Appendix A

Geotechnical Field Exploration and Testing
Boring Log Notes
AASHTO Soil Classification System
ASTM Soil Classification System
Subsurface Boring Logs

EXHIBIT D

A.1 FIELD EXPLORATION

The subsurface conditions at the site were explored by drilling and sampling 22 direct push soil borings. The locations of the borings appear on Figure 1, preceding the Subsurface Boring Logs in this appendix.

A.2 SAMPLING METHODS

A.2.1 Direct Push Samples (DP)

Sample types described as "DP" on the boring logs are continuous core samples collected by the direct push method. The method consists of a 2.125 inch OD outer casing with an inner 1.5 inch ID plastic tube driven continuously into the ground.

A.2.2 Sampling Limitations

Unless actually observed in a sample, contacts between soil layers are estimated based on the spacing of samples and the action of drilling tools. Cobbles, boulders, and other large objects generally cannot be recovered from test borings, and they may be present in the ground even if they are not noted on the boring logs.

Determining the thickness of "topsoil" layers is usually limited, due to variations in topsoil definition, sample recovery, and other factors. Visual-manual description often relies on color for determination, and transitioning changes can account for significant variation in thickness judgment. Accordingly, the topsoil thickness presented on the logs should not be the sole basis for calculating topsoil stripping depths and volumes. If more accurate information is needed relating to thickness and topsoil quality definition, alternate methods of sample retrieval and testing should be employed.

A.3 CLASSIFICATION METHODS

Soil descriptions shown on the boring logs are based on the Unified Soil Classification (USC) system. The USC system is described in ASTM: D2487 and D2488. Where laboratory classification tests (sieve analysis or Atterberg Limits) have been performed, accurate classifications per ASTM: D2487 are possible. Otherwise, soil descriptions shown on the boring logs are visual-manual judgments. Charts are attached which provide information on the USC system, the descriptive terminology, and the symbols used on the boring logs.

Visual-manual judgment of the AASHTO Soil Group is also noted as a part of the soil description. A chart presenting details of the AASHTO Soil Classification System is also attached.

The boring logs include descriptions of apparent geology. The geologic depositional origin of each soil layer is interpreted primarily by observation of the soil samples, which can be limited. Observations of the surrounding topography, vegetation, and development can sometimes aid this judgment.

A.4 WATER LEVEL MEASUREMENTS

The ground water level measurements are shown at the bottom of the boring logs. The following information appears under "Water Level Measurements" on the logs:

- Date and Time of measurement
- Sampled Depth: lowest depth of soil sampling at the time of measurement
- Casing Depth: depth to bottom of casing or hollow-stem auger at time of measurement
- Cave-in Depth: depth at which measuring tape stops in the borehole
- Water Level: depth in the borehole where free water is encountered
- Drilling Fluid Level: same as Water Level, except that the liquid in the borehole is drilling fluid

The true location of the water table at the boring locations may be different than the water levels measured in the boreholes. This is possible because there are several factors that can affect the water level measurements in the borehole. Some of these factors include: permeability of each soil layer in profile, presence of perched water, amount of time between water level readings, presence of drilling fluid, weather conditions, and use of borehole casing.

A.5 LABORATORY TEST METHODS

A.5.1 Water Content Tests

Conducted per AET Procedure 01-LAB-010, which is performed in general accordance with ASTM: D2216 and AASHTO: T265.

A.5.2 Atterberg Limits Tests
Conducted per AET Procedure 01-LAB-030, which is performed in general accordance with ASTM: D4318 and AASHTO: T89, T90.

A.5.3 Sieve Analysis of Soils (thru #200 Sieve)
Conducted per AET Procedure 01-LAB-040, which is performed in general conformance with ASTM: D6913, Method A.

A.5.4 Particle Size Analysis of Soils (with hydrometer)
Conducted per AET Procedure 01-LAB-050, which is performed in general accordance with ASTM: D422 and AASHTO: T88.

A.5.5 Unconfined Compressive Strength of Cohesive Soil
Conducted per AET Procedure 01-LAB-080, which is performed in general accordance with ASTM: D2166 and AASHTO: T208.

A.5.6 Laboratory Soil Resistivity using the Wenner Four-Electrode Method
Conducted per AET Procedure 01-LAB-090, which is performed using Soil Box apparatus in the laboratory in general accordance with ASTM: G57

A.6 TEST STANDARD LIMITATIONS

Field and laboratory testing is done in general conformance with the described procedures. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

A.7 SAMPLE STORAGE

Unless notified to do otherwise, we routinely retain representative samples of the soils recovered from the borings for a period of 30 days.

Appendix B

AET Project No. 28-00500

Falling Weight Deflectometer Field Exploration and Testing
FWD Data and Analysis Results Sheet

Appendix B
Falling Weight Deflectometer Field Exploration and Testing
AET Project No. 28-00500

B.1 PAVEMENT TESTING

The pavement structural conditions at the site were evaluated nondestructively using Falling Weight Deflectometer (FWD). The description of the equipment precedes the Deflection Data and Analysis Results in this appendix.

B.2 EQUIPMENT DESCRIPTION

B.2.1 Dynatest 8000 FWD Test System
The FWD owned by AET is a Dynatest 8000 FWD Test System that consists of a Dynatest 8002 trailer and a third generation control and data acquisition unit developed in 2003, called the Dynatest Compact15, featuring fifteen (15) deflection channels. The new generation FWD, including a Compact15 System and a standard PC with the FwdWin field Program constitutes the newest, most sophisticated Dynatest FWD Test System, which fulfills or exceeds all requirements to meet ASTM-4694 Standards. Figure B1 provides a view of this equipment.

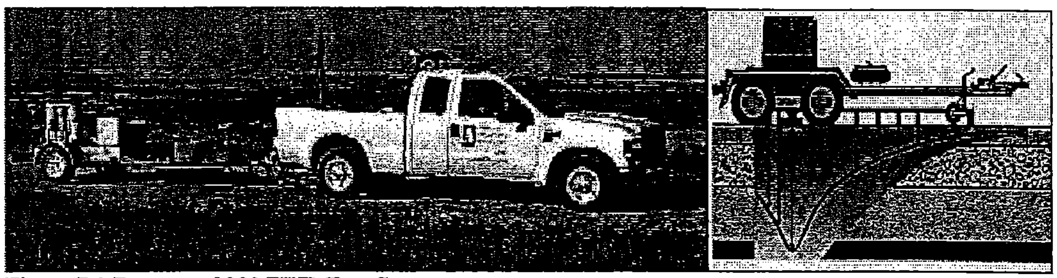


Figure B1 Dynatest 8002 FWD Test System

The FWD imposes a dynamic impulse load onto the pavement surface through a load plate. Total pulse is an approximately half sine shape with a total duration typically between 25 to 30 ms. The FWD is capable of applying a variety of loads to the pavement ranging from 1,500 lbf (7 kN) to 27,000 ibf (120 kN) by dropping a variable weight mass from different heights to a standard, 11.8-inch (300-mm) diameter rigid plate.

The drop weights and the buffers are constructed so that the falling weight buffer subassembly may be quickly and conveniently changed between falling masses of 440 lbm (200 kg) for highways and 770 lbm (350 kg) for airports. With the 440 lbm (200 kg) package for highways three drop heights are used with the target load of 6,000 lbf (27 kN) at drop height 1, 9,000 lbf (40 kN) at drop height 2, and 12,000 lbf at drop height 3 (53 kN). The drop sequence consists of two seating drops from drop height 3 and 2 repeat measurements at drop height 1 and 1 measurement at drop height 2 for flexible pavements and 2 repeat measurements at drop height 2 and 1 measurement at drop height 3 for rigid pavements. The data from the seating drops is not stored.

The FWD is equipped with a load cell to measure the applied forces and nine geophones or deflectors to measure deflections up to 100 mils (2.5 mm). The load cell is capable of accurately measuring the force that is applied perpendicular to the loading plate with a resolution of 0.15 psi (1 kPa) or better. The force is expressed in terms of pressure, as a function of loading plate size.

Nine deflectors at the offsets listed in the following table in the Long Term Performance Program (LTPP) configuration are capable of measuring electronically discrete deflections per test, together with nine (9) separate deflection measuring channels for recording of the data. One (1) of the deflectors measures the deflection of the pavement surface through the center of the loading plate, while seven (7) deflectors are capable of being positioned behind the loading plate along the housing bar, up to a distance of 5 ft (2.5 m) from the center of the loading plate and one (1) being positioned in front of the loading plate along the bar.

Deflector	D9	D1	D2	D3	D4	D5	D6	D7	D8
Offset (in.)	-12	0	8	12	18	24	36	48	60

Field testing is performed in accordance with the standard ASTM procedures as described in ASTM D 4695-96, "Standard Guide for General Pavement Deflection Measurements" and the calibration of our equipment is verified each year at the Long Term Pavement Performance Calibration Center in Maplewood, MN.

B.2.2 Linear Distance and Spatial Reference System
Distance measuring instrument (DMI) is a trailer mounted two phase encoder system. When DMI is connected to the Compact15 it provides for automatic display and recording distance information in both English and metric units with a 1 foot (0.3 meters) resolution and four percent accuracy when calibrated using provided procedure in the Field Program.

Spatial reference system is a Trimble ProXH Global Positioning System (GPS) that consists of fully integrated receiver, antenna and battery unit with Trimble's new H-Star™ technology to provide subfoot (30 cm) post-processed accuracy. The External Patch antenna is added to the ProXH receiver for the position of the loading plate. The External Patch antenna can be conveniently elevated with the optional baseball cap to prevent any signal blockage.

B.2.3 Air and Pavement Temperature Measuring System
A temperature monitoring probe, for automatic recording of air temperature, is an electronic (integrated circuit) sensing element in a stainless steel probe. The probe mounts on the FWD unit in a special holder with air circulation and connects to the Compact15. A non-contact Infra-Red (IR) Temperature Transmitter, for automatic recording of pavement surface temperature only, features an integrated IR-detector and digital electronics in a weather proof enclosure. The IR transmitter mounts on the FWD unit in a special holder with air circulation and connects to the Compact15. Both probe and IR transmitter have a resolution of 0.9 °F (0.5 °C) and accuracy within ± 1.8°F (1 °C) in the 0 to 158 °F (-18 to +70°C) range when calibrated using provided procedure.

B.2.4 Camera Monitoring System
A battery operated independent DC-1908E multi-functional digital camera with a SD card is used for easy positioning of the loading plate or of the pavement surface condition at the testing locations.

B.3 SAMPLING METHODS
At the project level, the testing interval is set at 0.1 mi. (maximum) or 10 locations per uniform section in the Outside Wheel Path (OWP) = 2.5 ft ± 0.25 ft (0.76 m ± 0.08 m) for nominal 12 ft (3.7 m) wide lanes. Where a divided roadbed exists, surveys will be taken in both directions if the project will include improvements in both directions. If there is more than one lane in one direction the surveys will be taken in the outer driving lane versus the passing lane of the highway. FWD tests are performed at a constant lateral offset down the test section.

B.4 QUALITY CONTROL (QC) AND QUALITY ASSURANCE (QA)
Beside the annual reference calibration the relative calibration of the FWD deflection sensors is conducted monthly but not to exceed 6 weeks during the months in which the FWD unit is continually testing. The DMI is also calibrated monthly by driving the vehicle over a known distance to calculate the distance scale factor. The accuracy of the FWD air temperature and infra-red (IR) sensors are checked on a monthly basis or more frequently if the FWD operator observes "suspicious" temperature readings.

Some care in the placement of the load plate and sensors is taken by the survey crew, especially where the highway surface is rutted or cracked to ensure that the load plate lays on a flat surface and that the load plate and all geophones lie on the same side of any visible cracks. Liberal use of comments placed in the FWD data file at the time of data collection is required. Comments pertaining to proximity to reference markers, bridge abutments, patches, cracks, etc., are all important documentation for the individual evaluating the data.

Scheduled preventive maintenance ensures proper equipment operation and helps identify potential problems that can be corrected to avoid poor quality or missing data that results if the equipment malfunctions while on site. The routine and major maintenance procedures established by the LTPP are adopted and any maintenance has been done at the end of the day after the testing is complete and become part of the routine performed at the end of each test/travel day and on days when no other work is scheduled.

B.5 DATA ANALYSIS METHODS

B.5.1 Inputs

The two-way AADT and HCADT are required to calculate the ESALs. The state average truck percent and truck type distribution are used when HCADT is not provided. The as-built pavement information (layer type, thickness, and construction year) are required and if not provided, either GPR and/or coring and boring is needed.

B.5.2 Adjustments

Temperature adjustment to the deflections measured on bituminous pavements is determined from the temperature predicted at the middle depth of the pavement using the LTPP BELLS3 model that uses the pavement surface temperature and previous day mean air temperature. The predicted middle depth temperature and the standard temperature of 80 degrees Fahrenheit are used to calculate the temperature adjustment factor for deflection data analysis. Seasonal adjustment developed by Mn/DOT is also used.

B.5.3 Methods

For bituminous pavements, the deflection data were analyzed using the AASHTO method for determining the in-place (effective) subgrade and pavement strength and the Mn/DOT method for determining allowable axle loads for a roadway (Investigation 603) revised in 1983 and automated with spreadsheet format in 2010. The Mn/DOT method also uses the TONN method for estimating Spring Load Capacity and Required Overlay, as described in the Mn/DOT publication "Estimated Spring Load-Carrying Capacity".

