Appendix F

Pavement Management Program (PMP) Reports

This page is left intentionally blank.

APPENDIX F: Pavement Management Program (PMP) Reports

BWI Marshall Airport maintains a routine Pavement Management Program (PMP) where the status and condition of all airside and landside pavements are reviewed, tested, and improvement schedules determined. Pavement repairs outlined in the PMP are proposed in the EA.

The following PMP reports are included in this appendix:

- Attachment 1: *2015-16 BWI Marshall Landside Pavement Management Program, AECOM, MAA-AE-13-001 (September 2016).*
- Attachment 2: *2015-16 BWI Marshall Airside Pavement Management Program, AECOM, MAA-AE-13-001 (December 2016).*

Attachment 1:

2015-16 BWI Marshall Landside

Pavement Management Program,

AECOM, MAA-AE-13-001

September 2016

Prepared for:
Maryland Aviation Administration

Maryland Aviation Administration

2015-16 BWI Marshall Landside Pavement Management Program

Final Report
September 2016
MAA-AE-13-001

AECOM
In Association with
Pavement Technical Solutions
Mandli Communications
Mimar Ponte Mellor

Prepared for:
Maryland Aviation Administration

Maryland Aviation Administration

2015-16 BWI Marshall Landside Pavement Management Program

Final Report
September 2016
MAA-AE-13-001

AECOM

In Association with
Pavement Technical Solutions
Mandli Communications
Mimar Ponte Mellor

Contents

EXECUTIVE SUMMARY ES-1

1.0 BWI Marshall PMP Overview 1-1
1.1 Introduction 1-1
1.2 Background 1-2
1.3 Work Scope 1-2

2.0 Pavement Management System Process 2-1
2.1 Introduction 2-1

3.0 Pavement Inventory 3-1
3.1 Introduction 3-1
3.2 BWI Landside Inventory 3-1
3.3 Climatic Conditions 3-2
3.4 Pavement Network and Branches 3-2
3.5 Pavement Sections and Sample Units 3-4
3.6 Pavement Inventory 3-5
3.7 Inventory Changes From Previous Inspection 3-7

4.0 Field Visual Inspections and Data Analysis 4-1
4.1 Introduction 4-1
4.2 Methodology 4-1
4.3 Distress Types 4-3
4.3.1 Quality Control Process 4-4
4.4 Field Inspection Results 4-4
4.4.1 PCI Condition Summary 4-6
4.5 Summary 4-8

5.0 Maintenance and Rehabilitation Planning 5-1
5.1 Introduction 5-1
5.2 Performance Modeling 5-1
5.3 Prioritization 5-2
5.4 Critical PCI Values 5-3
5.5 Maintenance and Rehabilitation Policies 5-4
5.5.1 Localized Safety (Stop Gap) and Preventive Maintenance Policies 5-4
5.5.2 Global Maintenance Policy 5-5

5.5.3 Major M&R Policy 5-5
5.6 Unit Costs 5-7
5.6.1 Localized Safety (Stop Gap) and Preventive Maintenance Costs 5-7
5.6.2 Major M&R Cost 5-7
5.7 M&R Budget Scenarios 5-11
5.8 Summary 5-14

6.0 Capital Improvement Recommendations 6-1
6.1 Introduction 6-1
6.2 Development of Capital Improvement Alternatives 6-1
6.3 Recommended Capital Improvement Projects 6-3
6.4 Projects Deleted from the Draft CIP 6-15
6.5 Summary 6-15

7.0 Summary 7-1
7.1 BWI Marshall Landside PMP 7-1
7.2 Objectives 7-1
7.3 Data Collection 7-1
7.4 Data Analysis 7-1
7.5 CIP Development 7-1
7.6 Recommendations 7-2

List of Appendices

Appendix A BWI Marshall Airside Pavements Condition Reports

Appendix B Maps

Figure B-1 Network Definition Map

Figure B-2 Pavement Survey Scope

Figure B-3 Pavement Condition Index (PCI) Map - Section

Figure B-4 Pavement Condition Index (PCI) Map – Sample Unit

Figure B-5 BWI Landside Priority Map

Figure B-6 CIP Map

Figure B-7 CIP Projects Map

Appendix C PCI Distress Descriptions

Appendix D Comparison of 2011 and 2015 PCI Survey Results

Appendix E 2016 Localized Maintenance Plan

List of Tables

Table 3-1 Average Annual Temperatures and Rainfall for BWI Marshall (Dec 2014 to Nov 2015) 3-2
Table 3-2 Section Changes in 2015 ... 3-2
Table 3-3 Contracts Completed Between 2011 and 2015 ... 3-3
Table 3-4 Sample Rates for AC and PCC Pavements ... 3-5
Table 3-5 Pavement Age ... 3-5
Table 4-1 Distress Types for AC and PCC Pavements ... 4-2
Table 4-2 Pavement Condition Index (PCI) Rating Scale ... 4-3
Table 4-3 2015 AC Distresses by Section ... 4-5
Table 4-4 2015 PCC Distresses by Section ... 4-5
Table 4-5 Condition Summary by Use ... 4-6
Table 4-6 PCI Values by Surface Type ... 4-6
Table 5-1 Performance Models and Descriptions ... 5-1
Table 5-2 Funding Priority Matrix ... 5-3
Table 5-3 Localized Preventive and Stop-Gap Maintenance ... 5-5
Table 5-4 Localized Preventive and Stop-Gap Maintenance Unit Cost ... 5-7
Table 5-5 General Major M&R Unit Cost ... 5-8
Table 5-6 Major M&R Work Activities and Unit Costs by Work Type ($/SF) ... 5-9
Table 5-7 Unit Cost Buildup ... 5-9
Table 5-8 Cost by PCI for Budget Scenarios ... 5-10
Table 5-9 Localized M&R Requirements for Year 2016 (Preventive + Stop-Gap) ... 5-11
Table 5-10 Annual M&R Funding for Each Budget Scenario ... 5-13
Table 5-11 Annual Unfunded M&R by Budget Scenario ... 5-13
Table 6-1(a): Decision Matrix for Asphalt Roadways ... 6-2
Table 6-2 Recommended 10-Year (2017 to 2026) CIP for BWI Marshall Landside Pavements ... 6-3
Table 6-3 Recommended 10-Year Landside CIP Projects at BWI Marshall Airport ... 6-4

List of Figures

Figure 2-1 Conceptual Illustration of a Pavement's Life-Cycle 2-2
Figure 3-1 BWI Marshall Location Map 3-1
Figure 3-2 BWI Marshall Pavement Area by Surface Type 3-6
Figure 3-3 BWI Marshall Pavement Area by Branch Use 3-6
Figure 4-1 LCMS Equipment 4-1
Figure 4-2 PCI by Number of Sections 4-7
Figure 4-3 PCI by Percent Area 4-7
Figure 5-1 BWI Marshall Family Curves 5-2
Figure 5-2 Pavement Life Cycle 5-4
Figure 5-3 Annual Network PCI for Various M&R Scenarios 5-12

List of Acronyms

AC	Asphalt Concrete
AAC	Asphalt Overlay on Asphalt Concrete
APC	Asphalt Overlay on Portland Cement Concrete
AIP	Airport Improvement Program
ASTM	American Society for Testing and Materials
CIP	Capital Improvement Program
BWI	Baltimore Washington International Airport
FAA	Federal Aviation Administration
FY	Fiscal Year
M&R	Maintenance and Rehabilitation
MOL	Mill and Overlay
PCC	Portland Cement Concrete
PCI	Pavement Condition Index
PMP	Pavement Management Program
PMS	Pavement Management System
Quality Control	QC
SCI	Structural Condition Index

EXECUTIVE SUMMARY

The AECOM team was retained to update the 2011 Pavement Management Program (PMP) for the Landside pavements at Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) through a comprehensive engineering evaluation of pavement conditions using the Pavement Condition Index (PCI) survey method. AECOM was tasked with the development of an update to the original 2011 PMP 10-Year Capital Improvement Program (CIP) that reflects updated rehabilitation, construction and additional distresses that have developed since the last condition survey in 2011. Current and forecast pavement conditions and the associated engineering cost estimates were used to identify critical pavement improvement needs and to develop a 10-year CIP for the Landside pavements at the airport.

All the results obtained during the landside PMP update have been loaded into the MicroPAVER 7.0 pavement management software database including pavement condition, surface type, M&R unit cost, policies and the CIP projects. The full report contains color-coded charts and maps and detailed PMP inventory and condition reports.

The estimated 10-year CIP cost in 2015 dollars as recommended is **$52 million**.

Update to Work History and Network Definition Maps
There were changes to the configuration of the BWI Marshall Landside pavement network which resulted in basemap updates. Updated changes included the addition of the existing Alamo lot, the existing Thrifty lot, the old QTA lot, the Service Road and the Utility Plant. Deletions included Dixon, the MD Police, and Amtrak Way.

Pavement Condition Index Updates (ASTM D6433)
The PCI is a numerical rating (on a scale of 0 to 100) based on the type, severity and quantity of pavement distress found in an inspected sample unit. The results are displayed using seven categories and ratings in accordance with ASTM standards, but can also be presented using a simplified 3-category rating system for use in comparing with other distress related indices as shown in Table ES.2 (next page).

The overall current 2015 and previous 2011 area-weighted PCI values are shown in Table ES-1. The 2015 values correspond to ASTM ratings of “Satisfactory” for both roadways and parking lots.

Table ES-1: Summary of BWI Marshall Landside Pavement Network

Pavement Use	2011 Area Weighted PCI	2015 Area Weighted PCI	2015 Area Weighted Age, years
Roadway	78	76	19
Parking	75	70	19
Overall	75	71	19

As shown in Table ES-1, the average overall PCI in 2015 for BWI Marshall Landside pavements has decreased from 75 to 71over the past 4 years.

Map B-3 in Appendix provides a PCI rating map that shows the condition for all sections for BWI Marshall Landside pavements using the ASTM PCI rating scale shown in Table ES-2.

Table ES-2 PCI Rating Scale (ASTM and Simplified)

	Simplified PCI Color Legend	ASTM PCI Color Legend	PCI Range	PCI Ratings and Definition
Good			86-100	GOOD: Pavement has minor or no distresses and should require only routine maintenance.
			71-85	SATISFACTORY: Pavement has scattered low-severity distresses that should require only routine maintenance.
Fair			56-70	FAIR: Pavement has a combination of generally low- and Medium severity distresses. Near-term maintenance and repair needs may range from routine to major.
Poor			41-55	POOR: Pavement has low-, medium-, and high-severity distresses that probably cause some operational problems. Near-term M&R needs range from routine to major.
			26-40	VERY POOR: Pavement has predominantly medium- and high-severity distresses that cause considerable maintenance & operational problems. Near-term M&R needs will be major.
			11-25	SERIOUS: Pavement has mainly high-severity distresses that cause operational restrictions; immediate repairs are needed.
			0-10	FAILED: Pavement deterioration has progressed to the point that safe vehicle operations are no longer possible; complete reconstruction is required.

Source: American Society of Testing and Materials (ASTM)

Structural Analysis

Structural analyses were not performed for the 2015 Landside PMP Update.

CIP Development

The CIP was developed based on the functional and structural condition of the pavements. The functional condition was evaluated using performance models; funding prioritization; PCI maintenance and rehabilitation trigger values and policies; and unit costs. Performance models were reviewed and updated based on the additional PCI data that were collected in 2015. Maintenance and rehabilitation critical PCI (trigger) values for BWI Marshall Landside are set at 65 for roadways and 55 for parking parking lots. Unit costs were developed based on updated bid costs from 2013-2014 and are presented in Table ES-2 (next page).

The '2015 Unit Cost' column presents the costs for the construction materials only for each type of project. This is equivalent to the unit costs presented in the 2011 report. The '2015 Unit Cost W/All Costs' adds unit costs for the mobilization, contingencies, design fees, construction quality plan, and Construction Management and Inspection (CMI) as per the design standard bid estimate template. All unit costs were developed based on recent projects.

Several budget scenarios were evaluated to determine the 10-Year CIP. A detailed description of the budget scenarios that were evaluated to develop the optimal CIP is presented in Chapter 8 of the report. The recommended CIP projects for the next 5 years (2017-2021) are shown in Table ES-3.

Table ES-2: Unit Cost Updates

Item	Unit	2011 Unit Cost	2015 Unit Cost Draft CIP	2015 Unit Cost Final CIP	Assumptions for Cost Estimate
*AC Pavement Milling	SY	$10.50	$19.00	N / A	3 in
*AC Pavement Milling – 2-in	SY	N / A	N / A	$5.50	2-in
*AC Pavement Milling – 3-in	SY	N / A	N / A	$8.25	3-in
*AC Pavement Milling – 4-in	SY	N / A	N / A	$11.00	4-in
AC Pavement Removal	SY	$20.00	$39.00	$39.00	Up to 6 in
PCC Pavement Removal	SY	$22.00	$23.10	$26.74	Up to 6 in
Bituminous Concrete Surface Course	TON	$120.00	$126.17	$126.17	PG 76-22, 3 in
Portland Cement Concrete Pavement	SY	$92.00	$90.00	$90.00	6 in
Bituminous Tack Coat	GAL	$9.00	$10.00	$10.00	0.1 gallon per SY
Crushed Aggregate Base Course	SY	$12.00	$15.00	$15.00	6 in
Thermoplastic Pavement Marking (1 LF at 5-in wide = 0.42 sq.ft)	LF (SF)	$3.50 ($8.40)	$7.97 ($19.20)	$0.76 ($/SF of Total Area)	4% of Total Pavement Area

*The draft CIP unit cost for milling considered 2-in, 3-in and variable depth bid prices when selecting the value for the unit price. The final CIP utilizes specific unit prices for specific depths of milling.

Table ES.3: Recommended Capital Improvement Projects for Next Five (5) Years, 2017-2021

Construction Year	Project Code	Project Name	Work	Unit Cost ($/SF)	Pavement Sections in Project	Sum of Cost 2015	Cost with Escalation for Plan Year
2017	17-01	Elm Road (At Terminal Road) Mill & Overlay	2" Mill and 2-3" Overlay	7.27-9.11	2	$160,174	$166,581
	17-02	ARFF Road Reconstruction	AC Road Reconstruction	34.73	1	$1,221,893	$1,270,769
	17-03	Bus Maintenance Entrance Mill & Overlay	2" Mill and Overlay	7.27	1	$20,431	$21,249
	17-04	Kauffman Parking Mill & Overlay	2" Mill and Overlay	7.27	1	$184,827	$192,220
2018	18-01	Long-Term B Parking 02A (Booths to Main Lot) Mill and Overlay	2" Mill and Overlay	7.27	1	$88,892	$95,780
	18-02	Long-Term B Parking 05 (Northwest Section) Reconstruction	AC Park Reconstruction	28.61	1	$9,082,753	$9,776,676
	18-03	Long-Term B Parking 06A (Entrance Aisle to Main Lot) Reconstruction	AC Park Reconstruction	28.61	1	$733,038	$789,043
	18-04	Long-Term B Parking 07 (Southeast Section) Mill and Overlay	4" Mill and Overlay	12.44	1	$4,560,321	$4,908,729
2019	19-01 (2012 17-01)	Long-Term A Parking 01 (West Section) Mill and Overlay	2" Mill and Overlay	7.27	1	$4,316,562	$4,797,427

Construction Year	Project Code	Project Name	Work	Unit Cost ($/SF)	Pavement Sections in Project	Sum of Cost 2015	Cost with Escalation for Plan Year
	19-02 (2012 14-03)	Cargo Service Road Mill and Overlay	2" Mill and Overlay	7.27	2	$448,842	$498,844
	19-03 (2012 14-04)	Fuel Farm Road & Park Mill & Overlay	2" Mill and Overlay	7.27	2	$745,875	$828,965
	19-04 (2012 18-01)	Mathison Way Mill and Overlay	2" Mill and 2-3" Overlay	7.27-9.11	4	$1,933,067	$2,148,411
2020	20-01	Burma Road (RW 15L Hold Pad to GA Apron) Reconstruction	AC Road Reconstruction	34.73	1	$385,510	$441,293
	20-02	Compressed Natural Gas (CNG) Facility Pavement Reconstruction	PCC Reconstruction	40.15	1	$100,901	$115,501
	20-03	Arrivals (Hourly Garage to Pedestrian Bridge #2) & Departures (Executive Managers Lot to Elm Road) Roadway Mill and Overlay	2" Mill and 2-3" Overlay	7.27-9.11	2	$168,336	$192,694
	20-04	I-195 Inbound Mill & Overlay	2-3" Mill and 2-4" Overlay	7.27-11.63	3	$551,442	$631,235
	20-05	Sheraton Parking Mill & Overlay	2" Mill and 3" Overlay	9.11	1	$175,058	$200,388
	20-06	Taxi Lot Pavement Mill & Overlay	2" Mill and Overlay / 2" Overlay	5.79-7.27	2	$572,587	$655,440
2021	21-01 (2012 17-01)	Long-Term A Parking 02 (Center Section) Mill & Overlay	2" Mill and Overlay	7.27	1	$6,087,545	$7,177,824

BWI Marshall PMP Overview

1.1 Introduction

In addition to aircraft pavements at Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall), the Maryland Aviation Administration (MAA) is responsible for a large network of vehicular pavements, both inside and outside the airport. These roadway and parking lot pavements, collectively referred to as landside pavements, represent a significant financial investment by the MAA and are an integral part of the airport's transportation system. Immediately after initial construction is complete, pavements begin a gradual deterioration due to weathering, fatigue from load repetitions, deficient surface and subsurface drainage, and the expansion and contraction of the individual pavement layers. The initial deterioration accelerates over time, and if pavements are not routinely and properly maintained, the useful life will be significantly reduced, resulting in increased reconstruction costs. Flawed construction techniques, deficient materials, and poor workmanship in both initial construction and maintenance can accelerate this deterioration process. Over time, many pavements are also subject to higher traffic levels and loads than those for which they were originally designed, resulting in additional pavement distress and more rapid deterioration.

The rapid growth in air operations over the past two decades has resulted in a significant increase in commercial and customer vehicular traffic within the network. In order to provide vehicular pavements at an acceptable operational condition in support of the airport's continued expansion requires a comprehensive Pavement Management System (PMS) that plans the most cost effective Maintenance and Rehabilitation (M&R) activities for each pavement over time. The PMS results in the timely funding of critical pavement repairs and capital improvements to ensure that BWI Marshall meets its obligations to airport users.

In the mid 2000's, the MAA initiated a comprehensive Pavement Management System (PMS) to assist the Administration in cataloguing the pavement inventory, assessing its current condition , and predicting the rates of deterioration for both Landside and airside pavements at both BWI Marshall and Martin State Airports (MTN). The PMS provides a logical and rational tool for making cost-effective decisions in regards to pavement M&R process, thereby allowing a more proactive approach to maintenance programming. In 2014, AECOM was retained to update the comprehensive PMP for both landside and airside pavements at both BWI and MTN through a comprehensive engineering evaluation of current pavement conditions, forecasts of future pavement conditions, estimates of annual M&R needs as well as a proposed Capital Improvement Program.

The main objective of this updated program is to identify landside pavement deficiencies and feasible rehabilitation projects by completing a system inventory, conducting a conditions survey and preparing 10-year M&R programs. Current and forecast pavement conditions and the associated engineering cost estimates were used to identify critical pavement improvement needs and to develop a 10-year Capital Improvement Program (CIP) for the airport. As part of the PMP process, the type, quantity and severity of distresses for each pavement were determined by Laser Crack Mapping System (LCMS) or by visual inspections. No other field data were collected for this project.

This report presents the landside component of the PMP that encompasses roadways and parking lots at BWI Marshall and is an update to previously submitted reports. As an integral part of the comprehensive program, an updated Airside PMP is provided under a separate cover. Additionally, the web-enabled MicroPAVER software system that was developed and implemented as part of the AirPortal platform is considered a separate task and not included in this report. The AirPortal will be updated at a later date.

1.2 Background

With almost 23 million passengers passing through BWI Marshall in 2015, it ranks among the top 25 busiest commercial hub airports in the U.S. Located in Anne Arundel County, it is within reaching distance of travelers in the greater Baltimore and Washington metropolitan regions. It compasses approximately 3,596 acres of property surrounded by interstate highways and major roadways with convenient access to established transportation systems in the region.

The landside pavements at BWI consist of the following components:

- Interstate I-195, the main airport access/egress road
- Terminal frontage roads that provide access to the arrival and departure levels
- Local roads that provide access to airport facilities and parking areas
- Surface parking lots
- Airside pavements for vehicles only

Collectively, these pavements comprise the landside pavement network which totals over 17 miles of roadway and nearly 1.5 million square yards of pavement surface.

1.3 Work Scope

The development of BWI Marshall Landside PMP followed a generally accepted sequence of vehicle pavement management procedures. The study area included the roadway and surface parking areas owned by MAA. Vehicular and service roads located within the airfield were also included. Covered parking areas were not included as these are considered structures and evaluated separately by MAA. Finally, the study included an upgrade to the new version of MicroPaver (Version 7) database for use in analyzing and forecasting pavement conditions.

The scope of work for the pavement management system update included:

- Record Research and Base Map Updates within the MicroPAVER (MP) Software
  - Review of construction activities since 2011 with updates made to the work history module in MP
  - Base map updates in geodatabase format to reflect boundary updates to pavement section and sample unit changes
- Pavement Surveys
  - Completed in accordance with ASTM D6433
  - Additional sampling of specific locations completed using high speed data collection technology to provide 100% coverage of pavement condition
  - Develop Pavement Condition Index (PCI) for pavement sections
  - Comparison of 2015 to 2011 PCI data
  - Upload data into MicroPAVER
- Updates to the MicroPAVER database
  - Upgrade to MicroPAVER v7.0
  - Update to deterioration models
  - Unit cost updates
- Development of a 10-Year Capital Improvement Plan for landside pavement

The remainder of the report documents the scope of work and the study results.

Pavement Management System Process

2.1 Introduction

This chapter is intended to provide a summary capsule of the pavement management system process related to this project. Historically, Maintenance & Rehabilitation (M&R) priority has been given to those pavements that have reached critical levels of deterioration, at the cost of the overall pavement network condition. Such a reactive strategy can result in the gradual deterioration of the network as a whole, while slowly increasing the backlog of unfunded projects.

A PMP supports the MAA in making cost effective decisions about pavement maintenance and rehabilitation. These benefits include:

- An objective and consistent evaluation of the condition of a network of pavements
- A systematic engineering basis for determining M & R program needs
- Identification of budget requirements necessary to maintain pavements at various levels of serviceability
- Documentation on the present and future condition of the pavements in a network
- Determination of life-cycle costs for various M&R alternatives
- Identification of the impact on the pavement network as a result of performing major repairs

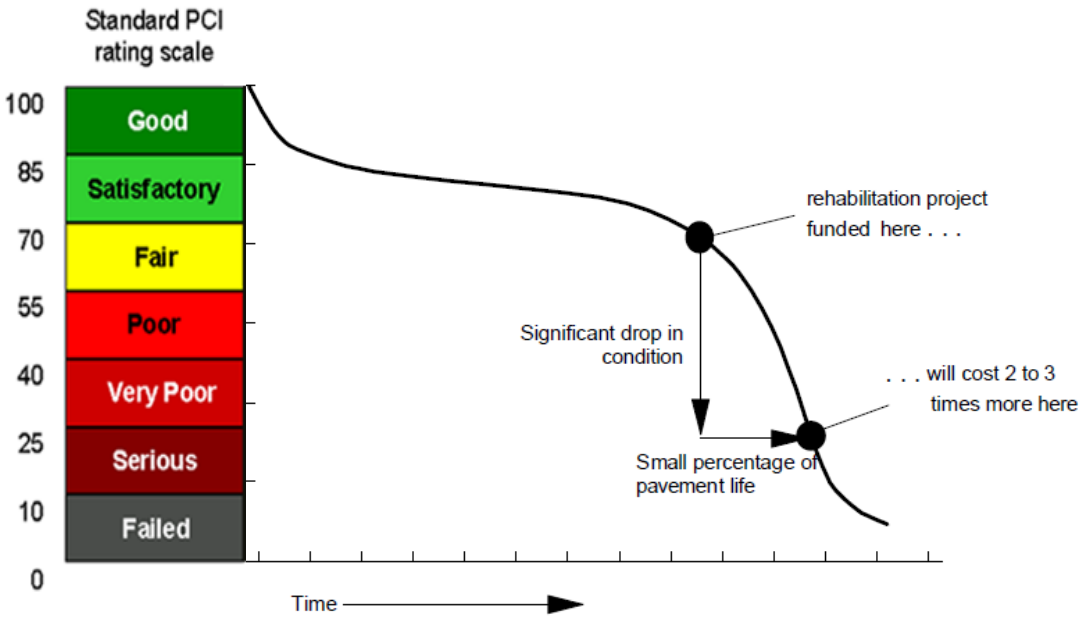
All of these benefits combine to allow the PMP to provide a systematic and consistent procedure for setting priorities and schedules, allocating resources, and budgeting for pavement M&R. The reports generated from the PMP allow the MAA to quantify the results of alternative M&R scenarios, thus ensuring the maintenance of the pavement network at an acceptable level of service while minimizing the present day cost. Agencies who implement and utilize a PMP have consistently found that they are able to optimize their available funds. These agencies are better at allocating their limited funds while improving the overall condition of their pavement networks. The MAA has implemented MicroPAVER as the main PMP platform. This program has many features that are summarized as follows:

- Maintain the pavement inventory database;
- Calculate the Pavement Condition Index (PCI) of the pavement;
- Filter information and present it in report form based on user determined criteria such as age, condition of a pavement at the last inspection, elapsed time since last major rehabilitation, and pavement type or use;
- Generate a “PCI vs. Age Curve” that is used to predict the future condition of similar pavement;
- Forecast M&R needs by anticipating the rate of deterioration of a pavement, thereby generating a pro-active maintenance program;
- Compare budget scenarios and life cycle cost based on local cost data; and
- Prioritize M&R needs based on budget constraints.

Historically, most organizations have made maintenance decisions based on past experience, without the benefit of documented data or analysis. This practice does not encourage life cycle cost analysis, nor the evaluation of cost effectiveness of alternate scenarios, and can lead to the inefficient use of funds.

With limited allocated funding for M&R Program projects, a defined procedure for setting priorities and schedules that will maximize the funds available is more important than ever. Thoughtful decision making using performance prediction models for pavement can result in extensive long term savings to an agency as documented in Figure 2-1. In order to extend pavement life, maintenance and repairs need to be scheduled and performed before the pavement surface declines to a "fair" condition. The point at which rehabilitation can be done before the steep decline occurs is called the "critical PCI", and is generally considered to be about a PCI of 60 for roadway and parking lot networks. For this project a critical PCI was established as 65 for roadways and 55 for parking lots.

Figure 2-1 Conceptual Illustration of a Pavement's Life-Cycle



Source: GAO Report: Airfield Pavement- Keeping Nation's Runways in Good Condition Could Require Substantially Higher Spending (July 1998)

Pavement Inventory

3.1 Introduction

The landside pavement inventory at BWI Marshall was updated with construction work activities that have occurred since 2011. The inventory was updated through a records search, collection of existing plans and design reports, and review of pavement evaluation and design reports that have been submitted to MAA since the PMP update was completed in 2011. Updates to the database were completed for these projects so that the CIP plan could be updated as part of this report as provided in Chapter 6.

3.2 BWI Landside Inventory

BWI Marshall Airport, the primary air carrier airport in Maryland, is located in Anne Arundel County. The landside component of the airport is about 330 acres, nearly 10 percent of the total 3,596 acres owned by MAA, and consists of roadways and parking facilities. As Figure 3-1 illustrates, the airport is surrounded by well-developed urban and industrial areas bounded by a well-established network of roads and highways. The airport elevation, at 146.0 feet MSL, is considered mostly flat terrain. Exceptions are bridges and overpasses and the southeast corner of the airport across from Aviation Boulevard (MD 170) where the site drops in elevation.

Roadways range from multi-lane high traffic volume sections such as I-195 to low volume service roads to primarily heavy vehicle roads used by rental car and parking bus shuttles, cargo trucks and fuel trucks. MAA maintains part of I-195 (from MD 170 to the passenger terminal), terminal curbside, and several arterial roadways around the airport as identified later in this chapter. Within the airfield area, all the service roads and many of the tenant access roads are owned and maintained by the MAA. Additionally, the vehicular parking surfaces around the airport, owned by MAA, were included in this study.

Figure 3-1 BWI Marshall Location Map

3.3 Climatic Conditions

Table 3-1 provides a summary of the climatic data for BWI Marshall from December 2014 to November 2015. As the table shows, the pavements at BWI Marshall are exposed to a small number of freeze-thaw cycles from December through February. The mean air temperature for January ranges from an average low of 23 degrees F to an average high of 41 degrees F. The average annual rainfall at BWI Marshall is approximately 42 inches.

Table 3-1 Average Annual Temperatures and Rainfall for BWI Marshall (Dec 2014 to Nov 2015)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Temp (°F)	38.8	35.1	50.2	66.0	80.6	82.9	86.5	86.0	82.2	66.4	61.0	47.3
Low Temp (°F)	23.0	15.8	29.3	43.0	57.6	65.5	67.6	64.2	61.3	44.1	41.0	32.5
Precip. (in.)	3.89	2.24	4.67	4.30	2.10	13.09	3.49	2.46	3.25	3.41	2.42	3.58

Source: US National Climatic Data Center

3.4 Pavement Network and Branches

A key element in a pavement management system is defining the pavement network, which is the process of dividing the network of pavements into a hierarchical order that facilitates inspection and maintenance planning. The BWI Marshall network (e.g. all landside pavements) is then divided into branches, which are a readily identifiable part of the pavement system and have distinct functions. For landside pavements, branches typically consist of individual roadways and parking lots. There are 66 branches (facilities) at BWI Marshall that include 260 pavement sections and a total area of approximately 14.2 million square feet.

The construction history of the pavement is used to define pavement sections. Since the last landside PMP update at BWI Marshall, there have been several branches added or deleted from the program, which are as follows:

Table 3-2 Section Changes in 2015

Branch	Sections	Added/Deleted
ExAlamo	3	Added
ExThrifty	4	Added
GasPark	1	Added
OldQTAPk	1	Added
ServRd	1	Added
UtilPlant	2	Added
Dixon	1	Deleted
MDPolice	1	Deleted
Amtrak Way	3	Deleted
Elk Ridge Landing	Unknown	To be added in future

Furthermore, numerous sections have been reconstructed or resurfaced since the last PMP. The AECOM team researched and documented available pavement construction, rehabilitation, and

maintenance history information to determine what construction work has been completed since MAA conducted the 2011 PMP update. The construction updates are summarized in Table 3-3.

Table 3-3 Contracts Completed Between 2011 and 2015

Contract	Title	Date	Work Type	General Area
MAA-CO-11-005-(002)	Comprehensive Paving Improvements 2011: Sample Task 2 - Taxiway Y (Former Taxiway E)	3/2/2012	Rehabilitation	Service Road
MAA-CO-11-005-(050)	Terminal Road Emergency Repair BWI Thurgood Marshall Airport	6/20/2012	Patching	Elm Road Ext.
MAA-CO-13-016 (001)	Comprehensive Paving Improvements 2011: Sample Task 1 - I195 Westbound Off Ramp to MD 170	12/13/2013	Rehabilitation & Reconstruction	I-195 Outbound
MAA-CO-13-016 (004)	Comprehensive Paving Improvements 2013; Sample Task 4 - Ramp to Elm Road	12/13/2013	Rehabilitation	Elm Road and Departure Ramp
MAA-CO-13-016 (005)	Comprehensive Paving Improvements 2013; Bus Maintenance Facility Pavement Rehabilitation	12/14/2014	Reconstruction	Bus Maintenance
MAA-CO-13-016 (008)	Terminal Road Pavement Rehabilitation for BWI Thurgood Marshall Airport	1/29/2014	Rehabilitation	Elm Rd., Elm Road Ext., I-195 Inbound
MAA-CO-13-016 (012)	Task 12 - Lower Level Terminal Roadway Pavement Rehabilitation of BWI Thurgood Marshall Airport	8/31/2014	Reconstruction	Arrivals06
MAA-CO-13-016 (024)	Long Term Parking A - Shuttle Bus Exit Pavement Rehabilitation for BWI Thurgood Marshall Airport	2/13/2015	Reconstruction	Long Term Parking A
MAA-CO-13-016 (035)	Terminal Return Road Pavement Rehabilitation for BWI Thurgood Marshall Airport	3/6/2015	Rehabilitation	I-195 Inbound 06A
MAA-CO-13-016-(007)	Pavement Rehabilitation at Elkridge Landing Road Employee Lot Entrance	11/27/2013	Reconstruction	Old ESPA
MAA-CO-13-016-(010)	Comprehensive Paving Improvements 2013; Aaronson Road Pavement Rehabilitation	11/26/2013	Rehabilitation	Aaronson Road
MAA-CO-13-016-(016)	Elkridge Landing Bus Lot Ramp Repair at BWI Thurgood Marshall Airport	11/11/2013	Patching	Elkridge Landing
MAA-CO-13-016-(026)	Lower Level Exit Roadway Pavement Rehabilitation for BWI Thurgood Marshall Airport	10/10/2014	Rehabilitation	Arrivals and I-195 Outbound
MAA-CO-13-016-(032)	Upper Level Terminal Roadway Bridge Approach Resurfacing for BWI Thurgood Marshall Airport	11/3/2014	Patching	Arrivals
MAA-CO-13-017	Runway 15L-33R RSA Compliance Project	4/29/2013	Reconstruction	Burma Road
MAA-CO-14-003	Runway 15R-33L RSA, Pavement Rehabilitation and Standards Compliance	8/30/2013	Rehabilitation	Service Road & ARFFRD02
MAA-CO-14-008	Long Term Parking Lot B Pavement Rehabilitation at BWI Thurgood Marshall Airport	11/10/2014	Rehabilitation	Long Term Parking B
MAA-CO-14-012	Air Cargo Drive North Pavement Rehabilitation at BWI Thurgood Marshall Airport	12/31/2014	Rehabilitation	Air Cargo Drive and North Cargo Parking

Contract	Title	Date	Work Type	General Area
MAA-CO-15-006	Long Term Parking Lot B Pavement Rehabilitation - Phase 2 for BWI Thurgood Marshall Airport	10/9/2014	Rehabilitation & Reconstruction	Aaronson Road and Long Term Parking B
MAA-CO-15-010	Pavement Rehabilitation of Ramp from Aviation Blvd. Northbound to I-195 Inbound for BWI Thurgood Marshall Airport	10/3/2015	Reconstruction	I-195 Inbound Ramp
Unknown (Not Found in AirPortal)	CNG Pavement Rehabilitation	1/1/2012	Rehabilitation	CNG01
Unknown(Not Found in AirPortal)	Hourly Garage and Employee Parking Pavement Rehabilitation	1/1/2012	Rehabilitation	Hourly Garage and Employee Lot
Unknown(Not Found in AirPortal)	Express Lot Pavement Rehabilitation	1/1/2012	Rehabilitation	Express Lot

Subsequent to the completion of reviews for the above contracts, the construction history and age of pavement were updated within the MicroPaver database with changes from 2011 to 2015 and new sections were added as appropriate.

3.5 Pavement Sections and Sample Units

Once branches have been defined, pavement evaluation and analysis techniques require the landside pavement system to be broken up into discrete sections. A pavement "section" is the smallest management unit used when considering the application and selection of maintenance and rehabilitation (M&R) treatments, and is defined by Section 2.1.8 of ASTM D 5340-12 as "a contiguous pavement area having uniform construction, maintenance, usage history, and condition. A section should also have the same traffic volume and load intensity."

To facilitate the visual survey of the landside pavement in 2015, each section was further subdivided into conveniently defined or sample units. Similar sizing of sample units is critical as studies have found that maintaining the size of the sample units to within 40% of the established norm may reduce the standard error of the average PCI values. To meet that criteria, ASTM D 6433 recommends that sample units for asphalt pavements be 2,500 square feet (± 1,000), and sample units for PCC pavements be 20 slabs (±8). The sample unit size for PCC pavements assumes a joint spacing no greater than 25 feet; for slabs with joints exceeding that criterion, imaginary joints less than or equal to 25 feet are assumed during the sample unit layout and survey process.

For prior surveys, Table 3-4 was used as a guideline in developing sampling rates that reflect similar rates that are used for other large pavement networks. This same sampling approach was used, consistent with historical surveys. In locations where high speed data collection was completed, 100% of sample units were surveyed.

The sample units that were inspected in 2015 were generally the same units as inspected in 2011, with additional ones added as required. Sample units that included a one-time occurrence of a distress (i.e. a large patch) or an unusual severity or quantity of a distress seen elsewhere, were assigned as "additional" units as per the PCI procedure. This allows the PCI to be calculated without extrapolating the aberrant distress throughout the section as a whole.

Table 3-4 Sample Rates for AC and PCC Pavements

Surface Type	Total Number of Samples Units	Sample Units Inspected
PCC	1-3	All
	4	3
	5-7	5
	8-10	6
	11-16	8
	17-28	10
	29-64	13
	65-90	14
	Over 90	20%, but less than 32
AC	1	1
	2-3	2
	4-9	4
	10-40	6
	> 40	15 percent, but < 17

Source: AECOM

3.6 Pavement Inventory

The BWI Marshall Landside network consists of 14,203,827 square feet of pavement area, divided into 66 branches that consist of 260 sections. A total of 206 sections are less than 21 years old, which includes 85 percent of the total pavement area. Table 3-5, which was developed from an analysis of the pavement inventory, shows the distribution of landside pavement by age with the area-weighted age being 19 years for all the pavements.

Table 3-5 Pavement Age

Age (Years)	Number of Sections	Percent of Area	Square Feet
0-5	81	17.1%	2,462,297
6-10	15	3.0%	437,003
11-15	53	40.9%	5,713,648
16-20	57	23.9%	3,432,200
21-25	0	0%	0
26-30	2	0.3%	39,328
31-35	14	5.7%	815,227
36-40	1	0.1%	20,065
41-50	16	5.2%	746,521
51+	21	11.3%	537,538
Total	260	100%	14,203,827

The roadway and parking areas include asphalt concrete (AC), AAC (asphalt concrete overlay of original AC), and PCC (Portland Cement Concrete) pavements. Figure 3-2 shows the distribution of landside pavement by surface types, and Figure 3-3 shows the distribution by usage.

Figure 3-2 BWI Marshall Landside Pavement Area by Surface Type

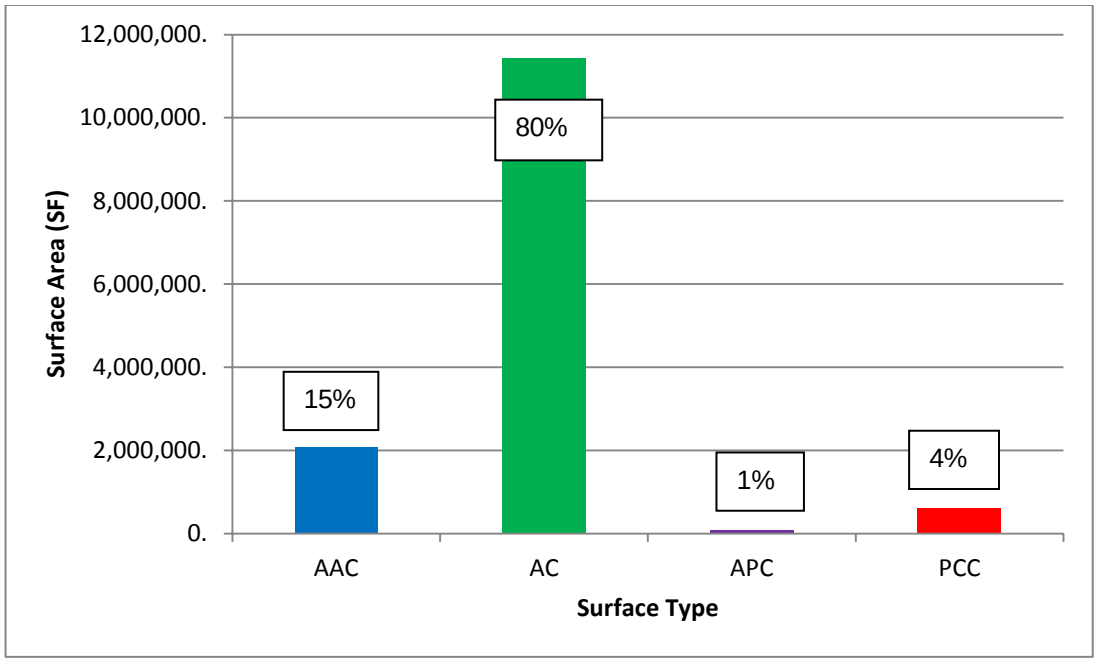
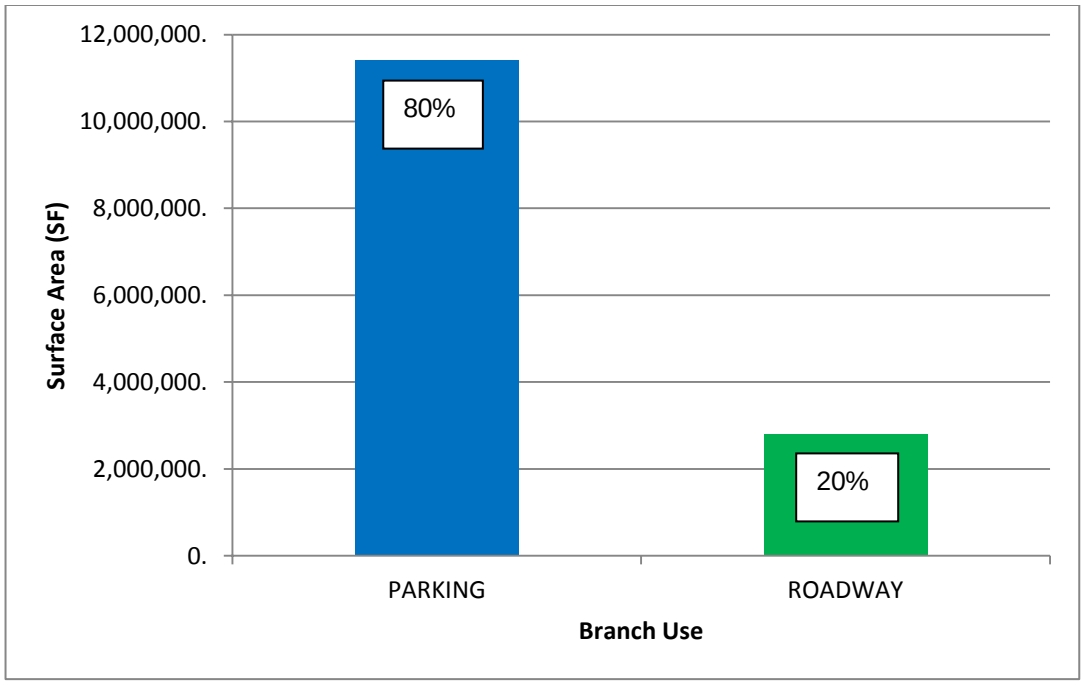


Figure 3-3 BWI Marshall Landside Pavement Area by Branch Use



3.7 Inventory Changes From Previous Inspection

The changes noted in Tables 3-2 and 3-3 have been updated and loaded into MicroPAVER to reflect inventory changes that have occurred since the 2011 inspection of the BWI Marshall Landside pavements. The updated network layout and section designations are shown in Figure B-1 in Appendix B.

Field Visual Inspections and Data Analysis

4.1 Introduction

Previous visual PCI surveys of the landside pavements at BWI Marshall were conducted in 2007 and 2011. A visual PCI survey was performed in 2015 in order to update the existing pavement management database. The visual survey measures and records pavement distresses as observed in the sample units inspected. This survey was conducted by a two-person team over approximately 30 days between the period of August 15th and November 8th, 2015. The survey was performed in accordance with the methods described in ASTM D-6433 using the sampling rates from Section 3.5 of this report. This chapter describes a general methodology that was followed for conducting the survey, followed by the quality control process, field inspection results, and a summary of PCI results.

4.2 Methodology

Pavement surveys were completed at BWI Marshall using two different methods. The methods are described below and Figure B-2 in Appendix B provides the specific locations of each survey method:

1. Manual surveys to achieve statistical based sample unit PCI data: Surveys were completed by a two-person crew, under escort by a third team member. Distress data were collected using GPS enabled tablets. Manual surveys were completed during daylight hours to ensure the best quality. This survey method records distress type, severity and quantity within a surveyed sample unit, with sample units determined by the sampling rates from Section 3.5 of this report. This method does not result in a geo-referenced map of distresses.

2. Surveys using the Laser Crack Measurement System (LCMS) shown in Figure 4-1 to achieve detailed mapping of cracks and 100% PCI coverage: This method involved a data collection vehicle provided by subconsultant Mandli Communications (Mandli) that uses high-speed cameras, custom optics, and laser line projectors to acquire both 2D images and high-resolution 3D profiles of the pavement. This system is been designed to acquire details of the pavement surface that allow for the automatic detection of cracks. The LCMS system can be operated in all types of lighting conditions both during the day and at night. At BWI Marshall, all pavement images were taken during nighttime hours, and supplemented by approximately two passes of each branch during the day to collect forward facing / right-of-way (ROW) images. Data were collected at speeds of approximately 40 mph and covered a width of about 13 feet in each pass. The result is a map of the distresses observed and a PCI for each sample unit within the data collection scope. Note that a 100% sampling rate was completed for LCMS survey locations.

Figure 4-1 LCMS Equipment

As previously discussed in Chapter 3, the PCI is a measure of the pavement's functional surface condition. It provides insight into the causes of distress, and whether the distress is related to a load or climatic condition. The PCI is a numerical rating (on a scale of 0 to 100) based on the type, severity and quantity of each distress found in an inspected sample unit. The results are displayed using seven categories and ratings in accordance with ASTM 6433, but can also be presented using a simplified 3-category rating system for use in comparing with other distress related indices. Asphalt Concrete (AC) and Portland Cement Concrete (PCC) distress types are presented in Table 4-1.

Table 4-1 Distress Types for AC and PCC Pavements

AC Distresses	PCC Distresses
Alligator Cracking *	Corner Break *
Bleeding *	Corner Spalling *
Block Cracking *	Divided Slab*
Bumps & Sags	Durability Cracking *
Corrugation*	Faulting*
Depression *	Joint Seal Damage *
Edge Cracking*	Joint Spalling *
Joint Reflection Cracking	Blow Up
Lane / Shoulder Drop-off*	Polished Aggregate
Longitudinal & Transverse Cracking*	Large Patch *
Patching & Utility Cut Patching *	Longitudinal, Transverse & Diagonal*
Polished Aggregate*	Scaling *
Potholes*	Railroad Crossing
Railroad Crossing	Lane / Shoulder Drop-off*
Raveling *	Shrinkage Cracking *
Rutting *	Small Patch *
Shoving*	Pop Outs
Slippage Cracking *	Pumping
Swelling *	Punch Out
Weathering *	

Note: * = Distresses Found in BWI Marshall Pavements

Source: American Society of Testing and Materials (ASTM) and All About Pavements analysis

The PCI of each random sample unit is extrapolated over the entire section as a whole to obtain the Section PCI. Distresses found in sample units classified as "Additional", which are defined as non-representative instead of random, are not extrapolated over the entire section but merely added to the extrapolated quantity. Table 4-2 "Pavement Condition Index (PCI) Rating Scale" provides a detailed description of each PCI rating category and shows the seven category scale and simplified scale.

Note that the main focus of any PCI survey is to indicate a general pavement condition and distress condition observed through pavement surface inspection. Section 4.1 of ASTM D6433 governing PCI surveys offers this caution:

"The PCI provides a measure of the present condition of the pavement based on the distress observed on the surface of the pavement, which also indicates the structural integrity and surface operational condition

(localized roughness and safety). The PCI cannot measure the structural capacity; neither does it provide direct measurement of skid resistance or roughness. It provides an objective and rational basis for determining maintenance and repair needs and priorities. Continuous monitoring of the PCI is used to establish the rate of pavement deterioration, which permits early identification of major rehabilitation needs. The PCI provides feedback on pavement performance for validation or improvement of current pavement design and maintenance procedures. "

Therefore, it is imperative that the users of this information treat the PCI as a tool that will assist them during the maintenance planning process. Any major project should always be preceded by an up-to-date detailed 100 percent Project Level Inspection of the pavement in order to re-evaluate maintenance needs prior to the project design process.

Table 4-2 Pavement Condition Index (PCI) Rating Scale

	Simplified PCI Color Legend	ASTM PCI Color Legend	PCI Range	PCI Ratings and Definition
GOOD			86-100	GOOD: Pavement has minor or no distresses and should require only routine maintenance.
			71-85	SATISFACTORY: Pavement has scattered low-severity distresses that should require only routine maintenance.
FAIR			56-70	FAIR: Pavement has a combination of generally low- and medium- severity distresses. Near-term maintenance and repair needs may range from routine to major.
POOR			41-55	POOR: Pavement has low-, medium-, and high-severity distresses that probably cause some operational problems. Near-term M&R needs range from routine to major.
			26-40	VERY POOR: Pavement has predominantly medium- and high-severity distresses that cause considerable maintenance & operational problems. Near-term M&R needs will be major.
			11-25	SERIOUS: Pavement has mainly high-severity distresses that cause operational restrictions; immediate repairs are needed.
			0-10	FAILED: Pavement deterioration has progressed to the point that safe vehicle operations are no longer possible; complete reconstruction is required.

Source: American Society of Testing and Materials (ASTM)

The Structural Condition Index (SCI) is an additional index and is similar to the PCI, but only includes load related distresses.

4.3 Distress Types

Distress tends to fall into one of the following four cause categories:

Load related: AC distresses include alligator cracking, corrugation, depression, polished aggregate, rutting and slippage cracking; PCC distresses include corner breaks, longitudinal cracking, shattered slabs, polished aggregate, pumping and joint spalling.

Climate and durability related: AC distresses include bleeding, block cracking, joint reflection cracking, longitudinal and transverse (L&T) cracking, swelling and raveling/weathering; PCC distresses include blow-ups, durability ("D") cracking, longitudinal cracking, pop-outs, pumping, scaling, shrinkage cracks, and joint and corner spalling.

Moisture & Drainage related: AC distresses include alligator cracking, depressions, potholes and swelling; PCC distresses include corner breaks, divided slabs and pumping.

Other factors: Oil spillage, bleeding, patching and concrete slab joint faulting.

As described above, a distress may have more than one cause. For example, depressions may be caused by incorrect compaction during construction, or by subgrade softening due to environmental factors. In addition, a distress may be initiated by one cause but may progress to a distress of higher severity by another cause. Therefore, engineering judgment is critical in analyzing the actual cause or causes of the distress.

For asphalt surfaced pavements, of the 20 distresses listed in Table 4-1, 18 were found in the pavements at BWI Marshall. For PCC pavements, 12 of the 19 listed distresses were found. Distress descriptions are provided in Appendix C and are based on ASTM D6433.

4.3.1 Quality Control Process

During the pavement survey, Quality Control (QC) and data verification were performed on both the individual distresses and the calculated section PCI. The QC process included the following activities:

- Review of distress quantities to identify data entry errors (100% review at the sample unit level).
- Comparison to prior survey data (100% section-level review). Any major discrepancies were noted; and additional field surveys were conducted to determine their cause.
- Field verification of sections with PCI that is inconsistent for its age.

For the LCMS data collection method, distresses were assigned at a workstation and QC was completed in a similar manner to the manual method as follows:

- Review of distress quantities to identify data entry errors (100% review at the sample unit level).
- Duplicate surveys performed by an independent rater to ensure rater consistency (up to 10% coverage).
- Field verification of sections with PCI that is inconsistent for its age.

Where warranted from the QC review, the database was adjusted and the PCI values were re-evaluated.

4.4 Field Inspection Results

BWI Marshall Landside has 260 PMP sections with 4,063 sample units from which 1,676, or 41%, were visually inspected using either manual or LCMS methods. Data from the inspected sample units were then loaded into the MicroPAVER database and a resultant PCI for each section was computed.

AC and PCC surface distresses at BWI Marshall are shown in Tables 4-3 and 4-4, respectively. The percentages shown in these tables are based on the frequency of a distress type in all of the AC surfaces (e.g. AAC, AC, and APC) and PCC surfaces. For example, 107 of the 219 sections with an AC surface exhibit Alligator Cracking (49 %). Also, 8 of the 41 PCC sections had corner breaks (20%).

Table 4-3 2015 AC Distresses by Section

Distress	Number of Sections	Percent of AC Sections
Alligator Cracking	107	49%
Bleeding	3	1%
Block Cracking	53	24%
Bumps & Sags	3	1%
Corrugation	2	1%
Depression	52	24%
Edge Cracking	11	5%
Lane Shoulder Drop Off	12	5%
Longitudinal & Transverse Cracking	179	82%
Potholes	25	11%
Patching/Utility Cut	92	42%
Raveling	42	19%
Rutting	95	43%
Shoving	4	2%
Swelling	4	2%
Weathering	157	72%

Source: Field Survey (MicroPAVER database)

Table 4-4 2015 PCC Distresses by Section

Distress	Number of Sections	Percent of PCC Sections
Corner Break	8	20%
Corner Spalling	8	20%
Divided Slab	5	12%
Durability Cracking	2	5%
Faulting	2	5%
Joint Seal Damage	21	51%
Joint Spalling	14	34%
Large Patch	6	15%
Linear Cracking	21	51%
Scaling	7	17%
Shrinkage Cracking	10	24%
Small Patch	5	12%

Source: Field Survey (MicroPAVER database)

4.4.1 PCI Condition Summary

The computed PCI for landside sections ranged from a low of 10 to a high of 100. The area weighted average PCI for the inspected sections is 71, or Satisfactory. Table 4-5 below illustrates the area-weighted PCI and age for each of the two pavement uses. The Branch-Level PCI values are provided in Appendix A of this report. In addition, Appendix A provides detailed Section-Level statistics for PCI. Appendix D provides basic inventory data and calculated section deterioration rates since the date of last construction.

Table 4-5 Condition Summary by Use

	2011 Inspection		2015 Inspection	
Use	**Area-Weighted PCI**	**Area-Weighted Age**	**Area-Weighted PCI**	**Area-Weighted Age**
Roadways	78	15	76	19
Parking	75	15	70	19
Overall	75	16	71	19

Source: AECOM

Table 4-6 and Figures 4-2 and 4-3 provide an overview of pavement conditions by surface type. Overall, the PCC surface pavement sections, which are on average the oldest, are performing better than the AC surface pavements. A graphic description of the current section PCI can be found in Appendix B, Figure B-3 and sample unit PCI is presented as Figure B-4.

Table 4-6 PCI Values by Surface Type

	2011 Survey		2015 Survey		2011	2015
Pavement Surface	**% of Total Pvmnt Area**	**Number of Pvmnt Sections**	**% of Total Pvmnt Area**	**Number of Pvmnt Sections**	**Area Wgtd PCI**	**Area Wgtd PCI**
AAC	Included in AC	Included in AC	15	21	_	66
AC	96	201	80	197	76	71
APC	1	1	1	1	78	72
PCC	3	35	4	41	84	88

Figure 4-2 PCI by Number of Sections

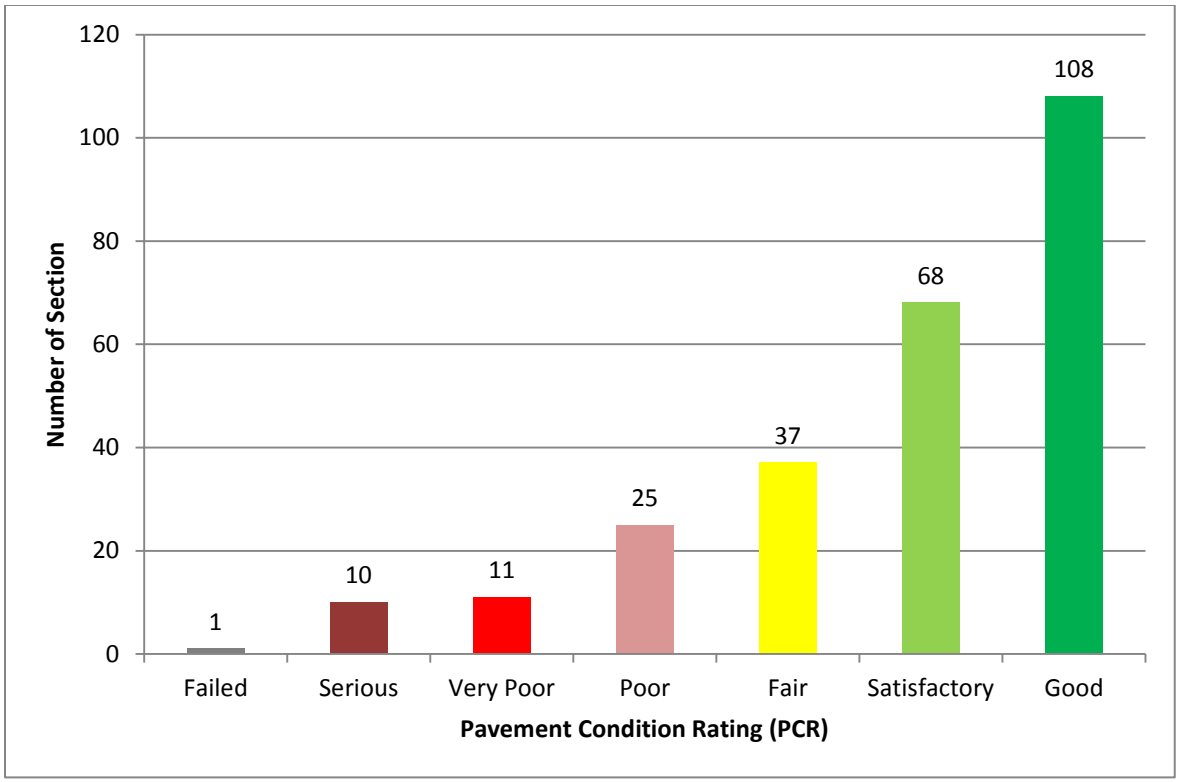
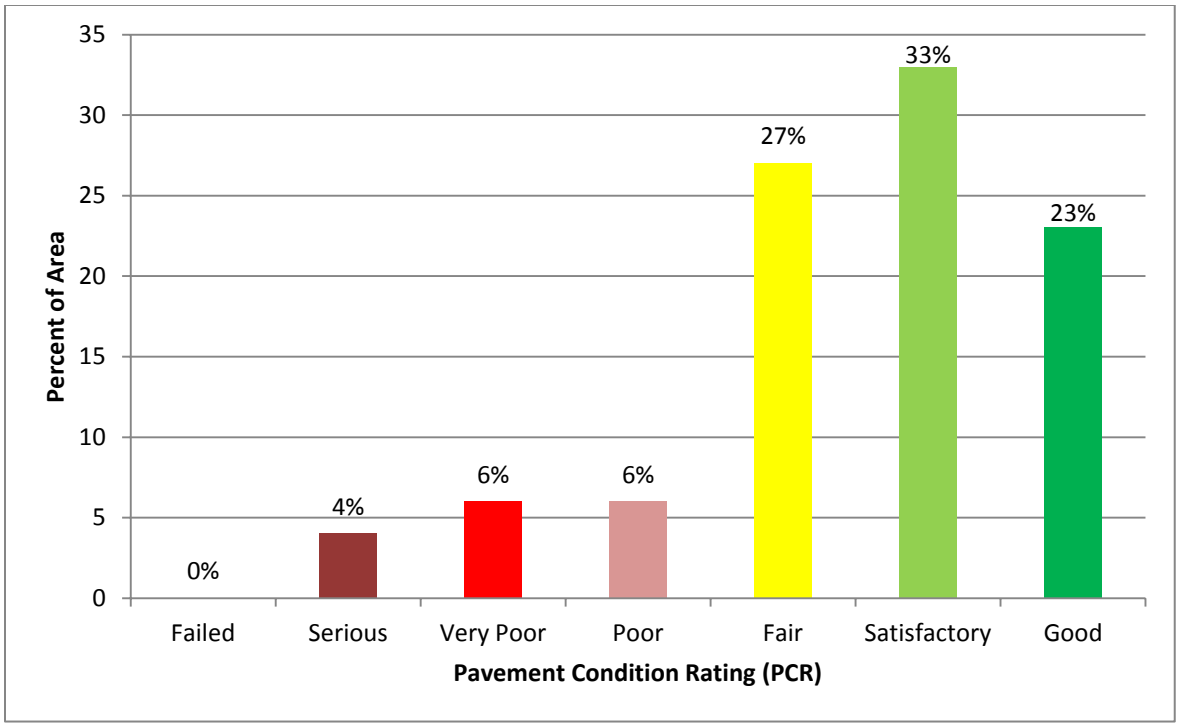


Figure 4-3 PCI by Percent Area



4.5 Summary

The landside pavements at BWI Marshall were inspected in August through November, 2015. Overall, the pavements are in “Fair” to "Good" condition with an area-weighted PCI of 71, a slight decrease from 75 in 2011. The roadways are considered to be in “Satisfactory” condition with a PCI of 76, although they only comprise 25% of the overall network. The parking areas have a PCI of 70, also “Satisfactory”.

Maintenance and Rehabilitation Planning

5.1 Introduction

Data collected and analyzed in previous chapters are utilized to develop a 10-Year Capital Improvement Program (CIP) that identifies maintenance and rehabilitation (M&R) needs. In preparation for development of an updated 10-Year CIP, the MicroPAVER database has been customized to reflect the MAA current needs and pavement M&R practices. The customization includes the following components:

- Performance Modeling
- Prioritization
- M&R Triggers (Critical PCI)
- M&R Policies
- Unit Costs

Following the database customization, budget scenarios were developed to help establish overall budget needs and thus provide a starting point for the 10-Year CIP presented in Chapter 6.

5.2 Performance Modeling

To determine long-term M&R needs, the future condition of the pavement must be predicted. Future pavement condition is predicted using equation models that are generated from current and historical PCI data. Equation models are developed by grouping pavements based on similar performance characteristics such as construction history, surface type, traffic, rank and use. Mathematical techniques such as straight-line extrapolation and regression that include boundary and outlier filters are used to develop models that provide the best fit for the pavement condition data. Data within the MicroPAVER performance models are commonly referred to as 'Family Curves'.

In the case of the BWI Marshall landside pavement network, the best fit family curves were developed by grouping pavements according to branch use (e.g. roadway and parking) and surface type (e.g. AC and PCC). Given the small number of data points for AAC and APC pavements, they were included in the AC families.

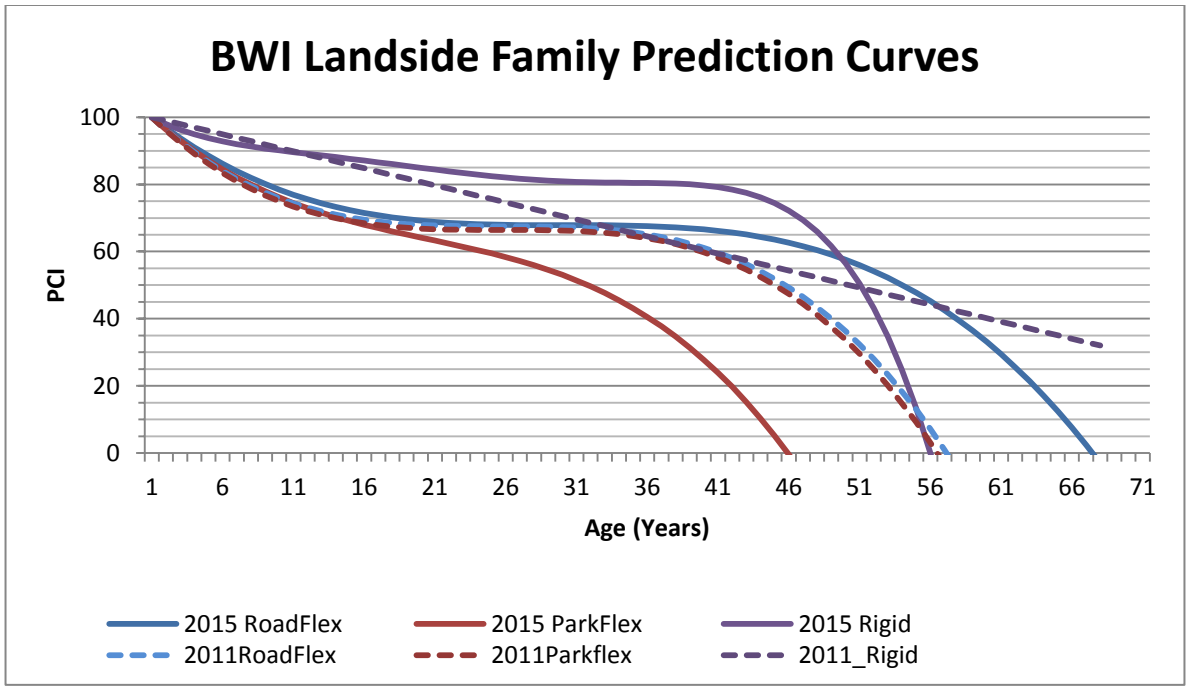
Table 5-1 provides the names of best fit performance models, as they exist in MicroPAVER, that have been developed for BWI Marshall landside pavements based on the updated 2015 PCI data. As more PCI data points are obtained through future pavement inspections, these family curves should be updated and new curves may also be developed.

Table 5-1 Performance Models and Descriptions

Performance Model Name (as stored in MicroPAVER)	Description
BWI Land-RDS Flexible	Roadway sections with AC, AAC and APC surface types
BWI Land-PKG Flexible	Parking sections with AC, AAC and APC surface types
BWI Land-Rigid	Roadway and Parking sections with PCC surface type

Figure 5-1 shows the family curves graphically developed for BWI Marshall landside network. Note that for clarity, the PCI data points are not presented here but are available in the MicroPAVER database. The differences in the 2011 and 2015 curves reflect current PCI values and the addition and deletion of branches/sections from the dataset.

Figure 5-1 BWI Marshall Family Curves



5.3 Prioritization

Pavement sections are prioritized so that when budgets are constrained, funding can be optimized to address the higher priority areas first. Prioritization is determined at both the branch and section levels and is based mainly on operational factors such as roadway and parking use and traffic volume. An initial prioritization was established using MicroPAVER features with a subsequent review with MAA Engineering.

At the branch level, pavements were prioritized according to their use:

- High Priority: Roadways
- Low Priority: Parking

At the section level, within each branch, pavements were ranked as primary (P), secondary (S) or tertiary (T). The general guidelines used to develop the initial rankings are:

- Roadway sections are Primary if they carry traffic to and from the terminals
- Roadway sections are Secondary if they carry traffic:
    - To and from revenue generating parking lots

  - To and from the Consolidated Rental Car Facility (CRCF)
  - That enables airport operations (i.e., the Fuel Farm)
  - That are part of the safety response system (i.e., AARF)
- Roadway sections are Tertiary if they carry traffic:
  - Servicing the North Cargo area
  - Servicing the General Aviation area
  - Internal to MAA use (i.e., maintenance areas)
- Parking sections are Primary or Secondary as previously designated by MAA
- Parking sections are Tertiary if they:
  - Are used for internal MAA purposes
  - Are currently unused; or
  - Are overflow lots

The final prioritization is provided as a matrix in Table 5-2. The section prioritization is provided on a map in Appendix B.3.

Table 5-2 Funding Priority Matrix

Branch Use Priority	Section Priority		
	Primary	Secondary	Tertiary
High (Roadways)	1	2	5
Low (Parking)	3	4	6

Source: Input from MAA

As indicated previously, the priorities are utilized when budgets are constrained. The allocation of funds based on the MicroPaver program first allocates funds based on the established pavement priorities identified in Table 5-2. All pavements that require M&R and have a Priority 1 are funded as long as funds are available from the constrained annual budget. If funds remain after all pavement sections with a Priority 1 have their M&R needs funded, then those sections with a Priority 2 are the next to receive M&R funds. This procedure is repeated from Priority 1 through Priority 6, as long as funds remain from the annual budget and there are sufficient M&R needs to deplete the annual budget. For example, all sections with a Priority 1 will be funded for M&R before sections with Priority 2.

Within each priority level, there is likely to be multiple sections requiring M&R work. When this occurs, the section PCI is used to schedule M&R requirements. Those pavement sections with a PCI that is closer to the critical PCI will receive a higher priority. An exception to this general rule is when a pavement requires localized safety maintenance. In this case, pavements with the lowest PCI are treated first when a specific budget does not allow for other types of M&R work.

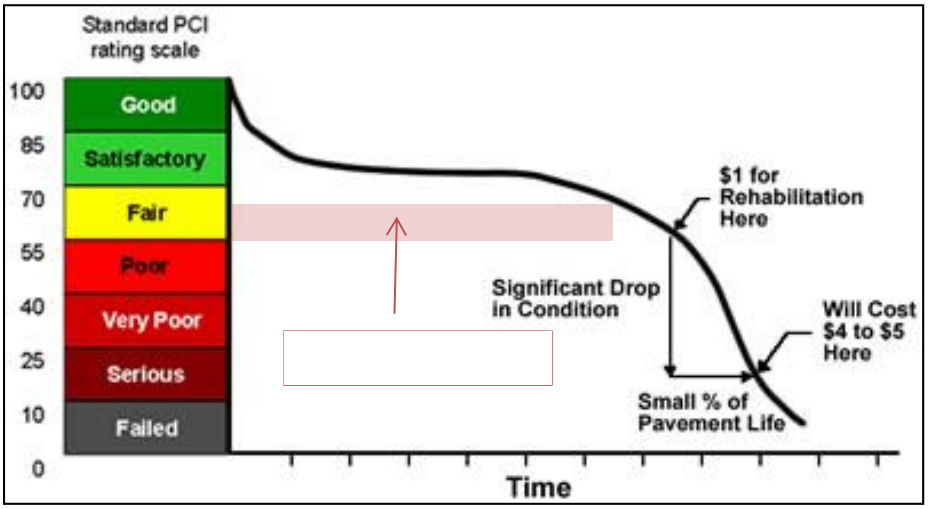
5.4 Critical PCI Values

PCI thresholds operate under the theory that a pavement lifecycle is similar to that shown in Figure 5-2. The Critical PCI value is defined as "the PCI value at which the rate of PCI loss increases with time, or the cost of applying localized preventive maintenance increases significantly." This definition is incorporated into MicroPAVER in defining and measuring the critical PCI values. These values are

the M&R triggers assigned for each prediction model. As such, the critical PCI values for BWI Marshall Landside are directly related to the branch use. These critical PCI levels were selected based on several factors including a review of performance models; experience; and acknowledging the time required for funding approval and design. Note that preventive maintenance is recommended and it should be generally performed above the critical PCI (trigger) values and Major M&R is generally performed below them.

Figure 5-2 shows how the performance models are used to establish a critical PCI. The expected deterioration rate can help to identify the time when it is most economical to conduct Major M&R. Delays in Major M&R work can be expected to increase the cost of conducting this work.

Figure 5-2 Pavement Life Cycle



Based on the above set of criteria, the Critical PCI values that M&R for the BWI Landside are set as follows:

- Primary and Secondary Roadways (Funding Priority 1 & 2) = 65
- Primary Parking Lots (Funding Priority 3) = 65
- Tertiary Roadways (Funding Priority 4) = 55
- Secondary and Tertiary Parking Lots (Funding Priority 5 & 6) = 55

5.5 Maintenance and Rehabilitation Policies

M&R policies refer to the activities that are applied at different condition levels to rehabilitate a pavement section. Types of policies are provided below:

5.5.1 Localized Safety (Stop Gap) and Preventive Maintenance Policies

Localized maintenance policies are meant to identify ongoing, routine maintenance of individual pavement sections as defined in the PMP. The safety (stop-gap) policies address distresses that would affect operational safety if left unrepaired and is applied to pavements below the critical PCI. The preventive maintenance policy is aimed at slowing the rate of deterioration through consistent maintenance of existing pavements and is generally applied to pavements above the critical PCI. Preventive maintenance can be applied to pavements that are below the Critical PCI if sufficient funds are not available for more extensive repairs.

These two policies have been implemented for BWI Marshall Landside and are only applied to the first year in the M&R for sections that do not have major M&R activities. These policies and costs are most reliable if applied immediately after a PCI survey is conducted (e.g. 2016). These policies cannot be applied to subsequent years because future pavement distress types, severity and quantity cannot be reliably predicted. Therefore, future maintenance is estimated on overall condition forecasting.

The localized policies are listed in Table 5-3, and the associated unit cost and cost-by-condition table, estimated used in developing the maintenance plan are provided in Tables 5-4 and 5-5, respectively. Detailed localized maintenance estimates for 2016 are provided in Appendix E.

5.5.2 Global Maintenance Policy

A global maintenance policy establishes a schedule of maintenance activities applied to an entire section at pre-determined application intervals. An example of a global policy would be to apply a fog seal to an entire AC or AAC section at 5-year intervals. This fog seal does not change the age of the pavement because it is not a Major M&R activity, but it can potentially improve its functional condition and therefore extend its life. Global policies are not a general practice at BWI Marshall and therefore have not been included in the CIP. This is a policy that can be added over time if BWI Marshall determines that it is a cost-effective strategy based on local materials, costs and contractors.

5.5.3 Major M&R Policy

Major M&R projects are used to rehabilitate pavements below or around the critical PCI. The Major M&R activities included in the Major M&R Policies for BWI Marshall are:

- AC reconstruction of the pavement with a typical cross-section
- PCC reconstruction of the pavement with a typical cross-section
- AC Mill and Overlay of various thicknesses with or without repairs prior to the overlay, dependent on distress types and quantities.
- Concrete Pavement Restoration (CPR) consisting of slab replacement. It is a more economical solution than PCC reconstruction and less disruptive to vehicular traffic.

MicroPAVER has been customized to reflect the policies in use by the MAA and associated costs for these policies as described in the next section.

Table 5-3 Localized Preventive and Stop-Gap Maintenance

Distress	Severity	Work Type	Preventative	Stop Gap	Work Unit
ALLIGATOR CR	High	Patching - AC Deep	Apply	Apply	SF
ALLIGATOR CR	Medium	Patching - AC Deep	Apply	N/A	SF
BLOCK CR	High	Crack Sealing - AC	Apply	Apply	Ft
BLOCK CR	Medium	Crack Sealing - AC	Apply	N/A	Ft
BUMPS/SAGS	High	Patching - AC Shallow	Apply	Apply	SF
BUMPS/SAGS	Medium	Patching - AC Shallow	Apply	Apply	SF
CORRUGATION	High	Patching - AC Shallow	Apply	Apply	SF
CORRUGATION	Medium	Patching - AC Shallow	Apply	Apply	SF
DEPRESSION	High	Patching - AC Deep	Apply	Apply	SF
DEPRESSION	Medium	Patching - AC Deep	Apply	Apply	SF
EDGE CRACKING	High	Patching - AC Partial	Apply	Apply	SF
EDGE CRACKING	Medium	Patching - AC Partial	Apply	Apply	SF

Distress	Severity	Work Type	Preventative	Stop Gap	Work Unit
JT REF. CR	High	Patching - AC Shallow	Apply	Apply	SF
JT REF. CR	Medium	Crack Sealing - AC	Apply	N/A	Ft
LANE/SHLDR DROP	High	No Localized M&R	N/A	N/A	SF
LANE/SHLDR DROP	Medium	No Localized M&R	N/A	N/A	SF
L & T CR	High	Patching - AC Partial	Apply	Apply	SF
L & T CR	Medium	Crack Sealing - AC	Apply	N/A	Ft
PATCH/UT CUT	High	Patching - AC Deep	Apply	Apply	SF
PATCH/UT CUT	Medium	No Localized M&R	N/A	N/A	SF
POTHOLE	High	Patching - AC Deep	Apply	Apply	SF
POTHOLE	Medium	Patching - AC Deep	Apply	Apply	SF
POTHOLE	Low	Patching - AC Deep	Apply	N/A	SF
RAVELING	High	Patching - AC Partial	Apply	Apply	SF
RAVELING	Medium	Patching - AC Shallow	Apply	N/A	SF
RR X-ING	High	Patching - AC Deep	Apply	Apply	SF
RUTTING	High	Patching - AC Deep	Apply	Apply	SF
RUTTING	Medium	Patching - AC Deep	Apply	N/A	SF
SHOVING	High	Patching - AC Partial	Apply	Apply	SF
SHOVING	Medium	Patching - AC Partial	Apply	N/A	SF
SLIPPAGE CR	High	Patching - AC Partial	Apply	Apply	SF
SLIPPAGE CR	Medium	Patching - AC Shallow	Apply	N/A	SF
SWELLING	High	Patching - AC Deep	Apply	Apply	SF
BLOW-UP	High	Slab Replacement - PCC	Apply	Apply	SF
BLOW-UP	Medium	Patching - PCC Full Depth	Apply	Apply	SF
CORNER BREAK	High	Patching - PCC Full Depth	Apply	Apply	SF
CORNER BREAK	Medium	Crack Sealing - PCC	Apply	N/A	SF
CORNER SPALL	High	Patching - PCC Partial Depth	Apply	Apply	SF
DIVIDED SLAB	High	Slab Replacement - PCC	Apply	Apply	SF
DIVIDED SLAB	Medium	Slab Replacement - PCC	Apply	N/A	SF
DURABIL. CR	High	Patching - PCC Full Depth	Apply	Apply	SF
JT SEAL DMG	High	Joint Seal (Localized)	Apply	Apply	Ft
JOINT SPALL	High	Patching - PCC Partial Depth	Apply	Apply	SF
LANE/SHLDR DROP	High	No Localized M&R	N/A	N/A	SF
LANE/SHLDR DROP	Medium	No Localized M&R	N/A	N/A	SF
LINEAR CR	High	Crack Sealing - PCC	Apply	Apply	Ft
LINEAR CR	Medium	Crack Sealing - PCC	Apply	N/A	Ft
LARGE PATCH	High	Patching - PCC Full Depth	Apply	Apply	SF
SMALL PATCH	High	Patching - PCC Partial Depth	Apply	Apply	SF
SCALING	High	Slab Replacement - PCC	Apply	Apply	SF

Source: MicroPAVER

5.6 Unit Costs

Each of the policies that were described in the previous section have an associated unit cost that, when applied to the section area, provides an overall estimate for M&R.

5.6.1 Localized Safety (Stop Gap) and Preventive Maintenance Costs

The unit costs for the policies described in the previous sections are listed in Table 5-4. These unit costs were developed after reviewing several pavement-related contracts provided by MAA. At BWI Marshall some localized maintenance and repair is conducted in-house. The remaining is generally done through the MAA Comprehensive Paving task. These costs are reflected in Table 5-4.

The unit costs from the 2011 Landside Pavement Management Program Final Report (dated August 2012) have been compared to the present unit costs in Table 5-4. Generally, the price increases are due to the fluctuation within the economy and inflation.

Table 5-4 Localized Preventive and Stop-Gap Maintenance Unit Cost

Micro PAVER Code	Name	2011 Cost	2015 Cost	Work Unit
CS-AC	Crack Sealing - AC	$1.50	$1.50	Ft
CS-PC	Crack Sealing - PCC	$38.00	$38.00	Ft
JS-LC	Joint Seal (Localized)	$25.00	$25.00	Ft
PA-AD	Patching - AC Deep	$11.65	$24.94	SF
PA-AS	Patching - AC Shallow	$1.65	$1.73	SF
PA-AC	Patching - AC Partial	$3.25	$3.41	SF
PA-PF	Patching - PCC Full Depth	$12.75	$13.39	SF
PA-PP	Patching - PCC Partial Depth	$4.60	$4.83	SF
SL-PC	Slab Replacement - PCC	$25.50	$26.78	SF

Source: MAA Bid Tabs and Historical PMS Reports

As indicated previously, the localized policies and costs are only applicable to the first year in the development of a work plan, which in this case is 2016. For subsequent years, unit costs by PCI range have been developed for each surface type (e.g. AC, PCC) for preventative and safety policies.

5.6.2 Major M&R Cost

The Major M&R costs are broken down into component costs used to develop the full policy cost. The unit costs were developed from recent and relevant project bid as noted below:

1. MAA-C0-13-016 Task 24 Comprehensive Paving 2013
2. MAA-C0-13-016 Task 25 Comprehensive Paving 2013
3. MAA-C0-13-016 Task 26 Comprehensive Paving 2013
4. MAA-C0-13-016 Task 35 Comprehensive Paving 2013
5. MAA-C0-11-005 Task 25 Comprehensive Paving Improvements 2013
6. MAA-C0-08-001 Runway 15R-33L Rehab

Table 5-5 provides the Major M&R unit costs for BWI Marshall Landside. Just like the localized M&R cost development, the major M&R unit costs from the 2011 Pavement Management Program Final Report have been compared to the present unit costs in Table 5-5. Generally, the price increases are due to the fluctuation within the economy and inflation.

Table 5-5 General Major M&R Unit Cost

Item	Unit	2011 Unit Cost	2015 Unit Cost Draft CIP	2015 Unit Cost Final CIP	Assumptions for Cost Estimate
*AC Pavement Milling	SY	$10.50	$19.00	N / A	3 in
*AC Pavement Milling – 2-in	SY	N / A	N / A	$5.50	2-in
*AC Pavement Milling – 3-in	SY	N / A	N / A	$8.25	3-in
*AC Pavement Milling – 4-in	SY	N / A	N / A	$11.00	4-in
AC Pavement Removal	SY	$20.00	$39.00	$39.00	Up to 6 in
PCC Pavement Removal	SY	$22.00	$23.10	$26.74	Up to 6 in
Bituminous Concrete Surface Course	TON	$120.00	$126.17	$126.17	PG 76-22, 3 in
Portland Cement Concrete Pavement	SY	$92.00	$90.00	$90.00	6 in
Bituminous Tack Coat	GAL	$9.00	$10.00	$10.00	0.1 gallon per SY
Crushed Aggregate Base Course	SY	$12.00	$15.00	$15.00	6 in
Thermoplastic Pavement Marking (1 LF at 5-in wide = 0.42 sq.ft)	LF (SF)	$3.50 ($8.40)	$7.97 ($19.20)	$0.76	4% of Pavement Area

Source: MAA Bid Tabs and Historical PMS Reports. *The draft CIP unit cost for milling considered 2-in, 3-in and variable depth bid prices when selecting the value for the unit price. The final CIP utilizes specific unit prices for specific depths of milling.

The Major M&R unit costs were aggregated to develop major work activity costs. The costs were further refined to include contingency and additional scope items.

The contingency types and associated cost percentages used for this project were developed by reviewing and assessing recent and historical costs within similar types of projects and are provided below. These items were applied in accordance with discussions with MAA.

1. Additional Scope for Overlay (30%) and Reconstruction (45%) of Unit Material Costs
2. Mobilization (5%) of Unit Material Costs
3. Temporary Construction Items (5%) of Unit Material Costs
4. Design Contingency (25%)
5. Construction QC Plan (3%)
6. Miscellaneous Construction Allowance (10%)
7. Estimated Design Fee (12%)
8. Estimated CMI Fee (10%)

To account for other scope items that may be present so that project cost estimates can be used for Capital Programming, a line item for 'Additional Scope Items' was also included in each project cost estimate. To develop this line item bid tabs of recent projects were reviewed. Generally, projects were noted to be either basic paving projects or to include drainage, curbing, signage, or other components. There were very limited projects to review and therefore estimates were made based on discussions with MAA Planning and Engineering. A value of 30% for Additional Scope Items was added to the estimate for overlay projects and 45% for reconstruction projects. The 2015 'Unit Cost with All' column in Table 5-6 provides the total unit cost per SF with additional scope and contingencies. The Major M&R unit costs were aggregated to develop major work activity costs presented in Table 5-6. As

before, the major M&R unit costs from the 2011 Landside Pavement Management Program have been compared to the present unit costs in Table 5-6. Generally, the price increases are due to the fluctuation within the economy and inflation.

Table 5-6 Major M&R Work Activities and Unit Costs by Work Type ($/SF)

Major Work Type Name	2011 Unit Cost	2015 Unit Cost Draft	2015 Unit Cost Final	2015 Cost with All	Assumptions
2-in Overlay	$1.69	$3.01	$2.39	$5.79	Functional Overlay
*2-in Mill & Overlay	$3.19	$6.33	$3.01	$7.27	Functional Overlay
*3-in Mill & Overlay	N/A	N/A	$4.07	$9.85	Structural Overlay
*4-in Mill & Overlay	N/A	N/A	$5.14	$12.44	Structural Overlay
2-in Mill & 3-in Overlay	N/A	N/A	$3.77	$9.11	Structural Overlay
3-in Mill & 4-in Overlay	N/A	N/A	$4.84	$11.70	Structural Overlay
Complete AC Recon (Parking)	$7.42	$12.63	$10.68	$28.61	5 in AC / 6 in AGBS
Complete AC Recon (Road)	$9.60	$16.26	$12.97	$34.73	8 in AC / 6 in AGBS
Concrete Pavement Restoration – 10%	N/A	N/A	$2.55	$6.17	10% slab replacement
Concrete Pavement Restoration – 15%	N/A	N/A	$3.83	$9.25	15% slab replacement
Concrete Pavement Restoration – 20%	$5.10	$5.10	$5.10	$12.34	20% slab replacement
Complete PCC Recon (All PCC Pavements)	$14.14	$14.71	$14.99	$40.15	6 in PCC / 6 in AGBS

Source: AECOM Analysis. . *The draft CIP unit cost for milling considered 2-in, 3-in and variable depth bid prices when selecting the value for the unit price. The final CIP utilizes specific unit prices for specific depths of milling.

Note that the major work activity unit costs in Table 5-6 (columns 2 & 3) are pavement material unit costs only and do not include contingency costs or other scope items such as grading, drainage, lighting and electrical components that frequently occur in paving projects. The 2015 Unit Cost w/All column provides contingencies and additional scope items.

Table 5-7 provides an example of the approach to build the unit cost to arrive at a multiplier added to the base material cost. Per the Administration, there is not a multiplier for Security for Landside projects.

Table 5-7 Unit Cost Buildup

Item	Amount / Unit (Reconstruction)	Amount / Unit (Rehabilitation)
Unit Cost (UC) – Base Material Cost	**$1.00**	**$1.00**
+ Additional Scope (45% of UC for Recon; 30% for Rehab)	$0.45	$0.30
+ Mobilization / Demobilization (8% of UC)	$0.05	$0.05
+ Temp Construction (5% of UC)	$0.05	$0.05
+ Security (0% of UC)	$0.00	$0.00

Item	Amount / Unit (Reconstruction)	Amount / Unit (Rehabilitation)
= Base Unit Cost (BUC)	**$1.55**	**$1.40**
+ Design Contingency-DC (25% of BUC)	$0.388	$0.350
+ Construction Quality Control Plan-CQC (3% of BUC+DC)	$0.058	$0.053
+ Miscellaneous Construction Allowance-AWO (10% of BUC+DC+CQC)	$0.20	$0.18
+ Design Fee-DF (12%) and CMI Fee (10%) – (22% of BUC+DC+CQC+AWO)	$0.483	$0.436
Total Effective Multiplier	**2.678**	**2.419**

Before developing projects, different budget scenarios were developed in MicroPAVER as described in Section 5.6. These scenarios are based on the concept that each pavement section will be repaired at a unit cost specific to its condition rating. This allows for rapid evaluation of different scenarios at a high budget level. Table 5-8 provides the cost by condition used in developing the budget scenarios. These costs reflect an 'all-in' cost including the unit costs shown in Tables 5-4 through 5-7, as well as all contingency costs and additional scope items.

Table 5-8 Cost by PCI for Budget Scenarios

Cost by PCI Range (per SF))	PCI Range										
	0	10	20	30	40	50	60	70	80	90	100
BWI Land Flexible Major - Park	$ 27.42	$ 27.42	$ 27.42	$ 27.42	$ 27.42	$ 11.68	$ 8.20	$ 4.73	$ 2.50	$ 2.00	$ 0.00
BWI Land Flexible Major - Road	$ 33.56	$ 33.56	$ 33.56	$ 33.56	$ 33.56	$ 11.68	$ 8.20	$ 4.73	$ 2.50	$ 2.00	$ 0.00
BWI Land Rigid - All	$ 39.40	$ 39.40	$ 39.40	$ 39.40	$ 39.40	$ 12.34	$ 6.17	$ 5.00	$ 2.40	$ 2.00	$ 0.00
BWI Land Flexible Preventative	$ 5.57	$ 4.27	$ 3.16	$ 2.21	$ 1.42	$ 0.80	$ 0.35	$ 0.08	$ 0.03	$ 0.03	$ 0.03
BWI Land Rigid Preventative	$ 16.70	$ 10.02	$ 6.01	$ 3.60	$ 2.16	$ 1.30	$ 0.78	$ 0.47	$ 0.28	$ 0.17	$ 0.11
BWI Land Flexible Stop Gap	$ 3.22	$ 1.76	$ 0.96	$ 0.53	$ 0.28	$ 0.16	$ 0.09	$ 0.04	$ 0.02	$ 0.01	$ 0.01
BWI Land Rigid Stop Gap	$ 4.50	$ 3.44	$ 2.64	$ 2.01	$ 1.53	$ 0.74	$ 0.44	$ 0.29	$ 0.15	$ 0.00	$ 0.00

Note: Gray shaded areas represent costs not applied within the Budget Scenarios

Source: AECOM

The following are examples of how these costs are applied:

1. A flexible roadway pavement section has a PCI of 30. There is sufficient funding to do work on this section so Major work is done at the rate of $33.56 /SF.
2. For the same flexible pavement section (PCI=30), there is no budget remaining to do the work. Stop-Gap work is done at the rate of $0.53/SF.

Since the critical PCI for the pavement at BWI Marshall is variable for different pavement uses, the localized cost by condition ranges developed for the PMP cover the entire PCI scale (0-100) thus allowing MAA to adjust the critical PCI values without the need to adjust the tables developed above. Furthermore, the cost by condition tables allow for the development of more extensive "what-if' M&R scenarios such as the use of localized preventative for any PCI value.

In the budget scenarios developed for BWI Marshall Landside, stop-gap maintenance was applied for pavements with PCI values that are less than the critical value, and preventive maintenance being applied to pavements with PCI values above the critical value.

Table 5-9 shows the estimated cost breakdown required for localized M&R for 2016 by each maintenance type. Two columns are shown; the first is the cost for all sections in the BWI Landside Network. The second is for sections in the Network with PCI values greater than 40; that is, excluding sections with PCI values less than 40 since these sections are included in the CIP within the next few years. The localized M&R requirements details for each section are included in Appendix E.

Table 5-9 Localized M&R Requirements for Year 2016 (Preventive + Stop-Gap)

Work Description	Quantity All Sections	Cost All Sections	Quantity Sections PCI > 40	Cost Sections PCI > 40
Crack Sealing - AC Total (LF)	230,088	$345,134	229,997	$344,998
Crack Sealing - PCC Total (LF)	281	$10,664	281	$10,664
Joint Seal (Localized) Total (LF)	11,000	$274,995	10,900	$272,495
Patching - AC Deep Total (SF)	244,750	$6,104,069	214,649	$5,353,346
Patching - AC Partial Total (SF)	17,894	$61,017	13,352	$45,532
Patching - AC Shallow Total (SF)	81,837	$141,578	81,837	$141,578
Patching - PCC Full Depth Total (SF)	245	$3,282	245	$3,282
Patching - PCC Partial Depth Total (SF)	272	$1,315	272	$1,315
Slab Replacement - PCC Total (SF)	1,306	$34,979	1,306	$34,979
TOTAL LOCALIZED M&R REQUIREMENTS		**$6,977,032**		**$6,208,189**

5.7 M&R Budget Scenarios

As already discussed, MicroPAVER was customized with condition performance, priorities, policies and costs for BWI Marshall. Budget (or what-if) scenarios were developed. While there are a variety of budget scenarios which can be developed for any given pavement network, engineering judgment and experience at similar airports were used to develop a starting point for the 10-Year CIP. Variables affecting the CIP development process include, but are not limited to:

- Yearly budget amount: Is there a constraint?
- Minimum PCI acceptable: Is there a need to keep the PCI above a certain condition limit?
- Type of maintenance plans included: Will preventative maintenance be performed?
- Cost data: What are the unit costs in the area?
- Forecasting period: What is the planning timeframe?

The following M&R budget scenarios were used for BWI Marshall to help establish the 10-Year CIP:

1. Backlog Elimination: This scenario eliminates the Major M&R (e.g. CIP) requirement in 10 years. It presents the optimal M&R scenario for current pavement conditions at BWI Marshall.

2. Maintain PCI Condition: This scenario presents the budget that is required to maintain pavement condition at BWI Marshall at an area-weighted PCI of 70 for the entire network.

3. No Major M&R: This scenario presents the budget that is required without Major M&R.

4. Constrained Budget: This scenario uses the "Critical PCI Method" to optimize M&R activity using a specified budget of $10 million per year for all CIP and maintenance work at B WI Marshall.

5. Unlimited Funding: This scenario explores the "do everything," which is a best case scenario. What would the pavement network condition be if money was no object?

Figure 5-3 shows the change in area weighted PCI over time for the five scenarios listed above for the 10 years covered by each M&R budget scenario.

Figure 5-3 Annual Network PCI for Various M&R Scenarios

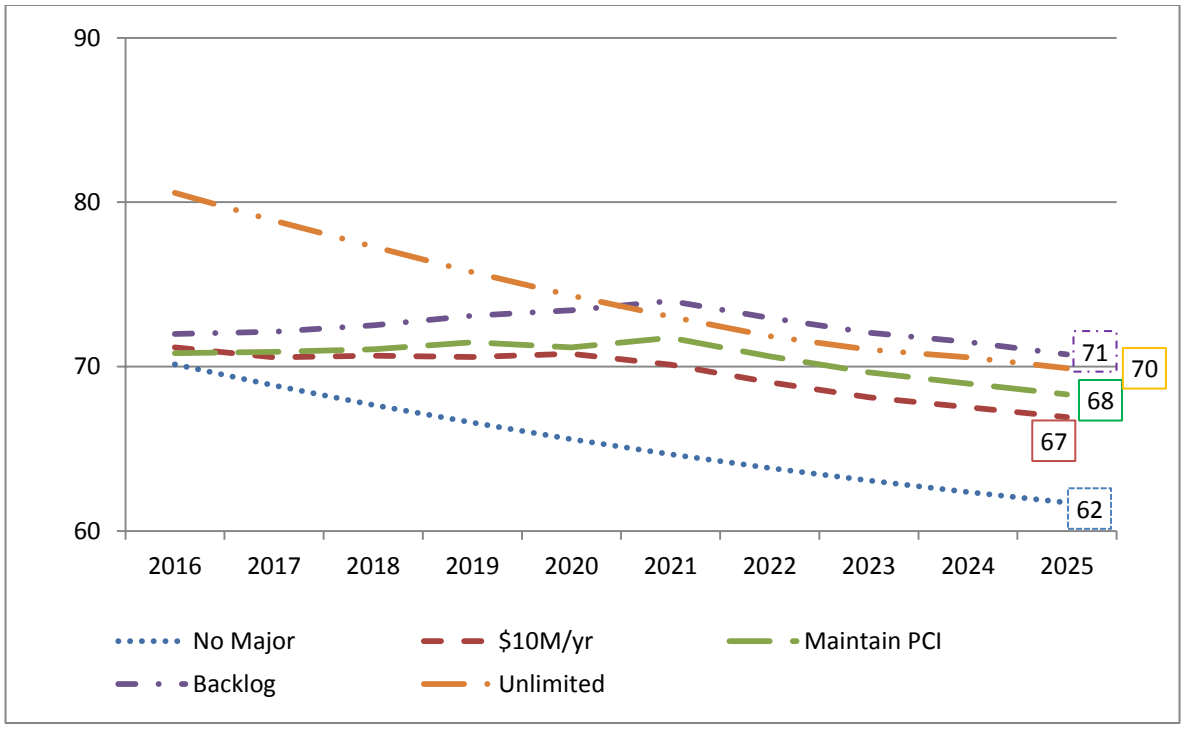


Table 5-10 shows the annual funding for each M&R budget ·scenario. The results of these scenarios were used as a starting point in developing the final CIP for BWI Marshall pavements. The final CIP is described in detail in the next chapter.

Table 5-10 Annual M&R Funding for Each Budget Scenario

Year	No Major M&R	Constrained $10M/Year	Maintain PCI	Backlog Elimination	Unlimited
2016	$2,750,826	$9,898,902	$11,051,341	$12,218,517	$60,515,478
2017	$2,817,485	$9,854,671	$10,984,665	$12,280,654	$3,229,305
2018	$2,894,315	$9,997,898	$11,015,039	$12,272,351	$3,064,083
2019	$2,992,099	$9,866,910	$11,056,151	$12,284,984	$1,871,660
2020	$3,102,633	$9,897,497	$7,585,975	$12,307,375	$1,964,375
2021	$3,220,774	$4,877,631	$11,000,691	$11,983,073	$2,062,753
2022	$3,345,562	$2,645,818	$2,389,772	$3,219,402	$2,167,962
2023	$3,451,208	$2,877,581	$2,621,250	$4,357,756	$4,358,139
2024	$3,549,161	$6,112,162	$5,854,876	$6,346,872	$6,361,613
2025	$3,696,063	$3,465,905	$3,209,015	$2,968,538	$2,996,728
2026	N/A	N/A	N/A	N/A	N/A
Total	**$31,820,125**	**$69,494,975**	**$76,768,776**	**$90,239,523**	**$88,592,096**

Source: MicroPAVER Analysis

Table 5-11 Annual Unfunded M&R by Budget Scenario

Year	Constrained $10M/Year	Maintain PCI	Backlog Elimination
2016	$126,229,046	$125,084,641	$49,156,751
2017	$119,599,251	$117,289,894	$39,994,376
2018	$112,648,546	$109,498,139	$31,227,156
2019	$105,125,844	$100,602,051	$20,969,260
2020	$97,522,635	$95,199,264	$10,911,476
2021	$95,084,527	$86,375,403	$1,052,666
2022	$94,969,790	$86,260,666	$0.00
2023	$94,855,054	$86,145,929	$0.00
2024	$94,740,317	$86,031,192	$0.00
2025	$94,625,580	$85,916,455	$0.00

Source: MicroPAVER Analysis

5.8 Summary

Maintenance and rehabilitation (M&R) work planning is based on the assumption that similar pavements will age in a similar manner. Family curves, or prediction models, are developed to predict the rate of pavement condition deterioration, and used to predict future condition based on current PCI and age. There are three (3) prediction models developed for BWI Marshall Landside pavements.

Similarly, M&R families have been developed that grouped pavements based on similar M&R work. Pavements within a network are prioritized based on rank and use, and once a priority is established and unit costs are set, M&R scenarios can be developed and compared. These M&R scenarios have been used in the development of a 10-Year CIP that is described in detail in Chapter 6.

Capital Improvement Recommendations

6.1 Introduction

A Capital Improvement Plan (CIP) is used to plan and program for the construction of projects that will develop and preserve the landside pavements at BWI Marshall, as its development is one of the fundamental building blocks in planning an effective budget and determining future impacts to the pavement network. The CIP can serve as an important forecasting tool for executive management to anticipate and plan for future growth and expenditures. Capital investments made in a logical, deliberate and accountable fashion ensure that major repair or replacement, acquisition and construction costs are not last-minute decisions that require long-term operating obligations.

This Capital Improvement analysis aims at identifying capital improvement items for the construction years 2017 to 2026 (10 years), with a more detailed focus on the first five years. In reality, the recommended CIP represents a series of choices and alternatives for the airport. Upon review of the recommendations made in this report, airport managers will be able to program facility improvements to meet demands, while also responding to financial realities and select development items that are in harmony with current development needs.

AECOM met with representatives from the MAA Office of Engineering and Construction and Office of Planning and Environmental Services in developing the CIP budget and meeting current pavement upgrades. Through these discussions, it became evident that selectively implementing the identified CIP items would be considered; however, it would not necessarily correspond to the timeframe listed in this study. The implications of CIP changes within a different timeframe would be assessed through either project or network level studies using the MicroPAVER software and on-site pavement engineering support staff.

The CIP has been updated from the 2011 report to reflect recent rehabilitation/reconstruction projects, shifting priorities and changing pavement conditions over the past four years.

6.2 Development of Capital Improvement Alternatives

The network level CIP project recommendations that were used in budget estimates were developed based upon the following variables:

a. MAA provided a list of anticipated projects thru 2018 based upon the previous 2012 CIP.

b. Determine the Pavement Condition Index (PCI) and the Structural Condition Index (SCI) for each pavement section.

c. Develop an objective decision matrix based upon PCI, SCI and Pavement Rank (Primary, Secondary, Tertiary) for each section

d. Considering items (a) to (c) above, apply the following M&R strategies for each section within a project:

    i. AC Mill and Overlay with variable thicknesses
    ii. AC Reconstruction
    iii. PCC Restoration with variable repair percentages
    iv. PCC Reconstruction
    v. Maintain - Perform annual maintenance in accordance with policies described in Section 5.6.

The decision matrices for each pavement type and function are shown in Tables 6-1(a) through 6-1(d).

Table 6 1(a): Decision Matrix for Asphalt Roadways

Rank	PCI						
	0-30	31-40	41-50	51-60	61-70	71-80	81-100
Primary	Recon AC Road	Recon AC Road	6"MOL	SCI>= 70 3"MOL SCI<70 3"M & 4"OL	SCI>= 70 2"MOL SCI< 70 2"M & 3"OL	SCI>=70 Maintain SCI<70 2"MOL	Maintain
Secondary	Recon AC Road	4"MOL	SCI>= 60 2"MOL SCI> 60% 2"M & 3"OL	SCI>= 60 2"MOL SCI< 60 2"M & 3"OL	SCI>=60 Maintain SCI<60 2"MOL	Maintain	Maintain
Tertiary	Recon AC Road	2"OL	SCI>= 50 2"MOL SCI< 50 2"M & 3"OL	SCI>=50 Maintain SCI<50 2"MOL	Maintain	Maintain	Maintain

Table 6 1(b): Decision Matrix for Asphalt Parking

Rank	PCI						
	0-30	31-40	41-50	51-60	61-70	71-80	81-100
Primary	Recon AC Road	4"MOL	SCI>= 70 3"MOL SCI<70 3"M & 4"OL	SCI>= 70 2"MOL SCI<70 2"M & 3"OL	SCI>=70 Maintain SCI<70 2"MOL	Maintain	Maintain
Secondary	Recon AC Road	3"MOL	SCI>= 60 2"MOL SCI> 60% 2"M & 3"OL	SCI>=60 Maintain SCI<60 2"MOL	Maintain	Maintain	Maintain
Tertiary	Recon AC Road	2"OL	2"MOL	SCI>=50 Maintain SCI<50 2"MOL	Maintain	Maintain	Maintain

Table 6 1(c): Decision Matrix for PCC Roadways

Rank	PCI						
	0-30	31-40	41-50	51-60	61-70	71-80	81-100
Primary	Recon PCC	Recon PCC	Restore 30%	Restore 25%	SCI>=70 Maintain SCI<70 Restore 20%	Maintain	Maintain
Secondary	Recon PCC	Restore 30%	Restore 25%	SCI>=60 Maintain SCI<60 Restore 20%	SCI>=60 Maintain SCI<60 Restore 20%	Maintain	Maintain
Tertiary	Recon PCC	Restore 30%	Restore 25%	SCI>=50 Maintain SCI<50 Restore 20%	SCI>=50 Maintain SCI<50 Restore 20%	Maintain	Maintain

Table 6 1(d): Decision Matrix for PCC Parking

Rank	PCI							
	0-20	21-30	31-40	41-50	51-60	61-70	71-80	81-100
Primary	Recon PCC	Recon PCC	Recon PCC	Restore 30%	Restore 25%	SCI>=70 Maintain SCI<70 Restore 20%	Maintain	Maintain
Secondary	Recon PCC	Recon PCC	Restore 30%	Restore 25%	SCI>=60 Maintain SCI<60 Restore 20%	SCI>=60 Maintain SCI<60 Restore 15%	Maintain	Maintain
Tertiary	Recon PCC	Restore 30%	Restore 25%	SCI>50 Maintain SCI<50 Restore 20%	SCI>=50 Maintain SCI<50 Restore 15%	SCI>=50 Maintain SCI<50 Restore 10%	Maintain	Maintain

Subsequent to the initial screening through the applicable decision matrices, engineering judgment was used to group the sections into appropriate projects, adding sections based upon borderline PCI's and SCI's and/or include adjacent sections, and to develop a corresponding CIP timeline based upon a reasonable distribution of funds spread over the 10-year analysis period. Note that the recommendations presented in this chapter are based on conditions at the time of inspection and that final project development and assessment should be conducted once a project is approved.

Based on the project development process that was described, CIP recommendations were selected and are presented in the next section.

6.3 Recommended Capital Improvement Projects

Based on the pavement conditions, the decision matrices and engineering judgment, a schedule of recommended CIP projects was developed for the PMP. It is critical to realize that the proposed projects are based on network-level inspections, and that a project-level analysis should be performed prior to any project design or implementation.

Table 6-2 presents the 10-Year Capital Improvement Program recommendations summarized by year which total almost $60 million if Maryland Department of Transportation's capital and real estate inflation factors are applied annually. Per discussions with the Administration, the inflation factor remains constant after 2022.

Table 6-2 Recommended 10-Year (2017 to 2026) CIP for BWI Marshall Landside Pavements

Construction Year	Total MAA Project Cost (2015 Dollars)	Escalation Factors	Total MAA Project Cost with Escalation
2017	$1,587,326	1.0400	$1,650,819
2018	$14,465,094	1.0764	$15,570,228
2019	$7,444,346	1. 1114	$8,273,646
2020	$1,953,833	1. 1447	$2,236,553
2021	$6,087,545	1. 1791	$7,177,824
2022	$5,191,881	1. 2145	$6,305,540
2023	$745,119	1.2145	$904,947
2024	$1,345,236	1.2145	$1,633,789
2025	$2,711,299	1.2145	$3,292,872
2026	$10,281,761	1.2145	$12,487,199
Totals	**$51,813,441**		**$59,533,417**

Source: AECOM Analysis with input from MAA

Table 6-3 on the following pages provides the 10-Year Recommended CIP project listing. Note that as mentioned in Section 5.6.2 and Tables 5-5 and 5-6, the draft CIP considered unit prices for 2-in, 3-in and variable depth milling when selecting the unit price value. The Final CIP utilizes specific unit prices for each depth of milling. As a result, there are reductions in the costs for milling and overlaying as compared to the draft report.

Table 6-3 Recommended 10-Year Landside CIP Projects at BWI Marshall Airport

Construction Year	Project Code	Project Name	Work	Unit Cost ($/SF)	Pavement Sections in Project	Sum of Cost	Cost with Escalation
2017	17-01	Elm Road (At Terminal Road) Mill & Overlay	2" Mill and 2-3" Overlay	7.27-9.11	2	$160,174	$166,581
	17-02	ARFF Road Reconstruction	AC Road Reconstruction	34.73	1	$1,221,893	$1,270,769
	17-03	Bus Maintenance Entrance Mill & Overlay	2" Mill and Overlay	7.27	1	$20,431	$21,249
	17-04	*Kauffman Parking Mill & Overlay	2" Mill and Overlay	7.27	1	$184,827	$192,220
2018	18-01	Long-Term B Parking 02A (Booths to Main Lot) Mill and Overlay	2" Mill and Overlay	7.27	1	$88,892	$95,780
	18-02	Long-Term B Parking 05 (Northwest Section) Reconstruction	AC Park Reconstruction	28.61	1	$9,082,753	$9,776,676
	18-03	Long-Term B Parking 06A (Entrance Aisle to Main Lot) Reconstruction	AC Park Reconstruction	28.61	1	$733,038	$789,043
	18-04	Long-Term B Parking 07 (Southeast Section) Mill and Overlay	4" Mill and Overlay	12.44	1	$4,560,321	$4,908,729
2019	19-01 (2012 17-01)	Long-Term A Parking 01 (West Section) Mill and Overlay	2" Mill and Overlay	7.27	1	$4,316,562	$4,797,427
	19-02 (2012 14-03)	Cargo Service Road Mill and Overlay	2" Mill and Overlay	7.27	2	$448,842	$498,844

Construction Year	Project Code	Project Name	Work	Unit Cost ($/SF)	Pavement Sections in Project	Sum of Cost	Cost with Escalation
	19-03 (2012 14-04)	Fuel Farm Road & Park Mill & Overlay	2" Mill and Overlay	7.27	2	$745,875	$828,965
	19-04 (2012 18-01)	Mathison Way Mill and Overlay	2" Mill and 2-3" Overlay	7.27-9.11	4	$1,933,067	$2,148,411
2020	20-01	Burma Road (RW 15L Hold Pad to GA Apron) Reconstruction	AC Road Reconstruction	34.73	1	$385,510	$441,293
	20-02	Compressed Natural Gas (CNG) Facility Pavement Reconstruction	PCC Reconstruction	40.15	1	$100,901	$115,501
	20-03	Arrivals (Hourly Garage to Pedestrian Bridge #2) & Departures (Executive Managers Lot to Elm Road) Roadway Mill and Overlay	2" Mill and 2-3" Overlay	7.27-9.11	2	$168,336	$192,694
	20-04	I-195 Inbound (Aviation Blvd On-Ramp to Taxi Lot & Adjacent to Employee Lot) Mill & Overlay	2-3" Mill and 2-4" Overlay	7.27-11.63	3	$551,442	$631,235
	20-05	Sheraton Parking Mill & Overlay	2" Mill and 3" Overlay	9.11	1	$175,058	$200,388
	20-06	Taxi Lot Pavement Mill & Overlay	2" Mill and Overlay / 2" Overlay	5.79-7.27	2	$572,587	$655,440
2021	21-01 (2012 17-01)	Long-Term A Parking 02 (Center Section) Mill & Overlay	2" Mill and Overlay	7.27	1	$6,087,545	$7,177,824
2022	22-01	North Field Pavement Mill & Overlay, and Reconstruction	2-3" Mill and 2-3" Overlay / AC Park Reconstruction	7.27-28.61	5	$3,215,083	$3,904,718

Construction Year	Project Code	Project Name	Work	Unit Cost ($/SF)	Pavement Sections in Project	Sum of Cost	Cost with Escalation
	22-02	Daily Road Reconstruction	AC Road Reconstruction	34.73	4	$1,976,799	$2,400,822
2023	23-01	North Cargo Road & Park Mill & Overlay	2" Mill and Overlay	7.27	5	$745,119	$904,947
2024	24-01	South Field Pavement Mill & Overlay, and Reconstruction	2" Mill and Overlay / AC Park Reconstruction	7.27-28.61	4	$831,212	$1,009,507
	24-02	Pink Lot Reconstruction	AC Park Reconstruction	28.61	1	$245,672	$298,368
	24-03	Old QTA Road Overlay	2” Overlay	5.79	1	$268,352	$325,914
2025	25-01	Alamo Lot Overlay	2” Overlay	5.79	1	$96,228	$116,869
	25-02	LSG Sky Pavement Reconstruction	AC Park Reconstruction	7.27-28.61	2	$1,717,429	$2,085,818
	25-03	MAC Building Mill & Overlay	2" Mill and Overlay	7.27	2	$897,641	$1,090,185
2026	26-01	Gold Lot Reconstruction	AC Park Reconstruction	28.61	1	$10,281,761	$12,487,199
Total						**$51,813,441**	**$59,533,417**

*Project Code 17.04 Kauffman Parking Mill and Overlay is currently going in to construction as 2.5-in Mill and Overlay.

The CIP projects recommended within the first five years of the CIP are detailed below. The recommendations for the remaining years of the CIP are not included in this section. They are based on the decision matrices in Tables 6-1.

17-01 Elm Road Mill & Overlay (At Terminal Road)

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
ElmRd06	2004	AC	S	55	65	PCI<=60 SCI>= 60 2"MOL	2" Mill & Overlay	$70,703	$73,531
ElmRd07	2004	AC	S	49	56	PCI<=50 SCI< 60 2"M & 3"OL	2" Mill & 3" Overlay	$89,471	$93,050

Predominant distresses are alligator cracking, longitudinal and transverse cracking, rutting and weathering. While Alligator is a predominantly occurring distress, it is generally isolated and of limited area. Some localized full-depth may be required. These pavements are at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

17-02 ARFF Road Reconstruction

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
ARFFRd01	1999	AC	S	14	16	PCI<=30 Recon AC Road	AC Road Reconstruct	$1,221,893	$1,270,769

This pavement has functionally and structurally failed.

17-03 Bus Maintenance Entrance Mill & Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
BusMaint01	2003	AC	S	55	59	PCI<=60 SCI<60 2"MOL	2" Mill & Overlay	$20,431	$21,249

Predominant distresses are alligator cracking, rutting and weathering. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

17-04 Kauffman Parking Lot Mill & Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
Kauffman01	1980	AC	T	43	54	PCI<=50 2" Mill & Overlay	2" Mill and Overlay	$184,827	$192,220

Predominant distresses are alligator cracking, rutting and weathering. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

18-01 Thru 18-04 Long Term Parking Lot B Mill and Overlay and Reconstruction

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
LTBPark2A	1997	AC	S	45	60	PCI <= 50; SCI>= 60 2"MOL	2" Mill & Overlay	$88,982	$95,780
LTBPark05	1995	AC	P	23	32	PCI <=30; Recon AC Park	AC Park Reconstruct	$9,082,753	$9,776,676
LTBPark6A	1995	AC	S	27	28	PCI <=30; Recon AC Park	AC Park Reconstruct	$733,038	$789,043
LTBPark07	1995	AC	P	37	45	PCI <= 40; 4"MOL	4" Mill & Overlay	$4,560,321	$4,908,729

Sections 05 and 06A have functionally and structurally failed. In sections 02A and 07, predominant distresses are alligator cracking, longitudinal and transverse cracking, rutting and weathering. Some localized full-depth may be required. These pavements are at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

19-01 Long Term Parking Lot A Mill and Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
LTAPark01	1999	AAC	P	56	79	PCI<=60 SCI>= 70 2"MOL	2" Mill & Overlay	$4,316,562	$4,797,427

Predominant distresses are alligator cracking, longitudinal and transverse cracking, rutting and weathering. Some localized full-depth may be required. This pavement is at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required. Note that Long Term A Parking Section 02 is proposed as CIP Project 21-01 in order to distribute annual expenditures. MAA may wish to combine the projects into a single contract.

19-02 Cargo Service Road Mill & Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
CServRd01	1998	AC	S	61	68	PCI<=60 SCI>=60 Maintain	2” Mill & Overlay	$297,018	$330,106
CServRd02	1998	AC	S	51	61	PCI<=60 SCI>= 60 2"MOL	2” Mill & Overlay	$151,825	$168,738

Predominant distresses are alligator cracking, longitudinal and transverse cracking, rutting and weathering. Some localized full-depth may be required. These pavements are at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required. Note the section 01 does not yet meet the criteria for inclusion in the CIP, but has been added since it is one (1) PCI point from Mill & Overlay and can be easily combined with section 02.

19-03 Fuel Road & Parking Mill & Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
FuelRd01	1986	AC	S	45	60	PCI<=60 SCI>= 60 2"MOL	2” Mill & Overlay	$242,871	$269,927
FuelRd03	1970	AC	S	55	60	PCI<=60 SCI>= 60 2"MOL	2” Mill & Overlay	$254,388	$282,727
Fuel06	1970	AC	S	49	61	PCI<=60 SCI>= 60 2"MOL	2” Mill & Overlay	$248,615	$276,311

Predominant distresses are longitudinal and transverse cracking, rutting and weathering in the AC sections and large patching, joint spalling, scaling and linear cracking in the PCC section. These pavements are at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

19-04 Mathison Way Mill & Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
MathWay01	1999	AC	S	62	81	PCI<=60 SCI>=60 Maintain	2” Mill & Overlay	$521,741	$579,863
MathWay02	1999	AC	S	44	57	PCI<=60 SCI>= 60% 2"M & 3"OL	2” Mill & Overlay	$562,255	$624,890
MathWay03	1999	AC	S	52	69	PCI<=60 SCI>= 60 2"MOL	2” Mill & Overlay	$593,062	$659,129
MathWay04	1999	AC	S	56	74	PCI<=60 SCI>= 60 2"MOL	2” Mill & Overlay	$256,010	$284,529

Predominant distresses are alligator cracking, longitudinal and transverse cracking, rutting and weathering. Some localized full-depth may be required. These pavements are at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required. Note the section 01 does not yet meet the criteria for inclusion in the CIP, but has been added since it is two (2) PCI points from Mill & Overlay and can be easily combined with the other sections. Also note that section 02 has been recommended as a 2-inch Mill & Overlay similar to the other sections.

20-01 Burma Road Reconstruction (Section 2 Only RW 15L Hold Pad to General Aviation Apron)

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
Burma02	2003	AC	S	23	27	PCI<=60 Recon AC Road	AC Road Reconstruct	$385,510	$441,293

This pavement has functionally and structurally failed.

20-02 Compressed Natural Gas (CNG) Facility Pavement Reconstruction

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
CNG02	1998	PCC	P	23	25	PCI<=30 Recon PCC	PCC Reconstruct	$100,901	$115,501

This pavement has functionally and structurally failed.

20-03 Arrivals and Departures Roadway Mill and Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
Arrivals03	2002	AC	P	68	70	PCI<=70 SCI>= 70 2"MOL	2” Mill & Overlay	$97,569	$111,687
Dep02	2010	AAC	P	62	66	PCI<=70 SCI< 70 2"M & 3"OL	2” Mill & 3” Overlay	$70,767	$81,007

Predominant distresses are alligator cracking, longitudinal and transverse cracking, rutting and weathering. Some localized full-depth may be required. This pavement is at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

20-04 I-95 Inbound Mill & Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
I195IB02	2010	AAC	P	65	69	PCI<=70 SCI< 70 2"M & 3"OL	2” Mill & 3” Overlay	$153,594	$175,819
I195IB03	2002	AC	P	54	64	PCI<=60 SCI<70 3"M & 4"OL	3” Mill & 4” Overlay	$255,258	$292,193
I195IB09	2006	AC	P	66	84	PCI<=70 SCI>= 70 2"MOL	2” Mill & Overlay	$142,590	$163,223

Predominant distresses are longitudinal and transverse cracking, rutting and weathering. These pavements are at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

20-05 Sheraton Parking Mill & Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Constructio n Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
Sheraton01	2002	AC	P	50	65	PCI<=50 SCI< 70 3"M & 4"OL	3” Mill & 4” Overlay	$175,058	$200,388

Predominant distresses are longitudinal and transverse cracking, rutting and weathering. These pavements are at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

20-06 Taxi Lot Mill & Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
TaxiLot01	1996	AC	T	38	48	PCI <=40 2"OL	2" Mill & Overlay	$46,018	$52,677
TaxiLot02	1996	AC	T	48	52	PCI <=50 2"MOL	2" Mill & Overlay	$526,569	$602,763

Predominant distresses are longitudinal and transverse cracking, rutting and weathering. These pavements are at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

21-01 Long Term Parking Lot A Mill and Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R Activity	2015 Cost	Cost with Escalation
LTAPark02	1999	AAC	P	60	86	PCI<=60 SCI>= 70 2"MOL	2" Mill & Overlay	$6,087,545	$7,177,824

Predominant distresses are alligator cracking, longitudinal and transverse cracking, rutting and weathering. Some localized full-depth may be required. This pavement is at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required. Note that Long Term A Parking Section 01 is proposed as CIP Project 19-01 in order to distribute annual expenditures. MAA may wish to combine the projects into a single contract.

6.4 Projects Deleted from the Draft CIP

The following PMP sections were included in the draft report submitted in January 2016, but do not meet the currently established criteria for inclusion in the Final CIP.

Table 6.4 Projects Deleted from Draft CIP

Draft CIP Project Code & Description	Section	Pavement Surface	Rank	Current PCI	Current SCI	Decision Matrix M&R Criteria
18-02 ARFF Lot PCC Restoration	AARFLot02	PCC	S	78	82	PCI > 70 Maintain
	AARFLot04	PCC	S	75	90	PCI > 70 Maintain
18-04 Fuel Road PCC Restoration	FuelRd02	PCC	S	75	86	PCI > 70 Maintain
18-06 West Tenant Mill & Overlay & PCC Restoration	WTenant01	AC	S	55	74	PCI<=60 SCI>= 60 Maintain
	WTenant02	PCC	S	77	93	PCI > 70 Maintain
19-05 Executive Managers Lot Mill & Overlay	ExManLot01	AC	S	59	100	PCI<=60 SCI>= 60 Maintain
19-07 General Aviation Mill & Overlay	GAPark04	AC	S	56	67	PCI<=60 SCI>= 60 Maintain
20-01 Express Lot Mill & Overlay	Express04	AC	S	70	89	PCI > Maintain
23-01 Thrifty Lot Mill & Overlay	ExThrif01B	AC	T	56	74	PCI<=60 SCI>= 50 Maintain
23-03 Old ESP Lot A PCC Restoration	OldESPA03	PCC	T	63	68	PCI<=70 SCI>= 50 Maintain
23-04 Old QTA Lot Mill & Overlay	OldQTAPk/1	AC	T	59	75	PCI<=60 SCI>= 50 Maintain
24-04 Mid-Field Cargo Mill & Overlay	MidCargo01	AC	T	53	60	PCI<=60 SCI>= 50 Maintain
	MidCargo02	AC	T	57	84	PCI<=60 SCI>=50 Maintain
25-02 Old ESP Lot A Mill & Overlay	OldESPA02	AC	T	59	80	PCI<=60 SCI>= 50 Maintain

6.5 Summary

A 10-Year CIP for BWI Marshall Landside roadway and parking lot pavements has been developed that includes 29 projects for an estimated total cost of about $52 million in 2015 dollars. Considering Maryland Department of Transportation's capital and real estate inflation factors, the total cost would be about $60 million at the time of construction.

Projects within the first five years have been described in detail within this section. Projects for the latter five years should be re-evaluated within the next three years for updated CIP recommendations. The recommendations for proposed projects are based on network level pavement inspections. A project level analysis should be performed prior to any project design or implementation.

Summary

7.1 BWI Marshall Landside PMP

The AECOM Team was selected to update the BWI Marshall landside PMP. The main objective of the 2015 program is to identify pavement deficiencies and feasible rehabilitation projects by completing a thorough systems inventory, conducting accurate Pavement Condition Index (PCI) surveys, and preparing 10-year M&R programs.

This 2015 update reflects construction work that has been completed since the submission of the 2011 report, and network-level PCI data that were collected in 2015. The pavement management process was used to update the 2011 PMP to produce a revised 10-Year Capital Improvement Plan (CIP) and an updated PMP report for 2015.

Airside pavements were included in the scope of work, but are addressed in a separate report. The deliverable products for this Task Order include a MicroPAVER 7.0 database; updated Network Definition Map; updated PCN values, a 10-Year CIP, and an updated study report. For each project identified, cost estimates were established in accordance with the MAA design standards to a level that allows future detailed design work to be completed for each project. The study also adhered to current CAD and GIS standards established by MAA for engineering drawings, maps, and diagrams.

7.2 Objectives

The primary objective of updating the 2011 PMP report was to include a comprehensive evaluation of the landside pavement conditions at BWI Marshall. The current update includes pavement distress data collection but does not include additional structural data collection. Most of the changes in the 2015 CIP reflect the fact that several pavement construction projects have been completed. Also contributing to these changes is the fact that several projects that were identified in the 2011 CIP have not been constructed, thus adding to the backlog of pavement rehabilitation work.

7.3 Data Collection

The Landside PMP at BWI Marshall was last updated in 2011. Before an updated CIP could be developed that represents the condition of the pavements in 2015, the AECOM team reviewed construction work that had occurred since 2011. The AECOM team reviewed the construction history, updated network layout drawings, and conducted PCI surveys. Non-Destructive Testing (NDT), Ground Penetrating Radar (GPR), coring, and laboratory data collection and analysis were not part of the 2015 scope of work.

7.4 Data Analysis

Before the 2011 CIP could be updated for BWI Marshall landside pavements, the condition had to be assessed. Condition analysis showed that the network area-weighted PCI value decreased from 75 in 2011 to 71 in 2015. The computed area-weighted PCI values of the roadways and parking areas each decreased from 78 to 76, and from 75 to 70, respectively.

7.5 CIP Development

A CIP is used to plan and develop construction projects that will preserve the landside pavement infrastructure at BWI Marshall. Its development is one of the fundamental building blocks in planning an effective budget and predicting how the condition of the pavement network will change in the future. The CIP can serve as an important forecasting tool for executive management to anticipate and plan for growth, as well as preserve BWI Marshall's investment through timely pavement maintenance, rehabilitation, and construction.

This CIP analysis aims at identifying capital improvement items for the construction years 2017 to 2026 (10 years), with a more detailed focus on the first five years. In reality, the recommended CIP represents a series of choices and alternatives for the airport. Upon review of the recommendations made in this report, MAA Staff will be able to program facility improvements to meet demands, while also responding to financial realities and select development items that are in harmony with current development needs.

As part of the review process, the AECOM team met with representatives from the MAA Division of Construction, Engineering, Design and Planning to finalize the CIP presented in Chapter 6 that addresses current needs. It may be necessary to selectively implement the capital items during a time frame that differs from the recommended CIP schedule.

A detailed CIP is presented in Chapter 6. However, because of budgetary constraints and operational needs, it may be necessary to selectively implement the capital items during a time frame that may differ from the prescribed CIP schedule. The implications of CIP changes in time frame can be determined and assessed by using the MicroPAVER software within the duration of the PMP contract and beyond.

The CIP budget developed for 10-Year program at BWI Marshall for landside pavements includes 29 projects for an estimated total cost of $52 million in 2015 dollars. Considering an escalation factor of provided by MAA, the total cost is about $60 million.

7.6 Recommendations

The analysis results and CIP that were developed during this study are based on network-level data collection and analysis. For each project that is presented in the CIP, a more detailed analysis should be conducted by MAA before designing and constructing a pavement rehabilitation project. The scope and effort of the project-level evaluation and design work should be based on answers to the following questions:

1. Is the CIP-recommended pavement repair option still the preferred option based upon:
   - Life cycle costs?
   - Initial costs?
   - Traffic disruptions?
   - Current volatility of Portland cement and asphalt costs?
   - In-house resources available for pavement maintenance work?
2. Is there sufficient and recent coring, boring, and laboratory test results?
3. Is there sufficient NDT data available to assess all feasible repair options?
4. Is the traffic count and classification data up-to-date and accurate, or does it need to be updated for the design?

With the BWI Marshall 2015 Landside PMP update, it is critical for MAA to continue with the maintenance of MicroPAVER databases to establish timely M&R programs. As such, when new construction work is completed, new coring and boring data become available, or traffic mix changes occur, these databases need to be updated. The continued maintenance of the PMP will ensure that MAA management has up-to-date pavement condition and structural data available for the decision-making process. This will allow MAA to assess the potential impact of changes in pavement conditions in implementing the recommended M&R program and the effective use of the CIP budget developed during this study.

