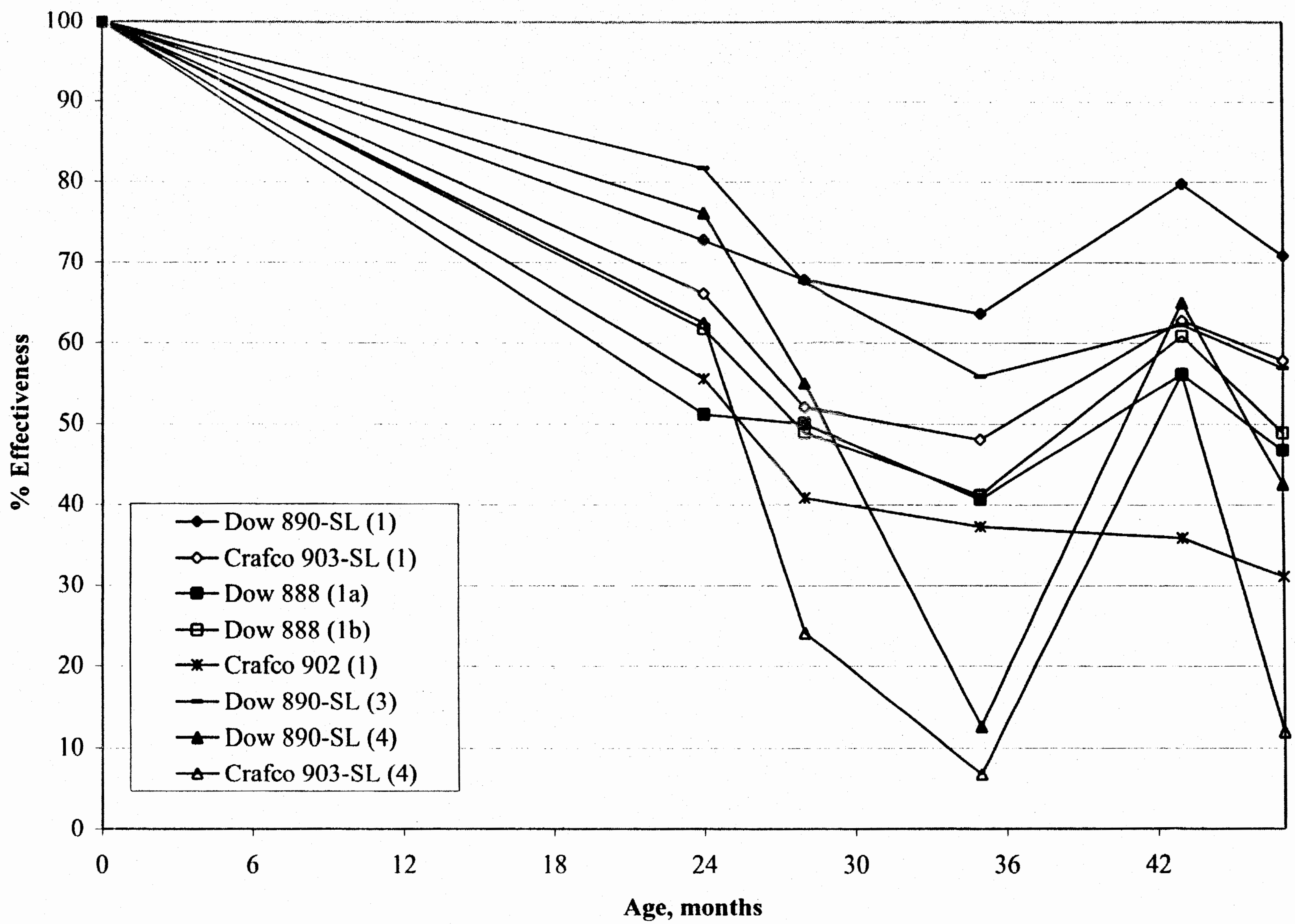


Figure 5.19 Deterioration of silicone sealants in the eastbound lanes as of EBOC01

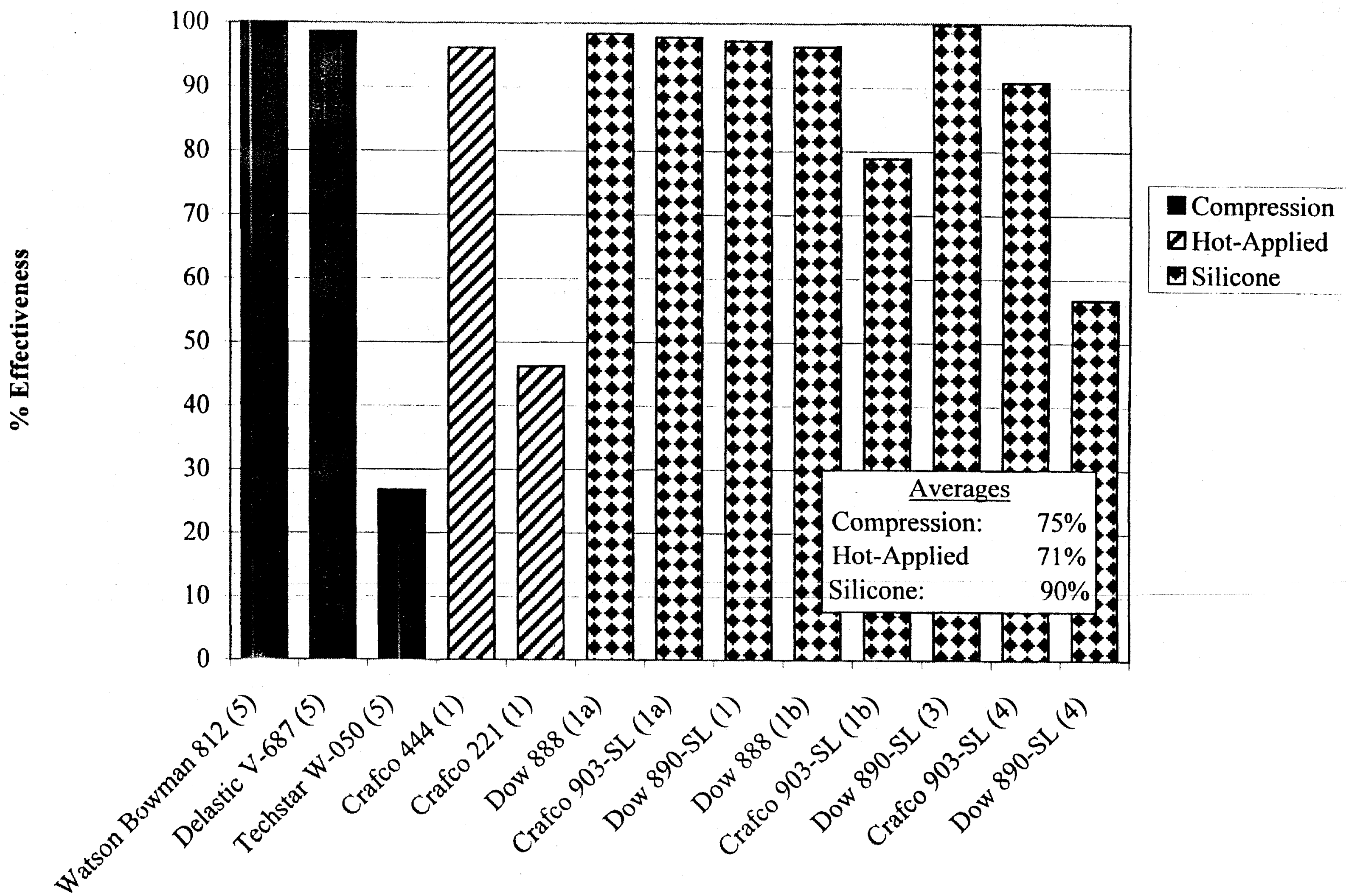
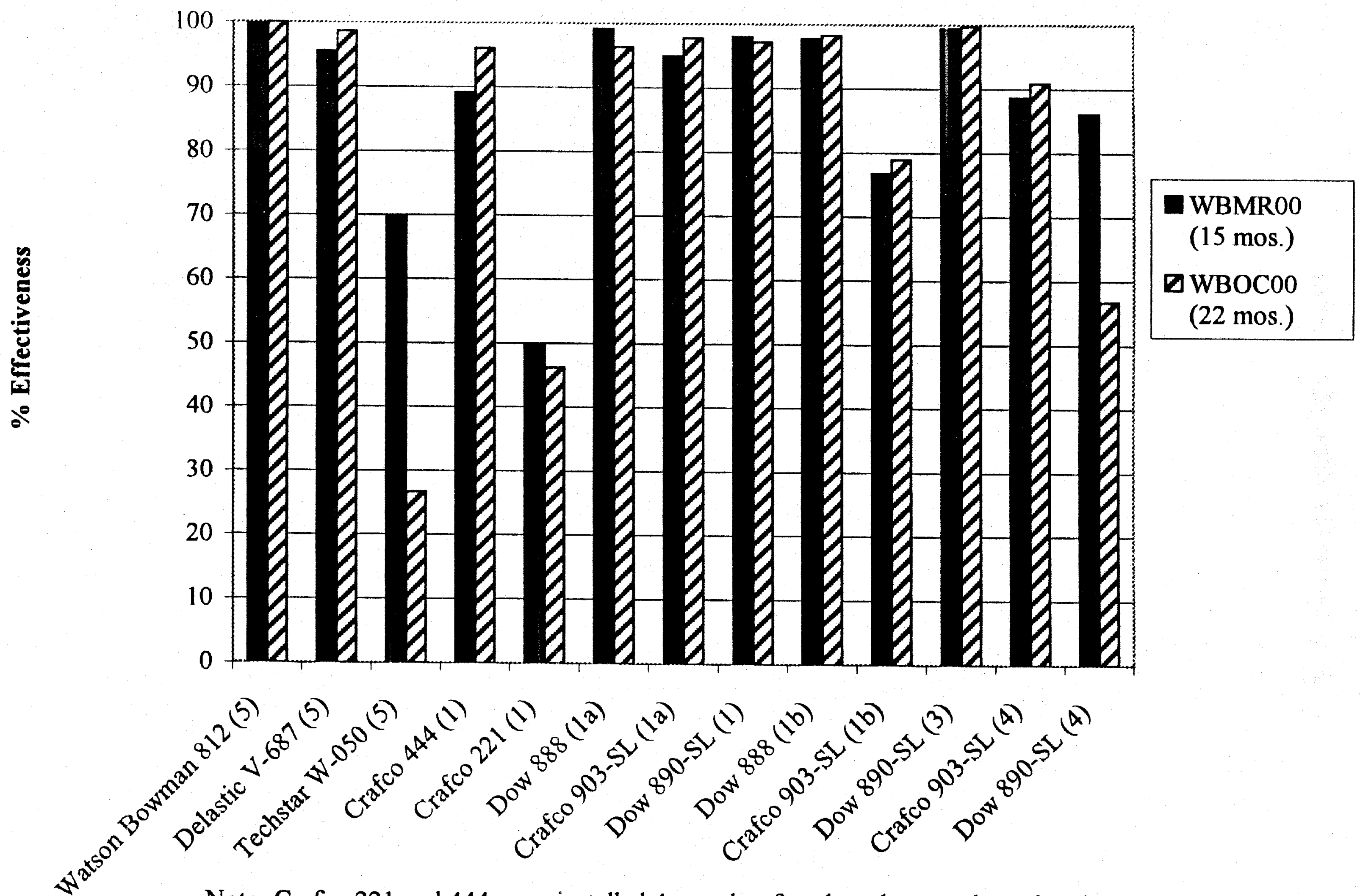
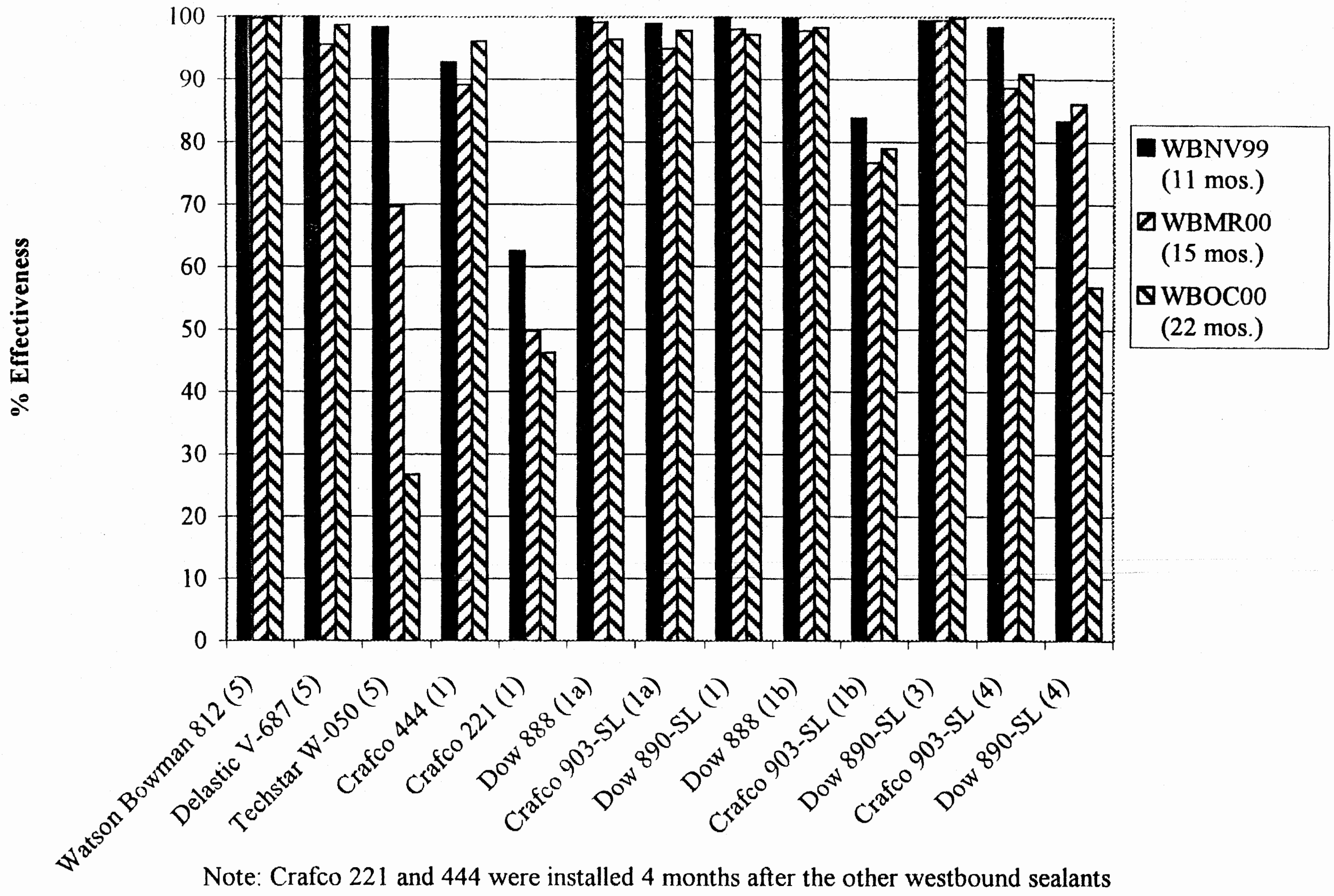


Figure 5.20 Comparison between silicone, hot-applied and compression sealants during WBOC00



Note: Crafco 221 and 444 were installed 4 months after the other westbound sealants

Figure 5.21 Deterioration of sealants from WBMR00 to WBOC00



Note: Crafco 221 and 444 were installed 4 months after the other westbound sealants

Figure 5.22 Deterioration of sealants from WBNV99 to WBOC00

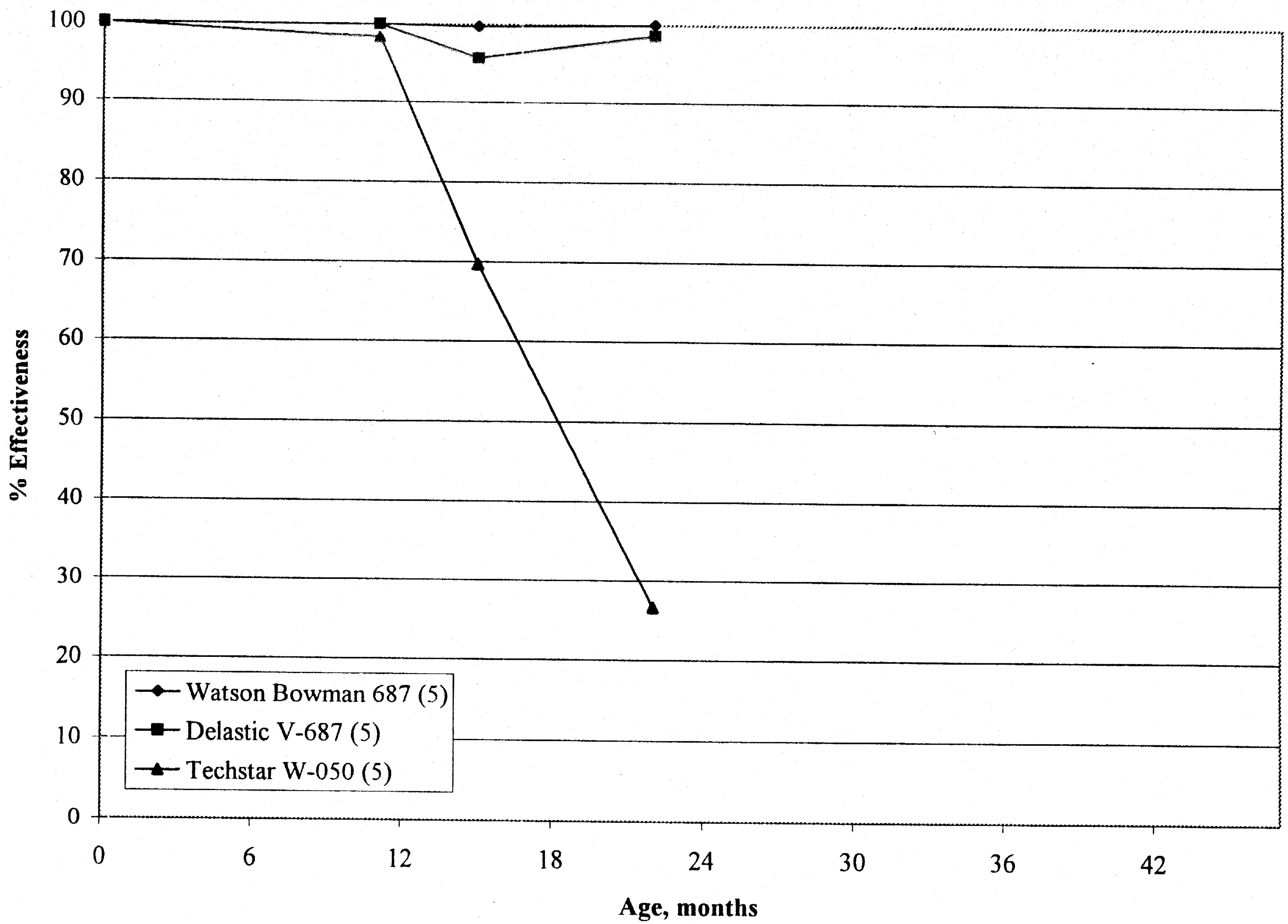


Figure 5.23 Deterioration of compression seals in the westbound lanes as of WBOC00

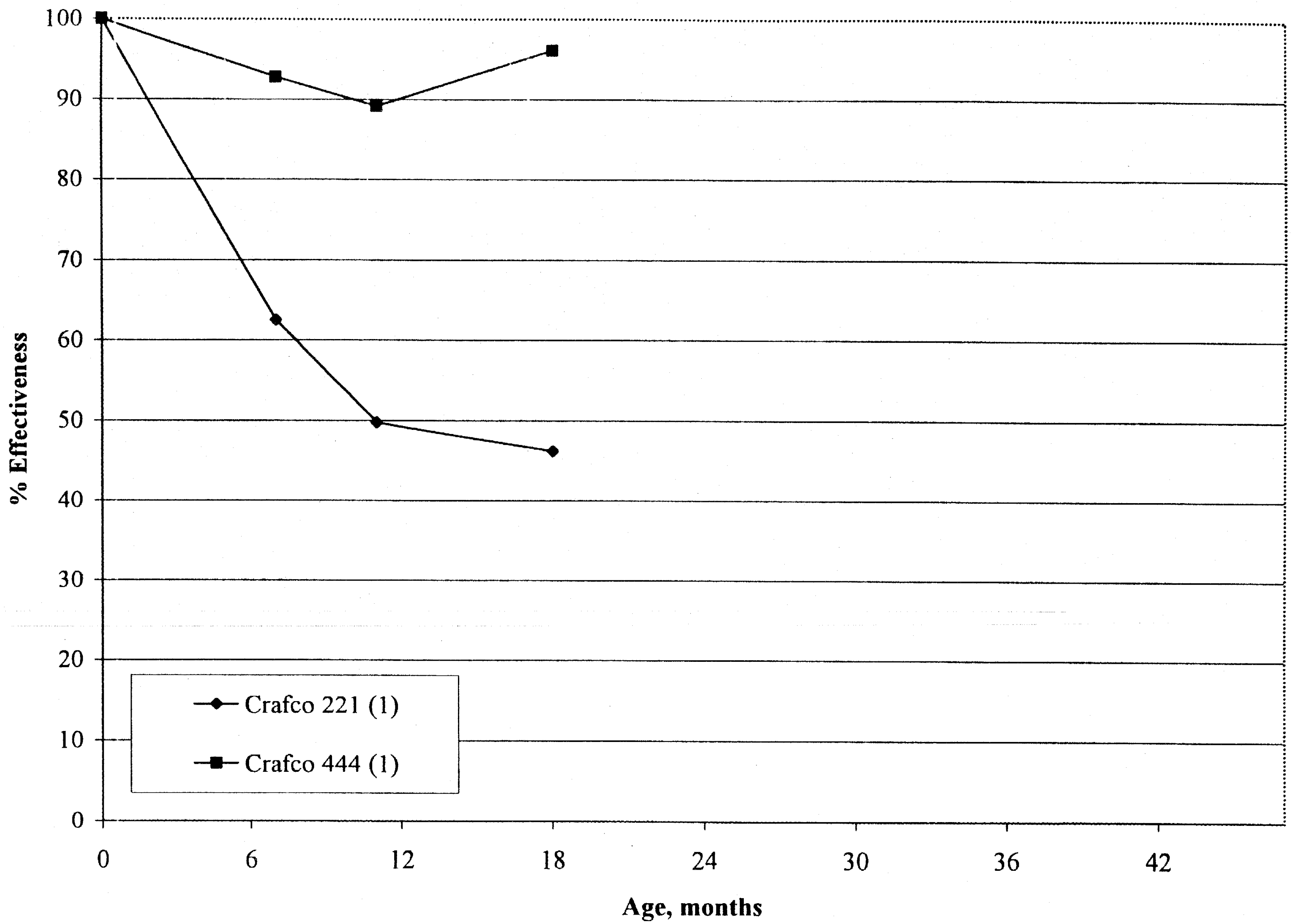


Figure 5.24 Deterioration of hot-applied sealants in the westbound lanes as of WBOC00

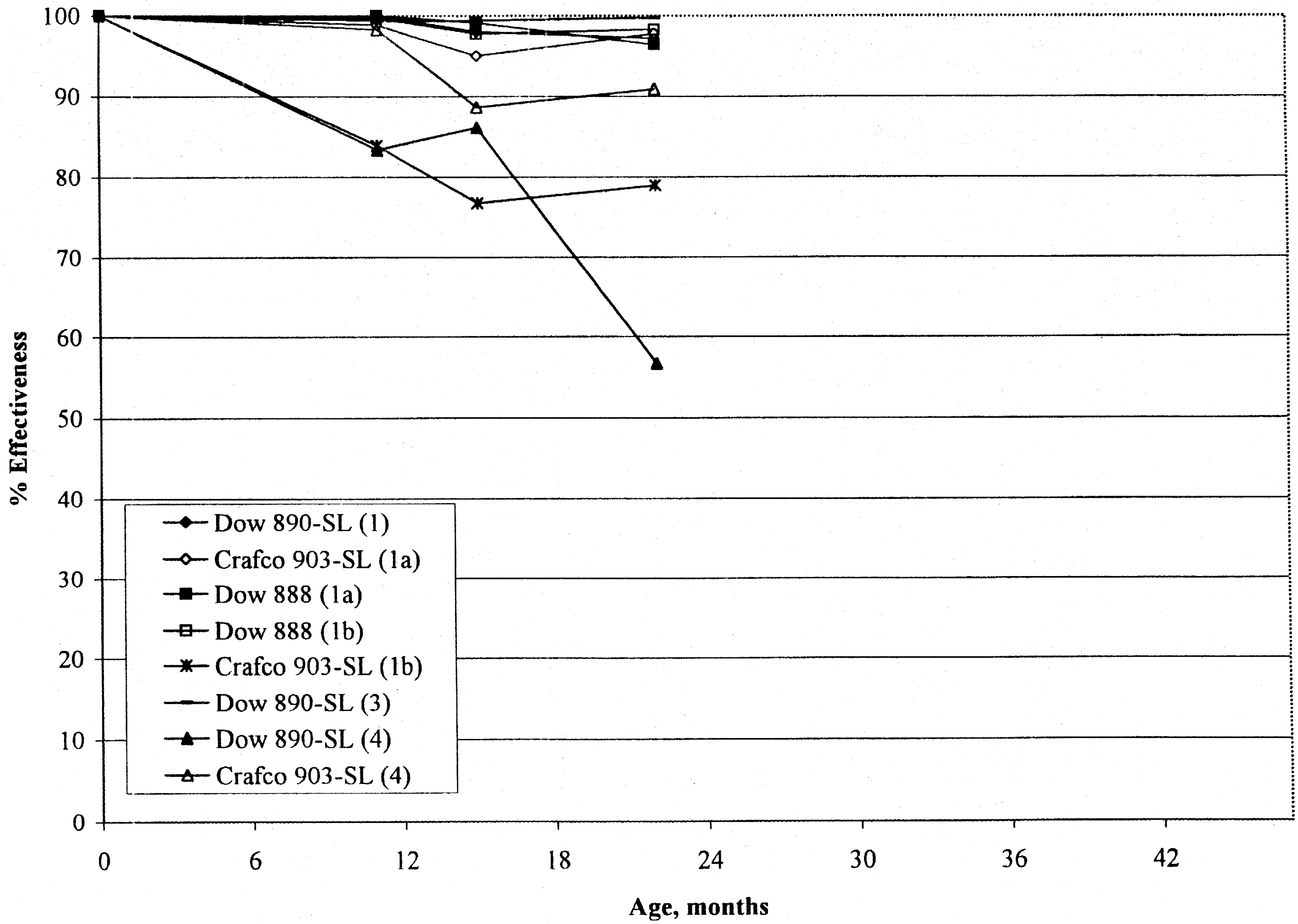
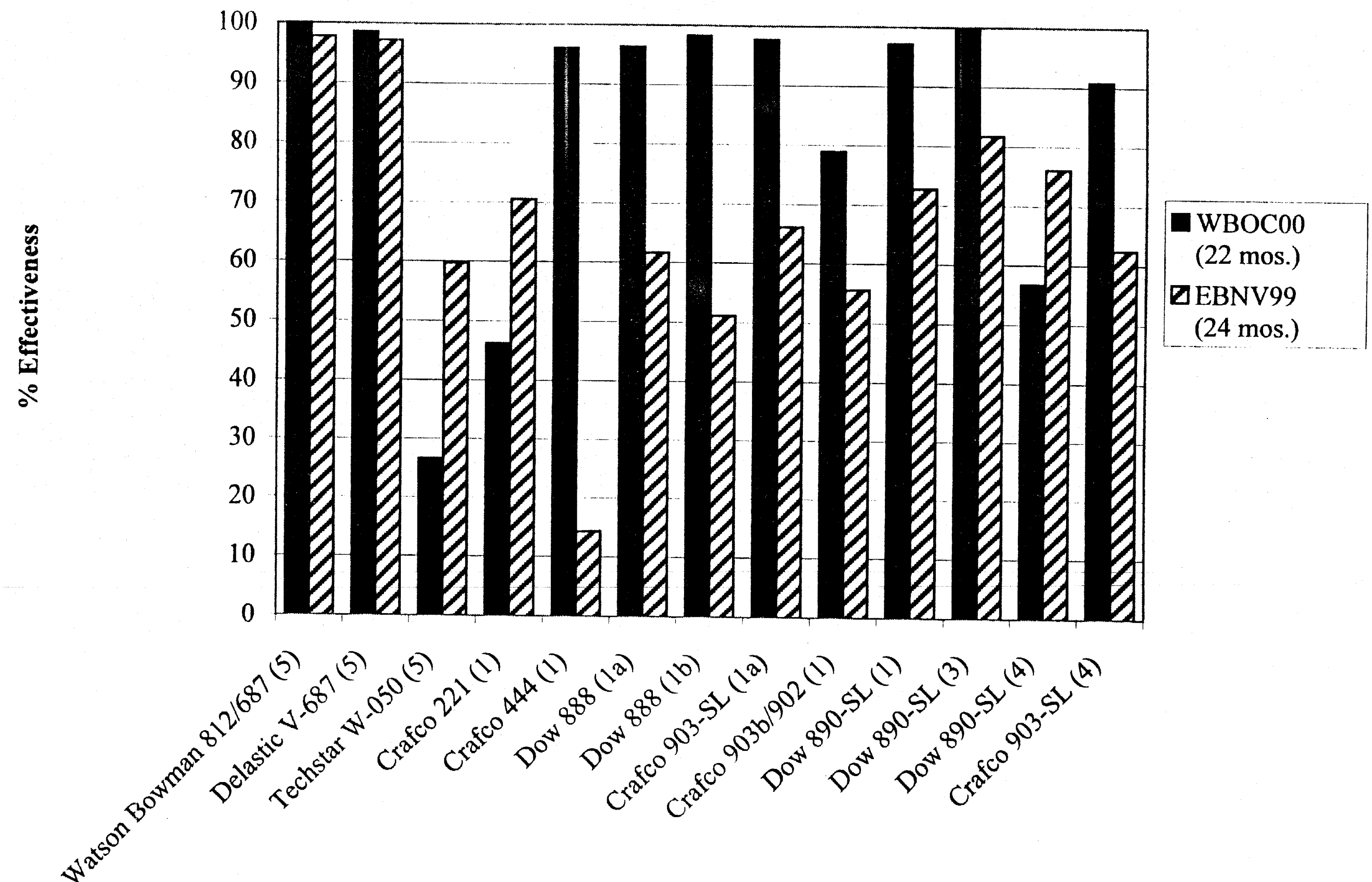


Figure 5.25 Deterioration of silicone sealants in the westbound lanes as of WBOC00



Note: Crafco 221 and 444 were installed 4 months after the other westbound sealants

Figure 5.26 Comparison of eastbound and westbound lane sealants after 2 years in service

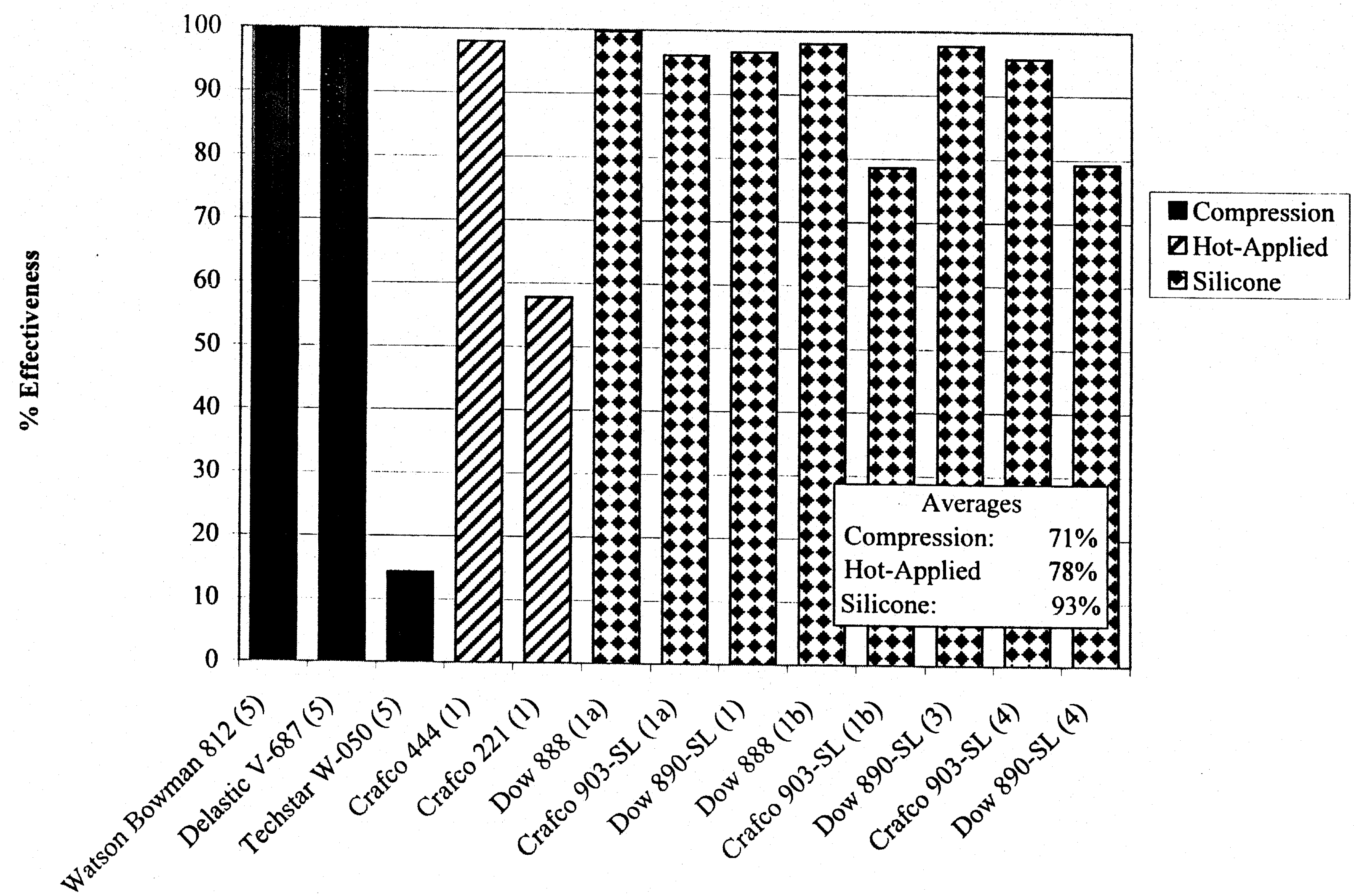
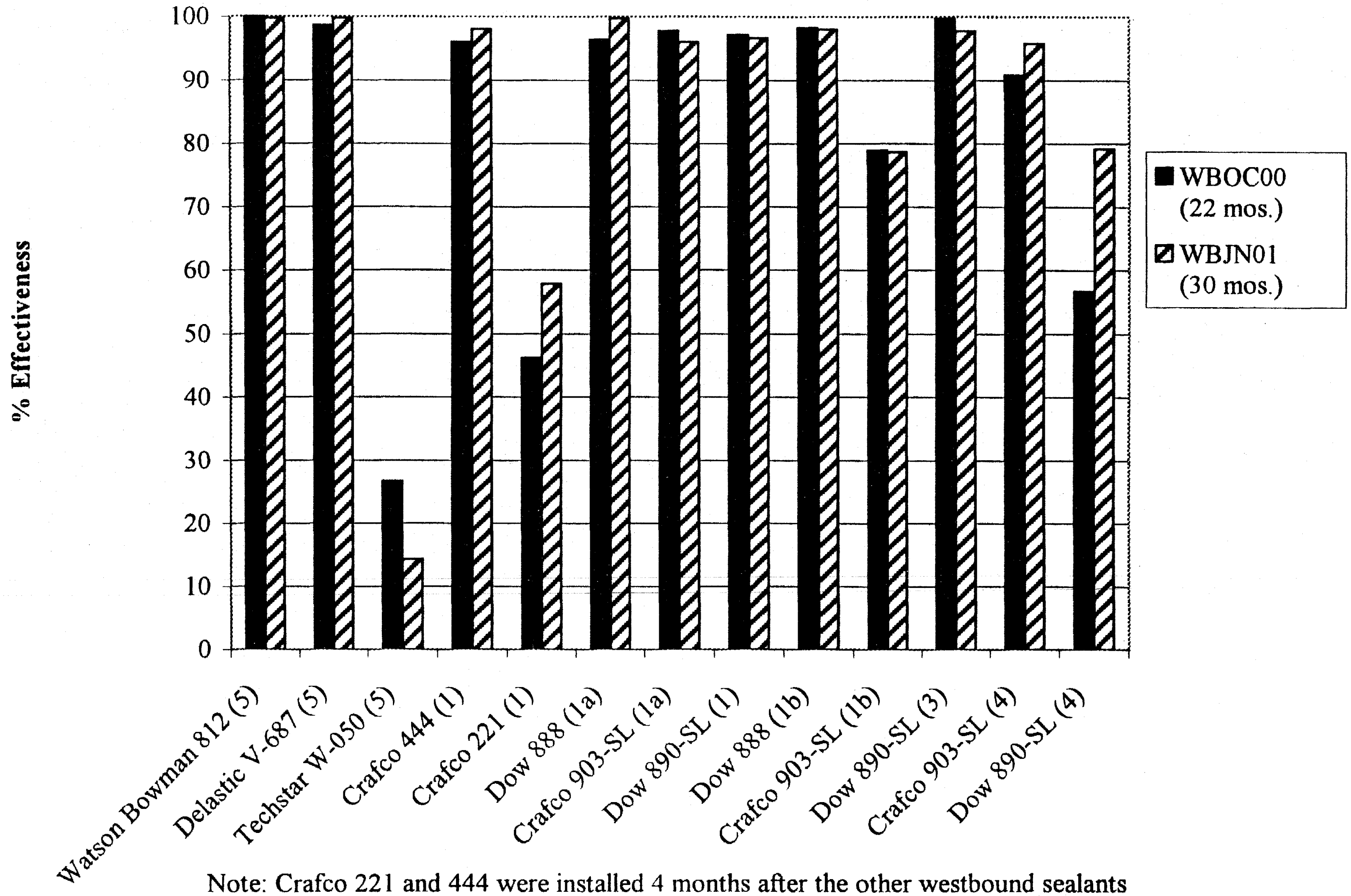
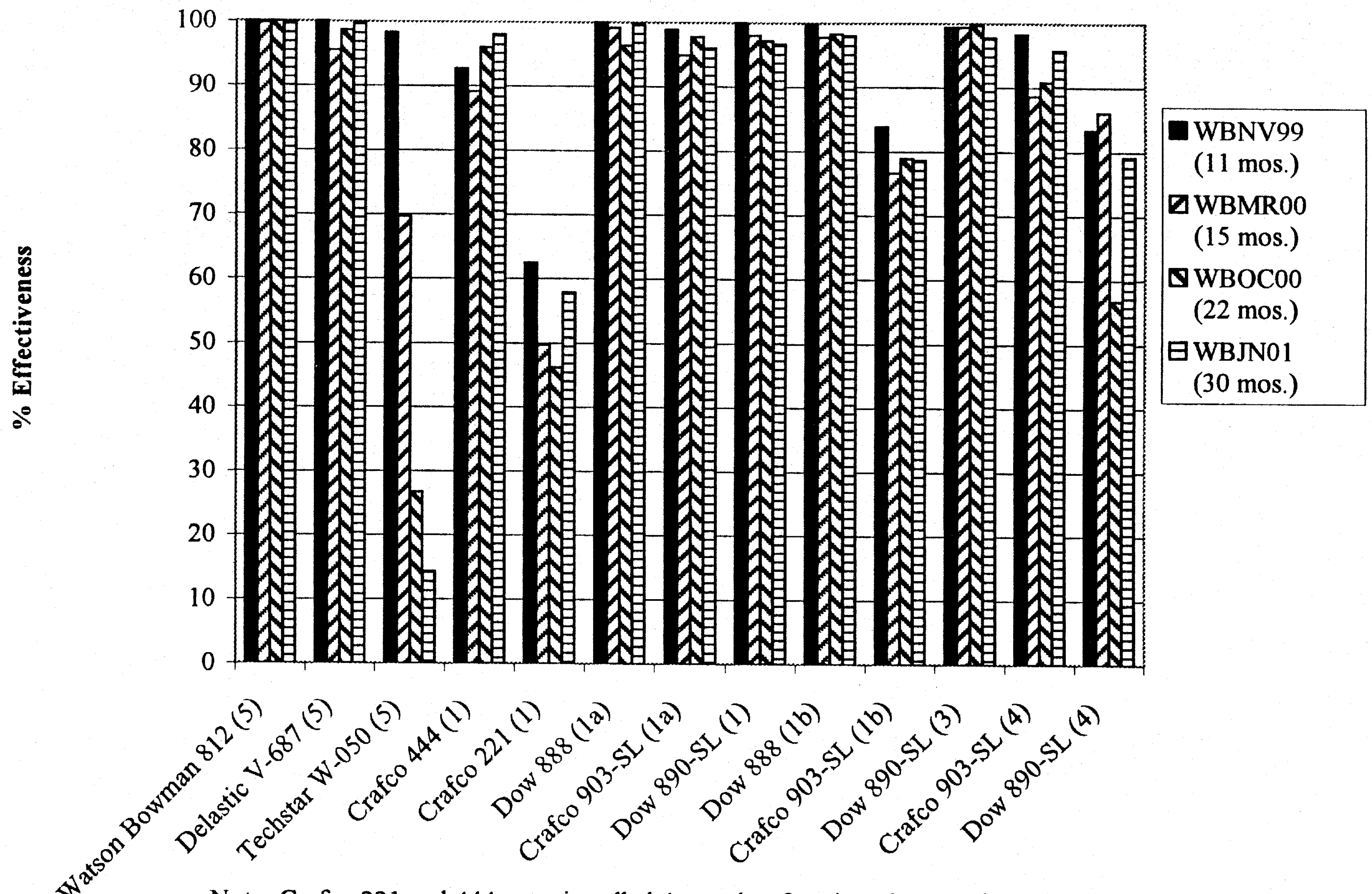


Figure 5.27 Comparison between silicone, hot-applied and compression sealants during WBJN01



Note: Crafco 221 and 444 were installed 4 months after the other westbound sealants

Figure 5.28 Deterioration of sealants from WBOC00 to WBJN01



Note: Crafco 221 and 444 were installed 4 months after the other westbound sealants

Figure 5.29 Deterioration of sealants from WBNV99 to WBJN01

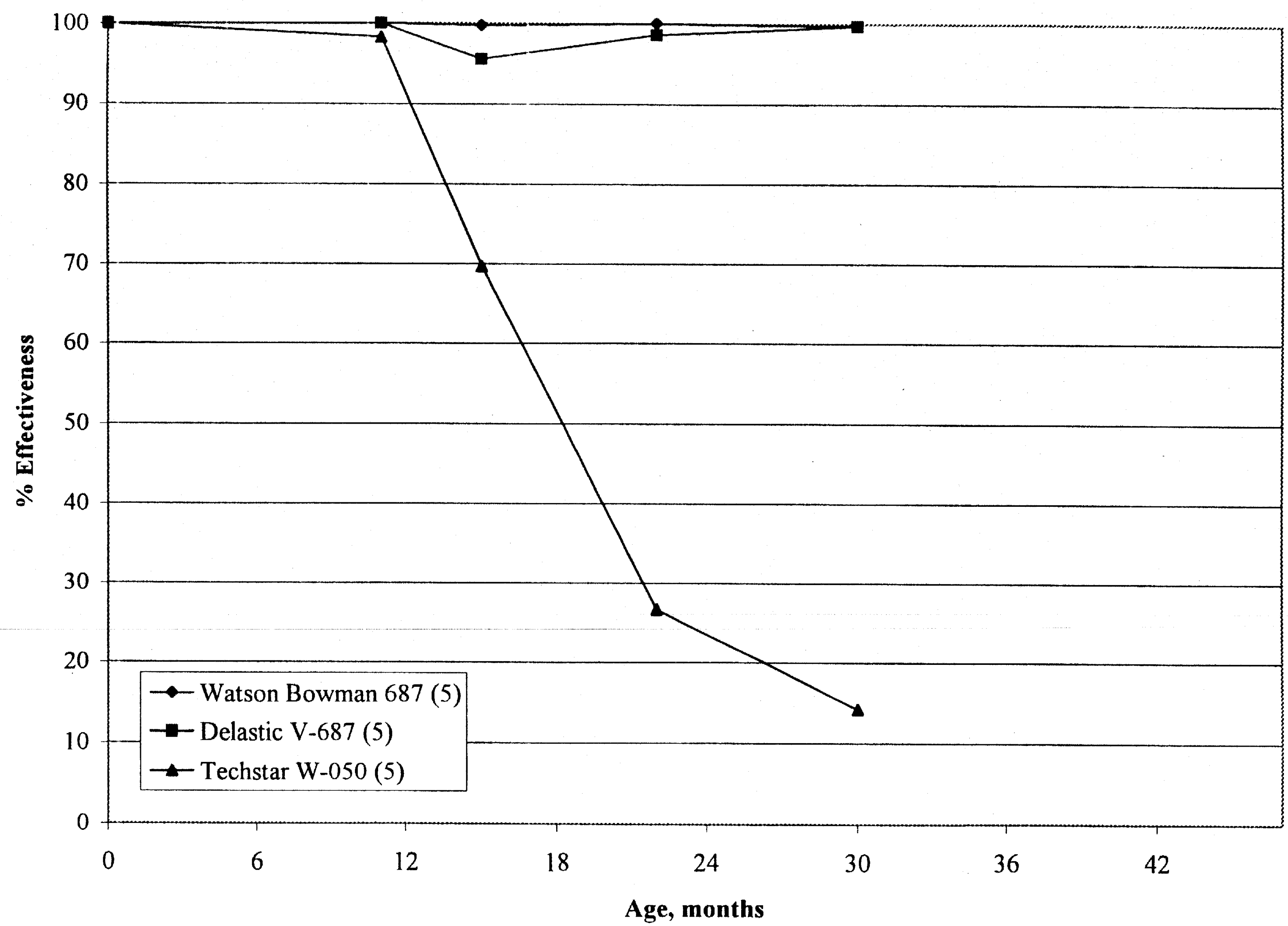


Figure 5.30 Deterioration of compression seals in the westbound lanes as of WBJN01

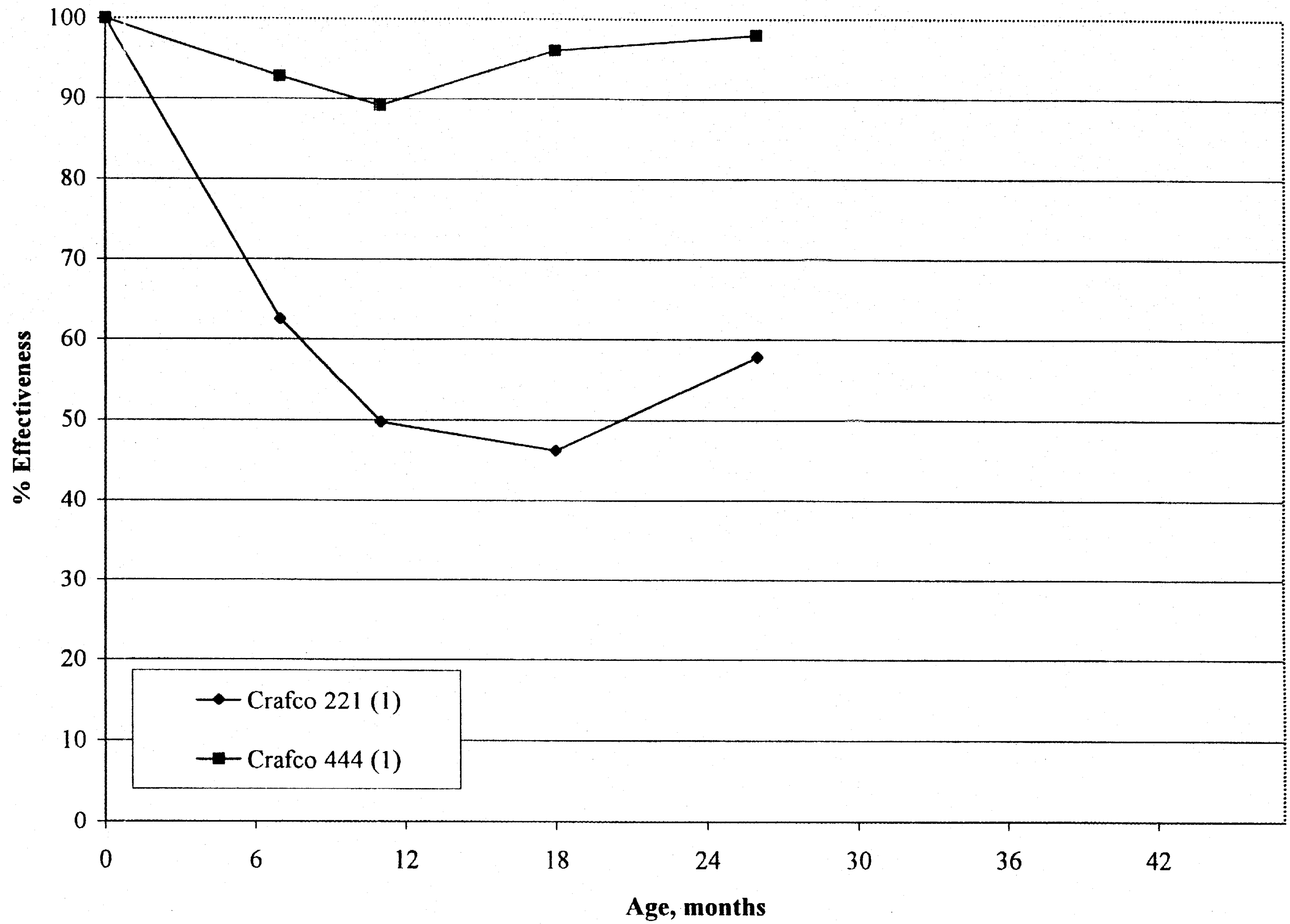


Figure 5.31 Deterioration of hot-applied sealants in the westbound lanes as of WBJN01

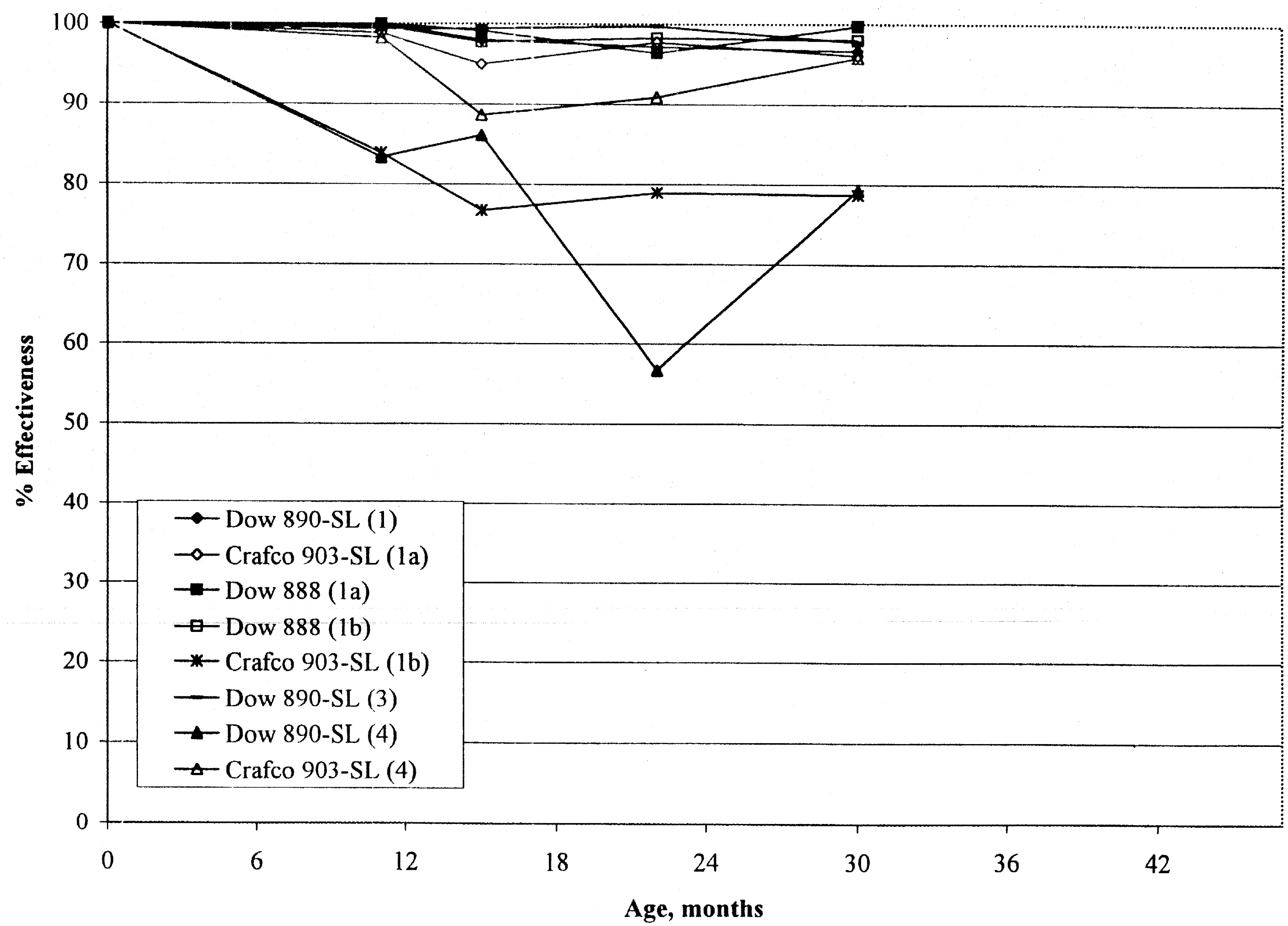
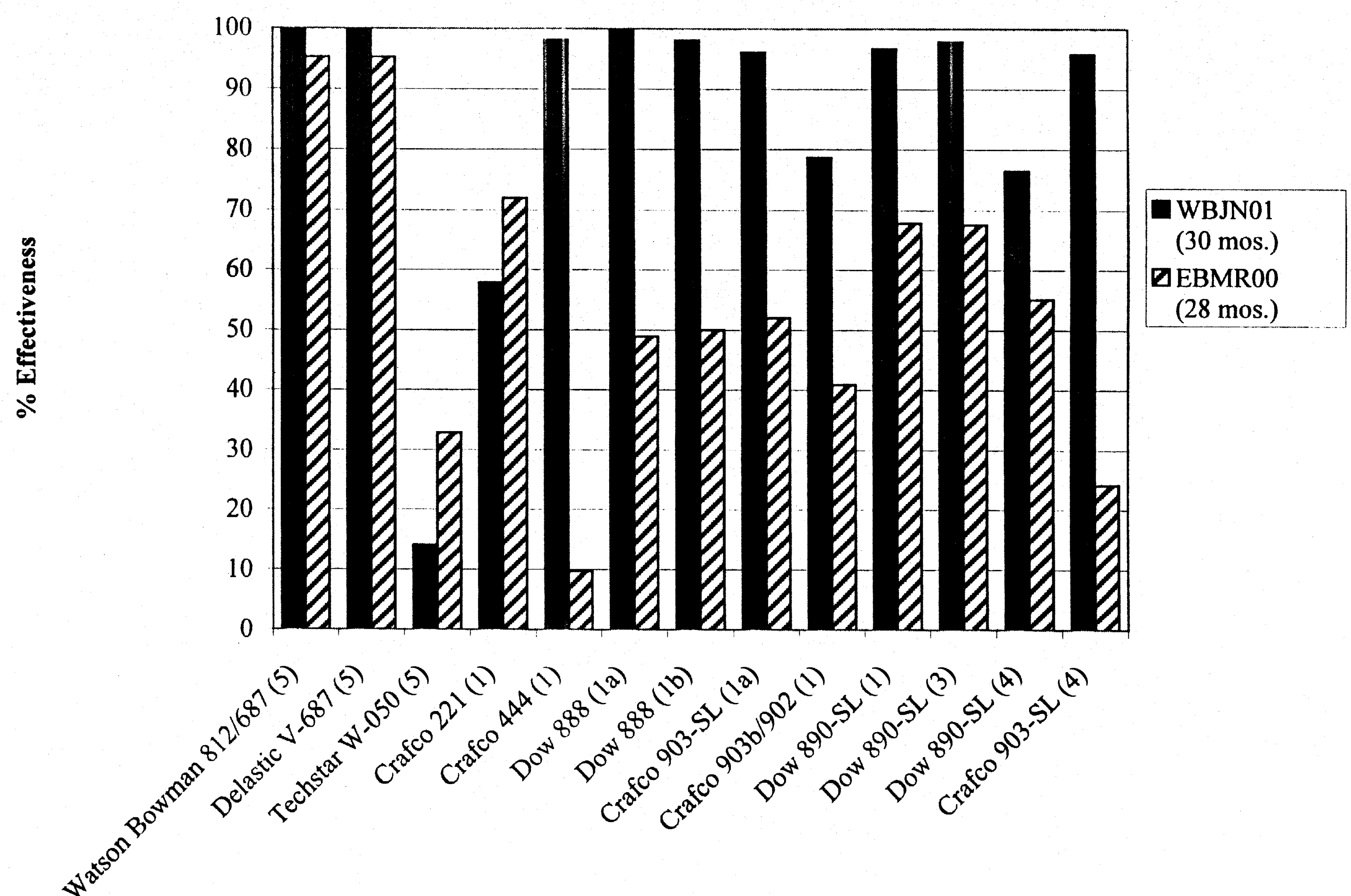


Figure 5.32 Deterioration of silicone sealants in the westbound lanes as of WBJN01



Note: Crafco 221 and 444 were installed 4 months after the other westbound sealants

Figure 5.33 Comparison of eastbound and westbound lane sealants after 2 1/2 years in service

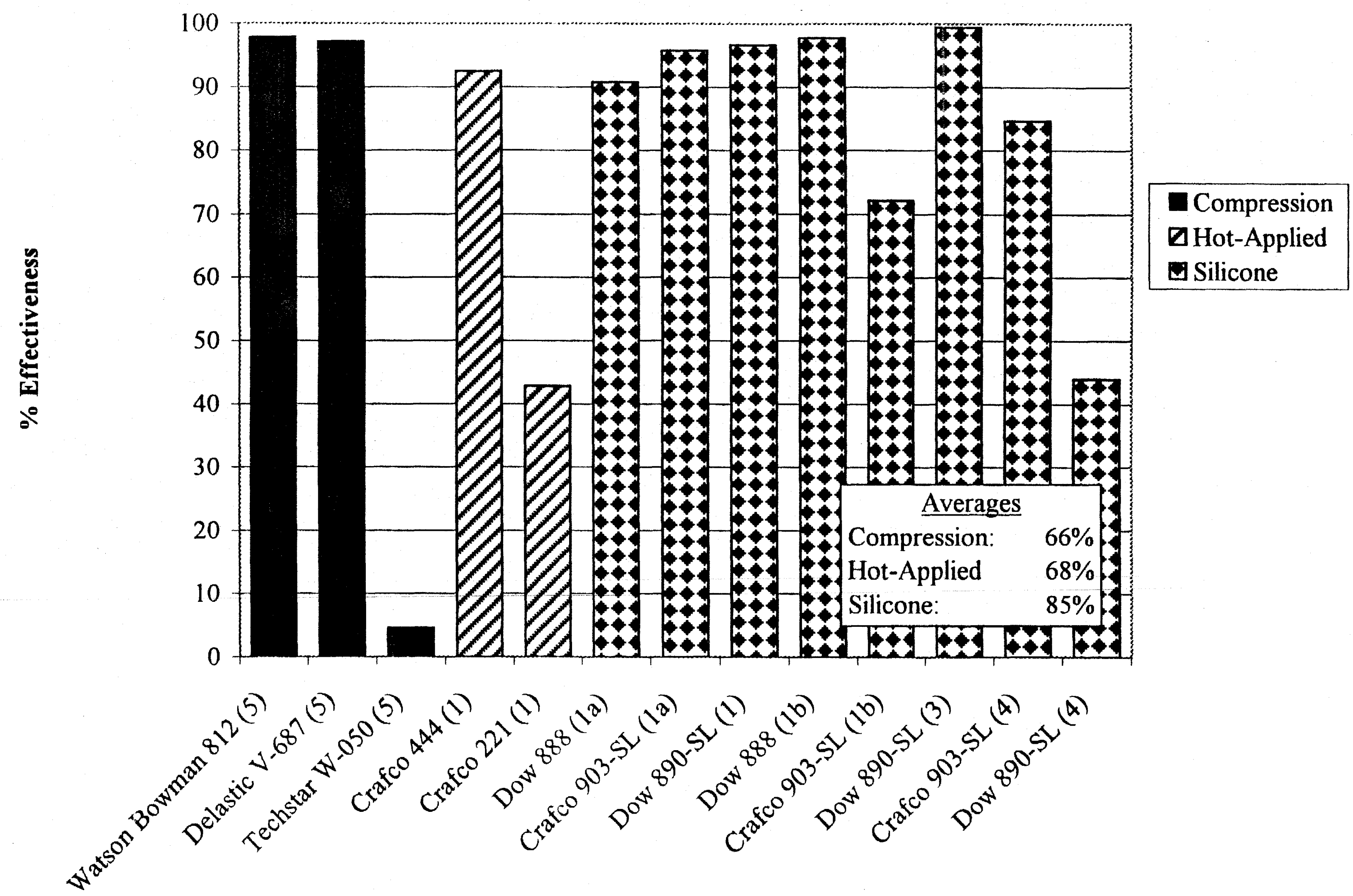
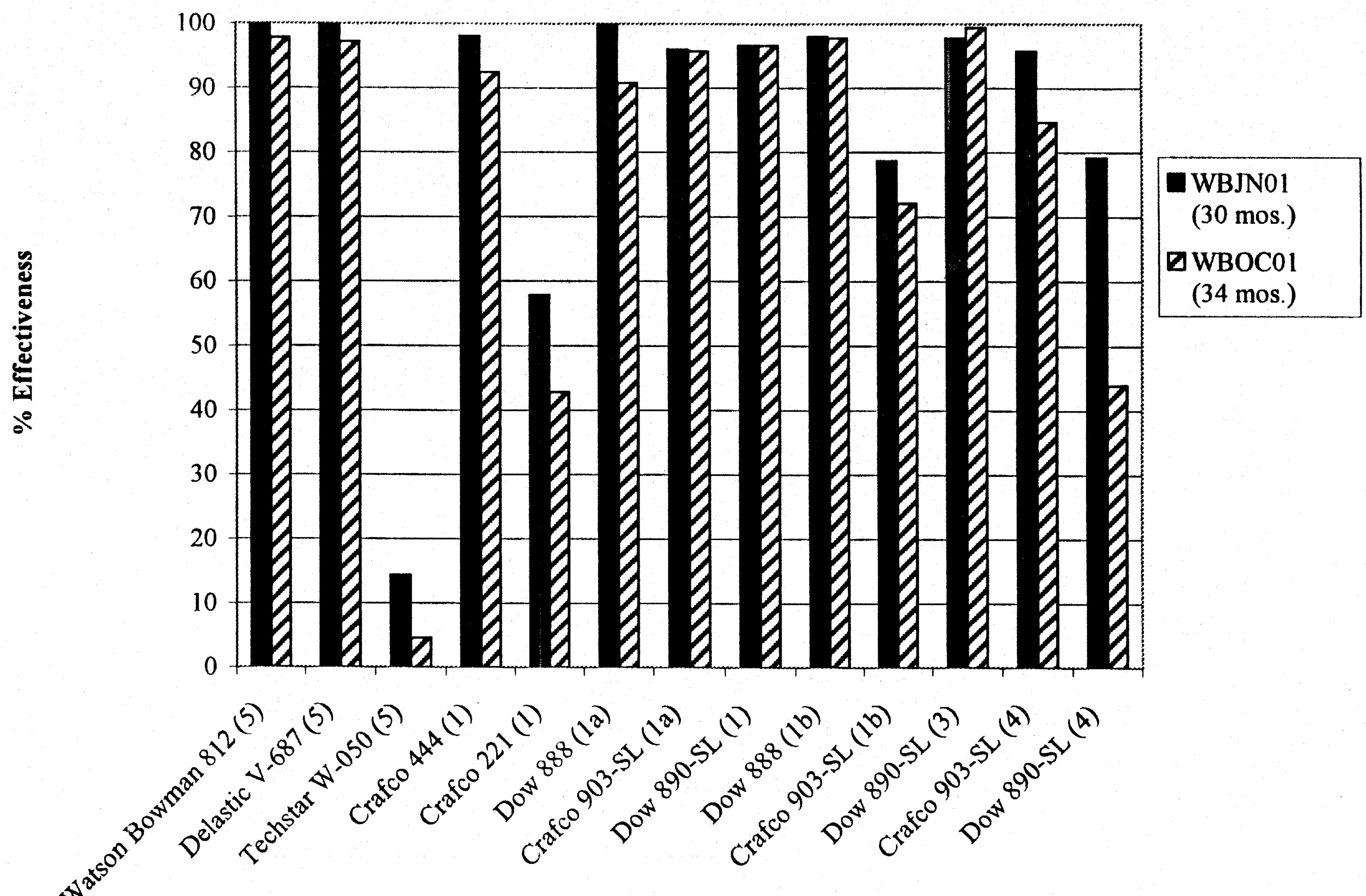
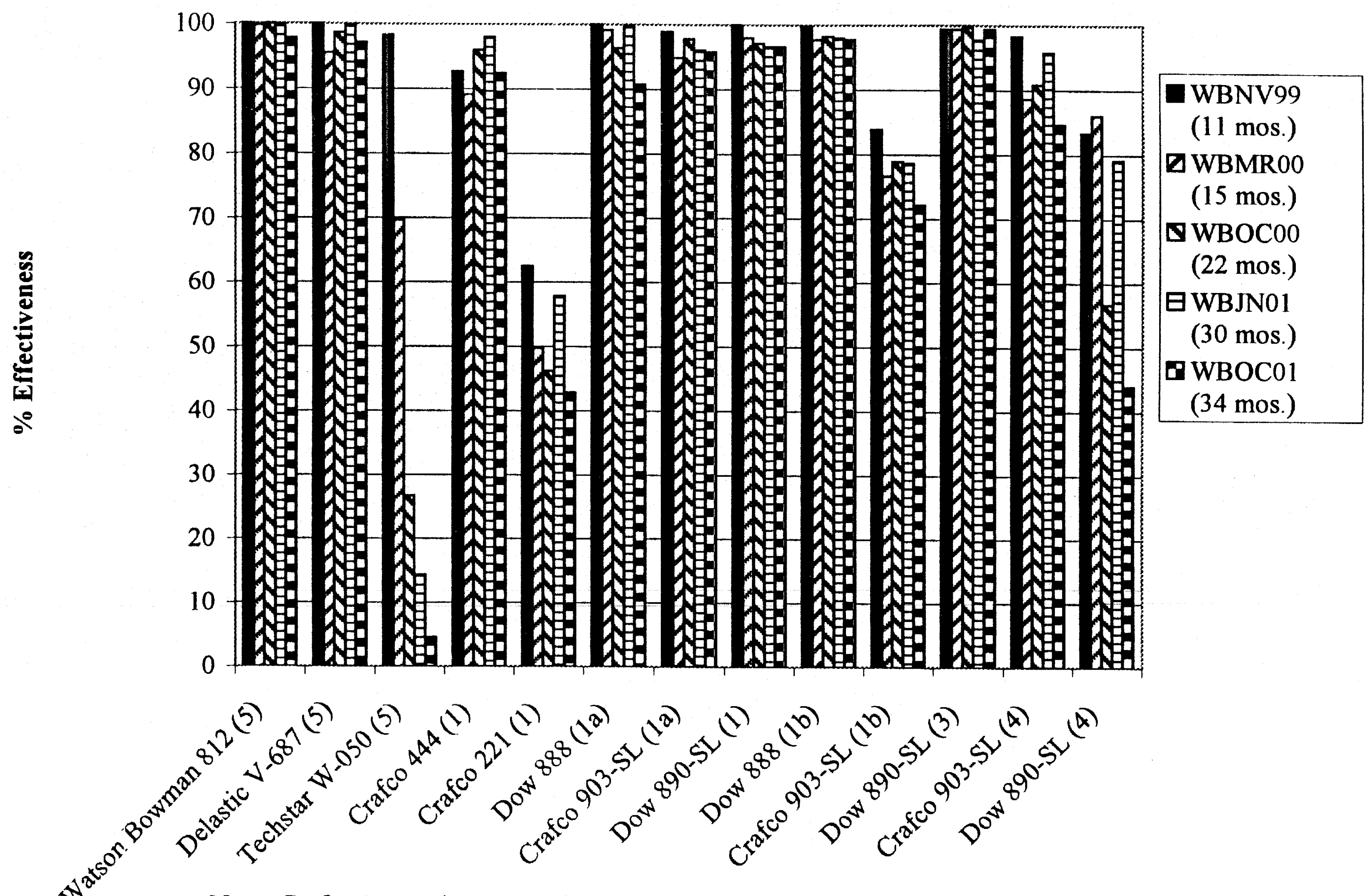


Figure 5.34 Comparison between silicone, hot-applied and compression sealants during WBOC01



Note: Crafco 221 and 444 were installed 4 months after the other westbound sealants

Figure 5.35 Deterioration of sealants from WBJN01 to WBOC01



Note: Crafco 221 and 444 were installed 4 months after the other westbound sealants

Figure 5.36 Deterioration of sealants from WBNV99 to WBOC01

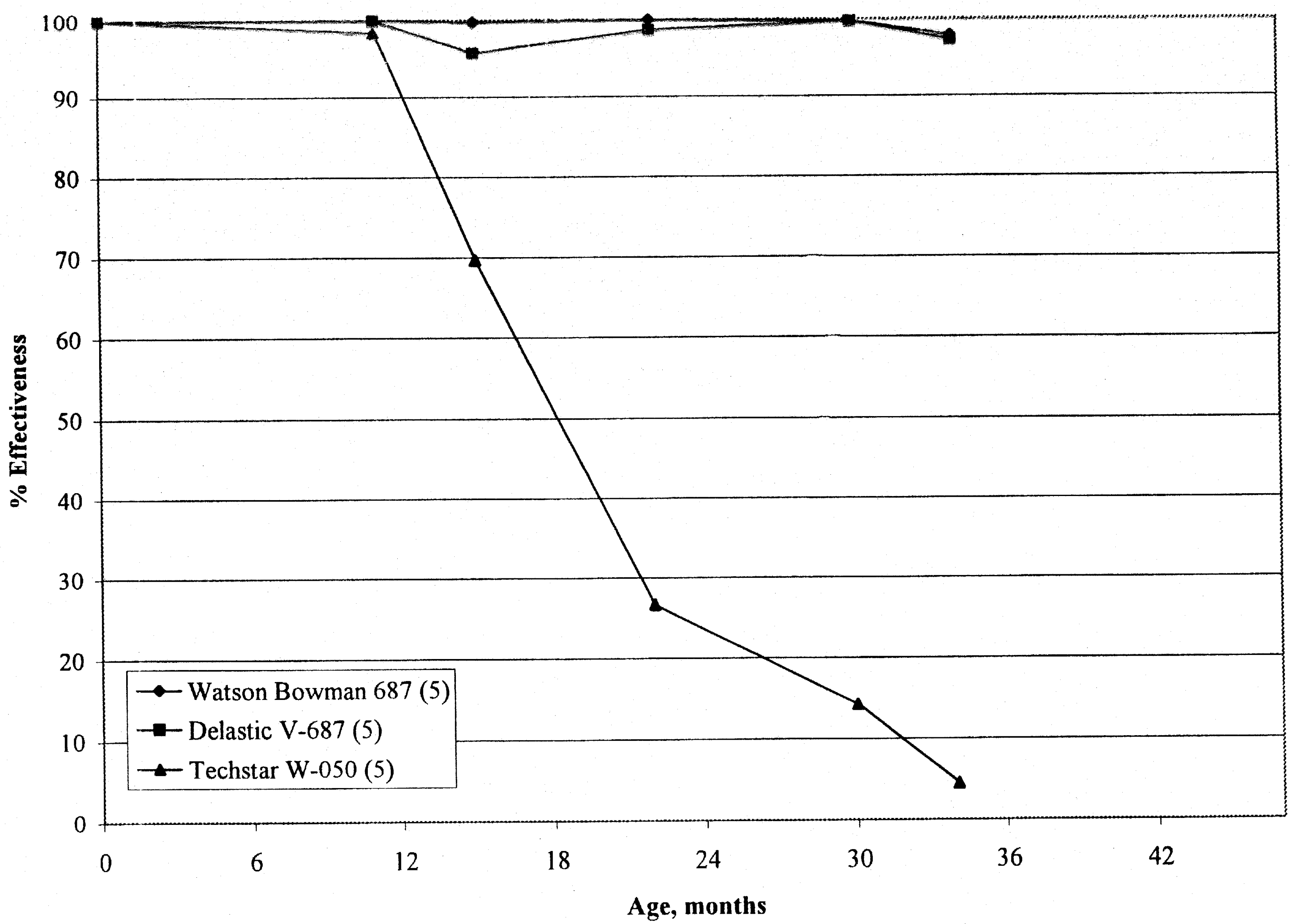


Figure 5.37 Deterioration of compression seals in the westbound lanes as of WBOC01

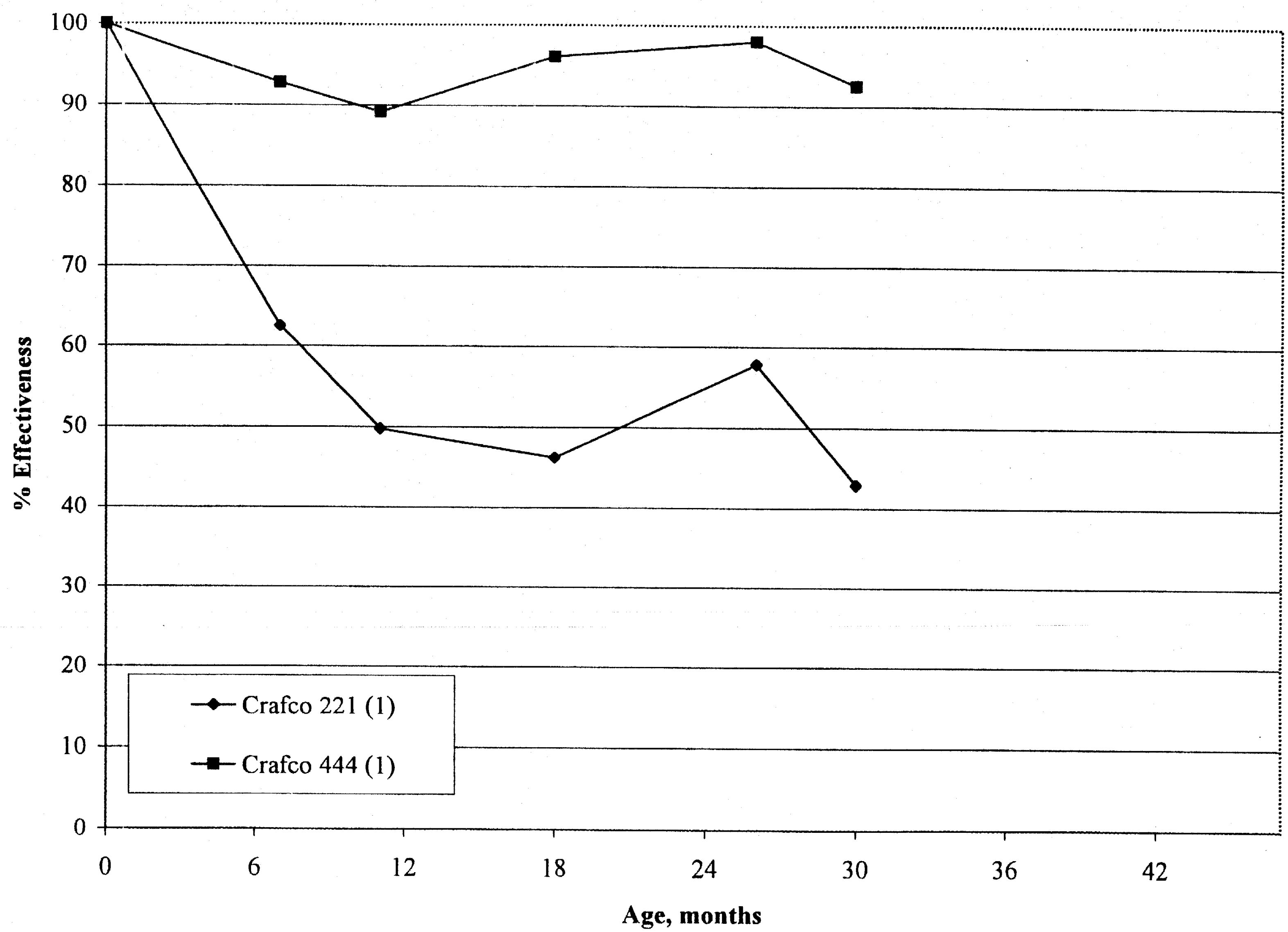


Figure 5.38 Deterioration of hot-applied sealants in the westbound lanes as of WBOC01

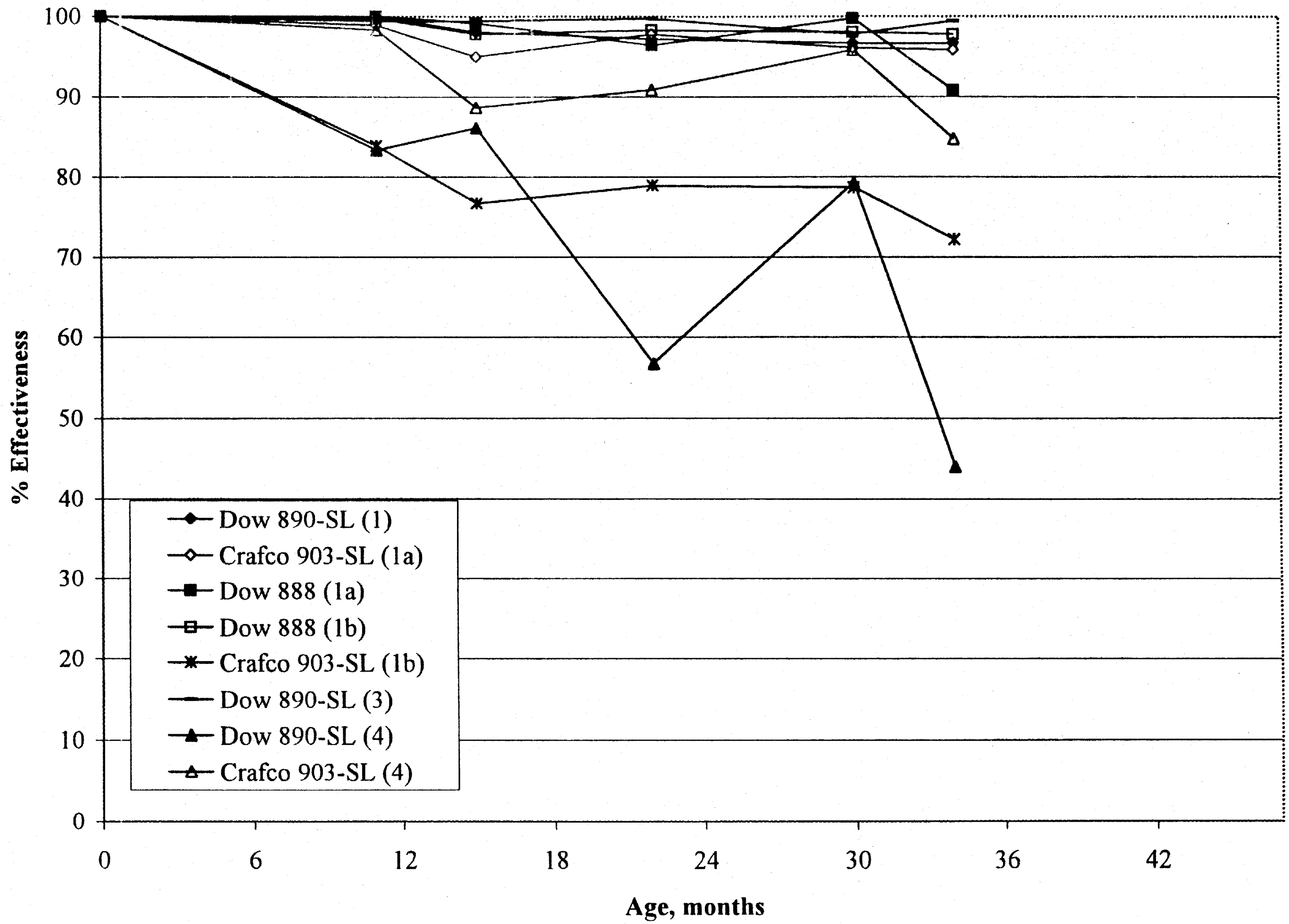
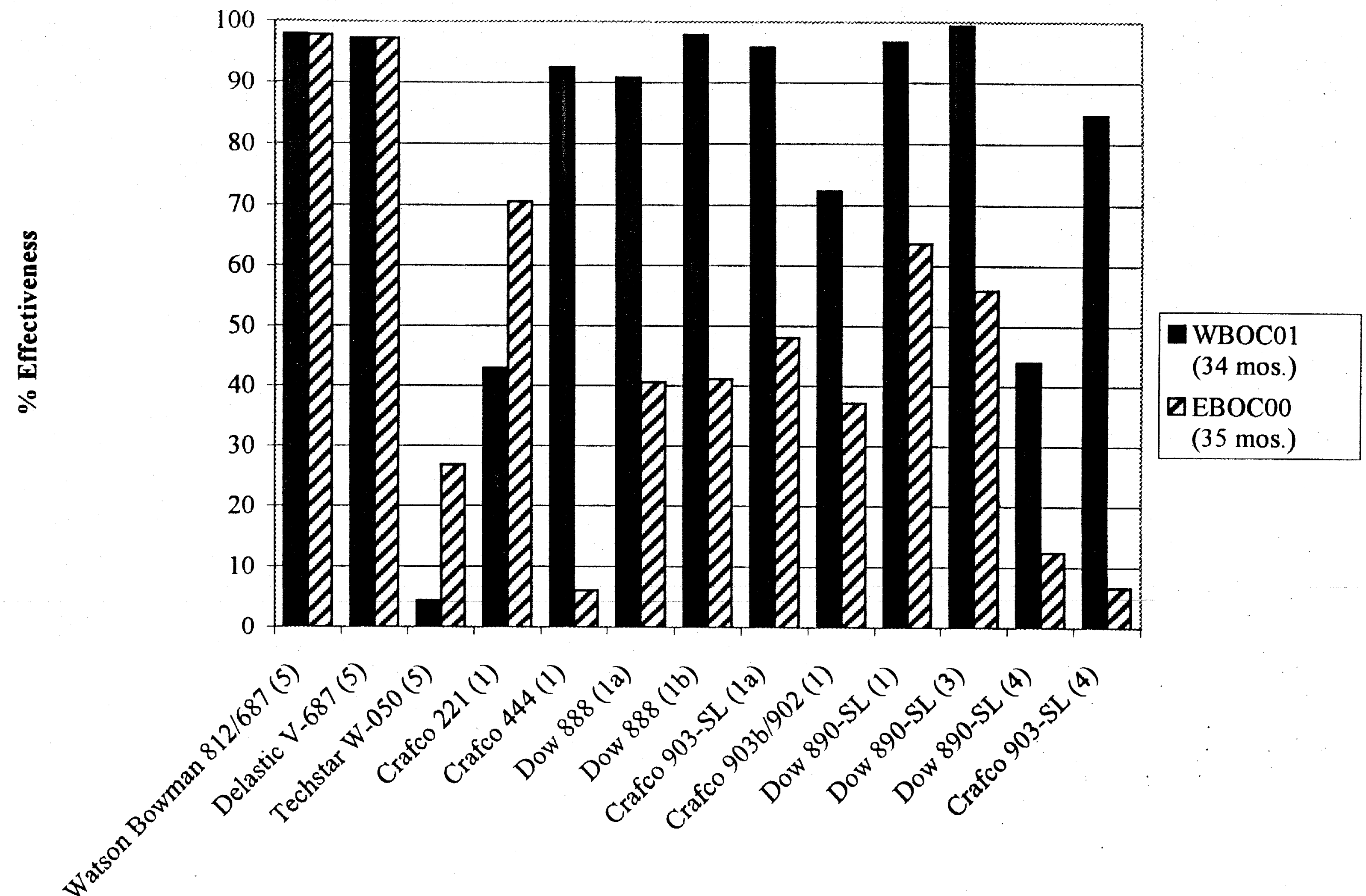


Figure 5.39 Deterioration of silicone sealants in the westbound lanes as of WBOC01



Note: Crafco 221 and 444 were installed 4 months after the other westbound sealants

Figure 5.40 Comparison of eastbound and westbound lane sealants after 3 years in service

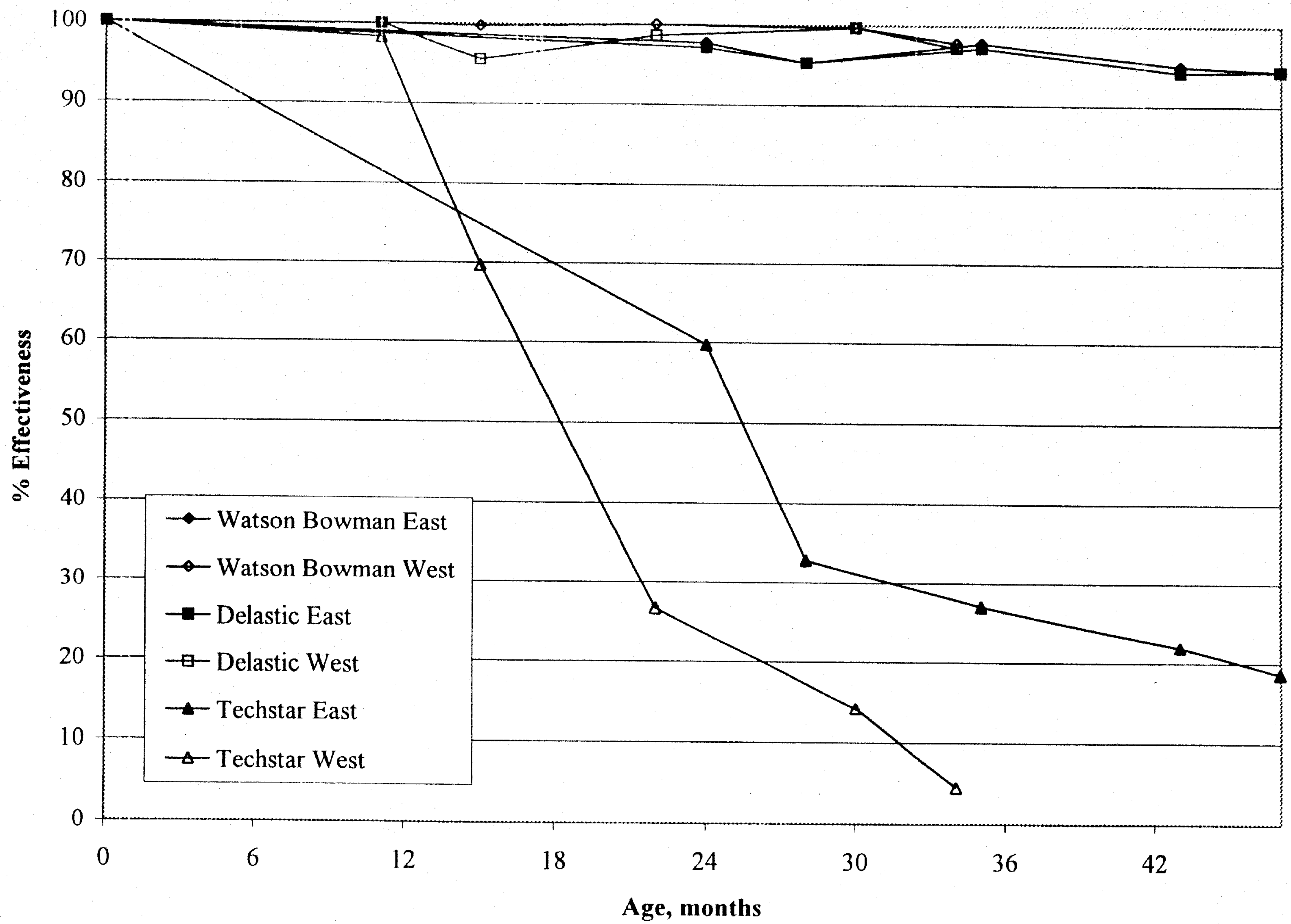


Figure 5.41 Deterioration of compression seals in the eastbound and westbound lanes

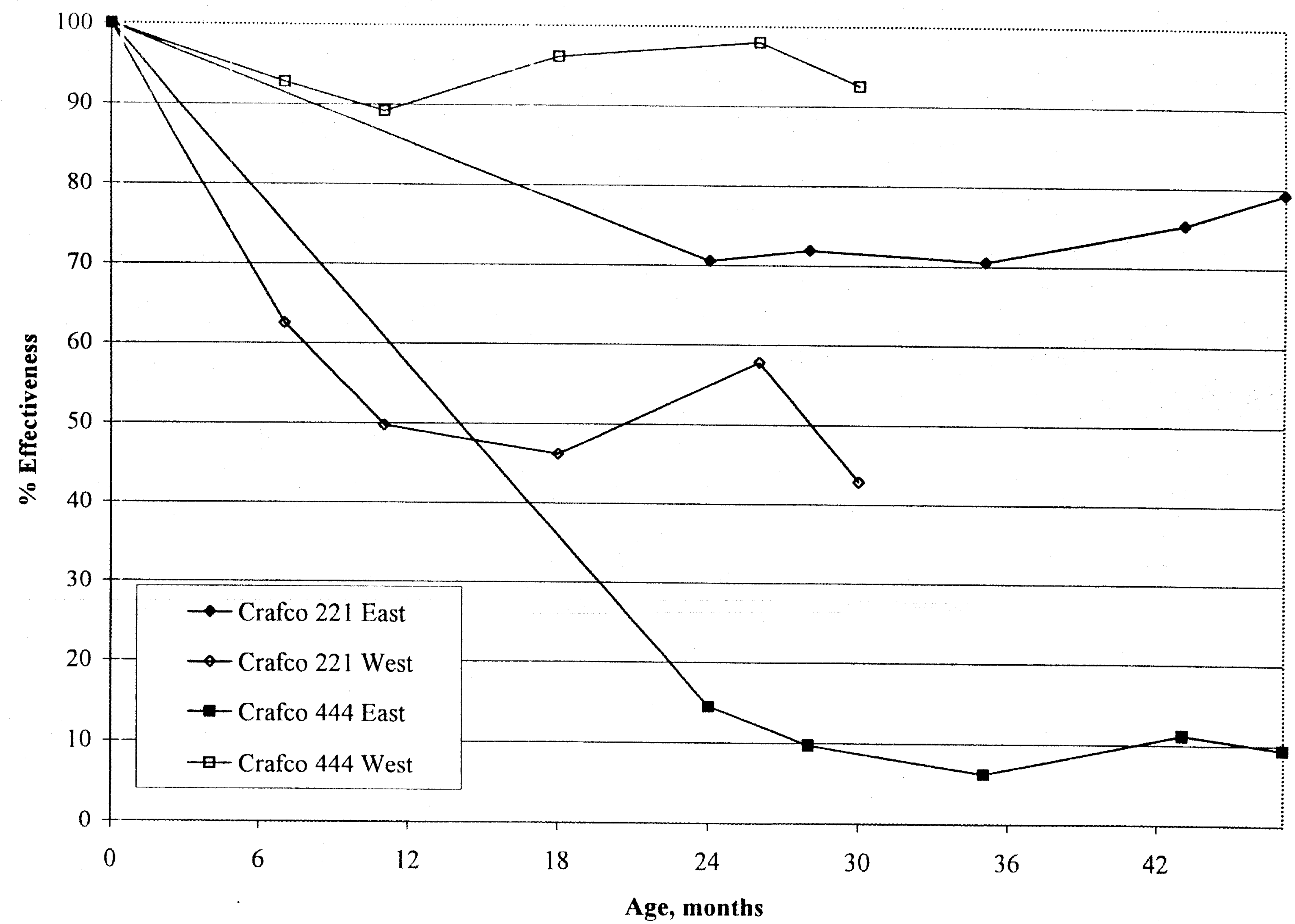


Figure 5.42 Deterioration of hot-applied sealants in the eastbound and westbound lanes

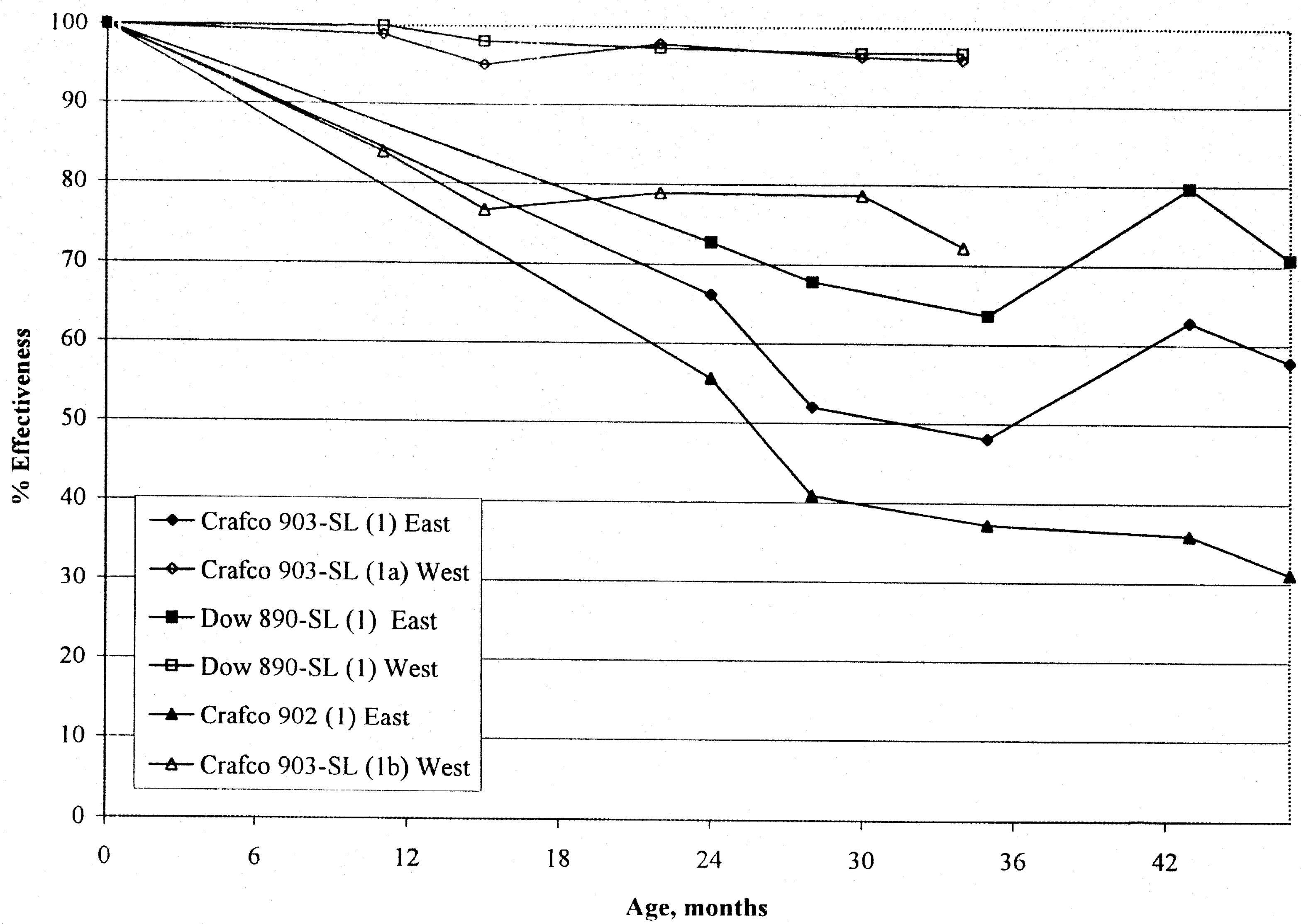


Figure 5.43 Deterioration of self-leveling silicone sealants with Joint Configuration 1 in the eastbound and westbound lanes