For gravel roads, the deflection data were analyzed using the American Association of State Highway and Transportation Officials' (AASHTO) method for determining the in-place (effective) subgrade and pavement strength, as well as allowable axle loads for a roadway as in the AASHTO Guide for Design of Pavement Structures, 1993.

For concrete pavements, the deflection data were analyzed using the FAA methods for determining the modulus of subgrade reaction (k-value), effective elastic modulus of concrete slabs, load transfer efficiency (LTE) on approach and leave slabs of a joint, slab support conditions (void analysis) and impulse stiffness modulus ratio (durability analysis) as in the FAA AC 150/5370-11A, Use of Nondestructive Testing Devices in the Evaluation of Airport Pavement, 2004.

B.6 TEST LIMITATIONS

B.6.1 Test Methods

The data derived through the testing program have been used to develop our opinions about the pavement conditions at your site. However, because no testing program can reveal totally what is in the subsurface, conditions between test locations and at other times, may differ from conditions described in this report. The testing we conducted identified pavement conditions only at those points where we measured pavement surface temperature, deflections, and observed pavement surface conditions. Depending on the sampling methods and sampling frequency, every location may not be tested, and some anomalies which are present in the pavement may not be noted on the testing results. If conditions encountered during construction differ from those indicated by our testing, it may be necessary to alter our conclusions and recommendations, or to modify construction procedures, and the cost of construction may be affected.

B.6.2 Test Standards

Pavement testing is done in general conformance with the described procedures. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

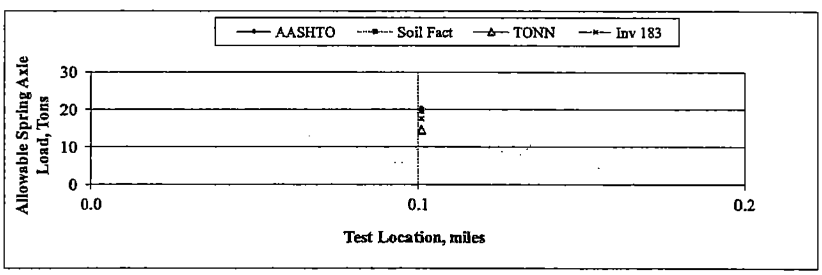
American Engineering Testing, Inc.
550 Cleveland Avenue North
St. Paul, Minnesota 55114
Phone: (651) 659-9001
Fax: (651) 659-1379

AET Project No. 28-00500
County: Pepin
Test Date: Mar 30, 2012
Section: 1
Roadway: CTH P
From: US 10
To: 660' W

Prev. Day's Avg. Air Temp.: 45 °F
Total AC: 5.0 in.
Daily ESALs: 44.0
Annual Growth: 2.0%
Pavement Condition Index: 99.0
Soil Type: NP
Seasonal Correction Factor: 1.10
Daily Haul ESALs: 63.0

Design Period: 10 Years
Projection Factor: 1.2
Growth Factor: 10.97
10-year Design ESALs: 406,467
Design Period: 20 Years
Projection Factor: 1.5
Growth Factor: 24.41
20-year Design ESALs: 852,570

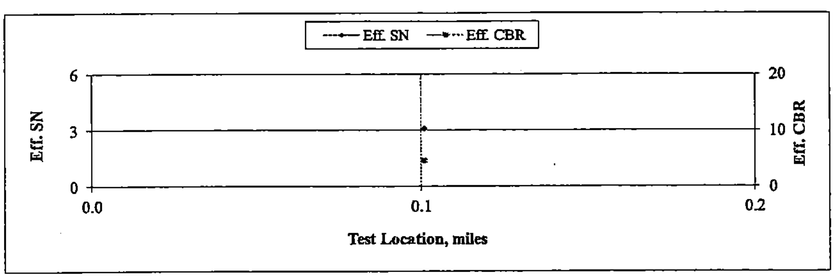
Station	Drop	Time	Air °F	Bit °F	Load	D9	D1	D2	D3	D4	D5	D6	D7	D8	Effective Values CBR %	Effective Values SN inches	10 Year Overlay Thickness inches	Spring Capacity tons/axle	Comments
0.0																			STARTING AT INTERSECTION OF CO RD P & HWY
0.1	1	11:44	46.4	53.0	6004	0.0	7.9	6.8	6.0	4.9	4.1	2.8	2.0	1.6	4.6	3.1	0.0	14.5	
0.1	2	11:44	46.4	53.0	6004	0.0	7.8	6.8	6.0	4.8	4.1	2.8	2.0	1.6	4.6	3.1	0.0	14.6	
0.1	3	11:44	46.4	53.0	9000	0.0	11.7	10.2	8.9	7.3	6.1	4.2	3.0	2.4	4.6	3.1	0.0	14.6	
0.1	4	11:44	46.4	53.0	8989	0.0	11.6	10.1	8.9	7.2	6.1	4.2	3.0	2.4	4.6	3.1	0.0	14.7	



	Summary of Analysis Results													
					Axle Load for Design Defl. Tons				10-year Overlay			20-year Overlay		
	sBBm mils	Esg ksi	Eff. CBR	SN inches	AASHTO	S.F	Inv. 183	TONN Tons	Structure inches	9-ton inches	10-ton inches	Structure inches	9-ton inches	10-ton inches
Avg. =	21.6	6.9	4.6	3.1	20.3	19.7	17.5	14.6	0.0	0.0	0.0	0.2	0.0	0.0
Median =	21.6	6.9	4.6	3.1	20.3	19.7	17.5	14.6	0.0	0.0	0.0	0.2	0.0	0.0
Std.Dev. =	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0
85th % =	21.7	6.9	4.6	3.1	20.2	19.6	17.4	14.5	0.0	0.0	0.0	0.2	0.0	0.0

15.7 Posting: 9.0

					AASHTO Effective Values		Calculated Spring Axle Load to Achive Design Deflection in Tons				10-year Overlay			20-year Overlay			LTPP Forwardcalculation for HMA			
Station	Temp Mid °F	Temp. Adj. Fact.	Peak Spring Defl. mils	Spring Subgrade Modulus ksi	CBR	SN	AASHTO	Soil Fact.	Inv 183	TONN Method	Structure inches	9-ton inches	10-ton inches	Structure inches	9-ton inches	10-ton inches	Eac	Egb.	Esg	SN
0.0																				
0.1	49.4	1.1	22	6.9	4.6	3.1	20.2	19.6	17.4	14.5	0.0	0.0	0.0	0.2	0.0	0.0	671	15.7	14.4	2.4
0.1	49.4	1.1	22	6.9	4.6	3.1	20.2	19.7	17.5	14.6	0.0	0.0	0.0	0.2	0.0	0.0	693	15.8	14.5	2.4
0.1	49.4	1.1	22	6.9	4.6	3.1	20.3	19.7	17.5	14.6	0.0	0.0	0.0	0.1	0.0	0.0	735	15.8	14.4	2.4
0.1	49.4	1.1	21	7.0	4.6	3.1	20.4	19.8	17.6	14.7	0.0	0.0	0.0	0.1	0.0	0.0	743	15.8	14.5	2.4



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Phone: (651) 659-9001
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AET Project No. 28-00500
County: Pepin
Test Date: Mar 30, 2012
Section: 2
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From: 660' W
To: CTH O

Prev. Day's Avg. Air Temp.: 45 °F
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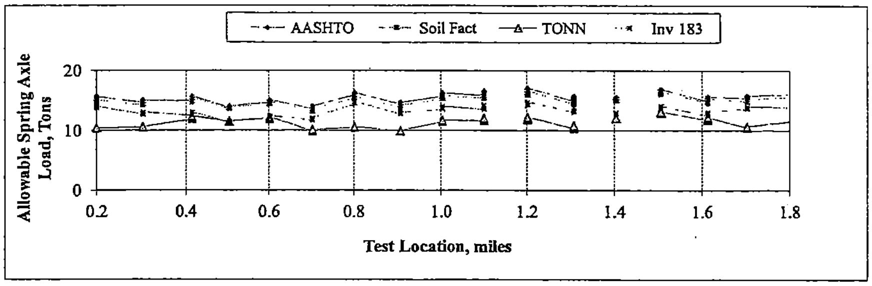
Design Period: 10 Years
Projection Factor: 1.2
Growth Factor: 10.97
10-year Design ESALs: 406,467
Design Period: 20 Years
Projection Factor: 1.5
Growth Factor: 24.41
20-year Design ESALs: 852,570