AECOM

Appendix A

BWI Marshall Airside Pavements Condition Reports

Branch Condition Report

Pavement Database: 2015BWILand_FINAL_MandR

Branch ID	Number of Sections	Sum Section Length (Ft)	Avg Section Width (Ft)	True Area (SqFt)	Use	Average PCI	Standard Deviation PCI	Weighted Average PCI
15RDeice	1	271.53	149.41	37,824.00	PARKING	69.00	0.00	69.00
15RTrit	1	219.00	123.50	25,316.00	PARKING	86.00	0.00	86.00
Aaronson	3	2,652.46	30.17	71,737.00	ROADWAY	93.33	4.64	93.47
AirCargoDr	6	3,227.50	58.19	148,900.00	ROADWAY	90.50	9.73	87.35
ARFFLot	4	486.50	81.25	38,368.00	PARKING	77.25	2.49	77.49
ARFFRd	3	1,872.00	38.00	75,967.00	ROADWAY	62.67	36.01	54.53
Arrivals	8	7,912.15	34.73	264,741.00	ROADWAY	86.38	9.54	85.98
Burma	2	3,102.14	24.67	79,865.00	ROADWAY	60.00	37.00	86.72
BusMaint	8	2,121.24	47.83	97,265.00	PARKING	93.63	14.66	97.80
CargoG	2	1,224.00	230.75	232,778.00	PARKING	72.50	9.50	66.89
Cemetery	1	310.00	24.00	7,569.00	ROADWAY	93.00	0.00	93.00
CNG	2	182.23	136.53	25,029.00	PARKING	60.00	37.00	89.57
CServRd	2	2,071.28	29.88	61,731.00	ROADWAY	56.00	5.00	57.62
CUP	1	743.89	24.87	15,116.00	ROADWAY	69.00	0.00	69.00
DailyRd	5	1,772.99	48.56	64,418.00	ROADWAY	33.60	31.39	26.55
Dep	2	1,301.18	22.22	19,583.00	ROADWAY	67.00	5.00	68.04
ElkLand	2	777.86	415.82	376,982.00	PARKING	78.50	0.50	78.14
ElkLandRd	1	1,051.33	33.28	34,912.00	ROADWAY	87.00	0.00	87.00
ElmRd	6	3,556.54	29.45	105,071.00	ROADWAY	70.50	13.66	73.21
ElmRdExt	8	2,655.73	58.02	134,764.00	ROADWAY	95.75	5.38	94.56
EmpLot	2	899.00	409.50	359,677.00	PARKING	100.00	0.00	100.00
ETenant	2	939.00	270.00	376,120.00	PARKING	90.50	6.50	84.18
ExAlamo	3	632.75	96.57	57,452.00	PARKING	66.00	19.20	68.32
ExManLot	1	185.00	58.90	10,161.00	PARKING	59.00	0.00	59.00
Express	4	3,342.00	119.75	429,538.00	PARKING	83.75	15.82	71.35
ExThrifty	4	793.35	99.90	84,222.00	PARKING	80.50	19.82	69.89
Fuel	6	3,157.00	100.17	271,734.00	PARKING	75.83	12.64	76.49
FuelRd	3	2,110.00	36.67	89,445.00	ROADWAY	58.33	12.47	55.97
GAPark	7	2,083.00	65.14	132,401.00	PARKING	78.14	15.76	76.89
GasPark	1	328.00	150.00	49,932.00	PARKING	72.00	0.00	72.00
GateA	2	391.00	108.00	35,157.00	ROADWAY	94.00	2.00	93.27
GateARd	2	2,352.00	23.50	47,940.00	ROADWAY	81.00	9.00	75.07
GoldLot	4	5,302.00	271.25	944,252.00	PARKING	64.75	22.26	58.83
HourGar	4	668.00	101.25	65,466.00	ROADWAY	78.75	7.29	78.46
I195IB	14	8,538.03	30.24	255,941.00	ROADWAY	81.64	14.82	78.31
I195OB	13	6,891.43	22.01	131,274.00	ROADWAY	87.69	5.07	89.19
Kauffman	1	218.00	119.00	25,420.00	PARKING	43.00	0.00	43.00
LSGSky	4	1,030.00	81.25	109,023.00	PARKING	69.75	31.94	47.90
LTAPark	4	3,177.00	490.00	1,785,434.00	PARKING	71.75	15.37	61.95
LTBPark	19	11,800.28	172.58	1,588,035.00	PARKING	85.47	27.44	68.43
MACBldg	5	2,216.00	112.90	197,641.00	PARKING	67.20	14.32	57.02
MallEnt	1	625.00	30.00	20,065.00	ROADWAY	78.00	0.00	78.00
MathLot	3	1,235.42	315.40	474,690.00	PARKING	89.67	6.60	86.22

Branch Condition Report

Pavement Database: 2015BWILand_FINAL_MandR

Branch ID	Number of Sections	Sum Section Length (Ft)	Avg Section Width (Ft)	True Area (SqFt)	Use	Average PCI	Standard Deviation PCI	Weighted Average PCI
MathWay	7	7,796.42	55.53	355,206.00	ROADWAY	69.00	18.83	60.75
MidCargoRd	2	1,716.00	27.00	45,747.00	ROADWAY	55.00	2.00	55.46
MidFuel	2	1,188.00	20.00	22,072.00	ROADWAY	96.00	4.00	92.71
NCargoPk	17	6,206.00	77.88	477,840.00	PARKING	69.59	19.02	76.82
NCargoRd	3	3,579.00	31.33	102,788.00	ROADWAY	71.00	23.68	70.23
NField	7	2,430.57	143.22	199,650.00	PARKING	52.86	27.21	37.80
OFtMeade	2	4,348.00	37.50	120,346.00	ROADWAY	77.50	6.50	72.19
OldESPA	3	1,757.00	122.33	378,119.00	PARKING	71.67	15.17	60.13
OldESPB	4	1,450.00	89.00	214,037.00	PARKING	85.25	14.06	64.66
OldFedEx	1	481.00	51.00	164,483.00	PARKING	70.00	0.00	70.00
OldQTAPk	1	100.00	500.00	50,587.00	PARKING	59.00	0.00	59.00
OldQTARd	1	1,539.00	39.00	46,326.00	ROADWAY	38.00	0.00	38.00
PierEMan	1	123.00	175.00	92,868.00	PARKING	72.00	0.00	72.00
PinkLot	3	929.00	124.67	177,649.00	PARKING	58.67	35.80	63.27
RentalPk	3	2,608.00	331.00	789,212.00	PARKING	79.00	6.68	79.55
RentalRd	8	8,936.78	34.00	302,194.00	ROADWAY	91.38	9.16	90.55
ServRd	1	500.00	40.00	21,502.00	ROADWAY	100.00	0.00	100.00
SField	6	1,276.46	71.44	92,952.00	PARKING	58.00	26.31	55.04
Sheraton	3	1,214.00	60.00	77,484.00	PARKING	72.00	15.56	76.63
SpringLn	1	693.00	62.00	35,777.00	ROADWAY	95.00	0.00	95.00
TaxiLot	2	512.00	122.00	78,750.00	PARKING	43.00	5.00	47.20
UtilPlant	2	395.00	35.00	13,209.00	ROADWAY	100.00	0.00	100.00
WTenant	3	1,580.00	276.00	886,073.00	PARKING	68.67	9.74	73.71
Amtrak	3	4,885.59	40.76	155,259.00	ROADWAY	53.67	10.27	48.86

Branch Condition Report

Pavement Database: 2015BWILand_FINAL_MandR

Use Category	Number of Sections	Total Area (SqFt)	Arithmetic Average PCI	Average STD PCI	Weighted Average PCI
PARKING	144	11408998.0002066	74.17	22.94	69.88
ROADWAY	119	2950088.00002656	78.60	21.26	75.03
ALL	263	14359086.0002332	76.17	22.30	70.94

Pavement Database: 2015BWILand_FINAL_MandR *NetworkId: BWILand*

Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection Date	Age At Inspection	PCI
15RDeice	15RDeice01	8/1/2006	AC	PARKING	S	0	37,824.00	9/15/2015	9	69
15RTrit	15RTrit01	8/1/2007	AC	PARKING	S	0	25,316.00	9/15/2015	8	86
Aaronson	Aaronson01	10/9/2014	AAC	ROADWAY	S	0	11,984.00	9/15/2015	1	98
Aaronson	Aaronson02	11/26/2013	AAC	ROADWAY	S	0	41,508.00	9/15/2015	2	95
Aaronson	Aaronson03	11/26/2013	AAC	ROADWAY	S	0	18,245.00	9/15/2015	2	87
AirCargoDr	AirCarDr01	12/31/2014	AC	ROADWAY	S	0	21,682.00	9/15/2015	1	97
AirCargoDr	AirCarDr02	12/31/2014	AC	ROADWAY	S	0	13,728.00	9/15/2015	1	91
AirCargoDr	AirCarDr03	6/2/1997	AC	ROADWAY	S	0	41,826.00	9/15/2015	18	83
AirCargoDr	AirCarDr04	12/31/2014	AC	ROADWAY	T	0	12,180.00	9/15/2015	1	99
AirCargoDr	AirCarDr05	8/2/1997	AC	ROADWAY	S	0	36,002.00	9/15/2015	18	73
AirCargoDr	AirCarDr06	6/2/1997	AC	ROADWAY	S	0	23,482.00	9/15/2015	18	100
ARFFLot	ARFFLot01	5/3/1999	AC	PARKING	S	0	12,841.00	9/15/2015	16	81
ARFFLot	ARFFLot02	5/2/1999	PCC	PARKING	S	0	6,111.00	9/15/2015	16	78
ARFFLot	ARFFLot03	5/2/1999	PCC	PARKING	S	0	12,273.00	9/15/2015	16	75
ARFFLot	ARFFLot04	5/2/1999	PCC	PARKING	S	0	7,143.00	9/15/2015	16	75
ARFFRd	ARFFRd01	5/3/1999	AC	ROADWAY	S	0	35,182.00	9/15/2015	16	14
ARFFRd	ARFFRd02	5/3/1999	AC	ROADWAY	S	0	24,315.00	9/15/2015	16	100
ARFFRd	ARFFRd03	1/2/1999	AC	ROADWAY	S	0	16,470.00	9/15/2015	16	74
Arrivals	Arrivals01	8/1/2007	AC	ROADWAY	P	3	48,610.00	8/15/2015	8	88
Arrivals	Arrivals02	6/1/2005	AC	ROADWAY	P	3	33,936.00	8/15/2015	10	92
Arrivals	Arrivals03	6/1/2002	AC	ROADWAY	P	2	13,419.00	9/15/2015	13	68
Arrivals	Arrivals04	6/3/2002	AC	ROADWAY	P	2	27,581.00	9/15/2015	13	99
Arrivals	Arrivals05	6/2/2002	PCC	ROADWAY	P	2	61,664.00	8/15/2015	13	79
Arrivals	Arrivals06	8/31/2014	PCC	ROADWAY	P	2	15,652.00	8/15/2015	1	97
Arrivals	Arrivals07	6/1/2005	AC	ROADWAY	P	3	38,082.00	8/15/2015	10	81
Arrivals	Arrivals08	4/25/2014	AAC	ROADWAY	P	2	25,797.00	8/15/2015	1	87
Burma	Burma01	4/29/2013	AC	ROADWAY	S	0	68,765.00	8/15/2015	2	97
Burma	Burma02	6/1/2003	AC	ROADWAY	S	0	11,100.00	8/15/2015	12	23
BusMaint	BusMaint01	8/3/2003	AC	PARKING	S	0	2,810.00	9/15/2015	12	55
BusMaint	BusMaint02	8/2/2003	PCC	PARKING	S	0	2,922.00	9/15/2015	12	100
BusMaint	BusMaint03	12/14/2012	AC	PARKING	S	0	29,697.00	9/15/2015	3	100
BusMaint	BusMaint04	8/2/2003	PCC	PARKING	S	0	14,047.00	9/15/2015	12	100
BusMaint	BusMaint05	8/2/2003	PCC	PARKING	S	0	2,277.00	9/15/2015	12	96
BusMaint	BusMaint06	8/2/2003	PCC	PARKING	S	0	4,296.00	9/15/2015	12	100
BusMaint	BusMaint07	12/14/2012	PCC	PARKING	S	0	39,314.00	9/15/2015	3	98
BusMaint	BusMaint08	1/1/1900	PCC	PARKING	T	0	1,902.00	9/15/2015	115	100
CargoG	CargoG01	5/1/2000	PCC	PARKING	T	0	47,601.00	9/15/2015	15	82
CargoG	CargoG02	8/1/2000	AC	PARKING	T	0	185,177.00	9/15/2015	15	63
Cemetery	Cemetery01	8/3/1999	AC	ROADWAY	T	0	7,569.00	9/15/2015	16	93
CNG	CNG01	1/3/1998	AC	PARKING	P	0	22,516.00	9/15/2015	17	97
CNG	CNG02	1/2/1998	PCC	PARKING	P	0	2,513.00	9/15/2015	17	23
CServRd	CServRd01	5/3/1998	AC	ROADWAY	S	0	40,850.00	8/15/2015	17	61
CServRd	CServRd02	5/3/1998	AC	ROADWAY	S	0	20,881.00	8/15/2015	17	51
CUP	CUPRd01	5/1/1998	AC	ROADWAY	S	0	15,116.00	8/15/2015	17	69
DailyRd	DailyRd01	1/1/1900	AC	ROADWAY	T	0	10,331.00	9/15/2015	115	30
DailyRd	DailyRd02	1/1/1900	AC	ROADWAY	T	0	24,636.00	9/15/2015	115	17
DailyRd	DailyRd03	1/1/1900	AC	ROADWAY	T	0	8,210.00	9/15/2015	115	16
DailyRd	DailyRd04	1/1/1900	AC	ROADWAY	T	0	13,741.00	9/15/2015	115	10

DailyRd	DailyRd05	1/1/1900	AC	ROADWAY	T	0	7,500.00	9/15/2015	115	95
Dep	Dep01	12/13/2013	AC	ROADWAY	P	0	11,819.00	8/15/2015	2	72
Dep	Dep02	8/1/2010	AAC	ROADWAY	P	0	7,764.00	8/15/2015	5	62
ElkLand	ElkLand01	8/2/1983	AC	PARKING	T	0	51,998.00	9/15/2015	32	79
ElkLand	ElkLand02	8/2/1983	AC	PARKING	T	0	324,984.00	9/15/2015	32	78
ElkLandRd	ElkLndRd01	8/2/1983	AC	ROADWAY	T	0	34,912.00	9/15/2015	32	87
ElmRd	ElmRd01	8/1/2007	AC	ROADWAY	S	0	33,128.00	8/15/2015	8	81
ElmRd	ElmRd03	12/13/2013	AC	ROADWAY	S	0	3,680.00	8/15/2015	2	85
ElmRd	ElmRd04	8/1/2007	AC	ROADWAY	S	0	17,650.00	8/15/2015	8	80
ElmRd	ElmRd05	8/1/2007	AC	ROADWAY	S	0	31,073.00	8/15/2015	8	73
ElmRd	ElmRd06	6/4/2004	AC	ROADWAY	S	0	9,724.00	8/15/2015	11	55
ElmRd	ElmRd07	6/4/2004	AC	ROADWAY	S	0	9,816.00	8/15/2015	11	49
ElmRdExt	ElmRdExt01	1/29/2014	AC	ROADWAY	S	0	23,144.00	8/15/2015	1	96
ElmRdExt	ElmRdExt02	1/29/2014	AC	ROADWAY	S	0	10,609.00	8/15/2015	1	97
ElmRdExt	ElmRdExt03	1/29/2014	AC	ROADWAY	S	0	20,719.00	8/15/2015	1	97
ElmRdExt	ElmRdExt04	1/29/2014	AC	ROADWAY	S	0	10,912.00	8/15/2015	1	100
ElmRdExt	ElmRdExt05	1/29/2014	AC	ROADWAY	S	0	14,981.00	8/15/2015	1	97
ElmRdExt	ElmRdExt06	1/29/2014	AC	ROADWAY	S	0	15,053.00	8/15/2015	1	100
ElmRdExt	ElmRdExt07	1/29/2014	AC	ROADWAY	S	0	13,731.00	8/15/2015	1	97
ElmRdExt	ElmRdExt08	1/29/2014	AC	ROADWAY	S	0	25,615.00	8/15/2015	1	82
EmpLot	EmpLot01	1/1/1976	AC	PARKING	S	0	188,541.00	9/15/2015	39	100
EmpLot	EmpLot02	5/4/1998	AC	PARKING	S	0	171,136.00	9/15/2015	17	100
ETenant	ETenant01	8/3/2001	AC	PARKING	S	0	370,941.00	9/15/2015	14	84
ETenant	ETenant02	8/2/2001	PCC	PARKING	S	0	5,179.00	9/15/2015	14	97
ExAlamo	ExAlamo01	1/1/1900	AC	PARKING	T	0	26,489.00	9/15/2015	115	82
ExAlamo	ExAlamo01A	1/1/1900	AC	PARKING	T	0	16,612.00	9/15/2015	115	39
ExAlamo	ExAlamo01B	1/1/1900	AC	PARKING	T	0	14,351.00	9/15/2015	115	77
ExManLot	ExManLot01	5/3/1995	AC	PARKING	S	0	10,161.00	9/15/2015	20	59
Express	Express01	5/3/2003	AC	PARKING	P	0	389,141.00	9/15/2015	12	70
Express	Express02	5/2/2003	PCC	PARKING	P	0	11,461.00	9/15/2015	12	99
Express	Express03	1/29/2014	AC	PARKING	P	0	10,669.00	9/15/2015	1	100
Express	Express04	5/3/2003	AC	PARKING	S	0	18,267.00	9/15/2015	12	66
ExThrifty	ExThrif01A	1/1/1900	AC	PARKING	T	0	15,814.00	1/1/1900	0	100
ExThrifty	ExThrif01B	1/1/1900	AC	PARKING	T	0	46,223.00	9/15/2015	115	56
ExThrifty	ExThrif01C	1/1/1900	AC	PARKING	T	0	7,413.00	1/1/1900	0	100
ExThrifty	ExThrift01	1/1/1900	AC	PARKING	T	0	14,772.00	9/15/2015	115	66
Fuel	Fuel01	5/3/1970	AC	PARKING	S	0	86,361.00	9/15/2015	45	82
Fuel	Fuel02	5/2/1970	PCC	PARKING	S	0	70,268.00	9/15/2015	45	77
Fuel	Fuel03	5/2/1970	PCC	PARKING	S	0	47,466.00	9/15/2015	45	83
Fuel	Fuel04	8/3/1995	AC	PARKING	S	0	11,294.00	9/15/2015	20	88
Fuel	Fuel05	5/3/1970	AC	PARKING	S	0	22,152.00	9/15/2015	45	76
Fuel	Fuel06	5/3/1970	AC	PARKING	S	0	34,193.00	9/15/2015	45	49
FuelRd	FuelRd01	8/1/1986	AC	ROADWAY	S	0	33,403.00	9/15/2015	29	45
FuelRd	FuelRd02	1/1/1970	PCC	ROADWAY	S	0	21,055.00	9/15/2015	45	75
FuelRd	FuelRd03	5/3/1970	AC	ROADWAY	S	0	34,987.00	9/15/2015	45	55
GAPark	GAPark01	1/2/1998	AC	PARKING	S	0	13,604.00	9/15/2015	17	81
GAPark	GAPark04	1/2/1998	AC	PARKING	S	0	13,419.00	9/15/2015	17	56
GAPark	GAPark05	1/2/1998	AC	PARKING	S	0	31,222.00	9/15/2015	17	71
GAPark	GAPark06	1/2/1998	AC	PARKING	S	0	4,207.00	9/15/2015	17	100
GAPark	GAPark07	1/2/1998	AC	PARKING	S	0	26,470.00	9/15/2015	17	100
GAPark	GAPark08	5/2/2001	AC	PARKING	S	0	20,199.00	9/15/2015	14	63
GAPark	GAPark09	5/2/2001	AC	PARKING	S	0	23,280.00	9/15/2015	14	76
GasPark	GasPark01	6/1/1998	AC	PARKING	T	0	49,932.00	9/15/2015	17	72

GateA	GateA01	8/1/2007	AC	ROADWAY	S	0	11,124.00	9/15/2015	8	96
GateA	GateA02	8/1/2007	AC	ROADWAY	S	0	24,033.00	9/15/2015	8	92
GateARd	GateARd01	5/5/1969	AC	ROADWAY	T	0	39,765.00	9/15/2015	46	72
GateARd	GateARd02	8/1/2007	AC	ROADWAY	T	0	8,175.00	9/15/2015	8	90
GoldLot	GoldLot01	8/2/1998	AC	PARKING	T	0	139,102.00	9/15/2015	17	80
GoldLot	GoldLot02	8/2/1998	AC	PARKING	T	0	359,422.00	9/15/2015	17	27
GoldLot	GoldLot03	8/2/1998	AC	PARKING	T	0	293,013.00	9/15/2015	17	82
GoldLot	GoldLot04	1/1/1900	AC	PARKING	T	0	152,715.00	9/15/2015	115	70
HourGar	HourGar01	8/1/2007	AC	ROADWAY	S	5	14,041.00	9/15/2015	8	89
HourGar	HourGar02	5/3/1997	AC	ROADWAY	S	5	14,039.00	9/15/2015	18	76
HourGar	HourGar03	5/3/1997	AC	ROADWAY	S	8	19,993.00	9/15/2015	18	81
HourGar	HourGar04	5/3/1997	AC	ROADWAY	S	8	17,393.00	9/15/2015	18	69
I195IB	I195IB01	8/1/2010	AAC	ROADWAY	P	2	22,513.00	8/15/2015	5	94
I195IB	I195IB02	8/1/2010	AAC	ROADWAY	P	3	16,851.00	8/15/2015	5	65
I195IB	I195IB03	1/1/2002	AC	ROADWAY	P	1	21,821.00	8/15/2015	13	54
I195IB	I195IB04	8/1/2010	AAC	ROADWAY	P	2	16,590.00	8/15/2015	5	75
I195IB	I195IB05	1/1/2002	AC	ROADWAY	P	2	21,360.00	8/15/2015	13	72
I195IB	I195IB06	1/1/2002	AC	ROADWAY	P	1	4,184.00	8/15/2015	13	77
I195IB	I195IB06A	3/6/2015	AC	ROADWAY	S	0	5,340.00	8/15/2015	0	100
I195IB	I195IB07	8/1/2007	AC	ROADWAY	P	3	66,094.00	8/15/2015	8	71
I195IB	I195IB08	1/29/2014	AC	ROADWAY	P	2	6,549.00	8/15/2015	1	100
I195IB	I195IB08A	3/6/2015	AC	ROADWAY	S	0	25,071.00	8/15/2015	0	100
I195IB	I195IB09	5/1/2006	AC	ROADWAY	P	2	19,611.00	9/15/2015	9	66
I195IB	I195IB10A	10/3/2015	AC	ROADWAY	P	1	21,733.00	10/3/2015	0	100
I195IB	I195IB10B	10/3/2014	AAC	ROADWAY	P	1	5,673.00	8/15/2015	1	84
I195IB	I195IB11	1/1/1900	AC	ROADWAY	S	0	2,551.00	8/15/2015	115	85
I195OB	I195OB01	8/1/2010	AAC	ROADWAY	P	0	2,229.00	8/15/2015	5	84
I195OB	I195OB02	8/1/2010	AAC	ROADWAY	P	0	7,091.00	8/15/2015	5	90
I195OB	I195OB03	9/3/2003	AC	ROADWAY	P	0	10,784.00	8/15/2015	12	80
I195OB	I195OB04	9/3/2003	AC	ROADWAY	P	0	4,442.00	8/15/2015	12	84
I195OB	I195OB05	8/1/2010	AAC	ROADWAY	P	0	19,287.00	8/15/2015	5	91
I195OB	I195OB06	8/1/2010	AAC	ROADWAY	P	0	21,383.00	8/15/2015	5	86
I195OB	I195OB07	8/1/2010	AAC	ROADWAY	P	0	9,068.00	8/15/2015	5	90
I195OB	I195OB08	8/1/2010	AAC	ROADWAY	P	0	19,922.00	8/15/2015	5	97
I195OB	I195OB09	1/29/2014	AC	ROADWAY	P	0	11,606.00	8/15/2015	1	85
I195OB	I195OB09A	9/3/2003	AC	ROADWAY	S	0	5,254.00	8/15/2015	12	94
I195OB	I195OB10	12/13/2013	AC	ROADWAY	P	0	14,103.00	8/15/2015	2	93
I195OB	I195OB11	12/13/2013	AC	ROADWAY	P	0	2,110.00	8/15/2015	2	80
I195OB	I195OB12	12/13/2013	AC	ROADWAY	P	0	3,995.00	8/15/2015	2	86
Kauffman	Kauffman01	1/2/1980	AC	PARKING	T	0	25,420.00	9/15/2015	35	43
LSGSky	LSGSky01	1/1/1980	AC	PARKING	T	0	48,928.00	9/15/2015	35	25
LSGSky	LSGSky01A	1/1/1900	AC	PARKING	T	0	10,866.00	1/1/1900	0	100
LSGSky	LSGSky01B	1/1/1900	AC	PARKING	T	0	5,524.00	1/1/1900	0	100
LSGSky	LSGSky02	1/1/1980	AC	PARKING	T	0	43,705.00	9/15/2015	35	54
LTAPark	LTAPark01	6/3/1999	AAC	PARKING	P	0	593,673.00	9/15/2015	16	56
LTAPark	LTAPark02	5/3/2000	AAC	PARKING	P	0	837,243.00	9/15/2015	15	60
LTAPark	LTAPark03	5/1/2000	AAC	PARKING	P	0	345,235.00	9/15/2015	15	76
LTAPark	LTAPark04	2/13/2015	PCC	PARKING	P	0	9,283.00	9/15/2015	0	95
LTBPark	LTBPark01	11/10/2014	AC	PARKING	P	0	326,097.00	9/15/2015	1	100
LTBPark	LTBPark01A	11/10/2014	PCC	PARKING	S	0	45,774.00	9/15/2015	1	100
LTBPark	LTBPark01B	8/3/1997	AC	PARKING	S	0	12,526.00	9/15/2015	18	100
LTBPark	LTBPark02	10/9/2014	AC	PARKING	P	0	28,755.00	9/15/2015	1	100
LTBPark	LTBPark02A	8/3/1997	AC	PARKING	S	0	12,238.00	9/15/2015	18	45
LTBPark	LTBPark03	8/2/1997	PCC	PARKING	P	0	6,150.00	9/15/2015	18	100

LTBPark	LTBPark05	8/5/1995	AC	PARKING	P	0	317,508.00	9/15/2015	20	23
LTBPark	LTBPark06	10/9/2014	AC	PARKING	P	0	56,220.00	9/15/2015	1	100
LTBPark	LTBPark06A	8/5/1995	AC	PARKING	S	0	25,625.00	9/15/2015	20	27
LTBPark	LTBPark06B	8/5/1995	AC	PARKING	S	0	1,657.00	9/15/2015	20	100
LTBPark	LTBPark07	8/5/1995	AC	PARKING	P	0	366,676.00	9/15/2015	20	37
LTBPark	LTBPark07A	10/9/2014	AC	PARKING	P	0	65,021.00	9/15/2015	1	100
LTBPark	LTBPark08	10/9/2014	AC	PARKING	P	0	226,189.00	9/15/2015	1	100
LTBPark	LTBPark09	10/9/2014	AC	PARKING	P	0	28,755.00	9/15/2015	1	100
LTBPark	LTBPark09A	10/9/2014	PCC	PARKING	S	0	6,710.00	9/15/2015	1	100
LTBPark	LTBPark10	10/9/2014	AC	PARKING	P	0	40,990.00	9/15/2015	1	100
LTBPark	LTBPark11	8/2/1989	PCC	PARKING	P	0	5,925.00	9/15/2015	26	92
LTBPark	LTBPark12	10/9/2014	AC	PARKING	P	0	13,397.00	9/15/2015	1	100
LTBPark	LTBPark13	1/1/1900	AC	PARKING	S	0	1,822.00	9/15/2015	115	100
MACBldg	MACBldg01	10/10/2007	AC	PARKING	T	0	28,306.00	9/15/2015	8	83
MACBldg	MACBldg02	1/1/1980	AC	PARKING	T	0	39,257.00	9/15/2015	35	63
MACBldg	MACBldg03	1/1/1980	PCC	PARKING	T	0	6,622.00	9/15/2015	35	84
MACBldg	MACBldg04	1/1/1980	AC	PARKING	T	0	116,087.00	9/15/2015	35	47
MACBldg	MACBldg05	1/1/1980	AC	PARKING	T	0	7,369.00	9/15/2015	35	59
MallEnt	MallEnt01	8/1/1976	AC	ROADWAY	S	1	20,065.00	11/12/2015	39	78
MathLot	MathLot01	8/2/2000	PCC	PARKING	T	0	11,427.00	9/15/2015	15	97
MathLot	MathLot02	8/3/2000	AC	PARKING	T	0	233,873.00	9/15/2015	15	81
MathLot	MathLot03	8/3/2000	AC	PARKING	S	0	229,390.00	9/15/2015	15	91
MathWay	MathWay01	8/3/1999	AC	ROADWAY	S	2	71,757.00	8/15/2015	16	62
MathWay	MathWay02	8/3/1999	AC	ROADWAY	S	2	77,329.00	8/15/2015	16	44
MathWay	MathWay03	8/3/1999	AC	ROADWAY	S	2	81,566.00	8/15/2015	16	52
MathWay	MathWay04	8/3/1999	AC	ROADWAY	S	2	35,210.00	8/15/2015	16	56
MathWay	MathWay05	8/3/1999	PCC	ROADWAY	S	0	1,968.00	9/15/2015	16	92
MathWay	MathWay06	1/1/1900	AC	ROADWAY	T	0	7,208.00	9/15/2015	115	94
MathWay	MathWay07	8/3/1999	AC	ROADWAY	T	0	80,168.00	9/15/2015	16	83
MidCargoRd	MidCargo01	8/3/1998	AC	ROADWAY	T	0	17,641.00	9/15/2015	17	53
MidCargoRd	MidCargo02	5/2/2000	AC	ROADWAY	T	0	28,106.00	9/15/2015	15	57
MidFuel	MidFuel01	1/1/2004	AC	ROADWAY	T	0	20,107.00	9/15/2015	11	92
MidFuel	MidFuel02	1/1/2004	PCC	ROADWAY	T	2	1,965.00	9/15/2015	11	100
NCargoPk	NCargoPk01	12/31/2014	AC	PARKING	T	0	79,693.00	9/15/2015	1	100
NCargoPk	NCargoPk02	12/31/2014	AC	PARKING	T	0	38,336.00	9/15/2015	1	64
NCargoPk	NCargoPk03	8/2/1997	AC	PARKING	T	0	15,206.00	9/15/2015	18	33
NCargoPk	NCargoPk04	8/2/1997	AC	PARKING	T	0	5,142.00	9/15/2015	18	64
NCargoPk	NCargoPk05	8/2/1997	AC	PARKING	T	0	26,016.00	9/15/2015	18	66
NCargoPk	NCargoPk06	8/2/1997	AC	PARKING	T	0	19,973.00	9/15/2015	18	73
NCargoPk	NCargoPk07	8/2/1997	AC	PARKING	T	0	7,942.00	9/15/2015	18	82
NCargoPk	NCargoPk08	8/2/1997	AC	PARKING	T	0	39,259.00	9/15/2015	18	53
NCargoPk	NCargoPk09	8/2/1997	AC	PARKING	T	0	16,227.00	9/15/2015	18	83
NCargoPk	NCargoPk10	8/2/1997	AC	PARKING	T	0	46,739.00	9/15/2015	18	61
NCargoPk	NCargoPk11	8/2/1997	AC	PARKING	T	0	20,879.00	9/15/2015	18	70
NCargoPk	NCargoPk12	8/2/1997	AC	PARKING	T	0	22,343.00	9/15/2015	18	64
NCargoPk	NCargoPk13	8/2/1997	AC	PARKING	T	0	16,529.00	9/15/2015	18	51
NCargoPk	NCargoPk14	12/31/2014	AC	PARKING	T	0	96,483.00	9/15/2015	1	98
NCargoPk	NCargoPk17	8/2/1997	AC	PARKING	T	0	11,369.00	9/15/2015	18	100
NCargoPk	NCargoPk18	8/2/1997	AC	PARKING	T	0	6,056.00	9/15/2015	18	40
NCargoPk	NCargoPk20	1/1/1900	AC	PARKING	T	0	9,648.00	9/15/2015	115	81
NCargoRd	NCargoRd01	5/2/1982	AC	ROADWAY	T	0	54,672.00	9/15/2015	33	71
NCargoRd	NCargoRd02	8/2/1997	AC	ROADWAY	T	0	25,429.00	9/15/2015	18	42
NCargoRd	NCargoRd03	12/31/2014	AC	ROADWAY	S	0	22,687.00	9/15/2015	1	100

NField	NField01	8/3/1968	AC	PARKING	S	0	13,379.00	9/15/2015	47	54
NField	NField02	8/3/1968	AC	PARKING	S	0	8,250.00	9/15/2015	47	27
NField	NField03	8/3/1968	AC	PARKING	S	0	45,756.00	9/15/2015	47	37
NField	NField04	8/3/1968	AC	PARKING	S	0	51,902.00	9/15/2015	47	47
NField	NField05	8/3/1968	AC	PARKING	S	0	68,441.00	9/15/2015	47	20
NField	NField06	8/1/2010	AAC	PARKING	S	0	5,459.00	9/15/2015	5	94
NField	NField08	8/3/1968	AC	PARKING	S	0	6,463.00	9/15/2015	47	91
OFtMeade	OFtMeade01	1/1/1900	AC	ROADWAY	T	0	109,364.00	8/15/2015	115	71
OFtMeade	OFtMeade02	1/1/1900	AC	ROADWAY	T	0	10,982.00	8/15/2015	115	84
OldESPA	OldESPA01	11/27/2013	PCC	PARKING	T	0	12,098.00	9/15/2015	2	93
OldESPA	OldESPA02	8/3/2000	AC	PARKING	T	0	362,177.00	9/15/2015	15	59
OldESPA	OldESPA03	8/2/2000	PCC	PARKING	T	0	3,844.00	9/15/2015	15	63
OldESPB	OldESPB01	8/3/2000	AC	PARKING	T	0	5,589.00	9/15/2015	15	84
OldESPB	OldESPB02	8/3/2000	AC	PARKING	T	0	201,495.00	9/15/2015	15	63
OldESPB	OldESPB03	8/2/2000	PCC	PARKING	T	0	3,697.00	9/15/2015	15	100
OldESPB	OldESPB04	1/1/1900	PCC	PARKING	T	0	3,256.00	9/15/2015	115	94
OldFedEx	OldFedEx01	5/3/1970	AC	PARKING	S	0	164,483.00	9/15/2015	45	70
OldQTAPk	OldQTAPk/1	1/1/1900	AC	PARKING	T	0	50,587.00	11/12/2015	115	59
OldQTARd	OldQTARd01	8/4/1998	AC	ROADWAY	T	2	46,326.00	9/15/2015	17	38
PierEMan	PierEMan01	8/2/1998	AC	PARKING	S	0	92,868.00	9/15/2015	17	72
PinkLot	PinkLot01	8/4/2000	AC	PARKING	T	0	8,588.00	9/15/2015	15	12
PinkLot	PinkLot02	8/4/2000	AC	PARKING	T	0	164,721.00	9/15/2015	15	65
PinkLot	PinkLot03	8/3/2000	PCC	PARKING	T	0	4,340.00	9/15/2015	15	99
RentalPk	RentalPk01	5/3/2004	AC	PARKING	T	0	168,372.00	9/15/2015	11	70
RentalPk	RentalPk02	5/3/2004	AC	PARKING	T	0	478,923.00	9/15/2015	11	81
RentalPk	RentalPk03	5/3/2004	AC	PARKING	T	0	141,917.00	9/15/2015	11	86
RentalRd	RentalRd01	5/3/2004	AC	ROADWAY	S	2	34,975.00	9/15/2015	11	100
RentalRd	RentalRd02	5/2/2004	PCC	ROADWAY	S	2	44,547.00	8/15/2015	11	93
RentalRd	RentalRd03	5/3/2004	AC	ROADWAY	S	2	25,503.00	8/15/2015	11	72
RentalRd	RentalRd04	5/3/2004	AC	ROADWAY	S	0	150,930.00	9/15/2015	11	91
RentalRd	RentlRd05	5/3/2004	AC	ROADWAY	S	2	18,360.00	9/15/2015	11	92
RentalRd	RentlRd05A	5/3/2010	PCC	ROADWAY	S	2	6,536.00	9/15/2015	5	100
RentalRd	RentlRd05B	5/1/2010	AAC	ROADWAY	S	2	19,004.00	9/15/2015	5	83
RentalRd	RentlRd05C	5/3/2010	PCC	ROADWAY	S	2	2,339.00	9/15/2015	5	100
ServRd	ServRd/1	8/30/2013	AAC	ROADWAY	T	0	21,502.00	8/30/2013	0	100
SField	SField01	5/3/1964	AC	PARKING	T	0	6,742.00	9/15/2015	51	94
SField	SField02	8/5/2010	AC	PARKING	T	0	20,299.00	9/15/2015	5	86
SField	SField03	1/1/1980	AC	PARKING	T	0	9,975.00	9/15/2015	35	58
SField	SField04	7/2/1964	PCC	PARKING	T	0	4,638.00	9/15/2015	51	46
SField	SField05	1/1/1980	AC	PARKING	T	0	34,561.00	9/15/2015	35	49
SField	SField06	1/1/1980	AC	PARKING	T	0	16,737.00	9/15/2015	35	15
Sheraton	Sheraton01	1/29/2014	AC	PARKING	P	0	14,965.00	9/15/2015	1	50
Sheraton	Sheraton03	8/4/1965	AC	PARKING	T	0	31,600.00	9/15/2015	50	83
Sheraton	Sheraton04	8/2/1997	AC	PARKING	T	0	30,919.00	9/15/2015	18	83
SpringLn	SpringLn01	8/3/2010	PCC	ROADWAY	S	0	35,777.00	9/15/2015	5	95
TaxiLot	TaxiLot01	8/3/1996	AC	PARKING	T	0	6,329.00	9/15/2015	19	38
TaxiLot	TaxiLot02	8/2/1996	AC	PARKING	T	0	72,421.00	9/15/2015	19	48
UtilPlant	UtilPlnt01	1/1/1900	AC	ROADWAY	S	0	7,475.00	1/1/1900	0	100
UtilPlant	UtilPlnt02	1/1/1900	AC	ROADWAY	S	0	5,734.00	1/1/1900	0	100
WTenant	WTenant01	8/3/2001	AC	PARKING	S	0	13,770.00	9/15/2015	14	55
WTenant	WTenant02	8/2/2001	PCC	PARKING	S	0	3,025.00	9/15/2015	14	77

WTenant	WTenant03	8/3/2001	AC	PARKING	S	0	869,278.00	9/15/2015	14	74

Section Condition Report (Summary)

Pavement Database: 2015BWILand_FINAL_MandR

Age Category	Average Age at Inspection	Total Area (SqFt)	Number of Sections	Arithmetic Average PCI	Standard Deviation PCI	Weighted Average PCI
00-02	1	1,827,693.00	56	92.14	13.47	92.76
03-05	5	301,123.00	18	88.33	10.98	89.83
06-10	8	437,003.00	15	82.47	8.91	80.63
11-15	13	5,710,144.00	53	76.89	19.27	73.09
16-20	17	3,729,161.00	65	67.38	22.61	56.95
26-30	28	39,328.00	2	68.50	23.50	52.08
31-35	34	815,227.00	14	58.00	20.59	64.39
36-40	39	208,606.00	2	89.00	11.00	97.88
41-50	46	746,521.00	16	62.38	20.91	63.40
Over 50	109	544,280.00	22	66.64	28.15	63.87
ALL	22	14,359,086.00	263	76.17	22.30	70.94

Contribution to PCI by Distress Category

BranchID	SectionID	PCI	PCI Category	PCI Pct Climate	PCI Pct Load	PCI Pct Other
15RDeice	15RDeice01	69	Fair	45	6	49
15RTrit	15RTrit01	86	Good	74	0	26
Aaronson	Aaronson02	95	Good	72	0	28
Aaronson	Aaronson01	98	Good	0	0	100
Aaronson	Aaronson03	87	Good	25	0	75
AirCargoDr	AirCarDr02	91	Good	100	0	0
AirCargoDr	AirCarDr01	97	Good	100	0	0
AirCargoDr	AirCarDr03	83	Satisfactory	26	74	0
AirCargoDr	AirCarDr06	100	Good	0	0	0
AirCargoDr	AirCarDr05	73	Satisfactory	29	30	41
AirCargoDr	AirCarDr04	99	Good	1	0	99
Amtrak	Amtrak02	52	Poor	17	81	2
Amtrak	Amtrak03	67	Fair	20	80	0
Amtrak	Amtrak01	42	Poor	30	70	0
ARFFLot	ARFFLot03	75	Satisfactory	56	44	0
ARFFLot	ARFFLot04	75	Satisfactory	69	31	0
ARFFLot	ARFFLot01	81	Satisfactory	100	0	0
ARFFLot	ARFFLot02	78	Satisfactory	15	85	0
ARFFRd	ARFFRd01	14	Serious	10	81	9
ARFFRd	ARFFRd02	100	Good	0	0	0
ARFFRd	ARFFRd03	74	Satisfactory	54	46	0
Arrivals	Arrivals05	79	Satisfactory	13	83	4
Arrivals	Arrivals04	99	Good	16	0	84
Arrivals	Arrivals03	68	Fair	12	85	3
Arrivals	Arrivals01	88	Good	36	64	0
Arrivals	Arrivals06	97	Good	56	44	0
Arrivals	Arrivals08	87	Good	51	49	0
Arrivals	Arrivals07	81	Satisfactory	18	82	0
Arrivals	Arrivals02	92	Good	5	95	0
Burma	Burma01	97	Good	35	65	0
Burma	Burma02	23	Serious	17	82	1
BusMaint	BusMaint05	96	Good	0	100	0
BusMaint	BusMaint02	100	Good	0	0	0
BusMaint	BusMaint03	100	Good	0	0	0
BusMaint	BusMaint01	55	Poor	29	71	0
BusMaint	BusMaint06	100	Good	0	0	0
BusMaint	BusMaint04	100	Good	0	0	0
BusMaint	BusMaint08	100	Good	0	0	0
BusMaint	BusMaint07	98	Good	0	99	1
CargoG	CargoG02	63	Fair	100	0	0
CargoG	CargoG01	82	Satisfactory	49	51	0
Cemetery	Cemetery01	93	Good	100	0	0
CNG	CNG02	23	Serious	10	90	0
CNG	CNG01	97	Good	100	0	0
CServRd	CServRd02	51	Poor	32	65	3
CServRd	CServRd01	61	Fair	29	65	6

BranchID	SectionID	PCI	PCI Category	PCI Pct Climate	PCI Pct Load	PCI Pct Other
CUP	CUPRd01	69	Fair	38	61	1
DailyRd	DailyRd02	17	Serious	32	61	7
DailyRd	DailyRd01	30	Very Poor	31	0	69
DailyRd	DailyRd04	10	Failed	36	56	8
DailyRd	DailyRd05	95	Good	100	0	0
DailyRd	DailyRd03	16	Serious	32	58	10
Dep	Dep01	72	Satisfactory	16	84	0
Dep	Dep02	62	Fair	18	82	0
ElkLand	ElkLand01	79	Satisfactory	54	14	32
ElkLand	ElkLand02	78	Satisfactory	21	48	31
ElkLandRd	ElkLndRd01	87	Good	27	18	55
ElmRd	ElmRd03	85	Satisfactory	100	0	0
ElmRd	ElmRd05	73	Satisfactory	14	86	0
ElmRd	ElmRd04	80	Satisfactory	32	67	1
ElmRd	ElmRd01	81	Satisfactory	18	71	11
ElmRd	ElmRd07	49	Poor	31	69	0
ElmRd	ElmRd06	55	Poor	38	60	2
ElmRdExt	ElmRdExt06	100	Good	0	0	0
ElmRdExt	ElmRdExt04	100	Good	0	0	0
ElmRdExt	ElmRdExt01	96	Good	6	94	0
ElmRdExt	ElmRdExt05	97	Good	5	95	0
ElmRdExt	ElmRdExt02	97	Good	0	100	0
ElmRdExt	ElmRdExt03	97	Good	0	100	0
ElmRdExt	ElmRdExt07	97	Good	0	100	0
ElmRdExt	ElmRdExt08	82	Satisfactory	2	98	0
EmpLot	EmpLot01	100	Good	0	0	0
EmpLot	EmpLot02	100	Good	0	0	0
ETenant	ETenant01	84	Satisfactory	37	0	63
ETenant	ETenant02	97	Good	0	100	0
ExAlamo	ExAlamo01	82	Satisfactory	92	8	0
ExAlamo	ExAlamo01B	77	Satisfactory	100	0	0
ExAlamo	ExAlamo01A	39	Very Poor	24	68	8
ExManLot	ExManLot01	59	Fair	53	0	47
Express	Express02	99	Good	0	100	0
Express	Express03	100	Good	0	0	0
Express	Express01	70	Fair	79	21	0
Express	Express04	66	Fair	100	0	0
ExThrifty	ExThrift01	66	Fair	58	26	16
ExThrifty	ExThrif01A	100	Good	0	0	0
ExThrifty	ExThrif01B	56	Fair	26	36	38
ExThrifty	ExThrif01C	100	Good	0	0	0
Fuel	Fuel04	88	Good	53	26	21
Fuel	Fuel03	83	Satisfactory	47	16	37
Fuel	Fuel02	77	Satisfactory	43	6	51
Fuel	Fuel01	82	Satisfactory	76	0	24
Fuel	Fuel06	49	Poor	16	39	45
Fuel	Fuel05	76	Satisfactory	56	13	31
FuelRd	FuelRd01	45	Poor	19	43	38

BranchID	SectionID	PCI	PCI Category	PCI Pct Climate	PCI Pct Load	PCI Pct Other
FuelRd	FuelRd02	75	Satisfactory	29	11	60
FuelRd	FuelRd03	55	Poor	22	34	44
GAPark	GAPark07	100	Good	0	0	0
GAPark	GAPark09	76	Satisfactory	71	29	0
GAPark	GAPark05	71	Satisfactory	74	24	2
GAPark	GAPark01	81	Satisfactory	86	0	14
GAPark	GAPark04	56	Fair	23	64	13
GAPark	GAPark06	100	Good	0	0	0
GAPark	GAPark08	63	Fair	25	75	0
GasPark	GasPark01	72	Satisfactory	60	4	36
GateA	GateA02	92	Good	94	0	6
GateA	GateA01	96	Good	100	0	0
GateARd	GateARd01	72	Satisfactory	29	63	8
GateARd	GateARd02	90	Good	38	36	26
GoldLot	GoldLot02	27	Very Poor	30	62	8
GoldLot	GoldLot03	82	Satisfactory	100	0	0
GoldLot	GoldLot01	80	Satisfactory	89	11	0
GoldLot	GoldLot04	70	Fair	56	24	20
HourGar	HourGar02	76	Satisfactory	77	9	14
HourGar	HourGar03	81	Satisfactory	56	0	44
HourGar	HourGar04	69	Fair	48	24	28
HourGar	HourGar01	89	Good	100	0	0
I195IB	I195IB10B	84	Satisfactory	57	38	5
I195IB	I195IB05	72	Satisfactory	27	73	0
I195IB	I195IB07	71	Satisfactory	26	74	0
I195IB	I195IB09	66	Fair	63	37	0
I195IB	I195IB04	75	Satisfactory	30	68	2
I195IB	I195IB01	94	Good	27	73	0
I195IB	I195IB02	65	Fair	14	79	7
I195IB	I195IB03	54	Poor	28	72	0
I195IB	I195IB08	100	Good	0	0	0
I195IB	I195IB06	77	Satisfactory	59	41	0
I195IB	I195IB06A	100	Good	0	0	0
I195IB	I195IB11	85	Satisfactory	45	55	0
I195IB	I195IB08A	100	Good	0	0	0
I195IB	I195IB10A	100	Good	0	0	0
I195OB	I195OB02	90	Good	32	68	0
I195OB	I195OB08	97	Good	41	59	0
I195OB	I195OB09	85	Satisfactory	81	19	0
I195OB	I195OB03	80	Satisfactory	34	66	0
I195OB	I195OB04	84	Satisfactory	100	0	0
I195OB	I195OB07	90	Good	41	59	0
I195OB	I195OB01	84	Satisfactory	27	73	0
I195OB	I195OB10	93	Good	54	46	0
I195OB	I195OB05	91	Good	13	87	0
I195OB	I195OB06	86	Good	27	73	0
I195OB	I195OB11	80	Satisfactory	100	0	0
I195OB	I195OB09A	94	Good	51	49	0

BranchID	SectionID	PCI	PCI Category	PCI Pct Climate	PCI Pct Load	PCI Pct Other
I195OB	I195OB12	86	Good	82	18	0
Kauffman	Kauffman01	43	Poor	39	51	10
LSGSky	LSGSky01	25	Serious	23	50	27
LSGSky	LSGSky02	54	Poor	21	48	31
LSGSky	LSGSky01B	100	Good	0	0	0
LSGSky	LSGSky01A	100	Good	0	0	0
LTAPark	LTAPark04	95	Good	64	0	36
LTAPark	LTAPark01	56	Fair	33	42	25
LTAPark	LTAPark02	60	Fair	45	54	1
LTAPark	LTAPark03	76	Satisfactory	82	12	6
LTBPark	LTBPark05	23	Serious	28	49	23
LTBPark	LTBPark08	100	Good	0	0	0
LTBPark	LTBPark06	100	Good	0	0	0
LTBPark	LTBPark01	100	Good	0	0	0
LTBPark	LTBPark09	100	Good	0	0	0
LTBPark	LTBPark03	100	Good	0	0	0
LTBPark	LTBPark11	92	Good	48	52	0
LTBPark	LTBPark07	37	Very Poor	23	52	25
LTBPark	LTBPark02	100	Good	0	0	0
LTBPark	LTBPark10	100	Good	0	0	0
LTBPark	LTBPark07A	100	Good	0	0	0
LTBPark	LTBPark01B	100	Good	0	0	0
LTBPark	LTBPark09A	100	Good	0	0	0
LTBPark	LTBPark06B	100	Good	0	0	0
LTBPark	LTBPark12	100	Good	0	0	0
LTBPark	LTBPark06A	27	Very Poor	5	65	30
LTBPark	LTBPark13	100	Good	0	0	0
LTBPark	LTBPark01A	100	Good	0	0	0
LTBPark	LTBPark02A	45	Poor	38	46	16
MACBldg	MACBldg02	63	Fair	46	15	39
MACBldg	MACBldg01	83	Satisfactory	100	0	0
MACBldg	MACBldg04	47	Poor	21	76	3
MACBldg	MACBldg03	84	Satisfactory	45	55	0
MACBldg	MACBldg05	59	Fair	87	0	13
MallEnt	MallEnt01	78	Satisfactory	22	46	32
MathLot	MathLot01	97	Good	13	77	10
MathLot	MathLot02	81	Satisfactory	72	0	28
MathLot	MathLot03	91	Good	100	0	0
MathWay	MathWay04	56	Fair	45	51	4
MathWay	MathWay03	52	Poor	41	59	0
MathWay	MathWay02	44	Poor	33	67	0
MathWay	MathWay01	62	Fair	52	48	0
MathWay	MathWay07	83	Satisfactory	100	0	0
MathWay	MathWay05	92	Good	100	0	0
MathWay	MathWay06	94	Good	68	32	0
MidCargoRd	MidCargo01	53	Poor	27	51	22
MidCargoRd	MidCargo02	57	Fair	58	28	14
MidFuel	MidFuel01	92	Good	28	40	32

BranchID	SectionID	PCI	PCI Category	PCI Pct Climate	PCI Pct Load	PCI Pct Other
MidFuel	MidFuel02	100	Good	0	0	0
NCargoPk	NCargoPk06	73	Satisfactory	26	50	24
NCargoPk	NCargoPk03	33	Very Poor	31	69	0
NCargoPk	NCargoPk13	51	Poor	19	53	28
NCargoPk	NCargoPk10	61	Fair	38	20	42
NCargoPk	NCargoPk02	64	Fair	67	18	15
NCargoPk	NCargoPk04	64	Fair	45	36	19
NCargoPk	NCargoPk14	98	Good	100	0	0
NCargoPk	NCargoPk08	53	Poor	23	55	22
NCargoPk	NCargoPk12	64	Fair	40	0	60
NCargoPk	NCargoPk09	83	Satisfactory	62	0	38
NCargoPk	NCargoPk07	82	Satisfactory	100	0	0
NCargoPk	NCargoPk01	100	Good	0	0	0
NCargoPk	NCargoPk11	70	Fair	88	12	0
NCargoPk	NCargoPk17	100	Good	0	0	0
NCargoPk	NCargoPk18	40	Very Poor	19	48	33
NCargoPk	NCargoPk05	66	Fair	63	17	20
NCargoPk	NCargoPk20	81	Satisfactory	49	38	13
NCargoRd	NCargoRd02	42	Poor	32	64	4
NCargoRd	NCargoRd01	71	Satisfactory	73	0	27
NCargoRd	NCargoRd03	100	Good	0	0	0
NField	NField04	47	Poor	30	38	32
NField	NField02	27	Very Poor	26	53	21
NField	NField06	94	Good	100	0	0
NField	NField03	37	Very Poor	22	48	30
NField	NField01	54	Poor	40	31	29
NField	NField05	20	Serious	14	43	43
NField	NField08	91	Good	100	0	0
OFtMeade	OFtMeade02	84	Satisfactory	41	13	46
OFtMeade	OFtMeade01	71	Satisfactory	38	56	6
OldESPA	OldESPA02	59	Fair	41	43	16
OldESPA	OldESPA03	63	Fair	13	66	21
OldESPA	OldESPA01	93	Good	100	0	0
OldESPB	OldESPB01	84	Satisfactory	100	0	0
OldESPB	OldESPB02	63	Fair	56	30	14
OldESPB	OldESPB03	100	Good	0	0	0
OldESPB	OldESPB04	94	Good	35	0	65
OldFedEx	OldFedEx01	70	Fair	76	0	24
OldQTAPk	OldQTAPk/1	59	Fair	25	14	61
OldQTARd	OldQTARd01	38	Very Poor	34	24	42
PierEMan	PierEMan01	72	Satisfactory	100	0	0
PinkLot	PinkLot02	65	Fair	73	27	0
PinkLot	PinkLot01	12	Serious	27	64	9
PinkLot	PinkLot03	99	Good	100	0	0
RentalPk	RentalPk02	81	Satisfactory	31	7	62
RentalPk	RentalPk01	70	Fair	44	0	56
RentalPk	RentalPk03	86	Good	16	8	76
RentalRd	RentlRd05	92	Good	100	0	0

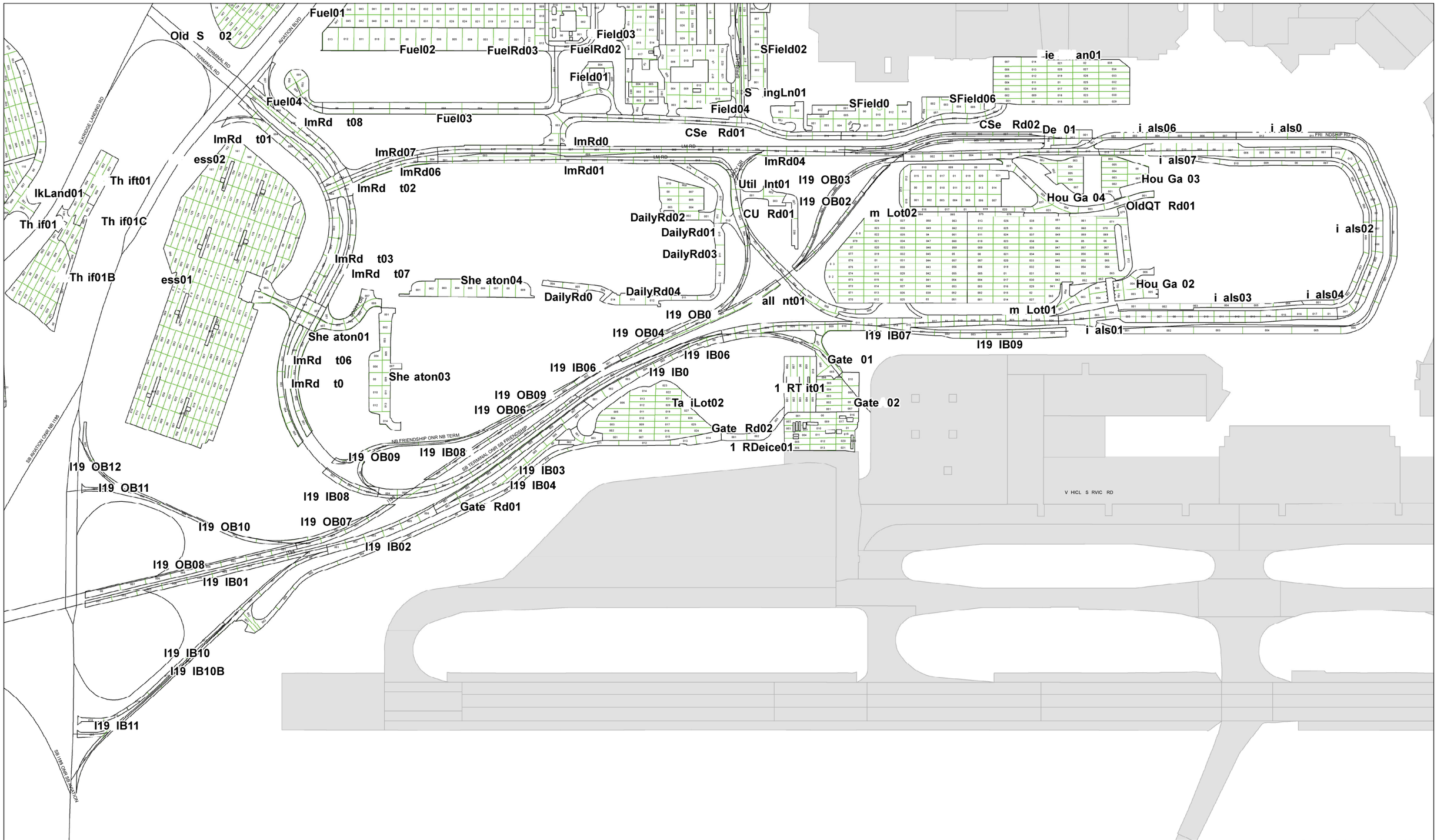
BranchID	SectionID	PCI	PCI Category	PCI Pct Climate	PCI Pct Load	PCI Pct Other
RentalRd	RentalRd02	93	Good	97	0	3
RentalRd	RentalRd01	100	Good	0	0	0
RentalRd	RentalRd04	91	Good	72	0	28
RentalRd	RentalRd03	72	Satisfactory	45	55	0
RentalRd	RentlRd05A	100	Good	0	0	0
RentalRd	RentlRd05B	83	Satisfactory	27	73	0
RentalRd	RentlRd05C	100	Good	0	0	0
ServRd	ServRd/1	100	Good	0	0	0
SField	SField06	15	Serious	30	46	24
SField	SField02	86	Good	100	0	0
SField	SField05	49	Poor	55	8	37
SField	SField01	94	Good	46	0	54
SField	SField03	58	Fair	52	27	21
SField	SField04	46	Poor	8	92	0
Sheraton	Sheraton03	83	Satisfactory	68	0	32
Sheraton	Sheraton04	83	Satisfactory	76	24	0
Sheraton	Sheraton01	50	Poor	52	48	0
SpringLn	SpringLn01	95	Good	35	65	0
TaxiLot	TaxiLot01	38	Very Poor	33	52	15
TaxiLot	TaxiLot02	48	Poor	11	74	15
UtilPlant	UtilPlnt02	100	Good	0	0	0
UtilPlant	UtilPlnt01	100	Good	0	0	0
WTenant	WTenant03	74	Satisfactory	47	38	15
WTenant	WTenant02	77	Satisfactory	23	43	34
WTenant	WTenant01	55	Poor	44	48	8

Appendix B

Maps

Figure B-1

Network Definition Map



AECOM PTS Pavement Technical Solutions

N E S W

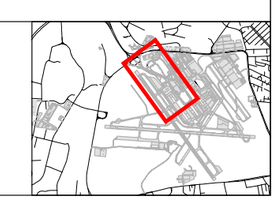
0 205 410 Feet

BWI Landside
Net or Definition

Legend

- Sections
- Sample Units

September 2016



2 f 10

B I L ds d
tw rk
D f t

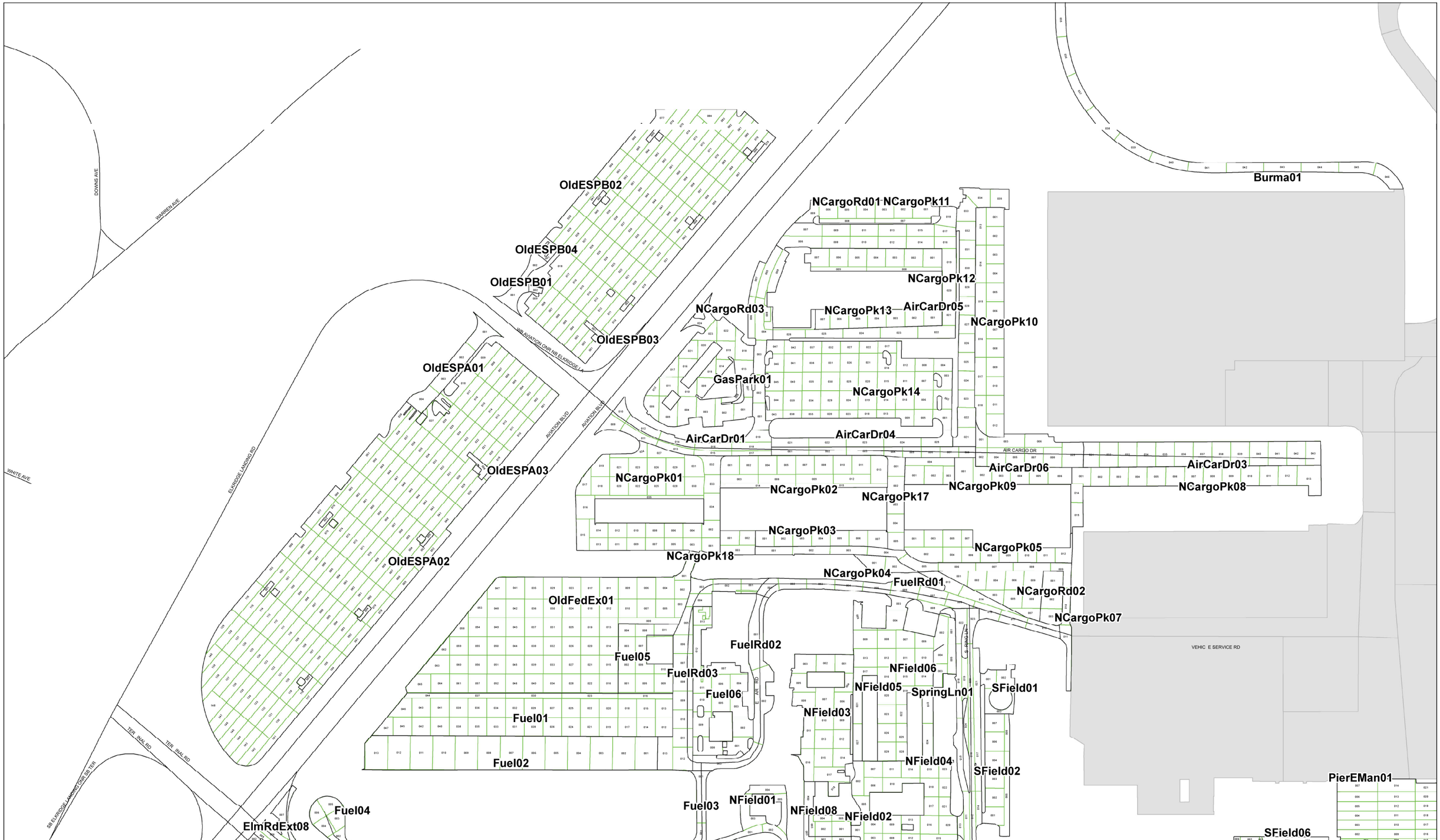
0 145 290 F t

Legend

S ct s

S mpl U ts

September 2016



BWI andsid
N twork
D finition

0 140 280 t

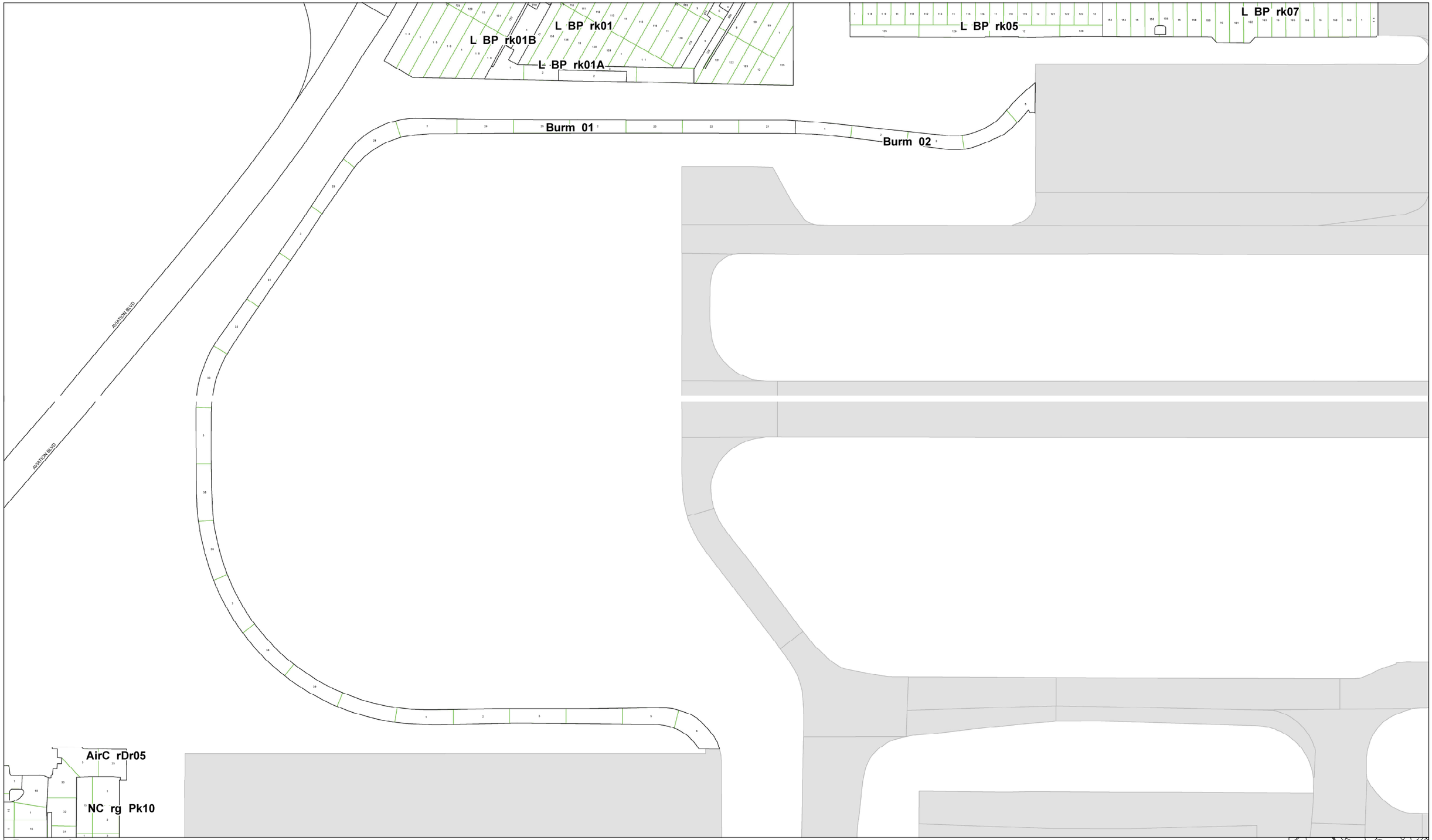
Legend

S ctions

Samp nits

September 2016

AECOM PTS Pavement Technical Solutions



Page of 1

AECOM

PTS Pavement Technical Solutions

N E S W

9 18 Feet

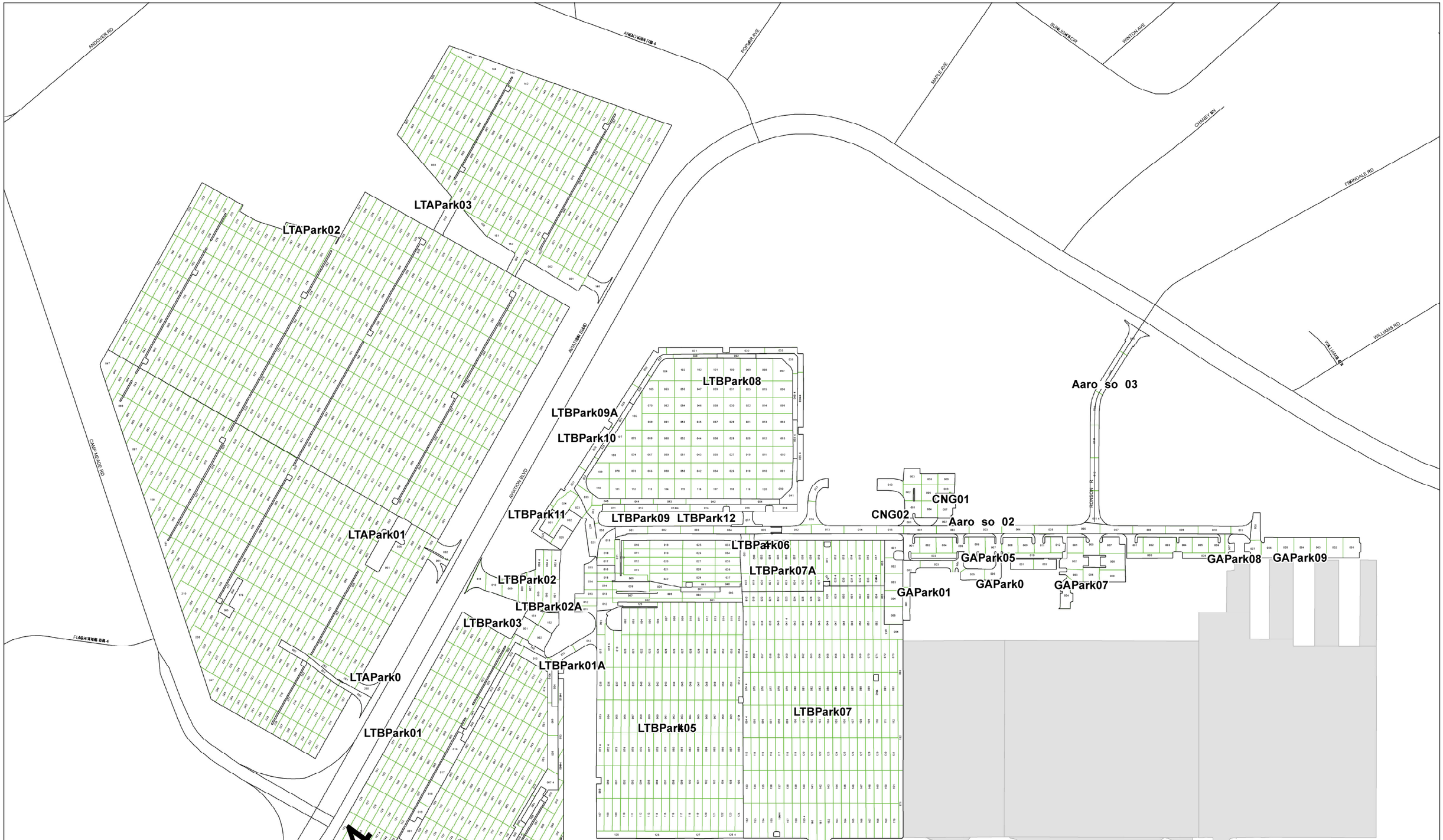
BWI Landside
Network Definition

Legend

Se tions

Sam le Units

September 2016



Page 5 f 10

BWI andside
Netw r
efiniti n

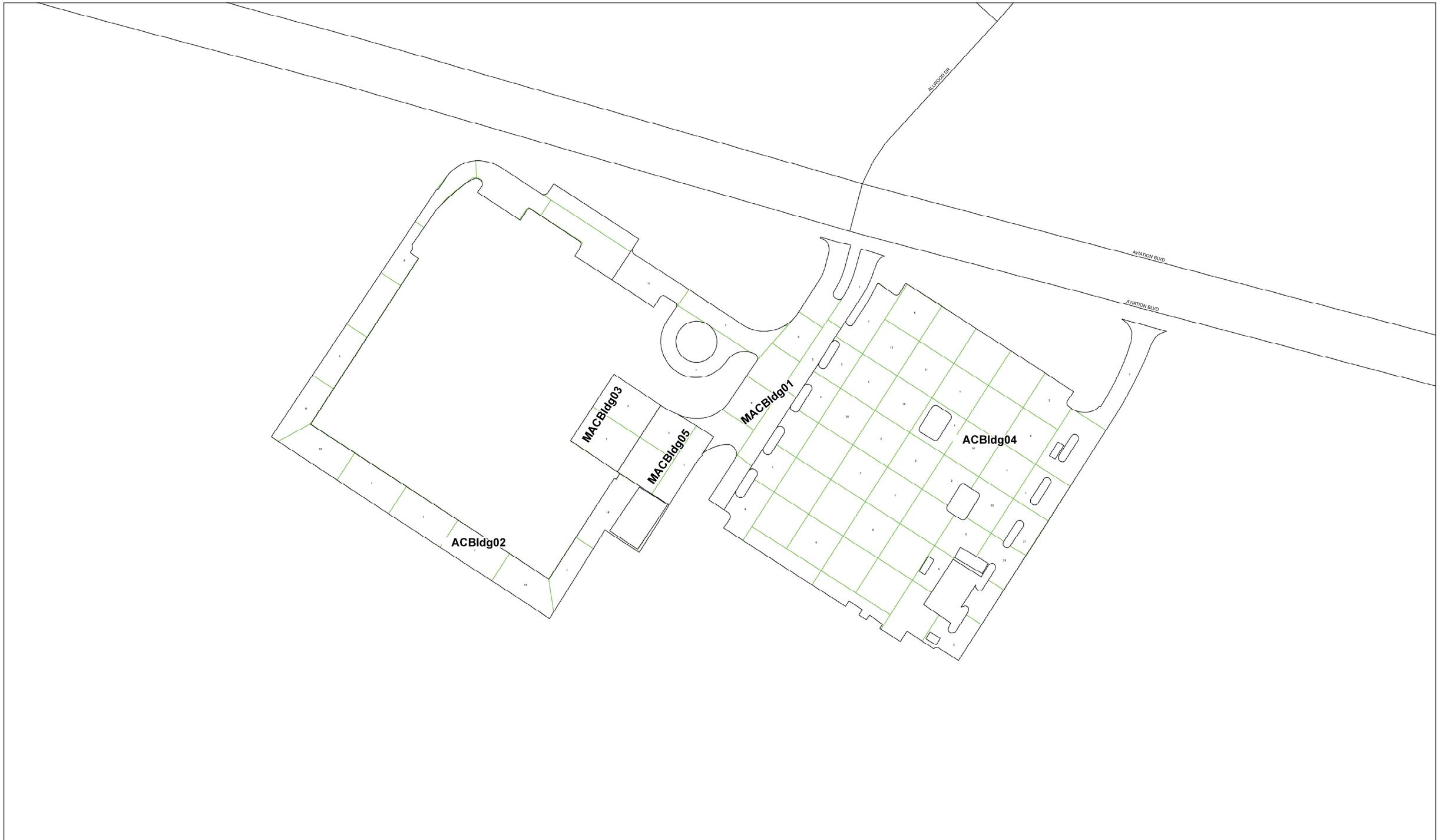
0 160 320 Feet

Le e d

Se ti ns

Samp e Units 4

September 2016



N E S W

62. 12 Feet

BWI Landside
Network Definition

Legend

- Sections
- Sample Units

September 2016

BWI L n s e
Networ
De n t on

0 115 230 Feet

Legen

Sect ons

S mple Un ts

September 2016

N E S W

0 210 420 Feet

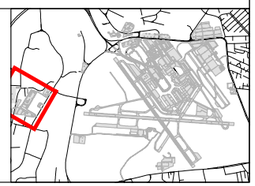
BWI Landside
Network Definition

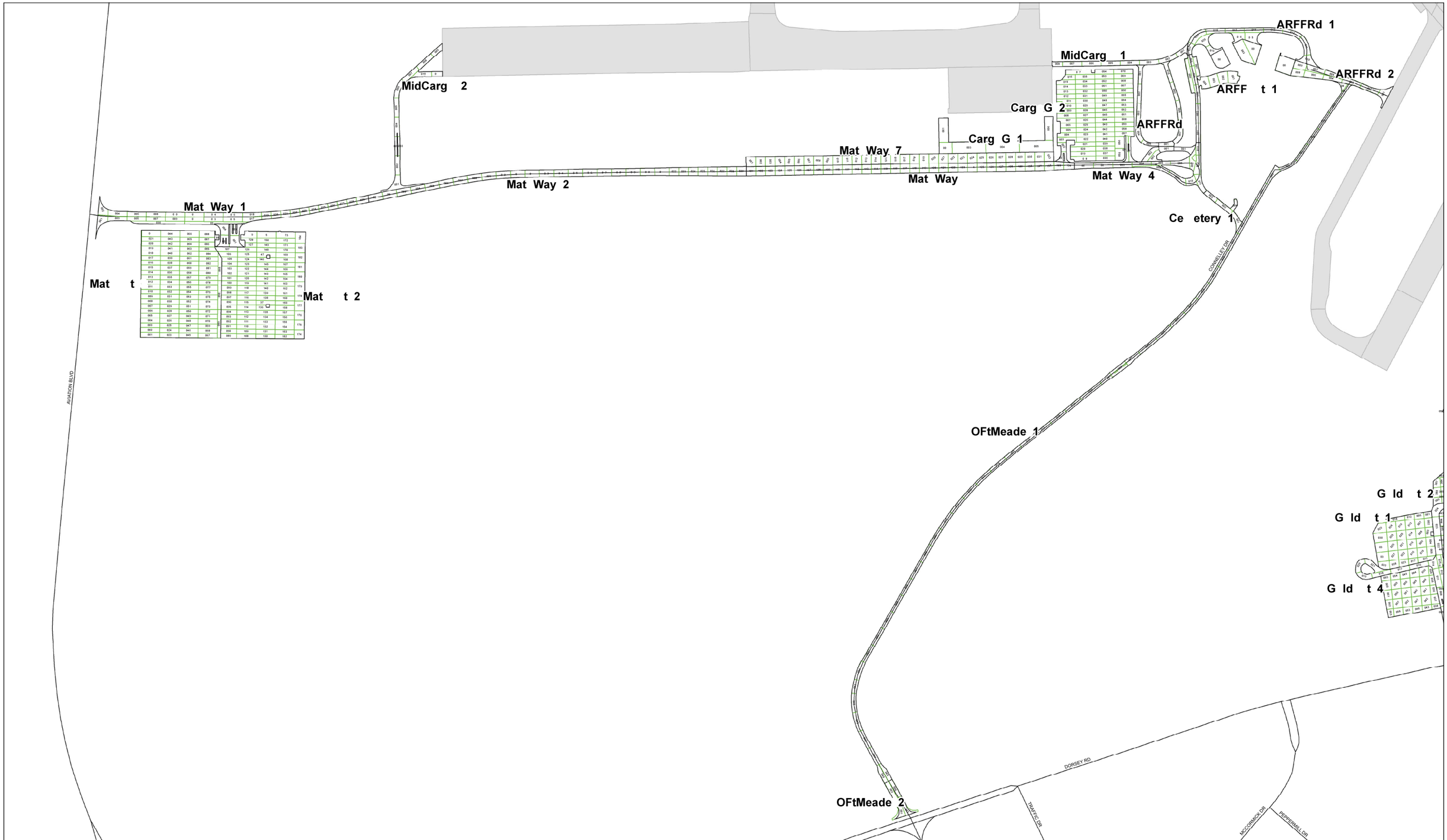
L g nd

ections

am le Units

September 2016





AECOM

PTS Pavement Technical Solutions

N W E S

0 75 550 Fee

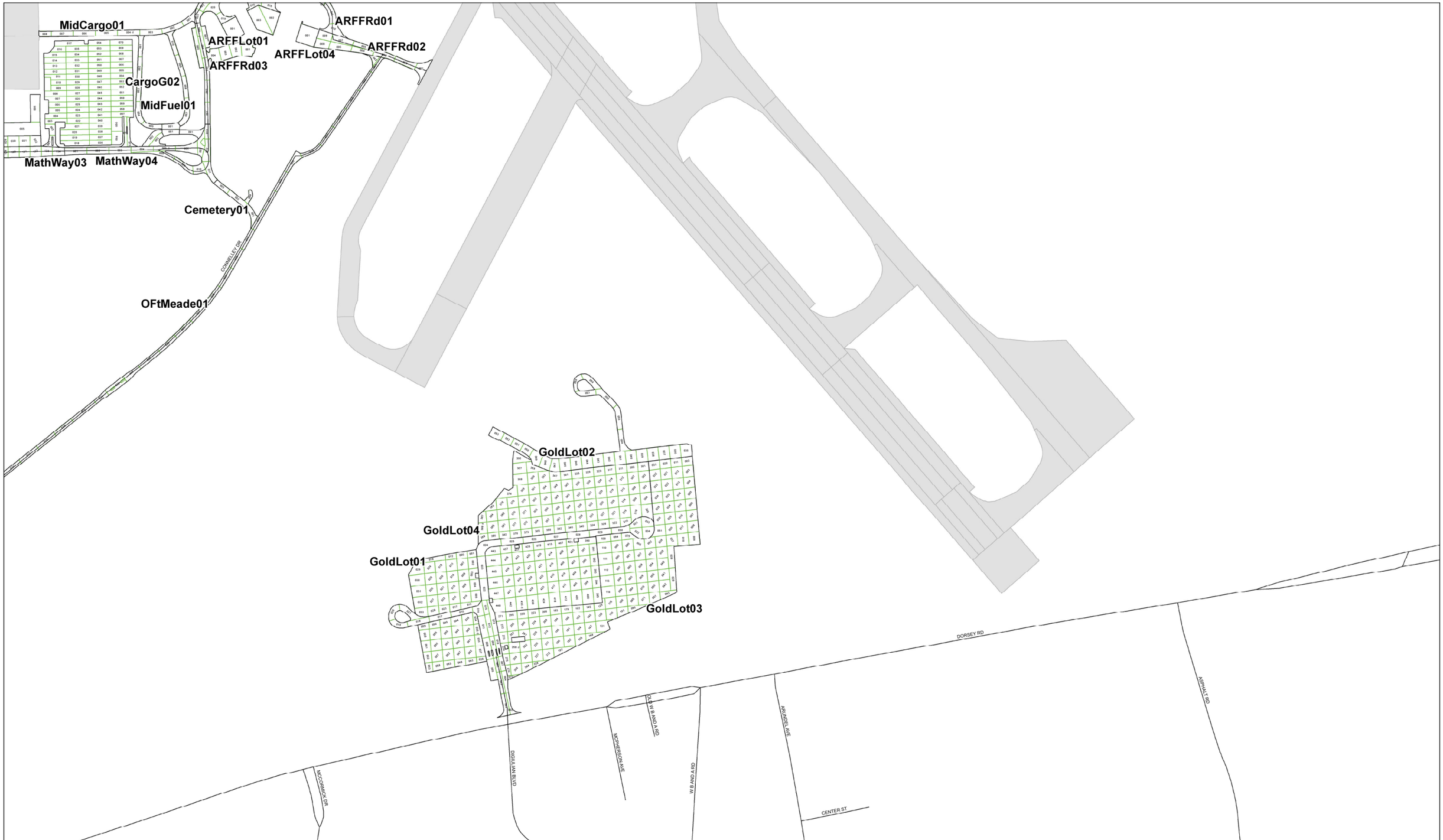
I Landside
e work
Defini ion

egend

ec ions

ample Uni s

September 2016



N
W E
S

0 237 5 475 d

BWI L ndsid
N work
D fini ion

Legend

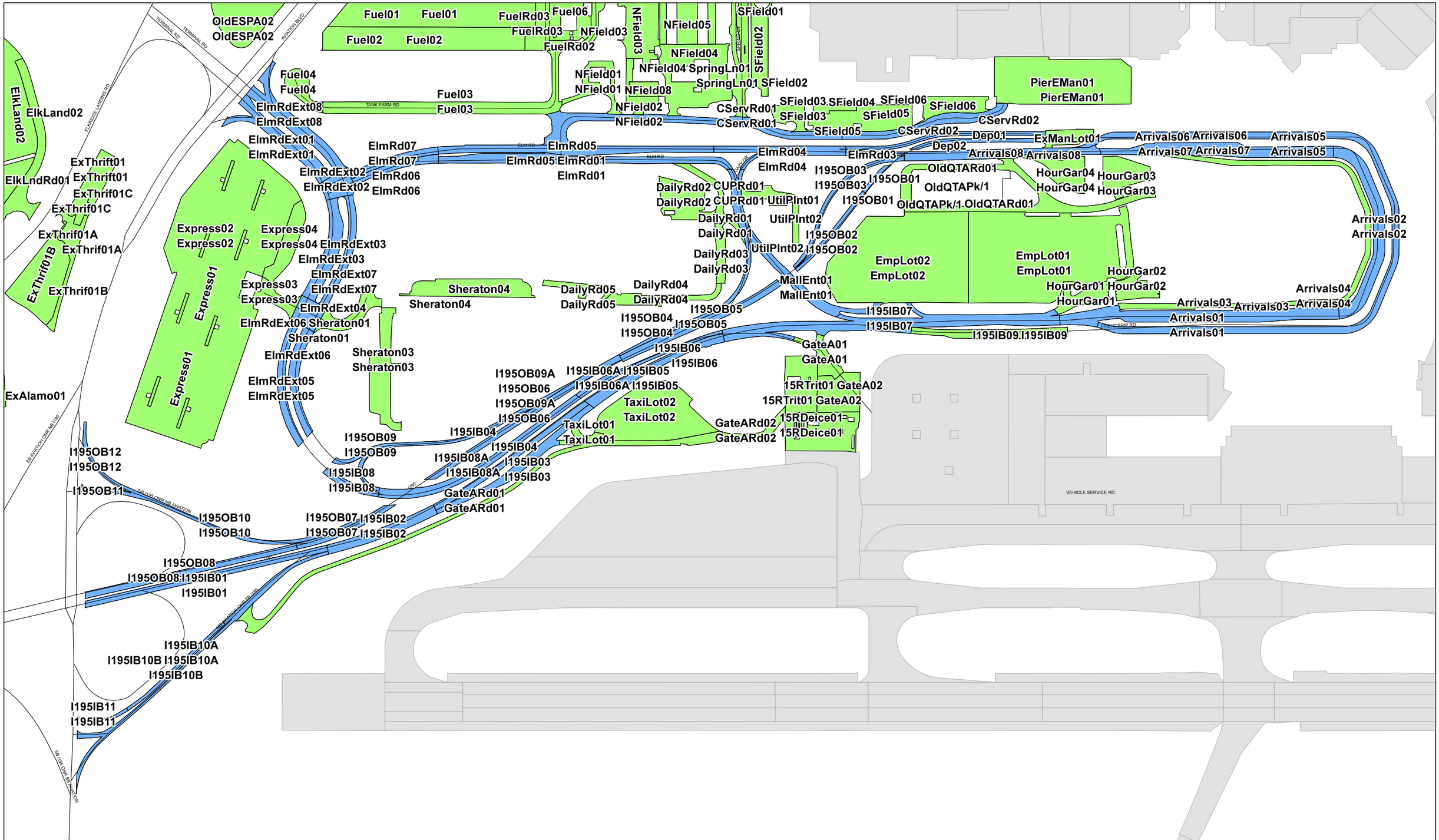
S c ions

S mpl Uni s

September 2016

Figure B-2

Pavement Survey Scope



Page 1 of 10

N E S W

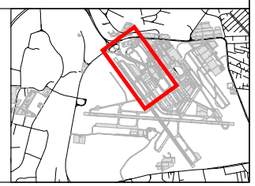
0 205 410 Feet

BWI Landside
PMP Scope and Survey Method

Visual Inspection

Laser Crack Measurement System (LCMS)

September 2016



P e2 o 1

BWI n si e
PMP S o e
n Sur ey Me o

Visual Inspection

Laser Crack Measurement System (LCMS)

14 2 Fee

September 2016

BWI Landside
PMP S o e
and S vey Me hod

0 140 280 Fee

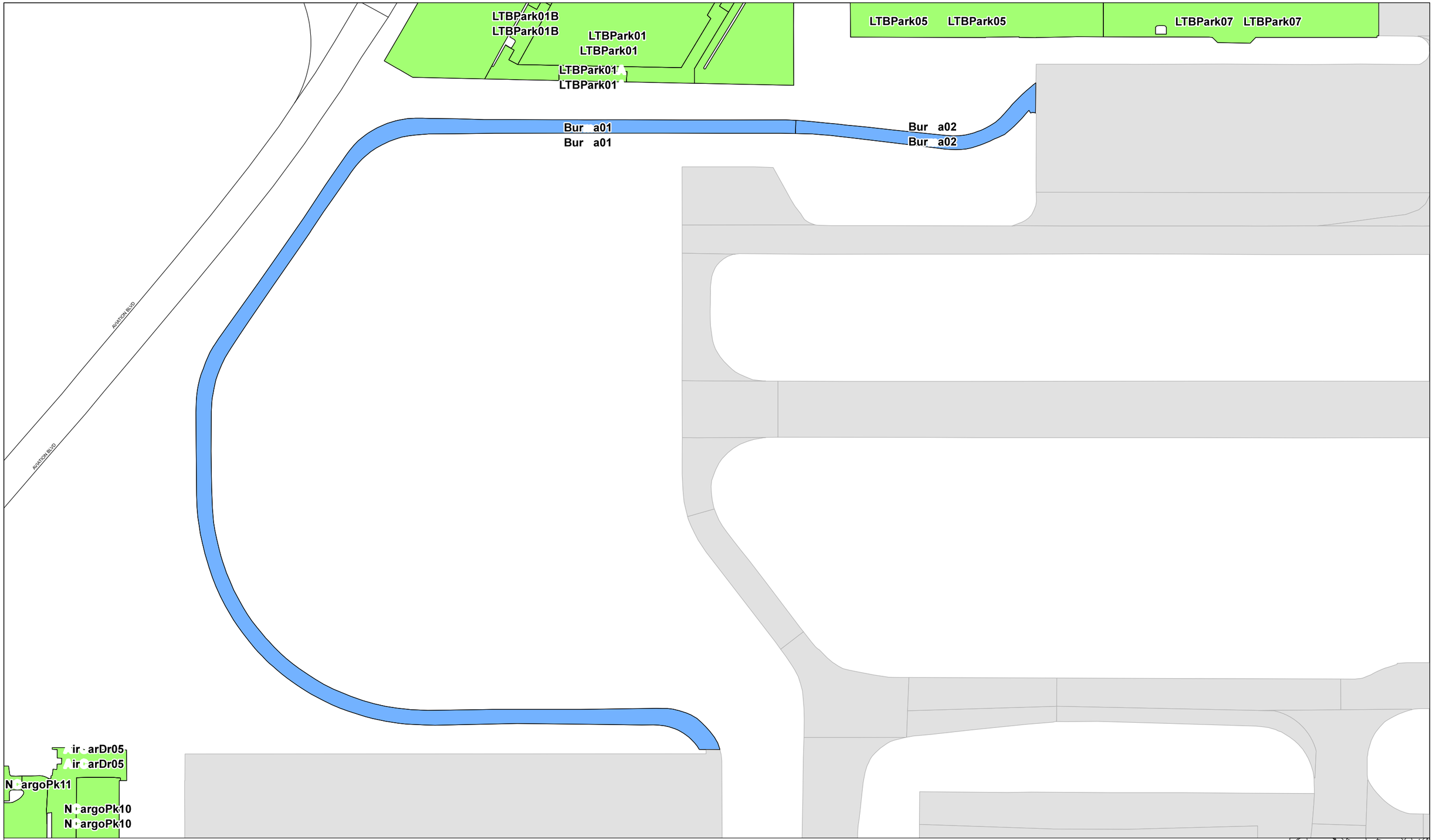
Visual Inspection

Laser Crack Measurement System (LCMS)

September 2016

AECOM

PTS Pavement Technical Solutions



AECOM

PTS Pavement Technical Solutions

N E S W

0 90 180 Feet

BWI Lands de
PMP Scope
and Survey Method

Visual Inspection

Laser Crack Measurement System (LCMS)

September 2016

N E S W

0 160 20 Feet

BWI L dside
PMP S o e
d S r ev Method

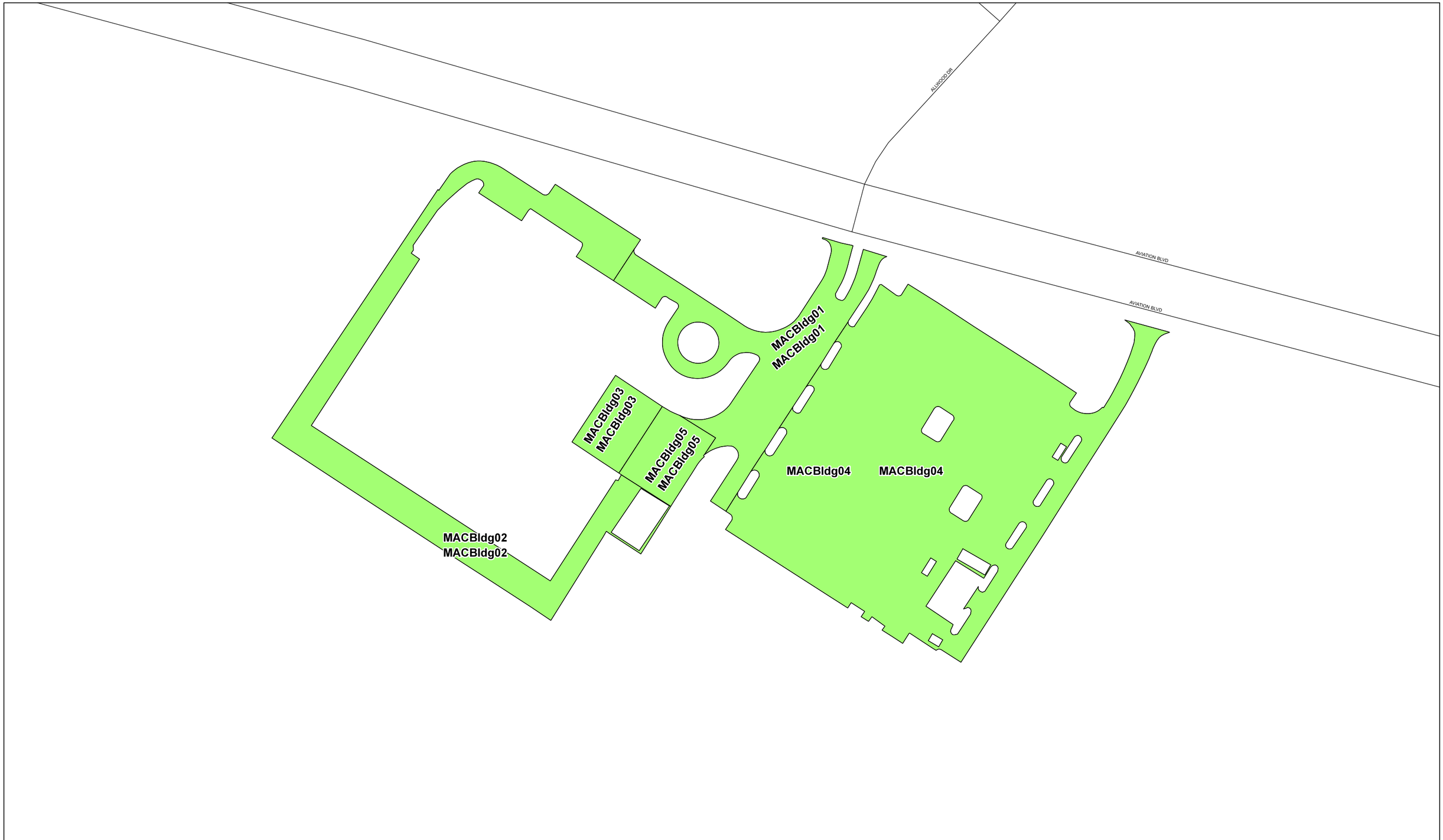
Visual Inspection

Laser Crack Measurement System (LCMS)

September 2016

AECOM

PTS Pavement Technical Solutions



Page of

AECOM PTS Pavement Technical Solutions

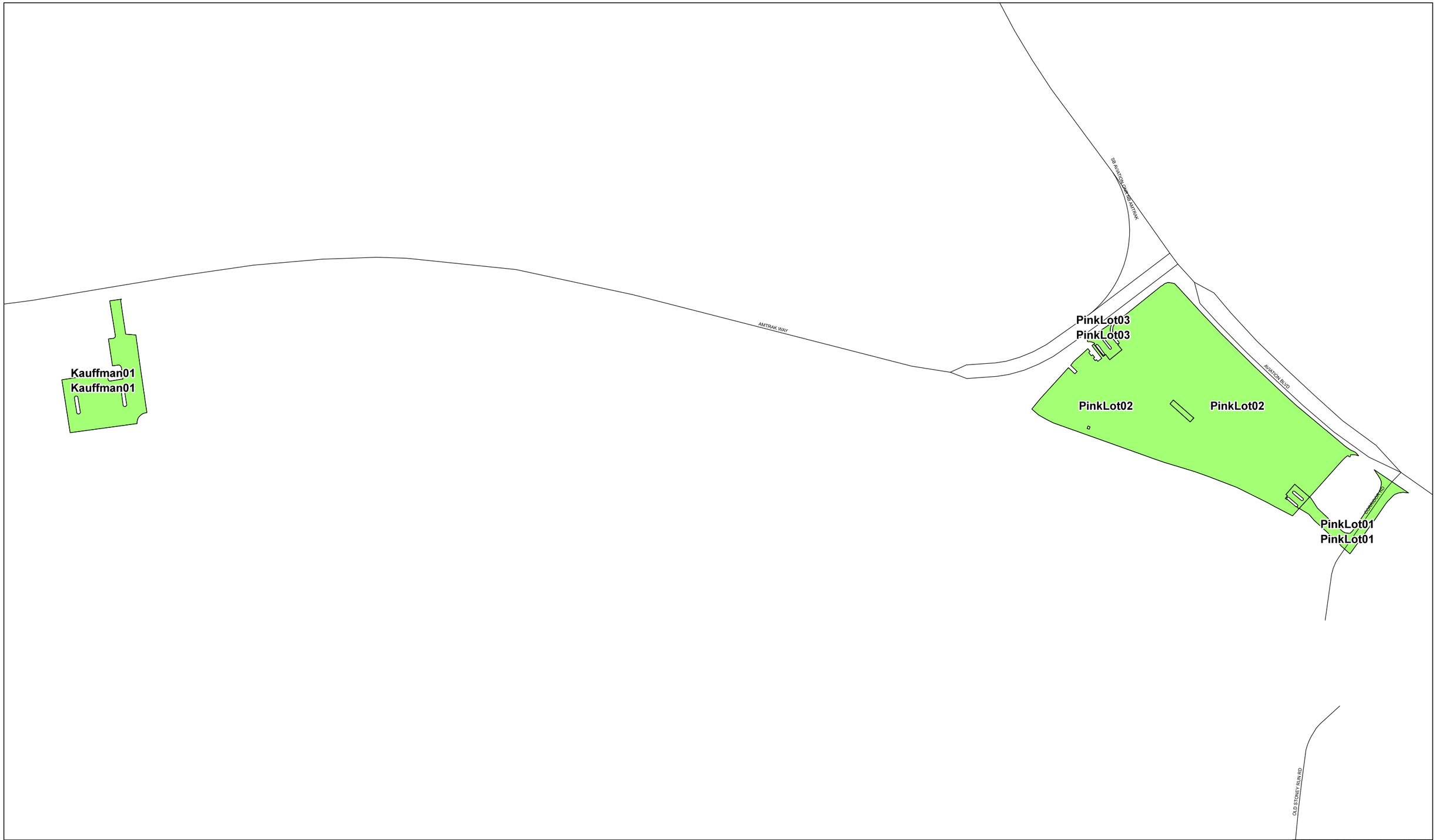
2 2 Fee

WI La si e
PMP Scope
a Survey Me ho

Visual Inspection

Laser Crack Measurement System (LCMS)

September 2016



BWI Landside
M Scope
and Surve Met od

0 115 230 Feet

Visual Inspection

Laser Crack Measurement System (LCMS)

September 2016

N E S W

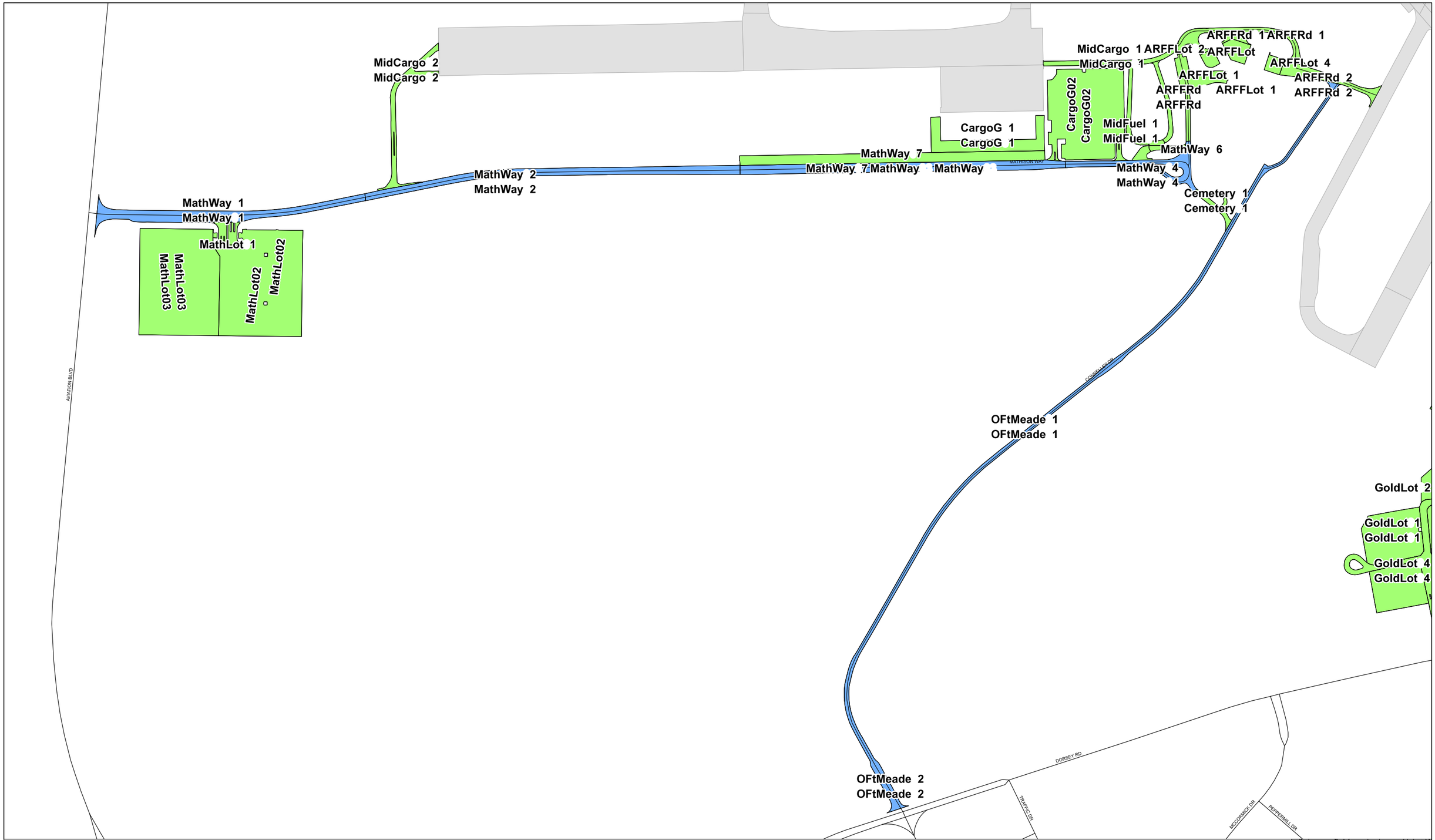
0 210 420 Feet

BW Landside
PMP Scope and Survev Method

Visual Inspection

Laser Crack Measurement System (LCMS)

September 2016



N
W E
S

0 2 5 550 F

B I L n si
PMP Scop
n Surv y M ho

Visual Inspection

Laser Crack Measurement System (LCMS)

September 2016

N
W E
S

0 237.5 475 Feet

BWI Landside
PMP Scope and Survey Method

Visual Inspection

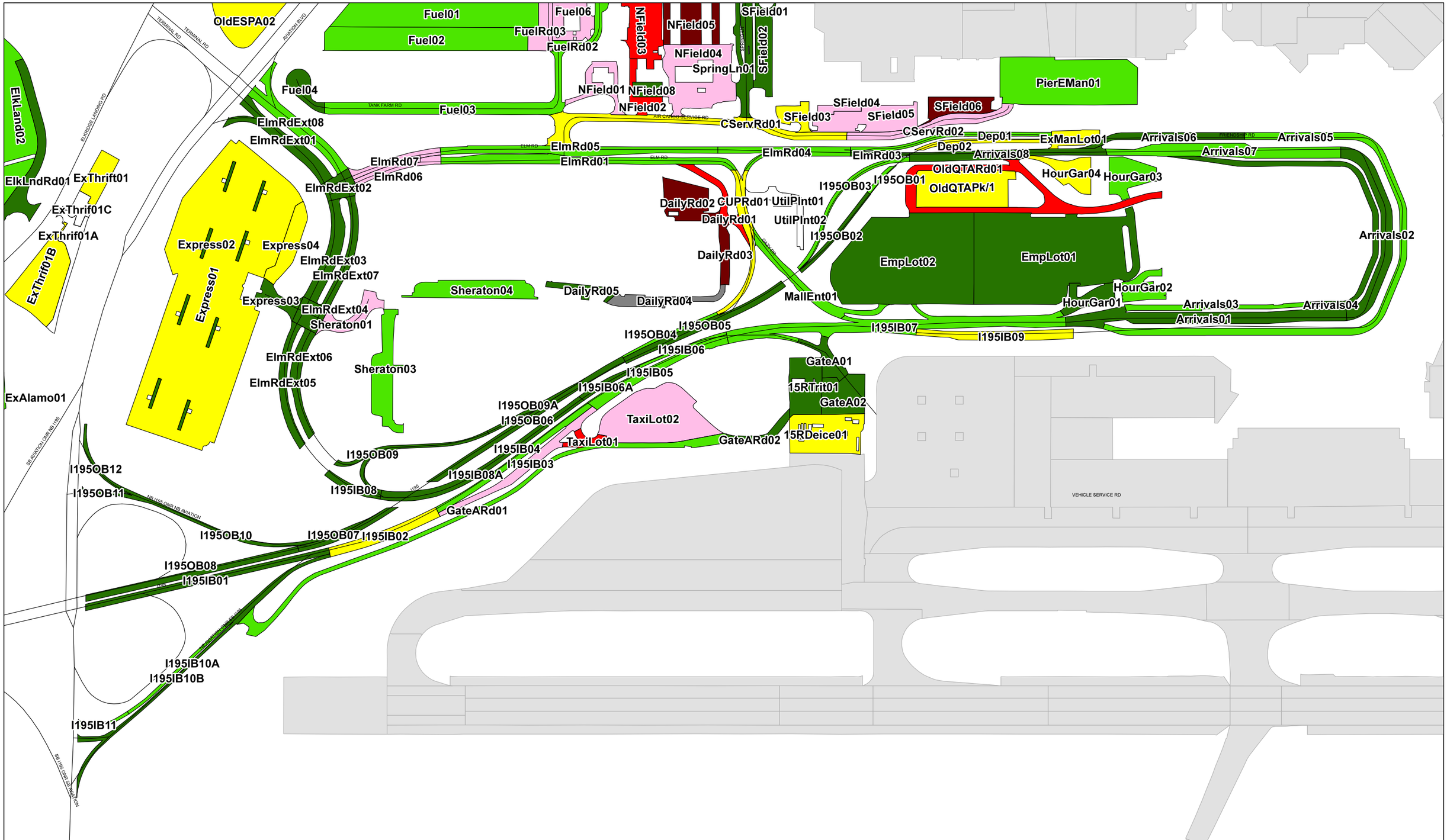
Laser Crack Measurement System (LCMS)

September 2016

AECOM

Figure B-3

Pavement Condition Index (PCI) Map - Section



AECOM

PTS Pavement Technical Solutions

N E S W

0 205 410 Feet

BWI Landside
Pavement Condition (2015)

PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)

September 2016

P ge 2 f

B I L n e
P e ent C n t n
(2 5)

I

86 - (G)
7 - 85 (S t f ct ry)
56 - 7 (F r)
- 55 (P r)
26 - (Very P r)
- 25 (Ser u)
- (F le)

5 29 Feet

September 2016

AECOM PTS Pavement Technical Solutions

P g 3 of 10

BWI L dsid
P v m Co di io
(2015)

N E S W

0 1 0 280 F

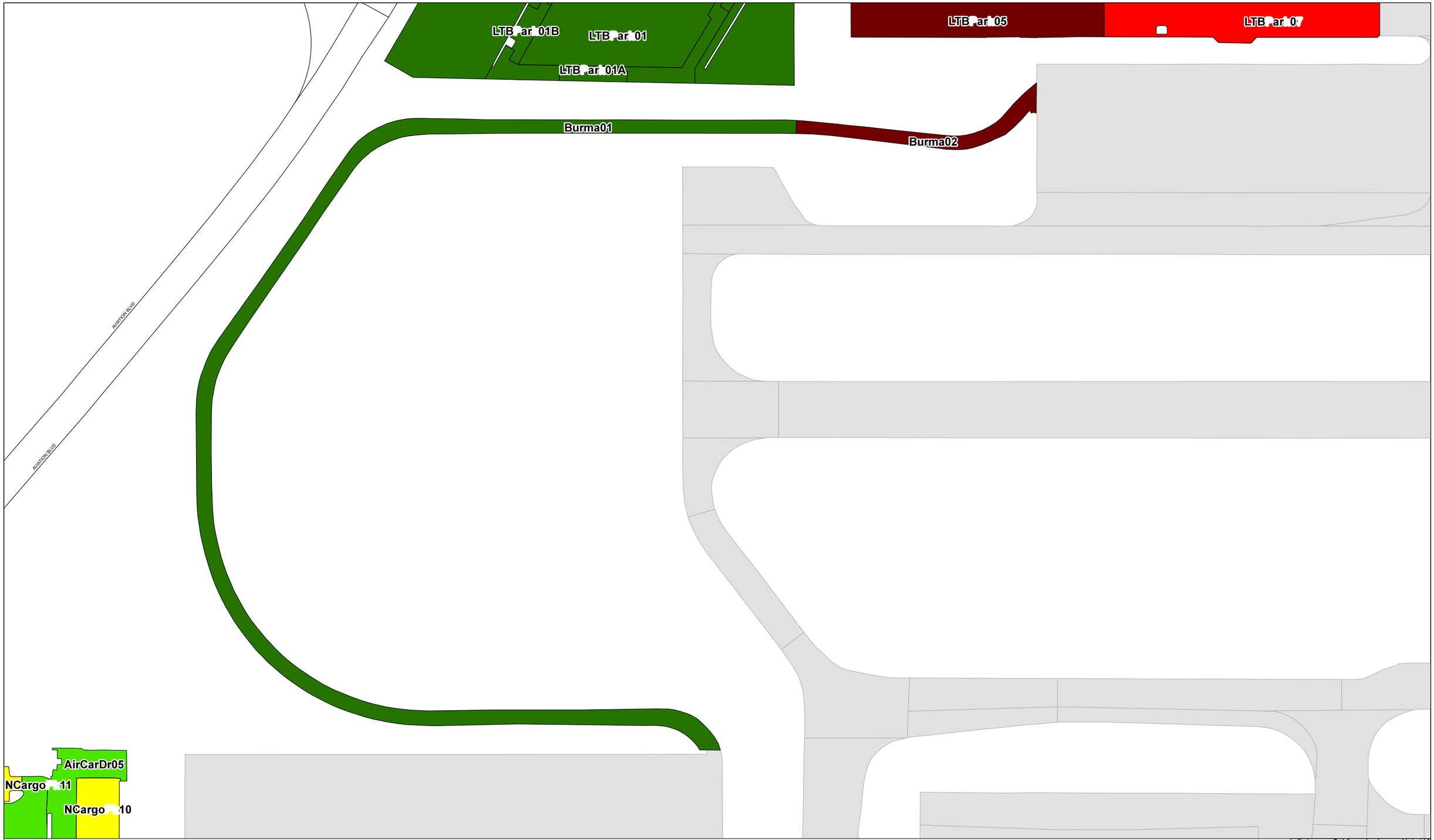
PCI

- 86 - 100 (Good)
- 1 - 85 (S isf c o y)
- 56 - 0 (F i)
- 1 - 55 (Poo)
- 26 - 0 (V y Poo)
- 11 - 25 (S io s)
- 0 - 10 (F il d)

September 2016

AECOM

PTS Pavement Technical Solutions



Page 4 of 10

BWI Landside
Pavement Condition
(2015)

N E S W

0 90 180 Feet

C

86 100 (Good)	56 70 (Fair)	26 40 (Very Poor)	0 10 (Failed)
71 85 (Satisfactory)	41 55 (Poor)	11 25 (Serious)	

September 2016

AECOM

PTS Pavement Technical Solutions

a e 5 of 10

BWI Landside
a ement Condition
2015)

N E S W

0 160 320 eet

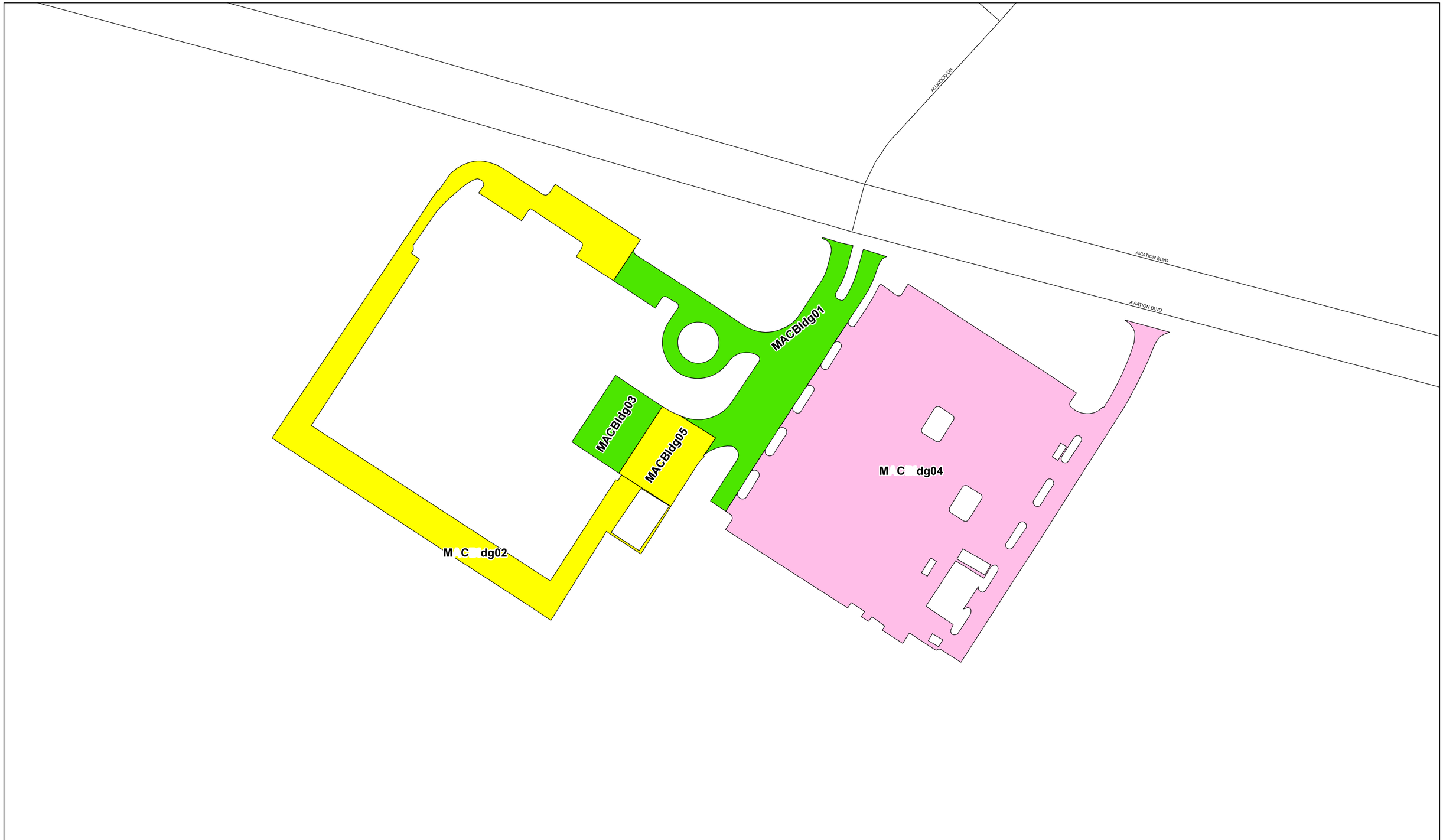
P

86 - 100 Good)
1 - 85 Satisfa tor)
56 - 0 air)
1 - 55 oor)
26 - 0 Ver oor)
11 - 25 Serio s)
0 - 10 ailed)

September 2016

AECOM

PTS Pavement Technical Solutions



0 62.5 125 Feet

BWI Landside
Pavement Condition
(2015)

PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)

September 2016

P 7 o 10

B IL n si
P v m nt Con ition
2015)

0 115 230 F t

PCI

- 86 - 100 Goo)
- 71 - 85 S tis ctory)
- 56 - 70 F ir)
- 41 - 55 Poor)
- 26 - 40 ry Poor)
- 11 - 25 S rious)
- 0 - 10 F il)

September 2016

AECOM

PTS Pavement Technical Solutions

N E S W

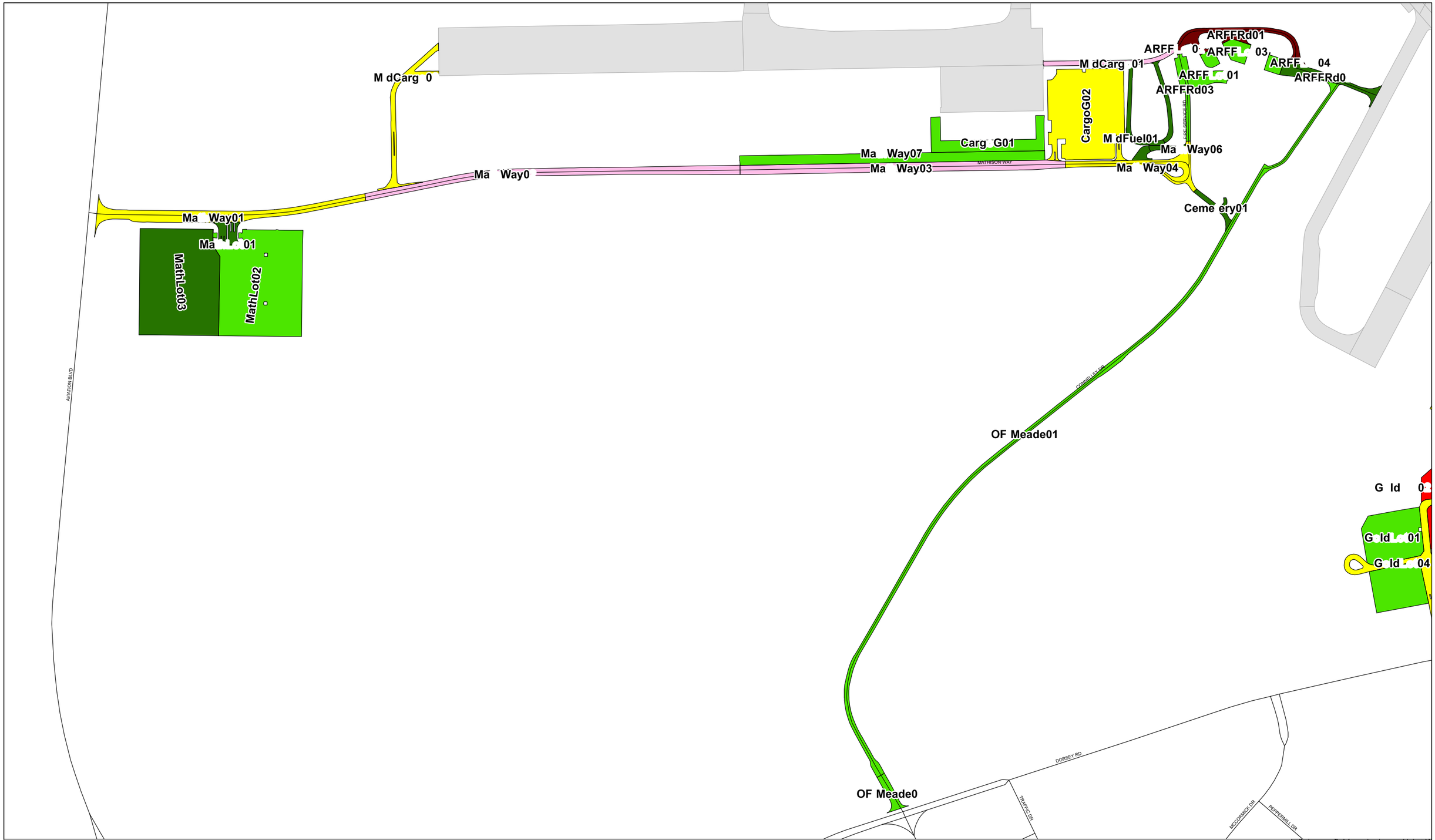
0 210 420 Feet

B I Landside
Pave ent Condition (2015)

PCI

- 86 100 (Good)
- 1 85 (Satisfactory)
- 56 0 (Fair)
- 41 55 (Poor)
- 26 40 (Very Poor)
- 11 25 (Serious)
- 0 10 (Failed)

September 2016



N
W E
S

0 275 550 eet

W Landside
Pavement ondition (2015)

PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (air)
- 41 - 55 (Poor)
- 26 - 40 (ery Poor)
- 11 - 25 (Serious)
- 0 - 10 (ailed)

September 2016

AECOM PTS Pavement Technical Solutions

Page 0 of 0

W Land ide

Pavement Condition

20 5)

PC

86 00 ood)
7 85 Sati factory)
56 70 Fair)
4 55 Poor)
26 40 ery Poor)
25 Seriou)
0 0 Failed)

0 237.5 475 Feet

AECOM

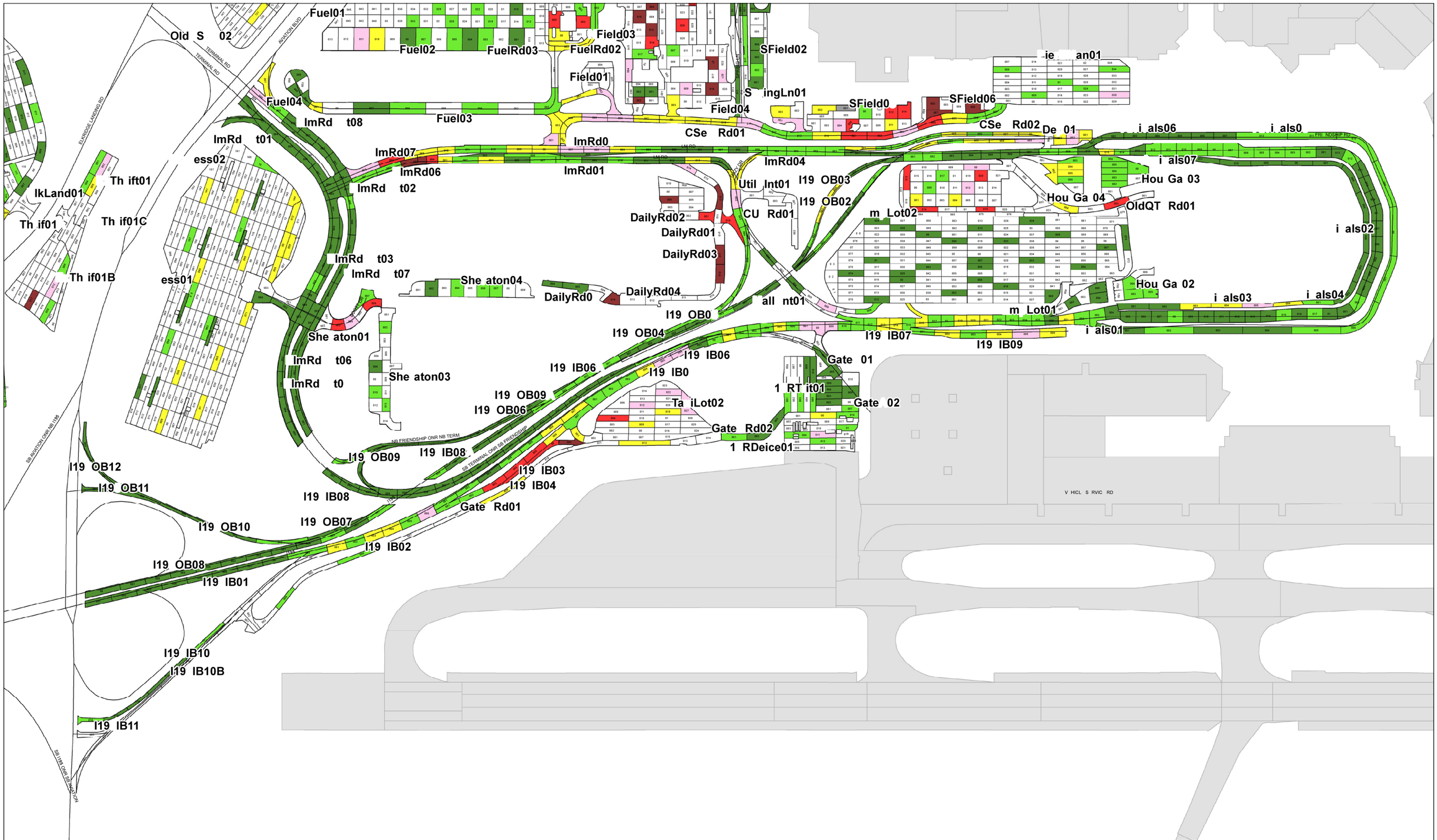
PTS Pavement Technical Solutions

September 2016

AECOM

Figure B-4

Pavement Condition Index (PCI) Map – Sample Unit



Page 1 of 10

BWI Landside

Sa p e Unit Pave ent Condition (2015)

N E S W

0 205 410 Feet

CI

- 6 - 100 (Good)
- 71 - 5 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Fai ed)

September 2016

AECOM

PTS Pavement Technical Solutions

g 2 of 10

N E S W

0 145 290 F t

WI L n i

S mpl nit v m nt P on ition (2015)

PC

- 86 - 100 (Goo)
- 71 - 85 (S ti f ctory)
- 56 - 70 (F ir)
- 41 - 55 (oor)
- 26 - 40 (V ry oor)
- 11 - 25 (S riou)
- 0 - 10 (F il)

September 2016

AECOM

PTS Pavement Technical Solutions

Page 3 o 10

B I Landside

Sam le Unit Pa ement ondition (2015)