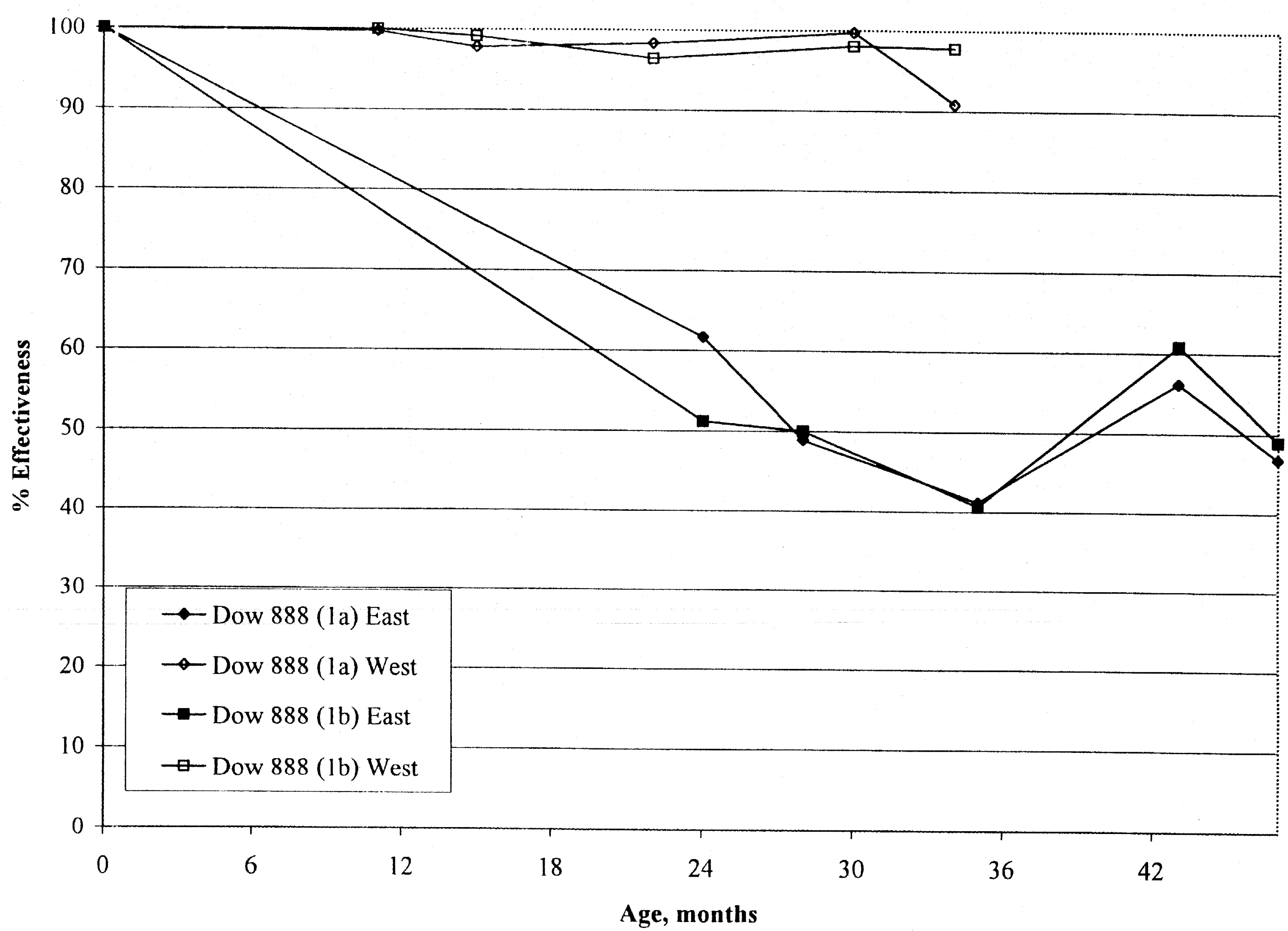


Figure 5.44 Deterioration of non-sag silicone sealants in the eastbound and westbound lanes

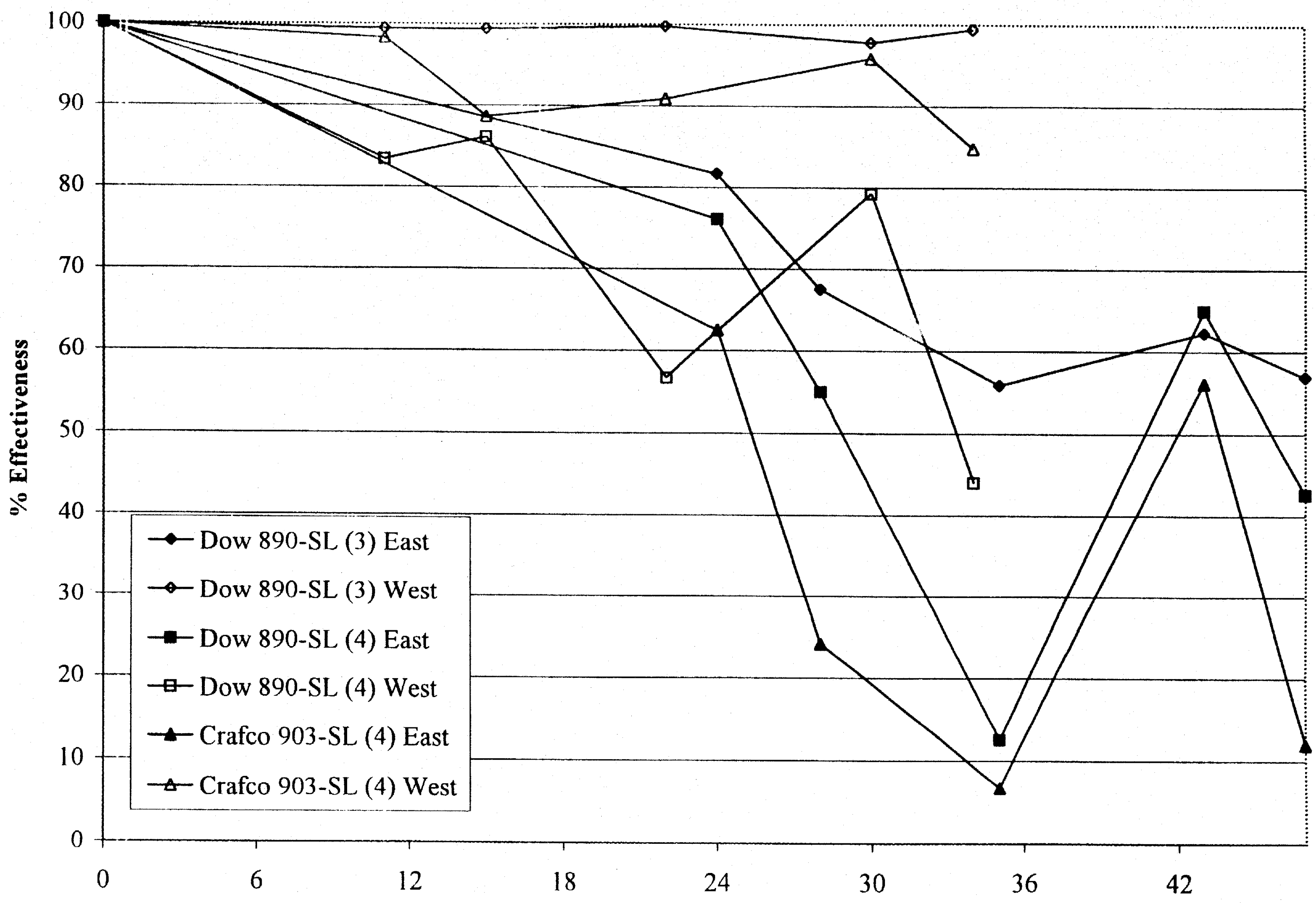


Figure 5.45 Deterioration of self-leveling silicone sealants with Joint Configurations 3 and 4 in the eastbound and westbound lanes

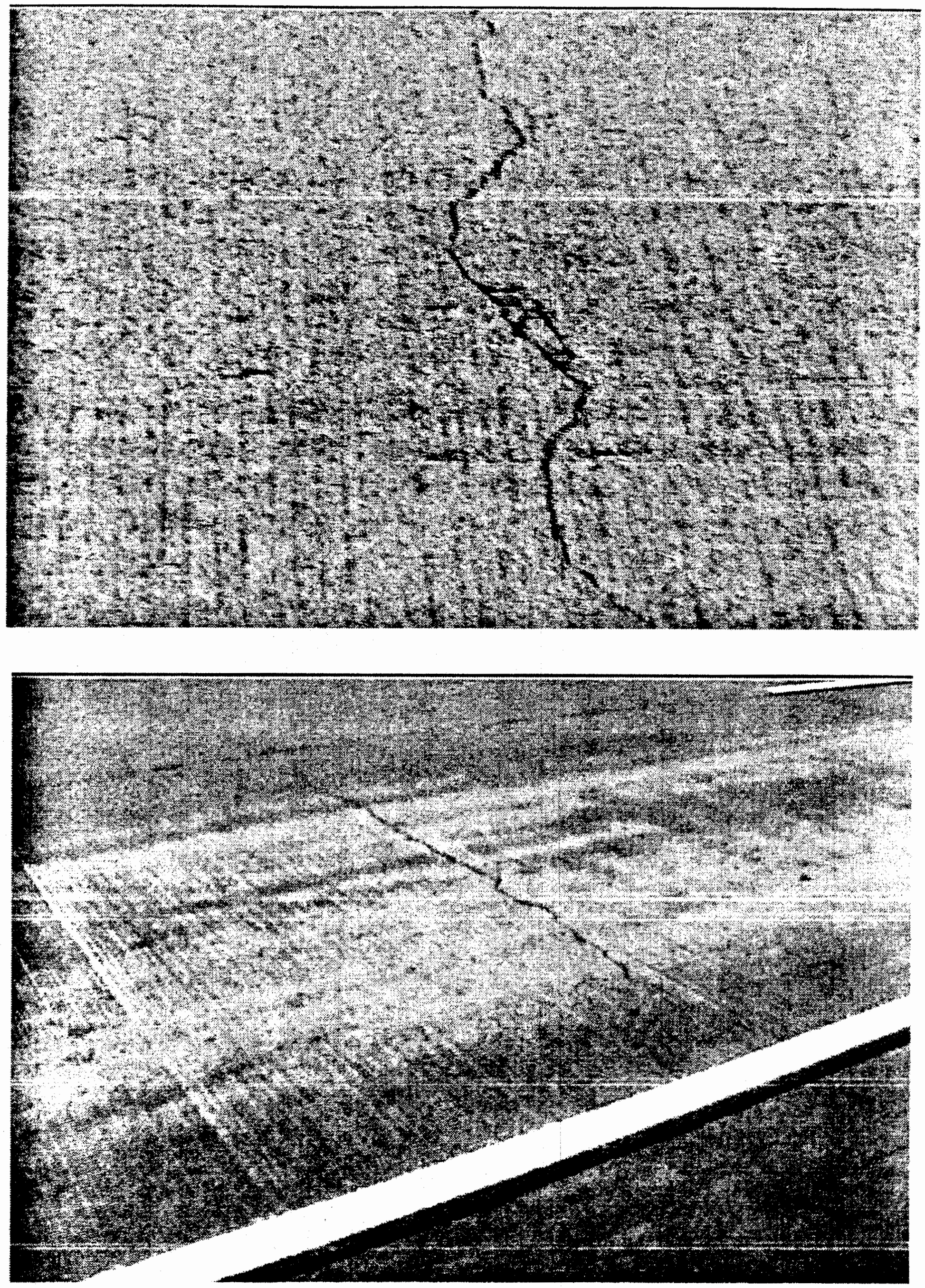


Figure 5.46 Examples of transverse cracks

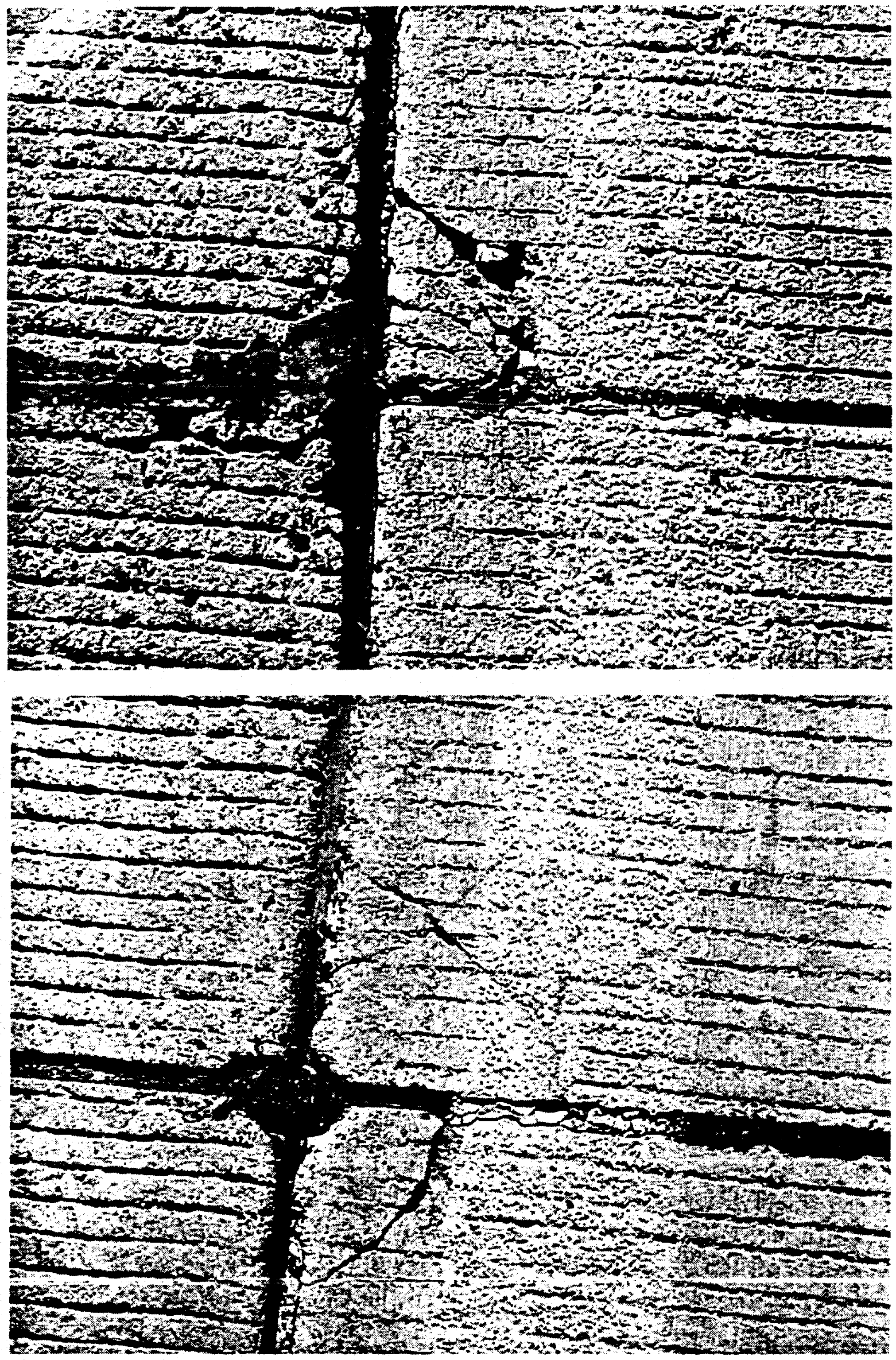


Figure 5.47 Examples of corner breaks

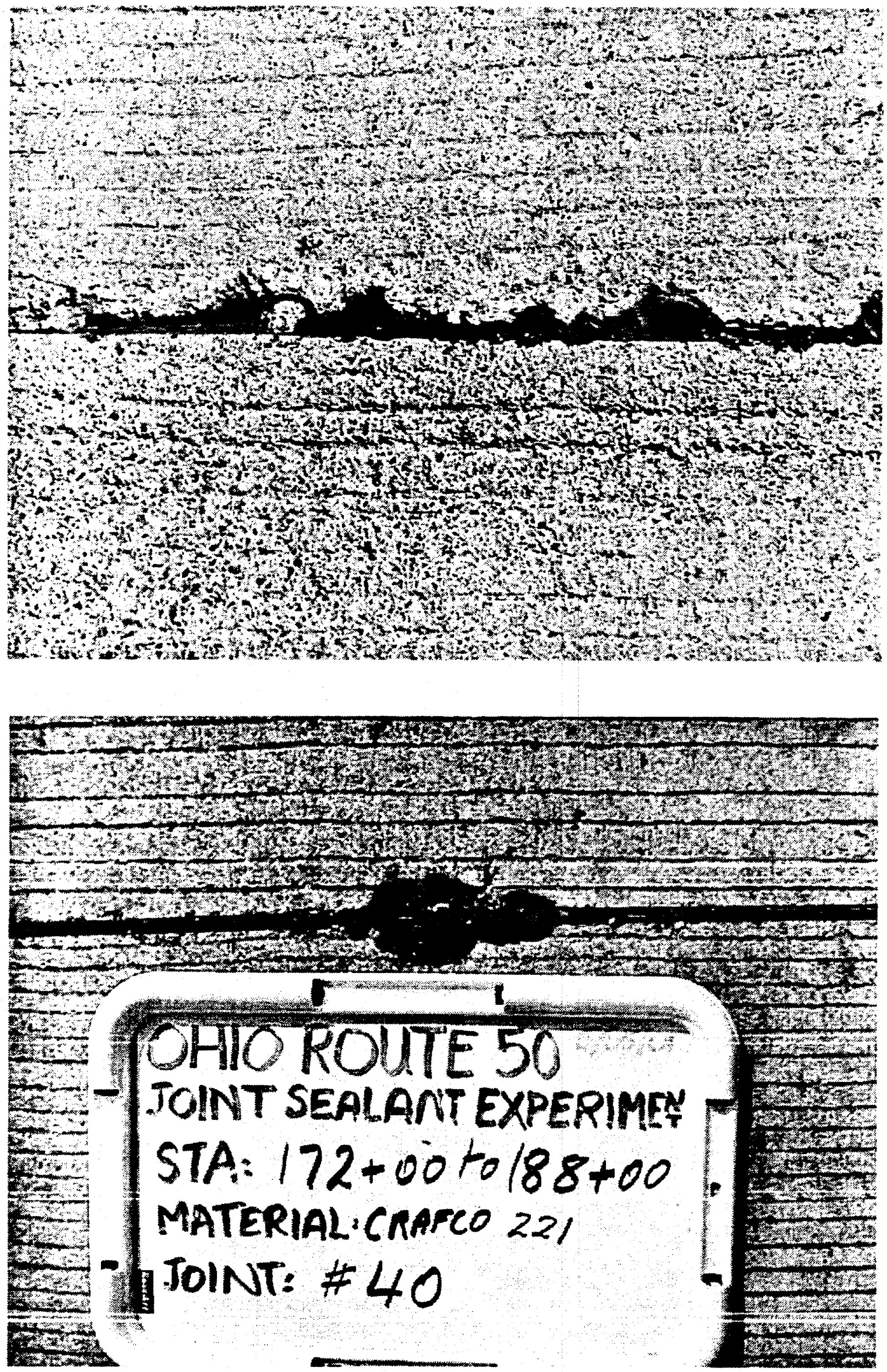


Figure 5.48 Examples of spalling failures

[Top: Joint 7 of WB Dow 890 (4); Bottom: Joint 40 of WB Crafco 221 (1); both appear to been created at the time of joint sawing]

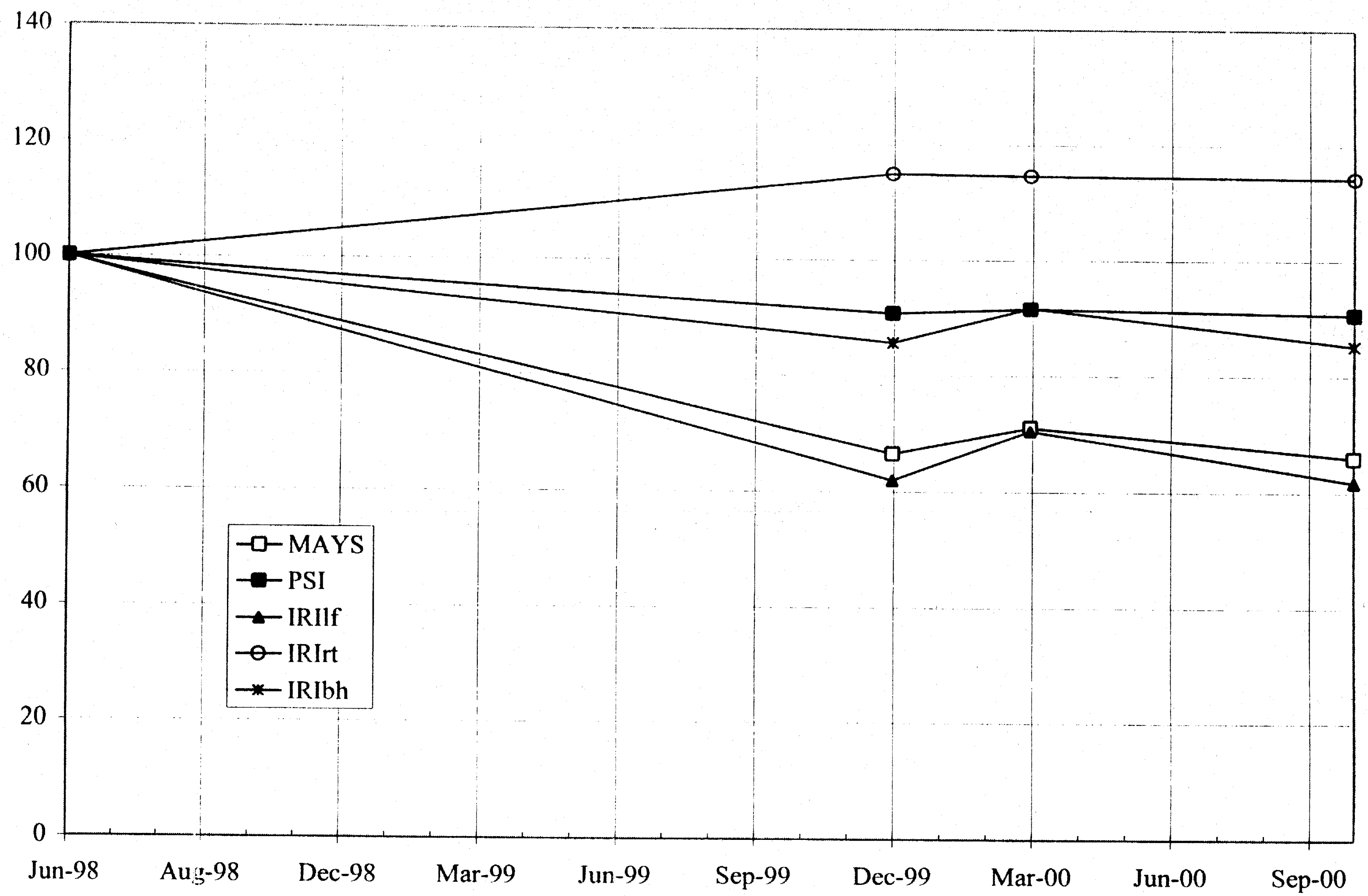


Figure 5.49 Trendlines for the Eastbound Passing Lane through October 2000

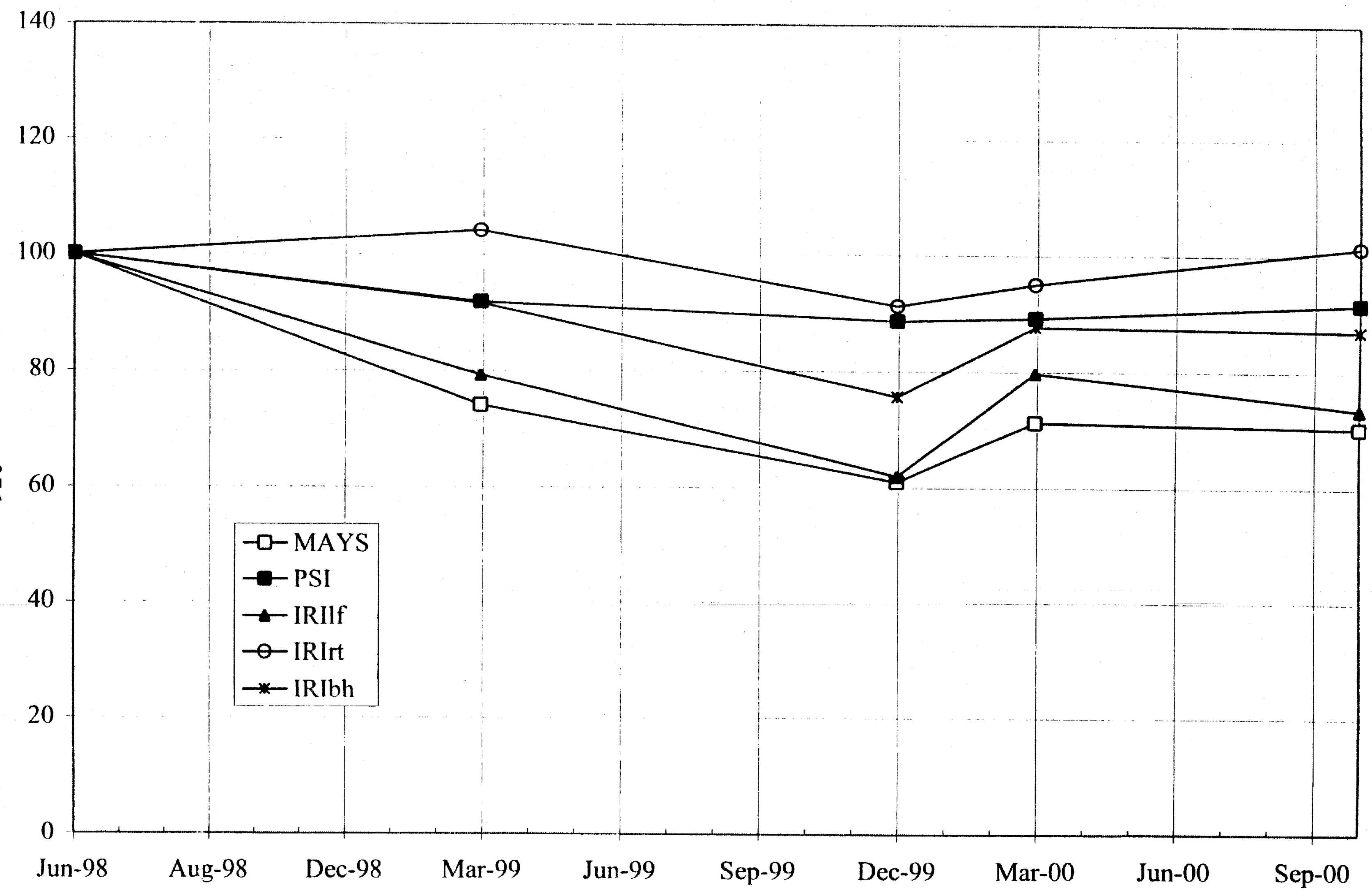


Figure 5.50 Trendlines for the Eastbound Driving Lane through October 2000

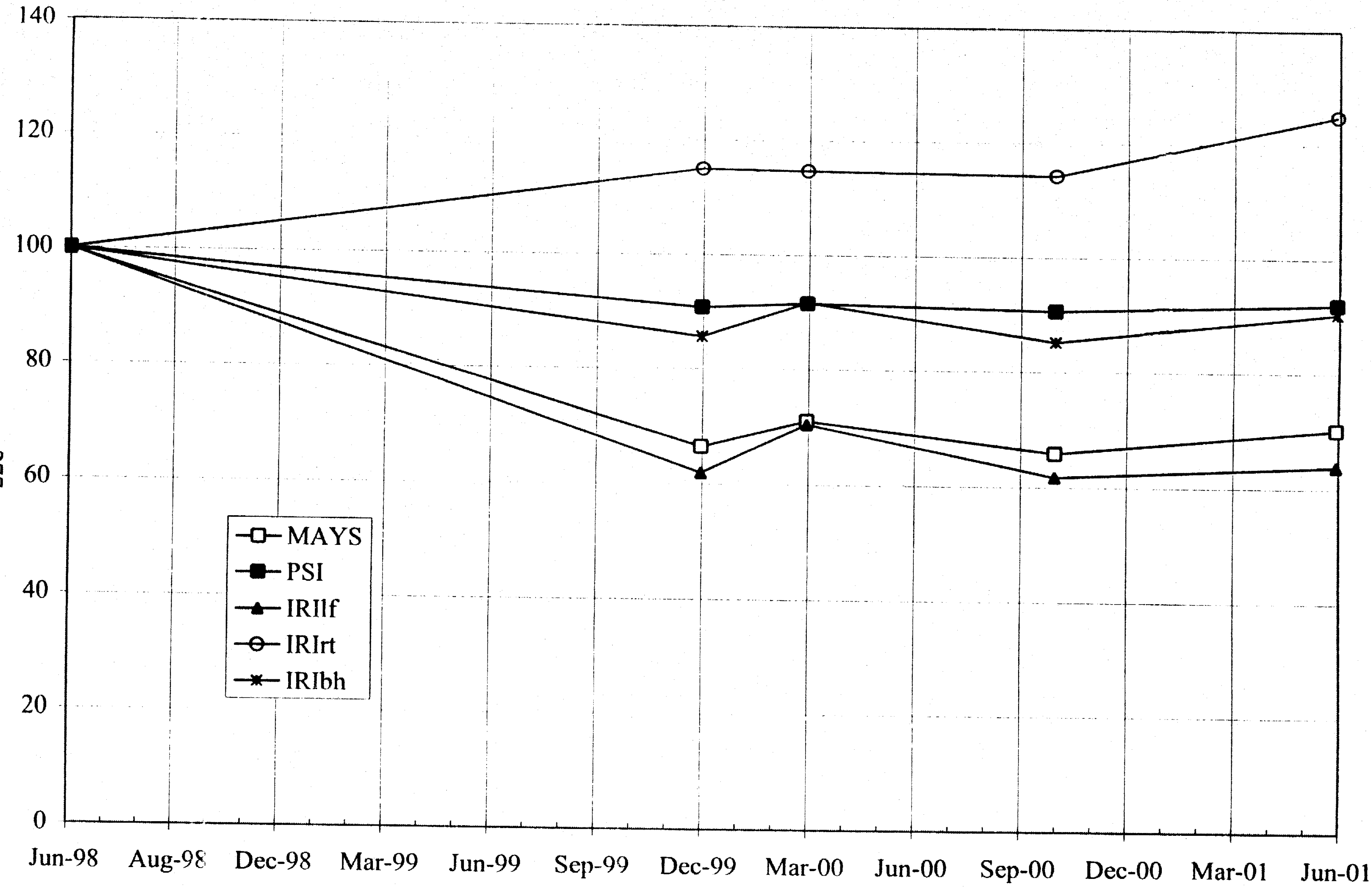


Figure 5.51 Trendlines for the Eastbound Passing Lane through June 2001

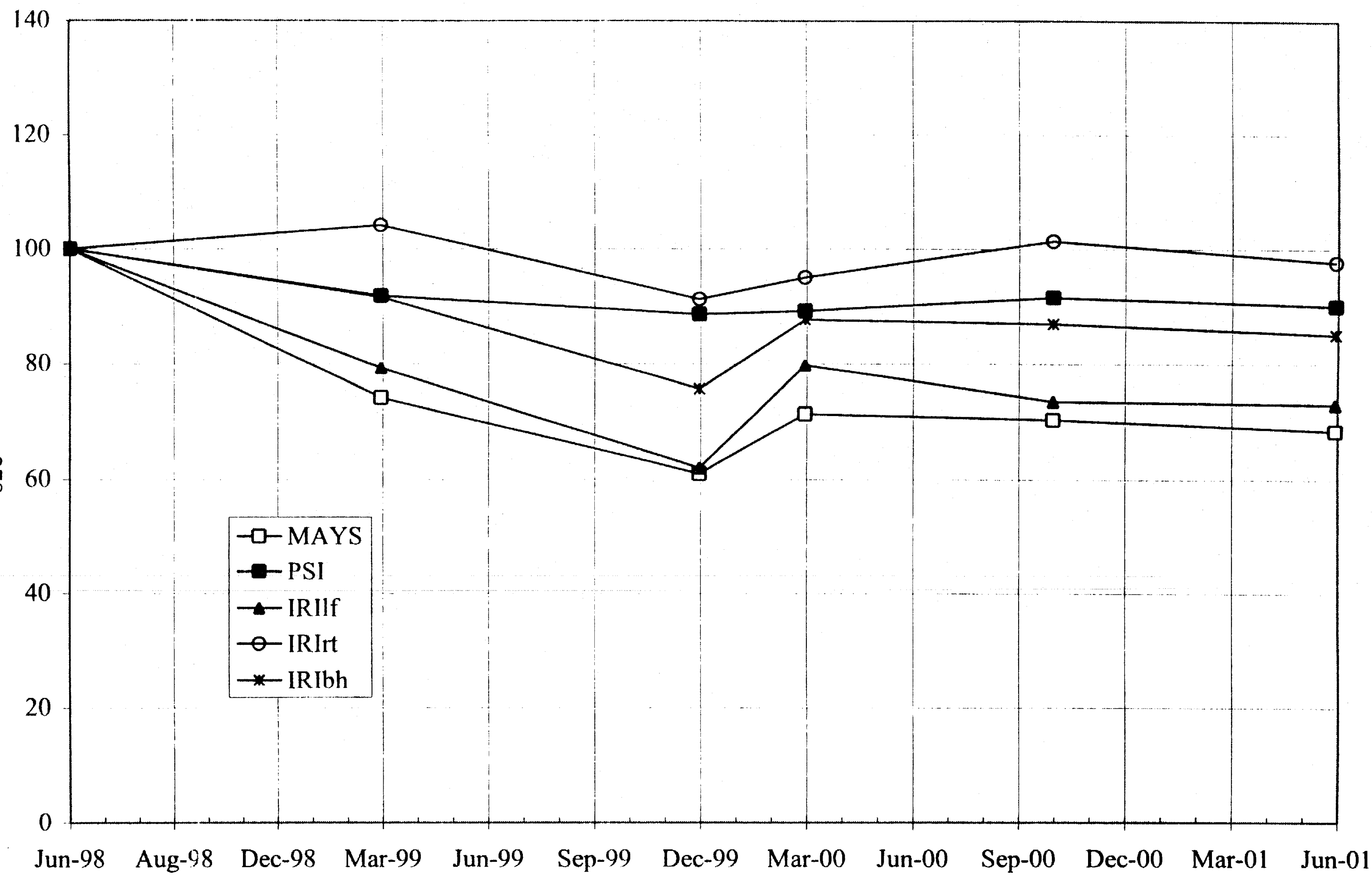


Figure 5.52 Trendlines for the Eastbound Driving Lane through June 2001

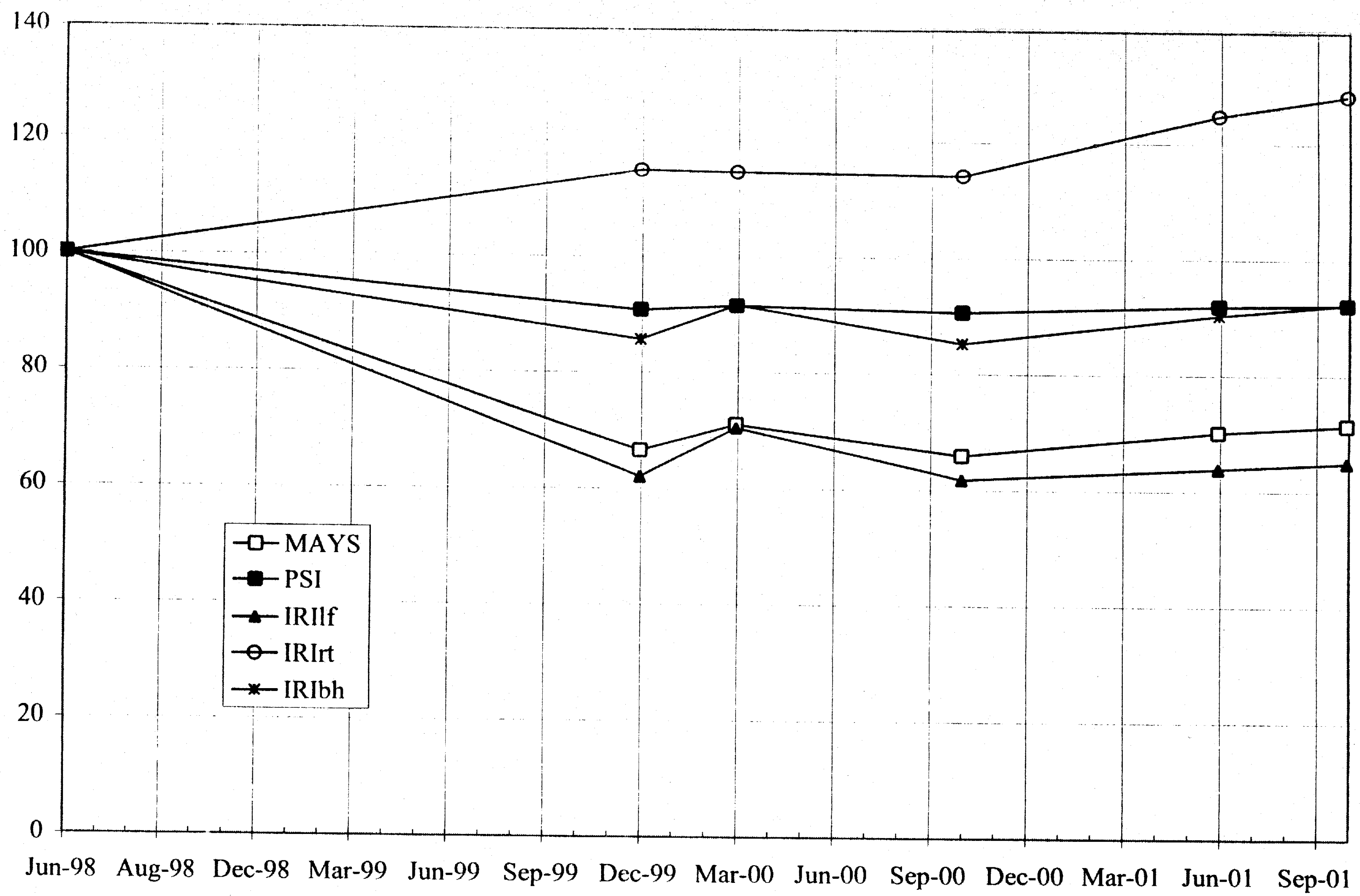


Figure 5.53 Trendlines for the Eastbound Passing Lane through October 2001

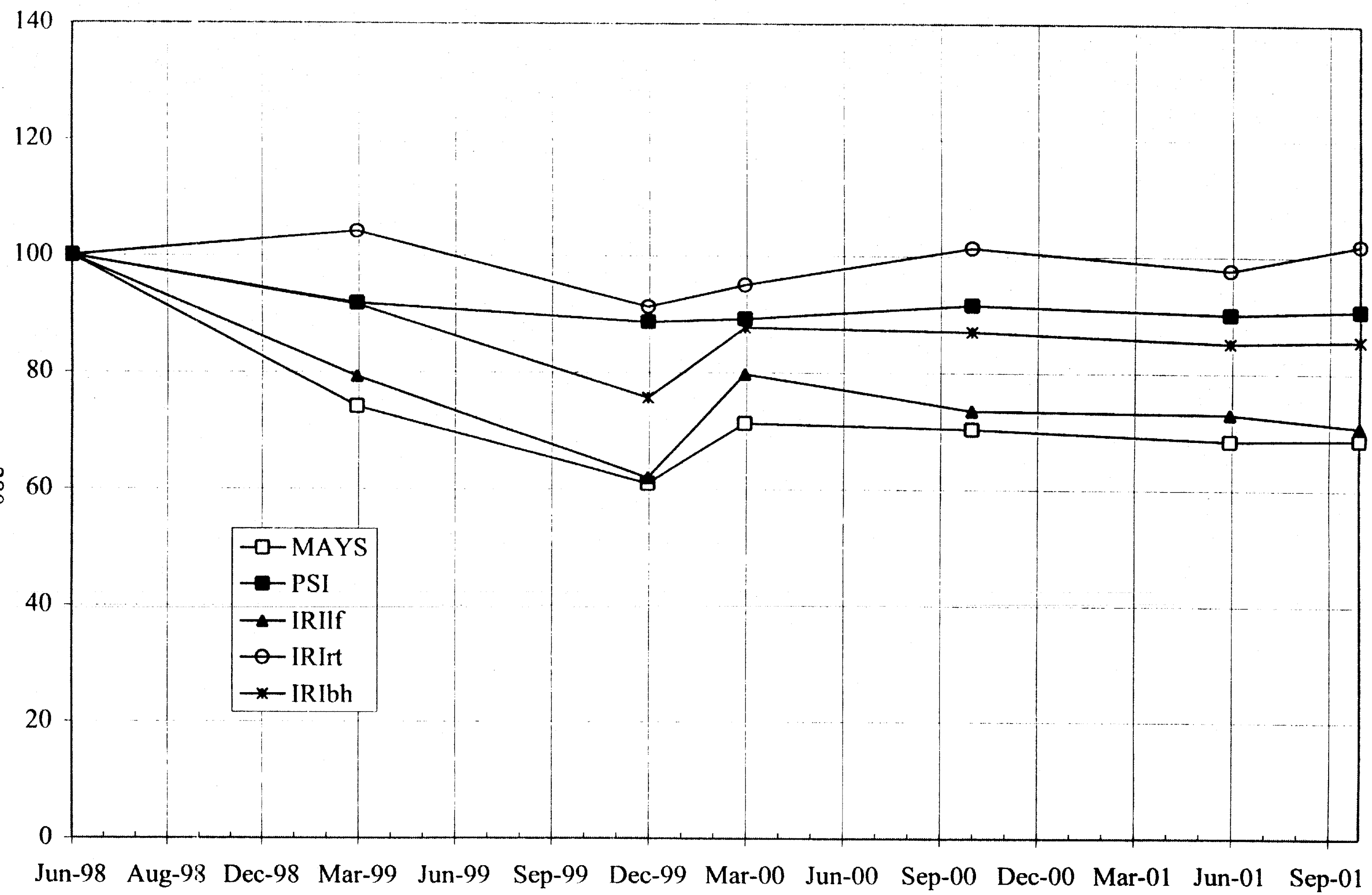


Figure 5.54 Trendlines for the Eastbound Driving Lane through October 2001

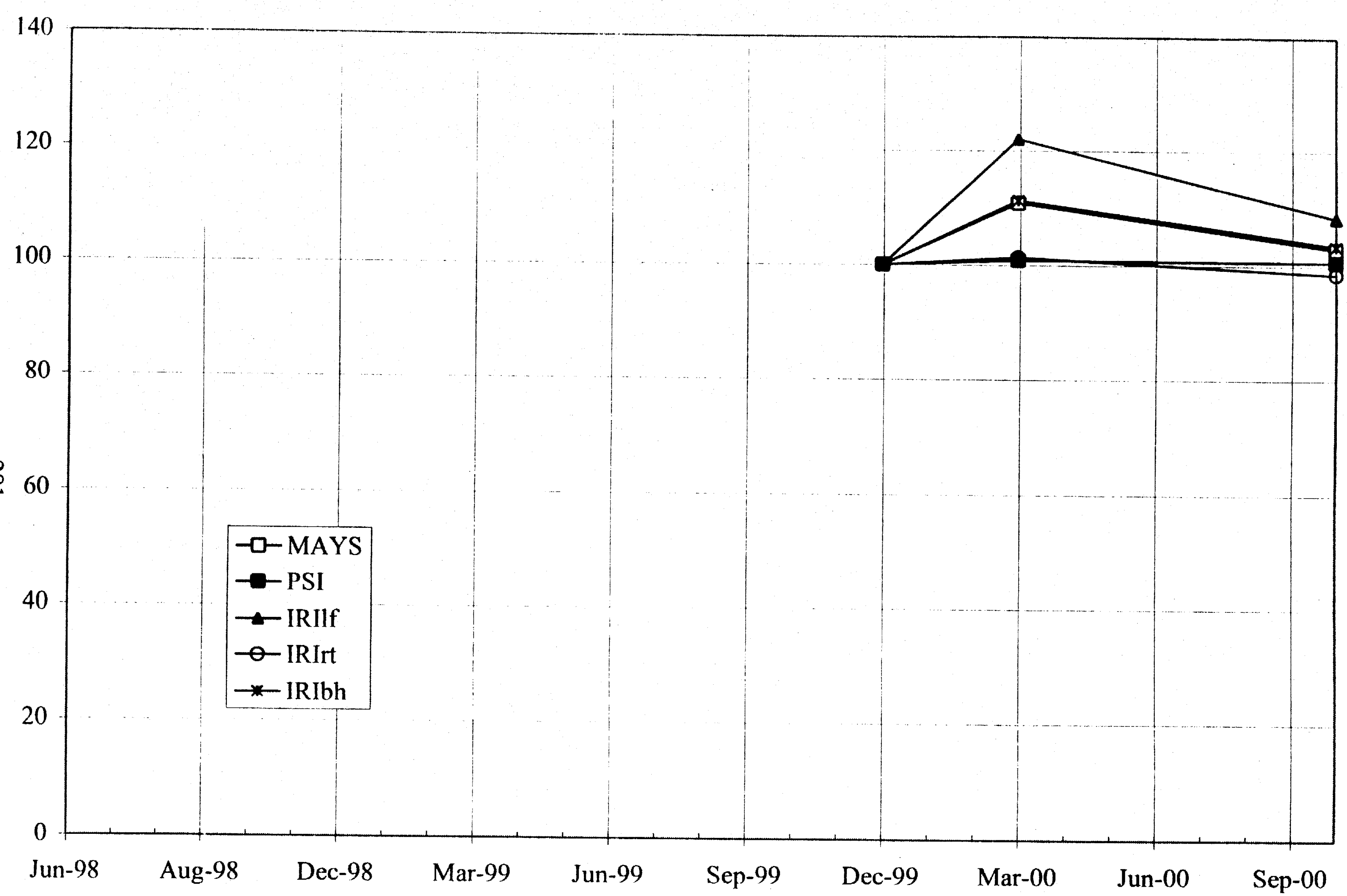


Figure 5.55 Trendlines for the Westbound Passing Lane through October 2000

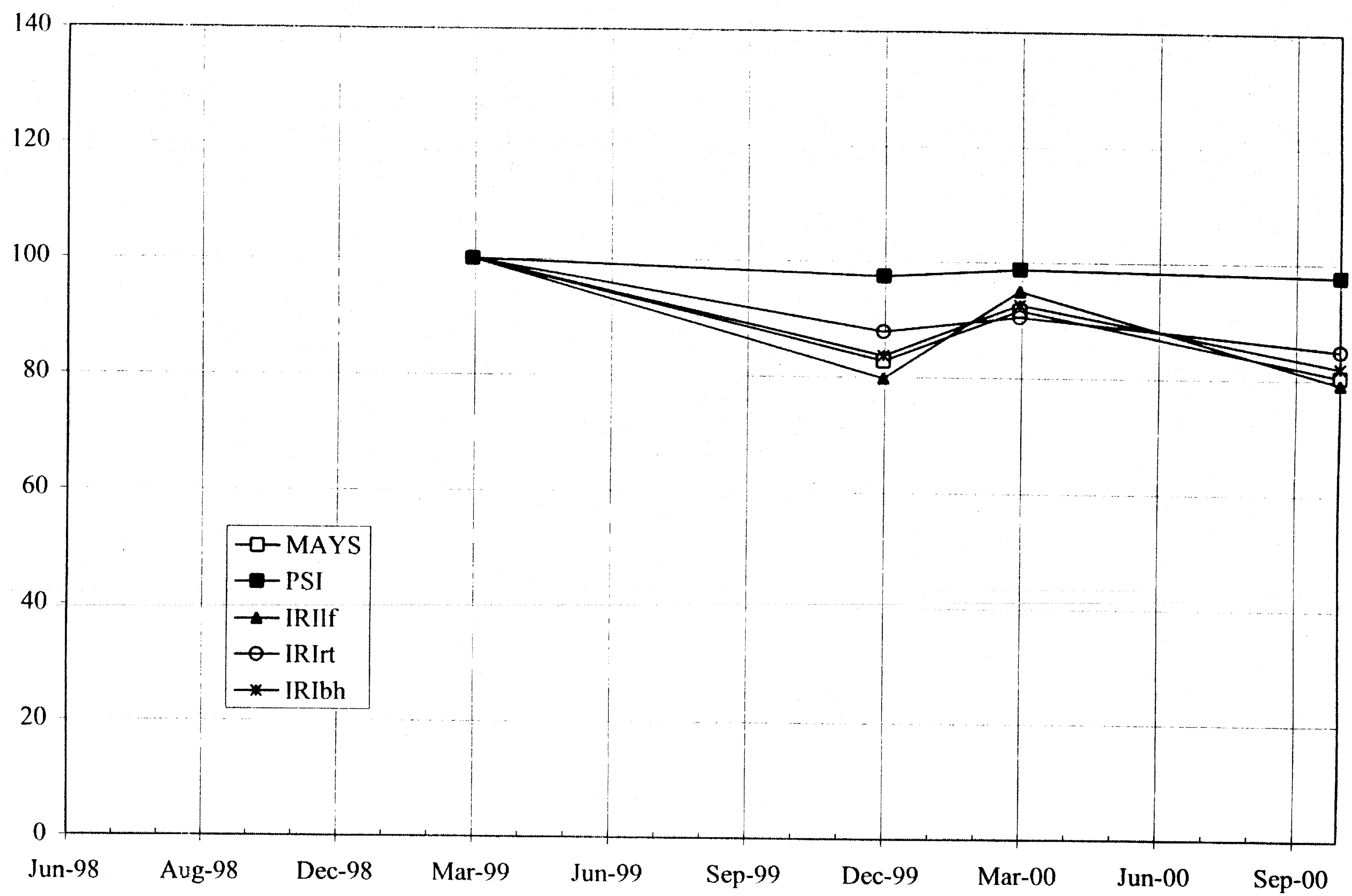


Figure 5.56 Trendlines for the Westbound Driving Lane through October 2000

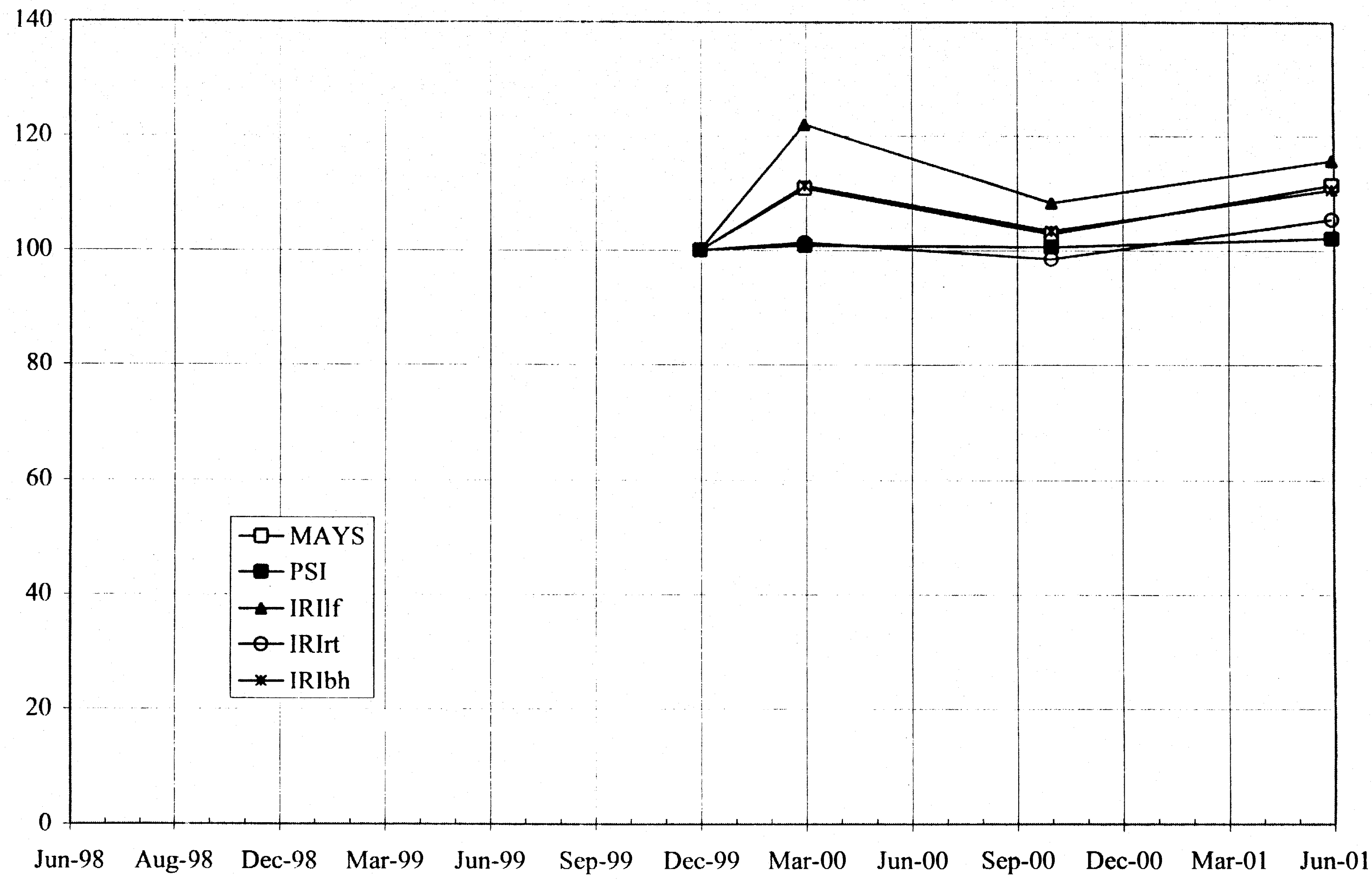


Figure 5.57 Trendlines for the Westbound Passing Lane through June 2001

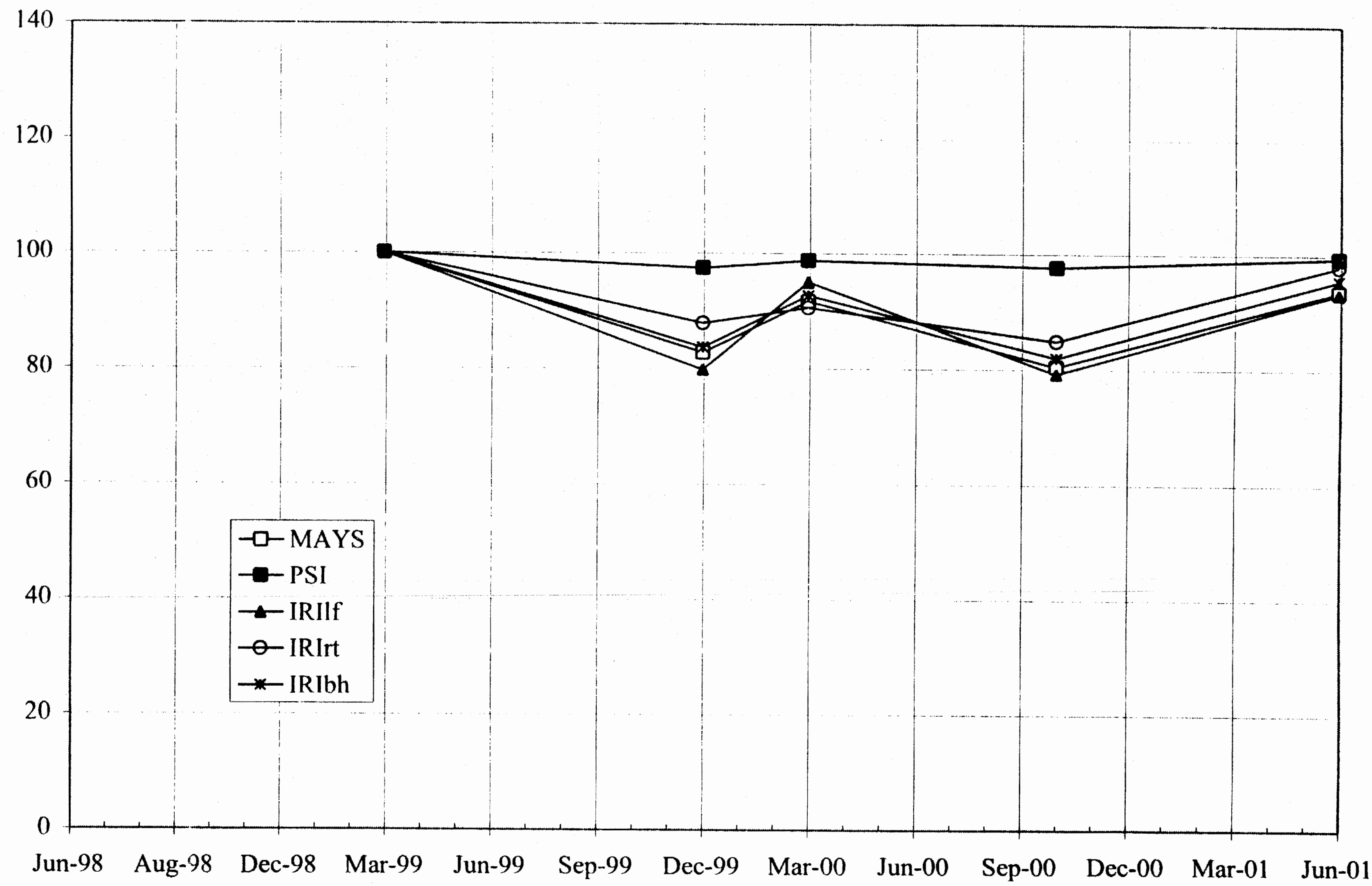


Figure 5.58 Trendlines for the Westbound Driving Lane through June 2001

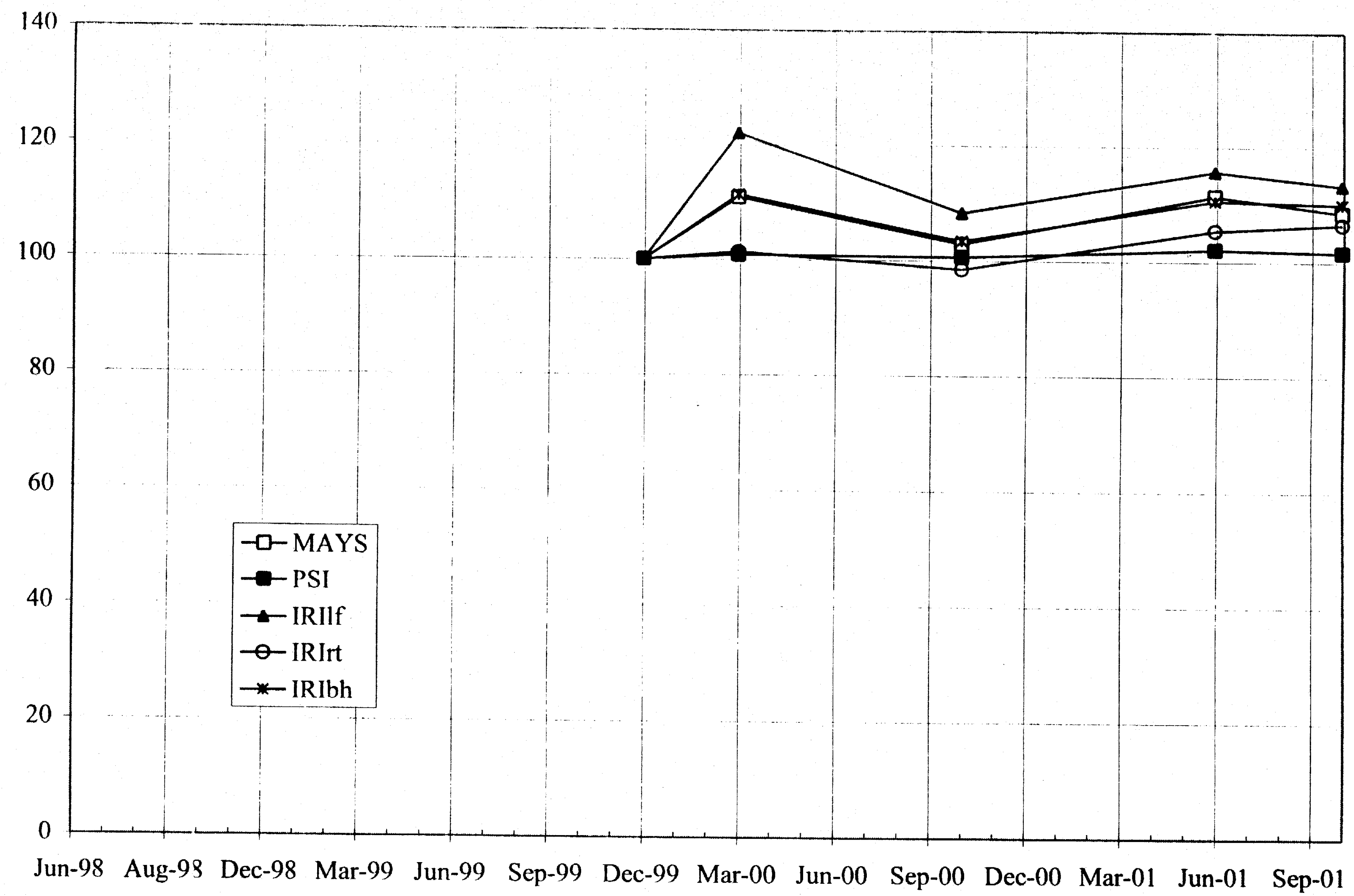


Figure 5.59 Trendlines for the Westbound Passing Lane through October 2001

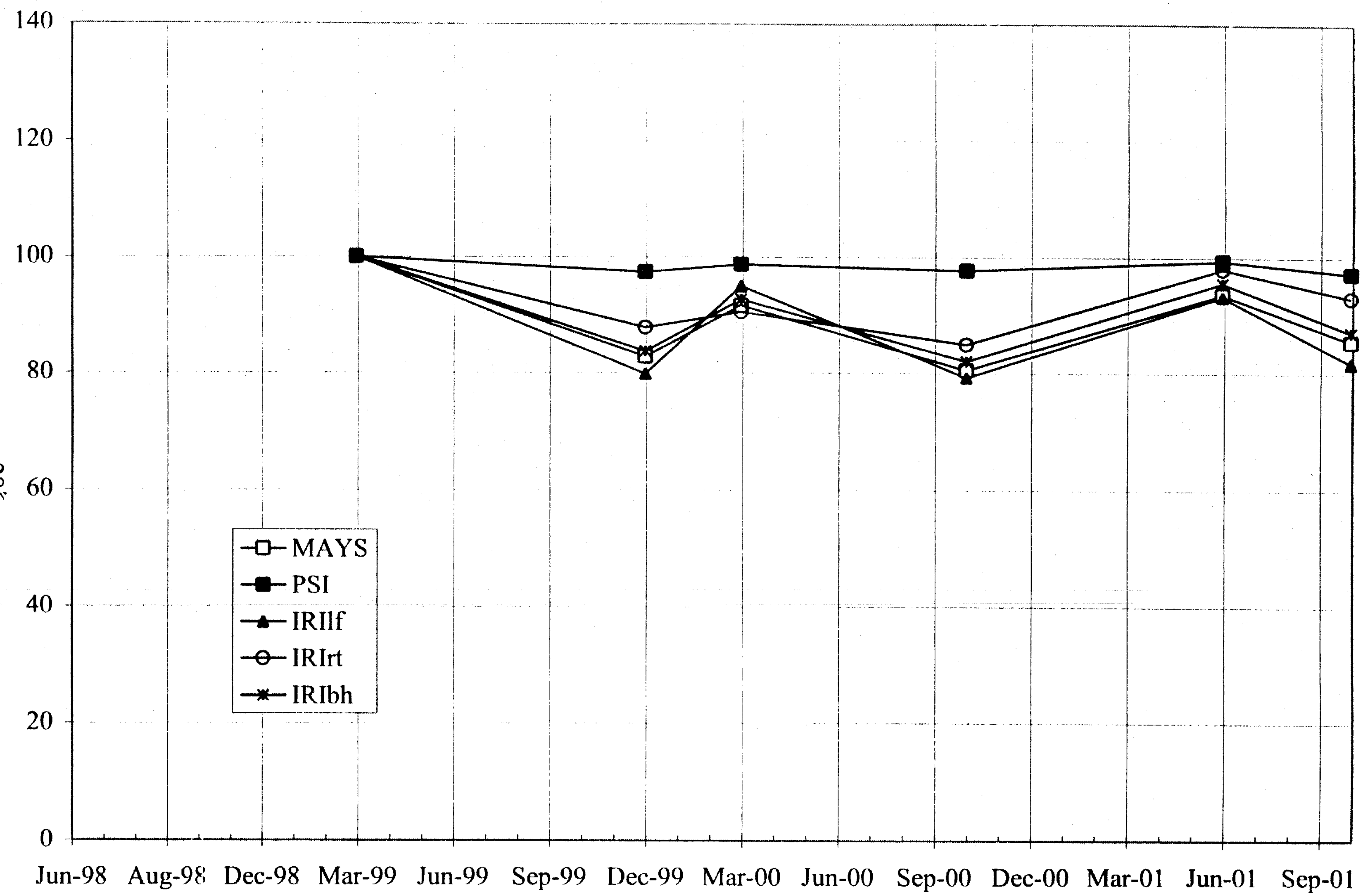


Figure 5.60 Trendlines for the Westbound Driving Lane through October 2001

6 DRAINAGE EVALUATION

6.1 General Information

Along with the sealant materials examined, the U.S. 50 Athens test site contains an experimental free draining base (FDB), which is designed to allow water to discharge away from the pavement quickly. This non-stabilized 100 mm (4 in.)-thick layer consists of granular materials of the New Jersey type in the eastbound lanes, and of the Iowa type in the westbound lanes (Hawkins, 1999). The infiltrating water is transferred to roadside drainage ditches via longitudinal and transverse collector pipes.

The University of Cincinnati (UC) research team, concerned with the drainage aspects of the project site, undertook to investigate the concrete outlets. The initial evaluation was planned for Wednesday, June 6, 2001, i.e., the day after the survey code-named WBJN01. The investigators were able to work for a short period of time before inclement weather caused this effort to be interrupted, after only one outlet had been examined. All of the outlets were subsequently inspected on Wednesday, October 17, 2001, following the Fall 2001 sealant evaluation, and the researchers' findings are described in the following sections.

6.1.1 Collector Pipes

It is impossible to view the collector pipes without the aid of special equipment, namely a borehole camera. This device can be fed through the system of collector pipes and relay a visual output to a monitor. The camera, along with the necessary accessories, can cost as much as $60,000 (Steffes, et al., 1991). An expenditure of this magnitude could not be justified on the current project, and such devices were not used. Consequently, collector pipes could be viewed only near the outlet, with the help of a flashlight (Figure 6.1). At one of the outlets, a video camera was placed near the end of the collector pipe and using the infrared feature, a picture of the inside of the pipe was obtained (Figure 6.2). Large amounts of silt and debris, which impede the flow of water, are observed. If the collector pipes cannot discharge the infiltrating water quickly, the base may become saturated and significantly weaker, which may explain some of the observed transverse cracking.

6.1.2 Outlets

Table 6.1 lists the location of outlets between Stations 133+60 and 291+00, not including the stretch that corresponds to the location of the batch plant and of the headquarters of the project contractor (*Kokosing Construction Company, Inc.*), an area of intense and heavy truck traffic (Stations 231+00 to 260+00). Although the sealant experiment reaches only up to Station 290+00 in the easternly direction, the drainage evaluation is extended to Station 291+00 to allow for the inspection of two additional outlets, one on each of the northern and southern shoulders. Outlet No. 209, at Station 257+00, was also included. The Table also records if the outlet was actually found, if the rodent screen was in place, the amount of silt and vegetation present, and the presence of standing or flowing water.

Some of the outlets that listed on the Ohio Department of Transportation (ODOT) specifications and plans (ODOT, 1995) were not found. Of the 26 outlets listed in the project span, 19 were found (73%). Many of the outlets were engulfed by tall vegetation growth (Figure 6.3), which had to be cleared before they could be examined (Figure 6.4). The area adjacent to the shoulder had been mowed, but the region further back, where the outlets are located, had not been (Figure 6.5). Such regions are intentionally left unmowed for environmental conservation reasons (Bob McQuiston, 2001: personal communication). It is believed that some of the outlets were not found because of the thick vegetation, even after the area had been thoroughly searched. Other locations, however, did not have large amounts of vegetation, yet some outlets were not found there either. These outlets were probably never constructed in accordance with the ODOT (1995) plans. The experience of the UC research team is not untypical. Baldwin and Long (1987) conducted a similar evaluation in the mid-1980s, inspecting drain outlets once a year for three years. During their inspections, they never found more than 60% of the total 533 possible outlets. Compared to their efforts, the number of outlets discovered at the Athens project site may be considered remarkable.

Most of the outlets that were found had large amounts of silt, moss, and weeds in them, and at times this combination was several inches thick (Figure 6.6). One outlet even had a large weed growing out of its rodent screen (Figure 6.7). All outlets were checked for standing or flowing water, which is a telltale sign as to whether the collector pipes are functioning properly. If water is found flowing out of the outlet, the drain is obviously working (Figure 6.8), but if the water is standing, the drain is probably not capable of removing the water quickly enough (Figure 6.9). Some drains are found completely dry, which may indicate that the pipe is broken or clogged and that water is not reaching the outlet. It is unlikely that the water had already drained away leaving the pipe dry, since there was rainfall during the day prior to the inspection.

Upon observing several of the outlets, the UC research team noticed that those that had a considerable gradient were relatively free of silt and free flowing; the ODOT (1995) specifications call for a 1% slope of the outlet drains. It is difficult to ascertain precisely if the drains are at the required gradient, but there is an obvious correlation between steeper slopes and freely draining outlets.

None of the outlets in the eastbound lanes have rodent screens, whereas all but one of the outlets in the westbound lanes have them. The investigators found that the absence of a screen may actually be beneficial. At the outlets with the rodent screens, moss, weeds, and eventually silt is allowed to gather on them (Figure 6.10), transforming them in some cases into small dams that prevent any drainage water from flowing out. When the screen was temporarily removed during the survey, water was able to flow out. The rodent screen did not appear capable of serving its intended purpose: several of the screens had been bent, creating a gap large enough for small rodents to fit through (Figure 6.11). It is unclear why these screens had been bent, but two hypotheses emerge: (a) The screens had been bent on purpose during construction, possibly to provide a snugger fit with the concrete outlet, even though this is not a method endorsed by ODOT; and (b) they had been bent accidentally during construction or subsequent periodic mowing operations.

Once the outlet was visually inspected and recorded, the vegetation and sediments were removed. In most outlets, this permitted the trapped water to flow fast and freely (Figure 6.12). Figure 6.13 displays the difference cleaning an outlet makes. Figure 6.13 (a) shows a clogged outlet before cleaning, whereas in Figure 6.13 (b) the water is observed flowing freely once the silt and weeds are removed. Such observations reaffirm the need for regular maintenance of the outlets. If the outlets are kept free of obstructions, water from the base layer will be free to escape preventing prolonged exposure of the material to saturation levels. The underdrains should be periodically cleaned or flushed, and this process can be aided by the placement of clean-out boxes (Moulton, 1980). No such clean-out boxes are located on the U.S. 50 project site, and, therefore, flushing may be more difficult and not as effective.

The precast reinforced concrete outlets are generally in good condition, with only few distresses observed. Outlet No. 209 appears to be recycled from another roadway (Figure 6.14). It is noticeably older as evidenced by the discoloration and deterioration of the concrete. This concrete outlet has been improperly placed and does not provide adequate protection to the conduit. Consequently, the pipe has been crushed and its lip forms a "V" at the tip, impeding water flow. Standing water is found inside the pipe. Outlet No. 143 has slipped down the hillside, leaving the underdrain pipe completely exposed (Figure 6.15). The pipe seems to be in good condition, but it was not inspected very closely because of the presence of a snake, which was sunbathing on the concrete outlet (Figure 6.16). The UC research team felt it was better to leave the pipe uninspected rather than disturb the reptile!

6.1.3 Markers

An outlet marker is a posted sign that clearly shows the location of an outlet. It should be on a protective post tall enough to be seen over the vegetation growth. There are no outlet markers of any kind found at the Athens project site. The researchers had difficulty finding the outlets due to the extensive overgrowth. Some of the outlets are not located as specified in the ODOT specifications and plans (ODOT, 1995), but are often found within about 15 m (45 ft). Outlet markers would be most beneficial in locating such outlets.

6.2 Drainage Recommendations

The inclusion of open-graded bases in the design of Portland Cement Concrete (PCC) pavements seeks to ensure adequate drainage, but such layers must be properly maintained. If silt, moss, and other debris are allowed to accumulate in the drains, the water will not be able to escape and the base will become saturated. To keep the drains draining freely, a routine maintenance program must be implemented. Maintenance should consist of cleaning the outlets of any vegetation overgrowth that may hamper future efforts to locate the outlet. Once the outlet is found, a marker should be installed that clearly identifies its location, so that it may be found easily in the future. All silt, moss, and debris should be removed at the outlet and from the rodent screen. Flushing is suggested by Moulton (1980), but without the aid of clean-out boxes it may be rather difficult to perform. The use of a device similar to a plumber's snake may be enough to clear the drains of any debris. The rodent screens should be inspected for damage, such as bending. A redesign of the rodent screen may also be necessary to ensure that it will fit snugly into the head wall without any gaps. The present design allows small rodents to pass through between the head wall and screen. The gradient of the transverse collector pipes should be increased to produce a higher exit velocity, so that silt and debris cannot gather in the pipe. Nonperforated metal or smooth, rigid pipes may resist clogging more effectively.

Table 6.1 Location and condition of underdrains

	Underdrain No.	Station	Offset	Found	Screen	Silt	Vegetation	Water
EASTBOUND	84	155+00	95' RT	YES	NO	LOW	HIGH	STANDING
	92	152+68	122' RT	YES	NO	LOW	HIGH	NONE
	109	170+00	98' RT	YES	NO	HIGH	HIGH	NONE
	115	174+50	103' RT	YES	NO	HIGH	HIGH	STANDING
	121	178+97	104' RT	YES	NO	LOW	HIGH	-
	136	184+00	106' RT	YES	NO	NONE	HIGH	FLOWING
	143	199+00	84' RT	YES	NO	N/A	HIGH	N/A
	149	202+97	81' RT	YES	-	HIGH	HIGH	NONE
	155	206+74	72' RT	YES	NO	HIGH	HIGH	STANDING
	166	213+00	62' RT	YES	NO	LOW	HIGH	FLOWING
	171	218+00	70' RT	YES	NO	HIGH	-	NONE
	209	257+00	81' RT	YES	NO	HIGH	HIGH	STANDING
	226	272+75	86' RT	NO	-	-	-	-
	232	279+97	100' RT	NO	-	-	-	-
	238	280+03	100'RT	NO	-	-	-	-
	244	291+00	93' RT	NO	-	-	-	-
WESTBOUND	82	148+50	95' LT	YES	YES	HIGH	HIGH	STANDING
	89	155+00	93' LT	YES	YES	NONE	LOW	FLOWING
	94	152+00	105' LT	YES	NO	NONE	HIGH	STANDING
	114	170+00	90' LT	YES	YES	NONE	LOW	NONE
	120	174+50	95' LT	NO	-	-	-	-
	132	184+50	95' LT	YES	YES	NONE	LOW	FLOWING
	221	261+00	82' LT	NO	-	-	-	-
	237	276+00	98' LT	YES	YES	NONE	HIGH	STANDING
	243	280+00	98' LT	NO	-	-	-	-
	249	291+00	81' LT	YES	YES	NONE	LOW	FLOWING

Figure 6.1 Inspecting the inside of a drain

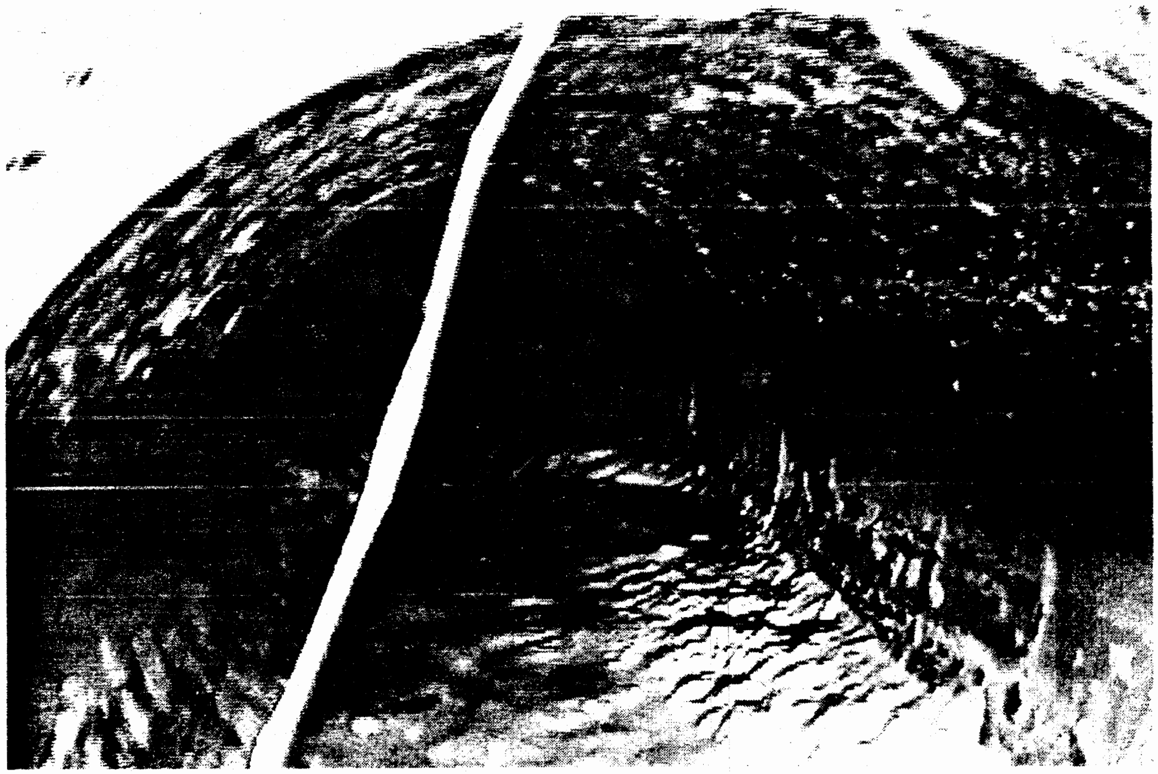


Figure 6.2 View of inside of collector pipe using the infrared device

Figure 6.3 Tall vegetation made finding the outlets difficult

Figure 6.4 Clearing the growth so that the outlet can be observed

Figure 6.5 Mowed and unmowed areas

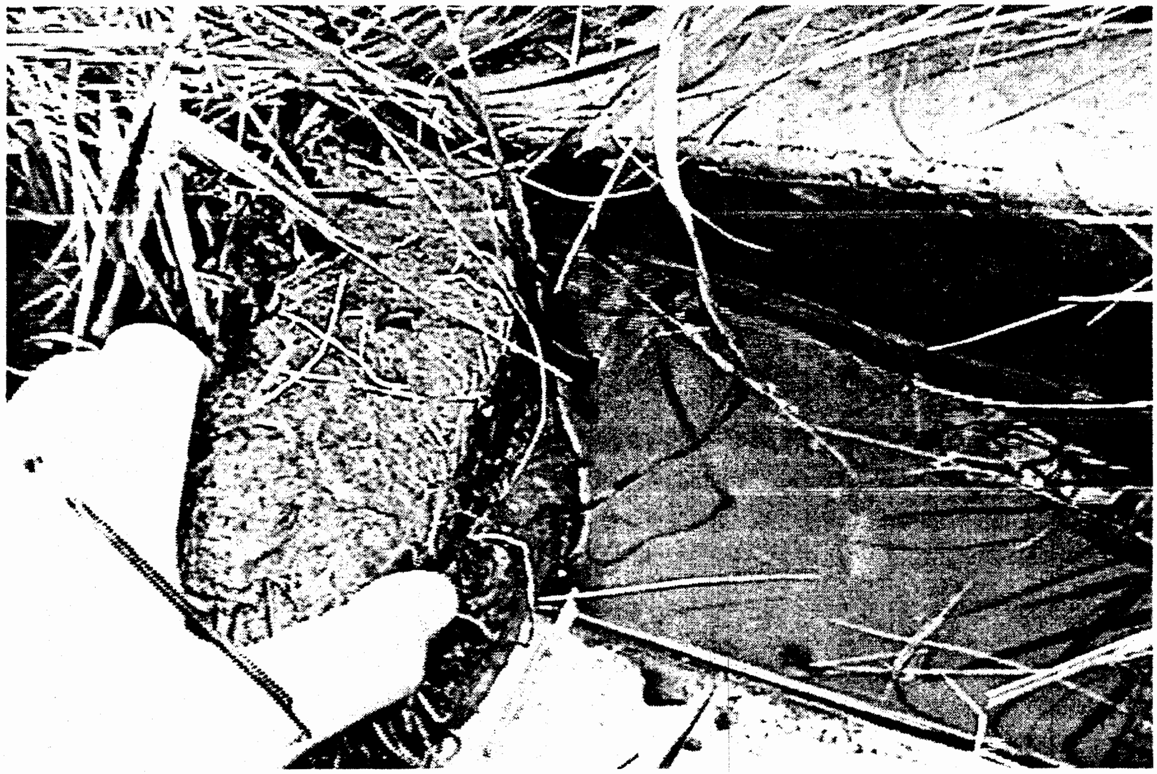


Figure 6.6 Combination of silt, moss and weeds that has collected in the outlet

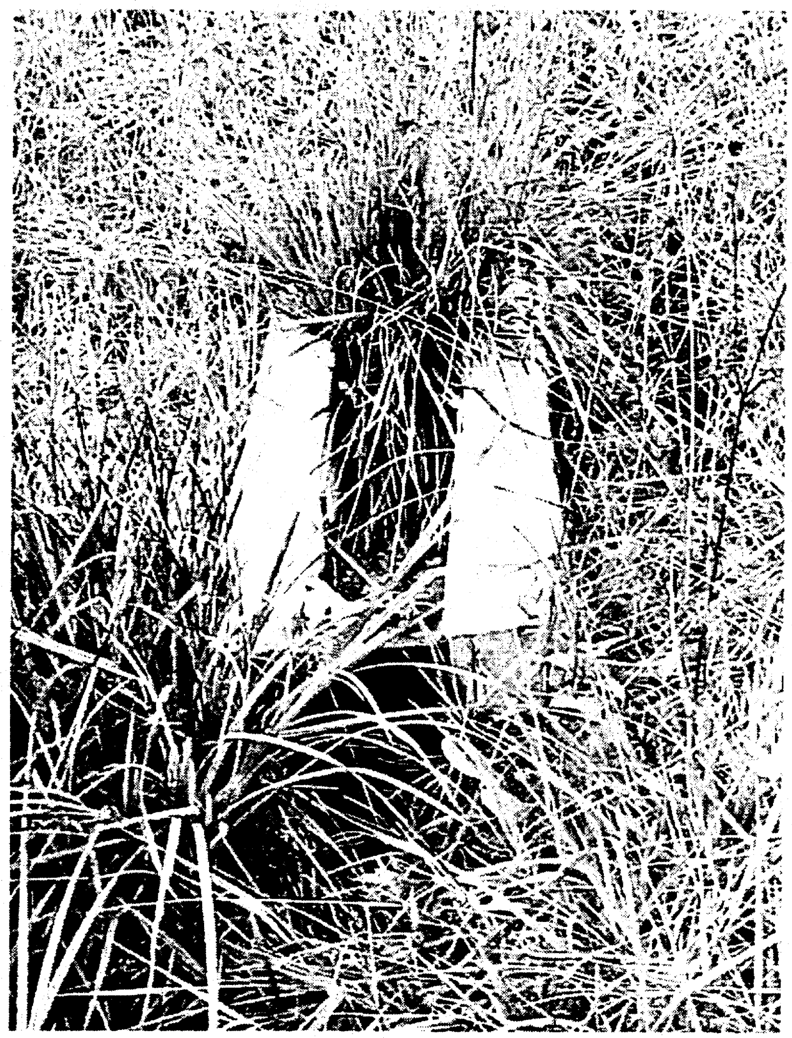


Figure 6.7 A large weed growing out of one of the outlets

Figure 6.8 Water flowing out of the outlet

Figure 6.9 Standing water, approximately 1" deep, unable to flow out

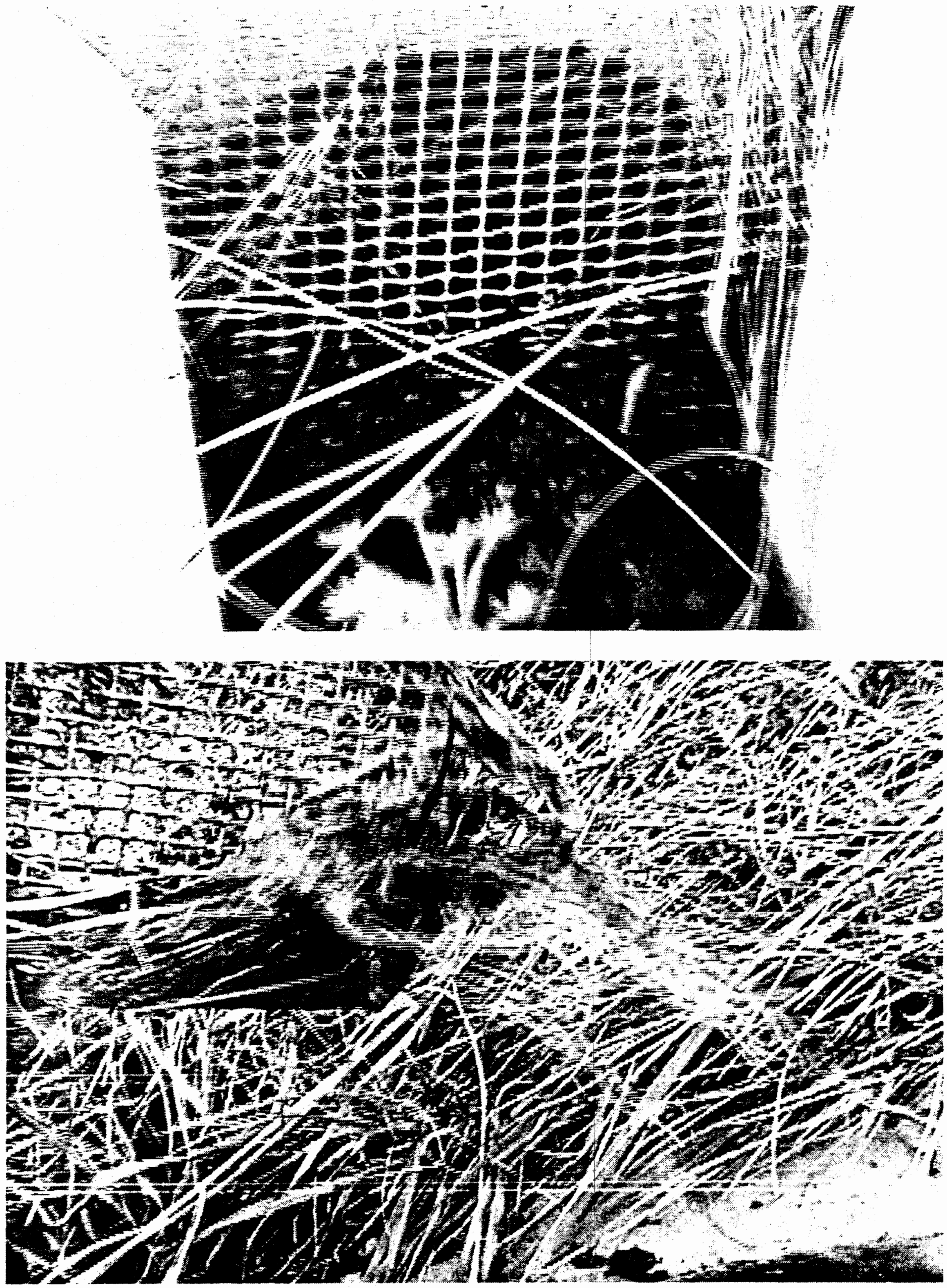


Figure 6.10 Moss and silt that has gathered on the rodent screen

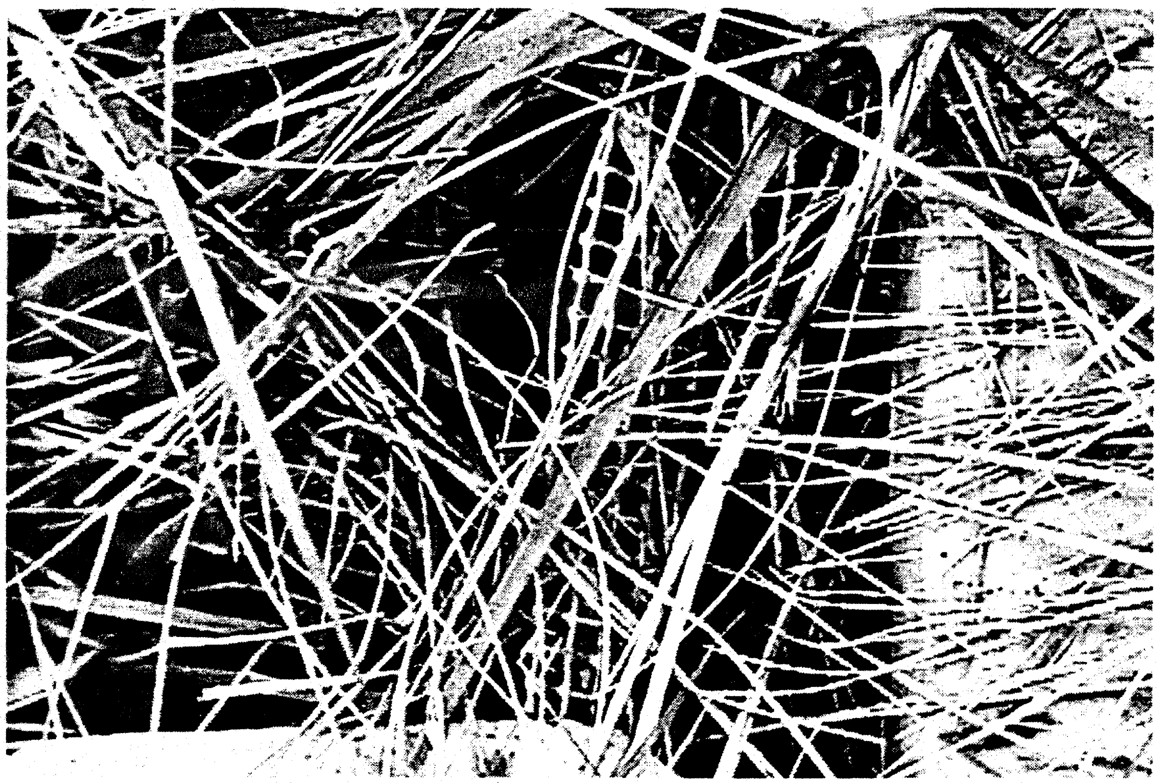
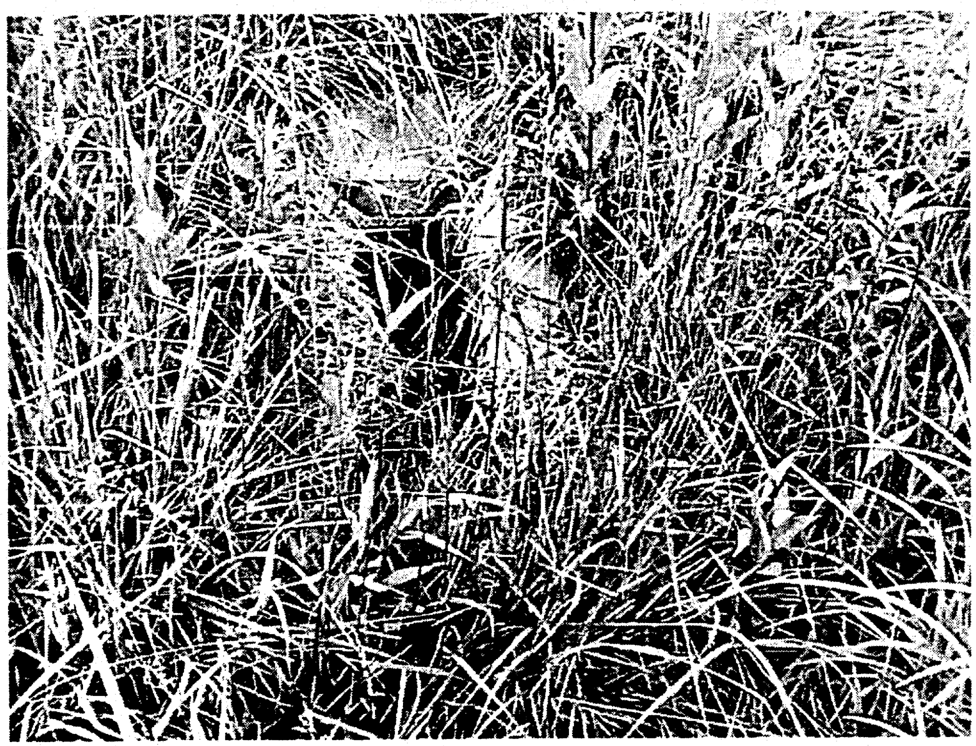


Figure 6.11 The rodent screen has been bent back, creating a gap for small rodents

Figure 6.12 A large amount of water is able to drain after removing sediments



(a)

(b)

Figure 6.13 Typical outlet, as found and after sediments were removed

Figure 6.14 An older concrete outlet, which appears to have been recycled

Figure 6.15 A concrete outlet that has slipped down the hillside, exposing the drain

accordance to the same evaluation plan first implemented in Fall 1999, conducted in Fall 2000, Spring 2001 and Fall 2001. The latter three evaluations are examined in detail in this Final Report. In addition, additional structural distress data are analyzed in order to determine whether any correlation exists between sealant performance and pavement slab condition. Finally, this Report presents the results of an evaluation of the drainage features of the highway, since these are related in various ways to both the sealant effectiveness and structural response of the pavement system.

7.2 Conclusions

The deteriorating condition of the sealants in the eastbound lanes was first reported by Hawkins (1999), when that stretch of the pavement had been open to traffic for a little longer than a year. The following is excerpted from the Conclusions Chapter of Hawkins (1999), since the observations made then are still valid three years later for both the eastbound and westbound lanes:

"Consider, for example, the condition of the silicone and hot-pour sealants in the eastbound lanes. After only one year of service, these sealants are in very poor condition. The majority of these sections have already experienced significant full-depth adhesion failure, with the sealant either sinking completely into the joint or being pulled away by traffic. In this condition, the sealants might as well not be present, thus rendering the unsealed sections significantly more cost effective. In fact, joints in which the sealant becomes ineffective over a significant length may be considered as partially sealed joints, and may exhibit worse performance than unsealed joints of the same configuration (Shober, 1986).

"Since the sealants have remained effective for less than one year, serious consideration needs to be given to the joint cleaning and sealant placing operations currently employed. The worst of the sealed sections were obviously those with a narrow joint width of 3 mm (1/8 in.). In most joints with such a configuration, the sealant material had overflowed and run onto the pavement surface, thereby being exposed to tire traffic. Oversight and inspection provided were ineffective in averting the use of equipment and procedures that were obviously inadequate. Special nozzles or applicators need to be used, so that the sealant will be placed from the bottom up at a slow rate, ensuring that the joints are not overfilled.

"Moreover, since even some of the wider joints also exhibited overfilling, more than just the equipment employed needs to be reconsidered. The placement of the backer rod should be performed with care, subject to stringent inspection, so that the proper depth and continuity are maintained. Another extremely important consideration is that of joint cleaning, and joint condition at the time of placement. The joints in this experiment were cleaned only by water- and air-blasting, even though the manufacturers' recommendations usually called for sandblasting. [The *Plan Notes* from the Ohio Department of Transportation (ODOT), reproduced in Figure 2.2, stipulate that sealants "shall be installed in accordance with the manufacturer's recommendations".] It is possible that the extensive adhesion loss already noted is related to the joint cleaning procedures. Sandblasting provides a rougher surface for the sealant to bond to, but even this may not be enough. The surfaces of the joints need to be subjected to inspection before sealing, to ensure that they are clean and free of moisture, as this is an important detail in obtaining effective, long-lasting sealed joints. If the equipment and procedures employed in placing silicone and hot-pour sealants during this experiment represent the conditions on a typical highway construction site, it is apparent that not sealing would have been a preferable alternative, in terms of convenience as well as cost.

"With the exception of the TechStar W-050, the preformed compression seals have exhibited significantly better performance to date than liquid sealants. Both the Watson Bowman and Delastic seals are performing very well, with no visible signs of adhesion loss or other distress at the time of the second visual analysis. It appears that the adhesive used with these seals results in a more durable bond between the seal and joint walls.