															Effective Values		10 Year		
															CBR	SN	Overlay Thickness	Spring Capacity	
Station	Drop	Time	Air °F	Bit °F	Load	D9	D1	D2	D3	D4	D5	D6	D7	D8	%	inches	inches	tons/axle	Comments
0.2	1	11:45	46.4	52.2	5916	0.0	12.9	10.5	8.7	6.5	5.2	3.4	2.4	1.8	3.7	3.0	0.0	10.4	
0.2	2	11:45	46.4	52.2	5905	0.0	12.7	10.3	8.6	6.5	5.1	3.4	2.4	1.8	3.7	3.0	0.0	10.5	
0.2	3	11:45	46.4	52.2	8891	0.0	19.4	15.9	13.3	10.1	8.1	5.3	3.7	2.8	3.6	3.0	0.0	10.4	
0.2	4	11:45	46.4	52.2	8891	0.0	19.2	15.8	13.2	10.1	8.1	5.3	3.7	2.9	3.6	3.1	0.0	10.4	
0.3	1	11:46	44.6	53.3	5873	0.0	12.4	10.2	8.3	6.0	4.6	2.8	1.9	1.4	4.6	2.9	0.2	10.5	
0.3	2	11:46	44.6	53.3	5916	0.0	12.3	10.1	8.3	6.0	4.6	2.8	1.9	1.4	4.6	2.9	0.2	10.6	
0.3	3	11:46	44.6	53.3	8891	0.0	18.9	15.6	12.8	9.3	7.2	4.3	3.0	2.2	4.4	2.9	0.3	10.5	
0.3	4	11:46	44.6	53.3	8913	0.0	18.7	15.5	12.6	9.2	7.2	4.4	3.0	2.3	4.4	2.9	0.2	10.6	
0.4	1	11:47	44.6	51.6	5938	0.0	10.4	8.3	6.6	4.7	3.5	2.1	1.5	1.1	6.1	2.9	0.0	11.9	
0.4	2	11:47	44.6	51.6	5949	0.0	10.2	8.2	6.6	4.7	3.5	2.1	1.5	1.2	6.1	3.0	0.0	12.0	
0.4	3	11:47	44.6	51.6	8946	0.0	15.0	12.1	9.7	6.9	5.3	3.2	2.3	1.8	6.0	3.0	0.0	12.2	
0.4	4	11:47	44.6	51.6	8946	0.0	14.8	11.9	9.5	6.8	5.2	3.2	2.3	1.8	6.0	3.0	0.0	12.4	
0.5	1	11:48	46.4	52.8	5949	0.0	10.9	8.3	6.2	4.1	3.0	1.9	1.4	1.1	6.8	2.8	0.0	11.5	
0.5	2	11:48	46.4	52.8	5938	0.0	10.7	8.1	6.1	4.1	3.0	1.9	1.4	1.1	6.8	2.8	0.0	11.6	
0.5	3	11:48	46.4	52.8	8978	0.0	16.5	12.6	9.5	6.4	4.7	2.9	2.1	1.7	6.7	2.8	0.0	11.4	
0.5	4	11:48	46.4	52.8	8946	0.0	16.2	12.3	9.2	6.2	4.6	2.9	2.1	1.7	6.7	2.8	0.0	11.6	
0.6	1	11:49	44.6	53.1	5895	0.0	10.3	8.1	6.4	4.4	3.3	2.0	1.4	1.1	6.5	2.9	0.0	11.9	
0.6	2	11:49	44.6	53.1	5873	0.0	10.2	7.9	6.3	4.3	3.2	2.0	1.4	1.0	6.5	2.9	0.0	12.0	
0.6	3	11:49	44.6	53.1	8978	0.0	15.2	11.9	9.6	6.7	5.0	3.0	2.1	1.7	6.4	3.0	0.0	12.2	
0.7	1	11:50	46.4	51.8	5873	0.0	13.3	10.6	8.4	5.8	4.4	2.7	1.9	1.4	4.7	2.7	0.5	9.9	
0.7	2	11:50	46.4	51.8	5873	0.0	13.1	10.4	8.2	5.7	4.4	2.7	1.9	1.4	4.8	2.7	0.4	10.0	
0.7	3	11:50	46.4	51.8	8869	0.0	19.6	15.6	12.4	8.8	6.7	4.1	2.8	2.2	4.7	2.8	0.4	10.1	
0.7	4	11:50	46.4	51.8	8880	0.0	19.4	15.5	12.3	8.7	6.7	4.1	2.9	2.2	4.7	2.8	0.4	10.2	
0.8	1	11:51	46.4	53.7	5763	0.0	12.5	10.5	8.6	6.5	5.3	3.6	2.6	2.0	3.5	3.1	0.0	10.5	
0.8	2	11:51	46.4	53.7	5818	0.0	12.4	10.4	8.5	6.4	5.3	3.6	2.5	1.9	3.5	3.1	0.0	10.6	
0.8	3	11:51	46.4	53.7	8771	0.0	18.9	15.9	13.2	10.1	8.3	5.6	4.0	3.0	3.4	3.2	0.0	10.5	
0.8	4	11:51	46.4	53.7	8771	0.0	18.7	15.7	13.1	10.1	8.2	5.6	4.1	3.0	3.4	3.2	0.0	10.7	
0.9	1	11:52	46.4	52.1	5840	0.0	13.4	10.9	8.7	6.3	4.8	3.2	2.2	1.8	4.0	2.8	0.4	9.9	
0.9	2	11:52	46.4	52.1	5851	0.0	13.3	10.8	8.6	6.3	4.8	3.2	2.3	1.8	4.0	2.9	0.4	10.0	
0.9	3	11:52	46.4	52.1	8847	0.0	20.2	16.2	13.2	9.6	7.5	4.9	3.6	2.7	3.9	2.9	0.3	9.9	
0.9	4	11:52	46.4	52.1	8858	0.0	20.1	16.2	13.2	9.6	7.5	4.9	3.6	2.8	3.9	2.9	0.3	10.0	
1.0	1	11:53	46.4	52.3	5895	0.0	11.1	8.8	7.1	5.1	4.1	2.7	1.9	1.5	4.8	3.0	0.0	11.5	
1.0	2	11:53	46.4	52.3	5895	0.0	10.9	8.7	7.0	5.1	4.0	2.7	1.9	1.5	4.8	3.1	0.0	11.6	
1.0	3	11:53	46.4	52.3	8891	0.0	16.4	13.2	10.8	7.9	6.3	4.1	3.0	2.4	4.7	3.1	0.0	11.6	
1.0	4	11:53	46.4	52.3	8858	0.0	16.1	13.0	10.6	7.8	6.2	4.1	3.0	2.4	4.7	3.1	0.0	11.7	
1.1	1	11:54	44.6	53.8	5840	0.0	10.8	8.2	6.4	4.6	3.6	2.6	2.0	1.6	4.9	3.1	0.0	11.6	
1.1	2	11:54	44.6	53.8	5862	0.0	10.6	8.1	6.4	4.6	3.6	2.6	2.0	1.6	4.9	3.1	0.0	11.8	
1.1	3	11:54	44.6	53.8	8869	0.0	15.9	12.3	9.8	7.1	5.7	4.0	3.1	2.6	4.8	3.1	0.0	11.9	
1.1	4	11:54	44.6	53.8	8880	0.0	15.7	12.1	9.6	7.0	5.7	4.1	3.2	2.6	4.8	3.2	0.0	12.1	
1.2																			B4"
1.2	1	11:55	44.6	53.3	5873	0.0	10.7	8.3	6.5	4.7	3.8	2.8	2.1	1.7	4.6	3.1	0.0	11.8	
1.2	2	11:55	44.6	53.3	5916	0.0	10.6	8.3	6.5	4.7	3.9	2.8	2.1	1.7	4.6	3.2	0.0	11.9	
1.2	3	11:55	44.6	53.3	8902	0.0	15.7	12.3	9.8	7.2	6.0	4.2	3.3	2.6	4.6	3.2	0.0	12.1	
1.2	4	11:55	44.6	53.3	8902	0.0	15.5	12.1	9.7	7.1	5.9	4.2	3.3	2.6	4.6	3.3	0.0	12.3	
1.3	1	11:56	46.4	52.4	5840	0.0	12.7	10.0	7.9	5.7	4.5	3.1	2.2	1.8	4.1	2.9	0.2	10.3	
1.3	2	11:56	46.4	52.4	5840	0.0	12.5	9.8	7.8	5.7	4.5	3.1	2.3	1.8	4.1	3.0	0.1	10.5	
1.3	3	11:56	46.4	52.4	8847	0.0	18.3	14.6	11.7	8.6	6.9	4.7	3.5	2.8	4.1	3.0	0.0	10.7	
1.3	4	11:56	46.4	52.4	8858	0.0	18.0	14.3	11.4	8.5	6.8	4.7	3.5	2.8	4.1	3.1	0.0	10.9	
1.3																			S KIRK RD"
1.4	1	11:57	46.4	52.0	5938	0.0	10.3	8.2	6.5	4.5	3.6	2.2	1.5	1.1	5.8	3.0	0.0	12.0	
1.4	2	11:57	46.4	52.0	5916	0.0	10.1	8.1	6.4	4.5	3.5	2.2	1.5	1.1	5.8	3.0	0.0	12.1	
1.4	3	11:57	46.4	52.0	8935	0.0	15.5	12.3	9.9	6.9	5.4	3.3	2.3	1.8	5.8	3.0	0.0	12.0	
1.4	4	11:57	46.4	52.0	8935	0.0	15.3	12.2	9.8	6.8	5.4	3.3	2.4	1.8	5.8	3.0	0.0	12.1	
1.4																			B5"
1.5	1	11:58	46.4	52.2	5818	0.0	9.2	7.3	5.9	4.3	3.3	2.1	1.5	1.2	5.9	3.2	0.0	12.9	
1.5	3	11:58	46.4	52.2	8880	0.0	13.7	11.0	8.9	6.5	5.2	3.3	2.4	1.9	5.8	3.2	0.0	13.1	
1.5	4	11:58	46.4	52.2	8858	0.0	13.6	10.9	8.8	6.4	5.1	3.3	2.4	1.9	5.8	3.2	0.0	13.2	
1.6	1	11:59	46.4	52.1	5862	0.0	10	8.1	6.3	4.3	3.3	2.2	1.5	1.2	5.9	2.9	0.0	11.7	
1.6	2	11:59	46.4	52.1	5862	0.0	10.2	8.0	6.3	4.2	3.2	2.2	1.6	1.1	5.9	3.0	0.0	11.9	
1.6	3	11:59	46.4	52.1	8935	0.0	15.4	12.0	9.5	6.6	5.1	3.3	2.4	2.0	5.9	3.0	0.0	12.1	
1.6	4	11:59	46.4	52.1	8924	0.0	15.1	11.8	9.3	6.5	5.0	3.3	2.5	2.1	5.8	3.0	0.0	12.3	
1.7	1	12:00	44.6	52.4	5873	0.0	12.5	10.3	8.5	6.4	5.0	3.3	2.2	1.7	3.9	3.0	0.0	10.5	
1.7	2	12:00	44.6	52.4	5862	0.0	12.4	10.2	8.4	6.3	5.0	3.3	2.2	1.7	3.9	3.0	0.0	10.6	
1.7	3	12:00	44.6	52.4	8847	0.0	18.7	15.4	12.8	9.7	7.7	5.0	3.5	2.7	3.8	3.1	0.0	10.6	
1.7	4	12:00	44.6	52.4	8825	0.0	18.4	15.3	12.7	9.6	7.6	5.0	3.5	2.7	3.8	3.1	0.0	10.7	
1.8	1	12:01	46.4	52.0	5862	0.0	10.9	8.6	6.8	5.0	4.0	2.8	2.0	1.7	4.6	3.1	0.0	11.5	
1.8	2	12:01	46.4	52.0	5807	0.0	10.7	8.4	6.6	4.9	3.9	2.7	2.0	1.6	4.6	3.1	0.0	11.7	

Station	Drop	Time	Air °F	Bit °F	Load	D9	D1	D2	D3	D4	D5	D6	D7	D8	Effective Values CBR %	SN inches	10 Year Overlay Thickness inches	Spring Capacity tons/axle	Comments
1.8	3	12:01	46.4	52.0	8869	0.0	16.2	12.9	10.3	7.7	6.2	4.3	3.2	2.6	4.5	3.2	0.0	11.8	
1.8	4	12:01	46.4	52.0	8858	0.0	15.9	12.7	10.1	7.7	6.2	4.3	3.2	2.5	4.5	3.2	0.0	11.9	
1.8																			B6"
1.8																			CO RD O"

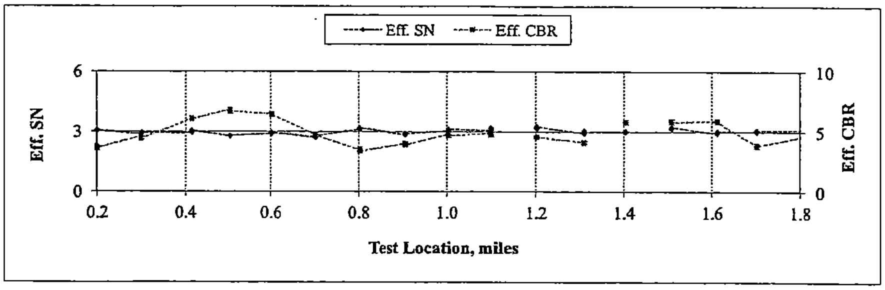


	Summary of Analysis Results													
					Axle Load for Design Defl. Tons				10-year Overlay			20-year Overlay		
	sBBss mils	Esg ksi	Eff. CBR	SN inches	AASHTO	S.F	Inv. 183	TONN Tons	Structure inches	9-ton inches	10-ton inches	Structure inches	9-ton inches	10-ton inches
Avg. =	27.9	7.4	4.9	3.0	15.5	15.0	13.3	11.3	0.1	0.0	0.0	0.3	0.0	0.0
Median =	27.2	7.0	4.7	3.0	15.6	15.1	13.4	11.6	0.0	0.0	0.0	0.2	0.0	0.0
Std.Dev. =	2.2	1.5	1.0	0.1	0.9	0.8	0.9	0.9	0.1	0.0	0.1	0.3	0.0	0.1
85th % =	30.3	5.8	3.9	2.9	14.6	14.1	12.4	10.4	0.2	0.0	0.0	0.7	0.0	0.0