N E S W

0 140 280 Feet

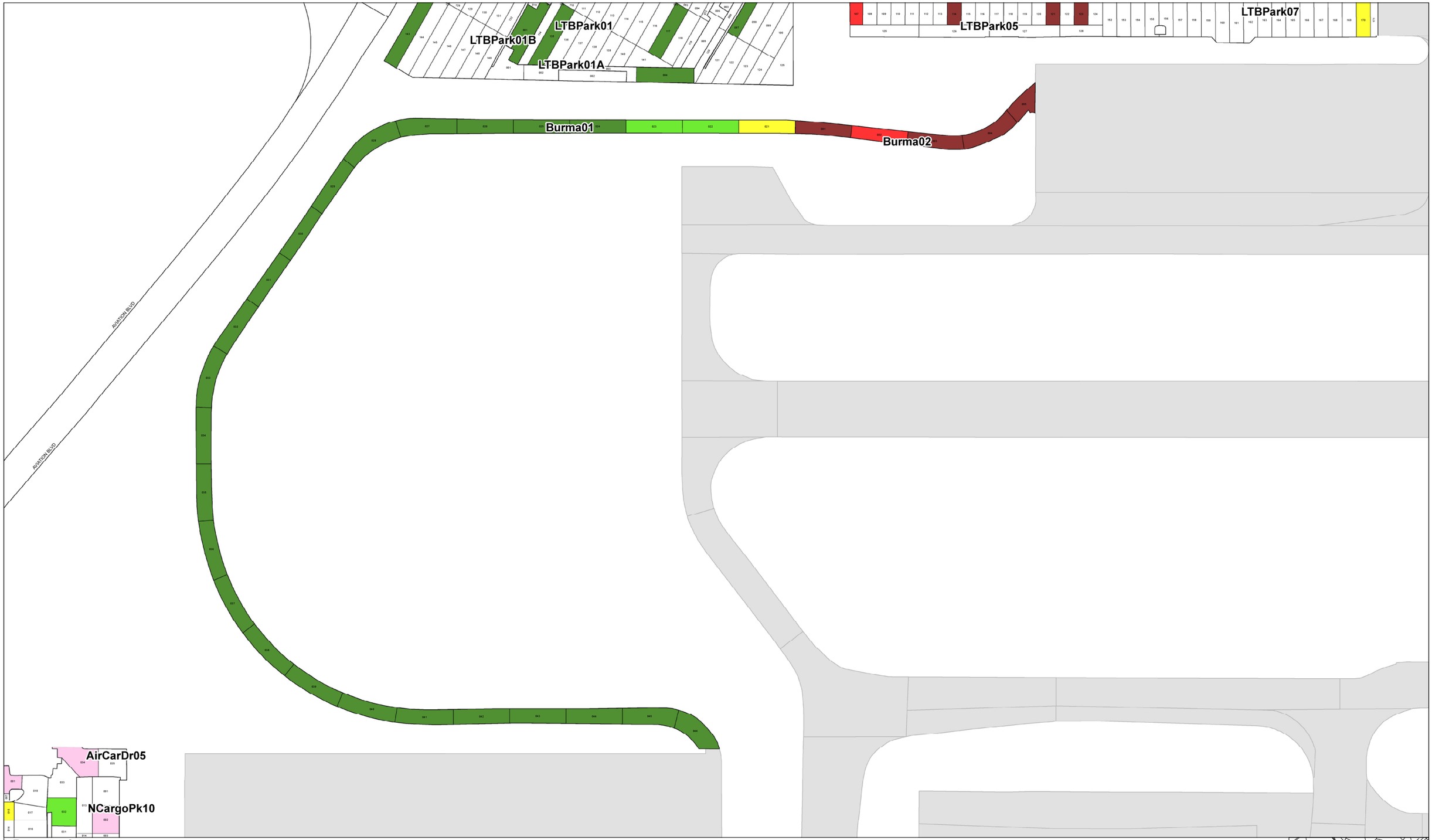
PCI

- 86 - 100 (ood)
- 71 - 85 (Satis a tory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (ery Poor)
- 11 - 25 (Serio s)
- 0 - 10 (Failed)

September 2016

AECOM

PTS Pavement Technical Solutions



BWI Landside

Sample Unit Pavement Condition (2015)

0 90 180 Feet

PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)

September 2016

BWI Landside

Sample Unit Pavement Condition (2015)

N E S W

0 160 320 Feet

PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)

September 2016

AECOM

PTS Pavement Technical Solutions

AECOM

PTS Pavement Technical Solutions

N E S W

0 62.5 125 Feet

BWI Landside

Sample Unit Pavement Condition (2015)

PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)

September 2016

AECOM PTS Pavement Technical Solutions

N E S W

0 115 230 Feet

BWI Landside
Sample Unit Pavement Condition (2015)

PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)

September 2016

BWI Landside

Sample Unit Pavement Condition (2015)

N E S W

0 210 420 Feet

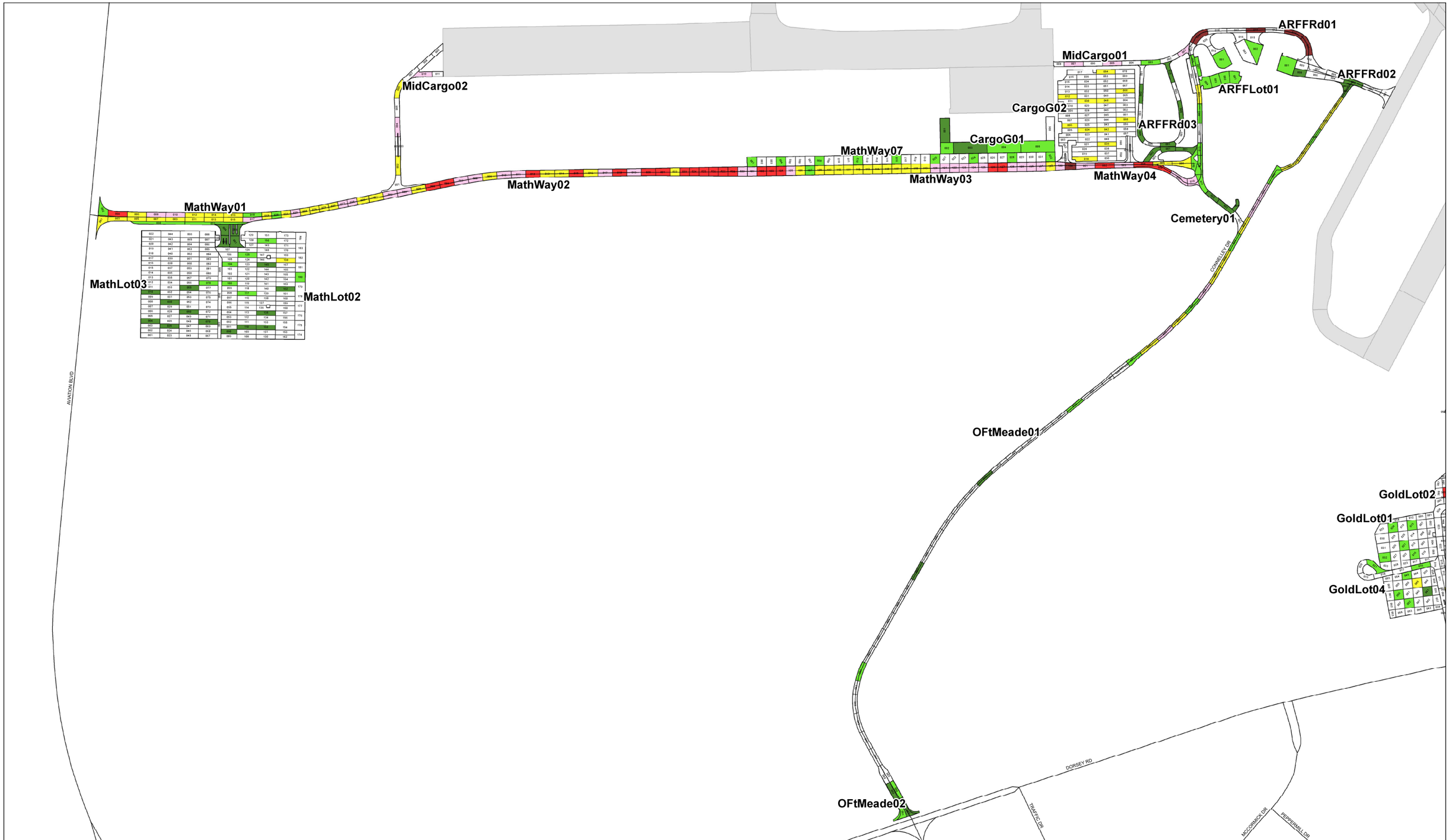
PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)

September 2016

AECOM

PTS Pavement Technical Solutions



N
W E
S

0 275 550 Feet

BWI Landside
Sample Unit Pavement Condition
(2015)

PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)

September 2016

AECOM

PTS Pavement Technical Solutions

BWI Landside

Sample Unit Pavement Condition (2015)

N
W E
S

0 237.5 475 Feet

PCI

- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)

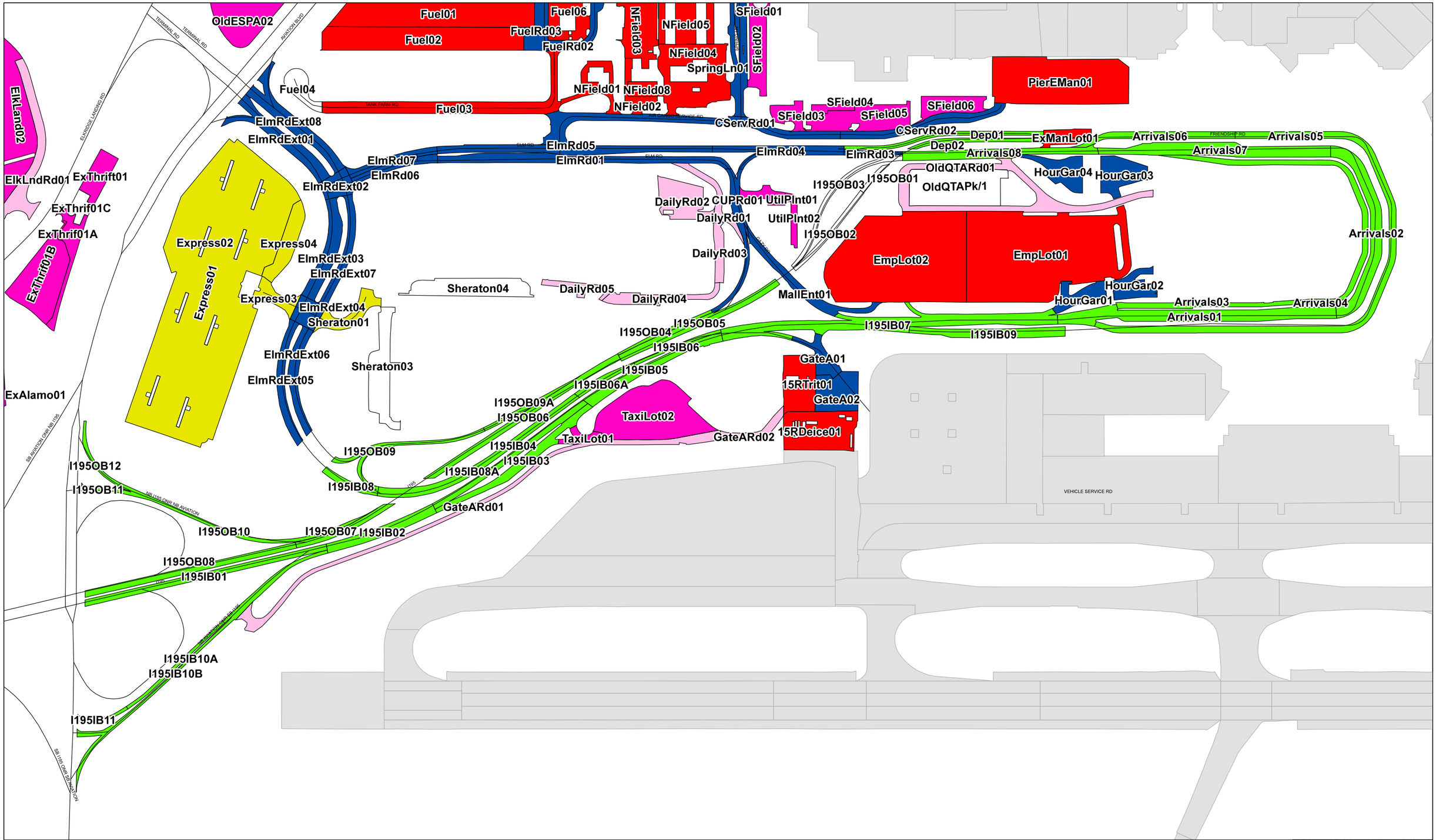
September 2016

AECOM

PTS Pavement Technical Solutions

Figure B-5

Priority Map



BWI Landside
Priority

N E S W

0 205 410 Feet

Priority

1 2 3 4 5 6

September 2016

AECOM PTS Pavement Technical Solutions

Page 2 of 10

BWI Landside
Priority

N E S W

0 145 290 Feet

Priority

1 2 3 4 5 6

September 2016

AECOM PTS Pavement Technical Solutions

BWI Landside
Priority

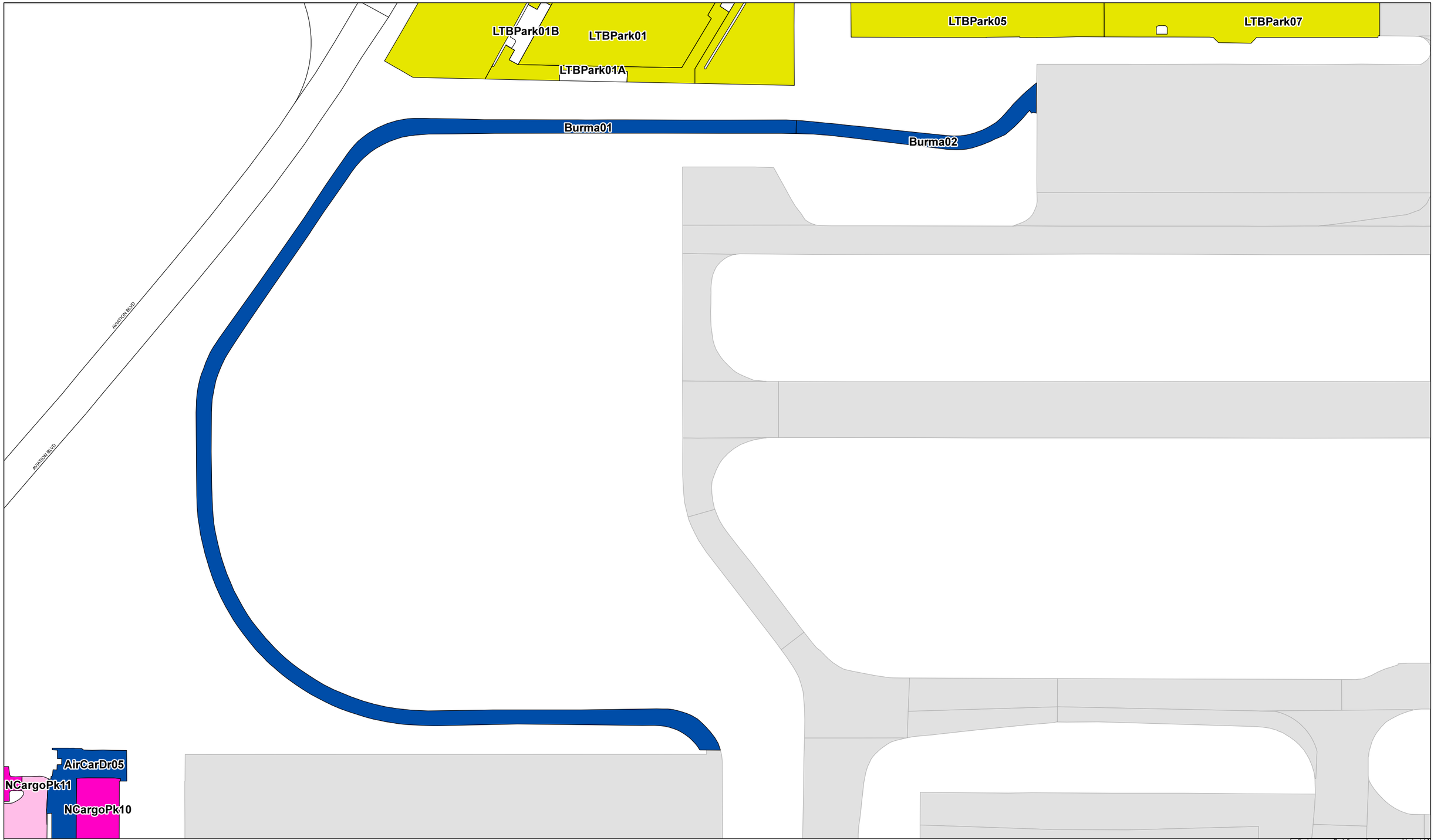
Priority

1
2
3
4
5
6

September 2016

AECOM

PTS Pavement Technical Solutions



BWI Landside
Priority

N E S W

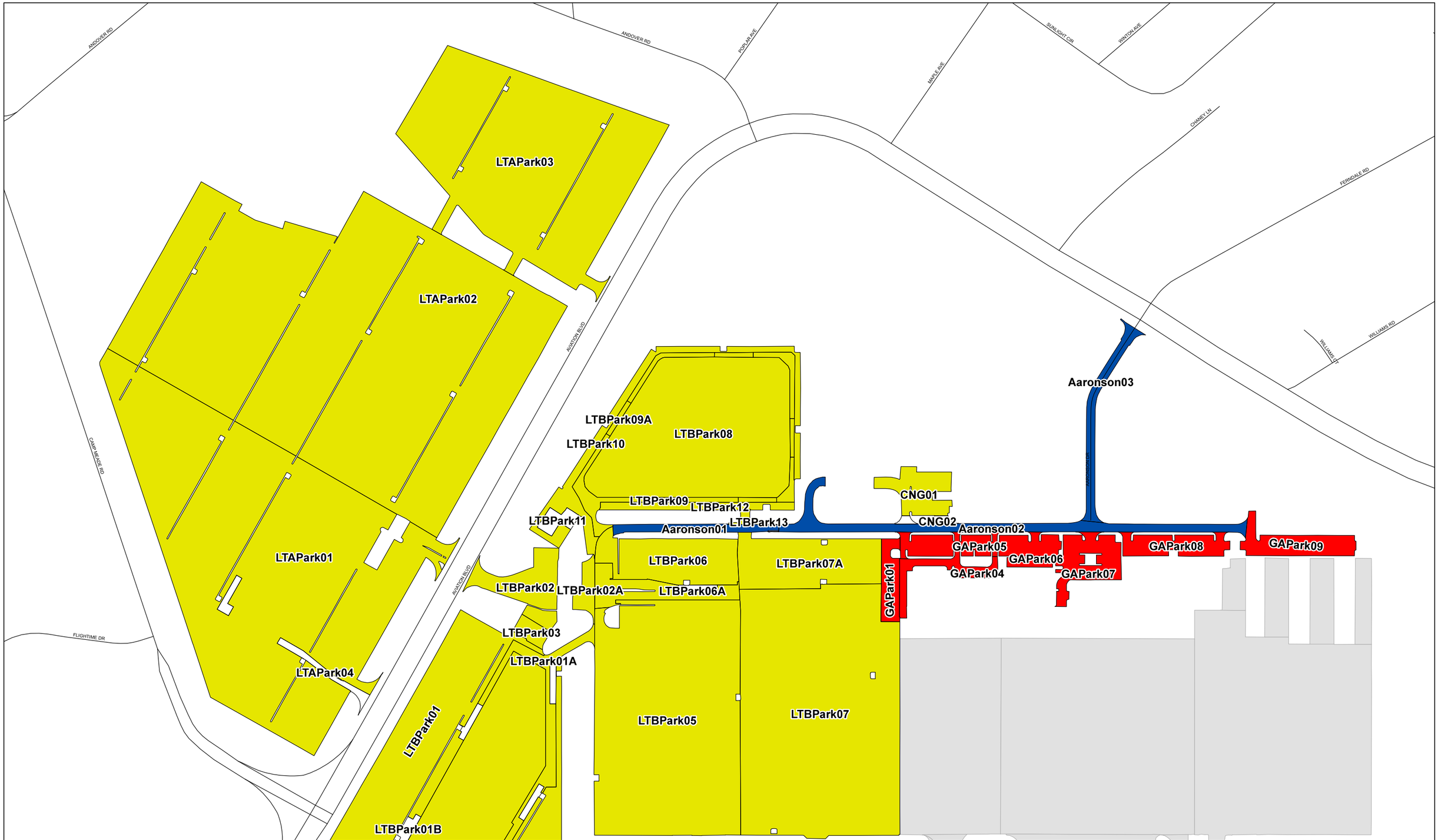
0 90 180 Feet

Priority

1 2 3 4 5 6

September 2016

AECOM PTS Pavement Technical Solutions



Page 5 of 10

BWI Landside
Priority

N E S W

0 160 320 Feet

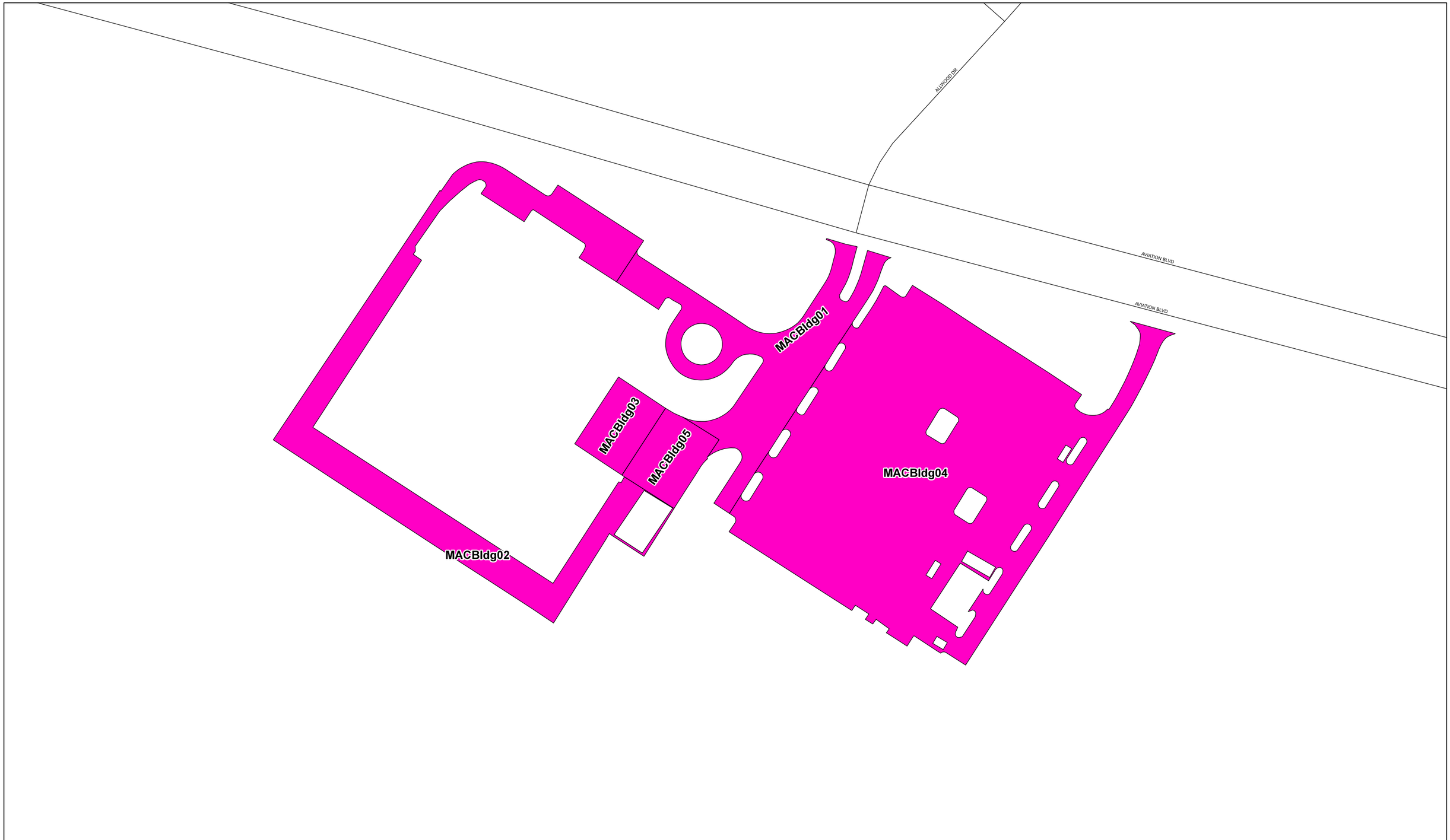
Priority

1
2
3
4
5
6

September 2016

AECOM

PTS Pavement Technical Solutions



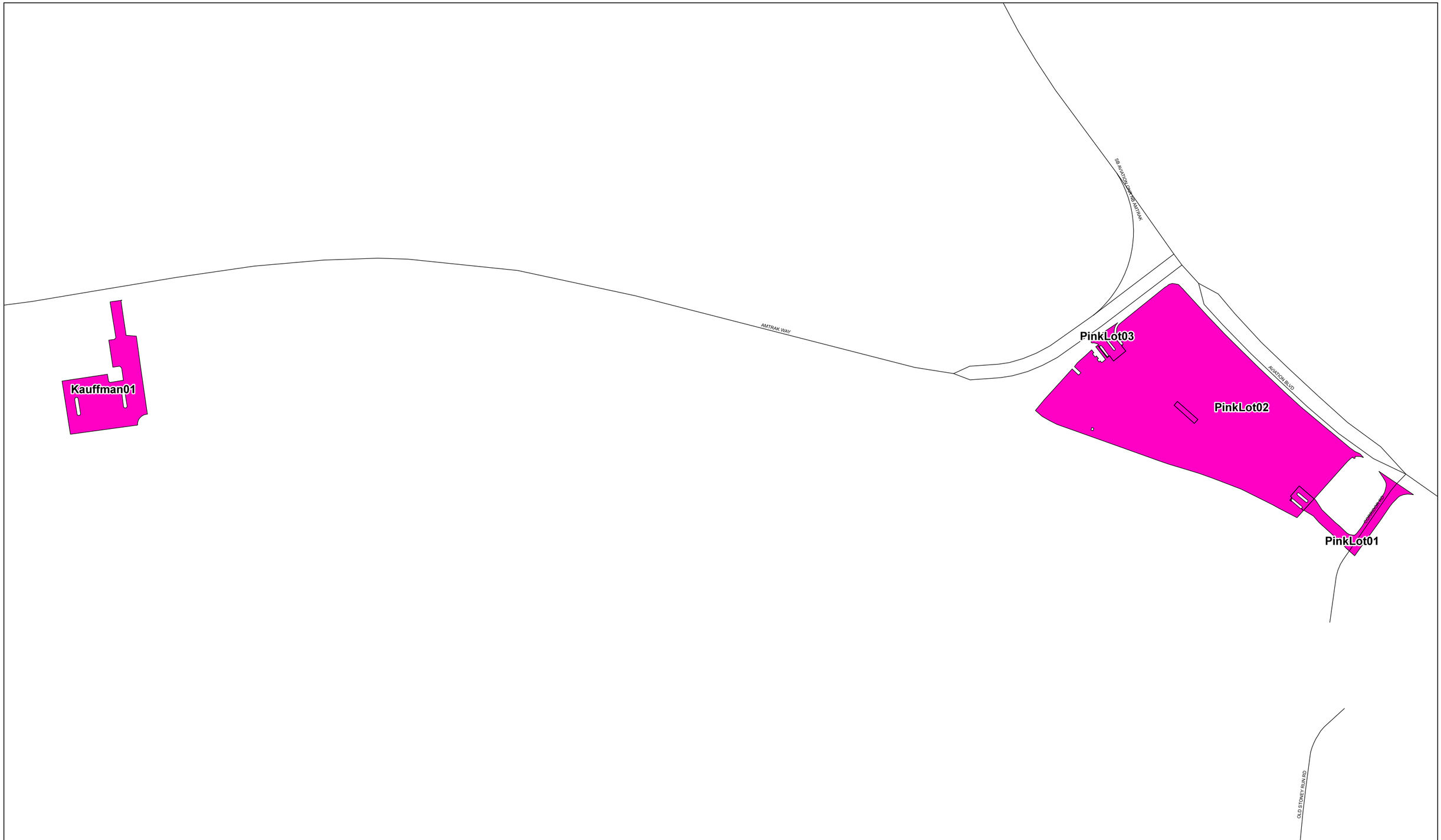
BWI Landside
Priority

0 62.5 125 Feet

Priority

1 2 3 4 5 6

September 2016



BWI Landside
Priority

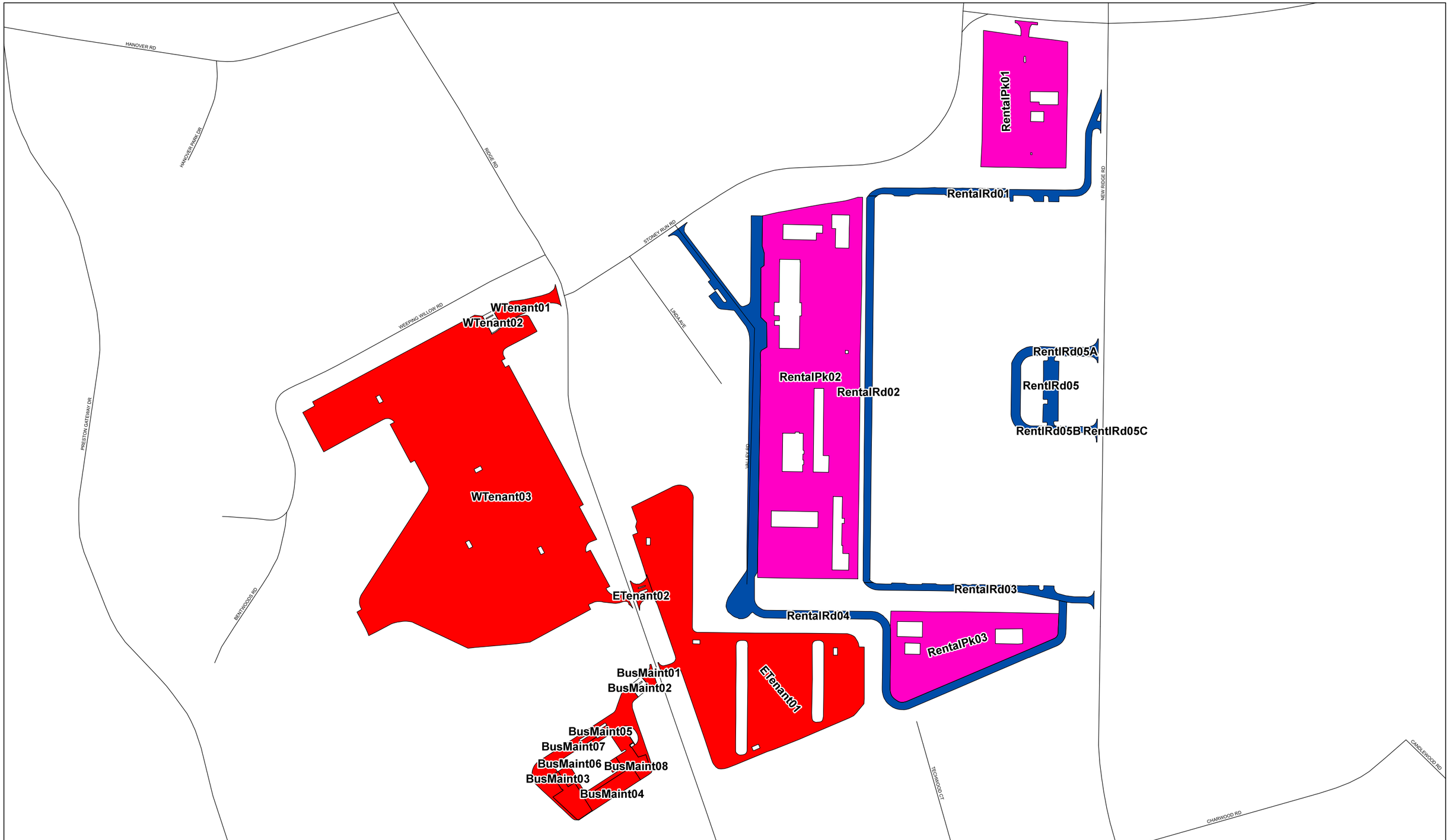
N E S W

0 115 230 Feet

Priority

1 2 3 4 5 6

September 2016



BWI Landside
Priority

N E S W

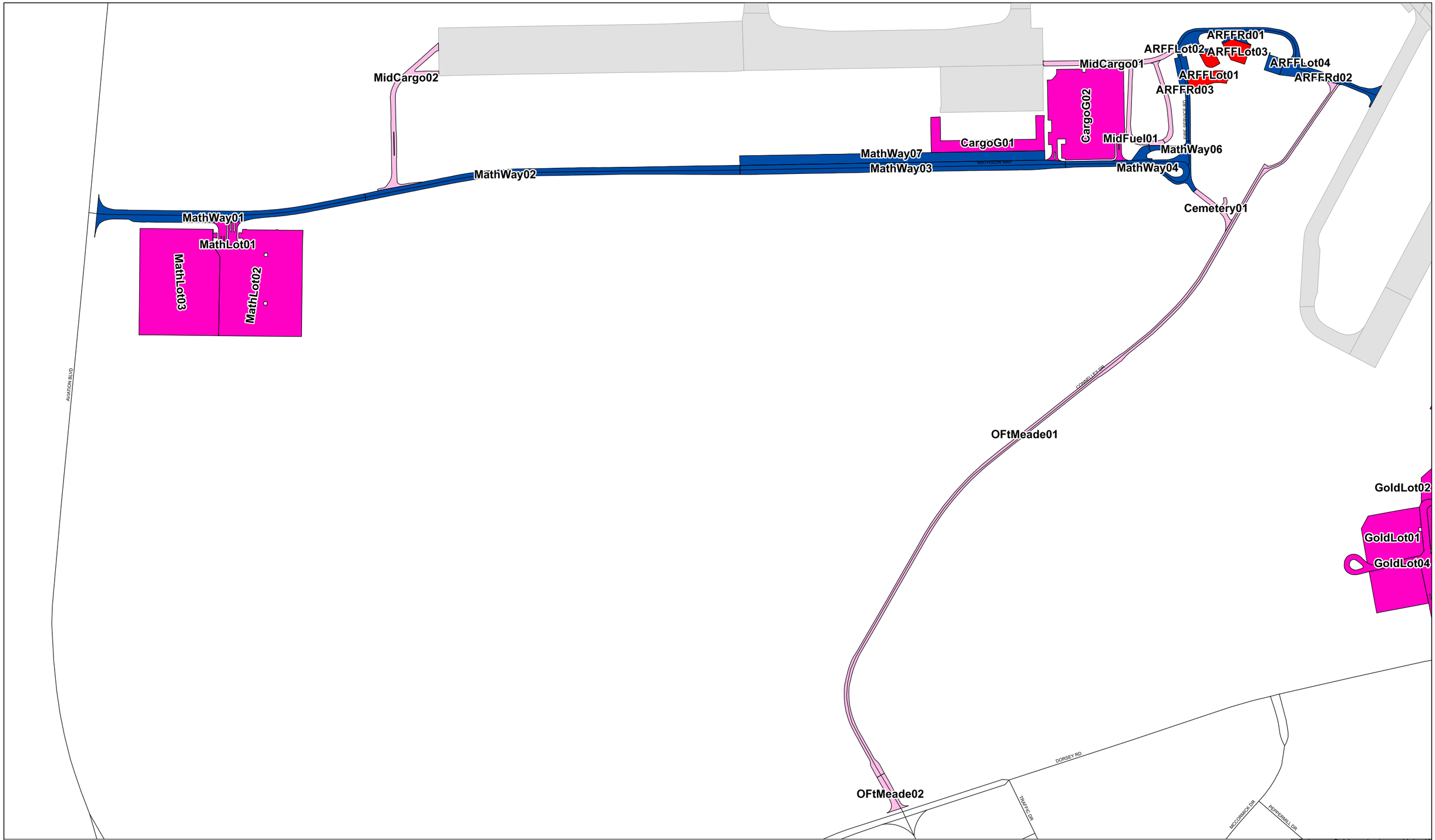
0 210 420 Feet

Priority

1 2 3 4 5 6

September 2016

AECOM PTS Pavement Technical Solutions



BWI Landside
Priority

N
W E
S

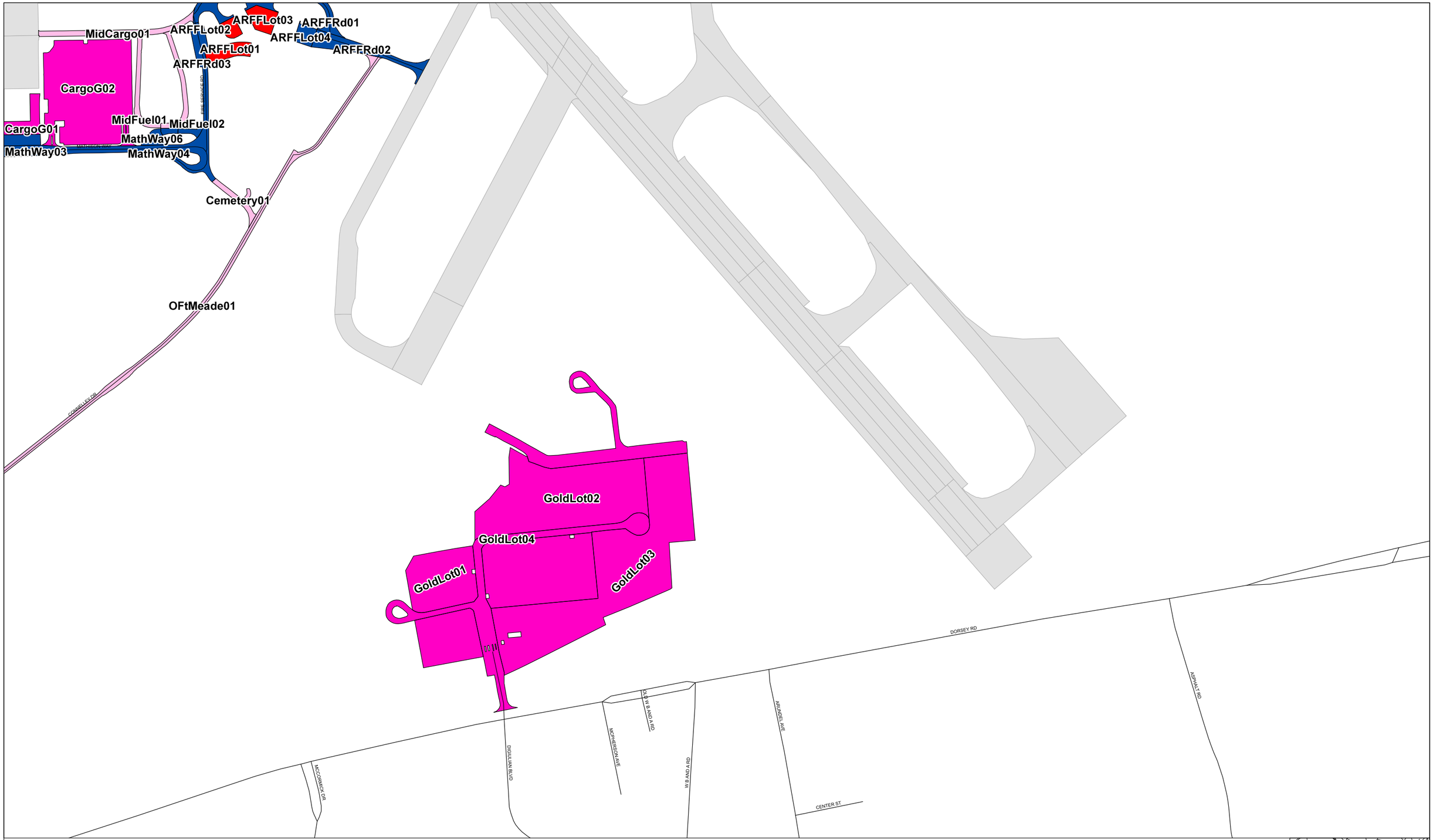
0 275 550 Feet

Priority

1 2 3 4 5 6

September 2016

AECOM PTS Pavement Technical Solutions



BWI Landside
Priority

N
W E
S

0 237.5 475 Feet

Priority

1
2
3
4
5
6

September 2016

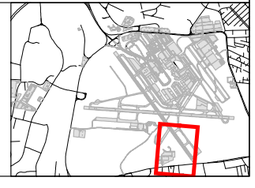
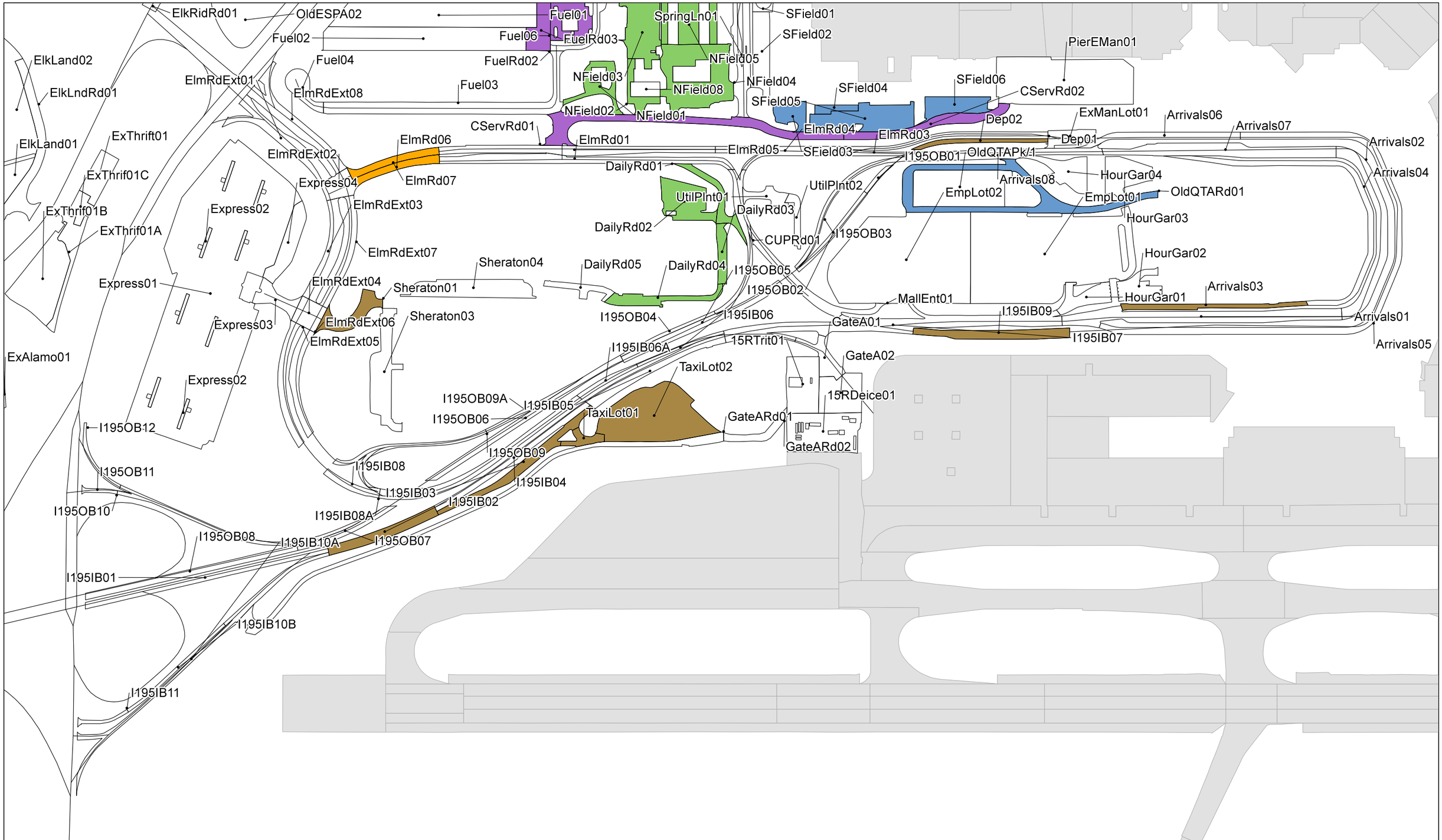


Figure B-6

CIP Map



Page 1 of 10

September 13, 2016

AECOM

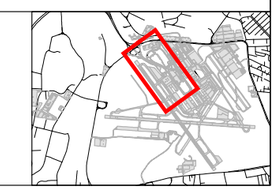
PTS Pavement Technical Solutions

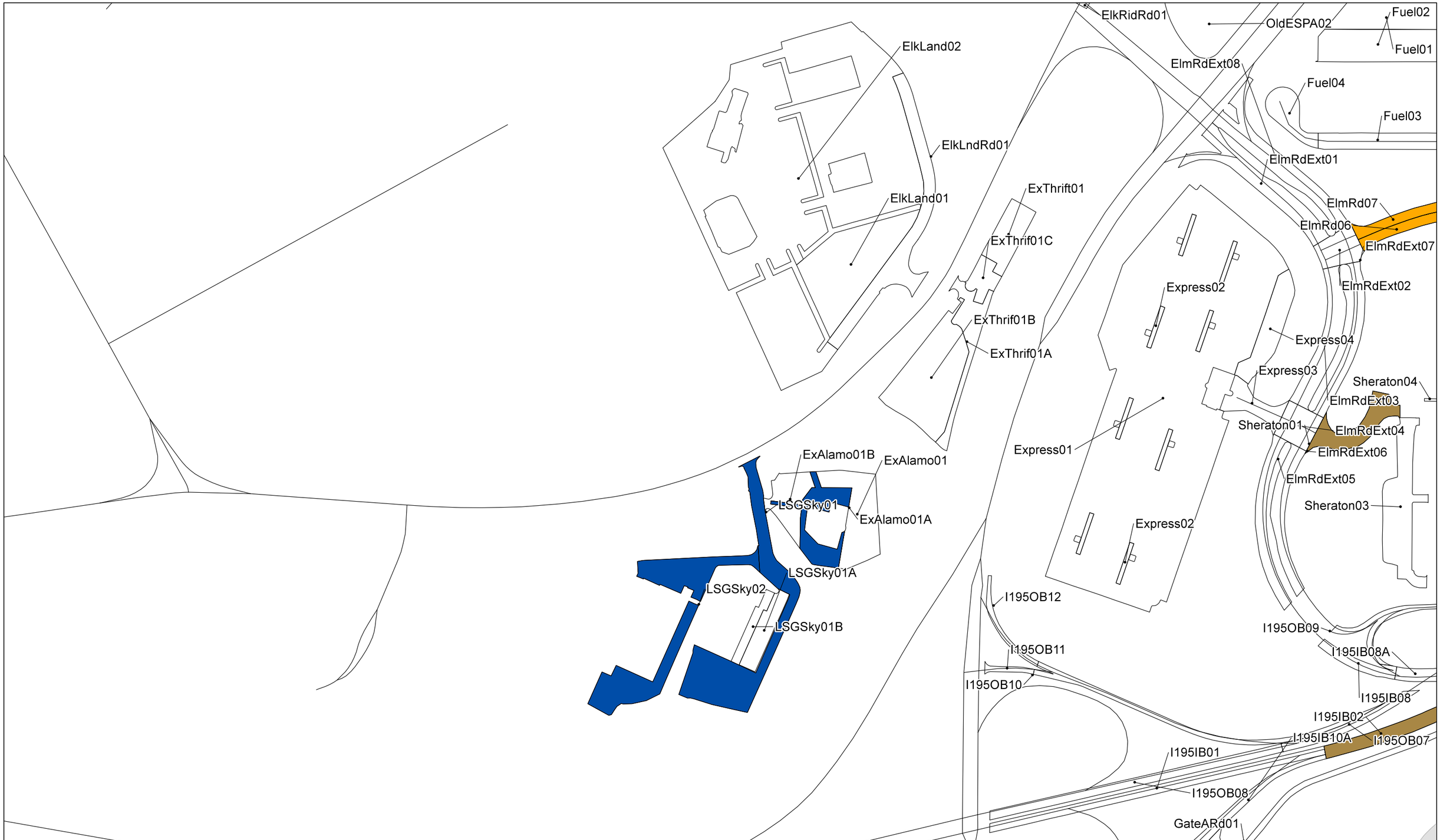
0 205 410 Feet

BWI Landside
10-Year CIP
Appendix B-6

CIP Year

2017	2019	2021	2023	2025
2018	2020	2022	2024	2026





Page 2 of 10

September 13, 2016

AECOM

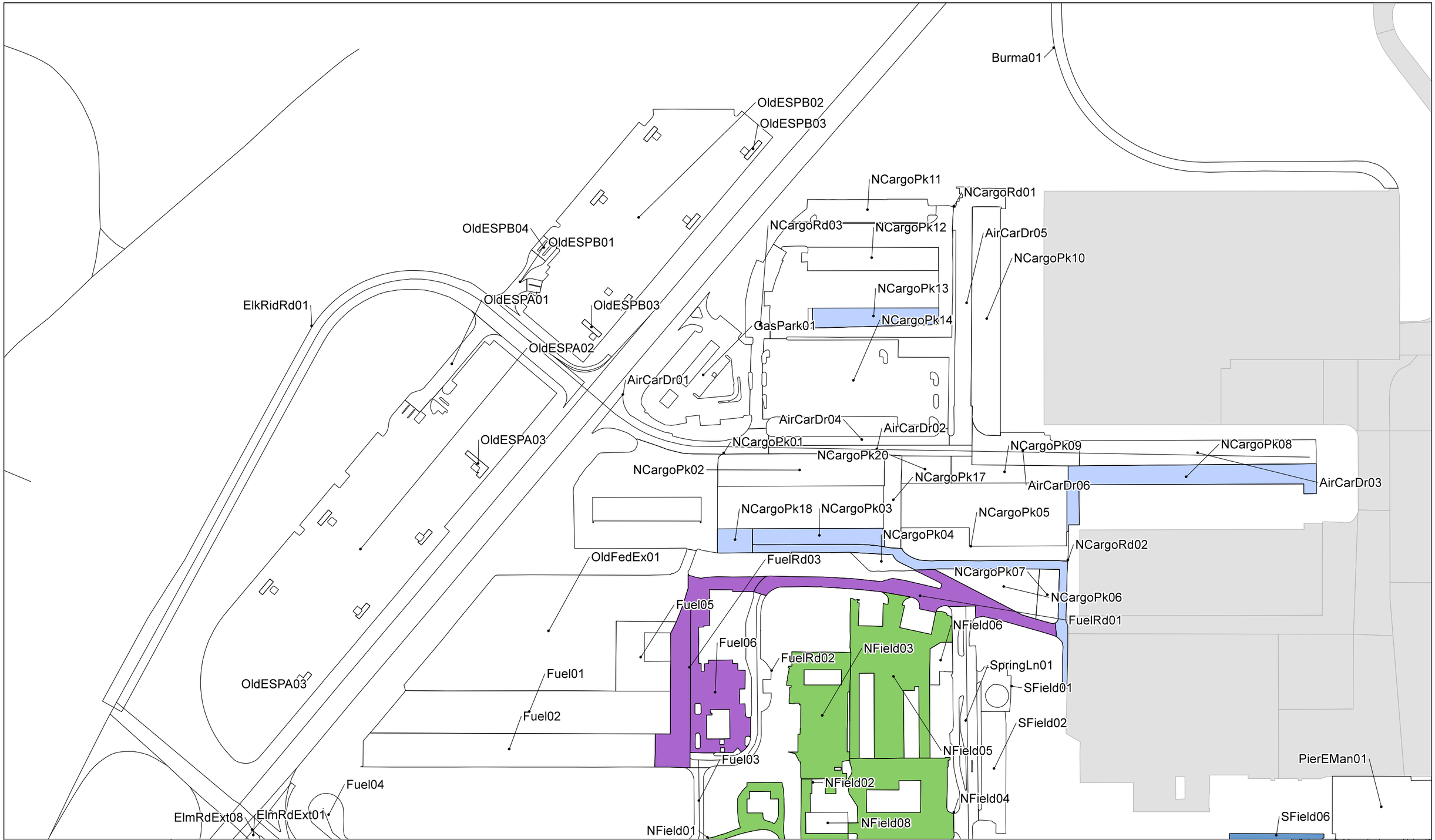
PTS Pavement Technical Solutions

0 145 290 Feet

BWI Landside
10-Year CIP
Appendix B-6

CIP Year

2017 2018 2019 2020 2021 2022 2023 2024 2025 2026



Page 3 of 10

September 13, 2016

AECOM

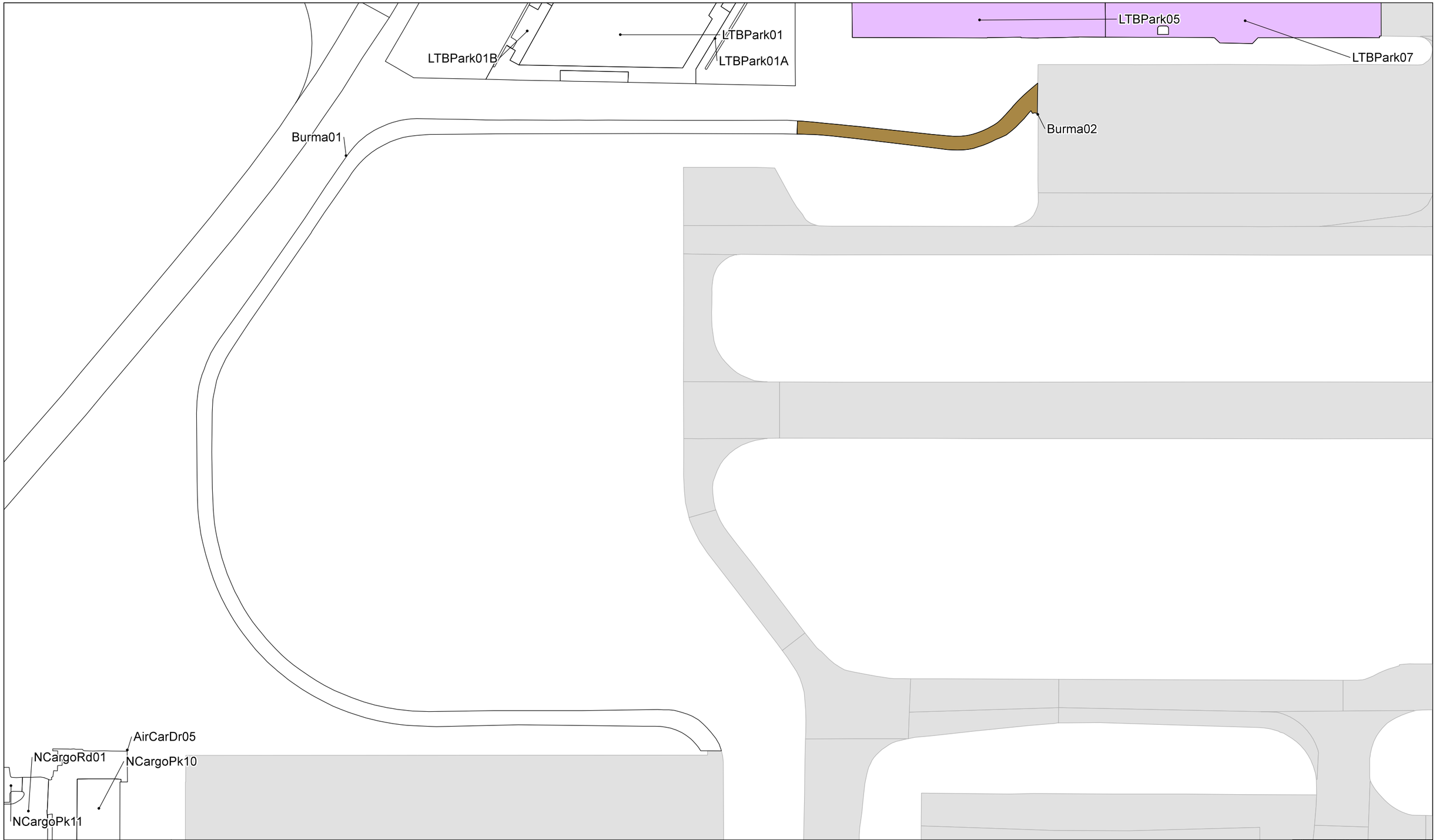
PTS Pavement Technical Solutions

0 140 280 Feet

BWI Landside
10-Year CIP
Appendix B-6

CIP Year

2017	2019	2021	2023	2025
2018	2020	2022	2024	2026



Page 4 of 10

September 13, 2016

AECOM

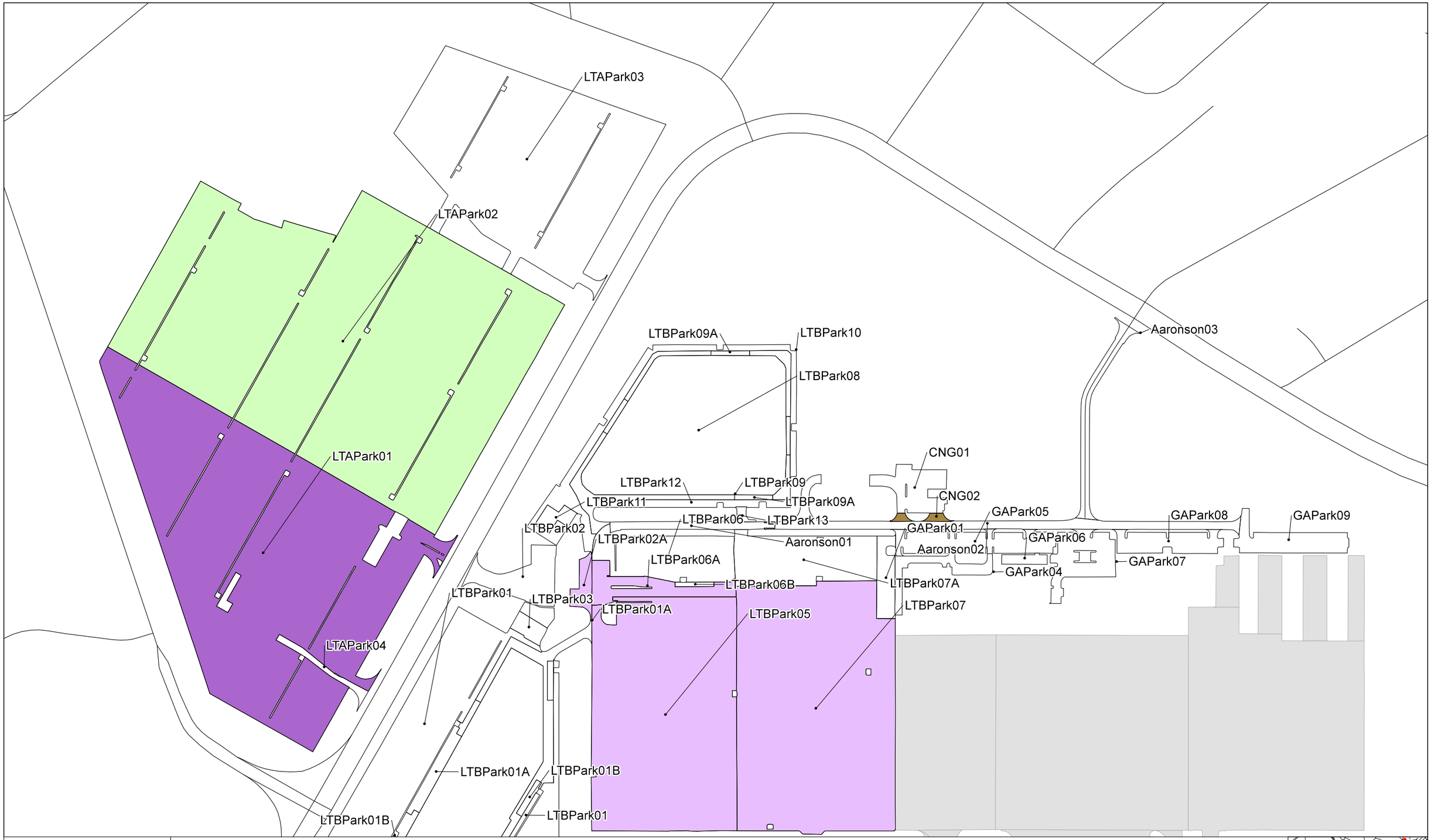
PTS Pavement Technical Solutions

0 90 180 Feet

BWI Landside
10-Year
CIP
Appendix B-6

CIP Year

2017 2019 2021 2023 2025
2018 2020 2022 2024 2026



Page 5 of 10

September 13, 2016

AECOM

PTS Pavement Technical Solutions

0 160 320 Feet

BWI Landside
10-Year CIP
Appendix B-6

CIP Year

2017 2018 2019 2020 2021 2022 2023 2024 2025 2026

September 13, 2016

AECOM

PTS Pavement Technical Solutions

0 62.5 125 Feet

BWI Landside
10-Year CIP
Appendix B-6

CIP Year

2017 2019 2021 2023 2025
2018 2020 2022 2024 2026

Page 7 of 10

September 13, 2016

AECOM

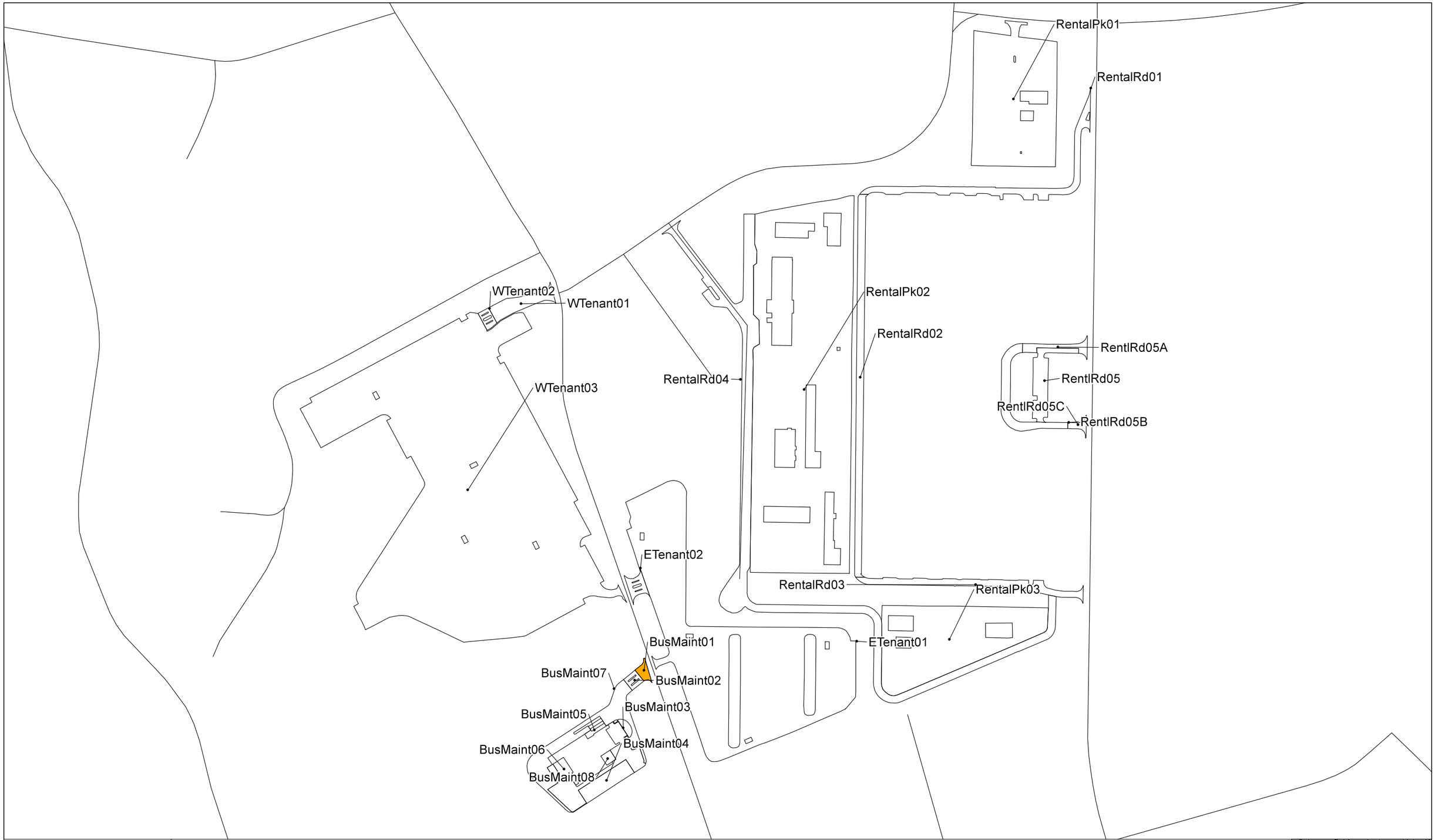
PTS Pavement Technical Solutions

0 115 230 Feet

BWI Landside
10-Year
CIP
Appendix B-6

CIP Year

2017	2019	2021	2023	2025
2018	2020	2022	2024	2026



Page 8 of 10

September 13, 2016

AECOM

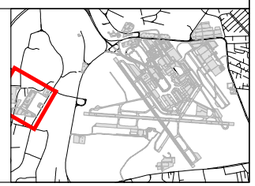
PTS Pavement Technical Solutions

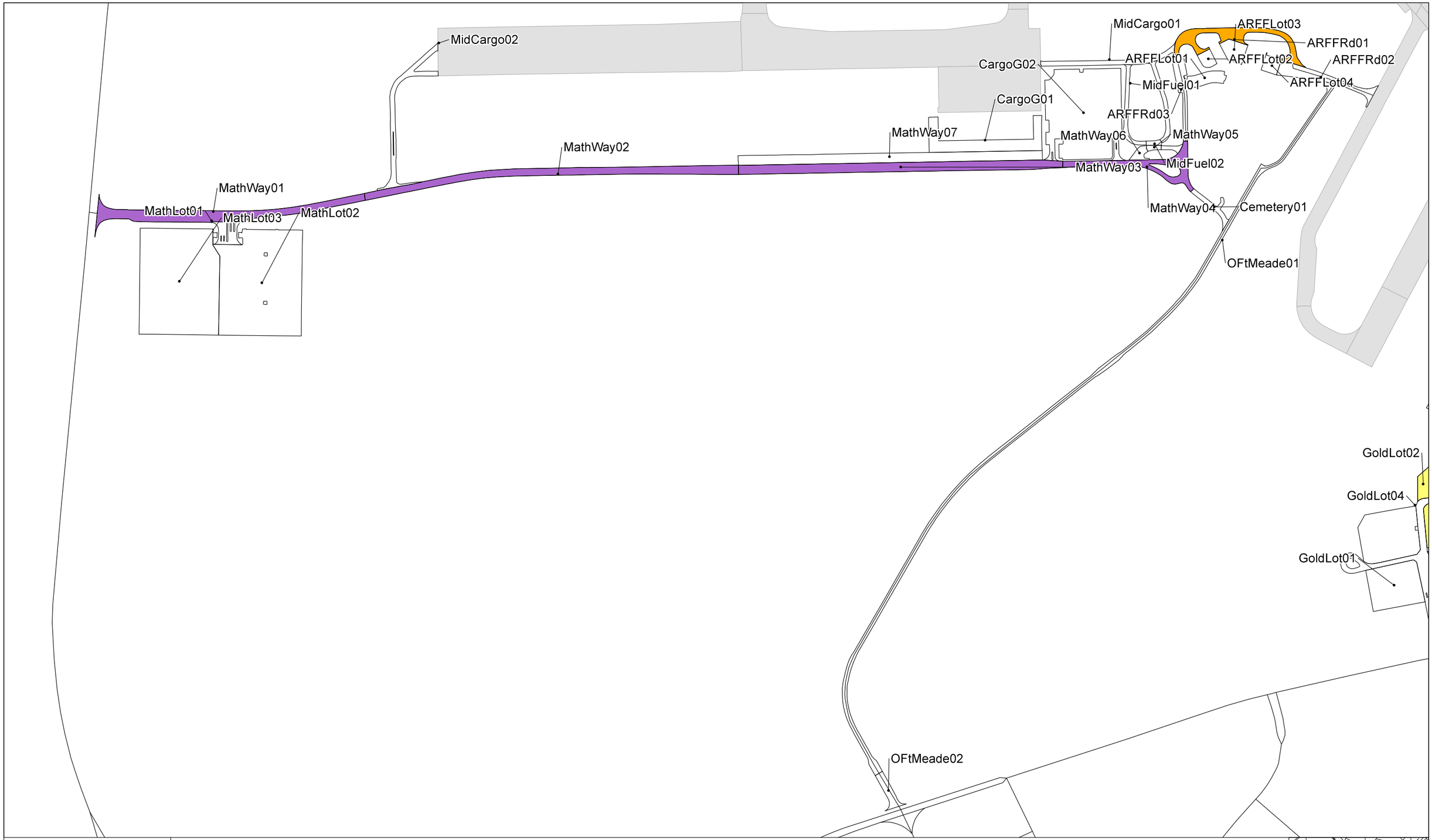
0 210 420 Feet

BWI Landside
10-Year CIP
Appendix B-6

CIP Year

2017 2018 2019 2020 2021 2022 2023 2024 2025 2026





September 13, 2016

AECOM

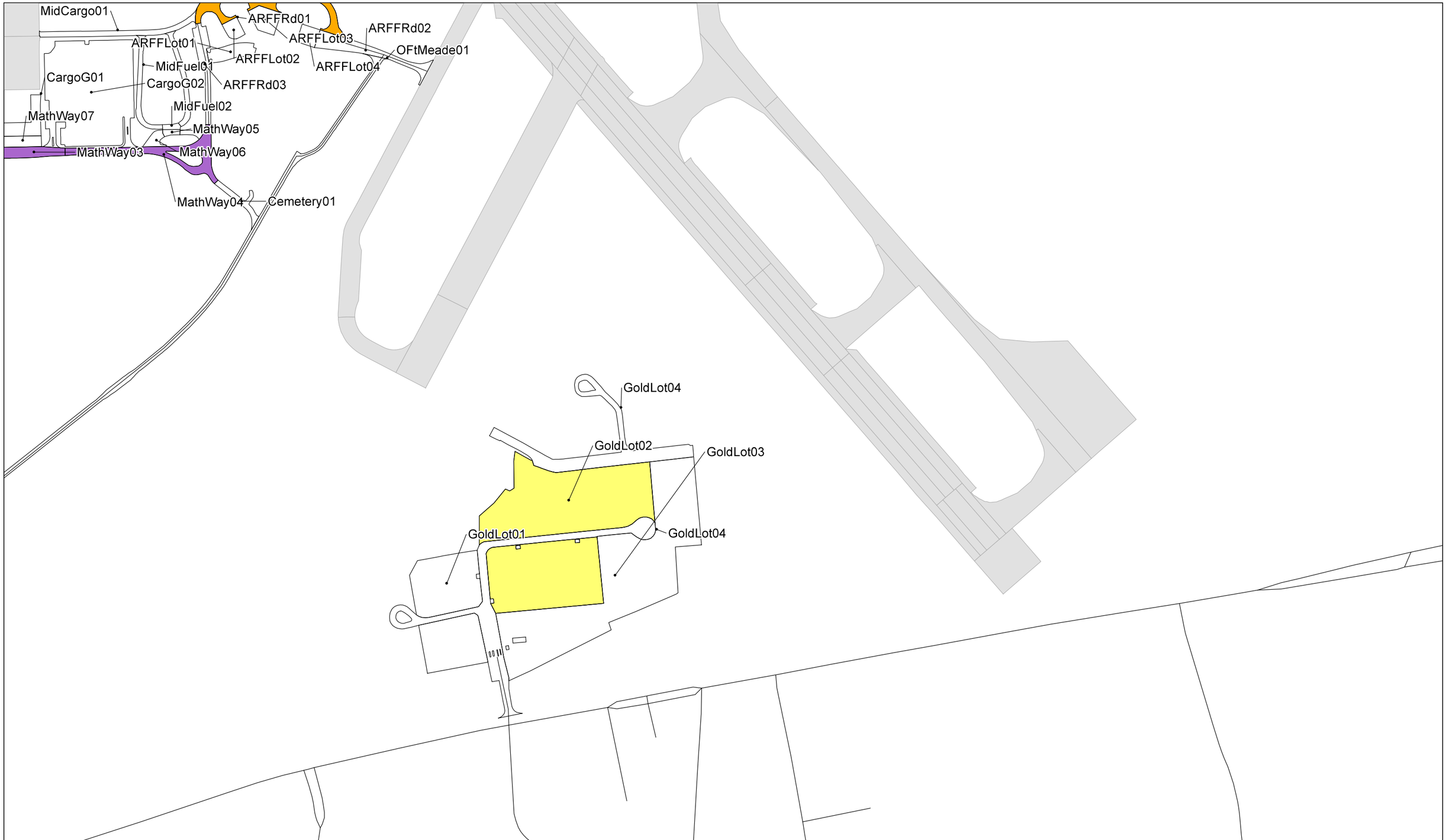
PTS Pavement Technical Solutions

0 275 550 Feet

BWI Landside
10-Year CIP
Appendix B-6

CIP Year

2017 2018 2019 2020 2021 2022 2023 2024 2025 2026



September 13, 2016

AECOM

PTS Pavement Technical Solutions

0 237.5 475 Feet

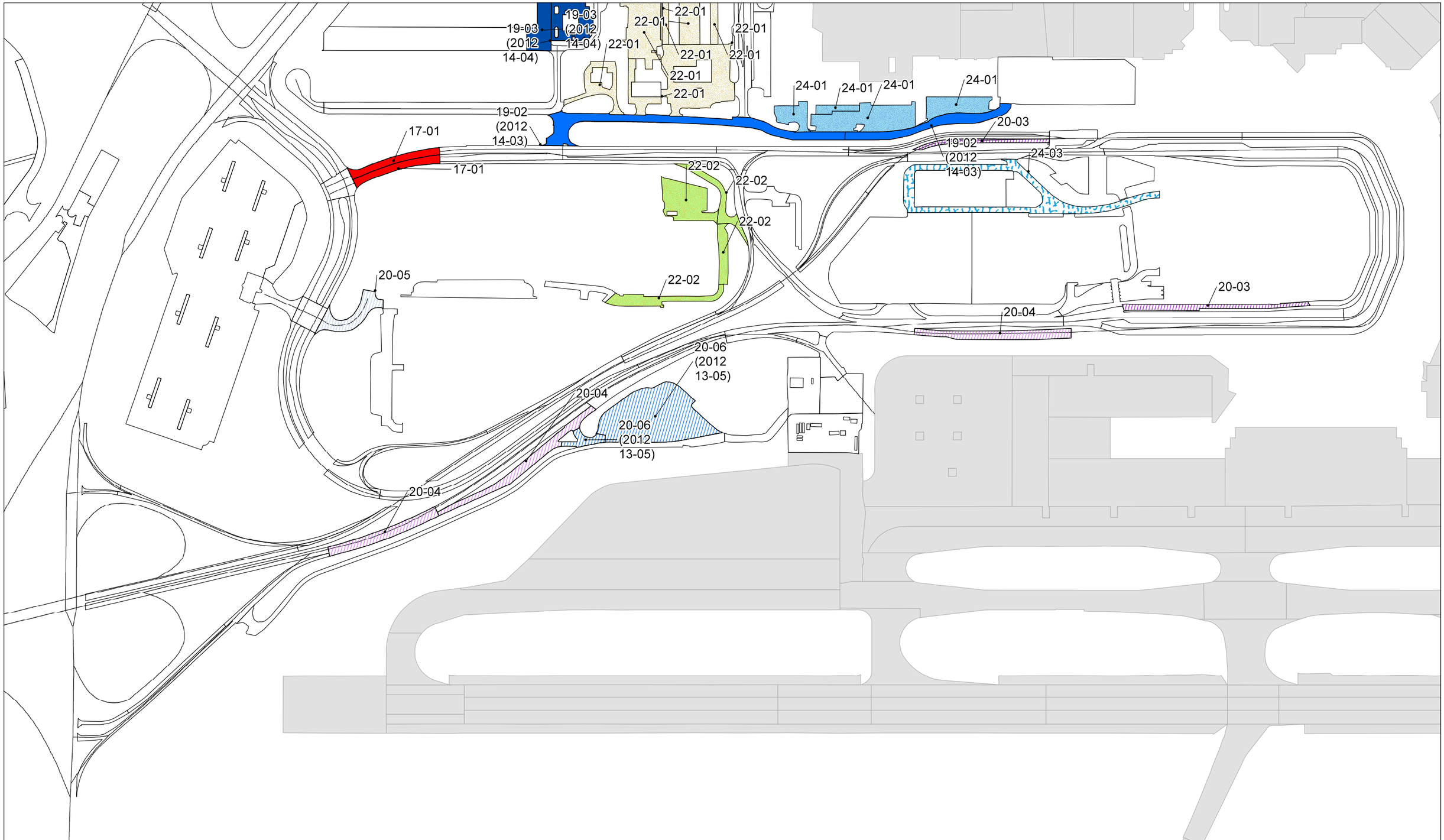
BWI Landside
10-Year CIP
Appendix B-6

CIP Year

2017 2018 2019 2020 2021 2022 2023 2024 2025 2026

Figure B-7

CIP Projects Map



Page 1 of 10

September 13, 2016

AECOM

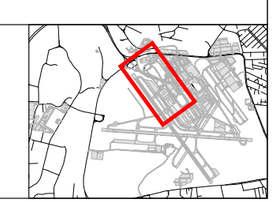
PTS Pavement Technical Solutions

0 205 410 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	



Page 2 of 10

September 13, 2016

AECOM

PTS Pavement Technical Solutions

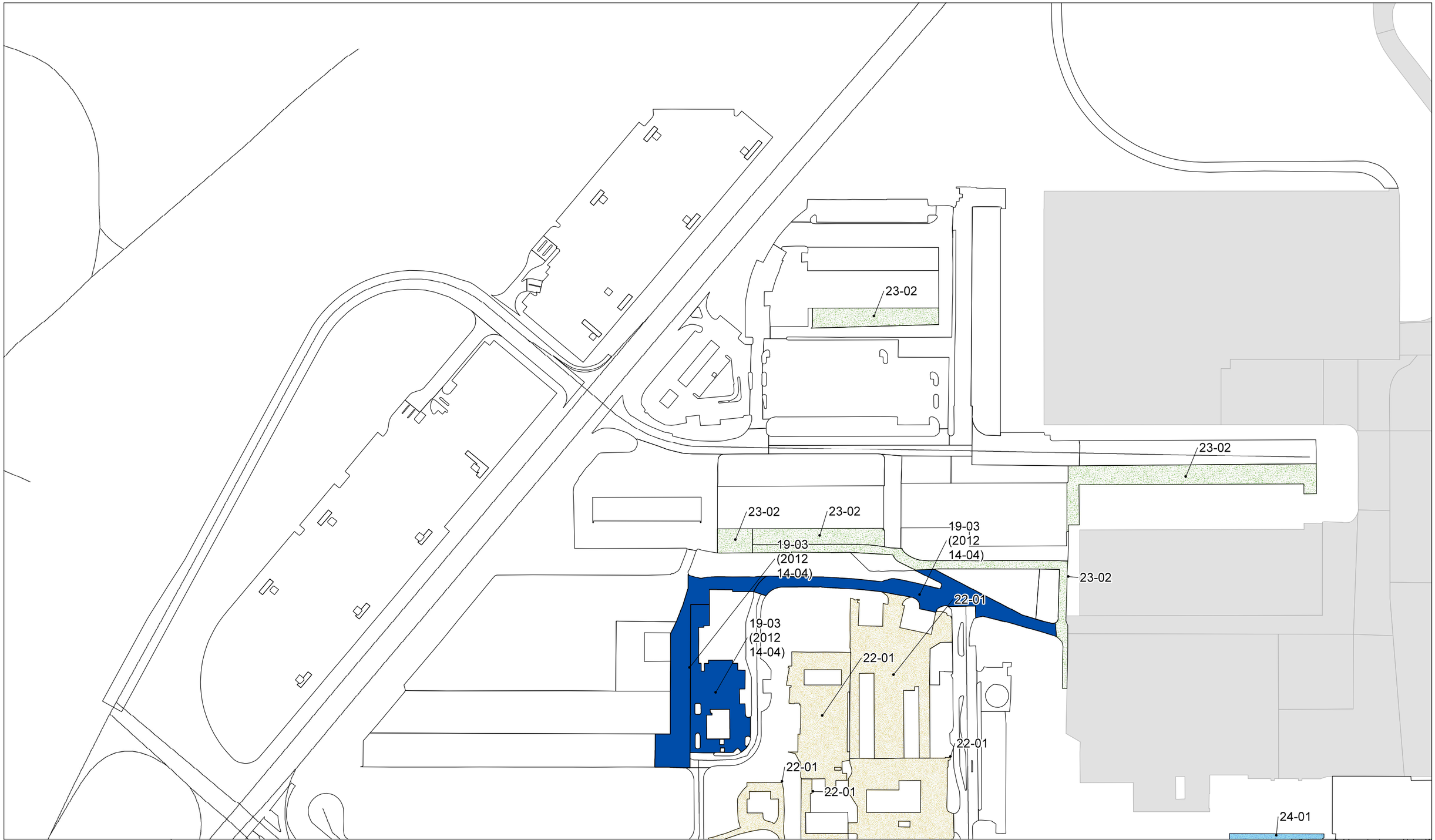
N E S W

0 145 290 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	



Page 3 of 10

September 13, 2016

AECOM

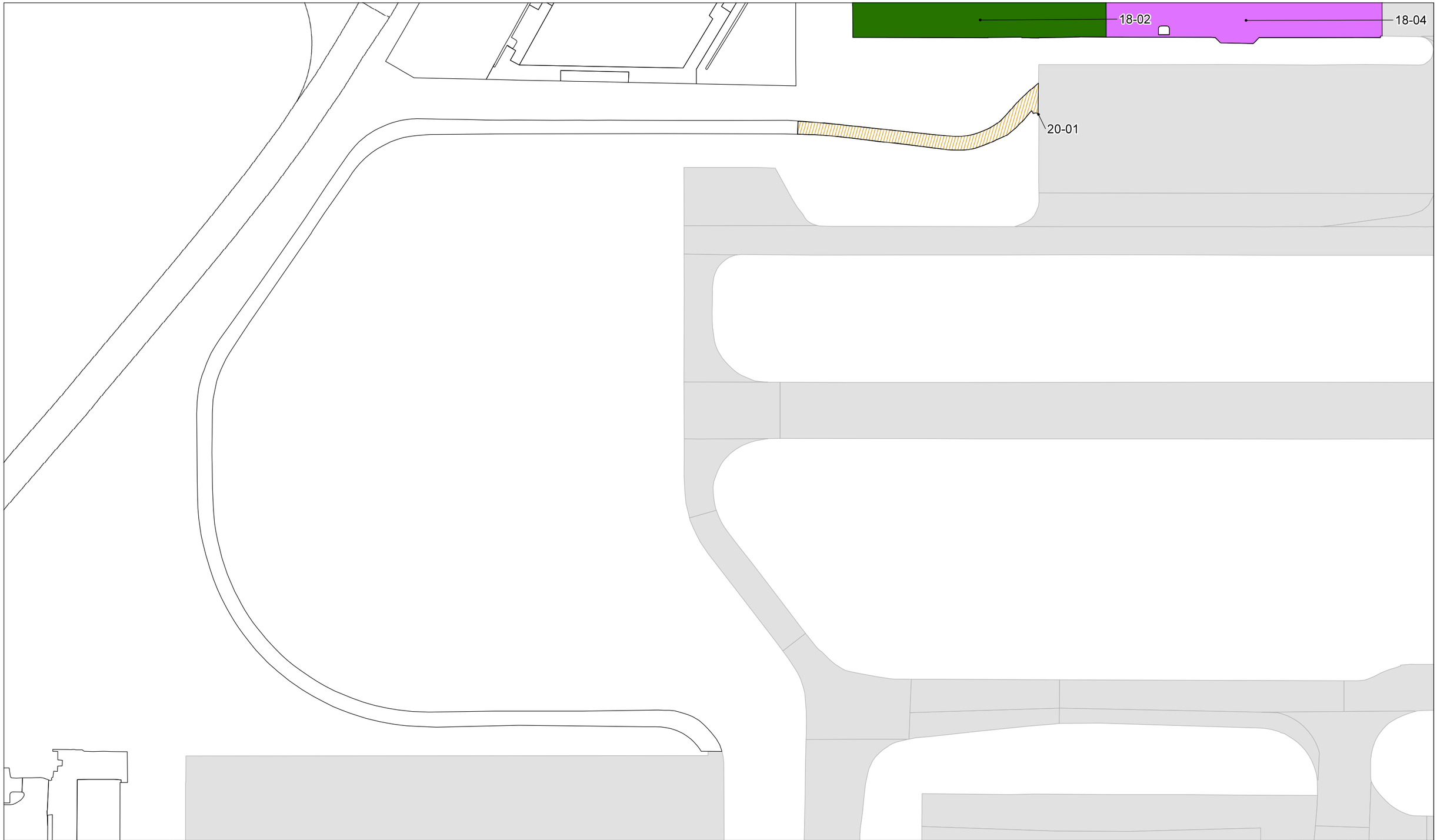
PTS Pavement Technical Solutions

0 140 280 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	



Page 4 of 10

September 13, 2016

AECOM

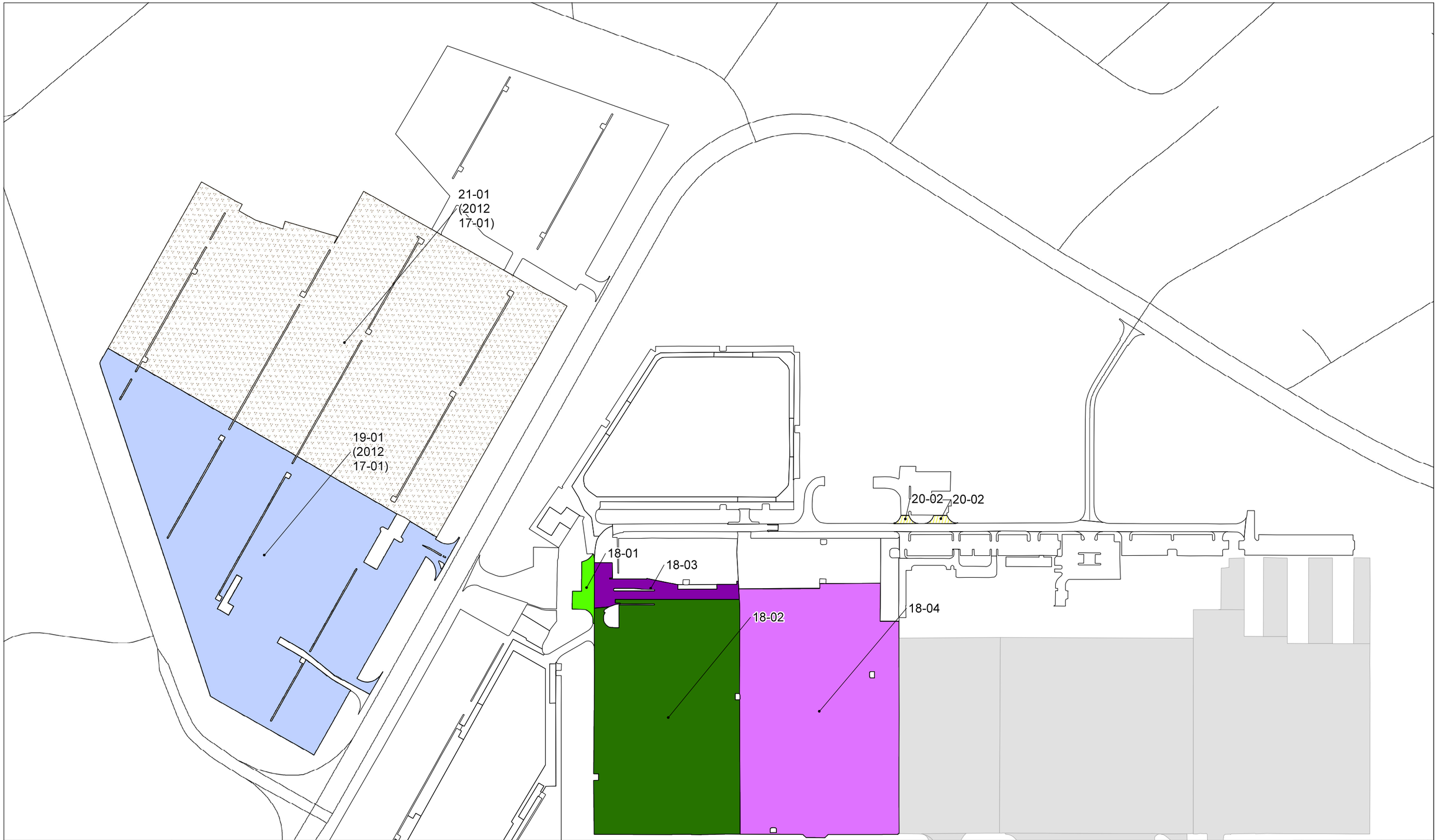
PTS Pavement Technical Solutions

0 90 180 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	



Page 5 of 10

September 13, 2016

AECOM

PTS Pavement Technical Solutions

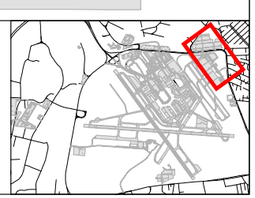
N E S W

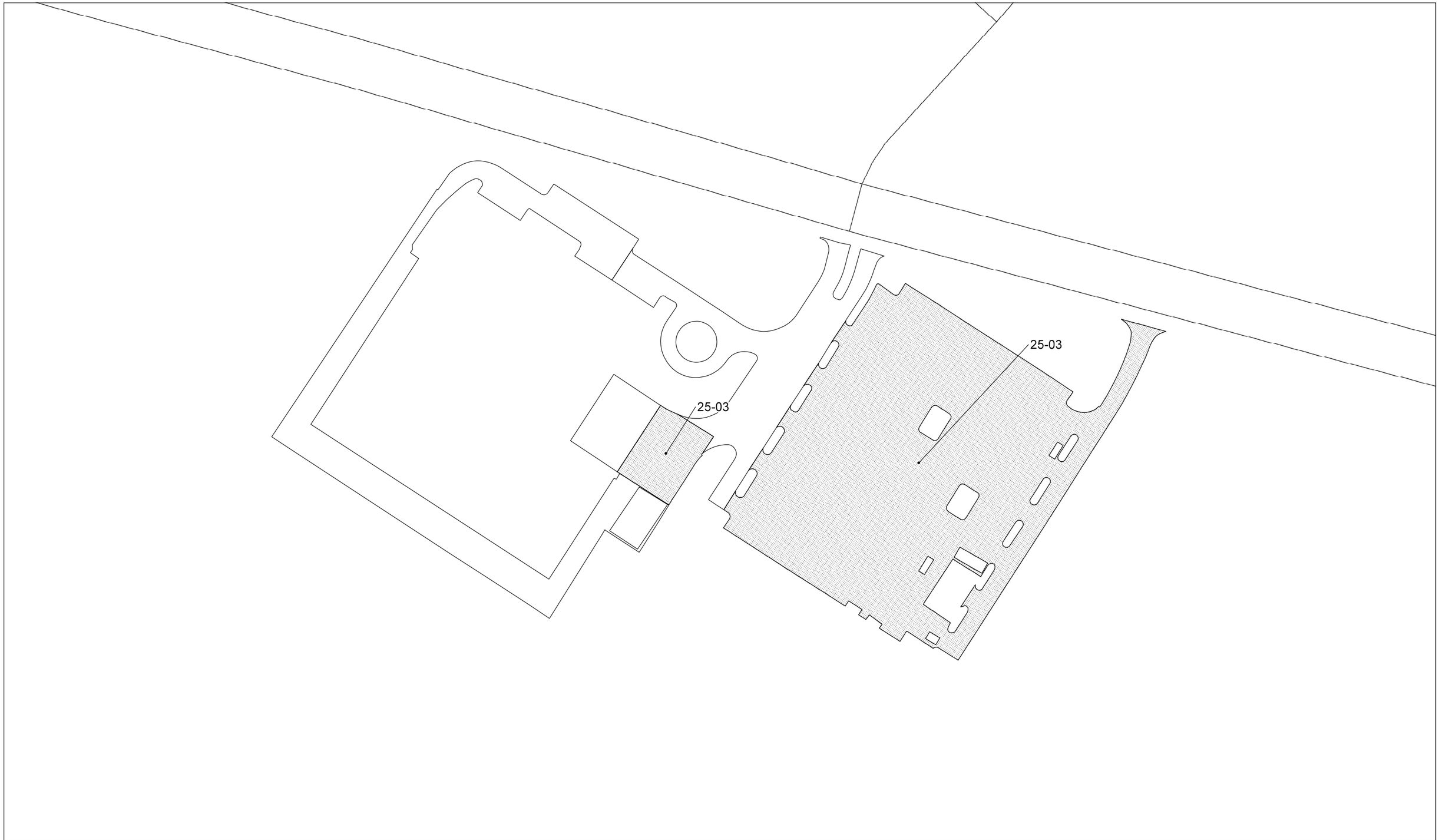
0 160 320 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	





Page 6 of 10

September 13, 2016

AECOM

PTS Pavement Technical Solutions

0 62.5 125 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	

Page 7 of 10

September 13, 2016

AECOM

PTS Pavement Technical Solutions

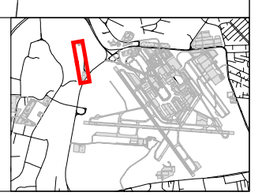
N E S W

0 115 230 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	



September 13, 2016

AECOM

PTS Pavement Technical Solutions

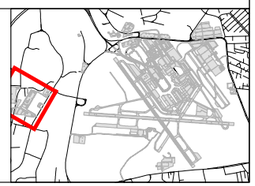
N E S W

0 210 420 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	



Page 9 of 10

September 13, 2016

AECOM

PTS Pavement Technical Solutions

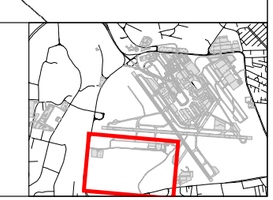
N
W E
S

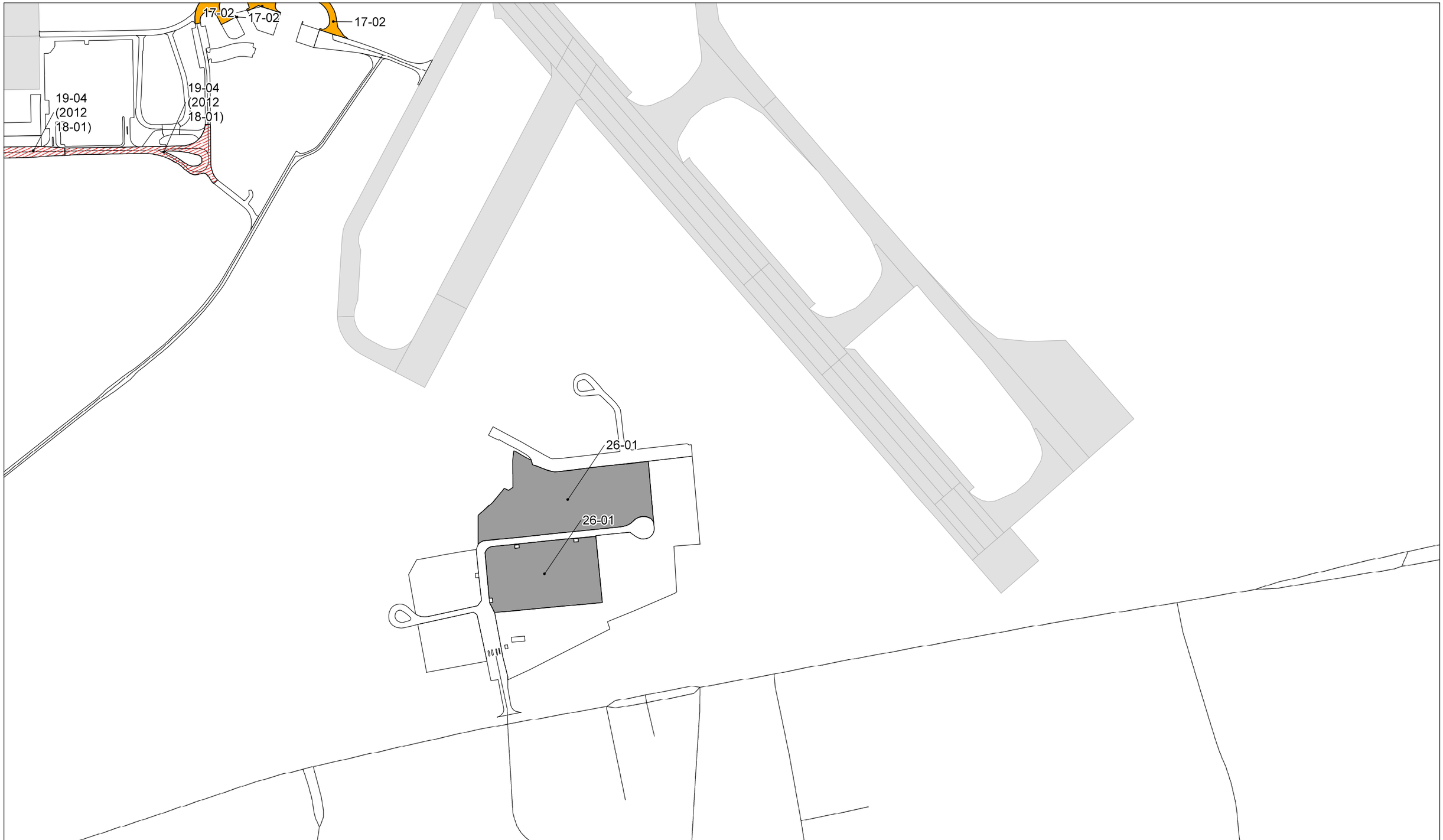
0 275 550 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	





September 13, 2016

AECOM

PTS Pavement Technical Solutions

N
W E
S

0 237.5 475 Feet

BWI Landside
CIP
by Project
Appendix B-7

Projects

17-01	18-02	19-03 (2012 14-04)	20-04	22-02	25-01
17-02	18-03	19-04 (2012 18-01)	20-05	23-02	25-02
17-03	18-04	20-01	20-06 (2012 13-05)	24-01	25-03
17-04	19-01 (2012 17-01)	20-02	21-01 (2012 17-01)	24-02	26-01
18-01	19-02 (2012 14-03)	20-03	22-01	24-03	

Appendix C

PCI Distress Descriptions

1. Alligator Cracking (AC)

Alligator or fatigue cracking is a series of interconnecting cracks caused by fatigue failure of the asphalt concrete surface under repeated traffic loading. Cracking begins at the bottom of the asphalt surface (or stabilized base) where tensile stress and strain are highest under a wheel load. The cracks propagate to the surface initially as a series of parallel longitudinal cracks. After repeated traffic loading, the cracks connect, forming many sided, sharp-angled pieces that develop a pattern resembling chicken wire or the skin of an alligator. The pieces are generally less than 0.5m (1.5 ft) on the longest side. Alligator cracking occurs only in areas subjected to repeated traffic loading, such as wheel paths. (Pattern-type cracking that occurs over an entire area not subjected to loading is called "block cracking," which is not a load-associated distress.)

Severity Levels

L. Fine, longitudinal hairline cracks running parallel to each other with no, or only a few interconnecting cracks. The cracks are not spalled

M Further development of light alligator cracks into a pattern or network of cracks that may be lightly spalled

H Network or pattern cracking has progressed so that the pieces are well defined and spalled at the edges. Some of the pieces may rock under traffic

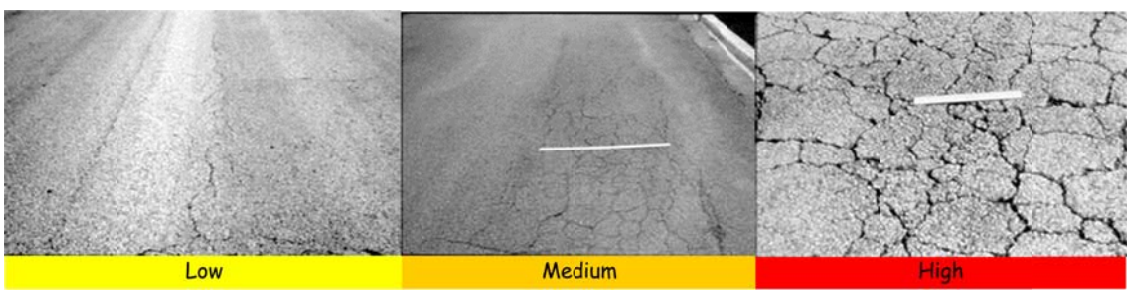


Figure B.1: Alligator Cracking

2. Bleeding (AC)

Description

Bleeding is a film of bituminous material on the pavement surface that creates a shiny, glasslike, reflecting surface that usually becomes quite sticky. Bleeding is caused by excessive amounts of asphaltic cement or tars in the mix, excess application of a bituminous sealant, and/or low air void content. It occurs when asphalt fills the voids of the mix during hot weather and then expands onto the pavement surface. Since the bleeding process in not reversible during cold weather, asphalt or tar will accumulate on the surface.

Severity Levels

L Bleeding has only occurred to a very slight degree and is noticeable only during a few days of the year. Asphalt does not stick to shoes or vehicles.

M Bleeding has occurred to the extent that asphalt sticks to shoes and vehicles during only a few weeks of the year.

H Bleeding has occurred extensively and considerable asphalt sticks to shoes and vehicles during at least several weeks of the year.

3. Block Cracking (AC)

Description

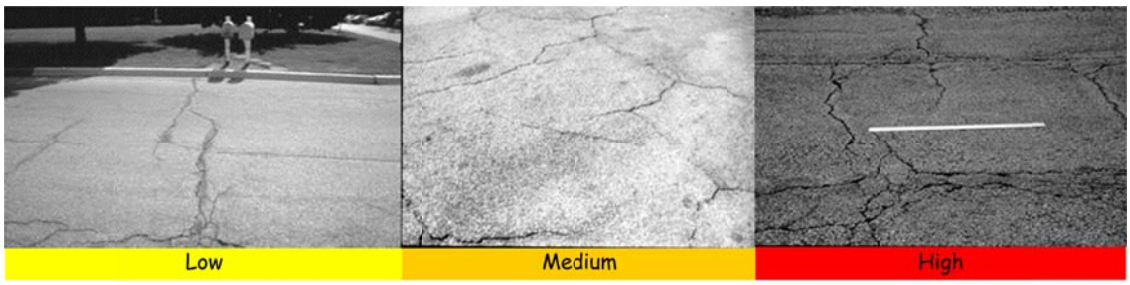
Block cracks are interconnected cracks that divide the pavement into approximately rectangular pieces. The blocks may range in size from approximately 0.3 by 0.3 m (1 by 1 ft) to 3 by 3 m (10 by 10 ft). Block cracking is caused mainly by shrinkage of the asphalt concrete and daily temperature cycling (which results in daily stress/strain cycling). It is not load-associated. Block cracking usually indicates that the asphalt has hardened significantly. Block cracking normally occurs over a large portion of the pavement area, but sometimes will occur only in non-traffic areas. This type of distress differs from alligator cracking in that alligator cracks form smaller, many-sided pieces with sharp angles. Also, unlike block, alligator cracks are caused by repeated traffic loadings, and are therefore found only in traffic areas (i.e., wheel paths).

Severity Levels

L Blocks are defined by low-severity* cracks

M Blocks are defined by medium-severity* cracks

H Blocks are defined by high-severity* cracks



4. Bumps and Sags (AC)

Description

Bumps are small, localized, upward displacements of the pavement surface. They are different from shoves in that shoves are caused by unstable pavement. Bumps, on the other hand, can be caused by several factors, including:

1. Buckling or bulging of underlying PCC slabs in AC overlay over PCC pavement.
2. Frost heave (ice, lens growth).
3. Infiltration and buildup of material in a crack in combination with traffic loading (sometimes called "tenting").

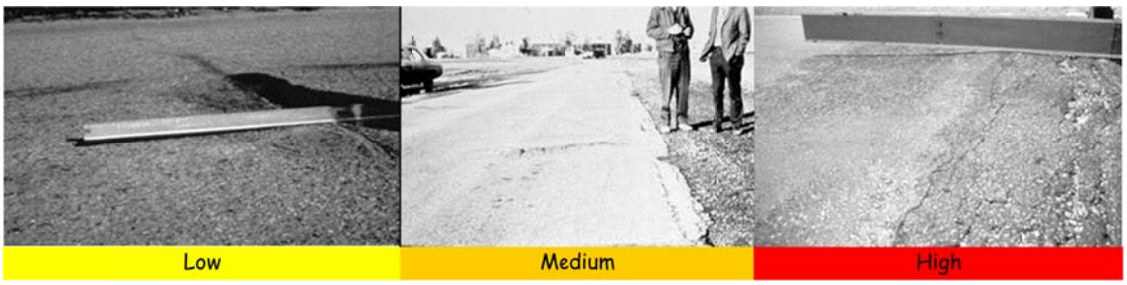
Sags are small, abrupt, downward displacements of the pavement surface. If bumps appear in a pattern perpendicular to traffic flow and are spaced at less than 3m (10 ft), the distress is called corrugation. Distortion and displacement that occur over large areas of the pavement surface, causing large and/or long dips in the pavement should be recorded as "swelling."

Severity Levels

L Bump or sag causes low-severity ride quality

M Bump or sag causes medium-severity ride quality

H Bump or sag causes high-severity ride quality



5. Corrugation (AC)

Description

Corrugation (also known as "washboarding") is a series of closely spaced ridges and valleys (ripples) occurring at fairly regular intervals, usually less than 3m (10 ft) along the pavement. The ridges are perpendicular to the traffic direction. This type of distress is usually caused by traffic action combined with an unstable pavement surface or base.

Severity Levels

L Corrugation produces low-severity ride quality (Figure 5a).

M Corrugation produces medium-severity ride quality (Figure 5b).

H Corrugation produces high-severity ride quality (Figure 5c).

6. Depression (AC)

Description

Depressions are localized pavement surface areas with elevations slightly lower than those of the surrounding pavement. In many instances, light depressions are not noticeable until after a rain, when ponding water creates a “birdbath” area; on dry pavement, depressions can be spotted by looking for stains caused by ponding water. Depressions are created by settlement of the foundation soil or are a result of improper construction. Depressions cause some roughness, and when deep enough or filled with water, can cause hydroplaning.

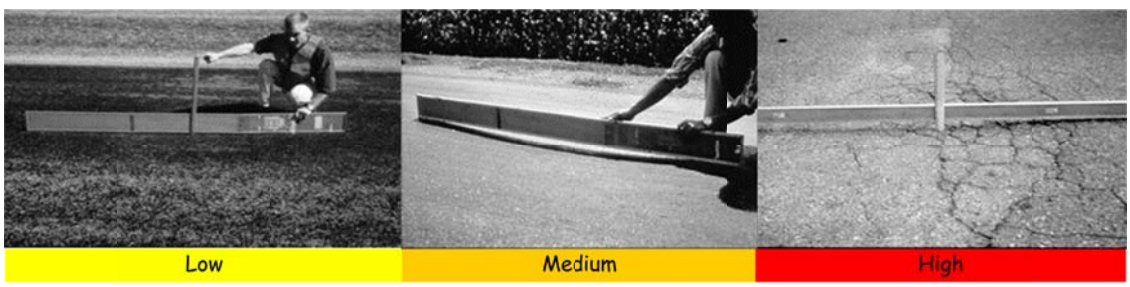
Severity Levels

Maximum Depth of Depression

L 13 to 25 mm (1/2 to 1 in.) (Figure 6a).

M 25 to 50 mm (1 to 2 in.) (Figure 6b).

H more than 50 mm (2 in.) (Figure 6c).



7. Edge Cracking (AC)

Description

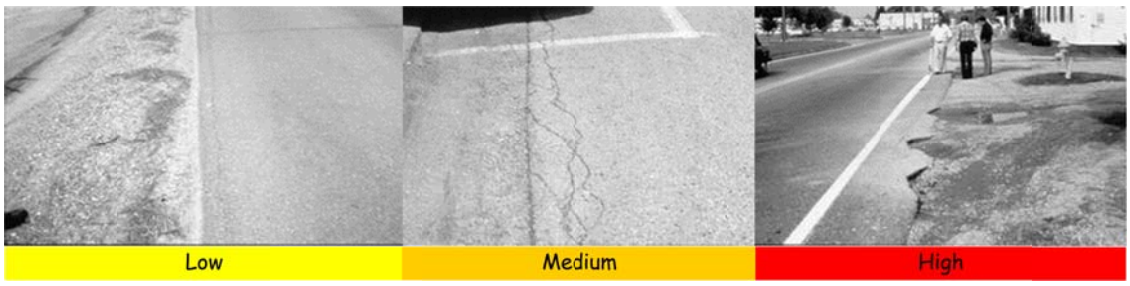
Edge cracks are parallel to and usually within 0.3 to 0.5 m (1 to 1.5 ft) of the outer edge of the pavement. This distress is accelerated by traffic loading and can be caused by frost-weakened base or subgrade near the edge of the pavement. The area between the crack and pavement edge is classified as raveled if it is broken up (sometimes to the extent that pieces are removed).

Severity Levels

L Low or medium cracking with no breakup or raveling (Figure 7a).

M Medium cracks with some breakup and raveling (Figure 7b).

H Considerable breakup or raveling along the edge (Figure 7c).



8. Joint Reflection Cracking (AC)

Description

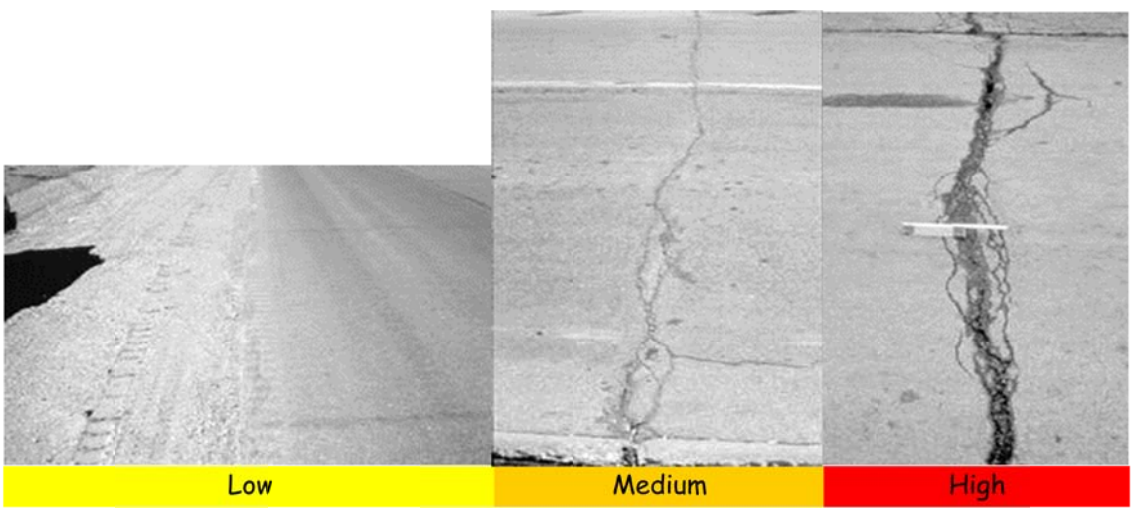
This distress occurs only on asphalt-surfaced pavements that have been laid over a PCC slab. It does not include reflection cracks from any other type of base (i.e., cement- or lime-stabilized); these cracks are caused mainly by thermal- or moisture-induced movement of the PCC slab beneath the AC surface. This distress is not load-related; however, traffic loading may cause a breakdown of the AC surface near the crack. If the pavement is fragmented along a crack, the crack is said to be spalled. A knowledge of slab dimension beneath the AC surface will help to identify these distresses.

Severity Levels

L One of the following conditions exists (Figure 8a): (1) Non-filled crack width is less than 10mm (3/8 in.), or (2) filled crack of any width (filler in satisfactory condition).

M One of the following conditions exists (Figure 8b): (1) Non-filled crack width is greater than or equal to 10 mm (3/8 in.) and less than 75 mm (3 in.); (2) non-filled crack less than or equal to 75 mm (3 in.) surrounded by light secondary cracking, or (3) filled crack of any width surrounded by light secondary cracking.

H One of the following conditions exists (Figure 8c): (1) Any crack filled or non-filled surrounded by medium or high severity secondary cracking; (2) non-filled cracks greater than 75 mm (3 in.), or (3) A crack of any width where approximately 100 mm (4 in.) of pavement around the crack are severely raveled or broken.



9. Lane / Shoulder Drop-Off (AC)

Description

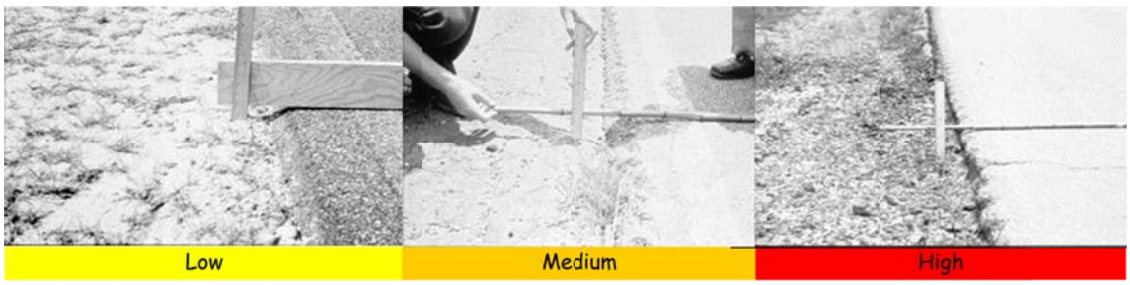
Lane/shoulder drop-off is a difference in elevation between the pavement edge and the shoulder. This distress is caused by shoulder erosion, shoulder settlement, or by building up the roadway without adjusting the shoulder level.

Severity Levels

L The difference in elevation between the pavement edge and shoulder is > 25 mm (1 in.) and < 50 mm (2 in.). (Figure 9a).

M The difference in elevation is > 50 mm (2 in.) and < 100 mm (4 in.). (Figure 9b).

H The difference in elevation is > 100 mm (4 in.). (Figure 9c).



10. Longitudinal & Transverse Cracking (AC)

Description

Longitudinal cracks are parallel to the pavement's centerline or laydown direction. They may be caused by:

1. A poorly constructed paving lane joint.
2. Shrinkage of the AC surface due to low temperatures or hardening of the asphalt and/or daily temperature cycling.
3. A reflective crack caused by cracking beneath the surface course, including cracks in PCC slabs (but not PCC joints).

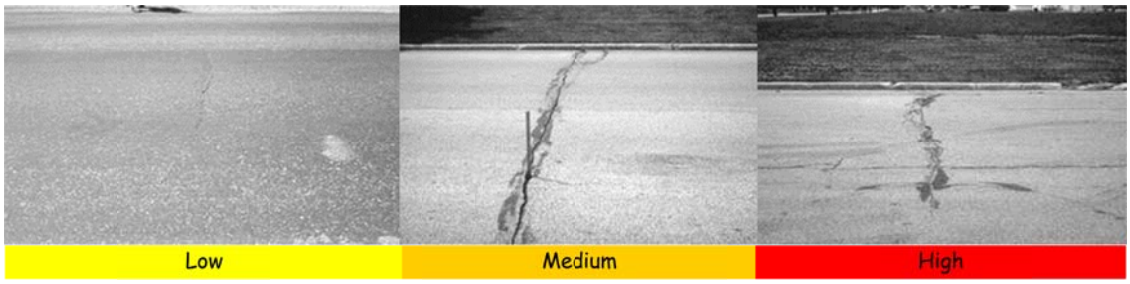
Transverse cracks extend across the pavement at approximately right angles to the pavement centerline or direction of laydown. These types of cracks are not usually load-associated.

Severity Levels

L One of the following conditions exists (Figure 10a): (1) non-filled crack width is less than 10 mm (3/8 in.), or (2) Filled crack of any width (filler in satisfactory condition).

M One of the following conditions exists (Figure 10b): (1) non-filled crack width is greater than or equal to 10 mm and less than 75 mm (3/8 to 3 in.); (2) non-filled crack is less than or equal to 75 mm (3 in.) surrounded by light and random cracking, or (3) filled crack is of any width surrounded by light random cracking.

H One of the following conditions exists (Figure 10c): (1) any crack filled or non-filled surrounded by medium- or high-severity random cracking, (2) non-filled crack greater than 75 m(3 in.), or (3) a crack of any width where approximately 100 mm (4 in.) of pavement around the crack is severely broken.



11. Patching and Utility Cut Patching (AC)

Description

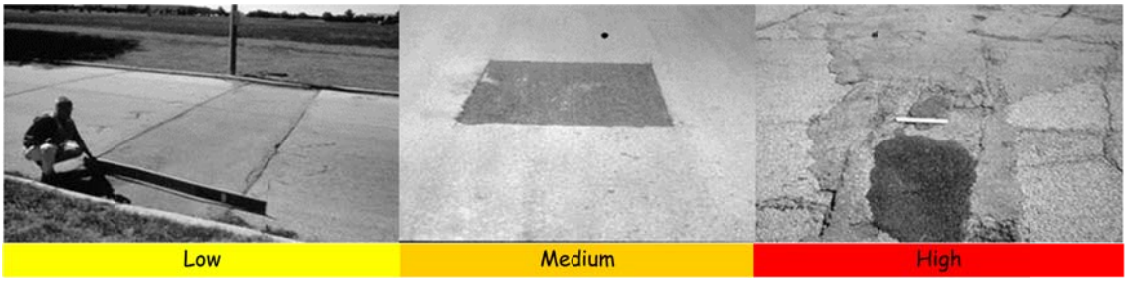
A patch is an area of pavement that has been replaced with new material to repair the existing pavement. A patch is considered a defect no matter how well it is performing (a patched area or adjacent area usually does not perform as well as an original pavement section). Generally, some roughness is associated with this distress.

Severity Levels

L Patch is in good condition and satisfactory. Ride quality is rated as low severity or better (Figure 11a).

M Patch is moderately deteriorated and/or ride quality is rated as medium severity (Figure 11b).

H Patch is badly deteriorated and/or ride quality is rated as high severity. Needs replacement soon (Figure 11c).



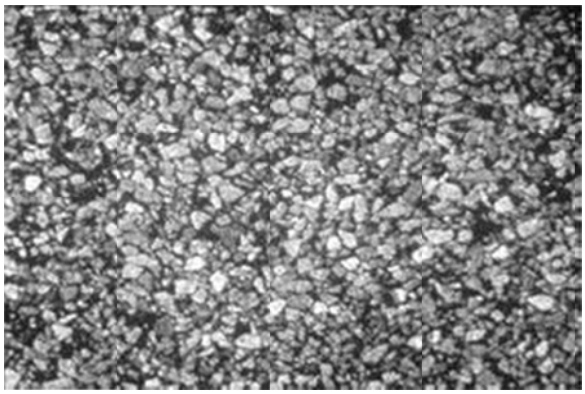
12. Polished Aggregate (AC)

Description

This distress is caused by repeated traffic applications. Polished aggregate is present when close examination of a pavement reveals that the portion of aggregate extending above the asphalt is either very small, or there are no rough or angular aggregate particles to provide good skid resistance. When the aggregate in the surface becomes smooth to the touch, adhesion with vehicle tires is considerably reduced. When the portion of aggregate extending above the surface is small, the pavement texture does not significantly contribute to reducing vehicle speed. Polished aggregate should be counted when close examination reveals that the aggregate extending above the asphalt is negligible, and the surface aggregate is smooth to the touch. This type of distress is indicated when the number on a skid resistance test is low or has dropped significantly from a previous rating.

Severity Levels

No degrees of severity are defined. However, the degree of polishing should be clearly evident in the sample unit in that the aggregate surface should be smooth to the touch.



13. Potholes (AC)

Description

Potholes are small--usually less than 750 mm (30 in.) in diameter--bowl-shaped depressions in the pavement surface. They generally have sharp edges and vertical sides near the top of the hole. When holes are created by high-severity alligator cracking, they should be identified as potholes, not as weathering.

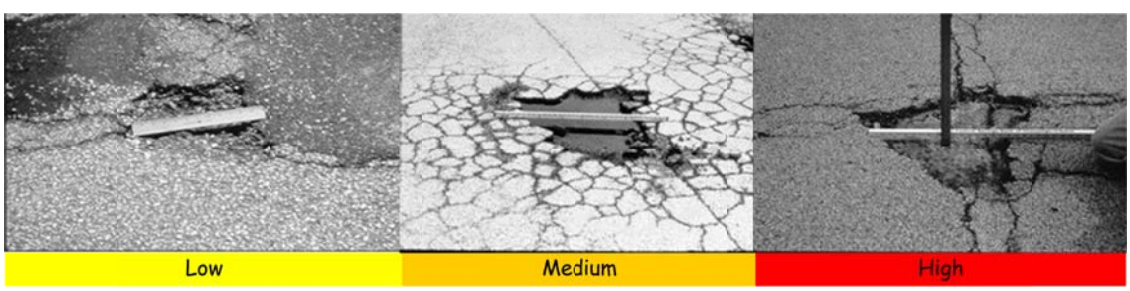
Severity Levels

The levels of severity for potholes less than 750 mm (30 in.) in diameter are based on both the diameter and the depth of the pothole, according to Table 1.

If the pothole is more than 750 mm (30 in.) in diameter, the area should be determined in square feet and divided by 0.5 m2 (5.5 sq. ft) find the equivalent number of holes. If the depth is 25 mm (1 in.) or less, the holes are considered medium severity. If the depth is more than 25 mm (1 in.), they are considered high severity (Figures 13a through 13c).

Table 1. Levels of Severity for Potholes.

Maximum Depth of Pothole	Average Diameter (mm) (in.) 100 to 200 mm (4 to 8 in.)	200 to 450 mm (8 to 18 in.)	450 to 750 mm (18 to 30 in.)
13 to ≤ 25 mm (1/2 to 1 in.)	L	L	M
>25 and ≤ 50 mm (1 to 2 in.)	L	M	H
>50 mm (2 in.)	M	M	H



14. Railroad Crossing (AC)

Description

Railroad crossing defects are depressions or bumps around and/or between tracks.

Severity Levels

L Railroad crossing causes low-severity ride quality (Figure 14a).

M Railroad crossing causes medium-severity ride quality (Figure 14b).

H Railroad crossing causes high-severity ride quality (Figure 14c).

15. Rutting (AC)

Description

A rut is a surface depression in the wheel paths. Pavement uplift may occur along the sides of the rut, but, in many instances, ruts are noticeable only after a rainfall when the paths are filled with water. Rutting stems from a permanent deformation in any of the pavement layers or subgrades, usually caused by consolidated or lateral movement of the materials due to traffic load.

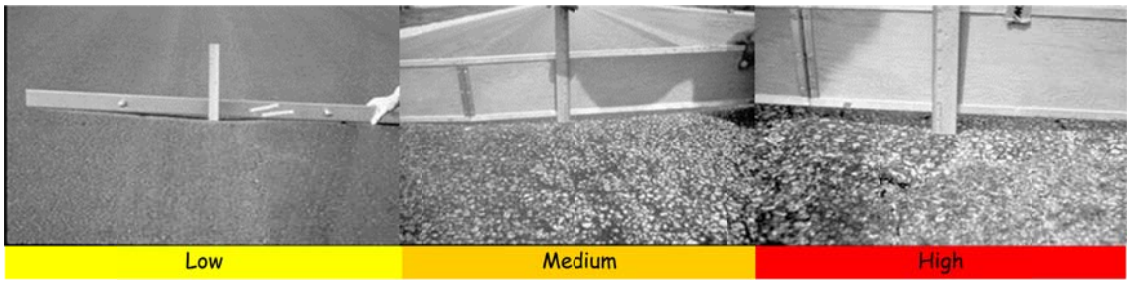
Severity Levels

Mean Rut Depth

L 6 to 13 mm (1/4 to 1/2 in.) (Figure 15a).

M >13 to 25 mm (>1/2 to 1 in.) (Figure 15b).

H >25 mm (>1 in.) (Figure 15c).



16. Shoving (AC)

Description

Shoving is a permanent, longitudinal displacement of a localized area of the pavement surface caused by traffic loading. When traffic pushes against the pavement, it produces a short, abrupt wave in the pavement surface. This distress normally occurs only in unstable liquid asphalt mix (cutback or emulsion) pavements.

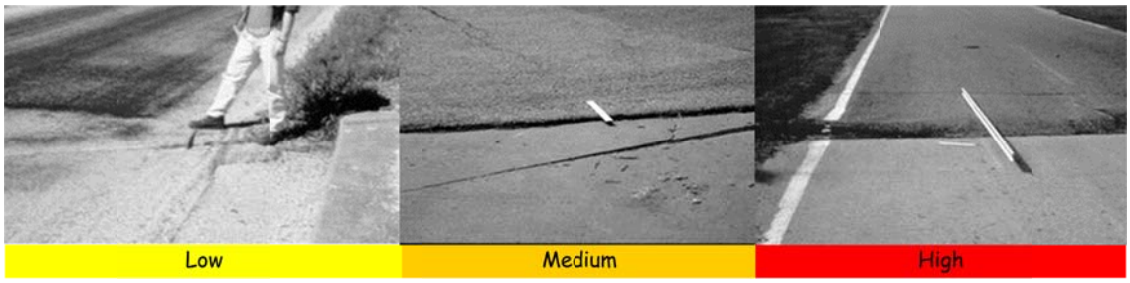
Shoves also occur where asphalt pavements abut PCC pavements; the PCC pavements increase in length and push the asphalt pavement, causing the shoving.

Severity Levels

L Shove causes low-severity ride quality (Figure 16a).

M Shove causes medium-severity ride quality (Figure 16b).

H Shove causes high-severity ride quality (Figure 16c).



17. Slippage Cracking (AC)

Description

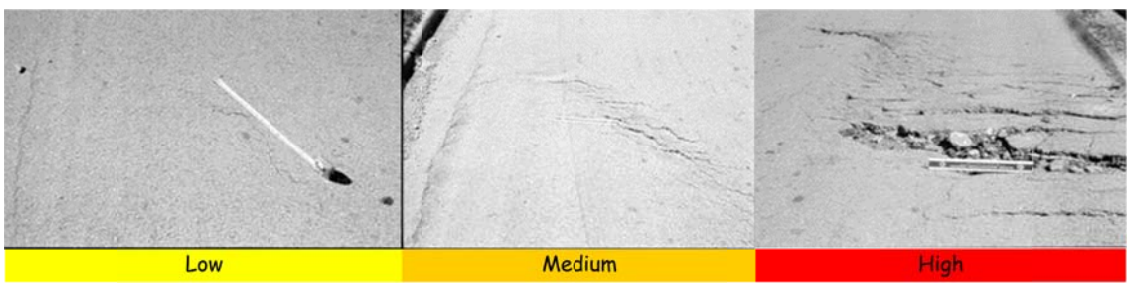
Slippage cracks are crescent or half-moon shaped cracks, usually transverse to the direction of travel. They are produced when braking or turning wheels cause the pavement surface to slide or deform. This distress usually occurs in overlaps when there is a poor bond between the surface and the next layer of the pavement structure.

Severity Level

L Average crack width is < 10 mm (3/8 in.) (Figure 17a).

M One of the following conditions exists (Figure 17b): (1) average crack width is ≥ 10 and < 40 mm (≥ 3/8 and < 1-1/2 in.); (2) the area around the crack is moderately spalled and/or surrounded with secondary cracks..

H One of the following conditions exists (Figure 17c): (1) the average crack width is > 40 mm (1-1/2 in.), or (2) the area around the crack is broken into easily removed pieces.