"The TechStar seal has not performed as had been anticipated if only by its much higher cost, and had developed significant adhesive failure by the time of the second visual inspection. The seal had simply broken free of the proprietary adhesive and had sunk into the joint, leaving the dried-out adhesive visible on the joint walls near the pavement surface. Although it is not possible to verify the causes of such widespread adhesion failure at this time, incompatibility between the adhesive and the seal cannot be ruled out, either.

"The unsealed sections are also performing very well, exhibiting no visible signs at this time of distress at the joints (e.g., spalling) or in the pavement slabs. Small-size debris has entered the shoulder joints, but the traffic lane joints are still fairly open and clean. No blowups or loss of subbase support have occurred. In fact, the surface profile of the unsealed sections shows them to be performing as well, if not better, than most of the sealed sections. Interestingly, no mention is made of any distresses or problems with the unsealed sections in the Strategic Highway Research Program (SHRP) Specific Pavement Studies (SPS)-4 supplemental joint seal experiment (Smith, et al., 1999), either. It will be interesting to continue monitoring unsealed sections and comparing their performance to that of sealed sections. If no significant differences in performance can be found, leaving Portland cement concrete (PCC) pavement joints unsealed should be considered a cost-effective design feature.

"It is reiterated that as this project will undergo several more years of evaluation, conclusions reached thus far are based only on relatively early observations. It is hoped that future evaluation of both the westbound and eastbound lanes will provide significant feedback regarding the effectiveness of current joint sealing procedures. It is also noted that the performance of the pavement to date as indicated by the profile surveys does not appear to be related directly to the effectiveness of the joint seals. Rather, the roughness indices recorded provide a measure of the driver response to the overall pavement surface, in a manner that probably reflects most immediately the overall condition of the concrete slab. Whether the latter will deteriorate with time on account of ineffective sealants can only be ascertained after long-term evaluation. The provision of several drainage features (e.g., underdrain in subgrade, drainable base layer) and the tightly controlled pavement construction procedures followed on this site may well counterbalance any deficiencies in joint sealants, ensuring satisfactory service of the highway for many years to come."

Early evaluations of sealant performance reported by Hawkins (1999) were hampered by the continuing construction operations on the test site. Consequently, research team members were obliged to observe the joints standing at the pavement shoulder, and were unable to make measurements of the extents of developing distresses. To provide consistent and comparable performance evaluations during subsequent visual inspections of sealant and pavement condition, a performance evaluation plan was developed, as described by Sander (2002). The data collected according to the performance plan, which was first implemented during the Fall 1999 evaluation of joint sealants at the U.S. 50 project, are analyzed to determine the average effectiveness of a sealed joint treatment, which is the combination of a particular joint configuration and sealant material. The rating scheme developed by Belangie and Anderson (1985) is used to assign the treatment to a particular category, i.e., very good, good, fair, etc. The thirteen joint sealant treatments are also ranked according to their level of effectiveness, as well as the percentage point deterioration, %, of each treatment in the time period between each pair of successive performance evaluations.

In addition to the visual inspections, results from four profile surveys of pavement surface roughness performed in the eastbound and westbound traffic lanes are analyzed, in an attempt to establish general trends in pavement surface condition based on measured roughness.

Sander (2002) examined in detail the data collected during the performance evaluations of Fall 1999 and Spring 2000. At the time of the latter, the pavement had served traffic for two and one years along the eastbound and westbound lanes, respectively. Commenting on these data, Sander (2002) stated:

"Regarding sealant performance, the general indications are that joint seals installed in the westbound lanes appear to be exhibiting higher effectiveness levels compared to those in the eastbound lanes. The weighted average effectiveness of sealed treatments installed in the westbound lanes is 84%, compared to only 50% total average effectiveness of the sealed treatments in the eastbound lanes. The difference in effectiveness levels is certainly to be attributed to age; the sealants in the westbound lanes are approximately eleven months 'younger' than those installed in the eastbound directions of traffic, and, therefore, have not been subjected to traffic and environmental stressors for quite as long a time period.

"After two years of service in the eastbound lanes, compression seals, with the exception of the TechStar W-050, significantly outperform the other two sealant classes, i.e., silicone and hot-pour types, retaining an average effectiveness of 75%, or 95% without the inclusion of the TechStar W-050 seals. Silicone and hot-pour sealants exhibit average effectiveness values of 50 and 40%, respectively. It appears likely that these general trends will be replicated in the westbound lanes as time goes by. Of the fifteen treatments, the Watson Bowman WB-687 (5) and WB-812 (5), as well as the Delastic V-687 (5) treatments, exhibit the least deterioration (fewer than 5 percentage points) between the Fall 1999 and Spring 2000 inspections. The Watson Bowman treatments in the eastbound lanes retained the No. 1 rank, with an average effectiveness of 98% and 95% at the time of the Fall 1999 and Spring 2000 performance evaluations, respectively. Delastic V-687 (5) was a close second in this ranking system. In both the eastbound and westbound lanes, the TechStar W-050 material has failed to maintain an effective seal between the joint walls.

"Among the four silicone sealants installed in the eastbound lanes, the Dow 890-SL treatments exhibit better performance than the other three silicone sealants, having an average effectiveness of 63%. The Crafco 903-SL, Crafco 902 and Dow 888 treatments show combined average effectiveness levels of 38, 41 and 49%, respectively. The three treatments of Dow 890-SL self-leveling silicone sealant captured the rankings of 4, 5 and 6 during the Spring 2000 inspection of the eastbound lanes. In the westbound lanes, the Dow 888 non-sag treatments outperform the Dow 890-SL and Crafco 903-SL joint sealant treatments, retaining an average effectiveness of 99%.

"The hot-pour sealants were found to show the worst performance of the three sealant types with an average effectiveness of 40% in the eastbound lanes and 69% in the 'younger' westbound lanes. Hot-pour sealants showed the fastest rate of deterioration up to the age of twenty months. In contrast, their performance between twenty and twenty-four months was relatively constant, showing very little joint seal deterioration over that time period. Variations are noted in the performance of the Crafco 444 treatment; in the westbound lanes the joint seal was about 89% effective, whereas in the eastbound lanes the average effectiveness is only 10%. The hot-pour sealants appear to have aged prematurely, as the surface of the sealants exhibit signs of hairline cracking, and the sealant material is brittle in the joint.

"The sections containing unsealed joints are performing very well. In fact, the unsealed sections are continuing to perform better than most of the test sections with sealed joints, however, such a comparison between sealed and unsealed joints is limited and can only be based on the presence of structural distresses at the joint. The only visible distress in unsealed test sections at the time of the Fall 1999 and Spring 2000 inspections is spalling of the lips in several isolated joints. It is likely that most of the joint lip spalls observed may have been caused at the time of initial sawing. Debris in the form of small stones and sand had entered and accumulated on the bottom of many of the unsealed joints, however, this has not affected their performance. For the most part, the joints remain free of incompressibles lodged between the joint walls. Moreover, no blowups or signs of pumping are evident in the unsealed test sections, and there is no evidence that any of the observed corner breaks or transverse cracks formed as a result of unsealed contraction joints, as might be expected.

"Results from the four profiles of surface roughness conducted in the eastbound and westbound lanes are used to draw general inferences pertaining to pavement performance. The profile measures indicate that after approximately one and a half years of a deteriorating pavement condition, or decreasing serviceability, the surface has exhibited increased smoothness and serviceability. This observation of increasing roughness is observed between the Fall 1999 profiles of surface roughness and the Spring 2000 roughness assessments in both the eastbound and westbound lanes. Comparisons are made between the various profile roughness measures and the average treatment effectiveness recorded in each test section. The tabulated and graphical results presented indicate that a correlation does not exist between the two performance categories; the average treatment effectiveness, i.e., sealant performance, cannot be confidently estimated from the values of pavement surface roughness.

"The sealant inspection plan calls for the recording of distresses occurring in the immediate vicinity of joints which may be indicative of joint seal inefficiency or failure. The first signs of such pavement distress are in the form of mid-slab transverse cracks revealed in several of the test sections in the eastbound lanes as the wet pavement surface began to dry. The frequency and widespread distribution of these transverse cracks, does not suggest that their occurrence is necessarily related to joint seal failure.

"A pilot study into the frequency and distribution of transverse cracks in the westbound driving lane shows that mid-slab cracks occur in ten of the fifteen test sections, whereas corner cracks were observed in seven test sections. The test section displaying the greatest frequency of mid-slab cracks and the top percentage of slabs cracked is the Dow 890-SL (1) treatment, with a total of 9 transverse cracks, accounting for 33.3% slabs cracked. The section sealed with the Watson Bowman WB-812 (5) treatment has the second highest percentage of cracked slabs, with 18.5% slabs cracked. No transverse cracks are evident in the No Sealant (6) section, as well as Crafco 903-SL (1a), Dow 888 (1a), Crafco 903-SL (4), and Dow 890-SL (4) treatments.

"There are no visible signs of corner breaks at any of the transverse joints in eight test sections in the westbound driving lane, including one that has unsealed joints. The other unsealed section in the westbound direction exhibits a single corner crack in one of its 125 slabs, accounting for 0.8% slabs cracked. The section with the Dow 890-SL (3) treatment had developed the highest percentage of slabs with corner cracks: four corner breaks were observed in its 28 slabs, accounting for 14.3% slabs cracked.

"Mid-slab cracking of significant extent was first observed in both the eastbound and westbound lanes in the Spring of 2000, following an extreme flooding event, which inundated a extensive area on both sides of the highway embankment. Neither the drainage provisions in the pavement, nor the nearby Hocking River appeared to be able to handle the amount of precipitation received during this event."

Sander (2002) also examined a number of features associated with sound pavement design. The features analyzed apply to the U.S. 50 experimental joint sealant test site and include drainage provisions, load transfer, tied shoulders and transverse joint spacing. Their influence at the U.S. 50 test site was determined through a series of mechanistic computations using a variety of existing pavement engineering software. The concept behind the mechanistic evaluations is to investigate whether the PCC pavement could maintain a high performance level even if joint sealants were to deteriorate, or whether the pavement might deteriorate rapidly even if all sealants continued to function properly. The following is a summary of these efforts, excerpted from Sander (2002):

"The mechanistic analyses focused primarily on the effects of subgrade support, load transfer, transverse joint spacing and tied PCC shoulders. Values representative of those at the U.S. 50 test pavement were chosen for the soil, concrete and dowel properties used in the analyses. The effects of complete saturation and corresponding softening of the subgrade due to poor drainage were modeled, and it was found that weakening the subgrade soil due to prolonged flooding led to increases in maximum bending stress, σ_{max}, of 19, 23 and 17% at the interior, edge and corner of the slab, respectively. The effect on the maximum slab deflection, δ_{max}, is considerably more pronounced, leading increases of 144, 159 and 164% under interior, edge and corner loads, respectively. In contrast, the maximum subgrade stress, q_{max}, decreases by 58, 57 and 55%, at the slab interior, edge and corner, respectively.

"In a separate investigation concerning saturation and subsequent weakening of the base and subbase layers, it was found that the effects of strength loss in the base and subbase layers were insignificant. As the base and subbase layer stiffnesses are reduced by about 90%, the interior bending stress increases only by 1%. The subgrade stress and subgrade deflection are reduced by less than 4%. In contrast, slab deflections exhibit an increase of 4.2% over the range of parameters considered. These results indicate that softening of the base and subbase layers can result in significant plastic and permanent deformations which produces non-uniform support conditions.

"Shoulder ties and transverse load transfer provisions were also investigated for this Report. Through analysis, it was noted that load transfer devices installed significantly reduced the level of edge stress and deflection at the transverse and shoulder joints. Adopting typical and reasonable values for the joint opening and the modulus of dowel reaction, calculated values of deflection load transfer efficiency range from 81 to 93%, while those for stress load transfer efficiency vary between 40 and 60%. It is shown that σ_{max} and q_{max} at doweled joints are reduced by about 30 to 60%, respectively, compared to the free edge responses. The corresponding value of δ_{max} is reduced by 60%. Bearing stress values as high as 8 MPa (1150 psi) are obtained, the highest values being associated with improved load transfer efficiencies. A mechanistic analysis using *ILSL2* indicates that shoulder ties lower the free edge bending stress by about 11 to 20%. Reductions in free edge deflection range from 27 to 33%, whereas the free edge subgrade stress is decreased by 26 to 33%.

"Several popular fatigue models were utilized to examine the benefits of load transfer in terms of pavement longevity. The results showed that by effectively reducing bending stress levels at the joint, the pavement was capable of withstanding a significantly increased number of load repetitions until failure. The *Austin Research Engineers, Inc.* (ARE) fatigue model shows that the number of load repetitions to failure with transverse load transfer devices increases from 1.56 to 3.76 times to that for a free edge condition. Similarly, N_f increases by 2.51 to 7.04 times according to the *Resource International, Inc.* (RISC) equation. The effect of providing shoulder ties in the pavement is similar; according to the ARE formula, the bending stress reduction leads to an increase in the number of load repetitions to failure by about 1.5 to 2.1 times compared to free edge conditions. Similar trends are observed when applying the RISC model; the allowable number of repetitions to failure increases by about 1.7 to 2.7 times.

"The factor having the most pronounced affect on pavement performance was transverse joint spacing. The ratio of the slab length, L, to the radius of relative stiffness, l, and referred to as the (L/l) concept, was utilized to determine the theoretical maximum joint spacing. The results clearly showed that the 6.4-m (21-ft) joint spacing in the U.S. 50 pavement, and corresponding (L/l) of about 6.1, exceeded the maximum recommended (L/l) ratio of 4.5 for jointed plain concrete pavements (Smith, et al., 1997). Based on an (L/l) of 4.5, transverse joints should have been provided at spacings no greater than 4.6 m (15 ft) in order to prevent or minimize slab cracking. This unfortunate discrepancy may lead to premature pavement distress in the form of transverse cracking throughout the concrete slab.

"Computations were performed to study the effect of the selected reliability level on pavement slab thickness. Using input values identical to those used in the original pavement design for the U.S. 50 pavement, and varying the reliability from 85% to 99%, it was shown that selecting a higher level of reliability (>95%) requires a slab thickness greater than 250 mm (10 in.).

"Several construction issues were suggested as possible contributors to mid-slab transverse cracks observed in the eastbound and westbound lanes of the experimental pavement. The two primary concerns are the low curing temperatures of the PCC pavement slab and the use of ground granulated blast furnace slag (GGBFS) cement as a replacement for some of the Portland cement in the mix design. These factors along with several others led to a delay in the time to initial set, as a result, promoting drying shrinkage, which would add to the concave upward distortion of the slab.

The three latest visits to the test site by the University of Cincinnati research team are detailed in this Final Report; these visits occurred in October 2000, June 2001, and October 2001 . During each of these visits, the team conducted a visual evaluation of the condition of the sealants and of the structural performance of the pavement slab, collecting numerical data for subsequent analysis. Moreover, the ODOT profilometer crew performed surveys of the highway profile in each of the two directions, on each of the driving and passing lanes. The profilometer surveys occurred within a few days of the visual inspections, depending on the practicality of scheduling them in the framework of the ODOT crew's other assignments.

The following is a summary of the observations regarding the sealants in the eastbound and westbound lanes, respectively, following the most recent of the three evaluations discussed in this Final Report.

Performance of Eastbound Lane Seals as of EBOC01

The compression seals are the superior sealant material in the eastbound lanes, averaging 69% effectiveness, even when including the TechStar W-050 (5) section, which is only 19% effective. If this section is excluded, the compression seals' average becomes 94%, which is the effectiveness value for both Watson Bowman 687 (5) and Delastic V-687 (5). The two hot-applied sealants differ quite dramatically from one another. Crafco 221 (1) has the third highest effectiveness value (79%), yet Crafco 444 (1) has the lowest value (9%). These two sections average 44% effectiveness, the lowest among the three sealant types. The silicone sealants average 46% effectiveness, which is only slightly better than the hot-applied. The two self-leveling sealants with the No. 1 joint configuration are the best performing silicone sections to date. Dow 890-SL (1) and Crafco 903-SL (1) have effectiveness values of 71 and 58%, respectively. Only one other silicone section is above 50%, namely Dow 890-SL (3), which is 57% effective. The remaining five sections are below 50% effectiveness, including Crafco 903-SL (4), which is only 12% effective.

Performance of Westbound Lane Seals as of WBOC01

Partially due to their 'younger' age, the westbound sealants are performing much better than those in the eastbound lanes. The westbound compression seals, with the exception of TechStar W-050 (5), continue to perform exceptionally well. Watson

Bowman 812 (5) and Delastic V-687 (5) are 98 and 97% effective, respectively. The average of the compression seals (66%) is depressed due to the ineffectiveness of the TechStar W-050 (5) section. Excluding this section yields an average of 98%, which is best amongst all the sealants. The difference in effectiveness between the two superior compression seal sections and TechStar W-050 (5) could not be greater. The latter is only 4% effective, and its ability to keep any water out of the joint is extremely questionable. The difference between the two hot-applied sections continues to increase: Crafco 444 (1) is 93% effective, yet Crafco 221 (1) is only 43% effective making the difference 50%. The silicone sealants average 85% effectiveness, which is the best for the westbound lanes (when TechStar W-050 is included for the compression seals). All silicone sealants with the No. 1 configuration, with the exception of Crafco 903-SL (1b), are in very good condition ($\geq$ 90%). The only No. 3 configured section, Dow-SL 890 (3), has the highest effectiveness value (99%) out of all the westbound sections. The two No. 4 configured silicone sections, Crafco 903-SL (4) and Dow 890-SL (4), have effectiveness values of 85 and 44%, respectively. It is apparent that the No. 4 joint configuration continues to produce poor effectiveness values.

It is interesting to examine the performance of the sealants over the entire length of the project, and to compare the observations made in each of the two directions of the highway, accounting for the difference in age between the eastbound and westbound lanes. The following is a summary of this information.

Performance of Eastbound Lane Seals Over Entire Project

Over the course of the Project, the nearly identical excellent performance of the two compression seal sections, Watson Bowman 687 (5) and Delastic V-687 (5), is most noteworthy. The effectiveness values of these two seals never differ by more than 1% from one another. Their long-term performance looks promising, whereas the third compression seal, TechStar W-050 (5), seems doomed for a quick ultimate failure; the performance of the latter has fallen precipitously well below that of the other two compression seals. It is apparent that from the beginning Crafco 444 (1) began deteriorating at a faster rate than the other hot-applied section, Crafco 221 (1). The former appears to be at a terminal effectiveness level since it does not have much more effectiveness to lose, whereas the latter is maintaining its mediocre effectiveness. Generally, the silicone sealants have steadily declined in effectiveness since their installation. No section is currently above 75%, and five of the eight are below 50%, including Crafco 903-SL (4), which is only 12% effective. These sealants do not show much promise for the long-term.

Performance of Westbound Lane Seals Over Entire Project

A review of the westbound sealants' effectiveness values for all surveys indicates that two of the compression seals, Watson Bowman 812 (5) and Delastic V-687 (5), have maintained nearly all of their original effectiveness, which promises excellent performance in the future, as well. In contrast, the third compression seal, TechStar W-050 (5), may have at one time been 100% effective, but deteriorated quickly soon after its installation. It is clear that this section has been steadily declining in effectiveness over the past three years. The hot-applied sealants were not installed until April 1999, whereas all other seals in the westbound lanes had been installed in December 1998. Unlike the eastbound lanes, where Crafco 444 (1) began deteriorating very rapidly and dramatically, the corresponding westbound section has lost very little effectiveness. It has generally maintained effectiveness values above 90% for its lifetime to date. Crafco 221 (1) deteriorated rapidly early on, but more recently it has maintained a steady effectiveness value. Most of the silicone sealants have maintained much of their original effectiveness throughout their lifetime. Four sections, Dow 890-SL (3), Dow 888 (1b), Dow 890-SL (1), and Crafco 903-SL (1a), have never dropped below 95% effectiveness. Dow 888 (1a) recently dropped to 91%, but it had been above 95% in all previous surveys. Crafco 903-SL (4) and Crafco 903-SL (1b) had deteriorated to 89% and 77%, respectively, during WBMR00, but they have essentially maintained those values since then. The two identical Crafco 903-SL (1) sections are performing quite differently. Crafco 903-SL (1a), which is between Stations 188+00 and 194+00, is outperforming its twin by approximately 20% throughout the time span considered. The Dow 890-SL (4) section is very hard to survey due to the very narrow joint width, which makes it difficult to determine adhesion failure.

Comparison of Performance of Eastbound and Westbound Lane Seals Over Entire Project

It is impossible to make a direct comparison between the eastbound and westbound sealants during any single survey. Consequently, the data from each survey must be expressed in terms of time elapsed since the highway was opened to traffic in each of the two directions, so that sealants of a similar age can be compared. Even when compared to the eastbound sealants at the same age, the westbound lane seals are performing much better than the those in the eastbound lanes. Only the compression seals are performing similarly to their opposite lane direction counterparts. The westbound silicone sealants are outperforming the eastbound sealants at the same age by 47%. The same comparison for the hot-applied sealants yields an average difference of 29% in favor of the westbound sealants. The U.S. 50 sealant experiment includes many sealant materials and joint configurations not normally utilized in Ohio. It is reasonable to expect that the sealant installation crew was less familiar with some treatments than with others. Because the westbound sealants were installed a year after those in the eastbound lanes, the crew may have benefitted from their first year experience, making the installation process more effective in the second. The similarity in the behavior of the eastbound and westbound lane compression seals that are commonly used in Ohio, corroborates this assertion.

The Watson Bowman and Delastic seals in both the eastbound and westbound lanes are performing extremely well. The eastbound TechStar section is outperforming its westbound counterpart, but effectiveness trends are pitifully poor. In both directions, this material exhibits less than 20% effectiveness, and continues to deteriorate. It is believed that these sealants are not designed to adhere to PCC since they are manufactured specifically for bridge decks. A large discrepancy between the two Crafco 444 (1) sections is evident. The eastbound section never performed as well as the westbound, which hints at possible deficiencies in the installation of the former. It is possible that the construction crew gained experience with the installation of the eastbound section, and used this effectively during the installation of the westbound. Moreover, it is possible that delaying the westbound installation until the following Spring was very beneficial. The

Crafco 221 (1) sections, however, do not support these postulates. Just the opposite is observed in these sections, albeit to a much lesser degree: the eastbound are outperforming the westbound. The effectiveness difference between the two lane directions is about 25% for the Crafco 221 (1), whereas for the Crafco 444 (1) sections this difference is about 80%. All of the westbound silicone sealant sections are outperforming their eastbound counterparts by a large margin over their lifespan to date. Every section currently has at least 25% more effectiveness than its counterpart. It is apparent that all eastbound sections never performed as well as their westbound counterparts. The westbound Dow 888 (1) sections former have never dropped below 90% effectiveness, whereas the eastbound deteriorated drastically very early on and are currently about 50% below the westbound lanes. This suggests that poor workmanship may be responsible for the dismal performance of the eastbound silicone sealants. Westbound Dow 890-SL (3) and Crafco 903-SL (4) have outperformed their eastbound counterparts over the entire time span considered. The Dow 890-SL (3) section has maintained an effectiveness of at least 95% in the westbound lanes, yet its counterpart in the eastbound direction has deteriorated steadily to below 60%. The westbound Crafco 903-SL (4) section has never dropped below 80%, yet the corresponding eastbound section began deteriorating quickly and never came close to matching the westbound performance. The eastbound section of Dow 890-SL (4) had better effectiveness values than the westbound section in early life, yet at approximately 25 months, it began to lose effectiveness very quickly and has since dropped below the latter. Additional surveys are needed to decipher the performance of these sealants over an extended period of time.

Turning now to the observations regarding the structural performance of the pavement slab discussed in this Final Report, the following remarks may be useful in summarizing the results obtained by the research team.

Unlike sealant performance, in which the westbound lanes are superior to the eastbound, pavement structural performance in the eastbound lanes is higher than in the westbound lanes, judging by the corresponding frequencies of transverse cracking. As of the latest survey (October 2001), the westbound lanes have 44% of their slabs cracked, but the eastbound only have 39%. This is surprising since the eastbound lanes are approximately one year older than the westbound. The fact that the westbound lanes have superior sealants but more extensive transverse cracking suggests that no correlation exists between sealant effectiveness and transverse cracking; a closer inspection verifies this assumption. It is observed that many of the sealant sections that have high effectiveness values also exhibit high percentages of transverse cracking. In addition, many of the sections with low effectiveness values have very little transverse cracking. Finally, the distribution of cracking is generally random, corroborating the assertion that no correlation exists between sealant effectiveness and transverse cracking.

There are only three sections with corner breaks in the eastbound lanes accounting for five slabs. Two of these sections are sealed with a compression seal and a silicone, respectively, whereas the third is unsealed. Therefore, it can be inferred that corner breaking has no correlation with sealant effectiveness, either.

The structural performance of the eastbound lanes suggests that the mere presence of a sealant may prevent spalling at the joints. Excluding a poorly constructed joint in the hot-applied section of Crafco 222 (1), the two sections that contain the most amount of spalling are the two unsealed sections. Among the sealed sections, however, those containing the highly effective compression seals also exhibit the highest extents of spalling, suggesting that the effectiveness of a seal is not a guarantee against this type of distress. Yet, to complicate matters, the westbound lanes do not always exhibit the same pavement distress trends as the eastbound lanes.

The extent of transverse cracking in the westbound lanes is surprisingly high: almost half of the slabs are cracked. Obviously, the highly effective sealants did not prevent such cracking. The compression sealed sections, which generally are the best performing seals, have the top three rankings in terms of transverse cracking. The unsealed sections, on the other hand, have some of the lowest percentages of slabs cracked. It is apparent that excellent sealant performance does not promote good pavement performance in the westbound lanes any more than it did in the eastbound direction.

There are more than twice the number of corner breaks in the westbound lanes as there are in the eastbound lanes. Corner breaks in the westbound lanes are distributed evenly among the sealant sections, which suggests that no correlation exists between sealant effectiveness and corner breaking. The degree of spalling in the westbound lanes may suggest a faint correlation with sealant effectiveness: the top four sealant sections in terms of sealant effectiveness have a total of only 51 mm (2 in.) of spalling.

The profilometer surveys for all four lanes follow similar, if not identical, trends. Since December 1999, all four lanes have been surveyed at the same time. With few exceptions, all indices in all lanes follow the same trend. Between the December 1999 and March 2000 surveys, nearly every index demonstrates a significant increase in smoothness, followed by an equivalent decrease during the following survey (October 2000). After the latter survey, the profile surface for the eastbound lanes is fairly constant, while the westbound lanes increase and decrease during the last two surveys. The remarkable similarity in the trendlines between all four lanes suggests that climatic factors, e.g., curling and warping, may be responsible for the fluctuations in the pavement profile, rather than pavement deterioration. If true, this would make it difficult to rely on future profilometer data to show deterioration in the pavement. Also, while analyzing the profilometer data on a section by section basis, it is apparent that no correlation exists between sealant effectiveness and pavement surface deterioration. Many of the superior sealant sections exhibit decreases in pavement surface smoothness, while many of the inferior sealant sections show increases in smoothness. Additional insights may be obtained by reviewing the profile data directly as recorded by the computer on board the profilometer van, but these are no longer available.

Along with the sealant and pavement inspections, the University of Cincinnati research team conducted an evaluation of the underdrain outlets since they too play a pivotal role in the performance of the pavement. The outlets and outlet pipes were viewed without the assistance of any special borehole video equipment. By viewing the outside of the outlets, however, substantial evidence could be gathered to determine the condition of the outlet pipes in that area. Many of the outlets (27%) could not be found either due to high vegetation growth or simply because the outlet was not located per ODOT specifications (1995). Many of the outlets contained large amounts of silt and debris, so that water from the underdrains could not flow out. Some of the clogged debris is due to the presence of rodent screens, which allowed moss to grow and trapped silt, creating a dam. None of the eastbound outlets contain rodent screens, but nearly all the westbound outlets do. Some of the outlets are completely dry, and due to the large amounts of rainfall from the previous day it can be assumed that the pipe is either completely blocked further inside or it has been broken inside and water is traveling a different route. A correlation between steeper outlet pipe gradients and lack of silt and debris is apparent. The steeper slope causes the water to discharge at a higher velocity allowing the silt and debris to be carried with it.

7.3 Recommendations

The following recommendations can be made at this time:

(a) Remove and replace all sealants having an average effectiveness below 75%, and thus are ineffective at preventing water and incompressibles into the joint. This recommendation is based on the statements made by Shober (1997) warning of the dangers of partially sealed joints. Based on the results presented earlier in this Report, all sealants in the eastbound lanes, except for two of the compression seals, should be removed. The TechStar W-050 seals should be replaced with another compression seal such as Watson Bowman WB-687 or WB-812. Alternatively, the deteriorated sealants may be replaced only in the eastbound lanes, leaving the westbound lanes unchanged, for the purpose of a less expensive yet useful comparison, so as to possibly verify conclusions from studies elsewhere, notably in Wisconsin.

(b) Monitoring of joint sealant and pavement performance should continue for at least another five years to collect long-term performance data. The performance evaluation plan developed by the University of Cincinnati research team and implemented in the five evaluations since Fall 1999 should be used for all future evaluations of joint seal condition. This will provide consistent evaluations and will generate information that is reliable and comparable to that collected during future inspections. Performance monitoring of the sealed and unsealed test sections should continue under the established survey routine.

(c) Monitoring of pavement surface roughness via profile surveys should continue for the purpose of affirming or clarifying the trends revealed to date regarding the comparative performance of sections in the eastbound and westbound lanes, and providing a record of the progressive deterioration of each section. Attempts should be made to establish general roughness trends of the pavement, as well as to correlate seasonal curling and warping with roughness trends. The possibility of equipment malfunctions should be considered. There were several instances where data collected during the profile assessment was inconsistent and error plagued.

(d) Implement a drainage outlet maintenance program, according to which the outlets will be cleaned of silt and debris on an annual basis. This will allow the outlets to drain more freely, as was the case when the research team performed such cleaning during their inspection of the drainage features. The maintenance program would be aided by the presence of outlet markers, which would clearly show the location of the outlet so that maintenance personnel could find the outlet without much delay. During the Spring 2000 evaluation, large areas of ponded water were noted in the drainage swales alongside both directions of the highway, with water levels appearing to be almost at the elevation of the pavement subgrade surface. Additional investigations into the effectiveness of the open graded base material and the elevations and pitch of the drainage ditches should also be conducted.

(e) Transverse contraction joint spacing in PCC pavements should be determined using the (L/*l*) concept of the ratio of the slab length to the radius of relative stiffness of the slab-subgrade system. Although this concept was originally formulated with reference to plain jointed PCC pavements, its applicability to jointed reinforced slabs such as those at the U.S. 50 test site appears to be warranted, as well.

(f) Pending the results of additional investigations into the effectiveness of sealants in the Wet-Freeze climatic zone, the use of compression seals, e.g., Watson Bowman and Delastic should continue. The use of TechStar W-050 should be discouraged as this material has been proven to be unsuitable for pavement applications.

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APPENDIX

Output from Profilometer Runs (Eastbound and Westbound Lanes)

October 2000 Profile Survey of Eastbound Lanes, Driving Lane (PEBOC00)
October 2000 Profile Survey of Eastbound Lanes, Passing Lane (PEBOC00)
October 2000 Profile Survey of Westbound Lanes, Driving Lane (PWBOC00)
October 2000 Profile Survey of Westbound Lanes, Passing Lane (PWBOC00)
June 2001 Profile Survey of Eastbound Lanes, Driving Lane (PEBJN01)
June 2001 Profile Survey of Eastbound Lanes, Passing Lane (PEBJN01)
June 2001 Profile Survey of Westbound Lanes, Driving Lane (PWBJN01)
June 2001 Profile Survey of Westbound Lanes, Passing Lane (PWBJN01)
October 2001 Profile Survey of Eastbound Lanes, Driving Lane (PEBOC01)
October 2001 Profile Survey of Eastbound Lanes, Passing Lane (PEBOC01)
October 2001 Profile Survey of Westbound Lanes, Driving Lane (PWBOC01)
October 2001 Profile Survey of Westbound Lanes, Passing Lane (PWBOC01)

October 2000 Profile Survey of Eastbound Lanes, Driving Lane (PEBOC00)

ATHENS 050 - October 2000 Tests

LANE 1 PASS 1 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15400.0					
15452.8	61.7	3.858	61.6	65.6	63.6
15505.6	121.7	2.985	128.2	120.9	124.5
15558.4	75.0	3.630	69.6	83.4	76.5
15611.2	87.3	3.682	71.8	109.1	90.4
15664.0	95.0	3.527	94.9	101.3	98.1
15716.8	81.1	3.473	81.2	92.6	86.9
15769.6	63.3	3.858	62.9	67.9	65.4
15822.4	45.2	4.046	48.8	50.8	49.8
15875.2	37.8	4.159	48.0	38.2	43.1
15928.0	47.0	4.061	47.0	55.3	51.1
15980.8	55.4	4.017	61.0	54.5	57.8
16033.6	64.5	3.792	63.0	70.0	66.5
16086.4	60.5	3.924	67.1	63.5	65.3
16139.2	74.4	3.701	73.4	79.2	76.3
16192.0	43.6	4.174	51.2	46.5	48.9
16244.8	50.7	3.917	54.5	53.3	53.9
16297.6	60.2	4.027	67.4	57.6	62.5
16350.4	64.3	3.780	65.5	71.4	68.5
16403.2	52.7	4.075	59.7	50.6	55.1
16456.0	47.1	4.022	54.4	47.9	51.2
16508.8	44.1	4.253	49.4	44.9	47.2
16561.6	64.3	3.758	76.0	65.0	70.5
16614.4	58.3	4.035	65.4	57.7	61.6
16667.2	66.7	3.722	75.1	67.9	71.5
16720.0	50.2	4.001	59.9	60.2	60.0
16772.8	45.7	3.993	48.1	45.7	46.9
16825.6	47.5	3.978	51.7	51.9	51.8
16878.4	67.6	3.628	69.8	72.4	71.1
16931.2	73.0	3.804	85.7	62.5	74.1
16984.0	53.1	4.031	58.6	51.2	54.9
17036.8	70.0	3.948	77.2	67.7	72.4
17089.6	65.3	3.852	73.9	63.3	68.6
17142.4	71.6	4.084	82.5	66.3	74.4
17195.2	45.7	3.902	48.1	50.9	49.5
17248.0	76.4	3.895	88.7	68.7	78.7
17300.8	56.8	3.821	62.5	55.0	58.8
17353.6	60.8	3.834	72.0	53.2	62.6
17406.4	54.1	3.882	56.1	58.1	57.1
17459.2	97.3	3.515	107.3	91.1	99.2
17512.0	80.2	3.756	89.4	79.8	84.6
17564.8	71.4	3.949	78.1	70.3	74.2
17617.6	67.7	3.740	72.8	71.1	71.9
17670.4	68.7	3.785	73.5	80.4	77.0
17723.2	81.1	3.695	92.9	74.5	83.7
17776.0	63.6	4.096	68.1	61.3	64.7

LANE 1 PASS 2 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15400.0					
15452.8	57.6	3.879	59.3	62.2	60.8
15505.6	125.4	2.849	127.6	129.9	128.7
15558.4	76.9	3.678	72.4	88.0	80.2
15611.2	94.0	3.476	94.5	96.7	95.6
15664.0	91.5	3.516	101.8	95.1	98.4
15716.8	79.2	3.496	87.9	85.7	86.8
15769.6	61.5	3.874	62.9	67.1	65.0
15822.4	42.1	4.067	47.7	41.9	44.8
15875.2	39.1	4.143	43.9	40.9	42.4
15928.0	45.5	4.043	46.5	49.8	48.1
15980.8	57.0	4.023	58.8	60.2	59.5
16033.6	59.1	3.818	61.4	60.5	60.9
16086.4	58.6	3.928	63.1	60.9	62.0
16139.2	69.1	3.753	67.7	76.7	72.2
16192.0	43.3	4.158	50.3	44.5	47.4
16244.8	50.5	3.931	53.5	56.3	54.9
16297.6	60.9	3.964	65.6	59.3	62.5
16350.4	59.2	3.765	65.5	60.7	63.1
16403.2	53.8	4.106	58.8	52.7	55.7
16456.0	47.7	4.036	56.2	53.3	54.8
16508.8	45.6	4.267	47.4	48.4	47.9
16561.6	62.9	3.795	75.7	59.5	67.6
16614.4	55.2	4.089	63.8	51.7	57.8
16667.2	67.5	3.716	67.6	75.4	71.5
16720.0	42.5	4.120	57.8	43.3	50.5
16772.8	47.8	4.086	53.7	45.1	49.4
16825.6	48.3	3.994	54.2	49.0	51.6
16878.4	71.9	3.633	69.6	80.5	75.1
16931.2	74.4	3.802	83.1	68.9	76.0
16984.0	53.4	3.964	53.6	57.4	55.5
17036.8	73.7	3.965	81.2	72.7	76.9
17089.6	62.2	3.974	69.8	61.9	65.9
17142.4	73.1	4.044	81.4	65.6	73.5
17195.2	42.5	3.927	46.9	44.1	45.5
17248.0	77.7	3.885	85.3	73.0	79.2
17300.8	55.2	3.812	60.1	58.5	59.3
17353.6	59.7	3.877	69.9	54.2	62.1
17406.4	51.1	3.902	57.7	57.4	57.5
17459.2	98.8	3.519	103.4	97.8	100.6
17512.0	79.9	3.770	88.6	78.0	83.3
17564.8	72.8	3.957	75.2	76.4	75.8
17617.6	69.2	3.692	67.5	77.5	72.5
17670.4	64.5	3.808	71.6	67.6	69.6
17723.2	76.1	3.775	87.7	70.5	79.1
17776.0	62.8	4.101	64.2	63.0	63.6

LANE 1 PASS 3 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15400.0					
15452.8	58.6	3.894	55.8	65.4	60.6
15505.6	121.7	3.006	119.7	128.4	124.0
15558.4	69.8	3.752	63.8	81.1	72.5
15611.2	77.4	3.757	64.6	97.7	81.2
15664.0	89.8	3.526	83.8	100.1	91.9
15716.8	79.6	3.530	81.5	87.8	84.7
15769.6	59.6	3.879	58.1	68.6	63.4
15822.4	41.4	4.080	48.3	41.0	44.7
15875.2	40.2	4.124	48.2	43.2	45.7
15928.0	45.0	4.109	48.2	48.0	48.1
15980.8	56.2	3.919	62.6	56.6	59.6
16033.6	64.6	3.804	63.6	70.2	66.9
16086.4	57.0	3.948	59.8	65.3	62.5
16139.2	70.0	3.725	71.4	77.0	74.2
16192.0	44.2	4.123	52.7	44.1	48.4
16244.8	49.8	3.933	46.9	55.4	51.1
16297.6	59.5	3.970	62.5	59.1	60.8
16350.4	63.0	3.779	64.0	68.5	66.3
16403.2	48.8	4.142	54.9	46.2	50.6
16456.0	48.5	4.048	50.6	53.7	52.2
16508.8	43.6	4.275	46.8	48.8	47.8
16561.6	65.1	3.812	77.8	58.3	68.1
16614.4	55.6	4.075	58.9	59.1	59.0
16667.2	62.1	3.824	62.4	65.8	64.1
16720.0	47.7	4.026	52.9	51.9	52.4
16772.8	40.8	4.124	45.2	40.6	42.9
16825.6	44.5	4.046	50.0	44.6	47.3
16878.4	74.8	3.512	74.1	84.9	79.5
16931.2	75.1	3.696	79.3	77.6	78.4
16984.0	54.7	3.922	58.3	58.1	58.2
17036.8	70.2	3.841	81.1	65.3	73.2
17089.6	67.2	3.796	76.1	64.5	70.3
17142.4	68.8	4.043	81.3	63.3	72.3
17195.2	43.8	3.844	48.8	47.2	48.0
17248.0	72.3	3.955	83.3	65.1	74.2
17300.8	51.5	3.892	59.0	49.1	54.0
17353.6	59.6	3.929	70.3	51.8	61.1
17406.4	50.8	3.896	59.7	48.2	54.0
17459.2	94.9	3.534	96.9	100.7	98.8
17512.0	75.7	3.834	86.6	73.8	80.2
17564.8	71.8	3.946	74.5	74.0	74.2
17617.6	66.5	3.786	69.4	71.6	70.5
17670.4	67.4	3.806	77.6	65.7	71.6
17723.2	75.0	3.782	84.8	73.3	79.1
17776.0	60.3	4.144	65.0	57.0	61.0

17828.8	43.4	4.179	51.3	46.0	48.6	17828.8	41.8	4.207	47.2	48.0	47.6	17828.8	44.2	4.197	46.2	51.5	48.9
17881.6	62.4	3.953	73.2	57.9	65.6	17881.6	64.6	3.997	72.9	58.7	65.8	17881.6	61.3	3.991	67.1	58.7	62.9
17934.4	53.3	4.059	61.6	49.5	55.5	17934.4	48.3	4.101	55.2	45.9	50.5	17934.4	53.4	4.020	63.1	49.7	56.4
17987.2	76.1	3.912	87.8	68.6	78.2	17987.2	75.5	3.927	89.0	66.6	77.8	17987.2	70.0	3.929	81.1	65.4	73.2
18040.0	58.2	4.111	65.2	58.4	61.8	18040.0	54.9	4.116	66.5	50.5	58.5	18040.0	53.7	4.149	60.5	52.6	56.6
18092.8	65.2	3.893	66.0	71.4	68.7	18092.8	72.6	3.780	78.8	73.9	76.3	18092.8	67.8	3.864	71.6	70.8	71.2
18145.6	73.1	3.841	75.7	75.4	75.5	18145.6	70.5	3.824	81.3	67.1	74.2	18145.6	68.9	3.895	77.1	66.3	71.7
18198.4	79.7	4.063	80.5	83.2	81.8	18198.4	74.7	4.098	77.6	73.7	75.6	18198.4	75.8	4.069	77.1	77.9	77.5
18251.2	57.4	3.865	68.6	52.1	60.3	18251.2	54.8	3.874	65.6	50.5	58.1	18251.2	54.9	3.894	69.7	45.8	57.8
18304.0	59.7	4.159	65.3	57.7	61.5	18304.0	59.8	4.166	66.8	56.4	61.6	18304.0	57.6	4.169	64.1	55.6	59.8
18356.8	73.9	4.042	81.2	69.1	75.1	18356.8	70.6	4.070	76.8	67.8	72.3	18356.8	70.0	4.059	75.8	66.8	71.3
18409.6	54.5	4.124	62.2	51.8	57.0	18409.6	52.9	4.175	58.9	52.8	55.9	18409.6	53.4	4.152	57.1	53.7	55.4
18462.4	66.0	3.976	71.2	63.2	67.2	18462.4	66.8	3.990	71.2	64.1	67.6	18462.4	63.7	4.047	66.8	62.2	64.5
18515.2	59.5	3.977	67.0	57.3	62.1	18515.2	59.0	3.970	62.3	61.5	61.9	18515.2	63.4	3.921	64.3	64.4	64.3
18568.0	54.9	4.029	58.1	56.7	57.4	18568.0	59.7	4.002	66.4	60.1	63.2	18568.0	59.6	4.008	65.4	56.9	61.2
18620.8	113.4	3.730	113.3	114.6	113.9	18620.8	104.8	3.764	107.5	104.8	106.2	18620.8	120.6	3.229	149.1	98.8	124.0
18673.6	83.0	3.716	84.8	86.5	85.7	18673.6	79.9	3.800	86.0	86.1	86.1	18673.6	82.3	3.825	81.4	90.2	85.8
18726.4	67.1	3.908	72.7	79.7	76.2	18726.4	72.4	3.916	75.4	85.5	80.5	18726.4	70.4	3.921	74.0	83.9	78.9
18779.2	67.7	3.806	74.7	66.3	70.5	18779.2	63.9	3.885	67.1	63.5	65.3	18779.2	72.9	3.621	67.2	84.9	76.1
18832.0	57.0	4.117	60.0	60.1	60.0	18832.0	53.5	4.098	57.4	60.3	58.9	18832.0	52.4	4.152	54.5	61.5	58.0
18884.8	74.4	4.016	81.9	68.3	75.1	18884.8	72.6	3.985	76.7	72.8	74.7	18884.8	66.4	4.071	74.5	61.9	68.2
18937.6	53.5	4.075	58.7	49.9	54.3	18937.6	47.1	4.069	52.8	47.4	50.1	18937.6	49.8	4.071	54.2	54.9	54.5
18990.4	59.2	4.080	67.6	56.4	62.0	18990.4	54.3	4.192	63.4	50.6	57.0	18990.4	50.1	4.220	56.8	48.5	52.7
19043.2	59.0	4.184	62.5	63.6	63.0	19043.2	58.8	4.235	58.9	63.2	61.0	19043.2	58.9	4.250	58.6	62.5	60.5
19096.0	92.7	3.519	104.6	87.0	95.8	19096.0	84.4	3.605	96.5	77.2	86.9	19096.0	86.1	3.695	94.8	81.1	88.0
19148.8	79.3	3.866	82.1	78.9	80.5	19148.8	71.8	3.918	82.6	65.7	74.1	19148.8	72.3	3.955	76.8	69.8	73.3
19201.6	76.9	3.955	86.9	69.1	78.0	19201.6	72.7	3.839	86.9	62.0	74.5	19201.6	69.7	3.973	74.8	65.9	70.4
19254.4	90.8	3.754	95.2	88.7	91.9	19254.4	86.2	3.747	93.4	83.2	88.3	19254.4	85.6	3.830	91.3	86.3	88.8
19307.2	67.4	3.856	78.2	62.9	70.6	19307.2	70.7	3.773	81.4	64.1	72.7	19307.2	64.5	3.912	74.6	60.8	67.7
19360.0	69.5	3.711	75.1	70.5	72.8	19360.0	57.9	3.805	67.9	61.1	64.5	19360.0	66.3	3.737	71.4	70.2	70.8
19412.8	76.4	3.983	75.4	78.8	77.1	19412.8	72.1	3.904	74.5	74.2	74.3	19412.8	70.3	4.037	73.3	71.4	72.3
19465.6	74.6	3.736	78.4	80.4	79.4	19465.6	77.5	3.811	80.6	82.0	81.3	19465.6	74.4	3.837	75.1	79.6	77.4
19518.4	80.0	3.700	80.2	81.9	81.1	19518.4	66.0	3.857	75.4	69.2	72.3	19518.4	71.2	3.934	77.8	68.3	73.0
19571.2	69.8	3.741	72.5	71.5	72.0	19571.2	52.0	3.984	59.3	64.6	61.9	19571.2	55.1	3.893	60.8	60.6	60.7
19624.0	49.6	4.004	55.3	50.9	53.1	19624.0	43.1	4.044	46.8	48.0	47.4	19624.0	41.8	4.064	43.6	46.4	45.0
19676.8	51.3	4.048	54.5	56.6	55.6	19676.8	51.4	4.131	48.0	61.4	54.7	19676.8	47.3	4.087	54.8	52.5	53.6
19729.6	62.7	3.943	70.0	63.1	66.5	19729.6	61.1	3.983	63.3	60.2	61.7	19729.6	65.0	3.911	64.1	66.4	65.3
19782.4	55.1	3.808	62.4	63.5	63.0	19782.4	56.5	3.874	60.2	59.0	59.6	19782.4	55.5	3.911	61.8	58.3	60.1
19835.2	53.5	3.792	64.7	50.1	57.4	19835.2	54.2	3.887	56.7	55.6	56.2	19835.2	51.3	3.860	53.5	53.6	53.6
19888.0	60.2	3.915	71.1	55.7	63.4	19888.0	59.1	3.911	67.4	61.2	64.3	19888.0	57.1	3.897	68.8	56.2	62.5
19940.8	101.5	3.993	114.2	91.4	102.8	19940.8	104.0	3.994	113.4	95.8	104.6	19940.8	105.7	3.979	117.1	100.2	108.6
19993.6	77.9	3.865	84.8	72.6	78.7	19993.6	73.8	4.065	77.1	74.2	75.6	19993.6	74.6	4.052	79.5	73.0	76.3
20046.4	55.4	4.140	57.7	59.2	58.4	20046.4	59.0	4.010	52.8	73.0	62.9	20046.4	53.7	4.112	56.8	54.1	55.4
20099.2	76.1	3.592	88.6	71.0	79.8	20099.2	72.2	3.616	80.4	75.8	78.1	20099.2	85.9	3.585	85.0	91.9	88.5
20152.0	66.3	3.823	70.0	69.6	69.8	20152.0	61.6	3.813	62.7	71.3	67.0	20152.0	60.4	3.859	68.8	60.6	64.7
20204.8	81.2	3.563	91.6	85.8	88.7	20204.8	86.3	3.523	93.9	98.2	96.0	20204.8	83.1	3.695	89.7	92.1	90.9
20257.6	58.6	3.881	65.5	62.6	64.0	20257.6	54.5	3.929	62.5	58.3	60.4	20257.6	58.9	3.883	58.1	69.8	64.0
20310.4	56.5	4.080	56.8	65.4	61.1	20310.4	56.9	4.053	53.7	63.1	58.4	20310.4	63.9	3.908	59.1	70.9	65.0
20363.2	72.3	3.836	79.2	69.5	74.3	20363.2	74.0	3.792	76.4	77.8	77.1	20363.2	80.0	3.628	79.3	83.9	81.6
20416.0	54.8	4.084	60.4	59.9	60.2	20416.0	54.4	4.099	58.8	59.0	58.9	20416.0	51.4	4.130	57.7	54.2	56.0
20468.8	50.6	3.952	61.1	47.2	54.2	20468.8	46.3	4.005	54.2	47.0	50.6	20468.8	50.9	4.009	58.9	49.4	54.2
20521.6	61.5	3.955	69.0	60.0	64.5	20521.6	59.3	3.891	62.8	60.3	61.6	20521.6	62.0	3.917	63.1	66.6	64.8
20574.4	53.4	3.880	54.1	59.2	56.7	20574.4	54.8	3.847	53.7	62.5	58.1	20574.4	50.2	3.877	52.4	55.6	54.0
20627.2	55.8	4.141	64.6	51.9	58.2	20627.2	56.0	4.124	65.9	53.1	59.5	20627.2	56.2	4.139	64.1	52.6	58.4
20680.0	52.7	4.066	59.5	50.5	55.0	20680.0	49.0	4.089	57.4	45.9	51.6	20680.0	48.8	4.083	55.8	48.6	52.2
20732.8	70.2	4.076	72.6	70.4	71.5	20732.8	71.2	4.110	75.3	70.2	72.7	20732.8	70.9	4.053	71.6	74.6	73.1
20785.6	81.2	3.955	89.7	76.2	83.0	20785.6	79.3	3.952	89.1	73.8	81.5	20785.6	83.6	3.846	97.8	72.7	85.3

20838.4	67.2	4.007	69.2	66.6	67.9
20891.2	75.0	3.726	84.8	71.0	77.9
20944.0	53.1	4.154	59.3	54.9	57.1
20996.8	81.5	3.905	88.6	77.3	82.9
21049.6	61.8	4.125	70.2	58.9	64.5
21102.4	58.2	3.983	65.1	59.0	62.0
21155.2	82.8	3.925	87.7	81.5	84.6
21208.0	82.0	3.861	93.7	73.4	83.6
21260.8	58.3	4.060	62.2	65.6	63.9
21313.6	67.8	4.105	70.8	68.6	69.7
21366.4	67.0	4.040	78.8	63.6	71.2
21419.2	61.5	4.041	62.0	67.2	64.6
21472.0	40.1	4.153	52.9	40.2	46.5
21524.8	60.5	4.002	66.1	59.2	62.7
21577.6	85.4	4.205	79.9	93.1	86.5
21630.4	53.2	4.036	58.4	55.1	56.7
21683.2	66.8	3.933	74.4	62.2	68.3
21736.0	65.3	3.960	73.8	61.1	67.4
21788.8	60.4	4.099	56.9	68.0	62.4
21841.6	76.0	3.848	85.4	72.7	79.1
21894.4	61.7	4.018	70.0	60.7	65.4
21947.2	52.4	3.954	56.3	60.2	58.3
22000.0	79.5	3.894	84.5	81.5	83.0
22052.8	54.6	3.834	56.0	61.6	58.8
22105.6	70.5	3.966	80.6	64.9	72.7
22158.4	68.0	3.747	75.4	66.9	71.2
22211.2	69.4	3.804	76.4	69.9	73.1
22264.0	63.7	3.886	68.2	63.5	65.8
22316.8	57.9	3.986	55.6	63.6	59.6
22369.6	57.8	3.943	71.1	51.1	61.1
22422.4	64.7	3.768	70.7	63.9	67.3
22475.2	94.3	3.762	101.8	87.6	94.7
22528.0	60.5	3.908	59.5	66.3	62.9
22580.8	59.7	3.972	60.0	63.8	61.9
22633.6	57.9	4.003	59.0	62.1	60.6
22686.4	52.4	3.969	54.6	52.6	53.6
22739.2	57.8	4.047	69.2	56.5	62.8
22792.0	58.9	3.969	64.2	58.3	61.2
22844.8	58.5	3.831	57.0	67.5	62.2
22897.6	72.1	3.744	76.4	77.3	76.8
22950.4	65.4	3.840	77.3	59.6	68.4
23003.2	88.3	4.066	92.4	93.7	93.1
23056.0	67.2	4.151	62.8	75.5	69.1
23108.8	37.8	4.130	45.2	44.0	44.6
23161.6	70.7	4.072	77.1	71.8	74.5
23214.4	72.6	3.964	77.4	73.2	75.3
23267.2	92.0	3.741	100.1	92.4	96.3
23320.0	69.8	4.012	81.7	66.1	73.9
23372.8	75.5	3.766	89.2	68.8	79.0
23425.6	61.1	4.146	73.8	50.5	62.1
23478.4	79.5	3.937	97.8	63.3	80.6
23531.2	57.7	4.109	68.9	60.8	64.9
23584.0	90.4	4.016	94.5	97.3	95.9
23636.8	119.4	3.442	120.3	126.7	123.5
23689.6	84.6	3.785	87.3	90.8	89.1
23742.4	61.9	3.828	75.1	61.5	68.3
23795.2	67.3	3.814	73.4	67.2	70.3

20838.4	70.1	3.981	73.1	70.7	71.9
20891.2	72.3	3.726	86.5	64.3	75.4
20944.0	51.5	4.183	57.0	50.9	54.0
20996.8	79.7	3.866	87.8	77.1	82.4
21049.6	61.5	4.102	69.7	59.7	64.7
21102.4	55.6	4.002	58.7	63.7	61.2
21155.2	84.6	3.903	93.0	81.9	87.4
21208.0	76.6	3.919	85.3	70.7	78.0
21260.8	60.1	4.064	60.8	67.8	64.3
21313.6	62.2	4.169	63.6	66.2	64.9
21366.4	66.1	4.068	76.9	63.3	70.1
21419.2	61.0	4.016	65.9	64.4	65.2
21472.0	41.9	4.200	52.9	41.8	47.3
21524.8	56.4	4.076	60.9	60.2	60.6
21577.6	86.2	4.184	80.7	94.1	87.4
21630.4	50.8	4.049	55.2	52.5	53.9
21683.2	66.6	3.950	70.8	66.2	68.5
21736.0	65.1	3.977	72.6	62.4	67.5
21788.8	57.8	4.169	51.3	68.4	59.8
21841.6	79.7	3.766	84.3	77.0	80.7
21894.4	59.8	4.057	72.1	55.8	63.9
21947.2	48.4	4.020	47.3	60.3	53.8
22000.0	80.1	3.865	84.3	84.4	84.4
22052.8	57.7	3.775	61.3	61.9	61.6
22105.6	75.7	3.831	83.3	72.4	77.8
22158.4	60.4	3.625	73.5	59.9	66.7
22211.2	70.2	3.687	86.5	66.8	76.7
22264.0	64.3	3.864	68.9	62.8	65.9
22316.8	54.9	4.044	54.0	58.5	56.3
22369.6	59.7	3.891	71.6	54.0	62.8
22422.4	64.8	3.806	69.6	68.0	68.8
22475.2	92.0	3.638	99.1	87.9	93.5
22528.0	72.0	3.689	66.1	83.1	74.6
22580.8	53.2	4.053	60.7	56.9	58.8
22633.6	65.2	3.878	64.7	69.5	67.1
22686.4	47.3	4.029	49.1	48.0	48.5
22739.2	58.6	4.031	69.2	54.1	61.6
22792.0	58.3	4.073	61.5	59.5	60.5
22844.8	60.4	3.765	61.8	67.3	64.5
22897.6	74.8	3.738	76.6	82.0	79.3
22950.4	64.1	3.743	69.0	67.8	68.4
23003.2	89.6	4.042	92.5	92.0	92.3
23056.0	65.8	4.110	63.7	73.7	68.7
23108.8	35.3	4.119	44.2	46.2	45.2
23161.6	67.2	4.041	74.3	70.9	72.6
23214.4	69.7	4.007	78.4	67.8	73.1
23267.2	91.4	3.712	102.5	90.1	96.3
23320.0	69.3	4.034	79.7	65.5	72.6
23372.8	74.9	3.789	88.2	70.1	79.1
23425.6	61.0	4.232	72.8	51.5	62.2
23478.4	77.7	3.957	94.7	62.2	78.5
23531.2	56.6	4.119	62.7	59.6	61.2
23584.0	88.8	3.982	97.9	95.0	96.4
23636.8	120.1	3.363	125.9	125.6	125.8
23689.6	80.4	3.883	85.8	83.3	84.6
23742.4	52.1	3.946	61.2	54.4	57.8
23795.2	59.0	4.010	69.4	52.8	61.1

20838.4	67.5	3.995	67.9	69.5	68.7
20891.2	73.2	3.743	85.3	66.0	75.7
20944.0	47.3	4.205	54.8	45.3	50.0
20996.8	79.0	3.910	87.9	74.2	81.0
21049.6	61.2	4.168	70.5	57.1	63.8
21102.4	53.6	3.984	58.2	56.5	57.3
21155.2	81.2	3.950	87.6	78.8	83.2
21208.0	75.5	3.941	84.6	67.9	76.3
21260.8	59.7	4.037	61.4	64.9	63.1
21313.6	56.1	4.141	53.9	61.3	57.6
21366.4	67.5	4.036	73.7	64.3	69.0
21419.2	62.9	3.985	69.5	60.8	65.1
21472.0	40.0	4.273	48.8	40.8	44.8
21524.8	55.1	4.033	58.5	56.6	57.6
21577.6	90.3	4.154	86.6	96.7	91.7
21630.4	47.6	4.071	52.0	48.9	50.5
21683.2	66.1	3.965	69.4	65.1	67.2
21736.0	67.5	3.693	63.7	80.6	72.2
21788.8	58.0	4.155	56.3	66.6	61.5
21841.6	75.9	3.785	82.9	75.0	78.9
21894.4	60.9	4.051	71.3	56.3	63.8
21947.2	46.8	4.097	43.0	60.0	51.5
22000.0	76.3	3.852	81.3	76.9	79.1
22052.8	55.1	3.841	62.9	56.9	59.9
22105.6	68.4	3.957	76.3	65.9	71.1
22158.4	64.8	3.745	74.4	60.1	67.2
22211.2	68.0	3.769	83.1	63.5	73.3
22264.0	60.8	3.903	65.2	62.0	63.6
22316.8	56.6	3.994	54.8	61.2	58.0
22369.6	56.6	3.985	68.0	51.1	59.5
22422.4	67.9	3.784	77.5	63.4	70.4
22475.2	85.1	3.837	91.5	80.6	86.0
22528.0	68.7	3.745	69.5	74.2	71.9
22580.8	53.2	4.087	56.1	56.8	56.4
22633.6	59.1	3.988	61.0	62.6	61.8
22686.4	45.5	4.118	46.8	46.9	46.8
22739.2	59.9	3.873	67.7	59.2	63.4
22792.0	61.5	4.066	64.4	63.0	63.7
22844.8	55.8	3.865	58.9	61.1	60.0
22897.6	70.8	3.873	78.3	72.9	75.6
22950.4	59.0	3.946	68.0	58.1	63.0
23003.2	87.4	4.113	92.7	89.2	90.9
23056.0	64.7	4.085	60.4	74.1	67.2
23108.8	35.8	4.104	42.6	43.5	43.1
23161.6	69.0	4.120	72.6	70.4	71.5
23214.4	72.4	3.918	78.7	73.3	76.0
23267.2	89.8	3.658	96.3	89.8	93.0
23320.0	74.1	3.962	82.5	72.8	77.7
23372.8	73.5	3.823	88.1	66.0	77.0
23425.6	61.2	4.246	76.7	48.0	62.3
23478.4	74.0	4.013	91.8	59.1	75.5
23531.2	62.0	4.013	70.7	67.2	68.9
23584.0	84.5	4.061	86.7	94.9	90.8
23636.8	116.9	3.310	116.1	132.6	124.4
23689.6	94.2	3.726	92.9	107.7	100.3
23742.4	55.2	3.856	68.8	58.2	63.5
23795.2	58.8	3.993	67.5	53.5	60.5

23848.0	63.0	3.922	74.9	55.7	65.3
23900.8	39.6	4.222	49.7	35.8	42.7
23953.6	53.3	4.025	59.9	48.5	54.2
24006.4	63.9	3.855	67.2	65.0	66.1
24059.2	56.2	3.904	57.5	62.0	59.7
24112.0	69.0	3.915	73.5	67.4	70.5
24164.8	46.1	4.088	40.5	55.4	48.0
24217.6	58.0	4.031	73.3	52.4	62.8
24270.4	46.7	4.137	54.2	46.6	50.4
24323.2	57.6	3.835	56.8	63.9	60.3
24376.0	53.6	4.145	64.0	53.4	58.7
24428.8	49.7	4.173	60.9	45.1	53.0
24481.6	71.3	4.230	70.4	76.4	73.4
24534.4	45.9	4.255	50.5	44.5	47.5
24587.2	45.2	4.116	48.3	48.5	48.4
24640.0	54.2	4.047	63.5	47.7	55.6
24692.8	64.7	3.956	70.2	62.2	66.2
24745.6	49.3	4.104	58.8	56.3	57.6
24798.4	56.1	4.026	68.9	52.8	60.9
24851.2	54.3	4.035	59.3	52.8	56.1
24904.0	54.8	3.959	62.9	56.4	59.6
24956.8	67.5	3.912	68.2	77.5	72.9
25009.6	74.4	3.812	80.5	69.4	75.0
25062.4	42.2	3.988	50.9	37.4	44.2
25115.2	76.3	3.891	85.0	72.0	78.5
25168.0	93.9	3.639	102.2	98.4	100.3
25220.8	82.7	3.963	107.2	68.0	87.6
25273.6	54.6	4.104	62.5	54.4	58.5
25326.4	46.4	3.917	57.8	40.3	49.0
25379.2	53.8	4.007	65.9	46.2	56.1
25432.0	48.9	4.192	58.6	43.4	51.0
25484.8	49.9	4.026	60.4	42.2	51.3
25537.6	52.7	4.253	58.0	55.3	56.6
25590.4	55.9	3.924	64.6	55.6	60.1
25643.2	63.5	4.102	69.1	60.2	64.7
25696.0	85.8	3.962	91.1	82.8	87.0
25748.8	63.2	3.955	79.1	55.1	67.1
25801.6	62.7	4.042	71.9	60.4	66.1
25854.4	59.6	4.038	58.5	65.2	61.8
25907.2	66.7	3.863	83.5	57.9	70.7
25960.0	65.6	4.055	70.9	65.9	68.4
26012.8	58.5	4.044	66.5	58.0	62.2
26065.6	57.5	4.004	60.4	61.3	60.9
26118.4	81.7	3.554	85.8	87.6	86.7
26171.2	64.3	3.878	73.4	58.5	65.9
26224.0	67.0	3.741	72.4	69.1	70.8
26276.8	57.9	3.985	65.5	59.6	62.5
26329.6	88.2	3.767	98.6	84.3	91.5
26382.4	113.2	3.757	116.8	118.0	117.4
26435.2	138.7	3.587	142.9	146.3	144.6
26488.0	95.8	3.916	107.7	103.3	105.5
26540.8	82.5	3.708	85.2	89.4	87.3
26593.6	57.7	3.964	70.8	53.3	62.1
26646.4	93.5	3.562	103.7	87.0	95.4
26699.2	63.7	3.911	71.4	66.3	68.9
26752.0	80.4	3.723	98.6	72.8	85.7
26804.8	55.8	4.000	48.0	66.4	57.2

23848.0	52.8	4.101	65.4	44.7	55.0
23900.8	37.2	4.183	47.2	35.5	41.3
23953.6	41.9	4.067	59.9	32.7	46.3
24006.4	50.4	3.941	69.1	48.6	58.9
24059.2	47.8	3.837	55.1	46.5	50.8
24112.0	66.2	3.965	72.6	65.7	69.2
24164.8	35.0	4.219	36.7	40.2	38.4
24217.6	39.5	4.174	61.2	38.7	49.9
24270.4	40.1	4.246	51.7	38.0	44.9
24323.2	39.1	3.973	50.9	47.9	49.4
24376.0	43.5	4.148	61.6	31.7	46.6
24428.8	38.0	4.237	47.9	37.6	42.8
24481.6	70.8	4.079	78.9	69.3	74.1
24534.4	43.9	4.295	49.5	44.9	47.2
24587.2	40.2	4.213	43.7	44.7	44.2
24640.0	45.7	4.090	59.3	42.0	50.6
24692.8	57.8	4.030	68.7	60.1	64.4
24745.6	50.7	4.134	56.4	56.6	56.5
24798.4	52.3	4.085	51.7	56.1	53.9
24851.2	56.7	3.968	64.6	53.7	59.2
24904.0	56.7	3.942	60.2	59.5	59.9
24956.8	77.5	3.802	64.8	95.0	79.9
25009.6	79.6	3.718	84.3	76.6	80.5
25062.4	43.3	4.046	48.4	44.6	46.5
25115.2	78.2	3.881	85.4	74.1	79.7
25168.0	95.0	3.642	104.6	100.1	102.3
25220.8	84.2	3.898	102.9	72.5	87.7
25273.6	57.5	4.069	68.4	55.5	62.0
25326.4	49.2	3.936	59.6	45.5	52.6
25379.2	52.3	4.026	59.4	52.3	55.9
25432.0	48.7	4.231	54.1	47.4	50.8
25484.8	53.2	4.024	62.5	48.3	55.4
25537.6	59.0	4.150	66.4	57.7	62.1
25590.4	61.8	3.798	57.6	70.2	63.9
25643.2	62.6	4.131	71.0	59.1	65.1
25696.0	86.4	4.010	94.3	80.9	87.6
25748.8	71.7	3.847	85.8	64.9	75.4
25801.6	64.2	3.993	71.5	60.2	65.8
25854.4	60.1	4.092	59.5	67.5	63.5
25907.2	74.9	3.807	92.5	65.9	79.2
25960.0	71.6	4.115	76.6	70.5	73.5
26012.8	59.1	4.050	64.0	59.6	61.8
26065.6	61.4	3.936	62.4	67.1	64.7
26118.4	83.7	3.556	83.6	93.7	88.7
26171.2	59.1	3.926	71.8	52.0	61.9
26224.0	69.3	3.775	78.1	65.5	71.8
26276.8	62.4	3.997	65.0	64.1	64.5
26329.6	96.9	3.727	104.0	95.2	99.6
26382.4	110.4	3.794	116.0	118.3	117.1
26435.2	140.2	3.493	143.9	151.7	147.8
26488.0	98.2	3.849	108.0	104.3	106.2
26540.8	78.9	3.762	80.8	86.2	83.5
26593.6	59.5	3.984	70.5	55.7	63.1
26646.4	88.4	3.600	98.6	82.2	90.4
26699.2	64.2	3.924	73.3	64.5	68.9
26752.0	82.5	3.704	93.3	76.6	84.9
26804.8	52.9	4.148	47.5	61.4	54.4

23848.0	53.9	4.005	65.0	46.8	55.9
23900.8	37.0	4.215	43.0	37.1	40.0
23953.6	49.3	3.983	58.7	44.0	51.4
24006.4	66.1	3.805	69.1	69.0	69.1
24059.2	58.5	3.923	60.0	61.4	60.7
24112.0	66.5	3.906	64.7	73.9	69.3
24164.8	40.2	4.187	38.3	47.5	42.9
24217.6	46.6	4.039	65.4	40.5	52.9
24270.4	40.9	4.285	49.8	39.9	44.8
24323.2	54.8	3.855	53.3	63.0	58.1
24376.0	54.3	4.158	65.4	45.9	55.7
24428.8	50.3	4.146	59.2	48.8	54.0
24481.6	67.3	4.236	70.2	72.3	71.3
24534.4	46.1	4.274	47.1	48.9	48.0
24587.2	46.2	4.151	51.1	47.8	49.4
24640.0	54.9	4.042	59.6	53.8	56.7
24692.8	61.8	4.010	71.5	64.6	68.1
24745.6	50.8	4.105	55.2	56.7	55.9
24798.4	51.7	4.069	57.1	50.2	53.7
24851.2	54.5	3.989	60.6	52.5	56.5
24904.0	56.0	3.904	61.2	59.3	60.3
24956.8	73.7	3.855	64.2	91.8	78.0
25009.6	78.7	3.763	82.6	77.2	79.9
25062.4	46.8	3.881	51.1	51.8	51.4
25115.2	74.2	3.856	80.9	73.5	77.2
25168.0	93.4	3.602	103.7	108.4	106.1
25220.8	76.8	3.972	96.9	63.5	80.2
25273.6	54.3	4.070	62.5	53.2	57.8
25326.4	50.7	3.945	57.4	46.9	52.1
25379.2	48.6	4.054	55.0	46.7	50.8
25432.0	48.2	4.261	55.2	45.9	50.5
25484.8	55.3	3.963	65.3	52.2	58.8
25537.6	56.9	4.171	62.5	58.7	60.6
25590.4	66.9	3.718	61.3	77.2	69.2
25643.2	63.6	4.074	70.1	62.7	66.4
25696.0	84.4	4.007	92.9	77.7	85.3
25748.8	70.5	3.933	79.5	67.6	73.6
25801.6	64.0	3.992	67.4	63.1	65.3
25854.4	61.9	4.062	62.5	68.8	65.6
25907.2	76.3	3.851	93.4	66.0	79.7
25960.0	69.2	4.183	69.0	72.3	70.7
26012.8	67.7	3.926	75.1	65.8	70.5
26065.6	62.6	3.940	62.8	66.1	64.5
26118.4	86.2	3.540	90.1	90.0	90.1
26171.2	69.2	3.802	79.8	60.8	70.3
26224.0	75.1	3.719	79.6	76.4	78.0
26276.8	66.9	3.895	66.9	73.0	69.9
26329.6	105.1	3.652	113.6	99.7	106.6
26382.4	107.3	3.760	117.0	108.9	112.9
26435.2	136.7	3.575	142.1	144.2	143.1
26488.0	95.9	3.928	108.1	103.4	105.7
26540.8	82.4	3.713	85.9	88.9	87.4
26593.6	58.7	4.036	72.8	54.5	63.6
26646.4	92.9	3.579	106.4	84.0	95.2
26699.2	65.2	3.853	71.4	67.6	69.5
26752.0	83.9	3.721	95.7	77.9	86.8
26804.8	55.0	4.063	49.3	64.6	56.9

26857.6	63.7	3.868	65.1	66.2	65.6	26857.6	66.3	3.827	59.3	74.8	67.0	26857.6	66.0	3.855	64.9	68.8	66.8
26910.4	61.6	3.902	67.7	59.6	63.7	26910.4	68.7	3.785	69.9	71.5	70.7	26910.4	62.8	3.912	68.4	60.6	64.5
26963.2	79.1	3.714	75.5	84.4	79.9	26963.2	74.2	3.692	74.2	76.0	75.1	26963.2	75.1	3.674	73.9	77.8	75.8
27016.0	50.5	3.984	56.5	56.7	56.6	27016.0	51.4	3.981	56.2	56.8	56.5	27016.0	54.7	3.831	56.4	60.0	58.2
27068.8	54.3	4.012	55.3	57.1	56.2	27068.8	56.7	4.013	58.9	58.8	58.9	27068.8	58.6	3.997	57.0	63.1	60.0
27121.6	59.8	4.067	62.1	61.3	61.7	27121.6	56.9	4.112	60.3	56.6	58.5	27121.6	59.0	4.094	58.2	62.7	60.5
27174.4	58.8	3.893	62.9	60.6	61.7	27174.4	58.8	3.952	62.5	58.9	60.7	27174.4	67.6	3.867	72.1	65.0	68.5
27227.2	64.8	4.070	74.6	65.7	70.1	27227.2	66.3	4.069	77.2	70.0	73.6	27227.2	65.5	4.074	75.3	65.7	70.5
27280.0	72.5	4.104	75.3	75.2	75.3	27280.0	76.9	4.006	80.1	82.8	81.4	27280.0	76.6	4.071	75.1	82.7	78.9
27332.8	56.1	4.091	53.4	63.8	58.6	27332.8	58.2	4.053	57.4	65.2	61.3	27332.8	66.1	3.952	63.9	71.3	67.6
27385.6	71.4	3.980	77.1	69.8	73.4	27385.6	73.2	3.945	82.3	70.3	76.3	27385.6	66.4	4.060	71.9	65.8	68.8
27438.4	52.2	4.025	54.7	55.5	55.1	27438.4	51.0	4.053	51.0	57.9	54.5	27438.4	48.4	4.096	54.0	51.8	52.9
27491.2	60.4	3.913	66.7	62.2	64.4	27491.2	66.8	3.870	75.3	64.8	70.1	27491.2	70.7	3.828	80.4	69.1	74.8
27544.0	56.2	3.986	67.1	52.4	59.8	27544.0	55.2	4.042	63.5	50.5	57.0	27544.0	54.3	4.044	63.7	50.0	56.9
27596.8	56.0	3.917	61.9	59.4	60.6	27596.8	47.7	4.078	52.9	50.8	51.9	27596.8	46.9	4.084	50.7	51.2	51.0
27649.6	72.1	3.889	79.8	69.4	74.6	27649.6	73.5	3.813	78.4	73.6	76.0	27649.6	76.5	3.815	80.2	77.7	79.0
27702.4	47.3	4.179	48.2	52.1	50.2	27702.4	41.1	4.353	43.4	44.2	43.8	27702.4	39.8	4.374	41.5	46.5	44.0
27755.2	76.6	3.948	84.0	72.2	78.1	27755.2	75.6	3.914	85.2	67.9	76.6	27755.2	72.4	3.982	81.4	67.8	74.6
27808.0	59.2	4.207	64.7	60.5	62.6	27808.0	57.6	4.261	63.7	57.3	60.5	27808.0	56.3	4.268	59.7	57.7	58.7
27860.8	67.9	4.030	75.6	69.3	72.4	27860.8	64.9	4.103	72.3	69.5	70.9	27860.8	68.2	4.004	73.9	70.8	72.4
27913.6	57.4	3.914	54.7	62.4	58.5	27913.6	62.6	3.905	65.5	62.7	64.1	27913.6	64.4	3.829	57.5	73.4	65.5
27966.4	57.6	3.976	63.3	53.9	58.6	27966.4	52.8	3.938	60.0	53.6	56.8	27966.4	49.5	4.037	54.5	47.6	51.0
28019.2	45.4	4.201	45.2	50.8	48.0	28019.2	47.9	4.166	47.5	51.8	49.6	28019.2	51.4	4.109	49.5	56.7	53.1
28072.0	70.3	3.904	68.7	74.8	71.7	28072.0	68.2	3.912	68.3	73.2	70.7	28072.0	67.6	3.962	66.2	71.3	68.7
28124.8	52.6	4.162	48.5	59.2	53.8	28124.8	48.7	4.200	46.9	53.7	50.3	28124.8	46.5	4.172	46.8	50.4	48.6
28177.6	49.8	4.078	52.5	53.7	53.1	28177.6	49.5	4.049	53.0	48.7	50.9	28177.6	50.2	4.027	55.0	49.9	52.5
28230.4	55.1	4.142	63.0	52.4	57.7	28230.4	60.5	4.060	64.5	57.7	61.1	28230.4	56.6	4.173	62.0	54.0	58.0
28283.2	46.2	4.114	53.5	47.1	50.3	28283.2	54.5	4.082	54.3	58.7	56.5	28283.2	48.4	4.114	54.0	49.3	51.6
28336.0	52.9	4.156	63.8	45.8	54.8	28336.0	50.7	4.163	61.4	46.0	53.7	28336.0	48.9	4.172	60.6	47.6	54.1
28388.8	58.0	3.847	57.4	65.5	61.4	28388.8	56.8	3.879	57.7	63.9	60.8	28388.8	57.5	3.913	55.5	65.8	60.7
28441.6	64.1	3.919	60.4	72.4	66.4	28441.6	70.7	3.809	66.8	76.5	71.6	28441.6	73.0	3.771	67.1	80.2	73.6
28494.4	43.0	4.078	47.7	41.1	44.4	28494.4	46.7	4.024	50.7	47.2	49.0	28494.4	49.8	4.067	56.1	47.6	51.9
28547.2	45.8	4.189	48.5	46.4	47.4	28547.2	47.5	4.042	47.0	52.2	49.6	28547.2	49.9	3.915	52.9	52.5	52.7
28600.0	55.2	3.995	58.0	55.1	56.6	28600.0	52.9	4.064	53.3	56.0	54.7	28600.0	55.1	4.044	54.6	58.8	56.7
28652.8	55.0	4.051	63.7	50.3	57.0	28652.8	55.8	4.058	64.5	49.4	57.0	28652.8	53.6	4.019	62.2	49.8	56.0
28705.6	68.5	4.018	71.3	71.2	71.3	28705.6	66.4	4.058	69.9	68.9	69.4	28705.6	67.9	4.017	75.8	66.1	71.0
28758.4	57.5	4.081	56.2	64.3	60.3	28758.4	51.8	4.204	55.6	56.5	56.0	28758.4	49.9	4.158	55.2	53.3	54.2
28811.2	58.3	3.992	60.1	61.5	60.8	28811.2	62.5	4.001	68.9	60.4	64.6	28811.2	60.1	3.925	62.2	63.8	63.0
28864.0	82.4	3.719	72.3	97.7	85.0	28864.0	85.8	3.760	80.8	101.2	91.0	28864.0	80.1	3.763	71.5	95.7	83.6
28916.8	61.2	3.949	57.5	76.6	67.1	28916.8	73.9	3.855	69.1	84.5	76.8	28916.8	68.8	3.821	59.8	83.1	71.4
28969.6	64.7	3.846	72.4	61.5	67.0	28969.6	68.3	3.843	74.2	65.1	69.7	28969.6	72.3	3.769	81.2	68.5	74.9
29022.4	58.1	4.069	57.7	62.1	59.9	29022.4	51.9	4.155	49.3	55.1	52.2	29022.4	55.8	4.125	51.3	61.8	56.5

October 2000 Profile Survey of Eastbound Lanes, Passing Lane (PEBOC00)

ATHENS 050 - October 2000 Tests

LANE 2 PASS 1 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15400.0					
15452.8	60.1	3.940	58.3	64.2	61.2
15505.6	88.2	3.501	103.2	86.2	94.7
15558.4	52.8	3.809	53.2	56.4	54.8
15611.2	67.7	4.027	72.6	64.4	68.5
15664.0	76.9	3.779	80.6	79.6	80.1
15716.8	70.5	3.893	69.3	76.7	73.0
15769.6	66.4	3.798	73.2	63.7	68.4
15822.4	61.8	3.904	71.4	59.1	65.2
15875.2	69.4	3.769	83.0	68.6	75.8
15928.0	92.9	3.553	114.5	74.8	94.6
15980.8	57.6	3.936	70.7	52.8	61.7
16033.6	67.9	3.746	81.1	63.6	72.3
16086.4	65.1	3.872	63.9	71.6	67.8
16139.2	67.8	3.808	89.3	63.6	76.5
16192.0	63.3	3.975	85.9	50.7	68.3
16244.8	63.2	3.773	78.6	58.3	68.4
16297.6	67.4	3.815	73.4	67.6	70.5
16350.4	66.8	3.703	86.5	54.4	70.5
16403.2	76.9	3.839	94.0	68.3	81.2
16456.0	79.3	3.617	96.1	67.6	81.9
16508.8	69.3	3.744	79.2	62.4	70.8
16561.6	96.6	3.484	114.3	84.0	99.1
16614.4	61.9	4.030	80.9	54.8	67.8
16667.2	54.8	3.984	72.6	45.1	58.8
16720.0	45.0	4.170	49.3	48.5	48.9
16772.8	71.0	3.892	77.0	69.4	73.2
16825.6	64.3	3.794	72.0	59.4	65.7
16878.4	80.8	3.825	92.6	73.1	82.9
16931.2	61.1	3.941	73.9	54.0	64.0
16984.0	80.2	3.580	103.4	67.2	85.3
17036 8	93.5	3.830	97.6	92.5	95.0
17089.6	73.2	3.870	75.9	78.6	77.3
17142 4	77.5	3.874	89.5	71.6	80.6
17195 2	61.5	3.926	65.2	62.9	64.0
17248 0	75.9	3.834	75.7	78.8	77.3
17300 8	73.1	3.664	84.3	70.5	77.4
17353 6	64.8	3.834	66.6	67.9	67.3
17406 4	70.5	3.659	77.2	68.4	72.8
17459 2	131.3	3.049	145.8	133.1	139.4
17512 0	124.4	3.286	123.9	127.7	125.8
17564 8	74.3	3.816	75.4	78.4	76.9
17617 6	93.2	3.594	111.0	82.5	96.7
17670 4	75.9	3.841	79.5	75.5	77.5
17723 2	90.4	3.704	91.6	92.9	92.3
17776 0	75.2	3.947	78.3	76.0	77.1

LANE 2 PASS 2 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15400.0					
15452.8	57.8	3.924	58.0	60.5	59.3
15505.6	80.8	3.615	99.5	73.7	86.6
15558.4	50.1	3.913	54.1	49.8	52.0
15611.2	66.7	4.040	77.4	60.1	68.7
15664.0	75.6	3.763	82.7	73.3	78.0
15716.8	70.2	3.807	70.5	77.2	73.9
15769.6	62.2	3.859	75.4	54.8	65.1
15822.4	60.8	3.878	73.0	55.6	64.3
15875.2	68.5	3.775	83.0	63.8	73.4
15928.0	82.5	3.656	104.8	63.7	84.3
15980.8	61.1	3.902	70.5	55.8	63.1
16033.6	68.4	3.757	76.0	68.2	72.1
16086.4	75.1	3.792	87.8	71.3	79.5
16139.2	78.4	3.768	95.9	69.6	82.7
16192.0	63.4	3.940	87.6	46.8	67.2
16244.8	62.8	3.768	78.8	56.1	67.4
16297.6	69.9	3.680	88.0	72.5	80.3
16350.4	64.1	3.698	84.0	55.7	69.9
16403.2	75.1	3.866	88.1	70.8	79.5
16456.0	80.4	3.630	98.7	67.7	83.2
16508.8	71.4	3.798	84.5	62.6	73.6
16561.6	94.2	3.505	120.7	76.9	98.8
16614.4	60.8	4.004	82.0	52.5	67.3
16667.2	54.6	3.941	75.3	45.5	60.4
16720.0	48.8	4.097	54.8	52.6	53.7
16772.8	67.1	3.957	76.4	63.4	69.9
16825.6	67.0	3.777	78.4	57.9	68.2
16878.4	76.0	3.869	89.6	66.8	78.2
16931.2	64.7	3.888	78.7	55.7	67.2
16984.0	79.7	3.593	106.9	60.0	83.5
17036.8	98.9	3.829	105.6	94.2	99.9
17089.6	65.1	3.985	75.2	65.7	70.5
17142.4	79.0	3.893	93.5	74.1	83.8
17195.2	55.9	4.015	61.7	54.0	57.9
17248.0	80.5	3.848	82.7	82.3	82.5
17300.8	67.4	3.716	80.5	64.0	72.3
17353.6	67.3	3.809	74.4	67.6	71.0
17406.4	62.6	3.717	67.2	60.5	63.9
17459.2	130.5	3.045	144.5	136.0	140.2
17512.0	128.5	3.284	137.5	121.3	129.4
17564.8	66.9	4.009	65.8	70.5	68.2
17617.6	87.2	3.678	106.1	76.0	91.1
17670.4	71.7	3.922	78.9	67.3	73.1
17723.2	85.1	3.777	89.2	86.2	87.7
17776.0	69.9	4.038	72.5	71.4	71.9

LANE 2 PASS 3 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15400.0					
15452.8	55.8	3.985	60.3	56.1	58.2
15505.6	78.9	3.602	96.0	73.9	85.0
15558.4	47.4	3.901	53.5	44.9	49.2
15611.2	66.9	4.008	74.7	61.3	68.0
15664.0	72.7	3.789	77.1	72.8	75.0
15716.8	64.7	3.944	62.4	70.8	66.6
15769.6	60.9	3.845	68.2	57.6	62.9
15822.4	59.6	3.850	70.1	56.9	63.5
15875.2	67.2	3.825	78.7	63.6	71.2
15928.0	82.1	3.636	97.3	70.2	83.8
15980.8	57.1	4.016	66.6	51.7	59.1
16033.6	67.6	3.776	73.6	71.3	72.5
16086.4	71.7	3.885	79.0	71.8	75.4
16139.2	77.7	3.765	84.6	74.9	79.8
16192.0	59.5	3.995	70.6	52.4	61.5
16244.8	58.9	3.799	73.1	52.0	62.6
16297.6	68.6	3.818	75.7	71.8	73.8
16350.4	65.5	3.753	84.0	52.8	68.4
16403.2	72.8	3.882	87.1	67.9	77.5
16456.0	86.3	3.510	110.9	65.5	88.2
16508.8	70.7	3.788	83.8	62.7	73.3
16561.6	94.6	3.512	120.0	77.8	98.9
16614.4	65.2	3.959	83.8	55.0	69.4
16667.2	55.1	3.955	72.0	46.7	59.4
16720.0	47.7	4.104	56.1	48.1	52.1
16772.8	67.0	3.924	78.6	59.4	69.0
16825.6	65.8	3.810	73.9	59.0	66.5
16878.4	76.4	3.882	90.3	69.4	79.8
16931.2	60.3	3.973	75.0	50.4	62.7
16984.0	74.6	3.618	100.0	58.9	79.4
17036.8	96.2	3.809	100.2	95.3	97.8
17089.6	69.5	3.924	78.2	68.5	73.4
17142.4	77.7	3.894	90.7	69.4	80.0
17195.2	54.1	4.004	58.6	51.5	55.1
17248.0	79.0	3.875	79.9	80.2	80.1
17300.8	67.8	3.704	80.7	64.9	72.8
17353.6	71.6	3.784	78.3	70.0	74.1
17406.4	68.7	3.672	73.7	67.3	70.5
17459.2	126.5	3.094	145.6	127.6	136.6
17512.0	119.4	3.359	121.0	119.5	120.3
17564.8	69.3	3.962	69.6	71.9	70.7
17617.6	86.5	3.684	104.9	75.8	90.4
17670.4	74.4	3.813	85.1	66.0	75.5
17723.2	85.0	3.761	89.4	84.4	86.9
17776.0	65.9	4.076	69.9	67.5	68.7

17828.8	46.0	4.127	56.3	43.9	50.1
17881.6	69.0	3.929	75.3	65.9	70.6
17934.4	64.3	3.847	72.5	65.2	68.8
17987.2	86.2	3.844	84.1	91.1	87.6
18040.0	75.4	3.909	84.1	71.1	77.6
18092.8	91.5	3.584	108.2	78.1	93.2
18145.6	75.2	3.821	75.0	80.6	77.8
18198.4	91.7	3.735	111.1	80.0	95.5
18251.2	59.9	3.867	68.5	56.2	62.4
18304.0	58.4	4.039	63.3	58.6	61.0
18356.8	59.3	3.967	66.8	59.3	63.1
18409.6	75.7	3.923	86.4	67.0	76.7
18462.4	68.9	3.898	75.2	65.8	70.5
18515.2	75.9	3.817	89.0	68.4	78.7
18568.0	55.3	4.083	64.5	51.0	57.7
18620.8	129.4	3.685	131.3	129.3	130.3
18673.6	62.4	3.949	68.0	64.1	66.1
18726.4	93.0	3.663	111.8	80.5	96.1
18779.2	79.1	3.658	88.8	73.8	81.3
18832.0	74.7	3.882	86.3	70.8	78.5
18884.8	92.0	3.679	105.8	83.5	94.6
18937.6	69.8	3.847	82.2	60.0	71.1
18990.4	69.2	3.908	76.5	66.5	71.5
19043.2	66.0	4.159	75.8	59.6	67.7
19096.0	78.0	3.791	79.1	82.8	81.0
19148.8	84.9	3.789	90.2	82.0	86.1
19201.6	71.5	3.953	70.0	74.5	72.3
19254.4	86.1	3.714	90.2	85.3	87.7
19307.2	67.2	4.060	71.1	64.7	67.9
19360.0	82.9	3.772	93.4	78.6	86.0
19412.8	66.6	4.053	68.8	67.6	68.2
19465.6	74.3	3.740	81.2	73.5	77.4
19518.4	57.6	3.928	60.4	59.9	60.1
19571.2	73.8	3.645	91.8	58.8	75.3
19624.0	67.1	3.858	71.9	65.6	68.8
19676.8	76.4	3.674	85.1	72.5	78.8
19729.6	92.1	3.556	107.2	86.2	96.7
19782.4	65.2	3.765	82.6	52.4	67.5
19835.2	71.9	3.809	80.2	67.5	73.9
19888.0	100.2	3.731	107.0	95.6	101.3
19940.8	119.9	3.817	119.4	126.1	122.7
19993.6	77.6	3.713	91.3	69.4	80.3
20046.4	66.8	3.892	81.2	54.9	68.1
20099.2	107.9	3.375	133.1	86.0	109.5
20152.0	86.1	3.547	94.7	81.3	88.0
20204.8	109.9	3.720	118.3	106.7	112.5
20257.6	80.3	3.718	86.6	83.5	85.1
20310.4	96.8	3.573	120.7	78.6	99.7
20363.2	78.6	3.656	98.7	63.4	81.0
20416.0	68.0	3.759	72.6	67.8	70.2
20468.8	61.9	3.919	70.4	59.4	64.9
20521.6	82.8	3.676	88.7	78.9	83.8
20574.4	62.9	3.753	72.8	58.3	65.5
20627.2	71.7	3.938	87.9	66.5	77.2
20680.0	67.0	4.103	71.2	67.9	69.6
20732.8	68.6	3.956	75.6	68.6	72.1
20785.6	94.3	3.751	99.6	90.8	95.2

17828.8	43.6	4.113	46.9	44.8	45.8
17881.6	68.4	3.866	79.2	61.3	70.2
17934.4	57.8	3.934	66.4	58.2	62.3
17987.2	92.0	3.760	95.7	92.6	94.1
18040.0	72.6	3.952	80.9	68.4	74.7
18092.8	91.5	3.604	113.8	71.4	92.6
18145.6	77.5	3.791	84.8	76.4	80.6
18198.4	88.1	3.783	110.1	72.5	91.3
18251.2	61.9	3.868	73.5	53.8	63.7
18304.0	58.1	4.052	64.4	58.8	61.6
18356.8	52.3	4.069	58.7	52.2	55.5
18409.6	73.8	4.023	81.7	67.3	74.5
18462.4	65.7	3.831	72.0	63.1	67.6
18515.2	67.1	3.942	72.9	65.6	69.2
18568.0	59.8	3.909	71.9	53.0	62.4
18620.8	118.9	3.837	118.3	121.9	120.1
18673.6	61.6	3.954	66.6	64.3	65.4
18726.4	92.6	3.678	113.6	78.4	96.0
18779.2	77.7	3.737	86.4	72.3	79.3
18832.0	67.5	3.993	79.5	61.7	70.6
18884.8	93.3	3.748	107.6	80.8	94.2
18937.6	64.9	3.854	76.5	57.6	67.0
18990.4	66.3	3.960	74.5	62.5	68.5
19043.2	63.1	4.093	71.1	61.6	66.3
19096.0	78.7	3.769	87.4	75.5	81.4
19148.8	82.3	3.850	91.6	75.9	83.8
19201.6	74.1	4.053	71.9	77.9	74.9
19254.4	79.7	3.705	84.8	77.2	81.0
19307.2	64.5	4.154	69.8	61.5	65.6
19360.0	78.5	3.880	90.1	69.7	79.9
19412.8	63.8	4.095	66.4	67.2	66.8
19465.6	72.6	3.767	78.4	71.2	74.8
19518.4	58.6	3.923	64.7	58.8	61.8
19571.2	66.7	3.724	84.5	53.4	68.9
19624.0	68.4	3.815	75.7	66.3	71.0
19676.8	69.2	3.740	81.2	63.5	72.3
19729.6	88.5	3.606	104.5	80.5	92.5
19782.4	66.4	3.793	89.7	48.8	69.2
19835.2	74.7	3.806	78.1	73.3	75.7
19888.0	101.1	3.677	109.9	94.6	102.3
19940.8	122.3	3.809	121.2	127.2	124.2
19993.6	69.1	3.788	80.5	64.8	72.6
20046.4	59.3	3.933	77.3	44.5	60.9
20099.2	94.3	3.503	113.5	79.2	96.4
20152.0	81.4	3.589	92.6	75.8	84.2
20204.8	106.4	3.644	118.1	99.6	108.8
20257.6	79.2	3.909	86.3	73.4	79.8
20310.4	78.7	3.745	97.9	67.5	82.7
20363.2	78.4	3.641	96.1	66.8	81.5
20416.0	63.0	3.857	66.4	64.5	65.5
20468.8	71.7	3.807	83.1	64.2	73.6
20521.6	84.8	3.688	92.0	78.7	85.3
20574.4	61.9	3.760	71.9	60.0	66.0
20627.2	67.9	3.994	79.1	64.9	72.0
20680.0	67.3	4.004	73.7	65.6	69.6
20732.8	66.2	4.071	71.8	66.7	69.3
20785.6	98.4	3.746	103.3	95.1	99.2

17828.8	41.9	4.140	46.1	43.0	44.5
17881.6	62.7	3.985	68.5	62.5	65.5
17934.4	57.0	3.986	67.9	56.4	62.2
17987.2	89.7	3.789	88.0	95.7	91.8
18040.0	68.1	4.016	76.9	63.6	70.2
18092.8	80.0	3.737	97.5	65.7	81.6
18145.6	71.5	3.793	74.5	78.1	76.3
18198.4	82.6	3.889	104.6	73.0	88.8
18251.2	60.0	3.898	71.8	54.6	63.2
18304.0	56.1	4.062	64.1	53.4	58.7
18356.8	52.9	4.054	61.2	52.4	56.8
18409.6	74.9	3.996	83.7	67.5	75.6
18462.4	65.0	3.902	70.7	62.5	66.6
18515.2	71.7	3.831	83.8	65.2	74.5
18568.0	60.5	3.910	70.7	55.4	63.0
18620.8	117.4	3.822	116.2	119.5	117.8
18673.6	66.1	3.824	74.7	62.2	68.4
18726.4	98.8	3.562	122.0	81.7	101.9
18779.2	78.3	3.700	94.8	65.4	80.1
18832.0	68.4	4.002	79.9	65.4	72.7
18884.8	90.7	3.741	106.2	80.6	93.4
18937.6	58.0	4.004	74.3	45.4	59.9
18990.4	64.2	3.976	68.5	65.7	67.1
19043.2	54.7	4.126	64.6	52.2	58.4
19096.0	79.2	3.734	85.0	79.1	82.1
19148.8	80.7	3.842	90.9	74.1	82.5
19201.6	71.8	3.999	73.9	72.9	73.4
19254.4	76.9	3.688	82.5	75.0	78.8
19307.2	65.9	4.073	70.8	63.9	67.4
19360.0	78.9	3.787	88.8	74.2	81.5
19412.8	63.4	4.125	65.1	63.8	64.5
19465.6	67.5	3.758	76.8	65.9	71.4
19518.4	57.2	3.904	64.5	56.1	60.3
19571.2	67.2	3.751	83.7	54.9	69.3
19624.0	67.7	3.854	74.9	65.4	70.1
19676.8	74.0	3.699	85.5	67.8	76.6
19729.6	86.7	3.618	104.1	77.6	90.8
19782.4	65.2	3.756	86.5	49.7	68.1
19835.2	73.2	3.833	80.9	69.4	75.2
19888.0	99.3	3.632	110.0	93.2	101.6
19940.8	121.1	3.805	125.7	124.6	125.1
19993.6	76.3	3.709	90.6	66.0	78.3
20046.4	60.7	3.959	77.3	48.1	62.7
20099.2	98.7	3.448	115.0	84.0	99.5
20152.0	81.1	3.630	88.7	78.0	83.4
20204.8	109.7	3.587	122.8	104.3	113.5
20257.6	83.6	3.839	90.3	80.2	85.3
20310.4	77.9	3.724	98.2	70.6	84.4
20363.2	74.3	3.662	87.3	65.7	76.5
20416.0	57.5	4.033	61.9	57.8	59.8
20468.8	66.7	3.917	76.1	61.7	68.9
20521.6	83.0	3.737	89.3	79.0	84.1
20574.4	61.0	3.786	73.7	56.2	65.0
20627.2	70.3	3.973	81.7	66.9	74.3
20680.0	66.3	4.021	71.6	67.3	69.5
20732.8	64.1	4.059	69.8	63.4	66.6
20785.6	97.0	3.761	100.5	96.4	98.4