15.7 Posting: 9.0

Station	Temp Mid °F	Temp. Adj Fact.	Peak Spring Defl. mils	Spring Subgrade Modulus ksi	AASHTO Effective Values CBR	SN	Calculated Spring Axle Load to Achive Design Deflection in Tons AASHTO	Soil Fact.	Inv 183	TONN Method	10-year Overlay Structure inches	9-ton inches	10-ton inches	20-year Overlay Structure inches	9-ton inches	10-ton inches	LTPP Forwardcalculation for HMA Eac	Egb	Esg	SN
0.2	49.8	1.1	30	5.6	3.7	3.0	15.4	14.9	13.8	10.4	0.0	0.0	0.0	0.6	0.0	0.0	638	27.9	11.7	2.7
0.2	49.8	1.1	30	5.6	3.7	3.0	15.6	15.0	13.9	10.5	0.0	0.0	0.0	0.6	0.0	0.0	628	28.0	11.7	2.7
0.2	49.8	1.1	30	5.4	3.6	3.0	15.6	15.0	14.0	10.4	0.0	0.0	0.0	0.6	0.0	0.0	646	27.1	11.3	2.7
0.2	49.8	1.1	30	5.4	3.6	3.1	15.7	15.1	14.1	10.4	0.0	0.0	0.0	0.5	0.0	0.0	658	27.0	11.3	2.7
0.3	50.6	1.1	30	6.9	4.6	2.9	14.6	14.2	12.6	10.5	0.2	0.0	0.0	0.7	0.0	0.0	675	34.5	14.4	2.7
0.3	50.6	1.1	30	6.9	4.6	2.9	14.7	14.3	12.7	10.6	0.2	0.0	0.0	0.6	0.0	0.0	688	34.6	14.5	2.7
0.3	50.6	1.1	30	6.6	4.4	2.9	14.7	14.3	12.8	10.5	0.3	0.0	0.0	0.7	0.0	0.0	689	33.1	13.8	2.7
0.3	50.6	1.1	30	6.6	4.4	2.9	15.0	14.5	13.1	10.6	0.2	0.0	0.0	0.6	0.0	0.0	710	32.7	13.7	2.7
0.4	49.4	1.1	27	9.1	6.1	2.9	15.0	14.7	12.4	11.9	0.0	0.0	0.0	0.2	0.0	0.0	653	45.6	19.1	2.7
0.4	49.4	1.1	26	9.1	6.1	3.0	15.1	14.9	12.6	12.0	0.0	0.0	0.0	0.1	0.0	0.0	670	45.4	19.0	2.7
0.4	49.4	1.1	26	9.0	6.0	3.0	15.5	15.2	12.9	12.2	0.0	0.0	0.0	0.0	0.0	0.0	710	45.0	18.8	2.7
0.4	49.4	1.1	25	9.0	6.0	3.0	15.7	15.4	13.1	12.4	0.0	0.0	0.0	0.0	0.0	0.0	708	45.0	18.8	2.7
0.5	50.2	1.1	28	10.2	6.8	2.8	13.8	13.6	11.3	11.5	0.0	0.0	0.0	0.2	0.0	0.0	470	51.0	21.3	2.7
0.5	50.2	1.1	27	10.2	6.8	2.8	14.0	13.8	11.5	11.6	0.0	0.0	0.0	0.2	0.0	0.0	474	50.9	21.3	2.7
0.5	50.2	1.1	28	10.0	6.7	2.8	13.8	13.6	11.4	11.4	0.0	0.0	0.0	0.3	0.0	0.0	459	50.0	20.9	2.7
0.5	50.2	1.1	27	10.0	6.7	2.8	14.0	13.8	11.5	11.6	0.0	0.0	0.0	0.2	0.0	0.0	461	50.0	20.9	2.7
0.6	50.5	1.1	26	9.7	6.5	2.9	14.6	14.4	12.1	11.9	0.0	0.0	0.0	0.1	0.0	0.0	598	48.2	20.2	2.7
0.6	50.5	1.1	26	9.7	6.5	2.9	14.8	14.5	12.2	12.0	0.0	0.0	0.0	0.1	0.0	0.0	599	48.3	20.2	2.7
0.6	50.5	1.1	26	9.6	6.4	3.0	15.1	14.8	12.5	12.2	0.0	0.0	0.0	0.0	0.0	0.0	639	48.0	20.1	2.7
0.7	49.5	1.1	32	7.1	4.7	2.7	13.6	13.2	11.7	9.9	0.5	0.0	0.5	1.0	0.0	0.5	482	35.5	14.8	2.7
0.7	49.5	1.1	31	7.2	4.8	2.7	13.7	13.4	11.8	10.0	0.4	0.0	0.0	0.9	0.0	0.0	497	35.8	15.0	2.7
0.7	49.5	1.1	31	7.1	4.7	2.8	13.9	13.5	12.0	10.1	0.4	0.0	0.0	0.9	0.0	0.0	502	35.1	14.7	2.7
0.7	49.5	1.1	31	7.1	4.7	2.8	14.0	13.6	12.1	10.2	0.4	0.0	0.0	0.8	0.0	0.0	508	35.2	14.7	2.7
0.8	50.9	1.1	30	5.2	3.5	3.1	15.9	15.3	14.4	10.5	0.0	0.0	0.0	0.5	0.0	0.0	758	26.0	10.9	2.7
0.8	50.9	1.1	30	5.3	3.5	3.1	16.1	15.5	14.5	10.6	0.0	0.0	0.0	0.4	0.0	0.0	759	26.4	11.0	2.7
0.8	50.9	1.1	30	5.1	3.4	3.2	16.1	15.5	14.7	10.5	0.0	0.0	0.0	0.4	0.0	0.0	788	25.3	10.6	2.6
0.8	50.9	1.1	30	5.1	3.4	3.2	16.3	15.7	14.9	10.7	0.0	0.0	0.0	0.4	0.0	0.0	806	25.2	10.6	2.6
0.9	49.8	1.1	32	6.0	4.0	2.8	14.4	13.9	12.7	9.9	0.4	0.0	0.5	0.9	0.0	0.5	532	29.8	12.5	2.7
0.9	49.8	1.1	32	6.0	4.0	2.9	14.5	14.0	12.8	10.0	0.4	0.0	0.5	0.9	0.0	0.5	540	29.9	12.5	2.7
0.9	49.8	1.1	32	5.9	3.9	2.9	14.6	14.1	12.9	9.9	0.3	0.0	0.5	0.9	0.0	0.5	523	29.2	12.2	2.7
0.9	49.8	1.1	32	5.8	3.9	2.9	14.7	14.2	13.0	10.0	0.3	0.0	0.5	0.8	0.0	0.5	539	29.0	12.1	2.7
1.0	49.9	1.1	27	7.2	4.8	3.0	15.7	15.3	13.5	11.5	0.0	0.0	0.0	0.2	0.0	0.0	610	35.8	15.0	2.7
1.0	49.9	1.1	27	7.2	4.8	3.1	15.9	15.5	13.7	11.6	0.0	0.0	0.0	0.2	0.0	0.0	626	35.9	15.0	2.7
1.0	49.9	1.1	27	7.0	4.7	3.1	16.1	15.6	13.8	11.6	0.0	0.0	0.0	0.1	0.0	0.0	661	34.9	14.6	2.7
1.0	49.9	1.1	27	7.0	4.7	3.1	16.3	15.8	14.0	11.7	0.0	0.0	0.0	0.1	0.0	0.0	662	34.8	14.6	2.7
1.1	51.0	1.1	27	7.3	4.9	3.1	15.9	15.5	13.6	11.6	0.0	0.0	0.0	0.2	0.0	0.0	493	36.5	15.3	2.7
1.1	51.0	1.1	27	7.3	4.9	3.1	16.1	15.7	13.8	11.8	0.0	0.0	0.0	0.1	0.0	0.0	511	36.5	15.3	2.7
1.1	51.0	1.1	26	7.1	4.8	3.1	16.4	16.0	14.1	11.9	0.0	0.0	0.0	0.0	0.0	0.0	556	35.6	14.9	2.7
1.1	51.0	1.1	26	7.1	4.8	3.2	16.6	16.2	14.3	12.1	0.0	0.0	0.0	0.0	0.0	0.0	563	35.5	14.9	2.7
1.2																				
1.2	50.6	1.1	27	6.9	4.6	3.1	16.4	16.0	14.2	11.8	0.0	0.0	0.0	0.0	0.0	0.0	544	34.2	14.3	2.7
1.2	50.6	1.1	26	6.8	4.6	3.2	16.6	16.2	14.4	11.9	0.0	0.0	0.0	0.0	0.0	0.0	552	34.1	14.3	2.7
1.2	50.6	1.1	26	6.8	4.6	3.2	16.9	16.4	14.6	12.1	0.0	0.0	0.0	0.0	0.0	0.0	601	34.1	14.3	2.7
1.2	50.6	1.1	26	6.8	4.6	3.3	17.1	16.6	14.8	12.3	0.0	0.0	0.0	0.0	0.0	0.0	612	34.0	14.2	2.7
1.3	50.0	1.1	30	6.2	4.1	2.9	14.9	14.4	13.1	10.3	0.2	0.0	0.0	0.7	0.0	0.0	483	30.8	12.9	2.7
1.3	50.0	1.1	30	6.1	4.1	3.0	15.2	14.7	13.3	10.5	0.1	0.0	0.0	0.6	0.0	0.0	499	30.5	12.8	2.7
1.3	50.0	1.1	29	6.1	4.1	3.0	15.5	15.0	13.7	10.7	0.0	0.0	0.0	0.5	0.0	0.0	542	30.4	12.7	2.7
1.3	50.0	1.1	29	6.1	4.1	3.1	15.8	15.2	13.9	10.9	0.0	0.0	0.0	0.4	0.0	0.0	538	30.4	12.7	2.7
1.3																				
1.4	49.7	1.1	26	8.7	5.8	3.0	15.3	15.0	12.8	12.0	0.0	0.0	0.0	0.1	0.0	0.0	637	43.5	18.2	2.7
1.4	49.7	1.1	26	8.7	5.8	3.0	15.5	15.2	13.0	12.1	0.0	0.0	0.0	0.1	0.0	0.0	640	43.3	18.1	2.7
1.4	49.7	1.1	26	8.7	5.8	3.0	15.4	15.1	12.9	12.0	0.0	0.0	0.0	0.1	0.0	0.0	647	43.3	18.1	2.7
1.4	49.7	1.1	26	8.7	5.8	3.0	15.6	15.2	13.0	12.1	0.0	0.0	0.0	0.1	0.0	0.0	656	43.2	18.1	2.7
1.4																				
1.5	49.9	1.1	24	8.8	5.9	3.2	16.5	16.1	13.7	12.9	0.0	0.0	0.0	0.0	0.0	0.0	743	44.0	18.4	2.7
1.5	49.9	1.1	24	8.7	5.8	3.2	16.8	16.4	14.0	13.1	0.0	0.0	0.0	0.0	0.0	0.0	771	43.4	18.2	2.7
1.5	49.9	1.1	24	8.7	5.8	3.2	16.9	16.6	14.2	13.2	0.0	0.0	0.0	0.0	0.0	0.0	777	43.3	18.1	2.7
1.6	49.8	1.1	27	8.9	5.9	2.9	14.9	14.7	12.5	11.7	0.0	0.0	0.0	0.3	0.0	0.0	533	44.2	18.5	2.7
1.6	49.8	1.1	26	8.9	5.9	3.0	15.2	14.9	12.7	11.9	0.0	0.0	0.0	0.2	0.0	0.0	557	44.2	18.5	2.7
1.6	49.8	1.1	26	8.8	5.9	3.0	15.4	15.1	12.9	12.1	0.0	0.0	0.0	0.1	0.0	0.0	579	43.7	18.3	2.7
1.6	49.8	1.1	26	8.8	5.8	3.0	15.7	15.4	13.1	12.3	0.0	0.0	0.0	0.0	0.0	0.0	598	43.7	18.3	2.7
1.7	50.0	1.1	30	5.9	3.9	3.0	15.4	14.9	13.7	10.5	0.0	0.0	0.0	0.6	0.0	0.0	683	29.2	12.2	2.7
1.7	50.0	1.1	30	5.8	3.9	3.0	15.6	15.0	13.8	10.6	0.0	0.0	0.0	0.5	0.0	0.0	686	29.0	12.1	2.7
1.7	50.0	1.1	30	5.8	3.8	3.1	15.7	15.1	13.9	10.6	0.0	0.0	0.0	0.5	0.0	0.0	697	28.7	12.0	2.7
1.7	50.0	1.1	29	5.7	3.8	3.1	15.8	15.2	14.1	10.7	0.0	0.0	0.0	0.4	0.0	0.0	716	28.5	11.9	2.7
1.8	49.8	1.1	27	6.9	4.6	3.1	16.1	15.6	13.9	11.5	0.0	0.0	0.0	0.2	0.0	0.0	550	34.4	14.4	2.7
1.8	49.8	1.1	27	7.0	4.6	3.1	16.2	15.7	14.0	11.7	0.0	0.0	0.0	0.1	0.0	0.0	560	34.7	14.5	2.7

Station	Temp Mid °F	Temp. Adj Fact.	Peak Spring Defl. mils	Spring Subgrade Modulus ksi	AASHTO Effective Values CBR	SN	Calculated Spring Axle Load to Achive Design Deflection in Tons AASHTO	Soil Fact.	Inv 183	TONN Method	10-year Overlay Structure inches	9-ton inches	10-ton inches	20-year Overlay Structure inches	9-ton inches	10-ton inches	LTPP Forwardcalculation for HMA Eac	Egb	Esg	SN
1.8	49.8	1.1	27	6.8	4.5	3.2	16.5	16.0	14.3	11.8	0.0	0.0	0.0	0.0	0.0	0.0	612	33.7	14.1	2.7
1.8	49.8	1.1	26	6.7	4.5	3.2	16.7	16.2	14.5	11.9	0.0	0.0	0.0	0.0	0.0	0.0	625	33.6	14.1	2.7
1.8																				
1.8																				



American Engineering Testing, Inc.
550 Cleveland Avenue North
St. Paul, Minnesota 55114
Phone: (651) 659-9001
Fax: (651) 659-1379

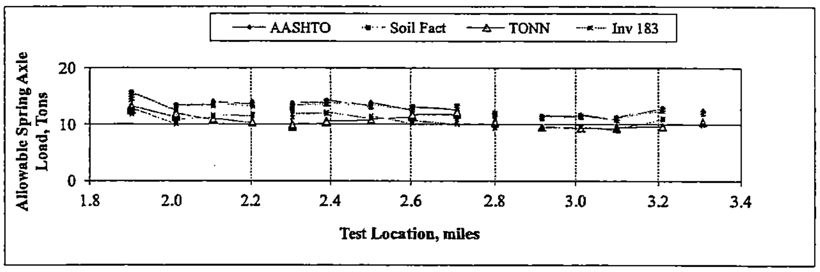
AET Project No. 28-00500
County: Pepin
Test Date: Mar 30, 2012
Section: 3
Roadway: CTH P
From: CTH O
To: CTH N

Prev. Day's Avg. Air Temp.: 45 °F
Total AC: 3.1 in.
Daily ESALs: 45.0
Annual Growth: 2.0%
Pavement Condition Index: 95.0
Soil Type: NP
Seasonal Correction Factor: 1.10
Daily Haul ESALs: 63.0

Design Period: 10 Years
Projection Factor: 1.2
Growth Factor: 10.97
10-year Design ESALs: 410,475
Design Period: 20 Years
Projection Factor: 1.5
Growth Factor: 24.41
20-year Design ESALs: 861,488