18. Swell (AC)

Description

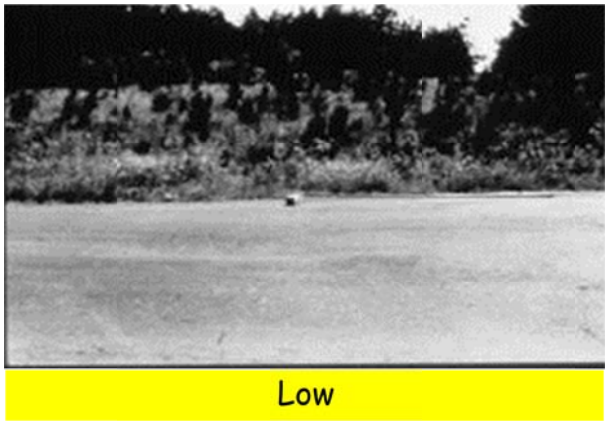
Swell is characterized by an upward bulge in the pavement's surface—a long, gradual wave more than 3 m (10 ft) long. Swelling can be accompanied by surface cracking. This distress is usually caused by frost action in the subgrade or by swelling soil.

Severity Level

L Swell causes low-severity ride quality. Low-severity swells are not always easy to see, but can be detected by driving at the speed limit over the pavement section. An upward motion will occur at the swell if it is present.

M Swell causes medium-severity ride quality.

H Swell causes high-severity ride quality.



19. Raveling (AC)

Description

Raveling is the dislodging of coarse aggregate particles. Raveling may be caused by insufficient asphalt binder, poor mixture quality, insufficient compaction, segregation, or stripping.

Severity Levels

L There is no low severity raveling

M Considerable loss of coarse aggregate, greater than 20 per square yard (square meter), and/ or clusters of missing coarse aggregate are present.

H Surface is very rough and pitted, may be completely removed in places.

20. Weathering (AC)

Description

The wearing away of the asphalt binder and fine aggregate matrix.

Severity Levels

As used herein, coarse aggregate refers to predominant coarse aggregate size of the asphalt mix. Loss or dislodging of coarse aggregate is covered under raveling

Surface wear is normally caused by oxidation, inadequate compaction, insufficient asphalt content, excessive natural sand, surface water erosion, and traffic. Weathering occurs faster in areas with high solar radiation.

L	Asphalt surface beginning to show signs of aging which may be accelerated by climatic conditions. Loss is the fine aggregate matrix is noticeable and may be accompanied by fading of the asphalt color. Edges of the coarse aggregates are beginning to be exposed (less than 0.05 in. or 1 mm). Pavement may be relatively new (as new as 6 months old).
M	Loss of fine aggregate matrix is noticeable and edges of coarse aggregate have been exposed up to 1/4 width (of the longest side) of the coarse aggregate due to the loss of fine aggregate matrix.
H	Edges of coarse aggregate have been exposed greater than ¼ width (of the longest side) of the coarse aggregate. There is considerable loss of fine aggregate matrix leading to potential or some loss of coarse aggregate.

How To Measure

Surface Wear is measured in square feet (square meters). Surface Wear is not recorded where medium and/ or high severity raveling is recorded.

21. Blowup/Buckling (PCC)

Description

Blowups or buckles occur in hot weather, usually at a transverse crack or joint that is not wide enough to permit slab expansion. The insufficient width is usually caused by infiltration of incompressible materials into the joint space. When expansion cannot relieve enough pressure, a localized upward movement of the slab edges (buckling) or shattering will occur in the vicinity of the joint. Blowups can also occur at utility cuts and drainage inlets.

Severity Levels

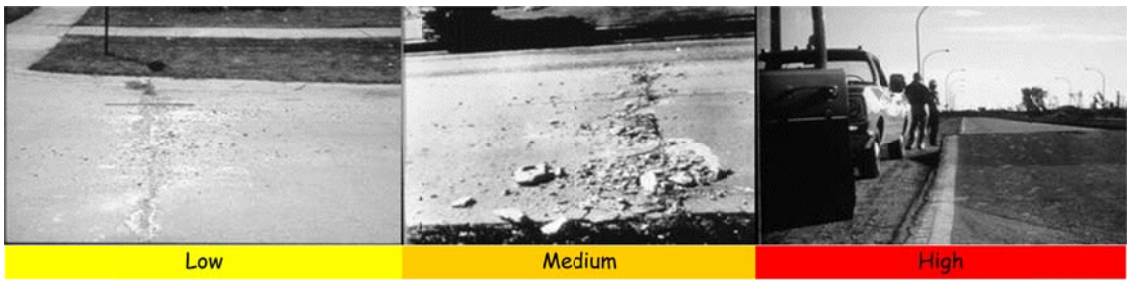
L Buckling or shattering causes low-severity ride quality (Figure 21a).

M Buckling or shattering causes medium-severity ride quality (Figure 21b).

H Buckling or shattering causes high-severity ride quality (Figure 21c).

How to Count

At a crack, a blowup is counted as being in one slab. However, if the blowup occurs at a joint and affects two slabs, the distress should be recorded as occurring in two slabs. When a blowup renders the pavement impassable, it should be repaired immediately.



22. Corner Break (PCC)

Description

A corner break is a crack that intersects the joints at a distance less than or equal to one-half the slab length on both sides, measured from the corner of the slab. For example, a slab measuring 3.5 by 6.0 m (11.5 by 20.0 ft) that has a crack 1.5m (5 ft) on one side and 3.5 m (11.5 ft) on the other side is not considered a corner break; it is a diagonal crack. However, a crack that intersects 0.5 m (4 ft) on one side and 2.5 m (8 ft) on the other is considered a corner break. A corner break differs from a corner spall in that the crack extends vertically through the entire slab thickness, whereas a corner spall intersects the joint at an angle. Load repetition combined with loss of support and curling stresses usually cause corner breaks.

Severity Levels

L Break is defined by a low-severity* crack. A low severity crack is < 13 mm (1/2 in.), cracks of any width with satisfactory filler; no faulting. The area between the break and the joints is not cracked or may be lightly cracked (Figure 22a).

M Break is defined by a medium-severity* crack and/or the area between the break and the joints has a medium crack. A medium severity crack is a non-filled crack > 13mm and < 50mm (>1/2 in. and < 2in.), a non-filled crack < 50mm (2 in.) with faulting < 10 mm (3/8 in.), or a any filled crack with faulting < 10 mm (3/8 in.) (Figure 22b).

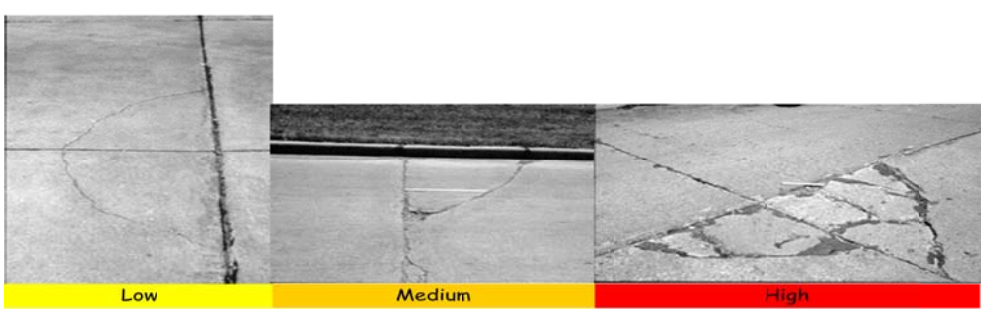
H Break is defined by a high-severity* crack and/or the area between the break and the joints is highly cracked. A high severity crack is a non-filled crack >50 mm (2 in.) wide, or any filled or non-filled crack with faulting >10 mm (3/8 in.) (Figure 22c).

**The above crack severity definitions are for non-reinforced slabs. For reinforced slabs, see Linear Cracking.*

How to Count

Distressed slab is recorded as one slab if it:

1. Contains a single corner break.
2. Contains more than one break of a particular severity.
3. Contains two or more breaks of different severities. For two or more breaks, the highest level of severity should be recorded. For example, a slab containing both low- and medium-severity corner breaks should be counted as one slab with a medium corner break.



23. Divided Slab (PCC)

Description

Slab is divided by cracks into four or more pieces due to overloading and/or inadequate support. If all pieces or cracks are contained within a corner break, the distress is categorized as a severe corner break.

Severity Levels

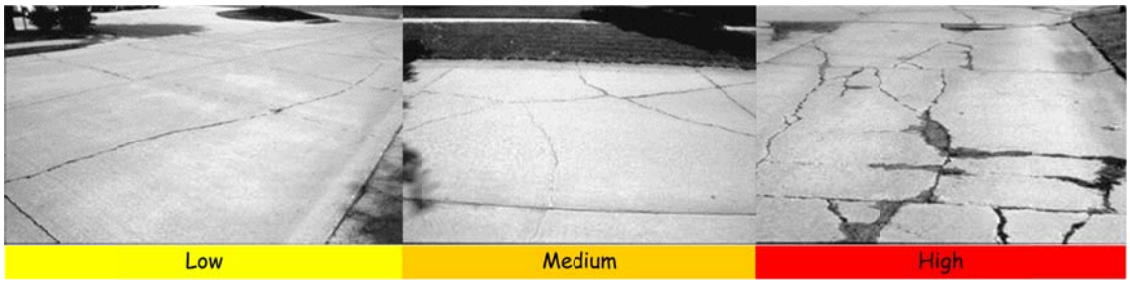
Table 1 lists severity levels for divided slabs. Examples are shown in Figures 23a through 23c.

Table 1. Levels of Severity for Divided Slabs.

	Number of Pieces in Cracked Slab		
Severity of Majority of Cracks	4 to 5	6 to 8	More than 8
L	L	L	M
M	L	M	H
H	M	H	H

How to Count

If the divided slab is medium- or high-severity, no other distress is counted for that slab.



24. Durability ("D") Cracking (PCC)

Description

"D" Cracking is caused by freeze-thaw expansion of the large aggregate which, over time, gradually breaks down the concrete. This distress usually appears as a pattern of cracks running parallel and close to a joint or linear crack. Since the concrete becomes saturated near joints and cracks, a dark-colored deposit can usually be found around fine "D" cracks. This type of distress may eventually lead to disintegration of the entire slab.

Severity Levels

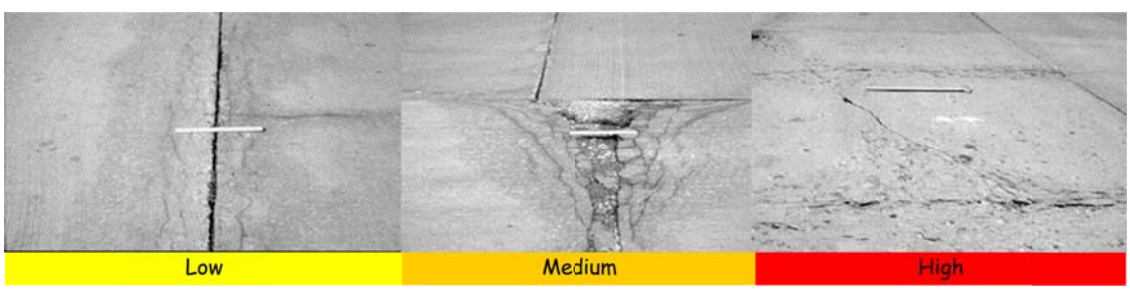
L "D" cracks cover less than 15 percent of slab area. Most of the cracks are tight, but a few pieces may be loose and or missing (Figure 24a).

M One of the following conditions exists (Figure 24b): (1) "D" cracks cover less than 15 percent of the area and most of the pieces are loose and or missing, or (2) "D" cracks cover more than 15 percent of the area. Most of the cracks are tight, but a few pieces may be loose and or missing.

H "D" cracks cover more than 15 percent of the area and most of the pieces have come out or could be removed easily (Figure 24c).

How to Count

When the distress is located and rated at one severity, it is counted as one slab. If more than one severity level exists, the slab is counted as having the higher severity distress. For example, if low and medium "D" cracking are on the same slab, the slab is counted as medium-severity cracking only.



25. Faulting (PCC)

Description

Faulting is the difference in elevation across a joint. Some common causes of faulting are:

1. Settlement because of soft foundation.
2. Pumping or eroding of material from under the slab.
3. Curling of the slab edges due to temperature and moisture changes.

Severity Levels

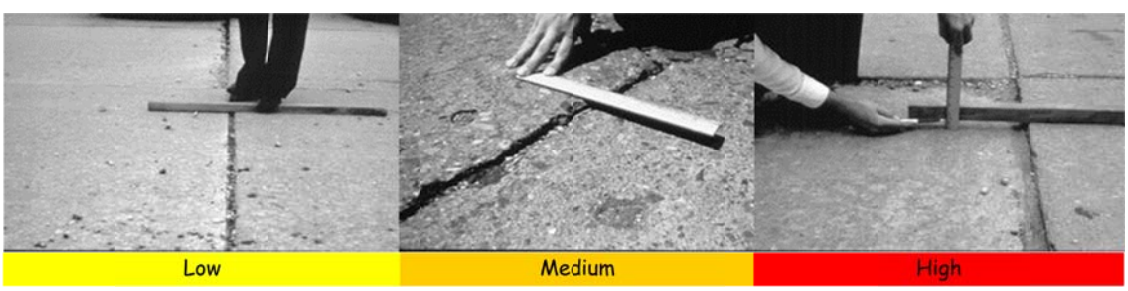
Severity levels are defined by the difference in elevation across the joint as indicated in Table 2. Figures 25a through 25c show examples of the different severity levels.

Table 2. Levels of Severity for Faulting.

Severity Level	Difference in Elevation
L	> 3 and < 10 mm (> 1/8 and < 3/8 in.)
M	> 10 and < 20 mm (> 3/8 and < 3/4 in.)
H	> 20 mm (> 3/4 in.)

How to Count

Faulting across a joint is counted as one slab. Only affected slabs are counted. Faults across a crack are not counted as distress, but are considered when defining crack severity.



26. Joint Seal Damage (PCC)

Description

Joint seal damage is any condition that enables soil or rocks to accumulate in the joints or allows significant water infiltration. Accumulation of incompressible materials prevents the slab from expanding and may result in buckling, shattering, or spalling. A pliable joint filler bonded to the edges of the slabs protects the joints from material accumulation and prevents water from seeping down and softening the foundation supporting the slab. Typical types of joint seal damage are:

1. Stripping of joint sealant.
2. Extrusion of joint sealant.
3. Weed growth.
4. Hardening of the filler (oxidation).
5. Loss of bond to the slab edges.
6. Lack or absence of sealant in the joint.

Severity Levels

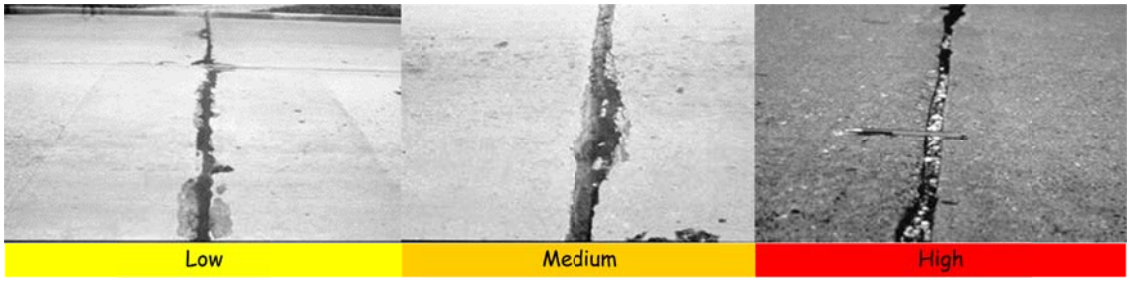
L Joint sealant is in generally good condition throughout section (Figure 26a). Sealant is performing well, with only minor damage (see above). Joint seal damage is at low severity if a few of the joints have sealer which has debonded from, but is still in contact with the joint edge. This condition exists if a knife blade can be inserted between sealer and joint face without resistance.

M Joint sealant is in generally fair condition over the entire section, with one or more of the above types of damage occurring to a moderate degree. Sealant needs replacement within 2 years (Figure 26b). Joint seal damage is at medium severity if a few of the joints have any of the following conditions: (a) joint sealer is in place, but water access is possible through visible openings no more than 3 mm (1/8 in.) wide. If a knife blade cannot be inserted easily between sealer and joint face, this condition does not exist; (b) pumping debris are evident at the joint; (c) joint sealer is oxidized and “lifeless” but pliable (like a rope), and generally fills the joint opening; or (d) vegetation in the joint is obvious, but does not obscure the joint opening.

H Joint sealant is in generally poor condition over the entire section, with one or more of the above types of damage occurring to a severe degree. Sealant needs immediate replacement (Figure 26c). Joint seal damage is at high severity if 10% or more of the joint sealer exceeds limiting criteria listed above, or if 10% or more of sealer is missing.

How to Count

Joint seal damage is not counted on a slab-by-slab basis, but is rated based on the overall condition of the sealant over the entire area.



27. Lane/Shoulder Drop-Off (PCC)

Description

Lane/shoulder drop-off is the difference between the settlement or erosion of the shoulder and the pavement travel-lane edge. The elevation difference can be a safety hazard; it can also cause increased water infiltration.

Severity Levels

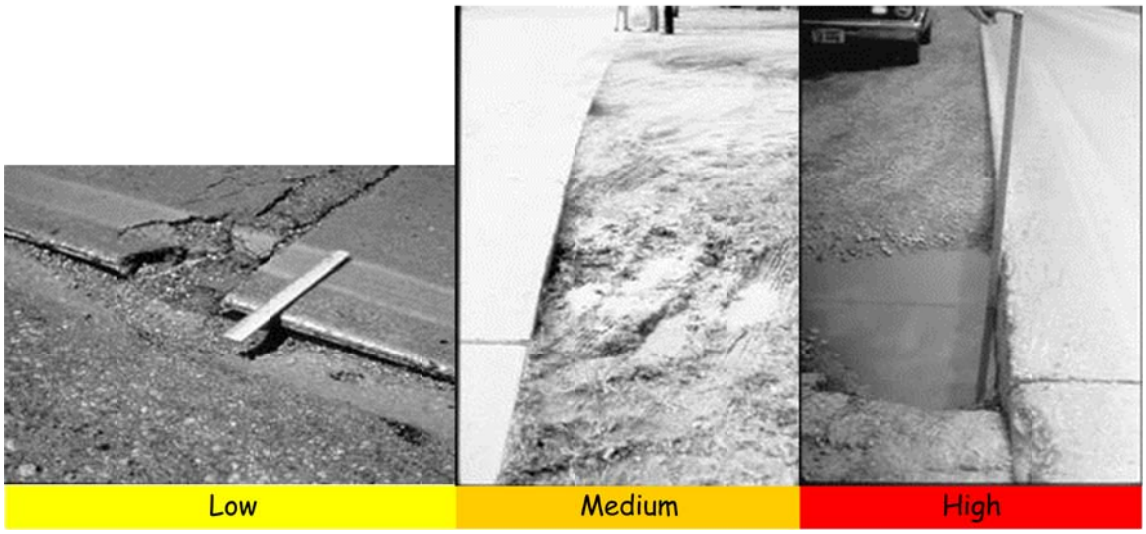
L The difference between the pavement edge and shoulder is >25 and ≤50 mm (>1 and ≤2 in.).

M The difference in elevation is >50 and ≤100 mm (>2 and ≤4 in.)

H The difference in elevation is >100 mm (>4 in.)

How to Count

The mean lane/shoulder drop-off is computed by averaging the maximum and minimum drop along the slab. Each slab exhibiting distress is measured separately and counted as one slab with the appropriate severity level.



28. Linear Cracking (Longitudinal, Transverse, and Diagonal Cracks) (PCC)

Description

These cracks, which divide the slab into two or three pieces, are usually caused by a combination of repeated traffic loading, thermal gradient curling, and repeated moisture loading. (Slabs divided into four or more pieces are counted as divided slabs.) Hairline cracks that are only a few feet long and do not extend across the entire slab are counted as shrinkage cracks.

Severity Levels

Non-reinforced Slabs

L Non-filled* cracks ≤ 13 mm (≤ 1/2 in.) or filled cracks of any width with the filler in satisfactory condition. No faulting exists

M One of the following conditions exists: (1) non-filled crack with a width >13 and ≤ 50 mm (>l/2 and ≤ 2 in.); (2) non-filled crack of any width ≤ 50 mm (2 in.) with faulting of <10 mm (3/8 in.), or (3) filled crack of any width with faulting <10 mm (3/8 in.)

H One of the following conditions exists: (1) non-filled crack with a width >50 mm (2 in.), or (2) filled or non-filled crack of any width with faulting >10 mm (3/8 in.)

Reinforced Slabs

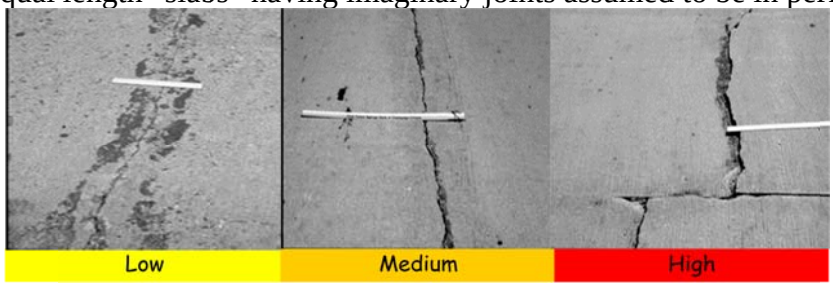
L Non-filled cracks ≥ 3 and <25 mm (≥ 1/8 to <1 in.) wide; filled crack of any width with the filler in satisfactory condition. No faulting exists.

M One of the following conditions exists: (1) non-filled cracks with a width ≥ 25 and <75 mm (≥ 1 and <3 in.) and no faulting; (2) non-filled crack of any width ≤ 75 mm (3 in.) with ≤ 10mm (3/8 in.) of faulting, or (3) filled crack of any width with ≤ 10mm (3/8 in.) faulting.

H Once of the following conditions exists: (1) non-filled crack >75 mm (3 in.) wide, or (2) filled or non-filled crack of any width with faulting >10 mm (3/8 in.).

How to Count

One the severity has been identified, the distress is recorded as one slab. If two medium severity cracks are within one slab, the slab is counted as having one high-severity crack. Slabs divided into four or more pieces are counted as divided slabs. In reinforced slabs, cracks <3 mm (1/8 in.) wide are counted as shrinkage cracks. Slabs longer than 9 m (29.5 ft) are divided into approximately equal length “slabs” having imaginary joints assumed to be in perfect condition.



29. Patching, Large (More Than 0.5 m^2 [5.5 sq. ft]) and Utility Cuts (PCC)

Description

.

A patch is an area where the original pavement has been removed and replaced by filler material. A utility cut is a patch that has replaced the original pavement to allow the installation or maintenance of underground utilities. The severity levels of a utility cut are assessed according to the same criteria as large patching.

Severity Levels

L Patch is functioning well, with little or no deterioration

M Patch is moderately deteriorated and/or moderate spalling can be seen around the edges. Patch material can be dislodged with considerable effort

H Patch is badly deteriorated. The extent of the deterioration warrants replacement

How to Count

If a single slab has one or more patches with the same severity level, it is counted as one slab containing that distress. If a single slab has more than one severity level, it is counted as one slab with the higher severity level.

30. Patching, Small (Less than 0.5 m^2 [5.5 sq. ft]) (PCC)

Description

A patch is an area where the original pavement has been removed and replaced by a filler material.

Severity Levels

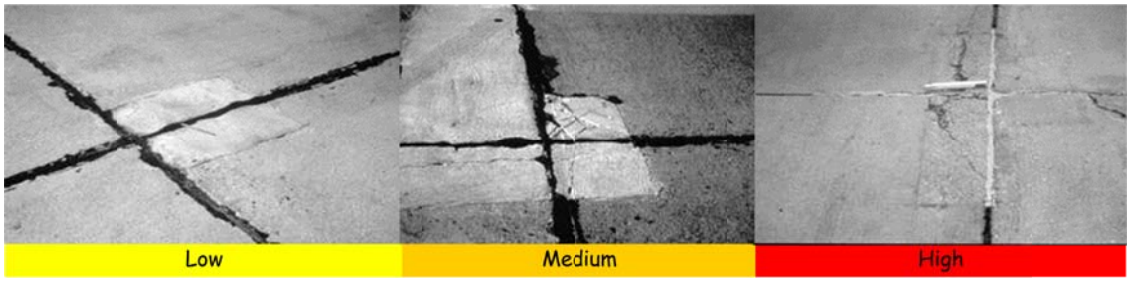
L Patch is functioning well with little or no deterioration

M Patch is moderately deteriorated. Patch material can be dislodged with considerable effort

H Patch is badly deteriorated. The extent of deterioration warrants replacement

How to Count

If a single slab has one or more patches with the same severity level, it is counted as one slab containing that distress. If a single slab has more than one severity level, it is counted as one slab with the higher severity level.



31. Polished Aggregate (PCC)

Description

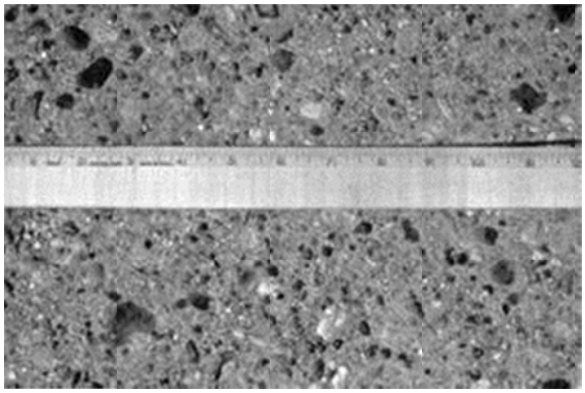
This distress is caused by repeated traffic applications. Polished aggregate is present when close examination of a pavement reveals that the portion of aggregate extending above the asphalt is either very small, or there are no rough or angular aggregate particles to provide good skid resistance.

Severity Levels

No degrees of severity are defined. However, the degree of polishing should be significant before it is included in the condition survey and rated as a defect.

How to Count

A slab with polished aggregate is counted as one slab.



32. Popouts (PCC)

Description

Figure 32. Popouts.

A popout is a small piece of pavement that breaks loose from the surface due to freeze-thaw action, combined with expansive aggregates. Popouts usually range in diameter from approximately 25 to 100 mm (1 to 4 in.) and in depth from 13 to 50 mm (1/2 to 2 in.).

Severity Levels

No degrees of severity are defined for popouts. However, popouts must be extensive before they are counted as a distress. Average popout density must exceed approximately three popouts per m^2 over the entire slab area.

How to Count

The density of the distress must be measured. If there is any doubt that the average is greater than three popouts per square yard, at least three random 1 m^2 (11 ft^2) areas should be checked. When the average is greater than this density, the slab should be counted.

33. Pumping (PCC)

Description

Pumping is the ejection of material from the slab foundation through joints or cracks. This is caused by deflection of the slab with passing loads. As a load moves across the joint between the slabs, water is first forced under the leading slab, and then forced back under the trailing slab. This action erodes and eventually removes soil particles, resulting in progressive loss of pavement support. Pumping can be identified by surface stains and evidence of base or subgrade material on the pavement close to joints or cracks. Pumping near joints is caused by poor joint sealer and indicates loss of support; repeated loading will eventually produce cracks. Pumping can also occur along the slab edge, causing loss of support.

Severity Levels

No degrees of severity are defined. It is enough to indicate that pumping exists.

How to Count

One pumping joint between two slabs is counted as two slabs. However, if the remaining joints around the slab are also pumping, one slab is added per additional pumping joint.

34. Punchout (PCC)

Description

This distress is a localized area of the slab that is broken into pieces. The punchout can take many different shapes and forms, but it is usually defined by a crack and a joint. The distance between the join and the crack or two closely spaced cracks is ≤ 1.5 m (5 ft) wide. This distress is caused by heavy repeated loads, inadequate slab thickness, loss of foundation support, and/or a localized concrete construction deficiency (e.g., honeycombing).

Severity Levels

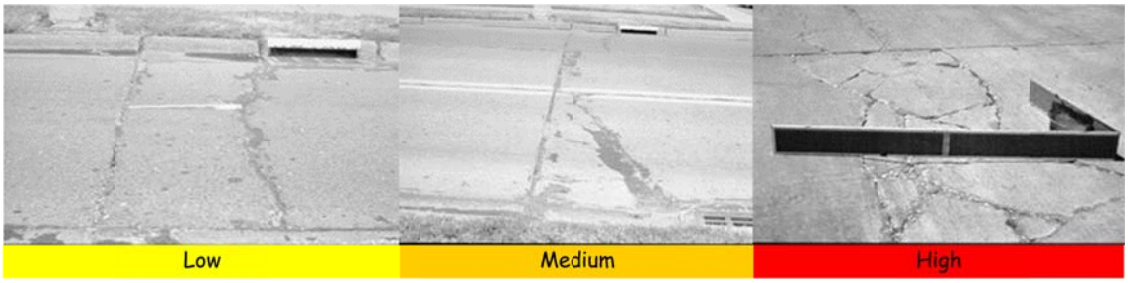
Table 3 lists the severity levels for punchouts, and Figures below show examples.

Table 3. Levels of Severity for Punchouts.

Severity of Majority of Cracks	Number of Pieces		
	2 to 3	4 to 5	> 5
L	L	L	M
M	L	M	H
H	M	H	H

How to Count

If a slab contains more than one punchout or a punchout and a crack, it is counted as shattered.



35. Railroad Crossing (PCC)

Description

Railroad crossing distress is characterized by depressions or bumps around the tracks.

Severity Levels

L Railroad crossing causes low-severity ride quality

M Railroad crossing causes medium-severity ride quality

H Railroad crossing causes high-severity ride quality

How to Count

The number of slabs crossed by the railroad tracks is counted. Any large bump created by the tracks should be counted as part of the crossing.

36. Scaling, Map Cracking, and Crazing (PCC)

Description

Map cracking or crazing refers to a network of shallow, fine, or hairline cracks that extend only through the upper surface of the concrete. The cracks tend to intersect at angles of 120 degrees. Map cracking or crazing is usually caused by concrete over-finishing, and may lead to surface scaling, which is the breakdown of the slab surface to a depth of approximately 6 to 13 mm (1/4 to 1/2 in.). Scaling may also be caused by deicing salts, improper construction, freeze-thaw cycles, and poor aggregate. The type of scaling defined here is not caused by "D cracking. If scaling is caused by "D" cracking, it should be counted under that distress only.

Severity Levels

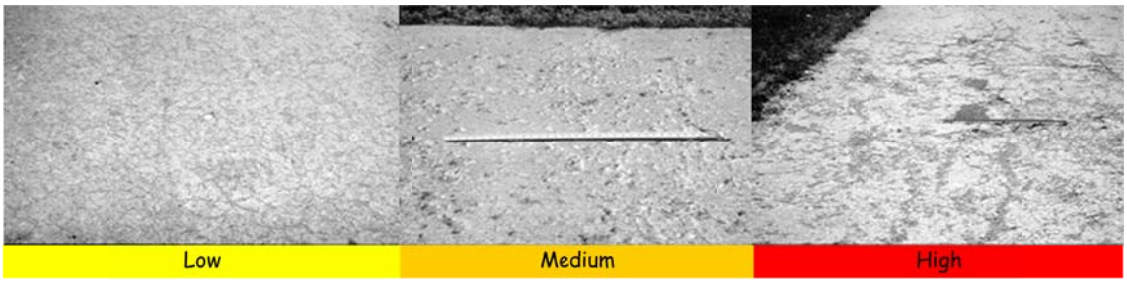
L Crazing or map cracking exists over most of the slab area; the surface is in good condition, with only minor scaling present

M Slab is scaled, but less than 15 percent of the slab is affected

H Slab is scaled over more than 15 percent of its area

How to Count

A scaled slab is counted as one slab. Low-severity crazing should only be counted if the potential for scaling appears to be imminent, or a few small pieces come out.



37. Shrinkage Cracks (PCC)

Description

Shrinkage cracks are hairline cracks that are usually less than 2m long and do not extend across the entire slab. They are formed during the setting and curing of the concrete and usually do not extend through the depth of the slab.

Severity Levels

No degrees of severity are defined. It is enough to indicate that shrinkage cracks are present.

How to Count

If any shrinkage cracks exist on a particular slab, the slab is counted as one slab with shrinkage cracks.

38. Spalling, Corner (PCC)

Description

Corner spalling is the breakdown of the slab within approximately 0.5 m (1.5 ft) of the corner. A corner spall differs from a corner break in that the spall usually angles downward to intersect the joint, whereas a break extends vertically through the slab comer. Spalls less than 130 mm (5 in.) from the crack to the corner on both sides should not be counted.

Severity Levels

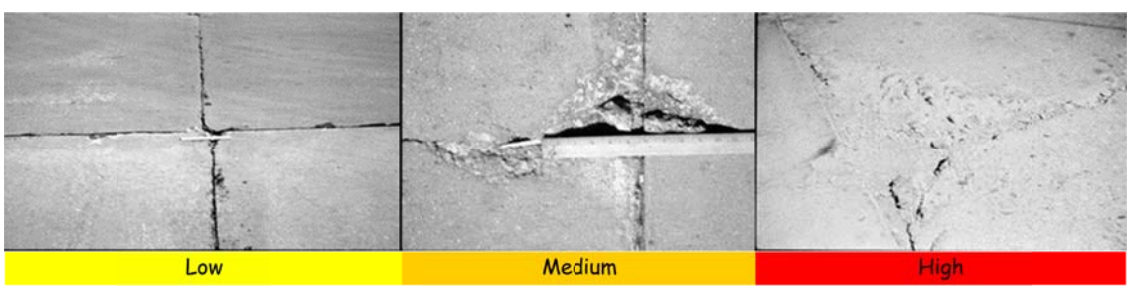
Table 4 lists the levels of severity for corner spalling. Figures below show examples. Corner spalling with an area of less than 650 cm (l0 sq. in.) from the crack to the corner on both sides should not be counted.

Table 4. Levels of Severity for Corner Spalling.

	Dimensions of Sides of Spall	
Depth of Spall	130 x 130 mm to 300 x 300 mm (5 x 5 in.)to (12 x 12 in.)	>300 x 300 mm (>12 x 12 in.)
< 25 mm (1 in.)	L	L
> 25 mm to 50 mm (1 to 2 in.)	L	M
> 50 mm (2 in.)	M	H

How to Count

If one or more corner spalls with the same severity level are in a slab, the slab is counted as one slab with comer spalling. If more than one severity level occurs, it is counted as one slab with the higher severity level.



39. Spalling, Joint (PCC)

Description

Joint spalling is the breakdown of the slab edges within 0.5 m (1.5 ft) of the joint. A joint spall usually does not extend vertically through the slab, but intersects the joint at an angle. Spalling results from:

1. Excessive stresses at the joint caused by traffic loading or by infiltration of incompressible materials.
2. Weak concrete at the joint caused by overworking.
3. Water accumulation in the joint and freeze-thaw action.

Severity Levels

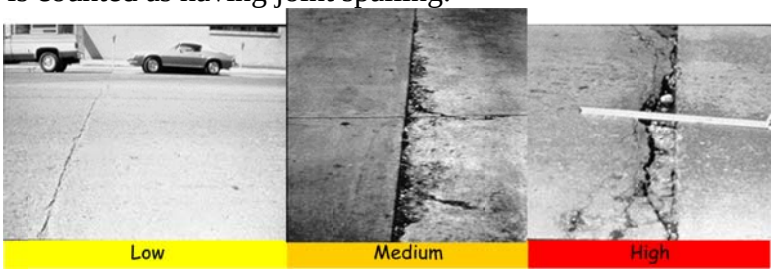
Table 5 and Figures below show the severity levels of joint spalling. A frayed joint where the concrete has been worn away along the entire joint is rated as low severity.

Table 5. Levels of Severity for Joint Spalling.

Spall Pieces	Width of Spall	Length of Spall < 0.5 m (1.5 ft)	Length of Spall > 0.5 m (1.5 ft)
Tight--can not be easily removed (may be a few pieces missing)	< 100 mm (4 in.)	L	L
	> 100 mm	L	L
Loose--can be removed and some pieces are missing; if most or all pieces are missing, spall is shallow, less than 25 mm (1 in.)	< 100 mm	L	M
	> 100 mm	L	M
Missing--most or all pieces have been removed	< 100 mm	L	M
	> 100 mm	M	H

How to Count

If spall is along the edge of one slab, it is counted as one slab with joint spalling. If spalling is on more than one edge of the same slab, the edge having the highest severity is counted and recorded as one slab. Joint spalling can also occur along the edges of two adjacent slabs. If this is the case, each slab is counted as having joint spalling.



Appendix D

Comparison of 2011 and 2015 PCI Survey Results

Appendix D
Comparison of 2011 and 2015 PCI Results

BranchID	SectionID	Last Major Work Date	Surface	Area	Age	PCI - 2011	PCI Category	PCI - 2015	PCI Category	Change in PCI/yr	Comments
15RDeice	15RDeice01	08-01-2006	AC	37824	9	72	Satisfactory	69	Fair	-0.8	Typical (0 to 5 points/year)
15RTrit	15RTrit01	08-01-2007	AC	25316	8	87	Good	86	Good	-0.3	Typical (0 to 5 points/year)
Aaronson	Aaronson01	10-09-2014	AAC	11984	1	65	Fair	98	Good	8.3	Rehab/Recon after 2011
Aaronson	Aaronson02	11-26-2013	AAC	41508	2	66	Fair	95	Good	7.3	Rehab/Recon after 2011
Aaronson	Aaronson03	11-26-2013	AAC	18245	2	68	Fair	87	Good	4.8	Rehab/Recon after 2011
AirCargoDr	AirCarDr01	12-31-2014	AC	21682	1	53	Poor	97	Good	11.0	Rehab/Recon after 2011
AirCargoDr	AirCarDr02	12-31-2014	AC	13728	1	76	Satisfactory	91	Good	3.8	Rehab/Recon after 2011
AirCargoDr	AirCarDr03	10-01-2014	AC	41826	1	30	Very Poor	83	Satisfactory	13.3	Rehab/Recon after 2011
AirCargoDr	AirCarDr04	12-31-2014	AC	12180	1	41	Poor	99	Good	14.5	Rehab/Recon after 2011
AirCargoDr	AirCarDr05	08-02-1997	AC	36002	18	70	Fair	73	Satisfactory	0.8	Increase - Within Margin of Error
AirCargoDr	AirCarDr06	04-30-2014	AC	23482	2	N/A	Good	100	Good	N/A	Not Inspected in 2011
ARFFLot	ARFFLot01	05-03-1999	AC	12841	17	83	Satisfactory	81	Satisfactory	-0.5	Typical (0 to 5 points/year)
ARFFLot	ARFFLot02	05-02-1999	PCC	6111	17	75	Satisfactory	78	Satisfactory	0.8	Increase - Within Margin of Error
ARFFLot	ARFFLot03	05-02-1999	PCC	12273	17	68	Fair	75	Satisfactory	1.8	Increase - Within Margin of Error
ARFFLot	ARFFLot04	05-02-1999	PCC	7143	17	69	Fair	75	Satisfactory	1.5	Increase - Within Margin of Error
ARFFRd	ARFFRd01	05-03-1999	AC	35182	17	32	Very Poor	14	Serious	-4.5	Typical (0 to 5 points/year)
ARFFRd	ARFFRd02	01-01-2015	AC	24315	1	78	Satisfactory	100	Good	5.5	Rehab/Recon after 2011
ARFFRd	ARFFRd03	01-02-1999	AC	16470	17	76	Satisfactory	74	Satisfactory	-0.5	Typical (0 to 5 points/year)
Arrivals	Arrivals01	08-01-2007	AC	48610	8	94	Good	88	Good	-1.5	Typical (0 to 5 points/year)
Arrivals	Arrivals02	06-01-2005	AC	33936	11	100	Good	92	Good	-2.0	Typical (0 to 5 points/year)
Arrivals	Arrivals03	06-01-2002	AC	13419	14	89	Good	71	Satisfactory	-4.5	Typical (0 to 5 points/year)
Arrivals	Arrivals04	06-03-2002	AC	27581	14	100	Good	96	Good	-1.0	Typical (0 to 5 points/year)
Arrivals	Arrivals05	06-02-2002	PCC	61664	14	86	Good	79	Satisfactory	-1.8	Typical (0 to 5 points/year)
Arrivals	Arrivals06	08-31-2014	PCC	15652	1	38	Very Poor	97	Good	14.8	Rehab/Recon after 2011
Arrivals	Arrivals07	06-01-2005	AC	38082	11	96	Good	81	Satisfactory	-3.8	Typical (0 to 5 points/year)
Arrivals	Arrivals08	04-25-2014	AAC	25797	2	91	Good	90	Good	-0.3	Typical (0 to 5 points/year)
Burma	Burma01	04-29-2013	AC	68765	3	70	Fair	97	Good	6.8	Rehab/Recon after 2011
Burma	Burma02	06-01-2003	AC	11100	13	26	Very Poor	23	Serious	-0.8	Typical (0 to 5 points/year)
BusMaint	BusMaint01	08-03-2003	AC	2810	12	69	Fair	55	Poor	-3.5	Typical (0 to 5 points/year)
BusMaint	BusMaint02	08-02-2003	PCC	2922	12	76	Satisfactory	76	Satisfactory	0.0	Typical (0 to 5 points/year)
BusMaint	BusMaint03	12-14-2012	AC	29697	3	46	Poor	100	Good	13.5	Rehab/Recon after 2011

Appendix D
Comparison of 2011 and 2015 PCI Results

BranchID	SectionID	Last Major Work Date	Surface	Area	Age	PCI - 2011	PCI Category	PCI - 2015	PCI Category	Change in PCI/yr	Comments
BusMaint	BusMaint04	08-02-2003	PCC	14047	12	98	Good	100	Good	0.5	Increase - Within Margin of Error
BusMaint	BusMaint05	08-02-2003	PCC	2277	12	100	Good	96	Good	-1.0	Typical (0 to 5 points/year)
BusMaint	BusMaint06	08-02-2003	PCC	4296	12	96	Good	100	Good	1.0	Increase - Within Margin of Error
BusMaint	BusMaint07	12-14-2012	PCC	39314	3	99	Good	98	Good	-0.3	Rehab/Recon after 2011
BusMaint	BusMaint08	01-01-1900	PCC	1902	116	N/A	Good	100	Good	N/A	Not Inspected in 2011
CargoG	CargoG01	05-01-2000	PCC	47601	16	82	Satisfactory	82	Satisfactory	0.0	Typical (0 to 5 points/year)
CargoG	CargoG02	08-01-2000	AC	185177	15	94	Good	63	Fair	-7.8	High
Cemetery	Cemetery01	08-03-1999	AC	7569	16	89	Good	93	Good	1.0	Increase - Within Margin of Error
CNG	CNG01	01-01-2012	AC	22516	4	81	Satisfactory	97	Good	4.0	Rehab/Recon after 2011
CNG	CNG02	01-02-1998	PCC	2513	18	18	Serious	23	Serious	1.3	Increase - Within Margin of Error
CServRd	CServRd01	05-03-1998	AC	40850	18	77	Satisfactory	61	Fair	-4.0	Typical (0 to 5 points/year)
CServRd	CServRd02	05-03-1998	AC	20881	18	64	Fair	51	Poor	-3.3	Typical (0 to 5 points/year)
CUP	CUPRd01	05-01-1998	AC	15116	18	85	Satisfactory	69	Fair	-4.0	Typical (0 to 5 points/year)
DailyRd	DailyRd01	01-01-1900	AC	10331	116	54	Poor	30	Very Poor	-6.0	Typical (0 to 5 points/year)
DailyRd	DailyRd02	01-01-1900	AC	24636	116	N/A	Good	17	Serious	N/A	Not Inspected in 2011
DailyRd	DailyRd03	01-01-1900	AC	8210	116	31	Very Poor	16	Serious	-3.8	Typical (0 to 5 points/year)
DailyRd	DailyRd04	01-01-1900	AC	13741	116	22	Serious	10	Failed	-3.0	Typical (0 to 5 points/year)
DailyRd	DailyRd05	01-01-1900	AC	7500	116	95	Good	95	Good	0.0	Typical (0 to 5 points/year)
Dep	Dep01	12-13-2013	AC	11819	2	52	Poor	72	Satisfactory	5.0	Rehab/Recon after 2011
Dep	Dep02	08-01-2010	AAC	7764	5	95	Good	62	Fair	-8.3	High
ElkLand	ElkLand01	08-02-1983	AC	51998	32	84	Satisfactory	79	Satisfactory	-1.3	Typical (0 to 5 points/year)
ElkLand	ElkLand02	08-02-1983	AC	324984	32	72	Satisfactory	78	Satisfactory	1.5	Increase - Within Margin of Error
ElkLandRd	ElkLndRd01	08-02-1983	AC	34912	32	72	Satisfactory	87	Good	3.8	Increase - High
ElmRd	ElmRd01	08-01-2007	AC	33128	8	95	Good	81	Satisfactory	-3.5	Typical (0 to 5 points/year)
ElmRd	ElmRd03	12-13-2013	AC	3680	2	34	Very Poor	95	Good	15.3	Rehab/Recon after 2011
ElmRd	ElmRd04	08-01-2007	AC	17650	8	94	Good	80	Satisfactory	-3.5	Typical (0 to 5 points/year)
ElmRd	ElmRd05	08-01-2007	AC	31073	8	95	Good	73	Satisfactory	-5.5	High - 100% Laser Crack Map
ElmRd	ElmRd06	06-04-2004	AC	9724	12	76	Satisfactory	55	Poor	-5.3	High - 100% Laser Crack Map
ElmRd	ElmRd07	06-04-2004	AC	9816	12	83	Satisfactory	49	Poor	-8.5	High - 100% Laser Crack Map
ElmRdExt	ElmRdExt01	01-29-2014	AC	23144	2	81	Satisfactory	96	Good	3.8	Rehab/Recon after 2011
ElmRdExt	ElmRdExt02	01-29-2014	AC	10609	2	77	Satisfactory	97	Good	5.0	Rehab/Recon after 2011

Appendix D
Comparison of 2011 and 2015 PCI Results

BranchID	SectionID	Last Major Work Date	Surface	Area	Age	PCI - 2011	PCI Category	PCI - 2015	PCI Category	Change in PCI/yr	Comments
ElmRdExt	ElmRdExt03	01-29-2014	AC	20719	2	77	Satisfactory	97	Good	5.0	Rehab/Recon after 2011
ElmRdExt	ElmRdExt04	01-29-2014	AC	10912	2	86	Good	100	Good	3.5	Rehab/Recon after 2011
ElmRdExt	ElmRdExt05	01-29-2014	AC	14981	2	58	Fair	97	Good	9.8	Rehab/Recon after 2011
ElmRdExt	ElmRdExt06	01-29-2014	AC	15053	2	86	Good	100	Good	3.5	Rehab/Recon after 2011
ElmRdExt	ElmRdExt07	01-29-2014	AC	13731	2	89	Good	97	Good	2.0	Rehab/Recon after 2011
ElmRdExt	ElmRdExt08	01-29-2014	AC	25615	2	75	Satisfactory	82	Satisfactory	1.8	Rehab/Recon after 2011
EmpLot	EmpLot01	01-01-2012	AC	188541	4	69	Fair	100	Good	7.8	Rehab/Recon after 2011
EmpLot	EmpLot02	01-01-2012	AC	171136	4	72	Satisfactory	100	Good	7.0	Rehab/Recon after 2011
ETenant	ETenant01	08-03-2001	AC	370941	14	88	Good	84	Satisfactory	-1.0	Typical (0 to 5 points/year)
ETenant	ETenant02	08-02-2001	PCC	5179	14	97	Good	97	Good	0.0	Typical (0 to 5 points/year)
ExAlamo	ExAlamo01	01-01-1900	AC	26489	116	N/A	Good	82	Satisfactory	N/A	Not Inspected in 2011
ExAlamo	ExAlamo01A	01-01-1900	AC	16612	116	N/A	Good	39	Very Poor	N/A	Not Inspected in 2011
ExAlamo	ExAlamo01B	01-01-1900	AC	14351	116	N/A	Good	77	Satisfactory	N/A	Not Inspected in 2011
ExManLot	ExManLot01	05-03-1995	AC	10161	21	93	Good	59	Fair	-8.5	High
Express	Express01	05-03-2003	AC	389141	13	88	Good	70	Fair	-4.5	Typical (0 to 5 points/year)
Express	Express02	01-01-2012	PCC	11461	4	92	Good	99	Good	1.8	Rehab/Recon after 2011
Express	Express03	01-29-2014	AC	10669	2	80	Satisfactory	100	Good	5.0	Rehab/Recon after 2011
Express	Express04	05-03-2003	AC	18267	13	N/A	Good	66	Fair	N/A	Not Inspected in 2011
ExThrifty	ExThrif01A	01-01-1900	AC	15814	116	N/A	Good	100	Good	N/A	Not Inspected in 2011
ExThrifty	ExThrif01B	01-01-1900	AC	46223	116	N/A	Good	56	Fair	N/A	Not Inspected in 2011
ExThrifty	ExThrif01C	01-01-1900	AC	7413	116	N/A	Good	100	Good	N/A	Not Inspected in 2011
ExThrifty	ExThrift01	01-01-1900	AC	14772	116	N/A	Good	66	Fair	N/A	Not Inspected in 2011
Fuel	Fuel01	05-03-1970	AC	86361	46	74	Satisfactory	82	Satisfactory	2.0	Increase - Within Margin of Error
Fuel	Fuel02	05-02-1970	PCC	70268	46	77	Satisfactory	77	Satisfactory	0.0	Typical (0 to 5 points/year)
Fuel	Fuel03	05-02-1970	PCC	47466	46	80	Satisfactory	83	Satisfactory	0.8	Increase - Within Margin of Error
Fuel	Fuel04	08-03-1995	AC	11294	20	91	Good	88	Good	-0.8	Typical (0 to 5 points/year)
Fuel	Fuel05	05-03-1970	AC	22152	46	76	Satisfactory	76	Satisfactory	0.0	Typical (0 to 5 points/year)
Fuel	Fuel06	05-03-1970	AC	34193	46	67	Fair	49	Poor	-4.5	Typical (0 to 5 points/year)
FuelRd	FuelRd01	08-01-1986	AC	33403	29	54	Poor	45	Poor	-2.3	Typical (0 to 5 points/year)
FuelRd	FuelRd02	01-01-1970	PCC	21055	46	68	Fair	75	Satisfactory	1.8	Increase - Within Margin of Error
FuelRd	FuelRd03	05-03-1970	AC	34987	46	60	Fair	55	Poor	-1.3	Typical (0 to 5 points/year)

Appendix D
Comparison of 2011 and 2015 PCI Results

BranchID	SectionID	Last Major Work Date	Surface	Area	Age	PCI - 2011	PCI Category	PCI - 2015	PCI Category	Change in PCI/yr	Comments
GAPark	GAPark01	01-02-1998	AC	13604	18	83	Satisfactory	81	Satisfactory	-0.5	Typical (0 to 5 points/year)
GAPark	GAPark04	01-02-1998	AC	13419	18	64	Fair	56	Fair	-2.0	Typical (0 to 5 points/year)
GAPark	GAPark05	01-02-1998	AC	31222	18	80	Satisfactory	71	Satisfactory	-2.3	Typical (0 to 5 points/year)
GAPark	GAPark06	01-02-1998	AC	4207	18	100	Good	100	Good	0.0	Typical (0 to 5 points/year)
GAPark	GAPark07	10-01-2014	AC	26470	1	39	Very Poor	100	Good	15.3	Rehab/Recon after 2011
GAPark	GAPark08	05-02-2001	AC	20199	15	84	Satisfactory	63	Fair	-5.3	High
GAPark	GAPark09	05-02-2001	AC	23280	15	81	Satisfactory	76	Satisfactory	-1.3	Typical (0 to 5 points/year)
GasPark	GasPark01	06-01-1998	AC	49932	18	N/A	Good	72	Satisfactory	N/A	Not Inspected in 2011
GateA	GateA01	08-01-2007	AC	11124	8	97	Good	96	Good	-0.3	Typical (0 to 5 points/year)
GateA	GateA02	08-01-2007	AC	24033	8	92	Good	92	Good	0.0	Typical (0 to 5 points/year)
GateARd	GateARd01	05-05-1969	AC	39765	47	76	Satisfactory	72	Satisfactory	-1.0	Typical (0 to 5 points/year)
GateARd	GateARd02	08-01-2007	AC	8175	8	91	Good	90	Good	-0.3	Typical (0 to 5 points/year)
GoldLot	GoldLot01	08-02-1998	AC	139102	17	90	Good	80	Satisfactory	-2.5	Typical (0 to 5 points/year)
GoldLot	GoldLot02	08-02-1998	AC	359422	17	45	Poor	27	Very Poor	-4.5	Typical (0 to 5 points/year)
GoldLot	GoldLot03	08-02-1998	AC	293013	17	79	Satisfactory	82	Satisfactory	0.8	Increase - Within Margin of Error
GoldLot	GoldLot04	01-01-1900	AC	152715	116	N/A	Good	70	Fair	N/A	Not Inspected in 2011
HourGar	HourGar01	08-01-2007	AC	14041	8	95	Good	89	Good	-1.5	Typical (0 to 5 points/year)
HourGar	HourGar02	05-03-1997	AC	14039	19	79	Satisfactory	76	Satisfactory	-0.8	Typical (0 to 5 points/year)
HourGar	HourGar03	05-03-1997	AC	19993	19	81	Satisfactory	81	Satisfactory	0.0	Typical (0 to 5 points/year)
HourGar	HourGar04	05-03-1997	AC	17393	19	72	Satisfactory	69	Fair	-0.8	Typical (0 to 5 points/year)
I195IB	I195IB01	08-01-2010	AAC	22513	5	100	Good	94	Good	-1.5	Typical (0 to 5 points/year)
I195IB	I195IB02	08-01-2010	AAC	16851	5	99	Good	65	Fair	-8.5	High - 100% Laser Crack Map
I195IB	I195IB03	01-01-2002	AC	21821	14	90	Good	54	Poor	-9.0	High - 100% Laser Crack Map
I195IB	I195IB04	08-01-2010	AAC	16590	5	99	Good	75	Satisfactory	-6.0	High - 100% Laser Crack Map
I195IB	I195IB05	01-01-2002	AC	21360	14	88	Good	72	Satisfactory	-4.0	Typical (0 to 5 points/year)
I195IB	I195IB06	01-01-2002	AC	4184	14	75	Satisfactory	77	Satisfactory	0.5	Increase - Within Margin of Error
I195IB	I195IB06A	03-06-2015	AC	5340	1	N/A	Good	100	Good	N/A	Rehab/Recon after 2011
I195IB	I195IB07	08-01-2007	AC	66094	8	92	Good	71	Satisfactory	-5.3	High - 100% Laser Crack Map
I195IB	I195IB08	01-29-2014	AC	6549	2	79	Satisfactory	100	Good	5.3	Rehab/Recon after 2011
I195IB	I195IB08A	03-06-2015	AC	25071	1	N/A	Good	100	Good	N/A	Not Inspected in 2011
I195IB	I195IB09	05-01-2006	AC	19611	10	81	Satisfactory	66	Fair	-3.8	Typical (0 to 5 points/year)

Appendix D
Comparison of 2011 and 2015 PCI Results

BranchID	SectionID	Last Major Work Date	Surface	Area	Age	PCI - 2011	PCI Category	PCI - 2015	PCI Category	Change in PCI/yr	Comments
I195IB	I195IB10A	10-03-2015	PCC	21733	0	100	Good	100	Good	0.0	Typical (0 to 5 points/year)
I195IB	I195IB10B	06-01-2011	AAC	5673	5	100	Good	84	Satisfactory	-4.0	Typical (0 to 5 points/year)
I195IB	I195IB11	01-01-1900	AC	2551	116	N/A	Good	85	Satisfactory	N/A	Not Inspected in 2011
I195OB	I195OB01	08-01-2010	AAC	2229	5	95	Good	84	Satisfactory	-2.8	Typical (0 to 5 points/year)
I195OB	I195OB02	08-01-2010	AAC	7091	5	96	Good	90	Good	-1.5	Typical (0 to 5 points/year)
I195OB	I195OB03	09-03-2003	AC	10784	12	95	Good	80	Satisfactory	-3.8	Typical (0 to 5 points/year)
I195OB	I195OB04	09-03-2003	AC	4442	12	85	Satisfactory	84	Satisfactory	-0.3	Typical (0 to 5 points/year)
I195OB	I195OB05	08-01-2010	AAC	19287	5	100	Good	91	Good	-2.3	Typical (0 to 5 points/year)
I195OB	I195OB06	08-01-2010	AAC	21383	5	100	Good	86	Good	-3.5	Typical (0 to 5 points/year)
I195OB	I195OB07	08-01-2010	AAC	9068	5	100	Good	90	Good	-2.5	Typical (0 to 5 points/year)
I195OB	I195OB08	08-01-2010	AAC	19922	5	100	Good	97	Good	-0.8	Typical (0 to 5 points/year)
I195OB	I195OB09	01-29-2014	AC	11606	2	67	Fair	91	Good	6.0	Rehab/Recon after 2011
I195OB	I195OB09A	09-03-2003	AC	5254	12	N/A	Good	94	Good	N/A	Not Inspected in 2011
I195OB	I195OB10	12-13-2013	AC	14103	2	89	Good	93	Good	1.0	Rehab/Recon after 2011
I195OB	I195OB11	12-13-2013	PCC	2110	2	53	Poor	88	Good	8.8	Rehab/Recon after 2011
I195OB	I195OB12	12-13-2013	AC	3995	2	84	Satisfactory	91	Good	1.8	Rehab/Recon after 2011
Kauffman	Kauffman01	01-02-1980	AC	25420	36	56	Fair	43	Poor	-3.3	Typical (0 to 5 points/year)
LSGSky	LSGSky01	01-01-1980	AC	48928	36	35	Very Poor	25	Serious	-2.5	Typical (0 to 5 points/year)
LSGSky	LSGSky01A	01-01-1900	AC	10866	116	N/A	Good	100	Good	N/A	Not Inspected in 2011
LSGSky	LSGSky01B	01-01-1900	AC	5524	116	N/A	Good	100	Good	N/A	Not Inspected in 2011
LSGSky	LSGSky02	01-01-1980	AC	43705	36	84	Satisfactory	54	Poor	-7.5	High
LTAPark	LTAPark01	06-03-1999	AAC	593673	17	79	Satisfactory	56	Fair	-5.8	High
LTAPark	LTAPark02	05-03-2000	AAC	837243	16	79	Satisfactory	60	Fair	-4.8	Typical (0 to 5 points/year)
LTAPark	LTAPark03	05-01-2000	AAC	345235	16	87	Good	76	Satisfactory	-2.8	Typical (0 to 5 points/year)
LTAPark	LTAPark04	02-13-2015	PCC	9283	1	82	Satisfactory	95	Good	3.3	Rehab/Recon after 2011
LTBPark	LTBPark01	11-10-2014	AC	326097	1	61	Fair	100	Good	9.8	Rehab/Recon after 2011
LTBPark	LTBPark01A	11-10-2014	PCC	45774	1	N/A	Good	100	Good	N/A	Rehab/Recon after 2011
LTBPark	LTBPark01B	02-10-2014	AC	12526	2	N/A	Good	100	Good	N/A	Rehab/Recon after 2011
LTBPark	LTBPark02	10-09-2014	AC	28755	1	87	Good	100	Good	3.3	Rehab/Recon after 2011
LTBPark	LTBPark02A	08-03-1997	AC	12238	18	N/A	Good	45	Poor	N/A	Not Inspected in 2011
LTBPark	LTBPark03	08-02-1997	PCC	6150	18	98	Good	100	Good	0.5	Increase - Within Margin of Error

Appendix D
Comparison of 2011 and 2015 PCI Results

BranchID	SectionID	Last Major Work Date	Surface	Area	Age	PCI - 2011	PCI Category	PCI - 2015	PCI Category	Change in PCI/yr	Comments
LTBPark	LTBPark05	08-05-1995	AC	317508	20	64	Fair	23	Serious	-10.3	High
LTBPark	LTBPark06	10-09-2014	AC	56220	1	74	Satisfactory	100	Good	6.5	Rehab/Recon after 2011
LTBPark	LTBPark06A	08-05-1995	AC	25625	20	N/A	Good	27	Very Poor	N/A	Not Inspected in 2011
LTBPark	LTBPark06B	10-09-2014	PCC	1657	1	N/A	Good	100	Good	N/A	Not Inspected in 2011
LTBPark	LTBPark07	08-05-1995	AC	366676	20	69	Fair	37	Very Poor	-8.0	High
LTBPark	LTBPark07A	10-09-2014	AC	65021	1	N/A	Good	100	Good	N/A	Not Inspected in 2011
LTBPark	LTBPark08	10-09-2014	AC	226189	1	72	Satisfactory	100	Good	7.0	Rehab/Recon after 2011
LTBPark	LTBPark09	10-09-2014	AC	28755	1	57	Fair	100	Good	10.8	Rehab/Recon after 2011
LTBPark	LTBPark09A	10-09-2014	PCC	6710	1	N/A	Good	100	Good	N/A	Rehab/Recon after 2011
LTBPark	LTBPark10	10-09-2014	AC	40990	1	73	Satisfactory	100	Good	6.8	Rehab/Recon after 2011
LTBPark	LTBPark11	08-02-1989	PCC	5925	26	76	Satisfactory	92	Good	4.0	Rehab/Recon after 2011
LTBPark	LTBPark12	10-09-2014	AC	13397	1	61	Fair	100	Good	9.8	Rehab/Recon after 2011
LTBPark	LTBPark13	01-01-1900	AC	1822	116	N/A	Good	100	Good	N/A	Not Inspected in 2011
MACBldg	MACBldg01	10-10-2007	AC	28306	8	85	Satisfactory	83	Satisfactory	-0.5	Typical (0 to 5 points/year)
MACBldg	MACBldg02	01-01-1980	AC	39257	36	72	Satisfactory	63	Fair	-2.3	Typical (0 to 5 points/year)
MACBldg	MACBldg03	01-01-1980	PCC	6622	36	73	Satisfactory	84	Satisfactory	2.8	Typical (0 to 5 points/year)
MACBldg	MACBldg04	01-01-1980	AC	116087	36	66	Fair	47	Poor	-4.8	Typical (0 to 5 points/year)
MACBldg	MACBldg05	01-01-1980	AC	7369	36	61	Fair	59	Fair	-0.5	Typical (0 to 5 points/year)
MallEnt	MallEnt01	08-01-1976	AC	20065	39	82	Satisfactory	78	Satisfactory	-1.0	Typical (0 to 5 points/year)
MathLot	MathLot01	08-02-2000	PCC	11427	15	95	Good	97	Good	0.5	Increase - Within Margin of Error
MathLot	MathLot02	08-03-2000	AC	233873	15	93	Good	81	Satisfactory	-3.0	Typical (0 to 5 points/year)
MathLot	MathLot03	08-03-2000	AC	229390	15	N/A	Good	91	Good	N/A	Not Inspected in 2011
MathWay	MathWay01	08-03-1999	AC	71757	16	72	Satisfactory	62	Fair	-2.5	Typical (0 to 5 points/year)
MathWay	MathWay02	08-03-1999	AC	77329	16	73	Satisfactory	44	Poor	-7.3	High - 100% Laser Crack Map
MathWay	MathWay03	08-03-1999	AC	81566	16	83	Satisfactory	52	Poor	-7.8	High - 100% Laser Crack Map
MathWay	MathWay04	08-03-1999	AC	35210	16	80	Satisfactory	56	Fair	-6.0	High - 100% Laser Crack Map
MathWay	MathWay05	08-03-1999	PCC	1968	16	100	Good	92	Good	-2.0	Typical (0 to 5 points/year)
MathWay	MathWay06	01-01-1900	AC	7208	116	N/A	Good	94	Good	N/A	Not Inspected in 2011
MathWay	MathWay07	08-03-1999	AC	80168	16	N/A	Good	83	Satisfactory	N/A	Not Inspected in 2011
MidCargoRd	MidCargo01	08-03-1998	AC	17641	17	74	Satisfactory	53	Poor	-5.3	High
MidCargoRd	MidCargo02	05-02-2000	AC	28106	16	69	Fair	57	Fair	-3.0	Typical (0 to 5 points/year)

Appendix D
Comparison of 2011 and 2015 PCI Results

BranchID	SectionID	Last Major Work Date	Surface	Area	Age	PCI - 2011	PCI Category	PCI - 2015	PCI Category	Change in PCI/yr	Comments
MidFuel	MidFuel01	01-01-2004	AC	20107	12	95	Good	92	Good	-0.8	Typical (0 to 5 points/year)
MidFuel	MidFuel02	01-01-2004	PCC	1965	12	98	Good	100	Good	0.5	Increase - Within Margin of Error
NCargoPk	NCargoPk01	12-31-2014	AC	79693	1	51	Poor	100	Good	12.3	Rehab/Recon after 2011
NCargoPk	NCargoPk02	08-02-1997	AC	38336	18	68	Fair	64	Fair	-1.0	Typical (0 to 5 points/year)
NCargoPk	NCargoPk03	08-02-1997	AC	15206	18	32	Very Poor	33	Very Poor	0.3	Increase - Within Margin of Error
NCargoPk	NCargoPk04	08-02-1997	AC	5142	18	72	Satisfactory	64	Fair	-2.0	Typical (0 to 5 points/year)
NCargoPk	NCargoPk05	08-02-1997	AC	26016	18	59	Fair	66	Fair	1.8	Increase - Within Margin of Error
NCargoPk	NCargoPk06	08-02-1997	AC	19973	18	71	Satisfactory	73	Satisfactory	0.5	Increase - Within Margin of Error
NCargoPk	NCargoPk07	08-02-1997	AC	7942	18	89	Good	82	Satisfactory	-1.8	Typical (0 to 5 points/year)
NCargoPk	NCargoPk08	08-02-1997	AC	39259	18	57	Fair	53	Poor	-1.0	Typical (0 to 5 points/year)
NCargoPk	NCargoPk09	08-02-1997	AC	16227	18	81	Satisfactory	83	Satisfactory	0.5	Increase - Within Margin of Error
NCargoPk	NCargoPk10	08-02-1997	AC	46739	18	63	Fair	61	Fair	-0.5	Typical (0 to 5 points/year)
NCargoPk	NCargoPk11	08-02-1997	AC	20879	18	77	Satisfactory	70	Fair	-1.8	Typical (0 to 5 points/year)
NCargoPk	NCargoPk12	08-02-1997	AC	22343	18	68	Fair	64	Fair	-1.0	Typical (0 to 5 points/year)
NCargoPk	NCargoPk13	08-02-1997	AC	16529	18	69	Fair	51	Poor	-4.5	Typical (0 to 5 points/year)
NCargoPk	NCargoPk14	12-31-2014	AC	96483	1	43	Poor	98	Good	13.8	Rehab/Recon after 2011
NCargoPk	NCargoPk17	12-31-2014	AC	11369	1	69	Fair	100	Good	7.8	Rehab/Recon after 2011
NCargoPk	NCargoPk18	08-02-1997	AC	6056	18	56	Fair	40	Very Poor	-4.0	Typical (0 to 5 points/year)
NCargoPk	NCargoPk20	01-01-1900	AC	9648	116	N/A	Good	81	Satisfactory	N/A	Not Inspected in 2011
NCargoRd	NCargoRd01	05-02-1982	AC	54672	34	73	Satisfactory	71	Satisfactory	-0.5	Typical (0 to 5 points/year)
NCargoRd	NCargoRd02	08-02-1997	AC	25429	18	54	Poor	42	Poor	-3.0	Typical (0 to 5 points/year)
NCargoRd	NCargoRd03	12-31-2014	AC	22687	1	N/A	Good	100	Good	N/A	Not Inspected in 2011
NField	NField01	08-03-1968	AC	13379	47	74	Satisfactory	54	Poor	-5.0	Typical (0 to 5 points/year)
NField	NField02	08-03-1968	AC	8250	47	55	Poor	27	Very Poor	-7.0	Typical (0 to 5 points/year)
NField	NField03	08-03-1968	AC	45756	47	62	Fair	37	Very Poor	-6.3	Typical (0 to 5 points/year)
NField	NField04	08-03-1968	AC	51902	47	63	Fair	47	Poor	-4.0	Typical (0 to 5 points/year)
NField	NField05	08-03-1968	AC	68441	47	36	Very Poor	20	Serious	-4.0	Typical (0 to 5 points/year)
NField	NField06	08-01-2010	AAC	5459	5	100	Good	94	Good	-1.5	Typical (0 to 5 points/year)
NField	NField08	08-03-1968	AC	6463	47	93	Good	91	Good	-0.5	Typical (0 to 5 points/year)
OFtMeade	OFtMeade01	01-01-1900	AC	109364	116	71	Satisfactory	71	Satisfactory	0.0	Typical (0 to 5 points/year)
OFtMeade	OFtMeade02	01-01-1900	AC	10982	116	75	Satisfactory	84	Satisfactory	2.3	Increase - Within Margin of Error

Appendix D
Comparison of 2011 and 2015 PCI Results

BranchID	SectionID	Last Major Work Date	Surface	Area	Age	PCI - 2011	PCI Category	PCI - 2015	PCI Category	Change in PCI/yr	Comments
OldESPA	OldESPA01	11-27-2013	PCC	12098	2	28	Very Poor	93	Good	16.3	Rehab/Recon after 2011
OldESPA	OldESPA02	08-03-2000	AC	362177	15	73	Satisfactory	59	Fair	-3.5	Typical (0 to 5 points/year)
OldESPA	OldESPA03	08-02-2000	PCC	3844	15	85	Satisfactory	63	Fair	-5.5	High
OldESPB	OldESPB01	08-03-2000	AC	5589	15	94	Good	84	Satisfactory	-2.5	Typical (0 to 5 points/year)
OldESPB	OldESPB02	08-03-2000	AC	201495	15	71	Satisfactory	63	Fair	-2.0	Typical (0 to 5 points/year)
OldESPB	OldESPB03	08-02-2000	PCC	3697	15	96	Good	100	Good	1.0	Increase - Within Margin of Error
OldESPB	OldESPB04	01-01-1900	PCC	3256	116	N/A	Good	94	Good	N/A	Not Inspected in 2011
OldFedEx	OldFedEx01	05-03-1970	AC	164483	46	56	Fair	70	Fair	3.5	Increase - Within Margin of Error
OldQTAPk	OldQTAPk/1	01-01-1900	AC	50587	116	N/A	Good	59	Fair	N/A	Not Inspected in 2011
OldQTARd	OldQTARd01	08-04-1998	AC	46326	17	55	Poor	38	Very Poor	-4.3	Typical (0 to 5 points/year)
PierEMan	PierEMan01	08-02-1998	APC	92868	17	78	Satisfactory	72	Satisfactory	-1.5	Typical (0 to 5 points/year)
PinkLot	PinkLot01	08-04-2000	AC	8588	15	48	Poor	12	Serious	-9.0	High
PinkLot	PinkLot02	08-04-2000	AC	164721	15	79	Satisfactory	65	Fair	-3.5	Typical (0 to 5 points/year)
PinkLot	PinkLot03	08-03-2000	PCC	4340	15	99	Good	99	Good	0.0	Typical (0 to 5 points/year)
RentalPk	RentalPk01	05-03-2004	AC	168372	12	82	Satisfactory	70	Fair	-3.0	Typical (0 to 5 points/year)
RentalPk	RentalPk02	05-03-2004	AC	478923	12	80	Satisfactory	81	Satisfactory	0.3	Increase - Within Margin of Error
RentalPk	RentalPk03	05-03-2004	AC	141917	12	92	Good	86	Good	-1.5	Typical (0 to 5 points/year)
RentalRd	RentalRd01	05-03-2004	AC	34975	12	80	Satisfactory	71	Satisfactory	-2.3	Typical (0 to 5 points/year)
RentalRd	RentalRd02	05-02-2004	PCC	44547	12	91	Good	93	Good	0.5	Increase - Within Margin of Error
RentalRd	RentalRd03	05-03-2004	AC	25503	12	83	Satisfactory	72	Satisfactory	-2.8	Typical (0 to 5 points/year)
RentalRd	RentalRd04	05-03-2004	AC	150930	12	87	Good	91	Good	1.0	Increase - Within Margin of Error
RentalRd	RentlRd05	05-03-2004	AC	18360	12	93	Good	92	Good	-0.3	Typical (0 to 5 points/year)
RentalRd	RentlRd05A	05-03-2010	PCC	6536	6	100	Good	100	Good	0.0	Typical (0 to 5 points/year)
RentalRd	RentlRd05B	05-01-2010	AAC	19004	6	100	Good	83	Satisfactory	-4.3	Typical (0 to 5 points/year)
RentalRd	RentlRd05C	05-03-2010	PCC	2339	6	100	Good	100	Good	0.0	Typical (0 to 5 points/year)
ServRd	ServRd/1	08-30-2013	AAC	21502	2	N/A	Good	100	Good	N/A	Not Inspected in 2011
SField	SField01	11-01-2011	AC	6742	4	84	Satisfactory	94	Good	2.5	Increase - Within Margin of Error
SField	SField02	08-05-2010	AC	20299	5	100	Good	86	Good	-3.5	Typical (0 to 5 points/year)
SField	SField03	01-01-1980	AC	9975	36	57	Fair	58	Fair	0.3	Increase - Within Margin of Error
SField	SField04	07-02-1964	PCC	4638	52	48	Poor	46	Poor	-0.5	Typical (0 to 5 points/year)
SField	SField05	01-01-1980	AC	34561	36	61	Fair	49	Poor	-3.0	Typical (0 to 5 points/year)

Appendix D
Comparison of 2011 and 2015 PCI Results

BranchID	SectionID	Last Major Work Date	Surface	Area	Age	PCI - 2011	PCI Category	PCI - 2015	PCI Category	Change in PCI/yr	Comments
SField	SField06	01-01-1980	AC	16737	36	33	Very Poor	15	Serious	-4.5	Typical (0 to 5 points/year)
Sheraton	Sheraton01	05-01-2002	AC	14965	14	79	Satisfactory	50	Poor	-7.3	High
Sheraton	Sheraton03	08-04-1965	AC	31600	50	N/A	Good	83	Satisfactory	N/A	Not Inspected in 2011
Sheraton	Sheraton04	08-02-1997	AC	30919	18	N/A	Good	83	Satisfactory	N/A	Not Inspected in 2011
SpringLn	SpringLn01	08-03-2010	PCC	35777	5	100	Good	95	Good	-1.3	Typical (0 to 5 points/year)
TaxiLot	TaxiLot01	08-03-1996	AC	6329	19	53	Poor	38	Very Poor	-3.8	Typical (0 to 5 points/year)
TaxiLot	TaxiLot02	08-02-1996	AC	72421	19	64	Fair	48	Poor	-4.0	Typical (0 to 5 points/year)
UtilPlant	UtilPlnt01	01-01-1900	AC	7475	116	N/A	Good	100	Good	N/A	Not Inspected in 2011
UtilPlant	UtilPlnt02	01-01-1900	AC	5734	116	N/A	Good	100	Good	N/A	Not Inspected in 2011
WTenant	WTenant01	08-03-2001	AC	13770	14	63	Fair	55	Poor	-2.0	Typical (0 to 5 points/year)
WTenant	WTenant02	08-02-2001	PCC	3025	14	81	Satisfactory	77	Satisfactory	-1.0	Typical (0 to 5 points/year)
WTenant	WTenant03	08-03-2001	AC	869278	14	77	Satisfactory	74	Satisfactory	-0.8	Typical (0 to 5 points/year)

Appendix E-1
2016 Localized Maintenance Plan – All Sections

Appendix E

2016 Localized Maintenance Plan

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
Arrivals	Arrivals01	P	BWI Land Localized Preventative	10	L & T CR	Medium	41.96	Ft	.09	Crack Sealing - AC	42.	Ft	$1.50	$63
Arrivals	Arrivals01	P	BWI Land Localized Preventative	15	RUTTING	Medium	52.85	SqFt	.11	Patching - AC Deep	52.7	SqFt	$51.89	$2,740
Arrivals	Arrivals02	P	BWI Land Localized Preventative	10	L & T CR	Medium	37.73	Ft	.11	Crack Sealing - AC	37.7	Ft	$1.50	$57
Arrivals	Arrivals03	P	BWI Land Localized Preventative	10	L & T CR	Medium	414.96	Ft	3.17	Crack Sealing - AC	415.	Ft	$1.50	$622
Arrivals	Arrivals03	P	BWI Land Localized Preventative	15	RUTTING	Medium	52.85	SqFt	.4	Patching - AC Deep	52.7	SqFt	$51.89	$2,740
Arrivals	Arrivals04	P	BWI Land Localized Preventative	10	L & T CR	Medium	28.51	Ft	.1	Crack Sealing - AC	28.5	Ft	$1.50	$43
Arrivals	Arrivals05	P	BWI Land Localized Preventative	22	CORNER BREAK	Medium	1.97	Slabs	.82	Crack Sealing - PCC	16.1	Ft	$38.00	$613
Arrivals	Arrivals07	P	BWI Land Localized Preventative	10	L & T CR	Medium	23.39	Ft	.06	Crack Sealing - AC	23.3	Ft	$1.50	$35
Arrivals	Arrivals07	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	23.79	SqFt	.06	Patching - AC Deep	47.4	SqFt	$51.89	$2,459
Arrivals	Arrivals07	P	BWI Land Localized Preventative	15	RUTTING	Medium	52.85	SqFt	.14	Patching - AC Deep	52.7	SqFt	$51.89	$2,740
Arrivals	Arrivals08	P	BWI Land Localized Preventative	10	L & T CR	Medium	16.37	Ft	.07	Crack Sealing - AC	16.4	Ft	$1.50	$25
CNG	CNG02	P	BWI Land Localized Stop-Gap	26	JT SEAL DMG	High	3.	Slabs	100.	Joint Seal (Localized)	100.1	Ft	$25.00	$2,500
Dep	Dep01	P	BWI Land Localized Preventative	10	L & T CR	Medium	2.76	Ft	.02	Crack Sealing - AC	2.6	Ft	$1.50	$4
Express	Express01	P	BWI Land Localized Preventative	10	L & T CR	Medium	9,018.9	Ft	2.32	Crack Sealing - AC	9,019.	Ft	$1.50	$13,528
I195IB	I195IB01	P	BWI Land Localized Preventative	10	L & T CR	Medium	35.3	Ft	.16	Crack Sealing - AC	35.4	Ft	$1.50	$53
I195IB	I195IB01	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	20.02	SqFt	.09	Patching - AC Deep	42.	SqFt	$51.89	$2,180
I195IB	I195IB02	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	35.52	SqFt	.21	Patching - AC Deep	63.5	SqFt	$51.89	$3,294
I195IB	I195IB03	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	169.64	SqFt	.84	Patching - AC Deep	226.	SqFt	$51.89	$11,732
I195IB	I195IB04	P	BWI Land Localized Preventative	10	L & T CR	Medium	32.02	Ft	.19	Crack Sealing - AC	32.2	Ft	$1.50	$48
I195IB	I195IB05	P	BWI Land Localized Preventative	10	L & T CR	Medium	71.46	Ft	.37	Crack Sealing - AC	71.5	Ft	$1.50	$107
I195IB	I195IB05	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	64.69	SqFt	.33	Patching - AC Deep	101.2	SqFt	$51.89	$5,244
I195IB	I195IB05	P	BWI Land Localized Preventative	15	RUTTING	Medium	106.46	SqFt	.55	Patching - AC Deep	106.6	SqFt	$51.89	$5,521
I195IB	I195IB06	P	BWI Land Localized Preventative	13	POTHOLE	Low	0.04	Count	.	Patching - AC Deep	0.	SqFt	$51.89	$7
I195IB	I195IB06	P	BWI Land Localized Preventative	10	L & T CR	Medium	30.09	Ft	.7	Crack Sealing - AC	30.2	Ft	$1.50	$45
I195IB	I195IB06A	P	BWI Land Localized Preventative	10	L & T CR	Medium	1.77	Ft	.03	Crack Sealing - AC	1.6	Ft	$1.50	$3
I195IB	I195IB07	P	BWI Land Localized Preventative	10	L & T CR	High	11.45	Ft	.02	Patching - AC Partial	37.7	SqFt	$3.41	$128
I195IB	I195IB07	P	BWI Land Localized Preventative	10	L & T CR	Medium	245.18	Ft	.4	Crack Sealing - AC	245.1	Ft	$1.50	$368
I195IB	I195IB07	P	BWI Land Localized Preventative	1	ALLIGATOR CR	High	10.87	SqFt	.02	Patching - AC Deep	28.	SqFt	$51.89	$1,465
I195IB	I195IB07	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	116.79	SqFt	.19	Patching - AC Deep	164.7	SqFt	$51.89	$8,524
I195IB	I195IB07	P	BWI Land Localized Preventative	15	RUTTING	Medium	219.58	SqFt	.36	Patching - AC Deep	219.6	SqFt	$51.89	$11,396
I195IB	I195IB08	P	BWI Land Localized Preventative	10	L & T CR	Medium	0.16	Ft	.	Crack Sealing - AC	0.3	Ft	$1.50	$0
I195IB	I195IB08A	P	BWI Land Localized Preventative	10	L & T CR	Medium	1.9	Ft	.01	Crack Sealing - AC	2.	Ft	$1.50	$3
I195IB	I195IB09	P	BWI Land Localized Preventative	10	L & T CR	Medium	364.57	Ft	1.86	Crack Sealing - AC	364.5	Ft	$1.50	$547
I195IB	I195IB09	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	33.8	SqFt	.17	Patching - AC Deep	61.4	SqFt	$51.89	$3,179
I195IB	I195IB10B	P	BWI Land Localized Preventative	10	L & T CR	Medium	182.12	Ft	1.32	Crack Sealing - AC	182.1	Ft	$1.50	$273
I195IB	I195IB11	P	BWI Land Localized Preventative	10	L & T CR	Medium	25.46	Ft	1.	Crack Sealing - AC	25.6	Ft	$1.50	$38
I195OB	I195OB01	P	BWI Land Localized Preventative	10	L & T CR	Medium	1.08	Ft	.05	Crack Sealing - AC	1.	Ft	$1.50	$2
I195OB	I195OB03	P	BWI Land Localized Preventative	10	L & T CR	Medium	50.43	Ft	.49	Crack Sealing - AC	50.5	Ft	$1.50	$76
I195OB	I195OB04	P	BWI Land Localized Preventative	10	L & T CR	Medium	0.46	Ft	.01	Crack Sealing - AC	0.3	Ft	$1.50	$1

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
I195OB	I195OB05	P	BWI Land Localized Preventative	10	L & T CR	Medium	4.89	Ft	.03	Crack Sealing - AC	4.9	Ft	$1.50	$7
I195OB	I195OB06	P	BWI Land Localized Preventative	10	L & T CR	Medium	19.98	Ft	.1	Crack Sealing - AC	20.	Ft	$1.50	$30
I195OB	I195OB07	P	BWI Land Localized Preventative	10	L & T CR	Medium	20.51	Ft	.23	Crack Sealing - AC	20.3	Ft	$1.50	$31
I195OB	I195OB08	P	BWI Land Localized Preventative	10	L & T CR	Medium	8.96	Ft	.04	Crack Sealing - AC	8.9	Ft	$1.50	$13
I195OB	I195OB09	P	BWI Land Localized Preventative	10	L & T CR	Medium	12.27	Ft	.11	Crack Sealing - AC	12.1	Ft	$1.50	$18
I195OB	I195OB09A	P	BWI Land Localized Preventative	10	L & T CR	Medium	17.65	Ft	.34	Crack Sealing - AC	17.7	Ft	$1.50	$26
I195OB	I195OB10	P	BWI Land Localized Preventative	10	L & T CR	Medium	51.77	Ft	.37	Crack Sealing - AC	51.8	Ft	$1.50	$78
I195OB	I195OB10	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	2.8	SqFt	.02	Patching - AC Deep	12.9	SqFt	$51.89	$697
I195OB	I195OB12	P	BWI Land Localized Preventative	10	L & T CR	Medium	2.43	Ft	.06	Crack Sealing - AC	2.3	Ft	$1.50	$4
LTAPark	LTAPark01	P	BWI Land Localized Stop-Gap	6	DEPRESSION	High	670.27	SqFt	.11	Patching - AC Deep	778.2	SqFt	$51.89	$40,395
LTAPark	LTAPark01	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	3,182.13	SqFt	.54	Patching - AC Deep	3,413.2	SqFt	$51.89	$177,110
LTAPark	LTAPark02	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	1,008.69	SqFt	.12	Patching - AC Deep	1,141.	SqFt	$51.89	$59,184
LTAPark	LTAPark02	P	BWI Land Localized Stop-Gap	15	RUTTING	High	8,069.81	SqFt	.96	Patching - AC Deep	8,069.7	SqFt	$51.89	$418,743
LTAPark	LTAPark03	P	BWI Land Localized Preventative	3	BLOCK CR	Medium	10,260.81	SqFt	2.97	Crack Sealing - AC	3,127.6	Ft	$1.50	$4,691
LTAPark	LTAPark03	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	513.01	SqFt	.15	Patching - AC Deep	608.2	SqFt	$51.89	$31,560
LTAPark	LTAPark03	P	BWI Land Localized Preventative	10	L & T CR	Medium	23,215.19	Ft	6.72	Crack Sealing - AC	23,215.2	Ft	$1.50	$34,823
LTAPark	LTAPark04	P	BWI Land Localized Preventative	26	JT SEAL DMG	High	16.11	Slabs	17.14	Joint Seal (Localized)	265.4	Ft	$25.00	$6,635
LTBPark	LTBPark05	P	BWI Land Localized Stop-Gap	10	L & T CR	High	150.13	Ft	.05	Patching - AC Partial	493.	SqFt	$3.41	$1,680
LTBPark	LTBPark05	P	BWI Land Localized Stop-Gap	19	RAVELING	High	6,004.86	SqFt	1.89	Patching - AC Partial	6,005.2	SqFt	$3.41	$20,477
LTBPark	LTBPark05	P	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	10,020.66	SqFt	3.16	Patching - AC Deep	10,428.1	SqFt	$51.89	$541,086
LTBPark	LTBPark05	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	15,199.83	SqFt	4.79	Patching - AC Deep	15,700.2	SqFt	$51.89	$814,677
LTBPark	LTBPark07	P	BWI Land Localized Stop-Gap	15	RUTTING	High	630.33	SqFt	.15	Patching - AC Deep	630.8	SqFt	$51.89	$32,707
LTBPark	LTBPark07	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	5,798.84	SqFt	1.34	Patching - AC Deep	6,109.6	SqFt	$51.89	$317,013
LTBPark	LTBPark07	P	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	12,101.86	SqFt	2.8	Patching - AC Deep	12,548.6	SqFt	$51.89	$651,150
LTBPark	LTBPark11	P	BWI Land Localized Preventative	28	LINEAR CR	Medium	1.03	Slabs	3.12	Crack Sealing - PCC	13.8	Ft	$38.00	$529
Sheraton	Sheraton01	P	BWI Land Localized Stop-Gap	13	POTHOLE	High	4.49	Count	.03	Patching - AC Deep	40.9	SqFt	$51.89	$2,097
15RDeice	15RDeice01	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	252.2	SqFt	.67	Patching - AC Deep	319.7	SqFt	$51.89	$16,609
15RDeice	15RDeice01	S	BWI Land Localized Preventative	10	L & T CR	Medium	579.95	Ft	1.53	Crack Sealing - AC	580.1	Ft	$1.50	$870
15RDeice	15RDeice01	S	BWI Land Localized Preventative	6	DEPRESSION	High	60.49	SqFt	.16	Patching - AC Deep	95.8	SqFt	$51.89	$4,973
15RDeice	15RDeice01	S	BWI Land Localized Preventative	11	PATCH/UT CUT	High	201.72	SqFt	.53	Patching - AC Deep	262.6	SqFt	$51.89	$13,642
AirCargoDr	AirCarDr03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	56.08	SqFt	.13	Patching - AC Deep	90.4	SqFt	$51.89	$4,679
AirCargoDr	AirCarDr05	S	BWI Land Localized Preventative	10	L & T CR	Medium	630.61	Ft	1.75	Crack Sealing - AC	630.6	Ft	$1.50	$946
AirCargoDr	AirCarDr05	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	13.78	SqFt	.04	Patching - AC Deep	32.3	SqFt	$51.89	$1,696
AirCargoDr	AirCarDr05	S	BWI Land Localized Preventative	15	RUTTING	High	114.64	SqFt	.32	Patching - AC Deep	115.2	SqFt	$51.89	$5,950
ARFFLot	ARFFLot01	S	BWI Land Localized Preventative	10	L & T CR	Medium	55.61	Ft	.43	Crack Sealing - AC	55.8	Ft	$1.50	$83
ARFFLot	ARFFLot02	S	BWI Land Localized Preventative	22	CORNER BREAK	Medium	1.	Slabs	5.88	Crack Sealing - PCC	8.2	Ft	$38.00	$312
ARFFLot	ARFFLot03	S	BWI Land Localized Preventative	28	LINEAR CR	Medium	2.	Slabs	5.	Crack Sealing - PCC	40.	Ft	$38.00	$1,520
ARFFLot	ARFFLot04	S	BWI Land Localized Preventative	39	JOINT SPALL	High	2.	Slabs	10.	atching - PCC Partial Dept	43.1	SqFt	$4.83	$208
ARFFLot	ARFFLot04	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	20.	Slabs	100.	Joint Seal (Localized)	545.	Ft	$25.00	$13,625

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
ARFFRd	ARFFRd01	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	14,299.1	SqFt	23.47	Patching - AC Deep	14,784.2	SqFt	$51.89	$767,165
ARFFRd	ARFFRd03	S	BWI Land Localized Preventative	10	L & T CR	Medium	82.71	Ft	.5	Crack Sealing - AC	82.7	Ft	$1.50	$124
ARFFRd	ARFFRd03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	20.67	SqFt	.13	Patching - AC Deep	43.1	SqFt	$51.89	$2,230
ARFFRd	ARFFRd03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	41.33	SqFt	.25	Patching - AC Deep	71.	SqFt	$51.89	$3,697
Burma	Burma01	S	BWI Land Localized Preventative	10	L & T CR	High	10.3	Ft	.02	Patching - AC Partial	33.4	SqFt	$3.41	$115
Burma	Burma01	S	BWI Land Localized Preventative	10	L & T CR	Medium	142.88	Ft	.21	Crack Sealing - AC	143.	Ft	$1.50	$214
Burma	Burma01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	20.45	SqFt	.03	Patching - AC Deep	43.1	SqFt	$51.89	$2,214
Burma	Burma02	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	1,149.37	SqFt	10.35	Patching - AC Deep	1,289.5	SqFt	$51.89	$66,928
BusMaint	BusMaint07	S	BWI Land Localized Preventative	28	LINEAR CR	High	1.39	Slabs	.53	Crack Sealing - PCC	16.7	Ft	$38.00	$632
CServRd	CServRd02	S	BWI Land Localized Stop-Gap	10	L & T CR	High	11.32	Ft	.05	Patching - AC Partial	37.7	SqFt	$3.41	$127
CServRd	CServRd02	S	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	0.79	Count	.	Patching - AC Deep	4.3	SqFt	$51.89	$246
CServRd	CServRd02	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	18.94	SqFt	.09	Patching - AC Deep	40.9	SqFt	$51.89	$2,103
CUP	CUPRd01	S	BWI Land Localized Preventative	10	L & T CR	Medium	177.46	Ft	1.17	Crack Sealing - AC	177.5	Ft	$1.50	$266
CUP	CUPRd01	S	BWI Land Localized Preventative	15	RUTTING	Medium	107.53	SqFt	.71	Patching - AC Deep	107.6	SqFt	$51.89	$5,579
CUP	CUPRd01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	77.28	SqFt	.51	Patching - AC Deep	116.3	SqFt	$51.89	$6,057
ElmRd	ElmRd01	S	BWI Land Localized Preventative	10	L & T CR	Medium	145.01	Ft	.44	Crack Sealing - AC	145.	Ft	$1.50	$218
ElmRd	ElmRd01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	8.61	SqFt	.03	Patching - AC Deep	24.8	SqFt	$51.89	$1,271
ElmRd	ElmRd01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	24.22	SqFt	.07	Patching - AC Deep	48.4	SqFt	$51.89	$2,495
ElmRd	ElmRd01	S	BWI Land Localized Preventative	15	RUTTING	Medium	52.85	SqFt	.16	Patching - AC Deep	52.7	SqFt	$51.89	$2,745
ElmRd	ElmRd04	S	BWI Land Localized Preventative	13	POTHOLE	Low	0.05	Count	.	Patching - AC Deep	0.	SqFt	$51.89	$8
ElmRd	ElmRd04	S	BWI Land Localized Preventative	10	L & T CR	Medium	72.64	Ft	.41	Crack Sealing - AC	72.5	Ft	$1.50	$109
ElmRd	ElmRd04	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	64.05	SqFt	.36	Patching - AC Deep	100.1	SqFt	$51.89	$5,200
ElmRd	ElmRd05	S	BWI Land Localized Preventative	10	L & T CR	Medium	15.55	Ft	.05	Crack Sealing - AC	15.4	Ft	$1.50	$23
ElmRd	ElmRd05	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	32.61	SqFt	.1	Patching - AC Deep	59.2	SqFt	$51.89	$3,092
ElmRd	ElmRd05	S	BWI Land Localized Preventative	15	RUTTING	Medium	105.81	SqFt	.34	Patching - AC Deep	105.5	SqFt	$51.89	$5,490
ElmRd	ElmRd06	S	BWI Land Localized Stop-Gap	3	BLOCK CR	High	106.67	SqFt	1.1	Crack Sealing - AC	32.5	Ft	$1.50	$49
ElmRd	ElmRd06	S	BWI Land Localized Stop-Gap	19	RAVELING	High	25.83	SqFt	.27	Patching - AC Partial	25.8	SqFt	$3.41	$88
ElmRd	ElmRd06	S	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	18.55	Count	.19	Patching - AC Deep	110.9	SqFt	$51.89	$5,776
ElmRd	ElmRd07	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	33.48	SqFt	.34	Patching - AC Deep	61.4	SqFt	$51.89	$3,157
ElmRdExt	ElmRdExt01	S	BWI Land Localized Preventative	10	L & T CR	Medium	11.42	Ft	.05	Crack Sealing - AC	11.5	Ft	$1.50	$17
ElmRdExt	ElmRdExt02	S	BWI Land Localized Preventative	10	L & T CR	Medium	0.16	Ft	.	Crack Sealing - AC	0.3	Ft	$1.50	$0
ElmRdExt	ElmRdExt03	S	BWI Land Localized Preventative	10	L & T CR	Medium	8.1	Ft	.04	Crack Sealing - AC	8.2	Ft	$1.50	$12
ElmRdExt	ElmRdExt04	S	BWI Land Localized Preventative	10	L & T CR	Medium	0.79	Ft	.01	Crack Sealing - AC	0.7	Ft	$1.50	$1
ElmRdExt	ElmRdExt05	S	BWI Land Localized Preventative	10	L & T CR	Medium	3.61	Ft	.02	Crack Sealing - AC	3.6	Ft	$1.50	$5
ElmRdExt	ElmRdExt06	S	BWI Land Localized Preventative	10	L & T CR	Medium	5.41	Ft	.04	Crack Sealing - AC	5.6	Ft	$1.50	$8
ElmRdExt	ElmRdExt07	S	BWI Land Localized Preventative	10	L & T CR	Medium	8.83	Ft	.06	Crack Sealing - AC	8.9	Ft	$1.50	$13
ElmRdExt	ElmRdExt08	S	BWI Land Localized Preventative	10	L & T CR	Medium	37.76	Ft	.15	Crack Sealing - AC	37.7	Ft	$1.50	$57
ElmRdExt	ElmRdExt08	S	BWI Land Localized Preventative	15	RUTTING	Medium	421.41	SqFt	1.65	Patching - AC Deep	422.	SqFt	$51.89	$21,869
ETenant	ETenant01	S	BWI Land Localized Preventative	10	L & T CR	Medium	515.26	Ft	.14	Crack Sealing - AC	515.1	Ft	$1.50	$773

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
ExManLot	ExManLot01	S	BWI Land Localized Preventative	19	RAVELING	Medium	101.83	SqFt	1.	Patching - AC Shallow	102.3	SqFt	$1.73	$176
ExManLot	ExManLot01	S	BWI Land Localized Preventative	19	RAVELING	High	114.64	SqFt	1.13	Patching - AC Partial	114.1	SqFt	$3.41	$391
Express	Express04	S	BWI Land Localized Preventative	10	L & T CR	Medium	730.68	Ft	4.	Crack Sealing - AC	730.6	Ft	$1.50	$1,096
Fuel	Fuel01	S	BWI Land Localized Preventative	10	L & T CR	Medium	493.5	Ft	.57	Crack Sealing - AC	493.4	Ft	$1.50	$740
Fuel	Fuel01	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	49.3	SqFt	.06	Patching - AC Deep	81.8	SqFt	$51.89	$4,235
Fuel	Fuel02	S	BWI Land Localized Preventative	38	CORNER SPALL	High	6.57	Slabs	1.19	atching - PCC Partial Dept	17.2	SqFt	$4.83	$85
Fuel	Fuel02	S	BWI Land Localized Preventative	39	JOINT SPALL	High	6.57	Slabs	1.19	atching - PCC Partial Dept	141.	SqFt	$4.83	$683
Fuel	Fuel02	S	BWI Land Localized Preventative	28	LINEAR CR	Medium	3.29	Slabs	.6	Crack Sealing - PCC	52.5	Ft	$38.00	$1,998
Fuel	Fuel02	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	69.	Slabs	12.5	Joint Seal (Localized)	1,048.2	Ft	$25.00	$26,209
Fuel	Fuel03	S	BWI Land Localized Preventative	39	JOINT SPALL	High	1.9	Slabs	1.19	atching - PCC Partial Dept	40.9	SqFt	$4.83	$198
Fuel	Fuel03	S	BWI Land Localized Preventative	23	DIVIDED SLAB	Medium	1.9	Slabs	1.19	ab Replacement- PCC Ro	571.6	SqFt	$26.78	$15,303
Fuel	Fuel03	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	40.	Slabs	25.	Joint Seal (Localized)	1,130.3	Ft	$25.00	$28,260
Fuel	Fuel04	S	BWI Land Localized Preventative	19	RAVELING	Medium	38.64	SqFt	.34	Patching - AC Shallow	38.8	SqFt	$1.73	$67
Fuel	Fuel04	S	BWI Land Localized Preventative	7	EDGE CR	High	61.88	Ft	.55	Patching - AC Partial	101.2	SqFt	$3.41	$346
Fuel	Fuel05	S	BWI Land Localized Preventative	10	L & T CR	Medium	478.48	Ft	2.16	Crack Sealing - AC	478.4	Ft	$1.50	$718
Fuel	Fuel05	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	12.38	SqFt	.06	Patching - AC Deep	30.1	SqFt	$51.89	$1,587
Fuel	Fuel05	S	BWI Land Localized Preventative	15	RUTTING	Medium	35.41	SqFt	.16	Patching - AC Deep	35.5	SqFt	$51.89	$1,839
Fuel	Fuel06	S	BWI Land Localized Stop-Gap	16	SHOVING	High	66.31	SqFt	.19	Patching - AC Partial	103.3	SqFt	$3.41	$351
Fuel	Fuel06	S	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	122.71	SqFt	.36	Patching - AC Deep	171.2	SqFt	$51.89	$8,891
FuelRd	FuelRd01	S	BWI Land Localized Stop-Gap	10	L & T CR	High	13.35	Ft	.04	Patching - AC Partial	44.1	SqFt	$3.41	$149
FuelRd	FuelRd01	S	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	22.28	SqFt	.07	Patching - AC Deep	45.2	SqFt	$51.89	$2,349
FuelRd	FuelRd02	S	BWI Land Localized Preventative	39	JOINT SPALL	High	1.35	Slabs	1.67	atching - PCC Partial Dept	29.1	SqFt	$4.83	$140
FuelRd	FuelRd02	S	BWI Land Localized Preventative	28	LINEAR CR	Medium	2.7	Slabs	3.33	Crack Sealing - PCC	45.9	Ft	$38.00	$1,744
FuelRd	FuelRd02	S	BWI Land Localized Preventative	29	LARGE PATCH	High	2.7	Slabs	3.33	Patching - PCC Full Depth	186.2	SqFt	$13.39	$2,491
FuelRd	FuelRd02	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	81.	Slabs	100.	Joint Seal (Localized)	1,412.1	Ft	$25.00	$35,300
FuelRd	FuelRd03	S	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	9.49	Count	.03	Patching - AC Deep	57.1	SqFt	$51.89	$2,953
GAPark	GAPark01	S	BWI Land Localized Preventative	10	L & T CR	Medium	81.92	Ft	.6	Crack Sealing - AC	82.	Ft	$1.50	$123
GAPark	GAPark04	S	BWI Land Localized Preventative	10	L & T CR	Medium	64.67	Ft	.48	Crack Sealing - AC	64.6	Ft	$1.50	$97
GAPark	GAPark04	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	242.51	SqFt	1.81	Patching - AC Deep	308.9	SqFt	$51.89	$16,044
GAPark	GAPark04	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	404.18	SqFt	3.01	Patching - AC Deep	488.7	SqFt	$51.89	$25,380
GAPark	GAPark05	S	BWI Land Localized Preventative	10	L & T CR	High	20.47	Ft	.07	Patching - AC Partial	66.7	SqFt	$3.41	$229
GAPark	GAPark05	S	BWI Land Localized Preventative	10	L & T CR	Medium	337.83	Ft	1.08	Crack Sealing - AC	337.9	Ft	$1.50	$507
GAPark	GAPark05	S	BWI Land Localized Preventative	3	BLOCK CR	Medium	2,047.3	SqFt	6.56	Crack Sealing - AC	624.	Ft	$1.50	$936
GAPark	GAPark05	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	204.73	SqFt	.66	Patching - AC Deep	265.9	SqFt	$51.89	$13,820
GAPark	GAPark08	S	BWI Land Localized Preventative	10	L & T CR	Medium	108.2	Ft	.54	Crack Sealing - AC	108.3	Ft	$1.50	$162
GAPark	GAPark08	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	1,081.88	SqFt	5.36	Patching - AC Deep	1,218.5	SqFt	$51.89	$63,217
GAPark	GAPark09	S	BWI Land Localized Preventative	10	L & T CR	Medium	414.99	Ft	1.78	Crack Sealing - AC	415.	Ft	$1.50	$622
GAPark	GAPark09	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	80.94	SqFt	.35	Patching - AC Deep	121.6	SqFt	$51.89	$6,289
HourGar	HourGar02	S	BWI Land Localized Preventative	11	PATCH/UT CUT	High	15.5	SqFt	.11	Patching - AC Deep	35.5	SqFt	$51.89	$1,835

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
HourGar	HourGar04	S	BWI Land Localized Preventative	10	L & T CR	Medium	289.9	Ft	1.67	Crack Sealing - AC	290.	Ft	$1.50	$435
LTBPark	LTBPark06A	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	7,802.44	SqFt	22.22	Patching - AC Deep	8,162.3	SqFt	$51.89	$423,525
MallEnt	MallEnt01	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	173.94	SqFt	.87	Patching - AC Deep	231.4	SqFt	$51.89	$11,985
MallEnt	MallEnt01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	401.28	SqFt	2.	Patching - AC Deep	485.5	SqFt	$51.89	$25,215
MathLot	MathLot03	S	BWI Land Localized Preventative	10	L & T CR	Medium	860.2	Ft	.38	Crack Sealing - AC	860.2	Ft	$1.50	$1,290
MathWay	MathWay01	S	BWI Land Localized Stop-Gap	10	L & T CR	High	21.52	Ft	.03	Patching - AC Partial	71.	SqFt	$3.41	$241
MathWay	MathWay01	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	17.33	SqFt	.02	Patching - AC Deep	37.7	SqFt	$51.89	$1,978
MathWay	MathWay02	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	67.06	SqFt	.09	Patching - AC Deep	104.4	SqFt	$51.89	$5,398
MathWay	MathWay03	S	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	0.23	Count	.	Patching - AC Deep	1.1	SqFt	$51.89	$70
MathWay	MathWay03	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	176.74	SqFt	.22	Patching - AC Deep	234.7	SqFt	$51.89	$12,156
MathWay	MathWay05	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	11.	Slabs	100.	Joint Seal (Localized)	230.6	Ft	$25.00	$5,767
NField	NField02	S	BWI Land Localized Stop-Gap	19	RAVELING	High	88.8	SqFt	1.08	Patching - AC Partial	88.3	SqFt	$3.41	$303
NField	NField02	S	BWI Land Localized Stop-Gap	13	POTHOLE	High	13.32	Count	.16	Patching - AC Deep	119.5	SqFt	$51.89	$6,220
NField	NField02	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	296.01	SqFt	3.59	Patching - AC Deep	369.2	SqFt	$51.89	$19,158
NField	NField03	S	BWI Land Localized Stop-Gap	10	L & T CR	High	173.92	Ft	.38	Patching - AC Partial	570.5	SqFt	$3.41	$1,946
NField	NField03	S	BWI Land Localized Stop-Gap	6	DEPRESSION	High	28.95	SqFt	.06	Patching - AC Deep	54.9	SqFt	$51.89	$2,836
NField	NField03	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	104.3	SqFt	.23	Patching - AC Deep	149.6	SqFt	$51.89	$7,756
NField	NField04	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	439.92	SqFt	.85	Patching - AC Deep	528.5	SqFt	$51.89	$27,413
NField	NField04	S	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	845.94	SqFt	1.63	Patching - AC Deep	966.6	SqFt	$51.89	$50,177
NField	NField05	S	BWI Land Localized Stop-Gap	19	RAVELING	High	28.74	SqFt	.04	Patching - AC Partial	29.1	SqFt	$3.41	$98
NField	NField05	S	BWI Land Localized Stop-Gap	15	RUTTING	High	574.15	SqFt	.84	Patching - AC Deep	573.7	SqFt	$51.89	$29,794
NField	NField05	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	6,200.98	SqFt	9.06	Patching - AC Deep	6,521.9	SqFt	$51.89	$338,425
NField	NField05	S	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	11,483.37	SqFt	16.78	Patching - AC Deep	11,918.9	SqFt	$51.89	$618,461
OldFedEx	OldFedEx01	S	BWI Land Localized Preventative	10	L & T CR	Medium	2,320.57	Ft	1.41	Crack Sealing - AC	2,320.5	Ft	$1.50	$3,481
OldFedEx	OldFedEx01	S	BWI Land Localized Preventative	3	BLOCK CR	Medium	10,829.35	SqFt	6.58	Crack Sealing - AC	3,300.9	Ft	$1.50	$4,951
OldFedEx	OldFedEx01	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	185.68	SqFt	.11	Patching - AC Deep	244.3	SqFt	$51.89	$12,686
PierEMan	PierEMan01	S	BWI Land Localized Preventative	10	L & T CR	Medium	18,106.33	Ft	19.5	Crack Sealing - AC	18,106.3	Ft	$1.50	$27,160
RentalRd	RentalRd01	S	BWI Land Localized Preventative	13	POTHOLE	Low	0.08	Count	.	Patching - AC Deep	0.	SqFt	$51.89	$12
RentalRd	RentalRd01	S	BWI Land Localized Preventative	10	L & T CR	Medium	112.86	Ft	.32	Crack Sealing - AC	112.9	Ft	$1.50	$169
RentalRd	RentalRd01	S	BWI Land Localized Preventative	15	RUTTING	High	53.07	SqFt	.15	Patching - AC Deep	52.7	SqFt	$51.89	$2,754
RentalRd	RentalRd01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	28.63	SqFt	.08	Patching - AC Deep	53.8	SqFt	$51.89	$2,810
RentalRd	RentalRd01	S	BWI Land Localized Preventative	15	RUTTING	Medium	159.2	SqFt	.46	Patching - AC Deep	159.3	SqFt	$51.89	$8,261
RentalRd	RentalRd02	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	240.33	Slabs	77.78	Joint Seal (Localized)	4,521.3	Ft	$25.00	$113,031
RentalRd	RentalRd03	S	BWI Land Localized Preventative	10	L & T CR	Medium	96.95	Ft	.38	Crack Sealing - AC	96.8	Ft	$1.50	$145
RentalRd	RentalRd03	S	BWI Land Localized Preventative	15	RUTTING	Medium	53.6	SqFt	.21	Patching - AC Deep	53.8	SqFt	$51.89	$2,783
RentalRd	RentalRd04	S	BWI Land Localized Preventative	10	L & T CR	Medium	483.46	Ft	.32	Crack Sealing - AC	483.6	Ft	$1.50	$725
RentalRd	RentlRd05	S	BWI Land Localized Preventative	19	RAVELING	Medium	144.24	SqFt	.79	Patching - AC Shallow	144.2	SqFt	$1.73	$250
RentalRd	RentlRd05B	S	BWI Land Localized Preventative	15	RUTTING	Medium	293.85	SqFt	1.55	Patching - AC Deep	293.9	SqFt	$51.89	$15,249
WTenant	WTenant01	S	BWI Land Localized Stop-Gap	7	EDGE CR	High	143.08	Ft	1.04	Patching - AC Partial	234.7	SqFt	$3.41	$800

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
WTenant	WTenant02	S	BWI Land Localized Preventative	28	LINEAR CR	Medium	1.31	Slabs	6.25	Crack Sealing - PCC	15.8	Ft	$38.00	$599
WTenant	WTenant03	S	BWI Land Localized Preventative	10	L & T CR	Medium	7,269.36	Ft	.84	Crack Sealing - AC	7,269.4	Ft	$1.50	$10,904
WTenant	WTenant03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	422.59	SqFt	.05	Patching - AC Deep	509.1	SqFt	$51.89	$26,432
WTenant	WTenant03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	507.2	SqFt	.06	Patching - AC Deep	601.7	SqFt	$51.89	$31,228
WTenant	WTenant03	S	BWI Land Localized Preventative	15	RUTTING	High	845.29	SqFt	.1	Patching - AC Deep	845.	SqFt	$51.89	$43,861
WTenant	WTenant03	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	1,352.49	SqFt	.16	Patching - AC Deep	1,504.8	SqFt	$51.89	$78,066
CargoG	CargoG01	T	BWI Land Localized Preventative	26	JT SEAL DMG	High	23.8	Slabs	20.	Joint Seal (Localized)	594.5	Ft	$25.00	$14,863
CargoG	CargoG02	T	BWI Land Localized Preventative	10	L & T CR	Medium	867.98	Ft	.47	Crack Sealing - AC	868.1	Ft	$1.50	$1,302
CargoG	CargoG02	T	BWI Land Localized Preventative	19	RAVELING	Medium	73,443.24	SqFt	39.66	Patching - AC Shallow	73,443.2	SqFt	$1.73	$127,057
DailyRd	DailyRd01	T	BWI Land Localized Stop-Gap	19	RAVELING	High	105.38	SqFt	1.02	Patching - AC Partial	105.5	SqFt	$3.41	$359
DailyRd	DailyRd01	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	1,475.84	SqFt	14.29	Patching - AC Deep	1,634.	SqFt	$51.89	$84,813
DailyRd	DailyRd02	T	BWI Land Localized Stop-Gap	19	RAVELING	High	2,074.64	SqFt	8.42	Patching - AC Partial	2,074.2	SqFt	$3.41	$7,074
DailyRd	DailyRd02	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	129.71	SqFt	.53	Patching - AC Deep	179.8	SqFt	$51.89	$9,314
DailyRd	DailyRd02	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	33.71	Count	.14	Patching - AC Deep	303.5	SqFt	$51.89	$15,744
DailyRd	DailyRd02	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	648.31	SqFt	2.63	Patching - AC Deep	754.6	SqFt	$51.89	$39,166
DailyRd	DailyRd03	T	BWI Land Localized Stop-Gap	3	BLOCK CR	High	106.67	SqFt	1.3	Crack Sealing - AC	32.5	Ft	$1.50	$49
DailyRd	DailyRd03	T	BWI Land Localized Stop-Gap	7	EDGE CR	High	58.63	Ft	.71	Patching - AC Partial	95.8	SqFt	$3.41	$328
DailyRd	DailyRd03	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	2.13	Count	.03	Patching - AC Deep	19.4	SqFt	$51.89	$996
DailyRd	DailyRd03	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	74.59	SqFt	.91	Patching - AC Deep	113.	SqFt	$51.89	$5,885
DailyRd	DailyRd03	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	1,119.55	SqFt	13.64	Patching - AC Deep	1,258.3	SqFt	$51.89	$65,289
DailyRd	DailyRd04	T	BWI Land Localized Stop-Gap	3	BLOCK CR	High	190.84	SqFt	1.39	Crack Sealing - AC	58.1	Ft	$1.50	$87
DailyRd	DailyRd04	T	BWI Land Localized Stop-Gap	19	RAVELING	High	1,335.91	SqFt	9.72	Patching - AC Partial	1,335.8	SqFt	$3.41	$4,556
DailyRd	DailyRd04	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	10.18	Count	.07	Patching - AC Deep	91.5	SqFt	$51.89	$4,753
DailyRd	DailyRd04	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	127.23	SqFt	.93	Patching - AC Deep	176.5	SqFt	$51.89	$9,165
DailyRd	DailyRd04	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	2,735.43	SqFt	19.91	Patching - AC Deep	2,950.4	SqFt	$51.89	$153,075
ElkLand	ElkLand01	T	BWI Land Localized Preventative	10	L & T CR	Medium	238.32	Ft	.46	Crack Sealing - AC	238.2	Ft	$1.50	$357
ElkLand	ElkLand02	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,488.81	Ft	.77	Crack Sealing - AC	2,488.9	Ft	$1.50	$3,733
ElkLand	ElkLand02	T	BWI Land Localized Preventative	19	RAVELING	High	1,138.18	SqFt	.35	Patching - AC Partial	1,137.8	SqFt	$3.41	$3,881
ElkLand	ElkLand02	T	BWI Land Localized Preventative	6	DEPRESSION	High	100.	SqFt	.03	Patching - AC Deep	144.2	SqFt	$51.89	$7,485
ElkLand	ElkLand02	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	758.75	SqFt	.23	Patching - AC Deep	874.	SqFt	$51.89	$45,334
ElkLand	ElkLand02	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	1,972.81	SqFt	.61	Patching - AC Deep	2,156.	SqFt	$51.89	$111,855
ElkLand	ElkLand02	T	BWI Land Localized Preventative	15	RUTTING	Medium	3,035.1	SqFt	.93	Patching - AC Deep	3,035.4	SqFt	$51.89	$157,494
ElkLand	ElkLand02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	15,295.73	SqFt	4.71	Patching - AC Deep	15,797.1	SqFt	$51.89	$819,732
ExAlamo	ExAlamo01	T	BWI Land Localized Preventative	10	L & T CR	Medium	96.92	Ft	.37	Crack Sealing - AC	96.8	Ft	$1.50	$145
ExAlamo	ExAlamo01A	T	BWI Land Localized Stop-Gap	19	RAVELING	High	47.47	SqFt	.29	Patching - AC Partial	47.4	SqFt	$3.41	$162
ExAlamo	ExAlamo01A	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	3,678.35	SqFt	22.14	Patching - AC Deep	3,926.7	SqFt	$51.89	$203,745
ExAlamo	ExAlamo01B	T	BWI Land Localized Preventative	19	RAVELING	High	28.74	SqFt	.2	Patching - AC Partial	29.1	SqFt	$3.41	$98
ExAlamo	ExAlamo01B	T	BWI Land Localized Preventative	10	L & T CR	Medium	143.5	Ft	1.	Crack Sealing - AC	143.4	Ft	$1.50	$215
ExThrifty	ExThrif01B	T	BWI Land Localized Preventative	10	L & T CR	Medium	1,155.58	Ft	2.5	Crack Sealing - AC	1,155.5	Ft	$1.50	$1,733

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
ExThrifty	ExThrif01B	T	BWI Land Localized Preventative	6	DEPRESSION	High	138.64	SqFt	.3	Patching - AC Deep	190.5	SqFt	$51.89	$9,863
ExThrifty	ExThrif01B	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	693.3	SqFt	1.5	Patching - AC Deep	803.	SqFt	$51.89	$41,685
ExThrifty	ExThrif01B	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	1,386.71	SqFt	3.	Patching - AC Deep	1,540.3	SqFt	$51.89	$79,940
ExThrifty	ExThrift01	T	BWI Land Localized Preventative	10	L & T CR	Medium	103.94	Ft	.7	Crack Sealing - AC	104.	Ft	$1.50	$156
ExThrifty	ExThrift01	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	74.27	SqFt	.5	Patching - AC Deep	113.	SqFt	$51.89	$5,859
ExThrifty	ExThrift01	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	148.43	SqFt	1.01	Patching - AC Deep	201.3	SqFt	$51.89	$10,456
GasPark	GasPark01	T	BWI Land Localized Preventative	6	DEPRESSION	High	90.74	SqFt	.18	Patching - AC Deep	133.5	SqFt	$51.89	$6,908
GasPark	GasPark01	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	99.89	SqFt	.2	Patching - AC Deep	144.2	SqFt	$51.89	$7,477
GateARd	GateARd01	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	258.66	SqFt	.65	Patching - AC Deep	327.2	SqFt	$51.89	$16,989
GoldLot	GoldLot01	T	BWI Land Localized Preventative	10	L & T CR	Medium	3,477.56	Ft	2.5	Crack Sealing - AC	3,477.7	Ft	$1.50	$5,216
GoldLot	GoldLot02	T	BWI Land Localized Stop-Gap	19	RAVELING	High	1,045.61	SqFt	.29	Patching - AC Partial	1,045.2	SqFt	$3.41	$3,565
GoldLot	GoldLot02	T	BWI Land Localized Stop-Gap	10	L & T CR	High	653.51	Ft	.18	Patching - AC Partial	2,144.2	SqFt	$3.41	$7,311
GoldLot	GoldLot02	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	27,446.79	SqFt	7.64	Patching - AC Deep	28,117.5	SqFt	$51.89	$1,459,021
GoldLot	GoldLot03	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	3,662.64	SqFt	1.25	Crack Sealing - AC	1,116.5	Ft	$1.50	$1,675
GoldLot	GoldLot03	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,307.48	Ft	.79	Crack Sealing - AC	2,307.4	Ft	$1.50	$3,461
GoldLot	GoldLot04	T	BWI Land Localized Preventative	19	RAVELING	Medium	803.74	SqFt	.53	Patching - AC Shallow	804.1	SqFt	$1.73	$1,391
GoldLot	GoldLot04	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,009.42	Ft	1.32	Crack Sealing - AC	2,009.5	Ft	$1.50	$3,014
GoldLot	GoldLot04	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	80.41	SqFt	.05	Patching - AC Deep	120.6	SqFt	$51.89	$6,251
GoldLot	GoldLot04	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	80.41	SqFt	.05	Patching - AC Deep	120.6	SqFt	$51.89	$6,251
GoldLot	GoldLot04	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	18,084.66	SqFt	11.84	Crack Sealing - AC	5,512.1	Ft	$1.50	$8,268
GoldLot	GoldLot04	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	401.92	SqFt	.26	Patching - AC Deep	486.5	SqFt	$51.89	$25,248
Kauffman	Kauffman01	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	211.08	SqFt	.83	Patching - AC Deep	273.4	SqFt	$51.89	$14,198
LSGSky	LSGSky01	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	2,509.18	SqFt	5.13	Patching - AC Deep	2,714.7	SqFt	$51.89	$140,868
LSGSky	LSGSky01	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	4,014.62	SqFt	8.21	Patching - AC Deep	4,273.3	SqFt	$51.89	$221,759
LSGSky	LSGSky02	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	983.39	SqFt	2.25	Patching - AC Deep	1,114.1	SqFt	$51.89	$57,784
MACBldg	MACBldg01	T	BWI Land Localized Preventative	10	L & T CR	Medium	376.57	Ft	1.33	Crack Sealing - AC	376.6	Ft	$1.50	$565
MACBldg	MACBldg02	T	BWI Land Localized Preventative	10	L & T CR	Medium	635.73	Ft	1.62	Crack Sealing - AC	635.8	Ft	$1.50	$954
MACBldg	MACBldg02	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	105.92	SqFt	.27	Patching - AC Deep	151.8	SqFt	$51.89	$7,855
MACBldg	MACBldg02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	238.42	SqFt	.61	Patching - AC Deep	304.6	SqFt	$51.89	$15,803
MACBldg	MACBldg03	T	BWI Land Localized Preventative	28	LINEAR CR	Medium	1.	Slabs	4.17	Crack Sealing - PCC	17.1	Ft	$38.00	$646
MACBldg	MACBldg03	T	BWI Land Localized Preventative	26	JT SEAL DMG	High	24.	Slabs	100.	Joint Seal (Localized)	655.8	Ft	$25.00	$16,397
MACBldg	MACBldg04	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	1,561.31	SqFt	1.34	Patching - AC Deep	1,724.4	SqFt	$51.89	$89,478
MACBldg	MACBldg05	T	BWI Land Localized Preventative	10	L & T CR	Medium	117.91	Ft	1.6	Crack Sealing - AC	117.8	Ft	$1.50	$177
MACBldg	MACBldg05	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	14.75	SqFt	.2	Patching - AC Deep	34.4	SqFt	$51.89	$1,774
MACBldg	MACBldg05	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	4,421.38	SqFt	60.	Crack Sealing - AC	1,347.8	Ft	$1.50	$2,021
MathLot	MathLot02	T	BWI Land Localized Preventative	6	DEPRESSION	High	72.55	SqFt	.03	Patching - AC Deep	110.9	SqFt	$51.89	$5,749
MathLot	MathLot02	T	BWI Land Localized Preventative	10	L & T CR	Medium	4,641.21	Ft	1.98	Crack Sealing - AC	4,641.1	Ft	$1.50	$6,962
MathWay	MathWay07	T	BWI Land Localized Preventative	19	RAVELING	Medium	356.29	SqFt	.44	Patching - AC Shallow	356.3	SqFt	$1.73	$616
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	7	EDGE CR	Medium	56.2	Ft	.2	Patching - AC Partial	92.6	SqFt	$3.41	$314

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	10	L & T CR	Medium	801.02	Ft	2.85	Crack Sealing - AC	801.2	Ft	$1.50	$1,202
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	56.19	SqFt	.2	Patching - AC Deep	90.4	SqFt	$51.89	$4,690
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	84.28	SqFt	.3	Patching - AC Deep	124.9	SqFt	$51.89	$6,501
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	19	RAVELING	Medium	4,075.32	SqFt	14.5	Patching - AC Shallow	4,075.2	SqFt	$1.73	$7,050
MidFuel	MidFuel01	T	BWI Land Localized Preventative	7	EDGE CR	Medium	68.08	Ft	.34	Patching - AC Partial	111.9	SqFt	$3.41	$381
NCargoPk	NCargoPk02	T	BWI Land Localized Preventative	19	RAVELING	High	15.28	SqFt	.04	Patching - AC Partial	15.1	SqFt	$3.41	$52
NCargoPk	NCargoPk02	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,024.15	Ft	5.28	Crack Sealing - AC	2,024.3	Ft	$1.50	$3,036
NCargoPk	NCargoPk02	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	126.48	SqFt	.33	Patching - AC Deep	175.5	SqFt	$51.89	$9,121
NCargoPk	NCargoPk03	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	1.91	Count	.01	Patching - AC Deep	17.2	SqFt	$51.89	$893
NCargoPk	NCargoPk03	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	765.1	SqFt	5.03	Patching - AC Deep	880.5	SqFt	$51.89	$45,685
NCargoPk	NCargoPk04	T	BWI Land Localized Preventative	10	L & T CR	Medium	159.02	Ft	3.09	Crack Sealing - AC	159.1	Ft	$1.50	$239
NCargoPk	NCargoPk04	T	BWI Land Localized Preventative	13	POTHOLE	Medium	1.06	Count	.02	Patching - AC Deep	6.5	SqFt	$51.89	$330
NCargoPk	NCargoPk04	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	31.75	SqFt	.62	Patching - AC Deep	58.1	SqFt	$51.89	$3,036
NCargoPk	NCargoPk04	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	52.96	SqFt	1.03	Patching - AC Deep	86.1	SqFt	$51.89	$4,479
NCargoPk	NCargoPk05	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	593.95	SqFt	2.28	Crack Sealing - AC	181.1	Ft	$1.50	$272
NCargoPk	NCargoPk05	T	BWI Land Localized Preventative	5	CORRUGATION	Medium	197.95	SqFt	.76	Patching - AC Shallow	258.3	SqFt	$1.73	$447
NCargoPk	NCargoPk05	T	BWI Land Localized Preventative	10	L & T CR	Medium	1,039.44	Ft	4.	Crack Sealing - AC	1,039.4	Ft	$1.50	$1,559
NCargoPk	NCargoPk05	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	99.03	SqFt	.38	Patching - AC Deep	143.2	SqFt	$51.89	$7,422
NCargoPk	NCargoPk06	T	BWI Land Localized Preventative	15	RUTTING	Medium	159.74	SqFt	.8	Patching - AC Deep	159.3	SqFt	$51.89	$8,290
NCargoPk	NCargoPk07	T	BWI Land Localized Preventative	10	L & T CR	Medium	78.81	Ft	.99	Crack Sealing - AC	78.7	Ft	$1.50	$118
NCargoPk	NCargoPk08	T	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	2.62	Count	.01	Patching - AC Deep	16.2	SqFt	$51.89	$815
NCargoPk	NCargoPk08	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	5.23	Count	.01	Patching - AC Deep	47.4	SqFt	$51.89	$2,445
NCargoPk	NCargoPk08	T	BWI Land Localized Stop-Gap	6	DEPRESSION	High	41.87	SqFt	.11	Patching - AC Deep	72.1	SqFt	$51.89	$3,732
NCargoPk	NCargoPk08	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	523.45	SqFt	1.33	Patching - AC Deep	620.	SqFt	$51.89	$32,148
NCargoPk	NCargoPk09	T	BWI Land Localized Preventative	10	L & T CR	Medium	162.27	Ft	1.	Crack Sealing - AC	162.4	Ft	$1.50	$243
NCargoPk	NCargoPk09	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	23.14	SqFt	.14	Patching - AC Deep	46.3	SqFt	$51.89	$2,416
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	19	RAVELING	Medium	41.87	SqFt	.09	Patching - AC Shallow	42.	SqFt	$1.73	$72
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	10.44	SqFt	.02	Patching - AC Deep	28.	SqFt	$51.89	$1,427
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	10.44	SqFt	.02	Patching - AC Deep	28.	SqFt	$51.89	$1,427
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	10	L & T CR	Medium	1,736.02	Ft	3.71	Crack Sealing - AC	1,735.9	Ft	$1.50	$2,604
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	26.16	SqFt	.06	Patching - AC Deep	50.6	SqFt	$51.89	$2,635
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	6	DEPRESSION	High	52.42	SqFt	.11	Patching - AC Deep	85.	SqFt	$51.89	$4,436
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	104.73	SqFt	.22	Patching - AC Deep	149.6	SqFt	$51.89	$7,780
NCargoPk	NCargoPk11	T	BWI Land Localized Preventative	10	L & T CR	Medium	5,541.27	Ft	26.54	Crack Sealing - AC	5,541.3	Ft	$1.50	$8,312
NCargoPk	NCargoPk12	T	BWI Land Localized Preventative	10	L & T CR	Medium	310.56	Ft	1.39	Crack Sealing - AC	310.7	Ft	$1.50	$466
NCargoPk	NCargoPk12	T	BWI Land Localized Preventative	6	DEPRESSION	High	422.27	SqFt	1.89	Patching - AC Deep	509.1	SqFt	$51.89	$26,412
NCargoPk	NCargoPk12	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	574.25	SqFt	2.57	Patching - AC Deep	674.9	SqFt	$51.89	$35,008
NCargoPk	NCargoPk13	T	BWI Land Localized Stop-Gap	19	RAVELING	High	1.72	SqFt	.01	Patching - AC Partial	2.2	SqFt	$3.41	$6
NCargoPk	NCargoPk13	T	BWI Land Localized Stop-Gap	6	DEPRESSION	High	294.5	SqFt	1.78	Patching - AC Deep	367.1	SqFt	$51.89	$19,071