20838.4	58.4	4.047	57.6	69.2	63.4
20891.2	83.7	3.752	91.9	78.5	85.2
20944.0	70.7	3.868	82.5	64.0	73.3
20996.8	93.4	3.649	103.9	87.3	95.6
21049.6	85.6	4.054	87.6	84.5	86.0
21102.4	53.1	4.063	58.3	49.8	54.1
21155.2	78.2	3.932	76.4	82.7	79.5
21208.0	93.1	3.768	92.4	96.1	94.3
21260.8	59.5	4.057	64.4	62.2	63.3
21313.6	62.1	4.034	65.8	63.9	64.9
21366.4	58.7	4.016	63.6	59.0	61.3
21419.2	70.9	3.915	81.0	65.6	73.3
21472.0	69.6	4.041	78.9	66.2	72.5
21524.8	56.0	4.089	63.7	52.7	58.2
21577.6	67.0	4.260	65.5	72.9	69.2
21630.4	67.9	3.825	81.7	57.1	69.4
21683.2	76.0	3.778	84.6	72.1	78.4
21736.0	65.7	3.941	71.0	66.5	68.8
21788.8	66.0	4.107	73.2	61.4	67.3
21841.6	82.4	3.741	95.5	74.3	84.9
21894.4	65.9	4.012	75.5	61.8	68.7
21947.2	78.5	3.851	81.3	80.3	80.8
22000.0	86.8	3.954	85.9	89.5	87.7
22052.8	70.7	3.946	74.9	70.0	72.5
22105.6	58.6	4.021	64.2	56.8	60.5
22158.4	77.5	3.844	85.7	78.3	82.0
22211.2	73.6	3.775	76.8	76.3	76.5
22264.0	73.6	3.833	85.0	72.4	78.7
22316.8	58.5	3.961	69.2	56.4	62.8
22369.6	79.1	3.782	83.6	76.6	80.1
22422.4	65.5	3.924	70.2	68.6	69.4
22475.2	87.4	3.656	93.8	84.3	89.0
22528.0	54.4	4.014	65.3	55.0	60.1
22580.8	46.2	4.267	48.0	46.5	47.3
22633.6	46.4	4.184	58.3	39.2	48.7
22686.4	66.7	3.854	82.0	58.3	70.2
22739.2	72.9	3.776	84.9	69.6	77.2
22792.0	64.6	3.929	74.9	62.9	68.9
22844.8	41.3	4.124	51.1	37.5	44.3
22897.6	52.1	3.980	61.8	48.4	55.1
22950.4	57.1	4.033	56.5	67.6	62.1
23003.2	73.1	3.994	73.0	77.2	75.1
23056.0	65.2	3.969	70.5	62.3	66.4
23108.8	49.4	3.974	55.5	46.0	50.8
23161.6	87.5	3.941	94.2	83.6	88.9
23214.4	85.6	3.704	87.3	88.2	87.8
23267.2	109.8	3.440	125.3	95.8	110.6
23320.0	93.9	3.672	109.2	84.8	97.0
23372.8	66.5	4.051	75.4	66.1	70.7
23425.6	89.9	3.475	90.8	92.0	91.4
23478.4	73.5	4.011	78.0	77.0	77.5
23531.2	96.0	3.468	113.3	89.9	101.6
23584.0	82.0	3.857	91.8	78.3	85.0
23636.8	91.7	3.498	98.0	93.7	95.9
23689.6	102.7	3.640	120.4	91.3	105.9
23742.4	87.2	3.458	100.7	78.1	89.4
23795.2	96.3	3.498	109.5	85.2	97.4

20838.4	53.2	4.121	52.2	62.0	57.1
20891.2	82.5	3.719	95.2	74.3	84.8
20944.0	64.8	3.894	77.4	57.0	67.2
20996.8	104.2	3.598	117.7	94.4	106.0
21049.6	77.1	4.049	82.0	73.8	77.9
21102.4	52.0	4.111	54.4	53.1	53.8
21155.2	79.1	3.921	87.2	75.1	81.2
21208.0	96.9	3.778	98.9	95.8	97.3
21260.8	59.3	4.052	65.4	59.9	62.6
21313.6	62.4	4.016	67.0	64.3	65.7
21366.4	58.4	3.995	57.5	67.8	62.7
21419.2	75.2	3.839	83.2	70.6	76.9
21472.0	67.4	4.078	79.5	62.8	71.2
21524.8	56.1	4.117	59.6	56.8	58.2
21577.6	64.6	4.235	64.5	66.7	65.6
21630.4	69.2	3.759	85.2	56.0	70.6
21683.2	67.9	3.964	76.2	66.5	71.4
21736.0	64.8	4.023	73.5	61.7	67.6
21788.8	68.2	4.132	77.7	60.3	69.0
21841.6	67.5	3.869	79.1	63.4	71.2
21894.4	63.2	4.100	68.1	61.6	64.8
21947.2	82.8	3.904	87.7	80.3	84.0
22000.0	77.0	3.975	81.5	76.0	78.8
22052.8	74.8	3.966	84.2	69.9	77.1
22105.6	61.1	4.040	72.6	55.1	63.8
22158.4	77.4	3.793	89.6	72.6	81.1
22211.2	73.0	3.744	72.5	78.2	75.4
22264.0	77.8	3.809	92.0	71.7	81.8
22316.8	55.5	4.036	65.6	52.4	59.0
22369.6	76.7	3.836	82.3	72.7	77.5
22422.4	61.3	3.957	64.0	67.1	65.6
22475.2	87.0	3.685	94.6	84.7	89.6
22528.0	57.1	4.060	67.1	54.1	60.6
22580.8	39.8	4.258	43.8	41.2	42.5
22633.6	47.0	4.156	58.1	39.5	48.8
22686.4	66.1	3.877	85.1	55.6	70.4
22739.2	73.8	3.856	89.8	66.4	78.1
22792.0	62.3	3.986	73.0	56.0	64.5
22844.8	42.6	4.106	52.4	37.0	44.7
22897.6	49.3	4.030	70.3	41.0	55.6
22950.4	57.2	4.001	64.2	60.8	62.5
23003.2	69.5	4.052	76.5	72.4	74.4
23056.0	64.2	3.982	67.9	61.7	64.8
23108.8	51.0	4.031	56.8	49.1	52.9
23161.6	80.4	3.981	84.1	80.8	82.5
23214.4	86.9	3.737	94.5	85.2	89.9
23267.2	107.1	3.452	122.6	93.4	108.0
23320.0	85.3	3.752	102.5	75.1	88.8
23372.8	87.2	3.579	96.4	84.7	90.6
23425.6	77.7	3.778	75.5	85.5	80.5
23478.4	75.6	3.800	85.5	71.6	78.5
23531.2	96.5	3.503	119.9	85.6	102.7
23584.0	82.6	3.833	86.8	81.8	84.3
23636.8	106.8	3.421	120.1	103.5	111.8
23689.6	89.3	3.572	109.4	75.2	92.3
23742.4	84.9	3.597	97.4	75.1	86.3
23795.2	94.8	3.445	109.4	81.5	95.5

20838.4	52.5	4.115	50.9	63.4	57.1
20891.2	82.6	3.740	90.3	79.2	84.7
20944.0	63.1	3.948	72.5	57.8	65.2
20996.8	99.4	3.620	110.0	90.8	100.4
21049.6	74.9	4.057	79.9	71.0	75.5
21102.4	48.3	4.137	53.5	45.7	49.6
21155.2	74.9	3.964	76.5	76.3	76.4
21208.0	94.4	3.780	95.1	97.5	96.3
21260.8	58.3	4.085	65.3	57.7	61.5
21313.6	61.2	4.055	65.3	61.7	63.5
21366.4	55.6	4.037	60.3	57.3	58.8
21419.2	71.8	3.971	76.7	69.4	73.1
21472.0	66.4	4.141	74.9	60.0	67.4
21524.8	51.9	4.134	50.0	59.2	54.6
21577.6	66.6	4.274	66.3	68.0	67.2
21630.4	65.3	3.782	74.3	61.4	67.8
21683.2	67.7	3.993	71.4	67.4	69.4
21736.0	62.9	4.037	72.2	58.3	65.3
21788.8	69.0	4.102	77.8	64.4	71.1
21841.6	64.1	3.933	77.4	58.3	67.9
21894.4	62.6	4.089	65.7	62.7	64.2
21947.2	80.6	3.932	83.6	81.9	82.7
22000.0	72.7	4.021	75.2	72.7	74.0
22052.8	66.0	3.982	70.8	62.9	66.8
22105.6	62.3	4.043	69.9	61.2	65.6
22158.4	72.1	3.846	82.0	67.5	74.7
22211.2	69.8	3.813	75.0	69.4	72.2
22264.0	76.3	3.841	92.1	67.9	80.0
22316.8	57.0	4.020	64.9	54.4	59.7
22369.6	72.0	3.915	80.9	66.6	73.7
22422.4	56.7	4.016	64.3	59.3	61.8
22475.2	85.4	3.713	91.5	82.6	87.1
22528.0	55.1	4.081	64.5	52.4	58.5
22580.8	35.3	4.346	37.1	39.4	38.3
22633.6	45.3	4.179	56.7	38.7	47.7
22686.4	64.5	3.916	79.5	57.7	68.6
22739.2	71.9	3.905	86.3	68.9	77.6
22792.0	57.0	4.051	74.4	49.0	61.7
22844.8	46.5	4.044	55.3	42.4	48.9
22897.6	47.2	4.118	60.4	41.3	50.9
22950.4	59.3	3.998	65.0	64.2	64.6
23003.2	66.1	4.129	70.2	70.9	70.6
23056.0	65.4	3.938	78.4	58.3	68.4
23108.8	47.1	4.066	56.4	41.2	48.8
23161.6	81.5	3.918	86.1	81.6	83.8
23214.4	91.6	3.710	97.1	91.8	94.5
23267.2	107.5	3.322	124.2	96.0	110.1
23320.0	87.4	3.707	96.5	83.6	90.0
23372.8	87.8	3.600	97.5	85.0	91.2
23425.6	74.2	3.936	78.3	76.5	77.4
23478.4	82.9	3.820	93.3	75.6	84.4
23531.2	93.9	3.513	107.1	87.5	97.3
23584.0	85.4	3.835	92.8	81.8	87.3
23636.8	106.7	3.416	115.9	104.7	110.3
23689.6	90.1	3.590	109.9	76.3	93.1
23742.4	84.4	3.605	98.6	72.1	85.4
23795.2	95.3	3.476	108.7	83.7	96.2

23848 0	96.3	3.641	107.1	86.3	96.7	23848.0	87.9	3.847	95.0	81.0	88.0	23848.0	85.5	3.819	100.0	81.2	90.6
23900 8	60.3	3.856	71.3	52.8	62.1	23900.8	65.1	3.722	81.1	51.1	66.1	23900.8	69.3	3.635	85.7	54.9	70.3
23953 6	93.7	3.624	115.0	75.9	95.5	23953.6	91.7	3.736	110.3	78.0	94.2	23953.6	90.6	3.726	111.7	73.2	92.4
24006 4	72.2	3.700	88.4	63.7	76.1	24006.4	83.7	3.542	104.0	68.2	86.1	24006.4	91.7	3.485	112.8	74.9	93.8
24059 2	94.6	3.512	114.4	82.4	98.4	24059.2	74.8	3.697	88.9	65.0	76.9	24059.2	84.3	3.628	98.7	78.0	88.3
24112 0	80.6	3.763	90.3	75.0	82.7	24112.0	86.1	3.682	101.1	74.5	87.8	24112.0	86.1	3.620	102.4	72.4	87.4
24164 8	59.0	3.861	81.7	47.0	64.3	24164.8	54.8	3.956	71.8	47.4	59.6	24164.8	56.4	3.900	78.0	44.8	61.4
24217.6	106.0	3.461	119.7	101.0	110.4	24217.6	117.9	3.379	138.3	104.3	121.3	24217.6	120.7	3.303	144.8	102.7	123.7
24270.4	85.5	3.568	100.1	78.3	89.2	24270.4	68.9	3.710	82.7	63.3	73.0	24270.4	72.3	3.717	86.6	63.8	75.2
24323.2	79.5	3.587	96.9	65.4	81.1	24323.2	84.8	3.592	109.5	61.0	85.2	24323.2	81.2	3.602	110.7	53.8	82.3
24376.0	89.4	3.602	115.3	66.4	90.8	24376.0	90.0	3.612	112.4	71.4	91.9	24376.0	90.3	3.552	111.5	70.5	91.0
24428.8	82.0	3.460	106.4	67.9	87.2	24428.8	80.8	3.334	113.4	61.2	87.3	24428.8	82.7	3.411	124.8	57.2	91.0
24481.6	65.3	3.922	89.3	60.6	74.9	24481.6	72.2	3.905	98.7	65.8	82.3	24481.6	73.5	3.832	97.1	64.9	81.0
24534.4	50.1	4.086	69.8	42.7	56.3	24534.4	53.0	4.090	76.6	48.5	62.6	24534.4	52.1	4.109	77.2	43.4	60.3
24587.2	61.8	3.932	73.4	53.6	63.5	24587.2	58.7	3.916	72.2	51.1	61.7	24587.2	55.0	3.960	70.3	46.2	58.3
24640.0	85.0	3.651	104.9	75.5	90.2	24640.0	88.9	3.646	114.7	67.3	91.0	24640.0	93.2	3.586	121.9	68.5	95.2
24692.8	65.3	4.032	74.9	61.7	68.3	24692.8	59.1	4.034	70.7	56.9	63.8	24692.8	59.9	3.987	71.9	56.7	64.3
24745.6	78.2	3.791	87.2	74.7	81.0	24745.6	75.9	3.858	85.0	71.1	78.1	24745.6	75.8	3.797	85.6	70.5	78.0
24798.4	83.4	3.580	98.2	75.2	86.7	24798.4	91.6	3.471	107.9	79.1	93.5	24798.4	94.0	3.443	101.9	88.2	95.1
24851.2	80.3	3.633	93.4	72.5	83.0	24851.2	81.9	3.515	101.1	72.9	87.0	24851.2	84.4	3.480	101.4	76.7	89.0
24904.0	90.5	3.524	112.0	79.4	95.7	24904.0	84.7	3.674	98.1	77.1	87.6	24904.0	85.5	3.643	103.4	74.4	88.9
24956.8	90.9	3.599	115.1	72.6	93.9	24956.8	97.4	3.618	120.1	83.7	101.9	24956.8	92.9	3.633	114.7	84.0	99.3
25009.6	89.0	3.617	97.0	85.1	91.1	25009.6	88.8	3.574	95.0	86.4	90.7	25009.6	92.2	3.559	102.1	84.4	93.3
25062.4	74.9	3.599	88.5	68.0	78.2	25062.4	74.2	3.515	93.4	66.2	79.8	25062.4	80.7	3.473	107.7	70.6	89.1
25115.2	116.5	3.562	127.2	107.1	117.1	25115.2	113.2	3.640	123.4	104.6	114.0	25115.2	112.4	3.611	125.8	100.8	113.3
25168.0	133.7	3.409	150.5	122.9	136.7	25168.0	150.8	3.282	167.9	140.0	153.9	25168.0	137.2	3.437	161.4	120.0	140.7
25220.8	157.9	3.629	179.2	141.7	160.5	25220.8	151.4	3.734	173.4	132.0	152.7	25220.8	153.9	3.628	185.7	126.1	155.9
25273.6	84.1	3.694	87.6	84.5	86.0	25273.6	81.5	3.797	85.6	80.3	82.9	25273.6	82.7	3.752	94.9	73.4	84.1
25326.4	71.9	3.670	87.7	59.5	73.6	25326.4	62.5	3.783	74.7	53.7	64.2	25326.4	72.2	3.700	85.4	63.3	74.3
25379.2	89.5	3.562	102.6	79.1	90.9	25379.2	82.3	3.716	97.3	71.0	84.2	25379.2	90.4	3.619	111.6	70.8	91.2
25432.0	80.9	3.746	98.6	67.7	83.1	25432.0	63.7	3.888	82.0	50.8	66.4	25432.0	69.3	3.756	89.6	52.9	71.3
25484.8	73.5	3.598	95.1	55.8	75.5	25484.8	63.1	3.653	80.7	55.0	67.9	25484.8	71.4	3.510	89.2	56.9	73.1
25537.6	76.1	3.666	95.8	64.6	80.2	25537.6	80.6	3.667	103.7	63.1	83.4	25537.6	77.4	3.692	96.2	65.0	80.6
25590.4	84.0	3.555	99.3	71.6	85.5	25590.4	82.2	3.592	93.4	74.4	83.9	25590.4	86.6	3.468	105.6	71.2	88.4
25643.2	75.5	3.750	86.5	69.6	78.0	25643.2	76.7	3.754	86.6	72.5	79.5	25643.2	78.9	3.720	88.4	73.3	80.9
25696.0	109.3	3.606	126.8	99.2	113.0	25696.0	110.4	3.620	127.7	102.6	115.1	25696.0	116.2	3.571	132.1	105.5	118.8
25748.8	104.0	3.522	114.4	98.0	106.2	25748.8	98.3	3.526	104.6	96.7	100.7	25748.8	97.0	3.495	106.9	93.2	100.0
25801.6	92.8	3.484	112.5	78.3	95.4	25801.6	92.6	3.454	111.6	83.4	97.5	25801.6	89.9	3.507	112.0	71.6	91.8
25854.4	83.7	3.754	104.3	68.7	86.5	25854.4	82.6	3.724	95.8	73.7	84.7	25854.4	84.7	3.677	102.0	74.0	88.0
25907.2	95.0	3.592	107.2	90.9	99.0	25907.2	100.3	3.583	119.6	87.5	103.5	25907.2	100.8	3.542	116.8	90.4	103.6
25960.0	65.8	3.953	76.7	58.4	67.5	25960.0	57.6	4.020	68.1	50.7	59.4	25960.0	62.1	3.912	72.7	54.3	63.5
26012.8	77.6	3.691	96.9	65.0	80.9	26012.8	96.6	3.614	114.8	85.5	100.1	26012.8	96.4	3.630	123.7	73.4	98.6
26065.6	107.0	3.616	129.7	89.1	109.4	26065.6	88.4	3.664	109.8	72.7	91.2	26065.6	89.3	3.627	108.9	74.8	91.9
26118.4	104.1	3.434	125.0	86.6	105.8	26118.4	116.5	3.272	140.8	96.3	118.5	26118.4	118.5	3.266	141.0	98.1	119.5
26171.2	88.0	3.500	102.1	83.9	93.0	26171.2	84.5	3.651	95.0	81.5	88.2	26171.2	83.1	3.643	97.4	73.4	85.4
26224.0	81.0	3.600	88.0	82.9	85.5	26224.0	90.0	3.478	100.8	88.5	94.7	26224.0	84.3	3.553	96.2	83.8	90.0
26276.8	64.9	3.735	78.8	60.3	69.5	26276.8	62.2	3.796	70.1	59.0	64.5	26276.8	64.2	3.776	70.6	62.3	66.5
26329.6	82.7	3.717	91.6	79.4	85.5	26329.6	92.6	3.733	99.5	88.5	94.0	26329.6	91.4	3.757	98.3	87.7	93.0
26382.4	108.8	3.656	112.3	108.8	110.6	26382.4	109.4	3.574	113.2	110.0	111.6	26382.4	107.8	3.669	110.9	106.9	108.9
26435.2	115.6	3.525	121.0	112.2	116.6	26435.2	101.3	3.597	111.8	99.2	105.5	26435.2	100.0	3.690	107.8	99.0	103.4
26488.0	111.5	3.712	126.7	102.8	114.7	26488.0	114.1	3.656	130.5	103.4	116.9	26488.0	114.8	3.676	129.0	104.8	116.9
26540.8	101.6	3.392	119.0	89.8	104.4	26540.8	88.2	3.546	105.0	76.4	90.7	26540.8	88.1	3.527	105.2	75.7	90.4
26593.6	89.2	3.606	96.2	86.1	91.1	26593.6	90.8	3.660	98.0	85.7	91.9	26593.6	95.0	3.583	100.3	90.9	95.6
26646.4	99.2	3.538	106.1	95.7	100.9	26646.4	89.3	3.615	96.2	86.3	91.2	26646.4	89.2	3.627	95.3	87.6	91.5
26699.2	76.6	3.610	87.0	71.5	79.2	26699.2	77.0	3.611	84.8	74.5	79.7	26699.2	82.6	3.581	93.9	73.9	83.9
26752.0	99.1	3.592	116.7	85.2	101.0	26752.0	95.9	3.632	111.3	84.9	98.1	26752.0	95.5	3.662	112.6	82.9	97.8
26804.8	50.3	4.047	65.0	42.3	53.7	26804.8	53.7	3.865	66.9	45.8	56.3	26804.8	53.5	3.955	72.2	39.3	55.8

26857.6	66.0	3.836	75.4	58.3	66.9
26910.4	61.3	3.929	68.0	56.8	62.4
26963.2	68.5	3.748	77.1	62.2	69.6
27016.0	69.5	3.980	81.6	61.7	71.6
27068.8	57.9	4.085	74.9	48.7	61.8
27121.6	64.3	4.063	71.2	62.5	66.8
27174.4	68.2	3.824	80.3	59.1	69.7
27227.2	85.4	3.901	90.3	86.4	88.4
27280.0	82.3	3.786	93.1	74.5	83.8
27332.8	66.7	3.889	78.0	57.6	67.8
27385.6	68.1	3.803	68.9	68.5	68.7
27438.4	65.6	3.839	70.4	63.3	66.8
27491.2	74.7	3.794	86.7	68.3	77.5
27544.0	56.9	3.916	71.4	46.6	59.0
27596.8	61.8	3.842	73.2	54.6	63.9
27649.6	90.9	3.720	111.1	74.9	93.0
27702.4	88.2	3.940	97.0	80.8	88.9
27755.2	64.6	4.066	68.2	65.8	67.0
27808.0	68.4	3.934	69.9	71.3	70.6
27860.8	70.7	3.919	87.7	60.3	74.0
27913.6	72.6	3.795	94.8	55.5	75.1
27966.4	48.2	4.082	56.3	42.3	49.3
28019.2	62.1	3.867	80.4	48.7	64.5
28072.0	62.2	3.913	57.2	68.8	63.0
28124.8	55.3	4.053	64.5	49.5	57.0
28177.6	59.3	3.966	67.4	53.9	60.6
28230.4	61.6	4.101	68.4	57.7	63.1
28283.2	72.1	3.880	81.4	65.8	73.6
28336.0	53.3	4.113	59.6	50.3	54.9
28388.8	57.8	3.933	64.8	56.7	60.7
28441.6	77.2	4.025	87.2	75.2	81.2
28494.4	77.6	3.647	93.5	67.9	80.7
28547.2	52.0	3.982	61.7	48.4	55.1
28600.0	65.7	4.007	70.8	62.3	66.5
28652.8	49.7	4.140	57.0	48.0	52.5
28705.6	71.5	3.929	78.7	67.0	72.9
28758.4	56.1	4.178	60.8	54.9	57.9
28811.2	64.7	3.772	73.5	61.8	67.7
28864.0	48.0	3.925	63.5	42.3	52.9
28916.8	57.6	3.838	71.9	51.8	61.8
28969.6	77.6	3.812	96.2	61.6	78.9
29022.4	56.2	3.899	71.3	50.5	60.9

26857.6	71.9	3.777	84.7	60.4	72.6
26910.4	62.1	3.944	69.5	56.7	63.1
26963.2	67.7	3.802	79.0	60.7	69.9
27016.0	69.3	3.914	82.5	61.6	72.0
27068.8	61.4	4.093	77.3	53.5	65.4
27121.6	68.3	3.884	75.9	67.1	71.5
27174.4	69.8	3.813	79.7	63.6	71.7
27227.2	90.0	3.851	94.3	91.8	93.0
27280.0	82.9	3.832	96.7	72.3	84.5
27332.8	62.0	3.959	76.4	53.5	65.0
27385.6	69.5	3.789	73.5	68.6	71.0
27438.4	79.4	3.603	90.2	75.1	82.7
27491.2	72.6	3.882	84.5	66.8	75.7
27544.0	57.2	3.879	75.9	43.4	59.6
27596.8	61.9	3.848	70.6	57.8	64.2
27649.6	103.4	3.611	124.2	85.7	105.0
27702.4	68.4	4.206	80.4	61.9	71.2
27755.2	69.9	3.945	72.2	72.8	72.5
27808.0	65.1	4.037	74.1	60.8	67.4
27860.8	64.5	3.876	74.4	58.3	66.4
27913.6	62.9	3.859	79.8	52.5	66.1
27966.4	55.8	3.929	69.9	45.7	57.8
28019.2	56.9	4.014	70.1	49.3	59.7
28072.0	64.6	3.865	65.3	67.0	66.2
28124.8	54.1	4.054	63.9	47.6	55.8
28177.6	57.9	3.937	68.1	51.3	59.7
28230.4	68.4	4.022	76.8	62.4	69.6
28283.2	67.1	3.952	80.1	57.2	68.7
28336.0	62.5	4.003	72.9	55.3	64.1
28388.8	53.5	3.992	60.2	50.2	55.2
28441.6	76.7	3.952	87.4	68.0	77.7
28494.4	69.1	3.690	84.6	59.5	72.0
28547.2	52.4	4.012	63.4	49.3	56.4
28600.0	61.0	4.031	70.1	56.5	63.3
28652.8	51.8	4.088	57.9	50.6	54.3
28705.6	72.4	3.881	82.9	64.4	73.6
28758.4	52.6	4.150	62.5	47.8	55.1
28811.2	65.6	3.849	75.9	59.7	67.8
28864.0	60.3	3.826	73.5	52.0	62.7
28916.8	50.3	3.963	69.2	43.2	56.2
28969.6	95.7	3.534	113.5	79.5	96.5
29022.4	219.8	0.477	53.2	391.3	222.3

26857.6	74.6	3.823	89.5	61.5	75.5
26910.4	59.0	3.889	67.5	51.6	59.5
26963.2	69.5	3.788	81.2	61.1	71.1
27016.0	68.4	3.916	80.5	62.6	71.5
27068.8	60.4	4.112	77.1	51.7	64.4
27121.6	68.0	3.881	78.8	61.1	69.9
27174.4	64.5	3.892	71.9	59.6	65.7
27227.2	89.6	3.839	92.2	92.8	92.5
27280.0	82.8	3.874	96.2	71.9	84.1
27332.8	63.6	3.893	75.8	55.6	65.7
27385.6	64.3	3.882	70.1	59.9	65.0
27438.4	70.1	3.755	81.2	61.4	71.3
27491.2	68.4	3.932	81.1	61.0	71.1
27544.0	54.3	3.878	70.5	43.2	56.8
27596.8	59.1	3.914	68.6	52.7	60.7
27649.6	104.7	3.643	125.9	87.5	106.7
27702.4	65.0	4.184	74.3	58.2	66.3
27755.2	67.2	3.906	71.8	67.5	69.6
27808.0	65.3	4.039	72.8	62.4	67.6
27860.8	69.5	3.909	89.6	55.9	72.7
27913.6	66.9	3.908	75.7	60.7	68.2
27966.4	60.5	3.883	69.8	55.1	62.4
28019.2	56.6	3.995	71.5	47.5	59.5
28072.0	60.4	3.959	64.2	58.8	61.5
28124.8	50.1	4.092	57.3	44.4	50.8
28177.6	50.6	4.014	60.5	45.2	52.9
28230.4	66.3	4.060	71.1	66.5	68.8
28283.2	63.7	3.947	71.6	59.5	65.5
28336.0	62.7	3.974	74.2	55.7	65.0
28388.8	55.1	4.024	67.2	49.8	58.5
28441.6	86.8	3.790	103.6	74.5	89.0
28494.4	70.6	3.707	93.2	53.7	73.5
28547.2	55.0	3.924	69.6	49.7	59.6
28600.0	60.5	4.073	70.8	54.1	62.5
28652.8	49.3	4.153	54.9	48.7	51.8
28705.6	69.5	3.949	77.6	62.7	70.2
28758.4	47.9	4.144	55.6	46.1	50.9
28811.2	58.8	3.894	66.5	56.8	61.7
28864.0	58.1	3.771	76.8	44.8	60.8
28916.8	49.4	4.045	69.7	37.3	53.5
28969.6	88.2	3.597	116.3	63.2	89.8
29022.4	48.8	4.059	60.4	45.9	53.1

October 2000 Profile Survey of Westbound Lanes, Driving Lane (PWBOC00)

ATHENS 050 - October 2000 Tests

LANE 1 DOWN, PASS 1
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
29000.0					
28947.2	100.6	3.505	99.4	105.4	102.4
28894.4	83.0	3.841	89.3	78.3	83.8
28841.6	88.9	3.846	94.1	89.3	91.7
28788.8	78.7	3.774	83.7	77.1	80.4
28736.0	89.4	3.695	96.2	85.4	90.8
28683.2	101.2	3.473	104.4	102.9	103.7
28630.4	63.3	3.915	65.8	65.7	65.7
28577.6	61.2	3.940	63.4	63.4	63.4
28524.8	80.2	3.965	80.3	81.1	80.7
28472.0	98.6	3.629	102.0	96.1	99.0
28419.2	69.5	3.819	69.8	73.2	71.5
28366.4	81.2	3.479	82.1	88.1	85.1
28313.6	99.0	3.653	99.4	99.6	99.5
28260.8	74.9	3.752	80.9	74.5	77.7
28208.0	64.5	3.984	65.8	66.7	66.3
28155.2	68.7	3.968	73.5	70.3	71.9
28102.4	67.8	3.968	67.9	72.6	70.2
28049.6	72.2	3.920	73.3	75.8	74.5
27996.8	58.6	3.920	64.8	55.0	59.9
27944.0	61.9	3.894	70.6	61.8	66.2
27891.2	70.0	3.920	74.7	72.0	73.3
27838.4	77.2	3.644	83.3	76.4	79.8
27785.6	68.8	3.793	69.5	70.4	70.0
27732.8	74.2	3.680	72.1	79.1	75.6
27680.0	55.8	3.984	59.5	62.7	61.1
27627.2	59.4	4.042	61.6	60.6	61.1
27574.4	66.7	3.928	71.7	64.6	68.1
27521.6	68.3	3.904	69.2	71.3	70.3
27468.8	96.1	3.539	105.4	93.2	99.3
27416.0	69.0	3.834	73.1	69.5	71.3
27363.2	80.8	3.776	85.0	78.9	81.9
27310.4	107.1	3.467	116.3	103.5	109.9
27257.6	152.1	2.945	160.8	146.1	153.4
27204.8	76.3	3.843	78.7	76.5	77.6
27152.0	64.8	3.800	79.6	55.2	67.4
27099.2	82.2	3.727	83.1	86.3	84.7
27046.4	77.7	3.686	90.1	68.6	79.3
26993.6	81.6	3.551	82.7	86.2	84.4
26940.8	62.5	3.986	66.9	63.7	65.3
26888.0	75.8	3.694	86.0	71.2	78.6
26835.2	61.1	3.854	73.7	60.0	66.9
26782.4	71.8	3.803	82.6	68.9	75.7
26729.6	72.9	3.880	76.9	74.5	75.7
26676.8	59.7	3.657	66.6	61.2	63.9
26624.0	42.1	3.949	51.8	46.0	48.9

LANE 1 DOWN, PASS 2
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
29000.0					
28947.2	100.6	3.509	96.7	107.2	101.9
28894.4	80.6	3.894	90.1	72.3	81.2
28841.6	90.0	3.804	93.0	93.4	93.2
28788.8	72.0	3.860	80.9	69.7	75.3
28736.0	85.3	3.743	90.3	83.4	86.9
28683.2	93.7	3.641	104.4	96.8	100.6
28630.4	63.3	3.906	62.6	69.4	66.0
28577.6	59.1	3.943	68.2	54.0	61.1
28524.8	75.0	4.017	81.7	69.3	75.5
28472.0	93.6	3.652	99.3	88.9	94.1
28419.2	71.1	3.814	67.5	77.2	72.4
28366.4	77.4	3.647	76.5	82.3	79.4
28313.6	93.4	3.712	93.6	94.9	94.2
28260.8	77.9	3.781	80.4	79.0	79.7
28208.0	65.1	4.012	69.2	67.5	68.3
28155.2	68.8	3.950	73.4	68.6	71.0
28102.4	68.3	3.934	69.5	71.9	70.7
28049.6	68.3	3.941	72.3	68.1	70.2
27996.8	60.1	3.862	64.9	57.7	61.3
27944.0	59.9	3.934	68.1	59.7	63.9
27891.2	67.1	3.901	69.4	68.4	68.9
27838.4	77.5	3.580	85.8	75.8	80.8
27785.6	62.4	3.863	64.6	64.7	64.7
27732.8	71.8	3.724	70.3	76.5	73.4
27680.0	51.9	4.048	55.5	57.5	56.5
27627.2	60.5	4.036	63.7	61.9	62.8
27574.4	62.4	3.931	73.6	54.6	64.1
27521.6	76.3	3.796	78.3	77.2	77.7
27468.8	90.1	3.564	101.2	83.7	92.5
27416.0	65.4	3.888	63.8	70.9	67.4
27363.2	69.9	3.897	76.1	66.2	71.1
27310.4	100.4	3.515	117.4	88.1	102.8
27257.6	121.4	3.231	140.7	117.1	128.9
27204.8	69.8	3.861	77.4	74.1	75.8
27152.0	59.0	3.900	71.3	54.2	62.8
27099.2	78.4	3.787	83.2	77.3	80.2
27046.4	80.0	3.562	90.4	72.6	81.5
26993.6	79.5	3.651	75.7	87.1	81.4
26940.8	68.7	3.876	75.4	71.2	73.3
26888.0	72.2	3.756	77.8	69.3	73.6
26835.2	66.7	3.721	70.8	66.6	68.7
26782.4	73.9	3.827	74.1	78.5	76.3
26729.6	78.9	3.751	81.8	79.8	80.8
26676.8	53.2	3.721	61.4	53.4	57.4
26624.0	45.0	3.904	54.2	47.8	51.0

LANE 1 DOWN, PASS 3
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
29000.0					
28947.2	96.4	3.559	95.2	102.1	98.6
28894.4	78.4	3.913	89.7	70.0	79.9
28841.6	85.3	3.819	88.9	85.2	87.0
28788.8	74.4	3.792	80.0	70.2	75.1
28736.0	83.6	3.760	92.6	78.6	85.6
28683.2	98.5	3.546	103.9	98.3	101.1
28630.4	58.9	3.925	59.7	62.0	60.8
28577.6	62.1	3.914	64.9	63.8	64.3
28524.8	76.4	3.982	80.7	73.0	76.8
28472.0	89.0	3.696	93.9	85.2	89.6
28419.2	66.6	3.876	68.8	70.3	69.6
28366.4	77.3	3.581	73.3	85.7	79.5
28313.6	91.5	3.716	91.0	94.9	93.0
28260.8	76.4	3.810	81.2	77.6	79.4
28208.0	64.9	4.018	67.0	71.8	69.4
28155.2	68.6	4.002	72.0	71.0	71.5
28102.4	65.7	4.024	64.7	71.4	68.1
28049.6	64.8	3.997	67.3	66.9	67.1
27996.8	59.0	3.940	64.8	56.9	60.9
27944.0	57.6	3.932	65.5	55.4	60.5
27891.2	63.4	3.989	68.3	63.6	65.9
27838.4	76.4	3.667	76.3	87.0	81.7
27785.6	52.1	3.939	66.4	48.3	57.4
27732.8	65.4	3.862	69.8	67.2	68.5
27680.0	46.3	4.098	51.9	49.5	50.7
27627.2	56.4	4.103	65.1	53.2	59.2
27574.4	58.4	3.990	69.7	52.1	60.9
27521.6	71.7	3.892	75.7	71.0	73.3
27468.8	84.9	3.639	95.4	79.5	87.4
27416.0	65.7	3.801	71.8	63.9	67.9
27363.2	77.2	3.839	81.3	75.6	78.4
27310.4	108.6	3.452	115.9	110.8	113.4
27257.6	131.4	3.138	143.3	125.2	134.2
27204.8	71.0	3.954	77.4	69.8	73.6
27152.0	59.2	3.918	72.3	55.0	63.7
27099.2	72.0	3.821	81.4	68.7	75.0
27046.4	69.8	3.751	83.2	64.6	73.9
26993.6	70.4	3.729	77.6	71.0	74.3
26940.8	65.3	3.912	71.1	69.6	70.4
26888.0	65.1	3.881	72.4	71.1	71.7
26835.2	57.2	3.835	67.1	59.7	63.4
26782.4	69.9	3.932	75.4	68.6	72.0
26729.6	74.3	3.773	81.9	76.8	79.4
26676.8	56.2	3.791	68.1	51.0	59.5
26624.0	46.4	3.998	56.9	47.1	52.0

26571.2	67.9	3.860	86.4	62.9	74.6	26571.2	66.3	3.874	85.3	61.7	73.5	26571.2	66.0	3.880	80.0	69.7	74.9
26518.4	59.6	3.610	57.7	68.9	63.3	26518.4	62.4	3.479	67.2	66.4	66.8	26518.4	55.5	3.600	68.9	60.9	64.9
26465.6	64.2	3.669	60.5	72.8	66.7	26465.6	57.1	3.905	64.5	57.4	61.0	26465.6	49.9	4.071	54.1	53.4	53.8
26412.8	54.1	3.562	58.5	61.0	59.8	26412.8	54.8	3.670	65.7	54.5	60.1	26412.8	54.0	3.737	61.1	53.7	57.4
26360.0	56.0	3.805	62.1	66.5	64.3	26360.0	55.5	4.008	53.4	66.4	59.9	26360.0	50.2	4.003	56.2	55.6	55.9
26307.2	73.1	3.530	78.1	74.5	76.3	26307.2	76.5	3.493	84.9	72.4	78.7	26307.2	72.4	3.518	81.4	67.2	74.3
26254.4	66.7	3.478	78.8	66.9	72.8	26254.4	65.9	3.495	76.6	66.7	71.6	26254.4	63.1	3.549	78.6	65.4	72.0
26201.6	85.4	3.431	87.4	86.2	86.8	26201.6	86.8	3.424	91.1	89.4	90.2	26201.6	86.6	3.501	96.6	83.1	89.9
26148.8	76.9	3.490	76.4	87.6	82.0	26148.8	77.7	3.489	80.3	83.2	81.8	26148.8	67.6	3.625	74.2	75.9	75.0
26096.0	79.4	3.403	89.6	76.6	83.1	26096.0	71.4	3.508	88.4	68.3	78.4	26096.0	72.0	3.602	81.6	68.4	75.0
26043.2	91.3	3.499	88.6	107.9	98.3	26043.2	91.1	3.546	97.6	93.9	95.8	26043.2	91.0	3.553	97.5	92.7	95.1
25990.4	55.3	3.612	64.1	59.9	62.0	25990.4	51.2	3.727	63.4	48.6	56.0	25990.4	49.1	3.759	63.9	48.4	56.2
25937.6	65.3	3.728	77.5	59.3	68.4	25937.6	58.4	3.954	67.4	53.8	60.6	25937.6	63.7	3.892	75.6	56.4	66.0
25884.8	72.2	3.840	86.7	70.3	78.5	25884.8	71.4	3.775	85.4	68.3	76.8	25884.8	69.2	3.782	81.3	67.7	74.5
25832.0	70.2	3.753	84.3	70.5	77.4	25832.0	74.5	3.739	89.9	70.9	80.4	25832.0	75.0	3.681	91.8	71.6	81.7
25779.2	77.4	3.514	98.6	69.6	84.1	25779.2	69.5	3.603	93.8	62.0	77.9	25779.2	66.9	3.622	86.1	58.2	72.1
25726.4	89.6	3.439	93.1	89.7	91.4	25726.4	90.3	3.453	92.7	90.2	91.4	25726.4	90.8	3.435	94.7	90.1	92.4
25673.6	76.7	3.695	77.3	80.5	78.9	25673.6	70.1	3.815	74.4	72.3	73.4	25673.6	74.3	3.760	76.2	77.1	76.7
25620.8	62.8	3.904	77.0	76.9	77.0	25620.8	52.2	3.969	71.0	62.6	66.8	25620.8	60.4	3.927	76.9	72.4	74.6
25568.0	83.7	3.535	81.3	93.9	87.6	25568.0	80.3	3.549	83.0	86.1	84.5	25568.0	82.9	3.543	85.5	91.0	88.3
25515.2	83.1	3.773	93.4	75.9	84.7	25515.2	87.5	3.600	96.0	86.2	91.1	25515.2	87.8	3.561	97.1	90.5	93.8
25462.4	73.2	3.660	77.6	73.4	75.5	25462.4	67.8	3.904	69.3	71.0	70.1	25462.4	65.8	3.918	70.1	77.3	73.7
25409.6	96.6	3.695	95.6	98.5	97.0	25409.6	99.6	3.644	97.6	102.4	100.0	25409.6	97.4	3.647	100.3	100.4	100.4
25356.8	77.5	3.696	81.8	77.0	79.4	25356.8	72.6	3.787	72.5	76.9	74.7	25356.8	72.8	3.820	81.2	79.3	80.2
25304.0	94.9	3.756	101.1	95.7	98.4	25304.0	96.2	3.766	99.4	97.8	98.6	25304.0	87.3	3.880	96.8	92.7	94.7
25251.2	66.6	3.926	79.1	62.9	71.0	25251.2	63.9	3.993	75.1	62.9	69.0	25251.2	63.9	4.039	64.6	70.5	67.5
25198.4	54.4	3.822	63.2	55.2	59.2	25198.4	63.2	3.722	70.7	61.8	66.2	25198.4	57.0	3.823	61.1	64.5	62.8
25145.6	70.9	3.878	73.5	77.0	75.3	25145.6	62.5	3.972	69.4	62.8	66.1	25145.6	63.0	3.971	61.1	74.1	67.6
25092.8	83.5	3.673	88.0	83.5	85.7	25092.8	82.9	3.661	89.2	81.5	85.3	25092.8	83.5	3.635	85.8	86.6	86.2
25040.0	76.3	3.894	72.0	85.0	78.5	25040.0	78.1	3.805	68.8	90.9	79.8	25040.0	77.0	3.956	71.3	84.5	77.9
24987.2	71.6	3.876	69.1	83.2	76.2	24987.2	73.3	3.884	74.3	82.9	78.6	24987.2	78.3	3.891	69.6	89.9	79.7
24934.4	88.0	3.883	90.1	88.3	89.2	24934.4	88.3	3.929	91.8	87.7	89.7	24934.4	89.8	3.916	89.7	93.6	91.7
24881.6	84.3	3.684	85.5	89.1	87.3	24881.6	82.4	3.700	84.6	84.9	84.8	24881.6	80.7	3.775	81.4	87.6	84.5
24828.8	92.0	3.614	98.2	91.9	95.0	24828.8	89.1	3.714	91.9	92.8	92.4	24828.8	88.4	3.697	86.2	98.4	92.3
24776.0	79.1	3.685	82.1	79.6	80.9	24776.0	83.2	3.742	78.7	88.5	83.6	24776.0	81.2	3.777	74.8	90.0	82.4
24723.2	74.3	3.920	80.9	76.0	78.4	24723.2	70.6	3.877	80.5	76.3	78.4	24723.2	67.8	3.947	74.2	72.3	73.2
24670.4	72.5	3.677	79.3	73.5	76.4	24670.4	65.2	3.674	66.9	67.2	67.0	24670.4	64.6	3.715	65.3	69.8	67.5
24617.6	102.2	3.838	100.9	108.2	104.5	24617.6	108.3	3.859	106.3	112.0	109.1	24617.6	108.6	3.877	107.6	111.8	109.7
24564.8	86.2	3.712	95.3	83.7	89.5	24564.8	76.1	3.748	80.7	78.9	79.8	24564.8	76.0	3.765	78.7	78.9	78.8
24512.0	51.8	3.946	58.2	51.1	54.6	24512.0	57.2	3.977	62.9	56.0	59.5	24512.0	56.0	3.992	60.5	55.1	57.8
24459.2	65.3	3.678	66.2	68.0	67.1	24459.2	62.9	3.862	71.7	60.8	66.3	24459.2	63.8	3.820	67.2	65.8	66.5
24406.4	71.3	3.939	74.5	77.2	75.8	24406.4	69.5	3.890	72.5	70.0	71.2	24406.4	72.2	3.891	74.1	73.8	74.0
24353.6	74.4	3.736	70.3	81.5	75.9	24353.6	73.5	3.755	71.6	79.2	75.4	24353.6	70.6	3.778	73.8	72.1	73.0
24300.8	57.4	3.814	72.6	51.5	62.1	24300.8	50.6	3.936	66.5	45.1	55.8	24300.8	54.4	3.811	58.2	56.7	57.4
24248.0	57.9	3.754	64.0	57.4	60.7	24248.0	54.6	3.941	64.4	52.0	58.2	24248.0	54.9	3.950	56.7	62.2	59.4
24195.2	86.0	3.610	90.3	86.1	88.2	24195.2	84.9	3.650	86.5	89.3	87.9	24195.2	90.0	3.640	86.0	100.1	93.1
24142.4	76.6	3.577	78.5	78.5	78.5	24142.4	73.1	3.752	83.6	70.4	77.0	24142.4	69.6	3.780	69.7	71.1	70.4
24089.6	64.6	3.981	61.0	75.5	68.2	24089.6	62.6	3.930	64.0	67.7	65.9	24089.6	63.3	3.971	65.5	67.0	66.2
24036.8	69.3	3.875	71.4	71.7	71.5	24036.8	63.2	3.953	63.0	67.0	65.0	24036.8	63.7	3.922	61.2	70.8	66.0
23984.0	86.3	3.555	93.0	85.2	89.1	23984.0	94.4	3.448	103.3	90.4	96.8	23984.0	89.6	3.441	100.5	84.9	92.7
23931.2	81.7	3.768	81.2	85.8	83.5	23931.2	74.3	3.912	74.2	80.2	77.2	23931.2	69.6	3.932	70.6	71.6	71.1
23878.4	65.8	3.846	68.4	68.9	68.6	23878.4	65.3	3.862	67.8	67.4	67.6	23878.4	62.7	3.936	67.0	72.6	69.8
23825.6	55.3	3.873	55.2	62.1	58.7	23825.6	57.4	3.820	55.0	63.3	59.1	23825.6	50.5	3.909	60.1	62.8	61.4
23772.8	64.0	3.722	68.2	64.0	66.1	23772.8	67.7	3.634	68.1	70.1	69.1	23772.8	58.5	3.873	64.3	64.4	64.4
23720.0	60.3	4.007	58.6	65.2	61.9	23720.0	58.2	4.066	59.2	60.2	59.7	23720.0	58.6	4.089	63.9	57.2	60.6
23667.2	58.8	3.882	55.1	68.7	61.9	23667.2	62.0	3.798	61.3	70.2	65.8	23667.2	52.2	3.986	54.1	57.4	55.7
23614.4	97.0	3.495	102.6	97.6	100.1	23614.4	100.7	3.490	106.3	98.8	102.5	23614.4	97.2	3.533	105.2	94.0	99.6

23561.6	92.0	3.565	101.8	89.2	95.5	23561.6	89.9	3.577	91.1	95.9	93.5	23561.6	85.3	3.645	92.2	88.4	90.3
23508.8	68.5	3.753	75.0	73.6	74.3	23508.8	69.6	3.796	71.5	77.1	74.3	23508.8	69.3	3.828	70.3	73.2	71.8
23456.0	83.1	3.535	80.9	101.3	91.1	23456.0	81.1	3.620	82.5	90.4	86.4	23456.0	78.1	3.686	84.4	76.1	80.3
23403.2	65.1	3.868	68.4	75.8	72.1	23403.2	67.3	3.819	67.0	73.8	70.4	23403.2	65.6	3.845	62.6	77.2	69.9
23350.4	101.6	3.501	107.3	97.7	102.5	23350.4	103.2	3.535	108.8	99.1	104.0	23350.4	96.5	3.527	103.9	92.5	98.2
23297.6	73.1	3.613	78.0	74.2	76.1	23297.6	72.9	3.661	84.4	67.2	75.8	23297.6	79.6	3.498	79.5	85.0	82.3
23244.8	101.1	3.445	104.6	99.4	102.0	23244.8	95.5	3.533	104.3	88.3	96.3	23244.8	98.4	3.413	103.8	95.1	99.4
23192.0	81.9	3.847	85.1	79.6	82.3	23192.0	75.7	3.951	77.3	76.5	76.9	23192.0	81.1	3.725	83.1	82.6	82.8
23139.2	82.4	3.676	83.5	81.7	82.6	23139.2	80.8	3.589	83.4	80.3	81.8	23139.2	74.8	3.690	84.8	68.1	76.4
23086.4	67.4	3.745	72.0	69.4	70.7	23086.4	68.3	3.788	72.4	69.4	70.9	23086.4	75.4	3.600	80.9	75.1	78.0
23033.6	59.2	3.742	73.3	53.3	63.3	23033.6	63.6	3.830	73.9	59.0	66.5	23033.6	62.8	3.713	67.9	64.8	66.3
22980.8	80.8	3.711	80.0	85.7	82.9	22980.8	81.0	3.642	80.5	84.3	82.4	22980.8	80.2	3.617	80.4	82.3	81.4
22928.0	70.9	3.739	80.0	68.2	74.1	22928.0	68.4	3.802	76.8	66.3	71.6	22928.0	76.6	3.680	82.5	74.1	78.3
22875.2	82.0	3.806	87.0	82.1	84.5	22875.2	72.4	3.839	87.7	75.1	81.4	22875.2	81.1	3.721	86.6	82.2	84.4
22822.4	60.8	3.843	61.9	64.8	63.3	22822.4	57.2	3.986	54.9	66.2	60.6	22822.4	52.5	3.923	58.2	58.3	58.3
22769.6	50.9	3.847	57.7	49.3	53.5	22769.6	53.9	3.869	62.4	49.0	55.7	22769.6	53.9	3.745	59.0	53.3	56.2
22716.8	66.4	3.742	73.7	61.9	67.8	22716.8	63.3	3.851	72.2	57.8	65.0	22716.8	59.6	3.871	68.1	56.7	62.4
22664.0	61.5	3.881	66.9	62.9	64.9	22664.0	57.7	3.941	63.3	56.5	59.9	22664.0	65.7	3.795	68.6	70.6	69.6
22611.2	82.4	3.731	78.4	91.7	85.0	22611.2	80.7	3.854	80.2	83.7	81.9	22611.2	75.8	3.847	73.6	83.4	78.5
22558.4	66.4	3.777	68.8	66.7	67.7	22558.4	64.8	3.777	70.9	66.2	68.5	22558.4	65.5	3.695	71.5	64.3	67.9
22505.6	52.5	3.856	55.6	55.0	55.3	22505.6	47.2	3.971	55.4	42.4	48.9	22505.6	43.0	4.041	51.8	41.5	46.7
22452.8	44.8	4.048	50.9	46.2	48.5	22452.8	59.3	3.991	60.6	68.1	64.4	22452.8	54.9	3.859	55.3	60.5	57.9
22400.0	60.6	3.853	69.9	57.3	63.6	22400.0	48.9	4.061	54.8	47.8	51.3	22400.0	43.5	4.087	54.2	44.4	49.3
22347.2	64.0	3.783	74.5	62.3	68.4	22347.2	63.9	3.863	63.9	68.7	66.3	22347.2	70.4	3.702	83.0	64.7	73.8
22294.4	54.9	3.825	58.8	56.4	57.6	22294.4	55.0	3.971	56.7	55.7	56.2	22294.4	50.3	4.007	57.1	50.9	54.0
22241.6	75.2	3.592	80.6	74.0	77.3	22241.6	69.8	3.731	73.5	71.6	72.6	22241.6	73.5	3.618	82.0	66.6	74.3
22188.8	71.6	3.720	68.8	79.9	74.3	22188.8	75.0	3.747	75.1	79.3	77.2	22188.8	78.2	3.712	73.7	90.7	82.2
22136.0	102.3	3.474	101.8	106.4	104.1	22136.0	79.5	3.696	85.8	81.6	83.7	22136.0	84.0	3.556	89.7	85.5	87.6
22083.2	63.8	3.652	70.9	67.0	69.0	22083.2	66.3	3.725	81.0	64.2	72.6	22083.2	68.0	3.681	79.6	70.0	74.8
22030.4	71.8	3.691	74.9	73.7	74.3	22030.4	69.2	3.776	73.0	70.2	71.6	22030.4	63.4	3.761	68.3	67.0	67.7
21977.6	58.6	3.911	68.5	57.9	63.2	21977.6	61.8	3.848	62.4	66.6	64.5	21977.6	59.6	3.976	64.8	61.6	63.2
21924.8	71.0	3.684	73.6	71.3	72.5	21924.8	65.7	3.831	75.1	61.5	68.3	21924.8	67.2	3.815	73.4	66.2	69.8
21872.0	66.0	3.864	72.8	60.7	66.8	21872.0	71.0	3.890	81.5	62.3	71.9	21872.0	71.2	3.926	82.0	61.5	71.8
21819.2	80.0	3.775	85.9	81.4	83.6	21819.2	71.1	3.820	80.1	68.0	74.0	21819.2	68.4	3.905	74.6	69.6	72.1
21766.4	73.8	3.922	77.0	71.8	74.4	21766.4	70.7	4.004	76.9	65.7	71.3	21766.4	68.9	4.055	74.0	66.2	70.1
21713.6	75.6	3.783	81.8	71.7	76.7	21713.6	70.2	3.865	78.2	64.7	71.5	21713.6	65.6	3.852	76.0	60.6	68.3
21660.8	70.3	3.864	71.5	71.5	71.5	21660.8	78.0	3.907	77.6	81.4	79.5	21660.8	72.9	3.943	77.4	71.6	74.5
21608.0	68.0	3.708	76.9	61.7	69.3	21608.0	56.2	3.842	61.8	61.4	61.6	21608.0	57.7	3.717	62.2	57.1	59.7
21555.2	74.6	3.922	75.2	75.7	75.5	21555.2	70.6	4.109	74.3	69.5	71.9	21555.2	69.6	4.017	71.2	71.6	71.4
21502.4	78.6	3.627	81.6	79.5	80.6	21502.4	70.7	3.818	76.7	68.8	72.7	21502.4	82.3	3.621	86.2	81.8	84.0
21449.6	65.1	3.876	68.7	65.6	67.2	21449.6	64.4	3.921	69.5	70.8	70.1	21449.6	62.1	3.874	69.6	61.9	65.8
21396.8	80.4	3.705	76.6	89.3	83.0	21396.8	75.7	3.792	77.1	79.5	78.3	21396.8	74.9	3.751	72.9	80.9	76.9
21344.0	52.8	3.994	48.9	60.2	54.5	21344.0	51.7	4.108	47.4	60.6	54.0	21344.0	55.4	3.837	52.9	61.4	57.1
21291.2	74.9	3.890	71.1	81.0	76.0	21291.2	72.8	3.984	76.8	74.1	75.4	21291.2	66.5	4.016	67.4	70.9	69.1
21238.4	49.2	4.094	54.6	45.6	50.1	21238.4	49.4	4.010	60.7	51.7	56.2	21238.4	51.9	3.937	57.6	49.5	53.5
21185.6	74.1	3.814	76.4	73.2	74.8	21185.6	73.3	3.874	78.8	75.4	77.1	21185.6	70.6	3.904	72.5	73.5	73.0
21132.8	71.2	3.835	78.4	66.8	72.6	21132.8	65.0	3.860	73.6	63.4	68.5	21132.8	65.6	3.725	74.9	59.3	67.1
21080.0	55.4	3.768	68.4	52.2	60.3	21080.0	48.0	3.936	50.9	54.7	52.8	21080.0	53.2	3.869	61.3	51.5	56.4
21027.2	69.5	3.873	81.7	65.0	73.3	21027.2	78.0	3.677	83.4	78.0	80.7	21027.2	76.7	3.619	88.1	69.7	78.9
20974.4	68.0	3.621	77.9	63.7	70.8	20974.4	60.2	3.971	67.9	59.6	63.8	20974.4	64.7	3.843	67.4	66.2	66.8
20921.6	78.9	3.762	83.5	83.3	83.4	20921.6	70.0	3.801	78.1	71.4	74.8	20921.6	77.9	3.632	81.8	80.2	81.0
20868.8	67.4	3.671	68.4	71.2	69.8	20868.8	56.9	3.994	58.6	69.7	64.1	20868.8	52.6	3.817	53.9	59.9	56.9
20816.0	75.2	3.764	78.1	73.7	75.9	20816.0	72.1	3.819	72.5	75.8	74.2	20816.0	78.6	3.672	79.8	79.4	79.6
20763.2	78.5	3.948	79.2	80.7	80.0	20763.2	74.1	4.022	82.0	69.4	75.7	20763.2	72.0	4.057	73.5	73.4	73.5
20710.4	55.2	3.969	55.1	61.7	58.4	20710.4	65.7	3.900	65.6	78.1	71.9	20710.4	61.7	3.898	61.8	67.4	64.6
20657.6	90.2	3.861	88.1	94.3	91.2	20657.6	83.0	3.921	81.7	85.8	83.7	20657.6	78.7	3.960	80.7	78.3	79.5
20604.8	73.2	3.907	85.2	70.2	77.7	20604.8	87.2	3.848	95.8	89.8	92.8	20604.8	83.2	3.808	88.6	80.9	84.7

20552.0	63.1	3.833	67.2	66.5	66.8
20499.2	64.6	3.933	67.2	66.1	66.7
20446.4	53.1	3.956	61.9	53.1	57.5
20393.6	50.9	4.017	54.8	55.6	55.2
20340.8	64.1	3.922	67.2	68.3	67.8
20288.0	62.9	3.908	72.9	62.6	67.8
20235.2	84.6	3.485	90.8	93.7	92.2
20182.4	94.2	3.685	99.6	99.2	99.4
20129.6	73.8	3.815	80.9	76.7	78.8
20076.8	75.9	3.708	94.4	73.8	84.1
20024.0	53.7	3.763	58.5	58.5	58.5
19971.2	99.7	3.492	114.0	87.3	100.6
19918.4	78.3	3.733	83.2	79.4	81.3
19865.6	78.8	3.427	83.0	81.2	82.1
19812.8	65.8	3.761	69.1	64.9	67.0
19760.0	70.0	3.550	75.8	69.5	72.7
19707.2	43.4	3.956	46.9	45.3	46.1
19654.4	69.4	3.584	68.3	81.9	75.1
19601.6	64.5	3.683	59.2	77.7	68.4
19548.8	65.8	3.625	66.9	80.1	73.5
19496.0	55.7	3.773	50.9	68.3	59.6
19443.2	68.1	3.545	72.1	74.6	73.3
19390.4	63.6	3.789	58.2	72.8	65.5
19337.6	60.3	3.638	67.8	61.5	64.7
19284.8	50.5	3.976	53.6	54.4	54.0
19232.0	66.4	3.670	73.5	63.4	68.5
19179.2	53.0	3.881	71.5	45.5	58.5
19126.4	72.4	3.756	92.4	58.0	75.2
19073.6	80.6	3.647	79.2	83.8	81.5
19020.8	64.6	4.100	73.9	64.5	69.2
18968.0	69.2	3.903	77.9	64.0	71.0
18915.2	54.3	4.003	61.8	55.0	58.4
18862.4	74.1	3.578	77.8	80.0	78.9
18809.6	59.9	3.737	70.5	56.4	63.5
18756.8	64.0	3.898	67.6	67.7	67.6
18704.0	50.6	4.188	58.1	48.6	53.4
18651.2	86.7	3.624	95.8	83.4	89.6
18598.4	68.2	3.863	65.9	77.9	71.9
18545.6	108.3	3.538	114.3	108.7	111.5
18492.8	75.0	3.826	75.3	78.8	77.0
18440.0	75.3	3.739	84.4	74.7	79.6
18387.2	56.5	4.051	64.8	64.7	64.7
18334.4	68.6	3.944	74.0	73.4	73.7
18281.6	99.0	3.863	87.7	123.3	105.5
18228.8	155.5	3.753	155.9	165.6	160.7
18176.0	81.2	3.959	75.1	91.0	83.0
18123.2	89.0	3.741	91.6	95.2	93.4
18070.4	66.6	3.883	72.3	64.5	68.4
18017.6	49.1	4.089	62.3	48.6	55.5
17964.8	74.0	3.723	85.9	67.1	76.5
17912.0	80.8	3.803	87.4	78.0	82.7
17859.2	65.4	3.862	70.9	62.4	66.6
17806.4	62.6	4.003	79.2	55.0	67.1
17753.6	65.2	3.787	74.0	61.5	67.7
17700.8	77.1	3.675	77.6	86.5	82.0
17648.0	94.1	3.604	102.7	91.7	97.2
17595.2	64.6	3.831	73.3	64.2	68.8

20552.0	53.4	3.935	56.6	54.1	55.3
20499.2	60.9	3.935	64.5	61.1	62.8
20446.4	59.6	3.886	68.2	63.6	65.9
20393.6	46.8	3.997	52.4	47.3	49.9
20340.8	61.2	3.950	65.6	62.9	64.2
20288.0	59.2	3.913	61.1	64.7	62.9
20235.2	85.7	3.568	83.6	96.6	90.1
20182.4	87.0	3.764	94.5	83.4	89.0
20129.6	74.7	3.824	84.9	69.6	77.2
20076.8	71.4	3.786	82.1	67.4	74.7
20024.0	60.1	3.794	67.4	65.4	66.4
19971.2	93.2	3.376	104.1	87.5	95.8
19918.4	75.2	3.662	76.6	78.7	77.6
19865.6	75.9	3.388	80.2	75.0	77.6
19812.8	59.5	3.820	57.2	66.7	62.0
19760.0	64.7	3.491	70.6	67.3	69.0
19707.2	57.3	3.636	55.2	64.5	59.9
19654.4	60.8	3.852	62.9	71.3	67.1
19601.6	67.9	3.579	56.8	84.4	70.6
19548.8	62.2	3.751	62.4	76.3	69.3
19496.0	61.5	3.582	61.1	68.3	64.7
19443.2	68.2	3.663	64.9	80.2	72.6
19390.4	65.2	3.752	59.9	76.8	68.3
19337.6	54.4	3.820	65.9	53.9	59.9
19284.8	48.6	3.869	60.9	44.4	52.6
19232.0	55.3	3.916	62.3	58.9	60.6
19179.2	62.5	3.786	63.4	68.6	66.0
19126.4	64.2	3.806	76.8	58.1	67.4
19073.6	84.6	3.682	85.4	87.7	86.5
19020.8	55.1	4.120	62.8	51.9	57.3
18968.0	68.0	3.837	79.5	60.1	69.8
18915.2	62.4	3.776	65.3	63.0	64.1
18862.4	78.2	3.482	84.4	80.4	82.4
18809.6	66.3	3.698	77.5	63.3	70.4
18756.8	61.5	3.944	70.5	58.2	64.3
18704.0	53.9	4.064	64.4	48.5	56.5
18651.2	85.2	3.612	89.2	90.1	89.7
18598.4	79.6	3.854	76.3	84.7	80.5
18545.6	100.1	3.550	101.4	110.3	105.9
18492.8	78.8	3.797	77.2	88.4	82.8
18440.0	70.1	3.864	75.7	68.3	72.0
18387.2	57.8	3.978	66.9	64.3	65.6
18334.4	66.6	3.941	67.0	71.9	69.4
18281.6	110.9	3.834	98.0	136.3	117.1
18228.8	151.0	3.680	149.0	160.7	154.9
18176.0	103.7	3.773	97.9	111.5	104.7
18123.2	60.9	4.126	64.5	67.2	65.9
18070.4	73.2	3.782	82.9	71.5	77.2
18017.6	41.6	4.115	46.9	48.9	47.9
17964.8	71.7	3.726	84.4	64.1	74.2
17912.0	77.7	3.765	82.9	75.7	79.3
17859.2	66.6	3.871	74.6	69.1	71.9
17806.4	64.5	3.790	78.3	59.3	68.8
17753.6	60.5	3.945	69.5	58.0	63.8
17700.8	76.7	3.690	78.0	87.3	82.7
17648.0	91.0	3.592	102.7	91.0	96.8
17595.2	70.0	3.843	75.1	73.0	74.1

20552.0	54.6	3.870	55.3	56.3	55.8
20499.2	61.9	3.903	67.1	61.0	64.1
20446.4	63.1	3.807	68.2	70.9	69.6
20393.6	48.7	3.992	49.8	54.6	52.2
20340.8	61.1	3.929	62.6	71.9	67.2
20288.0	61.1	3.845	66.1	61.8	64.0
20235.2	94.9	3.472	91.6	106.0	98.8
20182.4	88.8	3.673	95.0	85.0	90.0
20129.6	72.4	3.774	81.8	67.7	74.7
20076.8	73.7	3.619	81.1	73.6	77.3
20024.0	59.1	3.715	64.4	68.3	66.3
19971.2	86.4	3.404	97.5	86.2	91.9
19918.4	81.8	3.573	84.1	83.2	83.7
19865.6	75.4	3.398	72.4	82.4	77.4
19812.8	70.1	3.662	66.7	76.3	71.5
19760.0	56.7	3.612	65.0	57.1	61.0
19707.2	54.4	3.674	58.2	57.4	57.8
19654.4	56.6	3.911	55.1	68.2	61.6
19601.6	74.0	3.528	64.0	88.1	76.1
19548.8	59.6	3.732	65.9	65.1	65.5
19496.0	60.6	3.624	61.8	70.0	65.9
19443.2	64.5	3.671	63.7	75.4	69.6
19390.4	53.4	3.800	54.4	59.2	56.8
19337.6	52.7	3.838	60.3	56.4	58.4
19284.8	51.2	3.959	54.0	55.4	54.7
19232.0	52.6	4.008	56.1	58.1	57.1
19179.2	58.6	3.879	70.3	52.9	61.6
19126.4	71.5	3.758	87.4	62.2	74.8
19073.6	84.3	3.565	95.7	82.6	89.1
19020.8	65.7	3.877	67.8	65.6	66.7
18968.0	76.1	3.679	81.5	75.4	78.5
18915.2	68.1	3.697	63.3	78.1	70.7
18862.4	73.9	3.528	78.0	77.2	77.6
18809.6	70.0	3.567	76.5	66.3	71.4
18756.8	61.8	3.901	67.4	63.0	65.2
18704.0	54.1	4.045	63.4	56.3	59.8
18651.2	87.9	3.599	93.7	92.3	93.0
18598.4	76.9	3.768	77.5	83.1	80.3
18545.6	97.2	3.650	94.9	100.9	97.9
18492.8	88.4	3.554	86.3	99.5	92.9
18440.0	66.5	3.855	67.2	69.5	68.3
18387.2	67.9	3.748	73.6	74.3	74.0
18334.4	63.9	3.940	74.9	56.6	65.7
18281.6	113.5	3.738	101.8	130.7	116.3
18228.8	135.3	3.813	118.1	163.5	140.8
18176.0	99.7	3.768	98.8	101.8	100.3
18123.2	63.2	3.930	67.5	70.2	68.8
18070.4	82.7	3.809	93.5	77.0	85.3
18017.6	45.7	4.028	56.3	45.4	50.8
17964.8	67.7	3.757	73.5	71.1	72.3
17912.0	86.5	3.720	89.3	85.5	87.4
17859.2	67.9	3.854	75.3	65.7	70.5
17806.4	72.5	3.744	81.3	66.7	74.0
17753.6	57.9	3.834	72.1	53.9	63.0
17700.8	76.1	3.641	81.9	84.8	83.4
17648.0	88.1	3.619	94.1	88.9	91.5
17595.2	69.4	3.740	80.6	65.2	72.9

17542.4	87.0	3.547	101.5	75.9	88.7	17542.4	84.1	3.487	99.2	75.0	87.1	17542.4	90.0	3.603	97.9	85.6	91.7
17489.6	77.3	3.780	85.7	77.3	81.5	17489.6	84.5	3.777	96.4	85.6	91.0	17489.6	81.4	3.701	90.3	80.3	85.3
17436.8	112.7	3.608	109.0	119.5	114.3	17436.8	102.3	3.589	108.0	103.8	105.9	17436.8	95.9	3.778	99.8	97.4	98.6
17384.0	89.4	3.791	97.3	86.6	91.9	17384.0	93.5	3.821	94.1	95.9	95.0	17384.0	97.6	3.672	99.7	97.3	98.5
17331.2	99.3	3.624	111.0	91.4	101.2	17331.2	96.0	3.614	107.5	86.4	97.0	17331.2	87.0	3.807	97.6	80.9	89.3
17278.4	84.3	3.820	83.8	91.3	87.5	17278.4	89.6	3.689	87.7	92.2	89.9	17278.4	94.8	3.589	96.9	96.9	96.9
17225.6	104.9	3.464	111.9	100.4	106.1	17225.6	92.5	3.597	99.6	88.0	93.8	17225.6	85.4	3.643	90.5	83.7	87.1
17172.8	82.1	3.654	88.2	79.4	83.8	17172.8	93.1	3.404	98.5	90.2	94.3	17172.8	88.8	3.473	95.3	83.9	89.6
17120.0	80.8	3.662	87.9	78.3	83.1	17120.0	66.7	3.791	74.8	63.2	69.0	17120.0	63.8	3.872	67.8	64.1	66.0
17067.2	63.3	3.943	65.2	66.5	65.9	17067.2	67.2	3.790	61.5	77.2	69.3	17067.2	69.1	3.749	62.6	78.1	70.4
17014.4	73.4	3.746	73.8	80.9	77.4	17014.4	70.8	3.752	75.4	76.4	75.9	17014.4	61.4	3.909	63.1	67.0	65.0
16961.6	74.9	3.840	85.0	70.9	78.0	16961.6	75.1	3.824	80.9	72.7	76.8	16961.6	79.3	3.802	80.0	81.9	80.9
16908.8	67.4	3.970	79.9	63.1	71.5	16908.8	66.2	3.923	71.8	64.5	68.2	16908.8	62.6	3.900	67.2	64.1	65.7
16856.0	75.8	3.814	77.6	83.7	80.6	16856.0	76.8	3.806	84.2	77.9	81.1	16856.0	78.8	3.750	80.2	81.9	81.1
16803.2	50.7	3.978	62.2	52.1	57.2	16803.2	46.7	4.057	47.9	57.4	52.6	16803.2	50.5	4.017	61.2	45.8	53.5
16750.4	59.0	3.967	64.1	62.1	63.1	16750.4	61.4	3.758	65.0	72.4	68.7	16750.4	63.6	3.796	67.2	68.2	67.7
16697.6	49.6	3.955	56.6	47.1	51.9	16697.6	48.0	4.016	61.6	42.5	52.0	16697.6	52.9	3.975	60.1	50.5	55.3
16644.8	62.6	3.847	62.9	73.0	68.0	16644.8	60.7	3.766	72.5	74.2	73.3	16644.8	64.3	3.751	76.3	61.5	68.9
16592.0	80.2	3.663	94.1	90.9	92.5	16592.0	80.4	3.780	90.2	86.9	88.6	16592.0	89.7	3.686	91.9	92.6	92.2
16539.2	85.2	3.676	87.4	90.3	88.9	16539.2	86.3	3.631	87.1	90.7	88.9	16539.2	79.0	3.612	82.2	84.1	83.2
16486.4	93.2	3.545	98.4	92.1	95.2	16486.4	87.2	3.660	94.8	83.4	89.1	16486.4	87.9	3.692	96.3	84.4	90.4
16433.6	74.1	3.722	73.9	84.7	79.3	16433.6	84.6	3.655	87.0	90.1	88.5	16433.6	86.1	3.613	86.9	94.0	90.4
16380.8	71.2	3.917	75.1	71.5	73.3	16380.8	60.8	3.998	66.1	60.3	63.2	16380.8	59.4	4.043	59.7	64.8	62.2
16328.0	87.6	3.741	99.0	80.7	89.9	16328.0	94.3	3.652	99.3	98.5	98.9	16328.0	87.3	3.711	94.3	88.3	91.3
16275.2	67.6	3.796	63.0	81.6	72.3	16275.2	72.1	3.895	61.3	94.3	77.8	16275.2	67.3	3.930	67.2	73.9	70.5
16222.4	80.0	3.619	87.1	79.0	83.1	16222.4	82.6	3.567	96.8	79.5	88.1	16222.4	84.4	3.605	90.8	88.8	89.8
16169.6	101.7	3.635	105.6	102.9	104.3	16169.6	90.2	3.655	97.1	89.0	93.0	16169.6	92.2	3.694	102.5	84.9	93.7
16116.8	88.7	3.641	96.4	87.9	92.2	16116.8	87.3	3.715	95.2	89.6	92.4	16116.8	84.6	3.775	95.0	79.7	87.4
16064.0	93.1	3.854	94.0	99.4	96.7	16064.0	82.7	3.779	81.4	90.4	85.9	16064.0	83.6	3.851	81.6	89.3	85.5
16011.2	84.2	3.730	84.2	93.2	88.7	16011.2	87.7	3.672	85.6	106.3	95.9	16011.2	80.5	3.739	78.2	93.0	85.6
15958.4	61.9	3.894	66.6	61.3	63.9	15958.4	67.4	3.895	63.6	81.4	72.5	15958.4	65.2	3.791	73.7	61.3	67.5
15905.6	65.6	3.833	70.5	66.1	68.3	15905.6	56.4	3.831	55.1	68.9	62.0	15905.6	46.1	4.035	50.2	51.9	51.1
15852.8	77.8	3.935	85.5	75.6	80.6	15852.8	88.2	3.850	97.3	84.3	90.8	15852.8	88.8	3.767	96.3	83.3	89.8
15800.0	75.7	3.842	87.7	67.6	77.6	15800.0	72.3	3.653	90.3	69.9	80.1	15800.0	68.1	3.795	79.4	64.3	71.8
15747.2	70.4	3.945	76.2	67.7	71.9	15747.2	78.8	3.792	76.8	83.6	80.2	15747.2	71.9	3.851	78.9	69.6	74.3
15694.4	89.8	3.691	95.2	89.9	92.6	15694.4	89.4	3.534	98.1	88.1	93.1	15694.4	79.3	3.792	87.6	74.9	81.3
15641.6	73.1	3.906	79.2	72.3	75.8	15641.6	79.9	3.779	83.6	87.3	85.4	15641.6	80.5	3.748	81.8	88.9	85.4
15588.8	83.8	3.660	78.3	91.3	84.8	15588.8	88.6	3.576	81.7	106.0	93.8	15588.8	74.9	3.853	73.8	84.8	79.3
15536.0	51.6	4.101	56.8	51.2	54.0	15536.0	53.7	4.018	57.3	65.3	61.3	15536.0	62.0	3.790	59.3	77.4	68.3
15483.2	107.0	3.099	107.4	111.8	109.6	15483.2	106.9	3.017	109.9	113.2	111.5	15483.2	107.4	3.000	108.5	119.1	113.8
15430.4	89.5	3.706	102.8	86.7	94.8	15430.4	93.6	3.662	107.6	86.0	96.8	15430.4	92.6	3.626	100.7	88.6	94.6
15377.6	76.8	3.728	75.6	80.1	77.8	15377.6	73.4	3.814	73.1	75.4	74.3	15377.6	70.4	3.825	71.4	71.9	71.6
15324.8	92.1	3.529	95.2	93.0	94.1	15324.8	91.7	3.539	97.3	88.8	93.0	15324.8	88.4	3.568	94.5	84.7	89.6
15272.0	96.6	3.703	96.4	101.7	99.0	15272.0	94.2	3.781	102.0	90.7	96.3	15272.0	96.4	3.821	104.1	95.2	99.7
15219.2	93.9	3.684	91.7	101.6	96.7	15219.2	87.8	3.680	86.3	96.6	91.4	15219.2	81.1	3.710	78.4	92.4	85.4
15166.4	84.7	3.736	81.1	98.8	90.0	15166.4	84.8	3.775	80.7	94.6	87.6	15166.4	78.2	3.915	81.6	85.0	83.3
15113.6	74.2	3.796	73.5	81.9	77.7	15113.6	80.3	3.761	83.1	82.8	83.0	15113.6	80.6	3.824	92.0	73.4	82.7
15060.8	69.7	3.839	78.6	69.4	74.0	15060.8	60.9	3.921	65.8	61.2	63.5	15060.8	59.8	3.893	64.2	62.3	63.3
15008.0	67.8	3.888	70.4	70.2	70.3	15008.0	64.7	3.826	70.8	64.1	67.5	15008.0	63.0	3.767	67.5	62.5	65.0
14955.2	68.1	3.628	79.6	66.1	72.8	14955.2	61.3	3.810	69.6	62.4	66.0	14955.2	72.5	3.667	77.9	72.0	74.9
14902.4	57.3	3.899	66.5	52.2	59.3	14902.4	71.6	3.549	73.1	74.5	73.8	14902.4	76.4	3.474	74.5	85.0	79.8
14849.6	125.4	3.306	126.6	136.0	131.3	14849.6	113.6	3.411	122.1	109.8	116.0	14849.6	108.1	3.396	114.6	111.0	112.8
14796.8	117.0	3.458	129.9	109.1	119.5	14796.8	132.0	3.282	145.4	119.8	132.6	14796.8	136.0	3.222	140.6	134.6	137.6
14744.0	96.7	3.588	104.4	93.3	98.8	14744.0	75.3	3.662	80.8	74.7	77.7	14744.0	79.2	3.651	81.1	80.8	81.0
14691.2	106.5	3.449	114.2	101.6	107.9	14691.2	106.1	3.480	109.6	104.6	107.1	14691.2	100.1	3.492	103.4	99.9	101.6
14638.4	91.5	3.669	101.7	84.6	93.2	14638.4	89.8	3.722	101.2	82.6	91.9	14638.4	89.9	3.730	100.9	81.5	91.2
14585.6	67.8	3.706	76.5	65.3	70.9	14585.6	70.3	3.664	76.3	72.8	74.6	14585.6	71.1	3.683	76.1	71.2	73.7

14532.8	72.6	3.706	77.6	72.9	75.2	14532.8	74.6	3.626	81.8	71.8	76.8	14532.8	78.5	3.598	86.3	74.0	80.2
14480.0	85.9	3.548	88.4	89.5	88.9	14480.0	74.5	3.477	75.5	81.1	78.3	14480.0	74.2	3.543	79.6	76.7	78.1
14427.2	71.9	3.976	79.5	68.0	73.8	14427.2	75.9	4.007	80.2	73.5	76.9	14427.2	73.9	3.819	86.5	70.1	78.3
14374.4	98.7	3.590	109.5	92.8	101.1	14374.4	99.3	3.515	108.3	93.5	100.9	14374.4	92.2	3.667	101.6	87.4	94.5
14321.6	82.2	3.798	86.3	78.3	82.3	14321.6	76.1	3.892	83.5	70.8	77.1	14321.6	78.5	3.785	87.4	74.4	80.9
14268.8	61.7	3.879	70.9	62.0	66.5	14268.8	64.5	3.755	69.6	66.0	67.8	14268.8	57.8	3.899	66.5	57.9	62.2
14216.0	67.2	3.879	81.7	67.1	74.4	14216.0	71.6	3.729	87.5	65.5	76.5	14216.0	69.0	3.662	80.0	68.3	74.1
14163.2	63.0	3.858	81.4	63.8	72.6	14163.2	67.4	3.648	85.3	64.3	74.8	14163.2	66.5	3.748	72.1	69.3	70.7
14110.4	50.8	3.747	51.2	64.4	57.8	14110.4	56.6	3.741	58.3	65.7	62.0	14110.4	60.9	3.705	71.8	69.1	70.4
14057.6	66.7	3.681	73.3	70.7	72.0	14057.6	54.5	3.879	61.1	57.6	59.3	14057.6	56.1	3.799	58.7	69.5	64.1
14004.8	85.1	3.662	83.1	89.6	86.4	14004.8	82.8	3.535	95.7	82.0	88.8	14004.8	93.7	3.459	86.7	112.0	99.4
13952.0	76.3	3.593	77.1	89.0	83.1	13952.0	72.3	3.745	76.4	78.2	77.3	13952.0	64.5	3.803	66.9	76.1	71.5
13899.2	76.5	3.667	73.5	100.1	86.8	13899.2	78.8	3.607	76.2	95.5	85.8	13899.2	78.4	3.624	74.5	98.4	86.4
13846.4	61.9	3.683	61.2	73.7	67.4	13846.4	56.5	3.848	63.2	53.3	58.3	13846.4	52.7	3.797	59.9	54.5	57.2
13793.6	71.6	3.894	72.5	76.4	74.4	13793.6	78.3	3.780	85.1	73.7	79.4	13793.6	84.6	3.745	92.2	79.4	85.8
13740.8	73.2	3.752	80.3	71.7	76.0	13740.8	61.8	3.901	66.4	64.3	65.3	13740.8	56.0	3.892	63.9	52.5	58.2
13688.0	67.4	3.665	62.0	78.6	70.3	13688.0	69.1	3.582	68.3	73.9	71.1	13688.0	71.2	3.459	83.6	66.3	75.0
13635.2	77.4	3.649	77.6	83.9	80.8	13635.2	82.5	3.680	73.5	100.6	87.0	13635.2	76.2	3.709	75.0	82.0	78.5
13582.4	82.2	3.903	94.8	76.5	85.7	13582.4	93.2	3.705	88.5	107.3	97.9	13582.4	89.5	3.749	81.7	103.4	92.6
13529.6	66.4	3.841	64.4	78.3	71.4	13529.6	66.6	3.963	66.3	78.2	72.2	13529.6	72.3	4.011	75.6	79.9	77.8
13476.8	102.6	3.599	92.2	122.4	107.3	13476.8	107.2	3.576	105.5	117.4	111.4	13476.8	97.1	3.648	100.4	100.0	100.2
13424.0	95.7	3.709	92.1	102.8	97.5	13424.0	83.7	3.827	79.1	95.3	87.2	13424.0	76.9	3.967	80.4	85.0	82.7
13371.2	66.3	3.790	76.4	60.5	68.5	13371.2	75.2	3.623	79.7	81.5	80.6	13371.2	74.7	3.635	82.1	83.7	82.9
13318.4	75.3	3.515	90.0	69.7	79.8	13318.4	70.4	3.642	73.4	70.9	72.2	13318.4	75.2	3.619	82.5	78.1	80.3
13265.6	77.4	3.607	88.7	76.5	82.6	13265.6	73.3	3.431	76.7	75.6	76.2	13265.6	70.8	3.255	93.7	54.3	74.0

October 2000 Profile Survey of Westbound Lanes, Passing Lane (PWBOC00)

ATHENS 050 - October 2000 Tests

LANE 2 DOWN, PASS 1
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
29000.0					
28947.2	90.4	3.739	98.6	83.4	91.0
28894.4	80.1	3.843	83.9	78.0	81.0
28841.6	73.4	3.974	75.4	73.0	74.2
28788.8	78.7	3.828	81.9	76.6	79.3
28736.0	82.2	3.777	84.4	86.5	85.4
28683.2	75.4	3.884	76.0	78.9	77.4
28630.4	54.8	4.118	54.8	57.0	55.9
28577.6	55.2	4.020	61.1	53.4	57.2
28524.8	68.4	3.968	72.9	67.3	70.1
28472.0	80.1	3.645	82.0	80.9	81.4
28419.2	53.2	4.027	56.8	52.8	54.8
28366.4	71.5	3.944	71.6	71.7	71.7
28313.6	76.2	3.881	74.0	79.4	76.7
28260.8	70.4	3.987	67.4	76.7	72.0
28208.0	49.9	4.282	52.3	53.0	52.6
28155.2	65.6	4.112	72.5	61.9	67.2
28102.4	49.9	4.110	56.0	50.2	53.1
28049.6	45.5	4.119	47.8	52.7	50.2
27996.8	64.4	4.033	69.3	61.5	65.4
27944.0	47.8	4.064	56.5	44.5	50.5
27891.2	62.1	4.075	64.9	61.2	63.1
27838.4	64.3	3.793	59.2	73.7	66.4
27785.6	59.7	4.035	63.8	57.0	60.4
27732.8	60.1	4.005	61.8	63.1	62.4
27680.0	56.7	4.130	58.9	57.4	58.2
27627.2	61.5	4.047	67.0	61.1	64.0
27574.4	72.2	3.916	79.6	67.7	73.7
27521.6	59.1	4.004	61.8	62.0	61.9
27468.8	74.7	3.929	72.8	78.5	75.6
27416.0	59.3	3.814	67.1	60.6	63.9
27363.2	59.6	3.953	60.0	63.3	61.6
27310.4	126.1	3.083	139.2	121.1	130.2
27257.6	80.5	3.800	82.7	83.0	82.8
27204.8	81.6	3.682	79.5	88.2	83.9
27152.0	70.0	3.899	62.9	84.8	73.8
27099.2	64.9	4.035	64.0	69.4	66.7
27046.4	63.8	3.979	72.7	58.3	65.5
26993.6	50.1	4.122	48.6	57.6	53.1
26940.8	55.7	4.033	59.4	56.7	58.0
26888.0	64.1	3.990	67.8	63.1	65.5
26835.2	58.3	3.839	58.2	70.8	64.5
26782.4	60.5	4.051	66.5	61.7	64.1
26729.6	84.6	3.944	90.4	80.5	85.5
26676.8	47.4	4.075	57.5	47.0	52.3
26624.0	59.5	4.008	66.0	59.3	62.7

LANE 2 DOWN, PASS 2
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
29000.0					
28947.2	91.1	3.730	98.8	85.1	92.0
28894.4	78.9	3.832	82.3	78.6	80.5
28841.6	72.3	4.045	73.4	72.5	73.0
28788.8	77.0	3.825	82.6	73.3	77.9
28736.0	80.4	3.764	82.2	82.1	82.1
28683.2	78.7	3.865	75.8	83.5	79.7
28630.4	52.8	4.124	52.6	54.3	53.4
28577.6	55.1	4.036	60.9	54.9	57.9
28524.8	63.5	3.975	70.3	63.8	67.0
28472.0	77.5	3.734	80.7	80.3	80.5
28419.2	52.7	4.043	58.4	50.9	54.6
28366.4	71.3	3.908	70.6	73.2	71.9
28313.6	72.6	3.943	70.0	76.4	73.2
28260.8	69.9	4.042	67.2	75.9	71.5
28208.0	51.0	4.313	51.3	58.7	55.0
28155.2	66.3	4.085	71.7	63.7	67.7
28102.4	50.8	4.172	53.7	55.0	54.3
28049.6	45.7	4.109	42.6	53.9	48.2
27996.8	64.8	4.052	70.0	60.6	65.3
27944.0	45.9	4.056	55.2	41.5	48.4
27891.2	62.9	4.002	67.8	59.8	63.8
27838.4	61.0	3.878	58.7	67.5	63.1
27785.6	58.2	4.053	63.4	58.0	60.7
27732.8	60.1	3.965	61.0	63.3	62.1
27680.0	57.4	4.083	61.7	57.9	59.8
27627.2	58.1	4.055	59.8	60.3	60.1
27574.4	68.5	3.964	73.1	67.0	70.1
27521.6	57.7	4.021	59.0	59.3	59.2
27468.8	72.4	3.961	72.9	75.0	74.0
27416.0	57.5	3.857	68.0	54.2	61.1
27363.2	57.8	3.943	54.6	66.9	60.7
27310.4	121.3	3.223	132.6	117.8	125.2
27257.6	77.9	3.843	77.9	86.2	82.1
27204.8	71.5	3.891	74.1	71.3	72.7
27152.0	70.5	3.871	67.5	80.8	74.2
27099.2	64.9	4.076	63.4	70.9	67.2
27046.4	63.9	3.898	69.6	63.5	66.5
26993.6	42.0	4.150	41.3	51.3	46.3
26940.8	51.0	4.149	49.4	56.9	53.2
26888.0	63.4	4.021	65.4	64.6	65.0
26835.2	57.7	3.811	52.7	68.9	60.8
26782.4	55.8	4.076	56.8	60.6	58.7
26729.6	84.9	3.939	89.2	82.1	85.7
26676.8	43.5	4.155	47.2	50.5	48.8
26624.0	57.4	4.135	62.3	55.5	58.9

LANE 2 DOWN, PASS 3
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
29000.0					
28947.2	89.1	3.759	96.7	82.6	89.6
28894.4	78.8	3.859	80.2	78.5	79.3
28841.6	68.6	4.068	72.1	68.8	70.4
28788.8	75.2	3.823	82.3	69.2	75.8
28736.0	83.3	3.768	83.4	86.3	84.8
28683.2	77.1	3.806	73.8	82.2	78.0
28630.4	55.5	4.106	55.8	55.7	55.7
28577.6	53.6	4.024	58.4	54.0	56.2
28524.8	67.1	3.971	67.4	68.7	68.1
28472.0	75.8	3.757	76.5	78.3	77.4
28419.2	50.4	4.034	56.9	46.9	51.9
28366.4	69.4	3.923	70.2	70.4	70.3
28313.6	68.5	4.035	69.0	71.9	70.5
28260.8	70.9	3.982	70.0	74.5	72.3
28208.0	52.2	4.245	56.0	52.7	54.3
28155.2	63.5	4.124	71.6	63.1	67.3
28102.4	51.8	4.158	57.9	52.5	55.2
28049.6	47.8	4.060	47.1	52.3	49.7
27996.8	63.1	4.050	63.6	65.6	64.6
27944.0	45.1	4.100	51.8	44.3	48.0
27891.2	61.2	4.002	62.7	61.8	62.2
27838.4	66.0	3.704	57.9	79.0	68.4
27785.6	56.0	4.120	61.3	55.2	58.2
27732.8	57.2	4.014	55.4	63.0	59.2
27680.0	53.8	4.156	57.8	54.4	56.1
27627.2	56.0	4.166	59.7	55.9	57.8
27574.4	69.5	3.980	73.7	67.3	70.5
27521.6	56.2	4.062	59.6	57.8	58.7
27468.8	74.9	3.926	72.6	79.7	76.1
27416.0	59.2	3.846	64.5	59.4	61.9
27363.2	56.9	3.975	55.1	64.2	59.6
27310.4	120.3	3.218	132.9	115.5	124.2
27257.6	80.1	3.795	85.7	80.0	82.9
27204.8	77.4	3.757	79.1	81.1	80.1
27152.0	73.5	3.811	65.9	86.9	76.4
27099.2	61.5	4.090	59.9	70.4	65.2
27046.4	64.1	3.915	69.7	61.2	65.4
26993.6	43.0	4.179	45.0	51.6	48.3
26940.8	56.7	4.099	51.1	65.3	58.2
26888.0	59.4	4.043	65.3	58.1	61.7
26835.2	59.1	3.815	56.3	68.5	62.4
26782.4	58.8	4.089	61.6	58.8	60.2
26729.6	84.7	3.875	88.8	82.3	85.6
26676.8	38.6	4.186	37.7	47.4	42.5
26624.0	55.1	4.181	59.8	53.8	56.8

26571.2	76.8	3.606	77.1	82.7	79.9
26518.4	76.3	3.899	94.9	67.1	81.0
26465.6	51.3	4.057	57.0	50.8	53.9
26412.8	72.1	3.885	82.4	65.4	73.9
26360.0	58.4	4.014	69.9	53.7	61.8
26307.2	73.4	3.612	86.8	62.8	74.8
26254.4	41.0	3.978	40.5	53.3	46.9
26201.6	53.5	3.839	55.8	62.2	59.0
26148.8	48.5	3.982	52.6	51.3	52.0
26096.0	55.2	3.897	51.5	68.2	59.9
26043.2	61.0	3.910	64.4	70.9	67.7
25990.4	54.4	3.816	55.5	60.6	58.0
25937.6	56.5	4.042	56.8	62.3	59.5
25884.8	98.4	3.079	102.5	99.0	100.8
25832.0	54.7	3.898	52.3	63.3	57.8
25779.2	69.7	3.350	74.6	74.1	74.3
25726.4	64.4	3.757	68.2	68.5	68.4
25673.6	67.0	3.825	66.2	70.2	68.2
25620.8	77.9	3.745	85.1	81.0	83.1
25568.0	58.7	4.096	56.2	68.2	62.2
25515.2	71.3	4.008	73.2	71.9	72.5
25462.4	49.8	3.999	52.8	52.2	52.5
25409.6	53.5	4.122	52.0	63.1	57.5
25356.8	70.1	3.649	66.2	96.1	81.2
25304.0	99.8	3.569	93.6	110.1	101.8
25251.2	84.3	3.899	88.4	87.4	87.9
25198.4	65.3	3.753	75.4	60.7	68.1
25145.6	57.1	4.131	53.0	66.7	59.9
25092.8	68.3	3.872	68.9	70.2	69.6
25040.0	54.4	4.072	63.2	50.5	56.9
24987.2	55.7	4.058	59.1	63.3	61.2
24934.4	61.5	4.168	65.1	64.0	64.5
24881.6	64.6	3.923	67.6	72.0	69.8
24828.8	73.6	3.921	66.7	86.6	76.6
24776.0	49.2	4.061	44.7	66.9	55.8
24723.2	47.8	4.044	47.6	64.1	55.9
24670.4	52.1	3.935	53.0	60.0	56.5
24617.6	52.1	4.203	53.4	61.6	57.5
24564.8	50.1	4.095	47.1	65.7	56.4
24512.0	58.5	4.036	69.8	54.7	62.2
24459.2	60.9	3.854	74.1	60.4	67.2
24406.4	70.2	3.923	83.7	64.2	73.9
24353.6	63.1	3.871	64.8	71.2	68.0
24300.8	44.7	4.201	46.5	54.8	50.7
24248.0	48.5	3.849	46.6	59.2	52.9
24195.2	59.0	3.908	64.6	62.2	63.4
24142.4	64.3	3.844	57.3	80.7	69.0
24089.6	56.0	4.003	56.0	64.3	60.1
24036.8	48.2	4.034	45.4	60.6	53.0
23984.0	63.3	3.820	72.3	59.9	66.1
23931.2	67.0	4.014	65.2	70.0	67.6
23878.4	53.0	3.853	54.9	57.2	56.1
23825.6	49.7	3.881	47.1	58.7	52.9
23772.8	46.9	3.898	46.0	52.6	49.3
23720.0	61.8	3.887	67.8	60.5	64.2
23667.2	42.1	4.053	38.0	51.8	44.9
23614.4	83.9	3.702	90.9	80.3	85.6

26571.2	62.7	4.092	72.0	65.4	68.7
26518.4	69.6	3.892	84.2	65.1	74.6
26465.6	50.8	4.143	57.3	53.1	55.2
26412.8	71.8	3.699	82.1	65.6	73.9
26360.0	58.0	4.112	64.3	54.2	59.2
26307.2	70.5	3.630	80.1	70.7	75.4
26254.4	45.7	3.871	41.8	56.7	49.2
26201.6	46.5	3.983	44.7	53.4	49.0
26148.8	48.2	4.107	43.2	59.2	51.2
26096.0	54.6	3.939	46.1	67.4	56.8
26043.2	65.9	3.803	56.4	83.9	70.2
25990.4	54.0	3.741	55.1	56.4	55.8
25937.6	61.2	3.900	60.4	69.6	65.0
25884.8	102.4	3.009	113.5	92.5	103.0
25832.0	54.0	4.000	48.7	62.7	55.7
25779.2	60.9	3.726	68.7	67.9	68.3
25726.4	41.5	4.073	37.2	64.4	50.8
25673.6	52.1	3.898	56.7	77.7	67.2
25620.8	357.2	0.380	693.8	78.3	386.0
25568.0	57.3	4.110	75.8	69.2	72.5
25515.2	72.5	3.881	76.6	69.7	73.1
25462.4	45.0	4.124	47.9	55.3	51.6
25409.6	52.1	4.155	50.8	65.8	58.3
25356.8	71.4	3.692	70.9	92.6	81.7
25304.0	101.7	3.553	90.9	121.8	106.4
25251.2	77.1	3.908	79.2	80.9	80.0
25198.4	70.0	3.685	77.1	69.1	73.1
25145.6	53.8	4.198	51.2	61.1	56.1
25092.8	68.2	3.903	68.0	69.7	68.9
25040.0	55.7	4.031	62.3	54.1	58.2
24987.2	57.1	4.079	61.0	57.4	59.2
24934.4	61.9	4.181	64.0	65.2	64.6
24881.6	65.1	3.933	66.9	73.0	69.9
24828.8	74.2	3.904	67.1	87.2	77.1
24776.0	51.7	4.081	47.2	65.8	56.5
24723.2	45.0	4.081	44.4	55.2	49.8
24670.4	44.7	4.062	44.5	50.8	47.7
24617.6	58.1	4.297	53.0	65.8	59.4
24564.8	47.8	4.072	45.3	64.3	54.8
24512.0	50.3	4.062	66.2	49.2	57.7
24459.2	63.0	3.842	67.3	68.0	67.6
24406.4	69.5	3.973	86.0	58.9	72.4
24353.6	59.1	3.936	61.8	64.6	63.2
24300.8	47.1	4.168	48.2	56.6	52.4
24248.0	46.8	3.955	44.2	57.8	51.0
24195.2	56.9	3.962	60.6	60.4	60.5
24142.4	68.2	3.759	60.5	83.5	72.0
24089.6	54.8	3.899	62.1	51.8	56.9
24036.8	47.4	3.921	57.2	52.6	54.9
23984.0	64.3	3.874	72.4	58.1	65.3
23931.2	61.4	4.083	60.3	67.4	63.9
23878.4	55.7	3.730	61.3	55.9	58.6
23825.6	50.9	3.832	54.2	52.0	53.1
23772.8	50.4	3.880	47.5	58.2	52.8
23720.0	62.0	3.832	62.6	63.5	63.1
23667.2	45.0	4.014	36.0	58.5	47.3
23614.4	83.7	3.711	89.4	81.8	85.6