															Effective Values		10 Year Overlay	Spring	
Station	Drop	Time	Air °F	Bit °F	Load	D9	D1	D2	D3	D4	D5	D6	D7	D8	CBR %	SN inches	Thickness inches	Capacity tons/axle	Comments
1.8																			CO RD O"
1.9	1	12:03	44.6	52.7	5840	0.0	9.4	7.4	5.8	3.9	2.8	1.7	1.2	1.0	7.5	2.7	0.0	12.5	
1.9	2	12:03	44.6	52.7	5840	0.0	9.2	7.2	5.7	3.8	2.8	1.7	1.2	1.0	7.4	2.8	0.0	12.7	
1.9	3	12:03	44.6	52.7	8913	0.0	13.5	10.6	8.4	5.8	4.3	2.7	2.0	1.6	7.2	2.9	0.0	13.1	
1.9	4	12:03	44.6	52.7	8880	0.0	13.3	10.5	8.3	5.7	4.3	2.7	2.0	1.6	7.1	2.9	0.0	13.3	
2.0	1	12:04	44.6	54.0	5829	0.0	10.7	8.3	6.3	4.0	2.8	1.5	1.0	0.9	8.4	2.5	0.0	11.3	
2.0	2	12:04	44.6	54.0	5818	0.0	10.5	8.1	6.2	3.9	2.7	1.5	1.0	0.8	8.2	2.5	0.0	11.5	
2.0	3	12:04	44.6	54.0	8825	0.0	15.4	11.8	9.1	5.9	4.2	2.3	1.6	1.1	8.1	2.6	0.0	11.8	
2.0	4	12:04	44.6	54.0	8814	0.0	15.1	11.6	8.9	5.8	4.2	2.4	1.6	1.1	8.1	2.6	0.0	12.0	
2.1	1	12:05	46.4	51.8	5807	0.0	11.6	8.9	6.9	4.8	3.5	2.1	1.4	1.1	6.1	2.6	0.2	10.7	
2.1	2	12:05	46.4	51.8	5840	0.0	11.5	8.9	6.9	4.7	3.5	2.1	1.4	1.1	6.1	2.6	0.2	10.8	
2.1	3	12:05	46.4	51.8	8825	0.0	17.2	13.5	10.6	7.4	5.5	3.2	2.2	1.7	6.0	2.6	0.1	10.9	
2.1	4	12:05	46.4	51.8	8836	0.0	17.1	13.4	10.5	7.3	5.5	3.2	2.2	1.7	5.9	2.7	0.1	11.0	
2.2	1	12:06	44.6	50.3	5774	0.0	12.2	9.5	7.3	5.0	3.7	2.3	1.6	1.3	5.3	2.6	0.5	10.3	
2.2	2	12:06	44.6	50.3	5752	0.0	12.1	9.4	7.2	5.0	3.7	2.3	1.6	1.3	5.3	2.6	0.5	10.3	
2.2	4	12:06	44.6	50.3	8782	0.0	18.1	14.1	11.0	7.7	5.8	3.6	2.6	2.0	5.2	2.6	0.4	10.5	
2.2																			B7"
2.3	1	12:07	46.4	52.4	5643	0.0	13.4	10.5	8.2	5.9	4.3	2.5	1.6	1.3	4.9	2.5	0.9	9.5	
2.3	2	12:07	46.4	52.4	5610	0.0	13.1	10.3	8.1	5.8	4.2	2.5	1.6	1.3	4.9	2.5	0.9	9.6	
2.3	3	12:07	46.4	52.4	8650	0.0	19.4	15.2	12.1	8.8	6.6	4.0	2.6	2.1	4.7	2.6	0.8	9.9	
2.3	4	12:07	46.4	52.4	8618	0.0	19.2	15.1	12.0	8.7	6.6	4.0	2.6	2.1	4.7	2.6	0.7	10.0	
2.4	1	12:08	46.4	53.9	5610	0.0	12.1	9.2	7.0	4.9	3.6	2.4	1.7	1.4	5.0	2.6	0.6	10.3	
2.4	2	12:08	46.4	53.9	5588	0.0	11.9	9.0	6.8	4.8	3.6	2.4	1.7	1.4	5.1	2.6	0.5	10.4	
2.4	3	12:08	46.4	53.9	8541	0.0	18.0	13.6	10.5	7.4	5.6	3.6	2.6	2.0	5.1	2.6	0.5	10.5	
2.4	4	12:08	46.4	53.9	8574	0.0	17.8	13.4	10.4	7.3	5.6	3.7	2.6	2.1	5.1	2.7	0.4	10.6	
2.5	1	12:09	46.4	53.6	5862	0.0	11.8	9.1	6.9	4.6	3.4	2.0	1.4	1.1	6.3	2.5	0.2	10.7	
2.5	2	12:09	46.4	53.6	5840	0.0	11.6	9.0	6.8	4.6	3.4	2.0	1.4	1.1	6.3	2.6	0.1	10.8	
2.5	3	12:09	46.4	53.6	8869	0.0	17.6	13.7	10.6	7.1	5.3	3.2	2.2	1.8	6.0	2.6	0.2	10.8	
2.5	4	12:09	46.4	53.6	8902	0.0	17.5	13.6	10.5	7.1	5.3	3.2	2.2	1.8	6.0	2.6	0.1	11.0	
2.6	1	12:10	46.4	53.6	5916	0.0	10.8	8.1	6.0	3.7	2.6	1.5	1.1	1.0	8.3	2.5	0.0	11.3	
2.6	2	12:10	46.4	53.6	5905	0.0	10.7	8.0	5.9	3.6	2.6	1.6	1.2	0.9	8.2	2.5	0.0	11.5	
2.6	3	12:10	46.4	53.6	8935	0.0	15.9	12.0	8.9	5.7	4.0	2.4	1.7	1.5	8.1	2.5	0.0	11.6	
2.6	4	12:10	46.4	53.6	8924	0.0	15.6	11.8	8.8	5.6	4.0	2.4	1.7	1.6	8.1	2.6	0.0	11.7	
2.7	1	12:11	46.4	53.5	5873	0.0	10.1	7.5	5.4	3.4	2.4	1.4	1.1	0.8	9.0	2.5	0.0	11.8	
2.7	2	12:11	46.4	53.5	5873	0.0	10.0	7.4	5.4	3.4	2.4	1.4	1.0	0.8	8.9	2.5	0.0	11.9	
2.7	3	12:11	46.4	53.5	8946	0.0	14.9	11.1	8.2	5.3	3.7	2.2	1.6	1.3	8.8	2.6	0.0	12.1	
2.7	4	12:11	46.4	53.5	8902	0.0	14.6	10.9	8.0	5.1	3.7	2.2	1.6	1.3	8.8	2.6	0.0	12.2	
2.7																			B8"
2.8	1	12:12	46.4	53.6	5851	0.0	12.2	9.2	6.8	4.4	3.0	1.6	1.0	0.8	8.1	2.3	0.1	10.3	
2.8	2	12:12	46.4	53.6	5851	0.0	12.0	9.1	6.8	4.4	3.0	1.6	1.0	0.8	8.0	2.4	0.1	10.4	
2.8	3	12:12	46.4	53.6	8891	0.0	18.1	13.8	10.4	6.8	4.8	2.5	1.5	1.2	7.7	2.4	0.1	10.5	
2.8	4	12:12	46.4	53.6	8891	0.0	17.9	13.7	10.3	6.8	4.8	2.5	1.7	1.2	7.6	2.4	0.1	10.6	
2.8																			SILVER BIRTCH RD"
2.9	1	12:13	46.4	53.4	5840	0.0	13.4	10.1	7.5	4.8	3.3	1.8	1.2	0.9	7.2	2.3	0.5	9.5	
2.9	2	12:13	46.4	53.4	5818	0.0	13.3	10.0	7.5	4.7	3.3	1.8	1.1	0.9	7.1	2.3	0.5	9.6	
2.9	3	12:13	46.4	53.4	8836	0.0	20.3	15.3	11.6	7.4	5.2	2.8	1.8	1.4	7.0	2.3	0.5	9.5	
2.9	4	12:13	46.4	53.4	8825	0.0	20.2	15.3	11.5	7.5	5.3	2.8	1.8	1.3	6.8	2.3	0.5	9.6	
3.0	1	12:14	46.4	53.5	5785	0.0	13.7	10.4	7.9	5.2	3.7	1.9	1.2	0.9	6.5	2.3	0.7	9.4	
3.0	2	12:14	46.4	53.5	5752	0.0	13.5	10.3	7.8	5.1	3.7	1.9	1.2	0.9	6.5	2.3	0.6	9.4	
3.0	3	12:14	46.4	53.5	8793	0.0	20.9	15.9	12.2	8.1	5.8	3.0	1.9	1.4	6.3	2.3	0.7	9.4	
3.0	4	12:14	46.4	53.5	8793	0.0	20.7	15.8	12.2	8.1	5.8	3.0	1.9	1.4	6.2	2.3	0.7	9.4	
3.1	2	12:15	44.6	53.3	5840	0.0	13.8	10.3	7.7	4.8	3.3	1.7	1.2	0.9	7.3	2.2	0.6	9.3	
3.1	3	12:15	44.6	53.3	8858	0.0	21	15.5	11.7	7.5	5.2	2.7	1.8	1.5	7.1	2.3	0.5	9.4	
3.1	4	12:15	44.6	53.3	8858	0.0	20.5	15.4	11.6	7.5	5.2	2.7	1.9	1.5	7.0	2.3	0.5	9.5	
3.2	1	12:16	46.4	54.9	5818	0.0	13.6	10.6	8.1	5.6	4.1	2.4	1.6	1.1	5.2	2.5	0.8	9.7	
3.2	2	12:16	46.4	54.9	5818	0.0	13.5	10.5	8.1	5.6	4.1	2.4	1.6	1.1	5.3	2.5	0.8	9.7	
3.2	3	12:16	46.4	54.9	8814	0.0	20.9	16.3	12.7	8.8	6.5	3.7	2.4	1.7	5.1	2.5	0.9	9.6	

															Effective Values		10 Year		
															CBR	SN	Overlay Thickness	Spring Capacity	
Station	Drop	Time	Air °F	Bit °F	Load	D9	D1	D2	D3	D4	D5	D6	D7	D8	%	inches	inches	tons/axle	Comments
3.2	4	12:16	46.4	54.9	8825	0.0	20.8	16.2	12.7	8.8	6.6	3.8	2.5	1.7	5.0	2.5	0.8	9.6	
3.2																			B9"
3.3	1	12:17	46.4	55.1	5895	0.0	12.1	9.5	7.2	4.7	3.3	1.7	1.1	0.8	7.5	2.4	0.1	10.5	
3.3	2	12:17	46.4	55.1	5873	0.0	12.0	9.4	7.1	4.7	3.3	1.7	1.1	0.8	7.5	2.4	0.1	10.5	
3.3	3	12:17	46.4	55.1	8891	0.0	18.5	14.5	11.1	7.3	5.2	2.7	1.7	1.4	7.1	2.4	0.2	10.4	
3.3	4	12:17	46.4	55.1	8869	0.0	18.4	14.4	11.1	7.3	5.2	2.7	1.8	1.3	7.1	2.4	0.2	10.5	
3.3																			TURNING SOUTH ON CO RD N"



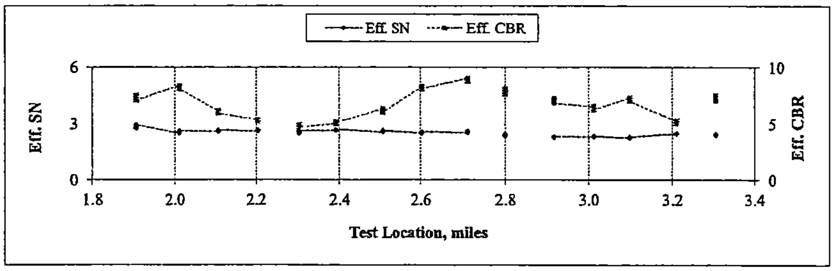
	Summary of Analysis Results													
					Axle Load for Design Defl. Tons				10-year Overlay			20-year Overlay		
	sBBm mils	Esg ksi	Eff. CBR	SN inches	AASHTO	S.F	Inv. 183	TONN Tons	Structure inches	9-ton inches	10-ton inches	Structure inches	9-ton inches	10-ton inches
Avg. =	29.9	10.1	6.7	2.5	12.9	12.7	10.7	10.6	0.3	0.0	0.2	0.9	0.0	0.2
Median =	30.1	10.5	7.0	2.5	13.0	12.7	10.7	10.5	0.2	0.0	0.0	1.0	0.0	0.0
Std.Dev. =	2.7	1.9	1.3	0.2	1.1	1.1	1.0	1.0	0.3	0.0	0.3	0.5	0.0	0.3
85th % =	33.1	7.7	5.1	2.3	11.5	11.4	9.5	9.5	0.7	0.0	0.5	1.4	0.0	0.5