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
NCargoPk	NCargoPk18	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	36.17	SqFt	.6	Patching - AC Deep	64.6	SqFt	$51.89	$3,339
NCargoPk	NCargoPk20	T	BWI Land Localized Preventative	10	L & T CR	Medium	144.72	Ft	1.5	Crack Sealing - AC	144.7	Ft	$1.50	$217
NCargoRd	NCargoRd01	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,050.2	Ft	3.75	Crack Sealing - AC	2,050.2	Ft	$1.50	$3,075
NCargoRd	NCargoRd01	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	65.66	SqFt	.12	Patching - AC Deep	102.3	SqFt	$51.89	$5,304
NCargoRd	NCargoRd02	T	BWI Land Localized Stop-Gap	10	L & T CR	High	67.65	Ft	.27	Patching - AC Partial	221.7	SqFt	$3.41	$757
NCargoRd	NCargoRd02	T	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	6.77	Count	.03	Patching - AC Deep	40.9	SqFt	$51.89	$2,107
NCargoRd	NCargoRd02	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	902.12	SqFt	3.55	Patching - AC Deep	1,026.9	SqFt	$51.89	$53,293
OFtMeade	OFtMeade01	T	BWI Land Localized Preventative	19	RAVELING	Medium	2.8	SqFt	.	Patching - AC Shallow	3.2	SqFt	$1.73	$5
OFtMeade	OFtMeade01	T	BWI Land Localized Preventative	10	L & T CR	Medium	846.33	Ft	.77	Crack Sealing - AC	846.5	Ft	$1.50	$1,270
OFtMeade	OFtMeade01	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	500.2	SqFt	.46	Patching - AC Deep	594.2	SqFt	$51.89	$30,836
OFtMeade	OFtMeade02	T	BWI Land Localized Preventative	10	L & T CR	Medium	114.57	Ft	1.04	Crack Sealing - AC	114.5	Ft	$1.50	$172
OldESPA	OldESPA02	T	BWI Land Localized Preventative	19	RAVELING	High	17.11	SqFt	.	Patching - AC Partial	17.2	SqFt	$3.41	$58
OldESPA	OldESPA02	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	171.47	SqFt	.05	Patching - AC Deep	228.2	SqFt	$51.89	$11,842
OldESPA	OldESPA02	T	BWI Land Localized Preventative	15	RUTTING	Medium	843.03	SqFt	.23	Patching - AC Deep	842.8	SqFt	$51.89	$43,743
OldESPA	OldESPA02	T	BWI Land Localized Preventative	10	L & T CR	Medium	37,581.17	Ft	10.38	Crack Sealing - AC	37,581.	Ft	$1.50	$56,372
OldESPA	OldESPA02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	1,428.8	SqFt	.39	Patching - AC Deep	1,584.5	SqFt	$51.89	$82,240
OldESPA	OldESPA02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	6,002.49	SqFt	1.66	Patching - AC Deep	6,318.4	SqFt	$51.89	$327,857
OldESPA	OldESPA03	T	BWI Land Localized Preventative	28	LINEAR CR	Medium	1.	Slabs	4.76	Crack Sealing - PCC	13.5	Ft	$38.00	$513
OldESPA	OldESPA03	T	BWI Land Localized Preventative	29	LARGE PATCH	High	1.	Slabs	4.76	Patching - PCC Full Depth	59.2	SqFt	$13.39	$791
OldESPA	OldESPA03	T	BWI Land Localized Preventative	22	CORNER BREAK	Medium	5.	Slabs	23.81	Crack Sealing - PCC	41.	Ft	$38.00	$1,558
OldESPA	OldESPA03	T	BWI Land Localized Preventative	26	JT SEAL DMG	High	21.	Slabs	100.	Joint Seal (Localized)	204.1	Ft	$25.00	$5,100
OldESPB	OldESPB02	T	BWI Land Localized Preventative	19	RAVELING	Medium	208.39	SqFt	.1	Patching - AC Shallow	208.8	SqFt	$1.73	$361
OldESPB	OldESPB02	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	2,084.43	SqFt	1.03	Crack Sealing - AC	635.2	Ft	$1.50	$953
OldESPB	OldESPB02	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,605.54	Ft	1.29	Crack Sealing - AC	2,605.6	Ft	$1.50	$3,908
OldESPB	OldESPB02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	694.81	SqFt	.34	Patching - AC Deep	805.1	SqFt	$51.89	$41,766
OldQTAPk	OldQTAPk/1	T	BWI Land Localized Preventative	10	L & T CR	High	26.97	Ft	.05	Patching - AC Partial	88.3	SqFt	$3.41	$302
OldQTAPk	OldQTAPk/1	T	BWI Land Localized Preventative	10	L & T CR	Medium	583.43	Ft	1.15	Crack Sealing - AC	583.3	Ft	$1.50	$875
OldQTARd	OldQTARd01	T	BWI Land Localized Stop-Gap	19	RAVELING	High	67.81	SqFt	.15	Patching - AC Partial	67.8	SqFt	$3.41	$231
OldQTARd	OldQTARd01	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	14.12	Count	.03	Patching - AC Deep	127.	SqFt	$51.89	$6,596
OldQTARd	OldQTARd01	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	2,338.89	SqFt	5.05	Patching - AC Deep	2,537.1	SqFt	$51.89	$131,674
PinkLot	PinkLot01	T	BWI Land Localized Stop-Gap	19	RAVELING	High	114.64	SqFt	1.33	Patching - AC Partial	114.1	SqFt	$3.41	$391
PinkLot	PinkLot01	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	4.58	Count	.05	Patching - AC Deep	40.9	SqFt	$51.89	$2,141
PinkLot	PinkLot01	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	404.94	SqFt	4.72	Patching - AC Deep	489.8	SqFt	$51.89	$25,423
PinkLot	PinkLot02	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	6,799.24	SqFt	4.13	Crack Sealing - AC	2,072.5	Ft	$1.50	$3,109
PinkLot	PinkLot02	T	BWI Land Localized Preventative	19	RAVELING	Medium	2,326.08	SqFt	1.41	Patching - AC Shallow	2,326.1	SqFt	$1.73	$4,024
PinkLot	PinkLot02	T	BWI Land Localized Preventative	10	L & T CR	Medium	5,725.69	Ft	3.48	Crack Sealing - AC	5,725.7	Ft	$1.50	$8,589
PinkLot	PinkLot02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	1,789.28	SqFt	1.09	Patching - AC Deep	1,963.3	SqFt	$51.89	$101,888
RentalPk	RentalPk01	T	BWI Land Localized Preventative	10	L & T CR	Medium	3,114.6	Ft	1.85	Crack Sealing - AC	3,114.5	Ft	$1.50	$4,672
RentalPk	RentalPk01	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	392.56	SqFt	.23	Patching - AC Deep	476.8	SqFt	$51.89	$24,718

Appendix E

2016 Localized Maintenance Plan

All Sections

					Primary	Secondary	Tertiary	Total						
					$3,237,858	$3,219,853	$5,729,810	$6,457,711						
BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
RentalPk	RentalPk02	T	BWI Land Localized Preventative	10	L & T CR	Medium	696.62	Ft	.15	Crack Sealing - AC	696.5	Ft	$1.50	$1,045
RentalPk	RentalPk02	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	99.57	SqFt	.02	Patching - AC Deep	143.2	SqFt	$51.89	$7,455
RentalPk	RentalPk03	T	BWI Land Localized Preventative	10	L & T CR	Medium	166.14	Ft	.12	Crack Sealing - AC	166.	Ft	$1.50	$249
RentalPk	RentalPk03	T	BWI Land Localized Preventative	6	DEPRESSION	High	415.38	SqFt	.29	Patching - AC Deep	501.6	SqFt	$51.89	$26,017
RentalPk	RentalPk03	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	830.76	SqFt	.59	Patching - AC Deep	950.5	SqFt	$51.89	$49,334
SField	SField02	T	BWI Land Localized Preventative	10	L & T CR	Medium	324.77	Ft	1.6	Crack Sealing - AC	324.8	Ft	$1.50	$487
SField	SField03	T	BWI Land Localized Preventative	10	L & T CR	High	24.34	Ft	.24	Patching - AC Partial	79.7	SqFt	$3.41	$272
SField	SField03	T	BWI Land Localized Preventative	10	L & T CR	Medium	283.83	Ft	2.85	Crack Sealing - AC	283.8	Ft	$1.50	$426
SField	SField03	T	BWI Land Localized Preventative	13	POTHOLE	High	1.62	Count	.02	Patching - AC Deep	15.1	SqFt	$51.89	$757
SField	SField04	T	BWI Land Localized Stop-Gap	26	JT SEAL DMG	High	5.	Slabs	100.	Joint Seal (Localized)	292.3	Ft	$25.00	$7,309
SField	SField04	T	BWI Land Localized Stop-Gap	23	DIVIDED SLAB	High	1.39	Slabs	27.78	ab Replacement- PCC Ro	735.2	SqFt	$26.78	$19,676
SField	SField05	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	351.44	SqFt	1.02	Patching - AC Deep	430.6	SqFt	$51.89	$22,361
SField	SField06	T	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	5.52	Count	.03	Patching - AC Deep	33.4	SqFt	$51.89	$1,718
SField	SField06	T	BWI Land Localized Stop-Gap	19	RAVELING	High	919.67	SqFt	5.49	Patching - AC Partial	919.2	SqFt	$3.41	$3,136
SField	SField06	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	128.74	SqFt	.77	Patching - AC Deep	178.7	SqFt	$51.89	$9,258
SField	SField06	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	367.8	SqFt	2.2	Patching - AC Deep	448.9	SqFt	$51.89	$23,301
Sheraton	Sheraton03	T	BWI Land Localized Preventative	19	RAVELING	Medium	15.82	SqFt	.05	Patching - AC Shallow	16.2	SqFt	$1.73	$27
Sheraton	Sheraton04	T	BWI Land Localized Preventative	10	L & T CR	Medium	92.75	Ft	.3	Crack Sealing - AC	92.9	Ft	$1.50	$139
TaxiLot	TaxiLot01	T	BWI Land Localized Stop-Gap	19	RAVELING	High	91.6	SqFt	1.45	Patching - AC Partial	91.5	SqFt	$3.41	$312
TaxiLot	TaxiLot01	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	366.4	SqFt	5.79	Patching - AC Deep	447.8	SqFt	$51.89	$23,216
TaxiLot	TaxiLot02	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	4.49	Count	.01	Patching - AC Deep	40.9	SqFt	$51.89	$2,096
TaxiLot	TaxiLot02	T	BWI Land Localized Stop-Gap	15	RUTTING	High	157.05	SqFt	.22	Patching - AC Deep	157.2	SqFt	$51.89	$8,152
TaxiLot	TaxiLot02	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	448.86	SqFt	.62	Patching - AC Deep	538.2	SqFt	$51.89	$27,923
TaxiLot	TaxiLot02	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	897.71	SqFt	1.24	Patching - AC Deep	1,022.6	SqFt	$51.89	$53,046

Appendix E-2
2016 Localized Maintenance Plan – Sections with PCI > 40

Appendix E
2016 Localized Maintenance Plan
Sections with PCI > 40

Primary	Secondary	Tertiary	Total
$856,570	$937,238	$3,015,411	$1,793,808

BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
Arrivals	Arrivals01	P	BWI Land Localized Preventative	10	L & T CR	Medium	41.96	Ft	.09	Crack Sealing - AC	42.	Ft	$1.50	$63
Arrivals	Arrivals01	P	BWI Land Localized Preventative	15	RUTTING	Medium	52.85	SqFt	.11	Patching - AC Deep	52.7	SqFt	$51.89	$2,740
Arrivals	Arrivals02	P	BWI Land Localized Preventative	10	L & T CR	Medium	37.73	Ft	.11	Crack Sealing - AC	37.7	Ft	$1.50	$57
Arrivals	Arrivals03	P	BWI Land Localized Preventative	10	L & T CR	Medium	414.96	Ft	3.17	Crack Sealing - AC	415.	Ft	$1.50	$622
Arrivals	Arrivals03	P	BWI Land Localized Preventative	15	RUTTING	Medium	52.85	SqFt	.4	Patching - AC Deep	52.7	SqFt	$51.89	$2,740
Arrivals	Arrivals04	P	BWI Land Localized Preventative	10	L & T CR	Medium	28.51	Ft	.1	Crack Sealing - AC	28.5	Ft	$1.50	$43
Arrivals	Arrivals05	P	BWI Land Localized Preventative	22	CORNER BREAK	Medium	1.97	Slabs	.82	Crack Sealing - PCC	16.1	Ft	$38.00	$613
Arrivals	Arrivals07	P	BWI Land Localized Preventative	10	L & T CR	Medium	23.39	Ft	.06	Crack Sealing - AC	23.3	Ft	$1.50	$35
Arrivals	Arrivals07	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	23.79	SqFt	.06	Patching - AC Deep	47.4	SqFt	$51.89	$2,459
Arrivals	Arrivals07	P	BWI Land Localized Preventative	15	RUTTING	Medium	52.85	SqFt	.14	Patching - AC Deep	52.7	SqFt	$51.89	$2,740
Arrivals	Arrivals08	P	BWI Land Localized Preventative	10	L & T CR	Medium	16.37	Ft	.07	Crack Sealing - AC	16.4	Ft	$1.50	$25
Dep	Dep01	P	BWI Land Localized Preventative	10	L & T CR	Medium	2.76	Ft	.02	Crack Sealing - AC	2.6	Ft	$1.50	$4
Express	Express01	P	BWI Land Localized Preventative	10	L & T CR	Medium	9,018.9	Ft	2.32	Crack Sealing - AC	9,019.	Ft	$1.50	$13,528
I195IB	I195IB01	P	BWI Land Localized Preventative	10	L & T CR	Medium	35.3	Ft	.16	Crack Sealing - AC	35.4	Ft	$1.50	$53
I195IB	I195IB01	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	20.02	SqFt	.09	Patching - AC Deep	42.	SqFt	$51.89	$2,180
I195IB	I195IB02	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	35.52	SqFt	.21	Patching - AC Deep	63.5	SqFt	$51.89	$3,294
I195IB	I195IB03	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	169.64	SqFt	.84	Patching - AC Deep	226.	SqFt	$51.89	$11,732
I195IB	I195IB04	P	BWI Land Localized Preventative	10	L & T CR	Medium	32.02	Ft	.19	Crack Sealing - AC	32.2	Ft	$1.50	$48
I195IB	I195IB05	P	BWI Land Localized Preventative	10	L & T CR	Medium	71.46	Ft	.37	Crack Sealing - AC	71.5	Ft	$1.50	$107
I195IB	I195IB05	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	64.69	SqFt	.33	Patching - AC Deep	101.2	SqFt	$51.89	$5,244
I195IB	I195IB05	P	BWI Land Localized Preventative	15	RUTTING	Medium	106.46	SqFt	.55	Patching - AC Deep	106.6	SqFt	$51.89	$5,521
I195IB	I195IB06	P	BWI Land Localized Preventative	13	POTHOLE	Low	0.04	Count	.	Patching - AC Deep	0.	SqFt	$51.89	$7
I195IB	I195IB06	P	BWI Land Localized Preventative	10	L & T CR	Medium	30.09	Ft	.7	Crack Sealing - AC	30.2	Ft	$1.50	$45
I195IB	I195IB06A	P	BWI Land Localized Preventative	10	L & T CR	Medium	1.77	Ft	.03	Crack Sealing - AC	1.6	Ft	$1.50	$3
I195IB	I195IB07	P	BWI Land Localized Preventative	10	L & T CR	High	11.45	Ft	.02	Patching - AC Partial	37.7	SqFt	$3.41	$128
I195IB	I195IB07	P	BWI Land Localized Preventative	10	L & T CR	Medium	245.18	Ft	.4	Crack Sealing - AC	245.1	Ft	$1.50	$368
I195IB	I195IB07	P	BWI Land Localized Preventative	1	ALLIGATOR CR	High	10.87	SqFt	.02	Patching - AC Deep	28.	SqFt	$51.89	$1,465
I195IB	I195IB07	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	116.79	SqFt	.19	Patching - AC Deep	164.7	SqFt	$51.89	$8,524
I195IB	I195IB07	P	BWI Land Localized Preventative	15	RUTTING	Medium	219.58	SqFt	.36	Patching - AC Deep	219.6	SqFt	$51.89	$11,396
I195IB	I195IB08A	P	BWI Land Localized Preventative	10	L & T CR	Medium	1.9	Ft	.01	Crack Sealing - AC	2.	Ft	$1.50	$3
I195IB	I195IB09	P	BWI Land Localized Preventative	10	L & T CR	Medium	364.57	Ft	1.86	Crack Sealing - AC	364.5	Ft	$1.50	$547
I195IB	I195IB09	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	33.8	SqFt	.17	Patching - AC Deep	61.4	SqFt	$51.89	$3,179
I195IB	I195IB10B	P	BWI Land Localized Preventative	10	L & T CR	Medium	182.12	Ft	1.32	Crack Sealing - AC	182.1	Ft	$1.50	$273
I195IB	I195IB11	P	BWI Land Localized Preventative	10	L & T CR	Medium	25.46	Ft	1.	Crack Sealing - AC	25.6	Ft	$1.50	$38
I195OB	I195OB01	P	BWI Land Localized Preventative	10	L & T CR	Medium	1.08	Ft	.05	Crack Sealing - AC	1.	Ft	$1.50	$2
I195OB	I195OB03	P	BWI Land Localized Preventative	10	L & T CR	Medium	50.43	Ft	.49	Crack Sealing - AC	50.5	Ft	$1.50	$76
I195OB	I195OB04	P	BWI Land Localized Preventative	10	L & T CR	Medium	0.46	Ft	.01	Crack Sealing - AC	0.3	Ft	$1.50	$1
I195OB	I195OB05	P	BWI Land Localized Preventative	10	L & T CR	Medium	4.89	Ft	.03	Crack Sealing - AC	4.9	Ft	$1.50	$7
I195OB	I195OB06	P	BWI Land Localized Preventative	10	L & T CR	Medium	19.98	Ft	.1	Crack Sealing - AC	20.	Ft	$1.50	$30

Appendix E
2016 Localized Maintenance Plan
Sections with PCI > 40

Primary	Secondary	Tertiary	Total
$856,570	$937,238	$3,015,411	$1,793,808

BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
I195OB	I195OB07	P	BWI Land Localized Preventative	10	L & T CR	Medium	20.51	Ft	.23	Crack Sealing - AC	20.3	Ft	$1.50	$31
I195OB	I195OB08	P	BWI Land Localized Preventative	10	L & T CR	Medium	8.96	Ft	.04	Crack Sealing - AC	8.9	Ft	$1.50	$13
I195OB	I195OB09	P	BWI Land Localized Preventative	10	L & T CR	Medium	12.27	Ft	.11	Crack Sealing - AC	12.1	Ft	$1.50	$18
I195OB	I195OB09A	P	BWI Land Localized Preventative	10	L & T CR	Medium	17.65	Ft	.34	Crack Sealing - AC	17.7	Ft	$1.50	$26
I195OB	I195OB10	P	BWI Land Localized Preventative	10	L & T CR	Medium	51.77	Ft	.37	Crack Sealing - AC	51.8	Ft	$1.50	$78
I195OB	I195OB10	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	2.8	SqFt	.02	Patching - AC Deep	12.9	SqFt	$51.89	$697
I195OB	I195OB12	P	BWI Land Localized Preventative	10	L & T CR	Medium	2.43	Ft	.06	Crack Sealing - AC	2.3	Ft	$1.50	$4
LTAPark	LTAPark01	P	BWI Land Localized Stop-Gap	6	DEPRESSION	High	670.27	SqFt	.11	Patching - AC Deep	778.2	SqFt	$51.89	$40,395
LTAPark	LTAPark01	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	3,182.13	SqFt	.54	Patching - AC Deep	3,413.2	SqFt	$51.89	$177,110
LTAPark	LTAPark02	P	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	1,008.69	SqFt	.12	Patching - AC Deep	1,141.	SqFt	$51.89	$59,184
LTAPark	LTAPark02	P	BWI Land Localized Stop-Gap	15	RUTTING	High	8,069.81	SqFt	.96	Patching - AC Deep	8,069.7	SqFt	$51.89	$418,743
LTAPark	LTAPark03	P	BWI Land Localized Preventative	3	BLOCK CR	Medium	10,260.81	SqFt	2.97	Crack Sealing - AC	3,127.6	Ft	$1.50	$4,691
LTAPark	LTAPark03	P	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	513.01	SqFt	.15	Patching - AC Deep	608.2	SqFt	$51.89	$31,560
LTAPark	LTAPark03	P	BWI Land Localized Preventative	10	L & T CR	Medium	23,215.19	Ft	6.72	Crack Sealing - AC	23,215.2	Ft	$1.50	$34,823
LTAPark	LTAPark04	P	BWI Land Localized Preventative	26	JT SEAL DMG	High	16.11	Slabs	17.14	Joint Seal (Localized)	265.4	Ft	$25.00	$6,635
LTBPark	LTBPark11	P	BWI Land Localized Preventative	28	LINEAR CR	Medium	1.03	Slabs	3.12	Crack Sealing - PCC	13.8	Ft	$38.00	$529
Sheraton	Sheraton01	P	BWI Land Localized Stop-Gap	13	POTHOLE	High	4.49	Count	.03	Patching - AC Deep	40.9	SqFt	$51.89	$2,097
15RDeice	15RDeice01	S	BWI Land Localized Preventative	10	L & T CR	Medium	579.95	Ft	1.53	Crack Sealing - AC	580.1	Ft	$1.50	$870
15RDeice	15RDeice01	S	BWI Land Localized Preventative	6	DEPRESSION	High	60.49	SqFt	.16	Patching - AC Deep	95.8	SqFt	$51.89	$4,973
15RDeice	15RDeice01	S	BWI Land Localized Preventative	11	PATCH/UT CUT	High	201.72	SqFt	.53	Patching - AC Deep	262.6	SqFt	$51.89	$13,642
15RDeice	15RDeice01	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	252.2	SqFt	.67	Patching - AC Deep	319.7	SqFt	$51.89	$16,609
AirCargoDr	AirCarDr03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	56.08	SqFt	.13	Patching - AC Deep	90.4	SqFt	$51.89	$4,679
AirCargoDr	AirCarDr05	S	BWI Land Localized Preventative	10	L & T CR	Medium	630.61	Ft	1.75	Crack Sealing - AC	630.6	Ft	$1.50	$946
AirCargoDr	AirCarDr05	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	13.78	SqFt	.04	Patching - AC Deep	32.3	SqFt	$51.89	$1,696
AirCargoDr	AirCarDr05	S	BWI Land Localized Preventative	15	RUTTING	High	114.64	SqFt	.32	Patching - AC Deep	115.2	SqFt	$51.89	$5,950
ARFFLot	ARFFLot01	S	BWI Land Localized Preventative	10	L & T CR	Medium	55.61	Ft	.43	Crack Sealing - AC	55.8	Ft	$1.50	$83
ARFFLot	ARFFLot02	S	BWI Land Localized Preventative	22	CORNER BREAK	Medium	1.	Slabs	5.88	Crack Sealing - PCC	8.2	Ft	$38.00	$312
ARFFLot	ARFFLot03	S	BWI Land Localized Preventative	28	LINEAR CR	Medium	2.	Slabs	5.	Crack Sealing - PCC	40.	Ft	$38.00	$1,520
ARFFLot	ARFFLot04	S	BWI Land Localized Preventative	39	JOINT SPALL	High	2.	Slabs	10.	Patching - PCC Partial Depth	43.1	SqFt	$4.83	$208
ARFFLot	ARFFLot04	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	20.	Slabs	100.	Joint Seal (Localized)	545.	Ft	$25.00	$13,625
ARFFRd	ARFFRd03	S	BWI Land Localized Preventative	10	L & T CR	Medium	82.71	Ft	.5	Crack Sealing - AC	82.7	Ft	$1.50	$124
ARFFRd	ARFFRd03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	20.67	SqFt	.13	Patching - AC Deep	43.1	SqFt	$51.89	$2,230
ARFFRd	ARFFRd03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	41.33	SqFt	.25	Patching - AC Deep	71.	SqFt	$51.89	$3,697
Burma	Burma01	S	BWI Land Localized Preventative	10	L & T CR	High	10.3	Ft	.02	Patching - AC Partial	33.4	SqFt	$3.41	$115
Burma	Burma01	S	BWI Land Localized Preventative	10	L & T CR	Medium	142.88	Ft	.21	Crack Sealing - AC	143.	Ft	$1.50	$214
Burma	Burma01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	20.45	SqFt	.03	Patching - AC Deep	43.1	SqFt	$51.89	$2,214
BusMaint	BusMaint07	S	BWI Land Localized Preventative	28	LINEAR CR	High	1.39	Slabs	.53	Crack Sealing - PCC	16.7	Ft	$38.00	$632
CServRd	CServRd02	S	BWI Land Localized Stop-Gap	10	L & T CR	High	11.32	Ft	.05	Patching - AC Partial	37.7	SqFt	$3.41	$127
CServRd	CServRd02	S	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	0.79	Count	.	Patching - AC Deep	4.3	SqFt	$51.89	$246

Appendix E
2016 Localized Maintenance Plan
Sections with PCI > 40

Primary	Secondary	Tertiary	Total
$856,570	$937,238	$3,015,411	$1,793,808

BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
CServRd	CServRd02	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	18.94	SqFt	.09	Patching - AC Deep	40.9	SqFt	$51.89	$2,103
CUP	CUPRd01	S	BWI Land Localized Preventative	10	L & T CR	Medium	177.46	Ft	1.17	Crack Sealing - AC	177.5	Ft	$1.50	$266
CUP	CUPRd01	S	BWI Land Localized Preventative	15	RUTTING	Medium	107.53	SqFt	.71	Patching - AC Deep	107.6	SqFt	$51.89	$5,579
CUP	CUPRd01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	77.28	SqFt	.51	Patching - AC Deep	116.3	SqFt	$51.89	$6,057
ElmRd	ElmRd01	S	BWI Land Localized Preventative	10	L & T CR	Medium	145.01	Ft	.44	Crack Sealing - AC	145.	Ft	$1.50	$218
ElmRd	ElmRd01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	8.61	SqFt	.03	Patching - AC Deep	24.8	SqFt	$51.89	$1,271
ElmRd	ElmRd01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	24.22	SqFt	.07	Patching - AC Deep	48.4	SqFt	$51.89	$2,495
ElmRd	ElmRd01	S	BWI Land Localized Preventative	15	RUTTING	Medium	52.85	SqFt	.16	Patching - AC Deep	52.7	SqFt	$51.89	$2,745
ElmRd	ElmRd04	S	BWI Land Localized Preventative	13	POTHOLE	Low	0.05	Count	.	Patching - AC Deep	0.	SqFt	$51.89	$8
ElmRd	ElmRd04	S	BWI Land Localized Preventative	10	L & T CR	Medium	72.64	Ft	.41	Crack Sealing - AC	72.5	Ft	$1.50	$109
ElmRd	ElmRd04	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	64.05	SqFt	.36	Patching - AC Deep	100.1	SqFt	$51.89	$5,200
ElmRd	ElmRd05	S	BWI Land Localized Preventative	10	L & T CR	Medium	15.55	Ft	.05	Crack Sealing - AC	15.4	Ft	$1.50	$23
ElmRd	ElmRd05	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	32.61	SqFt	.1	Patching - AC Deep	59.2	SqFt	$51.89	$3,092
ElmRd	ElmRd05	S	BWI Land Localized Preventative	15	RUTTING	Medium	105.81	SqFt	.34	Patching - AC Deep	105.5	SqFt	$51.89	$5,490
ElmRd	ElmRd06	S	BWI Land Localized Stop-Gap	3	BLOCK CR	High	106.67	SqFt	1.1	Crack Sealing - AC	32.5	Ft	$1.50	$49
ElmRd	ElmRd06	S	BWI Land Localized Stop-Gap	19	RAVELING	High	25.83	SqFt	.27	Patching - AC Partial	25.8	SqFt	$3.41	$88
ElmRd	ElmRd06	S	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	18.55	Count	.19	Patching - AC Deep	110.9	SqFt	$51.89	$5,776
ElmRd	ElmRd07	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	33.48	SqFt	.34	Patching - AC Deep	61.4	SqFt	$51.89	$3,157
ElmRdExt	ElmRdExt01	S	BWI Land Localized Preventative	10	L & T CR	Medium	11.42	Ft	.05	Crack Sealing - AC	11.5	Ft	$1.50	$17
ElmRdExt	ElmRdExt02	S	BWI Land Localized Preventative	10	L & T CR	Medium	0.16	Ft	.	Crack Sealing - AC	0.3	Ft	$1.50	$0
ElmRdExt	ElmRdExt03	S	BWI Land Localized Preventative	10	L & T CR	Medium	8.1	Ft	.04	Crack Sealing - AC	8.2	Ft	$1.50	$12
ElmRdExt	ElmRdExt04	S	BWI Land Localized Preventative	10	L & T CR	Medium	0.79	Ft	.01	Crack Sealing - AC	0.7	Ft	$1.50	$1
ElmRdExt	ElmRdExt05	S	BWI Land Localized Preventative	10	L & T CR	Medium	3.61	Ft	.02	Crack Sealing - AC	3.6	Ft	$1.50	$5
ElmRdExt	ElmRdExt06	S	BWI Land Localized Preventative	10	L & T CR	Medium	5.41	Ft	.04	Crack Sealing - AC	5.6	Ft	$1.50	$8
ElmRdExt	ElmRdExt07	S	BWI Land Localized Preventative	10	L & T CR	Medium	8.83	Ft	.06	Crack Sealing - AC	8.9	Ft	$1.50	$13
ElmRdExt	ElmRdExt08	S	BWI Land Localized Preventative	10	L & T CR	Medium	37.76	Ft	.15	Crack Sealing - AC	37.7	Ft	$1.50	$57
ElmRdExt	ElmRdExt08	S	BWI Land Localized Preventative	15	RUTTING	Medium	421.41	SqFt	1.65	Patching - AC Deep	422.	SqFt	$51.89	$21,869
ETenant	ETenant01	S	BWI Land Localized Preventative	10	L & T CR	Medium	515.26	Ft	.14	Crack Sealing - AC	515.1	Ft	$1.50	$773
ExManLot	ExManLot01	S	BWI Land Localized Preventative	19	RAVELING	Medium	101.83	SqFt	1.	Patching - AC Shallow	102.3	SqFt	$1.73	$176
ExManLot	ExManLot01	S	BWI Land Localized Preventative	19	RAVELING	High	114.64	SqFt	1.13	Patching - AC Partial	114.1	SqFt	$3.41	$391
Express	Express04	S	BWI Land Localized Preventative	10	L & T CR	Medium	730.68	Ft	4.	Crack Sealing - AC	730.6	Ft	$1.50	$1,096
Fuel	Fuel01	S	BWI Land Localized Preventative	10	L & T CR	Medium	493.5	Ft	.57	Crack Sealing - AC	493.4	Ft	$1.50	$740
Fuel	Fuel01	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	49.3	SqFt	.06	Patching - AC Deep	81.8	SqFt	$51.89	$4,235
Fuel	Fuel02	S	BWI Land Localized Preventative	38	CORNER SPALL	High	6.57	Slabs	1.19	Patching - PCC Partial Depth	17.2	SqFt	$4.83	$85
Fuel	Fuel02	S	BWI Land Localized Preventative	39	JOINT SPALL	High	6.57	Slabs	1.19	Patching - PCC Partial Depth	141.	SqFt	$4.83	$683
Fuel	Fuel02	S	BWI Land Localized Preventative	28	LINEAR CR	Medium	3.29	Slabs	.6	Crack Sealing - PCC	52.5	Ft	$38.00	$1,998
Fuel	Fuel02	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	69.	Slabs	12.5	Joint Seal (Localized)	1,048.2	Ft	$25.00	$26,209
Fuel	Fuel03	S	BWI Land Localized Preventative	39	JOINT SPALL	High	1.9	Slabs	1.19	Patching - PCC Partial Depth	40.9	SqFt	$4.83	$198
Fuel	Fuel03	S	BWI Land Localized Preventative	23	DIVIDED SLAB	Medium	1.9	Slabs	1.19	Slab Replacement- PCC Roa	571.6	SqFt	$26.78	$15,303

Appendix E
2016 Localized Maintenance Plan
Sections with PCI > 40

Primary	Secondary	Tertiary	Total
$856,570	$937,238	$3,015,411	$1,793,808

BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
Fuel	Fuel03	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	40.	Slabs	25.	Joint Seal (Localized)	1,130.3	Ft	$25.00	$28,260
Fuel	Fuel04	S	BWI Land Localized Preventative	19	RAVELING	Medium	38.64	SqFt	.34	Patching - AC Shallow	38.8	SqFt	$1.73	$67
Fuel	Fuel04	S	BWI Land Localized Preventative	7	EDGE CR	High	61.88	Ft	.55	Patching - AC Partial	101.2	SqFt	$3.41	$346
Fuel	Fuel05	S	BWI Land Localized Preventative	10	L & T CR	Medium	478.48	Ft	2.16	Crack Sealing - AC	478.4	Ft	$1.50	$718
Fuel	Fuel05	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	12.38	SqFt	.06	Patching - AC Deep	30.1	SqFt	$51.89	$1,587
Fuel	Fuel05	S	BWI Land Localized Preventative	15	RUTTING	Medium	35.41	SqFt	.16	Patching - AC Deep	35.5	SqFt	$51.89	$1,839
Fuel	Fuel06	S	BWI Land Localized Stop-Gap	16	SHOVING	High	66.31	SqFt	.19	Patching - AC Partial	103.3	SqFt	$3.41	$351
Fuel	Fuel06	S	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	122.71	SqFt	.36	Patching - AC Deep	171.2	SqFt	$51.89	$8,891
FuelRd	FuelRd01	S	BWI Land Localized Stop-Gap	10	L & T CR	High	13.35	Ft	.04	Patching - AC Partial	44.1	SqFt	$3.41	$149
FuelRd	FuelRd01	S	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	22.28	SqFt	.07	Patching - AC Deep	45.2	SqFt	$51.89	$2,349
FuelRd	FuelRd02	S	BWI Land Localized Preventative	39	JOINT SPALL	High	1.35	Slabs	1.67	Patching - PCC Partial Depth	29.1	SqFt	$4.83	$140
FuelRd	FuelRd02	S	BWI Land Localized Preventative	28	LINEAR CR	Medium	2.7	Slabs	3.33	Crack Sealing - PCC	45.9	Ft	$38.00	$1,744
FuelRd	FuelRd02	S	BWI Land Localized Preventative	29	LARGE PATCH	High	2.7	Slabs	3.33	Patching - PCC Full Depth	186.2	SqFt	$13.39	$2,491
FuelRd	FuelRd02	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	81.	Slabs	100.	Joint Seal (Localized)	1,412.1	Ft	$25.00	$35,300
FuelRd	FuelRd03	S	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	9.49	Count	.03	Patching - AC Deep	57.1	SqFt	$51.89	$2,953
GAPark	GAPark01	S	BWI Land Localized Preventative	10	L & T CR	Medium	81.92	Ft	.6	Crack Sealing - AC	82.	Ft	$1.50	$123
GAPark	GAPark04	S	BWI Land Localized Preventative	10	L & T CR	Medium	64.67	Ft	.48	Crack Sealing - AC	64.6	Ft	$1.50	$97
GAPark	GAPark04	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	242.51	SqFt	1.81	Patching - AC Deep	308.9	SqFt	$51.89	$16,044
GAPark	GAPark04	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	404.18	SqFt	3.01	Patching - AC Deep	488.7	SqFt	$51.89	$25,380
GAPark	GAPark05	S	BWI Land Localized Preventative	10	L & T CR	High	20.47	Ft	.07	Patching - AC Partial	66.7	SqFt	$3.41	$229
GAPark	GAPark05	S	BWI Land Localized Preventative	10	L & T CR	Medium	337.83	Ft	1.08	Crack Sealing - AC	337.9	Ft	$1.50	$507
GAPark	GAPark05	S	BWI Land Localized Preventative	3	BLOCK CR	Medium	2,047.3	SqFt	6.56	Crack Sealing - AC	624.	Ft	$1.50	$936
GAPark	GAPark05	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	204.73	SqFt	.66	Patching - AC Deep	265.9	SqFt	$51.89	$13,820
GAPark	GAPark08	S	BWI Land Localized Preventative	10	L & T CR	Medium	108.2	Ft	.54	Crack Sealing - AC	108.3	Ft	$1.50	$162
GAPark	GAPark08	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	1,081.88	SqFt	5.36	Patching - AC Deep	1,218.5	SqFt	$51.89	$63,217
GAPark	GAPark09	S	BWI Land Localized Preventative	10	L & T CR	Medium	414.99	Ft	1.78	Crack Sealing - AC	415.	Ft	$1.50	$622
GAPark	GAPark09	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	80.94	SqFt	.35	Patching - AC Deep	121.6	SqFt	$51.89	$6,289
HourGar	HourGar02	S	BWI Land Localized Preventative	11	PATCH/UT CUT	High	15.5	SqFt	.11	Patching - AC Deep	35.5	SqFt	$51.89	$1,835
HourGar	HourGar04	S	BWI Land Localized Preventative	10	L & T CR	Medium	289.9	Ft	1.67	Crack Sealing - AC	290.	Ft	$1.50	$435
MallEnt	MallEnt01	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	173.94	SqFt	.87	Patching - AC Deep	231.4	SqFt	$51.89	$11,985
MallEnt	MallEnt01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	401.28	SqFt	2.	Patching - AC Deep	485.5	SqFt	$51.89	$25,215
MathLot	MathLot03	S	BWI Land Localized Preventative	10	L & T CR	Medium	860.2	Ft	.38	Crack Sealing - AC	860.2	Ft	$1.50	$1,290
MathWay	MathWay01	S	BWI Land Localized Stop-Gap	10	L & T CR	High	21.52	Ft	.03	Patching - AC Partial	71.	SqFt	$3.41	$241
MathWay	MathWay01	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	17.33	SqFt	.02	Patching - AC Deep	37.7	SqFt	$51.89	$1,978
MathWay	MathWay02	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	67.06	SqFt	.09	Patching - AC Deep	104.4	SqFt	$51.89	$5,398
MathWay	MathWay03	S	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	0.23	Count	.	Patching - AC Deep	1.1	SqFt	$51.89	$70
MathWay	MathWay03	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	176.74	SqFt	.22	Patching - AC Deep	234.7	SqFt	$51.89	$12,156
MathWay	MathWay05	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	11.	Slabs	100.	Joint Seal (Localized)	230.6	Ft	$25.00	$5,767
NField	NField04	S	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	439.92	SqFt	.85	Patching - AC Deep	528.5	SqFt	$51.89	$27,413

Appendix E
2016 Localized Maintenance Plan
Sections with PCI > 40

Primary	Secondary	Tertiary	Total
$856,570	$937,238	$3,015,411	$1,793,808

BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
NField	NField04	S	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	845.94	SqFt	1.63	Patching - AC Deep	966.6	SqFt	$51.89	$50,177
OldFedEx	OldFedEx01	S	BWI Land Localized Preventative	10	L & T CR	Medium	2,320.57	Ft	1.41	Crack Sealing - AC	2,320.5	Ft	$1.50	$3,481
OldFedEx	OldFedEx01	S	BWI Land Localized Preventative	3	BLOCK CR	Medium	10,829.35	SqFt	6.58	Crack Sealing - AC	3,300.9	Ft	$1.50	$4,951
OldFedEx	OldFedEx01	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	185.68	SqFt	.11	Patching - AC Deep	244.3	SqFt	$51.89	$12,686
PierEMan	PierEMan01	S	BWI Land Localized Preventative	10	L & T CR	Medium	18,106.33	Ft	19.5	Crack Sealing - AC	18,106.3	Ft	$1.50	$27,160
RentalRd	RentalRd01	S	BWI Land Localized Preventative	13	POTHOLE	Low	0.08	Count	.	Patching - AC Deep	0.	SqFt	$51.89	$12
RentalRd	RentalRd01	S	BWI Land Localized Preventative	10	L & T CR	Medium	112.86	Ft	.32	Crack Sealing - AC	112.9	Ft	$1.50	$169
RentalRd	RentalRd01	S	BWI Land Localized Preventative	15	RUTTING	High	53.07	SqFt	.15	Patching - AC Deep	52.7	SqFt	$51.89	$2,754
RentalRd	RentalRd01	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	28.63	SqFt	.08	Patching - AC Deep	53.8	SqFt	$51.89	$2,810
RentalRd	RentalRd01	S	BWI Land Localized Preventative	15	RUTTING	Medium	159.2	SqFt	.46	Patching - AC Deep	159.3	SqFt	$51.89	$8,261
RentalRd	RentalRd02	S	BWI Land Localized Preventative	26	JT SEAL DMG	High	240.33	Slabs	77.78	Joint Seal (Localized)	4,521.3	Ft	$25.00	$113,031
RentalRd	RentalRd03	S	BWI Land Localized Preventative	10	L & T CR	Medium	96.95	Ft	.38	Crack Sealing - AC	96.8	Ft	$1.50	$145
RentalRd	RentalRd03	S	BWI Land Localized Preventative	15	RUTTING	Medium	53.6	SqFt	.21	Patching - AC Deep	53.8	SqFt	$51.89	$2,783
RentalRd	RentalRd04	S	BWI Land Localized Preventative	10	L & T CR	Medium	483.46	Ft	.32	Crack Sealing - AC	483.6	Ft	$1.50	$725
RentalRd	RentlRd05	S	BWI Land Localized Preventative	19	RAVELING	Medium	144.24	SqFt	.79	Patching - AC Shallow	144.2	SqFt	$1.73	$250
RentalRd	RentlRd05B	S	BWI Land Localized Preventative	15	RUTTING	Medium	293.85	SqFt	1.55	Patching - AC Deep	293.9	SqFt	$51.89	$15,249
WTenant	WTenant01	S	BWI Land Localized Stop-Gap	7	EDGE CR	High	143.08	Ft	1.04	Patching - AC Partial	234.7	SqFt	$3.41	$800
WTenant	WTenant02	S	BWI Land Localized Preventative	28	LINEAR CR	Medium	1.31	Slabs	6.25	Crack Sealing - PCC	15.8	Ft	$38.00	$599
WTenant	WTenant03	S	BWI Land Localized Preventative	10	L & T CR	Medium	7,269.36	Ft	.84	Crack Sealing - AC	7,269.4	Ft	$1.50	$10,904
WTenant	WTenant03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	422.59	SqFt	.05	Patching - AC Deep	509.1	SqFt	$51.89	$26,432
WTenant	WTenant03	S	BWI Land Localized Preventative	1	ALLIGATOR CR	High	507.2	SqFt	.06	Patching - AC Deep	601.7	SqFt	$51.89	$31,228
WTenant	WTenant03	S	BWI Land Localized Preventative	15	RUTTING	High	845.29	SqFt	.1	Patching - AC Deep	845.	SqFt	$51.89	$43,861
WTenant	WTenant03	S	BWI Land Localized Preventative	6	DEPRESSION	Medium	1,352.49	SqFt	.16	Patching - AC Deep	1,504.8	SqFt	$51.89	$78,066
CargoG	CargoG01	T	BWI Land Localized Preventative	26	JT SEAL DMG	High	23.8	Slabs	20.	Joint Seal (Localized)	594.5	Ft	$25.00	$14,863
CargoG	CargoG02	T	BWI Land Localized Preventative	10	L & T CR	Medium	867.98	Ft	.47	Crack Sealing - AC	868.1	Ft	$1.50	$1,302
CargoG	CargoG02	T	BWI Land Localized Preventative	19	RAVELING	Medium	73,443.24	SqFt	39.66	Patching - AC Shallow	73,443.2	SqFt	$1.73	$127,057
ElkLand	ElkLand01	T	BWI Land Localized Preventative	10	L & T CR	Medium	238.32	Ft	.46	Crack Sealing - AC	238.2	Ft	$1.50	$357
ElkLand	ElkLand02	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,488.81	Ft	.77	Crack Sealing - AC	2,488.9	Ft	$1.50	$3,733
ElkLand	ElkLand02	T	BWI Land Localized Preventative	19	RAVELING	High	1,138.18	SqFt	.35	Patching - AC Partial	1,137.8	SqFt	$3.41	$3,881
ElkLand	ElkLand02	T	BWI Land Localized Preventative	6	DEPRESSION	High	100.	SqFt	.03	Patching - AC Deep	144.2	SqFt	$51.89	$7,485
ElkLand	ElkLand02	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	758.75	SqFt	.23	Patching - AC Deep	874.	SqFt	$51.89	$45,334
ElkLand	ElkLand02	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	1,972.81	SqFt	.61	Patching - AC Deep	2,156.	SqFt	$51.89	$111,855
ElkLand	ElkLand02	T	BWI Land Localized Preventative	15	RUTTING	Medium	3,035.1	SqFt	.93	Patching - AC Deep	3,035.4	SqFt	$51.89	$157,494
ElkLand	ElkLand02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	15,295.73	SqFt	4.71	Patching - AC Deep	15,797.1	SqFt	$51.89	$819,732
ExAlamo	ExAlamo01	T	BWI Land Localized Preventative	10	L & T CR	Medium	96.92	Ft	.37	Crack Sealing - AC	96.8	Ft	$1.50	$145
ExAlamo	ExAlamo01B	T	BWI Land Localized Preventative	19	RAVELING	High	28.74	SqFt	.2	Patching - AC Partial	29.1	SqFt	$3.41	$98
ExAlamo	ExAlamo01B	T	BWI Land Localized Preventative	10	L & T CR	Medium	143.5	Ft	1.	Crack Sealing - AC	143.4	Ft	$1.50	$215
ExThrifty	ExThrif01B	T	BWI Land Localized Preventative	10	L & T CR	Medium	1,155.58	Ft	2.5	Crack Sealing - AC	1,155.5	Ft	$1.50	$1,733
ExThrifty	ExThrif01B	T	BWI Land Localized Preventative	6	DEPRESSION	High	138.64	SqFt	.3	Patching - AC Deep	190.5	SqFt	$51.89	$9,863

Appendix E
2016 Localized Maintenance Plan
Sections with PCI > 40

Primary	Secondary	Tertiary	Total
$856,570	$937,238	$3,015,411	$1,793,808

BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
ExThrifty	ExThrif01B	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	693.3	SqFt	1.5	Patching - AC Deep	803.	SqFt	$51.89	$41,685
ExThrifty	ExThrif01B	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	1,386.71	SqFt	3.	Patching - AC Deep	1,540.3	SqFt	$51.89	$79,940
ExThrifty	ExThrift01	T	BWI Land Localized Preventative	10	L & T CR	Medium	103.94	Ft	.7	Crack Sealing - AC	104.	Ft	$1.50	$156
ExThrifty	ExThrift01	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	74.27	SqFt	.5	Patching - AC Deep	113.	SqFt	$51.89	$5,859
ExThrifty	ExThrift01	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	148.43	SqFt	1.01	Patching - AC Deep	201.3	SqFt	$51.89	$10,456
GasPark	GasPark01	T	BWI Land Localized Preventative	6	DEPRESSION	High	90.74	SqFt	.18	Patching - AC Deep	133.5	SqFt	$51.89	$6,908
GasPark	GasPark01	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	99.89	SqFt	.2	Patching - AC Deep	144.2	SqFt	$51.89	$7,477
GateARd	GateARd01	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	258.66	SqFt	.65	Patching - AC Deep	327.2	SqFt	$51.89	$16,989
GoldLot	GoldLot01	T	BWI Land Localized Preventative	10	L & T CR	Medium	3,477.56	Ft	2.5	Crack Sealing - AC	3,477.7	Ft	$1.50	$5,216
GoldLot	GoldLot03	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	3,662.64	SqFt	1.25	Crack Sealing - AC	1,116.5	Ft	$1.50	$1,675
GoldLot	GoldLot03	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,307.48	Ft	.79	Crack Sealing - AC	2,307.4	Ft	$1.50	$3,461
GoldLot	GoldLot04	T	BWI Land Localized Preventative	19	RAVELING	Medium	803.74	SqFt	.53	Patching - AC Shallow	804.1	SqFt	$1.73	$1,391
GoldLot	GoldLot04	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,009.42	Ft	1.32	Crack Sealing - AC	2,009.5	Ft	$1.50	$3,014
GoldLot	GoldLot04	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	80.41	SqFt	.05	Patching - AC Deep	120.6	SqFt	$51.89	$6,251
GoldLot	GoldLot04	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	80.41	SqFt	.05	Patching - AC Deep	120.6	SqFt	$51.89	$6,251
GoldLot	GoldLot04	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	18,084.66	SqFt	11.84	Crack Sealing - AC	5,512.1	Ft	$1.50	$8,268
GoldLot	GoldLot04	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	401.92	SqFt	.26	Patching - AC Deep	486.5	SqFt	$51.89	$25,248
Kauffman	Kauffman01	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	211.08	SqFt	.83	Patching - AC Deep	273.4	SqFt	$51.89	$14,198
LSGSky	LSGSky02	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	983.39	SqFt	2.25	Patching - AC Deep	1,114.1	SqFt	$51.89	$57,784
MACBldg	MACBldg01	T	BWI Land Localized Preventative	10	L & T CR	Medium	376.57	Ft	1.33	Crack Sealing - AC	376.6	Ft	$1.50	$565
MACBldg	MACBldg02	T	BWI Land Localized Preventative	10	L & T CR	Medium	635.73	Ft	1.62	Crack Sealing - AC	635.8	Ft	$1.50	$954
MACBldg	MACBldg02	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	105.92	SqFt	.27	Patching - AC Deep	151.8	SqFt	$51.89	$7,855
MACBldg	MACBldg02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	238.42	SqFt	.61	Patching - AC Deep	304.6	SqFt	$51.89	$15,803
MACBldg	MACBldg03	T	BWI Land Localized Preventative	28	LINEAR CR	Medium	1.	Slabs	4.17	Crack Sealing - PCC	17.1	Ft	$38.00	$646
MACBldg	MACBldg03	T	BWI Land Localized Preventative	26	JT SEAL DMG	High	24.	Slabs	100.	Joint Seal (Localized)	655.8	Ft	$25.00	$16,397
MACBldg	MACBldg04	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	1,561.31	SqFt	1.34	Patching - AC Deep	1,724.4	SqFt	$51.89	$89,478
MACBldg	MACBldg05	T	BWI Land Localized Preventative	10	L & T CR	Medium	117.91	Ft	1.6	Crack Sealing - AC	117.8	Ft	$1.50	$177
MACBldg	MACBldg05	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	14.75	SqFt	.2	Patching - AC Deep	34.4	SqFt	$51.89	$1,774
MACBldg	MACBldg05	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	4,421.38	SqFt	60.	Crack Sealing - AC	1,347.8	Ft	$1.50	$2,021
MathLot	MathLot02	T	BWI Land Localized Preventative	6	DEPRESSION	High	72.55	SqFt	.03	Patching - AC Deep	110.9	SqFt	$51.89	$5,749
MathLot	MathLot02	T	BWI Land Localized Preventative	10	L & T CR	Medium	4,641.21	Ft	1.98	Crack Sealing - AC	4,641.1	Ft	$1.50	$6,962
MathWay	MathWay07	T	BWI Land Localized Preventative	19	RAVELING	Medium	356.29	SqFt	.44	Patching - AC Shallow	356.3	SqFt	$1.73	$616
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	7	EDGE CR	Medium	56.2	Ft	.2	Patching - AC Partial	92.6	SqFt	$3.41	$314
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	10	L & T CR	Medium	801.02	Ft	2.85	Crack Sealing - AC	801.2	Ft	$1.50	$1,202
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	56.19	SqFt	.2	Patching - AC Deep	90.4	SqFt	$51.89	$4,690
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	84.28	SqFt	.3	Patching - AC Deep	124.9	SqFt	$51.89	$6,501
MidCargoRd	MidCargo02	T	BWI Land Localized Preventative	19	RAVELING	Medium	4,075.32	SqFt	14.5	Patching - AC Shallow	4,075.2	SqFt	$1.73	$7,050
MidFuel	MidFuel01	T	BWI Land Localized Preventative	7	EDGE CR	Medium	68.08	Ft	.34	Patching - AC Partial	111.9	SqFt	$3.41	$381
NCargoPk	NCargoPk02	T	BWI Land Localized Preventative	19	RAVELING	High	15.28	SqFt	.04	Patching - AC Partial	15.1	SqFt	$3.41	$52

Appendix E
2016 Localized Maintenance Plan
Sections with PCI > 40

Primary	Secondary	Tertiary	Total
$856,570	$937,238	$3,015,411	$1,793,808

BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
NCargoPk	NCargoPk02	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,024.15	Ft	5.28	Crack Sealing - AC	2,024.3	Ft	$1.50	$3,036
NCargoPk	NCargoPk02	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	126.48	SqFt	.33	Patching - AC Deep	175.5	SqFt	$51.89	$9,121
NCargoPk	NCargoPk04	T	BWI Land Localized Preventative	10	L & T CR	Medium	159.02	Ft	3.09	Crack Sealing - AC	159.1	Ft	$1.50	$239
NCargoPk	NCargoPk04	T	BWI Land Localized Preventative	13	POTHOLE	Medium	1.06	Count	.02	Patching - AC Deep	6.5	SqFt	$51.89	$330
NCargoPk	NCargoPk04	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	31.75	SqFt	.62	Patching - AC Deep	58.1	SqFt	$51.89	$3,036
NCargoPk	NCargoPk04	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	52.96	SqFt	1.03	Patching - AC Deep	86.1	SqFt	$51.89	$4,479
NCargoPk	NCargoPk05	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	593.95	SqFt	2.28	Crack Sealing - AC	181.1	Ft	$1.50	$272
NCargoPk	NCargoPk05	T	BWI Land Localized Preventative	5	CORRUGATION	Medium	197.95	SqFt	.76	Patching - AC Shallow	258.3	SqFt	$1.73	$447
NCargoPk	NCargoPk05	T	BWI Land Localized Preventative	10	L & T CR	Medium	1,039.44	Ft	4.	Crack Sealing - AC	1,039.4	Ft	$1.50	$1,559
NCargoPk	NCargoPk05	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	99.03	SqFt	.38	Patching - AC Deep	143.2	SqFt	$51.89	$7,422
NCargoPk	NCargoPk06	T	BWI Land Localized Preventative	15	RUTTING	Medium	159.74	SqFt	.8	Patching - AC Deep	159.3	SqFt	$51.89	$8,290
NCargoPk	NCargoPk07	T	BWI Land Localized Preventative	10	L & T CR	Medium	78.81	Ft	.99	Crack Sealing - AC	78.7	Ft	$1.50	$118
NCargoPk	NCargoPk08	T	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	2.62	Count	.01	Patching - AC Deep	16.2	SqFt	$51.89	$815
NCargoPk	NCargoPk08	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	5.23	Count	.01	Patching - AC Deep	47.4	SqFt	$51.89	$2,445
NCargoPk	NCargoPk08	T	BWI Land Localized Stop-Gap	6	DEPRESSION	High	41.87	SqFt	.11	Patching - AC Deep	72.1	SqFt	$51.89	$3,732
NCargoPk	NCargoPk08	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	523.45	SqFt	1.33	Patching - AC Deep	620.	SqFt	$51.89	$32,148
NCargoPk	NCargoPk09	T	BWI Land Localized Preventative	10	L & T CR	Medium	162.27	Ft	1.	Crack Sealing - AC	162.4	Ft	$1.50	$243
NCargoPk	NCargoPk09	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	23.14	SqFt	.14	Patching - AC Deep	46.3	SqFt	$51.89	$2,416
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	19	RAVELING	Medium	41.87	SqFt	.09	Patching - AC Shallow	42.	SqFt	$1.73	$72
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	10.44	SqFt	.02	Patching - AC Deep	28.	SqFt	$51.89	$1,427
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	10.44	SqFt	.02	Patching - AC Deep	28.	SqFt	$51.89	$1,427
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	10	L & T CR	Medium	1,736.02	Ft	3.71	Crack Sealing - AC	1,735.9	Ft	$1.50	$2,604
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	26.16	SqFt	.06	Patching - AC Deep	50.6	SqFt	$51.89	$2,635
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	6	DEPRESSION	High	52.42	SqFt	.11	Patching - AC Deep	85.	SqFt	$51.89	$4,436
NCargoPk	NCargoPk10	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	104.73	SqFt	.22	Patching - AC Deep	149.6	SqFt	$51.89	$7,780
NCargoPk	NCargoPk11	T	BWI Land Localized Preventative	10	L & T CR	Medium	5,541.27	Ft	26.54	Crack Sealing - AC	5,541.3	Ft	$1.50	$8,312
NCargoPk	NCargoPk12	T	BWI Land Localized Preventative	10	L & T CR	Medium	310.56	Ft	1.39	Crack Sealing - AC	310.7	Ft	$1.50	$466
NCargoPk	NCargoPk12	T	BWI Land Localized Preventative	6	DEPRESSION	High	422.27	SqFt	1.89	Patching - AC Deep	509.1	SqFt	$51.89	$26,412
NCargoPk	NCargoPk12	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	574.25	SqFt	2.57	Patching - AC Deep	674.9	SqFt	$51.89	$35,008
NCargoPk	NCargoPk13	T	BWI Land Localized Stop-Gap	19	RAVELING	High	1.72	SqFt	.01	Patching - AC Partial	2.2	SqFt	$3.41	$6
NCargoPk	NCargoPk13	T	BWI Land Localized Stop-Gap	6	DEPRESSION	High	294.5	SqFt	1.78	Patching - AC Deep	367.1	SqFt	$51.89	$19,071
NCargoPk	NCargoPk20	T	BWI Land Localized Preventative	10	L & T CR	Medium	144.72	Ft	1.5	Crack Sealing - AC	144.7	Ft	$1.50	$217
NCargoRd	NCargoRd01	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,050.2	Ft	3.75	Crack Sealing - AC	2,050.2	Ft	$1.50	$3,075
NCargoRd	NCargoRd01	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	65.66	SqFt	.12	Patching - AC Deep	102.3	SqFt	$51.89	$5,304
NCargoRd	NCargoRd02	T	BWI Land Localized Stop-Gap	10	L & T CR	High	67.65	Ft	.27	Patching - AC Partial	221.7	SqFt	$3.41	$757
NCargoRd	NCargoRd02	T	BWI Land Localized Stop-Gap	13	POTHOLE	Medium	6.77	Count	.03	Patching - AC Deep	40.9	SqFt	$51.89	$2,107
NCargoRd	NCargoRd02	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	902.12	SqFt	3.55	Patching - AC Deep	1,026.9	SqFt	$51.89	$53,293
OFtMeade	OFtMeade01	T	BWI Land Localized Preventative	19	RAVELING	Medium	2.8	SqFt	.	Patching - AC Shallow	3.2	SqFt	$1.73	$5
OFtMeade	OFtMeade01	T	BWI Land Localized Preventative	10	L & T CR	Medium	846.33	Ft	.77	Crack Sealing - AC	846.5	Ft	$1.50	$1,270

Appendix E
2016 Localized Maintenance Plan
Sections with PCI > 40

Primary	Secondary	Tertiary	Total
$856,570	$937,238	$3,015,411	$1,793,808

BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
OFtMeade	OFtMeade01	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	500.2	SqFt	.46	Patching - AC Deep	594.2	SqFt	$51.89	$30,836
OFtMeade	OFtMeade02	T	BWI Land Localized Preventative	10	L & T CR	Medium	114.57	Ft	1.04	Crack Sealing - AC	114.5	Ft	$1.50	$172
OldESPA	OldESPA02	T	BWI Land Localized Preventative	19	RAVELING	High	17.11	SqFt	.	Patching - AC Partial	17.2	SqFt	$3.41	$58
OldESPA	OldESPA02	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	171.47	SqFt	.05	Patching - AC Deep	228.2	SqFt	$51.89	$11,842
OldESPA	OldESPA02	T	BWI Land Localized Preventative	15	RUTTING	Medium	843.03	SqFt	.23	Patching - AC Deep	842.8	SqFt	$51.89	$43,743
OldESPA	OldESPA02	T	BWI Land Localized Preventative	10	L & T CR	Medium	37,581.17	Ft	10.38	Crack Sealing - AC	37,581.	Ft	$1.50	$56,372
OldESPA	OldESPA02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	High	1,428.8	SqFt	.39	Patching - AC Deep	1,584.5	SqFt	$51.89	$82,240
OldESPA	OldESPA02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	6,002.49	SqFt	1.66	Patching - AC Deep	6,318.4	SqFt	$51.89	$327,857
OldESPA	OldESPA03	T	BWI Land Localized Preventative	28	LINEAR CR	Medium	1.	Slabs	4.76	Crack Sealing - PCC	13.5	Ft	$38.00	$513
OldESPA	OldESPA03	T	BWI Land Localized Preventative	29	LARGE PATCH	High	1.	Slabs	4.76	Patching - PCC Full Depth	59.2	SqFt	$13.39	$791
OldESPA	OldESPA03	T	BWI Land Localized Preventative	22	CORNER BREAK	Medium	5.	Slabs	23.81	Crack Sealing - PCC	41.	Ft	$38.00	$1,558
OldESPA	OldESPA03	T	BWI Land Localized Preventative	26	JT SEAL DMG	High	21.	Slabs	100.	Joint Seal (Localized)	204.1	Ft	$25.00	$5,100
OldESPB	OldESPB02	T	BWI Land Localized Preventative	19	RAVELING	Medium	208.39	SqFt	.1	Patching - AC Shallow	208.8	SqFt	$1.73	$361
OldESPB	OldESPB02	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	2,084.43	SqFt	1.03	Crack Sealing - AC	635.2	Ft	$1.50	$953
OldESPB	OldESPB02	T	BWI Land Localized Preventative	10	L & T CR	Medium	2,605.54	Ft	1.29	Crack Sealing - AC	2,605.6	Ft	$1.50	$3,908
OldESPB	OldESPB02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	694.81	SqFt	.34	Patching - AC Deep	805.1	SqFt	$51.89	$41,766
OldQTAPk	OldQTAPk/1	T	BWI Land Localized Preventative	10	L & T CR	High	26.97	Ft	.05	Patching - AC Partial	88.3	SqFt	$3.41	$302
OldQTAPk	OldQTAPk/1	T	BWI Land Localized Preventative	10	L & T CR	Medium	583.43	Ft	1.15	Crack Sealing - AC	583.3	Ft	$1.50	$875
PinkLot	PinkLot02	T	BWI Land Localized Preventative	3	BLOCK CR	Medium	6,799.24	SqFt	4.13	Crack Sealing - AC	2,072.5	Ft	$1.50	$3,109
PinkLot	PinkLot02	T	BWI Land Localized Preventative	19	RAVELING	Medium	2,326.08	SqFt	1.41	Patching - AC Shallow	2,326.1	SqFt	$1.73	$4,024
PinkLot	PinkLot02	T	BWI Land Localized Preventative	10	L & T CR	Medium	5,725.69	Ft	3.48	Crack Sealing - AC	5,725.7	Ft	$1.50	$8,589
PinkLot	PinkLot02	T	BWI Land Localized Preventative	1	ALLIGATOR CR	Medium	1,789.28	SqFt	1.09	Patching - AC Deep	1,963.3	SqFt	$51.89	$101,888
RentalPk	RentalPk01	T	BWI Land Localized Preventative	10	L & T CR	Medium	3,114.6	Ft	1.85	Crack Sealing - AC	3,114.5	Ft	$1.50	$4,672
RentalPk	RentalPk01	T	BWI Land Localized Preventative	11	PATCH/UT CUT	High	392.56	SqFt	.23	Patching - AC Deep	476.8	SqFt	$51.89	$24,718
RentalPk	RentalPk02	T	BWI Land Localized Preventative	10	L & T CR	Medium	696.62	Ft	.15	Crack Sealing - AC	696.5	Ft	$1.50	$1,045
RentalPk	RentalPk02	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	99.57	SqFt	.02	Patching - AC Deep	143.2	SqFt	$51.89	$7,455
RentalPk	RentalPk03	T	BWI Land Localized Preventative	10	L & T CR	Medium	166.14	Ft	.12	Crack Sealing - AC	166.	Ft	$1.50	$249
RentalPk	RentalPk03	T	BWI Land Localized Preventative	6	DEPRESSION	High	415.38	SqFt	.29	Patching - AC Deep	501.6	SqFt	$51.89	$26,017
RentalPk	RentalPk03	T	BWI Land Localized Preventative	6	DEPRESSION	Medium	830.76	SqFt	.59	Patching - AC Deep	950.5	SqFt	$51.89	$49,334
SField	SField02	T	BWI Land Localized Preventative	10	L & T CR	Medium	324.77	Ft	1.6	Crack Sealing - AC	324.8	Ft	$1.50	$487
SField	SField03	T	BWI Land Localized Preventative	10	L & T CR	High	24.34	Ft	.24	Patching - AC Partial	79.7	SqFt	$3.41	$272
SField	SField03	T	BWI Land Localized Preventative	10	L & T CR	Medium	283.83	Ft	2.85	Crack Sealing - AC	283.8	Ft	$1.50	$426
SField	SField03	T	BWI Land Localized Preventative	13	POTHOLE	High	1.62	Count	.02	Patching - AC Deep	15.1	SqFt	$51.89	$757
SField	SField04	T	BWI Land Localized Stop-Gap	26	JT SEAL DMG	High	5.	Slabs	100.	Joint Seal (Localized)	292.3	Ft	$25.00	$7,309
SField	SField04	T	BWI Land Localized Stop-Gap	23	DIVIDED SLAB	High	1.39	Slabs	27.78	Slab Replacement- PCC Roa	735.2	SqFt	$26.78	$19,676
SField	SField05	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	351.44	SqFt	1.02	Patching - AC Deep	430.6	SqFt	$51.89	$22,361
Sheraton	Sheraton03	T	BWI Land Localized Preventative	19	RAVELING	Medium	15.82	SqFt	.05	Patching - AC Shallow	16.2	SqFt	$1.73	$27
Sheraton	Sheraton04	T	BWI Land Localized Preventative	10	L & T CR	Medium	92.75	Ft	.3	Crack Sealing - AC	92.9	Ft	$1.50	$139
TaxiLot	TaxiLot02	T	BWI Land Localized Stop-Gap	13	POTHOLE	High	4.49	Count	.01	Patching - AC Deep	40.9	SqFt	$51.89	$2,096

Appendix E
2016 Localized Maintenance Plan
Sections with PCI > 40

Primary	Secondary	Tertiary	Total
$856,570	$937,238	$3,015,411	$1,793,808

BranchID	SectionID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
TaxiLot	TaxiLot02	T	BWI Land Localized Stop-Gap	15	RUTTING	High	157.05	SqFt	.22	Patching - AC Deep	157.2	SqFt	$51.89	$8,152
TaxiLot	TaxiLot02	T	BWI Land Localized Stop-Gap	11	PATCH/UT CUT	High	448.86	SqFt	.62	Patching - AC Deep	538.2	SqFt	$51.89	$27,923
TaxiLot	TaxiLot02	T	BWI Land Localized Stop-Gap	1	ALLIGATOR CR	High	897.71	SqFt	1.24	Patching - AC Deep	1,022.6	SqFt	$51.89	$53,046

Attachment 2:

2015-16 BWI Marshall Airside

Pavement Management Program,

AECOM, MAA-AE-13-001

December 2016

STUDY REPORT
Final

MAA-AE-13-001
TASK NO. 4701

2015-16 BWI Marshall Airside Pavement Management Program

Maryland Aviation Administration

MARYLAND DEPARTMENT OF TRANSPORTATION
DECEMBER 2016

Contents

0.0 EXECUTIVE SUMMARY 1

1.0 BWI Marshall PMP Overview 1-1

1.1 Introduction 1-1
1.2 Background 1-1
1.3 Work Scope 1-2

2.0 Airfield Pavement Management Systems 2-1

2.1 Introduction 2-1

3.0 Pavement Inventory 3-1

3.1 Introduction 3-1
3.2 BWI Airside Inventory 3-1
3.3 Climatic Conditions 3-2
3.4 Pavement Network and Branches 3-2
3.5 Pavement Sections and Sample Units 3-3
3.6 Pavement Inventory 3-5
3.7 Inventory Changes From Previous Inspection 3-7

4.0 Field Visual Inspections and Data Analysis 4-1

4.1 Introduction 4-1
4.2 Methodology 4-1
4.3 Distress Types 4-4
4.3.1 Quality Control Process 4-4
4.4 Field Inspection Results 4-5
4.4.1 PCI Condition Summary 4-6
4.5 Summary 4-8

5.0 Field Structural Data Collection 5-1

5.4 Destructive Testing and Subsurface Investigation 5-1

6.0 STRUCTURAL EVALUATION 6-1

6.2 Pavement Classification Number 6-2
6.3 Pavement Classification Number (PCN) Analysis 6-2

7.0 Maintenance and Rehabilitation Planning 7-1

7.1 Introduction 7-1

7.2 Performance Modeling 7-1
7.3 Prioritization 7-2
7.4 Critical PCI Values 7-3
7.5 Maintenance and Rehabilitation Policies 7-4
7.5.1 Localized Safety (Stop Gap) and Preventive Maintenance Policies 7-4
7.5.2 Global Maintenance Policy 7-6
7.5.3 Major M&R Policy 7-6
7.6 Unit Costs 7-7
7.6.1 Localized Safety (Stop Gap) and Preventive Maintenance Costs 7-7
7.6.2 Major M&R Cost 7-7
7.7 M&R Budget Scenarios 7-11
7.8 Summary 7-14

8.0 Capital Improvement Recommendations 8-1
8.1 Introduction 8-1
8.2 Development of Capital Improvement Alternatives 8-1
8.3 Recommended Capital Improvement Projects 8-3
8.3.1 17-01 Taxiways F, G and R Mill and Overlay 8-7
8.3.2 17-02 Ramp DE and Taxilane N1 Mill Reconstruction 8-8
8.3.3 17-03 Ramp BC Mill and Overlay 8-8
8.3.4 18-01 Taxiway T PCC Reconstruction 8-9
8.3.5 18-02 Ramp AB Mill and Overlay 8-10
8.3.6 18-03 Taxiway H Mill and Overlay 8-10
8.3.7 19-01 Runway 15L & Taxiways J, K, M & Q Mill and Overlay 8-10
8.3.8 19-02 Ramp E and Taxilane AA Mill and Overlay 8-12
8.3.9 20-01 Gate B PCC Restoration 8-13
8.3.10 20-02 Gate C PCC Restoration and Reconstruction 8-13
8.3.11 20-03 Gate E PCC Restoration and Reconstruction 8-14
8.3.12 20-04 Taxiway S and J Overlay 8-14
8.4 Projects Deleted From Draft CIP 8-15
8.5 Summary 8-16

9.0 Summary 9-1
9.1 BWI Marshall Airside PMP 9-1
9.2 Objectives 9-1
9.3 Data Collection 9-1
9.4 Data Analysis 9-1
9.5 Structural Analysis 9-2
9.6 CIP Development 9-2
9.7 Recommendations 9-2

List of Appendices

Appendix A BWI Marshall Airside Pavements Condition Reports

Appendix B Maps

Figure B-1 Network Definition Map

Figure B-2 PMP Scope and Survey Methods

Figure B-3 Pavement Condition Index (PCI) Map - Section

Figure B-4 Pavement Condition Index (PCI) Map – Sample Unit

Figure B-5 Priority Map

Figure B-6 10-Year CIP Map

Figure B-7 CIP by Project Map

Appendix C PCI Distress Descriptions

Appendix D Comparison of 2012 and 2015 PCI Survey Results

Appendix E 2015/2016 Localized Maintenance Plan

Appendix F Results from Pavement and Subsurface Investigation

Appendix G Results from Non-Destructive Testing and ACN/PCN Analysis

Appendix H 2015 Airport Layout Plan

List of Tables

Table 3-1 Average Annual Temperatures and Rainfall for BWI Marshall (Dec 2014 to Nov 2015) 3-2
Table 3-2 Contracts Completed/Ongoing between 2011 and 2015 3-4
Table 3-3 Sample Rates for AC and PCC Pavements 3-5
Table 3-4 BWI Marshall Pavement Age 3-6
Table 4-1 Distress Types for AC and PCC Pavements 4-3
Table 4-2 Pavement Condition Index (PCI) Rating Scale 4-3
Table 4-3 PMP Sections Not Inspected in 2015 4-5
Table 4-4 2015 AC Distresses by Section 4-5
Table 4-5 2015 PCC Distresses by Section 4-6
Table 4-6 PCI Summary by Pavement Use 4-6
Table 4-7 PCI Summary by Surface Type 4-7
Table 6-1: Aircraft Fleet Mix – Main Runway (MRW) Group (Runways 10-28 and 15R-33L) 6-1
Table 6-2: Aircraft Fleet Mix– General Aviation (GA) Runway Group (Runway 15L-33R) 6-2
Table 6-3: Pavement Section Structural Evaluation Results 6-3
Table 7-1 Performance Models and Descriptions 7-1
Table 7-2 Funding Priority Matrix 7-3
Table 7-3 Localized Preventive and Stop-Gap Maintenance 7-5
Table 7-4 Localized Preventive and Stop-Gap Maintenance Unit Cost 7-7
Table 7-5 General Major M&R Unit Cost 7-8
Table 7-6 Major M&R Work Activities and Unit Costs by Work Type 7-9
Table 7-7 Unit Cost Buildup 7-10
Table 7-8 Cost by PCI for Budget Scenarios 7-10
Table 7-9 1-Year Maintenance Plan Cost 7-11
Table 8-1 Decision Matrices 8-2
Table 8-2 Recommended 10-Year (2017 to 2026) CIP Construction 8-3
Table 8-3 Recommended 10-Year Airside CIP Projects at BWI Marshall Airport 8-5

List of Figures

Figure 2-1 Conceptual Illustration of a Pavement's Life-Cycle 2-2
Figure 3-1 BWI Marshall Location Map 3-2
Figure 3-2 BWI Marshall Pavement Area by Surface Type 3-6
Figure 3-3 BWI Marshall Pavement Area by Branch Use 3-7
Figure 4-1 LCMS Equipment 4-2
Figure 4-2 Comparison of Area-Weighted PCI between 2011 and 2015, by Use 4-7
Figure 4-3 PCI of BWI Marshall Airside Pavement by Number of Sections 4-8
Figure 4-4 PCI of BWI Marshall Airside Pavement by Percent Area 4-8
Figure 7-1 BWI Marshall Family Curves 7-2
Figure 7-2 Pavement Life Cycle 7-4
Figure 7-3 M&R Scenarios 7-12
Figure 7-4 M&R Funding for Each Budget Scenario 7-13
Figure 7-5 Annual Unfunded M&R by Budget Scenario 7-13

List of Acronyms

AC	Asphalt Concrete
AAC	Asphalt Overlay on Asphalt Concrete
APC	Asphalt Overlay on Portland Cement Concrete
AIP	Airport Improvement Program
APMS	Airfield Pavement Management System
ASTM	American Society for Testing and Materials
BWI Marshall	Baltimore –Washington Thurgood Marshall International Airport
CIP	Capital Improvement Program
FAA	Federal Aviation Administration
FOD	Foreign Object Debris
FY	Fiscal Year
M&R	Maintenance and Rehabilitation
MOL	Mill and Overlay
PCC	Portland Cement Concrete
PCI	Pavement Condition Index
PMP	Pavement Management Program
QC	Quality Control
RW	Runway
SCI	Structural Condition Index
TW	Taxiway

0.0 EXECUTIVE SUMMARY

The AECOM team was retained to update the 2011-12 (referred to as 2011 herein) Pavement Management Program (PMP) for the airside pavements at Baltimore/Washington Thurgood Marshall International Airport (BWI Marshall) through a comprehensive engineering evaluation of pavement conditions using the Pavement Condition Index (PCI) survey method. AECOM was tasked with the development of an update to the original 2011 PMP 10-Year Capital Improvement Program (CIP) that reflects updated rehabilitation, construction and additional distresses that have developed since the last condition survey in 2011. Current and forecast pavement conditions and the associated engineering cost estimates were used to identify critical pavement improvement needs and to develop a 10-year CIP for the airside pavements at the airport.

All the results obtained during the airside PMP update have been loaded into the MicroPAVER 7.0 pavement management software database including pavement condition, surface type, M&R unit cost, policies and the CIP projects. The full report contains color-coded charts and maps and detailed PMP inventory and condition reports. Roughness evaluation of the surfaces of the runway and selected taxiways were performed during 2015-16. The results of those analyses are presented under a separate cover.

The estimated 10-year CIP cost in 2015 dollars as recommended is about **$199 million**.

Pavement Condition Index Updates (ASTM D6433)

The PCI is a numerical rating (on a scale of 0 to 100) based on the type, severity and quantity of pavement distress found in an inspected sample unit. The results are displayed using seven categories and ratings in accordance with ASTM standards, but can also be presented using a simplified 3-category rating system for use in comparing with other distress related indices as shown in Table ES-2 (next page). Pavement surveys were completed by the visual method and by a vehicle-mounted high speed Laser Crack Measurement System (LCMS).

The overall current 2015/16 (referred to as 2015 herein) and previous 2011 area-weighted PCI values are shown in Table ES-1.

Table ES-1: Summary of BWI Airside Pavement Network

	2011 Inspection		2015 Inspection	
Use	**Area-Weighted PCI**	**Area-Weighted Age (Years)**	**Area-Weighted PCI**	**Area-Weighted Age (Years)**
Runway	71	16	92	5
Taxiway	74	12	84	9
Apron	71	14	68	18
Overall	**72**	**14**	**81**	**11**

As shown in Table ES-1, the average overall PCI in 2015 for BWI Marshall Airside pavements has increased from 72 to 81 over the past 4 years.

Map B-3 in the Appendix provides a PCI rating map that shows the condition for all sections for BWI Airside pavements using the ASTM PCI rating scale as shown in Table ES-2.

Table ES-2: PCI Rating Scale (ASTM and Simplified).

	Simplified PCI Color Legend	ASTM PCI Color Legend	PCI Range	PCI Ratings and Definition
Good			86-100	GOOD: Pavement has minor or no distresses and should require only routine maintenance.
			71-85	SATISFACTORY: Pavement has scattered low-severity distresses that should require only routine maintenance.
Fair			56-70	FAIR: Pavement has a combination of generally low- and medium- severity distresses. Near-term maintenance and repair needs may range from routine to major.
Poor			41-55	POOR: Pavement has low-, medium-, and high-severity distresses that probably cause some operational problems. Near-term M&R needs range from routine to major.
			26-40	VERY POOR: Pavement has predominantly medium- and high-severity distresses that cause considerable maintenance & operational problems. Near-term M&R needs will be major.
			11-25	SERIOUS: Pavement has mainly high-severity distresses that cause operational restrictions; immediate repairs are needed.
			0-10	FAILED: Pavement deterioration has progressed to the point that safe aircraft operations are no longer possible; complete reconstruction is required.

Source: American Society of Testing and Materials (ASTM)

Structural Analysis

A structural analysis was performed for the runways and selected taxiways based upon the Aircraft Classification Number (ACN) and the Pavement Classification Number (PCN). The analyses were based upon the fleet mix in the 2012 PMP report and departure levels and projected growth rates as provided by the MAA as well as the results from Non-Destructive Testing (NDT) by Falling Weight Deflectometer (FWD) and pavement thickness results from pavement cores. Additional analyses were performed utilizing the FAA's FAARFIELD pavement design program. These analyses indicate that some of the sections are overloaded, particularly Ramp DE and portions of Taxilanes AA and NN1, and Taxiways J, S and T. The ACN/PCN and estimated remaining life results are provided in Table ES-3.

Table ES-3: Summary of Structural Analyses.

Section	Surface	PCN	ACN/PCN	Comment
Runway 10-28	AC	66	<1.0 OK	Life > 20 years
RW15R-33L	AC	66	<1.0 OK	Life > 20 years
RW15L-33R	AC	11	<1.0 OK	Life > 20 years
Taxiway F	AC	66	<1.0 OK	Life > 20 years
Taxiway G	AC	63 to 66	<1.0 to 1.04	Life > 20 years
Taxiway J1 & 1A	AC	10	<1.0 OK	Life > 20 years
Taxiway J2	AC	68	1.06	Life = 5 years; 2" Overlay
Taxiway K	AC	11	<1.0 OK	Life > 20 years
Taxiway L	AC	11	<1.0 OK	Life > 20 years
Taxiway M	AC	11	<1.0 OK	Life > 20 years
Taxiway Q	AC	11	<1.0 OK	Life > 20 years
Taxiway R	AC	66	<1.0 OK	Life > 20 years
Taxiway S	AC	68 to 73	<1.0 to 1.06	Life 5 -15 years; 1" to 3" Overlay
Taxiway T	AC	66 to 72	<1.0 to 1.08	Life = 5-20 years; 2" to 3" Overlay
Taxilane AA	AC	64 to 66	<1.0 to 1.13	Life = 5-20 years; 1" to 3" Overlay

Section	Surface	PCN	ACN/PCN	Comment
Taxilane N1	AC	45 to 84	<1.0 to 1.61	Life = 5 -20years; 2" to 4" Overlay
Ramp DE	AC	39 to 54	1.3 to 1.8	Life < 5 years 4" to 5" Overlay

Capital Improvement Program (CIP) Development

The CIP was developed based on the functional and structural condition of the pavements. The functional condition was evaluated using performance models; funding prioritization; PCI maintenance and rehabilitation trigger values and policies; and unit costs. Performance models were reviewed and updated based on the additional PCI data that were collected in 2015. Maintenance and rehabilitation critical PCI (trigger) values for BWI Marshall Airside are set at 75, 70 and 65 for runways, taxiways and aprons, respectively. Unit costs were developed based on updated bid costs from 2013-2014 and are presented in Table ES-4.

The '2015 Unit Cost' column presents the costs for the construction materials only for each type of project. This is equivalent to the unit costs presented in the 2011 report. All unit costs were developed based on recent projects.

Several budget scenarios were evaluated to determine the 10-Year CIP. A detailed description of the budget scenarios that were evaluated to develop the CIP is presented in Chapter 8 of the report. The recommended CIP projects for the next 5 years (2017-2021) are shown in Table ES-5.

Table ES-4: Unit Cost Updates

Major Work Type Name	2011 Unit Cost	2015 Unit Cost – Draft CIP	2015 Unit Cost – Final CIP	Work Unit	Assumptions
2-in Mill and Overlay	N/A	N/A	$12.31	SF	Functional Overlay
3-in Mill and Overlay	$9.06	$11.11	$15.70	SF	Functional Overlay
4-in Mill and Overlay*	N/A	N/A	$19.10	SF	Functional Overlay
5-in Mill and Overlay*	N/A	N/A	$22.49	SF	Structural Overlay
6-in Mill and Overlay*	$16.24	$18.00	$25.89	SF	Structural Overlay
2-in Mill and 3-in Overlay*	N/A	N/A	$14.84	SF	Structural Overlay
3-in Mill and 4-in Overlay*	N/A	N/A	$18.24	SF	Structural Overlay
4-in Mill and 5-in Overlay*	N/A	N/A	$21.63	SF	Structural Overlay
4-in Mill and 6-in Overlay*	N/A	N/A	$24.17	SF	Structural Overlay
5-in Mill and 6-in Overlay*	N/A	N/A	$25.03	SF	Structural Overlay
Complete AC Recon (Apron)	$89.64	$95.92	$90.57	SF	12-in AC / 15-in AGBS
Complete AC Recon (Taxiway)	$79.70	$83.96	$90.63	SF	15-in AC / 10-in AGBS
Complete AC Recon (Runway)	N/A	N/A	$95.70	SF	17-in AC / 10-in AGBS
Complete PCC Recon (Apron & Taxiway)	$85.85	$95.82	$90.41	SF	16-in PCC / 4-in AC / 4-in AGBS
Concrete Pavement Restoration – 10%**	$17.69***	$15.21***	$3.78**	SF	10% Slab Replacement
Concrete Pavement Restoration – 15%**	N/A	N/A	$5.67**	SF	15% Slab Replacement
Concrete Pavement Restoration – 20%**	N/A	N/A	$7.56**	SF	20% Slab Replacement

*The draft CIP unit cost for milling considered 2-in, 3-in and variable depth bid prices when selecting the value for the unit price. The final CIP utilizes specific unit prices for specific depths of milling.
**Dollar ($) per square foot of total pavement are (not dollar($) per square foot of repair area).
***Dollar ($) per square foot of repair area.

Table ES-5: Recommended CIP for Next Five (5) Years, 2017-2021

Construction Year	Project Code	Project Name	Work (# of Sections in Project)	Unit Cost ($/SF)	Sum of Cost – 2015 (Million)	Cost with Escalation for Plan Year (Million)
2017	17-01	Taxiways F, G and R Mill and Overlay	4-in Mill and Overlay (3 Sections)	$19.10	$8.3	$8.7
	17-02	Ramp DE & Taxilanes N & N1 Mill and Overlay	AC Reconstruct & 4-in Mill and Overlay (5 Sections)	$19.10 – $90.57	$20.9	$21.7
	17-03	Ramp BC Mill and Overlay	3-in Mill and Overlay (1 Section)	$15.70	$1.3	$1.4
2018	18-01	Taxiway T Reconstruction	PCC Reconstruct (7 Sections)	$90.41	$34.4	$37.0
	18-02	Ramp AB Mill and Overlay	4-in Mill and Overlay (2 Sections)	$19.10	$1.4	$1.5
	18-03	Taxiway H Mill and Overlay	3-in Mill and Overlay (1 Section)	$15.70	$0.31	$0.33
2019	19-01	RW 15L & Associated Taxiways Mill and Overlay	2-in to 5-in Mill and Overlay (14 Sections)	$12.31 – $22.49	$12.1	$13.5
	19-02	Taxilane AA & Ramp E Mill and Overlay	3-in Mill and Overlay (2 Sections)	$15.70 - $18.24	$6.7	$7.4
2020	20-01	Gate B PCC Restoration	PCC Restoration (3 Sections)	$3.78 - $7.56	$1.5	$1.7
	20-02	Gate C PCC Restoration & Reconstruction	PCC Restoration / Reconstruction (7 Sections)	$3.78 – $90.41	$4.4	$5.0
	20-03	Gate E PCC Restoration	PCC Restoration (2 Sections)	$3.78 – $5.67	$0.41	$0.47
	20-04	Taxiways S and J Overlay	2-in Overlay (8 Sections)	$10.58	$2.1	$2.5
2021	21-01	Taxiway B Mill and Overlay	3-in Mill and Overlay (2 Sections)	$15.70	$3.9	$4.6
	21-02	Ramp DY Mill and Overlay	3-in to 6-in Mill and Overlay (7 Sections)	$19.10 - $25.89	$6.7	$7.9
	21-03	Taxiway P Mill and Overlay	3-in to 6-in Mill and Overlay (4 Sections)	$15.70 - $25.89	$4.2	$4.9

1.0 BWI Marshall PMP Overview

1.1 Introduction

Airside pavements at Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) represent a significant investment for the Maryland Aviation Administration (MAA),whose major objective is to provide adequate load-carrying capacity, good ride quality, and above all, safe operation of aircraft. Once pavement construction is complete, pavements immediately begin a gradual deterioration due to surface weathering, fatigue, poor drainage, and movement of pavement layers. Faulty construction techniques, sub-standard materials, or poor workmanship can accelerate this deterioration process. Over time, many pavements are also subject to loads much greater than those for which they were originally designed, or experience a considerable increase in takeoff and landing frequencies, contributing to premature pavement distress.

There has been a recent significant capital investment in the pavement infrastructure and other improvements at BWI Marshall, as a result of the aging of the airside pavements, the FAA's Runway Safety Area Improvements program, and continued passenger growth. In addition to several pavement improvements, the airport has recently added a connector terminal between Concourses B and C, and extended the terminal between Concourses D and E.

To sustain the pavements at an acceptable condition in support of the airport's continued expansion requires a programmatic pavement management system for the most cost effective Maintenance and Rehabilitation (M&R) options. This will lead to the timely funding of critical pavement repairs to ensure BWI Marshall meets its short and long-term objectives.

In the mid 2000's, the MAA initiated a comprehensive Airport Pavement Management System (APMS) to assist the administration in cataloguing the pavement inventory, assessing its current condition, and predicting its rate of deterioration, thereby allowing a more pro-active approach to maintenance programming. Referred to as Pavement Management Program (PMP), throughout this report the program is intended to provide a useful tool for making cost-effective decisions on pavement M&R process. Since 2007, AECOM has been involved in the PMP updates at BWI Marshall. The current 2015 scope includes an update to the pavement condition and MicroPAVER database.

The main objective of this updated program is to identify airside pavement deficiencies and feasible rehabilitation projects by completing a thorough systems inventory, conducting a conditions survey and preparing 10-year M&R programs. Current and forecast pavement conditions and the associated engineering cost estimates were used to identify critical pavement improvement needs and to develop a 10-year Capital Improvement Program (CIP) for the airport.

This report presents the airside component of the PMP that encompasses runways, taxiways, and apron areas at BWI Marshall and is an update to previously submitted reports. As an integral part of the comprehensive program, an updated Landside PMP is provided under a separate cover. Additionally, the web-enabled MicroPAVER software system that was developed and implemented as part of the AirPortal platform is considered a separate task and not included in this report.

1.2 Background

BWI Marshall is among the busiest commercial hub airports in the U.S. Nearly 22 million passengers traveled through the airport in 2015 ranking it among the top 25 airports in the nation. Located in Anne Arundel County, the airport is within reaching distance of travelers in the greater Baltimore and Washington metropolitan regions. It compasses approximately 3,596 acres of property surrounded by interstate highways and major roadways with convenient access to established transportation systems in the region.

The first PCI survey for the airfield at BWI Marshall was conducted in 1995 with subsequent annual inspections in 1998, 2003, 2007, and 2011. A project level inspection was also conducted in 2008 on specific pavement facilities. A pavement condition index (PCI) survey was conducted during each of the annual inspections. The 2003 and 2007 studies included NDT testing for all runways and taxiways. Since the last pavement management update, many of the recommended improvements have been planned for or incorporated into the airfield improvements.

This current 2015 update includes an update to MicroPAVER 7.0 software series in order to provide an updated CIP. An APMS is a mandatory requirement of the Federal Aviation Administration (FAA) for airport projects funded with federal grant monies through the Airport Improvement Program (AIP) and/or with revenue from the Passenger Facility Charges (PFC) Program. As noted within the FAA's Advisory Circular 150/5380-7B 'Airport Pavement Management Program', an APMS is a set of defined procedures for collecting, analyzing, maintaining, and reporting pavement data. ***APMS assists airports in finding strategies for maintaining pavements in a safe serviceable condition over a given period for using the most optimum option.*** The airport receives annual grants from the FAA's AIP program to fund their CIP.

This PMP software program is supported by the Federal Aviation Administration (FAA). PCI values, as calculated by MicroPAVER, are in accordance with the guidelines established by the FAA Advisory Circular (AC) 150/5380-7B "Airport Pavement Management Program" and American Society of Testing and Materials standard designation (ASTM D-5340). The PCI is a numerical rating (on a scale of 1-100) that leads to pavement ratings ranging from "Good" to "Failed."

1.3 Work Scope

The development of BWI Marshall Airside PMP followed a generally accepted sequence of airport pavement management procedures. The study area encompassed the present airfield including runways, taxiways, taxilanes, and apron areas with the exception of airfield pavement within the Airfield Standards and Pavement Rehabilitation Project (ASAP). Vehicular and service roads located within the airfield were addressed separately in the BWI Marshall Landside PMP report.

The scope of work for the pavement management system update includes:

- Record Research and Base Map Updates within the MicroPAVER (MP) Software
  - Review of construction activities since 2011 with updates to the work history module in MP.
  - Base map updates in geodatabase format to reflect boundary updates and pavement section and sample unit changes.
- Pavement Surveys
  - Completed in accordance with FAA AC 150/5380-7B and ASTM D-5340.
  - Additional sampling of specific locations completed using high speed data collection technology to provide 100% coverage of pavement condition.
  - Smoothness testing using leading edge technology. Results presented separately.
  - Develop Pavement Condition Index (PCI) for airfield pavement sections.
  - Comparison of 2015 to 2011 PCI data
  - Upload data into MicroPAVER
- Updates to the MicroPAVER database
  - Upgrade to MicroPAVER v7.0
  - Update to deterioration models
  - Update unit costs
- Development of a 10-Year Capital Improvement Plan for airfield pavement.

The remainder of the report documents the scope of work and the study results.

2.0 Airfield Pavement Management Systems

2.1 Introduction

This chapter is intended to provide a summary capsule of the pavement management system process related to this project.

In October 2014 the FAA issued an updated Advisory Circular AC 150/5380-7B, "Airport Pavement Management Program." This FAA AC discusses the APMS concept, its essential components, and how it can be used to make cost effective decisions about pavement maintenance and rehabilitation. Also included within this AC is a list of potential benefits to be derived from the implementation of the APMS. These benefits include:

- An objective and consistent evaluation of the condition of a network of pavements;
- A systematic engineering basis for determining M&R program needs;
- Identification of budget requirements necessary to maintain pavements at various levels of serviceability;
- Documentation on the present and future condition of the pavements in a network;
- Determination of life-cycle costs for various M&R alternatives; and
- Identification of the impact on the pavement network as a result of performing major repairs.

Agencies that implement and utilize a PMP have consistently found that they are able to optimize their available funds. These agencies are better at allocating their limited funds while improving the overall condition of their pavement networks. The MAA has implemented MicroPAVER as the main PMP platform. This program has many features that are summarized as follows:

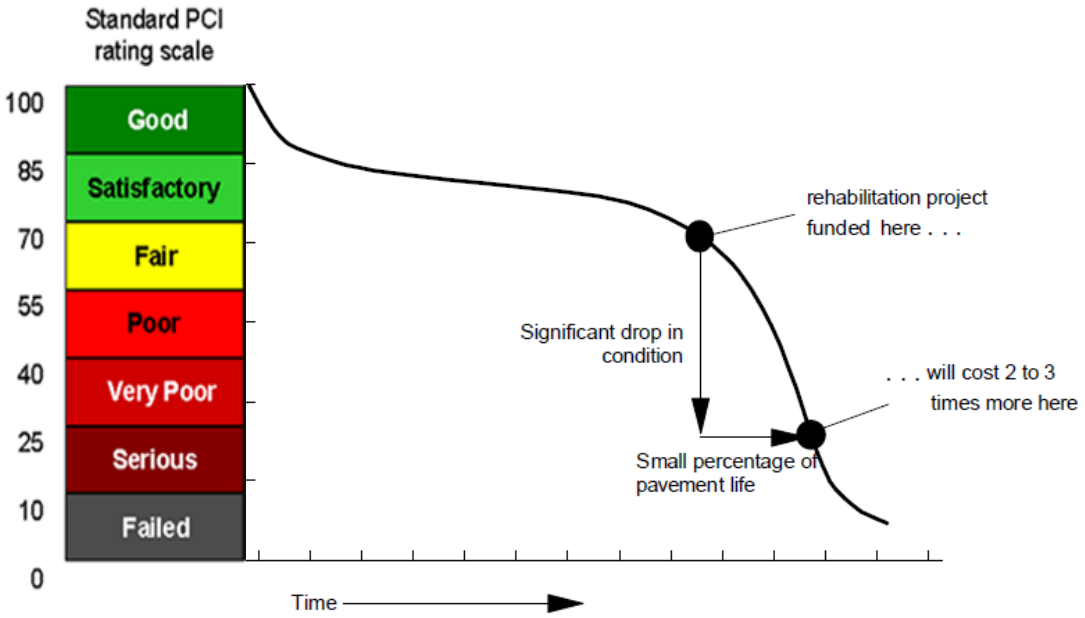
- Maintain the pavement inventory database;
- Calculate the Pavement Condition Index (PCI) of the pavement;
- Filter information and present it in report form based on user determined criteria such as age, condition of a pavement at the last inspection, elapsed time since last major rehabilitation, and pavement type or use;
- Generate a “PCI vs. Age Curve” that is used to predict the future condition of similar pavement;
- Forecast M&R needs by anticipating the rate of deterioration of a pavement, thereby generating a pro-active maintenance program;
- Compare budget scenarios and life cycle cost based on local cost data; and
- Prioritize M&R needs based on budget constraints.

Historically, most organizations have made maintenance decisions based on past experience, without the benefit of documented data or analysis. This practice does not encourage life cycle cost analysis, nor the evaluation of cost effectiveness of alternate scenarios, and can lead to the inefficient use of funds.

With limited allocated funding for M&R Program projects, a defined procedure for setting priorities and schedules that will maximize the funds available is more important than ever. Thoughtful decision making using performance prediction models for pavement can cause extensive long term savings to an agency as documented in Figure 2-1. In order to extend pavement life, maintenance and repairs need to be scheduled and performed before the pavement surface declines to a “fair” condition. The point at which rehabilitation can be done before the steep decline occurs is called the “critical PCI”,

and is generally considered to be about a PCI of 65 for primary (large, medium, small, and non-hub) airports, such as BWI Marshall, which must accommodate heavier planes and greater traffic.

Figure 2-1 Conceptual Illustration of a Pavement's Life-Cycle



Source: GAO Report: Airfield Pavement- Keeping Nation's Runways in Good Condition Could Require Substantially Higher Spending (July 1998)

3.0 Pavement Inventory

3.1 Introduction

The airside pavement inventory at BWI Marshall was updated with construction work activities that have occurred since 2011. The inventory was updated through a records search in AirPortal, collection of existing airport plans and design reports, and review of pavement evaluation and design reports that have been submitted to MAA since the PMP update was completed in 2011. Construction contracts were reviewed to verify construction work from 2011 through 2015 including taxiway paving and reconstruction that is currently under construction at the time of this report. Note that all sections under construction as part of the Airfield Standards and Pavement Rehabilitation Project contract (ASAP) were not surveyed in 2015. However, each of the sections have been updated with "New Construction" in the Paver database and have a current PCI = 100. These areas are expected to be inspected in the next cycle of PCI inspections. These construction history updates were applied to the ASAP sections in MicroPAVER so that they would be correctly handled in the CIP analysis.

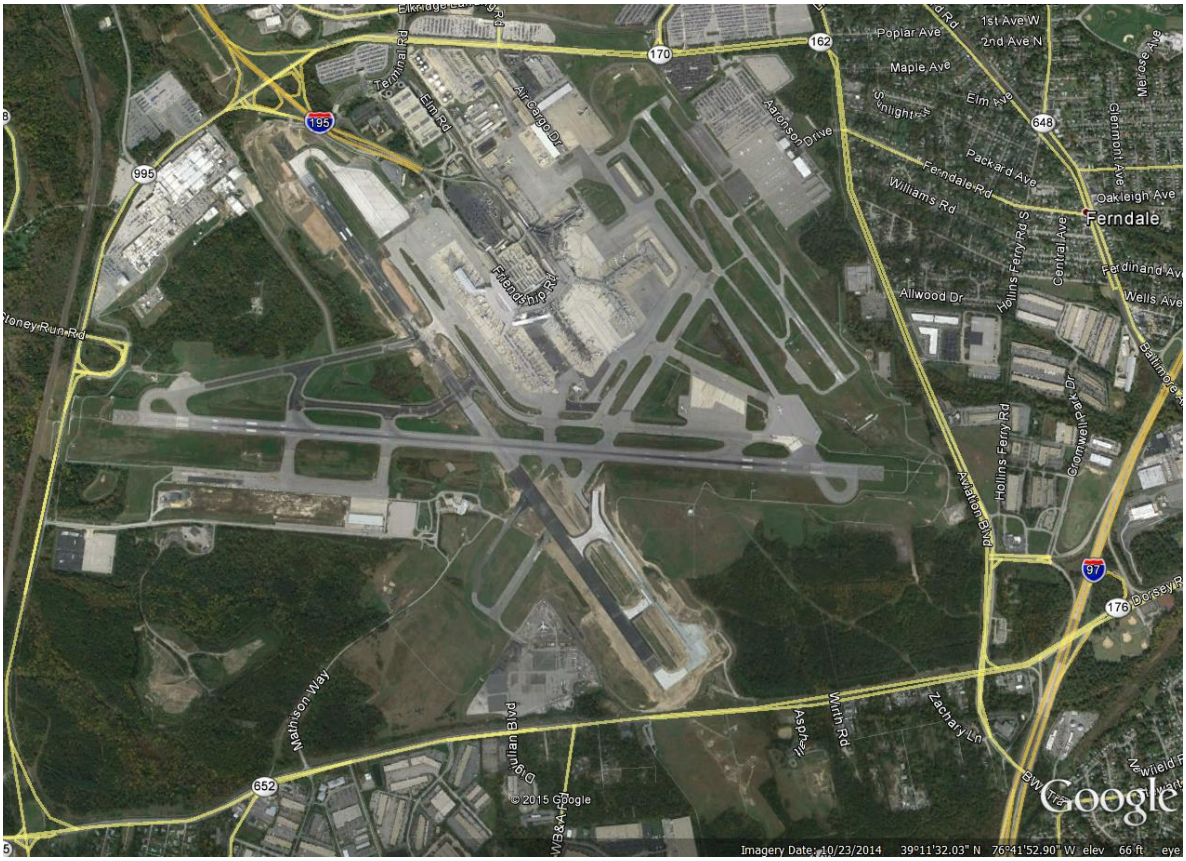
3.2 BWI Airside Inventory

BWI Marshall Airport, as the primary air carrier airport in Maryland, is located in Anne Arundel County. As Figure 3-1 illustrates, the airport is surrounded by well-developed urban and industrial areas bounded by a well-established network of roads and highways including MD170, MD162, and MD652. The airport elevation, at 146.0 feet MSL, is considered mostly flat terrain except for the northeast corner which drops in elevation. The airfield system at BWI Marshall consists of two intersecting air carrier runways, a commuter runway, and associated taxiways.

The two primary air carrier runways are designated as RW10-28 and RW15R-33L. Runway 10-28, oriented in an east-west direction, has an asphalt concrete (AC) surface and is 10,502 feet long and 150 feet wide with 35 feet wide paved shoulders on each side. Runway 15R-33L, oriented in a northwest-southeast direction, has an AC surface (with new PCC at each end) and is 9,501 feet long and 150 feet wide with new 35 feet wide paved shoulders on each side. Both runways are capable of handling the most demanding aircraft, such as the Boeing 747. The third intersecting runway, Runway 4-22, has recently been converted to Taxiway P. The portion of former Runway 4-22 between Runways 10-28 and 15R-33L is scheduled to be demolished.

The parallel Runway 15L-33R, referred to as the Commuter Runway, is located on the east side of the airfield. It is 5,000 feet long and 100 feet wide and is used primarily by commuter airlines and general aviation aircraft.

Figure 3-1 BWI Marshall Location Map



3.3 Climatic Conditions

Table 3-1 provides a summary of the climatic data for BWI Marshall from December 2014 to November 2015. As the table shows, the pavements at BWI Marshall are exposed to small number of freeze-thaw cycles from December through March. The mean air temperature for February ranges from an average low of 16 degrees F to an average high of 35 degrees F. The average annual rainfall at BWI Marshall is approximately 49 inches. This climatic data is consistent with previously collected PMP weather data.

Table 3-1 Average Annual Temperatures and Rainfall for BWI Marshall (Dec 2014 to Nov 2015)

	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
High Temp (°F)	47.3	38.8	35.1	50.2	66.0	80.6	82.9	86.5	86.0	82.2	66.4	61.0
Low Temp (°F)	32.5	23.0	15.8	29.3	43.0	57.6	65.5	67.6	64.2	61.3	44.1	41.0
Precip. (in.)	3.6	3.9	2.2	4.7	4.3	2.1	13.1	3.6	2.6	3.3	3.4	2.4

Source: US National Climatic Data Center

3.4 Pavement Network and Branches

A key element in a pavement management system is defining the pavement network, which is the process of dividing the pavements of a facility into an hierarchical order that facilitates inspection and maintenance planning. The BWI Marshall network (e.g. all airside pavements) is then divided into

branches, which are a readily identifiable part of the pavement system and have distinct functions. For airports, branches typically consist of individual runways, taxiways and aprons. There are 59 branches in the BWI Marshall airside pavement network.

3.5 Pavement Sections and Sample Units

Once branches have been defined, pavement evaluation and analysis techniques require the airfield pavement system to be broken up into discrete sections. A pavement "section" is the smallest management unit used when considering the application and selection of maintenance and rehabilitation (M&R) treatments, and is defined by Section 2.1.8 of ASTM D 5340-12 as "a contiguous pavement area having uniform construction, maintenance, usage history, and condition. A section should also have the same traffic volume and load intensity." Within the 59 branches at BWI Marshall, there are 349 pavement sections and a total area of approximately 21.8 million square feet. Excluding sections within the ASAP scope, the PMP project focused on 56 branches, and a total area of approximately 20.1 million square feet.

The construction history of the pavement is used to define pavement sections. Since the last PMP update at BWI Marshall, there has been new pavement construction and reconstruction of existing areas within the airside network as shown in Table 3-2. The AECOM team researched and documented available pavement construction, rehabilitation, and maintenance history information to determine what construction work has been completed since MAA conducted the 2011 PMP update.

Table 3-2 Contracts Completed/Ongoing between 2011 and 2015

Contract	Title	Date	Work Type	General Area
MAA-CO-11-005-(016)	Pavement Rehabilitation for R.O.N. Pad at Pier A	1/7/2011	Reconstruction	Ramp AB
MAA-CO-11-005-(019)	Taxiways U, P, and A Emergency Repair	3/2/2011	Patching	Taxiways T and U
MAA-CO-11-005-(026)	Comp Paving 2011, Taxiways U & U1 Pavement Rehab	3/2/2011	Resurfacing	Taxiway U
MAA-CO-11-005-(001)	Taxiway P at Runway 15 R Rehabilitation	6/24/2011	Resurfacing	Taxiway P1
MAA-CO-11-006	Runways 10-28 and 15R-33L Intersection Pavement Rehabilitation and Standards Compliance	12/6/2011	Resurfacing	Runway 10-28 and 15R-33L Intersection
MAA-CO-11-005-(003)	Comp Paving 2011, Sample Task 3 - Service Road	3/2/2012	Patching	Ramp DY
MAA-CO-11-005-(046)	Comp Paving 2011, Taxiway P Repairs	7/20/2012	Resurfacing	Taxiway P and P1 Intersection
MAA-CO-12-008	Runway 10-28 Safety Area, Pavement Rehabilitation and Standards Compliance	3/6/2013	Resurfacing	Runway 10-28 and Taxiways E, F, R, , and C
MAA-CO-11-005-(047)	Runway Safety Area Improvements, Taxiway Alpha Repairs	9/24/2013	Patching	Taxiway T
MAA-CO-14-001	Airfield Standards and Pavement Rehabilitation Project	6/25/2014	New Construction	Taxiways C, U, P1, T, U2, U1 and Runway 28 Deicing Pad
MAA-CO-12-004	Taxiway Charlie Pavement Rehabilitation & Standards Compliance Project	2/16/2015	Resurfacing	Taxiway C
MAA-CO-16-001	Concourse E Extension	7/15/2015	Reconstruction	Gate E
MAA-CO-13-016 (011)	Runway 15L-33R and Taxiways J, K, L, M, Q, and S Pavement Rehabilitation	2/14/2014	Resurfacing and Crack Seal	RW 15L-33R, Taxiways J, K, M, N, and Q.
MAA-CO-13-016 (28A)	Taxiway Repairs Project	6/3/2014	Resurfacing	Taxiways F, G and R
MAA-CO-13-016 (28B)	Taxiway P1 Emergency Pavement Repairs	6/27/2014	Patching	Taxiway P1
MAA-CO-13-016 (28C)	Pavement Rehabilitation of Taxiway A Between Taxiways E and P1	7/2/2014	Resurfacing	Taxiways P1 and T
MAA-CO-13-016 (013)	Taxiway A Centerline Paving Repairs at Pier A	9/1/2014	Patching	Taxiway T
MAA-CO-13-016 (015)	Taxiway A Concrete Patches	9/26/2014	Patching	Taxiway T
MAA-CO-13-016 (036)	Taxiway T Emergency Pavement Repairs	3/9/2015	Patching	Taxiway T
MAA-CO-13-016 (037)	Comp Paving 2014 Cargo Ramp F4 Concrete Pads	3/31/2015	Patching	Cargo Ramp
MAA-CO-14-003	Runway 15R-33L RSA	8/30/2013	Resurfacing and Reconstruction	15R De-icing Pad, RW 15R-33L, Taxiways D1, D2, D3, F, H, P1, R, R2, RW 15R Shoulders

Subsequent to the completion of reviews for the above contracts, the construction history and age of pavement were updated within the MP database with changes from 2011 to 2015 and new sections were added as appropriate.

To facilitate the visual survey of the airfield pavement in 2015, each section was further subdivided into conveniently defined portions, or sample units. Similar sizing of sample units is critical as studies have found that maintaining the size of the sample units to within 40% of the established norm may reduce the standard error of the average PCI values. To meet that criteria, ASTM D 5340 recommends that sample units for asphalt pavements be 5,000 square feet (± 2,000), and sample units for PCC pavements be 20 slabs (±8). The sample unit size for PCC pavements assumes a joint spacing not greater than 25 feet; for slabs with joints exceeding that criterion, imaginary joints less than or equal to 25 feet are assumed during the sample unit layout and survey process.

For prior surveys, Table 3-3 was used as a guideline in developing sampling rates that reflect similar rates that are used for other large pavement networks. This same sampling approach was used, consistent with historical surveys. In locations where high speed data collection was completed, 100% of sample units were surveyed.

Table 3-3 Sample Rates for AC and PCC Pavements

Surface Type	Total Number of Sample Units	Sample Units Inspected
PCC	1-3	All
	4	3
	5-7	5
	8-10	6
	11-16	8
	17-28	10
	29-64	13
	65-90	14
	Over 90	20%, but less than 32
AC	1	1
	2-3	2
	4-9	4
	10-40	6
	> 40	15%, but less than 17

Source: AECOM

In most cases, the sample units that were inspected in 2015 were the same sample units inspected in 2011. The exceptions are areas where sample unit layout changed due to construction history updates. Sample units that included a one-time occurrence of a distress (i.e. a large patch) or an unusual severity or quantity of a distress seen elsewhere, were assigned as "additional" units as per the PCI procedure. This allows the PCI to be calculated without extrapolating the aberrant distress throughout the section as a whole.

3.6 Pavement Inventory

The BWI Marshall Airside network consists of 21.8 million square feet of pavement area, divided into 59 branches that consist of 349 sections. Approximately 275 sections are less than 21 years old, or

nearly 80 percent of the total airside pavement area. Table 3-4, developed from an analysis of the pavement inventory, shows the distribution of airfield pavement by age with an area-weighted age of 10 years for all the airside pavements.

Table 3-4 BWI Marshall Pavement Age

Age (Years)	Number of Sections	Percent of Area	Square Feet
0-5	196	50.0%	10,936,392
6-10	26	6.7%	1,470,995
11-15	30	13.3%	2,904,383
16-20	23	9.6%	2,101,069
21-25	9	1.1%	240,150
26-30	48	12.8%	2,799,638
31-35	15	6.1%	1,338,667
36-40	1	0.2%	47,359
41-50	1	0.2%	45,968
Total	349	100%	21,884,621

The runway, taxiway, and apron areas include asphalt concrete (AC), AAC (asphalt concrete overlay of original AC), and PCC (Portland Cement Concrete) pavements. Figure 3-2 shows the distribution of airfield pavement by surface types, and Figure 3-3 shows the distribution by usage.

Figure 3-2 BWI Marshall Pavement Area by Surface Type

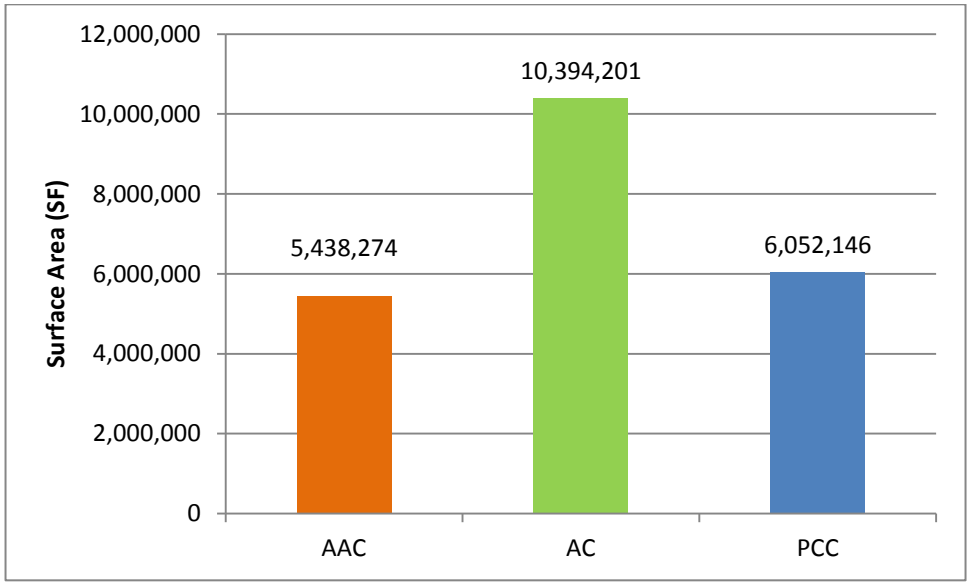
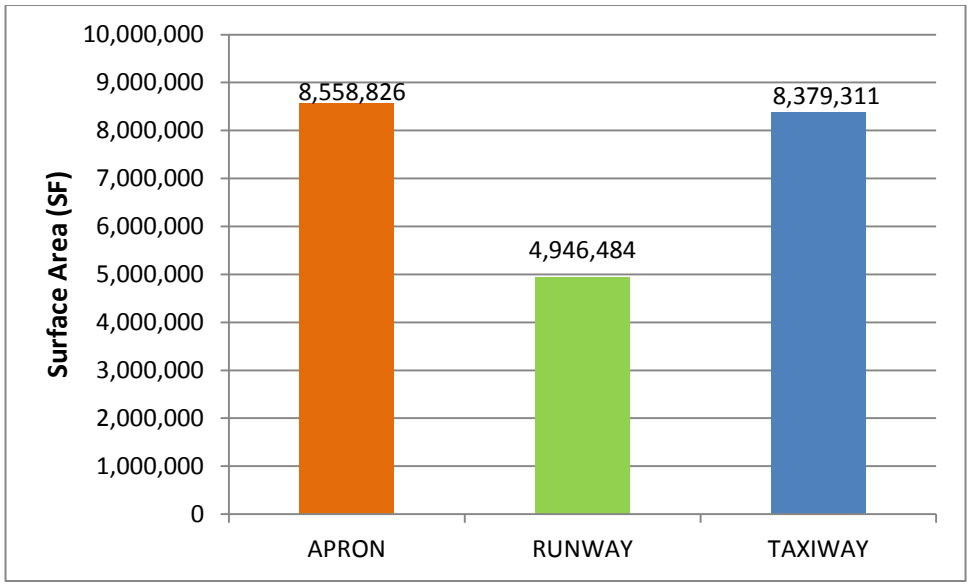


Figure 3-3 BWI Marshall Pavement Area by Branch Use



3.7 Inventory Changes From Previous Inspection

The work history information has been updated and loaded into MicroPAVER to reflect inventory changes that have occurred since the 2011 inspection of the BWI Marshall Airside pavements. The updated network layout and section designations are shown in Figure B-1 in Appendix B.

4.0 Field Visual Inspections and Data Analysis

4.1 Introduction

A visual PCI survey of the airside pavements at BWI Marshall was conducted in 2015 in order to update the existing pavement management database. During this survey, airside pavements were re-inspected, with the exception of areas currently under construction under the ASAP contract, as shown in Figure B-2 of Appendix B, as they were inaccessible at the time of the inspections.

The visual survey measures and records pavement distresses as observed in the sample units which were inspected. This survey was conducted in August through October of 2015. The survey was performed in accordance with the methods described in ASTM D-5340-12 and FAA AC 150/5380-7B, using the sampling rates from Section 3.5 of this report. This chapter describes a general methodology that was followed for conducting the survey, followed by the quality control process, field inspection results, and a summary of PCI conditions at the airport.

4.2 Methodology

Pavement surveys were completed at BWI Marshall using two different methods. The methods are described below. Figure B-2 in Appendix B provides the specific locations of each survey method:

a. Manual surveys to achieve statistical based sample unit PCI data:
   Surveys were completed by a two-person crew, under escort by a third team member. Distress data were collected using GPS enabled tablets. Manual surveys were completed during daylight hours to ensure the best quality. This survey method records distress type, severity and quantity within a surveyed sample unit, with sample units determined by the sampling rates from Section 3.5 of this report. This method does not result in a geo-referenced map of distresses.

b. Surveys using the Laser Crack Measurement System (LCMS) shown in Figure 4-1 to achieve detailed mapping of cracks and 100% PCI coverage. This method involved a data collection vehicle provided by subconsultant Mandli Communications (Mandli) that uses high-speed cameras, custom optics, and laser line projectors to acquire both 2D images and high-resolution 3D profiles of the pavement. This system is been designed to acquire details of the pavement surface that allow for the automatic detection of cracks. The LCMS system can be operated in all types of lighting conditions both during the day and at night. At BWI Marshall, all pavement images were taken during nighttime hours, and supplemented by approximately two passes of each branch during the day to collect forward facing / right-of-way (ROW) images. Data were collected at speeds of approximately 40 mph and covered a width of about 13 feet in each pass. The result is a map of the distresses observed and a PCI for each sample unit within the data collection scope. Note that a 100% sampling rate was completed for LCMS survey locations.

Figure 4-1 LCMS Equipment

As previously discussed in Chapter 2, the PCI is a measure of the pavement's functional surface condition. It provides insight into the causes of distress, and whether the distress is related to a load or climatic condition. The PCI is a numerical rating (on a scale of 0 to 100) based on the type, severity and quantity of each distress found in an inspected sample unit. The results are displayed using seven categories and ratings in accordance with ASTM D-5340 Asphalt Concrete (AC) and Portland Cement Concrete (PCC) distress types are presented in Table 4-1.

The PCI of each random sample unit is extrapolated over the entire as a whole section (when doing the manual methodology) to obtain the Section PCI. Distresses found in sample units classified as "additional", which are defined as non-representative instead of random, are not extrapolated over the entire section but merely added to the extrapolated quantity. Table 4-2 "Pavement Condition Index (PCI) Rating Scale" gives a detailed description of each PCI rating category and shows the seven category scale and simplified scale.

Section 4.1 of ASTM D5340 governing PCI surveys offers this caution:

"The PCI provides a measure of the present condition of the pavement based on the distress observed on the surface of the pavement, which also indicates the structural integrity and surface operational condition (localized roughness and safety). The PCI cannot measure the structural capacity; neither does it provide direct measurement of skid resistance or roughness. It provides an objective and rational basis for determining maintenance and repair needs and priorities. Continuous monitoring of the PCI is used to establish the rate of pavement deterioration, which permits early identification of major rehabilitation needs. The PCI provides feedback on pavement performance for validation or improvement of current pavement design and maintenance procedures."

Therefore, it is imperative that the Airport or Pavement Engineers treat the PCI as a tool that will assist them during the maintenance planning process. Any major project should always be preceded by an up-to-date detailed 100 percent Project Level Inspection of the pavement in order to re-evaluate maintenance needs prior to the project design process.

Table 4-1 Distress Types for AC and PCC Pavements

AC Distress Types	PCC Distress Types
Alligator Cracking *	Alkali Silica Reactivity *
Bleeding *	Blow Up
Block Cracking *	Corner Break *
Corrugation*	Corner Spalling *
Depression *	Durability Cracking *
Jet Blast	Faulting*
Joint Reflection Cracking	Joint Seal Damage *
Longitudinal & Transverse Cracking*	Joint Spalling *
Oil Spillage *	Large Patch *
Patching *	Longitudinal, Transverse & Diagonal*
Polished Aggregate	Pop Outs
Raveling *	Pumping *
Rutting *	Scaling *
Shoving	Shattered Slab *
Slippage Cracking *	Shrinkage Cracking *
Swelling *	Small Patch *
Weathering *	

Note: * = Distresses found on BWI Marshall pavement

For asphalt surfaced pavements, of the 17 distresses listed in Table 4-1, 13 were found in the pavements at BWI Marshall. For PCC pavements, 14 of the 16 listed distresses were found.

Table 4-2 Pavement Condition Index (PCI) Rating Scale

	Simplified PCI Color Legend	ASTM PCI Color Legend	PCI Range	PCI Ratings and Definition
GOOD			86-100	GOOD: Pavement has minor or no distresses and should require only routine maintenance.
			71-85	SATISFACTORY: Pavement has scattered low-severity distresses that should require only routine maintenance.
FAIR			56-70	FAIR: Pavement has a combination of generally low- and medium- severity distresses. Near-term maintenance and repair needs may range from routine to major.
POOR			41-55	POOR: Pavement has low-, medium-, and high-severity distresses that probably cause some operational problems. Near-term M&R needs range from routine to major.
			26-40	VERY POOR: Pavement has predominantly medium- and high-severity distresses that cause considerable maintenance & operational problems. Near-term M&R needs will be major.

	Simplified PCI Color Legend	ASTM PCI Color Legend	PCI Range	PCI Ratings and Definition
			11-25	SERIOUS: Pavement has mainly high-severity distresses that cause operational restrictions; immediate repairs are needed.
			0-10	FAILED: Pavement deterioration has progressed to the point that safe aircraft operations are no longer possible; complete reconstruction is required.

Source: American Society of Testing and Materials (ASTM)

The Structural Condition Index (SCI) is an additional index and is similar to the PCI, but only includes load related distresses.

4.3 Distress Types

Distress tends to fall into one of the following four cause categories:

- Load related: AC distresses include alligator cracking, corrugation, depression, polished aggregate, rutting and slippage cracking; PCC distresses include corner breaks, longitudinal cracking, shattered slabs, polished aggregate, pumping and joint spalling.
- Climate and durability related: AC distresses include bleeding, block cracking, joint reflection cracking, longitudinal and transverse (L&T) cracking, swelling and raveling/weathering; PCC distresses include blow-ups, "D" cracking, longitudinal cracking, pop-outs, pumping, scaling, shrinkage cracks, and joint and corner spalling.
- Moisture & Drainage related: AC distresses include alligator cracking, depressions, potholes and swelling; PCC distresses include corner breaks, shattered slabs and pumping.
- Other factors: Oil spillage, jet blast erosion, bleeding, patching and concrete slab joint faulting.

Distress descriptions are provided in Appendix C.

4.3.1 Quality Control Process

During the manual pavement survey, Quality Control (QC) and data verification were performed on both the individual distresses and the calculated section PCI. QC included the following activities:

- Review of distress quantities to identify data entry errors (100% review at the sample unit level). General guidance from ASTM D5340 Section 13 for precision of distress quantity accuracy was followed.
- Duplicate surveys performed to ensure inspector-to-inspector consistency (daily during the surveys).
- Field verification of sections with PCI that is inconsistent for its age.

For the LCMS data collection method, distresses were assigned at a workstation and QC was completed in a similar manner to the manual method as follows:

- Review of distress quantities to identify data entry errors (100% review at the sample unit level). General guidance from ASTM D5340 Section 13 for precision of distress quantity accuracy was followed.
- Duplicate surveys performed by an independent rater to ensure rater consistency (up to 10% coverage).
- Field verification of sections with PCI that is inconsistent for its age.

Where warranted from the QC review, the database was adjusted and the PCI values were reevaluated.

4.4 Field Inspection Results

BWI Marshall has 349 PMP sections, of which 327 sections were surveyed, as identified in Figure B-1 of Appendix B. The 22 sections not surveyed were under construction at the time of the survey. The 22 sections not surveyed have been updated in the Paver database with “New Construction” and PCI = 100, and are identified in Table 4-3.

Table 4-3 PMP Sections Not Inspected in 2015

TWP1/1	TWP15	TWU2/1	TWC4	DICE/R28/1
TWP1/2	TWP16	TWU3	TWC5	DICE/R28/3
TWP6	TWU1	TWC1	TWC8	
TWP7	TWU1/1	TWC1A	TWC9	
TWP14	TWU2	TWC2	TWC10	

The 327 sections have a total of 3,733 sample units, of which 2,286 samples were surveyed (61%) using either manual or LCMS methods. Data from the inspected sample units were then loaded into the MicroPAVER database and a resultant PCI for each section was computed..

Including major rehabilitation projects (2011 to the present), the existing percentages of AC and PCC surface distresses at BWI Marshall are shown in Tables 4-4 and 4-5, respectively. The percentages shown in these tables are based on the frequency of a distress type in all of the AC surfaces (e.g. AAC, AC, and APC) and all PCC surfaces. For example, 44 of the 284 sections with an AC surface exhibit Alligator Cracking (31 %). Also, 11 of the 72 PCC sections had corner breaks (15%).

Table 4-4 2015 AC Distresses by Section

Distress	Number of Sections	As Percent of Sections Surveyed
Alligator Cracking	59	18%
Bleeding	8	2%
Block Cracking	46	14%
Corrugation	2	1%
Depression	21	6%
Longitudinal & Transverse Cracking	174	53%

Distress	Number of Sections	As Percent of Sections Surveyed
Oil Spillage	32	10%
Patching	74	23%
Raveling	30	9%
Rutting	37	11%
Slippage Cracking	2	1%
Swelling	2	1%
Weathering	104	32%

Source: Field Survey (MicroPAVER database)

Table 4-5 2015 PCC Distresses by Section

Distress	Number of Sections	As Percent of Sections Surveyed
Alkali Silica Reaction	1	0.3%
Corner Break	19	6%
Corner Spalling	40	12%
Durability Cracking	5	2%
Faulting	5	2%
Joint Seal Damage	62	19%
Joint Spalling	55	17%
Large Patch	37	11%
Linear Cracking	43	13%
Pumping	6	2%
Scaling	28	9%
Shattered Slab	13	4%
Shrinkage Cracking	38	12%
Small Patch	41	13%

Source: Field Survey (MicroPAVER database)

4.4.1 PCI Condition Summary

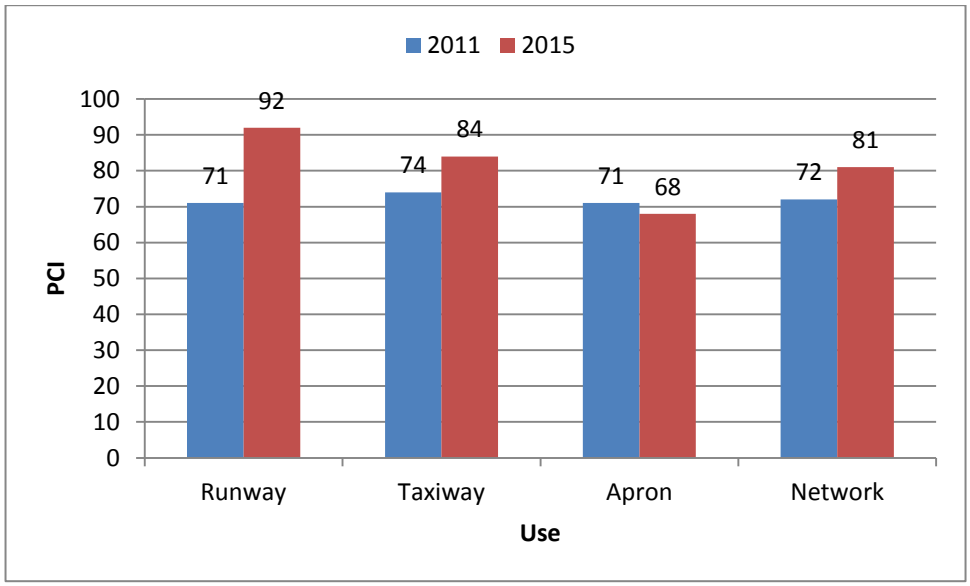
The branch-level PCI values are provided in Appendix A of this report. In addition, the appendix provides detailed section-level statistics for PCI. The PCI data ranged from a low of 12 (Taxilane NN in the DE alley area), to a high of 100 for 98 sections (inclusive of the new ASAP pavement). Table 4-6 illustrates the area-weighted PCI and age for each of the three airside pavement uses. Taxilanes have been grouped with Taxiways.