26571.2	67.7	3.987	75.8	69.4	72.6
26518.4	74.3	3.918	87.6	67.0	77.3
26465.6	50.9	4.079	55.3	56.2	55.8
26412.8	64.1	3.831	73.8	58.4	66.1
26360.0	51.5	4.186	56.8	50.6	53.7
26307.2	71.4	3.654	87.5	63.9	75.7
26254.4	40.0	4.019	39.9	56.1	48.0
26201.6	47.9	4.036	48.6	54.9	51.7
26148.8	49.6	4.069	45.0	58.3	51.6
26096.0	57.5	3.885	49.8	68.5	59.1
26043.2	67.0	3.814	59.1	82.6	70.9
25990.4	54.8	3.717	57.0	60.3	58.6
25937.6	57.0	3.969	56.6	63.7	60.2
25884.8	103.2	3.124	105.8	102.1	103.9
25832.0	58.2	3.789	65.2	56.0	60.6
25779.2	66.5	3.341	71.0	71.4	71.2
25726.4	54.1	3.880	58.6	62.7	60.6
25673.6	66.1	3.782	65.9	71.6	68.8
25620.8	60.9	4.008	84.1	67.4	75.7
25568.0	56.1	4.365	91.3	67.2	79.2
25515.2	38.8	4.319	70.0	70.5	70.2
25462.4	23.9	4.423	23.4	47.6	35.5
25409.6	37.1	4.391	42.6	64.1	53.4
25356.8	46.5	3.948	30.3	90.0	60.2
25304.0	112.8	3.719	125.7	131.5	128.6
25251.2	86.7	4.166	119.8	79.4	99.6
25198.4	50.6	4.222	66.2	61.8	64.0
25145.6	59.9	4.473	73.8	57.1	65.5
25092.8	58.3	4.347	78.3	69.0	73.7
25040.0	27.6	4.440	42.7	51.7	47.2
24987.2	56.7	4.407	72.2	57.5	64.8
24934.4	63.4	4.436	90.3	62.9	76.6
24881.6	54.9	3.884	100.0	74.0	87.0
24828.8	87.7	3.942	132.3	91.5	111.9
24776.0	56.3	3.972	73.7	70.2	71.9
24723.2	41.9	4.080	38.7	53.8	46.2
24670.4	46.1	4.012	50.3	47.9	49.1
24617.6	56.7	4.142	51.1	68.2	59.7
24564.8	51.5	3.990	46.6	63.0	54.8
24512.0	55.4	3.997	69.8	45.6	57.7
24459.2	61.4	3.864	64.9	66.1	65.5
24406.4	67.4	3.999	80.8	57.8	69.3
24353.6	57.7	3.979	59.0	61.6	60.3
24300.8	47.3	4.081	47.4	58.6	53.0
24248.0	52.6	3.754	52.1	60.2	56.2
24195.2	60.0	4.001	63.4	65.3	64.4
24142.4	70.0	3.808	63.9	82.2	73.0
24089.6	49.9	4.064	53.0	50.4	51.7
24036.8	47.3	4.123	46.4	53.4	49.9
23984.0	67.5	3.854	72.7	64.0	68.3
23931.2	61.5	4.145	58.5	68.8	63.7
23878.4	53.2	3.851	54.2	61.5	57.8
23825.6	38.6	4.038	36.6	53.7	45.2
23772.8	45.8	3.944	42.9	59.0	51.0
23720.0	64.3	3.847	63.4	72.3	67.9
23667.2	42.6	4.091	35.3	54.2	44.8
23614.4	84.4	3.705	91.0	83.2	87.1

23561.6	69.7	3.712	76.6	82.3	79.4	23561.6	71.0	3.621	77.6	76.5	77.0	23561.6	72.7	3.656	80.3	80.8	80.5
23508.8	71.0	3.848	82.6	65.6	74.1	23508.8	69.9	3.984	77.3	67.1	72.2	23508.8	70.9	3.922	79.5	67.3	73.4
23456.0	69.7	3.660	69.4	77.4	73.4	23456.0	63.4	3.781	66.4	68.1	67.2	23456.0	60.1	3.874	62.7	62.3	62.5
23403.2	48.9	4.034	51.0	52.0	51.5	23403.2	46.6	4.025	50.2	47.2	48.7	23403.2	47.8	4.037	54.2	47.5	50.9
23350.4	80.3	3.776	82.5	83.5	83.0	23350.4	86.2	3.757	87.9	86.0	87.0	23350.4	87.3	3.780	88.3	87.2	87.8
23297.6	63.6	3.845	69.5	73.9	71.7	23297.6	58.1	3.851	59.5	70.9	65.2	23297.6	59.8	3.856	60.5	73.4	67.0
23244.8	84.8	3.486	76.1	99.8	88.0	23244.8	84.8	3.528	81.1	93.6	87.3	23244.8	83.5	3.539	75.2	97.1	86.2
23192.0	59.4	4.025	62.5	59.6	61.0	23192.0	62.7	3.964	59.3	68.8	64.0	23192.0	57.6	4.061	55.9	63.1	59.5
23139.2	57.7	4.022	57.1	63.8	60.5	23139.2	56.0	4.090	56.0	61.8	58.9	23139.2	54.1	4.102	56.0	59.7	57.9
23086.4	53.1	4.040	50.3	60.6	55.4	23086.4	52.9	4.060	54.8	59.8	57.3	23086.4	51.3	4.069	53.1	56.4	54.7
23033.6	41.8	4.021	37.7	59.7	48.7	23033.6	38.3	4.063	33.5	54.2	43.8	23033.6	38.5	4.094	38.6	49.8	44.2
22980.8	46.9	3.970	58.3	48.5	53.4	22980.8	50.1	4.060	57.8	50.8	54.3	22980.8	46.9	4.064	58.4	44.8	51.6
22928.0	47.7	3.884	57.3	48.2	52.7	22928.0	45.5	3.935	50.2	48.7	49.5	22928.0	45.0	3.958	48.6	48.7	48.7
22875.2	61.9	3.837	68.3	62.8	65.6	22875.2	61.0	3.904	69.8	58.4	64.1	22875.2	60.7	3.902	64.8	64.0	64.4
22822.4	44.7	3.970	46.6	51.1	48.8	22822.4	49.6	3.854	47.6	57.5	52.6	22822.4	44.0	4.096	42.6	52.9	47.8
22769.6	33.2	4.180	34.0	40.9	37.5	22769.6	33.7	4.127	35.6	35.9	35.7	22769.6	34.5	4.140	36.6	37.8	37.2
22716.8	58.5	3.950	67.6	53.2	60.4	22716.8	57.6	3.982	67.1	53.5	60.3	22716.8	53.2	4.071	60.3	53.8	57.1
22664.0	67.1	3.899	67.4	71.3	69.3	22664.0	62.9	3.992	64.0	65.0	64.5	22664.0	62.9	3.900	69.3	63.2	66.2
22611.2	75.5	3.827	74.8	78.1	76.5	22611.2	74.5	3.796	73.7	77.7	75.7	22611.2	72.2	3.857	71.6	73.9	72.7
22558.4	45.5	4.010	43.2	54.6	48.9	22558.4	53.4	3.840	48.7	62.6	55.7	22558.4	59.4	3.767	56.8	66.6	61.7
22505.6	68.3	3.742	69.7	81.7	75.7	22505.6	64.9	3.767	71.2	73.5	72.4	22505.6	61.6	3.864	68.1	64.9	66.5
22452.8	47.5	4.121	54.5	48.6	51.5	22452.8	51.4	4.014	57.3	51.6	54.5	22452.8	49.3	4.016	53.9	51.4	52.6
22400.0	53.7	3.921	52.0	57.3	54.7	22400.0	44.1	4.111	47.1	44.1	45.6	22400.0	44.8	4.123	45.4	47.0	46.2
22347.2	59.1	3.930	65.1	58.2	61.7	22347.2	63.1	3.907	65.4	68.8	67.1	22347.2	61.3	3.887	63.4	64.7	64.0
22294.4	43.9	4.060	50.7	44.0	47.3	22294.4	43.9	4.114	51.5	45.1	48.3	22294.4	43.7	4.057	50.8	44.6	47.7
22241.6	50.6	3.957	49.8	67.1	58.4	22241.6	49.8	3.977	47.2	59.1	53.1	22241.6	49.5	3.976	44.0	62.9	53.5
22188.8	76.9	3.706	89.9	68.6	79.3	22188.8	67.4	3.962	79.7	60.4	70.0	22188.8	67.8	4.001	76.8	64.9	70.8
22136.0	69.9	3.614	58.2	87.7	73.0	22136.0	72.6	3.627	63.2	86.7	74.9	22136.0	69.6	3.661	61.1	82.3	71.7
22083.2	51.6	3.985	60.4	51.6	56.0	22083.2	49.9	4.035	63.3	51.8	57.5	22083.2	49.1	4.026	58.4	51.9	55.1
22030.4	50.5	4.058	55.1	51.0	53.0	22030.4	45.3	4.196	48.5	47.7	48.1	22030.4	46.3	4.122	48.4	49.9	49.2
21977.6	47.8	4.047	56.8	49.8	53.3	21977.6	44.8	4.036	54.6	43.6	49.1	21977.6	45.3	4.064	56.8	46.1	51.5
21924.8	68.7	3.977	73.5	65.5	69.5	21924.8	72.3	3.909	75.7	71.8	73.7	21924.8	68.8	4.045	72.9	68.7	70.8
21872.0	54.5	4.081	54.9	61.2	58.0	21872.0	57.2	4.074	54.6	64.1	59.3	21872.0	52.6	4.098	50.1	59.5	54.8
21819.2	68.1	3.889	70.9	68.9	69.9	21819.2	62.1	3.927	69.1	63.2	66.2	21819.2	58.8	3.961	64.8	58.7	61.8
21766.4	50.7	4.148	55.2	51.0	53.1	21766.4	53.6	4.115	54.9	55.5	55.2	21766.4	53.2	4.198	53.9	55.5	54.7
21713.6	61.8	4.002	62.8	63.9	63.3	21713.6	61.6	3.973	62.9	62.1	62.5	21713.6	59.1	4.019	59.5	60.5	60.0
21660.8	64.1	3.892	71.6	65.1	68.4	21660.8	63.0	3.912	69.9	66.3	68.1	21660.8	60.3	3.925	72.0	60.3	66.1
21608.0	63.4	3.829	66.8	72.5	69.6	21608.0	61.3	3.886	72.2	64.0	68.1	21608.0	62.9	3.869	68.6	64.3	66.4
21555.2	58.8	4.124	65.3	62.8	64.1	21555.2	62.5	3.948	65.3	65.9	65.6	21555.2	59.2	4.063	62.7	67.5	65.1
21502.4	57.4	3.987	67.0	59.0	63.0	21502.4	53.3	4.076	54.9	57.2	56.1	21502.4	60.6	3.941	62.3	67.0	64.6
21449.6	56.3	3.962	54.2	66.5	60.4	21449.6	56.2	3.970	57.4	59.5	58.5	21449.6	57.5	3.968	55.1	65.3	60.2
21396.8	56.8	3.894	60.5	62.8	61.6	21396.8	55.3	3.933	57.4	59.6	58.5	21396.8	54.5	3.926	55.8	60.2	58.0
21344.0	50.5	4.081	61.1	45.1	53.1	21344.0	44.9	4.138	52.0	45.7	48.8	21344.0	50.7	4.025	57.2	51.8	54.5
21291.2	57.4	3.994	61.3	65.3	63.3	21291.2	56.2	3.922	60.6	59.7	60.2	21291.2	52.2	4.050	55.5	56.9	56.2
21238.4	46.8	4.212	53.2	46.2	49.7	21238.4	43.2	4.208	50.6	43.4	47.0	21238.4	46.2	4.126	53.8	46.5	50.1
21185.6	45.7	3.971	50.4	51.3	50.9	21185.6	49.8	3.977	51.7	58.6	55.2	21185.6	51.1	3.936	51.3	55.0	53.1
21132.8	74.0	3.847	79.2	74.8	77.0	21132.8	70.3	3.902	72.8	76.8	74.8	21132.8	66.8	3.792	70.2	71.9	71.1
21080.0	33.2	4.027	30.5	48.6	39.5	21080.0	37.8	4.056	30.1	55.3	42.7	21080.0	30.3	4.132	31.3	46.5	38.9
21027.2	55.6	4.086	65.5	56.8	61.2	21027.2	56.3	3.932	62.2	58.7	60.5	21027.2	60.5	3.908	70.2	61.3	65.8
20974.4	55.3	3.861	56.6	67.5	62.0	20974.4	55.0	3.868	55.5	68.0	61.7	20974.4	57.2	3.960	57.5	72.5	65.0
20921.6	64.4	3.883	68.7	78.1	73.4	20921.6	66.7	3.787	67.4	81.1	74.3	20921.6	59.0	3.925	63.0	70.7	66.8
20868.8	51.6	3.760	68.5	66.6	67.5	20868.8	49.3	3.851	67.9	62.5	65.2	20868.8	46.4	3.886	64.2	61.0	62.6
20816.0	66.4	3.900	70.4	72.7	71.5	20816.0	70.2	3.847	74.6	75.9	75.3	20816.0	67.6	3.873	72.0	75.4	73.7
20763.2	67.3	3.931	81.2	66.9	74.1	20763.2	62.0	3.960	71.6	63.6	67.6	20763.2	60.3	4.019	71.0	64.7	67.8
20710.4	51.1	4.019	59.3	46.8	53.0	20710.4	49.5	4.058	58.9	45.1	52.0	20710.4	49.6	4.020	58.6	45.2	51.9
20657.6	70.4	3.929	73.3	72.7	73.0	20657.6	65.9	4.015	69.8	65.4	67.6	20657.6	63.3	4.033	66.3	64.5	65.4
20604.8	69.7	3.926	73.9	70.5	72.2	20604.8	75.6	3.865	76.6	79.4	78.0	20604.8	76.7	3.802	77.4	79.2	78.3

23933.0	83.4	3.587	87.8	84.5	86.1
23986.0	58.2	3.923	60.0	60.0	60.0
24039.0	54.9	4.087	55.5	59.8	57.6
24092.0	52.8	3.949	52.0	57.4	54.7
24145.0	73.0	3.832	81.4	69.3	75.3
24198.0	56.1	4.054	67.4	52.3	59.9
24251.0	60.2	3.841	51.2	74.9	63.0
24304.0	64.8	3.897	68.9	64.3	66.6
24357.0	56.0	4.055	60.8	56.0	58.4
24410.0	71.8	4.121	73.8	76.0	74.9
24463.0	45.0	4.267	51.2	43.3	47.2
24516.0	42.9	4.086	43.3	47.9	45.6
24569.0	60.3	3.915	63.5	60.1	61.8
24622.0	63.1	3.959	56.8	73.8	65.3
24675.0	47.8	4.016	45.6	56.5	51.1
24728.0	67.2	3.600	67.0	72.6	69.8
24781.0	62.6	3.886	69.2	59.6	64.4
24834.0	61.7	3.773	58.7	68.7	63.7
24887.0	86.7	3.746	76.5	102.0	89.2
24940.0	86.7	3.543	92.3	85.9	89.1
24993.0	42.8	4.175	48.8	43.3	46.0
25046.0	80.7	3.795	86.8	84.1	85.5
25099.0	93.9	3.702	110.5	95.2	102.9
25152.0	74.9	3.962	92.2	64.1	78.2
25205.0	46.2	4.082	52.8	43.3	48.1
25258.0	78.0	3.576	87.2	70.5	78.9
25311.0	52.1	4.083	55.3	54.4	54.8
25364.0	58.1	4.036	66.6	52.5	59.6
25417.0	44.7	4.109	45.8	52.2	49.0
25470.0	51.1	4.090	53.3	54.1	53.7
25523.0	62.3	3.842	68.3	62.0	65.1
25576.0	65.4	4.112	69.9	64.4	67.2
25629.0	73.1	4.055	77.4	75.7	76.6
25682.0	77.1	3.746	92.1	64.6	78.4
25735.0	64.9	4.068	62.9	69.3	66.1
25788.0	49.8	4.111	46.5	56.3	51.4
25841.0	82.5	3.787	90.9	78.8	84.9
25894.0	70.2	3.922	70.1	72.4	71.2
25947.0	90.0	3.831	102.8	81.5	92.1
26000.0	63.1	3.824	58.0	70.2	64.1
26053.0	84.3	3.587	85.7	87.3	86.5
26106.0	56.2	3.900	64.4	54.6	59.5
26159.0	76.4	3.675	75.0	80.5	77.8
26212.0	83.2	3.615	88.3	80.7	84.5
26265.0	88.7	3.862	88.6	91.8	90.2
26318.0	140.5	3.548	148.1	135.5	141.8
26371.0	135.7	3.366	137.2	137.3	137.2
26424.0	95.2	3.911	96.4	99.5	98.0
26477.0	85.0	3.538	90.0	85.3	87.6
26530.0	90.6	3.499	97.5	87.6	92.6
26583.0	100.3	3.390	103.1	100.0	101.6
26636.0	91.5	3.545	84.7	101.8	93.2
26689.0	104.3	3.373	106.0	105.4	105.7
26742.0	60.2	3.938	56.5	68.0	62.2
26795.0	88.4	3.597	94.2	85.5	89.8
26848.0	80.0	3.658	79.0	83.7	81.4
26901.0	89.2	3.378	91.6	90.4	91.0

23933.0	77.3	3.655	88.6	69.9	79.3
23986.0	69.1	3.797	60.3	84.7	72.5
24039.0	60.3	3.997	69.5	58.4	63.9
24092.0	46.5	4.016	44.0	56.4	50.2
24145.0	68.3	3.935	78.2	60.6	69.4
24198.0	66.4	3.848	76.2	63.0	69.6
24251.0	62.8	3.759	54.3	74.7	64.5
24304.0	73.9	3.907	79.2	71.3	75.3
24357.0	54.2	3.968	58.8	56.4	57.6
24410.0	76.8	4.078	77.3	81.0	79.2
24463.0	41.6	4.324	43.1	45.4	44.3
24516.0	45.8	4.076	48.0	46.5	47.2
24569.0	52.9	4.060	57.2	52.2	54.7
24622.0	68.9	3.668	68.7	75.3	72.0
24675.0	61.2	3.937	60.3	72.5	66.4
24728.0	73.5	3.625	69.0	81.7	75.3
24781.0	69.5	3.735	73.3	67.6	70.5
24834.0	61.7	3.779	62.4	65.7	64.1
24887.0	74.4	3.761	79.7	78.4	79.0
24940.0	88.3	3.574	87.1	91.7	89.4
24993.0	61.5	3.852	73.2	58.2	65.7
25046.0	72.1	3.874	80.3	66.8	73.6
25099.0	95.8	3.581	101.4	98.6	100.0
25152.0	81.8	3.919	107.1	65.1	86.1
25205.0	54.8	4.109	68.3	47.1	57.7
25258.0	56.3	3.792	59.3	57.8	58.5
25311.0	62.8	3.891	76.3	55.0	65.6
25364.0	59.5	4.076	62.5	61.2	61.9
25417.0	47.4	4.101	49.3	47.1	48.2
25470.0	49.9	4.199	57.1	54.3	55.7
25523.0	63.0	3.809	61.8	71.3	66.5
25576.0	70.0	3.918	75.0	69.3	72.2
25629.0	59.4	4.016	63.3	62.2	62.8
25682.0	102.1	3.613	119.1	88.4	103.7
25735.0	59.1	4.148	65.1	60.8	63.0
25788.0	71.1	3.916	63.0	83.8	73.4
25841.0	75.8	3.768	84.4	71.4	77.9
25894.0	79.3	4.017	81.2	80.2	80.7
25947.0	67.1	3.971	73.6	62.0	67.8
26000.0	75.2	3.842	85.0	69.0	77.0
26053.0	85.1	3.545	92.1	82.7	87.4
26106.0	78.6	3.601	86.6	72.2	79.4
26159.0	59.6	3.888	66.8	57.3	62.0
26212.0	80.6	3.632	85.3	77.8	81.5
26265.0	91.8	3.652	99.3	88.8	94.0
26318.0	107.9	3.613	108.7	110.4	109.5
26371.0	139.4	3.444	142.3	140.3	141.3
26424.0	110.9	3.860	117.6	111.8	114.7
26477.0	102.7	3.478	109.0	101.8	105.4
26530.0	71.8	3.828	86.4	64.0	75.2
26583.0	121.1	3.213	130.7	113.5	122.1
26636.0	83.4	3.572	87.3	85.1	86.2
26689.0	124.2	3.196	127.0	124.6	125.8
26742.0	57.7	4.018	59.2	65.2	62.2
26795.0	84.1	3.599	88.5	80.4	84.5
26848.0	85.9	3.577	89.5	84.6	87.1
26901.0	90.3	3.411	89.1	93.6	91.3

23933.0	74.3	3.659	85.6	67.6	76.6
23986.0	73.5	3.706	72.0	82.5	77.2
24039.0	54.4	4.147	64.2	49.6	56.9
24092.0	46.4	3.989	40.6	60.4	50.5
24145.0	73.0	3.888	79.4	68.6	74.0
24198.0	67.5	3.821	75.3	67.2	71.3
24251.0	62.9	3.819	55.0	71.8	63.4
24304.0	68.8	3.933	75.4	67.5	71.5
24357.0	54.9	3.997	55.5	59.5	57.5
24410.0	75.7	4.081	77.3	79.2	78.2
24463.0	46.4	4.269	46.2	49.2	47.7
24516.0	43.9	4.124	46.7	46.3	46.5
24569.0	54.7	4.058	56.3	55.9	56.1
24622.0	67.8	3.774	68.4	70.0	69.2
24675.0	60.1	3.998	60.9	69.8	65.4
24728.0	67.5	3.802	57.5	82.7	70.1
24781.0	69.1	3.757	70.6	71.4	71.0
24834.0	56.9	3.854	57.5	62.6	60.0
24887.0	74.2	3.800	68.9	85.1	77.0
24940.0	86.2	3.575	89.7	85.3	87.5
24993.0	58.5	3.861	64.6	59.3	62.0
25046.0	71.7	3.671	77.0	72.9	74.9
25099.0	95.4	3.628	101.2	100.6	100.9
25152.0	79.5	3.934	102.7	66.5	84.6
25205.0	64.9	3.895	74.4	58.5	66.4
25258.0	61.7	3.758	69.7	58.5	64.1
25311.0	62.5	3.850	67.7	63.3	65.5
25364.0	60.5	4.082	65.9	59.3	62.6
25417.0	48.8	4.073	56.8	43.2	50.0
25470.0	48.9	4.175	51.1	53.6	52.4
25523.0	65.4	3.838	71.6	64.1	67.9
25576.0	66.9	4.009	73.7	63.7	68.7
25629.0	65.3	4.024	70.8	67.2	69.0
25682.0	94.2	3.729	106.2	84.5	95.4
25735.0	58.7	4.105	65.0	56.2	60.6
25788.0	69.3	3.958	67.9	74.9	71.4
25841.0	77.6	3.768	82.3	75.8	79.0
25894.0	80.4	4.041	81.2	82.9	82.0
25947.0	64.3	3.894	74.0	56.5	65.3
26000.0	75.7	3.867	79.9	74.6	77.3
26053.0	90.5	3.544	87.3	96.3	91.8
26106.0	70.7	3.754	81.6	66.3	74.0
26159.0	63.8	3.780	68.9	65.6	67.2
26212.0	78.4	3.658	85.9	75.1	80.5
26265.0	93.9	3.660	93.0	97.4	95.2
26318.0	110.0	3.578	115.0	111.0	113.0
26371.0	142.1	3.392	145.5	141.9	143.7
26424.0	115.3	3.753	119.6	117.4	118.5
26477.0	103.8	3.394	113.2	98.3	105.7
26530.0	69.6	3.802	84.5	62.3	73.4
26583.0	126.8	3.170	139.3	115.7	127.5
26636.0	81.5	3.552	83.1	84.9	84.0
26689.0	121.9	3.228	125.4	121.3	123.3
26742.0	60.0	3.970	56.4	70.2	63.3
26795.0	89.6	3.543	95.1	84.9	90.0
26848.0	85.6	3.584	94.8	79.2	87.0
26901.0	90.6	3.383	92.8	90.4	91.6

26954.0	72.4	3.782	78.4	73.8	76.1
27007.0	62.4	3.862	61.2	65.8	63.5
27060.0	51.7	4.205	52.9	56.4	54.6
27113.0	79.0	3.787	88.6	73.8	81.2
27166.0	73.2	4.025	87.5	65.9	76.7
27219.0	89.3	3.733	93.2	87.8	90.5
27272.0	67.9	3.943	65.1	73.8	69.5
27325.0	63.7	4.007	80.6	52.9	66.7
27378.0	59.2	3.948	69.3	54.0	61.6
27431.0	90.0	3.645	94.4	87.8	91.1
27484.0	63.7	3.815	65.2	64.2	64.7
27537.0	69.4	3.783	69.6	74.3	72.0
27590.0	63.6	3.883	63.5	67.6	65.6
27643.0	49.7	4.125	58.9	46.4	52.7
27696.0	57.5	4.123	61.2	57.6	59.4
27749.0	54.2	4.178	61.9	55.2	58.6
27802.0	67.5	3.904	62.7	76.9	69.8
27855.0	60.2	3.853	66.3	61.4	63.8
27908.0	55.4	3.919	51.3	63.1	57.2
27961.0	58.7	4.055	66.9	56.7	61.8
28014.0	83.4	3.710	85.0	85.3	85.1
28067.0	41.8	4.172	46.4	44.4	45.4
28120.0	48.0	4.128	57.9	43.5	50.7
28173.0	52.0	4.219	57.1	51.0	54.0
28226.0	57.1	4.044	68.4	51.5	60.0
28279.0	36.1	4.267	38.9	40.7	39.8
28332.0	74.6	3.696	71.5	80.9	76.2
28385.0	72.1	3.747	76.8	68.8	72.8
28438.0	57.1	3.849	67.6	51.3	59.4
28491.0	61.7	3.889	64.4	60.9	62.6
28544.0	47.5	4.086	56.3	48.3	52.3
28597.0	49.4	4.097	50.6	53.4	52.0
28650.0	58.3	4.076	64.3	55.9	60.1
28703.0	51.3	3.965	53.4	57.9	55.6
28756.0	74.1	3.844	70.8	79.5	75.1
28809.0	73.8	3.839	62.0	92.1	77.0
28862.0	70.3	3.744	71.7	78.7	75.2
28915.0	81.2	3.719	81.0	84.4	82.7
28968.0	71.0	3.873	70.2	74.1	72.1
29021.0	105.0	4.002	111.5	101.6	106.5

26954.0	67.5	3.706	76.7	67.5	72.1
27007.0	70.2	3.768	65.2	76.6	70.9
27060.0	59.4	4.088	60.8	64.0	62.4
27113.0	65.5	3.863	68.9	63.5	66.2
27166.0	86.4	3.801	95.9	81.3	88.6
27219.0	87.2	3.839	93.2	85.3	89.3
27272.0	67.5	3.813	65.6	71.6	68.6
27325.0	72.2	3.852	69.2	78.5	73.8
27378.0	71.2	3.806	85.2	60.4	72.8
27431.0	86.2	3.616	98.1	80.4	89.2
27484.0	86.3	3.589	92.3	82.6	87.5
27537.0	62.0	3.769	66.7	63.1	64.9
27590.0	75.6	3.795	82.2	73.6	77.9
27643.0	53.6	4.043	57.5	57.7	57.6
27696.0	60.1	4.096	71.5	51.4	61.5
27749.0	54.7	4.219	56.3	60.5	58.4
27802.0	52.9	4.191	59.8	59.8	59.8
27855.0	66.7	3.755	65.3	70.7	68.0
27908.0	62.9	3.876	73.7	58.1	65.9
27961.0	59.4	3.975	66.3	54.9	60.6
28014.0	76.0	3.809	83.0	75.2	79.1
28067.0	48.1	4.135	51.9	52.3	52.1
28120.0	53.8	4.026	65.7	48.8	57.3
28173.0	52.0	4.220	61.3	46.6	54.0
28226.0	54.1	4.145	65.5	53.5	59.5
28279.0	41.5	4.223	49.9	41.8	45.9
28332.0	60.4	3.723	62.0	67.0	64.5
28385.0	84.2	3.639	86.3	83.2	84.8
28438.0	60.1	3.857	69.5	54.4	61.9
28491.0	53.9	3.829	54.1	58.1	56.1
28544.0	55.6	4.074	61.5	57.5	59.5
28597.0	39.4	4.158	51.9	40.5	46.2
28650.0	63.9	4.016	66.8	67.6	67.2
28703.0	47.4	4.084	47.4	54.8	51.1
28756.0	59.5	3.874	57.0	65.7	61.3
28809.0	89.3	3.582	85.9	97.4	91.7
28862.0	75.4	3.722	69.0	86.7	77.8
28915.0	78.6	3.638	94.8	69.9	82.3
28968.0	70.2	3.764	67.9	79.6	73.7
29021.0	80.2	3.939	76.3	87.6	82.0

26954.0	72.4	3.697	83.0	68.8	75.9
27007.0	70.7	3.828	70.9	72.0	71.5
27060.0	58.8	4.077	62.6	60.4	61.5
27113.0	64.9	3.875	68.1	65.1	66.6
27166.0	84.1	3.791	102.1	74.6	88.4
27219.0	88.2	3.828	89.6	88.5	89.0
27272.0	66.8	3.834	65.9	69.1	67.5
27325.0	73.8	3.918	68.9	82.3	75.6
27378.0	70.8	3.755	85.0	59.3	72.1
27431.0	83.4	3.665	91.9	81.8	86.9
27484.0	88.6	3.502	91.0	88.0	89.5
27537.0	62.7	3.796	66.8	62.9	64.8
27590.0	80.8	3.731	78.1	87.1	82.6
27643.0	50.8	4.194	52.3	53.6	53.0
27696.0	60.5	4.112	63.4	58.7	61.0
27749.0	54.2	4.201	54.2	57.4	55.8
27802.0	55.7	4.084	59.0	62.5	60.7
27855.0	73.2	3.730	69.0	79.6	74.3
27908.0	60.3	3.839	62.3	62.7	62.5
27961.0	58.3	3.994	66.5	53.2	59.9
28014.0	78.3	3.716	87.1	76.7	81.9
28067.0	45.4	4.112	53.5	43.0	48.2
28120.0	48.0	4.055	49.7	53.4	51.5
28173.0	54.9	4.188	59.4	54.3	56.9
28226.0	47.2	4.134	51.4	50.3	50.8
28279.0	42.2	4.277	48.2	47.2	47.7
28332.0	53.8	3.907	52.0	60.8	56.4
28385.0	81.2	3.673	74.6	89.1	81.9
28438.0	56.7	3.923	63.8	55.0	59.4
28491.0	55.3	3.824	48.9	66.5	57.7
28544.0	46.9	4.196	52.7	47.1	49.9
28597.0	39.7	4.163	41.7	40.8	41.3
28650.0	62.5	4.021	61.4	68.6	65.0
28703.0	52.0	4.095	51.9	57.0	54.4
28756.0	57.9	3.870	61.2	60.6	60.9
28809.0	100.8	3.548	97.8	107.6	102.7
28862.0	64.1	3.846	55.3	77.1	66.2
28915.0	78.5	3.710	90.8	70.5	80.7
28968.0	60.9	3.964	60.9	66.3	63.6
29021.0	78.7	3.954	74.8	86.2	80.5

June 2001 Profile Survey of Eastbound Lanes, Passing Lane (PEBJN01)

ATHENS 050 - June 2001 Tests

LANE 2 PASS 1 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15453.0	57.7	3.912	65.8	55.7	60.7
15506.0	82.0	3.585	102.6	76.6	89.6
15559.0	46.4	3.940	49.3	48.6	49.0
15612.0	55.1	4.056	62.4	51.9	57.1
15665.0	66.2	3.820	77.9	64.5	71.2
15718.0	63.5	3.916	65.7	69.6	67.6
15771.0	56.1	3.919	71.6	50.1	60.9
15824.0	59.9	3.860	75.9	53.4	64.6
15877.0	76.3	3.714	91.1	71.3	81.2
15930.0	92.1	3.571	120.9	69.7	95.3
15983.0	62.2	3.851	75.5	52.4	63.9
16036.0	67.3	3.783	84.7	59.9	72.3
16089.0	67.6	3.960	75.9	62.7	69.3
16142.0	66.2	3.847	95.2	56.0	75.6
16195.0	65.5	3.886	89.8	47.5	68.6
16248.0	71.7	3.710	91.7	63.8	77.8
16301.0	74.2	3.730	84.2	74.8	79.5
16354.0	67.8	3.741	92.7	51.6	72.2
16407.0	75.0	3.833	94.6	68.0	81.3
16460.0	77.0	3.614	101.9	61.3	81.6
16513.0	79.1	3.695	98.2	64.6	81.4
16566.0	93.8	3.536	122.4	74.1	98.2
16619.0	65.1	3.913	90.6	50.8	70.7
16672.0	51.9	3.967	67.4	47.1	57.2
16725.0	46.7	4.081	55.5	50.8	53.2
16778.0	60.4	4.036	71.1	53.3	62.2
16831.0	67.3	3.826	77.3	62.0	69.7
16884.0	73.0	3.910	85.5	68.1	76.8
16937.0	71.7	3.805	91.6	55.6	73.6
16990.0	88.6	3.561	120.9	65.6	93.3
17043.0	99.5	3.792	116.4	88.7	102.6
17096.0	68.5	3.972	83.3	69.3	76.3
17149.0	83.3	3.878	97.6	77.6	87.6
17202.0	54.4	4.124	62.8	49.9	56.4
17255.0	75.3	3.901	75.0	80.1	77.6
17308.0	64.5	3.720	84.0	55.5	69.8
17361.0	73.0	3.658	82.9	69.6	76.2
17414.0	61.1	3.860	69.1	61.5	65.3
17467.0	136.4	3.062	145.5	136.4	141.0
17520.0	109.4	3.470	118.2	103.9	111.0
17573.0	59.3	3.885	72.0	52.8	62.4
17626.0	86.4	3.804	103.7	75.1	89.4
17679.0	85.6	3.654	93.0	83.7	88.3
17732.0	66.6	4.018	71.9	68.6	70.3
17785.0	67.4	3.992	75.7	63.3	69.5
17838.0	42.1	4.259	44.2	47.3	45.7

LANE 2 PASS 2 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15453.0	55.0	3.955	67.6	51.3	59.4
15505.8	82.1	3.637	98.5	74.3	86.4
15558.6	46.1	3.926	49.4	48.6	49.0
15611.4	53.7	4.117	60.8	49.0	54.9
15664.2	62.1	3.873	70.7	63.7	67.2
15717.0	55.8	4.019	54.5	61.4	58.0
15769.8	51.1	3.913	59.9	49.9	54.9
15822.6	57.9	3.963	70.1	53.3	61.7
15875.4	68.5	3.765	81.4	68.4	74.9
15928.2	89.2	3.593	111.5	71.5	91.5
15981.0	63.3	3.852	75.1	53.1	64.1
16033.8	70.1	3.771	84.4	63.1	73.8
16086.6	70.6	3.914	80.5	64.2	72.4
16139.4	64.8	3.913	78.8	56.8	67.8
16192.2	68.9	3.868	88.8	52.1	70.4
16245.0	65.9	3.727	85.5	60.1	72.8
16297.8	66.9	3.882	75.8	67.6	71.7
16350.6	69.1	3.706	90.0	51.3	70.7
16403.4	70.5	3.879	92.7	59.9	76.3
16456.2	88.0	3.533	106.2	72.8	89.5
16509.0	67.8	3.799	84.2	59.0	71.6
16561.8	91.1	3.560	117.3	72.5	94.9
16614.6	70.2	3.913	91.9	58.0	74.9
16667.4	50.8	3.978	68.6	43.7	56.2
16720.2	45.7	4.104	48.8	55.9	52.4
16773.0	56.4	4.100	70.3	49.6	59.9
16825.8	66.1	3.886	73.8	62.6	68.2
16878.6	74.1	3.940	86.4	66.8	76.6
16931.4	64.8	3.905	77.1	56.5	66.8
16984.2	82.6	3.581	110.2	58.3	84.3
17037.0	89.3	3.850	96.7	85.1	90.9
17089.8	71.3	3.983	82.0	65.9	74.0
17142.6	79.0	3.905	93.6	72.0	82.8
17195.4	53.0	4.090	58.0	50.6	54.3
17248.2	67.6	3.973	68.1	70.7	69.4
17301.0	64.2	3.760	80.4	55.5	68.0
17353.8	66.2	3.860	75.2	61.6	68.4
17406.6	66.5	3.687	74.1	62.1	68.1
17459.4	120.4	3.175	134.3	121.5	127.9
17512.2	101.2	3.521	101.3	103.9	102.6
17565.0	66.1	3.909	68.9	66.8	67.9
17617.8	81.6	3.766	101.2	66.0	83.6
17670.6	79.3	3.793	87.4	75.4	81.4
17723.4	73.4	3.867	79.2	72.0	75.6
17776.2	64.5	4.167	70.9	64.7	67.8
17829.0	41.3	4.167	47.1	39.9	43.5

LANE 2 PASS 3 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15453.0	56.2	3.985	61.0	57.5	59.3
15506.0	76.2	3.672	89.5	75.0	82.2
15559.0	46.5	3.899	48.3	50.1	49.2
15612.0	52.1	4.092	56.5	50.5	53.5
15665.0	60.6	3.831	66.2	61.3	63.8
15718.0	61.2	3.958	61.3	67.4	64.4
15771.0	58.4	3.873	76.8	49.1	62.9
15824.0	59.5	3.810	73.3	53.5	63.4
15877.0	77.6	3.700	95.8	69.0	82.4
15930.0	93.1	3.565	116.6	73.5	95.0
15983.0	67.2	3.821	83.0	55.0	69.0
16036.0	69.7	3.753	87.3	61.1	74.2
16089.0	70.6	3.891	79.8	66.1	73.0
16142.0	66.5	3.883	90.3	52.8	71.6
16195.0	62.9	3.876	84.8	48.0	66.4
16248.0	74.4	3.686	93.8	66.4	80.1
16301.0	70.6	3.777	88.7	75.7	82.2
16354.0	71.2	3.720	97.8	51.7	74.8
16407.0	73.7	3.872	90.3	68.5	79.4
16460.0	77.4	3.659	97.6	63.5	80.6
16513.0	75.3	3.703	88.0	66.8	77.4
16566.0	95.5	3.525	112.8	82.1	97.5
16619.0	68.1	3.863	90.0	52.9	71.5
16672.0	48.0	3.993	63.1	42.6	52.8
16725.0	47.8	4.080	56.8	52.1	54.5
16778.0	57.5	4.104	67.0	51.4	59.2
16831.0	68.2	3.860	81.9	59.4	70.7
16884.0	72.6	3.903	84.4	70.1	77.3
16937.0	71.3	3.836	90.0	58.2	74.1
16990.0	95.2	3.493	125.9	70.4	98.1
17043.0	96.6	3.809	111.6	87.1	99.3
17096.0	64.2	4.051	80.6	62.2	71.4
17149.0	87.3	3.803	100.2	80.6	90.4
17202.0	51.2	4.135	63.0	45.7	54.4
17255.0	72.0	3.904	76.6	76.0	76.3
17308.0	66.5	3.712	86.4	55.1	70.7
17361.0	71.8	3.681	85.3	64.4	74.9
17414.0	65.2	3.726	67.6	69.8	68.7
17467.0	126.9	3.150	137.9	127.7	132.8
17520.0	106.5	3.508	117.2	98.0	107.6
17573.0	59.5	3.830	72.1	52.0	62.0
17626.0	93.0	3.760	114.3	75.2	94.8
17679.0	86.1	3.647	92.0	85.0	88.5
17732.0	69.1	4.020	75.1	66.6	70.8
17785.0	67.2	4.019	76.8	61.3	69.0
17838.0	44.9	4.195	48.1	48.2	48.2

17891.0	69.7	3.865	81.0	59.6	70.3	17881.8	65.3	3.979	72.6	60.4	66.5	17891.0	68.1	3.853	78.1	59.6	68.8
17944.0	60.4	4.004	69.2	60.5	64.9	17934.6	57.9	3.980	69.9	51.0	60.5	17944.0	62.6	3.995	75.1	59.3	67.2
17997.0	73.1	3.950	78.2	75.5	76.8	17987.4	74.2	4.009	81.2	72.7	77.0	17997.0	73.1	3.951	78.1	75.6	76.8
18050.0	63.3	4.196	76.1	51.4	63.7	18040.2	63.4	4.115	73.9	55.5	64.7	18050.0	64.1	4.111	75.9	54.4	65.1
18103.0	110.7	3.394	127.8	96.1	112.0	18093.0	97.8	3.510	110.5	87.8	99.2	18103.0	110.4	3.394	129.7	93.1	111.4
18156.0	59.3	3.936	80.4	52.5	66.5	18145.8	62.1	3.928	74.2	64.7	69.5	18156.0	60.6	3.854	81.1	53.5	67.3
18209.0	81.5	3.830	97.9	68.3	83.1	18198.6	90.2	3.719	111.5	75.7	93.6	18209.0	78.4	3.833	93.2	70.4	81.8
18262.0	56.5	3.883	71.6	52.3	61.9	18251.4	53.4	3.967	61.2	55.6	58.4	18262.0	58.0	3.835	71.1	53.1	62.1
18315.0	65.0	3.968	72.2	59.9	66.0	18304.2	60.4	3.999	69.5	55.8	62.6	18315.0	66.9	3.946	79.6	56.2	67.9
18368.0	57.9	4.034	68.0	55.8	61.9	18357.0	47.5	4.140	51.1	50.9	51.0	18368.0	62.7	4.001	84.1	54.4	69.3
18421.0	70.4	3.959	81.8	62.9	72.3	18409.8	73.0	3.876	85.6	66.5	76.1	18421.0	67.6	3.941	75.0	63.6	69.3
18474.0	69.3	3.802	80.6	63.6	72.1	18462.6	59.1	3.996	64.8	56.6	60.7	18474.0	65.2	3.769	79.9	57.4	68.6
18527.0	74.7	3.786	91.9	61.9	76.9	18515.4	73.8	3.761	86.9	66.0	76.5	18527.0	63.9	3.884	73.2	58.7	65.9
18580.0	77.5	3.850	88.6	72.1	80.3	18568.2	56.3	4.015	67.1	51.9	59.5	18580.0	73.0	3.819	73.9	75.0	74.4
18633.0	98.0	3.924	105.4	95.0	100.2	18621.0	112.9	3.816	122.9	106.8	114.9	18633.0	97.2	3.964	102.3	95.9	99.1
18686.0	79.2	3.618	107.0	57.5	82.3	18673.8	59.4	3.953	70.3	51.7	61.0	18686.0	78.8	3.605	96.3	71.5	83.9
18739.0	96.7	3.524	116.6	83.3	99.9	18726.6	103.5	3.408	123.4	89.2	106.3	18739.0	108.9	3.381	135.2	87.6	111.4
18792.0	81.9	3.613	98.9	68.1	83.5	18779.4	83.1	3.661	95.7	73.8	84.7	18792.0	86.4	3.471	103.2	73.4	88.3
18845.0	60.5	4.034	75.3	53.6	64.4	18832.2	75.3	3.896	94.3	62.2	78.2	18845.0	64.0	3.978	80.7	54.7	67.7
18898.0	100.2	3.684	117.5	85.6	101.6	18885.0	89.4	3.789	101.5	80.1	90.8	18898.0	99.2	3.718	114.1	85.6	99.9
18951.0	74.3	3.798	86.0	66.8	76.4	18937.8	74.1	3.731	90.6	61.4	76.0	18951.0	72.9	3.778	84.9	63.6	74.2
19004.0	69.0	4.020	78.7	66.9	72.8	18990.6	60.5	4.058	68.1	58.6	63.3	19004.0	64.0	4.055	73.6	63.0	68.3
19057.0	50.5	4.196	56.9	46.6	51.7	19043.4	46.7	4.295	54.4	44.5	49.4	19057.0	45.8	4.234	55.5	43.9	49.7
19110.0	79.2	3.624	95.4	72.0	83.7	19096.2	73.0	3.712	83.0	68.0	75.5	19110.0	75.9	3.689	86.8	69.3	78.1
19163.0	73.5	3.951	86.2	69.5	77.8	19149.0	75.3	3.811	91.2	65.8	78.5	19163.0	72.2	3.912	82.9	67.3	75.1
19216.0	64.3	3.827	76.5	62.0	69.2	19201.8	49.8	4.124	58.1	52.8	55.5	19216.0	59.8	3.864	77.9	51.7	64.8
19269.0	74.4	3.960	82.0	72.4	77.2	19254.6	74.2	3.770	81.5	69.9	75.7	19269.0	69.5	3.996	77.3	67.4	72.4
19322.0	54.2	3.998	68.7	44.7	56.7	19307.4	60.2	4.119	76.0	51.7	63.9	19322.0	55.7	3.977	73.0	45.3	59.2
19375.0	71.1	3.941	86.0	62.5	74.2	19360.2	67.1	3.893	79.8	59.5	69.6	19375.0	68.2	3.970	83.8	59.0	71.4
19428.0	61.3	3.984	87.0	44.5	65.7	19413.0	57.1	4.149	65.1	50.7	57.9	19428.0	55.4	4.010	69.3	47.4	58.4
19481.0	76.3	3.706	91.9	75.3	83.6	19465.8	64.1	3.797	79.0	61.9	70.4	19481.0	72.5	3.820	80.9	72.1	76.5
19534.0	82.1	3.526	106.2	62.0	84.1	19518.6	65.7	3.839	70.3	62.6	66.5	19534.0	72.3	3.648	86.0	61.1	73.5
19587.0	77.3	3.670	102.9	62.4	82.6	19571.4	74.9	3.703	97.2	57.4	77.3	19587.0	74.2	3.765	89.8	63.3	76.5
19640.0	68.1	3.759	93.3	59.1	76.2	19624.2	62.1	3.886	73.2	57.6	65.4	19640.0	60.6	3.914	73.9	52.9	63.4
19693.0	77.7	3.642	100.9	73.6	87.3	19677.0	71.5	3.687	85.8	64.9	75.3	19693.0	79.8	3.631	96.7	67.9	82.3
19746.0	91.2	3.530	109.0	83.8	96.4	19729.8	89.2	3.566	108.0	84.1	96.0	19746.0	93.1	3.524	116.8	78.8	97.8
19799.0	68.9	3.696	91.6	49.4	70.5	19782.6	79.7	3.600	104.9	58.0	81.5	19799.0	58.5	3.835	72.6	50.0	61.3
19852.0	84.9	3.627	102.5	72.1	87.3	19835.4	70.2	3.840	82.5	60.2	71.3	19852.0	79.4	3.706	91.5	68.8	80.2
19905.0	107.2	3.623	117.8	99.1	108.4	19888.2	86.7	3.678	97.0	79.8	88.4	19905.0	100.8	3.674	112.9	94.7	103.8
19958.0	117.1	3.600	134.0	110.2	122.1	19941.0	124.4	3.791	134.7	121.1	127.9	19958.0	118.6	3.589	123.8	122.5	123.2
20011.0	75.2	3.740	98.8	58.8	78.8	19993.8	87.2	3.658	102.6	75.5	89.1	20011.0	62.5	3.821	74.1	55.5	64.8
20064.0	93.0	3.627	115.6	73.3	94.4	20046.6	65.6	3.914	78.0	56.2	67.1	20064.0	87.4	3.705	110.7	66.3	88.5
20117.0	96.7	3.422	120.6	74.9	97.7	20099.4	107.1	3.394	128.5	88.2	108.3	20117.0	96.9	3.380	111.4	84.1	97.7
20170.0	89.0	3.605	100.7	82.5	91.6	20152.2	86.9	3.600	99.2	78.4	88.8	20170.0	83.0	3.704	95.2	75.9	85.5
20223.0	106.8	3.704	117.9	101.5	109.7	20205.0	97.5	3.741	112.2	86.5	99.4	20223.0	106.6	3.749	113.9	100.5	107.2
20276.0	88.5	3.833	101.1	78.4	89.7	20257.8	77.8	3.848	78.0	82.6	80.3	20276.0	89.4	3.861	102.7	82.8	92.7
20329.0	71.0	3.686	91.7	60.3	76.0	20310.6	89.6	3.697	109.2	76.5	92.9	20329.0	66.9	3.694	85.4	56.0	70.7
20382.0	63.3	3.826	80.1	52.8	66.5	20363.4	64.6	3.739	79.0	56.9	67.9	20382.0	64.0	3.842	84.5	50.1	67.3
20435.0	62.9	3.949	71.6	60.8	66.2	20416.2	54.4	3.997	62.1	52.0	57.1	20435.0	57.5	4.031	64.6	54.8	59.7
20488.0	67.0	3.926	75.3	61.3	68.3	20469.0	62.6	3.981	72.3	56.3	64.3	20488.0	62.7	3.951	73.6	55.0	64.3
20541.0	97.0	3.456	110.4	86.7	98.5	20521.8	88.6	3.553	102.3	76.8	89.5	20541.0	97.4	3.430	109.5	87.5	98.5
20594.0	53.7	4.052	70.5	46.1	58.3	20574.6	66.0	3.771	80.5	64.6	72.6	20594.0	56.1	4.033	76.5	47.3	61.9
20647.0	75.0	4.022	82.2	70.0	76.1	20627.4	74.9	3.924	92.0	63.2	77.6	20647.0	77.8	3.998	87.0	71.4	79.2
20700.0	69.3	3.892	84.4	62.3	73.3	20680.2	62.2	4.235	68.1	61.5	64.8	20700.0	70.1	3.877	81.2	64.0	72.6
20753.0	64.8	4.060	71.9	63.5	67.7	20733.0	69.9	3.902	80.1	65.6	72.8	20753.0	61.5	4.088	66.0	63.9	64.9
20806.0	73.5	3.913	87.3	72.3	79.8	20785.8	75.1	3.949	79.1	73.8	76.5	20806.0	66.5	4.023	74.4	65.1	69.7
20859.0	54.1	4.071	63.6	52.0	57.8	20838.6	38.3	4.238	40.5	48.9	44.7	20859.0	46.8	4.166	51.2	51.1	51.1

20912.0	63.2	3.984	70.7	57.2	63.9	20891.4	63.5	4.001	70.8	60.1	65.5	20912.0	63.5	3.881	74.0	55.7	64.8
20965.0	67.0	3.906	75.6	62.1	68.8	20944.2	62.6	3.916	76.9	53.6	65.2	20965.0	68.4	3.932	87.5	55.6	71.6
21018.0	82.0	3.852	93.8	75.2	84.5	20997.0	73.7	3.889	86.6	67.8	77.2	21018.0	81.3	3.853	92.5	75.0	83.7
21071.0	62.7	4.095	64.8	62.7	63.7	21049.8	70.8	4.075	72.6	70.5	71.6	21071.0	57.9	4.136	61.1	57.4	59.2
21124.0	32.5	4.326	33.6	35.3	34.5	21102.6	41.7	4.207	40.6	45.9	43.2	21124.0	39.5	4.156	40.8	41.5	41.2
21177.0	83.4	3.944	80.6	91.5	86.0	21155.4	60.6	4.095	59.1	68.4	63.8	21177.0	76.0	4.080	73.5	82.8	78.1
21230.0	56.9	4.091	61.8	57.6	59.7	21208.2	77.0	4.010	75.9	82.7	79.3	21230.0	57.6	4.089	66.8	58.1	62.5
21283.0	54.8	4.149	57.6	56.6	57.1	21261.0	45.3	4.205	48.4	48.3	48.3	21283.0	54.1	4.126	59.9	51.9	55.9
21336.0	60.2	4.034	67.1	60.8	64.0	21313.8	58.4	4.080	62.7	57.4	60.1	21336.0	58.5	4.076	64.2	59.1	61.7
21389.0	44.3	4.213	48.4	49.6	49.0	21366.6	48.7	4.176	47.0	59.4	53.2	21389.0	38.0	4.301	47.3	39.5	43.4
21442.0	62.1	3.989	73.1	57.5	65.3	21419.4	50.2	4.148	57.9	47.0	52.5	21442.0	59.0	4.012	70.9	53.5	62.2
21495.0	64.6	4.032	76.0	58.4	67.2	21472.2	74.6	3.900	87.1	66.7	76.9	21495.0	56.8	4.188	62.3	55.2	58.7
21548.0	46.6	4.207	52.9	50.8	51.9	21525.0	33.6	4.319	36.6	38.7	37.7	21548.0	49.6	4.143	53.7	53.6	53.6
21601.0	67.2	4.112	70.4	69.3	69.8	21577.8	71.9	4.136	72.7	75.2	73.9	21601.0	60.9	4.142	62.8	64.6	63.7
21654.0	75.4	3.757	97.1	57.7	77.4	21630.6	64.3	3.978	72.6	58.9	65.7	21654.0	73.5	3.800	88.4	61.0	74.7
21707.0	64.8	4.049	76.7	59.2	68.0	21683.4	71.6	3.827	87.2	59.6	73.4	21707.0	64.2	4.044	77.2	59.1	68.1
21760.0	52.4	4.144	58.3	50.1	54.2	21736.2	59.3	4.140	65.4	56.0	60.7	21760.0	56.1	4.119	69.8	48.3	59.0
21813.0	67.0	4.102	82.6	57.7	70.2	21789.0	68.7	4.035	83.2	59.8	71.5	21813.0	64.1	4.076	82.3	54.9	68.6
21866.0	70.9	3.796	88.4	60.6	74.5	21841.8	74.8	3.834	92.7	63.5	78.1	21866.0	74.9	3.746	96.2	59.6	77.9
21919.0	51.1	4.233	55.8	53.7	54.8	21894.6	56.5	4.023	62.6	55.9	59.2	21919.0	51.0	4.228	56.4	53.2	54.8
21972.0	70.5	4.093	77.9	65.0	71.4	21947.4	50.5	4.248	55.9	49.2	52.6	21972.0	69.9	4.115	77.7	63.2	70.5
22025.0	54.8	4.198	56.6	56.7	56.7	22000.2	72.9	4.132	75.6	72.8	74.2	22025.0	55.2	4.138	57.9	57.9	57.9
22078.0	57.7	3.977	67.6	51.3	59.5	22053.0	45.9	4.199	52.6	44.0	48.3	22078.0	55.4	3.983	64.5	50.0	57.2
22131.0	59.5	4.031	69.1	56.5	62.8	22105.8	62.0	3.938	70.5	59.8	65.2	22131.0	63.2	3.978	71.2	60.6	65.9
22184.0	69.0	3.802	83.3	60.3	71.8	22158.6	59.5	4.017	69.6	54.1	61.8	22184.0	65.1	3.830	78.6	58.1	68.3
22237.0	55.4	3.947	70.3	49.5	59.9	22211.4	70.1	3.788	81.6	64.3	73.0	22237.0	58.4	3.960	76.8	47.6	62.2
22290.0	71.5	3.910	86.2	58.6	72.4	22264.2	58.7	4.131	75.0	46.1	60.5	22290.0	67.5	3.933	82.8	56.7	69.7
22343.0	62.3	3.997	76.2	52.9	64.5	22317.0	64.0	3.869	83.9	51.9	67.9	22343.0	66.5	3.967	86.7	55.3	71.0
22396.0	74.3	3.764	92.2	62.9	77.5	22369.8	63.0	4.019	76.3	54.4	65.4	22396.0	72.6	3.788	90.1	60.6	75.3
22449.0	66.7	3.959	80.7	65.9	73.3	22422.6	68.5	3.787	86.3	60.6	73.4	22449.0	70.7	3.950	85.4	68.7	77.0
22502.0	69.9	3.751	82.6	60.7	71.7	22475.4	76.9	3.757	87.3	73.6	80.4	22502.0	74.1	3.709	86.2	66.0	76.1
22555.0	47.8	4.119	58.2	42.0	50.1	22528.2	60.7	3.986	73.0	52.1	62.5	22555.0	49.0	4.109	60.6	43.1	51.9
22608.0	38.1	4.280	46.5	32.6	39.6	22581.0	39.1	4.294	48.4	34.8	41.6	22608.0	36.8	4.237	49.4	29.3	39.4
22661.0	55.7	3.950	67.9	48.6	58.2	22633.8	49.8	4.107	58.8	45.0	51.9	22661.0	55.2	3.933	66.4	48.0	57.2
22714.0	74.9	3.738	91.5	63.3	77.4	22686.6	74.6	3.736	94.7	59.2	77.0	22714.0	80.1	3.708	98.5	66.9	82.7
22767.0	63.3	3.976	75.2	55.8	65.5	22739.4	72.0	3.814	91.7	57.1	74.4	22767.0	65.5	3.897	78.9	56.9	67.9
22820.0	61.9	3.910	73.9	52.4	63.2	22792.2	64.6	3.934	75.0	61.1	68.1	22820.0	61.3	3.940	75.4	53.1	64.3
22873.0	52.8	4.074	66.1	43.9	55.0	22845.0	56.1	4.007	67.6	52.7	60.1	22873.0	61.3	3.873	76.4	50.2	63.3
22926.0	63.6	3.897	83.8	49.2	66.5	22897.8	61.8	3.938	77.5	50.6	64.1	22926.0	64.9	3.910	87.8	47.3	67.5
22979.0	58.7	4.015	70.9	60.2	65.6	22950.6	60.8	3.957	72.8	55.6	64.2	22979.0	62.0	3.969	74.9	62.8	68.9
23032.0	62.1	4.026	71.3	58.6	65.0	23003.4	64.4	3.934	71.9	64.4	68.1	23032.0	56.9	4.141	67.1	55.0	61.0
23085.0	54.7	3.940	63.4	50.3	56.8	23056.2	53.7	4.114	65.8	47.0	56.4	23085.0	52.9	3.986	66.5	47.2	56.8
23138.0	65.8	3.993	73.5	65.0	69.2	23109.0	42.0	4.093	49.9	36.6	43.2	23138.0	64.6	4.084	69.3	63.8	66.6
23191.0	69.3	4.004	74.6	67.6	71.1	23161.8	77.4	4.031	83.8	75.2	79.5	23191.0	69.6	3.970	81.3	66.7	74.0
23244.0	115.5	3.292	122.5	113.7	118.1	23214.6	82.4	3.724	85.2	82.6	83.9	23244.0	106.9	3.515	117.7	102.0	109.9
23297.0	96.9	3.598	110.8	85.0	97.9	23267.4	108.2	3.375	123.9	101.4	112.6	23297.0	97.8	3.546	117.6	81.2	99.4
23350.0	54.7	4.082	62.5	50.9	56.7	23320.2	85.2	3.656	90.2	83.4	86.8	23350.0	58.3	4.001	72.7	51.0	61.8
23403.0	83.9	3.581	97.0	78.5	87.8	23373.0	53.7	4.043	66.2	51.2	58.7	23403.0	71.2	3.692	88.5	66.2	77.4
23456.0	72.8	3.942	73.0	75.9	74.5	23425.8	80.4	3.621	86.6	78.6	82.6	23456.0	70.3	3.947	69.8	75.7	72.7
23509.0	78.4	3.761	92.8	72.1	82.5	23478.6	65.6	4.089	69.9	65.2	67.5	23509.0	79.5	3.719	90.0	75.6	82.8
23562.0	78.9	3.620	97.6	67.4	82.5	23531.4	95.8	3.435	115.5	84.9	100.2	23562.0	79.1	3.656	96.3	66.1	81.2
23615.0	81.9	3.815	90.3	83.8	87.1	23584.2	78.4	3.951	89.7	72.0	80.8	23615.0	79.1	3.819	87.3	80.0	83.7
23668.0	107.2	3.486	124.2	98.8	111.5	23637.0	91.1	3.619	98.2	94.1	96.2	23668.0	112.6	3.558	129.6	101.4	115.5
23721.0	98.4	3.441	116.0	82.1	99.1	23689.8	94.0	3.663	111.4	84.5	98.0	23721.0	100.5	3.449	108.6	98.0	103.3
23774.0	79.7	3.775	94.2	68.0	81.1	23742.6	86.9	3.454	98.3	79.6	88.9	23774.0	92.6	3.556	109.4	79.2	94.3
23827.0	100.5	3.566	120.6	83.9	102.3	23795.4	94.1	3.596	106.0	85.4	95.7	23827.0	110.2	3.486	127.6	93.5	110.6
23880.0	64.6	3.902	80.1	64.8	72.4	23848.2	85.8	3.746	100.4	79.6	90.0	23880.0	70.3	3.896	90.4	57.3	73.9

23933.0	78.0	3.687	100.8	60.5	80.7
23936.0	83.2	3.748	104.3	68.2	86.2
24039.0	93.5	3.544	106.3	85.6	95.9
24032.0	94.6	3.553	118.8	73.2	96.0
24145.0	64.6	3.889	79.1	60.5	69.8
24138.0	92.8	3.569	117.7	70.5	94.1
24251.0	115.4	3.312	142.5	95.3	118.9
24304.0	74.6	3.772	90.6	65.2	77.9
24357.0	86.6	3.606	110.9	63.8	87.3
24410.0	94.3	3.344	122.3	70.4	96.3
24463.0	66.0	3.500	100.4	57.3	78.8
24516.0	69.1	3.945	89.1	58.6	73.9
24569.0	60.6	3.917	82.9	43.7	63.3
24622.0	65.3	3.874	80.7	56.1	68.4
24675.0	68.7	3.811	88.1	61.7	74.9
24728.0	78.1	3.745	100.0	64.0	82.0
24781.0	78.1	3.730	82.2	76.1	79.1
24834.0	65.9	3.785	77.3	62.6	69.9
24887.0	101.3	3.374	130.3	80.7	105.5
24940.0	83.4	3.664	100.5	81.1	90.8
24993.0	95.8	3.582	113.2	86.2	99.7
25046.0	93.1	3.398	104.4	89.1	96.7
25099.0	87.4	3.533	105.4	74.2	89.8
25152.0	139.7	3.343	155.9	124.7	140.3
25205.0	161.4	3.614	177.8	152.5	165.2
25258.0	116.2	3.562	136.9	101.7	119.3
25311.0	58.3	4.028	70.6	54.6	62.6
25364.0	92.4	3.435	110.9	76.9	93.9
25417.0	80.1	3.727	101.0	61.6	81.3
25470.0	73.2	3.657	93.3	56.1	74.7
25523.0	77.0	3.584	99.1	60.0	79.6
25576.0	84.7	3.555	110.9	69.0	90.0
25629.0	69.4	3.676	88.4	57.5	73.0
25682.0	91.6	3.641	116.7	73.3	95.0
25735.0	116.7	3.623	129.9	107.7	118.8
25788.0	91.8	3.469	114.1	78.2	96.2
25841.0	79.7	3.653	98.8	67.6	83.2
25894.0	87.2	3.713	105.8	72.3	89.1
25947.0	77.0	3.817	86.2	72.3	79.2
26000.0	63.2	3.887	79.9	54.7	67.3
26053.0	128.1	3.459	154.9	105.8	130.3
26106.0	88.8	3.499	110.0	71.8	90.9
26159.0	96.6	3.491	115.9	81.0	98.5
26212.0	71.7	3.686	93.0	61.5	77.3
26265.0	79.3	3.574	95.4	68.8	82.1
26318.0	82.0	3.684	98.1	70.7	84.4
26371.0	88.9	3.744	91.6	91.4	91.5
26424.0	128.6	3.550	134.3	129.3	131.8
26477.0	94.2	3.749	108.0	91.9	100.0
26530.0	114.3	3.530	137.3	96.0	116.7
26583.0	92.9	3.550	101.2	86.2	93.7
26636.0	111.9	3.421	118.0	109.7	113.8
26689.0	84.1	3.536	97.1	77.5	87.3
26742.0	98.3	3.514	108.9	89.8	99.4
26795.0	71.5	3.791	86.6	58.2	72.4
26848.0	62.2	3.847	79.4	49.6	64.5
26901.0	67.9	3.752	77.6	60.4	69.0

23901.0	64.2	4.018	75.8	54.1	64.9
23953.8	95.0	3.648	115.1	77.8	96.5
24006.6	75.0	3.642	90.6	65.7	78.2
24059.4	98.8	3.491	116.4	87.8	102.1
24112.2	82.5	3.803	97.4	73.0	85.2
24165.0	61.1	3.904	88.3	48.8	68.5
24217.8	103.8	3.621	122.0	89.1	105.6
24270.6	87.4	3.510	100.0	82.5	91.3
24323.4	73.3	3.805	95.0	56.5	75.8
24376.2	98.2	3.472	122.9	76.9	99.9
24429.0	72.8	3.614	96.3	59.1	77.7
24481.8	73.3	3.730	104.9	60.3	82.6
24534.6	53.0	4.128	74.1	40.9	57.5
24587.4	60.5	3.936	81.1	46.9	64.0
24640.2	84.1	3.731	108.8	64.6	86.7
24693.0	58.1	3.908	76.1	47.9	62.0
24745.8	74.8	3.893	83.4	67.9	75.7
24798.6	82.4	3.554	98.5	71.1	84.8
24851.4	94.2	3.464	111.2	82.0	96.6
24904.2	93.3	3.500	118.4	75.7	97.1
24957.0	98.7	3.582	116.7	85.0	100.8
25009.8	89.1	3.544	100.2	85.5	92.8
25062.6	86.6	3.512	102.1	80.1	91.1
25115.4	114.1	3.469	127.6	103.0	115.3
25168.2	129.5	3.392	150.1	114.3	132.2
25221.0	163.7	3.587	192.1	140.2	166.1
25273.8	83.9	3.764	96.3	74.0	85.1
25326.6	65.6	3.773	82.3	53.5	67.9
25379.4	86.4	3.567	103.8	73.2	88.5
25432.2	74.1	3.751	96.4	58.8	77.6
25485.0	66.1	3.826	82.9	52.6	67.8
25537.8	85.6	3.494	110.6	67.4	89.0
25590.6	72.8	3.742	85.6	65.5	75.6
25643.4	78.1	3.540	93.7	67.6	80.6
25696.2	94.8	3.743	118.1	78.0	98.1
25749.0	122.0	3.387	132.0	115.8	123.9
25801.8	78.2	3.733	93.4	71.3	82.4
25854.6	83.9	3.624	107.1	68.1	87.6
25907.4	89.3	3.670	99.3	83.9	91.6
25960.2	65.9	3.858	76.1	60.3	68.2
26013.0	72.1	3.879	86.1	64.9	75.5
26065.8	122.4	3.532	150.5	99.1	124.8
26118.6	101.5	3.453	114.5	90.2	102.4
26171.4	79.9	3.613	100.3	68.7	84.5
26224.2	67.7	3.839	82.8	58.6	70.7
26277.0	79.5	3.596	96.4	67.5	81.9
26329.8	63.5	3.987	68.4	63.0	65.7
26382.6	112.6	3.591	112.6	116.7	114.6
26435.4	111.1	3.748	122.8	102.9	112.8
26488.2	110.4	3.652	135.8	99.9	117.8
26541.0	100.0	3.622	111.0	94.3	102.6
26593.8	96.0	3.566	94.7	101.7	98.2
26646.6	96.3	3.739	102.5	91.4	96.9
26699.4	83.2	3.471	96.0	73.7	84.8
26752.2	94.5	3.712	110.4	81.9	96.2
26805.0	61.9	3.820	78.7	49.8	64.3
26857.8	64.8	3.837	84.7	50.9	67.8

23933.0	89.9	3.513	111.6	75.5	93.6
23986.0	85.6	3.652	102.9	71.9	87.4
24039.0	102.4	3.411	124.5	84.2	104.4
24092.0	96.0	3.482	120.5	76.2	98.4
24145.0	62.7	3.871	81.1	60.5	70.8
24198.0	101.2	3.443	122.8	82.6	102.7
24251.0	109.3	3.311	132.9	93.9	113.4
24304.0	86.1	3.509	101.9	75.6	88.7
24357.0	99.0	3.578	126.5	73.7	100.1
24410.0	88.2	3.425	115.2	66.8	91.0
24463.0	73.1	3.542	105.7	60.2	82.9
24516.0	69.0	3.942	95.9	56.1	76.0
24569.0	61.6	3.933	83.1	46.5	64.8
24622.0	71.9	3.756	94.5	55.6	75.0
24675.0	65.0	3.856	87.1	50.7	68.9
24728.0	83.8	3.640	98.0	73.2	85.6
24781.0	82.1	3.615	92.7	74.6	83.6
24834.0	93.1	3.354	108.5	83.2	95.8
24887.0	100.4	3.432	126.1	77.2	101.6
24940.0	88.5	3.594	110.3	75.7	93.0
24993.0	91.4	3.639	107.1	80.7	93.9
25046.0	99.8	3.334	115.1	93.9	104.5
25099.0	88.2	3.654	101.9	76.7	89.3
25152.0	140.4	3.323	166.1	121.1	143.6
25205.0	155.6	3.773	182.3	131.8	157.0
25258.0	109.4	3.581	135.3	89.4	112.4
25311.0	60.1	3.979	72.5	50.5	61.5
25364.0	99.8	3.423	121.5	80.7	101.1
25417.0	71.9	3.819	86.4	62.5	74.4
25470.0	56.2	3.959	68.3	46.8	57.5
25523.0	64.3	3.773	76.3	57.3	66.8
25576.0	82.0	3.735	88.7	80.7	84.7
25629.0	74.9	3.654	86.2	67.2	76.7
25682.0	84.6	3.647	105.8	70.8	88.3
25735.0	116.5	3.562	127.6	110.1	118.8
25788.0	102.1	3.323	120.4	90.3	105.3
25841.0	90.0	3.525	107.4	77.6	92.5
25894.0	80.3	3.665	95.6	69.3	82.5
25947.0	77.2	3.883	92.4	65.9	79.2
26000.0	67.3	3.787	84.3	57.9	71.1
26053.0	132.8	3.359	162.1	108.8	135.5
26106.0	93.1	3.457	112.9	75.8	94.4
26159.0	98.1	3.481	115.0	85.9	100.4
26212.0	73.5	3.705	98.6	55.5	77.0
26265.0	84.6	3.562	98.3	76.5	87.4
26318.0	72.9	3.768	90.8	57.8	74.3
26371.0	94.6	3.793	97.7	95.6	96.6
26424.0	113.8	3.634	126.6	108.5	117.6
26477.0	100.1	3.716	119.8	93.9	106.9
26530.0	105.5	3.560	124.8	89.0	106.9
26583.0	94.5	3.533	97.0	94.2	95.6
26636.0	103.8	3.607	111.3	97.6	104.4
26689.0	88.5	3.491	103.5	76.6	90.1
26742.0	99.3	3.663	111.9	90.7	101.3
26795.0	62.5	3.792	82.2	46.9	64.5
26848.0	66.1	3.883	82.9	53.6	68.3
26901.0	72.7	3.728	83.9	63.2	73.6

26954.0	67.4	3.862	82.8	55.3	69.1
27007.0	68.8	3.850	81.2	61.4	71.3
27060.0	65.5	4.067	82.9	55.6	69.3
27113.0	55.5	4.019	68.0	52.7	60.3
27166.0	73.2	3.861	89.3	63.1	76.2
27219.0	87.6	3.842	92.7	86.2	89.4
27272.0	90.4	3.885	99.0	86.3	92.7
27325.0	84.3	3.701	108.7	65.4	87.0
27378.0	64.6	3.829	71.6	63.1	67.4
27431.0	83.7	3.567	89.2	81.5	85.4
27484.0	76.3	3.739	89.7	67.5	78.6
27537.0	71.0	3.816	84.4	66.6	75.5
27590.0	56.8	3.948	76.6	43.6	60.1
27643.0	80.6	3.674	103.4	58.1	80.7
27696.0	93.1	3.876	106.1	84.5	95.3
27749.0	52.4	4.063	55.2	54.2	54.7
27802.0	58.1	4.119	61.3	57.3	59.3
27855.0	62.6	4.009	73.3	55.4	64.4
27908.0	74.5	3.757	98.1	55.9	77.0
27961.0	62.6	3.885	72.7	56.7	64.7
28014.0	58.7	3.808	72.7	53.1	62.9
28067.0	72.2	3.823	78.6	69.5	74.0
28120.0	52.7	4.046	63.2	44.2	53.7
28173.0	50.8	4.128	63.8	41.0	52.4
28226.0	60.0	4.025	68.3	59.3	63.8
28279.0	63.5	4.037	71.2	61.4	66.3
28332.0	57.6	3.977	68.1	51.7	59.9
28385.0	46.8	4.126	56.7	40.6	48.7
28438.0	78.4	3.870	95.0	67.1	81.0
28491.0	87.7	3.614	105.2	75.7	90.4
28544.0	56.9	3.806	70.8	50.3	60.6
28597.0	67.9	4.071	83.1	55.7	69.4
28650.0	46.0	4.168	54.9	44.5	49.7
28703.0	50.6	4.000	59.4	47.1	53.3
28756.0	59.2	4.096	70.6	53.8	62.2
28809.0	54.1	3.978	63.0	49.4	56.2
28862.0	68.7	3.771	87.8	53.6	70.7
28915.0	53.6	3.954	68.5	46.4	57.4
28968.0	80.2	3.649	102.5	65.4	84.0
29021.0	60.0	3.952	74.6	51.6	63.1

26910.6	66.2	3.793	72.4	64.9	68.6
26963.4	65.3	3.930	75.1	59.5	67.3
27016.2	75.2	3.868	88.9	66.0	77.4
27069.0	64.3	4.020	82.1	55.3	68.7
27121.8	54.8	4.095	70.1	52.3	61.2
27174.6	76.2	3.808	87.0	71.8	79.4
27227.4	84.7	3.823	89.2	85.2	87.2
27280.2	89.7	3.771	96.3	88.7	92.5
27333.0	78.5	3.834	95.8	63.8	79.8
27385.8	68.7	3.788	68.2	72.1	70.2
27438.6	74.2	3.778	83.6	66.4	75.0
27491.4	73.4	3.716	90.0	62.4	76.2
27544.2	63.5	3.894	69.5	63.3	66.4
27597.0	60.6	3.790	77.0	50.0	63.5
27649.8	84.6	3.730	99.9	71.6	85.7
27702.6	89.6	3.974	98.9	84.7	91.8
27755.4	49.2	4.135	53.1	51.7	52.4
27808.2	56.2	4.050	62.3	54.0	58.1
27861.0	65.5	4.035	80.2	54.7	67.4
27913.8	80.2	3.621	102.6	63.0	82.8
27966.6	56.0	4.061	62.9	52.5	57.7
28019.4	66.4	3.731	85.8	54.6	70.2
28072.2	65.2	3.951	67.5	65.0	66.2
28125.0	55.8	4.012	65.9	46.8	56.4
28177.8	48.1	4.205	56.8	41.5	49.1
28230.6	58.2	4.076	68.1	53.9	61.0
28283.4	65.3	4.062	71.6	61.8	66.7
28336.2	59.8	3.984	75.1	46.8	61.0
28389.0	49.5	4.056	59.4	41.7	50.5
28441.8	81.2	3.854	103.9	66.7	85.3
28494.6	94.5	3.502	113.3	79.2	96.3
28547.4	56.0	3.856	75.9	44.2	60.1
28600.2	76.5	3.981	88.7	66.5	77.6
28653.0	43.3	4.124	52.9	43.1	48.0
28705.8	56.2	3.947	69.1	48.3	58.7
28758.6	52.6	4.227	61.4	52.2	56.8
28811.4	55.0	3.958	64.1	49.5	56.8
28864.2	64.5	3.850	77.6	55.2	66.4
28917.0	58.0	3.938	70.2	51.7	61.0
28969.8	76.7	3.685	93.0	67.7	80.4
29022.6	67.0	3.869	79.7	58.2	68.9

26954.0	64.9	3.931	77.3	56.5	66.9
27007.0	75.9	3.795	91.8	66.2	79.0
27060.0	65.3	4.053	83.0	55.8	69.4
27113.0	62.3	3.966	77.9	58.7	68.3
27166.0	73.3	3.830	87.8	64.7	76.2
27219.0	93.4	3.725	103.6	89.6	96.6
27272.0	91.2	3.797	100.8	85.4	93.1
27325.0	91.3	3.633	103.7	81.0	92.4
27378.0	62.5	3.876	64.3	67.1	65.7
27431.0	77.4	3.668	88.3	68.4	78.3
27484.0	74.1	3.794	88.1	62.8	75.5
27537.0	65.8	3.831	75.6	62.8	69.2
27590.0	56.7	3.955	72.6	43.6	58.1
27643.0	93.0	3.563	112.0	76.7	94.3
27696.0	88.5	3.824	100.1	80.9	90.5
27749.0	58.5	4.062	64.3	59.1	61.7
27802.0	57.4	4.013	63.4	56.6	60.0
27855.0	67.8	3.970	85.8	53.7	69.7
27908.0	88.2	3.498	105.5	77.2	91.3
27961.0	58.9	3.988	66.7	53.8	60.3
28014.0	69.4	3.712	86.2	57.5	71.8
28067.0	66.3	3.883	67.4	67.3	67.4
28120.0	57.8	3.995	67.1	51.6	59.4
28173.0	54.4	4.089	62.9	47.1	55.0
28226.0	61.4	4.014	72.7	56.5	64.6
28279.0	69.5	4.008	76.5	66.1	71.3
28332.0	59.4	4.021	75.4	46.5	61.0
28385.0	49.0	4.087	59.9	42.0	50.9
28438.0	82.2	3.852	100.6	70.5	85.6
28491.0	90.1	3.518	105.6	80.7	93.1
28544.0	58.4	3.869	78.9	46.5	62.7
28597.0	70.0	3.970	81.2	64.0	72.6
28650.0	43.2	4.226	54.9	39.5	47.2
28703.0	59.2	3.886	72.9	49.4	61.2
28756.0	57.1	4.155	67.2	51.1	59.1
28809.0	60.2	3.854	75.5	51.6	63.5
28862.0	69.3	3.803	84.8	58.7	71.8
28915.0	54.0	3.916	70.7	46.0	58.4
28968.0	77.1	3.660	99.8	59.9	79.9
29021.0	68.9	3.880	84.8	59.0	71.9

June 2001 Profile Survey of Westbound Lanes, Driving Lane (PWBJN01)

ATHENS 050 - June 2001 Tests

LANE 1 PASS 1 DOWN
LOG NUMBERS DECENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	49.3	4.062	49.9	55.7	52.8
28894.0	75.5	3.860	74.3	79.8	77.0
28841.0	43.8	4.262	52.0	45.6	48.8
28788.0	50.2	4.165	55.9	52.5	54.2
28735.0	59.7	4.035	58.9	65.9	62.4
28682.0	52.3	4.037	55.2	53.5	54.3
28629.0	72.5	3.736	75.4	73.1	74.3
28576.0	39.7	4.064	36.9	47.5	42.2
28523.0	48.7	4.260	48.0	50.5	49.2
28470.0	52.5	4.041	57.0	51.0	54.0
28417.0	63.1	3.992	68.5	60.2	64.4
28364.0	55.1	3.790	51.5	64.0	57.7
28311.0	53.0	4.003	50.4	58.3	54.3
28258.0	77.4	3.769	76.1	80.9	78.5
28205.0	55.0	4.154	55.9	58.8	57.3
28152.0	64.9	4.034	68.1	65.5	66.8
28099.0	49.1	4.114	52.9	49.0	51.0
28046.0	45.8	4.243	46.1	50.4	48.3
27993.0	43.8	4.039	51.7	38.3	45.0
27940.0	60.2	3.889	62.6	62.3	62.5
27887.0	50.3	3.944	60.1	42.7	51.4
27834.0	71.5	3.770	75.8	90.3	83.1
27781.0	44.6	3.941	47.8	49.0	48.4
27728.0	61.7	3.951	67.0	60.8	63.9
27675.0	49.5	3.894	49.2	54.1	51.6
27622.0	30.4	4.293	34.9	33.3	34.1
27569.0	45.1	4.238	50.0	43.2	46.6
27516.0	41.5	4.086	52.4	36.9	44.7
27463.0	71.9	3.632	73.9	74.0	73.9
27410.0	43.8	4.135	45.7	42.7	44.2
27357.0	64.1	4.024	61.4	68.4	64.9
27304.0	49.1	3.968	54.7	56.2	55.4
27251.0	127.3	3.163	135.1	126.4	130.8
27198.0	112.1	3.242	116.7	113.6	115.2
27145.0	85.9	3.638	88.3	85.3	86.8
27092.0	88.1	3.659	92.4	86.4	89.4
27039.0	81.7	3.844	86.1	80.1	83.1
26986.0	68.7	3.633	73.0	67.8	70.4
26933.0	58.9	3.801	70.1	57.1	63.6
26880.0	49.6	4.144	51.8	50.5	51.1
26827.0	58.3	3.865	67.3	57.9	62.6
26774.0	52.7	3.858	54.2	54.2	54.2
26721.0	58.3	3.944	69.2	56.0	62.6
26668.0	48.5	3.976	51.5	49.2	50.4
26615.0	49.1	3.856	57.8	51.4	54.6
26562.0	49.8	3.824	55.5	48.6	52.1

LANE 1 PASS 2 DOWN
LOG NUMBERS DECENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	46.7	4.043	45.7	53.8	49.7
28894.0	60.0	3.942	59.2	63.7	61.4
28841.0	61.3	4.113	66.7	59.1	62.9
28788.0	43.2	4.262	46.9	46.0	46.5
28735.0	60.5	4.046	63.2	60.0	61.6
28682.0	50.3	4.034	52.6	50.7	51.6
28629.0	83.4	3.639	86.5	83.3	84.9
28576.0	44.8	4.058	45.2	49.4	47.3
28523.0	44.7	4.188	42.2	50.3	46.2
28470.0	49.9	4.166	57.5	46.5	52.0
28417.0	63.4	3.875	67.4	64.3	65.8
28364.0	54.9	3.965	57.4	57.5	57.4
28311.0	57.3	3.815	54.3	64.7	59.5
28258.0	64.7	3.930	63.1	69.5	66.3
28205.0	66.6	3.964	69.7	67.7	68.7
28152.0	65.7	4.043	64.4	68.6	66.5
28099.0	47.4	4.102	54.9	45.4	50.2
28046.0	49.4	4.110	49.1	55.3	52.2
27993.0	44.9	4.070	48.7	44.7	46.7
27940.0	61.1	3.854	65.4	59.9	62.6
27887.0	59.4	3.945	62.0	59.4	60.7
27834.0	57.4	3.833	68.1	67.3	67.7
27781.0	53.3	3.943	51.8	61.8	56.8
27728.0	65.4	3.848	67.2	66.6	66.9
27675.0	42.7	3.980	43.6	50.5	47.0
27622.0	39.8	4.073	41.0	47.4	44.2
27569.0	44.7	4.200	50.7	43.1	46.9
27516.0	48.4	4.044	54.4	47.8	51.1
27463.0	69.0	3.568	70.7	73.1	71.9
27410.0	52.2	4.020	62.0	46.0	54.0
27357.0	53.3	4.166	51.3	56.6	54.0
27304.0	53.8	3.889	55.3	57.6	56.4
27251.0	114.6	3.237	134.3	109.7	122.0
27198.0	130.0	3.069	129.1	135.8	132.5
27145.0	72.0	3.966	73.8	72.1	72.9
27092.0	91.3	3.485	101.9	84.7	93.3
27039.0	79.1	3.879	83.2	77.8	80.5
26986.0	85.1	3.451	89.3	82.5	85.9
26933.0	59.5	3.800	66.2	58.1	62.2
26880.0	46.9	4.122	55.7	46.3	51.0
26827.0	68.4	3.788	67.9	71.3	69.6
26774.0	46.9	3.943	52.0	44.9	48.4
26721.0	64.7	3.874	73.4	62.8	68.1
26668.0	44.4	4.102	50.4	43.3	46.8
26615.0	61.3	3.648	68.2	63.3	65.7
26562.0	45.8	4.031	51.2	46.1	48.6

LANE 1 PASS 3 DOWN
LOG NUMBERS DECENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	63.8	3.959	66.1	65.9	66.0
28894.0	55.3	4.099	62.5	50.5	56.5
28841.0	41.5	4.272	44.2	46.2	45.2
28788.0	64.7	3.947	70.4	63.1	66.8
28735.0	46.6	4.044	51.7	45.3	48.5
28682.0	83.4	3.601	86.3	84.7	85.5
28629.0	43.6	4.081	43.3	46.8	45.0
28576.0	46.3	4.156	53.1	44.9	49.0
28523.0	55.9	3.980	62.7	52.9	57.8
28470.0	60.7	3.976	71.3	56.9	64.1
28417.0	59.1	3.765	57.2	64.3	60.8
28364.0	56.1	3.900	53.7	61.5	57.6
28311.0	70.9	3.810	71.7	72.7	72.2
28258.0	61.6	4.108	60.9	64.5	62.7
28205.0	62.4	4.041	61.7	66.6	64.2
28152.0	46.1	4.110	47.6	50.3	49.0
28099.0	46.4	4.161	51.9	45.1	48.5
28046.0	44.7	4.096	49.9	43.2	46.6
27993.0	69.0	3.770	75.8	68.9	72.4
27940.0	57.9	3.878	60.6	56.8	58.7
27887.0	72.8	3.702	78.6	80.8	79.7
27834.0	43.2	4.064	42.3	53.1	47.7
27781.0	67.6	3.823	73.8	66.7	70.2
27728.0	45.7	4.010	42.1	53.3	47.7
27675.0	38.2	4.026	36.4	43.6	40.0
27622.0	53.3	4.138	54.7	54.0	54.3
27569.0	38.1	4.056	43.2	37.9	40.6
27516.0	69.9	3.643	69.4	71.7	70.5
27463.0	49.1	4.061	50.6	51.4	51.0
27410.0	57.0	4.071	57.1	57.5	57.3
27357.0	55.1	3.912	50.7	64.1	57.4
27304.0	116.4	3.253	127.4	113.7	120.5
27251.0	126.9	3.112	139.5	119.7	129.6
27198.0	89.7	3.599	92.8	89.0	90.9
27145.0	80.7	3.671	86.5	77.5	82.0
27092.0	86.5	3.824	91.5	85.8	88.6
27039.0	78.3	3.510	89.1	69.7	79.4
26986.0	61.7	3.811	71.2	59.4	65.3
26933.0	47.9	4.186	53.9	47.0	50.5
26880.0	69.1	3.729	71.7	70.9	71.3
26827.0	47.1	3.958	54.2	45.9	50.1
26774.0	61.4	3.904	66.1	61.2	63.7
26721.0	47.1	4.089	50.6	50.9	50.7
26668.0	59.4	3.608	66.1	63.5	64.8
26615.0	48.7	3.956	53.9	49.1	51.5
26562.0	65.6	3.686	71.6	70.6	71.1

26509.0	61.1	3.823	72.1	66.1	69.1	26509.0	61.4	3.622	81.5	63.5	72.5	26509.0	80.7	3.499	77.2	92.9	85.1
26456.0	70.8	3.531	69.6	80.3	75.0	26456.0	70.2	3.602	67.7	80.5	74.1	26456.0	66.5	3.587	71.1	69.8	70.5
26403.0	47.1	3.873	56.2	50.0	53.1	26403.0	65.9	3.608	78.0	61.3	69.7	26403.0	60.1	3.606	66.4	60.1	63.3
26350.0	58.4	3.649	71.2	54.3	62.7	26350.0	55.7	3.637	63.0	54.2	58.6	26350.0	56.6	3.768	55.4	62.7	59.1
26297.0	45.4	3.900	51.1	44.3	47.7	26297.0	54.5	3.751	60.5	56.7	58.6	26297.0	71.4	3.395	70.2	78.6	74.4
26244.0	78.2	3.393	87.2	72.7	80.0	26244.0	68.7	3.620	78.4	61.6	70.0	26244.0	81.4	3.558	71.1	94.0	82.5
26191.0	64.1	3.692	60.6	69.7	65.2	26191.0	84.6	3.250	93.1	82.0	87.5	26191.0	73.2	3.547	62.7	87.5	75.1
26138.0	74.5	3.553	77.0	76.8	76.9	26138.0	67.1	3.716	71.1	69.0	70.0	26138.0	75.5	3.415	83.2	72.6	77.9
26085.0	70.1	3.485	62.9	86.4	74.7	26085.0	90.1	3.274	84.2	99.8	92.0	26085.0	81.5	3.379	89.3	79.9	84.6
26032.0	73.8	3.555	80.3	70.3	75.3	26032.0	63.7	3.643	75.0	58.1	66.5	26032.0	79.4	3.751	87.6	77.4	82.5
25979.0	72.2	3.805	77.7	73.2	75.4	25979.0	88.2	3.603	91.0	91.2	91.1	25979.0	59.0	3.538	68.5	55.6	62.0
25926.0	55.0	3.608	67.9	47.0	57.5	25926.0	51.1	3.702	67.0	39.8	53.4	25926.0	68.9	3.791	84.0	60.6	72.3
25873.0	68.2	3.732	81.7	63.1	72.4	25873.0	75.2	3.527	87.5	68.1	77.8	25873.0	69.6	3.649	78.1	67.9	73.0
25820.0	70.0	3.652	76.6	66.6	71.6	25820.0	77.5	3.636	78.0	80.0	79.0	25820.0	75.0	3.642	83.6	73.8	78.7
25767.0	78.1	3.606	90.2	74.6	82.4	25767.0	84.6	3.569	94.3	83.8	89.1	25767.0	82.2	3.508	93.4	79.4	86.4
25714.0	84.7	3.479	97.3	83.3	90.3	25714.0	83.4	3.512	88.2	90.1	89.2	25714.0	67.5	3.976	67.1	71.7	69.4
25661.0	66.1	3.926	63.1	71.0	67.1	25661.0	68.6	3.906	70.2	74.3	72.2	25661.0	74.6	3.672	72.3	80.3	76.3
25608.0	73.2	3.668	73.8	75.1	74.4	25608.0	71.1	3.714	76.0	70.1	73.1	25608.0	98.5	3.605	109.8	97.3	103.5
25555.0	100.0	3.443	100.5	104.9	102.7	25555.0	98.9	3.579	109.4	94.1	101.8	25555.0	65.8	3.685	65.6	73.1	69.4
25502.0	65.2	3.792	58.7	74.7	66.7	25502.0	67.1	3.685	67.3	75.6	71.5	25502.0	69.4	3.880	70.9	68.7	69.8
25449.0	74.5	3.791	71.1	79.4	75.2	25449.0	67.8	3.898	71.6	65.3	68.5	25449.0	60.5	3.851	61.9	61.6	61.8
25396.0	53.7	4.140	51.8	57.0	54.4	25396.0	61.5	3.908	62.5	63.7	63.1	25396.0	57.5	3.803	66.5	54.4	60.4
25343.0	57.6	3.744	73.3	51.3	62.3	25343.0	55.9	3.841	67.6	51.3	59.4	25343.0	75.8	3.905	79.5	78.8	79.1
25290.0	72.3	3.970	75.5	76.8	76.1	25290.0	79.8	3.877	82.5	80.2	81.4	25290.0	102.7	3.720	113.9	94.0	103.9
25237.0	105.1	3.744	120.8	97.1	109.0	25237.0	103.8	3.776	116.4	96.1	106.3	25237.0	60.8	3.864	71.1	54.9	63.0
25184.0	54.6	3.870	67.6	54.6	61.1	25184.0	60.9	3.842	71.2	54.9	63.1	25184.0	60.0	3.760	68.1	58.6	63.3
25131.0	59.9	3.785	68.4	55.8	62.1	25131.0	54.1	3.820	65.5	52.3	58.9	25131.0	69.5	4.070	76.6	65.1	70.9
25078.0	69.7	4.065	78.2	66.0	72.1	25078.0	67.3	4.006	73.9	63.6	68.8	25078.0	58.8	3.840	64.7	58.6	61.7
25025.0	55.4	3.898	57.0	59.4	58.2	25025.0	62.4	3.884	64.6	65.9	65.2	25025.0	53.0	4.202	56.4	67.8	62.1
24972.0	50.9	4.269	50.6	62.6	56.6	24972.0	52.5	4.183	56.7	63.9	60.3	24972.0	69.4	3.998	73.0	71.4	72.2
24919.0	72.8	4.039	75.8	74.8	75.3	24919.0	67.4	4.039	74.4	66.5	70.5	24919.0	76.9	3.895	79.0	76.4	77.7
24866.0	76.8	3.842	79.1	76.2	77.7	24866.0	75.5	3.913	75.9	76.6	76.2	24866.0	70.9	3.790	75.8	67.9	71.8
24813.0	71.6	3.825	72.1	73.2	72.6	24813.0	78.8	3.725	81.5	78.0	79.8	24813.0	74.6	3.796	74.4	77.7	76.1
24760.0	78.3	3.719	83.6	77.7	80.6	24760.0	75.3	3.783	79.2	74.3	76.8	24760.0	71.4	3.783	84.7	63.3	74.0
24707.0	60.9	4.070	63.0	62.0	62.5	24707.0	67.9	3.741	73.3	70.3	71.8	24707.0	95.0	3.300	99.4	93.2	96.3
24654.0	92.7	3.375	105.0	83.0	94.0	24654.0	91.5	3.436	94.9	91.1	93.0	24654.0	70.0	3.839	82.2	69.5	75.9
24601.0	70.8	4.092	73.7	78.2	75.9	24601.0	62.3	3.851	68.0	66.0	67.0	24601.0	80.3	4.022	73.7	89.8	81.7
24548.0	70.8	3.981	67.1	78.0	72.6	24548.0	84.6	4.087	80.3	91.1	85.7	24548.0	57.4	3.863	66.7	55.4	61.0
24495.0	56.0	3.963	58.0	59.3	58.7	24495.0	66.5	3.756	72.2	67.1	69.7	24495.0	64.8	3.697	63.5	69.1	66.3
24442.0	75.1	3.658	79.3	72.3	75.8	24442.0	55.3	3.916	58.3	58.9	58.6	24442.0	85.0	3.597	91.7	83.0	87.4
24389.0	77.3	3.724	80.4	77.0	78.7	24389.0	90.0	3.551	94.6	86.4	90.5	24389.0	50.4	4.016	49.8	59.3	54.6
24336.0	51.8	3.980	57.0	56.0	56.5	24336.0	42.9	4.139	47.3	48.5	47.9	24336.0	55.4	3.898	62.5	51.4	56.9
24283.0	52.1	3.868	54.0	54.1	54.1	24283.0	61.2	3.731	73.3	55.2	64.2	24283.0	73.7	3.555	85.5	66.3	75.9
24230.0	74.0	3.545	82.5	70.6	76.5	24230.0	57.9	3.728	75.8	45.9	60.8	24230.0	77.9	3.648	86.0	71.6	78.8
24177.0	72.0	3.720	78.4	69.6	74.0	24177.0	84.0	3.548	93.7	79.1	86.4	24177.0	79.7	3.639	88.3	76.9	82.6
24124.0	76.0	3.749	80.1	73.1	76.6	24124.0	67.8	3.856	74.6	66.6	70.6	24124.0	56.7	4.005	57.3	61.2	59.3
24071.0	47.7	4.144	47.4	52.8	50.1	24071.0	64.6	3.793	66.7	65.5	66.1	24071.0	55.5	3.903	54.2	61.0	57.6
24018.0	54.6	3.989	57.1	58.1	57.6	24018.0	51.4	3.961	51.0	57.1	54.0	24018.0	60.9	3.862	65.9	58.8	62.4
23965.0	70.3	3.773	73.7	69.2	71.5	23965.0	70.8	3.758	67.1	75.9	71.5	23965.0	69.0	3.807	73.7	70.0	71.9
23912.0	69.9	3.807	68.2	75.4	71.8	23912.0	74.0	3.771	71.0	80.6	75.8	23912.0	48.3	4.006	43.4	57.1	50.3
23859.0	48.5	3.931	47.7	56.5	52.1	23859.0	44.0	4.045	42.2	52.9	47.5	23859.0	56.6	3.734	62.6	60.3	61.5
23806.0	56.3	3.856	59.1	57.4	58.2	23806.0	59.2	3.755	60.8	59.4	60.1	23806.0	65.7	3.434	60.2	74.6	67.4
23753.0	73.2	3.313	68.2	81.1	74.6	23753.0	72.8	3.387	70.9	77.8	74.4	23753.0	65.1	3.811	66.0	69.7	67.8
23700.0	62.6	3.941	58.7	67.0	62.9	23700.0	63.0	3.839	61.2	67.0	64.1	23700.0	50.0	4.035	55.4	50.7	53.1
23647.0	51.3	4.037	53.2	53.3	53.3	23647.0	48.9	4.080	53.9	49.2	51.6	23647.0	86.2	3.312	97.9	76.7	87.3
23594.0	78.8	3.395	86.3	76.0	81.1	23594.0	85.2	3.358	102.7	73.3	88.0	23594.0	88.7	3.632	107.1	82.9	95.0
23541.0	88.5	3.659	103.6	82.5	93.1	23541.0	85.7	3.667	99.1	81.7	90.4	23541.0	49.5	3.896	57.4	55.2	56.3