15.7

Posting: 9.0

Station	Temp Mid °F	Temp. Adj Fact.	Peak Spring Defl. mils	Spring Subgrade Modulus ksi	AASHTO Effective Values CBR	SN	Calculated Spring Axle Load to Achive Design Deflection in Tons AASHTO	Soil Fact.	Inv 183	TONN Method	10-year Overlay Structure inches	9-ton inches	10-ton inches	20-year Overlay Structure inches	9-ton inches	10-ton inches	LTPP Forwardcalculation for HMA Eac	Egb	Esg	SN
1.8																				
1.9	50.3	1.1	25	11.2	7.5	2.7	14.5	14.3	11.8	12.5	0.0	0.0	0.0	0.1	0.0	0.0	635	53.8	23.4	2.6
1.9	50.3	1.1	25	11.2	7.4	2.8	14.7	14.6	12.0	12.7	0.0	0.0	0.0	0.0	0.0	0.0	646	53.5	23.3	2.6
1.9	50.3	1.1	24	10.7	7.2	2.9	15.5	15.3	12.7	13.1	0.0	0.0	0.0	0.0	0.0	0.0	693	51.4	22.4	2.6
1.9	50.3	1.1	24	10.6	7.1	2.9	15.7	15.5	12.9	13.3	0.0	0.0	0.0	0.0	0.0	0.0	710	50.9	22.1	2.6
2.0	51.2	1.1	28	12.6	8.4	2.5	12.5	12.4	10.1	11.3	0.0	0.0	0.0	0.4	0.0	0.0	527	60.1	26.1	2.6
2.0	51.2	1.1	27	12.4	8.2	2.5	12.8	12.7	10.3	11.5	0.0	0.0	0.0	0.4	0.0	0.0	540	59.2	25.8	2.6
2.0	51.2	1.1	27	12.2	8.1	2.6	13.2	13.1	10.7	11.8	0.0	0.0	0.0	0.3	0.0	0.0	548	58.5	25.4	2.6
2.0	51.2	1.1	26	12.1	8.1	2.6	13.5	13.3	10.9	12.0	0.0	0.0	0.0	0.2	0.0	0.0	566	58.2	25.3	2.6
2.1	49.6	1.1	29	9.2	6.1	2.6	13.5	13.2	11.2	10.7	0.2	0.0	0.0	1.0	0.0	0.0	464	43.9	19.1	2.6
2.1	49.6	1.1	29	9.2	6.1	2.6	13.6	13.4	11.3	10.8	0.2	0.0	0.0	0.9	0.0	0.0	477	44.0	19.1	2.6
2.1	49.6	1.1	29	9.0	6.0	2.6	13.8	13.6	11.5	10.9	0.1	0.0	0.0	0.9	0.0	0.0	513	43.0	18.7	2.6
2.1	49.6	1.1	29	8.9	5.9	2.7	14.0	13.7	11.7	11.0	0.1	0.0	0.0	0.9	0.0	0.0	520	42.5	18.5	2.6
2.2	48.6	1.1	31	8.0	5.3	2.6	13.6	13.2	11.5	10.3	0.5	0.0	0.0	1.1	0.0	0.0	422	38.3	16.6	2.6
2.2	48.6	1.1	30	8.0	5.3	2.6	13.7	13.3	11.5	10.3	0.5	0.0	0.0	1.1	0.0	0.0	428	38.3	16.6	2.6
2.2	48.6	1.1	30	7.8	5.2	2.6	14.0	13.6	11.9	10.5	0.4	0.0	0.0	1.0	0.0	0.0	453	37.6	16.3	2.6
2.2																				
2.3	50.1	1.1	33	7.3	4.9	2.5	12.9	12.6	11.1	9.5	0.9	0.0	0.5	1.5	0.0	0.5	436	35.2	15.3	2.6
2.3	50.1	1.1	33	7.4	4.9	2.5	13.1	12.7	11.2	9.6	0.9	0.0	0.5	1.4	0.0	0.5	445	35.2	15.3	2.6
2.3	50.1	1.1	32	7.1	4.7	2.6	13.7	13.3	11.8	9.9	0.8	0.0	0.5	1.2	0.0	0.5	459	34.0	14.8	2.6
2.3	50.1	1.1	31	7.1	4.7	2.6	13.8	13.4	11.9	10.0	0.7	0.0	0.0	1.2	0.0	0.0	468	33.8	14.7	2.6
2.4	51.2	1.1	31	7.5	5.0	2.6	13.9	13.5	11.9	10.3	0.6	0.0	0.0	1.1	0.0	0.0	404	35.8	15.6	2.6
2.4	51.2	1.1	30	7.7	5.1	2.6	13.9	13.6	11.9	10.4	0.5	0.0	0.0	1.1	0.0	0.0	407	36.9	16.0	2.6
2.4	51.2	1.1	30	7.7	5.1	2.6	14.1	13.7	12.0	10.5	0.5	0.0	0.0	1.0	0.0	0.0	414	36.8	16.0	2.6
2.4	51.2	1.1	30	7.6	5.1	2.7	14.3	13.9	12.2	10.6	0.4	0.0	0.0	1.0	0.0	0.0	416	36.4	15.8	2.6
2.5	51.0	1.1	29	9.5	6.3	2.5	13.3	13.1	11.0	10.7	0.2	0.0	0.0	1.0	0.0	0.0	474	45.4	19.8	2.6
2.5	51.0	1.1	29	9.5	6.3	2.6	13.4	13.2	11.1	10.8	0.1	0.0	0.0	0.9	0.0	0.0	483	45.5	19.8	2.6
2.5	51.0	1.1	29	9.0	6.0	2.6	13.7	13.4	11.4	10.8	0.2	0.0	0.0	1.0	0.0	0.0	490	43.2	18.8	2.6
2.5	51.0	1.1	29	9.0	6.0	2.6	13.9	13.6	11.5	11.0	0.1	0.0	0.0	0.9	0.0	0.0	501	43.1	18.7	2.6
2.6	51.0	1.1	28	12.4	8.3	2.5	12.6	12.5	10.2	11.3	0.0	0.0	0.0	0.4	0.0	0.0	429	59.5	25.9	2.6
2.6	51.0	1.1	28	12.3	8.2	2.5	12.8	12.7	10.3	11.5	0.0	0.0	0.0	0.4	0.0	0.0	450	59.0	25.6	2.6
2.6	51.0	1.1	27	12.2	8.1	2.5	13.0	12.9	10.5	11.6	0.0	0.0	0.0	0.3	0.0	0.0	464	58.5	25.4	2.6
2.6	51.0	1.1	27	12.1	8.1	2.6	13.2	13.1	10.6	11.7	0.0	0.0	0.0	0.3	0.0	0.0	474	58.2	25.3	2.6
2.7	50.9	1.1	27	13.5	9.0	2.5	12.6	12.6	10.1	11.8	0.0	0.0	0.0	0.2	0.0	0.0	424	64.9	28.2	2.6
2.7	50.9	1.1	26	13.4	8.9	2.5	12.9	12.8	10.3	11.9	0.0	0.0	0.0	0.1	0.0	0.0	437	64.0	27.8	2.6
2.7	50.9	1.1	26	13.2	8.8	2.6	13.1	13.0	10.5	12.1	0.0	0.0	0.0	0.1	0.0	0.0	454	63.3	27.5	2.6
2.7	50.9	1.1	26	13.2	8.8	2.6	13.3	13.2	10.7	12.2	0.0	0.0	0.0	0.0	0.0	0.0	459	63.0	27.4	2.6
2.7																				
2.8	51.0	1.1	31	12.1	8.1	2.3	11.5	11.4	9.3	10.3	0.1	0.0	0.0	0.8	0.0	0.0	398	58.1	25.2	2.6
2.8	51.0	1.1	30	12.0	8.0	2.4	11.7	11.6	9.4	10.4	0.1	0.0	0.0	0.8	0.0	0.0	407	57.7	25.1	2.6
2.8	51.0	1.1	30	11.6	7.7	2.4	12.0	11.9	9.7	10.5	0.1	0.0	0.0	0.8	0.0	0.0	431	55.6	24.2	2.6
2.8	51.0	1.1	30	11.5	7.6	2.4	12.1	12.0	9.9	10.6	0.1	0.0	0.0	0.8	0.0	0.0	437	55.0	23.9	2.6
2.8																				
2.9	50.8	1.1	33	10.8	7.2	2.3	11.2	11.1	9.1	9.5	0.5	0.0	0.5	1.2	0.0	0.5	347	52.0	22.6	2.5
2.9	50.8	1.1	33	10.6	7.1	2.3	11.4	11.2	9.3	9.6	0.5	0.0	0.5	1.2	0.0	0.5	355	50.9	22.1	2.5
2.9	50.8	1.1	33	10.4	7.0	2.3	11.4	11.2	9.3	9.5	0.5	0.0	0.5	1.3	0.0	0.5	360	50.1	21.8	2.5
2.9	50.8	1.1	33	10.2	6.8	2.3	11.6	11.4	9.5	9.6	0.5	0.0	0.5	1.3	0.0	0.5	370	49.1	21.3	2.5
3.0	50.9	1.1	34	9.7	6.5	2.3	11.5	11.3	9.5	9.4	0.7	0.0	1.0	1.5	0.0	1.0	361	46.7	20.3	2.5
3.0	50.9	1.1	33	9.8	6.5	2.3	11.5	11.4	9.5	9.4	0.6	0.0	1.0	1.4	0.0	1.0	368	46.9	20.4	2.5
3.0	50.9	1.1	34	9.5	6.3	2.3	11.6	11.4	9.6	9.4	0.7	0.0	1.0	1.5	0.0	1.0	374	45.5	19.8	2.5
3.0	50.9	1.1	33	9.4	6.2	2.3	11.7	11.5	9.7	9.4	0.7	0.0	1.0	1.5	0.0	1.0	382	44.9	19.5	2.5
3.1	50.8	1.1	34	10.9	7.3	2.2	10.9	10.8	8.9	9.3	0.6	0.0	1.0	1.3	0.0	1.0	334	52.3	22.7	2.5
3.1	50.8	1.1	33	10.7	7.1	2.3	11.2	11.0	9.1	9.4	0.5	0.0	1.0	1.3	0.0	1.0	349	51.1	22.2	2.5
3.1	50.8	1.1	33	10.5	7.0	2.3	11.3	11.2	9.3	9.5	0.5	0.0	0.5	1.3	0.0	0.5	355	50.4	21.9	2.5
3.2	51.9	1.1	33	7.8	5.2	2.5	12.8	12.5	10.9	9.7	0.8	0.0	0.5	1.4	0.0	0.5	429	37.6	16.4	2.6
3.2	51.9	1.1	32	7.9	5.3	2.5	12.9	12.6	10.9	9.7	0.8	0.0	0.5	1.4	0.0	0.5	435	37.9	16.5	2.6
3.2	51.9	1.1	33	7.7	5.1	2.5	12.8	12.5	10.9	9.6	0.9	0.0	0.5	1.4	0.0	0.5	441	36.8	16.0	2.6

Station	Temp Mid °F	Temp. Adj Fact	Peak Spring Defl. mils	Spring Subgrade Modulus ksi	AASHTO Effective Values CBR	SN	Calculated Spring Axle Load to Achive Design Deflection in Tons AASHTO	Soil Fact.	Inv 183	TONN Method	10-year Overlay Structure inches	9-ton inches	10-ton inches	20-year Overlay Structure inches	9-ton inches	10-ton inches	LTPP Forwardcalculation for HMA Eac	Egb	Esg	SN
3.2	51.9	1.1	33	7.6	5.0	2.5	13.0	12.6	11.1	9.6	0.8	0.0	0.5	1.4	0.0	0.5	452	36.2	15.7	2.6
3.2																				
3.3	52.1	1.1	30	11.3	7.5	2.4	12.1	12.0	9.9	10.5	0.1	0.0	0.0	0.8	0.0	0.0	496	54.0	23.5	2.6
3.3	52.1	1.1	30	11.3	7.5	2.4	12.2	12.1	9.9	10.5	0.1	0.0	0.0	0.8	0.0	0.0	504	54.1	23.5	2.6
3.3	52.1	1.1	30	10.7	7.1	2.4	12.3	12.1	10.1	10.4	0.2	0.0	0.0	0.9	0.0	0.0	502	51.3	22.3	2.6
3.3	52.1	1.1	30	10.6	7.1	2.4	12.4	12.2	10.1	10.5	0.2	0.0	0.0	0.9	0.0	0.0	509	50.8	22.1	2.6
3.3																				



American Engineering Testing, Inc.
550 Cleveland Avenue North
St. Paul, Minnesota 55114
Phone: (651) 659-9001
Fax: (651) 659-1379

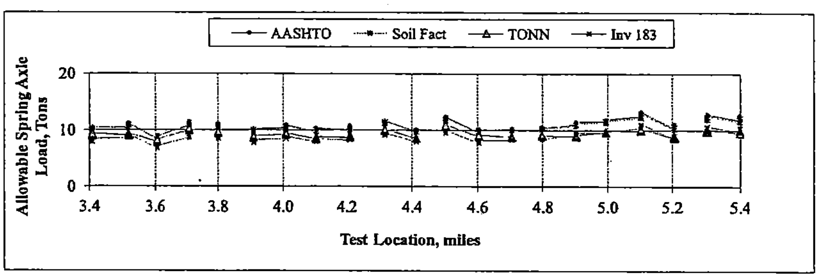
AET Project No. 28-00500
County: Pepin
Test Date: Mar 30, 2012
Section: 4
Roadway: CTH N
From: CTH P
To: CTH SS

Prev. Day's Avg. Air Temp.: 45 °F
Total AC: 3.6 in.
Daily ESALs: 48.0
Annual Growth: 2.0%
Pavement Condition Index: 89.0
Soil Type: NP
Seasonal Correction Factor: 1.10
Daily Haul ESALs: 63.0

Design Period: 10 Years
Projection Factor: 1.2
Growth Factor: 10.97
10-year Design ESALs: 422,500
Design Period: 20 Years
Projection Factor: 1.5
Growth Factor: 24.41
20-year Design ESALs: 888,239