Table 4-6 PCI Summary by Pavement Use

	2011 Inspection		2015 Inspection	
Use	Area-Weighted PCI	Area-Weighted Age (Years)	Area-Weighted PCI	Area-Weighted Age (Years)
Runway	71	16	92	5
Taxiway	74	12	84	9
Apron	71	14	68	18
Overall	**72**	**14**	**81**	**11**

The area-weighted PCI at BWI Marshall was 72 in 2011 and improved to 81 in 2015. The improvement reflects the major construction activities between 2011 and 2015, specifically resurfacing of the two main runways. as well as the current ASAP project work. Figure 4-2 provides the change in PCI since the last survey for each airside pavement by usage.

Figure 4-2 Comparison of Area-Weighted PCI between 2011 and 2015, by Use



Pavements with asphalt surfaces (AC, AAC) comprise 252 (72% of total area) of the 349 sections and have an average area-weighted PCI of 80. As seen in Table 4-7, the AC pavement type (pavement that has not been overlayed) is performing worse than all other pavement types. At BWI Marshall, most of the pavements with an 'AC' (asphaltic concrete) surface type are more than 14 years old, which means that these surfaces have not had a major rehabilitation since initial construction and therefore will experience a more rapid deterioration rate due to their location on the condition versus age life-cycle curve. PCC pavements at BWI Marshall are performing the best, with an average value of 85 for 97 sections in the current PMP database. This is bolstered by recent PCC reconstruction of Taxiway D and the ASAP PCC construction. Figures 4-3 and 4-4 show the 2015 PCI distribution by number of sections and percent area, respectively. These figures do not include the ASAP areas. Figure B-3 in Appendix B provides a map of BWI Marshall with the 2015 PCI for each pavement section and Figure B-4 provides the PCI by sample unit for those sample units surveyed. Appendix D provides a section PCI review of 2015 data compared to prior 2011 data.

Table 4-7 PCI Summary by Surface Type

	2011 Database				2015 Database			
Surface	% of Total Area	# of Sections	Area-Weighted PCI	Area-Weighted Age	% of Total Area	# of Sections	Area-Weighted PCI	Area-Weighted Age
AC	58	183	66	16	47	155	76	14
AAC	23	101	80	12	25	97	85	7
PCC	19	72	82	14	28	97	85	13

Figure 4-3 PCI of BWI Marshall Airside Pavement by Number of Sections

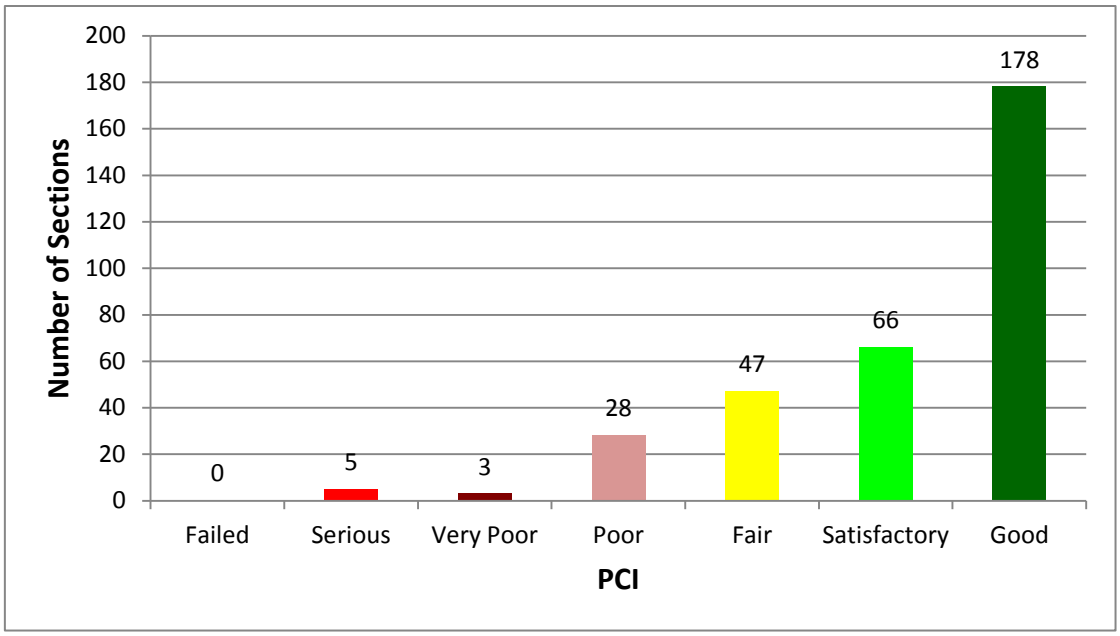
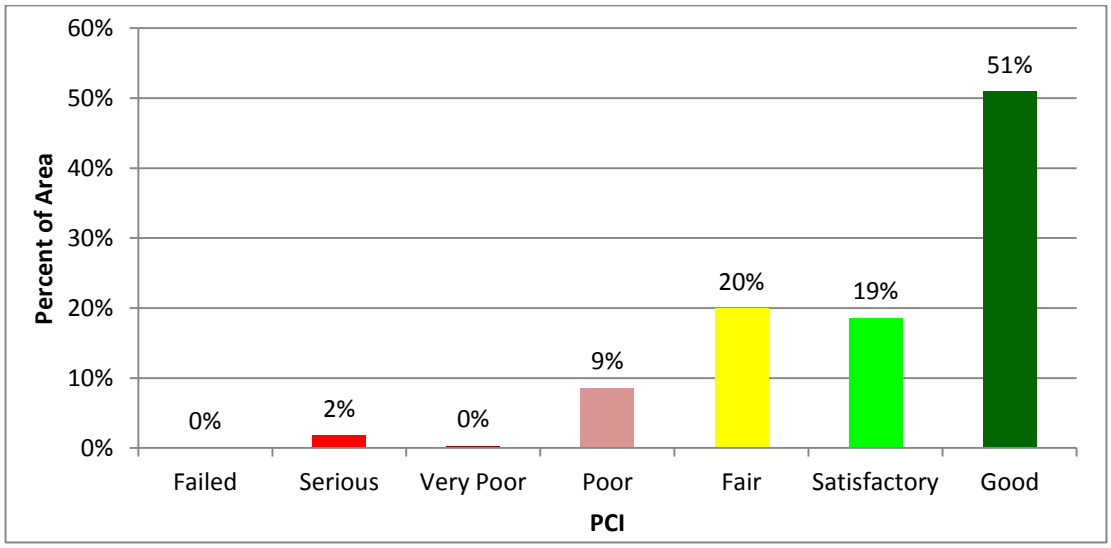


Figure 4-4 PCI of BWI Marshall Airside Pavement by Percent Area



4.5 Summary

The airside pavements at BWI Marshall were inspected between August and October 2015. The current 2015 PMP update is comprehensive and includes updates to the network definition map, PCI field surveys, MicroPAVER database updates and CIP development. Overall, the pavements are in "Good" condition with an area-weighted PCI of 81 an increase from 72 in 2011. The 2011 – 2015 paving of several taxiways, the two main runways and the ASAP project scope mostly contributed to this increase since pavement resurfacing and reconstruction carry a 100 PCI rating.

5.0 Field Structural Data Collection

5.1 Introduction

The project team collected Non-Destructive Testing (NDT) data using a Dynatest Model 8000 Falling Weight Deflectometer (FWD) at BWI Marshall Airport. The collection of data was necessary to determine the structural condition of the tested facilities and to calculate the Pavement Classification Number (PCN), as well as develop estimates of pavement life. The investigation also included pavement cores/borings for the taxiways and ramp. The pavement areas tested by NDT included:

- Runways 10-28, 15R-33L and 15L-33R
- Taxiways F, G, J, K, L, M, Q, R, S and T
- Taxilanes AA and N1
- Ramp DE

5.2 NDT Data Collection

The FWD was performed in July 2016, by Pavement Technical Solutions (PTS). The FWD consists of an impulse loading device that applies a load to the pavement surface by dropping a weight onto a spring connected to a load plate of known dimensions. See Appendix G for details.

5.3 NDT Data Analysis

The FWD deflection data and construction history were used to determine the following:

1. Section Limit Verification – Verify the pavement section limits along the runway using the AC and PCC layer thicknesses and Impulse Stiffness Modulus (ISM) as presented in Appendix G.
2. Pavement Layer Characterization – Backcalculate the modulus of elasticity for each layer in each pavement section as presented in Appendix G.

5.4 Destructive Testing and Subsurface Investigation

In order to get accurate back-calculated results for the modulus of elasticity for each layer in each pavement section, a program of destructive testing of the individual pavements was developed which consisted of pavement coring to determine pavement layer thicknesses. Each core was advanced as a Standard Penetration Test (SPT) boring to determine subgrade support. A total of 34 pavement cores/borings were completed in the taxiway and apron sections noted above. The results of the destructive testing and subsurface investigation as completed by E2CR, Inc. are presented in Appendix F.

5.5 Summary

This chapter describes the NDT and pavement thickness data collection process for the tested BWI Marshall Airport pavements. The results were used to determine the Pavement Classification Number (PCN), to verify the structural capacity of the pavements and to determine the estimated remaining life as described in the following chapter.

6.0 Structural Evaluation

6.1 Introduction

The primary objective of a structural analysis is to determine the adequacy of each pavement section to support the projected fleet mix and projected levels of departures. If a pavement section is structurally deficient, it will not be able to carry the projected aircraft traffic operations for the intended remaining life of the section. For structurally deficient sections, a rehabilitation alternative must be designed that will provide the intended service life. The preferred structural repairs are one of many inputs that are considered in the development of a multi-year Capital Improvement Program (CIP).

There are several approaches that can be used to determine if a pavement section is structurally deficient. Questions that can be asked might include:

- What is the aircraft fleet mix and departure levels?
- What pavement section is required to support the anticipated fleet mix?

6.1.1 Fleet Mix and Departure Levels

Aircraft fleet mix data used for BWI Marshall was developed in the 2012 PMP report. Annual departures were projected from the 2014 operations data provided by the MAA to 2017 and through 2036 (20 years) based upon a 1.7% annual growth rate, also provided by the MAA. The fleet mix and departure levels are summarized in Tables 6-1 and 6-2. The percent distribution of each runway group to applicable taxiways was also those from the 2012 PMP report.

Table 6-1: Aircraft Fleet Mix – Main Runway (MRW) Group (Runways 10-28 and 15R-33L)

.

Aircraft Model	2017 Departures	2036 Departures
A300	1,150	1,189
A320	11,258	11,644
A321	479	495
A350	27	28
B717	10,700	11,067
B727	1,006	1,040
B737	65,933	68,194
B757	3,738	3,866
B767	257	266
B777	219	227
B787	101	104
E90	6,096	6,305
LJ35	868	898
M80	472	488
CR9	925	957
CR7	11,840	12,246
CRJ	11,166	11,549

Table 6-2: Aircraft Fleet Mix– General Aviation (GA) Runway Group (Runway 15L-33R)

Aircraft Model	2017 Departures	2036 Departures
DH8	7,463	7,719
C208	3,764	3,893
Single Engine	8,934	9,240
Multi-Engine	1,392	1,440

6.2 Pavement Classification Number

This section presents the Technical (T) method used to compute and to evaluate the Pavement Classification Number (PCN) based on pavement structure and materials information, subgrade strength characteristics, aircraft traffic data, as well as typical aircraft weights and landing gear configurations.

The Aircraft Classification Number–Pavement Classification Number (ACN-PCN) method is a system for reporting the airfield pavement bearing strength based on standards established by the International Civil Aviation Organization (ICAO) and adopted by the Federal Aviation Administration (FAA). For the present task, the analysis was conducted in accordance with FAA Advisory Circular (AC) 150/5335-5C, "Standardized Method of Reporting Airport Pavement Strength – PCN", issued August 14, 2014. The PCN value is required by the FAA to be presented on Form 5010-1, the *Airport Master Record*, which is reviewed during the FAA Part 139 inspections. The definitions of Aircraft Classification Number (ACN) and Pavement Classification Number (PCN) as presented in AC 150/5335-5C are as follows:

- ACN: A number that expresses the relative structural effect of an aircraft on different pavement types for specified standard subgrade strengths in terms of a standard single wheel load. The ACN number is calculated using aircraft characteristics.

- PCN: A number that expresses the relative load-carrying capacity of a pavement in terms of a standard single wheel load.

The ACN-PCN system is structured such that a pavement with a particular PCN value can support, without weight restrictions, an airplane that has an ACN value equal to or less than the pavement's PCN value. This is possible because ACN and PCN values are computed using the same technical basis.

The ACN-PCN system is only intended as a method that airport operators can use to evaluate acceptable operations of aircraft. It is not intended as a pavement design or pavement evaluation procedure, nor does it restrict the methodology used to design or evaluate a pavement structure.

6.3 Pavement Classification Number (PCN) Analysis

The evaluation of the PCN for the tested facilities at BWI Marshall consisted of a review and analysis of the PCN values calculated for the individual sectional components of each pavement. Generally, for pavement features that consist of varying cross sections (i.e., diverse strengths), the controlling numerical PCN value for the weakest segment of the pavement is reported as the strength of that pavement feature. PCN values calculated using technical methods are dependent on aircraft traffic fleet mix, pavement layer and subgrade support characteristics, and engineering judgment, which must be applied to determine the appropriate segment to use based on segment location, size, and traffic applications.

The PCN calculation results include the corresponding Aircraft Classification Numbers (ACNs) for each of the aircraft models included in the traffic fleet mix. Pavements with adequate strength to support the applied aircraft traffic mix will have PCN values roughly equal to or greater than the highest ACN values calculated for the pavement feature. This condition is also reflected in the Total Cumulative Damage Factor (CDF) displayed in the calculation outputs. Pavement features with CDF less than or equal to 1.0 will have sufficient strength for accommodating the applied aircraft traffic fleet mix, whereas Total CDF exceeding 1.0 will mean the pavement has inadequate strength to support the applied aircraft traffic without restrictions (meaning that the pavement is overloaded). In cases where the Total CDF exceeds 1.0, the ACN value for the pavement feature will exceed the PCN value.

Once a PCN value has been selected for a particular pavement feature, the corresponding allowable aircraft gross weights that can operate on the pavement can be determined for reporting purposes based on data presented in AC 150/5335-5C. Aircraft gross weights are provided for various aircraft gear configurations, including Single Wheel (SW), Dual Wheel (DW), Dual-Tandem Wheel (DTW), and Double-Dual-Tandem Wheel (DDTW), for Subgrade Strength Categories A through D, for both flexible and rigid pavement types.

In general the PCN is very dependent on the actual aircraft traffic using an airport pavement feature. A change in the traffic mix for any particular airport pavement feature would warrant a re-assessment of the corresponding PCN results.

The traffic data and the information collected from the NDT pavement testing and construction history was entered into the computer program developed by the FAA named COMFAA Version 3.0. This software program, along with its accompanying Excel support spreadsheet, was used to generate data outputs from which the PCN and ACN for each facility at BWI Marshall were obtained. The PCN results for the sectional areas that were evaluated are shown on Table 6-3. The ACN and PCN values depicted on this table correspond to the critical aircraft in the traffic fleet mix.

The existing pavement structure and layer strength characteristics for each section at BWI Marshall, including historical pavement construction data, and back-calculated material properties and subgrade strengths, was obtained from the results of the NDT testing investigation performed by PTS in July 2016 (see Section 5 and Appendix G for NDT and PCN results). Existing pavement thickness data was also utilized.

6.4 Pavement Remaining Life Analysis

Utilizing the FAA FAARFIELD pavement design software, the fleet mix discussed above and the pavement material properties determined from the NDT, the pavement sections were analyzed to determine the projected life or necessary overlay for a 20-year pavement life. The results are presented in Table 6-3.

Table 6-3: Pavement Section Structural Evaluation Results

Branch	Section	Traffic	Comment	Lowest PCN	Highest ACN/PCN Ratio
RW 10-28	All Sections	18% - 50% MRW	Life > 20 years	66	<1.0 OK
RW15R-33L	All Sections	18% - 49% MRW	Life > 20 years	66	<1.0 OK
RW 15L-33R	All Sections	69% - 100% GA	Life > 20 years	11	<1.0 OK
Taxiway F	All Sections	5% MRW	Life > 20 years	66	<1.0 OK
Taxiway G	**TWG1**	**5% MRW**	Life > 20 years	**63**	**1.04**
Taxiway G	TWG4	5% MRW	Life > 20 years	66	<1.0 OK
Taxiway J	TWJ1 & J1A	6% GA	Life > 20 years	10	<1.0 OK
Taxiway J	**TWJ2**	**2.3% MRW**	**Life = 5-yrs**	**68**	**1.06**

Branch	Section	Traffic	Comment	Lowest PCN	Highest ACN/PCN Ratio
			2-in AC OL		
Taxiway K	All Sections	50% - 75% GA	Life > 20 years	11	<1.0 OK
Taxiway L	TWL1	5% GA	Life > 20 years	11	<1.0 OK
Taxiway M	TWM1 & 2	5% GA	Life > 20 years	11	<1.0 OK
Taxiway Q	TWQ1	12% GA	Life > 20 years	11	<1.0 OK
Taxiway R	All Sections	5% MRW	Life > 20 years	66	<1.0 OK
Taxiway S	**TWS8**	**2.3% MRW**	**Life = 5-yrs 2-in AC OL**	**68**	**1.06**
Taxiway S	All Other Sections	2.3% MRW	**Life = 5-yrs to 15-yrs 1-in to 3-in AC OL**	73	<1.0 OK
Taxiway T	**TWT5 & 7**	**10% MRW**	**Life <2-yrs 2.0-in AC OL**	**66**	**1.08**
Taxiway T	All Other Sections	10% MRW	Life > 20 years	72	<1.0 OK
Taxilane AA	TLAA1	10% MRW	Life > 20 years	66	<1.0 OK
Taxilane AA	**TLAA2**	**10% MRW**	**Life <2-yrs 3-in AC OL**	**64**	**1.13**
Taxilane N1	TLNN1	10% MRW	Life > 20 years	84	<1.0 OK
Taxilane N1	**TLNN2**	**10% MRW**	**Life <2-yrs 3-in AC OL**	**45**	**1.61**
Ramp DE	**MRDE1 & 2**	**10% MRW**	**Life <2-yrs 4.0-in to 5-in AC OL**	**39**	**1.85**

Note the following in reference to Table 6.3:

1. Taxiway G Section G1 has material modulus values for the AC surface and the cement treated base of more than 2.5 times the standard design values. Therefore, these layers would warrant a higher conversion value in COMFAA than is standard. As a result, the PCN is probably 66 and the ACN/PCN ratio is probably less than 1.0. This is reflected in the estimated remaining life result of more than 20 years in the FAARFIELD analysis using calculated modulus values. Consequently, Section G1 is not included in the CIP.

2. Taxiway S Sections S4-S10 have material modulus values for the AC surface and the aggregate base of only 40% to 70% of the standard design values. Therefore, these layers would warrant a lower conversion value in COMFAA than is standard. As a result, the PCN is probably 68 and the ACN/PCN ratio is probably greater than 1.0. This is reflected in the estimated remaining life result of less than 20 years in the FAARFIELD analysis using calculated modulus values. Consequently, all Taxiway S sections are included in the CIP.

3. The 2012 PMP report did not have traffic distributions for Taxilane AA, Taxiway N1 or Ramp DE. Therefore, traffic distribution values similar to those for Taxiways B, N and J, which feed these areas, were used. The results of the structural evaluations are consistent with the PCI results, and these sections are included in the CIP.

6.5 Summary

The objective of this task was to determine the ability of each of the tested pavements to service the existing and projected aircraft fleet mix for the next 20 years based upon current functional conditions and material properties. The pavement construction history and aircraft traffic departure levels, in conjunction with the NDT testing investigation conducted on the pavements, were vital in determining the PCN for each section using the Technical (T) method of evaluation, as well as performing pavement life analyses. The results from both the PCN and FAARFIELD analyses indicate that some of the pavement sections are overloaded, particularly Ramp DE and portions of Taxiways AA, N1, J, S & T.

7.0 Maintenance and Rehabilitation Planning

7.1 Introduction

Data collected and analyzed in previous chapters are utilized to develop a 10-Year Capital Improvement Program (CIP) that identifies maintenance and rehabilitation (M&R) needs. In preparation for development of an updated 10-Year CIP, the MicroPAVER database has been customized to reflect the MAA's current needs and pavement maintenance and rehabilitation practices. The customization includes the following components:

- Performance Modeling
- Prioritization
- M&R Triggers (Critical PCI)
- M&R Policies
- Unit Costs

Following the database customization, budget scenarios were developed to help establish overall budget needs and thus provide a starting point for the 10-Year CIP presented in Chapter 8.

7.2 Performance Modeling

To determine long-term M&R needs, the future condition of the pavement must be predicted. Future pavement condition is predicted using equation models that are generated from current and historical PCI data. Equation models are developed by grouping pavements based on similar performance characteristics such as construction history, surface type, traffic, rank and use. Mathematical techniques such as straight-line extrapolation and regression that include boundary and outlier filters are used to develop models that provide the best fit for the pavement condition data. Data within the MicroPAVER performance models are commonly referred to as 'Family Curves'.

In the case of the BWI Marshall airside pavement network, the best fit family curves were developed by grouping pavements according to branch use (e.g. runway, taxiway, and apron) and surface type (e.g. AC and PCC). In order to obtain a more reliable model, all asphalt surfaced pavements (AC, AAC, and APC) were grouped in the same family.

Table 7-1 provides the names, as they exist in the MicroPAVER database, of best fit performance models that have been developed for BWI Marshall airside pavements based on the updated 2015 PCI data. As more PCI data points are obtained through future pavement inspections, these family curves should be updated and new curves may also be developed.

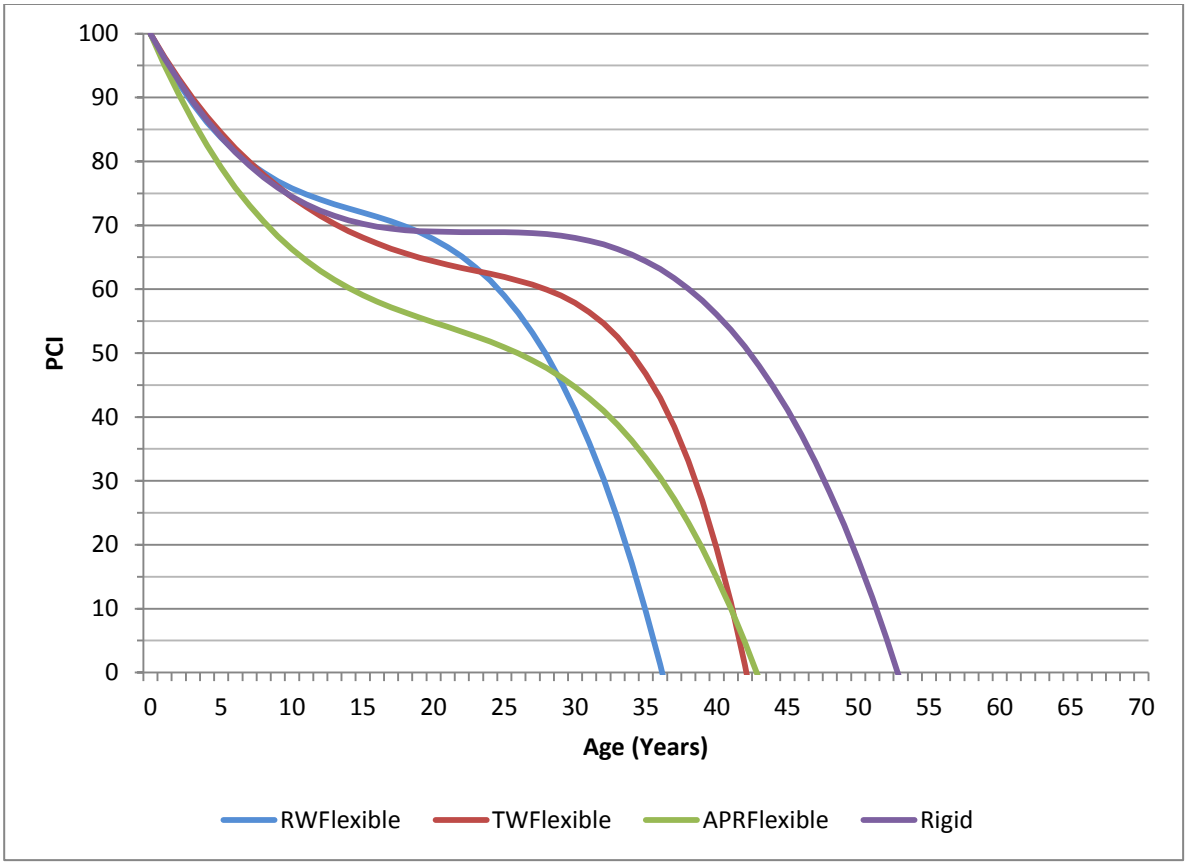
Table 7-1 Performance Models and Descriptions

Performance Model Name (as stored in MicroPAVER)	Description
BWIAir-RWFlexible_FINAL - MAA2015	Runway sections with AC and AAC surface types
BWIAir-TWFlexible_FINAL - MAA2015	Taxiway sections with AC and AAC surface types
BWIAir-APRFlexible_FINAL - MAA2015	Apron sections with AC and AAC surface types
BWIAir_Rigid_FINAL - MAA2015	Runway, taxiway and apron sections with PCC surface

Source: MicroPaver

Figure 7-1 shows the family curves graphically developed for BWI Marshall airside pavement. Note that for simplicity, the PCI data points are not presented here but are available in the MicroPAVER database.

Figure 7-1 BWI Marshall Family Curves



7.3 Prioritization

Pavement sections are prioritized so that when budgets are constrained, funding can be optimized to address the higher priority areas first. Prioritization is determined at both the branch and section levels and is based mainly on operational factors such as aircraft routing, traffic volume, aircraft speed, and branch redundancy. An initial prioritization was established using MicroPAVER features with a subsequent review with both MAA Engineering and Operations personnel to take into account specific conditions existing at the airport.

At the branch level, pavements were prioritized according to their use:

- High Priority: Runways
- Medium Priority: Taxiways
- Low Priority: Aprons

At the section level, within each branch, pavements were ranked as primary (P), secondary (S) or tertiary (T). The general guidelines used to develop the initial rankings are:

- Runway sections are generally all primary.
- Taxiways used to carry traffic to and from the main runways (Runways 10-28 and 15R-33L) are considered primary taxiways. An exception is Taxiway B between Runway 10-28 and Taxiway P which was determined to be redundant by BWI Marshall Operations since both Taxiways C and U can replace Taxiway B if it is closed for rehabilitation and therefore is considered a secondary taxiway.
- Taxiways used as main exits from the runways are secondary.
- Tertiary taxiways are alternate exits from the runway or alternate routes through the airfield.
- Terminal apron and North Cargo area are primary aprons.
- De-ice aprons for the main runways are considered as primary taxiway priority level.
- General Aviation and Remain Over Night (RON) aprons are secondary aprons.
- Midfield cargo areas and General Aviation deicing aprons are tertiary.

The final prioritization is provided as a matrix in Table 7-2. The section prioritization is provided in Appendix B, Figure B-5.

Table 7-2 Funding Priority Matrix

Branch Use Priority	Section Priority		
	Primary	Secondary	Tertiary
High (Runway)	1	2	7
Medium (Taxiway)	3	5	7
Low (Apron)	4	6	8

Source: AECOM

As indicated previously, the priorities are utilized when budgets are constrained. For example, all sections with a Priority 1 will be funded for M&R before sections with Priority 2. Within each priority level, there is likely to be multiple sections requiring M&R work. When this occurs, the section PCI is used to schedule M&R requirements. Those pavement sections with a PCI that is closer to the critical PCI will receive a higher priority. An exception to this general rule is when a pavement requires localized safety maintenance. In this case, pavements with the lowest PCI are treated first when a specific budget does not allow for other types of M&R work.

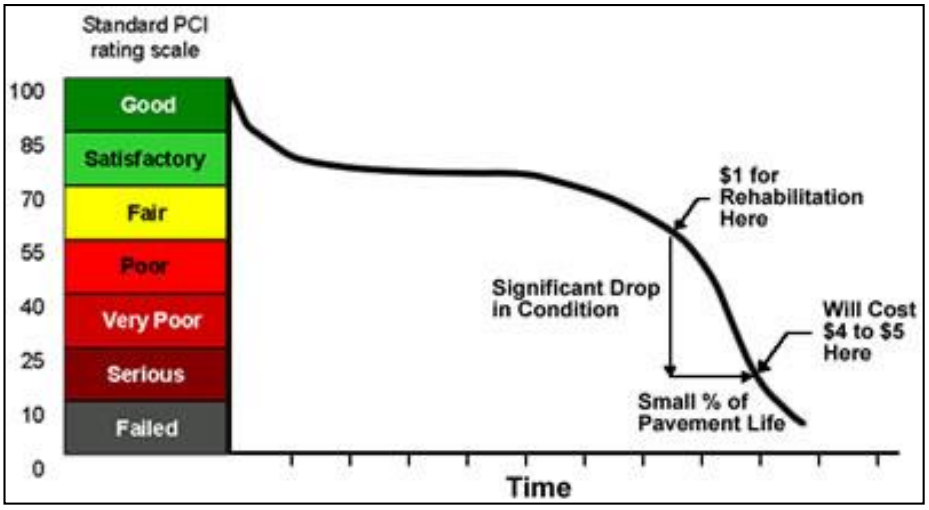
MicroPAVER first allocates funds based on the established pavement priorities identified in Table 7-2. All pavements that require M&R and have a Priority 1 are funded as long as funds are available from the constrained annual budget. If funds remain after all pavement sections with a Priority 1 have their M&R needs funded, then those sections with a Priority 2 are the next to receive M&R funds. This procedure is repeated from Priority 1 through Priority 8, as long as funds remain from the annual budget and there are sufficient M&R needs to deplete the annual budget.

7.4 Critical PCI Values

PCI thresholds operate under the theory that a pavement lifecycle is similar to that shown in the Figure 7-2. In considering the lifespan of a PCC pavement, for example, if designed for 40 years, a good to fair condition rating, which is represented by a PCI in the range of 56 to 70, typically may last up to 25 years. After that point, the rate of deterioration of pavement accelerates sharply as the age of the pavement increases and within fifteen more years, the pavement may deteriorate to the point of

failure. PCI thresholds attempt to capture pavement before they start their sharp decline in condition and become a safety and Foreign Object Debris (FOD) risk. The current and forecast PCI data are used to develop the preliminary CIP based on determining at what point a pavement section will reach a specified or 'threshold' condition. PCI thresholds can be different for pavements of varying priority and use and should be revisited over time to ensure the overall pavement management vision is being met with these thresholds.

Figure 7-2 Pavement Life Cycle



Individual performance models representing groups of pavement that are deteriorating in a similar manner were developed in order to project pavement condition over the next 10 years to see where in the life cycle (Figure 7-2) the pavement sections fall. This is used to determine major rehabilitation needs. Each group of pavements within a performance model will then be assigned a PCI threshold value, or 'critical' PCI. At this threshold, a major rehabilitation is recommended. As mentioned earlier, Table 7-1 provides the performance models assigned in MicroPAVER and the associated PCI threshold.

Based on the above set of criteria, the PCI trigger values for the airport are set as follows:

- Runways = 75
- Taxiways = 70
- Aprons = 65

7.5 Maintenance and Rehabilitation Policies

M&R policies refer to the activities that are applied at different condition levels to rehabilitate a pavement section. Types of policies are provided below:

7.5.1 Localized Safety (Stop Gap) and Preventive Maintenance Policies

Localized maintenance policies are meant to identify ongoing, routine maintenance of individual pavement sections as defined in the PMP. The safety (stop-gap) plan addresses distresses that would affect safety if left unrepaired and is applied to pavements below the critical PCI. The preventive maintenance policy is aimed at slowing the rate of deterioration through consistent maintenance of existing pavements and is generally applied to pavements above the critical PCI; however, it can be applied to pavements that are below the critical PCI if sufficient funds are available for more extensive

repairs. These two policies have been implemented for BWI Marshall airside and are only applied to the first year in the M&R for sections that do not have major M&R activities. These policies and costs are most reliable if applied immediately after a PCI survey is conducted (e.g. 2015). These policies cannot be applied to subsequent years because future pavement distress types, severity and quantity cannot be reliably predicted. Therefore, for subsequent years (e.g. 2016), a cost by condition table, or effectively an annual cost estimate, has been implemented. These policies are listed in Table 7-3.

Table 7-3 Localized Preventive and Stop-Gap Maintenance

Distress	Severity	Work Type	Preventative	Stop-Gap	Work Unit
ALLIGATOR CR	High	Patching - AC Deep	Apply	Apply	SF
ALLIGATOR CR	Medium	Patching - AC Deep	Apply	N/A	SF
BLOCK CR	High	Crack Sealing - AC	Apply	Apply	Ft
BLOCK CR	Medium	Crack Sealing - AC	Apply	N/A	Ft
DEPRESSION	High	Patching - AC Deep	Apply	Apply	SF
DEPRESSION	Medium	Patching - AC Deep	Apply	N/A	SF
JET BLAST	N/A	Patching - AC Shallow	Apply	Apply	SF
JT REF. CR	High	Patching - AC Deep	Apply	Apply	SF
JT REF. CR	Medium	Crack Sealing - AC	Apply	N/A	Ft
L & T CR	High	Patching - AC Deep	Apply	Apply	SF
L & T CR	Medium	Crack Sealing - AC	Apply	N/A	Ft
OIL SPILLAGE	N/A	Patching - AC Shallow	Apply	N/A	SF
PATCHING	High	Patching - AC Deep	Apply	Apply	SF
PATCHING	Medium	Patching - AC Deep	Apply	N/A	SF
RAVELING	High	Patching - AC Deep	Apply	Apply	SF
RAVELING	Medium	Patching - AC Shallow	Apply	N/A	SF
RUTTING	High	Patching - AC Deep	Apply	Apply	SF
RUTTING	Medium	Patching - AC Deep	Apply	N/A	SF
SHOVING	High	Patching - AC Deep	Apply	Apply	SF
SHOVING	Medium	Patching - AC Deep	Apply	N/A	SF
SLIPPAGE CR	N/A	Patching - AC Deep	Apply	Apply	SF
SWELLING	High	Patching - AC Deep	Apply	Apply	SF
SWELLING	Medium	Patching - AC Deep	Apply	N/A	SF
BLOW-UP	High	Slab Replacement - PCC	Apply	Apply	SF
BLOW-UP	Low	Patching - PCC Full Depth	Apply	N/A	SF
BLOW-UP	Medium	Slab Replacement - PCC	Apply	Apply	SF
CORNER BREAK	High	Patching - PCC Full Depth	Apply	Apply	SF
CORNER BREAK	Medium	Patching - PCC Full Depth	Apply	N/A	SF
LINEAR CR	High	Crack Sealing - PCC	Apply	Apply	Ft
LINEAR CR	Medium	Crack Sealing - PCC	Apply	N/A	Ft
DURABIL. CR	High	Slab Replacement - PCC	Apply	Apply	SF

Distress	Severity	Work Type	Preventative	Stop-Gap	Work Unit
DURABIL. CR	Medium	Patching - PCC Full Depth	Apply	N/A	SF
JT SEAL DMG	High	Joint Seal (Localized)	Apply	Apply	Ft
JT SEAL DMG	Medium	Joint Seal (Localized)	Apply	N/A	Ft
SMALL PATCH	High	Patching - PCC Partial Depth	Apply	Apply	SF
SMALL PATCH	Medium	Patching - PCC Partial Depth	Apply	N/A	SF
LARGE PATCH	High	Patching - PCC Full Depth	Apply	Apply	SF
LARGE PATCH	Medium	Patching - PCC Full Depth	Apply	N/A	SF
SCALING	High	Slab Replacement - PCC	Apply	Apply	SF
SCALING	Medium	Slab Replacement - PCC	Apply	N/A	SF
SHAT. SLAB	High	Slab Replacement - PCC	Apply	Apply	SF
SHAT. SLAB	Medium	Slab Replacement - PCC	Apply	N/A	SF
JOINT SPALL	High	Patching - PCC Partial Depth	Apply	Apply	SF
JOINT SPALL	Medium	Patching - PCC Partial Depth	Apply	N/A	SF
CORNER SPALL	High	Patching - PCC Partial Depth	Apply	Apply	SF
CORNER SPALL	Medium	Patching - PCC Partial Depth	Apply	N/A	SF

Source: MicroPAVER

7.5.2 Global Maintenance Policy

A global maintenance policy establishes a schedule of maintenance activities applied to an entire section at pre-determined application intervals. An example of a global policy would be to apply a fog seal to an entire AC or AAC section at 5-year intervals. This fog seal does not change the age of the pavement because it is not a Major M&R activity, but it can potentially improve its functional condition and therefore extend its life. Global policies are not a general practice at BWI Marshall and therefore have not been included in the CIP. With updates to the FAA's bituminous surface treatment specification (P-609), surface treatments can be considered as a preventive maintenance strategy.

7.5.3 Major M&R Policy

Major M&R projects are used to rehabilitate pavements below or around the critical PCI. The Major M&R activities included in the Major M&R Policies for BWI Marshall are:

- AC reconstruction.
- PCC reconstruction.
- AC Mill and Overlay of various thicknesses (functional and structural) with or without repairs prior to the overlay, dependent on distress types and quantities.
- Concrete Pavement Restoration (CPR) applied to PCC sections that require intensive repairs and slab replacement. It is a more economical solution than PCC reconstruction and less disruptive to traffic operations.

Micro PAVER has been customized to reflect the policies in use by the MAA and associated costs for these policies as described in the next section.

7.6 Unit Costs

Each of the policies that were described in the previous section have an associated unit cost that, when applied to the section area, provides an overall estimate for M&R.

7.6.1 Localized Safety (Stop Gap) and Preventive Maintenance Costs

The unit costs for the policies described in the previous sections are listed in Table 7-4. These unit costs were developed after reviewing several pavement-related contracts provided by MAA. At BWI Marshall some localized maintenance and repair is conducted in-house. The remaining is generally done through the MAA Comprehensive Paving task. These costs are reflected in Table 7-4.

Table 7-4 Localized Preventive and Stop-Gap Maintenance Unit Cost

Item	Unit Cost 2011 ($)	Unit Cost 2015 ($)	Work Unit [(1)]
Crack Sealing - AC	5.00*	3.00*	FT
Crack Sealing – PCC	8.00	8.00	FT
Joint Seal (Localized)	8.15	8.15	FT
Patching – AC Deep	14.00	14.70	SF
Patching – AC Shallow	2.5	2.63	SF
Patching – PCC Full Depth	33.50	35.18	SF
Patching – PCC Partial Depth	12.00	12.60	SF
Slab Replacement (PCC)	67.00	70.35	SF

(1) FT denotes linear feet, SF denotes square feet
**Unit Cost of $5.00 Ft in 2011 was an estimated value; $3.00 FT in 2015 is from bid results.*
Source: MAA Bid Tabs and Historical APMS Reports

As indicated previously, the localized policies and costs are only applicable to the first year in the development of a work plan, which in this case is 2016. For subsequent years, such as 2017, unit costs by PCI range have been developed for each surface type (e.g. AC, PCC) for preventative and safety policies.

7.6.2 Major M&R Cost

The Major M&R costs are broken down into component costs used to develop the full policy cost. The unit costs also were developed from recent and relevant project bid tabs and engineering design estimates as noted below:

- MAA-CO-12-004 Taxiway Charlie Pavement Rehabilitation & Standards Compliance Project
- MAA-CO-10-008 Runway 15L-33R RSA Improvements at BWI Marshall Airport
- MAA-CO-14-001 Airfield Capacity Enhancement Project
- MAA-CO-13-004 Runway 15R-33L RSA Compliance
- MAA-CO-13-013 Taxiway P and Runway 15R Deicing Pad Pavement
- Runway 15L-33R RSA Compliance Project
- Airfield Standards and Pavement Rehabilitation
- Comprehensive Paving Projects - Various

Table 7-5 provides the Major M&R unit costs for BWI Marshall Airside. Just like the localized M&R cost development, the major M&R unit costs from the 2011 Airside Pavement Management Program Final Report (dated March 2012) and the 2011 CIP update have been compared to the present unit costs in Table 7-5. Generally, the price increases are due to the fluctuation within the economy and inflation.

Table 7-5 General Major M&R Unit Cost

Item	Unit	Unit Cost 2011	Unit Cost 2015 – Draft CIP	Unit Cost 2015 – Final CIP	Assumptions for Cost Estimate
AC Pavement Milling 2-in	SY	N/A	N/A	$5.50	2-in
AC Pavement Milling 3-in	SY	$5.25	$5.81	$8.25	3-in
AC Pavement Milling 4-in*	SY	N/A	N/A	$11.00	4-in
AC Pavement Milling 5-in*	SY	N/A	N/A	$13.75	5-in
AC Pavement Milling 6-in*	SY	N/A	N/A	$16.50	6-in
AC Pavement Removal	SY	$31.50	$30.00	$30.00	Up to 30 in.
PCC Pavement Removal	SY	$41.00	$50.00	$50.00	Up to 30 in.
Bituminous Concrete Surface Course	TON	$150.00	$135.00	$135.00	PG 76-22
Portland Cement Concrete Pavement	SY	$150.00	$150.00	$150.00	17 in. depth
Bituminous Tack Coat	GAL	$2.50	$4.82	$4.82	0.1 gallon per SY
Crushed Aggregate Base Course 6-in	SY	$70.00	$72.30	$72.30	6-in
Crushed Aggregate Base Course 12-in	SY	N/A	N/A	$108.45	12-in
Grooving	SY	$2.50	$3.00	$3.00	Pavement
Sealcoat / Surface Treatment	SY	$1.50	$3.00	$3.00	Crack Seal
Waterborne Pavement Marking (2011)	SF	$2.50	N/A	N/A	4% of total project area for an effective unit cost of $0.1/SF
Thermoplastic Permanent Pavement Markings (2015)	SF	N/A	$20.00	$20.00	4% of total project area for an effective unit cost of $0.8/SF

Source: MAA Bid Tabs and Historical APMS Reports.

*The draft CIP unit cost for milling considered 2-in, 3-in and variable depth bid prices when selecting the value for the unit price. The final CIP utilizes specific unit prices for specific depths of milling.

The Major M&R unit costs were aggregated to develop major work activity costs. The costs were further refined to include contingency and additional scope items.

The contingency types and associated cost percentages used for this project were developed by reviewing and assessing recent and historical costs within similar types of projects and are provided below. These contingencies were applied in general accordance with the current MAA Design Standard.

- Security (15%)
- Mobilization (8%)
- Temporary Construction Items (5%)
- Miscellaneous Construction Allowance (10%)
- Design Contingency (25%)
- Construction QC Plan (3%)
- Estimated Design Fee (12%)
- Estimated CMI Fee (10%)

To account for other scope items that may be present so that project cost estimates can be used for Capital Programming, a line item for 'Additional Scope Items' was also included in each project cost estimate. To develop this line item bid tabs of recent projects were reviewed. Generally, projects were noted to be either basic paving projects or to include either basic lighting work or extensive work including lighting and grading. We found that the projects varied extensively with an additional 8% to 35% of additional base project costs noted. Based on this review, and the uncertainty of scope at the network level estimating stage, a value of 35% for Additional Scope Items was added to the estimate. The percentage for Additional Scope Items was applied to the total pavement only unit cost. The 2015 "2015 Unit Cost – Final CIP" column in Table 7-6 provides the total unit cost per SF with additional scope and contingencies. The 2015 Unit Cost column includes contingencies and additional scope items.

As before, the major M&R unit costs from the 2011 Airside Pavement Management Program have been compared to the present unit costs in Table 7-6. Generally, the price increases are due to the fluctuation within the economy and inflation.

Table 7-6 Major M&R Work Activities and Unit Costs by Work Type

Major Work Type Name	2011 Unit Cost	2015 Unit Cost – Draft CIP	2015 Unit Cost – Final CIP	Work Unit	Assumptions
2-in Mill and Overlay	N/A	N/A	$12.31	SF	Functional Overlay
3-in Mill and Overlay	$9.06	$11.11	$15.70	SF	Functional Overlay
4-in Mill and Overlay*	N/A	N/A	$19.10	SF	Functional Overlay
5-in Mill and Overlay*	N/A	N/A	$22.49	SF	Structural Overlay
6-in Mill and Overlay*	$16.24	$18.00	$25.89	SF	Structural Overlay
2-in Mill and 3-in Overlay*	N/A	N/A	$14.84	SF	Structural Overlay
3-in Mill and 4-in Overlay*	N/A	N/A	$18.24	SF	Structural Overlay
4-in Mill and 5-in Overlay*	N/A	N/A	$21.63	SF	Structural Overlay
4-in Mill and 6-in Overlay*	N/A	N/A	$24.17	SF	Structural Overlay
5-in Mill and 6-in Overlay*	N/A	N/A	$25.03	SF	Structural Overlay
Complete AC Recon (Apron)	$89.64	$95.92	$90.57	SF	12 in AC / 15 in AGBS
Complete AC Recon (Taxiway)	$79.70	$83.96	$90.63	SF	15 in AC / 10 in AGBS
Complete AC Recon (Runway)	N/A	N/A	$95.70	SF	17 in AC / 10 in AGBS
Complete PCC Recon (Apron & Taxiway)	$85.85	$95.82	$90.41	SF	16 in PCC / 4 in AC / 4 in AGBS
Concrete Pavement Restoration – 10%	$17.69***	$15.21***	$3.78**	SF	10% Slab Replacement
Concrete Pavement Restoration – 15%	N/A	N/A	$5.67**	SF	15% Slab Replacement
Concrete Pavement Restoration – 20%	N/A	N/A	$7.56**	SF	20% Slab Replacement

Source: AECOM Analysis

*The draft CIP unit cost for milling considered 2-in, 3-in and variable depth bid prices when selecting the value for the unit price. The final CIP utilizes specific unit prices for specific depths of milling.

Dollar ($) per square foot of total pavement area, not dollar ($) per square foot of repair area. * Dollar ($) per square foot of repair area.

Note that the major work activity unit costs in Table 7-5 (columns 3 & 4) are pavement material unit costs only and do not include contingency costs or other scope items such as grading, drainage, lighting and electrical components that frequently occur in paving projects. The 2015 Unit Cost w/All column provides contingencies and additional scope items.

Table 7-7 provides an example of the approach to build the unit costs.

Table 7-7 Unit Cost Buildup

Item	Amount / Unit
Unit Cost (UC) – Base Material Cost	**$1.00**
+ Additional Scope (35% of UC)	$0.35
+ Mobilization / Demobilization (8% of UC)	$0.08
+ Temp Construction (5% of UC)	$0.05
+ Security (15% of UC)	$0.15
= Base Unit Cost (BUC)	**$1.63**
+ Design Contingency-DC (25% of BUC)	$0.408
+ Construction Quality Control Plan-CQC (3% of BUC+DC)	$0.061
+ Miscellaneous Construction Allowance-AWO (10% of BUC+DC+CQC)	$0.210
+ Design Fee-DF (12%) and CMI Fee (10%) – (22% of BUC+DC+CQC+AWO)	$0.508
= Total Effective Multiplier	**2.816**

Before developing projects, different budget scenarios were developed in MicroPAVER as described in Section 7.7. These scenarios are based on the concept that each pavement section will be repaired at a unit cost specific to its condition rating. This allows for rapid evaluation of different scenarios at a high budget level. Table 7-8 provides the cost by condition used in developing the budget scenarios. These costs reflect an 'all-in' cost including the unit costs shown in Tables 7-4 through 7-6, as well as contingency costs and additional scope items.

Table 7-8 Cost by PCI for Budget Scenarios

Cost by PCI Range (per SF)	PCI Range										
	0	10	20	30	40	50	60	70	80	90	100
BWI Air Flexible Major	$89.94	$89.94	$89.94	$89.94	$44.97	$32.39	$19.80	$12.22	$11.11	$0.00	$0.00
BWI Air Rigid Major	$95.82	$95.82	$95.82	$95.82	$47.91	$23.95	$11.41	$7.61	$0.00	$0.00	$0.00
BWI Air Flexible Preventative	$0.43	$0.38	$0.33	$0.27	$0.23	$0.18	$0.13	$0.08	$0.03	$0.02	$0.01
BWI Air Rigid Preventative	$15.21	$7.61	$3.80	$1.90	$0.95	$0.48	$0.24	$0.12	$0.06	$0.03	$0.00
BWI Air Flexible Stop Gap	$0.26	$0.14	$0.07	$0.04	$0.02	$0.01	$0.01	$0.01	$0.01	$0.01	$0.00
BWI Air Rigid Stop Gap	$1.79	$1.10	$0.68	$0.43	$0.26	$0.17	$0.11	$0.06	$0.04	$0.02	$0.00

Note: Gray shaded areas represent costs not applied within the Budget Scenarios

Source: AECOM Unit Cost Analysis

The following are examples of how these costs are applied:

- A flexible pavement section has a PCI of 30. There is sufficient funding to do work on this section so Major work is done at the rate of $89.94/SF.
- For the same flexible pavement section (PCI=30), there is no budget remaining to do the work. Stop-Gap work is done at the rate of $0.04/SF.

Since the critical PCI for the pavement at BWI Marshall is variable for different pavement uses, the localized cost by condition ranges developed for the PMP cover the entire PCI scale (0-100) thus allowing MAA to adjust the critical PCI values without the need to adjust the tables developed above. Furthermore, the cost by condition tables allow for the development of more extensive "what-if' M&R scenarios such as the use of localized preventative for any PCI value.

Table 7-9 shows the costs required for localized M&R for 2016. The total is approximately $7.7 million and includes both preventive and stop gap maintenance. The maintenance plan includes sections that are currently in the 10-Year CIP. The localized M&R requirement details for each airside section are included in Appendix E. By providing M&R requirements for all sections, the MAA can determine maintenance needs dependent on the final approved and funded CIP.

The high cost for localized M&R requirements is mainly due to PCC slab replacements, PCC joint seal requirements, and AC Deep Patches. The repair cost for these three repair types total $6.1 million or almost 80% of the localized M&R requirement at BWI Marshall. It is therefore recommended the MAA consider a comprehensive PCC slab replacement, joint seal repair, and patching program.

Table 7-9 1-Year Maintenance Plan Cost

Repair Type	Cost Estimate
Crack Sealing - AC	$ 840,262
Crack Sealing - PCC	$ 23,817
Joint Seal (Localized)	$ 2,564,028
Patching - AC Deep	$ 1,166,071
Patching - AC Shallow	$ 537,994
Patching - PCC Full Depth	$ 172,651
Patching - PCC Partial Depth	$ 42,461
Slab Replacement - PCC	$ 2,331,315
Grand Total	**$ 7,678,602**

7.7 M&R Budget Scenarios

As already discussed, MicroPAVER was customized with condition performance, priorities, policies and costs for BWI Marshall. Budget (or what-if) scenarios were developed. While there are a variety of budget scenarios which can be developed for any given pavement network, engineering judgment and experience at similar airports were used to develop a starting point for the 10-Year CIP. Variables affecting the CIP development process include, but are not limited to:

- Yearly budget amount: Do you have a constraint?
- Minimum PCI acceptable: Do you want to keep the PCI above a certain condition limit?

- Type of maintenance plans included: Do you intend to do preventative maintenance?
- Cost data: What are the unit costs in your area?
- Forecasting period: What is your planning timeframe?

The following M&R budget scenarios were used for BWI Marshall Airside to help establish the 10-Year CIP:

1. Backlog Elimination: This scenario eliminates the Major M&R (e.g. CIP) requirement in ten years. It presents the optimal M&R scenario for current pavement conditions at BWI Marshall.

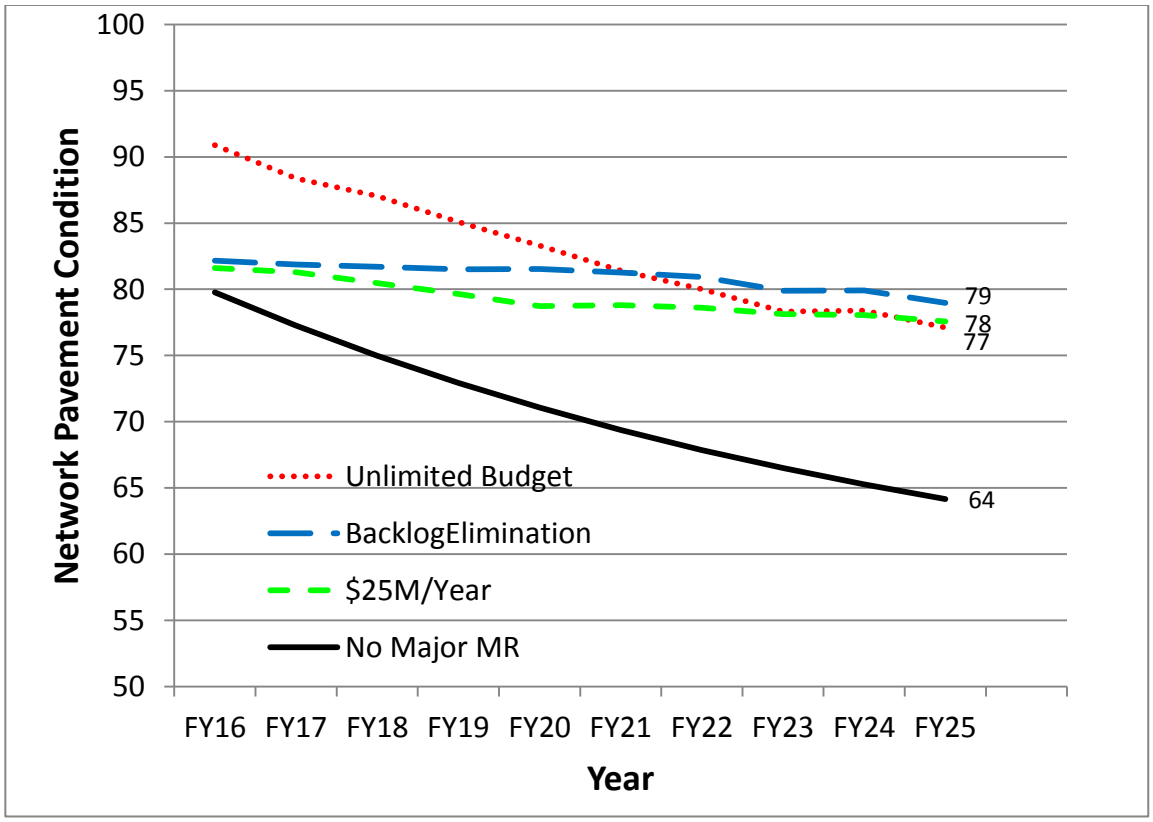
2. Constrained Budget: This scenario uses the "Critical PCI Method" to optimize M&R activity using a specified budget of $25 million per year for all CIP and maintenance work at BWI Marshall.

3. Unlimited Funding: This scenario explores the "do everything," first scenario. The pavement is then allowed to deteriorate until reaching the critical PCI. As such, the network PCI is allowed to continue to fall to levels below the current network PCI.

4. Do Nothing: What would the network condition of the airport be with no work completed? An unrealistic scenario, but nonetheless offers a comparison baseline.

Figure 7-3 shows the change in area weighted PCI over time for the four scenarios listed above for the 10 years covered by each M&R budget scenario. Notice that the area weighted PCI for the backlog elimination scenario at year 2025 is comparable to the PCI that will be achieved at the end of the both the $25M per year scenario and unlimited budget.

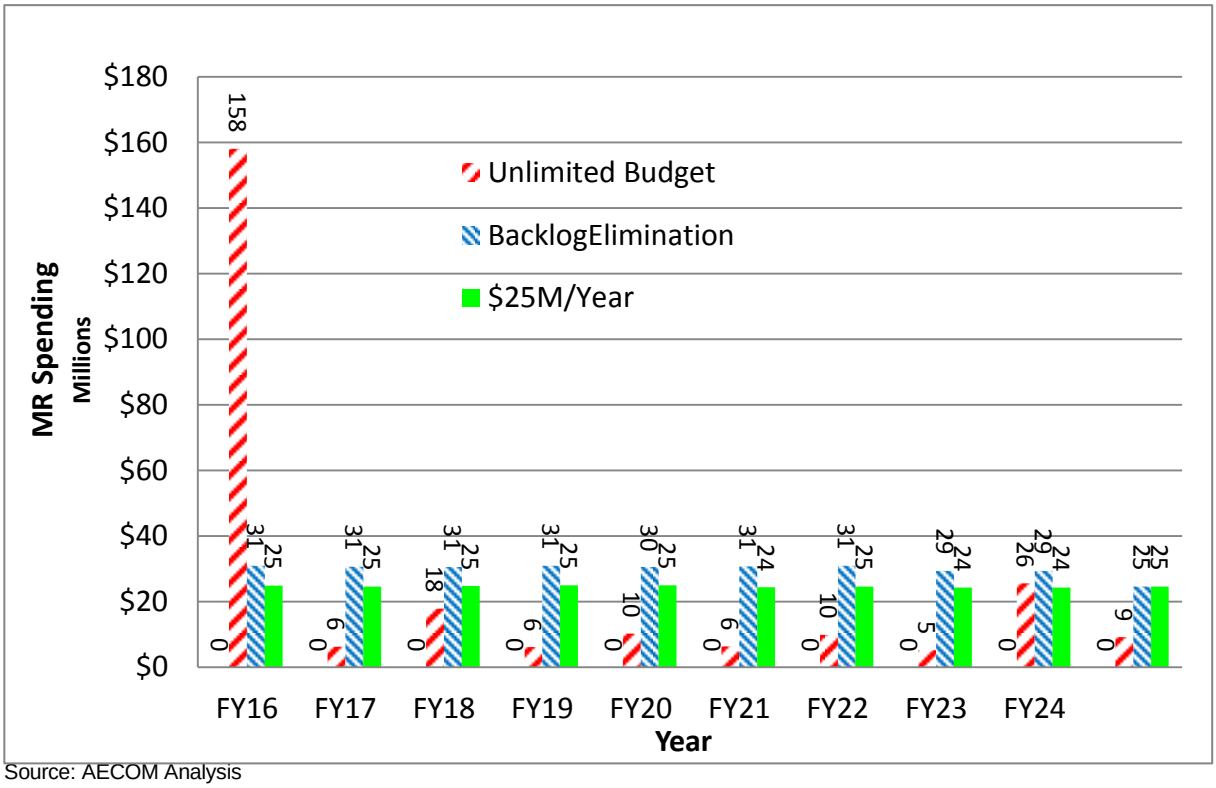
Figure 7-3 M&R Scenarios



Source: AECOM Analysis

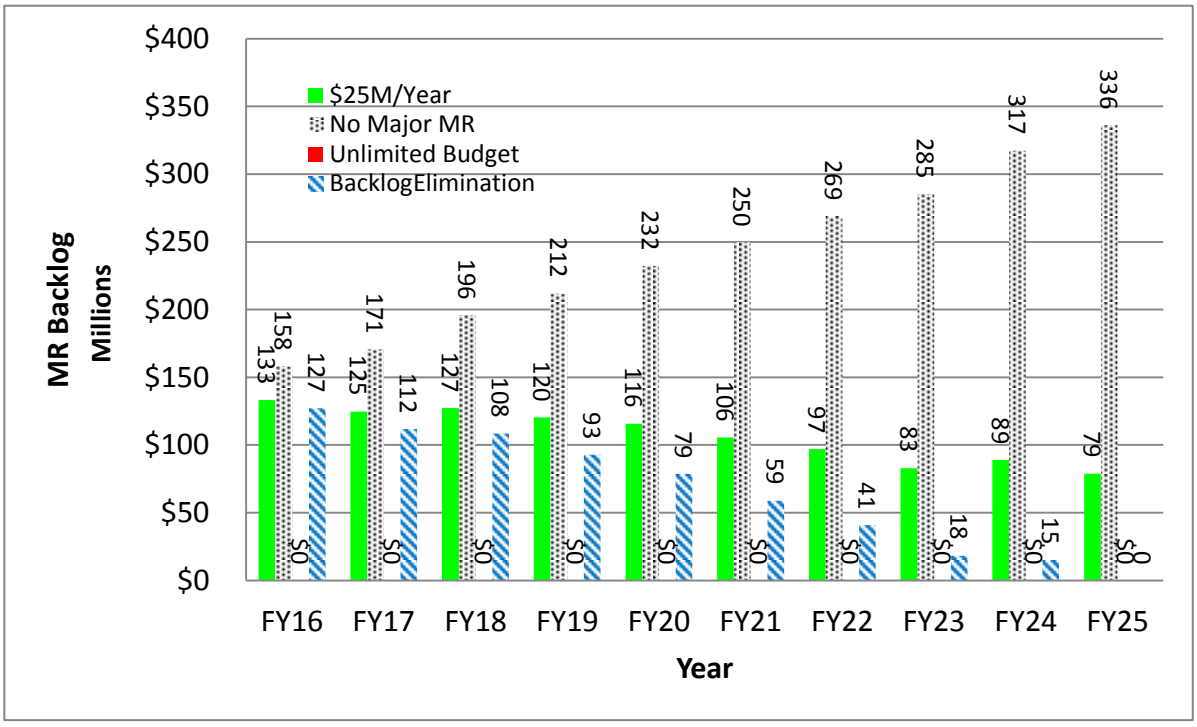
Figure 7-4 shows the annual budget requirements for each scenario and Figure 7-5 shows the budget shortfalls or annual backlog. They indicate that we can achieve similar 10-year outcomes with very different spending strategies. The results of these scenarios were used as a starting point in developing the final CIP for BWI Marshall Airside pavements. The final CIP is described in detail in the next chapter.

Figure 7-4 M&R Funding for Each Budget Scenario



Source: AECOM Analysis

Figure 7-5 Annual Unfunded M&R by Budget Scenario



7.8 Summary

Maintenance and rehabilitation (M&R) work planning is based on the assumption that similar pavements will age in a similar manner. Family curves, or prediction models, are developed to predict the rate of pavement condition deterioration, and used to predict future condition based on current PCI and age. Similarly, M&R families have been developed that grouped pavements based on similar M&R work. Pavements within a network are prioritized based on rank and use, and once a priority is established and unit costs are set, M&R scenarios can be developed and compared. These M&R scenarios have been used in the development of a 10-Year CIP that is described in detail in Chapter 8.

8.0 Capital Improvement Recommendations

8.1 Introduction

A Capital Improvement Plan (CIP) is used to plan and program for the construction of projects that will develop and preserve the Airside pavements at BWI Airport, as its development is one of the fundamental building blocks in planning an effective budget and determining future impacts to the pavement network. The CIP can serve as an important forecasting tool for executive management to anticipate and plan for future growth and expenditures. Capital investments are made in a logical, deliberate and accountable fashion to ensure that major repair or replacement, acquisition and construction costs are not last-minute decisions that require long-term operating obligations.

This CIP analysis aims at identifying capital improvement items for the construction years 2017 to 2026 (10 years), with a more detailed focus on the first four years. In practicality, the recommended CIP represents a series of choices and alternatives for the airport. Upon review of the recommendations made in this report, MAA will be able to program facility improvements to meet demands, while also responding to financial realities and select development items that are consistent with current development needs.

AECOM met with representatives from the MAA Office of Engineering and Construction and Office of Planning and Environmental Services in developing the CIP budget and meeting current pavement upgrades. Through these discussions, it became evident that selectively implementing the identified CIP items would be considered; however, it would not necessarily correspond to the timeframe listed in this study. The implications of CIP changes within a different timeframe were assessed through either project or network level studies using the MicroPAVER software and on-site pavement engineering support staff. The CIP has also been updated from the 2011 report to reflect recent rehabilitation/reconstruction projects, shifting priorities and changing pavement conditions over the past several years.

8.2 Development of Capital Improvement Alternatives

The network level CIP project recommendations, used in budget estimates, were developed based upon the following variables:

a. MAA provided a list of anticipated projects thru 2018 based upon the previous 2011 CIP.

b. Determine the Pavement Condition Index (PCI) and the Structural Condition Index (SCI) for each pavement section.

c. Develop an objective decision matrix based upon PCI, SCI and Pavement Rank (Primary, Secondary, Tertiary) for each section. SCI values are included with the CIP description in for each project in the following section.

d. Considering items (a) to (c) above, apply the following M&R strategies for each section within a project:

    i. AC Mill and Overlay with variable thicknesses

    ii. AC Reconstruction

    iii. PCC Restoration with variable repair percentages

    iv. PCC Reconstruction

    v. Maintain - Perform annual maintenance in accordance with policies described in Section 7.5.

The decision matrices for each pavement type and function are shown in Tables 8-1(a) through 8-1(d).

Table 8-1 Decision Matrices

(a) Decision Matrix for Asphalt Runways							
Rank	PCI = 0-30	PCI = 31-40	PCI = 41-50	PCI = 51-60	PCI = 61-70	PCI = 71-80	PCI = 81-100
Primary	Recon AC	Recon AC	Recon AC	SCI>= 75 5"MOL SCI<75 5"M & 6"OL	SCI>= 75 3"MOL SCI<75 3"M & 4"OL	SCI>=75 Maintain SCI<75 3"MOL	Maintain
Secondary	N / A	N / A	N / A	N / A	N / A	N / A	N / A
Tertiary	N / A	N / A	N / A	N / A	N / A	N / A	N / A

(b): Decision Matrix for Asphalt Taxiways and Aprons							
Rank	PCI = 0-30	PCI = 31-40	PCI = 41-50	PCI = 51-60	PCI = 61-70	PCI = 71-80	PCI = 81-100
Primary	Recon AC	Recon AC	Recon AC	SCI>= 70 3"MOL SCI<70 3"M & 4"OL	SCI>= 70 2"MOL SCI<70 2"M & 3"OL	SCI>=70 Maintain SCI<70 3"MOL	Maintain
Secondary	Recon AC	Recon AC	SCI>= 70 3"MOL SCI< 70 3"M & 4"OL	SCI>= 70 2"MOL SCI<70 2"M & 3"OL	SCI>= 65 2"MOL SCI<65 2"M & 3"OL	SCI>=65 Maintain SCI<65 2"MOL	Maintain
Tertiary	Recon AC	Recon AC	SCI>= 60 2"MOL SCI<60 2"M & 3"OL	SCI>= 60 2"MOL SCI<60 2"M & 3"OL	SCI>= 60 2"MOL SCI<60 2"M & 3"OL	Maintain	Maintain

(c): Decision Matrix for PCC Runways							
Rank	PCI = 0-30	PCI = 31-40	PCI = 41-50	PCI = 51-60	PCI = 61-70	PCI = 71-80	PCI = 81-100
Primary	Recon PCC	Recon PCC	Recon PCC	SCI>=80 Restore 15% SCI<80 Restore 20%	SCI>=80 Restore 10% SCI<80 Restore 15%	SCI>=80 Maintain SCI<80 Restore 10%	Maintain
Secondary	N / A	N / A	N / A	N / A	N / A	N / A	N / A
Tertiary	N / A	N / A	N / A	N / A	N / A	N / A	N / A

(d): Decision Matrix for PCC Taxiways and Aprons							
Rank	PCI = 0-30	PCI = 31-40	PCI = 41-50	PCI = 51-60	PCI = 61-70	PCI = 71-80	PCI = 81-100
Primary	Recon PCC	Recon PCC	SCI >= 75 Restore 20% SCI < 75 Recon PCC	SCI>=75 Restore 15% SCI<75 Restore 20%	SCI>=75 Restore 10% SCI<75 Restore 15%	SCI>=75 Maintain SCI<75 Restore 10%	Maintain
Secondary	Recon PCC	Recon PCC	SCI >= 70 Restore 15% SCI < 70 Restore 20%	SCI>=70 Restore 10% SCI<70 Restore 15%	SCI>=70 Maintain SCI<70 Restore 10%	Maintain	Maintain
Tertiary	Recon PCC	Recon PCC	SCI >= 65 Restore 15% SCI < 65 Restore 20%	SCI>=65 Restore 10% SCI<65 Restore 15%	SCI>=65 Maintain SCI<65 Restore 10%	Maintain	Maintain

Subsequent to the initial screening through the applicable decision matrices, engineering judgment was used to group the sections into appropriate projects, adding sections based upon borderline PCI's and SCI's and/or include adjacent sections, and to develop a corresponding CIP timeline based upon a reasonable distribution of funds spread over the 10-year analysis period. Note that the recommendations presented in this chapter are based on conditions at the time of inspection and that final project development and assessment should be conducted once a project is approved. Based on the project development process that was described, CIP recommendations were selected and are presented in the following section.

8.3 Recommended Capital Improvement Projects

Based on the pavement assessment, budget scenarios, and engineering judgment, a schedule of recommended projects was developed for the PMP. It is critical to realize that the proposed projects are generally based on network-level inspections, and that a project-level analysis should be performed prior to any project design or implementation.

Table 8-2 presents the 10-Year CIP recommendations summarized by year which total $229 million inclusive of escalation if MAA's capital and real estate inflation factors are applied annually. Table 8-3 provides the 10-Year Recommended CIP project listing and Figure B-6 in Appendix B depicts the project recommendations as a map based on in Table 8-2.

Table 8-2 Recommended 10-Year (2017 to 2026) CIP

Year	Total Project Cost (Millions)	Escalation Factor by Year	Cost With Escalation (Millions)
2017	$30.75	1.0400	$31.98
2018	$36.07	1.0764	$38.83
2019	$18.76	1.1114	$20.85
2020	$8.38	1.1447	$9.59
2021	$14.76	1.1791	$17.41
2022	$17.41	1.2145	$21.14
2023	$13.93	1.2145	$16.92
2024	$24.26	1.2145	$29.47
2025	$7.97	1.2145	$9.68
2026	$27.36	1.2145	$33.23
10-Year total	**$199.6**		**$229.1**
Total Area (SF)		9,601,243	
Avg Cost / SF	**$19.34**		$22.32

Note that as mentioned in Section 7.6.2 and Tables 7-5 and 7-6, the draft CIP considered unit prices for 2-in, 3-in and variable depth milling when selecting the unit price value. The Final CIP utilizes specific unit prices for each depth of milling. As a result, there are reductions in the costs for milling and overlaying as compared to the draft report. Figure B-7 in Appendix B provides a map of the project-by-project CIP recommendations.

Table 8-3 Recommended 10-Year Airside CIP Projects at BWI Marshall Airport

Construction Year	Project Code	Project Name	Work	Pavement Sections in Project	Cost (Millions)	Cost with Escalation (Millions)
2017	17-01	Taxiways F, G and R Mill and Overlay	4-in Mill and Overlay	3	$8.3	$8.7
	17-02	Ramp DE & Taxilane N1 Mill and Overlay	AC Reconstruction & 4-in Mill Overlay	5	$20.9	$21.7
	17-03	Ramp BC Mill and Overlay	3-in Mill and Overlay	1	$1.3	$1.4
2018	18-01	Taxiway T Reconstruction	PCC Reconstruct	7	$34.4	$37.0
	18-02	Ramp AB Mill and Overlay	4-in Mill and Overlay	2	$1.4	$1.5
	18-03	Taxiway H Mill and Overlay	3-in Mill and Overlay	1	$0.3	$0.33
2019	19-01	RW 15L & Associated Taxiways Mill and Overlay	2-in to 5-in Mill and Overlay	14	$12.1	$13.5
	19-02	Ramp E and Taxilane AA Mill and Overlay	3-in to 4-in Mill and Overlay	4	$6.7	$7.4
2020	20-01	Gate B PCC Restoration	PCC Restoration	3	$1.5	$1.7
	20-02	Gate C PCC Restoration & Reconstruction	PCC Restoration / Reconstruction	7	$4.4	$5.0
	20-03	Gate E PCC Restoration	PCC Restoration	2	$0.4	$0.5
	20-04	Taxiway S and J Overlay	2-in AC Overlay	8	$2.1	$2.5
2021	21-01	Taxiway B Mill and Overlay	3-in Mill and Overlay	2	$3.9	$4.6
	21-02	Ramp DY Mill and Overlay	3-in to 6-in Mill and Overlay	8	$6.7	$7.9
	21-03	Taxiway P Mill and Overlay	3-in to 6-in Mill and Overlay	4	$4.2	$4.9
2022	22-01	Cargo Ramp AC Sections Mill and Overlay	3-in to 5-in Mill and Overlay	5	$9.2	$11.1
	22-02	Taxilane J Mill and Overlay	3-in Mill and Overlay	3	$1.1	$1.3
	22-03	Ramps C and D Mill and Overlay	3-in to 5-in Mill and Overlay	3	$7.2	$8.7

Construction Year	Project Code	Project Name	Work	Pavement Sections in Project	Cost (Millions)	Cost with Escalation (Millions)
2023	23-01	Ramp A Mill and Overlay	3-in Mill and Overlay	2	$5.9	$7.2
	23-02	Ramp BC Mill and Overlay	3-in Mill and Overlay	1	$3.7	$4.5
	23-03	Cargo Ramp PCC Restoration	PCC Restoration	2	$2.1	$2.6
	23-04	RON AC Mill and Overlay	3-in Mill and Overlay	1	$2.2	$2.7
2024	24-01	Taxiway Q Mill and Overlay	3-in Mill and Overlay	4	$2.6	$3.1
	24-02	Taxiway S Mill and Overlay	3-in Mill and Overlay	3	$2.9	$3.6
	24-03	General Aviation Ramp Mill and Overlay	3-in Mill and Overlay	6	$18.7	$22.7
2025	25-01	Midfield Cargo and Taxiways G, R & F Mill and Overlay	2-in Mill and Overlay	4	$5.0	$6.1
	25-02	Taxiway W Mill and Overlay	5-in Mill and Overlay	1	$2.9	$3.6
2026	26-01	Runway 10 Mill and Overlay	3-in Mill and Overlay	4	$11.5	$13.9
	26-02	Runway Intersection Mill and Overlay	3-in Mill and Overlay	12	$4.6	$5.6
	26-03	Runway 28 Mill and Overlay	3-in Mill and Overlay	9	$11.2	$13.6
			Totals	**133**	**$199.5**	**$228.9**

The CIP projects recommended within the first four years of the CIP are detailed below.

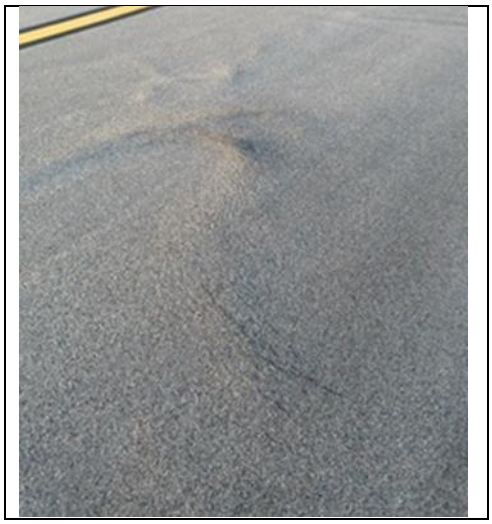
8.3.1 17-01 Taxiways F, G and R Mill and Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
TWTF7*	2014	AAC	100	100	Maintain	4-in Mill & Overlay	$4.08	$4.25
TWR2*	2014	AC	100	100	Maintain	4-in Mill & Overlay	$2.01	$2.09
TWG4	2014	AC	100	100	Maintain	4-in Mill & Overlay	$2.24	$2.33

*Sections F7 and R2 are scheduled for demolition by 2020, per the most recent 2015 Master Plan.

These sections were recently paved due to failures exhibited during the 2014 Runway 15R/33L rehabilitation. The resurfacing was completed under the Comp Paving contract (MAA-CO-13-016 task 28A) and intended as a short term repair. Some of the areas are starting to show failures again as shown in the following photograph and therefore a permanent solution is warranted. A cost estimate for a 4-inch mill and overlay is used in the CIP estimate. However, localized deep milling and overlying can probably be utilized until TWF7 and TWR2 are demolished and reconstructed on a new alignment, at which time a comprehensive long-term solution can be applied to TWG4, based upon a project level review and design that should be completed to ensure that the rehabilitation will address observed structural failures.



8.3.2 17-02 Ramp DE and Taxilane N1 Mill Reconstruction

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
MRDE1	1987	AC	22	39	Recon AC Apron	Recon AC Apron	$11.9	$12.4
MRDE2	1987	AAC	25	37	Recon AC Apron	Recon AC Apron	$6.6	$6.9
MRDE9	1997	AC	53	80	4-in Mill & Overlay	4-in Mill & Overlay	$0.51	$0.53
TLNN1	2000	AC	12	20	Recon AC TW	4-in Mill & Overlay	$0.76	$0.79
TLNN2	1987	AC	25	41	Recon AC TW	Recon AC TWW	$1.3	$1.4

Predominant distresses are alligator cracking, rutting, weathering, patching and longitudinal and transverse cracking. This pavement is very old and in poor condition. Currently a 6 inch mill and overlay is recommended, despite the pavement being in a near failed condition. Deferring the rehabilitation may result in more costly reconstruction. While a cost estimate for a 6 inch mill and overlay was used in the CIP estimate, a project level review and design should be completed to ensure that the rehabilitation will address observed structural failures. Sections MRDE1, MRDE2 and TLNN2 have ACN/PCN ratios greater than 1 and estimated remaining life values of less than 2 years. Section TLNN1 has an ACN/PCN ratio less than 1 and an estimated remaining life greater than 20 years, indicating the thickness of the layers are sufficient for the estimated traffic.

8.3.3 17-03 Ramp BC Mill and Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
MRBC12	1994	AC	53	79	4-in Mill & Overlay	3-in Mill & Overlay	$1.34	$1.40

This section of the ramp area near the service road exhibits aged pavement with weathering, cracks and several patches in a deteriorated condition. This pavement is at a critical time in its life cycle where the deterioration rate is expected to increase. While a cost estimate for a 3 inch mill and overlay was used in the CIP estimate, a project level review and design should be completed to ensure the correct treatment, which may be less costly than what has been estimated.

8.3.4 18-01 Taxiway T PCC Reconstruction

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
TWT2	2004	AAC	79	98	Maintain	PCC Reconstruction	$11.17	$12.02
TWT3A	2004	AAC	65	83	3-in Mill & Overlay	PCC Reconstruction	$7.41	$7.97
TWT4	1984	AAC	52	86	4-in Mill & Overlay	PCC Reconstruction	$1.35	$1.45
TWT5	1987	AAC	43	68	Recon AC TW	PCC Reconstruction	$5.28	$5.68
TWT6	2009	AC	80	97	Maintain	PCC Reconstruction	$3.48	$3.74
TWT7	2014	AAC	86	100	Maintain	PCC Reconstruction	$4.03	$4.34
TWP1/3	2014	AAC	100	100	Maintain	PCC Reconstruction	$1.65	$1.78

Predominant distresses include alligator cracking, raveling, patching and longitudinal and transverse cracking. Extensive patches have been placed to help mitigate the deterioration of the pavement and keep it in a serviceable condition. The patches provide a temporary solution, however distresses continue to extend from recent patches suggesting a more permanent solution is warranted. While a cost estimate for PCC Reconstruction was used in the CIP estimate, a project level review and design should be completed to ensure that the rehabilitation will address observed structural failures. Sections TWT5 & TWT7 have ACN/PCN ratios greater than one (1.0) and estimated remaining life less than 5 years.

8.3.5 18-02 Ramp AB Mill and Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
APRTL/3	2004	AC	54	88	4-in Mill & Overlay	4-in Mill & Overlay	$0.33	$0.35
APRTL/4	2004	AC	58	79	4-in Mill & Overlay	4-in Mill & Overlay	$1.07	$1.16

Predominant distresses are weathering as well as longitudinal, transverse and block cracking in the AC section and spalling, linear cracking, shattered slabs and corner breaks in the PCC section. This pavement is at a critical time in its life cycle where the deterioration rate is expected to increase.

8.3.6 18-03 Taxiway H Mill and Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
TWH2	2004	AAC	62	100	3-in Mill & Overlay	3-in Mill & Overlay	$0.31	$0.33

Predominant distresses are longitudinal and transverse cracking and weathering. This pavement is at a critical time in its life cycle where the deterioration rate is expected to increase. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required.

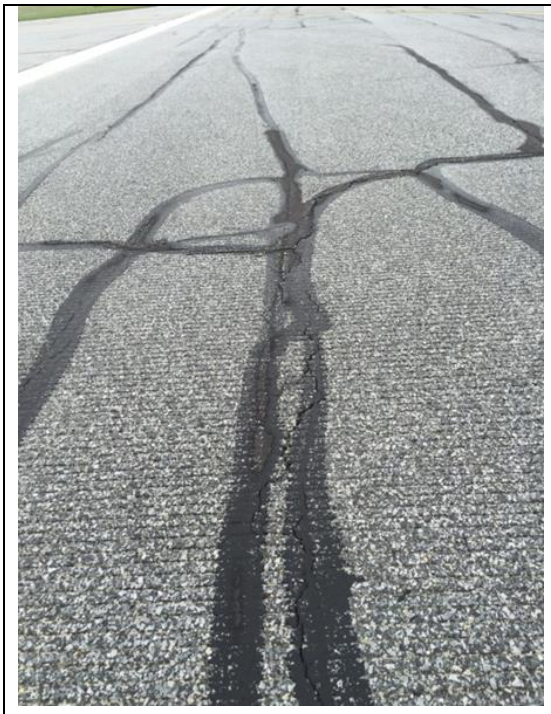
8.3.7 19-01 Runway 15L & Taxiways J, K, M & Q Mill and Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
RW15L/1	1989	AC	66	97	3-in Mill & Overlay	3-in Mill & Overlay	$2.20	$2.45
RW15L/2	1989	AAC	57	90	5-in Mill & Overlay	5-in Mill & Overlay	$1.53	$1.70
RW15L/3	1989	AC	44	76	Recon AC RW	5-in Mill & Overlay	$0.42	$0.47
RW15L/4	1989	AC	54	89	5-in Mill & Overlay	5-in Mill & Overlay	$0.41	$0.45
RW15L/5	1989	AAC	58	91	5-in Mill & Overlay	5-in Mill & Overlay	$2.23	$2.48
RW15L/6	1989	AC	59	88	5-in Mill & Overlay	5-in Mill & Overlay	$0.81	$0.90
RW15L/7	1989	AC	49	69	Recon AC RW	5-in Mill & Overlay	$2.69	$2.99
RW15L/8	2015	AAC	100	100	Maintain	2-in Mill & Overlay	$0.21	$0.23
TWJ1	1987	AC	67	93	3-in Mill & Overlay	3-in Mill & Overlay	$0.14	$0.15
TWQ1	1989	AAC	73	100	Maintain	3-in Mill & Overlay	$0.22	$0.25
TWM1	1989	AC	69	87	2-in Mill & Overlay	3-in Mill & Overlay	$0.53	$0.59
TWM2	1989	AC	65	89	2-in Mill & Overlay	3-in Mill & Overlay	$0.38	$0.42
TWM4	1982	AC	59	100	3-in Mill & Overlay	3-in Mill & Overlay	$0.10	$0.12
TWK3	1989	AC	74	95	Maintain	3-in Mill & Overlay	$0.22	$0.25

Predominant distresses on the runway include longitudinal and transverse cracking, block cracking and weathering. The pavement is old. Cracks that have been sealed previously are showing deterioration; either crack sealant no longer working, or additional cracking adjacent to original cracking. Figure 6-4 shows the typical condition of the pavement. This pavement is in need of resurfacing. Deferring

rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required. Pavements in similar conditions on taxiways within the runway complex are also included in this project.



8.3.8 19-02 Ramp E and Taxilane AA Mill and Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
TLAA1	2000	AC	60	86	4-in Mill & Overlay	3-in Mill & Overlay	$1.59	$1.77
TLAA2	1997	AC	72	97	Maintain	3-in Mill & 4-in Overlay	$1.81	$2.01
MREE1	1997	AC	49	74	5-in Mill & Overlay	4-in Mill & Overlay	$2.28	$2.53
MREE2	1997	AC	61	81	3-in Mill & Overlay	3-in Mill & Overlay	$0.98	$1.09

Predominant distresses are weathering and longitudinal / transverse cracks typical of aging pavements. TLAA1 has a lower PCI due to a significant area of medium severity alligator cracking. These pavements allow traffic flow in / out of the Cargo area and are at a critical time in its life cycle where the deterioration rate is expected to increase soon. Deferring rehabilitation may allow it to deteriorate quickly to the point where more costly reconstruction may be required. Section TLAA2 has an ACN/PCN ratio of 1.13 and an estimated remaining life of less than 2 years, which is inconsistent with the PCI results. It is believed that the traffic is overestimated for this section and that significant strengthening is not warranted.

8.3.9 20-01 Gate B PCC Restoration

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
B EXT 2	1998	PCC	41	61	Recon PCC Apron	Restore 20%	$0.68	$0.78
B EXT 3	1998	PCC	61	79	Restore 10%	Restore 10%	$0.30	$0.34
B EXT 4	1998	PCC	54	72	Restore 15%	Restore 15%	$0.48	$0.55

Predominant distresses are joint seal damage, low severity cracks and patches, with the exception of C9 and C14 that also exhibit shattered slabs and higher severity cracks. While reconstruction is recommended for the latter two gates, a project level review and design should be completed to ensure the correct treatment, which may be less costly than what has been estimated.

8.3.10 20-02 Gate C PCC Restoration and Reconstruction

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
C9	1994	PCC	31	46	Recon PCC Apron	Recon PCC Apron	$1.32	$1.51
C10	1994	PCC	53	76	Restore 15%	Restore 15%	$0.16	$0.18
C11	1994	PCC	68	89	Restore 10%	Restore 10%	$0.08	$0.09

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
C12	1994	PCC	55	74	Restore 15%	Restore 15%	$0.13	$0.15
C13	1994	PCC	43	68	Recon PCC Apron	Recon PCC Apron	$1.09	$1.25
C14	1994	PCC	36	46	Recon PCC Apron	Recon PCC Apron	$1.53	$1.75
C15	1994	PCC	68	83	Restore 10%	Restore 10%	$0.07	$0.08

Predominant distresses are joint seal damage, low severity cracks and patches, with the exception of C9 and C14 that also exhibit shattered slabs and higher severity cracks. While reconstruction is recommended for the latter two gates, a project level review and design should be completed to ensure the correct treatment, which may be less costly than what has been estimated.

8.3.11 20-03 Gate E PCC Restoration and Reconstruction

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
E3	1997	PCC	64	81	Restore 10%	Restore 10%	$0.21	$0.24
E6	1997	PCC	56	81	Restore 15%	Restore 15%	$0.20	$0.23

Predominant distresses are joint seal damage, low severity cracks and patches, with the exception of C9 and C14 that also exhibit shattered slabs and higher severity cracks. While reconstruction is recommended for the latter two gates, a project level review and design should be completed to ensure the correct treatment, which may be less costly than what has been estimated.

8.3.12 20-04 Taxiway S and J Overlay

The details of the PMP sections included with this project are included in the following Table.

Section	Last Construction Date	Pavement Surface	Current PCI	Current SCI	Decision Matrix M&R Criteria	Recommended M&R	2016 Cost (Million)	Cost with Escalation (Million)
S4	2011	AAC	94	100	Maintain	2-in Overlay	$0.07	$0.08
S5	2011	AAC	93	100	Maintain	2-in Overlay	$0.42	$0.48
S6	2011	AAC	91	100	Maintain	2-in Overlay	$0.70	$0.80
S7	2011	AAC	91	100	Maintain	2-in Overlay	$0.29	$0.33
S8	2011	AAC	89	92	Maintain	2-in Overlay	$0.14	$0.16
S9	2011	AAC	92	100	Maintain	2-in Overlay	$0.15	$0.17
S10	2011	AAC	97	100	Maintain	2-in Overlay	$0.10	$0.12
J2	2011	AAC	92	100	Maintain	2-in Overlay	$0.27	$0.31

These sections have limited quantities of distress, but S8 and J2 have ACN/PCN ratios greater than 1 and all sections have estimated remaining life values ranging between 3 years and 15 years, which is inconsistent with the PCI results. An updated fleet mix and departure level study should be performed to determine the necessity of an overlay.

8.4 Projects Deleted From Draft CIP

The following PMP sections were included in the draft report submitted in January 2016, but do not meet the currently established criteria for inclusion in the Final CIP.

Draft CIP Project Code & Description	Section	Pavement Surface	Rank	Current PCI	Current SCI	Comment
Taxiway F&R Realignment	(2020)	AC	P	81-94	94-100	Airfield Capital Improvement
Taxiway T Mill and Overlay	T2 (2022)	AC	P	79	98	Included in 2018 PCC Reconstruction
Taxiway T Mill and Overlay	T3A, T4, T5 (2016)	AC	P	43-65	68-86	Included in 2018 PCC Reconstruction
Taxiway T Mill and Overlay	T6-T11 (2021)	AC	P	73-87	97-100	T6 & T7: Included in 2018 PCC Reconstruction T8-T11 PCI > 70 Maintain
Taxiway A Mill and Overlay	T11-T13 (2021)	AC	P	79-84	100	PCI > 70 Maintain
Taxiway N Mill and Overlay	TWN1, TWN2 & TWB4	AC	P	90-100	100	PCI > 70 Maintain

8.5 Summary

A 10-Year CIP for BWI Marshall Airside pavements has been developed that includes thirty (30) projects for an estimated total cost of about $199 million in 2015 dollars. Considering an escalation factor of provided by MAA, the total cost is about $229 million.

Projects within the first four years have been described in detail within this section. Projects for the latter six years should be re-evaluated within the next three years for updated CIP recommendations. The recommendations for proposed projects are based on network level pavement evaluation and analysis. A project level analysis should be performed prior to any project design or implementation.

9.0 Summary

9.1 BWI Marshall Airside PMP

AECOM was tasked with the development of an update to the 2011 PMP that reflects rehabilitation, construction and additional distresses that may have developed since the previous condition survey.

The main objective of the 2015/16 program was to identify pavement deficiencies and feasible rehabilitation projects by completing a systems inventory, conducting accurate Pavement Condition Index (PCI) surveys, performing Non-Destructive Testing and destructive testing of selected pavements and preparing 10-year M&R programs.

This 2015/16 update reflects construction work that has been completed since the submission of the 2011 report. The pavement management process and the structural and functional analyses were used to produce a revised 10-Year Capital Improvement Plan (CIP) and an updated PMP report.

The deliverable products for this task order include a MicroPAVER 7.0.5 database; updated Network Definition Map; a 10-Year CIP; and an updated study report. The 10-Year CIP cost and financial implications were considered in relation to the engineering and construction costs of pavement improvements with allowance for additional scope items. For each project identified, cost estimates were established in accordance with the MAA design standards to a level that allows future detailed design work to be completed for each project. The study also adhered to current CAD and GIS standards established by MAA for engineering drawings, maps, and diagrams.

9.2 Objectives

The primary objective of updating the 2011 PMP report was an evaluation of the airside pavement conditions at BWI Marshall Airport and to ensure compliance with FAA's Advisory Circular 150/5380-7B. The PMP update is a mandatory requirement of the FAA for airport projects funded with federal grant monies through the Airport Improvement Program (AIP) and/or with revenue from the Passenger Facility Charges (PFC) Program. This PMP update represents compliance with the FAA's mandatory requirements.

9.3 Data Collection

Data collection for this update included a review of construction history updates, revisions to the MicroPAVER database, distress data collection surveys, Non-Destructive Testing and destructive testing of selected pavements. Distress surveys were conducted using both manual and high speed video methods and included the majority of airside pavements with the exception of the ASAP project area. Additionally, a total of 34 pavement cores/borings were performed for structural analysis of the pavement layers.

9.4 Data Analysis

Pavement condition analysis shows that the network area-weighted PCI value has increased from 72 in 2011 to 81 at present. This overall increase in PCI is due to extensive major rehabilitation projects that have occurred since 2011 such as the ASAP project (ongoing), Taxiway D reconstruction, Taxiway P reconstruction and extensive resurfacing of asphalt taxiways and runways between 2011 and 2014. The computed area-weighted 2015/16 PCI values for the runways and taxiways are 92 and 84, respectively. The area-weighted 2015/16 PCI value for the aprons is 68 and is at a critical point with regard to the implementation of an aggressive maintenance and construction program that will protect pavement assets before further deterioration and more expensive repairs.

9.5 Structural Analysis

Both an ACN/PCN and a FAARFIELD strength evaluation were performed for the runways and selected taxiways. Both evaluations indicate that Ramp DE, Taxilane AA, Taxilane N1 and Taxiway S are overloaded or under strength.

9.6 CIP Development

A CIP is used to plan and develop construction projects that will preserve the airside pavement infrastructure at BWI Marshall Airport. The CIP is one of the fundamental building blocks in planning long-term budgets based upon predictions of the condition of the pavement network in the future. The CIP can serve as an important forecasting tool for executive management to anticipate and plan for growth, as well as preserve BWI Marshall's investment through timely pavement maintenance, rehabilitation, and construction.

This CIP analysis aims at identifying capital improvement items for the construction years 2017 to 2026 (10 years), with a more detailed focus on the first four years. In practicality, the recommended CIP represents a series of choices and alternatives for the airport. Upon review of the recommendations made in this report, MAA Staff will be able to program facility improvements to meet demands, while responding to financial realities and select development items that are consistent with current development needs.

A detailed CIP is presented in Chapter 8. However, because of budgetary constraints and operational needs, it may be necessary to selectively implement the capital items during a time frame that may differ from the prescribed CIP schedule. The implications of CIP changes in time frame can be determined and assessed by using the MicroPAVER software within the duration of the PMP contract and beyond.

The CIP budget developed for 10-Year program at BWI Marshall Airside pavements includes thirty (30) projects for an estimated total cost of about $199 million in 2015 dollars. Considering an escalation factor of provided by MAA, the total cost is about $229 million.

9.7 Recommendations

The analysis results and CIP that were developed during this study are based on network-level data collection and analysis. For each project that is presented in the CIP, a more detailed analysis should be conducted by MAA before designing and constructing a pavement rehabilitation project. The scope and effort of the project-level evaluation and design work should be based on answers to the following questions:

- Is the CIP-recommended pavement repair option still the preferred option based on:
  - Life cycle costs?
  - Initial costs?
  - Traffic disruptions?
  - Current volatility of Portland Cement and asphalt cement costs?
  - In-house resources available for pavement maintenance work?
- Is there sufficient and recent coring, boring, and laboratory test results?
- Is there sufficient NDT data available to assess all feasible repair options?
- Are the fleet mix and operations data current and accurate or do they need to be updated for design?

With the 2015/16 Airside PMP update, it is critical for MAA to continue with the maintenance of the MicroPAVER database to establish timely M&R programs. As such, when new construction work is completed, new coring and boring data is available, or fleet mix changes occur, the database need to be updated. The continued maintenance of the PMP will ensure that MAA management has up-to-date pavement condition and structural data available for the decision-making process. This will allow MAA to assess the potential impact of changes in pavement conditions in implementing the recommended M&R program and the effective use of the CIP budget developed during this study.

AECOM

Appendix A

BWI Marshall Airside Pavements Condition Reports

1/11/2016

Branch Condition Report

Pavement Database: BWIAir_BudgetAnalysisCheck

Branch ID	Number of Sections	Sum Section Length (Ft)	Avg Section Width (Ft)	True Area (SqFt)	Use	Average PCI	Standard Deviation PCI	Weighted Average PCI
15R De-ice	3	1,100.81	807.59	549,270.00	TAXIWAY	98.00	0.00	98.00
Cargo Ramp	8	3,852.99	274.83	1,143,631.00	APRON	60.63	12.06	62.75
GA De-ice	1	415.77	334.75	139,201.00	TAXIWAY	76.00	0.00	76.00
GA Ramp	6	2,409.00	425.50	1,192,611.00	APRON	58.67	8.92	55.42
Gate A	3	1,297.00	326.00	300,262.00	APRON	81.00	6.48	81.33
Gate B	6	2,202.66	327.72	609,529.00	APRON	69.00	18.42	72.74
Gate C	16	2,942.00	155.56	423,770.00	APRON	73.38	22.38	79.26
Gate D	24	4,675.00	157.13	684,631.00	APRON	84.71	4.36	84.48
Gate D Com	1	1,643.00	90.00	147,909.00	APRON	81.00	0.00	81.00
Gate E	7	1,666.64	174.99	297,025.43	APRON	74.43	10.38	74.36
HPTWQ	1	420.00	50.00	19,634.00	APRON	71.00	0.00	71.00
Mid Cargo	3	3,408.00	328.67	879,502.00	APRON	70.33	5.91	69.41
Ramp AB	8	5,299.47	143.61	681,975.00	APRON	73.13	13.44	71.21
Ramp BC	4	2,179.15	178.09	445,160.00	APRON	71.00	12.08	68.57
Ramp CD	5	2,672.00	141.80	363,178.00	APRON	85.60	8.48	86.64
Ramp DD	2	812.00	429.00	310,356.00	APRON	53.00	6.00	53.20
Ramp DE	6	2,940.00	133.17	370,468.00	APRON	58.67	27.49	47.27
Ramp DY	8	4,663.00	90.63	315,908.00	APRON	50.50	10.87	55.36
Ramp EE	2	748.00	319.50	181,775.00	APRON	55.00	6.00	53.13
RON	2	1,292.00	141.00	191,502.00	APRON	82.50	13.50	75.87
RW 10-28	20	27,101.29	146.07	2,326,551.00	RUNWAY	91.55	3.79	92.39
RW 15L-33	9	5,263.00	100.00	534,341.00	RUNWAY	65.22	19.49	60.08
RW 15R-33	57	28,661.83	56.84	1,549,403.00	RUNWAY	97.91	4.48	98.51
RW 4-22	2	1,549.84	150.20	229,423.00	TAXIWAY	93.00	7.00	96.32
RWSH15R	13	15,336.19	34.88	536,189.00	RUNWAY	100.00	0.00	100.00
Rwy 28 Ice	3	2,505.00	264.33	626,168.00	TAXIWAY	92.33	10.84	91.76
Taxiway A	5	1,938.57	117.75	202,238.00	TAXIWAY	83.40	5.95	83.19
Taxiway B	4	3,342.00	112.00	285,059.00	TAXIWAY	83.50	14.72	73.36
Taxiway C	9	3,836.92	261.43	644,683.00	TAXIWAY	98.67	3.77	99.56
Taxiway D	4	3,665.75	228.03	456,995.60	TAXIWAY	98.25	2.05	98.18
Taxiway D1	1	418.90	127.62	57,427.00	TAXIWAY	93.00	0.00	93.00
Taxiway D2	1	420.21	135.18	57,708.00	TAXIWAY	100.00	0.00	100.00
Taxiway D3	1	439.71	199.31	92,377.00	TAXIWAY	100.00	0.00	100.00
Taxiway E	1	172.62	196.79	33,969.00	TAXIWAY	72.00	0.00	72.00
Taxiway F	7	4,867.54	157.65	508,980.00	TAXIWAY	91.71	11.70	95.03
Taxiway G	4	1,355.59	166.01	223,032.00	TAXIWAY	92.25	13.42	95.65
Taxiway H	2	404.96	164.30	68,974.00	TAXIWAY	81.00	19.00	89.21
Taxiway J	4	874.51	95.14	93,961.00	TAXIWAY	87.00	11.60	91.09
Taxiway K	6	1,739.16	52.74	100,238.00	TAXIWAY	82.67	10.39	83.62
Taxiway L	2	534.93	55.26	29,063.00	TAXIWAY	93.00	7.00	93.14
Taxiway M	3	1,129.00	51.00	64,520.00	TAXIWAY	64.33	4.11	66.49
Taxiway N	3	620.00	96.67	67,186.00	TAXIWAY	89.33	2.49	89.71
Taxiway P	16	9,361.60	130.64	1,068,376.00	TAXIWAY	85.13	15.09	84.69

1/11/2016

Branch Condition Report

Pavement Database: BWIAir_BudgetAnalysisCheck

Branch ID	Number of Sections	Sum Section Length (Ft)	Avg Section Width (Ft)	True Area (SqFt)	Use	Average PCI	Standard Deviation PCI	Weighted Average PCI
Taxiway P1	3	528.16	149.12	65,346.00	TAXIWAY	100.00	0.00	100.00
Taxiway Q	8	5,379.81	52.50	279,618.00	TAXIWAY	78.50	16.60	76.84
Taxiway R	4	2,630.01	117.53	282,379.00	TAXIWAY	95.75	4.60	96.98
Taxiway R1	3	712.43	158.79	104,310.00	TAXIWAY	87.67	14.06	89.99
Taxiway S	10	6,053.59	61.46	365,312.00	TAXIWAY	85.20	11.28	79.62
Taxiway T	12	6,654.37	91.91	605,513.00	TAXIWAY	75.58	14.16	75.17
Taxiway U	3	2,584.64	119.07	272,228.00	TAXIWAY	100.00	0.00	100.00
Taxiway U1	1	243.02	321.87	78,482.00	TAXIWAY	100.00	0.00	100.00
Taxiway U2	1	167.61	151.43	27,817.00	TAXIWAY	100.00	0.00	100.00
Taxiway V	1	864.86	99.31	89,454.00	TAXIWAY	95.00	0.00	95.00
Taxiway W	1	2,589.00	50.00	132,025.00	TAXIWAY	15.00	0.00	15.00
Taxiway Y	2	1,991.05	76.41	155,640.00	TAXIWAY	95.00	5.00	98.20
Txlane AA	2	456.00	444.00	200,682.00	TAXIWAY	66.00	6.00	65.94
Txlane JJ	3	739.00	87.33	67,780.00	TAXIWAY	51.67	11.56	54.73
Txlane NN	2	663.00	71.00	53,876.00	TAXIWAY	18.50	6.50	15.45

1/11/2016

Branch Condition Report

Pavement Database: BWIAir_BudgetAnalysisCheck

Use Category	Number of Sections	Total Area (SqFt)	Arithmetic Average PCI	Average STD PCI	Weighted Average PCI
APRON	112	8558826.43000138	71.60	17.72	67.86
RUNWAY	99	4946484.0000979	93.93	11.79	91.64
TAXIWAY	138	8379310.6036034	84.88	17.86	87.19
ALL	349	21884621.0337027	83.18	18.53	80.64

1/11/2016 **Section Condition Report** Page 1 of 8

Pavement Database: BWIAir_BudgetAnalysisCheck ***NetworkId: BWIAir***

Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection Date	Age At Inspection	PCI
15R De-ice	DICE/15R/1	8/30/2013	PCC	TAXIWAY	P	0	151,891.00	9/15/2015	2	98
15R De-ice	DICE/15R/2	11/19/2012	PCC	TAXIWAY	P	0	343,293.00	9/15/2015	3	98
15R De-ice	DICE/15R/6	8/30/2013	AC	TAXIWAY	P	0	54,086.00	9/15/2015	2	98
Cargo Ramp	CARGO2	5/1/1997	AAC	APRON	P	0	82,658.00	9/15/2015	18	62
Cargo Ramp	CARGO3	5/1/1997	AC	APRON	P	0	40,291.00	9/15/2015	18	42
Cargo Ramp	CARGO4	5/1/1997	AC	APRON	P	0	232,859.00	9/15/2015	18	49
Cargo Ramp	CARGO5	1/3/1988	PCC	APRON	P	0	150,462.00	9/15/2015	27	79
Cargo Ramp	CARGO6	1/6/1988	AC	APRON	P	0	60,465.00	9/15/2015	27	48
Cargo Ramp	CARGO7	1/1/2000	AC	APRON	P	0	16,336.00	9/15/2015	15	70
Cargo Ramp	CARGO8	9/3/1982	PCC	APRON	P	0	513,201.00	9/15/2015	33	67
Cargo Ramp	CARGO9	5/17/1975	PCC	APRON	P	0	47,359.00	9/15/2015	40	68
GA De-ice	DICE/GA/1	4/4/1995	AC	TAXIWAY	T	0	139,201.00	9/15/2015	20	76
GA Ramp	GA3	11/15/1982	AC	APRON	S	0	186,047.00	9/15/2015	33	69
GA Ramp	GA4	1/2/1989	AC	APRON	S	0	200,926.00	9/15/2015	26	57
GA Ramp	GA5	1/7/1989	AC	APRON	S	0	50,082.00	9/15/2015	26	66
GA Ramp	GA6	10/26/1985	AC	APRON	S	0	356,532.00	9/15/2015	30	41
GA Ramp	GA7	7/3/1998	AC	APRON	T	0	338,336.00	9/15/2015	17	60
GA Ramp	GA8	7/3/1998	AC	APRON	T	0	60,688.00	9/15/2015	17	59
Gate A	A1	1/3/2004	PCC	APRON	P	0	127,306.00	9/15/2015	11	78
Gate A	A2	1/3/2004	PCC	APRON	P	0	71,627.00	9/15/2015	11	75
Gate A	A3	1/4/2004	PCC	APRON	P	0	101,329.00	9/15/2015	11	90
Gate B	AB1	1/3/2004	PCC	APRON	P	0	208,735.00	9/15/2015	11	90
Gate B	B EXT 1	1/3/2004	PCC	APRON	P	0	62,013.00	9/15/2015	11	78
Gate B	B EXT 2	12/3/1998	PCC	APRON	P	0	90,505.00	9/15/2015	17	41
Gate B	B EXT 3	12/3/1998	PCC	APRON	P	0	78,447.00	9/15/2015	17	61
Gate B	B EXT 4	12/3/1998	PCC	APRON	P	0	85,157.00	9/15/2015	17	54
Gate B	B EXT 5	6/1/2007	PCC	APRON	P	0	84,672.00	9/15/2015	8	90
Gate C	C1	10/3/2010	PCC	APRON	P	0	24,316.00	9/15/2015	5	93
Gate C	C10	6/9/1994	PCC	APRON	P	0	27,480.00	9/15/2015	21	53
Gate C	C11	6/9/1994	PCC	APRON	P	0	20,229.00	9/15/2015	21	68
Gate C	C11A	10/3/2010	PCC	APRON	P	0	29,044.00	9/15/2015	5	92
Gate C	C12	6/9/1994	PCC	APRON	P	0	22,714.00	9/15/2015	21	55
Gate C	C13	6/9/1994	PCC	APRON	P	0	12,050.00	9/15/2015	21	43
Gate C	C14	6/9/1994	PCC	APRON	P	0	16,916.00	9/15/2015	21	36
Gate C	C15	6/9/1994	PCC	APRON	P	0	17,937.00	9/15/2015	21	68
Gate C	C16	6/9/1994	PCC	APRON	P	0	22,691.00	9/15/2015	21	77
Gate C	C2	8/15/2006	PCC	APRON	P	0	48,326.00	9/15/2015	9	90
Gate C	C3	10/3/2010	PCC	APRON	P	0	23,851.00	9/15/2015	5	92
Gate C	C5	10/3/2010	PCC	APRON	P	0	33,521.00	9/15/2015	5	95
Gate C	C6	8/15/2006	PCC	APRON	P	0	52,934.00	9/15/2015	9	92
Gate C	C7	10/3/2010	PCC	APRON	P	0	33,521.00	9/15/2015	5	97
Gate C	C9	6/9/1994	PCC	APRON	P	0	14,570.00	9/15/2015	21	31
Gate C	C9A	10/3/2010	PCC	APRON	P	0	23,670.00	9/15/2015	5	92
Gate D	D1	9/4/2007	PCC	APRON	P	0	28,373.00	8/15/2011	4	87
Gate D	D10	10/3/2010	PCC	APRON	P	0	19,781.00	9/15/2015	5	93
Gate D	D11	3/30/1983	PCC	APRON	P	0	39,467.00	9/15/2015	32	84
Gate D	D12	3/30/1983	PCC	APRON	P	0	33,439.00	9/15/2015	32	82
Gate D	D13	3/30/1983	PCC	APRON	P	0	35,702.00	9/15/2015	32	83
Gate D	D14	3/30/1983	PCC	APRON	P	0	34,913.00	9/15/2015	32	85
Gate D	D15	3/30/1983	PCC	APRON	P	0	37,372.00	9/15/2015	32	83

Gate D	D16	3/30/1983	PCC	APRON	P	0	24,400.00	9/15/2015	32	87
Gate D	D2	10/3/2010	PCC	APRON	P	0	26,135.00	9/15/2015	5	93
Gate D	D20	4/18/1987	PCC	APRON	P	0	26,894.00	9/15/2015	28	82
Gate D	D21	4/18/1987	PCC	APRON	P	0	27,072.00	9/15/2015	28	80
Gate D	D22	4/18/1987	PCC	APRON	P	0	23,329.00	9/15/2015	28	79
Gate D	D23	4/18/1987	PCC	APRON	P	0	21,490.00	9/15/2015	28	84
Gate D	D24	4/18/1987	PCC	APRON	P	0	23,688.00	9/15/2015	28	84
Gate D	D25	4/18/1987	PCC	APRON	P	0	29,375.00	9/15/2015	28	85
Gate D	D26	4/18/1987	PCC	APRON	P	0	30,051.00	9/15/2015	28	82
Gate D	D27	4/18/1987	PCC	APRON	P	0	23,626.00	9/15/2015	28	85
Gate D	D29	4/18/1987	PCC	APRON	P	0	31,338.00	9/15/2015	28	77
Gate D	D3	9/4/2007	PCC	APRON	P	0	34,221.00	8/15/2011	4	89
Gate D	D4	10/3/2010	PCC	APRON	P	0	30,266.00	9/15/2015	5	91
Gate D	D5	9/4/2007	PCC	APRON	P	0	24,289.00	8/15/2011	4	78
Gate D	D6	10/3/2010	PCC	APRON	P	0	19,732.00	9/15/2015	5	92
Gate D	D7	3/30/1983	PCC	APRON	P	0	37,161.00	9/15/2015	32	82
Gate D	D8	10/3/2010	PCC	APRON	P	0	22,517.00	9/15/2015	5	86
Gate D Com	DCOMMUTER	5/3/2000	PCC	APRON	P	0	147,909.00	9/15/2015	15	81
Gate E	E1	5/4/1997	PCC	APRON	P	0	53,945.00	9/15/2015	18	77
Gate E	E2	9/4/2007	PCC	APRON	P	0	39,724.00	8/15/2011	4	78
Gate E	E3	5/4/1997	PCC	APRON	P	0	54,505.00	9/15/2015	18	64
Gate E	E4	5/1/1997	PCC	APRON	P	0	26,841.00	9/15/2015	18	75
Gate E	E4A	9/4/2007	PCC	APRON	P	0	38,926.43	9/15/2015	8	90
Gate E	E6	5/4/1997	PCC	APRON	P	0	36,020.00	9/15/2015	18	56
Gate E	E8	5/4/1997	PCC	APRON	P	0	47,064.00	9/15/2015	18	81
HPTWQ	HPTWQ1	9/9/1999	AC	APRON	S	0	19,634.00	9/15/2015	16	71
Mid Cargo	MID CARGO1	6/3/2000	AC	APRON	T	0	347,400.00	9/15/2015	15	62
Mid Cargo	MID CARGO2	6/4/2000	PCC	APRON	T	0	129,176.00	9/15/2015	15	75
Mid Cargo	MID CARGO3	2/10/2000	AC	APRON	T	0	402,926.00	9/15/2015	15	74
Ramp AB	APRTL/1	1/4/2004	AC	APRON	P	0	114,252.00	9/15/2015	11	81
Ramp AB	APRTL/2	1/4/2004	AC	APRON	P	0	75,797.00	9/15/2015	11	76
Ramp AB	APRTL/3	1/4/2004	AC	APRON	P	0	17,146.00	9/15/2015	11	54
Ramp AB	APRTL/4	1/4/2004	AC	APRON	P	0	56,256.00	9/15/2015	11	58
Ramp AB	MRA1	1/4/2004	AAC	APRON	P	0	71,378.00	9/15/2015	11	69
Ramp AB	MRA2	1/7/2011	AC	APRON	P	0	304,385.00	9/15/2015	4	69
Ramp AB	MRA2/A	1/4/2007	PCC	APRON	P	0	4,500.00	9/15/2015	8	100
Ramp AB	MRA3	1/4/2004	AAC	APRON	P	0	38,261.00	9/15/2015	11	78
Ramp BC	MRBC1	8/21/2006	AAC	APRON	P	0	233,832.00	9/15/2015	9	67
Ramp BC	MRBC12	6/9/1994	AC	APRON	P	0	85,563.00	9/15/2015	21	53
Ramp BC	MRBC7	5/1/2009	AC	APRON	P	0	56,706.00	9/15/2015	6	81
Ramp BC	MRBC9	5/1/2009	AC	APRON	P	0	69,059.00	9/15/2015	6	83
Ramp CD	MRCD1	10/3/2010	PCC	APRON	P	0	35,315.00	9/15/2015	5	93
Ramp CD	MRCD14	10/3/2010	AC	APRON	P	0	60,880.00	9/15/2015	5	88
Ramp CD	MRCD15	3/30/1983	AC	APRON	P	0	46,924.00	9/15/2015	32	69
Ramp CD	MRCD2	10/3/2010	PCC	APRON	P	0	153,266.00	9/15/2015	5	89
Ramp CD	MRCD3	10/3/2010	PCC	APRON	P	0	66,793.00	9/15/2015	5	89
Ramp DD	MRDD1	9/1/1984	AC	APRON	P	0	150,072.00	9/15/2015	31	47
Ramp DD	MRDD5	3/30/1983	AC	APRON	P	0	160,284.00	9/15/2015	32	59
Ramp DE	MRDE1	1/6/1987	AC	APRON	P	0	131,275.00	9/15/2015	28	22
Ramp DE	MRDE10	9/4/2007	PCC	APRON	P	0	104,990.00	9/15/2015	8	81
Ramp DE	MRDE11	9/4/2007	AC	APRON	P	0	12,560.00	9/15/2015	8	92
Ramp DE	MRDE12	9/4/2007	AAC	APRON	P	0	21,784.00	9/15/2015	8	79
Ramp DE	MRDE2	1/2/1987	AAC	APRON	P	0	73,142.00	9/15/2015	28	25
Ramp DE	MRDE9	5/4/1997	AC	APRON	P	0	26,717.00	9/15/2015	18	53

Ramp DY	MRDY1	1/1/2007	AAC	APRON	P	0	24,922.00	9/15/2015	8	46
Ramp DY	MRDY3	1/1/2000	AC	APRON	P	0	34,408.00	9/15/2015	15	41
Ramp DY	MRDY4	1/2/1987	AC	APRON	P	0	22,886.00	9/15/2015	28	54
Ramp DY	MRDY5	1/6/1987	AC	APRON	P	0	29,893.00	9/15/2015	28	37
Ramp DY	MRDY6	1/1/2007	AC	APRON	P	0	98,249.00	9/15/2015	8	73
Ramp DY	MRDY7	6/1/2007	AAC	APRON	P	0	30,435.00	9/15/2015	8	60
Ramp DY	MRDY8	3/30/1983	AC	APRON	P	0	18,166.00	9/15/2015	32	44
Ramp DY	MRDY8A	1/2/1987	AC	APRON	P	0	56,949.00	9/15/2015	28	49
Ramp EE	MREE1	5/1/1997	AC	APRON	P	0	119,187.00	9/15/2015	18	49
Ramp EE	MREE2	5/1/1997	AC	APRON	P	0	62,588.00	9/15/2015	18	61
RON	RON1	1/4/2002	AC	APRON	S	0	142,790.00	9/15/2015	13	69
RON	RON2	1/3/2002	PCC	APRON	S	0	48,712.00	9/15/2015	13	96
RW 10-28	RW10/1	3/6/2013	AC	RUNWAY	P	0	59,211.00	9/3/2015	2	92
RW 10-28	RW10/10	3/6/2013	AAC	RUNWAY	P	0	175,541.00	9/3/2015	2	89
RW 10-28	RW10/11	3/6/2013	AAC	RUNWAY	P	0	54,480.00	9/3/2015	2	88
RW 10-28	RW10/12	3/6/2013	AAC	RUNWAY	P	0	78,436.00	9/3/2015	2	90
RW 10-28	RW10/13	3/6/2013	AAC	RUNWAY	P	0	39,990.00	9/3/2015	2	89
RW 10-28	RW10/15	3/6/2013	AC	RUNWAY	P	0	75,360.00	9/3/2015	2	90
RW 10-28	RW10/15A	3/6/2013	AC	RUNWAY	T	0	88,187.00	9/3/2015	2	98
RW 10-28	RW10/1A	3/6/2013	AC	RUNWAY	T	0	88,239.00	9/3/2015	2	98
RW 10-28	RW10/2	3/6/2013	AC	RUNWAY	P	0	23,519.00	9/3/2015	2	94
RW 10-28	RW10/3	3/6/2013	AAC	RUNWAY	P	0	211,350.00	9/3/2015	2	90
RW 10-28	RW10/4	3/6/2013	AAC	RUNWAY	P	0	437,177.00	9/3/2015	2	89
RW 10-28	RW10/4A	12/6/2011	AAC	RUNWAY	P	0	43,339.00	9/3/2015	4	90
RW 10-28	RW10/5	12/6/2011	AAC	RUNWAY	P	0	29,630.00	9/3/2015	4	90
RW 10-28	RW10/6	3/6/2013	AAC	RUNWAY	P	0	39,950.00	9/3/2015	2	91
RW 10-28	RW10/6A	12/6/2011	AAC	RUNWAY	P	0	61,396.00	9/3/2015	4	91
RW 10-28	RW10/7	3/6/2013	AAC	RUNWAY	P	0	80,430.00	9/3/2015	2	89
RW 10-28	RW10/8	3/6/2013	AAC	RUNWAY	P	0	39,323.00	9/3/2015	2	87
RW 10-28	RW10/9	3/6/2013	AAC	RUNWAY	P	0	132,607.00	9/3/2015	2	88
RW 10-28	SHRW10/1L	3/6/2013	AC	RUNWAY	P	0	251,596.00	9/15/2015	2	100
RW 10-28	SHRW10/1R	3/6/2013	AC	RUNWAY	P	0	316,790.00	9/15/2015	2	98
RW 15L-33R	RW15L/1	1/2/1989	AC	RUNWAY	P	0	140,416.00	9/3/2015	26	66
RW 15L-33R	RW15L/2	1/2/1989	AAC	RUNWAY	P	0	68,063.00	9/3/2015	26	57
RW 15L-33R	RW15L/3	1/2/1989	AC	RUNWAY	P	0	18,827.00	9/3/2015	26	44
RW 15L-33R	RW15L/4	1/5/1989	AC	RUNWAY	P	0	18,101.00	9/3/2015	26	54
RW 15L-33R	RW15L/5	1/2/1989	AAC	RUNWAY	P	0	99,114.00	9/3/2015	26	58
RW 15L-33R	RW15L/6	1/7/1989	AC	RUNWAY	P	0	36,090.00	9/3/2015	26	59
RW 15L-33R	RW15L/7	1/5/1989	AC	RUNWAY	P	0	119,568.00	9/3/2015	26	49
RW 15L-33R	RW15L/8	9/1/2015	AAC	RUNWAY	P	0	17,019.00	9/3/2015	0	100
RW 15L-33R	RW15L/9	9/1/2015	AAC	RUNWAY	P	0	17,143.00	9/3/2015	0	100
RW 15R-33L	RW15R/1	8/30/2013	AC	RUNWAY	T	0	87,239.00	9/3/2015	2	100
RW 15R-33L	RW15R/10K	12/6/2011	AAC	RUNWAY	P	0	15,155.00	9/3/2015	4	95
RW 15R-33L	RW15R/10L	12/6/2011	AC	RUNWAY	P	0	16,266.00	9/3/2015	4	90
RW 15R-33L	RW15R/10R	12/6/2011	AC	RUNWAY	P	0	13,840.00	9/3/2015	4	93
RW 15R-33L	RW15R/12K	12/6/2011	AAC	RUNWAY	P	0	16,310.00	9/3/2015	4	94
RW 15R-33L	RW15R/12L	12/6/2011	AAC	RUNWAY	P	0	13,584.00	9/3/2015	4	83
RW 15R-33L	RW15R/12R	12/6/2011	AC	RUNWAY	P	0	19,699.00	9/3/2015	4	87
RW 15R-33L	RW15R/13	12/6/2011	AC	RUNWAY	P	0	14,843.00	9/15/2015	4	100
RW 15R-33L	RW15R/14K	8/30/2013	AAC	RUNWAY	P	0	17,510.00	9/3/2015	2	100
RW 15R-33L	RW15R/14L	8/30/2013	AC	RUNWAY	P	0	15,821.00	9/3/2015	2	100
RW 15R-33L	RW15R/14R	8/30/2013	AC	RUNWAY	P	0	19,693.00	9/3/2015	2	100
RW 15R-33L	RW15R/15K	8/30/2013	AAC	RUNWAY	P	0	27,393.00	9/3/2015	2	98
RW 15R-33L	RW15R/15L	8/30/2013	AC	RUNWAY	P	0	26,183.00	9/3/2015	2	99
RW 15R-33L	RW15R/15R	8/30/2013	AC	RUNWAY	P	0	29,174.00	9/3/2015	2	100

RW 15R-33L	RW15R/16K	8/30/2013	AAC	RUNWAY	P	0	8,044.00	9/3/2015	2	100
RW 15R-33L	RW15R/16L	8/30/2013	AC	RUNWAY	P	0	7,711.00	9/3/2015	2	100
RW 15R-33L	RW15R/16R	8/30/2013	AC	RUNWAY	P	0	8,554.00	9/3/2015	2	100
RW 15R-33L	RW15R/17K	8/30/2013	AAC	RUNWAY	P	0	58,065.00	9/3/2015	2	100
RW 15R-33L	RW15R/17L	8/30/2013	AC	RUNWAY	P	0	56,698.00	9/3/2015	2	100
RW 15R-33L	RW15R/17R	8/30/2013	AC	RUNWAY	P	0	60,732.00	9/3/2015	2	100
RW 15R-33L	RW15R/18K	8/30/2013	AAC	RUNWAY	P	0	26,890.00	9/3/2015	2	100
RW 15R-33L	RW15R/18L	8/30/2013	AAC	RUNWAY	P	0	25,950.00	9/3/2015	2	100
RW 15R-33L	RW15R/18R	8/30/2013	AAC	RUNWAY	P	0	28,595.00	9/3/2015	2	100
RW 15R-33L	RW15R/19K	8/30/2013	AC	RUNWAY	P	0	38,790.00	9/3/2015	2	97
RW 15R-33L	RW15R/19L	8/30/2013	AC	RUNWAY	P	0	37,580.00	9/3/2015	2	99
RW 15R-33L	RW15R/19R	8/30/2013	AC	RUNWAY	P	0	41,202.00	9/3/2015	2	99
RW 15R-33L	RW15R/20	8/30/2013	AC	RUNWAY	T	0	44,675.00	9/3/2015	2	100
RW 15R-33L	RW15R/21K	8/30/2013	PCC	RUNWAY	P	0	22,534.00	9/3/2015	2	100
RW 15R-33L	RW15R/21L	8/30/2013	PCC	RUNWAY	P	0	11,289.00	9/3/2015	2	100
RW 15R-33L	RW15R/21R	8/30/2013	PCC	RUNWAY	P	0	10,570.00	9/3/2015	2	100
RW 15R-33L	RW15R/2AK	8/30/2013	PCC	RUNWAY	P	0	22,532.00	9/3/2015	2	100
RW 15R-33L	RW15R/2AL	8/30/2013	PCC	RUNWAY	P	0	11,378.00	9/3/2015	2	100
RW 15R-33L	RW15R/2AR	8/30/2013	PCC	RUNWAY	P	0	11,316.00	9/3/2015	2	100
RW 15R-33L	RW15R/3K	8/30/2013	AC	RUNWAY	P	0	60,395.00	9/3/2015	2	100
RW 15R-33L	RW15R/3L	8/30/2013	AAC	RUNWAY	P	0	57,423.00	9/3/2015	2	100
RW 15R-33L	RW15R/3R	8/30/2013	AAC	RUNWAY	P	0	64,207.00	9/3/2015	2	100
RW 15R-33L	RW15R/4K	8/30/2013	AC	RUNWAY	P	0	17,947.00	9/3/2015	2	100
RW 15R-33L	RW15R/4L	8/30/2013	AC	RUNWAY	P	0	17,045.00	9/3/2015	2	100
RW 15R-33L	RW15R/4R	8/30/2013	AC	RUNWAY	P	0	19,109.00	9/3/2015	2	100
RW 15R-33L	RW15R/5K	8/30/2013	AAC	RUNWAY	P	0	33,650.00	9/3/2015	2	100
RW 15R-33L	RW15R/5L	8/30/2013	AAC	RUNWAY	P	0	31,807.00	9/3/2015	2	100
RW 15R-33L	RW15R/5R	8/30/2013	AAC	RUNWAY	P	0	35,899.00	9/3/2015	2	100
RW 15R-33L	RW15R/6K	8/30/2013	AAC	RUNWAY	P	0	34,963.00	9/3/2015	2	100
RW 15R-33L	RW15R/6L	8/30/2013	AC	RUNWAY	P	0	33,055.00	9/3/2015	2	100
RW 15R-33L	RW15R/6R	8/30/2013	AC	RUNWAY	P	0	37,214.00	9/3/2015	2	100
RW 15R-33L	RW15R/7K	8/30/2013	AAC	RUNWAY	P	0	9,895.00	9/3/2015	2	100
RW 15R-33L	RW15R/7L	8/30/2013	AC	RUNWAY	P	0	9,325.00	9/3/2015	2	100
RW 15R-33L	RW15R/7R	8/30/2013	AC	RUNWAY	P	0	10,549.00	9/3/2015	2	100
RW 15R-33L	RW15R/8AK	8/30/2013	AAC	RUNWAY	P	0	15,216.00	9/3/2015	2	94
RW 15R-33L	RW15R/8AL	8/30/2013	AC	RUNWAY	P	0	14,279.00	9/3/2015	2	99
RW 15R-33L	RW15R/8AR	8/30/2013	AC	RUNWAY	P	0	16,271.00	9/3/2015	2	99
RW 15R-33L	RW15R/8K	8/30/2013	AAC	RUNWAY	P	0	33,043.00	9/3/2015	2	99
RW 15R-33L	RW15R/8L	8/30/2013	AC	RUNWAY	P	0	31,043.00	9/3/2015	2	100
RW 15R-33L	RW15R/8R	8/30/2013	AC	RUNWAY	P	0	35,287.00	9/3/2015	2	100
RW 15R-33L	RW15R/9K	12/6/2011	AAC	RUNWAY	P	0	21,907.00	9/3/2015	4	82
RW 15R-33L	RW15R/9L	12/6/2011	AC	RUNWAY	P	0	20,678.00	9/3/2015	4	85
RW 15R-33L	RW15R/9R	12/6/2011	AC	RUNWAY	P	0	23,381.00	9/3/2015	4	89
RW 4-22	RW4/1	1/1/1987	AC	TAXIWAY	T	0	169,069.00	9/15/2015	28	100
RW 4-22	RW4/1A	5/1/2011	AAC	TAXIWAY	T	0	60,354.00	9/15/2015	4	86
RWSH15R	RWSH15R/1L	5/23/2013	AC	RUNWAY	P	0	55,432.00	9/15/2015	2	100
RWSH15R	RWSH15R/1R	5/23/2013	AC	RUNWAY	P	0	112,273.00	9/15/2015	2	100
RWSH15R	RWSH15R/2L	5/23/2013	AC	RUNWAY	P	0	31,277.00	9/15/2015	2	100
RWSH15R	RWSH15R/2R	5/23/2013	AC	RUNWAY	P	0	24,663.00	9/15/2015	2	100
RWSH15R	RWSH15R/3L	5/23/2013	AC	RUNWAY	P	0	22,288.00	9/15/2015	2	100
RWSH15R	RWSH15R/3R	5/23/2013	AC	RUNWAY	P	0	24,146.00	9/15/2015	2	100
RWSH15R	RWSH15R/4L	5/23/2013	AC	RUNWAY	P	0	24,394.00	9/15/2015	2	100
RWSH15R	RWSH15R/4R	5/23/2013	AC	RUNWAY	P	0	25,052.00	9/15/2015	2	100
RWSH15R	RWSH15R/5L	5/23/2013	AC	RUNWAY	P	0	43,724.00	9/15/2015	2	100
RWSH15R	RWSH15R/5R	5/23/2013	AC	RUNWAY	P	0	15,302.00	9/15/2015	2	100
RWSH15R	RWSH15R/6L	5/23/2013	AC	RUNWAY	P	0	30,699.00	9/15/2015	2	100