23488.0	56.5	3.878	58.4	63.2	60.8	23488.0	53.5	3.835	58.1	58.4	58.3	23488.0	72.9	3.694	67.3	84.4	75.9
23435.0	75.3	3.718	64.3	90.9	77.6	23435.0	63.1	3.885	64.7	68.2	66.5	23435.0	66.9	4.052	67.7	69.1	68.4
23382.0	63.1	4.031	68.6	60.6	64.6	23382.0	78.4	3.788	78.2	81.7	80.0	23382.0	58.6	3.873	51.0	72.1	61.5
23329.0	54.6	3.843	51.5	67.1	59.3	23329.0	50.6	3.997	54.3	50.9	52.6	23329.0	74.8	3.628	76.7	80.0	78.3
23276.0	78.0	3.620	77.2	81.3	79.3	23276.0	79.9	3.566	84.3	79.5	81.9	23276.0	76.7	3.395	81.5	75.6	78.6
23223.0	75.0	3.415	75.2	76.6	75.9	23223.0	66.9	3.545	62.7	73.9	68.3	23223.0	62.1	3.972	69.9	59.7	64.8
23170.0	63.6	3.984	68.4	62.9	65.7	23170.0	71.1	3.743	81.8	66.3	74.0	23170.0	53.8	3.938	55.9	60.9	58.4
23117.0	54.9	3.866	56.7	62.8	59.8	23117.0	44.9	4.053	49.8	49.0	49.4	23117.0	58.2	3.927	57.4	64.2	60.8
23064.0	60.6	3.837	61.9	63.3	62.6	23064.0	66.7	3.816	67.7	71.4	69.6	23064.0	50.2	3.765	56.5	51.1	53.8
23011.0	47.9	3.874	54.6	47.0	50.8	23011.0	47.8	3.829	55.7	47.5	51.6	23011.0	72.3	3.683	70.0	75.9	73.0
22958.0	73.1	3.529	74.7	75.0	74.8	22958.0	68.4	3.741	74.8	67.3	71.0	22958.0	62.8	3.680	70.6	62.6	66.6
22905.0	62.4	3.847	61.6	66.8	64.2	22905.0	59.9	3.703	60.8	62.5	61.7	22905.0	68.8	3.732	74.9	69.3	72.1
22852.0	63.3	3.687	68.9	70.4	69.6	22852.0	70.7	3.728	77.7	73.0	75.4	22852.0	70.1	3.577	77.4	68.4	72.9
22799.0	58.2	3.797	66.0	54.5	60.2	22799.0	71.2	3.607	76.2	70.4	73.3	22799.0	40.6	4.134	46.1	36.6	41.3
22746.0	47.3	4.009	51.8	46.4	49.1	22746.0	45.0	4.100	45.4	50.0	47.7	22746.0	39.8	3.902	48.3	38.5	43.4
22693.0	30.1	4.178	34.6	33.6	34.1	22693.0	35.5	3.941	41.9	38.6	40.3	22693.0	63.6	3.992	70.2	59.3	64.7
22640.0	67.5	3.841	72.1	68.3	70.2	22640.0	56.2	3.987	59.3	59.0	59.1	22640.0	64.6	3.769	69.5	66.8	68.2
22587.0	68.2	3.885	67.6	72.9	70.2	22587.0	63.1	3.806	69.0	63.9	66.5	22587.0	57.0	3.841	66.7	55.2	60.9
22534.0	67.9	3.645	69.0	69.8	69.4	22534.0	68.8	3.784	71.4	69.4	70.4	22534.0	56.0	3.665	62.7	53.4	58.0
22481.0	45.7	3.923	47.2	48.9	48.0	22481.0	56.4	3.714	62.2	54.2	58.2	22481.0	40.1	4.024	47.1	41.0	44.0
22428.0	41.8	4.010	47.0	39.9	43.4	22428.0	37.8	4.065	42.1	37.9	40.0	22428.0	45.6	4.129	49.3	45.7	47.5
22375.0	43.7	4.100	49.5	44.6	47.1	22375.0	46.8	4.034	49.0	50.8	49.9	22375.0	43.5	4.126	47.4	48.2	47.8
22322.0	51.7	3.974	58.6	50.2	54.4	22322.0	44.6	4.128	49.6	47.6	48.6	22322.0	37.6	4.030	44.1	36.9	40.5
22269.0	36.2	4.133	45.6	36.3	40.9	22269.0	40.1	3.942	53.2	38.3	45.8	22269.0	60.8	3.730	61.2	64.3	62.8
22216.0	64.1	3.657	70.9	60.6	65.8	22216.0	65.4	3.708	73.7	61.3	67.5	22216.0	47.2	4.094	53.5	44.1	48.8
22163.0	52.8	3.987	53.9	57.3	55.6	22163.0	54.9	3.927	58.2	58.1	58.1	22163.0	85.8	3.558	93.1	83.6	88.4
22110.0	95.6	3.367	107.5	87.3	97.4	22110.0	75.1	3.699	80.6	75.8	78.2	22110.0	50.4	4.010	58.7	47.0	52.8
22057.0	58.7	3.751	62.6	62.9	62.7	22057.0	68.8	3.600	70.8	70.9	70.8	22057.0	55.8	3.804	55.3	61.0	58.2
22004.0	55.1	3.830	62.1	57.4	59.7	22004.0	55.9	3.821	56.4	58.6	57.5	22004.0	43.7	4.091	48.5	45.2	46.8
21951.0	36.8	4.087	42.1	46.3	44.2	21951.0	45.2	3.989	49.8	47.2	48.5	21951.0	56.3	3.788	58.7	63.5	61.1
21898.0	55.4	3.898	57.7	57.3	57.5	21898.0	46.8	3.784	48.6	49.4	49.0	21898.0	52.9	3.938	51.2	58.8	55.0
21845.0	52.3	3.917	55.0	51.4	53.2	21845.0	62.7	3.945	65.2	64.3	64.8	21845.0	71.3	3.922	69.2	75.1	72.2
21792.0	69.8	4.027	72.7	69.2	71.0	21792.0	68.7	3.921	69.5	71.4	70.5	21792.0	64.5	4.170	66.4	63.5	64.9
21739.0	67.0	4.089	68.7	66.0	67.3	21739.0	68.5	4.107	68.4	70.7	69.6	21739.0	49.2	4.245	52.2	49.7	50.9
21686.0	49.6	4.277	53.1	47.7	50.4	21686.0	54.0	4.156	55.0	53.4	54.2	21686.0	57.8	3.927	67.3	52.1	59.7
21633.0	56.8	3.900	68.7	51.8	60.3	21633.0	57.2	3.994	71.1	48.1	59.6	21633.0	53.1	3.905	53.0	58.2	55.6
21580.0	50.6	4.004	56.2	47.8	52.0	21580.0	53.9	3.921	62.9	52.3	57.6	21580.0	59.3	3.758	63.0	59.2	61.1
21527.0	70.6	3.680	71.3	71.9	71.6	21527.0	59.0	3.736	64.4	57.9	61.1	21527.0	83.4	3.730	85.0	82.5	83.8
21474.0	72.6	3.892	77.8	69.9	73.8	21474.0	79.0	3.762	82.2	78.3	80.3	21474.0	53.4	3.889	60.2	54.5	57.3
21421.0	59.3	3.839	66.6	55.4	61.0	21421.0	53.8	3.920	58.8	53.1	55.9	21421.0	62.1	3.826	58.8	67.1	63.0
21368.0	64.6	3.836	61.9	69.6	65.8	21368.0	61.3	3.818	57.6	68.2	62.9	21368.0	51.4	3.986	61.1	49.1	55.1
21315.0	49.6	3.933	58.7	46.6	52.6	21315.0	51.3	3.990	56.2	50.4	53.3	21315.0	51.3	3.972	56.2	52.9	54.5
21262.0	50.2	4.049	53.5	54.3	53.9	21262.0	51.0	3.947	56.3	53.5	54.9	21262.0	42.8	4.160	45.7	42.9	44.3
21209.0	40.1	4.110	44.7	37.2	41.0	21209.0	45.0	4.155	47.9	46.1	47.0	21209.0	61.7	3.935	62.8	64.6	63.7
21156.0	62.0	3.903	60.4	65.1	62.8	21156.0	59.0	3.967	62.2	58.7	60.5	21156.0	68.1	3.787	74.9	66.3	70.6
21103.0	64.7	3.783	64.3	68.2	66.2	21103.0	61.0	3.923	64.6	64.0	64.3	21103.0	50.1	3.845	55.0	48.7	51.9
21050.0	53.3	3.880	61.7	47.7	54.7	21050.0	58.9	3.765	63.8	56.5	60.2	21050.0	63.8	3.682	77.3	55.5	66.4
20997.0	65.6	3.664	77.3	58.6	67.9	20997.0	61.6	3.752	74.7	53.5	64.1	20997.0	70.0	3.688	69.7	73.1	71.4
20944.0	64.7	3.678	69.8	62.3	66.1	20944.0	67.6	3.660	75.1	61.4	68.3	20944.0	87.4	3.420	93.7	83.3	88.5
20891.0	94.0	3.508	100.1	91.2	95.7	20891.0	82.1	3.507	90.7	75.6	83.1	20891.0	75.9	3.775	73.3	81.4	77.4
20838.0	70.6	3.723	68.4	77.8	73.1	20838.0	84.7	3.714	82.4	91.0	86.7	20838.0	79.7	3.592	87.9	78.9	83.4
20785.0	76.0	3.742	80.8	75.6	78.2	20785.0	76.0	3.609	79.9	77.8	78.9	20785.0	53.3	4.139	60.1	50.3	55.2
20732.0	48.8	4.060	56.6	45.9	51.2	20732.0	58.0	4.080	67.0	54.6	60.8	20732.0	48.6	4.096	57.0	51.7	54.3
20679.0	47.7	4.157	55.1	47.6	51.3	20679.0	53.0	4.009	59.9	49.4	54.6	20679.0	56.6	4.085	59.3	59.1	59.2
20626.0	68.3	3.994	70.5	70.3	70.4	20626.0	54.4	4.128	63.1	57.7	60.4	20626.0	79.1	4.003	81.0	78.3	79.6
20573.0	74.2	4.030	76.5	72.3	74.4	20573.0	77.3	4.012	77.0	79.9	78.4	20573.0	50.1	4.077	53.7	50.0	51.8
20520.0	47.4	4.004	50.9	47.6	49.2	20520.0	51.2	4.091	52.5	51.6	52.0	20520.0	52.4	3.998	48.9	59.8	54.4

20467.0	56.5	4.019	52.9	61.4	57.1	20467.0	53.1	3.966	58.0	52.1	55.0	20467.0	54.9	3.943	56.6	64.2	60.4
20414.0	51.3	3.995	47.9	61.7	54.8	20414.0	57.4	4.015	58.8	62.5	60.7	20414.0	43.8	3.944	43.1	49.0	46.0
20361.0	38.5	4.092	41.7	39.9	40.8	20361.0	40.0	4.033	43.2	41.7	42.5	20361.0	54.9	3.819	53.7	65.7	59.7
20308.0	50.0	3.956	47.4	60.7	54.0	20308.0	51.6	3.924	51.3	61.2	56.3	20308.0	40.8	4.180	51.7	37.5	44.6
20255.0	52.5	4.081	65.0	47.3	56.1	20255.0	42.9	4.177	52.8	43.3	48.0	20255.0	71.9	3.650	83.1	67.9	75.5
20202.0	76.7	3.585	89.0	69.9	79.5	20202.0	61.9	3.833	71.6	60.7	66.2	20202.0	78.7	3.735	84.1	76.5	80.3
20149.0	67.9	3.921	74.8	63.1	69.0	20149.0	86.4	3.600	94.4	80.1	87.2	20149.0	70.8	3.792	76.5	70.8	73.6
20096.0	71.3	3.773	75.3	72.4	73.9	20096.0	65.1	3.942	68.2	67.3	67.8	20096.0	103.7	3.342	106.0	103.8	104.9
20043.0	98.5	3.366	98.1	103.4	100.7	20043.0	104.9	3.262	107.7	109.2	108.4	20043.0	68.0	3.736	72.8	69.0	70.9
19990.0	64.4	3.799	69.8	66.2	68.0	19990.0	60.3	3.907	63.1	68.0	65.5	19990.0	67.8	3.487	62.4	79.8	71.1
19937.0	73.4	3.381	68.4	85.2	76.8	19937.0	77.6	3.390	72.6	89.2	80.9	19937.0	72.7	3.506	91.6	70.2	80.9
19884.0	71.9	3.558	88.2	72.3	80.3	19884.0	70.0	3.567	89.1	66.5	77.8	19884.0	82.2	3.697	85.6	82.4	84.0
19831.0	88.2	3.500	86.5	93.9	90.2	19831.0	87.9	3.629	87.3	92.6	90.0	19831.0	58.7	3.613	67.1	57.8	62.5
19778.0	49.7	3.871	55.0	53.1	54.0	19778.0	62.3	3.540	69.4	61.4	65.4	19778.0	46.5	3.931	51.9	50.7	51.3
19725.0	49.8	3.733	51.0	58.4	54.7	19725.0	45.0	3.916	49.1	53.1	51.1	19725.0	53.3	3.647	54.8	58.8	56.8
19672.0	48.0	3.857	51.5	52.9	52.2	19672.0	55.1	3.705	56.6	60.8	58.7	19672.0	47.8	4.026	46.9	57.6	52.3
19619.0	53.3	3.890	51.8	59.1	55.4	19619.0	42.4	3.921	40.4	48.9	44.6	19619.0	71.5	3.626	60.6	85.2	72.9
19566.0	65.8	3.601	61.3	73.2	67.2	19566.0	71.1	3.568	65.1	82.6	73.8	19566.0	67.4	3.627	70.5	73.3	71.9
19513.0	69.7	3.590	74.0	81.4	77.7	19513.0	68.4	3.691	67.0	78.8	72.9	19513.0	57.2	3.737	55.7	63.4	59.5
19460.0	48.5	3.890	46.5	54.8	50.6	19460.0	47.8	3.841	46.1	59.8	53.0	19460.0	55.2	3.719	60.3	58.3	59.3
19407.0	62.3	3.504	67.9	65.5	66.7	19407.0	55.2	3.722	62.3	60.5	61.4	19407.0	77.2	3.574	83.0	73.3	78.1
19354.0	64.7	3.858	65.1	66.2	65.6	19354.0	70.9	3.564	70.0	73.4	71.7	19354.0	61.9	3.688	72.8	53.7	63.2
19301.0	50.7	3.788	62.6	46.3	54.5	19301.0	60.8	3.799	75.9	49.7	62.8	19301.0	40.6	4.115	50.0	39.7	44.8
19248.0	39.0	4.201	43.9	41.4	42.6	19248.0	40.0	4.038	47.1	43.9	45.5	19248.0	52.8	3.762	52.4	58.7	55.5
19195.0	62.3	3.720	67.0	60.7	63.8	19195.0	51.2	3.986	53.9	52.9	53.4	19195.0	56.3	3.762	78.0	44.4	61.2
19142.0	48.7	3.869	64.4	40.2	52.3	19142.0	63.9	3.583	81.6	51.9	66.7	19142.0	77.2	3.573	88.1	68.9	78.5
19089.0	85.5	3.486	104.6	67.9	86.2	19089.0	72.4	3.666	88.6	60.1	74.3	19089.0	81.7	3.607	98.2	72.0	85.1
19036.0	75.0	3.751	81.7	73.0	77.3	19036.0	87.3	3.522	101.6	74.8	88.2	19036.0	71.5	3.745	74.5	74.1	74.3
18983.0	70.0	3.719	77.6	68.9	73.3	18983.0	61.9	3.937	70.6	57.2	63.9	18983.0	70.7	3.826	72.1	74.2	73.1
18930.0	63.3	3.864	65.8	66.3	66.0	18930.0	77.8	3.639	89.3	73.1	81.2	18930.0	67.0	3.702	63.8	72.9	68.4
18877.0	68.2	3.705	67.2	74.7	70.9	18877.0	62.9	3.765	64.8	67.1	66.0	18877.0	63.5	3.759	64.0	67.6	65.8
18824.0	64.3	3.753	63.4	69.4	66.4	18824.0	69.8	3.699	75.2	67.0	71.1	18824.0	70.5	3.594	66.4	76.9	71.6
18771.0	73.9	3.605	75.6	76.5	76.0	18771.0	63.1	3.553	64.5	65.7	65.1	18771.0	58.7	3.927	61.4	60.7	61.0
18718.0	57.5	3.851	60.4	58.8	59.6	18718.0	62.6	3.931	67.4	62.4	64.9	18718.0	60.2	3.907	61.9	64.3	63.1
18665.0	52.4	4.047	52.9	55.6	54.3	18665.0	57.8	3.885	60.0	62.5	61.3	18665.0	71.4	3.822	74.1	77.5	75.8
18612.0	73.9	3.734	76.5	82.5	79.5	18612.0	62.5	3.830	63.5	70.5	67.0	18612.0	53.1	3.875	57.4	59.3	58.4
18559.0	60.7	3.871	60.7	71.6	66.2	18559.0	53.1	3.899	56.1	62.8	59.5	18559.0	94.8	3.742	97.1	96.7	96.9
18506.0	99.9	3.673	103.1	99.9	101.5	18506.0	99.2	3.790	105.9	97.4	101.6	18506.0	76.5	3.640	75.4	81.2	78.3
18453.0	72.3	3.760	69.6	82.3	76.0	18453.0	77.3	3.625	75.0	86.1	80.6	18453.0	76.0	3.863	77.9	82.3	80.1
18400.0	75.7	3.846	75.1	80.5	77.8	18400.0	78.8	3.890	81.1	81.5	81.3	18400.0	71.3	3.766	80.1	71.7	75.9
18347.0	68.6	3.741	74.4	69.2	71.8	18347.0	76.0	3.634	79.4	77.6	78.5	18347.0	63.2	3.938	69.7	58.9	64.3
18294.0	72.6	3.789	81.5	68.7	75.1	18294.0	62.7	3.918	71.1	60.7	65.9	18294.0	90.8	3.674	100.0	91.9	96.0
18241.0	92.8	3.644	103.4	93.3	98.4	18241.0	91.7	3.769	92.9	97.6	95.2	18241.0	145.7	3.830	140.2	160.1	150.2
18188.0	151.3	3.672	147.0	165.5	156.2	18188.0	150.8	3.690	144.7	167.9	156.3	18188.0	89.2	4.013	83.4	98.5	90.9
18135.0	74.8	4.122	70.8	80.8	75.8	18135.0	95.1	4.104	88.2	104.8	96.5	18135.0	79.2	3.813	74.1	87.0	80.5
18082.0	76.0	3.952	72.0	85.1	78.5	18082.0	77.2	3.863	75.8	84.8	80.3	18082.0	59.9	4.018	64.4	60.9	62.6
18029.0	62.0	3.957	64.6	63.8	64.2	18029.0	57.3	4.067	60.3	62.0	61.1	18029.0	51.2	4.003	54.1	54.2	54.2
17976.0	40.9	4.181	50.0	41.5	45.7	17976.0	46.6	4.111	51.3	53.6	52.5	17976.0	62.7	3.854	70.3	59.0	64.7
17923.0	62.4	3.811	65.6	65.5	65.5	17923.0	62.3	3.805	66.7	65.4	66.1	17923.0	84.3	3.753	82.2	88.2	85.2
17870.0	82.3	3.749	81.6	85.0	83.3	17870.0	83.0	3.797	83.6	84.9	84.2	17870.0	53.2	3.952	59.7	48.7	54.2
17817.0	59.3	3.947	60.8	60.2	60.5	17817.0	60.3	3.934	58.5	64.4	61.5	17817.0	54.9	4.008	59.9	57.0	58.5
17764.0	48.9	4.091	54.7	51.8	53.3	17764.0	49.5	4.012	58.1	46.2	52.1	17764.0	48.7	3.956	51.0	53.0	52.0
17711.0	51.7	3.881	54.6	52.8	53.7	17711.0	53.8	3.864	55.5	60.8	58.2	17711.0	83.3	3.523	90.6	90.4	90.5
17658.0	80.0	3.552	88.4	88.8	88.6	17658.0	82.5	3.491	91.4	83.6	87.5	17658.0	74.6	3.797	78.1	75.6	76.8
17605.0	78.1	3.704	76.7	85.5	81.1	17605.0	74.5	3.812	77.8	82.0	79.9	17605.0	61.7	3.631	69.3	62.0	65.7
17552.0	55.6	3.718	62.9	53.9	58.4	17552.0	59.3	3.645	66.0	59.5	62.7	17552.0	58.4	3.758	61.3	60.6	60.9
17499.0	59.4	3.813	66.3	59.5	62.9	17499.0	60.1	3.825	64.7	60.8	62.7	17499.0	64.8	3.812	73.0	61.5	67.3

17446.0	65.2	3.821	68.0	67.3	67.7
17393.0	61.0	4.022	71.6	62.5	67.0
17340.0	69.9	4.049	72.5	69.2	70.8
17287.0	64.9	3.832	69.0	65.5	67.3
17234.0	64.0	3.938	61.6	69.3	65.4
17181.0	73.1	3.789	71.7	75.7	73.7
17128.0	52.1	3.849	58.3	51.6	54.9
17075.0	48.1	4.017	51.1	49.3	50.2
17022.0	52.6	3.838	52.1	59.3	55.7
16969.0	41.9	4.114	45.9	42.1	44.0
16916.0	55.0	3.951	55.8	62.7	59.3
16863.0	55.3	4.015	48.9	64.0	56.4
16810.0	56.8	3.931	59.5	57.9	58.7
16757.0	53.3	3.833	57.0	51.2	54.1
16704.0	63.4	3.747	71.6	61.1	66.3
16651.0	59.9	3.741	63.5	61.3	62.4
16598.0	66.8	3.768	70.7	64.9	67.8
16545.0	78.7	3.802	76.5	82.6	79.5
16492.0	54.3	3.844	49.2	65.6	57.4
16439.0	52.3	3.993	54.6	59.0	56.8
16386.0	58.4	3.819	60.3	60.2	60.3
16333.0	49.1	4.051	54.4	53.1	53.8
16280.0	58.8	3.826	53.9	65.6	59.8
16227.0	46.8	4.167	47.5	53.3	50.4
16174.0	64.5	3.720	62.1	70.3	66.2
16121.0	74.2	3.781	78.9	73.1	76.0
16068.0	80.3	3.222	95.8	74.4	85.1
16015.0	65.2	3.969	66.9	65.3	66.1
15962.0	70.2	3.903	70.2	77.3	73.7
15909.0	62.0	3.764	61.8	65.0	63.4
15856.0	33.5	4.131	35.7	40.3	38.0
15803.0	64.1	3.834	66.7	65.5	66.1
15750.0	55.8	3.991	65.0	48.3	56.6
15697.0	66.5	3.772	64.9	73.8	69.4
15644.0	81.3	3.831	84.7	82.6	83.6
15591.0	61.9	3.928	58.9	65.9	62.4
15538.0	47.1	3.970	51.6	50.4	51.0
15485.0	40.7	3.967	46.9	42.7	44.8
15432.0	101.4	2.922	91.5	114.0	102.8
15379.0	72.2	3.530	77.1	74.4	75.7
15326.0	44.2	4.127	43.4	48.5	46.0
15273.0	64.6	3.661	66.7	72.3	69.5
15220.0	87.8	3.901	87.2	93.7	90.4
15167.0	77.4	3.716	77.8	79.4	78.6
15114.0	87.5	3.766	86.6	92.0	89.3
15061.0	76.2	3.818	86.9	71.2	79.1
15008.0	48.9	4.063	51.5	51.5	51.5
14955.0	56.8	3.964	57.4	59.8	58.6
14902.0	54.8	3.728	59.3	57.3	58.3
14849.0	66.8	3.778	69.3	74.6	72.0
14796.0	94.7	3.458	101.9	102.8	102.3
14743.0	101.5	3.453	101.4	102.8	102.1
14690.0	83.5	3.489	79.9	89.6	84.7
14637.0	83.5	3.794	84.4	85.9	85.1
14584.0	77.1	3.670	73.8	88.9	81.3
14531.0	65.6	3.832	65.0	70.9	68.0
14478.0	79.1	3.595	80.7	82.1	81.4

17446.0	63.2	3.763	65.2	66.0	65.6
17393.0	61.1	4.096	70.6	58.7	64.7
17340.0	67.2	3.999	74.3	66.6	70.5
17287.0	60.8	3.947	61.5	61.4	61.4
17234.0	59.4	3.912	58.3	64.6	61.4
17181.0	73.8	3.782	74.5	75.6	75.1
17128.0	55.3	3.832	57.0	59.5	58.2
17075.0	50.8	3.925	54.4	49.7	52.1
17022.0	58.2	3.824	57.4	67.5	62.5
16969.0	42.9	4.014	44.2	47.9	46.1
16916.0	56.6	3.923	63.3	52.5	57.9
16863.0	59.3	3.966	58.5	66.2	62.3
16810.0	56.9	3.974	58.0	61.5	59.7
16757.0	63.4	3.639	61.5	70.1	65.8
16704.0	62.8	3.770	73.9	57.3	65.6
16651.0	73.7	3.586	72.9	76.8	74.9
16598.0	70.6	3.760	78.6	66.9	72.8
16545.0	80.5	3.565	86.6	80.6	83.6
16492.0	60.0	3.946	60.8	65.0	62.9
16439.0	60.6	3.787	64.9	64.1	64.5
16386.0	51.2	3.808	54.3	54.4	54.3
16333.0	49.1	3.983	50.5	52.8	51.7
16280.0	58.8	3.968	61.4	61.6	61.5
16227.0	40.1	4.121	41.5	44.8	43.2
16174.0	62.6	3.742	61.7	69.3	65.5
16121.0	66.4	3.860	73.9	64.7	69.3
16068.0	65.5	3.887	62.5	70.9	66.7
16015.0	76.5	3.970	81.8	73.1	77.5
15962.0	65.4	3.941	71.3	67.8	69.5
15909.0	60.0	3.784	63.1	60.5	61.8
15856.0	37.4	4.032	36.3	43.2	39.7
15803.0	53.8	4.053	54.1	58.2	56.1
15750.0	62.2	3.798	70.3	59.2	64.7
15697.0	69.9	3.886	69.3	72.3	70.8
15644.0	80.1	3.794	78.8	86.2	82.5
15591.0	64.0	4.087	60.4	69.3	64.8
15538.0	54.8	3.760	55.9	57.9	56.9
15485.0	39.5	4.151	42.1	41.3	41.7
15432.0	105.6	2.800	93.4	120.0	106.7
15379.0	68.5	3.689	73.8	70.2	72.0
15326.0	49.2	3.913	49.0	54.3	51.6
15273.0	58.7	3.746	62.4	61.1	61.7
15220.0	91.2	3.808	90.1	98.5	94.3
15167.0	76.8	3.786	76.8	78.3	77.6
15114.0	86.3	3.684	85.0	91.0	88.0
15061.0	76.0	3.831	83.9	73.0	78.4
15008.0	49.8	4.023	56.1	48.7	52.4
14955.0	50.7	4.001	52.2	52.9	52.5
14902.0	65.7	3.624	65.1	71.9	68.5
14849.0	62.5	3.713	64.2	66.6	65.4
14796.0	100.7	3.470	112.4	99.8	106.1
14743.0	111.0	3.404	115.8	107.1	111.4
14690.0	74.4	3.722	70.5	81.8	76.1
14637.0	88.2	3.533	89.4	94.4	91.9
14584.0	84.2	3.647	86.9	91.7	89.3
14531.0	68.5	3.672	63.7	76.6	70.2
14478.0	70.3	3.718	72.3	74.2	73.2

17446.0	66.2	4.014	78.1	60.6	69.3
17393.0	65.6	4.078	72.5	62.6	67.6
17340.0	69.7	3.790	69.9	71.1	70.5
17287.0	52.5	4.064	52.8	58.9	55.8
17234.0	78.2	3.764	80.6	77.2	78.9
17181.0	50.1	3.878	53.9	52.8	53.4
17128.0	53.0	3.918	58.4	51.2	54.8
17075.0	56.8	3.862	57.0	64.5	60.8
17022.0	44.8	4.008	50.3	43.2	46.8
16969.0	56.0	3.973	61.8	58.9	60.4
16916.0	54.1	3.991	52.8	63.7	58.2
16863.0	53.1	4.019	52.2	58.7	55.4
16810.0	60.3	3.680	61.3	61.6	61.4
16757.0	60.9	3.800	65.5	61.1	63.3
16704.0	72.7	3.573	80.4	69.5	74.9
16651.0	67.2	3.751	74.3	64.5	69.4
16598.0	83.8	3.591	81.4	89.7	85.5
16545.0	61.1	3.855	57.6	69.3	63.4
16492.0	57.2	3.836	57.8	64.3	61.0
16439.0	48.8	3.874	50.4	52.8	51.6
16386.0	50.3	4.015	47.9	57.3	52.6
16333.0	60.3	3.885	62.0	60.5	61.3
16280.0	39.5	4.186	40.9	45.5	43.2
16227.0	65.7	3.677	66.2	69.9	68.1
16174.0	66.9	3.894	68.3	70.7	69.5
16121.0	69.4	3.852	70.6	70.3	70.4
16068.0	73.3	3.988	75.1	75.6	75.4
16015.0	69.0	3.958	66.5	74.6	70.5
15962.0	57.1	3.819	59.5	59.2	59.4
15909.0	36.1	4.041	32.5	46.0	39.2
15856.0	60.7	4.056	62.5	61.1	61.8
15803.0	59.7	3.790	67.3	53.8	60.5
15750.0	65.0	3.902	70.2	65.8	68.0
15697.0	83.4	3.670	78.4	91.6	85.0
15644.0	60.0	4.131	61.8	59.7	60.8
15591.0	53.7	3.762	57.3	55.1	56.2
15538.0	37.7	4.170	41.5	39.9	40.7
15485.0	102.6	2.825	93.0	116.8	104.9
15432.0	68.7	3.674	72.9	71.3	72.1
15379.0	49.6	3.928	53.2	50.0	51.6
15326.0	62.2	3.726	64.1	65.4	64.8
15273.0	87.4	3.833	87.0	92.4	89.7
15220.0	77.8	3.744	79.8	76.9	78.3
15167.0	91.6	3.718	89.5	98.6	94.0
15114.0	71.9	3.786	76.1	72.4	74.2
15061.0	52.1	4.027	57.7	52.7	55.2
15008.0	53.1	3.914	54.9	55.0	55.0
14955.0	62.0	3.647	66.7	64.8	65.7
14902.0	66.6	3.686	66.7	76.7	71.7
14849.0	90.9	3.510	98.9	99.6	99.2
14796.0	110.3	3.388	113.0	110.1	111.6
14743.0	71.5	3.718	71.1	74.7	72.9
14690.0	88.3	3.481	86.4	93.6	90.0
14637.0	82.4	3.724	86.3	87.5	86.9
14584.0	68.4	3.613	69.2	73.8	71.5
14531.0	77.4	3.676	73.6	85.9	79.7
14478.0	69.5	3.626	67.5	81.8	74.7

14425.0	64.7	3.770	57.7	75.6	66.7	14425.0	70.1	3.648	66.1	79.9	73.0	14425.0	63.4	3.944	60.7	73.6	67.1
14372.0	62.0	3.918	61.7	68.2	65.0	14372.0	63.3	4.025	58.0	72.8	65.4	14372.0	80.9	3.762	84.9	79.8	82.4
14319.0	79.6	3.868	85.3	76.2	80.7	14319.0	84.9	3.668	88.9	84.1	86.5	14319.0	61.3	3.954	61.9	63.5	62.7
14266.0	61.3	3.941	66.9	56.3	61.6	14266.0	63.7	4.038	67.5	61.9	64.7	14266.0	52.7	3.957	50.9	57.4	54.1
14213.0	49.7	3.992	47.9	54.5	51.2	14213.0	55.7	3.854	54.6	61.5	58.1	14213.0	59.0	3.714	65.7	61.2	63.4
14160.0	63.0	3.685	67.1	65.8	66.5	14160.0	60.9	3.732	64.0	62.9	63.4	14160.0	63.6	3.720	65.8	66.0	65.9
14107.0	62.3	3.815	60.4	67.1	63.8	14107.0	62.8	3.690	64.3	67.9	66.1	14107.0	77.7	3.540	81.8	80.4	81.1
14054.0	77.0	3.597	84.5	75.8	80.2	14054.0	73.6	3.598	82.7	70.5	76.6	14054.0	60.8	3.785	60.4	73.2	66.8
14001.0	56.5	3.772	59.5	61.1	60.3	14001.0	68.5	3.699	68.3	72.7	70.5	14001.0	71.4	3.656	69.4	83.5	76.5
13948.0	67.5	3.713	69.1	72.6	70.8	13948.0	69.0	3.708	72.4	70.1	71.2	13948.0	56.2	3.926	63.8	61.9	62.8
13895.0	54.8	3.927	68.9	53.0	60.9	13895.0	49.9	3.942	61.8	52.2	57.0	13895.0	58.0	3.946	68.8	54.9	61.9
13842.0	53.4	3.852	60.5	53.7	57.1	13842.0	58.7	3.915	72.1	52.2	62.2	13842.0	57.3	3.853	69.1	54.0	61.5
13789.0	59.3	3.810	69.4	58.1	63.8	13789.0	57.5	3.834	68.7	57.4	63.1	13789.0	65.7	3.837	62.3	73.0	67.7
13736.0	60.7	3.878	54.9	70.5	62.7	13736.0	62.0	3.832	62.7	64.7	63.7	13736.0	44.4	4.001	42.5	54.1	48.3
13683.0	48.7	3.922	49.3	52.1	50.7	13683.0	48.1	4.070	48.9	50.0	49.4	13683.0	65.9	3.641	67.5	70.2	68.9
13630.0	57.1	3.789	53.3	66.2	59.8	13630.0	61.0	3.603	64.3	60.6	62.4	13630.0	67.0	3.804	71.6	67.2	69.4
13577.0	68.6	3.844	77.7	63.1	70.4	13577.0	60.0	3.891	71.3	59.2	65.3	13577.0	62.7	4.038	69.4	61.8	65.6
13524.0	56.6	4.113	62.8	57.5	60.2	13524.0	63.5	3.989	70.8	65.7	68.3	13524.0	64.5	4.066	57.0	76.0	66.5
13471.0	64.9	4.070	61.0	77.5	69.2	13471.0	65.9	4.042	65.7	68.5	67.1	13471.0	69.8	3.827	72.3	71.9	72.1
13418.0	78.6	3.839	73.9	88.8	81.3	13418.0	74.3	3.875	66.7	87.3	77.0	13418.0	55.9	4.008	57.2	58.2	57.7
13365.0	54.5	3.995	58.1	61.8	60.0	13365.0	64.1	4.088	65.4	66.1	65.8	13365.0	58.8	3.849	60.3	62.0	61.2
13312.0	84.1	3.762	68.0	105.4	86.7	13312.0	85.8	3.432	93.4	79.8	86.6	13312.0	26.9	4.680	27.0	31.1	29.0

June 2001 Profile Survey of Westbound Lanes, Passing Lane (PWBJN01)

ATHENS 050 - June 2001 Tests

LANE 2 PASS 1 DOWN
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	70.3	4.010	76.4	69.0	72.7
28894.2	60.9	4.016	66.0	63.1	64.5
28841.4	54.5	4.173	62.2	54.1	58.2
28788.6	66.1	4.013	72.8	62.2	67.5
28735.8	59.0	4.122	65.2	58.2	61.7
28683.0	69.5	3.757	61.3	81.4	71.4
28630.2	47.4	4.182	49.5	46.9	48.2
28577.4	52.5	3.781	66.7	49.6	58.2
28524.6	60.2	3.976	65.9	57.8	61.8
28471.8	62.4	3.895	63.4	64.9	64.2
28419.0	46.4	4.005	48.1	50.1	49.1
28366.2	53.1	4.040	61.9	51.9	56.9
28313.4	67.1	4.061	70.8	68.4	69.6
28260.6	56.5	4.124	63.0	61.3	62.2
28207.8	51.5	4.288	58.1	47.8	53.0
28155.0	51.1	4.171	54.5	54.0	54.3
28102.2	46.2	4.158	55.0	50.6	52.8
28049.4	47.6	4.077	50.1	51.1	50.6
27996.6	58.1	4.025	60.5	59.4	59.9
27943.8	51.6	3.985	59.0	50.6	54.8
27891.0	56.2	4.056	63.7	50.6	57.1
27838.2	57.8	3.805	63.5	66.4	64.9
27785.4	57.4	4.062	68.5	51.3	59.9
27732.6	58.2	4.020	61.9	58.1	60.0
27679.8	51.8	4.154	60.2	48.1	54.2
27627.0	57.8	4.107	67.9	53.2	60.6
27574.2	61.1	4.049	68.0	59.2	63.6
27521.4	56.8	4.065	60.2	57.0	58.6
27468.6	70.0	3.901	67.0	75.3	71.2
27415.8	58.5	3.843	71.8	52.3	62.1
27363.0	51.7	4.004	51.8	57.2	54.5
27310.2	115.2	3.254	127.2	110.0	118.6
27257.4	80.8	3.767	85.4	83.4	84.4
27204.6	71.5	3.805	70.6	78.1	74.3
27151.8	73.1	3.896	70.1	85.3	77.7
27099.0	62.3	4.045	58.4	73.4	65.9
27046.2	62.2	3.968	71.2	58.2	64.7
26993.4	47.5	4.014	43.3	59.4	51.3
26940.6	44.7	4.183	50.1	46.4	48.3
26887.8	72.8	3.896	81.7	67.3	74.5
26835.0	61.4	3.794	64.5	62.9	63.7
26782.2	63.8	3.979	67.5	62.3	64.9
26729.4	77.7	3.986	87.7	74.0	80.9
26676.6	52.8	4.002	66.7	49.7	58.2
26623.8	59.5	4.029	66.6	57.9	62.3
26571.0	70.1	3.800	71.1	78.2	74.7

LANE 2 PASS 2 DOWN
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	73.0	4.019	72.3	76.1	74.2
28894.2	58.6	4.085	64.3	56.3	60.3
28841.4	50.8	4.250	56.5	51.8	54.1
28788.6	59.3	4.137	62.3	58.8	60.5
28735.8	57.1	4.113	60.6	61.1	60.9
28683.0	63.6	3.852	50.1	79.9	65.0
28630.2	46.0	4.167	46.4	49.4	47.9
28577.4	49.4	3.839	64.4	46.6	55.5
28524.6	59.6	4.047	66.2	56.5	61.4
28471.8	59.6	3.933	61.8	62.5	62.1
28419.0	40.2	4.126	41.1	45.9	43.5
28366.2	49.9	4.104	52.6	50.7	51.6
28313.4	63.6	4.080	62.2	67.7	64.9
28260.6	55.9	4.061	58.7	61.1	59.9
28207.8	52.2	4.252	57.7	52.0	54.8
28155.0	49.1	4.209	53.4	54.6	54.0
28102.2	44.5	4.198	49.5	49.6	49.6
28049.4	45.4	4.123	49.8	49.5	49.7
27996.6	56.5	4.060	55.2	60.4	57.8
27943.8	54.1	4.026	57.9	53.0	55.4
27891.0	52.4	4.129	57.8	50.7	54.3
27838.2	57.9	3.804	53.3	70.3	61.8
27785.4	54.4	4.086	66.4	48.0	57.2
27732.6	52.4	4.108	51.3	55.1	53.2
27679.8	47.3	4.140	59.0	45.4	52.2
27627.0	54.4	4.176	66.2	49.8	58.0
27574.2	58.8	4.072	65.7	53.4	59.5
27521.4	49.4	4.136	50.7	55.5	53.1
27468.6	68.8	3.903	65.5	74.2	69.9
27415.8	60.8	3.830	72.5	56.6	64.5
27363.0	48.4	4.011	50.3	52.7	51.5
27310.2	111.7	3.272	126.4	105.6	116.0
27257.4	84.8	3.713	85.3	90.0	87.6
27204.6	69.8	3.780	68.6	76.1	72.4
27151.8	73.1	3.908	68.7	84.4	76.5
27099.0	65.1	4.016	56.7	81.1	68.9
27046.2	60.6	4.001	67.1	58.4	62.7
26993.4	50.6	4.004	49.1	63.0	56.1
26940.6	45.2	4.166	44.8	50.5	47.7
26887.8	70.6	3.974	75.8	68.8	72.3
26835.0	57.1	3.832	58.5	64.4	61.5
26782.2	59.8	4.027	62.7	60.8	61.8
26729.4	75.2	4.024	82.7	69.6	76.1
26676.6	47.8	4.036	56.0	46.5	51.3
26623.8	60.0	4.032	70.1	54.9	62.5
26571.0	63.2	3.831	61.9	72.2	67.0

LANE 2 PASS 3 DOWN
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	32.1	4.506	73.4	48.8	61.1
28894.2	38.8	4.423	62.3	41.6	52.0
28841.4	48.0	4.465	58.2	56.9	57.5
28788.6	28.4	4.411	65.2	43.0	54.1
28735.8	37.8	4.535	59.7	35.9	47.8
28683.0	37.3	4.395	55.3	46.5	50.9
28630.2	23.1	4.526	47.5	25.0	36.3
28577.4	33.4	4.091	57.7	27.1	42.4
28524.6	39.1	4.342	70.8	57.1	63.9
28471.8	39.4	4.347	63.5	52.3	57.9
28419.0	34.7	4.314	58.4	36.7	47.5
28366.2	28.7	4.383	57.5	39.8	48.7
28313.4	51.0	4.426	68.4	63.8	66.1
28260.6	35.0	4.457	58.4	57.2	57.8
28207.8	51.8	4.448	60.0	60.1	60.0
28155.0	39.4	4.569	51.1	46.5	48.8
28102.2	42.0	4.434	50.7	49.1	49.9
28049.4	27.4	4.448	47.0	31.1	39.1
27996.6	34.5	4.472	58.7	50.5	54.6
27943.8	37.4	4.254	69.0	30.8	49.9
27891.0	29.5	4.418	60.4	36.0	48.2
27838.2	32.7	4.361	65.1	27.1	46.1
27785.4	41.5	4.357	62.8	44.1	53.4
27732.6	30.7	4.470	56.2	35.8	46.0
27679.8	35.3	4.446	55.9	38.2	47.0
27627.0	51.6	4.441	62.3	63.6	63.0
27574.2	38.9	4.515	62.4	38.2	50.3
27521.4	32.7	4.482	54.4	48.5	51.4
27468.6	31.4	4.481	63.0	41.8	52.4
27415.8	44.7	4.149	76.4	37.6	57.0
27363.0	32.0	4.428	51.9	49.3	50.6
27310.2	58.4	3.898	121.5	47.5	84.5
27257.4	41.8	4.316	89.1	28.6	58.9
27204.6	42.5	4.213	68.0	55.6	61.8
27151.8	78.8	4.366	67.7	103.4	85.5
27099.0	58.4	4.394	61.7	68.0	64.9
27046.2	33.7	4.388	66.6	69.9	68.3
26993.4	25.5	4.466	45.3	41.1	43.2
26940.6	28.4	4.428	52.2	37.9	45.0
26887.8	60.4	4.247	80.5	65.8	73.1
26835.0	30.5	4.385	61.6	39.5	50.5
26782.2	34.4	4.374	68.0	50.8	59.4
26729.4	75.5	4.325	87.0	87.0	87.0
26676.6	35.8	4.312	60.5	37.3	48.9
26623.8	59.3	4.189	80.9	58.3	69.6
26571.0	78.5	3.260	66.8	145.3	106.1

26518.2	76.4	3.856	90.9	68.5	79.7
26465.4	54.2	3.997	59.7	54.0	56.8
26412.6	71.5	3.793	76.4	68.7	72.6
26359.8	57.2	4.035	69.4	50.6	60.0
26307.0	75.2	3.565	89.8	65.7	77.8
26254.2	45.0	3.894	44.8	55.0	49.9
26201.4	58.4	3.885	58.0	63.2	60.6
26148.6	55.5	3.876	58.3	58.2	58.2
26095.8	62.6	3.745	59.7	72.1	65.9
26043.0	65.0	3.739	65.9	71.0	68.5
25990.2	53.2	3.742	59.0	60.4	59.7
25937.4	76.1	3.731	86.4	72.0	79.2
25884.6	96.0	3.116	97.5	99.7	98.6
25831.8	47.6	4.014	41.1	61.9	51.5
25779.0	70.4	3.304	77.2	70.2	73.7
25726.2	40.6	4.081	48.4	46.1	47.2
25673.4	70.8	3.619	78.5	68.8	73.6
25620.6	76.3	3.925	78.6	79.6	79.1
25567.8	61.2	3.954	59.9	67.4	63.6
25515.0	60.9	4.038	65.5	63.4	64.4
25462.2	53.1	3.981	54.5	62.3	58.4
25409.4	58.0	3.927	59.3	65.3	62.3
25356.6	59.1	3.894	70.3	86.6	78.4
25303.8	104.5	3.714	104.4	112.6	108.5
25251.0	97.0	3.723	92.8	110.3	101.5
25198.2	58.7	3.770	73.8	52.0	62.9
25145.4	61.6	4.154	61.7	66.1	63.9
25092.6	65.8	3.902	66.0	69.1	67.5
25039.8	53.8	4.046	59.1	55.8	57.4
24987.0	50.8	4.162	49.6	60.3	55.0
24934.2	58.1	4.198	58.2	62.6	60.4
24881.4	55.1	4.002	53.9	63.6	58.7
24828.6	78.0	3.805	65.5	94.9	80.2
24775.8	51.6	4.058	42.6	70.5	56.5
24723.0	44.5	4.120	42.0	56.9	49.5
24670.2	59.1	3.866	57.1	66.5	61.8
24617.4	58.8	4.143	53.4	71.2	62.3
24564.6	50.4	3.998	48.9	62.0	55.5
24511.8	63.4	3.973	72.6	57.9	65.2
24459.0	70.1	3.724	77.9	68.1	73.0
24406.2	66.1	4.104	80.8	62.6	71.7
24353.4	58.0	3.961	57.9	63.2	60.5
24300.6	38.3	4.150	37.5	46.5	42.0
24247.8	46.5	3.903	47.4	54.8	51.1
24195.0	55.2	4.037	59.8	58.8	59.3
24142.2	85.2	3.711	80.4	96.5	88.5
24089.4	61.4	3.971	63.4	65.6	64.5
24036.6	47.4	4.022	45.2	56.8	51.0
23983.8	59.3	3.948	59.3	64.6	62.0
23931.0	60.4	3.995	60.6	67.7	64.2
23878.2	47.5	4.023	54.0	50.0	52.0
23825.4	49.2	3.955	48.5	56.7	52.6
23772.6	47.9	3.977	47.8	50.5	49.1
23719.8	70.3	3.668	71.4	72.0	71.7
23667.0	47.8	4.164	45.1	56.5	50.8
23614.2	86.7	3.653	90.6	88.8	89.7
23561.4	58.8	3.890	62.1	70.8	66.5

26518.2	81.6	3.826	96.3	76.0	86.2
26465.4	50.5	4.077	52.5	55.7	54.1
26412.6	68.7	3.849	75.0	65.2	70.1
26359.8	61.9	3.961	71.8	57.8	64.8
26307.0	68.9	3.612	78.4	63.8	71.1
26254.2	44.3	3.930	43.0	58.3	50.6
26201.4	56.7	3.837	55.2	61.5	58.4
26148.6	56.9	3.886	59.5	60.1	59.8
26095.8	66.6	3.702	63.5	78.0	70.8
26043.0	67.0	3.766	70.1	71.9	71.0
25990.2	51.3	3.797	51.4	55.8	53.6
25937.4	68.9	3.850	75.6	68.9	72.2
25884.6	94.0	3.155	99.4	96.9	98.1
25831.8	57.7	3.896	57.0	59.8	58.4
25779.0	67.7	3.385	66.9	81.9	74.4
25726.2	42.9	3.975	43.9	56.1	50.0
25673.4	68.6	3.737	71.4	70.4	70.9
25620.6	74.2	3.917	80.2	77.5	78.8
25567.8	58.3	3.977	56.4	64.6	60.5
25515.0	61.9	4.035	61.6	64.2	62.9
25462.2	49.7	4.048	51.2	59.3	55.3
25409.4	55.0	3.969	51.8	69.3	60.6
25356.6	64.3	3.633	65.8	94.3	80.1
25303.8	101.7	3.758	101.8	109.7	105.7
25251.0	96.1	3.727	90.4	107.1	98.7
25198.2	60.1	3.745	70.7	55.7	63.2
25145.4	62.2	4.140	61.0	66.4	63.7
25092.6	63.6	3.948	62.1	69.3	65.7
25039.8	52.0	4.074	54.8	55.4	55.1
24987.0	50.7	4.134	45.6	61.7	53.6
24934.2	58.0	4.164	56.9	64.5	60.7
24881.4	53.1	3.944	47.4	64.2	55.8
24828.6	74.2	3.827	61.8	90.8	76.3
24775.8	52.6	4.037	44.8	69.3	57.0
24723.0	43.8	4.125	38.1	56.3	47.2
24670.2	60.1	3.841	58.9	65.8	62.3
24617.4	54.5	4.203	51.6	62.9	57.2
24564.6	46.4	4.078	40.6	60.3	50.4
24511.8	59.1	3.988	68.1	54.4	61.2
24459.0	64.0	3.820	71.6	65.8	68.7
24406.2	68.9	4.030	80.8	61.3	71.0
24353.4	51.9	3.968	55.4	57.1	56.2
24300.6	42.3	4.164	39.5	51.5	45.5
24247.8	53.8	3.864	52.2	62.8	57.5
24195.0	53.2	4.003	52.2	60.4	56.3
24142.2	79.4	3.742	70.1	100.2	85.1
24089.4	57.9	3.994	54.0	68.3	61.1
24036.6	46.4	4.031	42.6	55.5	49.0
23983.8	56.0	3.993	58.8	59.7	59.2
23931.0	60.7	3.976	55.1	69.3	62.2
23878.2	46.8	3.953	48.0	52.7	50.3
23825.4	56.4	3.747	53.0	66.8	59.9
23772.6	46.8	3.990	41.5	57.2	49.3
23719.8	70.5	3.724	69.2	75.6	72.4
23667.0	47.1	4.155	44.4	55.4	49.9
23614.2	81.7	3.689	87.2	81.2	84.2
23561.4	56.0	3.905	63.0	64.1	63.5

26518.2	73.1	4.213	97.1	77.4	87.3
26465.4	55.5	4.356	56.1	77.5	66.8
26412.6	61.0	4.151	83.0	57.0	70.0
26359.8	59.2	4.353	61.9	81.2	71.5
26307.0	53.7	3.958	96.3	41.0	68.6
26254.2	26.9	4.396	38.6	44.8	41.7
26201.4	30.7	4.351	52.3	43.5	47.9
26148.6	33.2	4.387	55.8	42.8	49.3
26095.8	48.3	4.302	59.5	59.0	59.3
26043.0	43.1	4.253	73.7	35.3	54.5
25990.2	50.2	4.300	60.2	79.4	69.8
25937.4	53.3	4.118	91.1	38.0	64.5
25884.6	64.6	3.912	100.1	58.9	79.5
25831.8	33.0	4.307	61.4	19.6	40.5
25779.0	40.8	3.920	73.0	32.4	52.7
25726.2	92.3	2.663	51.7	159.0	105.4
25673.4	53.9	4.227	75.4	59.2	67.3
25620.6	44.7	4.197	84.1	103.2	93.6
25567.8	47.2	4.427	61.0	81.4	71.2
25515.0	184.5	2.105	60.9	342.9	201.9
25462.2	144.1	2.460	54.2	264.2	159.2
25409.4	64.1	3.915	56.4	89.1	72.8
25356.6	65.9	3.677	75.3	93.8	84.6
25303.8	104.5	3.781	108.7	105.5	107.1
25251.0	102.9	3.690	101.6	107.9	104.7
25198.2	61.4	3.710	74.4	53.7	64.0
25145.4	64.3	4.132	68.2	63.7	66.0
25092.6	65.3	3.868	65.6	70.2	67.9
25039.8	52.9	4.068	55.9	56.0	56.0
24987.0	51.5	4.139	49.1	59.3	54.2
24934.2	58.5	4.135	58.2	64.0	61.1
24881.4	49.5	4.014	49.8	60.1	55.0
24828.6	70.7	3.892	67.1	78.4	72.7
24775.8	54.4	3.906	49.9	70.5	60.2
24723.0	46.8	4.037	48.4	50.1	49.3
24670.2	67.2	3.819	71.6	68.1	69.9
24617.4	54.1	4.102	54.2	62.0	58.1
24564.6	53.7	3.958	51.3	64.5	57.9
24511.8	60.6	3.995	70.8	53.8	62.3
24459.0	71.2	3.687	79.6	71.4	75.5
24406.2	70.1	4.045	84.1	64.0	74.1
24353.4	51.8	4.000	52.5	57.7	55.1
24300.6	41.7	4.145	46.1	45.6	45.8
24247.8	55.4	3.876	56.1	60.2	58.1
24195.0	56.3	4.008	57.1	60.5	58.8
24142.2	82.3	3.731	73.0	98.9	86.0
24089.4	60.4	3.953	60.6	64.3	62.5
24036.6	52.4	3.940	53.7	56.8	55.2
23983.8	60.6	3.851	61.5	66.7	64.1
23931.0	59.2	4.063	59.8	68.9	64.4
23878.2	48.3	3.962	53.8	48.9	51.4
23825.4	55.0	3.832	50.2	66.2	58.2
23772.6	47.3	3.978	42.2	56.2	49.2
23719.8	72.9	3.647	76.9	72.9	74.9
23667.0	54.0	4.065	57.9	57.4	57.7
23614.2	82.7	3.751	94.1	77.2	85.6
23561.4	60.9	3.819	63.2	70.1	66.7

23508.6	68.9	3.859	77.1	68.5	72.8	23508.6	63.7	4.014	72.8	63.1	67.9	23508.6	63.4	3.902	72.5	62.9	67.7
23455.8	73.8	3.735	82.5	71.4	77.0	23455.8	70.5	3.782	76.0	73.3	74.6	23455.8	76.7	3.695	79.0	80.9	79.9
23403.0	42.1	4.040	54.1	41.5	47.8	23403.0	42.4	4.049	49.2	45.3	47.2	23403.0	45.4	4.045	54.5	47.1	50.8
23350.2	60.0	3.967	56.2	68.7	62.4	23350.2	58.5	3.893	54.2	67.3	60.7	23350.2	57.8	4.022	52.9	66.1	59.5
23297.4	58.1	4.022	63.4	71.5	67.5	23297.4	62.2	3.869	60.7	68.5	64.6	23297.4	57.9	3.963	61.9	66.4	64.1
23244.6	79.1	3.514	69.9	90.3	80.1	23244.6	80.1	3.485	66.2	99.3	82.8	23244.6	75.2	3.549	63.5	88.9	76.2
23191.8	54.3	4.029	55.0	56.7	55.9	23191.8	53.8	4.023	50.1	60.0	55.1	23191.8	49.4	4.036	49.0	54.5	51.7
23139.0	51.9	4.083	48.9	60.1	54.5	23139.0	47.6	4.115	48.1	54.2	51.1	23139.0	50.1	4.022	47.3	61.5	54.4
23086.2	44.2	4.122	49.3	46.5	47.9	23086.2	46.1	4.011	41.9	57.2	49.5	23086.2	45.7	4.124	49.9	48.0	49.0
23033.4	43.9	4.079	43.4	60.8	52.1	23033.4	44.8	4.003	33.3	64.1	48.7	23033.4	46.1	3.985	45.2	70.6	57.9
22980.6	46.5	4.090	58.4	46.8	52.6	22980.6	49.3	3.981	51.8	55.7	53.8	22980.6	47.4	4.080	56.4	46.7	51.5
22927.8	44.7	3.963	51.8	50.6	51.2	22927.8	46.3	3.962	51.8	47.5	49.7	22927.8	44.1	3.989	49.9	45.2	47.6
22875.0	49.0	3.917	56.7	46.6	51.6	22875.0	47.2	3.950	50.6	51.1	50.8	22875.0	45.7	4.060	53.8	42.1	47.9
22822.2	56.4	3.888	50.4	65.7	58.1	22822.2	51.0	3.891	48.5	56.3	52.4	22822.2	51.6	3.965	50.8	58.1	54.5
22769.4	32.9	4.127	35.9	36.2	36.1	22769.4	31.9	4.169	35.9	36.7	36.3	22769.4	35.7	4.138	38.9	35.6	37.2
22716.6	41.5	4.175	47.2	44.7	46.0	22716.6	37.8	4.192	42.3	41.4	41.9	22716.6	39.7	4.193	45.1	45.0	45.0
22663.8	68.9	3.910	69.0	73.7	71.4	22663.8	67.6	3.953	66.6	71.6	69.1	22663.8	71.5	3.919	73.1	75.0	74.0
22611.0	70.5	3.826	70.5	74.8	72.7	22611.0	68.0	3.774	68.6	69.8	69.2	22611.0	70.7	3.820	70.8	73.4	72.1
22558.2	43.4	4.129	41.5	53.8	47.7	22558.2	41.7	4.141	38.5	49.9	44.2	22558.2	41.9	4.143	38.6	51.4	45.0
22505.4	81.6	3.523	96.7	78.7	87.7	22505.4	84.6	3.487	92.9	88.9	90.9	22505.4	86.0	3.548	98.0	85.8	91.9
22452.6	48.7	4.190	57.3	48.4	52.9	22452.6	47.6	4.140	55.6	49.6	52.6	22452.6	50.7	4.181	54.7	57.5	56.1
22399.8	43.8	3.994	46.3	46.2	46.3	22399.8	42.5	3.957	45.5	45.1	45.3	22399.8	42.8	3.957	46.2	43.8	45.0
22347.0	64.0	3.943	64.7	69.1	66.9	22347.0	65.9	3.911	65.8	69.4	67.6	22347.0	67.6	3.900	66.1	73.4	69.7
22294.2	40.7	4.074	48.5	43.2	45.8	22294.2	42.2	4.100	48.2	50.2	49.2	22294.2	36.7	4.003	44.1	42.7	43.4
22241.4	46.0	3.957	44.0	61.5	52.7	22241.4	43.2	4.006	38.5	56.5	47.5	22241.4	50.5	3.982	45.7	66.2	56.0
22188.6	69.7	3.774	78.5	70.5	74.5	22188.6	68.2	3.799	74.2	69.7	71.9	22188.6	70.1	3.781	81.3	68.0	74.6
22135.8	65.0	3.740	56.1	81.7	68.9	22135.8	62.6	3.761	52.1	80.5	66.3	22135.8	60.9	3.802	50.2	76.9	63.6
22083.0	47.2	3.981	56.7	49.8	53.3	22083.0	45.9	4.002	50.4	52.4	51.4	22083.0	48.2	3.996	58.1	49.9	54.0
22030.2	44.1	4.052	52.2	48.3	50.3	22030.2	39.0	4.160	42.0	45.8	43.9	22030.2	44.5	4.118	47.1	46.7	46.9
21977.4	37.7	4.044	44.3	44.5	44.4	21977.4	36.4	3.985	41.4	44.0	42.7	21977.4	39.3	4.051	45.9	45.3	45.6
21924.6	62.5	4.107	70.3	62.1	66.2	21924.6	62.0	4.115	69.2	61.9	65.6	21924.6	58.6	4.101	67.8	56.0	61.9
21871.8	62.9	3.836	66.2	69.5	67.9	21871.8	57.3	3.959	50.6	73.8	62.2	21871.8	69.2	3.869	70.2	72.7	71.5
21819.0	50.6	4.078	50.9	54.7	52.8	21819.0	51.8	4.068	51.6	56.4	54.0	21819.0	47.8	4.131	45.7	54.6	50.1
21766.2	53.0	4.141	54.3	55.9	55.1	21766.2	46.4	4.211	46.8	50.9	48.8	21766.2	42.4	4.275	46.5	45.1	45.8
21713.4	50.3	4.138	51.7	50.5	51.1	21713.4	48.8	4.174	50.0	48.9	49.5	21713.4	52.0	4.091	51.0	55.8	53.4
21660.6	65.5	3.920	73.6	63.2	68.4	21660.6	63.6	3.931	66.3	66.1	66.2	21660.6	58.2	4.015	62.5	60.6	61.5
21607.8	61.4	3.907	67.1	64.1	65.6	21607.8	63.2	3.926	68.3	63.0	65.7	21607.8	61.2	3.925	67.3	60.7	64.0
21555.0	59.1	3.998	53.0	71.1	62.0	21555.0	60.3	3.966	56.0	71.6	63.8	21555.0	60.1	4.013	55.5	68.8	62.1
21502.2	65.0	4.014	73.3	63.9	68.6	21502.2	63.2	3.994	74.0	56.1	65.1	21502.2	60.8	3.934	69.7	58.1	63.9
21449.4	59.5	3.885	61.7	64.7	63.2	21449.4	57.9	3.939	63.3	60.5	61.9	21449.4	59.0	3.940	62.9	65.0	63.9
21396.6	53.1	3.946	59.4	57.0	58.2	21396.6	47.9	4.045	53.3	48.2	50.7	21396.6	54.5	3.941	61.2	52.6	56.9
21343.8	45.9	4.008	60.3	44.6	52.4	21343.8	45.4	4.043	58.3	38.3	48.3	21343.8	50.1	4.038	60.6	46.4	53.5
21291.0	55.9	3.969	65.7	57.7	61.7	21291.0	55.3	3.998	63.6	52.9	58.2	21291.0	52.7	3.983	56.9	59.3	58.1
21238.2	49.1	4.127	52.4	49.3	50.9	21238.2	46.7	4.206	52.5	44.6	48.5	21238.2	46.6	4.141	48.6	49.8	49.2
21185.4	50.0	4.048	55.7	57.4	56.5	21185.4	49.8	4.056	52.2	54.8	53.5	21185.4	49.6	3.981	53.6	53.7	53.7
21132.6	62.2	3.890	66.0	67.3	66.7	21132.6	55.2	3.974	55.5	58.1	56.8	21132.6	61.1	3.872	64.7	65.9	65.3
21079.8	42.2	4.026	38.6	53.1	45.9	21079.8	40.6	4.143	33.8	56.1	45.0	21079.8	46.5	3.980	39.6	61.4	50.5
21027.0	48.1	4.047	55.5	54.5	55.0	21027.0	49.0	4.028	58.3	49.6	54.0	21027.0	55.3	3.982	64.3	55.4	59.8
20974.2	65.1	3.818	69.0	75.0	72.0	20974.2	58.5	3.897	63.2	66.9	65.1	20974.2	63.4	3.808	70.1	64.8	67.4
20921.4	70.4	3.948	69.6	77.7	73.7	20921.4	69.7	3.966	72.5	73.9	73.2	20921.4	69.0	3.973	68.7	75.2	71.9
20868.6	48.1	3.833	60.6	53.7	57.1	20868.6	46.1	3.919	56.8	55.9	56.4	20868.6	46.9	3.844	57.2	57.2	57.2
20815.8	68.4	3.915	66.3	75.5	70.9	20815.8	68.0	3.907	71.4	68.2	69.8	20815.8	71.7	3.884	70.4	78.6	74.5
20763.0	58.7	4.034	72.0	55.0	63.5	20763.0	57.4	4.019	71.0	55.4	63.2	20763.0	59.2	4.009	68.1	59.6	63.8
20710.2	55.8	4.125	63.8	50.8	57.3	20710.2	53.9	4.192	61.2	49.8	55.5	20710.2	53.9	4.115	61.3	50.7	56.0
20657.4	61.5	4.023	71.6	55.8	63.7	20657.4	60.6	4.010	68.8	57.4	63.1	20657.4	60.7	4.034	70.4	57.1	63.7
20604.6	65.3	4.005	68.1	67.1	67.6	20604.6	64.7	4.023	65.1	67.2	66.1	20604.6	68.3	3.962	76.0	66.5	71.2
20551.8	47.9	3.903	46.1	59.5	52.8	20551.8	44.7	4.070	51.3	46.6	49.0	20551.8	46.4	3.983	52.4	51.4	51.9

20499.0	58.9	3.944	66.5	58.9	62.7
20446.2	54.2	3.944	64.2	49.6	56.9
20393.4	40.9	4.160	50.2	39.2	44.7
20340.6	52.7	3.825	61.6	51.2	56.4
20287.8	72.6	4.054	80.2	73.5	76.9
20235.0	75.5	3.784	77.5	87.1	82.3
20182.2	70.2	3.976	77.3	68.4	72.9
20129.4	71.4	4.016	81.3	67.5	74.4
20076.6	84.3	3.609	88.9	86.2	87.6
20023.8	43.1	4.037	44.2	52.8	48.5
19971.0	53.8	4.108	61.8	50.2	56.0
19918.2	73.4	3.869	83.7	71.6	77.7
19865.4	67.6	3.775	75.3	66.4	70.8
19812.6	62.4	4.040	65.4	64.7	65.0
19759.8	36.6	4.241	46.5	40.7	43.6
19707.0	52.3	3.786	67.5	53.0	60.2
19654.2	68.9	3.607	75.9	68.7	72.3
19601.4	58.2	3.552	68.0	52.6	60.3
19548.6	45.2	3.751	54.5	51.1	52.8
19495.8	49.5	3.946	64.0	45.0	54.5
19443.0	54.4	3.979	64.3	53.5	58.9
19390.2	47.6	4.019	50.7	52.7	51.7
19337.4	50.6	4.003	54.2	58.1	56.1
19284.6	42.9	4.051	40.2	54.7	47.5
19231.8	48.4	3.909	52.2	50.2	51.2
19179.0	60.7	3.929	66.2	63.8	65.0
19126.2	57.9	3.863	51.9	69.5	60.7
19073.4	70.8	3.906	65.3	82.0	73.7
19020.6	63.1	3.958	59.8	75.2	67.5
18967.8	84.6	3.823	86.7	86.6	86.6
18915.0	64.5	3.830	70.4	69.2	69.8
18862.2	59.6	3.816	59.5	64.3	61.9
18809.4	52.6	3.787	59.0	50.1	54.5
18756.6	51.9	4.034	52.8	56.8	54.8
18703.8	47.1	4.025	53.6	58.0	55.8
18651.0	83.2	3.831	92.6	82.0	87.3
18598.2	52.4	4.015	58.7	57.6	58.1
18545.4	87.8	3.933	86.9	97.3	92.1
18492.6	73.0	3.861	78.5	74.3	76.4
18439.8	84.8	3.920	87.6	84.9	86.3
18387.0	75.9	3.736	70.2	87.1	78.7
18334.2	53.0	3.916	50.5	65.8	58.2
18281.4	57.1	3.833	62.3	77.1	69.7
18228.6	103.8	3.746	120.5	109.1	114.8
18175.8	49.9	4.024	53.9	60.4	57.2
18123.0	47.9	4.098	46.3	56.0	51.1
18070.2	48.2	4.112	51.5	54.8	53.1
18017.4	62.6	3.934	72.5	61.2	66.9
17964.6	60.8	3.921	57.9	65.8	61.9
17911.8	76.2	3.761	70.0	85.8	77.9
17859.0	75.6	3.857	81.0	75.8	78.4
17806.2	59.0	4.011	57.5	65.9	61.7
17753.4	76.0	3.687	81.6	77.1	79.4
17700.6	79.3	3.561	80.2	87.1	83.6
17647.8	82.5	3.886	92.7	86.9	89.8
17595.0	55.1	3.906	54.5	64.5	59.5
17542.2	65.8	3.922	75.3	64.6	69.9

20499.0	55.2	3.957	60.8	54.8	57.8
20446.2	52.0	4.039	58.0	52.8	55.4
20393.4	42.3	4.204	52.9	44.2	48.6
20340.6	46.3	3.989	62.5	42.0	52.3
20287.8	72.9	4.006	83.9	71.6	77.8
20235.0	73.8	3.746	72.3	85.2	78.8
20182.2	61.8	4.098	69.6	61.2	65.4
20129.4	74.6	4.020	80.1	72.8	76.5
20076.6	81.1	3.620	88.7	82.5	85.6
20023.8	44.2	4.097	40.2	57.2	48.7
19971.0	47.8	4.148	53.7	50.2	51.9
19918.2	74.5	3.888	84.3	76.5	80.4
19865.4	67.9	3.760	83.3	59.2	71.3
19812.6	56.8	4.113	69.6	58.7	64.2
19759.8	35.4	4.300	42.4	41.9	42.2
19707.0	55.4	3.764	69.7	52.7	61.2
19654.2	69.5	3.649	75.7	68.3	72.0
19601.4	57.8	3.537	65.0	58.9	61.9
19548.6	48.9	3.713	52.3	60.7	56.5
19495.8	44.2	4.057	53.3	46.6	49.9
19443.0	50.0	3.981	51.4	56.4	53.9
19390.2	49.0	4.064	46.4	56.7	51.5
19337.4	45.5	4.042	47.5	52.2	49.8
19284.6	45.4	4.028	42.2	53.0	47.6
19231.8	48.5	3.928	49.4	53.4	51.4
19179.0	57.8	3.978	62.6	57.8	60.2
19126.2	59.8	3.884	50.1	80.7	65.4
19073.4	67.3	3.943	62.6	79.6	71.1
19020.6	65.4	3.909	56.7	84.6	70.6
18967.8	84.6	3.833	79.5	91.4	85.5
18915.0	67.2	3.805	66.9	72.6	69.7
18862.2	64.3	3.744	66.2	72.5	69.4
18809.4	53.1	3.868	58.2	55.1	56.7
18756.6	50.0	4.063	48.9	56.8	52.9
18703.8	46.3	4.018	49.7	59.2	54.4
18651.0	78.3	3.844	85.1	81.0	83.0
18598.2	52.2	4.039	59.6	53.2	56.4
18545.4	86.5	3.906	84.9	97.5	91.2
18492.6	70.7	3.904	76.1	74.5	75.3
18439.8	82.4	3.956	81.3	88.1	84.7
18387.0	73.5	3.747	67.9	81.9	74.9
18334.2	52.8	3.911	42.6	71.6	57.1
18281.4	57.2	3.927	57.0	70.7	63.8
18228.6	102.5	3.826	122.4	107.1	114.7
18175.8	48.2	4.093	51.2	60.5	55.8
18123.0	49.2	4.057	44.4	57.9	51.2
18070.2	49.2	4.147	49.2	56.4	52.8
18017.4	64.1	3.917	67.8	67.4	67.6
17964.6	60.0	3.931	58.0	67.5	62.8
17911.8	69.4	3.857	68.1	77.2	72.6
17859.0	73.8	3.815	76.5	79.5	78.0
17806.2	53.7	3.994	52.5	62.6	57.5
17753.4	71.7	3.744	70.1	79.5	74.8
17700.6	84.7	3.510	82.0	97.4	89.7
17647.8	78.3	3.922	84.7	83.3	84.0
17595.0	53.7	3.835	48.2	65.9	57.1
17542.2	59.2	3.971	68.1	57.7	62.9

20499.0	60.6	3.911	73.8	54.4	64.1
20446.2	56.2	3.942	60.5	56.5	58.5
20393.4	39.5	4.237	50.0	42.8	46.4
20340.6	47.3	3.987	65.3	41.0	53.2
20287.8	73.4	3.975	82.0	71.6	76.8
20235.0	72.3	3.837	74.6	83.0	78.8
20182.2	66.3	3.974	75.0	63.2	69.1
20129.4	80.0	4.008	91.8	76.3	84.1
20076.6	81.6	3.572	93.6	78.3	85.9
20023.8	41.6	4.116	43.8	50.0	46.9
19971.0	49.2	4.066	55.1	50.9	53.0
19918.2	74.8	3.880	85.6	71.9	78.8
19865.4	74.8	3.712	80.7	73.1	76.9
19812.6	63.3	4.019	79.8	55.6	67.7
19759.8	38.4	4.162	45.7	38.5	42.1
19707.0	56.4	3.929	58.2	58.9	58.5
19654.2	60.6	3.763	62.5	65.3	63.9
19601.4	54.3	3.682	55.7	62.0	58.9
19548.6	48.0	3.656	53.7	52.7	53.2
19495.8	54.7	3.809	67.7	48.4	58.0
19443.0	51.9	3.942	65.4	50.4	57.9
19390.2	44.6	4.075	50.4	49.4	49.9
19337.4	47.6	3.985	50.3	55.2	52.8
19284.6	39.7	4.062	35.1	51.9	43.5
19231.8	59.3	3.832	59.1	62.4	60.8
19179.0	57.1	4.044	62.0	56.9	59.5
19126.2	67.1	3.818	63.8	75.6	69.7
19073.4	68.4	3.882	64.7	76.5	70.6
19020.6	68.4	3.980	67.7	76.9	72.3
18967.8	80.7	3.814	76.1	88.1	82.1
18915.0	69.0	3.839	67.1	75.2	71.1
18862.2	63.8	3.803	72.4	62.6	67.5
18809.4	52.6	3.813	60.8	50.5	55.6
18756.6	49.5	4.067	54.3	54.0	54.2
18703.8	49.1	3.966	56.4	55.2	55.8
18651.0	80.9	3.810	88.6	81.7	85.1
18598.2	51.4	4.032	57.7	51.8	54.8
18545.4	89.6	3.823	88.7	99.5	94.1
18492.6	68.9	3.916	75.6	71.0	73.3
18439.8	86.9	3.828	87.0	89.5	88.3
18387.0	72.7	3.777	67.0	85.0	76.0
18334.2	60.2	3.861	52.8	77.3	65.0
18281.4	53.5	4.056	60.4	60.3	60.3
18228.6	96.9	3.806	133.2	108.0	120.6
18175.8	47.6	4.003	54.2	56.0	55.1
18123.0	47.6	4.084	45.9	54.5	50.2
18070.2	47.8	4.140	51.9	52.6	52.2
18017.4	65.4	3.845	74.1	63.9	69.0
17964.6	59.2	3.895	55.0	69.4	62.2
17911.8	77.2	3.782	71.7	88.4	80.1
17859.0	76.1	3.830	78.0	78.7	78.4
17806.2	57.8	3.972	57.3	64.2	60.8
17753.4	79.3	3.642	88.4	75.3	81.9
17700.6	80.3	3.628	82.0	89.3	85.7
17647.8	80.1	3.904	89.5	84.2	86.8
17595.0	56.2	3.891	52.2	66.7	59.5
17542.2	64.1	3.906	72.0	63.5	67.7

17489.4	67.3	3.819	78.9	63.4	71.1	17489.4	62.9	3.903	68.9	62.4	65.6	17489.4	66.6	3.863	79.1	63.0	71.1
17436.6	62.9	4.116	63.6	65.2	64.4	17436.6	61.1	4.104	59.3	65.9	62.6	17436.6	59.7	4.104	65.5	57.2	61.3
17383.8	85.2	3.849	85.5	86.8	86.1	17383.8	82.1	3.889	88.4	79.9	84.2	17383.8	82.2	3.885	83.0	82.0	82.5
17331.0	62.6	3.970	62.3	66.9	64.6	17331.0	60.3	3.996	58.3	65.9	62.1	17331.0	62.5	3.958	66.3	62.7	64.5
17278.2	51.3	3.964	57.2	56.7	57.0	17278.2	49.2	4.031	44.9	58.0	51.4	17278.2	46.3	4.039	53.7	53.8	53.8
17225.4	56.6	4.077	57.8	58.4	58.1	17225.4	54.2	4.025	57.6	55.9	56.8	17225.4	55.2	4.015	59.3	57.3	58.3
17172.6	46.9	4.016	56.7	46.1	51.4	17172.6	45.6	4.037	52.9	51.7	52.3	17172.6	42.7	4.135	49.0	41.0	45.0
17119.8	64.1	3.889	70.4	61.4	65.9	17119.8	60.1	3.940	64.4	58.3	61.4	17119.8	62.0	3.950	70.3	56.9	63.6
17067.0	49.0	3.756	46.4	58.9	52.7	17067.0	49.3	3.789	46.9	56.7	51.8	17067.0	53.0	3.672	47.8	62.1	54.9
17014.2	42.5	4.086	45.7	50.6	48.2	17014.2	43.5	4.003	42.8	55.5	49.2	17014.2	38.1	4.084	41.2	45.6	43.4
16961.4	62.8	3.924	64.1	65.3	64.7	16961.4	63.3	3.904	62.5	69.8	66.1	16961.4	64.4	3.839	67.5	65.8	66.7
16908.6	43.4	3.974	49.9	48.7	49.3	16908.6	42.4	4.058	45.9	47.8	46.9	16908.6	39.3	4.116	48.6	40.0	44.3
16855.8	48.4	4.087	56.6	45.0	50.8	16855.8	48.5	4.042	50.6	51.1	50.9	16855.8	45.5	4.079	50.3	45.4	47.9
16803.0	55.2	3.925	59.7	53.6	56.7	16803.0	56.0	3.920	57.8	59.4	58.6	16803.0	61.0	3.840	65.9	58.2	62.0
16750.2	59.1	3.978	61.2	62.0	61.6	16750.2	54.4	4.034	53.7	58.9	56.3	16750.2	58.7	4.001	60.1	61.7	60.9
16697.4	46.5	4.009	40.6	64.9	52.8	16697.4	48.9	4.022	42.2	67.2	54.7	16697.4	52.9	3.941	52.6	61.6	57.1
16644.6	75.9	3.704	77.7	80.2	78.9	16644.6	74.8	3.720	75.7	76.0	75.9	16644.6	74.9	3.682	77.8	75.8	76.8
16591.8	64.0	3.882	58.8	73.1	66.0	16591.8	59.0	3.937	56.0	65.6	60.8	16591.8	60.8	3.893	53.7	71.1	62.4
16539.0	47.4	4.058	42.1	59.3	50.7	16539.0	51.2	4.040	43.1	63.6	53.4	16539.0	48.8	4.026	46.3	58.5	52.4
16486.2	45.7	3.987	46.7	50.4	48.6	16486.2	44.6	3.981	42.8	49.6	46.2	16486.2	56.4	3.855	52.9	65.3	59.1
16433.4	56.9	3.950	56.4	62.2	59.3	16433.4	53.1	4.011	54.8	54.8	54.8	16433.4	51.9	3.962	50.1	61.3	55.7
16380.6	46.7	4.085	54.4	46.4	50.4	16380.6	47.3	4.098	49.3	52.1	50.7	16380.6	47.4	4.098	51.4	53.9	52.7
16327.8	47.9	4.111	54.3	43.5	48.9	16327.8	46.9	4.093	49.3	47.4	48.3	16327.8	52.7	4.084	55.4	51.9	53.7
16275.0	48.4	4.076	51.2	52.4	51.8	16275.0	46.8	4.049	50.4	52.6	51.5	16275.0	51.4	4.066	58.3	54.5	56.4
16222.2	53.5	3.955	51.1	59.1	55.1	16222.2	50.8	3.950	47.2	56.9	52.0	16222.2	51.8	3.914	49.0	57.7	53.4
16169.4	47.1	4.049	45.8	54.4	50.1	16169.4	44.2	4.088	41.2	54.1	47.6	16169.4	50.6	4.069	45.1	59.4	52.3
16116.6	70.6	3.754	67.6	80.8	74.2	16116.6	69.9	3.803	62.7	78.7	70.7	16116.6	70.4	3.712	69.1	77.0	73.0
16063.8	72.0	4.020	79.7	68.9	74.3	16063.8	71.2	4.017	79.1	66.5	72.8	16063.8	72.8	4.018	83.4	67.1	75.2
16011.0	49.6	4.172	51.3	54.8	53.0	16011.0	47.6	4.164	48.1	53.1	50.6	16011.0	51.6	4.120	52.1	58.3	55.2
15958.2	64.0	3.746	58.9	75.9	67.4	15958.2	65.4	3.744	61.8	77.0	69.4	15958.2	62.6	3.793	60.1	70.0	65.0
15905.4	49.4	4.037	55.1	47.3	51.2	15905.4	46.7	4.003	49.4	50.9	50.2	15905.4	53.0	4.009	58.6	51.5	55.0
15852.6	49.5	4.163	57.5	53.7	55.6	15852.6	47.6	4.174	58.0	46.7	52.3	15852.6	51.0	4.151	62.1	46.1	54.1
15799.8	69.4	3.885	70.7	71.2	71.0	15799.8	67.2	3.870	69.4	68.5	69.0	15799.8	71.2	3.870	74.8	71.1	72.9
15747.0	52.6	3.981	55.0	59.1	57.1	15747.0	52.6	3.942	56.1	58.8	57.4	15747.0	57.6	3.964	59.6	59.8	59.7
15694.2	57.0	3.977	51.7	64.4	58.1	15694.2	55.4	3.973	48.5	68.0	58.2	15694.2	58.2	3.955	55.6	64.9	60.2
15641.4	78.0	3.833	69.2	87.2	78.2	15641.4	80.6	3.795	77.9	85.7	81.8	15641.4	74.9	3.809	69.5	81.8	75.6
15588.6	56.2	3.906	47.5	67.2	57.4	15588.6	55.2	3.899	50.6	63.1	56.9	15588.6	65.7	3.742	57.1	76.6	66.8
15535.8	57.1	3.928	57.3	62.8	60.1	15535.8	56.2	3.896	51.5	63.9	57.7	15535.8	49.2	3.991	55.0	50.9	52.9
15483.0	70.9	4.029	72.6	72.8	72.7	15483.0	72.2	3.910	76.6	71.4	74.0	15483.0	89.5	3.538	91.6	90.1	90.9
15430.2	86.5	3.366	86.7	92.7	89.7	15430.2	83.3	3.503	87.2	85.8	86.5	15430.2	74.5	3.681	74.2	82.1	78.2
15377.4	42.8	4.073	45.4	47.9	46.7	15377.4	41.0	4.172	39.6	50.7	45.2	15377.4	37.4	4.082	42.0	42.2	42.1
15324.6	39.4	3.977	38.7	47.1	42.9	15324.6	45.3	3.964	42.2	58.5	50.3	15324.6	51.3	3.996	50.6	58.2	54.4
15271.8	74.7	3.855	76.3	77.5	76.9	15271.8	68.8	3.930	71.6	72.6	72.1	15271.8	62.9	3.996	68.9	64.0	66.4
15219.0	71.2	3.786	78.0	69.0	73.5	15219.0	69.7	3.807	71.2	73.9	72.6	15219.0	73.7	3.798	81.1	72.5	76.8
15166.2	83.4	3.704	84.6	87.5	86.0	15166.2	82.9	3.737	81.2	89.7	85.4	15166.2	83.9	3.757	88.4	84.6	86.5
15113.4	89.8	3.796	93.0	90.6	91.8	15113.4	87.5	3.835	90.0	89.6	89.8	15113.4	83.2	3.856	85.5	85.7	85.6
15060.6	60.6	3.850	55.0	71.9	63.4	15060.6	59.3	3.865	57.5	67.4	62.5	15060.6	60.2	3.890	51.8	72.0	61.9
15007.8	42.8	4.124	47.4	42.3	44.8	15007.8	40.0	4.110	45.1	45.1	45.1	15007.8	46.4	4.081	48.9	51.6	50.2
14955.0	50.5	3.915	58.8	52.1	55.4	14955.0	47.3	3.908	52.1	54.5	53.3	14955.0	50.8	3.806	51.4	57.7	54.5
14902.2	51.3	4.086	58.4	50.2	54.3	14902.2	46.5	4.136	54.1	46.1	50.1	14902.2	52.6	4.028	56.5	55.6	56.0
14849.4	93.8	3.550	107.0	92.7	99.8	14849.4	86.7	3.676	98.4	90.4	94.4	14849.4	94.1	3.579	103.8	95.8	99.8
14796.6	78.5	3.827	84.3	83.2	83.8	14796.6	79.7	3.859	80.9	88.5	84.7	14796.6	81.8	3.842	86.0	84.9	85.5
14743.8	89.7	3.779	96.3	88.0	92.1	14743.8	88.8	3.808	92.2	89.7	91.0	14743.8	89.7	3.822	95.1	88.5	91.8
14691.0	82.8	3.929	87.0	81.3	84.1	14691.0	78.3	3.946	82.6	77.1	79.9	14691.0	74.6	3.863	79.3	73.9	76.6
14638.2	104.4	3.643	113.5	101.0	107.3	14638.2	104.4	3.611	104.8	108.0	106.4	14638.2	103.8	3.695	105.8	107.0	106.4
14585.4	53.1	3.991	51.7	60.4	56.0	14585.4	51.6	4.056	47.4	62.0	54.7	14585.4	50.2	4.026	47.6	57.6	52.6
14532.6	54.0	3.981	50.6	60.9	55.7	14532.6	54.2	3.969	50.5	64.4	57.5	14532.6	52.9	3.989	51.3	57.2	54.3

14479.8	56.2	3.963	58.5	57.2	57.9
14427.0	62.6	3.906	73.7	57.2	65.5
14374.2	61.7	4.075	74.4	54.8	64.6
14321.4	53.9	4.102	49.8	64.8	57.3
14268.6	42.1	4.133	44.6	43.7	44.1
14215.8	63.8	3.696	72.0	61.4	66.7
14163.0	46.7	3.970	48.8	51.5	50.1
14110.2	73.5	3.623	82.8	70.3	76.6
14057.4	53.9	4.005	54.2	56.8	55.5
14004.6	57.8	3.876	60.0	60.7	60.4
13951.8	49.4	3.901	55.5	56.3	55.9
13899.0	58.7	4.043	62.9	65.1	64.0
13846.2	63.4	3.871	61.8	70.4	66.1
13793.4	46.7	4.163	46.3	52.0	49.1
13740.6	59.4	3.960	63.6	57.5	60.5
13687.8	64.5	3.940	64.4	68.0	66.2
13635.0	55.2	3.884	53.4	63.1	58.2
13582.2	37.5	4.160	42.2	43.1	42.7
13529.4	43.5	4.050	45.7	51.4	48.5
13476.6	65.9	3.992	62.1	75.3	68.7
13423.8	64.9	4.020	65.0	65.7	65.3
13371.0	53.6	4.047	62.2	50.8	56.5
13318.2	57.0	4.005	62.6	53.4	58.0
13265.4	49.7	4.015	55.0	49.6	52.3

14479.8	50.4	4.082	56.0	56.9	56.5
14427.0	60.9	3.934	66.6	59.4	63.0
14374.2	59.5	4.071	65.9	57.5	61.7
14321.4	56.1	3.976	55.6	64.0	59.8
14268.6	48.9	4.015	49.3	52.3	50.8
14215.8	74.7	3.546	92.8	69.6	81.2
14163.0	48.1	3.793	56.2	50.8	53.5
14110.2	82.0	3.506	92.9	75.0	83.9
14057.4	57.0	3.893	60.5	61.2	60.9
14004.6	58.9	3.910	66.9	59.1	63.0
13951.8	53.7	3.919	56.7	58.6	57.7
13899.0	59.1	4.088	57.1	67.1	62.1
13846.2	54.9	3.975	51.4	64.8	58.1
13793.4	50.1	4.138	50.3	54.7	52.5
13740.6	52.6	4.011	57.7	51.3	54.5
13687.8	69.7	3.843	76.8	67.5	72.1
13635.0	54.6	3.881	48.5	63.1	55.8
13582.2	38.9	4.199	30.4	51.6	41.0
13529.4	44.9	4.041	44.5	52.2	48.4
13476.6	73.6	3.860	76.5	73.3	74.9
13423.8	61.4	4.097	62.9	63.1	63.0
13371.0	52.0	4.092	56.3	51.1	53.7
13318.2	52.4	4.145	56.3	51.5	53.9
13265.4	47.8	3.994	50.9	50.3	50.6

14479.8	52.0	3.960	55.3	52.1	53.7
14427.0	62.0	3.966	69.7	59.5	64.6
14374.2	56.4	4.102	63.3	59.2	61.2
14321.4	55.0	3.982	56.3	61.9	59.1
14268.6	47.5	4.031	52.0	48.7	50.3
14215.8	75.0	3.537	92.8	66.2	79.5
14163.0	58.5	3.658	64.5	60.4	62.5
14110.2	68.3	3.659	80.0	62.7	71.3
14057.4	55.9	3.937	55.9	61.3	58.6
14004.6	58.7	3.904	65.8	56.1	60.9
13951.8	56.2	3.919	60.2	63.3	61.7
13899.0	56.8	4.127	60.2	60.3	60.2
13846.2	55.0	3.948	48.7	70.4	59.6
13793.4	46.3	4.144	51.6	49.4	50.5
13740.6	56.3	3.979	62.4	54.1	58.3
13687.8	64.6	3.954	59.0	74.9	66.9
13635.0	61.0	3.838	55.2	70.5	62.9
13582.2	37.1	4.164	41.0	42.6	41.8
13529.4	46.9	4.023	46.7	55.1	50.9
13476.6	66.1	3.951	61.1	74.3	67.7
13423.8	60.9	4.082	65.5	60.2	62.8
13371.0	54.0	4.009	59.2	51.2	55.2
13318.2	55.9	4.057	54.5	61.0	57.8
13265.4	34.0	4.403	38.4	50.0	44.2

October 2001 Profile Survey of Eastbound Lanes, Driving Lane (PEBOC01)

ATHENS 050 - October 2001 Tests

LANE 1 PASS 1 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15453.0	62.2	3.711	56.6	72.7	64.7
15505.8	134.3	2.722	136.0	135.1	135.6
15558.6	66.0	3.868	62.2	74.3	68.3
15611.4	68.9	3.903	74.1	66.9	70.5
15664.2	78.8	3.666	80.8	83.8	82.3
15717.0	77.7	3.490	87.5	79.3	83.4
15769.8	60.5	3.770	55.9	71.9	63.9
15822.6	44.9	4.030	52.8	43.7	48.3
15875.4	44.3	4.038	48.1	44.6	46.3
15928.2	55.3	3.940	61.2	57.5	59.4
15981.0	69.3	3.762	66.9	75.8	71.4
16033.8	75.2	3.699	74.4	79.0	76.7
16086.6	50.3	4.054	60.9	54.0	57.4
16139.4	77.9	3.691	74.7	88.4	81.5
16192.2	43.8	4.098	51.2	44.5	47.8
16245.0	56.3	3.864	65.5	49.9	57.7
16297.8	57.3	3.965	65.2	56.2	60.7
16350.6	64.0	3.764	73.3	62.1	67.7
16403.4	50.4	4.042	65.0	42.6	53.8
16456.2	53.8	3.928	59.2	52.2	55.7
16509.0	44.1	4.174	49.4	44.3	46.8
16561.8	72.9	3.732	80.6	73.1	76.8
16614.6	61.3	4.003	71.8	53.7	62.7
16667.4	75.9	3.646	71.0	88.6	79.8
16720.2	51.6	3.905	61.3	48.2	54.8
16773.0	52.7	3.943	53.7	61.0	57.4
16825.8	48.5	3.967	54.6	48.5	51.5
16878.6	72.2	3.593	74.2	75.9	75.1
16931.4	80.0	3.663	85.1	81.9	83.5
16984.2	64.2	3.859	69.9	62.0	66.0
17037.0	69.4	3.901	81.2	63.3	72.3
17089.8	76.9	3.743	79.7	75.4	77.5
17142.6	74.5	3.995	81.8	69.3	75.5
17195.4	53.7	3.898	56.9	55.9	56.4
17248.2	74.9	3.787	88.0	64.7	76.3
17301.0	62.4	3.816	71.1	57.7	64.4
17353.8	59.4	3.907	67.6	57.4	62.5
17406.6	46.2	3.981	60.9	42.9	51.9
17459.4	100.2	3.484	104.6	100.2	102.4
17512.2	66.6	3.890	78.7	63.1	70.9
17565.0	75.3	3.846	84.8	71.0	77.9
17617.8	60.3	3.828	65.1	63.6	64.3
17670.6	66.4	3.835	70.9	66.5	68.7
17723.4	72.0	3.867	87.4	64.4	75.9
17776.2	62.6	4.063	73.0	55.5	64.3
17829.0	50.3	4.147	50.5	55.2	52.8

LANE 1 PASS 2 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15453.0	58.7	3.788	52.8	73.1	63.0
15505.8	137.5	2.649	135.9	141.9	138.9
15558.6	66.3	3.867	67.6	71.6	69.6
15611.4	70.7	3.870	88.5	60.3	74.4
15664.2	71.0	3.727	76.6	71.4	74.0
15717.0	79.0	3.476	88.6	79.7	84.1
15769.8	59.7	3.825	59.2	64.2	61.7
15822.6	46.2	4.032	49.3	47.4	48.4
15875.4	43.6	4.040	47.0	46.2	46.6
15928.2	54.6	3.901	59.1	56.6	57.9
15981.0	67.2	3.813	68.1	70.3	69.2
16033.8	82.7	3.652	75.7	91.8	83.7
16086.6	50.2	4.046	60.2	53.4	56.8
16139.4	77.3	3.624	75.0	88.1	81.5
16192.2	53.4	3.948	56.0	56.6	56.3
16245.0	57.7	3.802	66.0	56.1	61.1
16297.8	57.9	3.872	66.0	53.8	59.9
16350.6	67.3	3.749	73.3	66.7	70.0
16403.4	53.9	4.022	63.1	48.6	55.8
16456.2	52.5	3.903	60.6	46.6	53.6
16509.0	46.1	4.189	50.0	49.1	49.6
16561.8	73.6	3.611	78.6	73.0	75.8
16614.6	63.9	3.995	74.8	58.6	66.7
16667.4	71.0	3.688	63.0	85.2	74.1
16720.2	48.7	3.965	53.1	49.1	51.1
16773.0	50.2	3.977	51.2	61.3	56.3
16825.8	43.6	3.999	48.0	45.1	46.5
16878.6	67.7	3.660	68.5	72.1	70.3
16931.4	85.4	3.569	92.1	83.1	87.6
16984.2	63.6	3.827	67.7	62.9	65.3
17037.0	75.2	3.845	85.7	68.6	77.1
17089.8	76.0	3.685	79.0	76.3	77.6
17142.6	74.1	3.937	81.6	68.5	75.1
17195.4	57.7	3.782	59.2	62.8	61.0
17248.2	73.7	3.837	88.3	62.6	75.5
17301.0	62.9	3.717	64.3	67.3	65.8
17353.8	60.8	3.855	68.3	57.0	62.6
17406.6	54.4	3.875	73.5	45.5	59.5
17459.4	108.4	3.323	114.5	108.6	111.6
17512.2	76.3	3.815	93.6	64.3	78.9
17565.0	68.9	3.864	79.6	65.6	72.6
17617.8	63.5	3.790	65.4	67.4	66.4
17670.6	76.6	3.804	77.2	80.4	78.8
17723.4	68.5	3.916	88.9	56.6	72.8
17776.2	63.0	4.058	69.0	58.9	63.9
17829.0	47.1	4.191	48.4	52.7	50.6

LANE 1 PASS 3 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15453.0	64.5	3.701	62.7	69.4	66.1
15505.8	139.7	2.625	142.2	139.0	140.6
15558.6	65.9	3.849	64.7	73.0	68.9
15611.4	70.9	3.825	85.4	62.6	74.0
15664.2	65.5	3.766	72.1	66.4	69.2
15717.0	76.9	3.435	77.6	85.3	81.5
15769.8	58.6	3.817	58.3	66.0	62.2
15822.6	49.7	3.991	56.9	47.6	52.2
15875.4	48.0	3.962	50.2	48.8	49.5
15928.2	57.7	3.928	66.9	52.3	59.6
15981.0	66.9	3.798	66.5	68.5	67.5
16033.8	80.8	3.666	79.0	85.4	82.2
16086.6	54.4	3.982	67.0	54.8	60.9
16139.4	70.6	3.697	68.1	81.1	74.6
16192.2	51.0	3.985	55.2	61.2	58.2
16245.0	57.2	3.844	64.1	55.2	59.7
16297.8	55.8	3.953	66.4	53.3	59.9
16350.6	66.8	3.772	73.5	67.1	70.3
16403.4	50.9	4.057	62.5	44.9	53.7
16456.2	52.2	3.916	55.3	51.3	53.3
16509.0	46.1	4.155	52.0	46.5	49.2
16561.8	74.6	3.723	80.0	74.9	77.4
16614.6	61.5	3.996	70.1	56.5	63.3
16667.4	72.8	3.695	74.3	77.3	75.8
16720.2	51.5	3.917	62.2	45.8	54.0
16773.0	44.0	4.068	49.5	47.5	48.5
16825.8	48.6	3.969	54.8	47.4	51.1
16878.6	70.3	3.651	71.4	73.6	72.5
16931.4	83.7	3.644	89.7	83.4	86.6
16984.2	54.2	3.969	60.0	55.9	58.0
17037.0	62.6	3.989	75.3	59.2	67.2
17089.8	75.8	3.740	80.1	73.9	77.0
17142.6	72.0	4.062	81.2	65.1	73.1
17195.4	54.0	3.848	55.6	55.6	55.6
17248.2	74.7	3.784	89.7	64.1	76.9
17301.0	64.8	3.793	73.0	59.9	66.4
17353.8	65.4	3.786	70.4	63.1	66.8
17406.6	53.1	3.811	66.4	47.8	57.1
17459.4	100.7	3.393	114.2	97.1	105.6
17512.2	77.7	3.790	97.7	64.7	81.2
17565.0	71.5	3.836	80.4	67.5	74.0
17617.8	56.3	3.872	61.5	60.0	60.8
17670.6	67.6	3.875	71.1	69.2	70.2
17723.4	69.9	3.901	86.9	60.9	73.9
17776.2	59.8	4.112	69.9	55.3	62.6
17829.0	50.8	4.110	44.8	60.0	52.4