Station	Drop	Time	Air °F	Bit °F	Load	D9	D1	D2	D3	D4	D5	D6	D7	D8	Effective Values CBR %	Effective Values SN inches	10 Year Overlay Thickness inches	10 Year Spring Capacity tons/axle	Comments
3.3																			TURNING SOUTH ON CO RD N"
3.4	1	12:18	46.4	54.4	5884	0.0	14.3	10.4	7.2	4.2	2.8	1.5	1.0	0.8	8.6	2.2	0.4	8.9	
3.4	2	12:18	46.4	54.4	5862	0.0	14.1	10.3	7.1	4.1	2.8	1.5	1.0	0.8	8.6	2.2	0.4	9.0	
3.4	3	12:18	46.4	54.4	8924	0.0	20.7	15.3	10.8	6.5	4.4	2.3	1.5	1.2	8.4	2.2	0.3	9.3	
3.4	4	12:18	46.4	54.4	8902	0.0	20.5	15.2	10.8	6.5	4.4	2.3	1.7	1.2	8.2	2.2	0.3	9.4	
3.5	1	12:19	46.4	53.7	5840	0.0	14.1	11.0	7.9	5.0	3.4	1.7	1.1	0.9	7.4	2.2	0.6	9.0	
3.5	2	12:19	46.4	53.7	5873	0.0	14.0	10.9	7.9	4.9	3.4	1.7	1.1	0.9	7.5	2.2	0.5	9.1	
3.5	3	12:19	46.4	53.7	8880	0.0	20.9	16.3	12.0	7.7	5.3	2.7	1.8	1.5	7.1	2.3	0.5	9.3	
3.5	4	12:19	46.4	53.7	8847	0.0	20.6	16.2	12.0	7.7	5.3	2.7	1.9	1.5	7.0	2.3	0.5	9.3	
3.6	1	12:20	46.4	53.7	5862	0.0	16.4	11.9	7.1	4.2	2.7	1.4	1.0	0.8	9.2	2.0	0.7	7.9	
3.6	3	12:20	46.4	53.7	8880	0.0	23.6	17.3	10.7	6.4	4.2	2.1	1.5	1.3	9.3	2.0	0.5	8.2	
3.6	4	12:20	46.4	53.7	8869	0.0	23.3	17.1	10.6	6.4	4.2	2.1	1.5	1.3	9.1	2.1	0.5	8.3	
3.7	1	12:21	46.4	53.4	5862	0.0	12.5	8.9	6.1	3.6	2.5	1.5	1.0	0.8	8.7	2.3	0.1	9.9	
3.7	2	12:21	46.4	53.4	5873	0.0	12.3	8.8	6.1	3.6	2.5	1.5	1.0	0.8	8.7	2.3	0.0	10.0	
3.7	3	12:21	46.4	53.4	8946	0.0	18.2	13.1	9.3	5.7	4.0	2.3	1.7	1.3	8.5	2.4	0.0	10.3	
3.7	4	12:21	46.4	53.4	8924	0.0	18.0	13.0	9.2	5.7	4.0	2.3	1.6	1.3	8.4	2.4	0.0	10.4	
3.7																			B10"
3.8	1	12:22	46.4	54.1	5851	0.0	13.4	9.8	7.2	4.3	2.9	1.5	1.0	0.8	8.2	2.2	0.3	9.4	
3.8	2	12:22	46.4	54.1	5840	0.0	13.2	9.8	7.1	4.3	2.9	1.5	1.0	0.8	8.2	2.3	0.3	9.5	
3.8	3	12:22	46.4	54.1	8869	0.0	19.6	14.6	10.8	6.6	4.6	2.4	1.6	1.3	7.9	2.3	0.3	9.7	
3.8	4	12:22	46.4	54.1	8869	0.0	19.5	14.5	10.7	6.6	4.6	2.4	1.6	1.3	7.9	2.3	0.2	9.7	
3.8																			CO RD D"
3.8																			CO RD D CORRECT PLACE"
3.9	1	12:23	46.4	55.4	5818	0.0	15.1	10.7	7.4	4.2	2.8	1.5	1.1	0.9	8.1	2.1	0.6	8.5	
3.9	2	12:23	46.4	55.4	5840	0.0	15.0	10.7	7.3	4.2	2.8	1.6	1.1	0.9	8.1	2.1	0.6	8.6	
3.9	3	12:23	46.4	55.4	8869	0.0	22.0	15.9	11.2	6.6	4.4	2.4	1.7	1.4	7.9	2.2	0.5	8.9	
3.9	4	12:23	46.4	55.4	8836	0.0	21.7	15.7	11.1	6.6	4.4	2.5	1.8	1.4	7.8	2.2	0.5	9.0	
4.0	1	12:24	46.4	55.9	5818	0.0	13.9	10.6	7.4	4.5	3.0	1.6	1.1	0.9	7.9	2.2	0.4	9.2	
4.0	2	12:24	46.4	55.9	5818	0.0	13.8	10.6	7.4	4.5	3.0	1.6	1.1	0.9	7.9	2.2	0.4	9.2	
4.0	3	12:24	46.4	55.9	8836	0.0	20.6	15.8	11.3	7.1	4.8	2.5	1.8	1.5	7.7	2.3	0.4	9.4	
4.0	4	12:24	46.4	55.9	8869	0.0	20.5	15.8	11.3	7.1	4.8	2.5	1.8	1.5	7.6	2.3	0.4	9.5	
4.1	1	12:25	46.4	54.8	5862	0.0	15.6	11.4	7.8	4.6	3.2	1.7	1.1	0.9	7.5	2.1	0.8	8.4	
4.1	2	12:25	46.4	54.8	5873	0.0	15.5	11.3	7.8	4.6	3.2	1.7	1.2	0.9	7.4	2.1	0.8	8.5	
4.1	3	12:25	46.4	54.8	8891	0.0	22.7	16.7	11.8	7.2	5.0	2.7	1.8	1.4	7.3	2.2	0.7	8.7	
4.1	4	12:25	46.4	54.8	8858	0.0	22.5	16.5	11.8	7.2	5.0	2.7	1.8	1.5	7.2	2.2	0.7	8.8	
4.2	1	12:26	46.4	55.4	5807	0.0	14.9	10.5	7.1	4.2	2.9	1.7	1.2	1.0	7.4	2.2	0.7	8.7	
4.2	2	12:26	46.4	55.4	5785	0.0	14.6	10.3	7.0	4.2	2.9	1.7	1.2	1.0	7.4	2.2	0.7	8.8	
4.2	3	12:26	46.4	55.4	8858	0.0	21.7	15.6	10.8	6.6	4.6	2.7	1.9	1.5	7.2	2.2	0.6	9.0	
4.2	4	12:26	46.4	55.4	8836	0.0	21.4	15.4	10.7	6.6	4.6	2.7	1.9	1.5	7.1	2.3	0.6	9.1	
4.2																			CO RD NN"
4.3																			B11"
4.3	1	12:27	46.4	56.7	5807	0.0	12.7	9.5	7.0	4.3	3.0	1.6	1.1	0.9	7.9	2.3	0.2	9.9	
4.3	2	12:27	46.4	56.7	5829	0.0	13	9.5	6.9	4.3	3.0	1.6	1.1	0.9	7.9	2.3	0.2	10.0	
4.3	3	12:27	46.4	56.7	8847	0.0	19.1	14.4	10.6	6.8	4.7	2.5	1.7	1.3	7.7	2.4	0.2	10.1	
4.3	4	12:27	46.4	56.7	8858	0.0	18.9	14.4	10.6	6.8	4.7	2.5	1.7	1.4	7.6	2.4	0.2	10.1	
4.4	1	12:28	48.2	56.4	5774	0.0	15.3	11.3	8.2	4.8	3.1	1.6	1.0	0.9	7.6	2.1	0.7	8.5	
4.4	3	12:28	48.2	56.4	8782	0.0	23.1	17.1	12.7	7.6	5.0	2.6	1.7	1.4	7.4	2.2	0.8	8.5	
4.4	4	12:28	48.2	56.4	8793	0.0	22.9	17.1	12.7	7.6	5.1	2.6	1.8	1.4	7.3	2.2	0.7	8.6	
4.4																			CO RD SS ON LEFT"
4.5	1	12:29	46.4	56.5	5796	0.0	11.5	8.5	5.9	3.7	2.7	1.5	1.1	0.9	8.3	2.4	0.0	10.7	
4.5	2	12:29	46.4	56.5	5818	0.0	11.4	8.4	5.9	3.7	2.7	1.5	1.1	0.9	8.3	2.4	0.0	10.8	
4.5	3	12:29	46.4	56.5	8803	0.0	17.1	12.6	9.0	5.7	4.1	2.4	1.7	1.4	8.0	2.5	0.0	10.9	
4.5	4	12:29	46.4	56.5	8814	0.0	17.0	12.5	9.0	5.7	4.1	2.4	1.8	1.4	8.0	2.5	0.0	11.0	
4.6	1	12:30	46.4	56.8	5851	0.0	14.5	10.3	7.2	4.1	2.7	1.5	1.0	0.8	8.7	2.1	0.4	8.9	
4.6	2	12:30	46.4	56.8	5862	0.0	14.4	10.2	7.1	4.1	2.7	1.5	1.0	0.8	8.7	2.2	0.4	9.0	
4.6	3	12:30	46.4	56.8	8858	0.0	21.5	15.4	10.8	6.4	4.3	2.3	1.6	1.3	8.5	2.2	0.4	9.1	
4.6	4	12:30	46.4	56.8	8858	0.0	21.2	15.3	10.8	6.4	4.3	2.3	1.6	1.3	8.3	2.2	0.4	9.2	
4.7	1	12:31	46.4	57.8	5785	0.0	14.8	11.1	8.1	4.9	3.2	1.6	1.1	0.9	7.6	2.2	0.6	8.8	
4.7	2	12:31	46.4	57.8	5829	0.0	14.7	11.1	8.1	5.0	3.3	1.6	1.1	0.9	7.7	2.2	0.6	8.9	
4.7	3	12:31	46.4	57.8	8814	0.0	22.6	17.0	12.5	7.8	5.2	2.6	1.8	1.5	7.5	2.2	0.7	8.8	
4.7	4	12:31	46.4	57.8	8793	0.0	22.4	16.8	12.4	7.7	5.2	2.6	1.9	1.5	7.4	2.2	0.7	8.9	
4.7																			B12"

Station	Drop	Time	Air °F	Bit °F	Load	D9	D1	D2	D3	D4	D5	D6	D7	D8	Effective Values CBR %	SN inches	10 Year Overlay Thickness inches	Spring Capacity tons/axle	Comments
4.8	1	12:32	46.4	58.0	5818	0.0	14.2	10.8	8.1	5.0	3.3	1.6	1.1	0.9	7.8	2.2	0.5	9.1	
4.8	2	12:32	46.4	58.0	5829	0.0	14.1	10.7	8.1	5.0	3.3	1.6	1.1	0.9	7.8	2.2	0.5	9.2	
4.8	3	12:32	46.4	58.0	8814	0.0	22.0	16.7	12.5	7.8	5.3	2.5	1.8	1.4	7.6	2.2	0.6	9.0	
4.8	4	12:32	46.4	58.0	8836	0.0	21.9	16.7	12.5	7.9	5.3	2.5	1.8	1.5	7.6	2.2	0.6	9.0	
4.9	1	12:33	46.4	58.5	5807	0.0	14.9	10.9	7.9	5.0	3.5	2.0	1.3	1.0	6.3	2.3	0.8	8.9	
4.9	2	12:33	46.4	58.5	5807	0.0	14.7	10.8	7.9	4.9	3.5	2.0	1.3	1.0	6.3	2.3	0.8	9.0	
4.9	3	12:33	46.4	58.5	8803	0.0	22.2	16.4	12.1	7.8	5.5	3.1	2.1	1.6	6.2	2.3	0.8	9.0	
4.9	4	12:33	46.4	58.5	8825	0.0	22.0	16.3	12.1	7.8	5.6	3.1	2.1	1.6	6.1	2.3	0.8	9.1	
5.0	1	12:34	48.2	59.8	5796	0.0	13.6	10.7	7.9	4.8	3.4	1.9	1.2	1.0	6.8	2.4	0.5	9.6	
5.0	2	12:34	48.2	59.8	5774	0.0	13.4	10.5	7.8	4.8	3.4	1.9	1.2	0.9	6.7	2.4	0.5	9.7	
5.0	3	12:34	48.2	59.8	8814	0.0	20.5	16.2	12.1	7.6	5.3	2.9	1.9	1.5	6.6	2.4	0.5	9.7	
5.0	4	12:34	48.2	59.8	8793	0.0	20.3	16.0	12.0	7.5	5.3	2.9	1.9	1.5	6.5	2.4	0.5	9.8	
5.1	1	12:35	46.4	57.2	5774	0.0	13.0	9.6	7.0	4.6	3.4	2.1	1.4	1.2	6.0	2.5	0.5	9.9	
5.1	2	12:35	46.4	57.2	5785	0.0	12.8	9.4	7.0	4.6	3.4	2.1	1.5	1.1	6.0	2.5	0.5	10.0	
5.1	3	12:35	46.4	57.2	8727	0.0	18.8	14.0	10.5	7.0	5.3	3.2	2.3	1.9	5.9	2.5	0.4	10.2	
5.1	4	12:35	46.4	57.2	8793	0.0	18.7	13.9	10.5	7.1	5.3	3.3	2.3	1.8	5.8	2.6	0.4	10.4	
5.2	1	12:36	48.2	58.6	5774	0.0	15.3	11.3	8.2	4.8	3.3	1.9	1.3	1.0	6.7	2.2	0.9	8.6	
5.2	2	12:36	48.2	58.6	5774	0.0	15.1	11.1	8.1	4.8	3.3	1.9	1.3	1.0	6.8	2.2	0.8	8.7	
5.2	3	12:36	48.2	58.6	8782	0.0	22.5	16.7	12.3	7.5	5.2	2.9	2.0	1.6	6.5	2.3	0.8	8.9	
5.2	4	12:36	48.2	58.6	8814	0.0	22.4	16.6	12.3	7.5	5.3	3.0	2.1	1.6	6.4	2.3	0.8	9.0	
5.2																			B13"
5.3	1	12:37	48.2	58.9	5730	0.0	13.1	9.6	7.1	4.4	3.2	2.0	1.4	1.1	6.4	2.4	0.5	9.8	
5.3	2	12:37	48.2	58.9	5752	0.0	13.0	9.6	7.1	4.5	3.2	2.0	1.4	1.0	6.4	2.4	0.5	9.9	
5.3	3	12:37	48.2	58.9	8771	0.0	19.2	14.3	10.6	6.9	5.1	3.1	2.2	1.7	6.1	2.5	0.4	10.2	
5.3	4	12:37	48.2	58.9	8760	0.0	19.1	14.2	10.6	6.9	5.1	3.1	2.2	1.8	6.1	2.5	0.4	10.2	
5.4	1	12:38	48.2	58.2	5840	0.0	13.8	10.3	7.5	4.8	3.5	2.0	1.4	1.0	6.2	2.4	0.6	9.5	
5.4	2	12:38	48.2	58.2	5807	0.0	13.6	10.1	7.4	4.8	3.5	2.0	1.4	1.0	6.2	2.4	0.6	9.6	
5.4	3	12:38	48.2	58.2	8814	0.0	19.8	14.9	11.1	7.3	5.3	3.2	2.2	1.6	6.1	2.5	0.5	10.0	
5.4	4	12:38	48.2	58.2	8836	0.0	19.6	14.9	11.1	7.4	5.4	3.2	2.2	1.6	6.0	2.5	0.5	10.0	
5.4																			RIGHT ON CO RD SS"