RWSH15R	RWSH15R/6R	5/23/2013	AC	RUNWAY	P	0	97,816.00	9/15/2015	2	100
RWSH15R	RWSH15R/7L	5/23/2013	AC	RUNWAY	P	0	29,123.00	9/15/2015	2	100
Rwy 28 Ice	DICE/R28/1	12/1/2015	AC	TAXIWAY	P	0	123,522.00	12/1/2015	0	100
Rwy 28 Ice	DICE/R28/2	10/4/1998	PCC	TAXIWAY	P	0	224,317.00	9/15/2015	17	77
Rwy 28 Ice	DICE/R28/3	12/1/2015	AC	TAXIWAY	P	0	278,329.00	12/1/2015	0	100
Taxiway A	TWA11	1/15/2009	AC	TAXIWAY	P	0	18,272.00	9/3/2015	6	80
Taxiway A	TWA12	6/4/2007	AAC	TAXIWAY	P	0	45,190.00	9/3/2015	8	75
Taxiway A	TWA13	6/4/2007	AAC	TAXIWAY	P	0	50,778.00	9/15/2015	8	84
Taxiway A	TWA21	5/1/2011	AAC	TAXIWAY	P	0	59,550.00	9/15/2015	4	85
Taxiway A	TWA22	5/1/2011	AAC	TAXIWAY	P	0	28,448.00	9/15/2015	4	93
Taxiway B	TWB1	1/1/2009	AC	TAXIWAY	S	0	158,734.00	9/3/2015	6	72
Taxiway B	TWB2	5/1/2011	AAC	TAXIWAY	P	0	23,898.00	9/3/2015	4	96
Taxiway B	TWB3	5/1/2011	AAC	TAXIWAY	P	0	89,802.00	9/3/2015	4	66
Taxiway B	TWB4	5/1/2011	AAC	TAXIWAY	P	0	12,625.00	9/3/2015	4	100
Taxiway C	TWC1	12/1/2015	PCC	TAXIWAY	P	0	77,079.00	12/1/2015	0	100
Taxiway C	TWC10	12/1/2015	AAC	TAXIWAY	P	0	30,452.00	12/1/2015	0	100
Taxiway C	TWC1A	12/1/2015	PCC	TAXIWAY	P	0	66,061.00	12/1/2015	0	100
Taxiway C	TWC2	12/1/2015	AC	TAXIWAY	P	0	53,052.00	12/1/2015	0	100
Taxiway C	TWC3	2/16/2015	AC	TAXIWAY	P	0	23,645.00	9/15/2015	0	88
Taxiway C	TWC4	12/1/2015	AAC	TAXIWAY	P	0	124,289.00	12/1/2015	0	100
Taxiway C	TWC5	12/1/2015	AC	TAXIWAY	P	0	12,266.00	12/1/2015	0	100
Taxiway C	TWC8	12/1/2015	AAC	TAXIWAY	T	0	99,380.00	12/1/2015	0	100
Taxiway C	TWC9	12/1/2015	AC	TAXIWAY	T	0	158,459.00	12/1/2015	0	100
Taxiway D	TWD1	8/30/2013	PCC	TAXIWAY	P	0	182,904.00	9/3/2015	2	98
Taxiway D	TWD2	8/30/2013	PCC	TAXIWAY	S	0	162,212.00	9/15/2015	2	100
Taxiway D	TWD3	8/30/2013	PCC	TAXIWAY	P	0	93,357.23	9/3/2015	2	95
Taxiway D	TWD4	8/30/2015	PCC	TAXIWAY	P	0	18,522.38	8/30/2015	0	100
Taxiway D1	TWD1/1	8/30/2013	PCC	TAXIWAY	P	0	57,427.00	9/3/2015	2	93
Taxiway D2	TWD2/1	8/29/2013	PCC	TAXIWAY	T	0	57,708.00	9/15/2015	2	100
Taxiway D3	TWD3/1	8/30/2013	PCC	TAXIWAY	S	0	92,377.00	9/15/2015	2	100
Taxiway E	TWE10	5/1/2009	AAC	TAXIWAY	P	0	33,969.00	9/15/2015	6	72
Taxiway F	TWF1	3/6/2013	AC	TAXIWAY	P	0	52,989.00	9/15/2015	2	100
Taxiway F	TWF10	1/4/2004	AAC	TAXIWAY	P	0	23,303.00	9/15/2015	11	79
Taxiway F	TWF4	1/1/2000	AAC	TAXIWAY	T	0	52,339.00	9/15/2015	15	69
Taxiway F	TWF5	3/6/2013	AAC	TAXIWAY	P	0	69,405.00	9/3/2015	2	94
Taxiway F	TWF7	6/23/2014	AAC	TAXIWAY	P	0	213,814.00	9/3/2015	1	100
Taxiway F	TWF8	8/30/2013	AC	TAXIWAY	P	0	49,397.00	9/3/2015	2	100
Taxiway F	TWF9	8/30/2013	AAC	TAXIWAY	P	0	47,733.00	9/15/2015	2	100
Taxiway G	TWG1	3/6/2013	AC	TAXIWAY	T	0	56,680.00	9/15/2015	2	100
Taxiway G	TWG4	6/23/2014	AC	TAXIWAY	T	0	105,124.00	9/15/2015	1	100
Taxiway G	TWG8	6/3/2000	AC	TAXIWAY	T	0	31,283.00	9/15/2015	15	69
Taxiway G	TWG8/A	3/6/2013	AC	TAXIWAY	T	0	29,945.00	9/15/2015	2	100
Taxiway H	TWH1	8/30/2013	AAC	TAXIWAY	S	0	49,387.00	9/15/2015	2	100
Taxiway H	TWH2	1/4/2004	AAC	TAXIWAY	P	0	19,587.00	9/15/2015	11	62
Taxiway J	TWJ1	1/5/1987	AC	TAXIWAY	S	0	8,800.00	9/3/2015	28	67
Taxiway J	TWJ1/A	2/14/2014	AC	TAXIWAY	S	0	14,135.00	9/3/2015	1	95
Taxiway J	TWJ2	5/1/2011	AAC	TAXIWAY	S	0	25,205.00	9/3/2015	4	92
Taxiway J	TWJ3	5/1/2011	AAC	TAXIWAY	S	0	45,821.00	9/15/2015	4	94
Taxiway K	TWK1	2/14/2014	AC	TAXIWAY	P	0	23,135.00	9/15/2015	1	96
Taxiway K	TWK2	2/14/2014	AC	TAXIWAY	P	0	24,844.00	9/15/2015	1	88
Taxiway K	TWK2A	9/9/1999	AC	TAXIWAY	P	0	19,671.00	9/15/2015	16	83
Taxiway K	TWK3	1/2/1989	AC	TAXIWAY	P	0	14,094.00	9/15/2015	26	74
Taxiway K	TWK4	2/14/2014	AC	TAXIWAY	P	0	3,858.00	9/3/2015	1	90

Taxiway K	TWK5	1/2/1989	AAC	TAXIWAY	P	0	14,636.00	9/15/2015	26	65
Taxiway L	TWL1	1/2/1989	AC	TAXIWAY	T	0	14,249.00	9/15/2015	26	86
Taxiway L	TWL2	10/26/1985	AC	TAXIWAY	T	0	14,814.00	9/3/2015	30	100
Taxiway M	TWM1	1/5/1989	AC	TAXIWAY	T	0	33,890.00	9/15/2015	26	69
Taxiway M	TWM2	1/2/1989	AC	TAXIWAY	T	0	24,014.00	9/15/2015	26	65
Taxiway M	TWM4	11/15/1982	AC	TAXIWAY	T	0	6,616.00	9/15/2015	33	59
Taxiway N	TWN1	5/1/2011	AAC	TAXIWAY	P	0	22,365.00	9/15/2015	4	90
Taxiway N	TWN2	5/1/2011	AAC	TAXIWAY	P	0	26,620.00	9/15/2015	4	92
Taxiway N	TWN3	5/1/2011	AAC	TAXIWAY	P	0	18,201.00	9/15/2015	4	86
Taxiway P	TWP1	8/30/2013	AAC	TAXIWAY	P	0	131,594.00	9/3/2015	2	87
Taxiway P	TWP14	12/1/2015	PCC	TAXIWAY	P	0	60,484.00	12/1/2015	0	100
Taxiway P	TWP15	12/1/2015	AC	TAXIWAY	P	0	106,356.00	12/1/2015	0	100
Taxiway P	TWP16	12/1/2015	AAC	TAXIWAY	P	0	45,257.00	12/1/2015	0	100
Taxiway P	TWP17	1/1/1987	AC	TAXIWAY	P	0	35,148.00	9/3/2015	28	67
Taxiway P	TWP18	1/1/1987	AC	TAXIWAY	P	0	100,212.00	9/3/2015	28	46
Taxiway P	TWP19	5/1/2011	AAC	TAXIWAY	P	0	37,049.00	9/3/2015	4	70
Taxiway P	TWP1A	5/3/1973	AC	TAXIWAY	P	0	45,968.00	9/3/2015	42	83
Taxiway P	TWP1B	8/30/2013	PCC	TAXIWAY	P	0	147,774.00	9/3/2015	2	95
Taxiway P	TWP1C	8/30/2013	PCC	TAXIWAY	P	0	26,465.00	9/3/2015	2	87
Taxiway P	TWP2	1/4/2004	AAC	TAXIWAY	P	0	171,293.00	9/3/2015	11	80
Taxiway P	TWP20	1/1/1987	AC	TAXIWAY	P	0	28,137.00	9/3/2015	28	71
Taxiway P	TWP21	1/1/1987	AC	TAXIWAY	P	0	34,882.00	9/3/2015	28	81
Taxiway P	TWP3	7/20/2013	AC	TAXIWAY	P	0	39,618.00	9/3/2015	2	95
Taxiway P	TWP6	12/1/2015	PCC	TAXIWAY	P	0	30,989.00	12/1/2015	0	100
Taxiway P	TWP7	12/1/2015	PCC	TAXIWAY	P	0	27,150.00	12/1/2015	0	100
Taxiway P1	TWP1/1	12/1/2015	PCC	TAXIWAY	P	0	27,882.00	12/1/2015	0	100
Taxiway P1	TWP1/2	12/1/2015	PCC	TAXIWAY	P	0	19,207.00	12/1/2015	0	100
Taxiway P1	TWP1/3	7/2/2014	AAC	TAXIWAY	P	0	18,257.00	9/15/2015	1	100
Taxiway Q	TWQ1	1/2/1989	AAC	TAXIWAY	S	0	14,056.00	9/15/2015	26	73
Taxiway Q	TWQ2	2/14/2014	AC	TAXIWAY	S	0	76,430.00	9/3/2015	1	97
Taxiway Q	TWQ3	2/14/2014	AC	TAXIWAY	S	0	26,767.00	9/3/2015	1	83
Taxiway Q	TWQ4	2/14/2014	AC	TAXIWAY	S	0	8,582.00	9/3/2015	1	98
Taxiway Q	TWQ5	2/14/2014	AC	TAXIWAY	S	0	9,322.00	9/3/2015	1	97
Taxiway Q	TWQ6	1/5/1989	AC	TAXIWAY	S	0	18,530.00	9/3/2015	26	54
Taxiway Q	TWQ7	1/5/1989	AC	TAXIWAY	S	0	26,421.00	9/3/2015	26	61
Taxiway Q	TWQ8	1/5/1989	AC	TAXIWAY	S	0	99,510.00	9/3/2015	26	65
Taxiway R	TWR2	6/23/2014	AC	TAXIWAY	T	0	117,091.00	9/3/2015	1	100
Taxiway R	TWR2A	6/23/2014	AAC	TAXIWAY	T	0	57,393.00	9/3/2015	1	94
Taxiway R	TWR2C	8/30/2013	AC	TAXIWAY	T	0	46,297.00	9/3/2015	2	89
Taxiway R	TWR3	8/30/2013	AC	TAXIWAY	T	0	61,598.00	9/15/2015	2	100
Taxiway R1	TWR1/1	6/23/2014	AC	TAXIWAY	T	0	46,034.00	9/15/2015	1	100
Taxiway R1	TWR1/2	6/3/2000	AC	TAXIWAY	T	0	27,871.00	9/15/2015	15	68
Taxiway R1	TWR1/3	3/6/2013	AC	TAXIWAY	T	0	30,405.00	9/15/2015	2	95
Taxiway S	TWS1	1/5/1989	AC	TAXIWAY	S	0	64,721.00	9/3/2015	26	68
Taxiway S	TWS10	5/1/2011	AAC	TAXIWAY	S	0	9,610.00	9/15/2015	4	97
Taxiway S	TWS2	1/5/1989	AC	TAXIWAY	T	0	57,080.00	9/15/2015	26	71
Taxiway S	TWS3	1/5/1989	AC	TAXIWAY	S	0	66,896.00	9/3/2015	26	66
Taxiway S	TWS4	5/1/2011	AAC	TAXIWAY	P	0	6,672.00	9/3/2015	4	94
Taxiway S	TWS5	5/1/2011	AAC	TAXIWAY	P	0	39,817.00	9/3/2015	4	93
Taxiway S	TWS6	5/1/2011	AAC	TAXIWAY	P	0	65,925.00	9/3/2015	4	91
Taxiway S	TWS7	5/1/2011	AAC	TAXIWAY	S	0	27,059.00	9/3/2015	4	91
Taxiway S	TWS8	5/1/2011	AAC	TAXIWAY	S	0	13,177.00	9/15/2015	4	89
Taxiway S	TWS9	5/1/2011	AAC	TAXIWAY	S	0	14,355.00	9/3/2015	4	92
Taxiway T	TWT10	9/4/2007	AAC	TAXIWAY	P	0	26,320.00	9/3/2015	8	94

Taxiway T	TWT11	9/4/2007	AAC	TAXIWAY	P	0	61,593.00	9/3/2015	8	81
Taxiway T	TWT12	9/4/2007	AAC	TAXIWAY	P	0	16,410.00	9/3/2015	8	79
Taxiway T	TWT13	9/4/2007	AAC	TAXIWAY	P	0	33,621.00	9/3/2015	8	84
Taxiway T	TWT2	1/4/2004	AAC	TAXIWAY	P	0	123,509.00	9/3/2015	11	79
Taxiway T	TWT3A	1/4/2004	AAC	TAXIWAY	P	0	81,928.00	9/15/2015	11	65
Taxiway T	TWT4	9/1/1984	AAC	TAXIWAY	P	0	14,903.00	9/15/2015	31	52
Taxiway T	TWT5	7/2/1987	AAC	TAXIWAY	P	0	58,413.00	9/3/2015	28	43
Taxiway T	TWT6	5/1/2009	AC	TAXIWAY	P	0	38,450.00	9/3/2015	6	80
Taxiway T	TWT7	7/2/2014	AAC	TAXIWAY	P	0	44,603.00	9/3/2015	1	86
Taxiway T	TWT8	1/15/2009	AAC	TAXIWAY	P	0	40,918.00	9/3/2015	6	83
Taxiway T	TWT9	6/1/2007	AAC	TAXIWAY	P	0	64,845.00	9/3/2015	8	81
Taxiway U	TWU1	12/1/2015	PCC	TAXIWAY	P	0	67,231.00	12/9/2015	0	100
Taxiway U	TWU2	12/1/2015	PCC	TAXIWAY	P	0	177,045.00	12/1/2015	0	100
Taxiway U	TWU3	12/1/2015	PCC	TAXIWAY	P	0	27,952.00	12/1/2015	0	100
Taxiway U1	TWU1/1	12/1/2015	PCC	TAXIWAY	S	0	78,482.00	12/1/2015	0	100
Taxiway U2	TWU2/1	12/1/2015	PCC	TAXIWAY	P	0	27,817.00	12/1/2015	0	100
Taxiway V	TWV1	3/6/2013	AC	TAXIWAY	T	0	89,454.00	9/15/2015	2	95
Taxiway W	TWW	9/9/1999	AC	TAXIWAY	T	0	132,025.00	9/15/2015	16	15
Taxiway Y	TWY1	5/1/2011	AAC	TAXIWAY	T	0	28,054.00	9/15/2015	4	90
Taxiway Y	TWY2	8/30/2013	AAC	TAXIWAY	T	0	127,586.00	9/15/2015	2	100
Txlane AA	TLAA1	4/5/2000	AC	TAXIWAY	P	0	101,337.00	9/15/2015	15	60
Txlane AA	TLAA2	5/1/1997	AC	TAXIWAY	P	0	99,345.00	9/15/2015	18	72
Txlane JJ	TLJJ1	1/1/2000	AC	TAXIWAY	T	0	18,591.00	9/15/2015	15	44
Txlane JJ	TLJJ2	1/1/1988	AC	TAXIWAY	T	0	18,121.00	9/15/2015	27	43
Txlane JJ	TLJJ3	5/1/1997	AC	TAXIWAY	T	0	31,068.00	9/15/2015	18	68
Txlane NN	TLNN1	1/1/2000	AC	TAXIWAY	P	0	39,585.00	9/15/2015	15	12
Txlane NN	TLNN2	1/1/1987	AC	TAXIWAY	P	0	14,291.00	9/15/2015	28	25

1/11/2016

Section Condition Report (Summary)

Pavement Database: BWIAir_BudgetAnalysisCheck

Age Category	Average Age at Inspection	Total Area (SqFt)	Number of Sections	Arithmetic Average PCI	Standard Deviation PCI	Weighted Average PCI
00-02	2	8,594,863.60	142	97.70	4.11	97.03
03-05	4	2,341,528.00	54	89.44	6.83	87.17
06-10	8	1,470,995.43	26	80.35	11.03	77.91
11-15	13	2,904,383.00	30	69.40	16.13	73.04
16-20	18	2,101,069.00	23	61.13	15.33	58.96
21-25	21	240,150.00	9	53.78	14.52	54.81
26-30	27	2,799,638.00	48	63.81	18.12	59.51
31-35	32	1,338,667.00	15	70.13	14.42	66.63
36-40	40	47,359.00	1	68.00	0.00	68.00
41-50	42	45,968.00	1	83.00	0.00	83.00
ALL	10	21,884,621.03	349	83.18	18.53	80.64

Appendix A - Condition Reports

Distribution of Distress Type

BranchID	SectionID	PCI Pct Load	PCI Pct Climate	PCI Pct Other
15R De-ice	DICE/15R/1	0	0	100
15R De-ice	DICE/15R/2	0	97	3
15R De-ice	DICE/15R/6	0	100	0
Cargo Ramp	CARGO2	33	55	12
Cargo Ramp	CARGO3	55	43	2
Cargo Ramp	CARGO4	59	39	2
Cargo Ramp	CARGO5	8	49	43
Cargo Ramp	CARGO6	38	59	3
Cargo Ramp	CARGO7	0	95	5
Cargo Ramp	CARGO8	43	28	29
Cargo Ramp	CARGO9	36	32	32
GA De-ice	DICE/GA/1	47	53	0
GA Ramp	GA3	0	100	0
GA Ramp	GA4	0	100	0
GA Ramp	GA5	0	100	0
GA Ramp	GA6	17	68	15
GA Ramp	GA7	45	34	21
GA Ramp	GA8	48	47	5
Gate A	A1	6	30	64
Gate A	A2	9	25	66
Gate A	A3	16	41	43
Gate B	AB1	8	15	77
Gate B	B EXT 1	12	25	63
Gate B	B EXT 2	64	7	29
Gate B	B EXT 3	62	13	25
Gate B	B EXT 4	55	9	36
Gate B	B EXT 5	27	15	58
Gate C	C1	0	28	72
Gate C	C10	52	11	37
Gate C	C11	59	22	19
Gate C	C11A	34	22	44
Gate C	C12	67	12	21
Gate C	C13	45	10	45
Gate C	C14	71	8	21
Gate C	C15	44	16	40
Gate C	C16	56	23	21
Gate C	C2	26	18	56
Gate C	C3	39	25	36
Gate C	C5	0	41	59
Gate C	C6	9	23	68
Gate C	C7	0	78	22
Gate C	C9	68	12	20
Gate C	C9A	0	25	75
Gate D	D1	22	51	27
Gate D	D10	0	29	71
Gate D	D11	10	69	21
Gate D	D12	5	35	60
Gate D	D13	12	59	29

Source: MicroPaver

Appendix A - Condition Reports

Distribution of Distress Type

BranchID	SectionID	PCI Pct Load	PCI Pct Climate	PCI Pct Other
Gate D	D14	6	40	54
Gate D	D15	0	60	40
Gate D	D16	0	69	31
Gate D	D2	23	28	49
Gate D	D20	0	63	37
Gate D	D21	10	54	36
Gate D	D22	10	50	40
Gate D	D23	0	73	27
Gate D	D24	7	72	21
Gate D	D25	0	76	24
Gate D	D26	0	56	44
Gate D	D27	0	79	21
Gate D	D29	0	26	74
Gate D	D3	49	43	8
Gate D	D4	39	23	38
Gate D	D5	51	8	41
Gate D	D6	0	22	78
Gate D	D7	9	59	32
Gate D	D8	10	49	41
Gate D Com	DCOMMUTER	48	35	17
Gate E	E1	35	36	29
Gate E	E2	61	7	32
Gate E	E3	51	30	19
Gate E	E4	67	0	33
Gate E	E4A	61	17	22
Gate E	E6	34	19	47
Gate E	E8	18	62	20
HPTWQ	HPTWQ1	0	94	6
Mid Cargo	MID CARGO1	0	100	0
Mid Cargo	MID CARGO2	44	28	28
Mid Cargo	MID CARGO3	13	83	4
Ramp AB	APRTL/1	0	100	0
Ramp AB	APRTL/2	0	100	0
Ramp AB	APRTL/3	0	96	4
Ramp AB	APRTL/4	0	100	0
Ramp AB	MRA1	0	85	15
Ramp AB	MRA2	0	83	17
Ramp AB	MRA2/A	0	0	0
Ramp AB	MRA3	0	54	46
Ramp BC	MRBC1	46	48	6
Ramp BC	MRBC12	35	63	2
Ramp BC	MRBC7	0	100	0
Ramp BC	MRBC9	0	86	14
Ramp CD	MRCD1	0	28	72
Ramp CD	MRCD14	0	100	0
Ramp CD	MRCD15	27	73	0
Ramp CD	MRCD2	23	16	61
Ramp CD	MRCD3	21	16	63

Source: MicroPaver

Appendix A - Condition Reports

Distribution of Distress Type

BranchID	SectionID	PCI Pct Load	PCI Pct Climate	PCI Pct Other
Ramp DD	MRDD1	33	60	7
Ramp DD	MRDD5	25	71	4
Ramp DE	MRDE1	50	48	2
Ramp DE	MRDE10	47	33	20
Ramp DE	MRDE11	0	81	19
Ramp DE	MRDE12	0	91	9
Ramp DE	MRDE2	43	56	1
Ramp DE	MRDE9	25	62	13
Ramp DY	MRDY1	13	80	7
Ramp DY	MRDY3	0	96	4
Ramp DY	MRDY4	20	73	7
Ramp DY	MRDY5	47	53	0
Ramp DY	MRDY6	0	100	0
Ramp DY	MRDY7	0	100	0
Ramp DY	MRDY8	35	56	9
Ramp DY	MRDY8A	11	87	2
Ramp EE	MREE1	37	63	0
Ramp EE	MREE2	43	55	2
RON	RON1	28	68	4
RON	RON2	0	0	100
RW 10-28	RW10/1	0	100	0
RW 10-28	RW10/10	0	100	0
RW 10-28	RW10/11	0	100	0
RW 10-28	RW10/12	0	100	0
RW 10-28	RW10/13	0	100	0
RW 10-28	RW10/15	0	100	0
RW 10-28	RW10/15A	0	100	0
RW 10-28	RW10/1A	0	100	0
RW 10-28	RW10/2	0	100	0
RW 10-28	RW10/3	0	100	0
RW 10-28	RW10/4	0	100	0
RW 10-28	RW10/4A	0	100	0
RW 10-28	RW10/5	0	100	0
RW 10-28	RW10/6	0	100	0
RW 10-28	RW10/6A	0	100	0
RW 10-28	RW10/7	0	100	0
RW 10-28	RW10/8	0	100	0
RW 10-28	RW10/9	0	100	0
RW 10-28	SHRW10/1L	0	0	0
RW 10-28	SHRW10/1R	0	100	0
RW 15L-33R	RW15L/1	21	79	0
RW 15L-33R	RW15L/2	42	58	0
RW 15L-33R	RW15L/3	32	68	0
RW 15L-33R	RW15L/4	25	75	0
RW 15L-33R	RW15L/5	27	73	0
RW 15L-33R	RW15L/6	27	73	0
RW 15L-33R	RW15L/7	51	49	0
RW 15L-33R	RW15L/8	0	0	0

Source: MicroPaver

Distribution of Distress Type

BranchID	SectionID	PCI Pct Load	PCI Pct Climate	PCI Pct Other
RW 15L-33R	RW15L/9	0	0	0
RW 15R-33L	RW15R/1	0	0	0
RW 15R-33L	RW15R/10K	0	100	0
RW 15R-33L	RW15R/10L	0	100	0
RW 15R-33L	RW15R/10R	0	100	0
RW 15R-33L	RW15R/12K	0	100	0
RW 15R-33L	RW15R/12L	0	100	0
RW 15R-33L	RW15R/12R	0	100	0
RW 15R-33L	RW15R/13	0	0	0
RW 15R-33L	RW15R/14K	0	0	0
RW 15R-33L	RW15R/14L	0	0	0
RW 15R-33L	RW15R/14R	0	0	0
RW 15R-33L	RW15R/15K	0	100	0
RW 15R-33L	RW15R/15L	0	100	0
RW 15R-33L	RW15R/15R	0	0	0
RW 15R-33L	RW15R/16K	0	0	0
RW 15R-33L	RW15R/16L	0	0	0
RW 15R-33L	RW15R/16R	0	0	0
RW 15R-33L	RW15R/17K	0	0	0
RW 15R-33L	RW15R/17L	0	0	0
RW 15R-33L	RW15R/17R	0	0	0
RW 15R-33L	RW15R/18K	0	0	0
RW 15R-33L	RW15R/18L	0	0	0
RW 15R-33L	RW15R/18R	0	0	0
RW 15R-33L	RW15R/19K	0	100	0
RW 15R-33L	RW15R/19L	0	100	0
RW 15R-33L	RW15R/19R	0	100	0
RW 15R-33L	RW15R/20	0	0	0
RW 15R-33L	RW15R/21K	0	0	0
RW 15R-33L	RW15R/21L	0	0	0
RW 15R-33L	RW15R/21R	0	0	0
RW 15R-33L	RW15R/2AK	0	0	0
RW 15R-33L	RW15R/2AL	0	0	0
RW 15R-33L	RW15R/2AR	0	0	0
RW 15R-33L	RW15R/3K	0	0	0
RW 15R-33L	RW15R/3L	0	0	0
RW 15R-33L	RW15R/3R	0	0	0
RW 15R-33L	RW15R/4K	0	0	0
RW 15R-33L	RW15R/4L	0	0	0
RW 15R-33L	RW15R/4R	0	0	0
RW 15R-33L	RW15R/5K	0	0	0
RW 15R-33L	RW15R/5L	0	0	0
RW 15R-33L	RW15R/5R	0	0	0
RW 15R-33L	RW15R/6K	0	0	0
RW 15R-33L	RW15R/6L	0	0	0
RW 15R-33L	RW15R/6R	0	0	0
RW 15R-33L	RW15R/7K	0	0	0
RW 15R-33L	RW15R/7L	0	0	0

Source: MicroPaver

Appendix A - Condition Reports

Distribution of Distress Type

BranchID	SectionID	PCI Pct Load	PCI Pct Climate	PCI Pct Other
RW 15R-33L	RW15R/7R	0	0	0
RW 15R-33L	RW15R/8AK	0	100	0
RW 15R-33L	RW15R/8AL	0	100	0
RW 15R-33L	RW15R/8AR	0	100	0
RW 15R-33L	RW15R/8K	0	100	0
RW 15R-33L	RW15R/8L	0	0	0
RW 15R-33L	RW15R/8R	0	0	0
RW 15R-33L	RW15R/9K	0	100	0
RW 15R-33L	RW15R/9L	0	100	0
RW 15R-33L	RW15R/9R	0	100	0
RW 4-22	RW4/1	0	0	0
RW 4-22	RW4/1A	0	100	0
RWSH15R	RWSH15R/1L	0	0	0
RWSH15R	RWSH15R/1R	0	0	0
RWSH15R	RWSH15R/2L	0	0	0
RWSH15R	RWSH15R/2R	0	0	0
RWSH15R	RWSH15R/3L	0	0	0
RWSH15R	RWSH15R/3R	0	0	0
RWSH15R	RWSH15R/4L	0	0	0
RWSH15R	RWSH15R/4R	0	0	0
RWSH15R	RWSH15R/5L	0	0	0
RWSH15R	RWSH15R/5R	0	0	0
RWSH15R	RWSH15R/6L	0	0	0
RWSH15R	RWSH15R/6R	0	0	0
RWSH15R	RWSH15R/7L	0	0	0
Rwy 28 Ice	DICE/R28/1	0	0	0
Rwy 28 Ice	DICE/R28/2	33	22	45
Rwy 28 Ice	DICE/R28/3	0	0	0
Taxiway A	TWA11	0	100	0
Taxiway A	TWA12	0	100	0
Taxiway A	TWA13	0	100	0
Taxiway A	TWA21	0	85	15
Taxiway A	TWA22	0	100	0
Taxiway B	TWB1	52	48	0
Taxiway B	TWB2	47	53	0
Taxiway B	TWB3	57	43	0
Taxiway B	TWB4	0	0	0
Taxiway C	TWC1	0	0	0
Taxiway C	TWC10	0	0	0
Taxiway C	TWC1A	0	0	0
Taxiway C	TWC2	0	0	0
Taxiway C	TWC3	0	100	0
Taxiway C	TWC4	0	0	0
Taxiway C	TWC5	0	0	0
Taxiway C	TWC8	0	0	0
Taxiway C	TWC9	0	0	0
Taxiway D	TWD1	0	0	100
Taxiway D	TWD2	0	0	0

Source: MicroPaver

Appendix A - Condition Reports

Distribution of Distress Type

BranchID	SectionID	PCI Pct Load	PCI Pct Climate	PCI Pct Other
Taxiway D	TWD3	0	0	100
Taxiway D	TWD4	0	0	0
Taxiway D1	TWD1/1	0	0	100
Taxiway D2	TWD2/1	0	0	0
Taxiway D3	TWD3/1	0	0	0
Taxiway E	TWE10	49	51	0
Taxiway F	TWF1	0	0	0
Taxiway F	TWF10	0	100	0
Taxiway F	TWF4	10	90	0
Taxiway F	TWF5	0	100	0
Taxiway F	TWF7	0	0	0
Taxiway F	TWF8	0	0	0
Taxiway F	TWF9	0	0	0
Taxiway G	TWG1	0	0	0
Taxiway G	TWG4	0	0	0
Taxiway G	TWG8	0	100	0
Taxiway G	TWG8/A	0	0	0
Taxiway H	TWH1	0	0	0
Taxiway H	TWH2	0	100	0
Taxiway J	TWJ1	18	82	0
Taxiway J	TWJ1/A	0	100	0
Taxiway J	TWJ2	0	100	0
Taxiway J	TWJ3	0	100	0
Taxiway K	TWK1	0	100	0
Taxiway K	TWK2	0	100	0
Taxiway K	TWK2A	0	67	33
Taxiway K	TWK3	30	70	0
Taxiway K	TWK4	0	100	0
Taxiway K	TWK5	22	71	7
Taxiway L	TWL1	0	100	0
Taxiway L	TWL2	0	0	0
Taxiway M	TWM1	43	48	9
Taxiway M	TWM2	33	67	0
Taxiway M	TWM4	0	100	0
Taxiway N	TWN1	0	100	0
Taxiway N	TWN2	0	100	0
Taxiway N	TWN3	0	90	10
Taxiway P	TWP1	27	73	0
Taxiway P	TWP14	0	0	0
Taxiway P	TWP15	0	0	0
Taxiway P	TWP16	0	0	0
Taxiway P	TWP17	37	63	0
Taxiway P	TWP18	42	58	0
Taxiway P	TWP19	12	88	0
Taxiway P	TWP1A	30	70	0
Taxiway P	TWP1B	0	0	100
Taxiway P	TWP1C	0	0	100
Taxiway P	TWP2	40	60	0

Source: MicroPaver

Appendix A - Condition Reports

Distribution of Distress Type

BranchID	SectionID	PCI Pct Load	PCI Pct Climate	PCI Pct Other
Taxiway P	TWP20	49	51	0
Taxiway P	TWP21	22	78	0
Taxiway P	TWP3	0	100	0
Taxiway P	TWP6	0	0	0
Taxiway P	TWP7	0	0	0
Taxiway P1	TWP1/1	0	0	0
Taxiway P1	TWP1/2	0	0	0
Taxiway P1	TWP1/3	0	0	0
Taxiway Q	TWQ1	0	100	0
Taxiway Q	TWQ2	0	100	0
Taxiway Q	TWQ3	39	61	0
Taxiway Q	TWQ4	0	100	0
Taxiway Q	TWQ5	0	100	0
Taxiway Q	TWQ6	34	66	0
Taxiway Q	TWQ7	13	87	0
Taxiway Q	TWQ8	20	80	0
Taxiway R	TWR2	0	0	0
Taxiway R	TWR2A	0	100	0
Taxiway R	TWR2C	0	100	0
Taxiway R	TWR3	0	0	0
Taxiway R1	TWR1/1	0	0	0
Taxiway R1	TWR1/2	13	87	0
Taxiway R1	TWR1/3	0	100	0
Taxiway S	TWS1	10	78	12
Taxiway S	TWS10	0	100	0
Taxiway S	TWS2	0	94	6
Taxiway S	TWS3	13	87	0
Taxiway S	TWS4	0	100	0
Taxiway S	TWS5	0	100	0
Taxiway S	TWS6	36	64	0
Taxiway S	TWS7	0	100	0
Taxiway S	TWS8	0	34	66
Taxiway S	TWS9	0	100	0
Taxiway T	TWT10	0	100	0
Taxiway T	TWT11	0	100	0
Taxiway T	TWT12	0	100	0
Taxiway T	TWT13	0	100	0
Taxiway T	TWT2	13	87	0
Taxiway T	TWT3A	34	63	3
Taxiway T	TWT4	39	59	2
Taxiway T	TWT5	48	52	0
Taxiway T	TWT6	0	100	0
Taxiway T	TWT7	0	100	0
Taxiway T	TWT8	0	100	0
Taxiway T	TWT9	0	100	0
Taxiway U	TWU1	0	0	0
Taxiway U	TWU2	0	0	0
Taxiway U	TWU3	0	0	0

Source: MicroPaver

Appendix A - Condition Reports

Distribution of Distress Type

BranchID	SectionID	PCI Pct Load	PCI Pct Climate	PCI Pct Other
Taxiway U1	TWU1/1	0	0	0
Taxiway U2	TWU2/1	0	0	0
Taxiway V	TWV1	0	100	0
Taxiway W	TWW	59	41	0
Taxiway Y	TWY1	0	100	0
Taxiway Y	TWY2	0	0	0
Txlane AA	TLAA1	51	45	4
Txlane AA	TLAA2	18	77	5
Txlane JJ	TLJJ1	80	18	2
Txlane JJ	TLJJ2	0	46	54
Txlane JJ	TLJJ3	23	71	6
Txlane NN	TLNN1	65	33	2
Txlane NN	TLNN2	53	41	6

Source: MicroPaver

AECOM

Appendix B

Maps

BWI Airside Network Definition

Appendix B-1

Legend

- Sections
- Sample Units
- Not Inspected (Under Construction)

N W E S

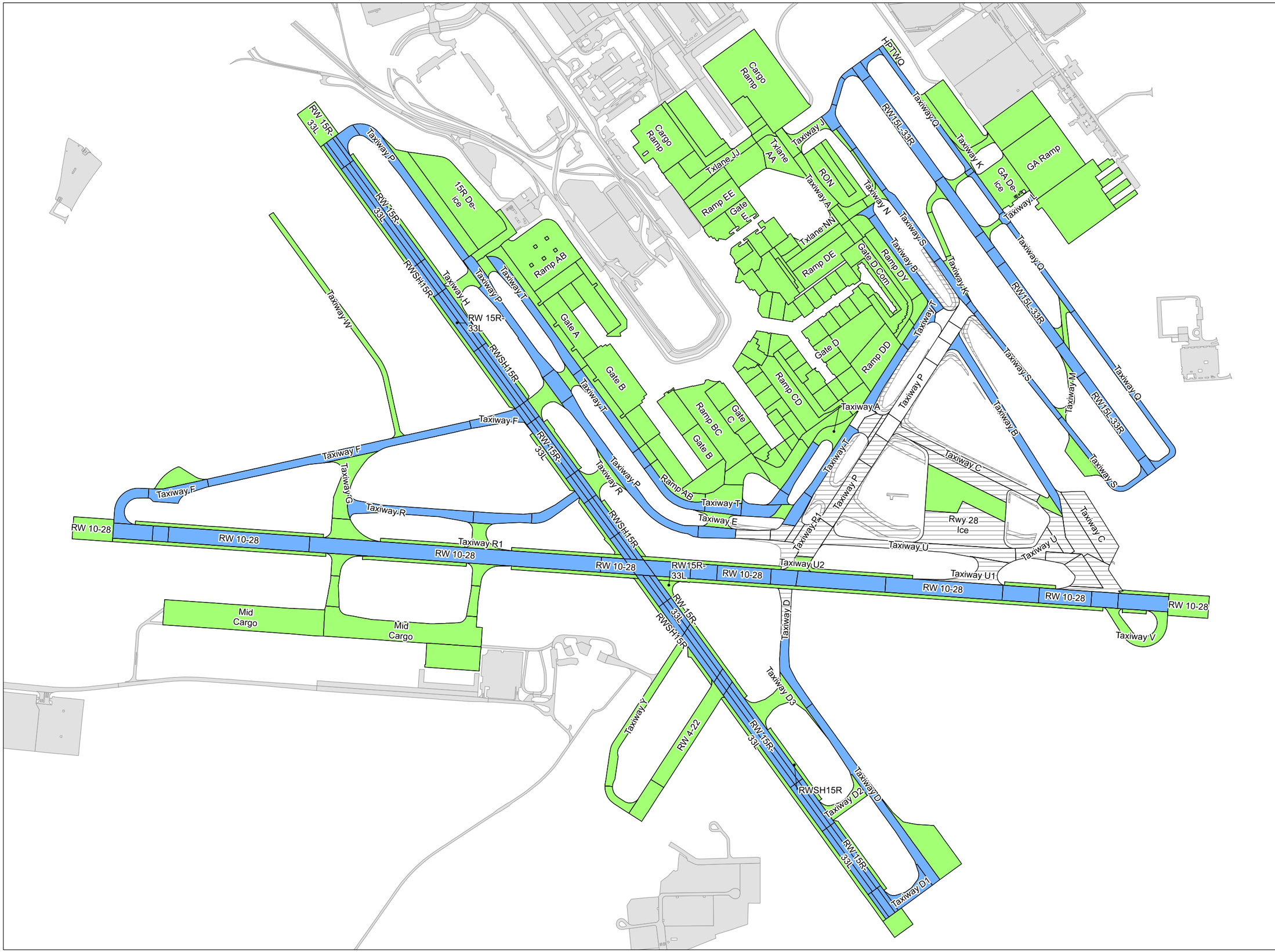
0 500 1,000 Feet

AECOM

PTS Pavement Technical Solutions

December 2016

BWI Airside
PMP Scope and Survey Methods
Appendix B-2



Survey Method

- LCMS
- Manual
- Not Inspected (Under Construction)

N
W E
S

0 500 1,000 Feet

AECOM

PTS

December 2016

BWI Airside Pavement Condition (2015)

Appendix B-3

PCI

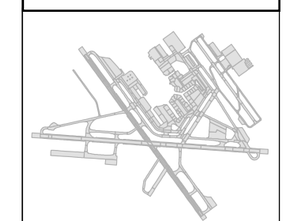
- 86 - 100 (Good)
- 71 - 85 (Satisfactory)
- 56 - 70 (Fair)
- 41 - 55 (Poor)
- 26 - 40 (Very Poor)
- 11 - 25 (Serious)
- 0 - 10 (Failed)
- Not Inspected (Under Construction)

N W E S

0 500 1,000 Feet

AECOM PTS

December 2016



BWI Airside Pavement Condition by Sampe Unit (2015)

Appendix B-4

PCI

- 0 - 10 (Failed)
- 11 - 25 (Serious)
- 26 - 40 (Very Poor)
- 41 - 55 (Poor)
- 56 - 70 (Fair)
- 71 - 85 (Satisfactory)
- 86 - 100 (Good)
- Not Inspected (Under Construction)

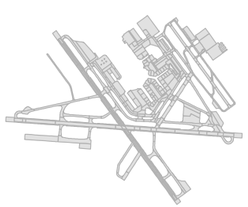
N
W E
S

0 500 1,000 Feet

AECOM

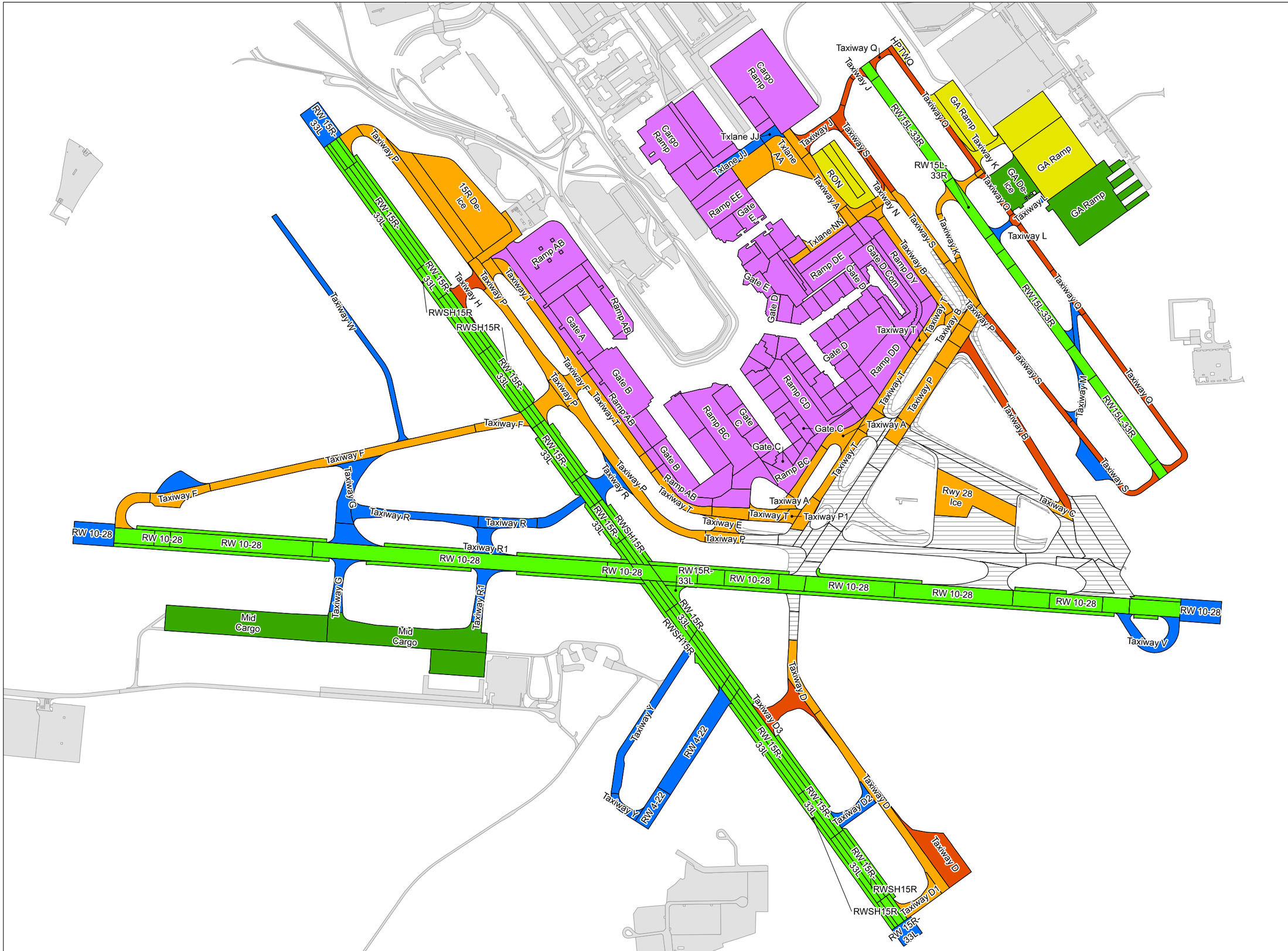
PTS

December 2016



BWI Airside Priority

Appendix B-5



Priority

- 1
- 2 (No Priority 2 Pavements)
- 3
- 4
- 5
- 6
- 7
- 8
- Not Inspected (Under Construction)

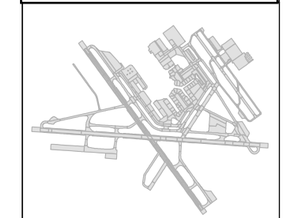
N W E S

0 500 1,000 Feet

AECOM

PTS

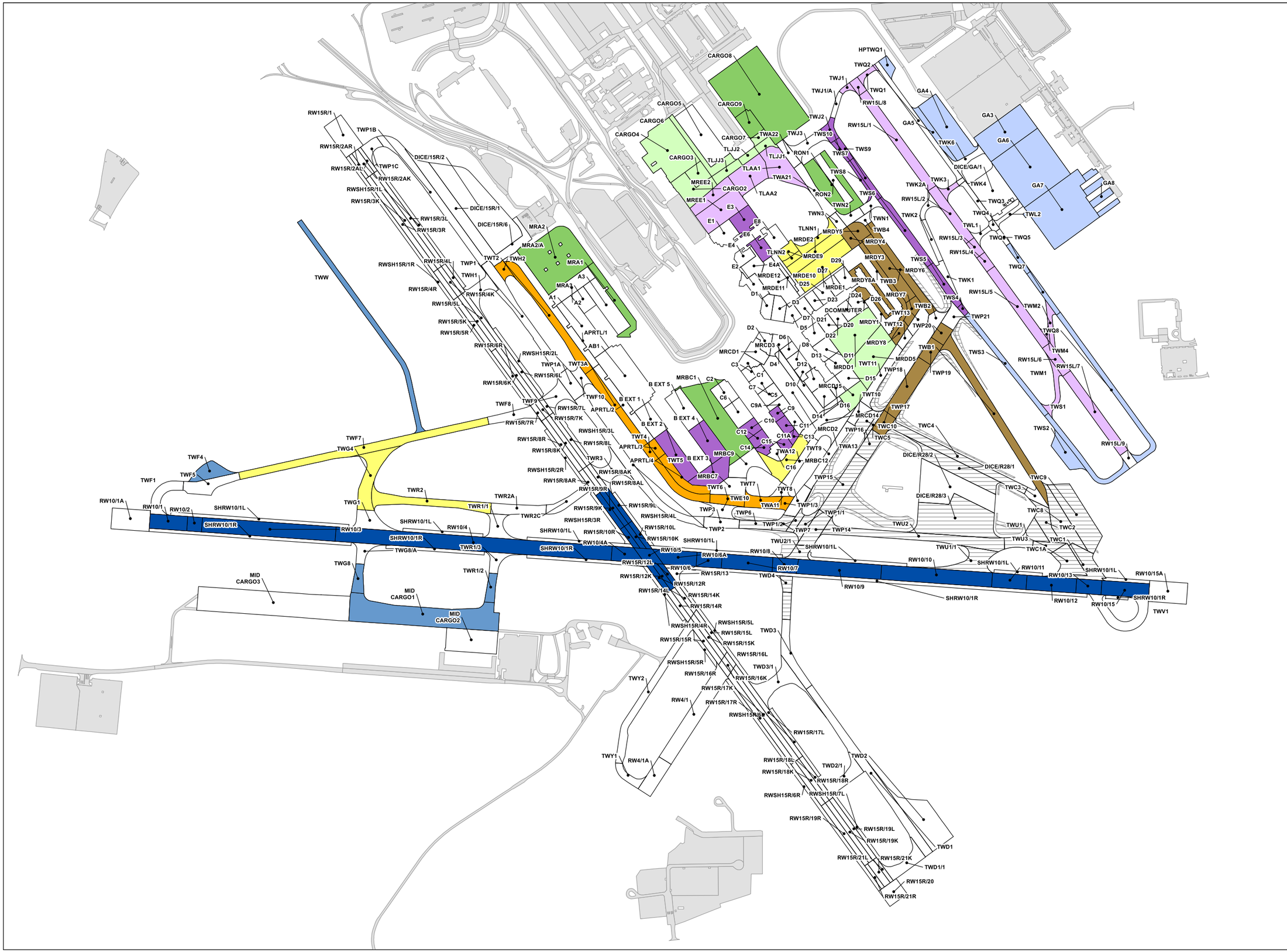
December 2016



BWI Airside

10-Year CIP

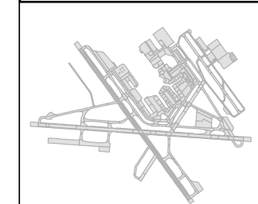
Appendix B-6

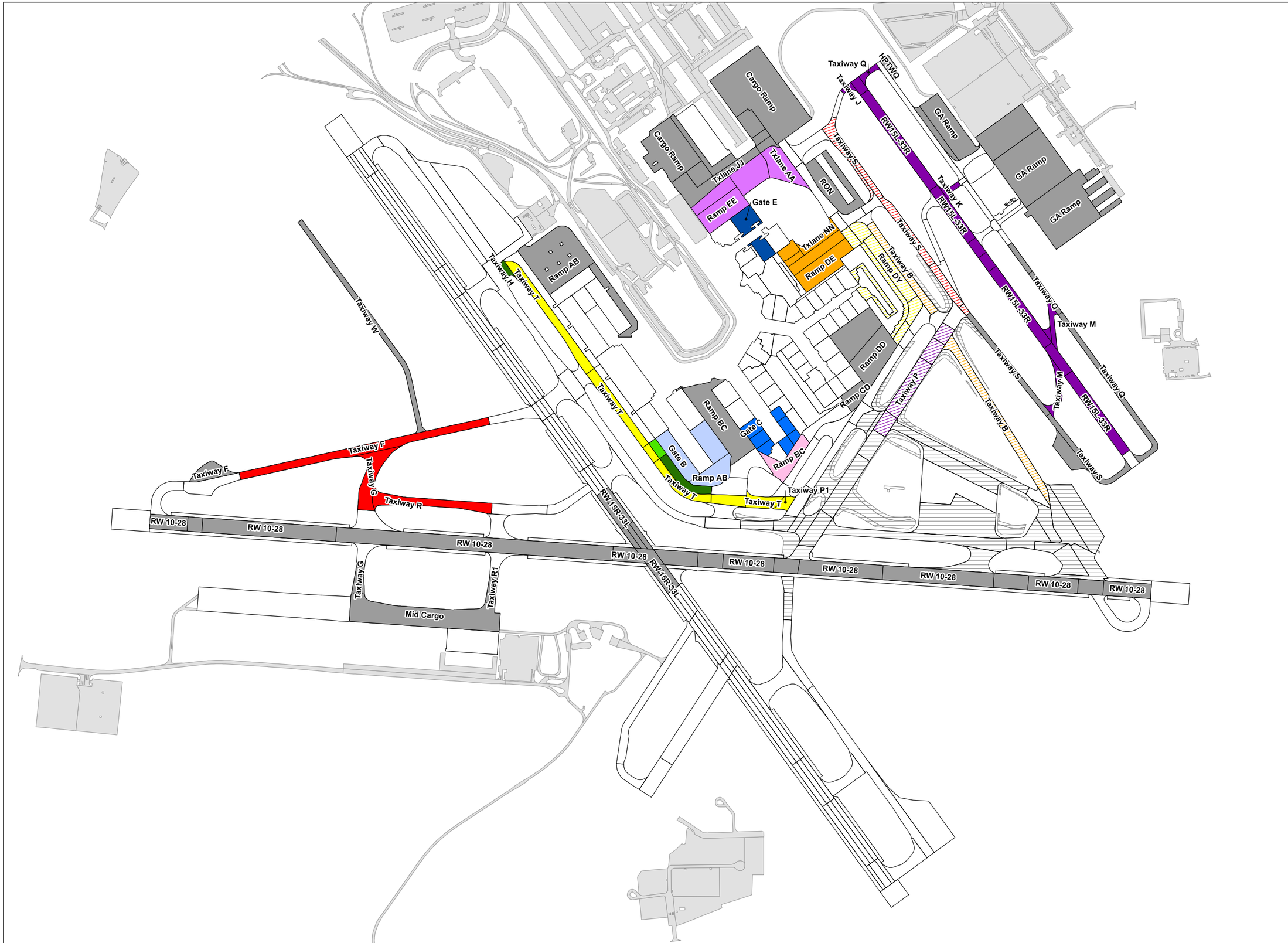


AECOM

PTS

December 2016





BWI Airside CIP by Project

Appendix B-7

Projects

- 17-01
- 17-02
- 17-03
- 18-01
- 18-02
- 18-03
- 19-01
- 19-02
- 20-01
- 20-02
- 20-03
- 20-04
- 21-01
- 21-02
- 21-03
- 22-01 through 26-03
- Not Inspected (Under Construction)

N W E S

0 500 1,000 Feet

AECOM PTS

December 2016

AECOM

Appendix C

PCI Distress Descriptions

Appendix C - PCI Distress Descriptions
(Extracted from MicroPaver v7.0.5)

1. Alligator Cracking (AC)

Alligator or fatigue cracking is a series of interconnecting cracks caused by fatigue failure of the Asphalt Concrete surface under repeated traffic loading. The cracking initiates at the bottom of the Asphalt Concrete surface (or stabilized base) where tensile stress and strain are highest under a wheel load. The cracks propagate to the surface initially as a series of parallel cracks. After repeated traffic loading, the cracks connect, forming many-sided, sharp-angled pieces that develop a pattern resembling chicken wire or the skin of an alligator. The pieces are less than 2 feet (0.6 meters) on the longest side.

Severities:

- Low - Fine, longitudinal hairline cracks running parallel to one another with none or only a few interconnecting cracks. The cracks are not spalled;
- Medium - Further development of light alligator cracking into a pattern or network of cracks that may be lightly spalled. Medium-severity alligator cracking is defined by a well-defined pattern of interconnecting cracks, where all pieces are securely held in place (good aggregate interlock between pieces);
- High – Network or pattern cracking has progressed so that the pieces are well defined and spalled at the edges; some of the pieces may rock under traffic and may cause FOD potential.

Repair options:

- Low - No action, surface seal or overlay for low severity distress;
- Medium - partial or full depth patch, overlay or reconstruct;
- High - partial or full depth patch, overlay, or reconstruct.

2. Bleeding (AC)

Bleeding is a film of bituminous material on the pavement surface that creates a shiny, glass-like, reflecting surface that usually becomes quite sticky. Bleeding is caused by excessive amounts of asphaltic cement or tars in the mix or low-air void content, or both. It occurs when asphalt fills the voids of the mix during hot weather and then expands out onto the surface of the pavement. Since the bleeding process is not reversible during cold weather, asphalt or tar will accumulate on the surface.

Severities: No degrees of severity are defined.

Repair Policies: Do nothing; sand blot the distressed area by applying heat and roll sand into the areas affected with bleeding, remove the excess material; patch.

3. Block Cracking (AC)

Block cracks are interconnected cracks that divide the pavement into approximately rectangular pieces. The blocks may range in size from 1 by 1 foot to 10 by 10 feet (0.3 by 0.3 meters to 3 by 3 meters). Block cracking is caused mainly by shrinkage of the asphalt concrete and daily temperature cycling (that results in daily stress/strain cycling). It is not load associated. The occurrence of block cracking usually indicates that the asphalt has hardened significantly. Block cracking normally occurs over a large proportion of pavement area, but will sometimes occur only in the non-traffic areas. This type of distress differs from alligator cracking in that the alligator cracks form smaller, many-sided pieces with sharp angles. Also unlike block cracks, alligator cracks are caused by a repeated traffic loadings and are, therefore, located only in traffic areas (that is, wheel paths).

Severities:

- Low – Blocks are defined by cracks that are at nonspalled (sides of the cracks are vertical) or lightly spalled, causing no FOD potential. Nonfilled cracks have 1/4 inch (6 mm) or less mean width and filled cracks have filler in satisfactory condition;
- Medium – Blocks are defined by either: filled or nonfilled cracks that are moderately spalled (some FOD potential); nonfilled cracks that are not spalled or have only minor spalling (some FOD potential), but have a mean width greater than approximately 1/4 inch (6 mm); or filled cracks greater than 1/4 inch that are spalled or have only minor spalling (some FOD potential), but have filler in unsatisfactory condition;
- High – Blocks are well defined by cracks that are severely spalled, causing a definite FOD potential.

Repair Policies:

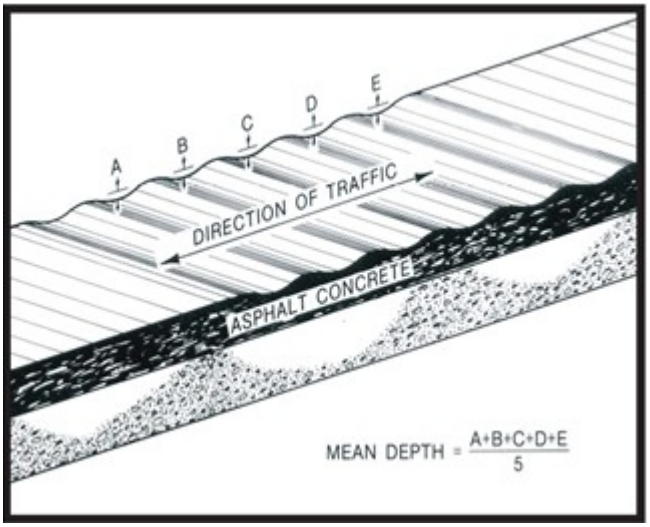
- Low - No action;
- Medium - seal cracks, apply rejuvenator, recycle surface or heat scarify and overlay;
- High - recycle surface or heat scarify and overlay.

4. Corrugation (AC)

Corrugation is a series of closely spaced ridges and valleys (ripples) occurring at fairly regular intervals, usually less than 5 feet (1.5 meters) along the pavement. The ridges are perpendicular to the traffic direction. Traffic action combined with an unstable pavement surface or base usually causes this type of distress.

Severities:

- Low - Corrugations are minor and do not significantly affect ride quality (see measurement criteria below).
- Medium - Corrugations are noticeable and significantly affect ride quality (see measurement criteria below).
- High - Corrugations are easily noticed and severely affect ride quality (see measurement criteria below).



5. Depression (AC)

Depressions are localized pavement surface areas having elevations slightly lower than those of the surrounding pavement. In many instances, light depressions are not noticeable until after a rain, when ponding water creates “birdbath” areas; but the depressions can also be located without rain because of stains created by ponding of water. Depressions can be caused by settlement of the foundation soil or can be built during construction. Depressions cause roughness and, when filled with water of sufficient depth, could cause hydroplaning of aircraft.

Severities:

- Low - Depression can be observed or located by stained areas, only slightly affects pavement riding quality, and may cause hydroplaning potential on runways. Maximum depth 1/8 to 1/2 inch for runways, 1/2 to 1 inch for taxiways and aprons;
- Medium - The depression can be observed, moderately affects pavement riding quality, and causes hydroplaning potential on runways. Maximum depth 1/2 to 1 inch for runways, 1 to 2 inches for taxiways and aprons;
- High - The depression can be readily observed, severely affects pavement riding quality, and causes definite hydroplaning potential; Depth greater than 1 inch for runways, greater than 2 inches for taxiways and aprons;.

Repair Policies:

- Low - No action;
- Medium - Shallow, partial or full depth patch;
- High - Shallow, partial or full depth patch.

6. Jet Blast (AC)

Jet blast erosion causes darkened areas on the pavement surface when bituminous binder has been burned or carbonized. Localized burned areas may vary in depth up to approximately 1/2 inch (13 millimeters).

Severities:

No degrees of severity are defined. It is sufficient to indicate that jet blast erosion exists.

7. Joint Reflection Cracking (AC)

This distress occurs only on pavements having an asphalt or tar surface over a PCC slab. This category does not include reflection cracking from any other type of base (that is, cement stabilized, lime stabilized). Such cracks are listed as longitudinal and transverse cracks. Joint-reflection cracking is caused mainly by movement of the PCC slab beneath the AC surface because of thermal and moisture changes; it is not load related. However, traffic loading may cause a breakdown of the AC near the crack, resulting in spalling and FOD potential. If the pavement is fragmented along a crack, the crack is said to be spalled. A knowledge of slab dimensions beneath the AC surface will help to identify these cracks.

Severities:

- Low - Cracks have only light spalling (little or no FOD potential) or no spalling and can be filled or non-filled. If non-filled, the cracks have a mean width of 1/4 inch (6 millimeters) or less; filled cracks are of any width, but their filler material is in satisfactory condition.
- Medium - One of the following conditions exists: (1) cracks are moderately spalled (some FOD potential) and can be either filled or nonfilled of any width; (2) filled cracks are not spalled or are only lightly spalled, but the filler is in unsatisfactory condition; (3) nonfilled cracks are not spalled or are only lightly spalled, but the mean crack width is greater than 1/4 inch (6 millimeters); or (4) light random cracking exists near the crack or at the corner of intersecting cracks.
- High - Cracks are severely spalled with pieces loose or missing causing definite FOD potential. Cracks can be either filled or nonfilled of any width.

8. Longitudinal and Transverse Cracking (AC)

Longitudinal cracks are parallel to the pavement's centerline or laydown direction. They may be caused by (1) a poorly constructed paving lane joint, (2) shrinkage of the AC surface due to low temperatures or hardening of the asphalt, or (3) a reflective crack caused by cracks beneath the surface course, including cracks in PCC slabs (but not PCC joints). Transverse cracks extend across the pavement at approximately right angles to the pavement centerline or direction of laydown. They may be caused by (2) or (3) (as stated above). These types of cracks are not usually load associated. If the pavement is fragmented along a crack, the crack is said to be spalled.

Severities:

- Low - Cracks have only light spalling (little or no FOD potential) or no spalling, the cracks have a mean width of 1/4 inch (6 mm) or less; cracks are any width but their filler is in satisfactory condition.
- Medium - One of the following conditions exists: (1) cracks are moderately spalled (some FOD potential) and can be either filled or nonfilled of any width; (2) filled cracks are not spalled or are lightly spalled, but filler is in unsatisfactory condition; (3) nonfilled cracks are not spalled or are only lightly spalled, but the crack width is greater than 1/4 inch (6 mm); or (4) light random cracking exists near the crack or at the corner of the intersecting cracks;
- High – Cracks are severely spalled and pieces are loose or missing causing definite FOD potential. Cracks can be either filled or nonfilled of any width.

Repair Policies:

- Low - No action;
- Medium - seal cracks;
- High - seal cracks or perform a full depth patch.

9. Oil Spillage (AC)

Oil spillage is the deterioration or softening of the pavement surface caused by the spilling of oil, fuel, or other solvents.

Severities: No degrees of severity are defined. It is sufficient to indicate that oil spillage exists.

Repair Policies:

- Do nothing;
- Partial or full depth patch.

10. Patching (AC)

A patch is considered a defect, no matter how well it is performing.

Severities:

- Low - in good condition and is performing satisfactorily;
- Medium - Patch is somewhat deteriorated and affects ride quality to some extent. Moderate amount of distress is present within the patch or has FOD potential, or both.
- High - Patch is badly deteriorated and affects ride quality significantly or has high FOD potential. Patch soon needs replacement.

Repair options:

- Low - No action;
- Medium - seal cracks, repair the distresses in the patch or replace the patch;
- High - replace the patch.

11. **Polished Aggregate** (AC)

Aggregate polishing is caused by repeated traffic applications. Polished aggregate is present when close examination of a pavement reveals that the portion of aggregate extending above the asphalt is either very small, or there are no rough or angular aggregate particles to provide good skid resistance.

Severities:

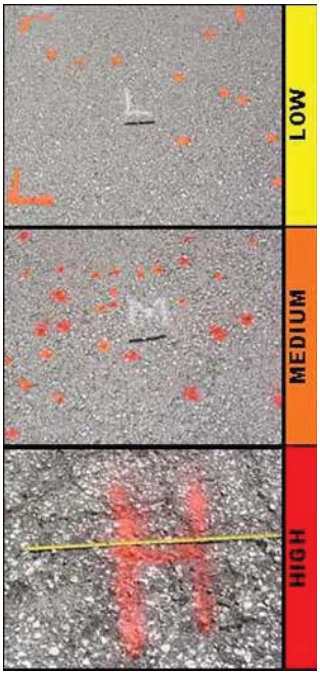
No degrees of severity are defined. However, the degree of polishing should be clearly evident in the sample unit, in that the aggregate surface should be smooth to the touch.

12. Raveling (AC)

Definition
Raveling is the dislodging of coarse aggregate particles from the pavement surface .

<u>Dense Mix Severities</u>:
As used herein, coarse aggregate refers to predominant coarse aggregate sizes of the asphalt mix. Aggregate clusters refer to when more than one adjoining coarse aggregate piece is missing. If in doubt about a severity level, three representative areas of one square yard each (one square meter) should be examined and the number of missing coarse aggregate particles counted.

- Low – (1) In a square yard (square meter) representative area, the number of coarse aggregate particles missing is between 5 and 20, and/or (2) missing aggregate clusters are less than 2 percent of the examined square yard (square meter) area. In low severity raveling, there is little or no FOD potential.
- Medium - (1) In a square yard (square meter) representative area, the number of coarse aggregate particles missing is between 21 and 40 and/or (2) missing aggregate clusters are between 2 and 10 percent of the examined square yard (square meter) area. In medium severity raveling, there is some FOD potential.
- High - (1) In a square yard (square meter) representative area, the number of coarse aggregate particles missing is over 40, and/or (2) missing aggregate clusters are more than 10 percent of the examined square yard (square meter) area. In high severity raveling, there is significant FOD potential.

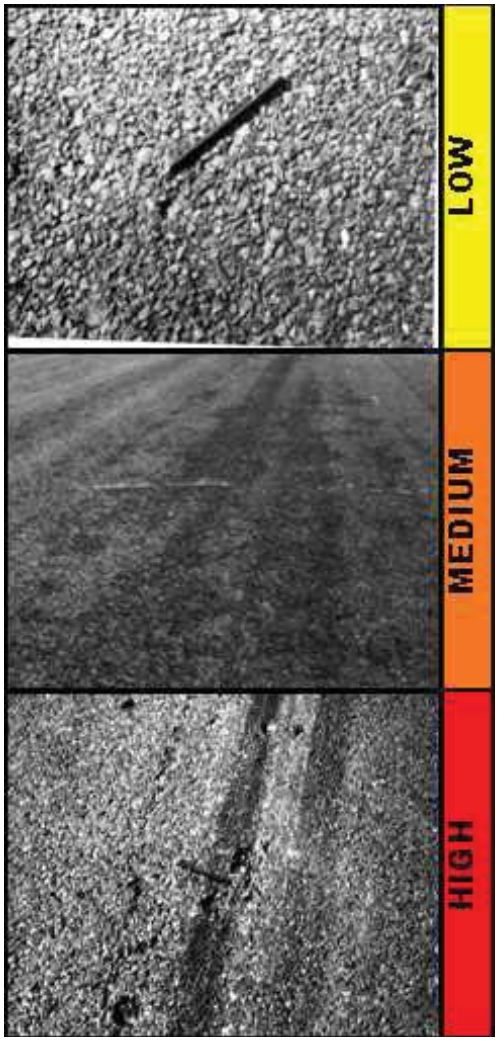


Slurry Seal/ Coal Tar Over Dense Mix Severities:

- Low – (1) The scaled area is less than 1 percent. (2) In the case of coal tar where pattern cracking has developed, the surface cracks are less than 1/4 inch (6 mm) wide.
- Medium - (1) The scaled area is between 1 and 10 percent. (2) In the case of coal tar where pattern cracking has developed, the cracks are 1/4 inch (6 mm) wide or greater.
- High - (1) The scaled area is over 10 percent. (2) In the case of coal tar the surface is peeling off.

Porous Friction Course Severities:

- Low - In a 1 square foot (1/10 square meter) representative sample, the number of aggregate pieces missing is between 5 and 20 and/or the number of missing aggregate clusters does not exceed 1.
- Medium - In a 1 square foot (1/10 square meter) representative sample, the number of aggregate pieces missing is between 21 and 40 and/or the number of missing aggregate clusters is greater than 1 but does not exceed 25 percent of the area.
- High - In a 1 square foot (1/10 square meter) representative sample, the number of aggregate pieces missing is over 40 and/or the number of missing aggregate clusters is greater than 25 percent of the area.



13. Rutting (AC)

A rut is a surface depression in the wheel path. Pavement uplift may occur along the sides of the rut; however, in many instances ruts are noticeable only after a rainfall, when the wheel paths are filled with water. Rutting stems from a permanent deformation in any of the pavement layers or sub-grade, usually caused by consolidation or lateral movement of the materials due to traffic loads. Significant rutting can lead to major structural failure of the pavement.

Severities (based on rut depth):

- Low - between ¼ and ½ inch in depth (< 6 to 13 mm);
- Medium - between ½ and 1 inch in depth (> 13 to < 25 mm);
- High - exceeds 1 inch in depth (> 25 mm).

Repair options:

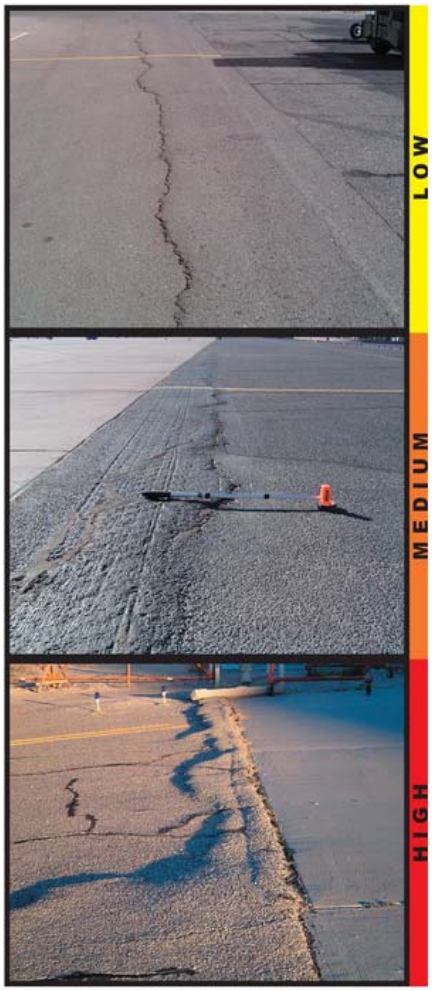
- Low - No action;
- Medium - patch and/or overlay;
- High - patch and/or overlay.

14. Shoving (AC)

PCC pavements occasionally in length at ends where they adjoin flexible pavements (commonly referred to as “pavement growth”). This “growth” shoves the asphalt- or tar-surfaced pavements, causing them to swell and crack. The PCC slab “growth” is caused by a gradual opening up of the joints as they are filled with incompressible materials that prevent them from reclosing.

Severities:

- Low - A slight amount of shoving has occurred and no breakup of the asphalt pavement; < ¾ inch in depth (< 20 mm).
- Medium - A significant amount of shoving has occurred, causing moderate roughness and little or no breakup of the asphalt pavement; between ¾ and 1½ inches in depth (> 20 to 40 mm).
- High – A large amount of shoving has occurred, causing severe roughness or breakup of the asphalt pavement; > 1½ inches in depth (> 40mm).



15. Slippage Cracking (AC)

Slippage cracks are crescent- or half-moon shaped cracks having two ends pointed away from the direction of traffic. They are produced when braking or turning wheels cause the pavement surface to slide and deform. This usually occurs when there is a low-strength surface mix or poor bond between the surface and next layer of pavement structure.

Severities:

No degrees of severity are defined. It is sufficient to indicate that a slippage crack exists.

Repair Policies:

- Do nothing;
- Partial or full depth patch.

16. Swelling (AC)

Description

A swell is characterized by an upward bulge in the pavement's surface. A swell may occur sharply over a small area or as a longer, gradual wave. Either type of swell can be accompanied by surface cracking. A swell is usually caused by frost action in the subgrade or by swelling soil, but a small swell can also occur on the surface of an asphalt overlay (over PCC) as a result of a blow- up in the PCC slab.

Severity Levels

- Low - Swell is barely visible and has a minor effect on the pavement's ride quality. (Low-severity swells may not always be observable, but their existence can be confirmed by driving a vehicle over the section. An upward acceleration will occur if the swell is present).
- Medium - Swell can be observed without difficulty and has a significant effect on the pavement's ride quality.
- High - Swell can be readily observed and severely affects the pavement's ride quality.

15. Weathering (AC)

The wearing away of the asphalt binder and fine aggregate matrix from the pavement surface.

Severities:

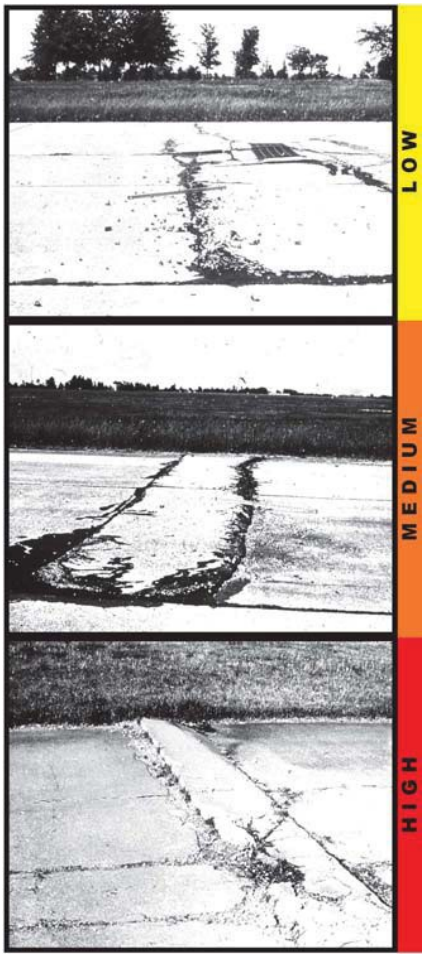
- Low - Asphalt surface beginning to show signs of aging which may be accelerated by climatic conditions. Loss is the fine aggregate matrix is noticeable and may be accompanied by fading of the asphalt color. Edges of the coarse aggregates are beginning to be exposed (less than 0.05 inches or 1 mm). Pavement may be relatively new (as new as 6 months old).
- Medium - Loss of fine aggregate matrix is noticeable and edges of coarse aggregate have been exposed up to 1/4 width (of the longest side) of the coarse aggregate due to the loss of fine aggregate matrix.
- High - Edges of coarse aggregate have been exposed greater than 1/4 width (of the longest side) of the coarse aggregate. There is considerable loss of fine aggregate matrix leading to potential or some loss of coarse aggregate.

16. Blow-Up (PCC)

Blowups occur in hot weather, usually at a transverse crack or joint that is not wide enough to permit expansion by the concrete slabs. The insufficient width is usually caused by infiltration of incompressible materials into the joint space. When expansion cannot relieve enough pressure, a localized upward movement of the slab edges (buckling) or shattering will occur in the vicinity of the joint. Blowups can also occur at utility cuts and drainage inlets. This type of distress is almost always repaired immediately because of severe damage potential to aircraft. Blowups are included for reference when closed sections are being evaluated for reopening.

Severities:

- Low - Buckling or shattering has not rendered the pavement inoperable, and only a slight amount of roughness exists.
- Medium - Buckling or shattering has not rendered the pavement inoperable, but a significant amount of roughness exists.
- High - Buckling or shattering has rendered the pavement inoperable.



17. Corner Breaks (PCC)

A corner break is a crack that intersects the joints at a distance less than or equal to one half of the slab length on both sides, measured from the corner of the slab. For example, a slab with dimensions of 25 by 25 feet (7.5 by 7.5 meters) that has a crack intersecting the joint 5 feet (1.5 meters) from the corner on one side and 17 feet (2 meters) on the other side is not considered a corner break; it is a diagonal crack. However, a crack that intersects 7 feet (2 meters) on one side and 10 feet (3 meters) on the other is considered a corner break. A corner break differs from a corner spall in that the crack extends vertically through the entire slab thickness, while a corner spall intersects the joint at an angle. Load repetition combined with loss of support and curling stresses usually causes corner breaks.

Severities:

- Low - Crack has little or minor spalling (no FOD potential). If nonfilled, it has a mean width less than approximately 1/8 inch (3 mm). A filled crack can be of any width, but the filler material must be in satisfactory condition. The area between the corner break and the joints is not cracked;
- Medium - One of the following conditions exists: (1) filled or nonfilled crack is moderately spalled (some FOD potential); (2) a nonfilled crack has a mean width between 1/8 and 1 inch (3 and 25 mm); (3) a filled crack is not spalled or only lightly spalled, but the filler is in unsatisfactory condition; or (4) the area between the corner break and the joints is lightly cracked. Lightly cracked means one low-severity crack dividing the corner into two pieces;
- High - One of the following conditions exists: (1) filled or non- filled crack is severely spalled, causing definite FOD potential; (2) a non- filled crack has a mean width greater than approximately 1 inch (25 millimeters), creating a tire damage potential; or (3) the area between the corner break and the joints is severely cracked.

Repair options:

- Low - No action or seal cracks;
- Medium - seal cracks;
- High - seal cracks, apply a full depth patch or replace the slab.

18. Cracks: Longitudinal, Transverse and Diagonal (PCC)

These cracks, which divide the slab into two or three pieces, are usually caused by a combination of load repetition, curling stresses, and shrinkage stresses. (For slabs divided into four or more pieces, see Shattered Slab/Intersecting Cracks.) Low-severity cracks are usually warping- or friction-related and are not considered major structural distresses. Medium- or high-severity cracks are usually working cracks and are considered major structural distresses.

Severities:

- Low - Crack has no spalling or minor spalling (no FOD potential). If nonfilled, it is less than 1/8 inch (3 mm) wide; a filled crack can be of any width, but its filler material must be in satisfactory condition; or the slab is divided into three pieces by low-severity cracks;
- Medium - One of the following conditions exists: (1) filled or nonfilled crack is moderately spalled (some FOD potential); (2) a non-filled crack has a mean width between 1/8 and 1 inch (3 and 25 mm); (3) a filled crack is not spalled or only lightly spalled, but the filler is in unsatisfactory condition; or (4) the slab is divided into three pieces by two or more cracks, one of which is at least medium severity;
- High - One of the following conditions exists: (1) a filled or nonfilled crack is severely spalled, causing definite FOD potential; (2) a non-filled crack has a mean width greater than approximately 1 inch (25 millimeters), creating tire damage potential, or (3) the slab is divided into three pieces by two or more cracks, one of which is at least high severity.

Repair options:

- Low - No action or seal cracks;
- Medium - seal cracks;
- High - seal cracks, apply a full depth patch or replace the slab.

19. Durability Cracks (PCC)

Durability cracking is caused by the concrete's inability to withstand environmental factors, such as freeze-thaw cycles. It usually appears as a pattern of cracks running parallel to a joint or linear crack. A dark coloring can usually be seen around the fine durability cracks. This type of cracking may eventually lead to disintegration of the concrete within 1 to 2 feet (300 to 600 millimeters) of the joint or crack.

Severities:

- Low - "D" cracking is defined by hairline cracks occurring in a limited area of the slab, such as one or two corners or along one joint. Little or no disintegration has occurred. No FOD potential.
- Medium - "D" cracking has developed over a considerable amount of slab area with little or no disintegration or FOD potential; or "D" cracking has occurred in a limited area of the slab, such as in one or two corners or along one joint, but pieces are missing and disintegration has occurred. Some FOD potential.
- High - "D" cracking has developed over a considerable amount of slab area with disintegration of FOD potential.

20. Joint Seal Damage (PCC)

Joint seal damage is any condition that enables soil or rocks to accumulate in the joints or allow significant infiltration of water. Accumulation of incompressible materials prevents the slab from expanding and may result in buckling, shattering, or spalling. A pliable joint filler bonded to the edges of the slabs protects joints from the accumulation of materials and also prevents water from seeping down and softening the foundation supporting the slab. Typical types of joint seal damage are: (1) stripping the joint sealant, (2) extrusion of joint sealant, (3) weed growth, (4) hardening of the filler (oxidation), (5) loss of bond to the slab edges, and (6) lack or absence of sealant in the joint.

Severities:

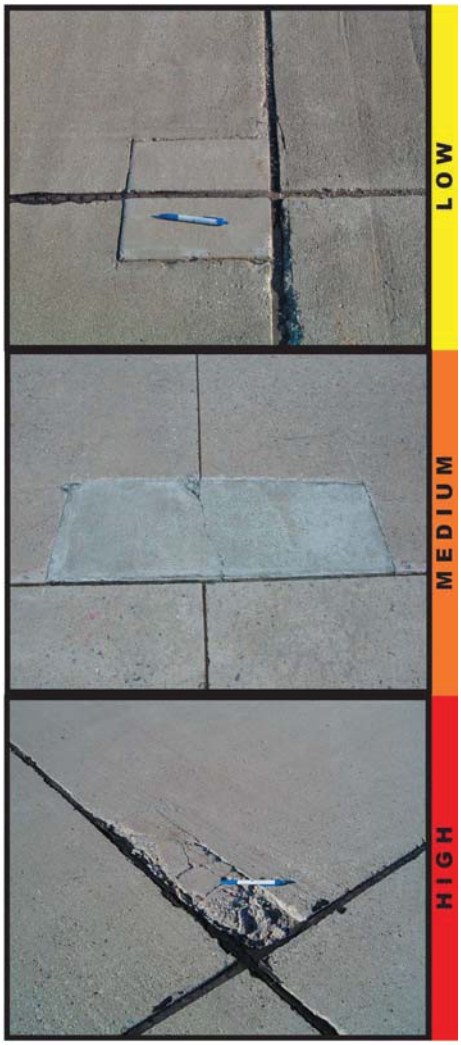
- Low - Joint sealer is in generally good condition throughout the sample. Sealant is performing well with only a minor amount of any of the above types of damage present. Joint seal damage is at a low severity if a few of the joints have sealer which has debonded from, but is still in contact with, the joint edge. This condition exists if a knife blade can be inserted between sealer and joint face without resistance;
- Medium - Joint sealer is in generally fair condition over the entire surveyed sample with one or more of any of the above types of damage present occurring to a moderate degree. Sealant needs replacement within two years. Joint seal damage is a medium severity if a few of the joints have any of the following conditions: (1) joint sealer is in place, but water access is possible through visible openings no more than 1/8 inches (3 mm) wide. If a knife blade cannot be inserted easily between sealer and joint face, this condition does not exist; (2) pumping debris are evident at the joint; (3) joint sealer is oxidized and “lifeless” but pliable (like a rope), and generally fills the joint opening; or (4) vegetation in the joint is obvious, but does not obscure the joint opening;
- High - Joint sealer is in generally poor condition over the entire surveyed sample with one or more of any of the above types of damage present occurring to a severe degree. Sealant needs immediate replacement. Joint seal damage is at high severity if 10 percent or more of the joint sealer exceeds limiting criteria listed above, or if 10 percent or more of the sealer is missing.

Repair options:

- Low - No action;
- Medium - seal joints;
- High - seal joints.

21. Small Patch (PCC)

A patch is an area where the original pavement has been removed and replaced by a filler material. For condition evaluation, patching is divided into two types: small (less than 5 square feet (0.5 m^2)) and large (over 5 square feet). Large patches are described in the next section.



Severities:

- Low - Patch is functioning well, with little or no deterioration;
- Medium - Patch that has deteriorated or moderate spalling, or both, can be seen around the edges. Patch material can be dislodged, with considerable effort (minor FOD potential);
- High - Patch has deteriorated, either by spalling around the patch or cracking within the patch, to a state which warrants replacement.

Repair options:

- Low – Do Nothing;
- Medium - Replace patch or replace the slab;
- High – Replace patch or replace the slab.

22. Large Patch (PCC)

Patching is the same as defined in the previous section. A utility cut is a patch that has replaced the original pavement because of placement of underground utilities. The severity levels of a utility cut are the same as those for regular patching.

Severities:

- Low - Patch is functioning well, with little or no deterioration;
- Medium - Patch has deteriorated or moderate spalling, or both, can be seen around the edges. Patch material can be dislodged, with considerable effort (minor FOD potential);
- High - Patch has deteriorated to a state that that causes considerable roughness or high FOD potential, or both. The extent of the deterioration warrants replacement of the patch.

Repair options:

- Low – Do Nothing;
- Medium - Replace patch or replace the slab;
- High – Replace patch or replace the slab.

23. Popouts (PCC)

A popout is a small piece of pavement that breaks loose from the surface due to freeze-thaw action in combination with expansive aggregates. Popouts usually range from approximately 1 to 4 inches (25 to 100 mm) in diameter and from 1/2 to 2 inches (13 to 51 mm) deep.

Severities:

No degrees of severity are defined for popouts. However, popouts must be extensive before they are counted as a distress; that is, average popout density must exceed approximately three popouts per square yard (square meter) over the entire slab area.

24. Pumping (PCC)

Pumping is the ejection of material by water through joints or cracks caused by deflection of the slab under passing loads. As the water is ejected, it carries particles of gravel, sand, clay, or silt and results in a progressive loss of pavement support. Surface staining and base or subgrade material on the pavement close to joints or cracks are evidence of pumping. Pumping near joints indicates poor joint sealer and loss of support, which will lead to cracking under repeated loads. The joint seal must be identified as defective before pumping can be said to exist. Pumping can occur at cracks as well as joints.

Severities:

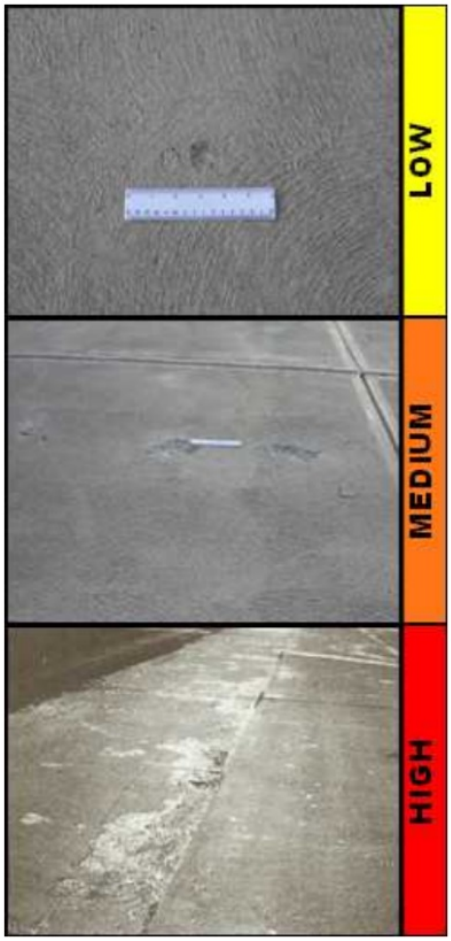
No degrees of severity are defined. It is sufficient to indicate that pumping exists.

25. Scaling (PCC)

Surface deterioration caused by construction defects, material defects and environmental factors. Generally scaling is exhibited by delamination or disintegration of paste on the slab surface to the depth of the defect. Construction defects include: over-finishing, addition of water to the pavement surface during finishing, lack of curing, attempted surface repairs of fresh concrete with mortar. Generally this occurs over a portion of a slab. Material defects include: inadequate air entrainment for the climate. Generally this occurs over several slabs that were affected by the concrete batches. Environmental factors: freezing of concrete before adequate strength gained or thermal cycles from certain aircraft. Generally over a large area for freezing, and isolated areas for thermal effects. Typically, the FOD from scaling is removed by sweeping, but the concrete will continue to scale until the affected depth is removed or expended.

Severities:

- Low - Minimal loss of surface paste that poses no FOD hazard, limited to less than 1 percent of the slab area. No FOD potential;
- Medium - The loss of surface paste that poses some FOD potential including isolated fragments of loose mortar, exposure of the sides of coarse aggregate (less than 1/4 of the width of the coarse aggregate), or evidence of coarse aggregate coming loose from the surface. Surface paste loss is greater than 1 percent of the slab area but less than 10 percent;
- High – High severity is associated with low durability concrete that will continue to pose a high FOD hazard; normally the layer of surface mortar is observable at the perimeter of the scaled area, and is likely to continue to delaminate or disintegrate due to environmental or other factors. Routine sweeping is not sufficient to avoid FOD issues, is an indication that high FOD hazard present. Surface paste loss is greater than 10 percent of the slab area.



26. Faulting (PCC)

Settlement or faulting is a difference of elevation at a joint or crack caused by upheaval or consolidation.

Severities:

Severity levels are defined by the difference in elevation across the fault and the associated decrease in ride quality and safety as severity increases.

	Runways/Taxiways	**Aprons**
L	< 1/4 inch (6 mm)	1/8 – 1/2 inch (3 to 13 mm)
M	1/4 – 1/2 inch (6 to 13 mm)	1/2 - 1 inch (13 to 25 mm)
H	> 1/2 inch (13 mm)	> 1 inch (25 mm)

Repair Options:

- Low - No action;
- Medium – Grinding along the joint;
- High – Grinding or joint load transfer restoration.

27. Shattered Slab/Intersecting Cracks (PCC)

Intersecting cracks are cracks that break into four or more pieces due to overloading or inadequate support, or both. The high-severity level of this distress type, as defined as follows, is referred to as a shattered slab. If all pieces or cracks are contained within a corner break, the distress is categorized as a severe corner break.

Severities:

- Low - Slab is broken into four or five pieces predominantly defined by low-severity;
- Medium - Slab is broken into four or five pieces with over 15 percent of the cracks of medium severity (no high-severity cracks); slab is broken into six or more pieces with over 85 percent of the cracks of low-severity;
- High - At this level of severity, the slab is called shattered: (1) slab is broken into four or five pieces with some or all of the cracks of high severity; (2) slab is broken into six or more pieces with over 15 percent of the cracks of medium or high severity.

Repair options:

- Low – Seal Cracks;
- Medium - Full depth patch or replace the slab;
- High - Full depth patch or replace the slab.

28. Shrinkage Crack (PCC)

Shrinkage cracking is typically categorized in two forms; drying shrinkage that occurs over time as moisture leaves the pavement and plastic shrinkage that occurs shortly after the pavement is placed and rapid drying of the surface occurs while the pavement is still plastic. Drying shrinkage cracks occur when a hardened pavement continues to shrink as excess water nit needed for cement hydration evaporates. They form when subsurface resistance to the shrinkage is present and may extend through the entire depth of the slab. Plastic shrinkage occurs when there is rapid loss of water in the surface of a recently placed pavement caused by evaporation. High winds, low humidity, and/or high ambient and/or concrete temperatures are contributing factors to evaporation. These cracks can appear as a series of parallel cracks, usually 1 to 3 feet (300 to 900 mm) apart and do not extend very deep into the pavement's surface. Another form of plastic shrinkage occurs while a pavement is still plastic and can result from overfinishing /overworking the pavement while bleed water in on the surface. This results in an increase in mortar and fines and higher water content at the surface, making the immediate surface weak and susceptible to shrinkage. The shrinkage cracks appear as a series of inter-connected hairline cracks, or pattern cracking, and are often observed over a majority of the slab surface. This condition is also referred to as map cracking or crazing.

Severities:

No degrees of severity are defined. It is sufficient to indicate that shrinkage cracks exist.

Repair options:

- Do Nothing

.

29. Joint Spalls (PCC)

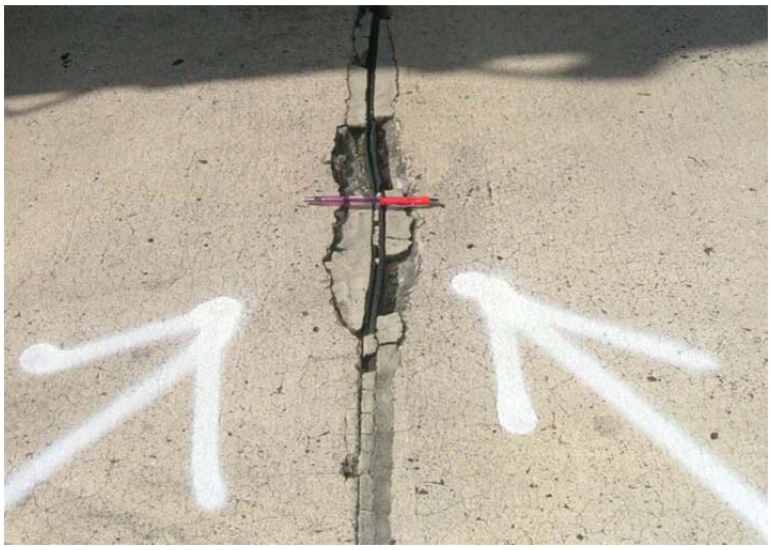
Joint spalling is the disintegration of the slab edges within 2 feet (0.6 m) of the side of the joint. A joint spall usually does not extend vertically through the slab, but intersects the joint at an angle. Spalling results from excessive stresses at the joint or crack caused by infiltration of incompressible materials or traffic loads. Weak concrete at the joint (caused by overworking) combined with traffic loads is another cause of spalling.

Severities:

- Low – Spall over 2 feet (0.6 m) long: (1) spall broken into no more than three pieces defined by low- or medium-severity cracks, with little or no FOD potential, or is (2) joint is lightly frayed; little or no FOD potential. Spall less than 2 feet long is broken into pieces or fragmented with little FOD or tire damage potential exists. Lightly frayed means he upper edge of the joint is broken away leaving a spall no wider than 1 inch (25 mm) and no deeper than 1/2 inch (13 mm). The material is missing an the joint creates little or no FOD potential;
- Medium – Spall over 2 feet (0.6 m) long: (1) spall is broken into more than three pieces defined by light or medium cracks; (2) spall is broken into no more than three pieces with one or more of the cracks being severe with some FOD potential existing; or (3) joint is moderately frayed, with some FOD potential. Spall less than 2 feet long: spall is broken into pieces or fragmented, with some of the pieces loose or absent, causing considerable FOD or tire damage potential;
- High - Spall over 2 feet (0.6 m) long: (1) spall is broken into more than three pieces defined by one or more high-severity cracks with high FOD potential and high possibility of pieces becoming dislodged; or (2) joint is severely frayed, with high FOD potential.

Repair Options:

- Low - No action;
- Medium - perform a partial depth patch;
- High - perform a partial depth patch.



30. Corner Spalls (PCC)

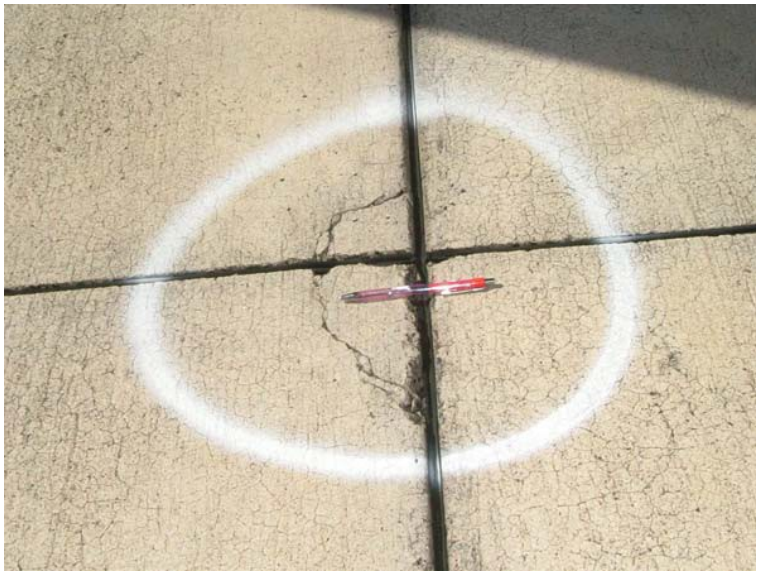
Corner spalling is the raveling or breakdown of the slab within approximately 2 feet (0.6 m) of the corner. A corner spall differs from a corner break in that the spall angles downward to intersect the joint while the break extends vertically through the slab.

Severities:

- Low - One of the following conditions exists: (1) spall is broken into one or two pieces defined by low-severity cracks (little or no FOD potential), (2) spall is defined by one medium-severity crack (little or no FOD potential);
- Medium – One of the following conditions exists: (1) spall is broken into two or more pieces defined by medium- severity crack(s), and a few small fragments may be absent or loose; (2) spall is defined by one severe, fragmented crack that may be accompanied by a few hairline cracks; or (3) spall has deteriorated to the point where loose material is causing some FOD potential;
- High – One of the following conditions exists: (1) spall is broken into two or more pieces defined by high- severity fragmented crack(s), with loose or absent fragments; (2) pieces of the spall have been displaced to the extent that a tire damage hazard exists; or (3) spall has deteriorated to the point where loose material is causing high FOD potential.

Repair Options:

- Low - No action;
- Medium - partial depth patch;
- High - partial depth patch.



31. ASR (PCC)

ASR is caused by chemical reaction between alkalis and certain reactive silica minerals which form a gel. The gel absorbs water, causing expansion which may damage the concrete and adjacent structures. Alkalis are most often introduced by the portland cement within the pavement. ASR cracking may be accelerated by chemical pavement deicers.

Visual indicators that ASR may be present include:

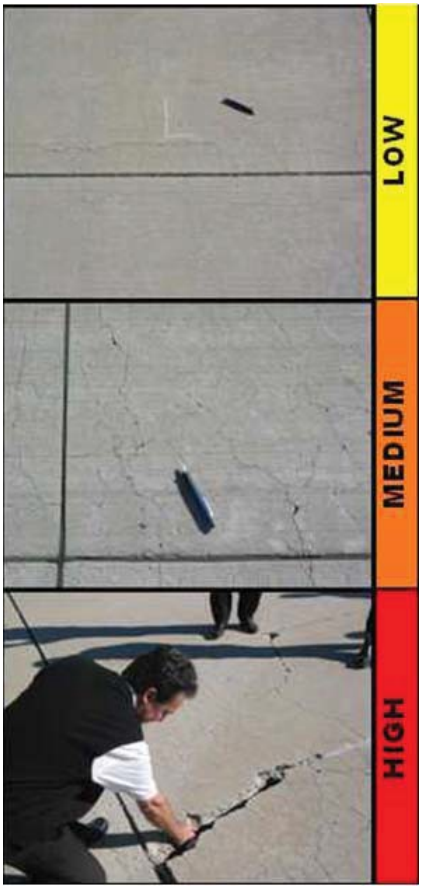
1. Cracking of the concrete pavement (often in a map pattern)
2. White, brown, gray or other colored gel or staining may be present at the crack surface
3. Aggregate popouts
4. Increase in concrete volume (expansion) that may result in distortion of adjacent or integral structures or physical elements. Examples of expansion include shoving of asphalt pavements, light can tilting, slab faulting, joint misalignment, and extrusion of joint seals or expansion joint fillers.

Because ASR is material-dependent, ASR is generally present throughout the pavement section. Coring and concrete petrographic analysis is the only definitive method to confirm the presence of ASR. The following should be kept in mind when identifying the presence of ASR through visual inspection:

1. Generally ASR distresses are not observed in the first few years after construction. In contrast, plastic shrinkage cracking can occur the day of construction and is apparent within the first year.
2. ASR is differentiated from D-Cracking by the presence of cracking perpendicular to the joint face. D-Cracking predominantly develops as a series of parallel cracks to joint faces and linear cracking within the slab.
3. ASR is differentiated from Map Cracking/ Scaling by the presence of visual signs of expansion.

Severities:

- Low - Minimal to no FOD potential from cracks, joints or ASR related popouts; cracks at the surface are tight (predominantly 1 mm or less). Little to no evidence of movement in pavement or surrounding structures or elements.
- Medium - Some FOD potential; but increased sweeping or other FOD removal methods may be required. May be evidence of slab movement or some damage (orbith) to adjacent structures or elements. Medium ASR distress is differentiated from low by having one or more of the following: increased FOD potential, cracking density increases, some fragments along cracks or at crack intersections present, surface popouts of concrete may occur, pattern of wider cracks (predominantly 1 mm or wider) that may be subdivided by tighter cracks.
- High - One or both of the following exist: (1) Loose or missing concrete fragments and poses high FOD potential, (2) Slab surface integrity and function significantly degraded and pavement requires immediate repair; may also require repairs to adjacent structures or elements.



AECOM

Appendix D

Comparison of 2011 and 2015 PCI Survey Results

Appendix D - PCI Comparison

NetworkID	BranchID	SectionID	Surface	LCD	2011 PCI	2015 PCI	Change in PC	Age	Comment
BWIAir	15R De-ice	DICE/15R/1	PCC	8/30/2013	67	98	31	2	Major M&R
BWIAir	15R De-ice	DICE/15R/2	PCC	11/19/2012	48	98	50	3	Major M&R
BWIAir	15R De-ice	DICE/15R/6	AC	8/30/2013	75	98	23	2	Major M&R
BWIAir	Cargo Ramp	CARGO2	AC	5/1/1997	62	62	0	18	
BWIAir	Cargo Ramp	CARGO3	AC	5/1/1997	42	42	0	18	Localized M&R. Patching eliminated some Alligator. Crack Seal reduced crack severity.
BWIAir	Cargo Ramp	CARGO4	AC	5/1/1997	60	49	-11	18	
BWIAir	Cargo Ramp	CARGO5	PCC	1/3/1988	79	79	0	27	
BWIAir	Cargo Ramp	CARGO6	AC	1/6/1988	54	48	-6	27	
BWIAir	Cargo Ramp	CARGO7	AC	1/1/2000	72	70	-2	15	
BWIAir	Cargo Ramp	CARGO8	PCC	9/3/1982	76	67	-9	33	
BWIAir	Cargo Ramp	CARGO9	PCC	5/17/1975	68	68	0	40	
BWIAir	GA De-ice	DICE/GA/1	AC	4/4/1995	80	76	-4	20	
BWIAir	GA Ramp	GA3	AC	11/15/1982	65	69	4	33	Global M&R. Weathering improved.
BWIAir	GA Ramp	GA4	AC	1/2/1989	58	57	-1	26	
BWIAir	GA Ramp	GA5	AC	1/7/1989	61	66	5	26	Localized M&R. Crack Seal.
BWIAir	GA Ramp	GA6	AC	10/26/1985	41	41	0	30	
BWIAir	GA Ramp	GA7	AC	7/3/1998	64	60	-4	17	
BWIAir	GA Ramp	GA8	AC	7/3/1998	69	59	-10	17	
BWIAir	Gate A	A1	PCC	1/3/2004	82	78	-4	11	
BWIAir	Gate A	A2	PCC	1/3/2004	69	75	6	11	Localized M&R. Small Patches and Joint Seal.
BWIAir	Gate A	A3	PCC	1/4/2004	77	90	13	11	Localized M&R. Slab Replacement.
BWIAir	Gate B	AB1	PCC	1/3/2004	90	90	0	11	
BWIAir	Gate B	B EXT 1	PCC	1/3/2004	78	78	0	11	
BWIAir	Gate B	B EXT 2	PCC	12/3/1998	40	41	1	17	Localized M&R. Patches and crack seal.
BWIAir	Gate B	B EXT 3	PCC	12/3/1998	66	61	-5	17	
BWIAir	Gate B	B EXT 4	PCC	12/3/1998	56	54	-2	17	
BWIAir	Gate B	B EXT 5	PCC	6/1/2007	94	90	-4	8	
BWIAir	Gate C	C1	PCC	10/3/2010	99	93	-6	5	
BWIAir	Gate C	C10	PCC	6/9/1994	59	53	-6	21	
BWIAir	Gate C	C11	PCC	6/9/1994	78	68	-10	21	
BWIAir	Gate C	C11A	PCC	10/3/2010	100	92	-8	5	
BWIAir	Gate C	C12	PCC	6/9/1994	56	55	-1	21	
BWIAir	Gate C	C13	PCC	6/9/1994	54	43	-11	21	
BWIAir	Gate C	C14	PCC	6/9/1994	44	36	-8	21	
BWIAir	Gate C	C15	PCC	6/9/1994	75	68	-7	21	
BWIAir	Gate C	C16	PCC	6/9/1994	77	77	0	21	
BWIAir	Gate C	C2	PCC	8/15/2006	95	90	-5	9	
BWIAir	Gate C	C3	PCC	10/3/2010	99	92	-7	5	
BWIAir	Gate C	C5	PCC	10/3/2010	99	95	-4	5	
BWIAir	Gate C	C6	PCC	8/15/2006	93	92	-1	9	
BWIAir	Gate C	C7	PCC	10/3/2010	99	97	-2	5	
BWIAir	Gate C	C9	PCC	6/9/1994	40	31	-9	21	
BWIAir	Gate C	C9A	PCC	10/3/2010	97	92	-5	5	
BWIAir	Gate D	D1	PCC	9/4/2007	87	87	0	8	
BWIAir	Gate D	D10	PCC	10/3/2010	100	93	-7	5	
BWIAir	Gate D	D11	PCC	3/30/1983	91	84	-7	32	
BWIAir	Gate D	D12	PCC	3/30/1983	88	82	-6	32	
BWIAir	Gate D	D13	PCC	3/30/1983	91	83	-8	32	
BWIAir	Gate D	D14	PCC	3/30/1983	85	85	0	32	
BWIAir	Gate D	D15	PCC	3/30/1983	90	83	-7	32	
BWIAir	Gate D	D16	PCC	3/30/1983	91	87	-4	32	
BWIAir	Gate D	D2	PCC	10/3/2010	100	93	-7	5	
BWIAir	Gate D	D20	PCC	4/18/1987	86	82	-4	28	
BWIAir	Gate D	D21	PCC	4/18/1987	87	80	-7	28	
BWIAir	Gate D	D22	PCC	4/18/1987	90	79	-11	28	
BWIAir	Gate D	D23	PCC	4/18/1987	86	84	-2	28	
BWIAir	Gate D	D24	PCC	4/18/1987	92	84	-8	28	
BWIAir	Gate D	D25	PCC	4/18/1987	85	85	0	28	
BWIAir	Gate D	D26	PCC	4/18/1987	90	82	-8	28	
BWIAir	Gate D	D27	PCC	4/18/1987	85	85	0	28	
BWIAir	Gate D	D29	PCC	4/18/1987	90	77	-13	28	
BWIAir	Gate D	D3	PCC	9/4/2007	89	89	0	8	
BWIAir	Gate D	D4	PCC	10/3/2010	100	91	-9	5	
BWIAir	Gate D	D5	PCC	9/4/2007	78	78	0	8	
BWIAir	Gate D	D6	PCC	10/3/2010	100	92	-8	5	
BWIAir	Gate D	D7	PCC	3/30/1983	84	82	-2	32	

Appendix D - PCI Comparison

NetworkID	BranchID	SectionID	Surface	LCD	2011 PCI	2015 PCI	Change in PC	Age	Comment
BWIAir	Gate D	D8	PCC	10/3/2010	100	86	-14	5	
BWIAir	Gate D Com	COMMUTER	PCC	5/3/2000	83	81	-2	15	
BWIAir	Gate E	E1	PCC	5/4/1997	81	77	-4	18	
BWIAir	Gate E	E2	PCC	9/4/2007	78	78	0	8	
BWIAir	Gate E	E3	PCC	5/4/1997	65	64	-1	18	
BWIAir	Gate E	E4	PCC	5/1/1997	55	75	20	18	Localized M&R. Slab Replacement.
BWIAir	Gate E	E4A	PCC	9/4/2007	100	90	-10	8	
BWIAir	Gate E	E6	PCC	5/4/1997	67	56	-11	18	
BWIAir	Gate E	E8	PCC	5/4/1997	83	81	-2	18	
BWIAir	HPTWQ	HPTWQ1	AC	9/9/1999	71	71	0	16	
BWIAir	Mid Cargo	MID CARGO1	AC	6/3/2000	66	62	-4	15	
BWIAir	Mid Cargo	MID CARGO2	PCC	6/4/2000	80	75	-5	15	
BWIAir	Mid Cargo	MID CARGO3	AC	2/10/2000	63	74	11	15	Large Area Repaired.
BWIAir	Ramp AB	APRTL/1	AC	1/4/2004	81	81	0	11	
BWIAir	Ramp AB	APRTL/2	AC	1/4/2004	81	76	-5	11	
BWIAir	Ramp AB	APRTL/3	AC	1/4/2004	58	54	-4	11	
BWIAir	Ramp AB	APRTL/4	AC	1/4/2004	69	58	-11	11	
BWIAir	Ramp AB	MRA1	AC	1/4/2004	71	69	-2	11	
BWIAir	Ramp AB	MRA2	AC	1/7/2011	77	69	-8	4	
BWIAir	Ramp AB	MRA2/A	PCC	1/4/2007		100		8	New Section
BWIAir	Ramp AB	MRA3	AC	1/4/2004	84	78	-6	11	
BWIAir	Ramp BC	MRBC1	AC	8/21/2006	81	67	-14	9	
BWIAir	Ramp BC	MRBC12	AC	6/9/1994	64	53	-11	21	
BWIAir	Ramp BC	MRBC7	AC	5/1/2009	93	81	-12	6	
BWIAir	Ramp BC	MRBC9	AC	5/1/2009	91	83	-8	6	
BWIAir	Ramp CD	MRCD1	PCC	10/3/2010	99	93	-6	5	
BWIAir	Ramp CD	MRCD14	AC	10/3/2010	94	88	-6	5	
BWIAir	Ramp CD	MRCD15	AC	3/30/1983	75	69	-6	32	
BWIAir	Ramp CD	MRCD2	PCC	10/3/2010	100	89	-11	5	
BWIAir	Ramp CD	MRCD3	PCC	10/3/2010	100	89	-11	5	
BWIAir	Ramp DD	MRDD1	AC	9/1/1984	53	47	-6	31	
BWIAir	Ramp DD	MRDD5	AC	3/30/1983	63	59	-4	32	
BWIAir	Ramp DE	MRDE1	AC	1/6/1987	36	22	-14	28	
BWIAir	Ramp DE	MRDE10	PCC	9/4/2007	77	81	4	8	Localized M&R. Small Patches and Crack Seal.
BWIAir	Ramp DE	MRDE11	AC	9/4/2007	97	92	-5	8	
BWIAir	Ramp DE	MRDE12	AC	9/4/2007	97	79	-18	8	Section exhibits raveling, medium L/T, and 100% low weathering.
BWIAir	Ramp DE	MRDE2	AC	1/2/1987	37	25	-12	28	
BWIAir	Ramp DE	MRDE9	AC	5/4/1997	57	53	-4	18	
BWIAir	Ramp DY	MRDY1	AC	1/1/2007	58	46	-12	8	
BWIAir	Ramp DY	MRDY3	AC	1/1/2000	47	41	-6	15	
BWIAir	Ramp DY	MRDY4	AC	1/2/1987	65	54	-11	28	
BWIAir	Ramp DY	MRDY5	AC	1/6/1987	52	37	-15	28	
BWIAir	Ramp DY	MRDY6	AC	1/1/2007	92	73	-19	8	100% low weathering is new distress.
BWIAir	Ramp DY	MRDY7	AC	6/1/2007	63	60	-3	8	
BWIAir	Ramp DY	MRDY8	AC	3/30/1983	53	44	-9	32	
BWIAir	Ramp DY	MRDY8A	AC	1/2/1987	67	49	-18	28	Increase in longitudinal cracking this survey.
BWIAir	Ramp EE	MREE1	AC	5/1/1997	61	49	-12	18	
BWIAir	Ramp EE	MREE2	AC	5/1/1997	67	61	-6	18	
BWIAir	RON	RON1	AC	1/4/2002	71	69	-2	13	
BWIAir	RON	RON2	PCC	1/3/2002	98	96	-2	13	
BWIAir	RW 10-28	RW10/1	AC	3/6/2013	62	92	30	2	Major M&R
BWIAir	RW 10-28	RW10/10	AC	3/6/2013	63	89	26	2	Major M&R
BWIAir	RW 10-28	RW10/11	AC	3/6/2013	62	88	26	2	Major M&R
BWIAir	RW 10-28	RW10/12	AC	3/6/2013	62	90	28	2	Major M&R
BWIAir	RW 10-28	RW10/13	AC	3/6/2013	43	89	46	2	Major M&R
BWIAir	RW 10-28	RW10/15	AC	3/6/2013	48	90	42	2	Major M&R
BWIAir	RW 10-28	RW10/15A	AC	3/6/2013	72	98	26	2	Major M&R
BWIAir	RW 10-28	RW10/1A	AC	3/6/2013	62	98	36	2	Major M&R
BWIAir	RW 10-28	RW10/2	AC	3/6/2013	57	94	37	2	Major M&R
BWIAir	RW 10-28	RW10/3	AC	3/6/2013	53	90	37	2	Major M&R
BWIAir	RW 10-28	RW10/4	AC	3/6/2013	61	89	28	2	Major M&R
BWIAir	RW 10-28	RW10/4A	AC	12/6/2011	100	90	-10	4	
BWIAir	RW 10-28	RW10/5	AC	12/6/2011	100	90	-10	4	
BWIAir	RW 10-28	RW10/6	AC	3/6/2013	49	91	42	2	Major M&R
BWIAir	RW 10-28	RW10/6A	AC	12/6/2011	100	91	-9	4	
BWIAir	RW 10-28	RW10/7	AC	3/6/2013	56	89	33	2	Major M&R

Appendix D - PCI Comparison

NetworkID	BranchID	SectionID	Surface	LCD	2011 PCI	2015 PCI	Change in PC	Age	Comment
BWIAir	RW 10-28	RW10/8	AC	3/6/2013	54	87	33	2	Major M&R
BWIAir	RW 10-28	RW10/9	AC	3/6/2013	63	88	25	2	Major M&R
BWIAir	RW 10-28	SHRW10/1L	AC	3/6/2013	58	100	42	2	Major M&R
BWIAir	RW 10-28	SHRW10/1R	AC	3/6/2013	62	98	36	2	Major M&R
BWIAir	RW 15L-33R	RW15L/1	AC	1/2/1989	76	66	-10	26	
BWIAir	RW 15L-33R	RW15L/2	AC	1/2/1989	71	57	-14	26	
BWIAir	RW 15L-33R	RW15L/3	AC	1/2/1989	57	44	-13	26	
BWIAir	RW 15L-33R	RW15L/4	AC	1/5/1989	61	54	-7	26	
BWIAir	RW 15L-33R	RW15L/5	AC	1/2/1989	68	58	-10	26	
BWIAir	RW 15L-33R	RW15L/6	AC	1/7/1989	71	59	-12	26	
BWIAir	RW 15L-33R	RW15L/7	AC	1/5/1989	73	49	-24	26	Alligator observed on this section. Crack seal no longer functioning.
BWIAir	RW 15L-33R	RW15L/8	AC	9/1/2015		100		0	New Section
BWIAir	RW 15L-33R	RW15L/9	AC	9/1/2015		100		0	New Section
BWIAir	RW 15R-33L	RW15R/1	AC	8/30/2013	49	100	51	2	Major M&R
BWIAir	RW 15R-33L	RW15R/10K	AC	12/6/2011	100	95	-5	4	
BWIAir	RW 15R-33L	RW15R/10L	AC	12/6/2011	100	90	-10	4	
BWIAir	RW 15R-33L	RW15R/10R	AC	12/6/2011	100	93	-7	4	
BWIAir	RW 15R-33L	RW15R/12K	AC	12/6/2011	100	94	-6	4	
BWIAir	RW 15R-33L	RW15R/12L	AC	12/6/2011	100	83	-17	4	Section has approximately 800 linear feet of low L/T.
BWIAir	RW 15R-33L	RW15R/12R	AC	12/6/2011	100	87	-13	4	
BWIAir	RW 15R-33L	RW15R/13	AC	12/6/2011	100	100	0	4	Major M&R
BWIAir	RW 15R-33L	RW15R/14K	AC	8/30/2013	77	100	23	2	Major M&R
BWIAir	RW 15R-33L	RW15R/14L	AC	8/30/2013	94	100	6	2	Major M&R
BWIAir	RW 15R-33L	RW15R/14R	AC	8/30/2013	88	100	12	2	Major M&R
BWIAir	RW 15R-33L	RW15R/15K	AC	8/30/2013	79	98	19	2	Major M&R
BWIAir	RW 15R-33L	RW15R/15L	AC	8/30/2013	92	99	7	2	Major M&R
BWIAir	RW 15R-33L	RW15R/15R	AC	8/30/2013	88	100	12	2	Major M&R
BWIAir	RW 15R-33L	RW15R/16K	AC	8/30/2013	76	100	24	2	Major M&R
BWIAir	RW 15R-33L	RW15R/16L	AC	8/30/2013	86	100	14	2	Major M&R
BWIAir	RW 15R-33L	RW15R/16R	AC	8/30/2013	85	100	15	2	Major M&R
BWIAir	RW 15R-33L	RW15R/17K	AC	8/30/2013	70	100	30	2	Major M&R
BWIAir	RW 15R-33L	RW15R/17L	AC	8/30/2013	93	100	7	2	Major M&R
BWIAir	RW 15R-33L	RW15R/17R	AC	8/30/2013	88	100	12	2	Major M&R
BWIAir	RW 15R-33L	RW15R/18K	AC	8/30/2013	78	100	22	2	Major M&R
BWIAir	RW 15R-33L	RW15R/18L	AC	8/30/2013	94	100	6	2	Major M&R
BWIAir	RW 15R-33L	RW15R/18R	AC	8/30/2013	87	100	13	2	Major M&R
BWIAir	RW 15R-33L	RW15R/19K	AC	8/30/2013	80	97	17	2	Major M&R
BWIAir	RW 15R-33L	RW15R/19L	AC	8/30/2013	94	99	5	2	Major M&R
BWIAir	RW 15R-33L	RW15R/19R	AC	8/30/2013	88	99	11	2	Major M&R
BWIAir	RW 15R-33L	RW15R/20	AC	8/30/2013	60	100	40	2	Major M&R
BWIAir	RW 15R-33L	RW15R/21K	PCC	8/30/2013		100		2	New Section. Major M&R.
BWIAir	RW 15R-33L	RW15R/21L	PCC	8/30/2013		100		2	New Section. Major M&R.
BWIAir	RW 15R-33L	RW15R/21R	PCC	8/30/2013		100		2	New Section. Major M&R.
BWIAir	RW 15R-33L	RW15R/2AK	PCC	8/30/2013	84	100	16	2	Major M&R
BWIAir	RW 15R-33L	RW15R/2AL	PCC	8/30/2013	98	100	2	2	Major M&R
BWIAir	RW 15R-33L	RW15R/2AR	PCC	8/30/2013	98	100	2	2	Major M&R
BWIAir	RW 15R-33L	RW15R/3K	AC	8/30/2013	78	100	22	2	Major M&R
BWIAir	RW 15R-33L	RW15R/3L	AC	8/30/2013	94	100	6	2	Major M&R
BWIAir	RW 15R-33L	RW15R/3R	AC	8/30/2013	78	100	22	2	Major M&R
BWIAir	RW 15R-33L	RW15R/4K	AC	8/30/2013	81	100	19	2	Major M&R
BWIAir	RW 15R-33L	RW15R/4L	AC	8/30/2013	94	100	6	2	Major M&R
BWIAir	RW 15R-33L	RW15R/4R	AC	8/30/2013	78	100	22	2	Major M&R
BWIAir	RW 15R-33L	RW15R/5K	AC	8/30/2013	70	100	30	2	Major M&R
BWIAir	RW 15R-33L	RW15R/5L	AC	8/30/2013	91	100	9	2	Major M&R
BWIAir	RW 15R-33L	RW15R/5R	AC	8/30/2013	82	100	18	2	Major M&R
BWIAir	RW 15R-33L	RW15R/6K	AC	8/30/2013	81	100	19	2	Major M&R
BWIAir	RW 15R-33L	RW15R/6L	AC	8/30/2013	94	100	6	2	Major M&R
BWIAir	RW 15R-33L	RW15R/6R	AC	8/30/2013	81	100	19	2	Major M&R
BWIAir	RW 15R-33L	RW15R/7K	AC	8/30/2013	82	100	18	2	Major M&R
BWIAir	RW 15R-33L	RW15R/7L	AC	8/30/2013	87	100	13	2	Major M&R
BWIAir	RW 15R-33L	RW15R/7R	AC	8/30/2013	82	100	18	2	Major M&R
BWIAir	RW 15R-33L	RW15R/8AK	AC	8/30/2013	100	94	-6	2	
BWIAir	RW 15R-33L	RW15R/8AL	AC	8/30/2013	100	99	-1	2	
BWIAir	RW 15R-33L	RW15R/8AR	AC	8/30/2013	100	99	-1	2	
BWIAir	RW 15R-33L	RW15R/8K	AC	8/30/2013	45	99	54	2	Major M&R
BWIAir	RW 15R-33L	RW15R/8L	AC	8/30/2013	93	100	7	2	Major M&R
BWIAir	RW 15R-33L	RW15R/8R	AC	8/30/2013	87	100	13	2	Major M&R
BWIAir	RW 15R-33L	RW15R/9K	AC	12/6/2011	100	82	-18	4	Section has approximately 700 sqft of low patching.