17881.8	59.0	4.041	68.5	53.6	61.0
17934.6	54.9	4.081	63.9	50.4	57.2
17987.4	58.7	4.211	72.2	49.3	60.8
18040.2	53.1	4.125	67.0	42.2	54.6
18093.0	69.9	3.685	79.8	66.9	73.3
18145.8	64.0	3.881	76.2	65.9	71.0
18198.6	76.1	3.957	83.5	72.6	78.0
18251.4	50.4	3.994	66.5	42.4	54.4
18304.2	61.2	4.114	69.6	57.7	63.7
18357.0	70.8	4.079	78.9	65.1	72.0
18409.8	51.1	4.109	61.1	46.7	53.9
18462.6	61.0	4.113	67.6	57.0	62.3
18515.4	62.7	3.872	71.4	58.4	64.9
18568.2	49.6	4.105	55.3	49.8	52.5
18621.0	117.5	3.694	124.8	111.2	118.0
18673.8	72.3	3.857	75.4	70.1	72.8
18726.6	66.4	3.919	80.7	68.3	74.5
18779.4	60.1	3.969	70.0	54.5	62.3
18832.2	67.4	3.935	69.8	71.2	70.5
18885.0	64.0	4.142	77.0	58.3	67.7
18937.8	51.6	4.057	57.1	49.9	53.5
18990.6	55.9	4.166	62.0	53.5	57.8
19043.4	61.1	4.194	65.4	60.8	63.1
19096.2	85.6	3.553	94.1	81.6	87.9
19149.0	71.4	3.957	81.9	65.6	73.7
19201.8	68.8	3.945	82.4	60.6	71.5
19254.6	83.8	3.781	89.6	79.4	84.5
19307.4	58.8	4.005	70.7	53.8	62.2
19360.2	71.2	3.633	82.6	65.0	73.8
19413.0	74.6	3.979	73.7	75.9	74.8
19465.8	69.8	3.778	68.2	80.1	74.1
19518.6	66.5	4.035	77.7	61.3	69.5
19571.4	61.0	3.795	75.6	50.3	62.9
19624.2	56.7	4.008	61.5	55.7	58.6
19677.0	46.6	4.059	64.2	42.0	53.1
19729.8	66.8	3.879	74.2	64.0	69.1
19782.6	62.0	3.916	68.9	58.0	63.5
19835.4	53.8	3.777	56.1	54.8	55.4
19888.2	53.0	3.934	66.8	50.4	58.6
19941.0	98.8	3.892	112.7	88.7	100.7
19993.8	95.0	3.978	102.0	89.6	95.8
20046.6	56.4	4.008	63.8	53.0	58.4
20099.4	77.2	3.607	83.7	72.6	78.2
20152.2	79.3	3.670	86.7	76.6	81.7
20205.0	70.6	3.859	83.7	68.3	76.0
20257.8	78.8	3.751	75.0	91.1	83.0
20310.6	70.3	3.719	64.7	85.2	74.9
20363.4	77.7	3.758	79.2	81.4	80.3
20416.2	58.8	3.896	58.3	64.6	61.4
20469.0	37.7	4.064	47.7	37.8	42.8
20521.8	63.2	3.793	72.4	59.6	66.0
20574.6	55.6	3.998	63.1	58.2	60.7
20627.4	53.7	3.952	68.4	44.8	56.6
20680.2	49.7	4.172	60.3	44.7	52.5
20733.0	64.5	4.049	69.8	64.4	67.1
20785.8	70.4	3.983	81.1	66.9	74.0
20838.6	73.2	3.997	81.9	65.0	73.4

17881.8	60.2	4.051	66.0	59.7	62.9
17934.6	50.9	4.041	58.7	48.5	53.6
17987.4	61.7	4.148	74.7	52.0	63.4
18040.2	51.9	4.125	65.2	44.7	54.9
18093.0	68.6	3.720	73.2	72.4	72.8
18145.8	63.8	3.884	72.2	66.0	69.1
18198.6	79.3	3.947	85.3	75.2	80.2
18251.4	51.6	3.951	65.9	44.1	55.0
18304.2	64.6	4.065	72.6	60.9	66.7
18357.0	81.8	3.911	91.7	73.5	82.6
18409.8	53.0	4.061	62.0	48.6	55.3
18462.6	68.3	3.990	71.8	66.3	69.1
18515.4	62.5	3.875	75.5	52.1	63.8
18568.2	56.0	4.061	64.1	52.1	58.1
18621.0	117.8	3.733	124.5	111.1	117.8
18673.8	75.9	3.837	79.4	72.7	76.1
18726.6	66.7	3.884	81.4	69.8	75.6
18779.4	59.3	3.966	68.2	53.8	61.0
18832.2	67.6	3.940	71.5	67.7	69.6
18885.0	66.6	4.070	78.9	59.9	69.4
18937.8	52.0	3.998	57.5	49.0	53.2
18990.6	53.5	4.120	62.4	52.6	57.5
19043.4	61.3	4.157	63.4	63.9	63.7
19096.2	90.7	3.526	101.0	84.7	92.8
19149.0	72.6	3.913	81.1	67.6	74.4
19201.8	67.7	3.936	79.3	63.7	71.5
19254.6	80.7	3.805	90.4	74.1	82.2
19307.4	56.8	3.991	69.0	54.1	61.6
19360.2	65.9	3.821	72.3	64.6	68.5
19413.0	75.4	3.922	76.2	76.1	76.2
19465.8	76.5	3.759	76.2	84.1	80.2
19518.6	68.1	3.911	81.6	62.7	72.1
19571.4	63.5	3.818	69.7	59.2	64.4
19624.2	52.6	4.058	55.4	55.8	55.6
19677.0	53.6	3.997	67.2	48.6	57.9
19729.8	67.9	3.862	70.5	66.9	68.7
19782.6	66.1	3.814	78.8	57.8	68.3
19835.4	49.5	3.848	53.6	51.3	52.4
19888.2	53.4	4.004	68.7	49.2	59.0
19941.0	95.7	3.970	111.6	84.0	97.8
19993.8	97.7	3.957	101.8	94.2	98.0
20046.6	56.1	4.025	59.7	57.1	58.4
20099.4	84.8	3.571	84.8	86.2	85.5
20152.2	72.8	3.713	79.8	69.1	74.5
20205.0	75.4	3.782	88.4	74.1	81.2
20257.8	75.4	3.777	67.2	94.3	80.8
20310.6	71.5	3.638	69.6	80.2	74.9
20363.4	84.8	3.654	83.7	89.8	86.8
20416.2	65.7	3.845	64.1	70.9	67.5
20469.0	37.3	4.145	49.7	38.1	43.9
20521.8	68.1	3.725	74.6	64.1	69.3
20574.6	55.1	4.018	56.1	61.6	58.9
20627.4	56.0	3.984	69.3	47.9	58.6
20680.2	47.3	4.186	56.3	45.3	50.8
20733.0	66.0	4.093	68.4	67.7	68.1
20785.8	73.6	3.949	88.2	67.2	77.7
20838.6	70.4	3.955	75.5	68.8	72.2

17881.8	71.6	3.924	77.0	68.9	72.9
17934.6	52.9	4.069	63.1	50.6	56.8
17987.4	62.1	4.105	74.5	56.0	65.2
18040.2	51.8	4.146	67.6	42.3	55.0
18093.0	74.4	3.621	84.5	72.2	78.3
18145.8	63.0	3.904	76.4	60.9	68.7
18198.6	72.7	3.951	77.4	70.7	74.0
18251.4	55.9	3.918	73.9	43.2	58.5
18304.2	65.4	4.005	71.8	63.0	67.4
18357.0	78.3	3.970	89.8	69.8	79.8
18409.8	50.5	4.132	64.3	42.0	53.2
18462.6	67.3	3.998	78.8	59.7	69.3
18515.4	67.6	3.848	82.4	56.7	69.6
18568.2	50.4	4.107	58.0	47.9	52.9
18621.0	114.9	3.724	122.1	109.3	115.7
18673.8	73.3	3.873	75.7	72.3	74.0
18726.6	65.1	3.897	81.9	68.7	75.3
18779.4	64.9	3.851	73.8	60.0	66.9
18832.2	67.9	3.888	75.5	65.4	70.5
18885.0	68.9	4.048	80.4	60.3	70.3
18937.8	54.4	3.982	55.2	56.3	55.7
18990.6	52.1	4.215	58.3	52.6	55.4
19043.4	60.7	4.199	62.6	63.9	63.2
19096.2	87.0	3.567	92.8	84.9	88.9
19149.0	67.4	3.961	78.0	61.9	70.0
19201.8	65.5	3.959	78.5	60.1	69.3
19254.6	80.6	3.802	88.3	75.3	81.8
19307.4	59.4	3.921	65.4	62.1	63.7
19360.2	67.9	3.717	77.8	65.8	71.8
19413.0	74.0	3.886	76.2	76.9	76.5
19465.8	71.2	3.784	78.6	71.5	75.0
19518.6	77.4	3.840	87.8	69.9	78.9
19571.4	70.3	3.660	80.8	64.1	72.5
19624.2	51.9	4.044	58.5	50.7	54.6
19677.0	49.4	4.091	65.4	48.0	56.7
19729.8	64.4	3.953	72.3	60.5	66.4
19782.6	68.5	3.841	78.5	60.4	69.5
19835.4	54.6	3.733	58.2	54.2	56.2
19888.2	47.7	4.059	63.6	46.4	55.0
19941.0	97.8	3.920	113.1	85.4	99.2
19993.8	102.0	3.871	108.0	96.6	102.3
20046.6	56.4	4.053	60.5	54.6	57.5
20099.4	78.7	3.597	87.0	73.1	80.0
20152.2	75.6	3.708	79.0	76.5	77.7
20205.0	71.4	3.840	86.7	69.3	78.0
20257.8	76.6	3.778	70.2	91.7	80.9
20310.6	68.2	3.705	64.6	80.0	72.3
20363.4	82.7	3.657	75.8	94.2	85.0
20416.2	58.2	3.882	61.1	64.1	62.6
20469.0	39.0	4.077	51.0	43.6	47.3
20521.8	73.0	3.677	77.4	72.0	74.7
20574.6	57.2	3.968	60.7	62.9	61.8
20627.4	55.2	3.954	68.5	47.5	58.0
20680.2	45.5	4.243	55.1	41.1	48.1
20733.0	64.6	4.046	68.0	64.3	66.1
20785.8	73.0	3.966	86.0	65.1	75.5
20838.6	71.3	3.938	77.5	67.2	72.3

20891.4	64.6	3.896	70.3	63.9	67.1	20891.4	61.2	3.893	68.2	60.2	64.2	20891.4	61.7	3.881	67.5	59.3	63.4
20944.2	54.3	4.030	71.1	43.1	57.1	20944.2	52.8	4.072	67.3	47.1	57.2	20944.2	52.4	4.087	64.7	44.8	54.7
20997.0	66.6	4.024	80.2	58.5	69.3	20997.0	60.6	4.014	75.4	53.1	64.2	20997.0	63.6	4.016	75.1	56.2	65.6
21049.8	66.7	4.056	80.4	58.7	69.5	21049.8	62.2	4.020	75.5	55.6	65.5	21049.8	63.7	4.047	78.2	53.1	65.7
21102.6	48.4	3.998	57.9	44.4	51.1	21102.6	48.2	3.998	60.7	44.6	52.6	21102.6	47.8	4.007	55.0	45.8	50.4
21155.4	67.4	4.034	79.5	62.3	70.9	21155.4	66.1	3.991	80.5	59.6	70.0	21155.4	67.7	3.947	79.9	64.1	72.0
21208.2	76.7	3.938	92.6	65.0	78.8	21208.2	76.5	3.973	93.9	62.8	78.4	21208.2	80.0	3.915	97.3	67.5	82.4
21261.0	51.4	4.046	60.8	47.5	54.1	21261.0	46.9	4.065	60.0	42.0	51.0	21261.0	47.5	4.096	60.9	42.0	51.4
21313.8	62.9	4.123	62.0	67.7	64.8	21313.8	59.8	4.098	62.9	68.9	65.9	21313.8	61.4	4.111	61.3	70.7	66.0
21366.6	73.5	3.989	85.0	67.6	76.3	21366.6	70.1	4.044	75.4	69.4	72.4	21366.6	73.8	3.991	81.0	67.8	74.4
21419.4	51.1	4.100	59.9	49.0	54.4	21419.4	57.4	4.012	69.7	50.0	59.9	21419.4	54.9	4.038	65.4	51.4	58.4
21472.2	46.7	4.107	60.7	41.7	51.2	21472.2	48.4	4.057	62.5	41.6	52.0	21472.2	48.4	4.085	61.8	44.4	53.1
21525.0	39.0	4.214	46.8	41.6	44.2	21525.0	39.6	4.244	49.6	43.6	46.6	21525.0	38.2	4.291	43.7	44.8	44.3
21577.8	79.4	4.108	82.2	78.3	80.2	21577.8	79.1	4.099	82.2	77.9	80.0	21577.8	82.1	4.092	82.2	82.8	82.5
21630.6	59.5	4.052	62.1	63.5	62.8	21630.6	57.8	4.103	58.8	63.3	61.0	21630.6	62.1	4.068	63.5	65.7	64.6
21683.4	60.4	3.940	70.1	54.4	62.3	21683.4	62.6	3.915	69.2	58.7	64.0	21683.4	61.7	3.882	69.8	57.6	63.7
21736.2	71.0	3.997	74.9	70.2	72.6	21736.2	70.4	3.999	82.2	61.8	72.0	21736.2	68.6	4.052	78.1	62.6	70.3
21789.0	44.9	4.192	51.4	47.9	49.6	21789.0	44.5	4.094	52.2	44.8	48.5	21789.0	42.0	4.090	44.2	49.3	46.8
21841.8	77.1	3.882	82.6	74.2	78.4	21841.8	83.5	3.876	83.6	85.7	84.7	21841.8	75.1	3.907	81.5	73.3	77.4
21894.6	56.2	3.904	68.1	54.4	61.3	21894.6	55.7	3.961	68.8	53.2	61.0	21894.6	52.4	3.967	63.4	49.4	56.4
21947.4	45.2	4.229	54.6	47.9	51.2	21947.4	45.6	4.189	52.5	49.9	51.2	21947.4	42.7	4.233	50.9	45.2	48.1
22000.2	67.7	3.944	76.6	64.1	70.3	22000.2	65.8	3.975	75.3	65.9	70.6	22000.2	66.2	3.954	74.6	65.6	70.1
22053.0	48.8	3.924	65.8	49.3	57.6	22053.0	49.6	3.925	60.3	52.0	56.1	22053.0	51.1	3.899	62.4	55.7	59.0
22105.8	83.1	3.660	85.8	82.6	84.2	22105.8	75.7	3.684	79.2	74.9	77.1	22105.8	78.6	3.666	82.6	78.8	80.7
22158.6	63.5	3.896	70.6	58.9	64.7	22158.6	69.2	3.877	81.1	60.5	70.8	22158.6	65.5	3.921	73.7	60.6	67.1
22211.4	81.9	3.612	87.3	80.3	83.8	22211.4	78.8	3.531	83.8	78.5	81.2	22211.4	77.8	3.581	83.2	74.4	78.8
22264.2	52.8	4.034	65.7	42.3	54.0	22264.2	52.9	4.047	64.0	47.0	55.5	22264.2	51.3	4.018	61.8	45.8	53.8
22317.0	66.3	3.793	67.5	66.8	67.1	22317.0	62.8	3.831	64.9	63.6	64.3	22317.0	64.6	3.857	69.7	61.7	65.7
22369.8	61.3	3.917	70.0	56.7	63.3	22369.8	59.5	3.903	68.5	54.3	61.4	22369.8	60.1	3.931	68.5	56.6	62.6
22422.6	60.3	3.823	67.9	63.8	65.9	22422.6	61.5	3.880	73.5	57.8	65.7	22422.6	61.4	3.851	67.4	63.8	65.6
22475.4	80.9	3.801	93.1	73.8	83.4	22475.4	80.4	3.772	91.4	75.4	83.4	22475.4	81.5	3.716	92.5	78.4	85.5
22528.2	64.5	3.829	56.6	76.4	66.5	22528.2	66.9	3.762	69.7	69.0	69.3	22528.2	67.8	3.689	64.7	76.8	70.7
22581.0	43.5	4.156	46.3	45.3	45.8	22581.0	52.7	4.047	51.1	58.1	54.6	22581.0	50.8	4.049	52.9	53.5	53.2
22633.8	60.7	3.976	54.4	69.8	62.1	22633.8	56.9	4.024	53.4	65.1	59.3	22633.8	56.4	3.957	50.1	65.1	57.6
22686.6	39.9	4.220	40.0	44.1	42.1	22686.6	47.4	4.048	49.5	49.8	49.6	22686.6	49.8	3.994	50.9	50.6	50.7
22739.4	72.9	3.806	82.3	69.4	75.8	22739.4	77.1	3.739	84.0	76.6	80.3	22739.4	80.7	3.615	90.1	75.0	82.6
22792.2	52.2	4.192	56.9	52.2	54.5	22792.2	62.0	4.042	75.7	51.6	63.7	22792.2	61.5	4.059	75.4	50.2	62.8
22845.0	59.5	3.896	59.7	62.3	61.0	22845.0	60.2	3.881	63.4	63.8	63.6	22845.0	61.6	3.901	66.6	62.8	64.7
22897.8	58.7	3.918	64.7	58.9	61.8	22897.8	66.5	3.713	73.1	65.5	69.3	22897.8	64.1	3.755	69.6	65.9	67.8
22950.6	69.7	3.815	82.3	65.1	73.7	22950.6	74.3	3.810	85.8	67.1	76.5	22950.6	74.9	3.794	87.2	65.5	76.4
23003.4	84.4	4.072	86.7	90.3	88.5	23003.4	82.0	3.935	93.0	76.4	84.7	23003.4	81.9	3.949	89.9	77.0	83.4
23056.2	65.2	4.212	59.2	72.9	66.0	23056.2	63.5	4.171	62.0	70.2	66.1	23056.2	62.6	4.182	61.5	70.1	65.8
23109.0	44.9	4.004	49.0	49.2	49.1	23109.0	48.1	3.972	48.9	55.2	52.1	23109.0	48.4	3.900	54.2	54.1	54.2
23161.8	61.2	4.203	70.2	59.0	64.6	23161.8	65.8	4.082	72.5	62.0	67.2	23161.8	65.3	4.080	79.1	57.4	68.2
23214.6	67.4	3.894	74.1	69.9	72.0	23214.6	65.6	3.908	73.9	62.6	68.2	23214.6	72.1	3.823	80.6	68.5	74.5
23267.4	86.2	3.751	83.7	98.4	91.1	23267.4	91.2	3.697	96.1	96.1	96.1	23267.4	96.6	3.602	99.7	100.9	100.3
23320.2	81.9	3.920	88.0	80.2	84.1	23320.2	84.5	3.818	87.9	85.6	86.8	23320.2	84.7	3.842	84.1	89.3	86.7
23373.0	52.2	4.211	55.2	57.7	56.5	23373.0	54.5	4.227	58.0	54.0	56.0	23373.0	51.4	4.198	51.3	56.0	53.7
23425.8	78.2	3.781	85.7	75.6	80.6	23425.8	86.4	3.729	94.2	84.3	89.2	23425.8	82.6	3.793	93.2	77.8	85.5
23478.6	67.4	4.263	82.1	60.0	71.0	23478.6	71.1	4.268	83.5	61.7	72.6	23478.6	69.2	4.274	75.3	65.6	70.4
23531.4	64.0	3.936	67.0	68.2	67.6	23531.4	67.0	3.922	68.5	71.4	70.0	23531.4	60.4	4.003	66.3	61.9	64.1
23584.2	79.8	3.934	84.4	82.6	83.5	23584.2	80.1	3.983	83.7	80.5	82.1	23584.2	74.6	4.116	72.7	80.3	76.5
23637.0	115.9	3.540	108.2	132.6	120.4	23637.0	110.0	3.468	109.3	120.4	114.9	23637.0	105.6	3.582	103.8	116.7	110.2
23689.8	80.7	3.646	73.5	96.3	84.9	23689.8	79.1	3.659	74.1	92.6	83.3	23689.8	83.9	3.547	81.0	96.1	88.5
23742.6	82.8	3.726	94.8	77.9	86.4	23742.6	81.7	3.739	96.9	76.6	86.8	23742.6	76.7	3.780	94.5	72.7	83.6
23795.4	82.9	3.759	88.2	83.2	85.7	23795.4	68.2	3.881	70.0	72.8	71.4	23795.4	66.1	3.895	77.7	62.0	69.9
23848.2	72.2	3.805	76.8	72.7	74.8	23848.2	65.1	3.852	74.5	58.3	66.4	23848.2	67.8	3.825	72.7	66.7	69.7

A.48

23901.0	41.7	4.200	46.9	43.5	45.2	23901.0	44.4	4.172	49.2	45.4	47.3	23901.0	38.8	4.287	43.2	42.4	42.8
23953.8	61.8	3.812	60.0	69.5	64.7	23953.8	58.0	3.899	56.5	65.9	61.2	23953.8	63.9	3.826	65.4	66.7	66.0
24006.6	73.3	3.683	75.4	73.7	74.5	24006.6	69.3	3.734	74.6	67.0	70.8	24006.6	67.7	3.863	71.1	68.4	69.7
24059.4	67.6	3.789	68.1	74.4	71.2	24059.4	67.0	3.813	57.0	82.5	69.8	24059.4	67.4	3.764	65.1	73.0	69.1
24112.2	61.1	4.029	65.7	60.3	63.0	24112.2	56.6	4.038	62.4	54.5	58.4	24112.2	55.7	4.127	61.9	51.9	56.9
24165.0	43.0	4.057	41.5	53.2	47.3	24165.0	44.5	4.028	38.9	53.2	46.0	24165.0	43.7	4.029	41.1	52.3	46.7
24217.8	62.4	3.979	66.2	63.9	65.1	24217.8	56.6	4.110	69.2	48.0	58.6	24217.8	52.1	4.134	60.9	49.7	55.3
24270.6	63.5	3.842	69.8	63.1	66.5	24270.6	66.1	3.820	72.9	63.1	68.0	24270.6	59.2	3.965	63.8	63.8	63.8
24323.4	61.9	3.835	61.1	66.6	63.9	24323.4	50.9	3.906	48.1	58.5	53.3	24323.4	55.4	3.905	50.0	64.2	57.1
24376.2	56.8	4.088	62.1	58.0	60.0	24376.2	66.2	3.941	77.5	60.2	68.9	24376.2	62.0	3.963	67.8	61.9	64.8
24429.0	50.4	4.168	66.3	41.2	53.7	24429.0	49.7	4.085	51.0	54.7	52.9	24429.0	50.6	4.062	51.4	55.4	53.4
24481.8	79.9	4.091	81.1	84.5	82.8	24481.8	78.0	4.065	80.2	84.0	82.1	24481.8	76.6	4.101	79.1	83.4	81.2
24534.6	41.4	4.275	46.5	41.2	43.8	24534.6	47.4	4.271	51.1	47.3	49.2	24534.6	44.5	4.307	46.5	44.7	45.6
24587.4	47.2	4.091	49.2	50.3	49.8	24587.4	42.8	4.117	44.1	46.5	45.3	24587.4	44.3	4.150	52.0	44.6	48.3
24640.2	54.0	4.048	56.4	56.1	56.3	24640.2	57.6	4.050	57.8	60.8	59.3	24640.2	52.5	4.054	54.4	54.1	54.3
24693.0	50.6	3.947	52.9	49.9	51.4	24693.0	58.0	3.899	60.7	60.0	60.3	24693.0	51.3	3.967	53.2	53.8	53.5
24745.8	58.9	3.955	59.0	69.7	64.4	24745.8	56.1	4.064	55.1	68.2	61.6	24745.8	50.5	4.153	50.5	65.5	58.0
24798.6	54.0	3.937	51.2	63.7	57.5	24798.6	51.1	3.975	55.9	53.8	54.9	24798.6	56.3	3.752	56.5	61.6	59.0
24851.4	62.4	3.923	62.9	66.3	64.6	24851.4	64.8	3.959	66.7	67.2	66.9	24851.4	69.1	3.915	68.5	74.8	71.6
24904.2	59.7	3.942	67.7	57.7	62.7	24904.2	57.1	3.882	66.1	50.7	58.4	24904.2	56.7	3.932	63.2	56.8	60.0
24957.0	64.0	3.956	57.1	78.9	68.0	24957.0	72.1	3.858	61.5	87.9	74.7	24957.0	61.9	4.035	58.0	73.1	65.5
25009.8	78.2	3.818	85.8	76.2	81.0	25009.8	80.4	3.701	82.6	80.9	81.8	25009.8	78.2	3.713	93.6	69.1	81.3
25062.6	65.2	3.763	70.5	63.4	66.9	25062.6	57.3	3.970	58.3	60.2	59.3	25062.6	56.3	3.968	61.1	57.3	59.2
25115.4	58.5	3.903	66.4	53.2	59.8	25115.4	61.9	3.831	68.9	57.1	63.0	25115.4	62.2	3.782	67.5	60.5	64.0
25168.2	89.4	3.928	100.0	81.3	90.7	25168.2	94.3	3.662	102.1	89.5	95.8	25168.2	93.9	3.650	101.0	90.3	95.7
25221.0	93.3	3.649	115.3	88.3	101.8	25221.0	83.8	3.885	109.2	75.0	92.1	25221.0	82.7	3.909	105.1	81.8	93.5
25273.8	59.2	4.107	75.0	49.3	62.2	25273.8	59.3	4.062	71.6	57.1	64.3	25273.8	57.4	3.969	67.1	53.8	60.5
25326.6	51.9	3.783	56.5	54.0	55.2	25326.6	53.3	3.854	56.2	55.8	56.0	25326.6	59.1	3.652	66.5	54.1	60.3
25379.4	66.6	3.845	74.7	62.0	68.3	25379.4	61.9	3.863	64.9	63.0	64.0	25379.4	64.7	3.881	71.4	62.3	66.8
25432.2	53.2	4.229	59.9	49.3	54.6	25432.2	54.5	4.125	63.5	51.4	57.4	25432.2	58.8	4.109	68.6	51.7	60.1
25485.0	49.5	4.053	56.2	46.3	51.3	25485.0	49.5	4.041	55.7	49.2	52.5	25485.0	49.1	4.079	54.9	47.2	51.1
25537.8	45.9	4.095	51.1	46.8	49.0	25537.8	47.0	4.112	48.7	53.5	51.1	25537.8	49.6	4.099	53.4	54.5	53.9
25590.6	64.2	3.848	67.1	72.8	69.9	25590.6	65.7	3.853	69.9	68.1	69.0	25590.6	64.2	3.829	69.0	67.5	68.3
25643.4	62.6	4.049	66.7	61.8	64.2	25643.4	60.4	4.071	61.9	61.4	61.6	25643.4	62.7	4.017	63.0	65.5	64.2
25696.2	53.7	4.203	63.3	49.6	56.4	25696.2	48.9	4.224	60.0	48.5	54.2	25696.2	48.8	4.236	59.1	45.9	52.5
25749.0	92.7	3.754	99.2	89.0	94.1	25749.0	99.5	3.641	109.2	92.2	100.7	25749.0	98.6	3.679	106.3	93.0	99.6
25801.8	69.3	3.893	75.8	66.2	71.0	25801.8	69.1	3.895	78.9	63.1	71.0	25801.8	61.0	4.175	69.3	54.5	61.9
25854.6	71.3	3.975	70.9	75.9	73.4	25854.6	70.2	3.968	68.8	76.8	72.8	25854.6	67.7	3.954	70.4	69.7	70.1
25907.4	57.8	3.787	55.5	66.4	61.0	25907.4	57.8	3.788	57.3	61.7	59.5	25907.4	52.1	3.856	58.2	52.4	55.3
25960.2	85.4	4.063	94.7	81.0	87.9	25960.2	84.1	4.122	84.3	85.3	84.8	25960.2	80.1	4.116	86.4	78.1	82.3
26013.0	56.4	4.049	58.3	59.7	59.0	26013.0	59.8	4.108	59.1	62.8	61.0	26013.0	59.9	4.046	66.7	57.7	62.2
26065.8	82.6	3.750	90.3	79.4	84.8	26065.8	79.3	3.850	86.4	76.8	81.6	26065.8	80.5	3.810	88.3	75.1	81.7
26118.6	64.2	3.679	70.7	71.9	71.3	26118.6	68.3	3.765	75.1	68.4	71.7	26118.6	70.3	3.659	71.2	76.3	73.7
26171.4	76.3	3.762	84.4	73.4	78.9	26171.4	80.6	3.662	92.4	72.9	82.6	26171.4	76.7	3.652	82.2	73.3	77.8
26224.2	53.8	3.841	69.7	49.1	59.4	26224.2	51.8	3.968	67.8	42.8	55.3	26224.2	51.5	3.997	62.8	49.0	55.9
26277.0	71.9	3.762	78.3	73.4	75.9	26277.0	74.9	3.700	81.4	72.1	76.7	26277.0	75.2	3.648	79.6	74.7	77.1
26329.8	85.1	3.717	91.1	84.8	88.0	26329.8	90.7	3.687	96.5	87.2	91.9	26329.8	86.4	3.725	94.1	83.1	88.6
26382.6	106.2	3.785	107.9	111.4	109.6	26382.6	100.8	3.784	103.3	103.5	103.4	26382.6	98.7	3.789	100.1	102.9	101.5
26435.4	132.5	3.544	134.9	133.3	134.1	26435.4	131.3	3.582	132.5	133.0	132.8	26435.4	136.3	3.486	137.9	138.6	138.2
26488.2	109.5	3.648	123.9	105.8	114.9	26488.2	116.1	3.614	124.4	115.5	119.9	26488.2	120.2	3.578	130.1	116.5	123.3
26541.0	94.1	3.764	91.6	102.5	97.0	26541.0	90.8	3.753	89.5	98.4	94.0	26541.0	101.1	3.609	102.8	103.8	103.3
26593.8	69.6	3.736	82.0	61.7	71.9	26593.8	69.5	3.773	85.8	65.5	75.6	26593.8	79.0	3.653	94.7	68.7	81.7
26646.6	105.4	3.505	107.7	107.5	107.6	26646.6	91.5	3.636	95.5	94.4	94.9	26646.6	111.2	3.371	121.1	106.6	113.9
26699.4	71.3	3.684	74.7	72.7	73.7	26699.4	78.5	3.643	80.5	78.7	79.6	26699.4	87.8	3.457	91.6	86.2	88.9
26752.2	102.2	3.495	98.2	109.4	103.8	26752.2	95.6	3.590	93.5	101.4	97.4	26752.2	116.1	3.333	115.8	120.0	117.9
26805.0	67.5	3.884	63.7	75.5	69.6	26805.0	63.0	3.899	54.8	76.0	65.4	26805.0	63.7	3.910	63.0	69.7	66.3
26857.8	67.7	3.826	66.5	72.4	69.5	26857.8	59.1	3.941	61.5	59.0	60.2	26857.8	73.0	3.754	72.6	75.5	74.0

26910.6	71.3	3.713	77.5	66.7	72.1
26963.4	74.4	3.659	79.5	73.6	76.5
27016.2	69.4	3.726	68.2	73.8	71.0
27069.0	54.6	4.039	59.0	53.8	56.4
27121.8	60.1	4.037	61.1	64.0	62.5
27174.6	60.2	4.015	69.9	57.9	63.9
27227.4	81.5	3.811	89.7	76.9	83.3
27280.2	67.6	4.152	76.3	65.8	71.0
27333.0	63.1	3.930	63.9	66.8	65.3
27385.8	67.9	4.085	69.5	70.9	70.2
27438.6	65.5	3.938	76.9	60.3	68.6
27491.4	56.9	3.936	62.8	58.3	60.6
27544.2	68.6	3.906	74.9	65.3	70.1
27597.0	50.7	3.919	54.6	50.2	52.4
27649.8	56.2	4.023	63.6	55.8	59.7
27702.6	60.4	3.926	59.3	66.8	63.0
27755.4	48.0	4.222	56.2	44.0	50.1
27808.2	65.2	4.106	72.4	61.0	66.7
27861.0	57.9	4.154	63.8	59.2	61.5
27913.8	55.0	4.076	55.9	59.2	57.5
27966.6	67.6	3.831	75.4	63.4	69.4
28019.4	47.8	4.127	54.3	45.5	49.9
28072.2	71.2	3.796	82.5	66.0	74.3
28125.0	62.2	4.107	61.5	64.5	63.0
28177.8	41.5	4.100	45.5	45.1	45.3
28230.6	50.7	4.101	59.1	45.2	52.1
28283.4	49.4	4.208	55.1	46.0	50.5
28336.2	59.6	4.085	66.7	57.4	62.1
28389.0	44.2	4.135	50.0	45.3	47.7
28441.8	69.4	3.752	68.4	74.1	71.2
28494.6	71.2	3.717	76.6	67.7	72.1
28547.4	50.5	3.999	55.3	53.5	54.4
28600.2	65.9	3.830	68.3	65.6	67.0
28653.0	49.5	4.019	60.2	48.8	54.5
28705.8	53.7	4.109	58.2	55.6	56.9
28758.6	61.4	4.086	71.4	56.3	63.9
28811.4	54.2	3.954	59.7	53.1	56.4
28864.2	76.4	3.742	74.4	81.6	78.0
28917.0	75.0	3.892	71.9	86.5	79.2
28969.8	77.4	3.576	85.3	77.1	81.2
29022.6	76.2	3.863	80.8	72.7	76.8

26910.6	74.9	3.674	76.4	76.7	76.6
26963.4	64.1	3.800	68.0	63.8	65.9
27016.2	72.9	3.736	71.3	77.6	74.4
27069.0	45.7	4.077	50.9	46.9	48.9
27121.8	60.9	4.043	64.9	61.5	63.2
27174.6	60.7	4.038	67.6	60.3	64.0
27227.4	84.2	3.817	91.4	78.8	85.1
27280.2	71.6	4.163	80.3	67.7	74.0
27333.0	63.2	3.874	63.7	66.9	65.3
27385.8	66.5	4.065	68.9	69.5	69.2
27438.6	61.4	3.967	73.1	56.8	65.0
27491.4	59.5	3.897	65.3	60.9	63.1
27544.2	70.2	3.879	87.3	57.0	72.2
27597.0	55.3	3.986	64.8	54.1	59.4
27649.8	62.9	3.979	69.5	62.3	65.9
27702.6	60.5	4.008	57.4	66.8	62.1
27755.4	52.5	4.103	56.3	50.2	53.2
27808.2	63.0	4.154	68.6	63.7	66.2
27861.0	58.0	4.217	64.2	57.7	61.0
27913.8	59.5	4.011	65.4	57.1	61.2
27966.6	63.7	3.833	66.3	65.4	65.8
28019.4	43.0	4.184	46.1	46.5	46.3
28072.2	71.6	3.843	80.2	68.0	74.1
28125.0	58.0	4.105	53.3	65.4	59.4
28177.8	46.1	4.090	48.2	45.4	46.8
28230.6	50.9	4.081	61.0	44.5	52.8
28283.4	48.9	4.209	57.5	47.0	52.2
28336.2	56.3	4.061	63.6	54.6	59.1
28389.0	45.4	4.124	56.7	42.9	49.8
28441.8	71.3	3.746	70.7	73.5	72.1
28494.6	60.5	3.927	71.7	51.7	61.7
28547.4	46.8	3.950	54.0	44.8	49.4
28600.2	60.3	3.964	63.6	59.3	61.5
28653.0	52.5	4.052	62.4	51.6	57.0
28705.8	53.5	4.106	55.3	59.2	57.2
28758.6	64.8	4.008	72.8	61.1	67.0
28811.4	56.7	3.948	58.0	58.8	58.4
28864.2	85.8	3.662	85.6	89.7	87.6
28917.0	62.1	4.009	61.1	71.3	66.2
28969.8	82.6	3.534	91.8	81.2	86.5
29022.6	68.4	3.961	70.7	67.8	69.2

26910.6	86.6	3.552	95.9	79.6	87.7
26963.4	74.3	3.671	75.6	75.8	75.7
27016.2	77.8	3.660	84.2	77.1	80.6
27069.0	50.1	4.053	50.7	54.0	52.4
27121.8	61.3	4.011	63.3	60.9	62.1
27174.6	61.6	4.038	69.2	60.8	65.0
27227.4	88.9	3.761	100.4	79.2	89.8
27280.2	72.9	4.078	82.6	69.3	75.9
27333.0	72.6	3.759	67.5	79.5	73.5
27385.8	63.7	4.044	61.0	71.2	66.1
27438.6	76.3	3.703	85.9	69.6	77.7
27491.4	67.6	3.840	81.3	61.1	71.2
27544.2	83.0	3.663	81.9	86.6	84.3
27597.0	62.3	3.800	62.5	65.2	63.9
27649.8	59.9	3.980	68.1	58.2	63.2
27702.6	62.7	3.911	61.8	68.1	65.0
27755.4	48.7	4.199	58.0	44.0	51.0
27808.2	66.0	4.134	73.0	66.7	69.8
27861.0	55.4	4.144	65.8	56.7	61.2
27913.8	59.4	4.055	61.2	62.2	61.7
27966.6	67.3	3.759	70.6	69.0	69.8
28019.4	47.4	4.101	48.8	48.3	48.5
28072.2	72.3	3.788	84.7	67.5	76.1
28125.0	57.5	4.138	56.6	62.2	59.4
28177.8	45.3	4.066	48.4	48.7	48.5
28230.6	49.4	4.136	59.3	44.5	51.9
28283.4	51.0	4.159	53.0	57.5	55.2
28336.2	52.7	4.206	60.9	48.1	54.5
28389.0	44.7	4.149	53.0	45.8	49.4
28441.8	77.2	3.660	81.4	77.3	79.3
28494.6	66.5	3.896	68.8	65.6	67.2
28547.4	42.5	4.066	50.0	40.9	45.4
28600.2	58.4	4.026	58.6	60.1	59.4
28653.0	48.5	4.118	57.5	47.6	52.6
28705.8	47.5	4.179	52.5	54.5	53.5
28758.6	60.1	4.065	66.4	59.3	62.8
28811.4	53.8	3.953	57.5	56.5	57.0
28864.2	82.3	3.703	74.5	93.8	84.1
28917.0	61.2	4.079	61.1	69.2	65.2
28969.8	72.5	3.671	75.8	77.7	76.8
29022.6	71.1	3.894	76.7	66.9	71.8

October 2001 Profile Survey of Eastbound Lanes, Passing Lane (PEBOC01)

ATHENS 050 - October 2001 Tests

LANE 2 PASS 1 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15453.0	60.5	3.874	74.5	54.5	64.5
15505.8	78.7	3.651	97.6	71.1	84.3
15558.6	42.8	3.972	47.9	45.1	46.5
15611.4	48.1	4.133	55.8	45.6	50.7
15664.2	56.4	3.911	62.8	58.0	60.4
15717.0	58.2	3.972	60.5	62.3	61.4
15769.8	57.1	3.861	69.4	48.9	59.1
15822.6	56.4	3.948	68.1	50.5	59.3
15875.4	75.6	3.654	93.4	64.3	78.8
15928.2	92.1	3.555	116.0	73.0	94.5
15981.0	70.4	3.733	85.3	57.4	71.4
16033.8	72.3	3.721	81.4	68.3	74.8
16086.6	76.0	3.863	91.3	63.8	77.5
16139.4	63.9	3.857	80.6	54.3	67.5
16192.2	69.3	3.898	92.0	48.4	70.2
16245.0	60.1	3.775	81.2	49.3	65.2
16297.8	68.3	3.775	87.8	60.3	74.0
16350.6	68.5	3.723	87.1	52.5	69.8
16403.4	67.1	3.910	87.3	58.4	72.9
16456.2	84.6	3.585	102.3	68.5	85.4
16509.0	66.0	3.755	82.3	55.1	68.7
16561.8	92.1	3.512	111.4	77.5	94.5
16614.6	69.6	3.986	89.8	55.5	72.6
16667.4	53.6	3.947	72.5	40.2	56.4
16720.2	43.1	4.201	51.9	44.3	48.1
16773.0	57.2	4.092	76.0	45.8	60.9
16825.8	61.7	3.899	79.5	47.8	63.7
16878.6	72.4	3.888	87.2	64.9	76.0
16931.4	68.9	3.852	90.2	53.2	71.7
16984.2	91.1	3.476	121.5	63.8	92.7
17037.0	95.5	3.731	114.2	81.2	97.7
17089.8	74.5	3.979	92.3	66.6	79.4
17142.6	78.3	3.876	96.4	67.1	81.7
17195.4	51.4	4.139	63.2	43.5	53.4
17248.2	62.9	4.052	68.9	63.2	66.1
17301.0	68.9	3.747	99.9	55.2	77.5
17353.8	68.8	3.828	85.0	57.1	71.0
17406.6	69.3	3.618	75.3	65.8	70.5
17459.4	120.2	3.177	127.4	125.3	126.3
17512.2	103.4	3.533	111.5	98.6	105.0
17565.0	66.0	3.838	76.7	60.6	68.7
17617.8	83.2	3.649	98.2	72.8	85.5
17670.6	84.1	3.762	93.0	78.4	85.7
17723.4	70.2	3.890	78.4	68.1	73.3
17776.2	62.0	4.172	67.3	63.1	65.2
17829.0	40.2	4.188	48.1	36.9	42.5

LANE 2 PASS 2 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15453.0	55.2	3.977	62.1	51.1	56.6
15505.8	77.0	3.647	93.8	69.2	81.5
15558.6	41.5	4.002	43.7	46.9	45.3
15611.4	46.6	4.156	55.6	43.6	49.6
15664.2	56.0	3.870	61.5	58.3	59.9
15717.0	59.0	3.915	57.4	70.4	63.9
15769.8	55.2	3.861	72.0	43.8	57.9
15822.6	57.1	3.923	72.2	48.0	60.1
15875.4	74.3	3.659	93.2	64.8	79.0
15928.2	89.4	3.594	109.0	74.2	91.6
15981.0	61.2	3.892	76.8	48.8	62.8
16033.8	72.9	3.711	85.4	65.1	75.3
16086.6	73.7	3.914	89.9	60.4	75.2
16139.4	64.0	3.854	86.6	48.2	67.4
16192.2	58.0	3.970	80.9	40.0	60.4
16245.0	64.5	3.749	79.6	57.5	68.5
16297.8	62.6	3.899	83.4	58.6	71.0
16350.6	73.0	3.640	95.1	53.2	74.2
16403.4	69.4	3.854	92.1	56.8	74.5
16456.2	78.1	3.647	97.9	60.5	79.2
16509.0	65.0	3.741	74.4	61.1	67.8
16561.8	93.3	3.496	121.1	71.1	96.1
16614.6	71.7	3.864	91.0	60.6	75.8
16667.4	55.3	3.905	79.6	36.8	58.2
16720.2	43.1	4.191	47.7	46.4	47.0
16773.0	53.5	4.091	70.5	41.4	56.0
16825.8	63.7	3.899	79.3	49.4	64.3
16878.6	72.3	3.905	86.8	62.9	74.9
16931.4	60.2	3.943	76.6	47.9	62.3
16984.2	80.2	3.552	104.5	59.5	82.0
17037.0	89.1	3.791	102.8	82.7	92.8
17089.8	71.2	4.029	82.4	67.8	75.1
17142.6	75.4	3.963	89.6	67.9	78.7
17195.4	50.3	4.107	56.1	47.9	52.0
17248.2	63.6	3.990	68.8	62.4	65.6
17301.0	66.6	3.732	88.4	51.0	69.7
17353.8	72.3	3.811	87.3	60.3	73.8
17406.6	80.2	3.524	87.4	75.5	81.4
17459.4	120.2	3.228	130.2	119.0	124.6
17512.2	107.4	3.453	114.5	104.1	109.3
17565.0	69.9	3.842	84.8	60.6	72.7
17617.8	83.1	3.674	102.3	67.7	85.0
17670.6	81.6	3.851	88.1	76.8	82.4
17723.4	73.1	3.852	86.2	62.3	74.3
17776.2	65.3	4.140	71.9	62.9	67.4
17829.0	41.9	4.160	48.2	38.6	43.4

LANE 2 PASS 3 UP
LOG NUMBERS ASCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
15453.0	54.8	3.988	54.7	57.9	56.3
15505.8	73.8	3.671	90.0	69.0	79.5
15558.6	43.0	4.007	44.0	49.8	46.9
15611.4	42.7	4.183	46.4	44.4	45.4
15664.2	54.2	3.998	61.3	55.6	58.5
15717.0	50.8	4.078	49.3	55.6	52.5
15769.8	54.9	3.836	63.5	51.3	57.4
15822.6	55.4	3.908	65.6	51.3	58.4
15875.4	70.7	3.631	81.5	67.1	74.3
15928.2	87.3	3.626	112.3	64.9	88.6
15981.0	68.6	3.756	79.1	60.4	69.7
16033.8	66.5	3.823	85.0	52.5	68.7
16086.6	61.6	4.018	62.5	65.7	64.1
16139.4	59.1	3.938	71.3	52.6	61.9
16192.2	56.4	3.997	64.4	53.9	59.2
16245.0	63.7	3.778	82.4	52.6	67.5
16297.8	63.0	3.889	73.7	60.6	67.2
16350.6	73.0	3.667	95.2	54.0	74.6
16403.4	69.0	3.868	95.3	50.9	73.1
16456.2	85.4	3.600	99.5	74.8	87.2
16509.0	66.4	3.820	81.2	56.3	68.7
16561.8	93.6	3.523	115.1	76.4	95.8
16614.6	70.6	3.959	92.9	54.7	73.8
16667.4	57.5	3.903	72.9	47.5	60.2
16720.2	43.0	4.206	48.1	46.7	47.4
16773.0	56.4	4.091	71.5	48.8	60.2
16825.8	60.0	3.971	67.1	56.1	61.6
16878.6	72.6	3.915	87.9	62.6	75.3
16931.4	63.8	3.912	76.3	53.2	64.8
16984.2	84.1	3.536	111.7	59.8	85.7
17037.0	93.7	3.769	103.9	88.6	96.2
17089.8	71.0	3.975	83.9	63.7	73.8
17142.6	79.1	3.914	90.6	72.8	81.7
17195.4	53.7	4.137	64.1	46.8	55.4
17248.2	61.8	4.056	63.6	64.4	64.0
17301.0	66.8	3.728	85.5	55.5	70.5
17353.8	67.1	3.821	81.4	58.7	70.1
17406.6	72.3	3.634	75.8	71.2	73.5
17459.4	117.7	3.227	133.5	116.5	125.0
17512.2	90.3	3.655	92.6	93.7	93.1
17565.0	62.8	3.920	67.3	62.1	64.7
17617.8	84.3	3.685	97.6	76.5	87.1
17670.6	80.9	3.859	87.1	76.5	81.8
17723.4	69.7	3.927	77.8	66.6	72.2
17776.2	64.7	4.174	72.2	63.3	67.8
17829.0	41.5	4.209	48.7	39.1	43.9

17881.8	63.1	4.002	70.8	57.4	64.1
17934.6	56.8	3.995	69.7	50.4	60.1
17987.4	69.1	4.089	66.6	76.7	71.7
18040.2	65.5	4.089	76.6	58.3	67.5
18093.0	95.6	3.479	110.1	84.0	97.1
18145.8	66.8	3.874	82.0	64.3	73.2
18198.6	87.5	3.738	107.3	73.2	90.3
18251.4	50.0	3.998	59.7	47.5	53.6
18304.2	58.9	3.970	66.6	60.4	63.5
18357.0	50.9	4.117	57.1	51.7	54.4
18409.8	69.9	3.976	81.5	60.2	70.8
18462.6	58.8	3.935	70.1	52.2	61.1
18515.4	67.1	3.864	87.0	53.7	70.4
18568.2	49.3	4.106	58.1	47.1	52.6
18621.0	107.2	3.918	112.2	107.0	109.6
18673.8	55.8	4.068	62.1	57.2	59.6
18726.6	102.5	3.465	126.1	84.5	105.3
18779.4	82.5	3.657	96.8	70.4	83.6
18832.2	77.2	3.784	96.6	61.3	78.9
18885.0	86.4	3.769	98.8	76.0	87.4
18937.8	75.5	3.690	94.9	57.4	76.1
18990.6	59.3	4.003	69.6	54.6	62.1
19043.4	45.5	4.307	56.8	39.7	48.3
19096.2	61.4	3.896	71.9	60.9	66.4
19149.0	68.3	3.884	77.8	64.0	70.9
19201.8	54.5	4.153	64.7	52.0	58.4
19254.6	69.7	3.821	77.6	66.7	72.1
19307.4	50.0	4.215	58.4	45.9	52.2
19360.2	60.2	4.013	73.1	56.9	65.0
19413.0	52.8	4.159	55.5	52.7	54.1
19465.8	64.7	3.737	77.8	59.4	68.6
19518.6	63.9	3.869	70.9	62.5	66.7
19571.4	77.7	3.661	93.4	66.7	80.1
19624.2	63.6	3.870	74.0	58.8	66.4
19677.0	62.3	3.871	74.8	56.9	65.8
19729.8	98.8	3.514	117.5	88.6	103.1
19782.6	69.9	3.690	90.8	53.7	72.3
19835.4	72.2	3.762	81.2	65.5	73.3
19888.2	77.8	3.736	91.2	69.4	80.3
19941.0	132.4	3.624	142.8	129.2	136.0
19993.8	86.7	3.556	97.4	79.9	88.7
20046.6	65.1	3.818	87.1	48.2	67.6
20099.4	102.0	3.434	125.7	81.6	103.6
20152.2	91.6	3.535	103.3	82.3	92.8
20205.0	101.0	3.582	114.3	90.4	102.3
20257.8	77.9	3.897	87.2	76.4	81.8
20310.6	94.0	3.683	115.0	79.2	97.1
20363.4	60.5	3.742	75.2	52.3	63.8
20416.2	55.3	3.979	65.2	51.6	58.4
20469.0	53.5	4.209	63.0	50.0	56.5
20521.8	71.6	3.675	77.1	68.5	72.8
20574.6	63.1	3.834	77.7	54.4	66.1
20627.4	70.6	3.993	86.1	60.0	73.0
20680.2	64.9	4.230	72.8	62.3	67.5
20733.0	73.1	3.932	82.7	68.5	75.6
20785.8	66.4	4.042	71.8	64.5	68.1
20838.6	37.9	4.288	43.5	41.7	42.6

17881.8	61.5	4.016	66.6	57.9	62.3
17934.6	61.8	3.913	76.9	51.3	64.1
17987.4	74.8	4.003	83.1	74.6	78.8
18040.2	65.3	4.056	80.0	53.6	66.8
18093.0	94.5	3.519	113.5	76.7	95.1
18145.8	64.1	3.849	83.2	56.4	69.8
18198.6	91.0	3.692	111.3	74.7	93.0
18251.4	53.3	3.903	66.5	48.9	57.7
18304.2	58.0	3.989	67.8	54.4	61.1
18357.0	50.0	4.131	63.8	47.2	55.5
18409.8	74.6	3.885	85.5	64.5	75.0
18462.6	63.1	3.913	73.8	55.7	64.7
18515.4	72.0	3.783	92.7	57.2	74.9
18568.2	54.7	4.018	62.4	53.3	57.9
18621.0	110.5	3.811	122.0	104.8	113.4
18673.8	60.2	3.892	73.4	58.4	65.9
18726.6	113.0	3.303	140.7	88.4	114.6
18779.4	94.8	3.421	121.4	73.8	97.6
18832.2	83.6	3.705	108.2	65.9	87.1
18885.0	85.7	3.803	94.3	80.9	87.6
18937.8	68.2	3.885	83.5	55.9	69.7
18990.6	61.3	3.988	67.2	60.7	64.0
19043.4	44.8	4.259	51.6	43.8	47.7
19096.2	64.8	3.721	77.9	57.8	67.9
19149.0	89.6	3.285	120.0	64.0	92.0
19201.8	51.2	4.148	66.5	46.9	56.7
19254.6	71.0	3.799	85.7	63.1	74.4
19307.4	63.3	4.077	82.7	50.1	66.4
19360.2	65.1	3.879	87.7	50.9	69.3
19413.0	62.1	4.029	75.0	52.2	63.6
19465.8	60.8	3.796	85.1	48.4	66.7
19518.6	77.8	3.702	94.7	66.5	80.6
19571.4	86.2	3.476	108.9	68.3	88.6
19624.2	69.8	3.748	88.2	60.5	74.4
19677.0	66.7	3.724	89.8	60.5	75.1
19729.8	91.9	3.542	115.5	81.0	98.2
19782.6	73.1	3.696	99.6	50.2	74.9
19835.4	76.5	3.741	93.4	62.4	77.9
19888.2	76.4	3.775	89.7	67.2	78.4
19941.0	136.8	3.515	155.1	130.3	142.7
19993.8	71.1	3.768	68.9	80.3	74.6
20046.6	69.9	3.811	68.5	74.6	71.5
20099.4	93.9	3.563	86.4	108.7	97.6
20152.2	81.2	3.705	77.3	93.0	85.1
20205.0	97.4	3.803	108.1	91.5	99.8
20257.8	83.7	3.807	88.4	83.5	86.0
20310.6	108.7	3.499	140.7	81.4	111.1
20363.4	77.9	3.550	100.7	59.9	80.3
20416.2	59.9	3.883	72.7	50.7	61.7
20469.0	60.9	4.029	70.9	55.0	62.9
20521.8	82.7	3.607	90.9	76.0	83.5
20574.6	69.5	3.776	82.6	63.7	73.2
20627.4	75.7	3.893	92.4	62.0	77.2
20680.2	62.1	4.241	65.1	60.7	62.9
20733.0	73.7	3.837	91.5	63.4	77.5
20785.8	73.1	3.922	82.9	67.9	75.4
20838.6	36.4	4.277	45.2	40.3	42.8

17881.8	67.2	3.933	78.5	58.3	68.4
17934.6	56.9	3.968	64.7	52.9	58.8
17987.4	76.0	3.974	86.3	73.4	79.9
18040.2	62.8	4.112	72.7	55.3	64.0
18093.0	100.1	3.443	121.2	80.7	101.0
18145.8	62.6	3.912	77.8	61.1	69.4
18198.6	84.1	3.756	105.4	69.3	87.3
18251.4	53.4	3.937	60.5	55.4	57.9
18304.2	58.0	4.024	71.8	50.6	61.2
18357.0	55.1	4.084	63.9	54.4	59.2
18409.8	72.4	3.928	82.0	64.8	73.4
18462.6	62.8	3.960	65.3	63.5	64.4
18515.4	73.8	3.764	87.1	63.5	75.3
18568.2	53.2	4.074	61.7	47.6	54.7
18621.0	110.5	3.859	119.0	104.9	112.0
18673.8	57.5	3.995	67.6	52.5	60.0
18726.6	104.5	3.417	124.8	88.6	106.7
18779.4	79.3	3.677	92.0	68.8	80.4
18832.2	77.3	3.832	97.1	62.1	79.6
18885.0	87.4	3.781	98.3	79.3	88.8
18937.8	77.0	3.693	96.9	60.8	78.9
18990.6	59.8	4.100	69.9	56.4	63.1
19043.4	45.8	4.228	55.9	40.1	48.0
19096.2	68.5	3.829	73.2	68.0	70.6
19149.0	73.6	3.811	86.2	64.2	75.2
19201.8	48.9	4.161	60.2	43.4	51.8
19254.6	68.4	3.819	76.6	67.1	71.8
19307.4	59.4	4.116	77.5	47.5	62.5
19360.2	61.2	3.964	76.7	55.8	66.2
19413.0	58.0	4.045	67.0	51.6	59.3
19465.8	66.2	3.745	83.0	59.3	71.2
19518.6	65.9	3.787	69.9	64.6	67.2
19571.4	85.9	3.586	106.7	69.4	88.0
19624.2	64.5	3.792	81.4	56.4	68.9
19677.0	69.9	3.660	87.8	62.0	74.9
19729.8	89.6	3.577	107.4	81.7	94.6
19782.6	68.0	3.731	86.5	52.4	69.4
19835.4	70.4	3.849	84.1	58.7	71.4
19888.2	86.5	3.617	98.0	78.8	88.4
19941.0	126.0	3.777	130.5	124.4	127.4
19993.8	84.5	3.643	91.0	82.0	86.5
20046.6	62.5	3.872	76.9	51.2	64.1
20099.4	105.2	3.398	123.7	88.4	106.0
20152.2	89.9	3.581	95.8	85.1	90.5
20205.0	98.3	3.693	117.8	80.7	99.3
20257.8	75.5	3.895	78.5	75.4	76.9
20310.6	98.6	3.608	120.3	84.8	102.6
20363.4	76.4	3.553	95.9	60.9	78.4
20416.2	60.2	3.936	63.5	62.0	62.7
20469.0	53.9	4.115	65.0	45.2	55.1
20521.8	85.6	3.515	94.7	77.9	86.3
20574.6	62.0	3.847	75.2	56.2	65.7
20627.4	73.1	3.991	87.6	62.5	75.1
20680.2	62.9	4.239	72.0	58.0	65.0
20733.0	70.6	3.903	76.1	70.3	73.2
20785.8	71.5	3.959	79.7	66.2	72.9
20838.6	35.6	4.248	44.8	38.5	41.7

20891.4	59.4	4.100	64.6	57.7	61.2
20944.2	54.4	4.011	68.2	45.1	56.6
20997.0	62.9	4.010	72.3	58.1	65.2
21049.8	68.6	4.038	75.9	62.8	69.4
21102.6	40.7	4.193	43.5	41.3	42.4
21155.4	55.9	4.221	62.1	55.4	58.7
21208.2	72.5	4.024	74.4	75.7	75.0
21261.0	48.7	4.217	56.3	47.6	51.9
21313.8	57.1	4.107	64.3	53.9	59.1
21366.6	44.6	4.221	47.3	52.7	50.0
21419.4	45.6	4.179	57.3	40.6	48.9
21472.2	72.8	3.946	83.2	64.7	74.0
21525.0	33.1	4.381	39.2	36.8	38.0
21577.8	72.4	4.072	76.1	73.0	74.6
21630.6	64.9	3.915	75.8	57.5	66.6
21683.4	67.2	3.904	78.0	58.9	68.5
21736.2	51.5	4.210	57.6	48.6	53.1
21789.0	63.2	4.084	75.5	53.8	64.7
21841.8	69.7	3.946	88.4	58.8	73.6
21894.6	53.7	4.083	70.3	43.5	56.9
21947.4	53.3	4.233	61.4	50.4	55.9
22000.2	73.7	4.141	76.8	74.8	75.8
22053.0	48.9	4.205	51.9	49.8	50.9
22105.8	58.8	3.984	75.6	49.9	62.7
22158.6	60.0	4.039	68.7	57.2	62.9
22211.4	67.8	3.777	78.0	66.2	72.1
22264.2	54.1	4.144	69.0	45.2	57.1
22317.0	65.3	3.813	79.1	57.0	68.1
22369.8	61.0	3.990	75.7	50.3	63.0
22422.6	68.5	3.742	78.7	64.4	71.5
22475.4	71.7	3.908	85.3	66.6	75.9
22528.2	57.0	3.930	69.5	48.8	59.1
22581.0	33.6	4.384	38.5	32.0	35.3
22633.8	40.1	4.196	55.2	35.4	45.3
22686.6	64.7	3.845	77.9	56.4	67.1
22739.4	73.0	3.793	93.6	57.4	75.5
22792.2	59.4	3.982	68.2	58.8	63.5
22845.0	52.3	3.985	67.4	44.3	55.8
22897.8	48.7	4.098	64.0	41.1	52.5
22950.6	62.3	3.943	77.4	55.2	66.3
23003.4	69.5	3.921	79.7	68.0	73.8
23056.2	54.1	4.086	68.1	48.7	58.4
23109.0	44.4	4.046	54.9	37.9	46.4
23161.8	76.0	4.022	84.4	70.6	77.5
23214.6	82.9	3.729	98.3	70.0	84.1
23267.4	114.2	3.344	140.9	103.2	122.1
23320.2	83.5	3.646	97.8	74.7	86.3
23373.0	56.1	4.044	65.7	53.5	59.6
23425.8	78.0	3.482	84.7	78.7	81.7
23478.6	64.8	4.162	71.1	63.2	67.2
23531.4	96.0	3.384	120.0	80.0	100.0
23584.2	90.8	3.775	101.9	84.3	93.1
23637.0	86.9	3.557	92.1	90.7	91.4
23689.8	99.6	3.666	119.7	87.6	103.7
23742.6	99.7	3.324	117.0	85.5	101.2
23795.4	95.3	3.540	107.7	84.0	95.9
23848.2	90.9	3.647	103.8	82.3	93.0

20891.4	56.6	4.089	66.5	51.6	59.0
20944.2	60.3	3.889	70.9	52.7	61.8
20997.0	67.1	3.973	85.1	56.3	70.7
21049.8	66.0	4.081	72.2	61.2	66.7
21102.6	40.9	4.231	47.2	36.9	42.1
21155.4	56.2	4.150	63.7	55.2	59.5
21208.2	71.1	4.063	72.6	75.8	74.2
21261.0	44.5	4.235	50.5	46.0	48.3
21313.8	56.2	4.106	63.1	57.4	60.3
21366.6	44.5	4.249	46.8	50.2	48.5
21419.4	50.4	4.149	59.9	45.9	52.9
21472.2	76.6	3.921	95.1	62.8	79.0
21525.0	30.4	4.425	38.2	37.6	37.9
21577.8	71.2	4.072	75.1	71.7	73.4
21630.6	64.9	3.910	78.2	54.1	66.1
21683.4	68.1	3.844	79.9	59.2	69.5
21736.2	55.7	4.156	65.1	51.6	58.4
21789.0	68.4	4.025	85.6	57.6	71.6
21841.8	68.8	3.909	87.4	54.4	70.9
21894.6	50.3	4.081	63.3	41.7	52.5
21947.4	52.7	4.190	60.2	50.6	55.4
22000.2	73.2	4.119	76.4	73.1	74.8
22053.0	47.0	4.235	52.2	45.4	48.8
22105.8	56.7	3.932	67.8	52.6	60.2
22158.6	61.3	4.025	70.3	58.9	64.6
22211.4	65.9	3.799	77.5	60.0	68.7
22264.2	54.1	4.194	70.6	44.7	57.6
22317.0	60.9	3.842	77.7	52.3	65.0
22369.8	62.8	4.006	80.2	50.2	65.2
22422.6	73.5	3.757	94.1	62.8	78.4
22475.4	66.8	3.902	79.1	63.3	71.2
22528.2	65.1	3.865	80.0	55.6	67.8
22581.0	35.2	4.329	41.9	33.4	37.7
22633.8	43.9	4.129	57.3	34.0	45.7
22686.6	68.4	3.767	85.5	54.9	70.2
22739.4	78.6	3.699	99.0	61.3	80.2
22792.2	68.7	3.886	80.2	61.3	70.8
22845.0	57.3	3.939	71.3	46.9	59.1
22897.8	59.8	3.907	74.5	50.2	62.4
22950.6	60.9	4.020	69.0	60.0	64.5
23003.4	70.0	3.957	75.8	69.3	72.5
23056.2	46.3	4.159	61.5	41.6	51.6
23109.0	39.2	4.051	48.5	34.3	41.4
23161.8	75.1	3.986	79.1	72.4	75.8
23214.6	86.0	3.687	95.6	79.1	87.4
23267.4	106.1	3.436	120.6	97.0	108.8
23320.2	84.8	3.630	97.0	76.0	86.5
23373.0	51.3	4.053	63.9	51.3	57.6
23425.8	70.8	3.617	72.8	74.1	73.5
23478.6	61.0	4.146	72.6	63.9	68.2
23531.4	82.9	3.616	95.8	74.7	85.2
23584.2	80.4	3.922	90.2	74.4	82.3
23637.0	91.1	3.591	95.3	95.3	95.3
23689.8	99.4	3.572	117.3	87.1	102.2
23742.6	98.1	3.326	109.8	90.5	100.2
23795.4	101.3	3.500	119.5	84.5	102.0
23848.2	95.1	3.579	115.1	80.5	97.8

20891.4	55.2	4.083	61.2	51.8	56.5
20944.2	61.2	3.939	71.4	53.8	62.6
20997.0	65.7	3.965	79.0	59.1	69.0
21049.8	64.7	4.122	68.5	63.4	66.0
21102.6	41.7	4.201	45.3	43.0	44.2
21155.4	56.0	4.188	60.0	58.8	59.4
21208.2	69.7	4.096	70.1	72.8	71.5
21261.0	41.6	4.222	45.4	43.9	44.7
21313.8	53.1	4.185	57.7	52.6	55.1
21366.6	45.1	4.255	42.3	54.9	48.6
21419.4	45.9	4.198	56.1	40.8	48.5
21472.2	76.8	3.935	89.2	67.8	78.5
21525.0	34.4	4.330	38.9	35.2	37.1
21577.8	73.6	4.086	79.8	75.2	77.5
21630.6	66.3	3.915	76.9	57.4	67.1
21683.4	69.4	3.841	88.0	52.7	70.4
21736.2	52.4	4.176	58.9	50.1	54.5
21789.0	69.1	4.057	83.5	60.1	71.8
21841.8	74.3	3.845	94.8	61.6	78.2
21894.6	54.0	4.050	64.2	49.9	57.0
21947.4	48.9	4.268	55.7	48.5	52.1
22000.2	72.1	4.135	74.3	73.6	73.9
22053.0	46.2	4.202	55.1	40.0	47.6
22105.8	59.2	3.970	67.9	55.1	61.5
22158.6	59.4	4.019	70.6	52.6	61.6
22211.4	68.2	3.795	82.7	59.9	71.3
22264.2	57.8	4.144	71.4	47.8	59.6
22317.0	59.9	3.913	74.9	47.7	61.3
22369.8	61.3	4.019	75.4	52.7	64.0
22422.6	67.9	3.800	84.7	59.4	72.0
22475.4	71.1	3.829	82.0	66.9	74.5
22528.2	55.6	4.030	68.2	47.4	57.8
22581.0	30.3	4.394	35.0	31.3	33.1
22633.8	38.3	4.218	46.9	37.7	42.3
22686.6	64.3	3.838	80.6	56.7	68.7
22739.4	73.7	3.819	90.6	62.3	76.5
22792.2	61.1	3.972	70.5	58.5	64.5
22845.0	58.3	3.933	69.1	50.7	59.9
22897.8	58.0	3.981	73.3	48.5	60.9
22950.6	58.6	4.056	64.4	60.5	62.5
23003.4	70.1	3.957	75.8	69.5	72.7
23056.2	46.8	4.142	61.5	38.4	49.9
23109.0	39.5	4.070	46.9	36.2	41.6
23161.8	70.7	4.101	78.8	68.2	73.5
23214.6	78.0	3.829	82.1	78.2	80.2
23267.4	105.6	3.408	119.9	95.7	107.8
23320.2	85.2	3.651	92.3	82.6	87.4
23373.0	49.7	4.091	63.4	44.8	54.1
23425.8	69.3	3.706	77.8	68.1	72.9
23478.6	63.8	4.137	70.8	62.4	66.6
23531.4	90.8	3.544	96.7	90.7	93.7
23584.2	70.5	3.998	69.8	75.8	72.8
23637.0	80.3	3.754	81.3	96.1	88.7
23689.8	86.8	3.714	93.4	91.6	92.5
23742.6	94.6	3.455	101.0	92.6	96.8
23795.4	95.2	3.587	109.0	84.1	96.5
23848.2	87.8	3.628	105.1	81.9	93.5

23901.0	64.4	3.877	75.4	56.0	65.7
23953.8	93.9	3.557	113.0	77.8	95.4
24006.6	76.2	3.639	93.0	64.1	78.6
24059.4	105.7	3.362	127.9	88.0	107.9
24112.2	80.1	3.724	97.1	68.3	82.7
24165.0	74.5	3.639	99.0	54.1	76.6
24217.8	106.4	3.491	125.2	90.9	108.0
24270.6	104.0	3.310	126.8	86.9	106.9
24323.4	70.9	3.727	96.8	51.5	74.1
24376.2	101.7	3.429	117.4	88.5	103.0
24429.0	79.3	3.543	101.4	63.7	82.6
24481.8	71.8	3.723	104.0	55.1	79.5
24534.6	59.2	4.016	84.6	41.1	62.9
24587.4	59.2	3.935	81.1	41.9	61.5
24640.2	84.6	3.781	104.6	67.8	86.2
24693.0	74.4	3.649	91.7	63.9	77.8
24745.8	86.8	3.770	100.9	76.6	88.8
24798.6	78.6	3.633	96.8	68.1	82.5
24851.4	108.5	3.386	133.1	87.6	110.4
24904.2	98.5	3.461	133.9	68.8	101.3
24957.0	96.6	3.553	121.8	76.4	99.1
25009.8	95.3	3.475	120.8	80.9	100.8
25062.6	81.7	3.585	98.0	68.8	83.4
25115.4	98.0	3.598	118.2	81.7	99.9
25168.2	136.3	3.381	163.4	117.2	140.3
25221.0	164.9	3.713	192.9	142.8	167.8
25273.8	83.8	3.754	97.5	72.4	84.9
25326.6	71.8	3.708	91.5	54.0	72.7
25379.4	90.2	3.504	108.1	76.1	92.1
25432.2	76.5	3.750	95.2	60.6	77.9
25485.0	72.4	3.758	96.2	52.1	74.2
25537.8	80.4	3.475	110.0	56.4	83.2
25590.6	73.7	3.751	97.2	56.9	77.1
25643.4	80.9	3.562	103.6	63.5	83.5
25696.2	92.2	3.623	114.7	74.3	94.5
25749.0	133.1	3.365	146.6	122.8	134.7
25801.8	75.2	3.702	92.0	66.9	79.4
25854.6	89.7	3.514	112.4	72.1	92.3
25907.4	85.9	3.661	100.9	73.8	87.3
25960.2	76.3	3.728	87.5	67.5	77.5
26013.0	70.4	3.879	81.9	66.5	74.2
26065.8	121.9	3.433	149.5	97.2	123.4
26118.6	101.3	3.486	120.8	87.3	104.0
26171.4	85.1	3.452	108.6	66.6	87.6
26224.2	73.3	3.825	90.1	64.3	77.2
26277.0	77.4	3.574	97.8	62.8	80.3
26329.8	64.2	3.934	69.5	61.7	65.6
26382.6	111.5	3.605	118.0	110.8	114.4
26435.4	109.7	3.746	119.3	104.4	111.8
26488.2	102.5	3.698	124.5	91.5	108.0
26541.0	100.0	3.670	118.2	85.7	101.9
26593.8	102.2	3.446	109.5	98.4	103.9
26646.6	104.0	3.601	109.5	100.0	104.8
26699.4	92.6	3.357	103.7	85.0	94.3
26752.2	109.0	3.509	128.7	95.0	111.9
26805.0	72.4	3.655	91.5	56.4	73.9
26857.8	68.9	3.838	86.6	55.2	70.9

23901.0	63.8	3.868	74.9	55.0	65.0
23953.8	106.2	3.408	135.3	79.8	107.6
24006.6	82.1	3.501	96.8	73.7	85.2
24059.4	104.1	3.408	129.0	85.5	107.3
24112.2	82.9	3.749	96.5	72.6	84.6
24165.0	72.8	3.634	99.8	51.7	75.8
24217.8	112.4	3.417	131.2	95.4	113.3
24270.6	97.0	3.368	119.8	82.9	101.3
24323.4	87.4	3.568	105.1	71.7	88.4
24376.2	117.5	3.199	149.9	86.9	118.4
24429.0	80.0	3.447	110.4	59.4	84.9
24481.8	77.1	3.668	107.6	64.9	86.3
24534.6	58.2	3.993	85.9	42.4	64.1
24587.4	58.4	3.869	75.9	47.4	61.7
24640.2	84.8	3.708	105.9	66.6	86.3
24693.0	65.9	3.704	88.1	49.9	69.0
24745.8	80.6	3.777	95.0	68.7	81.8
24798.6	90.9	3.381	106.3	79.9	93.1
24851.4	93.9	3.530	113.5	78.4	96.0
24904.2	97.6	3.464	123.2	74.6	98.9
24957.0	98.8	3.510	119.9	82.9	101.4
25009.8	89.7	3.535	105.4	81.9	93.7
25062.6	84.2	3.494	100.3	76.3	88.3
25115.4	112.1	3.503	126.1	102.0	114.0
25168.2	131.7	3.361	144.9	126.6	135.7
25221.0	166.5	3.587	195.2	146.7	170.9
25273.8	85.6	3.731	100.8	72.5	86.6
25326.6	66.9	3.766	85.8	51.5	68.7
25379.4	91.3	3.485	110.3	77.8	94.0
25432.2	71.7	3.801	92.4	56.0	74.2
25485.0	72.1	3.720	90.4	56.5	73.4
25537.8	85.1	3.470	110.5	65.5	88.0
25590.6	76.2	3.658	98.5	59.5	79.0
25643.4	83.2	3.454	105.7	64.7	85.2
25696.2	92.5	3.717	118.9	69.2	94.0
25749.0	131.3	3.310	145.2	120.2	132.7
25801.8	77.5	3.634	94.9	70.0	82.4
25854.6	92.2	3.462	116.8	73.0	94.9
25907.4	89.1	3.697	100.4	80.4	90.4
25960.2	72.1	3.805	83.5	66.1	74.8
26013.0	75.4	3.837	92.5	65.6	79.0
26065.8	124.6	3.490	154.0	97.7	125.8
26118.6	101.2	3.441	123.4	83.2	103.3
26171.4	87.5	3.484	111.3	70.2	90.7
26224.2	67.5	3.814	83.6	58.2	70.9
26277.0	78.7	3.575	97.0	65.7	81.3
26329.8	61.5	3.965	71.8	54.9	63.3
26382.6	113.8	3.565	122.8	112.3	117.5
26435.4	108.9	3.773	116.5	106.2	111.3
26488.2	100.6	3.681	120.6	94.7	107.6
26541.0	97.7	3.725	112.5	86.1	99.3
26593.8	105.9	3.396	116.5	99.4	107.9
26646.6	96.8	3.651	100.6	94.4	97.5
26699.4	94.2	3.351	103.8	87.7	95.8
26752.2	107.2	3.523	127.4	91.6	109.5
26805.0	69.6	3.703	81.9	61.4	71.7
26857.8	64.9	3.831	84.5	49.7	67.1

23901.0	64.9	3.878	77.9	54.9	66.4
23953.8	102.4	3.494	122.9	83.6	103.2
24006.6	76.7	3.566	91.2	68.7	79.9
24059.4	106.8	3.374	120.9	98.8	109.8
24112.2	80.6	3.787	99.3	66.9	83.1
24165.0	78.2	3.476	95.2	68.9	82.1
24217.8	109.7	3.506	128.8	93.0	110.9
24270.6	100.9	3.294	123.8	82.6	103.2
24323.4	76.3	3.692	97.1	59.4	78.3
24376.2	106.7	3.340	126.9	89.1	108.0
24429.0	79.8	3.557	97.5	68.3	82.9
24481.8	78.1	3.673	109.7	58.1	83.9
24534.6	50.6	4.160	69.3	38.4	53.9
24587.4	59.2	3.941	78.1	43.4	60.8
24640.2	83.8	3.716	106.3	64.1	85.2
24693.0	67.4	3.664	91.4	48.0	69.7
24745.8	78.3	3.793	88.5	70.3	79.4
24798.6	87.1	3.407	102.0	76.6	89.3
24851.4	90.5	3.456	103.1	81.9	92.5
24904.2	90.6	3.556	113.1	71.4	92.3
24957.0	103.9	3.440	125.6	85.8	105.7
25009.8	92.9	3.358	114.8	82.7	98.7
25062.6	85.2	3.509	100.6	77.9	89.3
25115.4	104.8	3.615	115.0	96.8	105.9
25168.2	135.0	3.338	155.9	121.1	138.5
25221.0	163.1	3.643	192.9	138.6	165.7
25273.8	78.8	3.814	91.8	68.6	80.2
25326.6	71.8	3.727	88.5	58.7	73.6
25379.4	91.0	3.508	110.5	74.5	92.5
25432.2	86.1	3.627	111.8	63.7	87.7
25485.0	70.2	3.735	88.4	55.6	72.0
25537.8	86.9	3.513	114.0	66.5	90.2
25590.6	71.3	3.734	89.0	58.4	73.7
25643.4	80.7	3.515	96.0	69.3	82.6
25696.2	90.8	3.779	112.1	73.5	92.8
25749.0	124.4	3.354	133.1	117.6	125.3
25801.8	76.0	3.710	94.2	66.9	80.6
25854.6	89.0	3.498	106.7	76.0	91.4
25907.4	87.8	3.704	99.1	80.4	89.7
25960.2	74.2	3.666	94.6	60.2	77.4
26013.0	72.7	3.888	78.0	71.0	74.5
26065.8	110.9	3.593	136.6	89.6	113.1
26118.6	98.4	3.507	116.3	83.2	99.8
26171.4	80.8	3.610	92.4	74.8	83.6
26224.2	62.3	3.840	69.4	59.1	64.3
26277.0	78.8	3.549	89.2	73.1	81.2
26329.8	69.0	3.816	75.9	64.2	70.0
26382.6	111.3	3.574	115.6	111.3	113.4
26435.4	115.2	3.719	119.2	115.5	117.3
26488.2	100.4	3.707	115.1	93.7	104.4
26541.0	96.6	3.749	109.3	88.6	98.9
26593.8	114.3	3.347	120.6	110.8	115.7
26646.6	95.8	3.624	103.6	90.3	97.0
26699.4	89.7	3.423	101.5	84.6	93.1
26752.2	95.3	3.640	105.1	89.6	97.4
26805.0	73.0	3.666	87.5	62.3	74.9
26857.8	74.4	3.774	90.6	60.7	75.6

26910.6	75.9	3.696	85.1	68.1	76.6	26910.6	69.6	3.743	79.1	63.1	71.1	26910.6	72.5	3.639	85.7	67.0	76.3
26963.4	62.7	3.844	78.7	52.3	65.5	26963.4	64.7	3.888	80.2	56.1	68.1	26963.4	70.1	3.827	81.4	62.1	71.8
27016.2	80.3	3.705	96.4	68.9	82.7	27016.2	98.2	3.514	117.1	85.4	101.3	27016.2	99.4	3.527	122.2	84.0	103.1
27069.0	66.2	3.956	81.4	59.1	70.2	27069.0	69.6	3.982	83.7	61.5	72.6	27069.0	73.6	3.931	84.6	66.5	75.5
27121.8	60.4	3.948	71.8	55.7	63.7	27121.8	58.7	4.034	73.7	54.4	64.1	27121.8	62.1	3.917	70.3	59.5	64.9
27174.6	69.3	3.907	79.9	64.0	71.9	27174.6	67.8	3.838	82.9	59.8	71.4	27174.6	77.6	3.760	91.2	69.2	80.2
27227.4	92.5	3.728	95.0	92.4	93.7	27227.4	88.1	3.777	96.9	81.7	89.3	27227.4	85.4	3.819	91.4	81.6	86.5
27280.2	92.0	3.878	104.8	83.4	94.1	27280.2	88.3	3.861	95.3	84.5	89.9	27280.2	93.4	3.745	102.6	89.0	95.8
27333.0	91.2	3.654	120.3	66.4	93.3	27333.0	85.6	3.692	104.3	69.4	86.9	27333.0	89.8	3.669	106.3	76.8	91.5
27385.8	58.3	3.948	65.4	55.9	60.7	27385.8	61.4	3.893	62.5	65.0	63.8	27385.8	66.8	3.775	73.6	63.0	68.3
27438.6	74.4	3.699	89.6	61.5	75.5	27438.6	77.6	3.670	93.0	64.9	78.9	27438.6	80.1	3.723	91.0	71.1	81.1
27491.4	71.3	3.799	92.5	55.5	74.0	27491.4	78.6	3.664	93.6	66.4	80.0	27491.4	73.4	3.752	90.5	59.1	74.8
27544.2	74.0	3.744	91.2	62.2	76.7	27544.2	67.6	3.819	75.9	63.9	69.9	27544.2	68.8	3.817	78.2	65.0	71.6
27597.0	59.6	3.860	77.3	48.9	63.1	27597.0	59.8	3.838	76.1	48.4	62.3	27597.0	63.4	3.765	76.3	55.9	66.1
27649.8	78.6	3.715	97.1	62.8	79.9	27649.8	85.7	3.702	101.0	75.0	88.0	27649.8	86.5	3.733	104.4	70.0	87.2
27702.6	88.3	3.960	102.1	77.9	90.0	27702.6	91.5	3.876	101.0	83.7	92.4	27702.6	92.1	3.911	103.6	84.6	94.1
27755.4	48.7	4.136	49.1	51.4	50.2	27755.4	52.2	4.176	57.2	50.1	53.6	27755.4	47.1	4.166	56.0	44.8	50.4
27808.2	54.7	4.111	58.3	56.3	57.3	27808.2	53.0	4.056	61.3	49.4	55.4	27808.2	52.7	4.065	59.3	52.8	56.0
27861.0	56.9	4.054	67.7	50.4	59.1	27861.0	58.9	4.089	71.1	49.3	60.2	27861.0	62.4	4.068	75.6	50.1	62.9
27913.8	70.0	3.816	90.7	53.8	72.3	27913.8	75.3	3.637	101.3	52.9	77.1	27913.8	80.5	3.624	100.7	62.5	81.6
27966.6	63.9	3.832	78.0	54.7	66.3	27966.6	58.2	4.058	69.9	49.9	59.9	27966.6	56.4	4.036	61.1	53.8	57.5
28019.4	56.7	3.754	61.7	63.7	62.7	28019.4	65.2	3.736	84.8	49.6	67.2	28019.4	72.6	3.701	85.6	63.8	74.7
28072.2	78.5	3.760	86.7	73.5	80.1	28072.2	69.6	3.846	70.0	73.5	71.7	28072.2	69.4	3.872	66.9	74.1	70.5
28125.0	49.8	4.075	57.0	43.5	50.2	28125.0	68.1	3.826	84.5	58.1	71.3	28125.0	60.6	3.941	71.9	50.4	61.2
28177.8	49.1	4.133	64.0	38.9	51.5	28177.8	56.4	3.992	61.2	53.5	57.4	28177.8	48.7	4.149	57.9	41.8	49.9
28230.6	57.0	4.065	61.6	55.7	58.7	28230.6	55.3	4.099	55.7	58.4	57.0	28230.6	58.2	4.030	69.8	52.6	61.2
28283.4	65.4	4.048	81.0	55.0	68.0	28283.4	63.4	4.047	70.3	59.4	64.8	28283.4	60.7	4.125	65.9	59.7	62.8
28336.2	45.2	4.056	54.2	40.9	47.5	28336.2	54.3	4.016	66.0	44.8	55.4	28336.2	46.4	4.114	51.8	46.0	48.9
28389.0	43.0	4.133	51.5	40.8	46.1	28389.0	47.6	4.106	59.7	39.5	49.6	28389.0	39.6	4.229	44.7	37.7	41.2
28441.8	70.5	3.971	82.5	65.5	74.0	28441.8	81.1	3.788	97.5	69.3	83.4	28441.8	77.2	3.889	91.4	66.6	79.0
28494.6	88.3	3.607	100.7	77.9	89.3	28494.6	80.1	3.604	98.2	67.5	82.8	28494.6	90.6	3.502	109.3	74.7	92.0
28547.4	57.6	3.811	75.6	47.0	61.3	28547.4	65.8	3.693	87.3	49.2	68.2	28547.4	62.1	3.779	81.5	46.6	64.0
28600.2	64.8	4.106	71.9	59.4	65.6	28600.2	78.4	3.947	91.9	66.8	79.3	28600.2	75.6	4.001	81.2	72.8	77.0
28653.0	47.0	4.105	58.6	40.6	49.6	28653.0	46.9	4.088	58.8	40.8	49.8	28653.0	38.0	4.225	40.2	40.5	40.3
28705.8	49.8	4.094	60.6	43.1	51.9	28705.8	54.0	3.967	70.3	41.0	55.6	28705.8	52.1	4.009	63.8	48.8	56.3
28758.6	58.6	4.053	72.7	51.6	62.2	28758.6	56.6	4.123	69.4	49.4	59.4	28758.6	53.3	4.224	64.2	48.6	56.4
28811.4	59.4	3.906	70.5	51.0	60.7	28811.4	60.0	3.957	74.2	50.4	62.3	28811.4	64.8	3.812	80.3	53.1	66.7
28864.2	76.7	3.684	96.0	60.5	78.2	28864.2	72.3	3.722	95.4	52.9	74.2	28864.2	72.5	3.742	89.4	59.2	74.3
28917.0	50.0	4.018	62.2	42.9	52.5	28917.0	62.3	3.865	76.5	54.6	65.6	28917.0	63.0	3.875	79.3	51.3	65.3
28969.8	89.7	3.502	111.1	73.0	92.0	28969.8	92.1	3.467	111.8	73.5	92.7	28969.8	80.6	3.618	95.7	69.1	82.4
29022.6	69.1	3.848	82.4	57.8	70.1	29022.6	77.2	3.703	102.1	56.0	79.0	29022.6	75.1	3.802	92.5	60.5	76.5

October 2001 Profile Survey of Westbound Lanes, Driving Lane (PWBOC01)

ATHENS 050 - October 2001 Tests

LANE 1 PASS 1 DOWN
LOG NUMBERS DECENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	84.0	3.674	91.3	83.0	87.2
28894.2	69.0	3.976	81.7	61.1	71.4
28841.4	76.1	3.995	81.0	75.5	78.3
28788.6	69.4	3.914	82.5	60.9	71.7
28735.8	79.6	3.784	85.9	74.7	80.3
28683.0	91.4	3.608	97.6	94.3	96.0
28630.2	54.9	3.977	59.4	54.9	57.1
28577.4	48.2	4.042	47.7	55.3	51.5
28524.6	63.5	4.064	67.0	62.5	64.8
28471.8	79.9	3.747	89.9	74.0	82.0
28419.0	63.9	3.905	64.9	65.0	65.0
28366.2	69.2	3.662	70.0	72.9	71.4
28313.4	85.1	3.787	89.2	85.6	87.4
28260.6	72.1	3.881	77.1	73.0	75.0
28207.8	62.8	4.052	64.6	63.9	64.3
28155.0	59.0	4.045	67.2	58.7	63.0
28102.2	60.0	4.023	65.2	62.0	63.6
28049.4	55.6	4.021	62.8	53.1	58.0
27996.6	54.8	4.006	62.7	50.0	56.4
27943.8	55.6	3.987	61.0	54.8	57.9
27891.0	64.5	3.939	68.2	63.7	66.0
27838.2	72.7	3.742	86.0	71.2	78.6
27785.4	63.3	3.840	70.8	57.6	64.2
27732.6	62.9	3.814	61.8	69.6	65.7
27679.8	49.3	4.051	51.1	53.3	52.2
27627.0	43.1	4.080	47.5	44.8	46.2
27574.2	57.6	4.028	67.2	51.5	59.4
27521.4	57.6	4.017	62.5	58.0	60.3
27468.6	93.4	3.465	104.1	85.5	94.8
27415.8	54.9	4.014	62.2	55.5	58.9
27363.0	65.9	3.904	71.1	65.3	68.2
27310.2	96.4	3.515	112.3	90.9	101.6
27257.4	168.9	2.763	169.7	173.1	171.4
27204.6	71.7	3.841	80.9	68.6	74.8
27151.8	86.2	3.574	96.2	79.3	87.7
27099.0	85.1	3.670	93.5	81.3	87.4
27046.2	79.1	3.654	89.3	70.4	79.9
26993.4	72.5	3.704	77.5	73.4	75.5
26940.6	49.9	4.105	60.3	46.3	53.3
26887.8	75.1	3.726	77.3	73.7	75.5
26835.0	52.1	3.873	55.8	52.2	54.0
26782.2	69.5	3.846	75.9	65.0	70.5
26729.4	61.1	4.014	69.8	57.9	63.8
26676.6	53.9	3.716	63.2	51.9	57.5
26623.8	45.7	3.999	57.8	45.3	51.6
26571.0	59.8	3.844	77.9	57.3	67.6

LANE 1 PASS 2 DOWN
LOG NUMBERS DECENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	84.5	3.639	84.4	87.1	85.8
28894.2	67.2	3.945	76.0	60.4	68.2
28841.4	71.5	3.989	76.7	73.2	74.9
28788.6	65.5	3.885	72.2	61.0	66.6
28735.8	71.3	3.890	83.3	61.8	72.5
28683.0	89.9	3.598	96.5	87.3	91.9
28630.2	53.6	3.975	54.0	55.7	54.8
28577.4	48.8	4.061	51.7	49.5	50.6
28524.6	61.7	4.098	69.9	56.2	63.0
28471.8	85.2	3.716	96.2	77.0	86.6
28419.0	61.1	3.937	64.9	61.2	63.1
28366.2	65.9	3.673	68.5	68.0	68.2
28313.4	85.5	3.771	89.4	83.6	86.5
28260.6	72.0	3.853	77.6	71.3	74.4
28207.8	62.7	4.065	63.9	66.5	65.2
28155.0	63.0	4.017	69.7	59.5	64.6
28102.2	59.7	4.054	65.8	58.3	62.0
28049.4	60.1	3.888	65.1	57.1	61.1
27996.6	54.4	3.997	62.5	48.3	55.4
27943.8	60.8	3.925	67.7	59.0	63.4
27891.0	62.7	3.986	69.5	62.1	65.8
27838.2	72.2	3.676	84.8	74.0	79.4
27785.4	63.8	3.872	66.2	64.2	65.2
27732.6	57.3	3.840	56.6	63.0	59.8
27679.8	51.2	3.968	55.8	52.9	54.4
27627.0	44.4	4.067	50.4	45.4	47.9
27574.2	57.0	4.008	65.8	51.8	58.8
27521.4	55.9	4.026	61.3	56.3	58.8
27468.6	89.2	3.502	94.9	86.0	90.5
27415.8	58.5	3.957	63.5	58.0	60.7
27363.0	64.7	3.930	69.7	65.4	67.6
27310.2	95.1	3.556	101.3	95.9	98.6
27257.4	153.8	2.931	161.8	150.5	156.2
27204.6	74.0	3.837	81.7	72.3	77.0
27151.8	84.0	3.648	87.4	81.8	84.6
27099.0	84.5	3.747	88.7	83.4	86.1
27046.2	74.3	3.719	82.2	67.3	74.7
26993.4	73.2	3.658	78.2	73.7	75.9
26940.6	46.6	4.130	59.0	40.2	49.6
26887.8	69.9	3.818	74.0	66.6	70.3
26835.0	51.8	3.852	56.7	50.2	53.4
26782.2	68.8	3.852	79.4	64.4	71.9
26729.4	62.4	3.934	69.8	60.1	65.0
26676.6	54.0	3.768	56.5	58.8	57.6
26623.8	42.2	3.974	51.4	41.2	46.3
26571.0	57.9	3.973	78.0	50.7	64.4

LANE 1 PASS 3 DOWN
LOG NUMBERS DECENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	83.1	3.704	81.3	88.9	85.1
28894.2	64.8	3.971	72.8	60.4	66.6
28841.4	71.7	4.024	76.5	72.1	74.3
28788.6	64.2	3.921	70.3	60.9	65.6
28735.8	73.4	3.863	78.2	71.1	74.6
28683.0	89.6	3.597	99.9	83.5	91.7
28630.2	53.3	4.045	55.5	54.7	55.1
28577.4	50.0	4.081	47.2	55.6	51.4
28524.6	63.3	4.085	61.9	66.3	64.1
28471.8	79.6	3.760	87.4	74.5	80.9
28419.0	61.4	3.935	64.9	60.5	62.7
28366.2	66.6	3.647	63.8	73.2	68.5
28313.4	86.7	3.766	87.8	88.0	87.9
28260.6	72.5	3.834	75.2	74.9	75.1
28207.8	64.7	4.047	65.0	70.5	67.7
28155.0	58.5	4.038	64.9	57.3	61.1
28102.2	59.1	4.039	64.1	60.9	62.5
28049.4	56.0	4.024	61.0	55.1	58.0
27996.6	55.8	3.945	62.2	51.9	57.0
27943.8	60.3	3.913	67.4	56.9	62.2
27891.0	62.0	3.964	64.9	63.8	64.4
27838.2	69.9	3.735	85.5	71.0	78.3
27785.4	64.4	3.883	63.0	69.5	66.2
27732.6	60.0	3.846	60.5	62.0	61.3
27679.8	50.3	4.051	51.0	56.7	53.8
27627.0	43.5	4.137	47.0	44.9	45.9
27574.2	54.0	4.057	59.4	50.9	55.1
27521.4	58.8	3.952	60.6	59.6	60.1
27468.6	90.9	3.472	96.1	90.0	93.1
27415.8	54.8	3.985	58.3	61.1	59.7
27363.0	65.2	3.944	70.6	62.7	66.6
27310.2	98.0	3.572	106.4	94.6	100.5
27257.4	147.0	2.922	164.2	133.6	148.9
27204.6	69.8	3.914	73.8	69.2	71.5
27151.8	83.8	3.618	94.9	75.7	85.3
27099.0	92.7	3.597	93.6	93.2	93.4
27046.2	75.4	3.635	85.5	67.7	76.6
26993.4	73.1	3.671	76.4	74.2	75.3
26940.6	46.6	4.131	58.5	42.9	50.7
26887.8	70.5	3.835	73.5	69.1	71.3
26835.0	50.1	3.909	56.1	48.6	52.3
26782.2	68.4	3.844	80.6	63.5	72.0
26729.4	61.3	3.973	67.3	61.1	64.2
26676.6	53.4	3.764	57.5	57.4	57.5
26623.8	40.5	4.004	51.6	39.1	45.3
26571.0	58.5	3.961	75.9	56.4	66.2