	Summary of Analysis Results													
					Axle Load for Design Defl. Tons				10-year Overlay			20-year Overlay		
	$_{s}BB_{m}$ mils	Esg ksi	Eff. CBR	SN inches	AASHTO	S.F	Inv. 183	TONN Tons	Structure inches	9-ton inches	10-ton inches	Structure inches	9-ton inches	10-ton inches
Avg. =	34.0	11.2	7.5	2.3	10.8	10.7	8.8	9.3	0.5	0.2	0.9	1.2	0.2	0.9
Median =	34.4	11.4	7.6	2.3	10.6	10.5	8.6	9.2	0.5	0.0	1.0	1.3	0.0	1.0
Std.Dev. =	2.4	1.3	0.9	0.1	1.0	1.0	0.9	0.7	0.2	0.4	0.6	0.3	0.4	0.6
85th % =	36.4	9.5	6.3	2.2	9.9	9.8	8.0	8.7	0.7	0.5	1.5	1.5	0.5	1.5

15.7 Posting: 9.0

Station	Temp Mid °F	Temp. Adj Fact.	Peak Spring Defl. mils	Spring Subgrade Modulus ksi	AASHTO Effective Values CBR	SN	Calculated Spring Axle Load to Achive Design Deflection in Tons AASHTO	Soil Fact.	Inv 183	TONN Method	10-year Overlay Structure inches	9-ton inches	10-ton inches	20-year Overlay Structure inches	9-ton inches	10-ton inches	LTPP Forwardcalculation for HMA Eac	Egb	Esg	SN
3.3																				
3.4	51.3	1.1	35	12.9	8.6	2.2	9.8	9.7	7.8	8.9	0.4	0.5	1.0	1.1	0.5	1.0	215	61.0	26.9	2.4
3.4	51.3	1.1	35	12.9	8.6	2.2	9.9	9.8	7.9	9.0	0.4	0.0	1.0	1.1	0.0	1.0	222	60.8	26.8	2.5
3.4	51.3	1.1	34	12.6	8.4	2.2	10.3	10.2	8.3	9.3	0.3	0.0	1.0	1.0	0.0	1.0	248	59.3	26.2	2.5
3.4	51.3	1.1	34	12.4	8.2	2.2	10.4	10.3	8.4	9.4	0.3	0.0	1.0	1.0	0.0	1.0	255	58.4	25.8	2.5
3.5	50.8	1.1	35	11.2	7.4	2.2	10.4	10.3	8.5	9.0	0.6	0.0	1.0	1.3	0.0	1.0	293	52.7	23.3	2.6
3.5	50.8	1.1	34	11.2	7.5	2.2	10.6	10.4	8.6	9.1	0.5	0.0	1.0	1.3	0.0	1.0	298	53.0	23.4	2.6
3.5	50.8	1.1	34	10.7	7.1	2.3	10.9	10.8	8.9	9.3	0.5	0.0	1.0	1.3	0.0	1.0	320	50.5	22.3	2.6
3.5	50.8	1.1	34	10.5	7.0	2.3	11.1	10.9	9.1	9.3	0.5	0.0	1.0	1.3	0.0	1.0	328	49.5	21.9	2.6
3.6	50.8	1.2	40	13.8	9.2	2.0	8.3	8.3	6.7	7.9	0.7	1.5	2.5	1.4	1.5	2.5	164	65.2	28.8	2.3
3.6	50.8	1.2	38	14.0	9.3	2.0	8.7	8.6	6.9	8.2	0.5	1.0	2.0	1.2	1.0	2.0	186	66.1	29.2	2.4
3.6	50.8	1.2	38	13.7	9.1	2.1	8.9	8.8	7.1	8.3	0.5	1.0	2.0	1.2	1.0	2.0	190	64.5	28.5	2.4
3.7	50.6	1.2	32	13.1	8.7	2.3	10.8	10.7	8.6	9.9	0.1	0.0	0.5	0.8	0.0	0.5	222	61.6	27.2	2.5
3.7	50.6	1.2	31	13.1	8.7	2.3	10.9	10.8	8.7	10.0	0.0	0.0	0.0	0.7	0.0	0.0	229	61.7	27.2	2.5
3.7	50.6	1.2	31	12.7	8.5	2.4	11.3	11.2	9.1	10.3	0.0	0.0	0.0	0.7	0.0	0.0	249	59.9	26.5	2.5
3.7	50.6	1.1	30	12.6	8.4	2.4	11.4	11.3	9.2	10.4	0.0	0.0	0.0	0.7	0.0	0.0	254	59.3	26.2	2.5
3.7																				
3.8	51.1	1.1	34	12.3	8.2	2.2	10.5	10.4	8.5	9.4	0.3	0.0	1.0	1.0	0.0	1.0	247	57.9	25.6	2.5
3.8	51.1	1.1	33	12.2	8.2	2.3	10.6	10.5	8.5	9.5	0.3	0.0	0.5	1.0	0.0	0.5	256	57.8	25.5	2.5
3.8	51.1	1.1	33	11.9	7.9	2.3	10.9	10.8	8.8	9.7	0.3	0.0	0.5	1.0	0.0	0.5	269	56.2	24.8	2.5
3.8	51.1	1.1	32	11.9	7.9	2.3	11.0	10.9	8.9	9.7	0.2	0.0	0.5	1.0	0.0	0.5	274	56.0	24.7	2.5
3.8																				
3.8																				
3.9	52.0	1.1	37	12.2	8.1	2.1	9.5	9.5	7.7	8.5	0.6	0.5	1.5	1.3	0.5	1.5	188	57.6	25.4	2.4
3.9	52.0	1.1	37	12.1	8.1	2.1	9.7	9.6	7.8	8.6	0.6	0.5	1.5	1.3	0.5	1.5	193	57.1	25.2	2.4
3.9	52.0	1.1	35	11.9	7.9	2.2	10.0	9.9	8.1	8.9	0.5	0.5	1.5	1.3	0.5	1.5	212	56.2	24.8	2.4
3.9	52.0	1.1	35	11.7	7.8	2.2	10.2	10.1	8.2	9.0	0.5	0.5	1.0	1.3	0.5	1.0	218	55.3	24.4	2.4
4.0	52.4	1.1	34	11.9	7.9	2.2	10.4	10.2	8.4	9.2	0.4	0.0	1.0	1.2	0.0	1.0	285	56.1	24.8	2.6
4.0	52.4	1.1	34	11.9	7.9	2.2	10.4	10.3	8.4	9.2	0.4	0.0	1.0	1.1	0.0	1.0	292	56.1	24.8	2.6
4.0	52.4	1.1	34	11.5	7.7	2.3	10.7	10.6	8.7	9.4	0.4	0.0	1.0	1.1	0.0	1.0	305	54.4	24.0	2.6
4.0	52.4	1.1	33	11.4	7.6	2.3	10.9	10.7	8.8	9.5	0.4	0.0	0.5	1.1	0.0	0.5	310	54.0	23.8	2.6
4.1	51.6	1.1	38	11.2	7.5	2.1	9.7	9.6	7.9	8.4	0.8	1.0	2.0	1.5	1.0	2.0	200	52.9	23.4	2.4
4.1	51.6	1.1	37	11.2	7.4	2.1	9.8	9.7	8.0	8.5	0.8	1.0	1.5	1.5	1.0	1.5	204	52.7	23.3	2.4
4.1	51.6	1.1	36	10.9	7.3	2.2	10.2	10.0	8.3	8.7	0.7	0.5	1.5	1.5	0.5	1.5	220	51.5	22.7	2.5
4.1	51.6	1.1	36	10.7	7.2	2.2	10.3	10.1	8.4	8.8	0.7	0.5	1.5	1.5	0.5	1.5	225	50.7	22.4	2.5
4.2	52.0	1.1	36	11.1	7.4	2.2	10.1	9.9	8.2	8.7	0.7	0.5	1.5	1.5	0.5	1.5	182	52.4	23.1	2.4
4.2	52.0	1.1	36	11.1	7.4	2.2	10.2	10.1	8.3	8.8	0.7	0.5	1.5	1.4	0.5	1.5	188	52.5	23.2	2.4
4.2	52.0	1.1	35	10.9	7.2	2.2	10.6	10.4	8.6	9.0	0.6	0.0	1.0	1.3	0.0	1.0	211	51.3	22.6	2.4
4.2	52.0	1.1	34	10.7	7.1	2.3	10.8	10.6	8.8	9.1	0.6	0.0	1.0	1.3	0.0	1.0	215	50.6	22.3	2.4
4.2																				
4.3																				
4.3	53.0	1.1	32	11.9	7.9	2.3	11.2	11.1	9.1	9.9	0.2	0.0	0.5	0.9	0.0	0.5	306	56.0	24.7	2.6
4.3	53.0	1.1	31	11.9	7.9	2.3	11.3	11.2	9.2	10.0	0.2	0.0	0.0	0.9	0.0	0.0	312	56.2	24.8	2.6
4.3	53.0	1.1	31	11.5	7.7	2.4	11.5	11.4	9.3	10.1	0.2	0.0	0.0	0.9	0.0	0.0	323	54.3	24.0	2.6
4.3	53.0	1.1	31	11.4	7.6	2.4	11.6	11.5	9.4	10.1	0.2	0.0	0.0	0.9	0.0	0.0	331	53.9	23.8	2.6
4.4	52.8	1.1	37	11.4	7.6	2.1	9.8	9.6	7.9	8.5	0.7	0.5	1.5	1.5	0.5	1.5	231	53.7	23.7	2.5
4.4	52.8	1.1	37	11.1	7.4	2.2	9.9	9.8	8.1	8.5	0.8	0.5	1.5	1.5	0.5	1.5	241	52.4	23.1	2.5
4.4	52.8	1.1	37	11.0	7.3	2.2	10.1	9.9	8.2	8.6	0.7	0.5	1.5	1.5	0.5	1.5	250	51.7	22.8	2.5
4.4																				
4.5	52.8	1.1	30	12.5	8.3	2.4	11.8	11.7	9.5	10.7	0.0	0.0	0.0	0.6	0.0	0.0	292	58.9	26.0	2.6
4.5	52.8	1.1	29	12.4	8.3	2.4	11.9	11.8	9.6	10.8	0.0	0.0	0.0	0.6	0.0	0.0	295	58.7	25.9	2.6
4.5	52.8	1.1	29	12.0	8.0	2.5	12.2	12.1	9.9	10.9	0.0	0.0	0.0	0.6	0.0	0.0	306	56.7	25.1	2.6
4.5	52.8	1.1	29	11.9	8.0	2.5	12.4	12.2	10.0	11.0	0.0	0.0	0.0	0.5	0.0	0.0	313	56.3	24.9	2.6
4.6	53.0	1.1	35	13.1	8.7	2.1	9.6	9.6	7.7	8.9	0.4	0.5	1.5	1.1	0.5	1.5	207	61.9	27.3	2.4
4.6	53.0	1.1	35	13.1	8.7	2.2	9.8	9.7	7.8	9.0	0.4	0.5	1.0	1.1	0.5	1.0	211	61.6	27.2	2.4
4.6	53.0	1.1	35	12.7	8.5	2.2	10.0	9.9	8.1	9.1	0.4	0.0	1.0	1.1	0.0	1.0	220	59.9	26.4	2.5
4.6	53.0	1.1	34	12.5	8.3	2.2	10.2	10.1	8.2	9.2	0.4	0.0	1.0	1.1	0.0	1.0	228	58.8	26.0	2.5
4.7	53.8	1.1	36	11.4	7.6	2.2	10.1	10.0	8.2	8.8	0.6	0.5	1.5	1.4	0.5	1.5	267	53.8	23.7	2.5
4.7	53.8	1.1	35	11.6	7.7	2.2	10.1	10.0	8.2	8.9	0.6	0.5	1.5	1.3	0.5	1.5	273	54.5	24.1	2.5
4.7	53.8	1.1	36	11.2	7.5	2.2	10.2	10.0	8.3	8.8	0.7	0.5	1.5	1.4	0.5	1.5	270	52.8	23.3	2.5
4.7	53.8	1.1	36	11.1	7.4	2.2	10.3	10.1	8.4	8.9	0.7	0.5	1.5	1.4	0.5	1.5	272	52.3	23.1	2.5
4.7																				