26518.2	61.8	3.623	59.2	71.9	65.5	26518.2	59.4	3.565	62.5	69.3	65.9	26518.2	60.7	3.601	64.2	68.5	66.4
26465.4	64.3	3.675	66.2	69.7	67.9	26465.4	63.5	3.744	67.8	69.0	68.4	26465.4	70.8	3.594	73.9	72.9	73.4
26412.6	52.8	3.709	60.7	52.2	56.4	26412.6	54.3	3.588	69.0	54.0	61.5	26412.6	58.2	3.551	60.9	63.9	62.4
26359.8	43.0	3.916	54.8	38.2	46.5	26359.8	45.3	3.985	54.6	41.0	47.8	26359.8	47.3	3.862	52.6	52.8	52.7
26307.0	64.6	3.629	70.7	63.3	67.0	26307.0	68.5	3.575	78.1	63.5	70.8	26307.0	69.0	3.482	76.8	64.5	70.7
26254.2	68.9	3.470	68.6	72.8	70.7	26254.2	72.0	3.446	72.5	75.3	73.9	26254.2	73.3	3.398	77.4	74.7	76.1
26201.4	71.4	3.553	71.3	75.7	73.5	26201.4	71.5	3.577	73.2	76.7	75.0	26201.4	72.7	3.596	71.8	76.1	73.9
26148.6	77.7	3.516	72.2	89.3	80.8	26148.6	70.5	3.563	66.6	80.8	73.7	26148.6	80.1	3.429	74.3	91.2	82.8
26095.8	75.0	3.403	83.9	74.0	78.9	26095.8	76.9	3.400	92.8	69.7	81.3	26095.8	81.7	3.334	85.4	83.2	84.3
26043.0	86.3	3.575	86.3	96.0	91.1	26043.0	89.3	3.588	97.5	86.1	91.8	26043.0	86.4	3.547	85.6	94.6	90.1
25990.2	53.9	3.739	59.0	55.7	57.3	25990.2	57.1	3.725	66.8	52.1	59.5	25990.2	57.5	3.702	61.1	60.5	60.8
25937.4	61.3	3.774	71.0	56.0	63.5	25937.4	58.3	3.738	73.6	49.4	61.5	25937.4	61.3	3.746	68.6	59.6	64.1
25884.6	60.9	3.779	63.0	65.6	64.3	25884.6	64.1	3.727	73.0	61.9	67.5	25884.6	63.8	3.756	64.9	68.1	66.5
25831.8	67.0	3.845	69.2	70.5	69.9	25831.8	70.3	3.758	75.1	73.4	74.2	25831.8	68.1	3.845	69.1	72.1	70.6
25779.0	79.3	3.552	99.5	71.4	85.4	25779.0	77.7	3.534	102.2	67.0	84.6	25779.0	73.9	3.578	91.1	70.6	80.9
25726.2	86.6	3.517	88.9	85.7	87.3	25726.2	80.4	3.590	85.0	79.7	82.4	25726.2	81.2	3.534	85.1	80.9	83.0
25673.4	77.0	3.757	80.2	76.4	78.3	25673.4	77.8	3.692	76.2	80.9	78.6	25673.4	74.7	3.756	70.6	81.1	75.8
25620.6	74.8	3.855	84.5	74.5	79.5	25620.6	74.4	3.849	88.9	71.0	79.9	25620.6	71.7	3.887	82.8	70.7	76.8
25567.8	81.7	3.539	75.2	96.1	85.7	25567.8	84.3	3.519	78.5	96.2	87.3	25567.8	83.8	3.554	79.5	94.0	86.8
25515.0	73.1	3.732	80.5	66.9	73.7	25515.0	74.2	3.709	81.8	68.3	75.0	25515.0	68.3	3.778	78.1	59.6	68.8
25462.2	63.6	3.826	64.7	67.4	66.0	25462.2	66.0	3.814	75.4	65.1	70.3	25462.2	62.6	3.831	60.8	71.8	66.3
25409.4	69.8	3.892	70.7	70.4	70.6	25409.4	74.8	3.900	80.8	73.8	77.3	25409.4	67.2	3.932	70.5	68.0	69.2
25356.6	71.3	3.805	76.0	68.9	72.4	25356.6	70.6	3.774	80.0	68.1	74.0	25356.6	68.8	3.808	76.9	66.4	71.7
25303.8	102.4	3.799	104.4	104.0	104.2	25303.8	105.8	3.737	110.5	107.7	109.1	25303.8	102.9	3.857	107.2	102.0	104.6
25251.0	70.2	3.869	82.4	64.7	73.6	25251.0	74.1	3.825	87.7	67.8	77.7	25251.0	66.2	3.976	85.1	55.3	70.2
25198.2	53.9	3.850	63.0	53.7	58.4	25198.2	51.1	3.799	59.0	51.0	55.0	25198.2	49.4	3.826	59.6	48.2	53.9
25145.4	71.6	3.923	82.0	66.2	74.1	25145.4	73.3	3.996	84.5	68.7	76.6	25145.4	74.2	4.029	84.1	68.1	76.1
25092.6	76.2	3.821	85.7	70.4	78.0	25092.6	76.2	3.839	83.5	71.9	77.7	25092.6	73.7	3.906	79.9	70.2	75.0
25039.8	75.1	3.857	75.5	78.8	77.1	25039.8	76.8	3.841	75.2	82.9	79.1	25039.8	73.8	3.858	71.3	82.5	76.9
24987.0	55.9	4.005	60.8	64.0	62.4	24987.0	56.8	4.022	59.2	66.1	62.7	24987.0	55.0	4.070	56.0	66.4	61.2
24934.2	82.7	4.006	83.7	84.4	84.0	24934.2	83.4	3.976	88.4	80.8	84.6	24934.2	80.6	4.023	80.4	82.2	81.3
24881.4	74.6	3.819	76.6	79.0	77.8	24881.4	71.1	3.833	76.7	68.6	72.7	24881.4	73.3	3.806	74.4	79.1	76.8
24828.6	83.6	3.638	86.8	86.1	86.5	24828.6	80.9	3.760	87.7	80.1	83.9	24828.6	82.0	3.659	86.0	82.1	84.0
24775.8	75.2	3.762	80.5	76.8	78.7	24775.8	80.0	3.638	83.6	79.7	81.7	24775.8	76.9	3.733	80.7	77.6	79.1
24723.0	74.6	3.886	86.4	72.0	79.2	24723.0	74.1	3.861	83.7	75.3	79.5	24723.0	70.4	3.899	84.1	64.3	74.2
24670.2	79.5	3.544	82.8	81.0	81.9	24670.2	76.3	3.584	78.0	81.9	79.9	24670.2	71.0	3.534	80.7	67.9	74.3
24617.4	97.8	3.891	97.4	102.8	100.1	24617.4	98.3	3.908	99.0	106.8	102.9	24617.4	95.8	4.034	95.7	97.7	96.7
24564.6	77.5	3.756	81.9	77.9	79.9	24564.6	75.0	3.765	82.7	73.4	78.1	24564.6	74.0	3.782	75.1	75.4	75.3
24511.8	47.6	3.969	49.7	54.6	52.2	24511.8	47.8	3.975	47.1	56.9	52.0	24511.8	48.3	4.056	50.7	50.0	50.3
24459.0	66.9	3.753	69.6	65.5	67.5	24459.0	66.6	3.684	71.0	66.8	68.9	24459.0	74.8	3.653	74.4	76.0	75.2
24406.2	61.0	3.996	63.8	66.5	65.1	24406.2	58.1	4.054	59.8	60.5	60.2	24406.2	56.7	4.061	58.6	60.5	59.5
24353.4	62.0	3.872	62.3	64.7	63.5	24353.4	61.0	3.871	67.0	60.5	63.7	24353.4	59.7	3.869	59.5	61.7	60.6
24300.6	50.4	3.838	62.7	42.6	52.7	24300.6	49.5	3.887	62.1	42.4	52.3	24300.6	45.1	3.943	60.1	35.5	47.8
24247.8	65.9	3.674	72.5	66.5	69.5	24247.8	71.2	3.585	87.2	58.7	73.0	24247.8	63.1	3.733	70.4	59.9	65.2
24195.0	78.1	3.711	85.1	76.8	81.0	24195.0	72.4	3.746	71.2	77.5	74.3	24195.0	71.9	3.743	73.4	73.1	73.2
24142.2	80.9	3.665	79.8	85.2	82.5	24142.2	75.1	3.746	85.6	71.0	78.3	24142.2	73.2	3.826	77.0	71.9	74.5
24089.4	49.2	4.088	51.9	56.7	54.3	24089.4	44.4	4.206	45.9	51.0	48.5	24089.4	46.0	4.136	44.5	52.1	48.3
24036.6	54.9	3.970	62.3	52.5	57.4	24036.6	55.6	3.678	67.9	52.4	60.2	24036.6	56.4	3.939	67.3	52.2	59.7
23983.8	82.4	3.621	87.8	80.5	84.2	23983.8	80.4	3.676	85.8	79.6	82.7	23983.8	81.9	3.659	90.5	76.1	83.3
23931.0	69.2	3.857	72.9	67.5	70.2	23931.0	69.9	3.854	71.3	73.8	72.5	23931.0	69.6	3.805	71.7	72.2	72.0
23878.2	60.2	2.905	94.7	52.6	73.7	23878.2	47.4	4.057	48.0	54.1	51.1	23878.2	48.3	3.976	49.4	50.5	49.9
23825.4	104.1	2.245	161.4	68.4	114.9	23825.4	63.2	3.703	65.1	65.6	65.4	23825.4	63.4	3.637	68.2	62.5	65.3
23772.6	68.0	3.525	68.5	70.9	69.7	23772.6	66.0	3.554	75.4	61.1	68.3	23772.6	62.2	3.659	69.4	59.1	64.2
23719.8	79.1	2.762	105.0	65.0	85.0	23719.8	57.9	4.010	62.7	59.8	61.3	23719.8	60.7	3.991	59.8	63.6	61.7
23667.0	50.5	4.004	49.5	56.9	53.2	23667.0	50.0	3.956	48.6	57.1	52.8	23667.0	49.9	3.997	48.9	54.8	51.9
23614.2	99.3	3.361	102.2	102.4	102.3	23614.2	94.8	3.417	105.5	90.5	98.0	23614.2	94.4	3.391	114.6	86.1	100.3
23561.4	72.9	3.930	87.6	67.1	77.3	23561.4	81.4	3.699	86.5	82.0	84.2	23561.4	75.9	3.746	77.1	82.6	79.9

23503.6	90.7	2.316	145.4	68.3	106.8
23455.8	80.4	3.665	81.7	85.5	83.6
23403.0	69.1	3.773	64.7	79.2	71.9
23350.2	99.4	2.520	121.8	91.1	106.5
23297.4	86.5	3.486	110.8	73.6	92.2
23244.6	101.9	2.356	132.6	87.8	110.2
23191.8	80.5	3.761	101.1	73.1	87.1
23139.0	127.0	1.442	210.6	63.4	137.0
23086.2	114.8	2.164	174.2	71.8	123.0
23033.4	61.0	3.774	64.1	61.8	63.0
22980.6	68.5	3.695	68.5	71.7	70.1
22927.8	64.2	3.757	66.9	66.3	66.6
22875.0	92.5	2.614	134.3	60.7	97.5
22822.2	54.6	3.869	63.3	55.6	59.5
22769.4	43.9	3.974	47.2	44.0	45.6
22716.6	48.2	3.948	54.2	48.3	51.3
22663.8	68.1	3.834	76.6	62.0	69.3
22611.0	70.8	3.763	75.3	73.5	74.4
22558.2	58.8	3.850	62.3	59.8	61.1
22505.4	83.8	1.989	140.1	43.4	91.8
22452.6	37.6	4.139	40.2	39.3	39.7
22399.8	57.1	3.921	65.9	53.4	59.7
22347.0	57.0	3.908	70.2	51.1	60.7
22294.2	45.5	3.818	53.5	47.4	50.5
22241.4	61.2	3.774	68.3	56.6	62.5
22188.6	55.0	3.756	54.4	67.1	60.7
22135.8	93.6	3.531	98.9	89.5	94.2
22083.0	67.3	3.653	66.6	74.6	70.6
22030.2	52.0	3.934	57.9	52.0	54.9
21977.4	74.4	2.717	114.2	54.4	84.3
21924.6	104.2	1.669	169.0	60.9	114.9
21871.8	62.8	3.818	71.2	56.6	63.9
21819.0	82.8	3.834	89.5	81.1	85.3
21766.2	67.4	4.079	71.6	67.5	69.5
21713.4	58.8	4.134	64.2	57.4	60.8
21660.6	66.4	3.763	71.8	63.8	67.8
21607.8	57.8	3.898	61.0	60.1	60.6
21555.0	78.5	3.730	88.5	72.1	80.3
21502.2	64.9	3.865	72.2	62.4	67.3
21449.4	59.6	3.781	62.3	60.7	61.5
21396.6	65.1	3.796	65.1	66.7	65.9
21343.8	44.9	4.024	47.4	54.6	51.0
21291.0	94.6	2.387	137.2	62.8	100.0
21238.2	38.1	4.195	48.7	33.2	40.9
21185.4	63.4	3.879	70.7	61.6	66.1
21132.6	54.0	3.972	67.2	47.8	57.5
21079.8	56.4	3.760	67.6	49.8	58.7
21027.0	62.0	3.885	78.6	53.6	66.1
20974.2	65.7	3.683	71.8	68.0	69.9
20921.4	92.8	3.615	100.0	92.4	96.2
20863.6	65.0	3.658	66.0	71.1	68.5
20815.8	80.3	3.755	81.4	82.5	81.9
20763.0	54.6	4.051	62.6	53.9	58.2
20710.2	54.7	4.066	54.4	60.4	57.4
20657.4	81.8	3.929	81.5	83.7	82.6
20604.6	78.3	4.028	80.2	78.0	79.1
20551.8	58.8	3.826	63.4	57.6	60.5

23508.6	63.6	3.845	67.2	70.1	68.7
23455.8	83.1	3.638	81.9	86.5	84.2
23403.0	63.8	3.842	60.0	73.4	66.7
23350.2	74.5	3.669	81.8	79.4	80.6
23297.4	69.5	3.626	69.3	74.3	71.8
23244.6	87.3	3.499	98.8	78.3	88.5
23191.8	71.5	3.118	102.4	63.5	82.9
23139.0	78.5	2.934	105.7	61.5	83.6
23086.2	72.1	3.768	82.5	68.7	75.6
23033.4	54.4	3.783	66.1	48.3	57.2
22980.6	66.2	3.777	71.1	66.3	68.7
22927.8	59.3	3.730	67.1	57.4	62.3
22875.0	61.9	3.831	71.8	64.8	68.3
22822.2	58.3	3.859	72.0	56.7	64.3
22769.4	42.8	3.972	49.3	40.6	45.0
22716.6	45.9	3.963	49.9	48.6	49.2
22663.8	65.0	3.889	78.5	60.3	69.4
22611.0	68.8	3.772	80.8	72.2	76.5
22558.2	95.6	2.312	157.0	54.0	105.5
22505.4	46.1	3.902	51.9	44.6	48.3
22452.6	38.1	4.178	42.3	38.0	40.1
22399.8	69.9	2.836	104.3	53.0	78.7
22347.0	57.1	3.919	74.2	47.1	60.6
22294.2	45.7	3.849	55.7	45.4	50.6
22241.4	59.8	3.812	74.3	51.1	62.7
22188.6	54.3	3.800	58.1	54.2	56.1
22135.8	101.4	3.410	117.7	88.0	102.9
22083.0	61.0	3.702	69.4	58.7	64.1
22030.2	56.3	3.898	61.1	60.3	60.7
21977.4	42.9	4.006	48.1	55.6	51.8
21924.6	61.7	3.792	66.0	63.9	64.9
21871.8	66.3	3.814	78.5	58.8	68.6
21819.0	76.3	3.910	85.0	74.1	79.5
21766.2	67.9	4.101	72.4	65.7	69.0
21713.4	61.2	4.019	69.1	55.4	62.2
21660.6	61.1	3.904	68.3	62.1	65.2
21607.8	56.9	3.871	63.0	56.0	59.5
21555.0	74.7	3.806	80.8	71.4	76.1
21502.2	68.2	3.806	75.0	65.4	70.2
21449.4	51.6	3.953	54.7	53.2	53.9
21396.6	69.5	3.756	73.6	69.4	71.5
21343.8	39.8	4.098	42.0	44.4	43.2
21291.0	57.6	3.975	58.7	62.3	60.5
21238.2	38.4	4.137	45.5	34.2	39.8
21185.4	60.4	3.895	65.8	60.5	63.2
21132.6	58.9	3.891	64.4	56.7	60.5
21079.8	49.9	3.846	61.1	46.2	53.6
21027.0	57.9	3.849	65.7	55.2	60.5
20974.2	65.4	3.654	68.3	68.4	68.3
20921.4	92.4	3.649	99.7	90.6	95.2
20868.6	65.1	3.674	64.5	73.7	69.1
20815.8	79.3	3.788	83.7	80.6	82.1
20763.0	51.9	4.030	60.8	50.4	55.6
20710.2	52.4	4.092	53.6	57.9	55.8
20657.4	82.9	3.945	88.9	80.5	84.7
20604.6	70.4	4.079	73.7	68.5	71.1
20551.8	55.8	3.914	57.1	56.0	56.6

23508.6	60.9	3.944	62.6	67.2	64.9
23455.8	78.5	3.722	84.1	78.5	81.3
23403.0	59.7	3.888	60.1	63.7	61.9
23350.2	72.3	3.714	76.8	77.7	77.2
23297.4	67.6	3.661	65.0	71.5	68.2
23244.6	82.5	3.599	91.7	74.5	83.1
23191.8	66.0	3.911	72.8	66.0	69.4
23139.0	60.9	3.860	63.7	61.7	62.7
23086.2	67.5	3.790	72.9	64.8	68.9
23033.4	55.7	3.809	62.6	53.3	57.9
22980.6	63.5	3.768	70.7	61.3	66.0
22927.8	64.4	3.695	66.5	65.6	66.1
22875.0	61.7	3.765	69.3	61.0	65.2
22822.2	60.1	3.814	63.4	60.3	61.8
22769.4	43.1	3.993	49.8	40.4	45.1
22716.6	48.1	3.968	53.6	50.4	52.0
22663.8	64.9	3.881	72.3	62.1	67.2
22611.0	68.2	3.750	72.4	74.6	73.5
22558.2	59.9	3.856	63.1	59.4	61.2
22505.4	41.9	3.910	52.7	42.6	47.7
22452.6	37.1	4.115	40.6	38.7	39.7
22399.8	50.9	4.027	60.0	50.9	55.4
22347.0	56.2	3.903	67.3	49.1	58.2
22294.2	48.5	3.768	62.1	43.1	52.6
22241.4	59.3	3.823	72.6	49.9	61.2
22188.6	53.3	3.813	56.3	60.9	58.6
22135.8	93.9	3.533	104.9	84.4	94.7
22083.0	65.8	3.673	67.0	69.9	68.4
22030.2	52.8	3.976	61.2	56.6	58.9
21977.4	48.3	3.905	54.0	57.2	55.6
21924.6	59.1	3.821	62.0	60.4	61.2
21871.8	64.6	3.851	70.9	60.9	65.9
21819.0	73.9	3.929	80.2	74.0	77.1
21766.2	69.0	4.063	71.2	69.2	70.2
21713.4	59.9	4.064	66.0	55.5	60.7
21660.6	60.7	3.903	67.4	61.3	64.4
21607.8	51.8	3.909	57.8	50.1	53.9
21555.0	75.7	3.888	81.8	74.3	78.0
21502.2	70.3	3.839	72.3	71.4	71.9
21449.4	56.5	3.915	57.1	58.6	57.9
21396.6	66.9	3.806	70.1	67.3	68.7
21343.8	38.6	4.108	45.7	39.1	42.4
21291.0	57.8	3.987	60.4	63.3	61.9
21238.2	37.1	4.174	44.1	33.6	38.8
21185.4	62.1	3.857	68.3	64.4	66.3
21132.6	56.2	3.893	64.4	51.3	57.8
21079.8	56.5	3.821	74.6	45.7	60.1
21027.0	52.9	3.870	69.3	44.7	57.0
20974.2	61.4	3.714	70.9	57.6	64.3
20921.4	92.3	3.687	99.0	92.9	96.0
20868.6	69.4	3.630	67.6	78.3	73.0
20815.8	77.2	3.751	83.9	76.1	80.0
20763.0	52.2	4.040	59.7	49.8	54.7
20710.2	48.1	4.131	54.4	55.8	55.1
20657.4	82.4	3.906	85.0	83.0	84.0
20604.6	68.8	4.034	71.3	67.2	69.2
20551.8	55.3	3.904	59.3	56.1	57.7

20499.0	64.0	3.917	62.8	69.3	66.0
20446.2	51.1	3.942	57.1	58.6	57.8
20393.4	43.8	4.089	49.9	44.6	47.2
20340.6	81.3	2.198	123.8	66.3	95.0
20287.8	60.2	4.068	74.9	54.2	64.6
20235.0	86.5	3.492	105.3	75.6	90.5
20182.2	84.8	3.789	92.5	79.0	85.7
20129.4	81.2	3.693	85.3	80.1	82.7
20076.6	95.6	3.396	96.9	100.5	98.7
20023.8	60.1	3.728	62.7	66.5	64.6
19971.0	79.8	3.436	83.5	85.4	84.5
19918.2	88.7	3.454	93.2	90.4	91.8
19865.4	83.6	3.617	83.7	90.6	87.1
19812.6	68.0	3.556	73.8	66.7	70.3
19759.8	55.1	3.842	62.1	57.2	59.6
19707.0	47.3	3.683	51.7	53.6	52.6
19654.2	71.6	2.987	104.5	50.4	77.4
19601.4	62.4	3.697	59.1	71.3	65.2
19548.6	66.9	3.719	66.4	75.5	70.9
19495.8	48.2	3.889	48.9	57.2	53.1
19443.0	61.9	3.565	71.8	61.1	66.4
19390.2	67.3	3.708	69.3	67.5	68.4
19337.4	47.9	3.875	68.1	34.9	51.5
19284.6	43.3	4.113	52.2	43.4	47.8
19231.8	59.7	3.697	64.0	60.0	62.0
19179.0	49.0	3.939	65.8	38.7	52.2
19126.2	69.6	3.661	92.8	58.7	75.7
19073.4	70.6	3.833	85.2	61.9	73.5
19020.6	66.8	3.833	75.2	60.9	68.1
18967.8	67.2	3.858	75.7	62.3	69.0
18915.0	70.0	3.729	69.1	76.7	72.9
18862.2	64.2	3.721	66.5	66.5	66.5
18809.4	68.0	3.608	77.4	65.5	71.4
18756.6	52.6	4.079	65.0	53.9	59.5
18703.8	60.9	3.930	70.3	60.2	65.2
18651.0	69.3	3.796	79.4	65.3	72.3
18598.2	63.4	3.818	67.0	68.4	67.7
18545.4	102.5	3.759	108.5	98.6	103.5
18492.6	78.8	3.524	75.4	89.5	82.5
18439.8	81.5	3.979	83.1	86.1	84.6
18387.0	71.0	3.731	80.1	72.0	76.0
18334.2	62.2	3.914	73.8	58.4	66.1
18281.4	94.3	3.785	92.4	103.8	98.1
18228.6	162.4	3.688	156.1	180.1	168.1
18175.8	101.4	3.943	98.3	109.3	103.8
18123.0	90.9	3.733	90.5	94.9	92.7
18070.2	63.4	3.937	68.6	65.2	66.9
18017.4	52.5	4.037	55.0	56.4	55.7
17964.6	63.0	3.728	69.2	65.1	67.1
17911.8	89.2	3.705	87.9	93.8	90.9
17859.0	64.4	3.921	77.2	56.5	66.8
17806.2	63.1	3.917	75.0	56.2	65.6
17753.4	53.0	3.827	60.7	56.7	58.7
17700.6	83.8	3.471	84.0	87.2	85.6
17647.8	74.9	3.785	75.8	82.7	79.3
17595.0	67.9	3.583	75.6	66.0	70.8
17542.2	68.6	3.746	74.9	68.8	71.8

20499.0	57.2	4.054	63.2	55.8	59.5
20446.2	50.8	4.020	61.6	50.8	56.2
20393.4	42.9	4.075	49.1	43.8	46.4
20340.6	56.8	3.911	57.7	66.0	61.8
20287.8	62.1	4.012	69.6	58.2	63.9
20235.0	81.7	3.576	82.9	90.8	86.8
20182.2	79.7	3.829	82.8	80.1	81.4
20129.4	74.7	3.729	80.5	73.3	76.9
20076.6	92.1	3.494	94.7	96.2	95.4
20023.8	59.9	3.799	62.9	64.8	63.8
19971.0	82.1	3.370	83.7	90.9	87.3
19918.2	82.2	3.583	99.8	80.7	90.2
19865.4	86.0	3.504	88.3	87.3	87.8
19812.6	61.8	3.726	68.6	65.9	67.2
19759.8	58.4	3.695	64.5	64.7	64.6
19707.0	43.0	3.815	53.1	46.4	49.7
19654.2	54.0	3.886	57.1	57.6	57.4
19601.4	58.1	3.759	53.9	66.9	60.4
19548.6	58.5	3.639	66.7	62.8	64.7
19495.8	47.4	3.918	44.8	54.9	49.9
19443.0	63.2	3.538	72.1	62.6	67.4
19390.2	67.8	3.795	70.1	67.3	68.7
19337.4	52.1	3.741	57.2	56.7	57.0
19284.6	39.0	4.055	45.9	47.5	46.7
19231.8	65.8	3.650	66.0	69.9	67.9
19179.0	49.1	3.900	64.5	40.7	52.6
19126.2	82.1	3.514	93.0	72.6	82.8
19073.4	74.7	3.759	88.7	65.4	77.1
19020.6	67.7	3.825	70.1	68.8	69.4
18967.8	67.6	3.847	80.7	60.3	70.5
18915.0	68.0	3.720	75.1	68.8	72.0
18862.2	60.3	3.768	65.6	61.0	63.3
18809.4	75.9	3.491	76.9	78.4	77.7
18756.6	60.5	3.950	70.8	53.8	62.3
18703.8	55.7	3.909	57.8	58.3	58.1
18651.0	82.4	3.663	87.0	84.7	85.8
18598.2	58.4	3.883	58.2	62.5	60.4
18545.4	99.8	3.679	103.8	99.4	101.6
18492.6	77.8	3.630	81.2	84.8	83.0
18439.8	79.4	3.968	79.7	82.5	81.1
18387.0	73.9	3.684	80.3	82.4	81.4
18334.2	64.0	3.890	71.0	64.5	67.7
18281.4	95.4	3.822	91.0	104.4	97.7
18228.6	155.5	3.909	147.2	178.0	162.6
18175.8	108.4	3.938	101.9	120.0	110.9
18123.0	79.1	3.846	80.8	84.7	82.7
18070.2	60.8	3.962	65.4	62.8	64.1
18017.4	56.7	4.008	58.6	59.7	59.2
17964.6	61.1	3.825	70.0	58.1	64.0
17911.8	88.5	3.758	88.4	92.1	90.3
17859.0	57.6	3.979	60.4	57.1	58.7
17806.2	63.5	3.878	73.4	59.2	66.3
17753.4	52.0	3.855	56.9	60.1	58.5
17700.6	85.5	3.497	84.0	89.9	87.0
17647.8	75.1	3.780	77.1	77.7	77.4
17595.0	64.7	3.574	71.8	65.0	68.4
17542.2	72.0	3.745	76.5	70.4	73.4

20499.0	62.1	3.942	66.0	61.5	63.7
20446.2	54.0	3.985	54.2	61.8	58.0
20393.4	42.0	4.014	45.5	41.7	43.6
20340.6	59.9	3.865	59.4	71.3	65.3
20287.8	58.8	4.078	69.7	53.9	61.8
20235.0	79.6	3.557	82.2	83.4	82.8
20182.2	80.6	3.798	90.4	72.0	81.2
20129.4	75.1	3.706	79.2	73.7	76.5
20076.6	97.1	3.378	97.4	103.2	100.3
20023.8	59.1	3.776	59.8	64.1	62.0
19971.0	78.6	3.389	79.8	82.7	81.2
19918.2	84.5	3.627	95.0	79.9	87.4
19865.4	81.5	3.550	86.2	79.7	83.0
19812.6	62.2	3.644	69.6	59.0	64.3
19759.8	55.3	3.855	63.1	55.4	59.3
19707.0	47.7	3.832	49.9	50.9	50.4
19654.2	51.8	3.906	54.7	55.1	54.9
19601.4	63.3	3.674	61.5	69.3	65.4
19548.6	65.3	3.667	66.4	75.1	70.8
19495.8	48.0	3.902	49.7	53.7	51.7
19443.0	62.3	3.504	67.7	65.9	66.8
19390.2	66.4	3.787	68.9	65.7	67.3
19337.4	50.7	3.786	61.6	46.6	54.1
19284.6	41.2	4.128	49.1	41.7	45.4
19231.8	58.0	3.672	62.5	57.3	59.9
19179.0	52.1	3.866	70.0	46.0	58.0
19126.2	76.9	3.590	97.1	60.8	78.9
19073.4	74.4	3.780	89.1	64.0	76.6
19020.6	66.5	3.747	69.4	67.4	68.4
18967.8	63.6	3.931	68.3	61.7	65.0
18915.0	62.4	3.787	63.0	67.0	65.0
18862.2	63.8	3.781	65.5	67.5	66.5
18809.4	68.3	3.550	76.2	64.5	70.4
18756.6	55.8	3.950	64.9	50.8	57.9
18703.8	52.9	4.010	57.3	52.7	55.0
18651.0	80.4	3.751	82.3	88.3	85.3
18598.2	57.7	3.923	57.4	63.7	60.5
18545.4	99.1	3.770	103.6	97.2	100.4
18492.6	80.4	3.616	78.7	90.0	84.3
18439.8	78.1	3.995	78.9	81.6	80.3
18387.0	70.1	3.814	81.1	70.9	76.0
18334.2	61.1	3.898	69.4	60.9	65.2
18281.4	97.1	3.838	91.1	108.1	99.6
18228.6	156.9	3.755	147.5	174.7	161.1
18175.8	106.5	4.003	101.0	117.0	109.0
18123.0	81.1	3.857	85.6	85.1	85.4
18070.2	64.1	3.950	71.5	63.8	67.6
18017.4	53.6	4.059	58.1	57.6	57.8
17964.6	61.3	3.786	68.6	62.5	65.6
17911.8	89.4	3.721	88.3	91.7	90.0
17859.0	52.5	4.055	62.9	49.8	56.3
17806.2	67.2	3.837	74.9	62.4	68.7
17753.4	50.7	3.883	54.4	57.0	55.7
17700.6	83.0	3.496	81.1	89.8	85.4
17647.8	79.2	3.764	80.1	84.7	82.4
17595.0	63.2	3.595	69.2	65.2	67.2
17542.2	68.3	3.749	75.7	64.3	70.0

17489.4	82.2	3.537	91.1	78.5	84.8
17436.6	75.8	3.846	81.9	75.0	78.5
17383.8	95.6	3.775	103.1	92.5	97.8
17331.0	74.8	3.843	77.4	74.4	75.9
17278.2	81.7	3.718	85.6	81.6	83.6
17225.4	84.9	3.647	90.8	81.5	86.1
17172.6	79.6	3.590	82.4	81.2	81.8
17119.8	59.2	3.904	67.0	56.8	61.9
17067.0	65.9	3.747	70.3	66.7	68.5
17014.2	58.3	3.942	54.4	65.5	60.0
16961.4	63.5	3.933	69.8	58.7	64.2
16908.6	79.0	3.745	75.6	90.6	83.1
16855.8	62.0	3.794	61.2	66.2	63.7
16803.0	49.7	3.982	56.1	49.1	52.6
16750.2	62.9	3.727	72.8	60.8	66.8
16697.4	62.9	3.766	69.3	61.4	65.3
16644.6	55.7	3.773	66.5	49.1	57.8
16591.8	95.0	3.513	100.3	93.5	96.9
16539.0	75.3	2.768	115.5	82.8	99.1
16486.2	80.1	3.150	92.8	73.0	82.9
16433.4	75.5	3.082	99.1	73.0	86.1
16380.6	86.0	2.427	124.4	64.1	94.2
16327.8	69.9	3.705	71.0	73.7	72.4
16275.0	55.1	3.973	59.0	59.0	59.0
16222.2	79.2	3.605	81.9	81.3	81.6
16169.4	85.1	3.704	88.8	84.7	86.7
16116.6	71.1	3.627	86.4	66.8	76.6
16063.8	89.5	3.780	93.9	87.3	90.6
16011.0	69.0	3.865	71.5	73.7	72.6
15958.2	66.5	3.787	71.4	66.4	68.9
15905.4	45.2	3.972	43.5	52.3	47.9
15852.6	53.3	4.041	57.1	55.3	56.2
15799.8	65.7	3.775	70.4	63.8	67.1
15747.0	80.0	3.714	89.1	73.4	81.3
15694.2	88.7	2.979	121.1	86.4	103.7
15641.4	94.3	2.548	135.6	72.7	104.2
15588.6	49.2	3.948	53.1	51.0	52.0
15535.8	82.6	2.855	105.5	66.4	85.9
15483.0	55.4	3.958	73.7	49.0	61.4
15430.2	114.1	2.969	126.7	106.5	116.6
15377.4	57.9	3.967	62.2	60.2	61.2
15324.6	72.1	3.647	77.5	68.2	72.9
15271.8	100.7	3.745	94.4	111.2	102.8
15219.0	108.5	2.476	139.6	98.1	118.8
15166.2	84.3	3.777	81.4	91.7	86.6
15113.4	106.0	2.633	143.3	84.6	113.9
15060.6	63.2	4.008	67.3	65.4	66.3
15007.8	65.1	3.805	69.8	63.4	66.6
14955.0	60.0	3.756	65.3	60.2	62.7
14902.2	55.5	3.792	60.6	64.5	62.5
14849.4	103.0	2.599	148.0	100.7	124.3
14796.6	122.9	3.244	131.0	118.1	124.5
14743.8	97.1	3.548	101.1	96.7	98.9
14691.0	108.7	2.943	134.6	99.8	117.2
14638.2	91.4	3.768	93.9	96.3	95.1
14585.4	63.5	3.584	68.4	69.8	69.1
14532.6	77.6	3.727	79.7	80.9	80.3

17489.4	74.7	3.610	82.9	71.6	77.2
17436.6	82.2	3.914	95.4	71.9	83.7
17383.8	87.8	3.820	93.2	85.8	89.5
17331.0	76.5	3.774	83.4	74.7	79.0
17278.2	76.7	3.678	76.3	80.9	78.6
17225.4	85.4	3.665	90.8	82.2	86.5
17172.6	74.9	3.617	75.4	80.6	78.0
17119.8	59.9	3.809	67.2	57.0	62.1
17067.0	61.5	3.759	61.5	66.7	64.1
17014.2	56.4	3.968	55.0	60.4	57.7
16961.4	62.8	3.715	69.7	59.3	64.5
16908.6	76.2	3.830	74.3	84.8	79.6
16855.8	61.5	3.871	61.5	65.9	63.7
16803.0	54.0	3.839	54.7	59.0	56.8
16750.2	67.3	3.626	68.7	73.0	70.9
16697.4	69.5	3.694	72.9	72.6	72.8
16644.6	62.2	3.800	73.7	58.3	66.0
16591.8	86.0	3.492	87.0	89.3	88.1
16539.0	70.4	3.739	70.6	80.7	75.7
16486.2	76.3	3.662	80.8	73.6	77.2
16433.4	65.2	3.766	62.6	70.8	66.7
16380.6	64.1	3.951	62.2	68.4	65.3
16327.8	70.7	3.852	68.1	76.3	72.2
16275.0	55.9	3.953	53.0	63.2	58.1
16222.2	71.9	3.618	73.2	77.2	75.2
16169.4	87.1	3.717	94.3	83.4	88.8
16116.6	66.1	3.707	76.4	63.8	70.1
16063.8	90.0	3.794	91.6	91.1	91.4
16011.0	60.6	3.983	72.1	59.9	66.0
15958.2	67.9	3.767	67.2	73.6	70.4
15905.4	40.7	4.105	44.2	45.4	44.8
15852.6	57.9	4.000	57.2	64.3	60.7
15799.8	71.3	3.659	76.4	73.8	75.1
15747.0	78.6	3.684	84.8	77.4	81.1
15694.2	80.0	3.686	87.0	81.6	84.3
15641.4	76.3	3.841	74.9	78.9	76.9
15588.6	59.3	3.874	58.5	66.5	62.5
15535.8	53.3	3.858	53.3	56.0	54.6
15483.0	59.1	3.887	60.6	66.4	63.5
15430.2	116.1	2.823	123.9	112.5	118.2
15377.4	59.7	3.935	61.5	62.9	62.2
15324.6	64.0	3.710	66.1	66.5	66.3
15271.8	101.7	3.802	94.8	111.2	103.0
15219.0	87.9	3.651	91.5	90.3	90.9
15166.2	81.2	3.787	79.1	88.0	83.5
15113.4	85.7	3.739	83.0	90.5	86.7
15060.6	60.9	3.902	66.7	62.9	64.8
15007.8	58.5	3.943	62.3	59.3	60.8
14955.0	68.1	3.598	72.3	69.2	70.8
14902.2	53.9	3.795	57.7	61.9	59.8
14849.4	109.3	3.289	121.1	109.2	115.1
14796.6	113.6	3.377	120.1	109.2	114.6
14743.8	103.8	3.496	105.8	102.9	104.3
14691.0	92.1	3.519	98.6	93.1	95.9
14638.2	93.9	3.601	98.2	99.0	98.6
14585.4	57.2	3.769	54.3	67.4	60.8
14532.6	82.0	3.528	85.9	83.8	84.9

17489.4	79.8	3.552	87.1	75.0	81.0
17436.6	81.5	3.857	90.8	77.4	84.1
17383.8	82.9	3.871	90.9	78.1	84.5
17331.0	77.0	3.831	82.5	74.1	78.3
17278.2	74.1	3.725	76.4	75.5	75.9
17225.4	89.1	3.629	92.1	87.1	89.6
17172.6	74.6	3.657	76.0	77.7	76.9
17119.8	61.4	3.942	68.4	59.0	63.7
17067.0	63.1	3.712	62.8	69.9	66.3
17014.2	57.3	3.922	56.9	64.0	60.4
16961.4	65.4	3.751	70.5	65.5	68.0
16908.6	73.8	3.840	73.3	80.1	76.7
16855.8	57.3	3.946	54.5	63.6	59.1
16803.0	53.2	3.838	57.7	52.3	55.0
16750.2	66.9	3.656	73.9	67.0	70.4
16697.4	68.7	3.660	75.8	66.0	70.9
16644.6	66.7	3.798	77.2	62.2	69.7
16591.8	85.9	3.456	89.0	84.4	86.7
16539.0	69.2	3.760	71.4	74.1	72.7
16486.2	79.4	3.646	82.0	78.7	80.3
16433.4	64.9	3.771	64.6	67.9	66.2
16380.6	62.7	3.941	63.2	67.7	65.5
16327.8	68.6	3.859	67.7	72.2	69.9
16275.0	54.8	3.949	54.1	65.0	59.5
16222.2	70.8	3.655	71.9	74.7	73.3
16169.4	87.0	3.713	94.2	83.2	88.7
16116.6	71.4	3.337	89.1	66.1	77.6
16063.8	87.6	3.830	91.3	85.6	88.5
16011.0	65.5	3.903	64.9	70.6	67.8
15958.2	66.0	3.767	67.4	69.2	68.3
15905.4	42.4	3.991	43.4	46.3	44.9
15852.6	53.0	4.010	54.1	57.3	55.7
15799.8	67.8	3.808	77.9	63.0	70.5
15747.0	79.3	3.707	80.9	80.8	80.9
15694.2	77.5	3.726	83.0	81.0	82.0
15641.4	72.9	3.900	71.2	76.2	73.7
15588.6	57.5	3.873	58.7	61.3	60.0
15535.8	48.7	3.874	49.4	51.9	50.7
15483.0	62.1	3.871	68.1	60.5	64.3
15430.2	120.5	2.673	120.4	124.9	122.7
15377.4	57.7	3.880	58.8	63.2	61.0
15324.6	65.6	3.674	67.5	66.8	67.1
15271.8	101.5	3.803	100.2	107.8	104.0
15219.0	85.5	3.660	88.2	88.3	88.3
15166.2	83.4	3.730	83.6	86.0	84.8
15113.4	83.6	3.774	82.5	90.1	86.3
15060.6	62.5	3.865	65.9	61.4	63.6
15007.8	58.2	3.971	59.2	58.7	59.0
14955.0	69.3	3.611	69.4	74.9	72.1
14902.2	52.3	3.849	59.0	50.0	54.5
14849.4	110.2	3.317	118.3	111.0	114.7
14796.6	114.2	3.342	119.9	113.9	116.9
14743.8	102.8	3.471	102.5	104.1	103.3
14691.0	87.4	3.569	93.4	86.6	90.0
14638.2	90.3	3.713	94.9	93.8	94.4
14585.4	60.3	3.803	62.9	63.5	63.2
14532.6	79.2	3.539	77.7	86.2	81.9

14479.8	77.4	3.562	83.9	75.5	79.7	14479.8	77.0	3.674	81.5	76.8	79.1	14479.8	73.8	3.699	75.0	80.5	77.7
14427.0	89.9	3.005	110.5	77.5	94.0	14427.0	71.6	3.804	73.3	73.8	73.5	14427.0	73.5	3.846	76.7	75.1	75.9
14374.2	83.2	3.765	86.4	84.7	85.5	14374.2	84.4	3.800	91.0	80.5	85.7	14374.2	79.7	3.809	83.4	79.9	81.7
14321.4	97.8	3.626	105.8	92.6	99.2	14321.4	88.6	3.722	95.9	84.8	90.3	14321.4	90.1	3.714	95.5	88.2	91.8
14268.6	57.2	4.033	63.1	55.9	59.5	14268.6	53.9	4.012	60.4	50.0	55.2	14268.6	50.6	4.066	57.1	49.4	53.2
14215.8	60.4	3.747	73.4	51.2	62.3	14215.8	73.5	3.376	84.6	70.7	77.7	14215.8	72.6	3.581	82.0	67.8	74.9
14163.0	51.4	3.871	58.4	54.6	56.5	14163.0	48.7	3.860	51.6	58.9	55.3	14163.0	48.6	3.899	60.4	45.4	52.9
14110.2	82.6	3.570	88.1	90.5	89.3	14110.2	73.2	3.622	75.0	76.3	75.7	14110.2	163.1	1.964	297.3	64.7	181.0
14057.4	66.7	3.749	75.3	75.6	75.5	14057.4	64.6	3.833	74.2	63.2	68.7	14057.4	105.2	2.604	171.6	58.9	115.3
14004.6	75.8	3.602	78.2	83.0	80.6	14004.6	75.4	3.540	86.0	73.1	79.6	14004.6	169.3	1.627	301.5	71.0	186.3
13951.8	68.8	3.704	61.9	91.1	76.5	13951.8	64.0	3.886	71.0	62.0	66.5	13951.8	66.9	3.852	90.0	53.6	71.8
13899.0	58.9	3.763	60.8	82.0	71.4	13899.0	58.5	3.598	77.3	61.5	69.4	13899.0	51.2	3.927	59.6	51.4	55.5
13846.2	51.0	3.895	58.7	57.8	58.2	13846.2	113.9	2.412	197.3	56.1	126.7	13846.2	53.8	3.916	69.6	54.0	61.8
13793.4	59.9	3.735	66.2	60.6	63.4	13793.4	95.0	3.056	150.6	61.6	106.1	13793.4	65.6	3.799	70.0	67.7	68.9
13740.6	59.8	4.020	67.8	53.9	60.8	13740.6	57.8	4.016	65.1	56.0	60.5	13740.6	55.9	4.043	59.9	54.1	57.0
13687.8	58.7	3.731	63.5	57.6	60.5	13687.8	63.9	3.748	74.1	58.4	66.2	13687.8	59.7	3.746	64.5	58.5	61.5
13635.0	60.8	3.711	64.9	64.4	64.6	13635.0	65.0	3.748	66.4	70.9	68.7	13635.0	68.4	3.687	75.5	68.3	71.9
13582.2	77.9	3.907	85.0	79.1	82.1	13582.2	71.5	3.874	79.4	74.4	76.9	13582.2	71.0	3.896	76.3	72.5	74.4
13529.4	56.4	4.119	62.5	55.2	58.8	13529.4	56.2	4.091	61.4	52.3	56.9	13529.4	52.1	4.145	59.8	48.6	54.2
13476.6	88.2	3.818	86.6	94.5	90.6	13476.6	89.1	3.800	81.9	104.1	93.0	13476.6	88.4	3.771	82.4	100.1	91.3
13423.8	83.0	3.888	80.7	89.2	85.0	13423.8	79.6	3.888	79.2	82.7	80.9	13423.8	75.7	3.922	78.1	76.2	77.2
13371.0	70.7	3.797	72.0	74.0	73.0	13371.0	69.8	3.894	70.9	73.1	72.0	13371.0	69.8	3.818	70.9	71.0	70.9
13318.2	72.7	3.748	75.2	71.2	73.2	13318.2	63.9	3.748	71.0	61.2	66.1	13318.2	77.0	3.609	80.2	76.3	78.3
13265.4	90.8	3.380	96.6	89.4	93.0	13265.4	77.5	3.490	88.9	70.3	79.6	13265.4	78.2	3.485	86.4	73.9	80.1

October 2001 Profile Survey of Westbound Lanes, Passing Lane (PWBOC01)

ATHENS 050 - October 2001 Tests

LANE 2 PASS 1 DOWN
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	77.3	3.998	84.1	71.8	77.9
28894.2	62.9	4.056	67.5	61.2	64.3
28841.4	58.8	4.174	59.8	60.2	60.0
28788.6	68.0	4.003	74.6	63.1	68.9
28735.8	63.6	4.033	63.8	65.8	64.8
28683.0	67.5	3.920	62.2	74.5	68.4
28630.2	42.1	4.222	52.2	40.8	46.5
28577.4	41.7	4.117	46.7	43.5	45.1
28524.6	57.3	4.125	61.3	54.4	57.8
28471.8	62.6	3.881	68.7	59.5	64.1
28419.0	40.8	4.171	45.4	41.2	43.3
28366.2	55.8	4.062	63.1	52.2	57.7
28313.4	69.6	4.102	67.7	73.3	70.5
28260.6	59.6	4.048	64.2	61.2	62.7
28207.8	44.2	4.265	49.5	43.4	46.4
28155.0	50.9	4.218	53.5	53.9	53.7
28102.2	46.5	4.252	55.9	48.0	52.0
28049.4	47.2	4.142	49.6	50.6	50.1
27996.6	55.6	4.116	55.6	57.3	56.4
27943.8	51.1	3.989	63.3	45.4	54.4
27891.0	53.0	4.121	57.7	51.6	54.6
27838.2	59.6	3.775	61.2	63.1	62.1
27785.4	51.1	4.151	59.3	44.5	51.9
27732.6	57.4	4.062	62.2	55.8	59.0
27679.8	50.5	4.176	57.6	53.5	55.6
27627.0	58.6	4.094	63.9	57.5	60.7
27574.2	59.6	4.094	65.7	55.8	60.8
27521.4	55.1	4.070	61.2	51.4	56.3
27468.6	68.8	3.902	68.7	71.0	69.9
27415.8	60.7	3.882	73.6	55.1	64.3
27363.0	51.2	4.020	54.4	54.5	54.5
27310.2	111.0	3.358	120.5	105.8	113.1
27257.4	84.1	3.739	97.0	78.8	87.9
27204.6	67.1	3.911	75.2	65.6	70.4
27151.8	77.7	3.863	76.5	82.2	79.4
27099.0	64.7	3.935	60.0	78.4	69.2
27046.2	61.8	4.002	66.0	59.6	62.8
26993.4	47.2	4.020	45.4	59.5	52.5
26940.6	43.0	4.222	51.0	41.8	46.4
26887.8	70.7	4.000	72.4	71.1	71.7
26835.0	53.8	3.873	53.4	60.5	56.9
26782.2	61.8	3.969	65.0	63.4	64.2
26729.4	77.0	4.005	83.7	72.8	78.2
26676.6	47.9	4.014	58.2	48.1	53.2
26623.8	56.8	4.095	62.7	57.8	60.3
26571.0	64.0	3.897	74.5	66.8	70.7

LANE 2 PASS 2 DOWN
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	71.8	4.005	81.6	64.2	72.9
28894.2	63.3	4.029	70.4	59.6	65.0
28841.4	57.0	4.220	63.2	55.0	59.1
28788.6	64.9	4.065	71.7	61.2	66.5
28735.8	60.2	4.111	61.3	62.9	62.1
28683.0	63.6	3.955	63.2	65.8	64.5
28630.2	43.6	4.200	44.9	44.7	44.8
28577.4	42.6	4.143	52.2	37.5	44.8
28524.6	61.9	4.057	65.1	61.0	63.1
28471.8	64.0	3.882	68.9	63.5	66.2
28419.0	44.8	4.122	49.6	43.9	46.8
28366.2	54.9	4.021	61.5	51.1	56.3
28313.4	67.9	4.065	65.3	73.3	69.3
28260.6	58.6	4.052	63.5	59.6	61.6
28207.8	45.8	4.279	50.5	45.9	48.2
28155.0	52.3	4.179	56.4	56.7	56.6
28102.2	43.7	4.223	53.4	44.1	48.7
28049.4	47.9	4.103	49.1	50.9	50.0
27996.6	56.3	4.078	57.2	59.4	58.3
27943.8	52.9	4.004	60.3	49.3	54.8
27891.0	53.2	4.105	60.9	47.5	54.2
27838.2	59.4	3.840	60.0	63.4	61.7
27785.4	53.0	4.166	58.4	50.4	54.4
27732.6	56.2	4.035	59.5	56.7	58.1
27679.8	49.4	4.207	55.3	49.6	52.5
27627.0	54.3	4.196	62.1	51.5	56.8
27574.2	58.0	4.094	65.8	52.7	59.3
27521.4	54.5	4.130	59.2	53.6	56.4
27468.6	65.7	3.974	65.6	68.8	67.2
27415.8	61.9	3.853	69.5	60.4	64.9
27363.0	50.3	4.038	53.2	52.1	52.7
27310.2	110.3	3.366	119.8	105.5	112.7
27257.4	83.7	3.724	94.6	77.4	86.0
27204.6	63.8	3.919	71.6	63.3	67.5
27151.8	72.9	3.936	74.8	74.7	74.8
27099.0	65.1	3.952	58.5	76.4	67.4
27046.2	60.0	3.990	66.0	56.1	61.0
26993.4	46.5	4.049	45.0	60.7	52.9
26940.6	44.8	4.182	48.7	47.8	48.2
26887.8	69.5	4.031	73.9	67.1	70.5
26835.0	50.9	3.861	62.0	55.1	58.5
26782.2	60.0	4.009	68.4	55.7	62.1
26729.4	73.5	3.970	79.8	69.4	74.6
26676.6	41.5	4.147	45.1	44.0	44.6
26623.8	55.1	4.136	64.3	53.8	59.0
26571.0	57.0	4.073	69.7	60.3	65.0

LANE 2 PASS 3 DOWN
LOG NUMBERS DESCENDING

STATION	MAYS	PSI	IRIlf	IRIrt	IRIbh
28947.0	72.0	3.989	77.6	68.9	73.3
28894.2	63.7	3.996	71.0	63.1	67.0
28841.4	56.5	4.216	58.6	58.5	58.5
28788.6	67.3	4.019	72.1	66.4	69.2
28735.8	59.4	4.077	61.7	64.5	63.1
28683.0	64.9	3.878	61.2	72.0	66.6
28630.2	41.8	4.257	41.5	45.5	43.5
28577.4	46.8	4.056	51.2	48.4	49.8
28524.6	63.5	4.034	68.9	60.8	64.9
28471.8	63.1	3.896	68.6	65.2	66.9
28419.0	47.8	4.120	53.8	45.5	49.7
28366.2	54.8	4.035	58.0	54.5	56.2
28313.4	65.0	4.123	64.7	67.0	65.8
28260.6	56.4	4.048	60.1	60.9	60.5
28207.8	47.5	4.245	57.9	42.0	50.0
28155.0	53.9	4.172	59.8	51.2	55.5
28102.2	44.3	4.154	55.0	45.3	50.2
28049.4	49.8	4.055	49.7	57.5	53.6
27996.6	55.4	4.086	57.0	57.8	57.4
27943.8	60.1	3.850	79.1	47.3	63.2
27891.0	55.8	4.090	63.5	53.3	58.4
27838.2	57.1	3.837	60.3	65.3	62.8
27785.4	53.2	4.145	61.6	46.7	54.1
27732.6	53.0	4.134	56.4	51.9	54.2
27679.8	48.1	4.204	56.0	48.3	52.1
27627.0	56.4	4.133	64.7	53.9	59.3
27574.2	55.9	4.172	63.0	51.8	57.4
27521.4	52.4	4.199	55.4	52.4	53.9
27468.6	57.1	4.072	51.2	69.0	60.1
27415.8	61.8	3.833	74.1	57.0	65.6
27363.0	48.5	4.053	49.3	53.5	51.4
27310.2	107.8	3.347	120.9	98.4	109.7
27257.4	82.5	3.747	91.3	80.4	85.8
27204.6	68.6	3.781	71.6	72.3	71.9
27151.8	74.5	3.903	71.2	82.7	76.9
27099.0	66.4	4.009	59.4	79.9	69.7
27046.2	61.1	4.001	72.1	53.5	62.8
26993.4	41.9	4.102	43.2	55.8	49.5
26940.6	48.0	4.161	52.1	47.1	49.6
26887.8	72.3	3.913	79.2	70.8	75.0
26835.0	56.5	3.690	60.3	62.5	61.4
26782.2	61.2	4.035	66.1	60.6	63.4
26729.4	75.9	4.028	80.9	76.8	78.8
26676.6	46.8	4.015	54.6	48.1	51.4
26623.8	65.9	3.940	79.4	64.2	71.8
26571.0	63.6	3.778	70.6	69.4	70.0

26518.2	73.1	4.001	85.0	67.5	76.2	26518.2	74.3	3.846	90.6	68.0	79.3	26518.2	83.3	3.831	99.6	74.7	87.2
26465.4	53.2	3.983	60.2	56.1	58.2	26465.4	56.6	3.948	62.3	58.5	60.4	26465.4	59.1	3.973	66.7	55.2	61.0
26412.6	61.2	3.950	67.7	58.6	63.2	26412.6	61.7	3.941	72.6	54.3	63.4	26412.6	64.4	3.910	76.5	57.8	67.1
26359.8	63.2	3.942	76.2	54.0	65.1	26359.8	62.8	3.894	73.2	61.2	67.2	26359.8	64.2	3.965	77.8	57.0	67.4
26307.0	64.9	3.744	80.3	58.6	69.5	26307.0	69.3	3.623	88.1	56.4	72.3	26307.0	69.7	3.625	92.9	54.0	73.5
26254.2	53.8	3.904	48.2	68.0	58.1	26254.2	54.2	3.765	48.7	66.3	57.5	26254.2	48.2	3.946	44.6	56.0	50.3
26201.4	46.7	3.991	47.2	53.6	50.4	26201.4	43.3	4.051	44.3	49.3	46.8	26201.4	46.5	3.952	50.7	50.1	50.4
26148.6	59.3	3.925	57.0	64.8	60.9	26148.6	57.7	4.001	58.0	61.0	59.5	26148.6	58.0	3.919	59.2	60.7	60.0
26095.8	59.8	3.859	51.3	72.2	61.8	26095.8	63.3	3.775	59.5	72.2	65.8	26095.8	66.1	3.740	65.6	74.9	70.3
26043.0	60.8	3.842	61.3	72.8	67.0	26043.0	62.2	3.860	56.8	73.9	65.3	26043.0	68.9	3.726	69.8	75.8	72.8
25990.2	55.3	3.778	56.0	58.7	57.3	25990.2	57.2	3.763	61.9	59.3	60.6	25990.2	55.9	3.815	58.4	61.0	59.7
25937.4	71.0	3.794	74.3	71.3	72.8	25937.4	63.8	3.916	71.4	66.3	68.8	25937.4	77.3	3.697	88.7	71.5	80.1
25884.6	89.3	3.247	95.5	91.9	93.7	25884.6	101.9	3.028	111.3	95.9	103.6	25884.6	94.8	3.170	95.3	99.9	97.6
25831.8	53.9	3.926	55.1	56.1	55.6	25831.8	56.2	3.977	51.8	62.7	57.2	25831.8	59.7	3.811	61.2	62.2	61.7
25779.0	68.5	3.345	70.7	76.4	73.6	25779.0	75.1	3.404	85.9	73.3	79.6	25779.0	68.1	3.416	66.9	78.9	72.9
25726.2	52.2	4.020	45.9	63.8	54.8	25726.2	45.8	3.869	55.0	49.1	52.1	25726.2	41.9	4.064	44.8	50.4	47.6
25673.4	72.6	3.582	77.4	73.9	75.6	25673.4	73.4	3.633	70.2	80.4	75.3	25673.4	74.5	3.574	81.0	73.0	77.0
25620.6	75.4	3.839	85.3	74.3	79.8	25620.6	70.6	3.891	82.2	64.5	73.3	25620.6	72.2	3.991	79.1	72.0	75.6
25567.8	60.3	4.005	60.1	65.6	62.9	25567.8	60.9	3.944	63.3	63.6	63.4	25567.8	66.3	3.889	66.0	70.5	68.2
25515.0	60.1	4.099	62.2	59.7	60.9	25515.0	57.6	4.085	59.1	59.6	59.3	25515.0	57.7	4.078	58.8	58.5	58.7
25462.2	45.5	4.081	46.1	52.8	49.5	25462.2	53.1	3.945	50.5	64.4	57.5	25462.2	47.3	4.059	50.3	57.1	53.7
25409.4	50.3	4.009	52.5	58.7	55.6	25409.4	45.8	4.127	54.3	54.4	54.3	25409.4	50.2	4.023	53.7	57.6	55.7
25356.6	61.9	3.759	69.4	88.5	78.9	25356.6	71.2	3.562	74.5	92.8	83.6	25356.6	63.0	3.687	71.3	86.2	78.7
25303.8	98.2	4.077	103.7	99.2	101.4	25303.8	98.6	3.939	102.5	100.2	101.4	25303.8	100.1	3.825	103.5	103.8	103.7
25251.0	108.5	3.525	106.8	112.2	109.5	25251.0	105.4	3.541	102.7	112.5	107.6	25251.0	109.5	3.537	110.7	110.6	110.7
25198.2	63.9	3.714	77.0	57.7	67.3	25198.2	58.7	3.738	72.2	51.1	61.6	25198.2	60.8	3.706	73.1	54.1	63.6
25145.4	68.2	4.122	66.8	72.0	69.4	25145.4	71.9	4.105	73.5	72.6	73.1	25145.4	74.5	4.077	74.8	76.8	75.8
25092.6	71.7	3.825	71.2	75.7	73.4	25092.6	68.5	3.881	68.6	70.7	69.6	25092.6	67.4	3.910	68.8	70.6	69.7
25039.8	52.9	4.075	63.3	52.4	57.8	25039.8	55.4	4.017	65.2	54.8	60.0	25039.8	55.2	4.034	66.9	53.2	60.0
24987.0	45.8	4.170	46.7	50.5	48.6	24987.0	47.9	4.208	46.1	55.8	50.9	24987.0	47.7	4.156	46.8	54.8	50.8
24934.2	60.9	4.123	62.2	66.5	64.3	24934.2	60.0	4.223	57.9	65.8	61.8	24934.2	59.2	4.159	58.6	65.5	62.0
24881.4	51.8	3.998	52.9	60.3	56.6	24881.4	56.2	4.028	56.1	64.4	60.3	24881.4	51.8	4.008	50.2	63.2	56.7
24828.6	76.6	3.761	65.0	91.0	78.0	24828.6	67.9	3.905	59.6	83.8	71.7	24828.6	73.6	3.826	61.3	90.7	76.0
24775.8	45.5	4.073	38.5	60.2	49.3	24775.8	46.9	4.129	42.9	56.0	49.4	24775.8	45.7	4.043	38.9	61.5	50.2
24723.0	47.7	3.923	45.0	59.8	52.4	24723.0	44.6	4.034	36.9	61.7	49.3	24723.0	47.5	4.051	45.5	59.5	52.5
24670.2	57.4	3.973	57.2	61.8	59.5	24670.2	56.5	3.974	62.2	54.3	58.3	24670.2	63.8	3.855	69.5	60.8	65.2
24617.4	69.8	4.181	62.5	80.1	71.3	24617.4	72.7	4.101	68.4	81.9	75.1	24617.4	66.1	4.177	60.8	77.6	69.2
24564.6	55.1	4.063	45.6	69.2	57.4	24564.6	52.4	4.033	48.1	62.3	55.2	24564.6	48.8	4.079	48.7	53.0	50.9
24511.8	55.0	4.016	68.1	46.8	57.4	24511.8	63.1	3.959	77.8	53.0	65.4	24511.8	59.1	4.013	70.1	52.2	61.1
24459.0	67.9	3.737	74.2	68.2	71.2	24459.0	66.8	3.735	77.6	65.9	71.7	24459.0	67.8	3.707	75.1	68.4	71.7
24406.2	67.0	4.041	83.6	58.6	71.1	24406.2	71.6	4.017	89.4	57.8	73.6	24406.2	67.1	4.077	79.8	60.1	69.9
24353.4	54.3	3.938	56.3	59.5	57.9	24353.4	53.3	3.945	58.3	56.5	57.4	24353.4	53.2	4.004	50.2	61.4	55.8
24300.6	42.7	4.133	40.2	51.8	46.0	24300.6	43.3	4.185	40.3	55.2	47.8	24300.6	43.7	4.136	44.8	49.0	46.9
24247.8	56.2	3.839	58.9	56.5	57.7	24247.8	59.6	3.787	56.0	65.3	60.7	24247.8	53.9	3.882	52.4	59.5	55.9
24195.0	50.8	4.020	55.6	53.8	54.7	24195.0	51.2	4.087	55.5	51.5	53.5	24195.0	51.8	4.044	59.2	50.4	54.8
24142.2	82.9	3.749	80.4	92.5	86.4	24142.2	77.4	3.735	75.4	89.1	82.3	24142.2	82.3	3.665	79.2	94.2	86.7
24089.4	63.0	3.967	61.0	68.4	64.7	24089.4	55.6	4.032	60.6	54.4	57.5	24089.4	59.3	3.991	57.6	64.5	61.1
24036.6	42.7	4.023	42.8	53.8	48.3	24036.6	45.6	3.987	45.7	54.8	50.3	24036.6	44.3	4.073	46.2	52.9	49.6
23983.8	62.4	3.911	65.9	68.2	67.0	23983.8	57.0	3.957	62.5	54.9	58.7	23983.8	56.3	3.965	62.9	54.1	58.5
23931.0	56.6	4.020	54.9	66.2	60.6	23931.0	60.3	4.053	61.7	63.3	62.5	23931.0	61.5	3.974	63.2	63.0	63.1
23878.2	47.0	4.072	52.1	50.0	51.0	23878.2	44.1	3.967	50.4	48.2	49.3	23878.2	44.6	4.052	45.9	49.9	47.9
23825.4	57.9	3.806	49.8	71.2	60.5	23825.4	64.2	3.631	62.0	72.5	67.3	23825.4	54.7	3.891	50.9	62.6	56.7
23772.6	48.7	4.033	50.1	52.1	51.1	23772.6	51.0	3.964	47.1	58.8	53.0	23772.6	45.4	4.024	41.8	55.2	48.5
23719.8	70.4	3.673	69.0	75.3	72.1	23719.8	71.6	3.682	76.4	72.1	74.3	23719.8	67.7	3.736	67.9	71.2	69.6
23667.0	50.6	4.144	52.1	53.3	52.7	23667.0	48.9	4.139	52.5	52.9	52.7	23667.0	53.0	4.108	52.7	56.9	54.8
23614.2	83.1	3.634	95.6	76.3	85.9	23614.2	94.4	3.511	103.9	91.0	97.5	23614.2	86.8	3.572	103.3	77.9	90.6
23561.4	56.7	4.006	67.5	60.3	63.9	23561.4	52.3	4.021	56.2	59.9	58.0	23561.4	55.4	3.943	61.5	62.2	61.9

23508.6	72.9	3.851	82.7	66.5	74.6	23508.6	73.7	3.841	80.6	72.2	76.4	23508.6	72.0	3.841	80.5	69.1	74.8
23455.8	73.1	3.745	81.7	75.6	78.7	23455.8	70.0	3.796	79.7	70.2	75.0	23455.8	74.6	3.723	81.9	78.0	79.9
23403.0	44.3	4.043	48.9	50.6	49.8	23403.0	50.5	3.906	60.5	49.6	55.1	23403.0	47.8	3.967	53.6	49.7	51.6
23350.2	57.1	3.990	59.6	60.0	59.8	23350.2	52.9	4.057	48.0	62.9	55.4	23350.2	58.5	3.958	60.4	61.0	60.7
23297.4	63.1	3.933	65.3	78.5	71.9	23297.4	63.1	3.918	67.1	69.6	68.4	23297.4	60.8	3.900	65.5	72.2	68.9
23244.6	76.7	3.620	70.5	85.1	77.8	23244.6	76.0	3.622	65.9	89.3	77.6	23244.6	78.9	3.588	69.1	93.0	81.1
23191.8	61.3	3.780	59.6	68.3	63.9	23191.8	55.0	3.855	57.2	56.2	56.7	23191.8	54.4	3.911	55.0	58.5	56.7
23139.0	50.1	4.113	53.3	51.5	52.4	23139.0	51.8	4.095	48.9	58.4	53.6	23139.0	48.0	4.149	46.2	53.6	49.9
23086.2	46.5	4.054	46.5	54.8	50.7	23086.2	46.8	4.054	43.9	56.8	50.3	23086.2	43.6	4.078	51.2	44.7	48.0
23033.4	41.5	4.148	36.3	57.6	47.0	23033.4	39.8	4.111	33.3	50.6	42.0	23033.4	46.7	4.111	45.7	54.2	50.0
22980.6	52.8	3.928	59.3	54.9	57.1	22980.6	48.4	4.040	55.3	50.4	52.9	22980.6	47.4	4.135	57.5	47.4	52.4
22927.8	42.6	4.068	49.3	48.5	48.9	22927.8	41.9	4.030	47.8	44.1	46.0	22927.8	42.6	4.071	46.7	49.3	48.0
22875.0	47.7	3.952	56.2	44.6	50.4	22875.0	48.2	3.948	55.9	47.6	51.7	22875.0	43.9	4.035	55.8	38.1	47.0
22822.2	52.6	3.960	53.8	53.5	53.7	22822.2	50.9	3.974	48.9	56.2	52.5	22822.2	51.9	3.932	49.8	62.3	56.0
22769.4	33.5	4.159	36.6	37.1	36.8	22769.4	32.0	4.218	35.5	33.6	34.5	22769.4	36.8	4.168	39.3	42.9	41.1
22716.6	35.9	4.237	43.2	38.3	40.8	22716.6	33.2	4.244	43.7	40.8	42.2	22716.6	36.3	4.215	39.7	38.5	39.1
22663.8	68.2	3.902	68.9	73.7	71.3	22663.8	71.0	3.862	71.9	73.7	72.8	22663.8	70.9	3.890	74.5	68.9	71.7
22611.0	68.8	3.776	70.9	69.7	70.3	22611.0	71.2	3.802	72.8	71.5	72.1	22611.0	68.0	3.817	67.8	74.6	71.2
22558.2	39.2	4.154	41.3	43.5	42.4	22558.2	39.5	4.160	42.3	43.1	42.7	22558.2	35.7	4.256	38.1	38.2	38.2
22505.4	80.7	3.581	94.6	77.3	86.0	22505.4	67.1	3.736	85.8	59.3	72.6	22505.4	73.6	3.684	87.5	68.1	77.8
22452.6	49.0	4.037	57.0	47.8	52.4	22452.6	57.2	4.129	68.7	51.0	59.9	22452.6	54.1	4.043	64.8	51.9	58.3
22399.8	43.1	4.033	47.1	41.9	44.5	22399.8	41.2	4.049	49.3	37.0	43.1	22399.8	39.2	4.075	46.6	36.0	41.3
22347.0	62.7	3.920	68.7	65.7	67.2	22347.0	63.8	3.967	66.2	64.5	65.3	22347.0	63.3	3.876	71.2	67.3	69.3
22294.2	41.8	4.142	46.5	44.4	45.5	22294.2	46.0	4.026	54.7	52.0	53.4	22294.2	41.6	4.065	50.7	43.2	46.9
22241.4	45.2	3.984	43.6	53.1	48.3	22241.4	46.7	3.985	44.3	59.5	51.9	22241.4	46.0	3.962	45.6	55.8	50.7
22188.6	67.9	3.902	81.4	57.7	69.5	22188.6	65.2	3.814	76.3	60.8	68.6	22188.6	58.3	3.971	68.3	52.3	60.3
22135.8	61.7	3.730	53.0	79.4	66.2	22135.8	67.9	3.638	61.5	82.6	72.1	22135.8	59.0	3.854	49.3	73.9	61.6
22083.0	45.8	4.027	55.4	45.6	50.5	22083.0	46.0	3.943	53.1	45.1	49.1	22083.0	46.4	4.058	55.7	50.8	53.3
22030.2	44.3	4.084	49.2	53.1	51.1	22030.2	43.7	4.121	47.4	50.0	48.7	22030.2	44.0	4.121	47.7	45.8	46.8
21977.4	39.9	4.026	44.8	45.1	45.0	21977.4	39.4	4.049	44.2	46.3	45.3	21977.4	35.3	4.093	40.0	39.9	40.0
21924.6	61.5	4.082	69.8	58.0	63.9	21924.6	60.7	4.109	69.9	57.0	63.4	21924.6	61.4	4.062	69.1	58.3	63.7
21871.8	59.7	3.910	62.9	64.3	63.6	21871.8	58.0	3.939	57.3	66.1	61.7	21871.8	58.6	3.980	55.5	66.4	60.9
21819.0	58.2	3.956	57.4	63.6	60.5	21819.0	56.0	4.025	53.6	61.9	57.7	21819.0	52.2	4.133	50.4	58.1	54.2
21766.2	45.1	4.208	44.9	52.3	48.6	21766.2	45.3	4.140	44.4	52.8	48.6	21766.2	43.0	4.200	45.9	49.6	47.7
21713.4	45.6	4.247	48.8	45.4	47.1	21713.4	47.8	4.198	49.9	47.8	48.9	21713.4	48.0	4.167	49.6	49.8	49.7
21660.6	68.2	3.946	68.5	72.5	70.5	21660.6	71.0	3.888	76.0	69.3	72.6	21660.6	68.8	3.896	74.7	67.5	71.1
21607.8	60.4	4.016	73.5	53.4	63.5	21607.8	58.2	3.967	64.0	57.7	60.9	21607.8	52.7	3.998	64.7	49.6	57.2
21555.0	53.8	3.952	52.5	58.5	55.5	21555.0	54.0	4.047	46.0	68.6	57.3	21555.0	62.3	3.878	56.5	73.2	64.8
21502.2	67.5	4.045	79.7	58.2	69.0	21502.2	63.4	4.061	68.5	66.8	67.7	21502.2	64.0	4.028	76.5	56.8	66.7
21449.4	56.0	3.923	60.7	58.3	59.5	21449.4	55.9	3.881	56.9	65.3	61.1	21449.4	53.8	3.939	58.7	54.7	56.7
21396.6	47.1	4.107	53.8	45.3	49.6	21396.6	47.5	4.030	47.4	51.6	49.5	21396.6	42.0	4.174	44.4	42.7	43.5
21343.8	44.0	4.030	60.0	39.0	49.5	21343.8	42.2	4.055	49.2	46.2	47.7	21343.8	40.2	4.119	53.8	37.0	45.4
21291.0	56.4	3.978	65.9	56.8	61.4	21291.0	50.6	4.015	56.2	54.9	55.5	21291.0	48.0	4.086	55.9	50.9	53.4
21238.2	42.8	4.112	49.6	42.3	46.0	21238.2	40.1	4.090	50.4	35.3	42.8	21238.2	39.6	4.177	43.3	38.9	41.1
21185.4	56.2	4.045	62.7	57.6	60.1	21185.4	54.3	4.036	54.7	60.8	57.8	21185.4	49.3	4.127	49.3	55.2	52.2
21132.6	60.9	3.868	64.9	61.4	63.1	21132.6	61.7	3.857	65.4	64.6	65.0	21132.6	47.7	4.071	51.2	51.7	51.5
21079.8	41.4	4.151	39.3	53.6	46.5	21079.8	46.0	4.021	39.3	59.9	49.6	21079.8	34.5	4.239	36.3	45.1	40.7
21027.0	53.5	3.955	63.4	56.2	59.8	21027.0	43.1	4.099	49.6	49.6	49.6	21027.0	46.2	3.982	51.0	47.7	49.3
20974.2	59.9	3.839	69.1	63.4	66.2	20974.2	60.5	3.784	59.2	70.6	64.9	20974.2	60.0	3.894	63.4	63.2	63.3
20921.4	78.9	3.812	78.0	87.4	82.7	20921.4	77.5	3.783	72.4	90.8	81.6	20921.4	77.4	3.891	77.2	82.3	79.7
20868.6	44.7	3.906	56.2	60.9	58.6	20868.6	45.6	3.847	52.3	66.9	59.6	20868.6	47.3	3.814	55.9	61.9	58.9
20815.8	70.9	3.816	73.3	78.5	75.9	20815.8	69.0	3.898	70.4	76.6	73.5	20815.8	65.6	3.891	66.1	77.1	71.6
20763.0	55.0	3.986	61.8	59.7	60.8	20763.0	54.3	3.968	65.8	60.1	62.9	20763.0	58.3	3.917	66.5	61.0	63.7
20710.2	53.3	4.138	63.7	45.4	54.6	20710.2	57.3	4.109	67.0	51.1	59.0	20710.2	55.5	4.158	62.8	50.2	56.5
20657.4	53.0	4.028	54.8	57.9	56.3	20657.4	57.1	4.046	63.2	56.2	59.7	20657.4	56.1	4.036	57.7	60.6	59.1
20604.6	74.6	4.018	78.6	75.4	77.0	20604.6	66.2	4.022	68.0	68.7	68.3	20604.6	74.7	3.997	84.2	70.1	77.2
20551.8	44.8	3.936	44.5	51.0	47.7	20551.8	43.0	4.040	54.1	39.7	46.9	20551.8	41.5	4.036	49.0	45.9	47.4

20499.0	55.4	3.993	61.4	55.3	58.4	20499.0	62.1	3.926	68.9	59.4	64.1	20499.0	60.1	3.932	70.0	56.9	63.5
20446.2	58.7	3.954	65.9	54.0	59.9	20446.2	59.8	3.905	71.3	52.1	61.7	20446.2	55.2	4.002	60.5	53.5	57.0
20393.4	43.6	4.139	54.3	44.4	49.4	20393.4	42.0	4.183	47.7	44.6	46.2	20393.4	45.4	4.181	57.2	44.4	50.8
20340.6	47.2	3.937	59.9	44.5	52.2	20340.6	40.9	3.999	45.6	47.6	46.6	20340.6	45.5	3.981	63.2	40.3	51.7
20287.8	75.2	4.017	81.2	74.6	77.9	20287.8	74.2	3.964	83.0	70.1	76.6	20287.8	71.4	4.041	76.7	68.6	72.6
20235.0	75.6	3.691	82.7	82.5	82.6	20235.0	74.4	3.686	78.7	86.4	82.5	20235.0	62.2	3.780	67.7	77.8	72.8
20182.2	68.7	4.041	76.0	66.2	71.1	20182.2	67.4	4.072	74.7	64.8	69.8	20182.2	65.1	4.115	72.9	60.6	66.8
20129.4	72.1	4.029	83.7	65.8	74.7	20129.4	71.3	4.096	77.9	67.0	72.4	20129.4	72.7	4.035	81.4	67.6	74.5
20076.6	87.8	3.544	96.1	87.6	91.8	20076.6	86.7	3.569	95.4	87.0	91.2	20076.6	80.5	3.649	86.2	85.3	85.8
20023.8	45.1	4.070	48.6	51.4	50.0	20023.8	46.4	4.077	49.2	51.5	50.4	20023.8	45.9	3.981	49.4	50.9	50.1
19971.0	51.2	4.144	56.3	50.9	53.6	19971.0	56.1	4.107	64.5	52.9	58.7	19971.0	50.5	4.145	57.9	49.8	53.8
19918.2	84.5	3.819	92.6	82.1	87.3	19918.2	83.7	3.747	93.0	79.3	86.2	19918.2	84.3	3.829	95.7	79.5	87.6
19865.4	64.5	3.880	71.4	62.8	67.1	19865.4	62.2	3.830	69.9	63.1	66.5	19865.4	64.3	3.855	70.5	63.4	67.0
19812.6	74.3	3.814	86.5	69.1	77.8	19812.6	69.7	3.789	73.8	74.1	74.0	19812.6	70.8	3.841	82.6	65.2	73.9
19759.8	34.2	4.291	43.5	39.3	41.4	19759.8	37.6	4.300	45.7	42.0	43.8	19759.8	39.6	4.285	47.1	40.9	44.0
19707.0	56.2	3.759	75.5	47.4	61.5	19707.0	51.4	3.734	64.0	49.7	56.9	19707.0	55.5	3.764	77.3	46.2	61.8
19654.2	67.8	3.700	78.7	61.4	70.1	19654.2	68.2	3.711	76.7	62.6	69.7	19654.2	64.2	3.718	69.6	61.1	65.4
19601.4	65.8	3.424	77.5	59.8	68.7	19601.4	67.1	3.428	73.4	66.1	69.7	19601.4	64.1	3.480	77.6	57.3	67.4
19548.6	48.7	3.659	50.0	55.5	52.7	19548.6	46.5	3.805	51.6	52.2	51.9	19548.6	46.9	3.683	47.8	53.4	50.6
19495.8	45.5	3.918	62.8	34.4	48.6	19495.8	43.8	3.991	56.3	45.2	50.8	19495.8	47.2	3.918	62.2	40.7	51.5
19443.0	53.4	4.019	63.7	52.3	58.0	19443.0	52.9	3.939	58.9	56.7	57.8	19443.0	55.5	3.953	65.4	53.8	59.6
19390.2	48.0	3.999	53.8	52.4	53.1	19390.2	50.2	4.005	51.9	56.1	54.0	19390.2	48.1	3.990	51.0	52.0	51.5
19337.4	47.7	3.987	53.3	50.9	52.1	19337.4	44.1	4.105	47.2	48.8	48.0	19337.4	47.9	3.995	50.6	48.3	49.4
19284.6	45.8	4.010	54.3	48.4	51.4	19284.6	38.3	4.139	50.9	37.9	44.4	19284.6	38.6	4.067	44.4	39.4	41.9
19231.8	51.1	3.942	55.8	50.3	53.1	19231.8	43.8	3.996	48.1	49.9	49.0	19231.8	43.7	3.975	47.4	51.1	49.3
19179.0	62.0	3.894	73.4	56.3	64.8	19179.0	53.0	4.071	59.0	52.4	55.7	19179.0	58.4	4.042	60.8	59.6	60.2
19126.2	61.4	3.985	60.5	70.4	65.5	19126.2	60.9	3.949	55.0	74.6	64.8	19126.2	64.8	3.855	61.6	72.9	67.2
19073.4	70.7	3.854	71.1	78.5	74.8	19073.4	76.1	3.825	76.7	81.4	79.1	19073.4	73.3	3.833	74.1	76.9	75.5
19020.6	62.7	4.018	59.9	77.9	68.9	19020.6	62.6	3.953	66.9	67.5	67.2	19020.6	62.5	3.973	60.0	74.0	67.0
18967.8	89.4	3.812	88.0	93.7	90.8	18967.8	84.1	3.825	77.5	96.0	86.8	18967.8	91.0	3.785	91.2	93.9	92.5
18915.0	67.2	3.819	73.8	66.4	70.1	18915.0	68.2	3.801	71.3	71.0	71.1	18915.0	64.9	3.848	76.0	64.5	70.2
18862.2	63.4	3.763	66.8	72.0	69.4	18862.2	66.6	3.763	71.9	71.9	71.9	18862.2	61.4	3.789	64.0	66.8	65.4
18809.4	48.7	3.873	57.5	45.2	51.3	18809.4	50.7	3.829	66.8	46.3	56.5	18809.4	49.5	3.823	63.4	47.5	55.5
18756.6	51.6	4.025	50.9	61.9	56.4	18756.6	51.9	4.052	53.4	56.1	54.7	18756.6	52.7	4.054	51.7	59.5	55.6
18703.8	48.1	3.943	49.2	56.9	53.0	18703.8	51.7	3.966	56.1	59.2	57.7	18703.8	50.1	3.952	53.0	55.5	54.2
18651.0	77.6	3.871	91.2	72.8	82.0	18651.0	76.6	3.900	89.4	74.4	81.9	18651.0	77.2	3.855	90.5	73.7	82.1
18598.2	58.1	3.980	63.5	61.2	62.4	18598.2	53.7	3.999	60.7	55.9	58.3	18598.2	51.6	4.011	56.7	55.7	56.2
18545.4	85.6	3.939	90.9	93.2	92.0	18545.4	86.0	3.956	90.9	94.0	92.4	18545.4	87.4	3.880	90.8	96.3	93.5
18492.6	69.9	3.835	70.4	77.3	73.9	18492.6	71.3	3.879	73.9	76.2	75.0	18492.6	70.7	3.806	74.8	75.4	75.1
18439.8	79.1	4.005	83.3	76.3	79.8	18439.8	78.3	3.978	83.2	75.1	79.2	18439.8	77.0	3.993	79.6	77.1	78.3
18387.0	69.6	3.799	77.2	67.7	72.4	18387.0	73.8	3.766	76.8	73.6	75.2	18387.0	76.1	3.729	70.8	84.1	77.4
18334.2	46.0	3.984	42.8	59.6	51.2	18334.2	45.4	4.000	41.3	58.8	50.1	18334.2	49.3	4.010	43.8	63.7	53.8
18281.4	63.0	3.819	68.1	69.4	68.7	18281.4	61.6	3.798	62.1	77.6	69.9	18281.4	66.1	3.826	68.4	73.1	70.8
18228.6	106.1	3.713	119.8	110.9	115.4	18228.6	102.4	3.826	114.2	115.2	114.7	18228.6	100.0	3.799	120.3	108.0	114.1
18175.8	62.4	3.946	60.8	76.9	68.9	18175.8	69.5	3.856	66.3	81.1	73.7	18175.8	60.7	3.989	54.4	78.4	66.4
18123.0	54.8	4.105	54.3	59.0	56.6	18123.0	54.6	4.099	50.2	62.3	56.3	18123.0	54.7	4.081	56.7	60.0	58.3
18070.2	44.8	4.157	46.2	50.0	48.1	18070.2	46.2	4.159	47.3	48.9	48.1	18070.2	44.6	4.143	48.1	48.2	48.2
18017.4	68.8	3.927	73.9	69.7	71.8	18017.4	67.6	3.962	70.6	67.7	69.1	18017.4	69.1	3.865	74.2	67.5	70.9
17964.6	58.9	3.900	64.2	59.1	61.6	17964.6	61.9	3.935	59.2	67.2	63.2	17964.6	60.2	3.934	59.9	62.7	61.3
17911.8	68.5	3.834	67.8	77.5	72.6	17911.8	76.1	3.842	70.0	90.7	80.4	17911.8	72.0	3.855	69.7	83.1	76.4
17859.0	84.2	3.840	90.3	79.9	85.1	17859.0	78.1	3.869	84.4	74.4	79.4	17859.0	79.8	3.821	85.8	76.4	81.1
17806.2	57.1	4.032	55.9	64.7	60.3	17806.2	57.0	4.035	54.2	63.6	58.9	17806.2	50.8	4.066	49.7	57.9	53.8
17753.4	71.8	3.727	80.1	68.9	74.5	17753.4	76.5	3.677	86.8	72.8	79.8	17753.4	74.9	3.720	86.4	69.0	77.7
17700.6	86.9	3.514	90.7	91.9	91.3	17700.6	81.8	3.622	89.0	83.4	86.2	17700.6	82.2	3.570	85.1	84.0	84.5
17647.8	82.0	3.854	97.0	81.1	89.0	17647.8	80.3	3.769	93.9	82.6	88.3	17647.8	82.9	3.858	97.3	82.5	89.9
17595.0	59.7	3.842	66.3	68.9	67.6	17595.0	61.1	3.859	58.7	69.6	64.1	17595.0	58.8	3.913	61.6	64.8	63.2
17542.2	65.1	3.937	74.5	62.5	68.5	17542.2	64.6	3.894	73.7	64.6	69.2	17542.2	66.4	3.913	80.4	60.5	70.5

17489.4	67.3	3.827	80.7	61.2	71.0
17436.6	59.2	4.073	64.8	56.7	60.7
17383.8	96.7	3.824	99.1	96.5	97.8
17331.0	67.0	3.950	71.9	64.3	68.1
17278.2	55.5	3.960	60.3	57.4	58.9
17225.4	59.0	4.093	63.9	59.6	61.7
17172.6	47.7	4.043	57.3	46.2	51.7
17119.8	60.8	3.973	66.5	58.6	62.5
17067.0	51.5	3.728	48.2	58.3	53.2
17014.2	43.2	4.075	42.9	51.8	47.3
16961.4	60.3	3.931	66.1	62.2	64.1
16908.6	44.4	4.045	52.3	45.0	48.6
16855.8	46.6	4.045	52.6	46.6	49.6
16803.0	44.6	4.125	51.0	42.1	46.6
16750.2	64.2	3.803	65.7	65.8	65.8
16697.4	44.6	4.046	40.0	59.6	49.8
16644.6	63.2	3.864	62.2	67.0	64.6
16591.8	68.6	3.855	61.9	77.8	69.9
16539.0	45.0	4.092	44.2	54.1	49.2
16486.2	44.2	4.092	45.8	45.3	45.5
16433.4	61.5	3.857	64.8	61.2	63.0
16380.6	48.6	4.076	50.0	54.0	52.0
16327.8	49.2	4.058	56.0	45.3	50.7
16275.0	51.1	4.035	57.8	53.8	55.8
16222.2	56.9	3.920	54.1	63.3	58.7
16169.4	55.3	4.014	55.4	57.7	56.6
16116.6	67.6	3.806	67.5	75.9	71.7
16063.8	73.2	3.991	82.3	66.8	74.5
16011.0	50.7	4.097	62.5	45.1	53.8
15958.2	59.9	3.835	62.6	61.6	62.1
15905.4	49.8	4.103	61.5	43.7	52.6
15852.6	45.1	4.207	54.2	44.8	49.5
15799.8	64.2	3.956	70.1	60.5	65.3
15747.0	57.5	3.963	57.1	64.8	60.9
15694.2	49.7	4.018	51.8	51.7	51.7
15641.4	69.3	3.869	63.6	79.1	71.3
15588.6	49.3	4.068	52.3	50.9	51.6
15535.8	67.3	3.840	69.4	67.5	68.4
15483.0	70.0	4.030	72.4	70.9	71.7
15430.2	89.8	3.425	95.7	92.2	94.0
15377.4	45.7	4.035	45.4	55.5	50.4
15324.6	44.0	3.947	46.4	49.7	48.0
15271.8	70.8	3.939	75.1	73.6	74.3
15219.0	77.8	3.734	85.5	72.8	79.2
15166.2	72.8	3.868	77.7	72.1	74.9
15113.4	96.7	3.633	98.9	97.4	98.1
15060.6	62.2	3.968	55.7	73.7	64.7
15007.8	44.6	4.017	48.8	48.0	48.4
14955.0	46.0	3.981	45.8	51.0	48.4
14902.2	45.7	4.075	51.9	42.8	47.4
14849.4	88.9	3.779	99.2	87.2	93.2
14796.6	97.3	3.581	99.7	101.1	100.4
14743.8	90.6	3.875	96.3	89.1	92.7
14691.0	85.9	3.781	94.2	82.6	88.4
14638.2	104.5	3.788	111.5	103.7	107.6
14585.4	61.4	3.896	60.8	67.8	64.3
14532.6	55.7	3.989	56.9	59.9	58.4

17489.4	67.9	3.797	76.0	64.8	70.4
17436.6	59.9	4.125	64.9	60.6	62.7
17383.8	92.5	3.846	99.1	88.5	93.8
17331.0	67.4	3.906	69.8	70.4	70.1
17278.2	54.4	3.949	58.4	58.4	58.4
17225.4	59.2	4.067	64.0	57.2	60.6
17172.6	49.0	3.981	54.5	49.8	52.2
17119.8	61.2	3.970	66.1	59.2	62.7
17067.0	51.2	3.685	49.8	57.5	53.6
17014.2	41.6	4.071	44.3	51.6	48.0
16961.4	60.1	3.935	66.4	60.1	63.3
16908.6	44.6	4.045	52.4	47.3	49.9
16855.8	46.3	4.003	53.9	46.3	50.1
16803.0	49.1	4.057	57.9	47.7	52.8
16750.2	63.8	3.846	73.1	59.0	66.1
16697.4	48.1	4.014	48.7	53.5	51.1
16644.6	60.5	3.835	62.5	61.1	61.8
16591.8	63.4	3.924	63.3	67.7	65.5
16539.0	49.7	3.986	44.8	58.5	51.6
16486.2	46.6	4.058	48.2	48.9	48.6
16433.4	59.2	3.890	65.0	57.4	61.2
16380.6	46.9	4.119	52.4	47.2	49.8
16327.8	47.0	4.136	56.0	41.4	48.7
16275.0	49.7	4.140	58.0	52.8	55.4
16222.2	57.3	3.909	53.5	63.7	58.6
16169.4	55.6	3.983	53.6	59.1	56.3
16116.6	67.1	3.811	65.0	75.8	70.4
16063.8	77.5	3.979	84.0	76.0	80.0
16011.0	50.2	4.146	53.1	56.4	54.7
15958.2	58.7	3.806	53.8	70.8	62.3
15905.4	46.9	4.064	53.4	45.0	49.2
15852.6	42.6	4.210	47.9	47.1	47.5
15799.8	62.1	3.921	65.5	62.9	64.2
15747.0	55.0	3.948	54.7	61.6	58.2
15694.2	54.3	3.990	55.2	57.1	56.1
15641.4	73.5	3.836	68.0	81.8	74.9
15588.6	50.7	3.992	51.3	53.9	52.6
15535.8	61.7	3.876	62.6	63.9	63.2
15483.0	66.3	4.018	70.1	67.7	68.9
15430.2	89.3	3.443	99.6	90.4	95.0
15377.4	46.7	4.093	47.2	51.5	49.4
15324.6	42.2	3.996	44.7	49.0	46.8
15271.8	69.6	4.030	73.7	72.4	73.1
15219.0	74.5	3.807	80.4	71.9	76.2
15166.2	73.1	3.942	74.2	76.3	75.2
15113.4	94.7	3.768	96.9	94.0	95.5
15060.6	63.7	4.069	55.0	73.5	64.3
15007.8	50.2	3.979	51.3	51.5	51.4
14955.0	46.1	3.986	45.7	53.3	49.5
14902.2	46.1	3.992	53.5	45.2	49.3
14849.4	88.4	3.721	99.8	86.1	93.0
14796.6	96.2	3.577	102.0	98.5	100.3
14743.8	91.3	3.864	98.7	89.2	93.9
14691.0	83.1	3.853	89.6	79.7	84.7
14638.2	112.4	3.552	119.7	109.0	114.3
14585.4	60.3	3.938	61.8	66.2	64.0
14532.6	51.6	3.997	50.1	56.6	53.3

17489.4	67.0	3.774	81.9	58.8	70.4
17436.6	63.5	4.096	72.3	59.4	65.9
17383.8	94.7	3.790	99.9	91.6	95.7
17331.0	66.1	3.901	72.2	62.5	67.3
17278.2	53.1	3.985	62.9	50.6	56.7
17225.4	58.7	4.112	63.4	58.2	60.8
17172.6	47.9	4.041	57.3	44.1	50.7
17119.8	64.4	3.908	70.3	60.8	65.6
17067.0	47.7	3.771	47.7	52.9	50.3
17014.2	43.0	4.059	45.9	50.2	48.0
16961.4	62.9	3.899	72.3	57.5	64.9
16908.6	45.6	4.048	54.9	45.0	49.9
16855.8	44.2	4.072	50.8	42.8	46.8
16803.0	52.7	4.054	63.6	49.4	56.5
16750.2	64.8	3.834	68.6	64.9	66.8
16697.4	48.1	4.034	45.1	58.3	51.7
16644.6	67.5	3.824	69.9	67.0	68.5
16591.8	64.6	3.848	64.1	70.9	67.5
16539.0	44.2	4.055	45.7	51.4	48.5
16486.2	49.6	3.997	50.2	56.2	53.2
16433.4	57.6	3.942	61.4	62.3	61.8
16380.6	47.9	4.054	56.8	47.1	51.9
16327.8	48.2	4.118	60.6	39.7	50.2
16275.0	47.4	4.087	52.6	51.5	52.0
16222.2	58.4	3.866	54.0	69.1	61.6
16169.4	57.3	3.987	62.8	55.9	59.4
16116.6	71.7	3.801	69.9	76.7	73.3
16063.8	74.1	3.967	81.3	68.5	74.9
16011.0	51.8	4.148	61.0	50.3	55.7
15958.2	60.5	3.844	54.2	71.5	62.9
15905.4	46.9	4.024	51.7	45.2	48.5
15852.6	45.9	4.193	52.7	48.5	50.6
15799.8	64.6	3.933	68.4	63.7	66.1
15747.0	53.3	3.991	55.2	60.0	57.6
15694.2	52.4	4.027	55.6	52.7	54.1
15641.4	78.1	3.784	76.8	81.7	79.3
15588.6	53.5	3.955	53.7	60.1	56.9
15535.8	60.4	3.919	63.1	61.4	62.2
15483.0	67.4	4.091	72.1	64.8	68.5
15430.2	90.9	3.460	93.7	93.5	93.6
15377.4	44.5	4.113	50.1	49.2	49.6
15324.6	39.9	4.024	43.8	48.6	46.2
15271.8	70.6	3.929	74.6	76.1	75.3
15219.0	76.4	3.742	78.3	77.2	77.8
15166.2	72.2	3.886	78.2	68.9	73.5
15113.4	97.3	3.735	101.7	96.4	99.0
15060.6	59.0	4.039	57.3	63.0	60.1
15007.8	39.5	4.105	45.4	40.5	43.0
14955.0	44.0	3.997	45.3	48.3	46.8
14902.2	49.6	4.009	59.1	50.6	54.9
14849.4	84.3	3.735	96.9	86.1	91.5
14796.6	93.5	3.705	100.4	93.9	97.1
14743.8	95.5	3.737	101.3	94.1	97.7
14691.0	81.5	3.890	88.0	77.2	82.6
14638.2	114.5	3.546	122.2	110.7	116.4
14585.4	59.4	3.961	59.2	65.4	62.3
14532.6	55.1	3.981	53.4	59.8	56.6

14479.8	61.1	3.914	64.1	64.2	64.2
14427.0	56.2	3.962	64.5	53.3	58.9
14374.2	66.5	3.999	80.0	57.3	68.7
14321.4	61.5	3.995	59.5	67.4	63.4
14268.6	44.3	4.145	49.0	43.3	46.2
14215.8	65.4	3.713	72.8	64.1	68.4
14163.0	46.1	3.983	51.4	48.6	50.0
14110.2	75.2	3.638	81.5	71.9	76.7
14057.4	58.6	3.962	63.5	60.5	62.0
14004.6	55.7	3.817	65.7	54.0	59.9
13951.8	55.9	3.956	55.6	58.8	57.2
13899.0	60.9	4.096	65.9	60.6	63.3
13846.2	52.2	4.084	56.7	53.7	55.2
13793.4	53.9	3.985	51.4	61.8	56.6
13740.6	53.5	4.029	63.2	49.9	56.5
13687.8	60.1	3.899	63.4	61.5	62.5
13635.0	62.2	3.826	56.5	71.4	64.0
13582.2	37.3	4.133	31.8	47.1	39.4
13529.4	48.4	4.125	45.5	57.6	51.5
13476.6	64.9	3.895	68.3	64.7	66.5
13423.8	63.7	4.050	68.1	62.3	65.2
13371.0	57.2	3.981	63.6	54.1	58.8
13318.2	53.5	3.690	63.6	51.6	57.6
13265.4	56.8	3.944	57.0	57.1	57.1

14479.8	54.3	3.928	62.4	51.1	56.8
14427.0	54.1	3.993	64.8	54.1	59.4
14374.2	69.3	3.947	81.5	63.0	72.3
14321.4	59.5	3.971	58.9	66.4	62.6
14268.6	49.3	4.076	53.3	50.0	51.7
14215.8	69.7	3.548	77.2	67.5	72.3
14163.0	50.5	3.736	56.8	54.2	55.5
14110.2	78.6	3.525	89.6	70.8	80.2
14057.4	59.3	3.907	61.4	62.7	62.0
14004.6	53.2	3.847	57.0	60.9	58.9
13951.8	56.5	3.918	52.8	63.2	58.0
13899.0	59.3	4.055	61.7	62.6	62.2
13846.2	56.8	4.100	51.0	65.2	58.1
13793.4	51.1	3.988	50.4	57.2	53.8
13740.6	51.1	4.042	56.9	49.5	53.2
13687.8	61.1	3.879	67.5	60.5	64.0
13635.0	63.3	3.835	70.9	64.7	67.8
13582.2	40.0	4.120	37.0	49.2	43.1
13529.4	52.5	4.017	53.0	57.0	55.0
13476.6	71.1	3.835	70.4	74.3	72.3
13423.8	65.3	3.953	68.7	65.0	66.9
13371.0	60.1	3.992	65.3	58.0	61.6
13318.2	52.0	4.110	54.3	53.4	53.9
13265.4	47.6	4.012	40.4	56.7	48.6

14479.8	53.8	3.953	59.9	56.2	58.1
14427.0	56.1	3.917	66.8	57.6	62.2
14374.2	67.1	4.000	77.3	60.8	69.1
14321.4	58.7	3.996	57.8	64.7	61.3
14268.6	51.9	4.046	58.7	49.9	54.3
14215.8	71.4	3.545	84.1	66.4	75.2
14163.0	50.0	3.760	64.0	50.4	57.2
14110.2	78.9	3.522	87.5	74.5	81.0
14057.4	57.6	3.932	63.5	59.5	61.5
14004.6	53.5	3.846	65.3	53.5	59.4
13951.8	56.0	3.946	57.5	57.4	57.5
13899.0	59.4	4.028	61.0	66.5	63.8
13846.2	56.5	4.004	57.0	63.8	60.4
13793.4	55.4	4.010	57.2	58.2	57.7
13740.6	53.0	4.126	56.9	54.5	55.7
13687.8	68.1	3.842	74.3	64.8	69.6
13635.0	58.9	3.959	64.7	56.8	60.8
13582.2	35.3	4.145	35.9	45.8	40.9
13529.4	45.6	4.078	43.9	52.8	48.3
13476.6	66.6	3.886	64.6	71.1	67.8
13423.8	64.0	4.038	62.2	68.0	65.1
13371.0	52.5	4.077	57.7	57.9	57.8
13318.2	53.4	4.078	60.5	52.0	56.2
13265.4	47.7	4.008	42.6	58.4	50.5