Appendix D - PCI Comparison

NetworkID	BranchID	SectionID	Surface	LCD	2011 PCI	2015 PCI	Change in PC	Age	Comment
BWIAir	RW 15R-33L	RW15R/9K	AC	12/6/2011	100	82	-18	4	Section has approximately 600 sqft of low patching.
BWIAir	RW 15R-33L	RW15R/9R	AC	12/6/2011	100	89	-11	4	
BWIAir	RW 4-22	RW4/1	AC	1/1/1987	60	100	40	28	Major M&R
BWIAir	RW 4-22	RW4/1A	AC	5/1/2011	100	86	-14	4	
BWIAir	RWSH15R	RWSH15R/1L	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/1R	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/2L	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/2R	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/3L	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/3R	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/4L	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/4R	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/5L	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/5R	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/6L	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/6R	AC	5/23/2013		100		2	New Section
BWIAir	RWSH15R	RWSH15R/7L	AC	5/23/2013		100		2	New Section
BWIAir	Rwy 28 Ice	DICE/R28/1	AC	12/1/2015	56			0	Not surveyed in 2015 due to construction.
BWIAir	Rwy 28 Ice	DICE/R28/2	PCC	10/4/1998	81	77	-4	17	
BWIAir	Rwy 28 Ice	DICE/R28/3	AC	12/1/2015	70			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway A	TWA11	AC	1/15/2009	94	80	-14	6	
BWIAir	Taxiway A	TWA12	AC	6/4/2007	89	75	-14	8	
BWIAir	Taxiway A	TWA13	AC	6/4/2007	91	84	-7	8	
BWIAir	Taxiway A	TWA21	AC	5/1/2011	100	85	-15	4	Section has approximately 385 linear feet of medium L/T.
BWIAir	Taxiway A	TWA22	AC	5/1/2011	100	93	-7	4	
BWIAir	Taxiway B	TWB1	AC	1/1/2009	89	72	-17	6	Rutting observed
BWIAir	Taxiway B	TWB2	AC	5/1/2011	100	96	-4	4	
BWIAir	Taxiway B	TWB3	AC	5/1/2011	100	66	-34	4	Alligator and rutting observed.
BWIAir	Taxiway B	TWB4	AC	5/1/2011	100	100	0	4	
BWIAir	Taxiway C	TWC1	PCC	12/1/2015	100			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway C	TWC10	AC	12/1/2015				0	New Section. Not surveyed in 2015 due to construction.
BWIAir	Taxiway C	TWC1A	PCC	12/1/2015	97			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway C	TWC2	AC	12/1/2015	94			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway C	TWC3	AC	2/16/2015	88	88	0	0	
BWIAir	Taxiway C	TWC4	AC	12/1/2015	57			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway C	TWC5	AC	12/1/2015	67			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway C	TWC8	AC	12/1/2015	91			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway C	TWC9	AC	12/1/2015	93			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway D	TWD1	PCC	8/30/2013	50	98	48	2	Major M&R
BWIAir	Taxiway D	TWD2	PCC	8/30/2013	59	100	41	2	Major M&R
BWIAir	Taxiway D	TWD3	PCC	8/30/2013	82	95	13	2	Major M&R
BWIAir	Taxiway D	TWD4	PCC	8/30/2015	76			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway D1	TWD1/1	PCC	8/30/2013		93		2	New Section
BWIAir	Taxiway D2	TWD2/1	PCC	8/29/2013		100		2	New Section
BWIAir	Taxiway D3	TWD3/1	PCC	8/30/2013		100		2	New Section
BWIAir	Taxiway E	TWE10	AC	5/1/2009	91	72	-19	6	Medium weathering observed.
BWIAir	Taxiway F	TWF1	AC	3/6/2013	58	100	42	2	Major M&R
BWIAir	Taxiway F	TWF10	AC	1/4/2004	86	79	-7	11	
BWIAir	Taxiway F	TWF4	AC	1/1/2000	70	69	-1	15	
BWIAir	Taxiway F	TWF5	AC	3/6/2013	71	94	23	2	Major M&R
BWIAir	Taxiway F	TWF7	AC	6/23/2014	81	100	19	1	Major M&R
BWIAir	Taxiway F	TWF8	AC	8/30/2013	62	100	38	2	Major M&R
BWIAir	Taxiway F	TWF9	AC	8/30/2013	86	100	14	2	Major M&R
BWIAir	Taxiway G	TWG1	AC	3/6/2013	65	100	35	2	Major M&R
BWIAir	Taxiway G	TWG4	AC	6/23/2014	59	100	41	1	Major M&R
BWIAir	Taxiway G	TWG8	AC	6/3/2000	62	69	7	15	Section limits changed.
BWIAir	Taxiway G	TWG8/A	AC	3/6/2013		100		2	New Section
BWIAir	Taxiway H	TWH1	AC	8/30/2013	75	100	25	2	Major M&R

Appendix D - PCI Comparison

NetworkID	BranchID	SectionID	Surface	LCD	2011 PCI	2015 PCI	Change in PC	Age	Comment
BWIAir	Taxiway H	TWH2	AC	1/4/2004	86	62	-24	11	Section has approximately 4900 sqft of medium weathering.
BWIAir	Taxiway J	TWJ1	AC	1/5/1987	73	67	-6	28	
BWIAir	Taxiway J	TWJ1/A	AC	2/14/2014	60	95	35	1	Major M&R
BWIAir	Taxiway J	TWJ2	AC	5/1/2011	100	92	-8	4	
BWIAir	Taxiway J	TWJ3	AC	5/1/2011	100	94	-6	4	
BWIAir	Taxiway K	TWK1	AC	2/14/2014	64	96	32	1	Major M&R
BWIAir	Taxiway K	TWK2	AC	2/14/2014	51	88	37	1	Major M&R
BWIAir	Taxiway K	TWK2A	AC	9/9/1999	83	83	0	16	
BWIAir	Taxiway K	TWK3	AC	1/2/1989	76	74	-2	26	
BWIAir	Taxiway K	TWK4	AC	2/14/2014	75	90	15	1	Major M&R
BWIAir	Taxiway K	TWK5	AC	1/2/1989	67	65	-2	26	
BWIAir	Taxiway L	TWL1	AC	1/2/1989	87	86	-1	26	
BWIAir	Taxiway L	TWL2	AC	10/26/1985	45	35	-10	30	Section is closed to traffic. PCI estimated.
BWIAir	Taxiway M	TWM1	AC	1/5/1989	72	69	-3	26	
BWIAir	Taxiway M	TWM2	AC	1/2/1989	74	65	-9	26	
BWIAir	Taxiway M	TWM4	AC	11/15/1982	59	59	0	33	
BWIAir	Taxiway N	TWN1	AC	5/1/2011	100	90	-10	4	
BWIAir	Taxiway N	TWN2	AC	5/1/2011	100	92	-8	4	
BWIAir	Taxiway N	TWN3	AC	5/1/2011	100	86	-14	4	
BWIAir	Taxiway P	TWP1	AC	8/30/2013	82	87	5	2	Major M&R
BWIAir	Taxiway P	TWP14	PCC	12/1/2015	100			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway P	TWP15	AC	12/1/2015	62			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway P	TWP16	AC	12/1/2015	100			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway P	TWP17	AC	1/1/1987	67	67	0	28	
BWIAir	Taxiway P	TWP18	AC	1/1/1987	66	46	-20	28	Medium alligator observed.
BWIAir	Taxiway P	TWP19	AC	5/1/2011	100	70	-30	4	Medium severity cracks observed (block and L/T)
BWIAir	Taxiway P	TWP1A	AC	5/3/1973	82	83	1	42	
BWIAir	Taxiway P	TWP1B	PCC	8/30/2013	40	95	55	2	Major M&R
BWIAir	Taxiway P	TWP1C	PCC	8/30/2013	100	87	-13	2	
BWIAir	Taxiway P	TWP2	AC	1/4/2004	86	80	-6	11	
BWIAir	Taxiway P	TWP20	AC	1/1/1987	62	71	9	28	Section shows maintenance has been performed with approximately 2300 sqft of patching.
BWIAir	Taxiway P	TWP21	AC	3/2/2012	64	81	17	3	Section was paved in 2012.
BWIAir	Taxiway P	TWP3	AC	7/20/2013	60	95	35	2	Major M&R
BWIAir	Taxiway P	TWP6	PCC	12/1/2015	93			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway P	TWP7	PCC	12/1/2015	93			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway P1	TWP1/1	PCC	12/1/2015	100			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway P1	TWP1/2	PCC	12/1/2015	100			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway P1	TWP1/3	AC	7/2/2014	100	100	0	1	Major M&R
BWIAir	Taxiway Q	TWQ1	AC	1/2/1989	73	73	0	26	
BWIAir	Taxiway Q	TWQ2	AC	2/14/2014	55	97	42	1	Major M&R
BWIAir	Taxiway Q	TWQ3	AC	2/14/2014	71	83	12	1	Major M&R
BWIAir	Taxiway Q	TWQ4	AC	2/14/2014	69	98	29	1	Major M&R
BWIAir	Taxiway Q	TWQ5	AC	2/14/2014	24	97	73	1	Major M&R
BWIAir	Taxiway Q	TWQ6	AC	1/5/1989	67	54	-13	26	
BWIAir	Taxiway Q	TWQ7	AC	1/5/1989	74	61	-13	26	
BWIAir	Taxiway Q	TWQ8	AC	1/5/1989	73	65	-8	26	
BWIAir	Taxiway R	TWR2	AC	6/23/2014	51	100	49	1	Major M&R
BWIAir	Taxiway R	TWR2A	AC	6/23/2014	87	94	7	1	Major M&R
BWIAir	Taxiway R	TWR2C	AC	8/30/2013		89		2	New Section
BWIAir	Taxiway R	TWR3	AC	8/30/2013		100		2	New Section
BWIAir	Taxiway R1	TWR1/1	AC	6/23/2014	72	100	28	1	Major M&R
BWIAir	Taxiway R1	TWR1/2	AC	6/3/2000	64	68	4	15	Major M&R
BWIAir	Taxiway R1	TWR1/3	AC	3/6/2013		95		2	New Section
BWIAir	Taxiway S	TWS1	AC	1/5/1989	72	68	-4	26	
BWIAir	Taxiway S	TWS10	AC	5/1/2011	100	97	-3	4	
BWIAir	Taxiway S	TWS2	AC	1/5/1989	73	71	-2	26	
BWIAir	Taxiway S	TWS3	AC	1/5/1989	71	66	-5	26	
BWIAir	Taxiway S	TWS4	AC	5/1/2011	100	94	-6	4	

Appendix D - PCI Comparison

NetworkID	BranchID	SectionID	Surface	LCD	2011 PCI	2015 PCI	Change in PC	Age	Comment
BWIAir	Taxiway S	TWS5	AC	5/1/2011	100	93	-7	4	
BWIAir	Taxiway S	TWS6	AC	5/1/2011	100	91	-9	4	
BWIAir	Taxiway S	TWS7	AC	5/1/2011	100	91	-9	4	
BWIAir	Taxiway S	TWS8	AC	5/1/2011	100	89	-11	4	
BWIAir	Taxiway S	TWS9	AC	5/1/2011	100	92	-8	4	
BWIAir	Taxiway T	TWT10	AC	9/4/2007	94	94	0	8	
BWIAir	Taxiway T	TWT11	AC	9/4/2007	92	81	-11	8	
BWIAir	Taxiway T	TWT12	AC	9/4/2007	89	79	-10	8	
BWIAir	Taxiway T	TWT13	AC	9/4/2007	93	84	-9	8	
BWIAir	Taxiway T	TWT2	AC	1/4/2004	78	79	1	11	
BWIAir	Taxiway T	TWT3A	AC	1/4/2004	80	65	-15	11	Rutting observed
BWIAir	Taxiway T	TWT4	AC	9/1/1984	45	52	7	31	Patching completed
BWIAir	Taxiway T	TWT5	AC	7/2/1987	52	43	-9	28	
BWIAir	Taxiway T	TWT6	AC	5/1/2009	92	80	-12	6	
BWIAir	Taxiway T	TWT7	AC	7/2/2014	65	86	21	1	Major M&R
BWIAir	Taxiway T	TWT8	AC	1/15/2009	92	83	-9	6	
BWIAir	Taxiway T	TWT9	AC	6/1/2007	88	81	-7	8	
BWIAir	Taxiway U	TWU1	PCC	12/1/2015	69			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway U	TWU2	PCC	12/1/2015	53			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway U	TWU3	PCC	12/1/2015	100			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway U1	TWU1/1	PCC	12/1/2015	68			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway U2	TWU2/1	PCC	12/1/2015	68			0	Not surveyed in 2015 due to construction.
BWIAir	Taxiway V	TWV1	AC	3/6/2013	56	95	39	2	Major M&R
BWIAir	Taxiway W	TWW	AC	9/9/1999	14	15	1	16	
BWIAir	Taxiway Y	TWY1	AC	5/1/2011	100	90	-10	4	
BWIAir	Taxiway Y	TWY2	AC	8/30/2013	68	100	32	2	Major M&R
BWIAir	Txlane AA	TLAA1	AC	4/5/2000	73	60	-13	15	
BWIAir	Txlane AA	TLAA2	AC	5/1/1997	63	72	9	18	Localized M&R. Alligator and Rutting has been patched.
BWIAir	Txlane JJ	TLJJ1	AC	1/1/2000	59	44	-15	15	
BWIAir	Txlane JJ	TLJJ2	AC	1/1/1988	60	43	-17	27	
BWIAir	Txlane JJ	TLJJ3	AC	5/1/1997	61	68	7	18	Large Area Repaired.
BWIAir	Txlane NN	TLNN1	AC	1/1/2000	25	12	-13	15	
BWIAir	Txlane NN	TLNN2	AC	1/1/1987	36	25	-11	28	

Appendix E

2015/2016 Localized Maintenance Plan

Appendix E - 1-Year Maintenance Plan

2016 1-Year Maintenance by Rank / Section / Distress

Primary (P)	Secondary (S)	Tertiary (T)	Total
$4,705,829	$88,416	$598,095	$5,392,340

Branch ID	Section ID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
Cargo Ramp	CARGO3	P	STOP GAP	50	PATCHING	High	805.79	SqFt	2.0	Patching - AC Deep	924	SqFt	15.00	$13,861.13
	CARGO5	P	PREVENTATIVE	63	LINEAR CR	Medium	3.58	Slabs	1.2	Crack Sealing - PCC	81	Ft	13.00	$1,048.12
				65	JT SEAL DMG	High	107.5	Slabs	35.7	Joint Seal (Localized)	4,539	Ft	13.00	$59,010.14
						Medium	193.5	Slabs	64.3	Joint Seal (Localized)	8,171	Ft	13.00	$106,218.26
				67	LARGE PATCH	Medium	3.58	Slabs	1.2	Patching - PCC Full Depth	353	SqFt	35.00	$12,344.16
				70	SCALING	High	1.79	Slabs	0.6	Slab Replacement - PCC	896	SqFt	67.00	$60,020.83
				74	JOINT SPALL	Medium	5.38	Slabs	1.8	Patching - PCC Partial Depth	34	SqFt	15.00	$520.70
				75	CORNER SPALL	Medium	1.79	Slabs	0.6	Patching - PCC Partial Depth	4	SqFt	15.00	$72.32
	CARGO7	P	PREVENTATIVE	49	OIL SPILLAGE	N/A	23.36	SqFt	0.1	Patching - AC Shallow	46	SqFt	20.00	$935.62
	CARGO8	P	PREVENTATIVE	63	LINEAR CR	Medium	15.5	Slabs	1.9	Crack Sealing - PCC	387	Ft	13.00	$5,037.50
				65	JT SEAL DMG	High	514.08	Slabs	61.4	Joint Seal (Localized)	25,962	Ft	13.00	$337,506.90
						Medium	322.92	Slabs	38.6	Joint Seal (Localized)	16,308	Ft	13.00	$212,001.82
				66	SMALL PATCH	High	2.58	Slabs	0.3	Patching - PCC Partial Depth	6	SqFt	15.00	$104.28
				70	SCALING	Medium	2.58	Slabs	0.3	Slab Replacement - PCC	1,615	SqFt	67.00	$108,177.08
				72	SHAT. SLAB	Medium	15.5	Slabs	1.9	Slab Replacement - PCC	9,688	SqFt	67.00	$649,062.50
				74	JOINT SPALL	High	7.75	Slabs	0.9	Patching - PCC Partial Depth	62	SqFt	15.00	$938.48
						Medium	38.75	Slabs	4.6	Patching - PCC Partial Depth	250	SqFt	15.00	$3,753.91
				75	CORNER SPALL	High	2.58	Slabs	0.3	Patching - PCC Partial Depth	6	SqFt	15.00	$104.28
						Medium	5.17	Slabs	0.6	Patching - PCC Partial Depth	14	SqFt	15.00	$208.55
	CARGO9	P	PREVENTATIVE	62	CORNER BREAK	Medium	1.25	Slabs	1.3	Patching - PCC Full Depth	41	SqFt	35.00	$1,412.76
				63	LINEAR CR	Medium	2.5	Slabs	2.6	Crack Sealing - PCC	56	Ft	13.00	$731.25
				64	DURABIL. CR	Medium	1.25	Slabs	1.3	Patching - PCC Full Depth	102	SqFt	35.00	$3,588.42
				65	JT SEAL DMG	High	95	Slabs	100.0	Joint Seal (Localized)	4,142	Ft	13.00	$53,852.48
				70	SCALING	Medium	1.25	Slabs	1.3	Slab Replacement - PCC	625	SqFt	67.00	$41,875.00
				74	JOINT SPALL	High	1.25	Slabs	1.3	Patching - PCC Partial Depth	10	SqFt	15.00	$151.37
						Medium	2.5	Slabs	2.6	Patching - PCC Partial Depth	16	SqFt	15.00	$242.19
GA De-ice	DICE/GA/1	T	PREVENTATIVE	41	ALLIGATOR CR	Medium	464.03	SqFt	0.3	Patching - AC Deep	554	SqFt	15.00	$8,320.55
GA Ramp	GA3	S	PREVENTATIVE	48	L & T CR	Medium	1372.11	Ft	0.7	Crack Sealing - AC	1,372	Ft	13.00	$17,837.25
	GA5	S	PREVENTATIVE	48	L & T CR	Medium	389.53	Ft	0.8	Crack Sealing - AC	389	Ft	13.00	$5,063.84
	GA6	S	STOP GAP	45	DEPRESSION	High	1097.06	SqFt	0.3	Patching - AC Deep	1,235	SqFt	15.00	$18,514.99
	GA7	T	STOP GAP	48	L & T CR	High	134.25	Ft	0.0	Patching - AC Deep	440	SqFt	15.00	$6,607.30
Gate A	A1	P	PREVENTATIVE	62	CORNER BREAK	Medium	2.83	Slabs	0.9	Patching - PCC Full Depth	91	SqFt	35.00	$3,198.90
				65	JT SEAL DMG	Medium	288.7	Slabs	91.1	Joint Seal (Localized)	10,181	Ft	13.00	$132,351.32
				66	SMALL PATCH	Medium	1.42	Slabs	0.5	Patching - PCC Partial Depth	4	SqFt	15.00	$57.12
				74	JOINT SPALL	High	1.42	Slabs	0.5	Patching - PCC Partial Depth	12	SqFt	15.00	$171.37
						Medium	16.98	Slabs	5.4	Patching - PCC Partial Depth	110	SqFt	15.00	$1,645.15
				75	CORNER SPALL	Medium	12.74	Slabs	4.0	Patching - PCC Partial Depth	34	SqFt	15.00	$514.11
	A2	P	PREVENTATIVE	65	JT SEAL DMG	Medium	116.35	Slabs	65.0	Joint Seal (Localized)	4,027	Ft	13.00	$52,346.88
				66	SMALL PATCH	Medium	1.79	Slabs	1.0	Patching - PCC Partial Depth	4	SqFt	15.00	$72.25
				74	JOINT SPALL	High	1.79	Slabs	1.0	Patching - PCC Partial Depth	14	SqFt	15.00	$216.76
						Medium	28.64	Slabs	16.0	Patching - PCC Partial Depth	185	SqFt	15.00	$2,774.51
				75	CORNER SPALL	Medium	1.79	Slabs	1.0	Patching - PCC Partial Depth	4	SqFt	15.00	$72.25
	A3	P	PREVENTATIVE	65	JT SEAL DMG	Medium	20.73	Slabs	8.2	Joint Seal (Localized)	752	Ft	13.00	$9,777.16
				67	LARGE PATCH	Medium	1.3	Slabs	0.5	Patching - PCC Full Depth	127	SqFt	35.00	$4,464.29

Appendix E - 1-Year Maintenance Plan

2016 1-Year Maintenance by Rank / Section / Distress

Primary (P)	Secondary (S)	Tertiary (T)	Total
$4,705,829	$88,416	$598,095	$5,392,340

Branch ID	Section ID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
				74	JOINT SPALL	High	1.3	Slabs	0.5	Patching - PCC Partial Depth	11	SqFt	15.00	$156.93
						Medium	2.59	Slabs	1.0	Patching - PCC Partial Depth	17	SqFt	15.00	$251.08
Gate B	AB1	P	PREVENTATIVE	74	JOINT SPALL	High	5.49	Slabs	0.5	Patching - PCC Partial Depth	44	SqFt	15.00	$664.20
						Medium	21.94	Slabs	2.0	Patching - PCC Partial Depth	142	SqFt	15.00	$2,125.44
				75	CORNER SPALL	High	10.97	Slabs	1.0	Patching - PCC Partial Depth	29	SqFt	15.00	$442.80
	B EXT 1	P	PREVENTATIVE	63	LINEAR CR	High	1.38	Slabs	0.9	Patching - PCC Partial Depth	90	SqFt	15.00	$1,362.13
				65	JT SEAL DMG	Medium	132.86	Slabs	85.7	Joint Seal (Localized)	4,859	Ft	13.00	$63,162.14
				74	JOINT SPALL	High	2.77	Slabs	1.8	Patching - PCC Partial Depth	23	SqFt	15.00	$335.17
						Medium	9.69	Slabs	6.3	Patching - PCC Partial Depth	62	SqFt	15.00	$938.48
				75	CORNER SPALL	Medium	1.38	Slabs	0.9	Patching - PCC Partial Depth	3	SqFt	15.00	$55.86
	B EXT 2	P	STOP GAP	63	LINEAR CR	High	1.26	Slabs	0.8	Patching - PCC Partial Depth	103	SqFt	15.00	$1,548.15
				66	SMALL PATCH	High	1.26	Slabs	0.8	Patching - PCC Partial Depth	3	SqFt	15.00	$50.79
				72	SHAT. SLAB	High	1.26	Slabs	0.8	Slab Replacement - PCC	787	SqFt	67.00	$52,692.71
				74	JOINT SPALL	High	1.26	Slabs	0.8	Patching - PCC Partial Depth	10	SqFt	15.00	$152.38
				75	CORNER SPALL	High	2.52	Slabs	1.7	Patching - PCC Partial Depth	6	SqFt	15.00	$101.58
	B EXT 3	P	STOP GAP	66	SMALL PATCH	High	2.54	Slabs	2.2	Patching - PCC Partial Depth	6	SqFt	15.00	$102.67
				72	SHAT. SLAB	High	1.27	Slabs	1.1	Slab Replacement - PCC	794	SqFt	67.00	$53,254.08
				75	CORNER SPALL	High	1.27	Slabs	1.1	Patching - PCC Partial Depth	3	SqFt	15.00	$51.33
	B EXT 4	P	STOP GAP	62	CORNER BREAK	High	1.14	Slabs	0.8	Patching - PCC Full Depth	37	SqFt	35.00	$1,290.32
				63	LINEAR CR	High	2.28	Slabs	1.7	Patching - PCC Partial Depth	187	SqFt	15.00	$2,809.22
				70	SCALING	High	1.14	Slabs	0.8	Patching - PCC Full Depth	892	SqFt	35.00	$31,217.45
				72	SHAT. SLAB	High	1.14	Slabs	0.8	Slab Replacement - PCC	714	SqFt	67.00	$47,807.29
				74	JOINT SPALL	High	1.14	Slabs	0.8	Patching - PCC Partial Depth	10	SqFt	15.00	$138.25
	B EXT 5	P	PREVENTATIVE	63	LINEAR CR	Medium	1.6	Slabs	0.8	Crack Sealing - PCC	32	Ft	13.00	$415.61
				74	JOINT SPALL	High	1.6	Slabs	0.8	Patching - PCC Partial Depth	13	SqFt	15.00	$193.57
				75	CORNER SPALL	High	3.2	Slabs	1.5	Patching - PCC Partial Depth	9	SqFt	15.00	$129.04
Gate C	C1	P	PREVENTATIVE	75	CORNER SPALL	High	1.25	Slabs	1.6	Patching - PCC Partial Depth	3	SqFt	15.00	$50.46
	C10	P	STOP GAP	63	LINEAR CR	High	0.92	Slabs	2.1	Patching - PCC Partial Depth	75	SqFt	15.00	$1,127.79
	C11	P	PREVENTATIVE	63	LINEAR CR	Medium	4	Slabs	11.4	Crack Sealing - PCC	100	Ft	13.00	$1,300.00
				65	JT SEAL DMG	High	35	Slabs	100.0	Joint Seal (Localized)	1,320	Ft	13.00	$17,159.99
	C12	P	STOP GAP	66	SMALL PATCH	High	1.8	Slabs	5.0	Patching - PCC Partial Depth	4	SqFt	15.00	$72.66
	C13	P	STOP GAP	66	SMALL PATCH	High	2	Slabs	8.7	Patching - PCC Partial Depth	5	SqFt	15.00	$80.73
				74	JOINT SPALL	High	1	Slabs	4.4	Patching - PCC Partial Depth	9	SqFt	15.00	$121.09
	C14	P	STOP GAP	63	LINEAR CR	High	1	Slabs	3.7	Patching - PCC Partial Depth	82	SqFt	15.00	$1,230.32
				66	SMALL PATCH	High	2	Slabs	7.4	Patching - PCC Partial Depth	5	SqFt	15.00	$80.73
				72	SHAT. SLAB	High	1	Slabs	3.7	Slab Replacement - PCC	625	SqFt	67.00	$41,875.00
	C15	P	PREVENTATIVE	63	LINEAR CR	High	0.92	Slabs	2.6	Patching - PCC Partial Depth	68	SqFt	15.00	$1,022.11
				65	JT SEAL DMG	Medium	36	Slabs	100.0	Joint Seal (Localized)	1,505	Ft	13.00	$19,565.51
				67	LARGE PATCH	High	0.92	Slabs	2.6	Patching - PCC Full Depth	90	SqFt	35.00	$3,179.89
						Medium	0.92	Slabs	2.6	Patching - PCC Full Depth	90	SqFt	35.00	$3,179.89
				75	CORNER SPALL	Medium	0.92	Slabs	2.6	Patching - PCC Partial Depth	2	SqFt	15.00	$37.26
	C16	P	PREVENTATIVE	63	LINEAR CR	Medium	1.64	Slabs	4.6	Crack Sealing - PCC	41	Ft	13.00	$531.82
				65	JT SEAL DMG	Medium	36	Slabs	100.0	Joint Seal (Localized)	1,918	Ft	13.00	$24,928.27
				74	JOINT SPALL	High	0.82	Slabs	2.3	Patching - PCC Partial Depth	6	SqFt	15.00	$99.08

Appendix E - 1-Year Maintenance Plan

2016 1-Year Maintenance by Rank / Section / Distress

Primary (P)	Secondary (S)	Tertiary (T)	Total
$4,705,829	$88,416	$598,095	$5,392,340

Branch ID	Section ID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
	C2	P	PREVENTATIVE	62	CORNER BREAK	Medium	1.22	Slabs	1.0	Patching - PCC Full Depth	40	SqFt	35.00	$1,378.86
				66	SMALL PATCH	Medium	1.22	Slabs	1.0	Patching - PCC Partial Depth	3	SqFt	15.00	$49.24
				67	LARGE PATCH	Medium	1.22	Slabs	1.0	Patching - PCC Full Depth	121	SqFt	35.00	$4,202.76
	C3	P	PREVENTATIVE	62	CORNER BREAK	Medium	1.03	Slabs	1.7	Patching - PCC Full Depth	33	SqFt	35.00	$1,169.18
	C6	P	PREVENTATIVE	66	SMALL PATCH	Medium	2.66	Slabs	2.0	Patching - PCC Partial Depth	8	SqFt	15.00	$107.37
				75	CORNER SPALL	Medium	2.66	Slabs	2.0	Patching - PCC Partial Depth	8	SqFt	15.00	$107.37
	C9	P	STOP GAP	65	JT SEAL DMG	High	25	Slabs	100.0	Joint Seal (Localized)	910	Ft	13.00	$11,829.99
				66	SMALL PATCH	High	1	Slabs	4.0	Patching - PCC Partial Depth	2	SqFt	15.00	$40.36
				72	SHAT. SLAB	High	1	Slabs	4.0	Slab Replacement - PCC	625	SqFt	67.00	$41,875.00
				74	JOINT SPALL	High	1	Slabs	4.0	Patching - PCC Partial Depth	9	SqFt	15.00	$121.09
	C9A	P	PREVENTATIVE	74	JOINT SPALL	Medium	1.07	Slabs	1.8	Patching - PCC Partial Depth	6	SqFt	15.00	$103.92
				75	CORNER SPALL	High	2.15	Slabs	3.6	Patching - PCC Partial Depth	5	SqFt	15.00	$86.60
Gate D	D1	P	PREVENTATIVE	65	JT SEAL DMG	Medium	51	Slabs	70.8	Joint Seal (Localized)	1,941	Ft	13.00	$25,230.82
				66	SMALL PATCH	Medium	1	Slabs	1.4	Patching - PCC Partial Depth	2	SqFt	15.00	$40.36
				74	JOINT SPALL	Medium	2	Slabs	2.8	Patching - PCC Partial Depth	13	SqFt	15.00	$193.75
	D11	P	PREVENTATIVE	65	JT SEAL DMG	High	196	Slabs	100.0	Joint Seal (Localized)	5,410	Ft	13.00	$70,328.31
				66	SMALL PATCH	Medium	1.54	Slabs	0.8	Patching - PCC Partial Depth	4	SqFt	15.00	$62.30
				74	JOINT SPALL	Medium	1.54	Slabs	0.8	Patching - PCC Partial Depth	10	SqFt	15.00	$149.51
				75	CORNER SPALL	Medium	3.09	Slabs	1.6	Patching - PCC Partial Depth	9	SqFt	15.00	$124.59
	D12	P	PREVENTATIVE	65	JT SEAL DMG	Medium	185	Slabs	100.0	Joint Seal (Localized)	4,926	Ft	13.00	$64,036.79
				70	SCALING	Medium	13.76	Slabs	7.4	Slab Replacement - PCC	2,838	SqFt	67.00	$190,150.57
				75	CORNER SPALL	Medium	1.53	Slabs	0.8	Patching - PCC Partial Depth	4	SqFt	15.00	$61.71
	D13	P	PREVENTATIVE	63	LINEAR CR	Medium	1.64	Slabs	0.9	Crack Sealing - PCC	24	Ft	13.00	$308.93
				65	JT SEAL DMG	High	177	Slabs	100.0	Joint Seal (Localized)	5,009	Ft	13.00	$65,116.45
				66	SMALL PATCH	Medium	3.28	Slabs	1.9	Patching - PCC Partial Depth	9	SqFt	15.00	$132.31
				74	JOINT SPALL	Medium	3.28	Slabs	1.9	Patching - PCC Partial Depth	22	SqFt	15.00	$317.54
	D14	P	PREVENTATIVE	65	JT SEAL DMG	Medium	183	Slabs	100.0	Joint Seal (Localized)	4,926	Ft	13.00	$64,036.79
				70	SCALING	Medium	9.7	Slabs	5.3	Slab Replacement - PCC	2,002	SqFt	67.00	$134,104.69
				75	CORNER SPALL	Medium	2.77	Slabs	1.5	Patching - PCC Partial Depth	8	SqFt	15.00	$111.92
	D15	P	PREVENTATIVE	65	JT SEAL DMG	High	181	Slabs	100.0	Joint Seal (Localized)	2,747	Ft	13.00	$35,711.33
				66	SMALL PATCH	Medium	1.51	Slabs	0.8	Patching - PCC Partial Depth	4	SqFt	15.00	$60.88
				67	LARGE PATCH	Medium	3.02	Slabs	1.7	Patching - PCC Full Depth	185	SqFt	35.00	$6,495.04
				74	JOINT SPALL	Medium	3.02	Slabs	1.7	Patching - PCC Partial Depth	19	SqFt	15.00	$292.24
	D16	P	PREVENTATIVE	65	JT SEAL DMG	High	30.5	Slabs	25.0	Joint Seal (Localized)	780	Ft	13.00	$10,138.74
						Medium	91.5	Slabs	75.0	Joint Seal (Localized)	2,340	Ft	13.00	$30,416.23
				67	LARGE PATCH	Medium	3.05	Slabs	2.5	Patching - PCC Full Depth	187	SqFt	35.00	$6,566.81
	D20	P	PREVENTATIVE	65	JT SEAL DMG	High	123	Slabs	100.0	Joint Seal (Localized)	3,436	Ft	13.00	$44,667.98
				66	SMALL PATCH	Medium	1.28	Slabs	1.0	Patching - PCC Partial Depth	3	SqFt	15.00	$51.72
				74	JOINT SPALL	Medium	3.84	Slabs	3.1	Patching - PCC Partial Depth	25	SqFt	15.00	$372.36
				75	CORNER SPALL	High	1.28	Slabs	1.0	Patching - PCC Partial Depth	3	SqFt	15.00	$51.72
						Medium	1.28	Slabs	1.0	Patching - PCC Partial Depth	3	SqFt	15.00	$51.72
	D21	P	PREVENTATIVE	65	JT SEAL DMG	High	123	Slabs	100.0	Joint Seal (Localized)	3,315	Ft	13.00	$43,095.85
				74	JOINT SPALL	High	1.52	Slabs	1.2	Patching - PCC Partial Depth	12	SqFt	15.00	$183.88
						Medium	3.04	Slabs	2.5	Patching - PCC Partial Depth	19	SqFt	15.00	$294.21

Appendix E - 1-Year Maintenance Plan

2016 1-Year Maintenance by Rank / Section / Distress

Primary (P)	Secondary (S)	Tertiary (T)	Total
$4,705,829	$88,416	$598,095	$5,392,340

Branch ID	Section ID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
	D22	P	PREVENTATIVE	65	JT SEAL DMG	High	107	Slabs	100.0	Joint Seal (Localized)	2,996	Ft	13.00	$38,954.05
				70	SCALING	High	1.22	Slabs	1.1	Slab Replacement - PCC	273	SqFt	67.00	$18,329.83
				74	JOINT SPALL	Medium	1.22	Slabs	1.1	Patching - PCC Partial Depth	8	SqFt	15.00	$117.79
				75	CORNER SPALL	Medium	1.22	Slabs	1.1	Patching - PCC Partial Depth	3	SqFt	15.00	$49.08
	D23	P	PREVENTATIVE	65	JT SEAL DMG	High	126	Slabs	100.0	Joint Seal (Localized)	2,966	Ft	13.00	$38,554.94
				74	JOINT SPALL	Medium	1.59	Slabs	1.3	Patching - PCC Partial Depth	11	SqFt	15.00	$154.51
				75	CORNER SPALL	Medium	1.59	Slabs	1.3	Patching - PCC Partial Depth	4	SqFt	15.00	$64.38
	D24	P	PREVENTATIVE	65	JT SEAL DMG	High	108	Slabs	100.0	Joint Seal (Localized)	2,970	Ft	13.00	$38,609.98
				74	JOINT SPALL	Medium	2.45	Slabs	2.3	Patching - PCC Partial Depth	16	SqFt	15.00	$237.78
	D25	P	PREVENTATIVE	65	JT SEAL DMG	High	133	Slabs	100.0	Joint Seal (Localized)	4,161	Ft	13.00	$54,092.98
				74	JOINT SPALL	Medium	4.84	Slabs	3.6	Patching - PCC Partial Depth	31	SqFt	15.00	$468.52
	D26	P	PREVENTATIVE	65	JT SEAL DMG	High	178	Slabs	100.0	Joint Seal (Localized)	4,339	Ft	13.00	$56,404.30
				70	SCALING	High	1.93	Slabs	1.1	Slab Replacement - PCC	336	SqFt	67.00	$22,497.36
	D27	P	PREVENTATIVE	65	JT SEAL DMG	High	139	Slabs	100.0	Joint Seal (Localized)	3,998	Ft	13.00	$51,969.82
				74	JOINT SPALL	Medium	1.93	Slabs	1.4	Patching - PCC Partial Depth	13	SqFt	15.00	$187.02
	D29	P	PREVENTATIVE	65	JT SEAL DMG	Medium	143	Slabs	100.0	Joint Seal (Localized)	4,257	Ft	13.00	$55,336.64
				74	JOINT SPALL	Medium	1.29	Slabs	0.9	Patching - PCC Partial Depth	9	SqFt	15.00	$124.80
				75	CORNER SPALL	Medium	3.86	Slabs	2.7	Patching - PCC Partial Depth	11	SqFt	15.00	$156.00
	D3	P	PREVENTATIVE	65	JT SEAL DMG	Medium	36.42	Slabs	42.4	Joint Seal (Localized)	1,383	Ft	13.00	$17,976.70
	D5	P	PREVENTATIVE	74	JOINT SPALL	Medium	4.44	Slabs	7.3	Patching - PCC Partial Depth	29	SqFt	15.00	$429.77
				75	CORNER SPALL	Medium	1.11	Slabs	1.8	Patching - PCC Partial Depth	3	SqFt	15.00	$44.77
	D6	P	PREVENTATIVE	70	SCALING	Medium	1.02	Slabs	2.1	Slab Replacement - PCC	408	SqFt	67.00	$27,358.33
	D7	P	PREVENTATIVE	62	CORNER BREAK	Medium	1.48	Slabs	0.8	Patching - PCC Full Depth	47	SqFt	35.00	$1,668.83
				65	JT SEAL DMG	High	189	Slabs	100.0	Joint Seal (Localized)	5,153	Ft	13.00	$66,990.63
				66	SMALL PATCH	Medium	1.48	Slabs	0.8	Patching - PCC Partial Depth	4	SqFt	15.00	$59.60
				74	JOINT SPALL	Medium	1.48	Slabs	0.8	Patching - PCC Partial Depth	10	SqFt	15.00	$143.04
				75	CORNER SPALL	Medium	2.95	Slabs	1.6	Patching - PCC Partial Depth	8	SqFt	15.00	$119.20
	D8	P	PREVENTATIVE	65	JT SEAL DMG	Medium	28.5	Slabs	50.0	Joint Seal (Localized)	990	Ft	13.00	$12,863.49
Gate D Com	DCOMMUTER	P	PREVENTATIVE	62	CORNER BREAK	Medium	18	Slabs	2.1	Patching - PCC Full Depth	581	SqFt	35.00	$20,343.79
				63	LINEAR CR	Medium	3	Slabs	0.4	Crack Sealing - PCC	40	Ft	13.00	$518.11
				65	JT SEAL DMG	High	192	Slabs	22.5	Joint Seal (Localized)	4,711	Ft	13.00	$61,244.16
				66	SMALL PATCH	Medium	3	Slabs	0.4	Patching - PCC Partial Depth	9	SqFt	15.00	$121.09
				74	JOINT SPALL	Medium	12	Slabs	1.4	Patching - PCC Partial Depth	78	SqFt	15.00	$1,162.50
				75	CORNER SPALL	Medium	3	Slabs	0.4	Patching - PCC Partial Depth	9	SqFt	15.00	$121.09
Gate E	E1	P	PREVENTATIVE	64	DURABIL. CR	High	1.08	Slabs	1.3	Slab Replacement - PCC	672	SqFt	67.00	$45,015.63
				65	JT SEAL DMG	Medium	43	Slabs	50.0	Joint Seal (Localized)	2,050	Ft	13.00	$26,645.05
				66	SMALL PATCH	Medium	1.08	Slabs	1.3	Patching - PCC Partial Depth	3	SqFt	15.00	$43.39
				67	LARGE PATCH	High	1.08	Slabs	1.3	Patching - PCC Full Depth	132	SqFt	35.00	$4,629.06
						Medium	1.08	Slabs	1.3	Patching - PCC Full Depth	132	SqFt	35.00	$4,629.06
	E2	P	PREVENTATIVE	63	LINEAR CR	Medium	1.06	Slabs	1.1	Crack Sealing - PCC	21	Ft	13.00	$276.77
				74	JOINT SPALL	High	1.06	Slabs	1.1	Patching - PCC Partial Depth	9	SqFt	15.00	$128.91
						Medium	2.13	Slabs	2.2	Patching - PCC Partial Depth	14	SqFt	15.00	$206.25
	E3	P	STOP GAP	65	JT SEAL DMG	High	109.5	Slabs	75.0	Joint Seal (Localized)	4,091	Ft	13.00	$53,180.74
				67	LARGE PATCH	High	1.83	Slabs	1.3	Patching - PCC Full Depth	173	SqFt	35.00	$6,063.72

Appendix E - 1-Year Maintenance Plan

2016 1-Year Maintenance by Rank / Section / Distress

Primary (P)	Secondary (S)	Tertiary (T)	Total
$4,705,829	$88,416	$598,095	$5,392,340

Branch ID	Section ID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
				74	JOINT SPALL	High	1.83	Slabs	1.3	Patching - PCC Partial Depth	15	SqFt	15.00	$221.00
	E6	P	STOP GAP	65	JT SEAL DMG	High	55	Slabs	100.0	Joint Seal (Localized)	2,242	Ft	13.00	$29,149.63
				74	JOINT SPALL	High	1.06	Slabs	1.9	Patching - PCC Partial Depth	9	SqFt	15.00	$128.08
	E8	P	PREVENTATIVE	63	LINEAR CR	Medium	0.93	Slabs	1.0	Crack Sealing - PCC	21	Ft	13.00	$268.69
				65	JT SEAL DMG	High	73.73	Slabs	75.2	Joint Seal (Localized)	2,967	Ft	13.00	$38,571.75
						Medium	24.27	Slabs	24.8	Joint Seal (Localized)	976	Ft	13.00	$12,694.50
				75	CORNER SPALL	High	0.93	Slabs	1.0	Patching - PCC Partial Depth	2	SqFt	15.00	$37.67
Mid Cargo	MID CARGO1	T	STOP GAP	52	RAVELING	High	882.32	SqFt	0.3	Patching - AC Deep	883	SqFt	15.00	$13,234.29
	MID CARGO2	T	PREVENTATIVE	62	CORNER BREAK	Medium	2.08	Slabs	0.6	Patching - PCC Full Depth	67	SqFt	35.00	$2,351.12
				63	LINEAR CR	Medium	2.08	Slabs	0.6	Crack Sealing - PCC	42	Ft	13.00	$540.86
				64	DURABIL. CR	Medium	2.08	Slabs	0.6	Patching - PCC Full Depth	171	SqFt	35.00	$5,971.84
				65	JT SEAL DMG	Medium	99.85	Slabs	29.6	Joint Seal (Localized)	3,595	Ft	13.00	$46,738.35
				74	JOINT SPALL	High	6.24	Slabs	1.9	Patching - PCC Partial Depth	51	SqFt	15.00	$755.72
						Medium	6.24	Slabs	1.9	Patching - PCC Partial Depth	40	SqFt	15.00	$604.57
				75	CORNER SPALL	High	2.08	Slabs	0.6	Patching - PCC Partial Depth	5	SqFt	15.00	$83.97
						Medium	6.24	Slabs	1.9	Patching - PCC Partial Depth	17	SqFt	15.00	$251.91
	MID CARGO3	T	PREVENTATIVE	48	L & T CR	Medium	13162.24	Ft	3.3	Crack Sealing - AC	13,162	Ft	13.00	$171,109.17
				49	OIL SPILLAGE	N/A	913.32	SqFt	0.2	Patching - AC Shallow	1,039	SqFt	20.00	$20,778.71
				50	PATCHING	Medium	1343.12	SqFt	0.3	Patching - AC Deep	1,495	SqFt	15.00	$22,418.89
				52	RAVELING	Medium	2686.13	SqFt	0.7	Patching - AC Shallow	2,687	SqFt	20.00	$53,723.46
Ramp AB	APRTL/1	P	PREVENTATIVE	48	L & T CR	Medium	420.24	Ft	0.4	Crack Sealing - AC	420	Ft	13.00	$5,463.08
	APRTL/2	P	PREVENTATIVE	48	L & T CR	Medium	202.13	Ft	0.3	Crack Sealing - AC	202	Ft	13.00	$2,627.63
	APRTL/3	P	STOP GAP	52	RAVELING	High	4.09	SqFt	0.0	Patching - AC Deep	4	SqFt	15.00	$61.57
	APRTL/4	P	STOP GAP	52	RAVELING	High	5.17	SqFt	0.0	Patching - AC Deep	5	SqFt	15.00	$76.93
	MRA1	P	PREVENTATIVE	48	L & T CR	Medium	493.41	Ft	0.7	Crack Sealing - AC	493	Ft	13.00	$6,414.15
				49	OIL SPILLAGE	N/A	931.94	SqFt	1.3	Patching - AC Shallow	1,059	SqFt	20.00	$21,176.89
	MRA2	P	PREVENTATIVE	48	L & T CR	Medium	2575.56	Ft	0.9	Crack Sealing - AC	2,575	Ft	13.00	$33,482.34
				49	OIL SPILLAGE	N/A	2809.7	SqFt	0.9	Patching - AC Shallow	3,027	SqFt	20.00	$60,541.10
	MRA3	P	PREVENTATIVE	49	OIL SPILLAGE	N/A	1609.1	SqFt	4.2	Patching - AC Shallow	1,775	SqFt	20.00	$35,491.23
Ramp BC	MRBC1	P	PREVENTATIVE	41	ALLIGATOR CR	Medium	891.68	SqFt	0.4	Patching - AC Deep	1,016	SqFt	15.00	$15,238.86
				48	L & T CR	High	247.7	Ft	0.1	Patching - AC Deep	813	SqFt	15.00	$12,190.13
						Medium	4706.36	Ft	2.0	Crack Sealing - AC	4,706	Ft	13.00	$61,182.71
				55	SLIPPAGE CR	N/A	198.16	SqFt	0.1	Patching - AC Deep	258	SqFt	15.00	$3,882.32
	MRBC7	P	PREVENTATIVE	50	PATCHING	Medium	557.14	SqFt	1.0	Patching - AC Deep	657	SqFt	15.00	$9,841.41
	MRBC9	P	PREVENTATIVE	48	L & T CR	Medium	187.34	Ft	0.3	Crack Sealing - AC	187	Ft	13.00	$2,435.28
				49	OIL SPILLAGE	N/A	580.71	SqFt	0.8	Patching - AC Shallow	681	SqFt	20.00	$13,634.29
Ramp CD	MRCD1	P	PREVENTATIVE	75	CORNER SPALL	Medium	1.08	Slabs	1.1	Patching - PCC Partial Depth	3	SqFt	15.00	$43.54
	MRCD15	P	PREVENTATIVE	41	ALLIGATOR CR	Medium	98.27	SqFt	0.2	Patching - AC Deep	142	SqFt	15.00	$2,132.24
				48	L & T CR	Medium	435.99	Ft	0.9	Crack Sealing - AC	436	Ft	13.00	$5,667.97
	MRCD2	P	PREVENTATIVE	62	CORNER BREAK	Medium	3.53	Slabs	1.0	Patching - PCC Full Depth	114	SqFt	35.00	$3,986.36
				74	JOINT SPALL	Medium	3.53	Slabs	1.0	Patching - PCC Partial Depth	23	SqFt	15.00	$341.69
				75	CORNER SPALL	High	3.53	Slabs	1.0	Patching - PCC Partial Depth	10	SqFt	15.00	$142.37
						Medium	3.53	Slabs	1.0	Patching - PCC Partial Depth	10	SqFt	15.00	$142.37
	MRCD3	P	PREVENTATIVE	63	LINEAR CR	Medium	1.5	Slabs	0.8	Crack Sealing - PCC	30	Ft	13.00	$390.00

Appendix E - 1-Year Maintenance Plan

2016 1-Year Maintenance by Rank / Section / Distress

Primary (P)	Secondary (S)	Tertiary (T)	Total
$4,705,829	$88,416	$598,095	$5,392,340

Branch ID	Section ID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
				74	JOINT SPALL	Medium	6	Slabs	3.3	Patching - PCC Partial Depth	39	SqFt	15.00	$581.25
				75	CORNER SPALL	High	3	Slabs	1.7	Patching - PCC Partial Depth	9	SqFt	15.00	$121.09
Ramp DE	MRDE1	P	STOP GAP	41	ALLIGATOR CR	High	2250.41	SqFt	1.7	Patching - AC Deep	2,446	SqFt	15.00	$36,680.49
				50	PATCHING	High	1687.78	SqFt	1.3	Patching - AC Deep	1,857	SqFt	15.00	$27,857.67
	MRDE10	P	PREVENTATIVE	65	JT SEAL DMG	Medium	59.55	Slabs	22.7	Joint Seal (Localized)	2,785	Ft	13.00	$36,211.19
	MRDE11	P	PREVENTATIVE	49	OIL SPILLAGE	N/A	10.01	SqFt	0.1	Patching - AC Shallow	27	SqFt	20.00	$534.61
	MRDE12	P	PREVENTATIVE	48	L & T CR	Medium	60.01	Ft	0.3	Crack Sealing - AC	60	Ft	13.00	$780.21
				49	OIL SPILLAGE	N/A	50.05	SqFt	0.2	Patching - AC Shallow	83	SqFt	20.00	$1,649.56
				52	RAVELING	High	0.97	SqFt	0.0	Patching - AC Deep	1	SqFt	15.00	$15.00
	MRDE2	P	STOP GAP	41	ALLIGATOR CR	High	1108.25	SqFt	1.5	Patching - AC Deep	1,246	SqFt	15.00	$18,693.02
				50	PATCHING	High	1662.27	SqFt	2.3	Patching - AC Deep	1,831	SqFt	15.00	$27,456.31
RON	RON1	S	PREVENTATIVE	41	ALLIGATOR CR	Medium	319.69	SqFt	0.2	Patching - AC Deep	396	SqFt	15.00	$5,934.64
				49	OIL SPILLAGE	N/A	277.06	SqFt	0.2	Patching - AC Shallow	348	SqFt	20.00	$6,961.00
	RON2	S	PREVENTATIVE	74	JOINT SPALL	High	1.16	Slabs	1.0	Patching - PCC Partial Depth	10	SqFt	15.00	$140.47
						Medium	1.16	Slabs	1.0	Patching - PCC Partial Depth	8	SqFt	15.00	$112.38
RW 10-28	RW10/4	P	PREVENTATIVE	48	L & T CR	Medium	8.17	Ft	0.0	Crack Sealing - AC	8	Ft	13.00	$106.08
	RW10/7	P	PREVENTATIVE	48	L & T CR	Medium	17.75	Ft	0.0	Crack Sealing - AC	18	Ft	13.00	$230.74
RW 15R-33L	RW15R/9K	P	PREVENTATIVE	48	L & T CR	Medium	98.26	Ft	0.5	Crack Sealing - AC	98	Ft	13.00	$1,277.50
RW 4-22	RW4/1A	T	PREVENTATIVE	48	L & T CR	Medium	100.59	Ft	0.2	Crack Sealing - AC	101	Ft	13.00	$1,307.67
				52	RAVELING	Medium	402.35	SqFt	0.7	Patching - AC Shallow	403	SqFt	20.00	$8,047.20
Rwy 28 Ice	DICE/R28/2	P	PREVENTATIVE	62	CORNER BREAK	High	2.24	Slabs	0.4	Patching - PCC Full Depth	72	SqFt	35.00	$2,526.09
						Medium	8.94	Slabs	1.6	Patching - PCC Full Depth	288	SqFt	35.00	$10,104.35
				63	LINEAR CR	Medium	4.47	Slabs	0.8	Crack Sealing - PCC	89	Ft	13.00	$1,162.23
				65	JT SEAL DMG	Medium	134.1	Slabs	23.9	Joint Seal (Localized)	6,553	Ft	13.00	$85,186.84
				67	LARGE PATCH	High	4.47	Slabs	0.8	Patching - PCC Full Depth	440	SqFt	35.00	$15,399.04
						Medium	2.24	Slabs	0.4	Patching - PCC Full Depth	220	SqFt	35.00	$7,699.52
				74	JOINT SPALL	High	6.71	Slabs	1.2	Patching - PCC Partial Depth	54	SqFt	15.00	$811.96
						Medium	17.88	Slabs	3.2	Patching - PCC Partial Depth	115	SqFt	15.00	$1,732.18
				75	CORNER SPALL	Medium	2.24	Slabs	0.4	Patching - PCC Partial Depth	6	SqFt	15.00	$90.22
Taxiway A	TWA21	P	PREVENTATIVE	48	L & T CR	Medium	394.32	Ft	0.7	Crack Sealing - AC	394	Ft	13.00	$5,126.13
				49	OIL SPILLAGE	N/A	160.92	SqFt	0.3	Patching - AC Shallow	216	SqFt	20.00	$4,320.16
Taxiway B	TWB1	S	PREVENTATIVE	41	ALLIGATOR CR	Medium	215.28	SqFt	0.1	Patching - AC Deep	279	SqFt	15.00	$4,175.02
				48	L & T CR	Medium	2131.17	Ft	1.3	Crack Sealing - AC	2,131	Ft	13.00	$27,705.15
	TWB2	P	PREVENTATIVE	48	L & T CR	Medium	11.12	Ft	0.1	Crack Sealing - AC	11	Ft	13.00	$144.53
	TWB3	P	STOP GAP	41	ALLIGATOR CR	High	2.37	SqFt	0.0	Patching - AC Deep	13	SqFt	15.00	$189.18
Taxiway E	TWE10	P	PREVENTATIVE	48	L & T CR	Medium	228.84	Ft	0.7	Crack Sealing - AC	229	Ft	13.00	$2,975.08
Taxiway J	TWJ1/A	S	PREVENTATIVE	48	L & T CR	Medium	14.93	Ft	0.1	Crack Sealing - AC	15	Ft	13.00	$194.12
	TWJ2	S	PREVENTATIVE	48	L & T CR	Medium	20.01	Ft	0.1	Crack Sealing - AC	20	Ft	13.00	$260.36
Taxiway K	TWK2A	P	PREVENTATIVE	49	OIL SPILLAGE	N/A	20.13	SqFt	0.1	Patching - AC Shallow	42	SqFt	20.00	$845.08
Taxiway N	TWN3	P	PREVENTATIVE	48	L & T CR	Medium	49.97	Ft	0.3	Crack Sealing - AC	50	Ft	13.00	$649.75
				49	OIL SPILLAGE	N/A	10.01	SqFt	0.1	Patching - AC Shallow	27	SqFt	20.00	$534.43
Taxiway P	TWP1	P	PREVENTATIVE	48	L & T CR	Medium	184.71	Ft	0.1	Crack Sealing - AC	185	Ft	13.00	$2,401.25
	TWP2	P	PREVENTATIVE	48	L & T CR	Medium	9.65	Ft	0.0	Crack Sealing - AC	10	Ft	13.00	$125.54
	TWP20	P	PREVENTATIVE	41	ALLIGATOR CR	Medium	86.11	SqFt	0.3	Patching - AC Deep	127	SqFt	15.00	$1,911.96

Appendix E - 1-Year Maintenance Plan

2016 1-Year Maintenance by Rank / Section / Distress

Primary (P)	Secondary (S)	Tertiary (T)	Total
$4,705,829	$88,416	$598,095	$5,392,340

Branch ID	Section ID	Rank	Policy	Distress Code	Description	Severity	Distress Qty	Distress Unit	Percent Distress	Work Description	Work Qty	Work Unit	Unit Cost	Work Cost
				48	L & T CR	Medium	274.25	Ft	1.0	Crack Sealing - AC	274	Ft	13.00	$3,565.39
	TWP21	P	PREVENTATIVE	48	L & T CR	Medium	629.13	Ft	1.8	Crack Sealing - AC	629	Ft	13.00	$8,178.70
	TWP3	P	PREVENTATIVE	48	L & T CR	Medium	8.17	Ft	0.0	Crack Sealing - AC	8	Ft	13.00	$106.18
Taxiway Q	TWQ2	S	PREVENTATIVE	48	L & T CR	Medium	10.37	Ft	0.0	Crack Sealing - AC	11	Ft	13.00	$134.84
	TWQ3	S	PREVENTATIVE	48	L & T CR	Medium	89.73	Ft	0.3	Crack Sealing - AC	90	Ft	13.00	$1,166.36
Taxiway R	TWR2A	T	PREVENTATIVE	50	PATCHING	Medium	1345.49	SqFt	2.3	Patching - AC Deep	1,497	SqFt	15.00	$22,456.91
	TWR2C	T	PREVENTATIVE	50	PATCHING	Medium	1119.45	SqFt	2.4	Patching - AC Deep	1,258	SqFt	15.00	$18,871.84
Taxiway S	TWS2	T	PREVENTATIVE	48	L & T CR	Medium	228.31	Ft	0.4	Crack Sealing - AC	228	Ft	13.00	$2,968.16
	TWS5	P	PREVENTATIVE	48	L & T CR	Medium	8.3	Ft	0.0	Crack Sealing - AC	8	Ft	13.00	$107.83
	TWS6	P	PREVENTATIVE	48	L & T CR	Medium	5.94	Ft	0.0	Crack Sealing - AC	6	Ft	13.00	$77.33
	TWS7	S	PREVENTATIVE	52	RAVELING	Medium	10.76	SqFt	0.0	Patching - AC Shallow	11	SqFt	20.00	$215.28
Taxiway T	TWT2	P	PREVENTATIVE	48	L & T CR	Medium	2022.34	Ft	1.6	Crack Sealing - AC	2,022	Ft	13.00	$26,290.37
				50	PATCHING	Medium	116.9	SqFt	0.1	Patching - AC Deep	165	SqFt	15.00	$2,465.91
				52	RAVELING	Medium	187.61	SqFt	0.2	Patching - AC Shallow	187	SqFt	20.00	$3,752.21
	TWT5	P	STOP GAP	41	ALLIGATOR CR	High	0	SqFt	0.0	Patching - AC Deep	4	SqFt	15.00	$60.00
				52	RAVELING	High	21.53	SqFt	0.0	Patching - AC Deep	22	SqFt	15.00	$322.92
	TWT6	P	PREVENTATIVE	48	L & T CR	Medium	47.01	Ft	0.1	Crack Sealing - AC	47	Ft	13.00	$611.36
				50	PATCHING	Medium	215.28	SqFt	0.6	Patching - AC Deep	279	SqFt	15.00	$4,175.00
	TWT7	P	PREVENTATIVE	48	L & T CR	Medium	5.02	Ft	0.0	Crack Sealing - AC	5	Ft	13.00	$65.42
				52	RAVELING	Medium	10.76	SqFt	0.0	Patching - AC Shallow	11	SqFt	20.00	$215.28
	TWT8	P	PREVENTATIVE	48	L & T CR	Medium	66.11	Ft	0.2	Crack Sealing - AC	66	Ft	13.00	$859.58
				50	PATCHING	Medium	785.77	SqFt	1.9	Patching - AC Deep	903	SqFt	15.00	$13,538.95
	TWT9	P	PREVENTATIVE	48	L & T CR	Medium	84.94	Ft	0.1	Crack Sealing - AC	85	Ft	13.00	$1,104.27
				50	PATCHING	Medium	204.51	SqFt	0.3	Patching - AC Deep	266	SqFt	15.00	$3,991.13
Taxiway W	TWW	T	STOP GAP	41	ALLIGATOR CR	High	7167.04	SqFt	5.4	Patching - AC Deep	7,512	SqFt	15.00	$112,677.26
				43	BLOCK CR	High	16974.69	SqFt	12.9	Crack Sealing - AC	5,174	Ft	13.00	$67,260.30
Txlane AA	TLAA2	P	PREVENTATIVE	48	L & T CR	Medium	331.14	Ft	0.3	Crack Sealing - AC	331	Ft	13.00	$4,304.95
				49	OIL SPILLAGE	N/A	331.1	SqFt	0.3	Patching - AC Shallow	408	SqFt	20.00	$8,167.87
Txlane JJ	TLJJ2	T	STOP GAP	55	SLIPPAGE CR	N/A	629.37	SqFt	3.5	Patching - AC Deep	734	SqFt	15.00	$11,015.38
Txlane NN	TLNN1	P	STOP GAP	41	ALLIGATOR CR	High	5277.98	SqFt	13.3	Patching - AC Deep	5,575	SqFt	15.00	$83,616.17
	TLNN2	P	STOP GAP	41	ALLIGATOR CR	High	1429.12	SqFt	10.0	Patching - AC Deep	1,586	SqFt	15.00	$23,778.84
				50	PATCHING	High	137.46	SqFt	1.0	Patching - AC Deep	188	SqFt	15.00	$2,828.92

AECOM

Appendix F

Results from Pavement and Subsurface Investigation by E2CR

GEOTECHNICAL DATA REPORT

FOR

BWI AIRSIDE PMP UPDATE

BWI THURGOOD MARSHALL AIRPORT

MAA –AE-13-001, Task 4701

Prepared for:

AECOM

7 St. Paul Street, 17th Floor
Baltimore, Maryland 21202

Consultant to:

Maryland Aviation Administration

BWI
BALTIMORE/WASHINGTON INTERNATIONAL
Thurgood Marshall
AIRPORT

Prepared by:

E2CR, Inc.

1405 Parker Road │Suite A │ Baltimore │ MD 21227
Phone: 410-737-9100 │ Fax: 410-737-9101 │ E-mail: email@e2cr.com

NOVEMBER 22, 2016

1405-A Parker Road
Baltimore, MD 21227
Phone: 410-737-9100
Fax: 410-737-9101
E-mail: email@e2cr.com

November 22, 2016

AECOM
7 St. Paul Street, 17th Floor
Baltimore, Maryland 21202

Attention: Mr. Alan Yazdani, P.E.
Project Manager

Re: Geotechnical Data Report
BWI Airfield PMP Update
BWI Thurgood Marshall Airport
MAA–AE-13-001, Task 4701
E2CR Project No. 16560-04

Dear Mr. Yazdani:

E2CR, Inc. (E2CR) is pleased to submit this Geotechnical Data Report containing the subsurface exploration performed and laboratory test results for the Pavement Management Program (PMP) Update at the BWI Thurgood Marshall Airport in Baltimore, Maryland. The work described within this report was performed in accordance with our proposal dated July 1, 2016 and your authorization on September 14, 2016.

We wish to advise you that we will store the core and soil samples obtained from the soil test borings for a period of sixty (60) days from the date of this letter, after which time the samples will be discarded, unless other disposition is requested.

This geotechnical data report includes a summary of the cores retrieved, subsurface conditions encountered, boring logs, and results of the laboratory testing of samples retrieved from the borings.

We appreciate the opportunity to be of service to you on this project. If you have any questions, please call us.

Very truly yours,

E2CR, Inc.

Alex Adu-Osei, Ph.D., P.E.
Project Manager

TABLE OF CONTENT

1.0 INTRODUCTION 1

2.0 PURPOSE AND SCOPE 1

3.0 SUBSURFACE EXPLORATION AND LABORATORY TESTING 2

3.1 Subsurface Exploration 2

3.2 Groundwater 3

3.3 Pavement Layer Thicknesses 4

3.4 Laboratory Testing 4

LIST OF APPENDICES

Appendix A: Figures

Figure 1: Site Vicinity Map

Figure 2: Aerial Photograph

Figure 3A: Boring Location Plan - Northeast

Figure 3B: Boring Location Plan - Southwest

Appendix B: Boring Logs and Pavement Core Photographs

Figure 4: Core Photograph B-4701-1

Figure 5: Core Photograph B-4701-2

Figure 6: Core Photograph B-4701-3

Figure 7: Core Photograph B-4701-4

Figure 8: Core Photograph B-4701-5

Figure 9: Core Photograph B-4701-6

Figure 10: Core Photograph B-4701-7

Figure 11: Core Photograph B-4701-8

Figure 12: Core Photograph B-4701-9

Figure 13: Core Photograph B-4701-10

Figure 14: Core Photograph B-4701-11

Figure 15: Core Photograph B-4701-12
Figure 16: Core Photograph B-4701-13
Figure 17: Core Photograph B-4701-14
Figure 18: Core Photograph B-4701-15
Figure 19: Core Photograph B-4701-16
Figure 20: Core Photograph B-4701-17
Figure 21: Core Photograph B-4701-18
Figure 22: Core Photograph B-4701-19
Figure 23: Core Photograph B-4701-20
Figure 24: Core Photograph B-4701-22
Figure 25: Core Photograph B-4701-23
Figure 26: Core Photograph B-4701-24
Figure 27: Core Photograph B-4701-26
Figure 28: Core Photograph B-4701-27
Figure 29: Core Photograph B-4701-28
Figure 30: Core Photograph B-4701-29
Figure 31: Core Photograph B-4701-30
Figure 32: Core Photograph B-4701-31
Figure 33: Core Photograph B-4701-32
Figure 34: Core Photograph B-4701-33
Figure 35: Core Photograph B-4701-34
Figure 36: Core Photograph B-4701-35
Figure 37: Core Photograph B-4701-36
Figure 38: Core Photograph B-4701-37
Figure 39: Core Photograph B-4701-38
Figure 40: Core Photograph B-4701-39

Appendix C: Laboratory Test Results

1.0 INTRODUCTION

E2CR, Inc. (E2CR) has completed the subsurface exploration, and laboratory testing for the BWI Airside Pavement Management Program (PMP) Update project at the BWI Thurgood Marshall Airport in Baltimore, Maryland. The investigation was conducted for AECOM, in general accordance with E2CR's proposal dated July 1, 2016 and your authorization on September 14, 2016. E2CR was the sub-consultant to AECOM, who were the consultants to the Maryland Aviation Administration (MAA) for this project. This project is Task 4701 of the MAA contract MAA–AE-13-001. Figure 1 and Figure 2 in Appendix A show the "Site Vicinity Map" and "Aerial Photograph", respectively.

2.0 PURPOSE AND SCOPE

The purpose of this investigation was to evaluate the subsurface conditions at various taxiways, taxilanes and aprons to assist AECOM in classifying pavement strength at the BWI Thurgood Marshall Airport. The pavement strengths will be classified using the Pavement Classification Number (PCN) in accordance with Federal Aviation Administration (FAA) circular "Standardized Method of Reporting Airport Pavement Strength – PCN (FAA AC 150/5335-5C)."

Specifically, our scope as directed by AECOM included:

- Core Pavements at forty (40) locations and photograph the cores
- Drill forty (40) borings to depths of 10 feet each using Hollow Stem Auger (HSA)
- Conduct Standard Penetration Tests (SPT), and collect split spoon and Bulk Bag Samples at each boring location
- Measure Groundwater levels, if encountered
- Grout the bore holes and patch the surface with compacted asphalt concrete cold mix or high-early-quick setting concrete
- Remove and dispose drill spoils and clean the areas
- Conduct laboratory tests on representative soil samples

- Prepare a Geotechnical Data Report (GDR) including, photographs, pavement thickness, boring logs, groundwater levels encountered, and laboratory test results

Please note that the following were not part of our scope of services:

- Environmental Sampling, Testing & Evaluation
- Seismic Refraction Survey
- Pavement evaluation
- Non Destructive FWD Testing
- Utility Designation and/or Mapping
- Installation of Monitoring Wells and other instruments
- Preparation and/or review of Contract Drawings and Specifications
- Cost Estimation
- Bid Preparation
- Consultation and inspection services during construction

3.0 SUBSURFACE EXPLORATION AND LABORATORY TESTING

3.1 Subsurface Exploration

The pavement layers thicknesses and subsurface conditions were explored by performing pavement cores and soil test borings at thirty nine (39) locations (i.e. B-4701-1 through B-4701-39). One (1) boring from the original boring schedule was deleted in the field as directed by AECOM. The borings are mostly located in the northeast and southwest sections of the airport and are shown on Figure 3A and Figure 3B in Appendix A.

The pavement cores were performed using an 8-inch diameter core bit. Please note that pavement cores could not be retrieved at two (2) locations (B-4701-21 and B-4701-25) due to coring difficulties after several attempts. At these two (2) locations, the drill rig was used to auger through the pavement. The borings were drilled using a Skid mounted drill rig to depths of approximately 2 feet to 10 feet below the existing ground surface.

At three (3) boring locations, the boring depths were terminated shallower than the scheduled 10-foot depths. Boring B-4701-3 was terminated at 3 feet below the existing ground surface due to possible underground utilities. Boring B-4701-30 was terminated at 8 feet below the existing ground surface due to auger refusal. Boring B-4701-37, which is located at the busy intersection of Taxiway K, Taxiway S, and Taxiway P, was terminated at 2 feet below the existing ground surface due to a short time window permitted by BWI Operations.

The soil borings were performed in the subgrade soils using hollow stem augers. Standard Penetration Tests (SPTs) were conducted and split spoon samples were obtained in the borings using 2-inch outer diameter (OD), $1^3/_8$-inch ID sampler. The SPTs were performed in accordance with "Standard Method of Test for Penetration Test and Split-Barrel Sampling of Soil", AASHTO T 206 (ASTM D1586). A representative portion of each soil sample was placed in a glass jar and was appropriately marked. Bulk samples were retrieved from the auger flights in the borings. Pavement core samples were labeled and photographed. The borings were backfilled and patched with asphalt concrete cold mix or quick set concrete mix upon completion.

The edited boring logs are included in Appendix B. The coordinates and ground surface elevations shown on the boring logs were provided by AECOM. A summary of the boring data is included in Table B-1 in Appendix B.

3.2 Groundwater

Groundwater levels were monitored in the borings during drilling and at the completion of drilling. Groundwater was encountered in four (4) borings (B-4701-13, B-4701-15, B-4701-31, and B-4701-38) between 4 feet to 8 feet below the existing ground surface. Please note that perched groundwater conditions are common in the geology at the site. Fluctuation in precipitations, construction activity, surface runoff, and site specific factors could cause groundwater conditions to be different from those observed.

3.3 Pavement Layer Thicknesses

The pavement sections consisted of flexible pavements (asphalt concrete on aggregate base), or composite pavement (asphalt concrete on Portland cement concrete), or rigid pavement (Portland cement concrete on subgrade). The results of the pavement cores are shown on Table B-2 in Appendix B. Photographs of the cores retrieved are shown on Figure 4 through Figure 40 in Appendix B.

3.4 Laboratory Testing

All soil samples recovered from the soil test borings were transported to our laboratory and were visually inspected by a geotechnical engineer to corroborate and/or modify the field classification. Selected samples were subjected to various testing to determine additional engineering characteristics of the on-site soils.

Laboratory tests conducted on the samples included natural moisture content, Atterberg limits, sieve analysis, modified Proctor, and California Bearing Ratio (CBR) tests. All tests were performed in general accordance with applicable AASHTO or ASTM procedures. The results of the laboratory tests are summarized in Table C-1 in Appendix C. Graphical results of the laboratory tests are also included in Appendix C.

REFERENCES

American Association of State Highway and Transportation Officials (AASHTO). (2014). *Standard Specification for Transportation Materials and Methods of Sampling and Testing* (34th Part 2 ed.). Washington, DC: AASHTO.

American Society for Testing and Materials (ASTM). (2014). *Annual Book of ASTM Standards* (Vol. 04.08). West Coshohocken, PA: ASTM.

Federal Aviation Administration. (2009). *Advisory Circular - AC 150/5320-6E; Airport Pavement Design and Evaluation.* Washington, DC: US Department of Transportation.

Federal Aviation Administration. (2009). *Advisory Circular - AC 150/5370-10; Standards for Specifying Construction of Airports.* Washington, DC: US Department of Transportation.

Federal Aviation Administration. (2014). *Advisory Circular - AC 150/5335-5C; Standardized Method of Reporting Airport Pavement Strength - PCN.* Washington, DC: US Depatment of Transportation.

Naval Facilities Engineering Command. (1986). *Foundations & Earth Structures Design Manual 7.02.* Alexandria, Virginia: Naval Facilities Engineering Command.

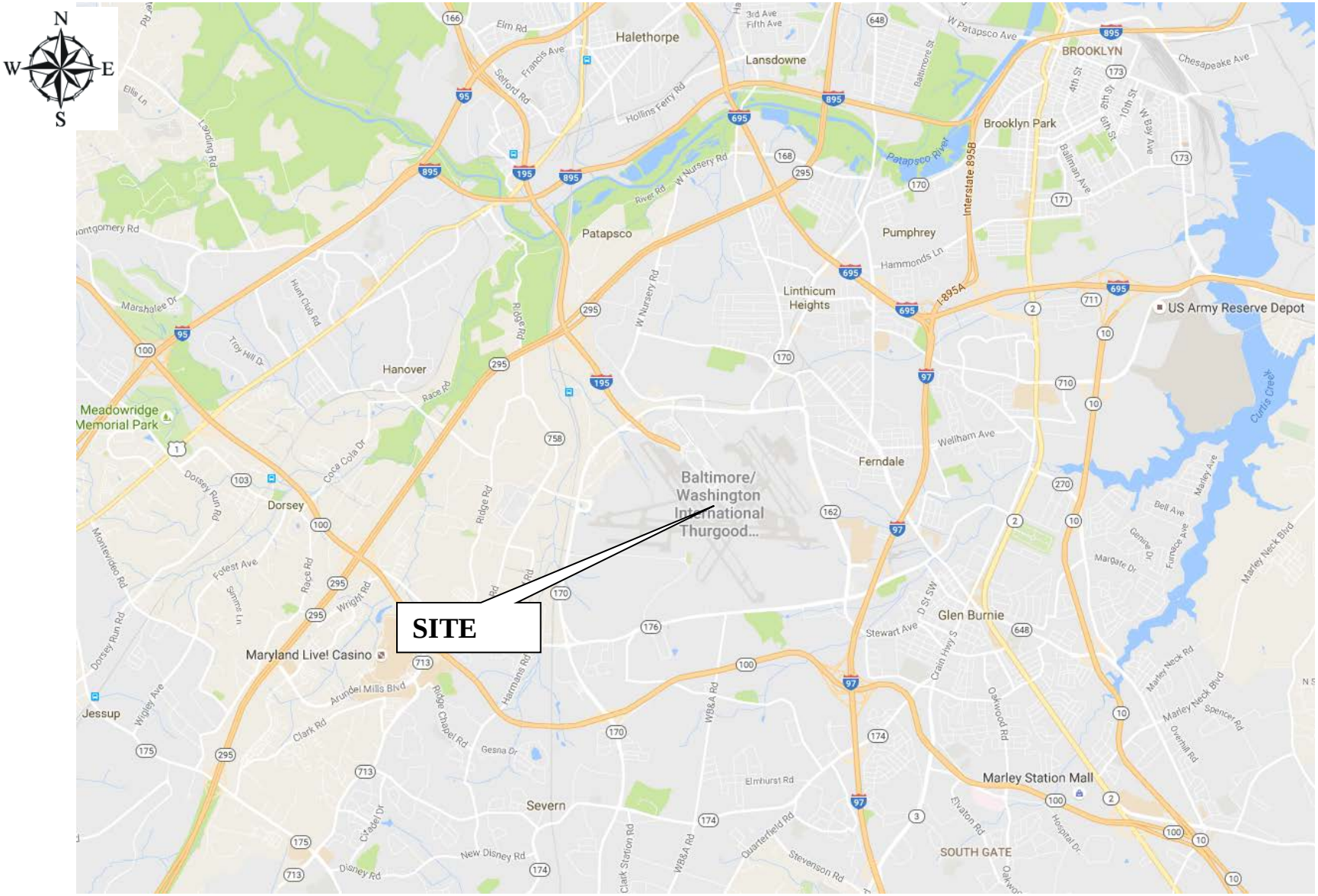
Terzaghi, K. v., & Peck, R. B. (1968). *Soil Mechanics in Engineering Practice.* John Wiley & Sons, Inc.

APPENDICES

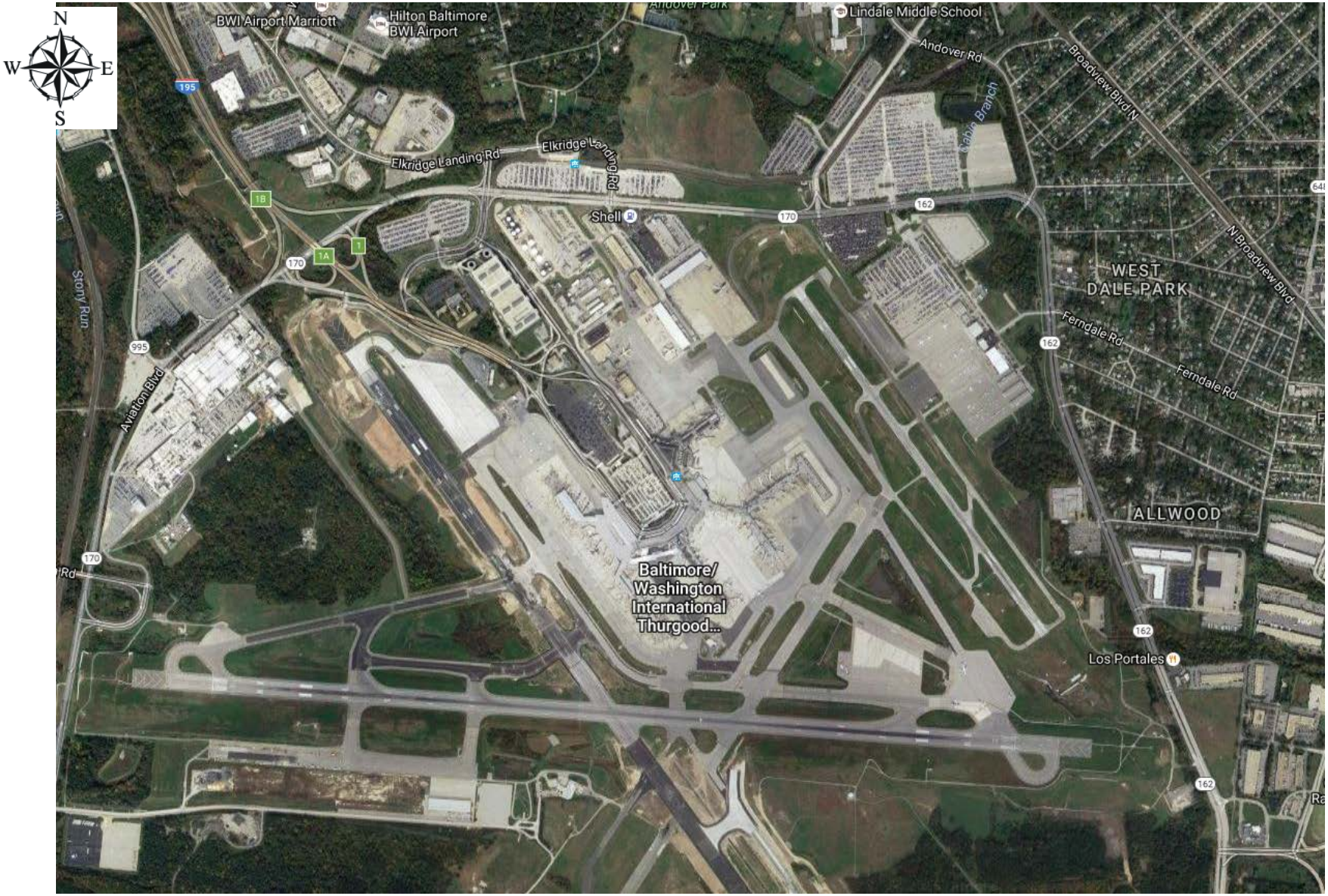
APPENDICES

Appendix A:	Figures
Appendix B:	Boring Logs & Pavement Core Photographs
Appendix C:	Laboratory Test Results

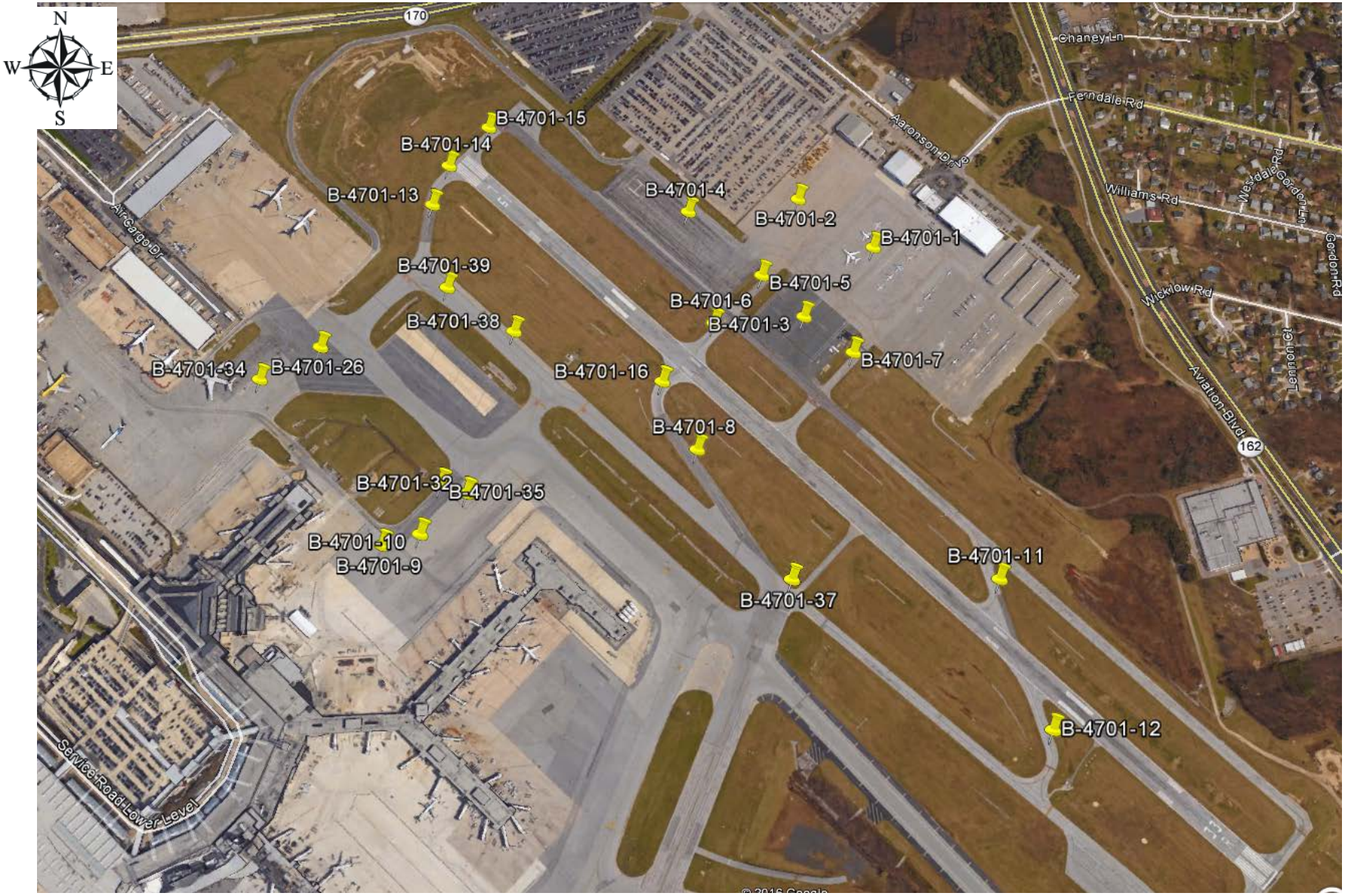
APPENDIX A: FIGURES



E2CR, INC.	BWI Airside PMP Update Site Vicinity	FIGURE: 1	DRAWN BY: AAO	CHECKED BY: NS
		DATE: NOV., 2016	JOB NO.: 16560-04	SCALE: NTS



E2CR, INC.	BWI Airside PMP Update Aerial Photograph	FIGURE: 2	DRAWN BY: AAO	CHECKED BY: NS
		DATE: NOV., 2016	JOB NO.: 16560-04	SCALE: NTS



E2CR, INC.	BWI Airside PMP Update Boring Location Plan - Northeast	FIGURE: 3A	DRAWN BY: AAO	CHECKED BY: NS
		DATE: NOV., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update Boring Location Plan - Southwest	FIGURE: 3B	DRAWN BY: AAO	CHECKED BY: NS
		DATE: NOV., 2016	JOB NO.: 16560-04	SCALE: NTS

APPENDIX B:

BORING LOGS & PAVEMENT CORE PHOTOGRAPHS

BWI Airside PMP Update

Boring Summary

E2CR Project No. 16560-04

TABLE B-1

Boring ID	Boring Sequence	Boring Depth[1] (feet)	Coordinates				Surface Elevation[2] (feet)	Groundwater Depth[1] (feet)	Cave-In Depth[1] (feet)
			Northing (feet)	Easting (feet)	Latitude (°)	Longitude (°)			
B-4701-1	1	10	553093.549	1409554.748	39.1848564	-76.6570129	128.30	-[3]	6.00
B-4701-2	2	10	553409.219	1409252.958	39.1857262	-76.6580734	130.20	-[3]	6.17
B-4701-3	3	3	552816.962	1409157.865	39.1841011	-76.6584167	125.37	-[3]	-
B-4701-4	4	10	553450.283	1408720.790	39.1858444	-76.6599503	130.02	-[3]	5.30
B-4701-5	5	10	553060.925	1409003.403	39.1847725	-76.6589584	126.86	-[3]	6.00
B-4701-6	6	10	552872.343	1408733.771	39.1842575	-76.6599121	125.00	-[3]	5.80
B-4701-7	7	10	552598.160	1409348.972	39.1834984	-76.6577454	124.01	-[3]	5.90
B-4701-8	8	10	552281.147	1408541.317	39.1826363	-76.6605988	130.03	-[3]	6.00
B-4701-9	9	10	552121.427	1407058.324	39.1822128	-76.6658325	151.21	-[3]	5.50
B-4701-10	10	10	552138.750	1407233.443	39.1822586	-76.6652145	149.59	-[3]	6.00
B-4701-11	11	10	551415.980	1409770.823	39.1802483	-76.6562729	111.84	-[3]	6.00
B-4701-12	12	10	550714.573	1409842.691	39.1783218	-76.6560287	113.61	-[3]	6.00
B-4701-13	13	10	553729.275	1407519.536	39.1866226	-76.6641846	140.08	5.0	6.00
B-4701-14	14	10	553914.478	1407626.991	39.18713	-76.6638031	140.02	-[3]	5.50
B-4701-15	15	10	554076.459	1407846.972	39.1875725	-76.6630249	139.70	5.5	5.90
B-4701-16	16	10	552636.445	1408442.684	39.1836128	-76.6609421	125.01	-[3]	5.80
B-4701-17	17	10	549400.299	1402591.033	39.1747856	-76.6816254	140.55	-[3]	5.50
B-4701-18	18	10	550050.380	1402145.387	39.1765747	-76.6831894	140.00	-[3]	5.80
B-4701-19	19	10	549775.448	1400989.206	39.1758308	-76.6872711	137.36	-[3]	5.80
B-4701-20	20	10	549502.046	1404262.627	39.1750488	-76.6757278	135.09	-[3]	5.20
B-4701-21	21	10	549620.588	1404770.485	39.1753693	-76.6739349	132.98	-[3]	6.00
B-4701-22	22	10	549574.800	1403226.333	39.1752586	-76.6793823	135.56	-[3]	6.00
B-4701-23	23	10	549821.390	1402615.532	39.1759415	-76.6815338	139.18	-[3]	4.50

BWI Airside PMP Update

Boring Summary

E2CR Project No. 16560-04

TABLE B-1

Boring ID	Boring Sequence	Boring Depth[1] (feet)	Coordinates				Surface Elevation[2] (feet)	Groundwater Depth[1] (feet)	Cave-In Depth[1] (feet)
			Northing (feet)	Easting (feet)	Latitude (°)	Longitude (°)			
B-4701-24	24	10	550246.885	1403117.977	39.1771049	-76.6797562	135.89	-[3]	5.20
B-4701-25	25	10	550481.100	1404125.032	39.1777382	-76.6762009	129.34	-[3]	5.00
B-4701-26	26	10	553115.702	1406903.290	39.1849442	-76.6663666	148.93	-[3]	5.50
B-4701-27	27	10	551821.163	1404312.756	39.1814156	-76.6755219	139.00	-[3]	5.30
B-4701-28	28	10	551101.841	1404819.254	39.1794357	-76.6737442	135.37	-[3]	4.90
B-4701-29	29	10	550547.619	1405240.821	39.1779099	-76.6722641	141.39	-[3]	5.20
B-4701-30	30	8	549720.352	1405855.883	39.1756325	-76.670105	145.20	-[3]	4.50
B-4701-31	31	10	549581.744	1406712.910	39.1752434	-76.6670837	141.90	8.0	5.50
B-4701-32	32	10	552284.101	1407468.641	39.1826553	-76.6643829	146.74	-[3]	5.20
B-4701-33	33	10	549564.674	1406985.497	39.1751938	-76.6661224	140.80	-[3]	5.20
B-4701-34	34	10	553013.185	1406607.393	39.1846657	-76.6674118	155.12	-[3]	5.20
B-4701-35	35	10	552350.392	1407360.255	39.1828384	-76.6647644	146.09	-[3]	5.30
B-4701-36	36	10	550248.606	1406644.435	39.177075	-76.6673167	148.27	-[3]	5.40
B-4701-37	37	2	551598.671	1408846.662	39.1807594	-76.6595306	135.01	-[3]	-
B-4701-38	38	10	553013.382	1407803.332	39.1846542	-76.6631927	140.01	4.0	5.30
B-4701-39	39	10	553293.037	1407527.632	39.1854248	-76.6641617	144.95	-[3]	5.20

NOTES:

1. Measured from existing ground surface
2. Coordinates and surface elevations provided by AECOM
3. Not encountered

BWI Airside PMP Update

Pavement Layer Thickness

E2CR Project No. 16560-04

TABLE B-2

Boring ID	Latitude	Longitude	Network ID	Branch ID	Section ID	Pavement Layer Thickness (inches)		
						Asphalt Concrete	Portland Cement Concrete	Aggregate Base
B-4701-1	39.1848564	-76.6570129	BWIAir	GA Ramp	GA2	4.0	-	10.0
B-4701-2	39.1857262	-76.6580734	BWIAir	GA Ramp	GA3	4.0	9.0	-
B-4701-3	39.1841011	-76.6584167	BWIAir	GA De-ice	DICE/GA/1	4.5	-	7.0
B-4701-4	39.1858444	-76.6599503	BWIAir	GA Ramp	GA4	5.0	5.5	-
B-4701-5	39.1847725	-76.6589584	BWIAir	Taxiway K	TWK5	4.5	6.0	
B-4701-6	39.1842575	-76.6599121	BWIAir	Taxiway K	TWK3	5.5	-	9.0
B-4701-7	39.1834984	-76.6577454	BWIAir	Taxiway L	TWL2	5.0	-	11.0
B-4701-8	39.1826363	-76.6605988	BWIAir	Taxiway K	TWK2	7.0	-	4.0
B-4701-9	39.1822128	-76.6658325	BWIAir	Txlane NN	TLNN2	8.0	-	12.0
B-4701-10	39.1822586	-76.6652145	BWIAir	Ramp DE	MRDE2	8.0	-	13.0
B-4701-11	39.1802483	-76.6562729	BWIAir	Taxiway M	TWM2	4.5	-	7.5
B-4701-12	39.1783218	-76.6560287	BWIAir	Taxiway M	TWM1	6.0	-	6.0
B-4701-13	39.1866226	-76.6641846	BWIAir	Taxiway J	TWJ1/A	7.5	-	13.0
B-4701-14	39.18713	-76.6638031	BWIAir	Taxiway J	TWJ1	17.0	-	19.0
B-4701-15	39.1875725	-76.6630249	BWIAir	Taxiway Q	TWQ1	8.0	6.0	-
B-4701-16	39.1836128	-76.6609421	BWIAir	Taxiway K	TWK2A	8.5	-	5.5
B-4701-17	39.1747856	-76.6816254	BWIAir	Taxiway G	TWG1	5.0	12.5	-
B-4701-18	39.1765747	-76.6831894	BWIAir	Taxiway F	TWF7	17.0	-	13.0
B-4701-19	39.1758308	-76.6872711	BWIAir	Taxiway F	TWF5	17.0	-	13.0
B-4701-20	39.1750488	-76.6757278	BWIAir	Taxiway R	TWR2A	13.5	-	16.5
B-4701-21	39.1753693	-76.6739349	BWIAir	Taxiway R	TWR2C	18.0	-	20.0

BWI Airside PMP Update

Pavement Layer Thickness

E2CR Project No. 16560-04

TABLE B-2

B-4701-22	39.1752586	-76.6793823	BWIAir	Taxiway R	TWR2	15.0	-	22.0
B-4701-23	39.1759415	-76.6815338	BWIAir	Taxiway G	TWG4	14.0	-	0.0
B-4701-24	39.1771049	-76.6797562	BWIAir	Taxiway F	TWF7	17.0	-	0.0
B-4701-25	39.1777382	-76.6762009	BWIAir	Taxiway F	TWF8	16.0	-	26.0
B-4701-26	39.1849442	-76.6663666	BWIAir	Txlane AA	TLAA1	8.0	-	16.0
B-4701-27	39.1814156	-76.6755219	BWIAir	Taxiway T	TWT2	12.0	-	26.0
B-4701-28	39.1794357	-76.6737442	BWIAir	Taxiway T	TWT2	16.0	-	20.0
B-4701-29	39.1779099	-76.6722641	BWIAir	Taxiway T	TWT3A	11.0	-	19.0
B-4701-30	39.1756325	-76.670105	BWIAir	Taxiway T	TWT5	9.5	-	11.5
B-4701-31	39.1752434	-76.6670837	BWIAir	Taxiway T	TWT7	8.5	-	15.5
B-4701-32	39.1826553	-76.6643829	BWIAir	Ramp DE	MRDE2	8.0	-	13.0
B-4701-33	39.1751938	-76.6661224	BWIAir	Taxiway P1	TWP1/3	8.0	-	16.0
B-4701-34	39.1846657	-76.6674118	BWIAir	Txlane AA	TLAA2	6.5	-	13.5
B-4701-35	39.1828384	-76.6647644	BWIAir	Txlane NN	TLNN1	9.0	-	15.0
B-4701-36	39.177075	-76.6673167	BWIAir	Gate C	C12	-	14.0	14.0
B-4701-37	39.1807594	-76.6595306	BWIAir	Taxiway S	TWS4	9.0	-	13.0
B-4701-38	39.1846542	-76.6631927	BWIAir	Taxiway S	TWS7	7.0	-	13.0
B-4701-39	39.1854248	-76.6641617	BWIAir	Taxiway S	TWS10	8.5	-	14.5

NOTES:

- Not encountered

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 1 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-1 Station _____ Coordinates 553093.549 1409554.748 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 128.3 Date Started 10/3/16
Date Completed 10/3/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				6.0	122.3	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.3	127.97		4 inches Asphalt Concrete					Asphalt:4"/Aggregate Base:10"
1.2	127.13		10 inches Aggregate Base					
3.2	125.10		Moist, medium dense, grayish brown, medium dense, Silty Clayey SAND (SC-SM) (Fill)	S-1	4-7-10	1.5-3.0		Bulk sample retrieved from 1.5'-5'
5.5	122.80		Moist, dense, brown, tan, Silty Clayey SAND (SC-SM)	S-2	8-17-17	3.5-5.0		
10.0	118.30		Moist, medium dense to dense, brown, tan, Poorly graded SAND with Silt (SP-SM)	S-3	12-13-12	6.0-7.5		
				S-4	11-14-23	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 2 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-2 Station _____ Coordinates 553409.219 1409252.958 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 130.2 Date Started 10/3/16
Date Completed 10/3/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				6.2	124.0	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.3	129.87		4 inches Asphalt Concrete					Asphalt 4"/Concrete 9"/Aggregate Base 0"
1.1	129.12		9 inches Portland Cement Concrete					
			Moist, loose, gray, brown, tan, Silty Clayey SAND (SC-SM)	S-1	3-4-6	1.0-2.5		Obtained Bulk Sample 1.5'-5'
3.3	126.90							
			Moist, medium dense, orange, tan, brown, Silty Clayey SAND (SC-SM)	S-2	11-12-6	3.5-5.0		
5.5	124.70							
			Moist, medium dense, yellowish brown, tan, poorly graded SAND with Silt (SP-SM)	S-3	9-9-9	6.0-7.5		
				S-4	4-7-8	8.5-10.0		
10.0	120.20							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 3 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-3 Station _____ Coordinates 552816.962 1409157.865 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 125.4 Date Started 10/3/16
Date Completed 10/3/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 3.0 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY						
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.4	124.97		4.5 inches Asphalt					Asphalt: 4.5"/Aggregate Base: 7.0"
1.0	124.37		7.0 inches Aggregate Base					
3.0	122.37		Moist, medium dense, tan, brown, Silty SAND with Gravel (SM) (Fill)	S-1	6-11-16	1.5-3.0		Bulk sample retrieved from 1.5'-3.0'
								Auger refusal @ 3.0' due to possible underground utilities

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 4 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-4 Station _____ Coordinates 553450.283 1408720.79 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 130.0 Date Started 10/4/16
Date Completed 10/4/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.3	124.7	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.4	129.62		5.0 inches Asphalt					Asphalt 5"/Concrete 5.5"
0.9	129.12		5.5 inches Portland Cement Concrete					
			Moist, medium dense to dense, brown, tan, yellow, poorly graded SAND with Silt (SP-SM)	S-1	8-14-14	1.0-2.5		Bulk sample retrieved from 1.0'-5.0'
				S-2	6-10-12	3.5-5.0		
				S-3	4-9-15	6.0-7.5		
				S-4	10-19-26	8.5-10.0		
10.0	120.02							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 5 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-5 Station _____ Coordinates 553060.925 1409003.403 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 126.9 Date Started 10/4/16 Date Completed 10/4/16

Driller	J. Chalk	
Rig Type	CME	
Rig No.	45	
Drive Hammer	140	LB
Casing Auger Size	3.25	IN
Size of Core	8	IN
Size of Bit OD	8	IN
Core Barrel Type	Single	
Auger Depth	8.5	FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				6.0	120.9	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.4	126.46		4.5 inches Asphalt					Asphalt 4.5"/Concrete 6.0"
0.9	125.96		6.0 inches Portland Cement Concrete					
			Moist, dense, gray, brown, Silty SAND with Gravel (SM) (Fill)	S-1	12-21-16	1.0-2.5		2.0' offset East due to utility line
3.0	123.86							
			Moist, loose, brown, Silty SAND with Gravel (SM)	S-2	5-5-4	3.5-5.0		
5.5	121.36							
			Moist, loose, orange, tan, brown, Silty SAND (SM)	S-3	3-5-4	6.0-7.5		
				S-4	7-4-4	8.5-10.0		
10.0	116.86							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 6 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-6 Station _____ Coordinates 552872.343 1408733.771 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 125.0 Date Started 10/4/16
Date Completed 10/4/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.8	119.2	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.5	124.50		5.5 inches Asphalt					Asphalt: 5.5"/Aggregate Base: 9.0"
1.2	123.80		9.0 inches Aggregate Base					
3.2	121.80		Moist, medium dense, orange, brown, Silty SAND with Gravel, trace Pockets of CL (SM)	S-1	10-12-11	1.5-3.0		
								Bulk sample retrieved from 1.5'-5.0'
			Moist, medium dense to loose, tan, brown, poorly graded SAND with Silt (SP-SM)	S-2	8-13-14	3.5-5.0		
				S-3	3-2-3	6.0-7.5		
				S-4	2-3-5	8.5-10.0		
10.0	115.00							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 7 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-7 Station _____ Coordinates 552598.16 1409348.972 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 124.0 Date Started 10/4/16
Date Completed 10/4/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.9	118.1	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.4	123.61		5.0 inches Asphalt					Asphalt: 5.0"/Aggregate Base: 11.0"
1.3	122.71		11.0 inches Aggregate Base					
3.2	120.81		Moist, medium dense, orange, brown, Silty SAND with Gravel (SM) (Fill)	S-1	4-4-7	1.5-3.0		Bulk sample retrieved from 1.5'-5.0'
5.5	118.51		Moist, medium dense, tan, poorly graded SAND with Silt and Gravel (SP-SM)	S-2	8-13-14	3.5-5.0		
8.0	116.01		Moist, very stiff, tan, orange, brown, gray, Sandy Lean CLAY (CL)	S-3	4-5-12	6.0-7.5		
10.0	114.01		Moist, dense, tan, brown, poorly graded SAND with Silt (SP-SM)	S-4	9-19-30	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 8 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-8 Station _____ Coordinates 552281.147 1408541.317 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 130.0 Date Started 10/5/16
Date Completed 10/5/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				6.0	124.0	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.6	129.43		7 inches Asphalt					Asphalt: 7"/Aggregate Base: 4"
0.9	129.13		4 inches Aggregate Base					
			Moist, medium dense, tan, brown, Silty SAND (SM) (Fill)	S-1	9-13-11	1.0-2.5		
3.2	126.83							Bulk sample retrieved from 1.0'-5.0'
			Moist, medium dense, yellow, tan, Silty Clayey SAND (SC-SM)	S-2	6-9-13	3.5-5.0		
5.5	124.53							
			Moist, medium dense, tan, orange, brown, poorly graded SAND with Silt (SP-SM)	S-3	6-7-8	6.0-7.5		
				S-4	5-11-13	8.5-10.0		
10.0	120.03							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 9 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-9 Station _____ Coordinates 552121.427 1407058.324 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 151.2 Date Started 10/5/16
Date Completed 10/5/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.5	145.7	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.7	150.51		8.0 inches Asphalt					Asphalt: 8.0"/Aggregate Base: 12.0"
1.7	149.51		12.0 inches Aggregate Base					
3.5	147.71		Moist, very dense, tan, brown, Silty SAND (SM) (Fill)	S-1	30-29-26	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
5.5	145.71		Moist, medium dense, tan, brown, Silty SAND (SM) (Possible Fill)	S-2	10-12-14	3.5-5.0		
			Moist, medium dense, tan, brown, red, poorly Graded SAND with Silt and Gravel (SP-SM)	S-3	8-7-7	6.0-7.5		
10.0	141.21			S-4	3-8-10	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 10 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-10 Station _____ Coordinates 552138.75 1407233.443 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 149.6 Date Started 10/5/16
Date Completed 10/5/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				6.0	143.6	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.7	148.89		8 inches Asphalt					Asphalt: 8"/Aggregate Base: 13"
1.8	147.79		13 inches Aggregate Base					
3.5	146.09		Moist, medium dense, gray, brown, Silty Clayey SAND (SC-SM)	S-1	13-14-11	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
5.5	144.09		Moist, very stiff, gray, tan, brown, Lean CLAY (CL)	S-2	5-7-11	3.5-5.0		
			Moist, medium dense to dense, tan, orange, brown, Poorly graded SAND with Silt and Gravel (SP-SM)	S-3	6-9-15	6.0-7.5		
10.0	139.59			S-4	8-18-17	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 11 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-11 Station _____ Coordinates 551415.98 1409770.823 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 111.8 Date Started 10/6/16
Date Completed 10/6/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				6.0	105.8	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.4	111.44		4.5 inches Asphalt					Asphalt: 4.5"/Aggregate Base: 7.5"
1.0	110.84		7.5 inches Aggregate Base					
			Moist, medium dense, brown, Silty SAND with Gravel (SM) (Fill)	S-1	12-12-12	1.0-2.5		
3.0	108.84							
			Moist, medium dense, tan, brown, Silty SAND (SM) (Fill)	S-2	7-8-10	3.5-5.0		Bulk sample retrieved from 1.0'-5.0'
5.5	106.34							
			Moist, dense to medium dense, tan, brown, Silty SAND (SM) (Fill)	S-3	15-20-23	6.0-7.5		
				S-4	11-15-12	8.5-10.0		
10.0	101.84							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 12 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-12 Station _____ Coordinates 550714.573 1409842.691 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 113.6 Date Started 10/6/16
Date Completed 10/6/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				6.0	107.6	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.5	113.11		6.0 inches Asphalt					Asphalt: 6"/Aggregate Base: 6"
1.0	112.61		6.0 inches Aggregate Base					
			Moist, medium dense, gray, tan, brown, Silty Clayey SAND (SC-SM) (Possible Fill)	S-1	7-5-8	1.0-2.5		
3.0	110.61							
			Moist, medium dense, orange, brown, Silty SAND (SM)	S-2	8-9-11	3.5-5.0		Bulk sample retrieved from 1.0'-5.0'
5.5	108.11							
			Moist, medium dense, gray, tan, brown, Silty SAND with pockets of SC (SM)	S-3	6-5-18	6.0-7.5		
8.0	105.61							
			Moist, very dense, tan, brown, Silty SAND with Gravel (SM)	S-4	11-25-38	8.5-10.0		
10.0	103.61							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 13 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-13 Station _____ Coordinates 553729.275 1407519.536 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 140.1 Date Started 10/6/16
Date Completed 10/6/16

Driller	J. Chalk	
Rig Type	CME	
Rig No.	45	
Drive Hammer	140	LB
Casing Auger Size	3.25	IN
Size of Core	8	IN
Size of Bit OD	8	IN
Core Barrel Type	Single	
Auger Depth	8.5	FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ 5.0	135.1	0.5	10/6/16	6.0	134.1	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.6	139.48		7.5 inches Asphalt					Asphalt: 7.5"/Aggregate Base: 13"
1.7	138.38		13 inches Aggregate Base					
			Moist, medium dense, orange, brown, Silty Clayey SAND (SC-SM)	S-1	10-12-12	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
				S-2	8-10-19	3.5-5.0		
5.0	135.08		▼					
			Wet, loose, orange, gray, tan, brown, poorly graded SAND with Silt (SP-SM)					
				S-3	4-3-4	6.0-7.5		
				S-4	2-3-3	8.5-10.0		
10.0	130.08							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 14 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-14 Station _____ Coordinates 553914.478 1407626.991 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 140.0 Date Started 10/6/16
Date Completed 10/6/16

Driller	J. Chalk	
Rig Type	CME	
Rig No.	45	
Drive Hammer	140	LB
Casing Auger Size	3.25	IN
Size of Core	8	IN
Size of Bit OD	8	IN
Core Barrel Type	Single	
Auger Depth	8.5	FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.5	134.5	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.5	138.52		17 inches Asphalt					Asphalt: 17"/Aggregate Base: 19"
3.0	137.02		19 inches Aggregate Base					
5.5	134.52		Moist, medium dense, gray, brown, Clayey SAND (SC) (Possible Fill)	S-1	4-3-7	3.5-5.0		Bulk sample retrieved from 3.0'-6.0'
8.0	132.02		Moist, medium dense, gray, tan, brown, Silty Clayey SAND (SC-SM)	S-2	6-10-10	6.0-7.5		
10.0	130.02		Moist, very stiff, gray, brown, Lean CLAY (CL)	S-3	8-10-11	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 15 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-15 Station _____ Coordinates 554076.459 1407846.972 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 139.7 Date Started 10/6/16
Date Completed 10/6/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ 5.5	134.2	0.5	10/6/16	5.9	133.8	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.7	139.00		8.0 inches Asphalt					Asphalt: 8"/Aggregate Base: 6"
1.2	138.50		6.0 inches Aggregate Base					
			Moist, medium dense, gray, brown, Silty SAND with Gravel (SM) (Fill)	S-1	6-6-6	1.5-3.0		
								Bulk sample retrieved from 1.5'-5.0'
				S-2	3-6-7	3.5-5.0		
5.5	134.20		▼					
			Wet, medium dense, gray, brown to dark brown, Silty SAND with Gravel (SM) (Fill)	S-3	4-4-8	6.0-7.5		
				S-4	7-12-15	8.5-10.0		
10.0	129.70							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 16 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-16 Station _____ Coordinates 552636.445 1408442.684 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 125.0 Date Started 10/6/16
Date Completed 10/6/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.8	119.2	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.7	124.31		8.5 inches Asphalt					Asphalt: 8.5"/Aggregate Base: 5.5"
1.2	123.81		5.5 inches Aggregate Base					
3.2	121.81		Moist, dense, orange, brown, Silty SAND with Gavel (SM) (Possible Fill)	S-1	13-18-18	1.5-3.0		
								Bulk sample retrieved from 1.5'-5.0'
5.5	119.51		Moist, medium dense, orange, tan, brown, poorly graded SAND with Silt (SP-SM)	S-2	8-7-9	3.5-5.0		
10.0	115.01		Moist, medium dense, orange, tan, brown, poorly graded SAND with Silt (SP-SM)	S-3	9-11-13	6.0-7.5		
				S-4	4-8-12	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 17 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-17 Station _____ Coordinates 549400.299 1402591.033 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 140.6 Date Started 10/7/16
Date Completed 10/7/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.5	135.1	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.4	140.15		5 inches Asphalt					Asphalt: 5"/Aggregate Base: 12.5"
1.5	139.05		12.5 inches Aggregate Base					
3.2	137.35		Moist, dense, brown, poorly graded SAND with Silt (SP-SM) (Fill)	S-1	18-19-18	1.5-3.0		
			Moist, medium dense, tan, brown, Silty Clayey SAND with Gravel (SC-SM)					Bulk sample retrieved from 1.5'-5.0'
				S-2	6-12-12	3.5-5.0		
				S-3	6-8-10	6.0-7.5		
8.0	132.55							
10.0	130.55		Moist, medium dense, tan, brown, poorly graded SAND with Silt and Gravel (SP-SM)	S-4	5-10-16	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 18 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-18 Station _____ Coordinates 550050.38 1402145.387 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 140.0 Date Started 10/7/16
Date Completed 10/7/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.8	134.2	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.4	138.60		17 inches Asphalt					Asphalt: 17"/Aggregate Base: 13"
2.5	137.50		13 inches Aggregate Base					
5.5	134.50		Moist, dense, gray, brown, Silty SAND with Gravel (SM) (Fill)	S-1	14-20-25	3.5-5.0		Bulk sample retrieved from 3.5'-6.0'
8.5	131.50		Moist, medium dense, orange, tan, Clayey SAND with Gravel (SC)	S-2	9-11-11	6.0-7.5		
10.0	130.00		Moist, medium dense, orange, brown, poorly graded SAND with Gravel (SP-SM)	S-3	5-5-7	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 19 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-19 Station _____ Coordinates 549775.448 1400989.206 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 137.4 Date Started 10/7/16
Date Completed 10/7/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.8	131.6	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.4	135.96		17 inches Asphalt					Asphalt: 17"/Aggregate Base: 13"
2.5	134.86		13 inches Aggregate Base					
10.0	127.36		Moist, dense, orange, brown, Silty SAND with Gravel (SM) (Fill)					Bulk sample retrieved from 3.5'-6.0'
				S-1	13-18-27	3.5-5.0		
				S-2	8-18-21	6.0-7.5		
				S-3	10-13-16	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 20 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-20 Station _____ Coordinates 549502.046 1404262.627 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 135.1 Date Started 10/10/16
Date Completed 10/10/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.2	129.9	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.1	133.99		13.5 inches Asphalt					Asphalt: 13.5"/Aggregate Base: 16.5"
2.5	132.59		16.5 inches Aggregate Base					
5.5	129.59		Moist, medium dense, orange, brown, Clayey SAND (SC) (Fill)	S-1	6-5-7	3.5-5.0		Bulk sample retrieved from 3.5'-6.0'
8.5	126.59		Moist, medium dense, tan, brown, Silty SAND (SM) (Possible Fill)	S-2	6-8-10	6.0-7.5		
10.0	125.09		Moist, medium dense, tan, brown, gray, Clayey SAND (SC) (Possible Fill)	S-3	8-9-11	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 21 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-21 Station _____ Coordinates 549620.588 1404770.485 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 133.0 Date Started 10/10/16
Date Completed 10/10/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				6.0	127.0	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.5	131.48		18 inches Asphalt					Asphalt: 18.0"/Aggregate Base: 20.0"
3.2	129.78		20 inches Aggregate Base					
			Moist, medium dense to dense, orange, brown, Silty SAND with pockets of CL in S-1 (SM) (Fill)	S-1	16-10-14	3.5-5.0		Bulk sample retrieved from 3.5'-6.0'
				S-2	11-19-14	6.0-7.5		
8.0	124.98							
			Moist, loose, orange, brown, Silty SAND (SM) (Possible Fill)	S-3	3-2-4	8.5-10.0		Coring was abandoned after difficulty due to rubber modified asphalt. Asphalt Concrete was augered.
10.0	122.98							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 22 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-22 Station _____ Coordinates 549574.8 1403226.333 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 135.6 Date Started 10/10/16
Date Completed 10/10/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				6.0	129.6	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.2	134.36		15 inches Asphalt					Asphalt: 15"/Aggregate Base: 22"
3.1	132.46		22 inches Aggregate Base					
6.0	129.56		Moist, medium dense, brown, tan, Silty SAND, trace pockets of SC (SM) (Fill)	S-1	9-11-14	3.5-5.0		Bulk sample retrieved from 3.0'-6.0'
8.0	127.56		Moist, very dense, grayish brown, Silty SAND with Gravel (SM) (Fill)	S-2	26-50/5"	6.0-7.5		
10.0	125.56		Moist, dense, tan, brown, Silty SAND (SM) (Possible Fill)	S-3	10-16-16	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 23 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-23 Station _____ Coordinates 549821.39 1402615.532 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 139.2 Date Started 10/11/16
Date Completed 10/11/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				4.5	134.7	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.2	137.98		14 inches Asphalt/ 0 inches Aggregate Base					Asphalt: 14"/Aggregate Base: 0"
3.5	135.68		Moist, medium dense, brown, Clayey SAND with Gravel (SC) (Fill)	S-1	12-14-16	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
6.0	133.18		Moist, medium dense, brown, Silty SAND (SM) (Possible Fill)	S-2	4-7-9	3.5-5.0		
10.0	129.18		Moist, medium dense, brown, poorly graded SAND with Silt and Gravel (SP-SM)	S-3	4-9-12	6.0-7.5		
				S-4	4-5-6	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 24 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-24 Station _____ Coordinates 550246.885 1403117.977 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 135.9 Date Started 10/11/16
Date Completed 10/11/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.2	130.7	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.4	134.49		17 inches Asphalt/ 0 inches Aggregate Base					Asphalt: 17"/Aggregate Base: 0"
3.5	132.39		Moist, very dense, brown, Silty SAND (SM) (Fill)	S-1	15-24-24	2.0-3.5		
			Moist, dense to medium dense, brown, tan, Silty SAND (SM) (Possible Fill)	S-2	7-13-18	3.5-5.0		
				S-3	6-10-10	6.0-7.5		
10.0	125.89			S-4	6-12-14	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 25 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-25 Station _____ Coordinates 550481.1 1404125.032 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 129.3 Date Started 10/11/16
Date Completed 10/11/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.0	124.3	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.3	128.04		16 inches Asphalt					Asphalt: 16"/Aggregate Base: 26"
3.5	125.84		26 inches Aggregate Base					Bulk sample retrieved from 3.5'-6.0'
5.5	123.84		Moist, very dense, orange, brown, Silty SAND with Gravel (SM) (Fill)	S-1	23-27-38	3.5-5.0		
				S-2	12-22-23	6.0-7.5		
10.0	119.34		Moist, dense, tan, brown, poorly graded SAND with Silt and Gravel (SP-SM) (Fill)	S-3	7-13-21	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 26 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-26 Station _____ Coordinates 553115.702 1406903.29 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 148.9 Date Started 10/11/16
Date Completed 10/11/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.5	143.4	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.7	148.23		8.0 inches Asphalt					Asphalt: 8.0"/Aggregate Base: 16.0"
2.0	146.93		16.0 inches Aggregate Base					
5.5	143.43		Moist, dense, gray, brown, Silty SAND with Gravel (SM) (Fill)	S-1	10-12-20	2.0-3.5		Bulk sample retrieved from 2.0'-6.0'
				S-2	18-17-17	3.5-5.0		
8.0	140.93		Moist, medium dense, tan, brown, Clayey SAND with Gravel (SC) (Fill)	S-3	6-12-11	6.0-7.5		
10.0	138.93		Moist, medium stiff, gray, brown, Silty CLAY (CL-ML) (Possible Fill)	S-4	2-3-3	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 27 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-27 Station _____ Coordinates 551821.163 1404312.756 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 139.0 Date Started 10/12/16
Date Completed 10/12/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.3	133.7	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.0	138.00		12.0 inches Asphalt					Asphalt: 12.0"/Aggregate Base: 26.0"
3.2	135.80		26.0 inches Aggregate Base					
			Moist, dense to medium dense, tan, poorly graded Sand with Silt (SP-SM)					Bulk sample retrieved from 3.5'-6.0'
				S-1	12-17-17	3.5-5.0		
				S-2	4-8-8	6.0-7.5		
10.0	129.00			S-3	2-5-5	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 28 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-28 Station _____ Coordinates 551101.841 1404819.254 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 135.4 Date Started 10/12/16
Date Completed 10/12/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				4.9	130.5	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.3	134.07		16.0 inches Asphalt					Asphalt: 16.0"/Aggregate Base: 20.0"
3.0	132.37		20.0 inches Aggregate Base					
5.5	129.87		Moist, dense, gray, brown, Silty SAND (SM) (Fill)	S-1	16-22-23	3.5-5.0		Bulk sample retrieved from 3.5'-6.0'
				S-2	6-11-8	6.0-7.5		
10.0	125.37		Moist, medium dense, tan, orange, brown, Silty Clayey SAND with pieces of Gravel in S-2 (SC-SM)	S-3	4-5-7	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 29 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-29 Station _____ Coordinates 550547.619 1405240.821 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 141.4 Date Started 10/12/16
Date Completed 10/12/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.2	136.2	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.9	140.49		11.0 inches Asphalt					Asphalt: 11.0"/Aggregate Base: 19.0"
2.5	138.89		19.0 inches Aggregate Base					
5.5	135.89		Moist, dense, gray, brown, Silty SAND (SM) (Fill)	S-1	13-21-18	3.5-5.0		Bulk sample retrieved from 3.5'-6.0'
10.0	131.39		Moist, medium dense, orange, brown, Silty SAND, trace pockets of Clay (SM) (Possible Fill)	S-2	6-8-11	6.0-7.5		
				S-3	5-9-17	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 30 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-30 Station _____ Coordinates 549720.352 1405855.883 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 145.2 Date Started 10/12/16
Date Completed 10/12/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.0 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				4.5	140.7	0.5
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.8	144.40		9.5 inches Asphalt					Asphalt: 9.5"/Aggregate Base: 11.5"
1.8	143.40		11.5 inches Aggregate Base					
3.5	141.70		Moist, medium dense, brown, Clayey SAND (SC) (Fill)	S-1	6-11-12	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
5.5	139.70		Moist, dense, tan, brown, Silty SAND with Gravel (SM) (Possible Fill)	S-2	8-19-16	3.5-5.0		
8.0	137.20		Moist, medium dense, tan, poorly graded SAND with Silt and Gravel (SP-SM) (Possible Fill)	S-3	4-11-15	6.0-7.5		
								Auger Refusal @ 8.0'

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 31 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-31 Station _____ Coordinates 549581.744 1406712.91 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 141.9 Date Started 10/12/16
Date Completed 10/12/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ 8.0	133.9	0.5	10/12/16	5.5	136.4	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.7	141.20		8.5 inches Asphalt					Asphalt: 8.5"/Aggregate Base: 15.5"
2.0	139.90		15.5 inches Aggregate Base					
			Moist, medium dense, tan, orange, Silty SAND (SM)	S-1	13-12-12	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
				S-2	6-13-15	3.5-5.0		
5.5	136.40							
			Wet, medium dense, tan, Silty SAND (SM)	S-3	6-7-9	6.0-7.5		
			▼					
10.0	131.90			S-4	4-8-12	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 32 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-32 Station _____ Coordinates 552284.101 1407468.641 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 146.7 Date Started 10/13/16
Date Completed 10/13/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.2	141.5	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.7	146.04		8 inches Asphalt					Asphalt: 8"/Aggregate Base: 13"
1.8	144.94		13 inches Aggregate Base					
3.5	143.24		Moist, dense, grayish brown, Silty SAND with Gravel (SM) (Fill)	S-1	9-18-19	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
6.0	140.74		Moist, medium dense, brown, Silty SAND with pockets of SC (SM) (Fill)	S-2	9-11-10	3.5-5.0		
10.0	136.74		Moist, medium dense to very loose, brown, Silty SAND (SM) (Fill)	S-3	4-5-6	6.0-7.5		
				S-4	3-2-2	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 33 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-33 Station _____ Coordinates 549564.674 1406985.497 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 140.8 Date Started 10/13/16
Date Completed 10/13/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.2	135.6	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.7	140.10		8.0 inches Asphalt					Asphalt: 8"/Aggregate Base: 16"
2.0	138.80		16.0 inches Aggregate Base					
			Moist, dense, tan, Silty SAND (SM) (Possible Fill)	S-1	9-13-18	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
				S-2	8-16-20	3.5-5.0		
				S-3	4-16-24	6.0-7.5		
8.0	132.80							
			Moist, dense, orange, brown, poorly graded SAND with Silt (SP-SM)	S-4	6-16-24	8.5-10.0		
10.0	130.80							

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 34 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-34 Station _____ Coordinates 553013.185 1406607.393 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 155.1 Date Started 10/13/16
Date Completed 10/13/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.2	149.9	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.5	154.62		6.5 inches Asphalt					Asphalt: 6.5"/Aggregate Base: 13.5"
1.7	153.42		13.5 inches Aggregate Base					
3.5	151.62		Moist, medium dense, orange, brown, Silty SAND with Gravel pieces and Rock fragments in S-1 (SM) (Fill)	S-1	6-11-14	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
5.5	149.62		Moist, medium dense, orange, brown, poorly graded SAND with Silt and Gravel (SP-SM) (Fill)	S-2	5-9-7	3.5-5.0		Offset 4.5' East due to Electric Line
8.0	147.12		Moist, medium dense, brown, Silty SAND (SM) (Possible Fill)	S-3	3-6-6	6.0-7.5		
10.0	145.12		Moist, medium dense, tan, brown, poorly graded SAND with Silt (SP-SM)	S-4	3-6-7	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 35 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-35 Station _____ Coordinates 552350.392 1407360.255 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 146.1 Date Started 10/13/16
Date Completed 10/13/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.3	140.8	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.8	145.29		9.0 inches Asphalt					Asphalt: 9.0"/Aggregate Base: 15.0"
2.0	144.09		15.0 inches Aggregate Base					
5.5	140.59		Moist, medium dense, tan, brown, gray, Silty SAND with Gravel (SM) (Fill)	S-1	5-14-15	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
				S-2	5-12-9	3.5-5.0		
8.0	138.09		Moist, loose, orange, brown, Silty SAND with Gravel (SM)	S-3	4-4-4	6.0-7.5		
10.0	136.09		Moist, medium dense, tan, orange, brown, poorly graded SAND with Silt (SP-SM)	S-4	4-6-6	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 36 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-36 Station _____ Coordinates 550248.606 1406644.435 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 148.3 Date Started 10/14/16
Date Completed 10/14/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.4	142.9	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
1.2	147.07		14 inches Portland Cement Concrete					Concrete: 14"/Aggregate Base: 14"
2.3	145.97		14 inches Aggregate Base					
5.5	142.77		Moist, medium dense, grayish brown, poorly graded SAND with Silt (SP-SM) (Fill)	S-1	5-10-12	3.5-5.0		Bulk sample retrieved from 3.5'-6'
8.0	140.27		Moist, medium dense, tan, brown, poorly graded SAND with Silt (SP) (Fill)	S-2	2-6-9	6.0-7.5		
10.0	138.27		Moist, medium dense, tan, brown, Silty Clayey SAND (SC-SM)	S-3	2-7-8	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 37 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-37 Station _____ Coordinates 551598.671 1408846.662 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 135.0 Date Started 10/14/16
Date Completed 10/14/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 2.0 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY						
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.8	134.26		9 inches Asphalt					Asphalt: 9"/Aggregate Base: 13"
1.9	133.11		13 inches Aggregate Base					

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 38 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-38 Station _____ Coordinates 553013.382 1407803.332 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 140.0 Date Started 10/14/16
Date Completed 10/14/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ 4.0	136.0	0.5	10/14/16	5.3	134.7	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.6	139.41		7 inches Asphalt					Asphalt: 7"/Aggregate Base: 13"
1.7	138.31		13 inches Aggregate Base					
3.5	136.51		Moist, dense, grayish brown, Silty Clayey SAND with Gravel and layers of SC (SC-SM) (Fill)	S-1	6-13-18	2.0-3.5		Bulk sample retrieved from 2.0'-5.0'
5.5	134.51		Moist, dense, tan, poorly graded SAND with Silt (SP-SM) (Fill) ▼	S-2	9-16-21	3.5-5.0		
			Moist, medium dense, grayish brown, tan, brown, Silty SAND with Gravel (SM) (Fill)	S-3	6-7-10	6.0-7.5		
10.0	130.01			S-4	7-12-16	8.5-10.0		

SHA 73.0-46
8-25-2000

MARYLAND STATE HIGHWAY ADMINISTRATION
FOUNDATIONS BORING LOG

Boring and Sampling Conforms to AASHTO:
T-306
T-206

Sheet 1 of 1
Boring 39 of 39

Contract No. MAA-AE-13-001 Project Description BWI Pavement Management Program Update, Task 4701

Boring No. B-4701-39 Station _____ Coordinates 553293.037 1407527.632 Relocated? ☐

Boring By E2CR, Inc.

Surface Elevation 145.0 Date Started 10/14/16
Date Completed 10/14/16

Driller J. Chalk
Rig Type CME
Rig No. 45
Drive Hammer 140 LB
Casing Auger Size 3.25 IN
Size of Core 8 IN
Size of Bit OD 8 IN
Core Barrel Type Single
Auger Depth 8.5 FT

WATER TABLE		Time (hours)	Date	CAVE-IN		Time (hours)
Depth (ft)	Elev (ft)			Depth (ft)	Elev (ft)	
▼ DRY				5.2	139.8	0.75
▽						

DEPTH IN FEET	ELEV. IN FEET	MATL	MATERIAL DESCRIPTION	SPOON SAMPLE NO.	SPOON BLOWS/ RQD	SPOON DEPTH	RECOVERY	REMARKS
0.7	144.25		8.5 inches Asphalt					Asphalt: 8.5"/Aggregate Base: 14.5"
1.9	143.05		14.5 inches Aggregate Base					
3.0	141.95		Moist, medium dense, grayish brown, Silty SAND (SM) (Fill)	S-1	9-12-15	2.0-3.5		
5.5	139.45		Moist, medium dense, tan, Poorly graded SAND with Silt (SP-SM) (Fill)	S-2	4-6-6	3.5-5.0		Bulk sample retrieved from 2.0'-5.0'
8.5	136.45		Moist, loose, tan, brown, Silty Clayey SAND (SC-SM)	S-3	2-3-6	6.0-7.5		
10.0	134.95		Moist, medium dense, orange, brown, Silty SAND with Gravel (SM)	S-4	10-13-9	8.5-10.0		

E2CR, INC.	BWI Airside PMP Update B-4701-1 (GA-2) Core Photograph	FIGURE: 4	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-2 (GA-1) Core Photograph	FIGURE: 5	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-3 (GA-4) Core Photograph	FIGURE: 6	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-4 (GA-3) Core Photograph	FIGURE: 7	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

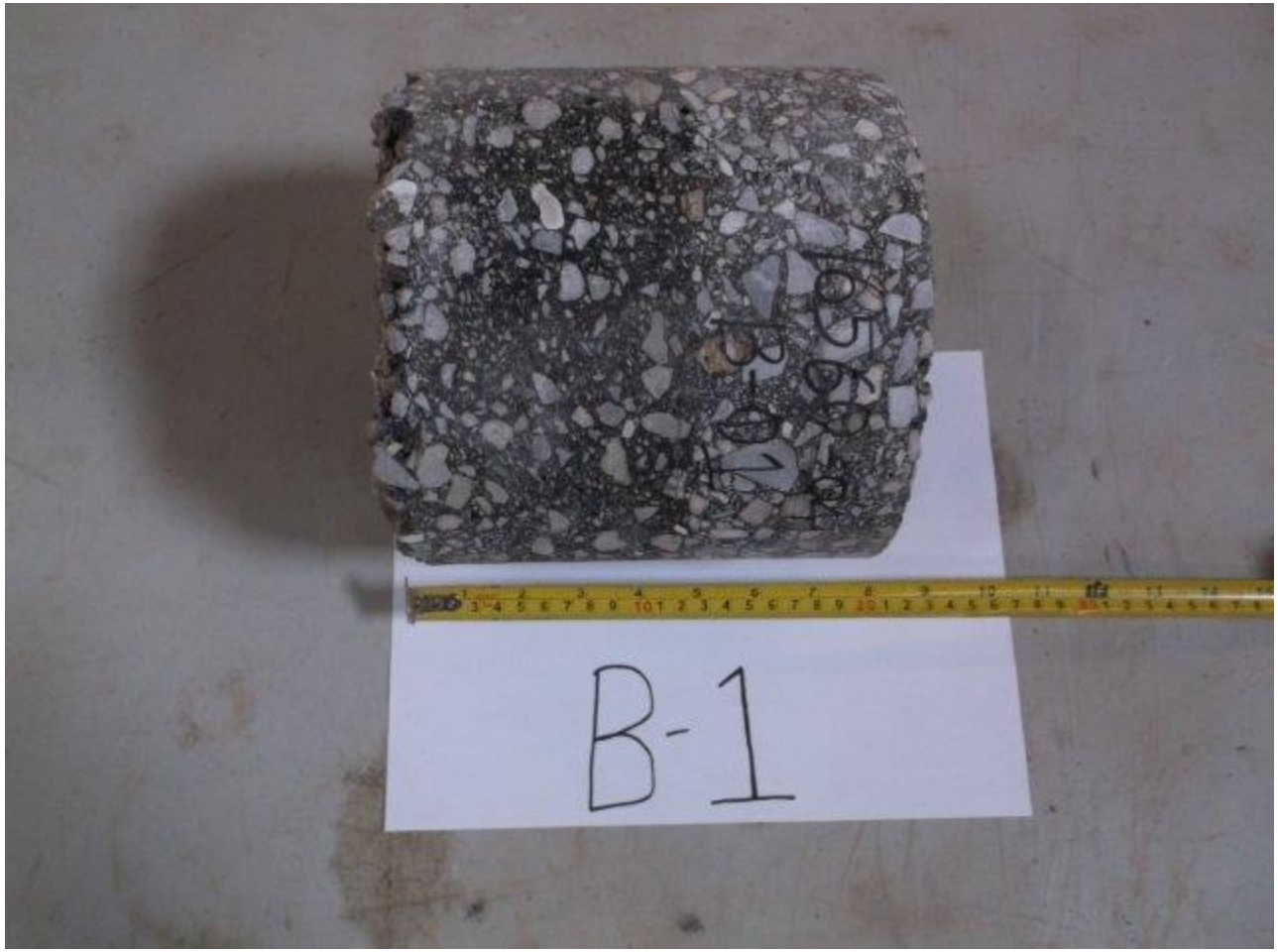
E2CR, INC.	BWI Airside PMP Update B-4701-5 (K-1) Core Photograph	FIGURE: 8	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-6 (B-17) Core Photograph	FIGURE: 9	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-7 (L-1) Core Photograph	FIGURE: 10	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-8 (B-15) Core Photograph	FIGURE: 11	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-9 (B-39) Core Photograph	FIGURE: 12	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS



E2CR, INC.	BWI Airside PMP Update B-4701-10 (B-01) Core Photograph	FIGURE: 13	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-11 (B-19) Core Photograph	FIGURE: 14	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

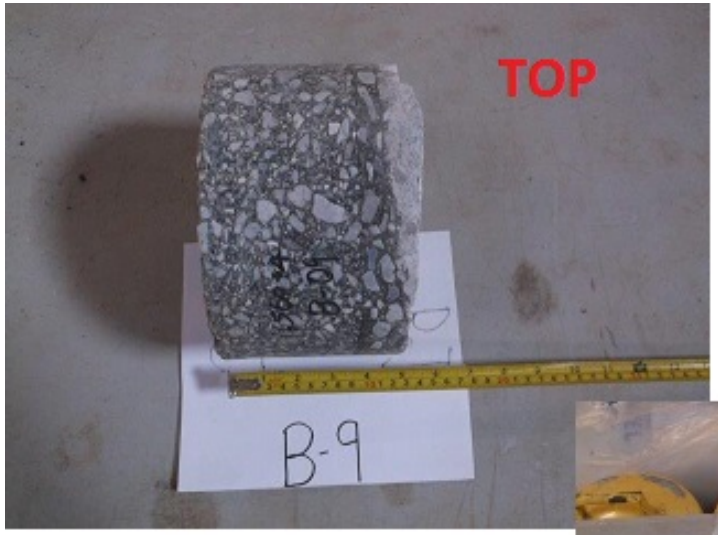
E2CR, INC.	BWI Airside PMP Update B-4701-12 (B-18) Core Photograph	FIGURE: 15	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-13 (B-12) Core Photograph	FIGURE: 16	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-14 (B-13) Core Photograph	FIGURE: 17	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-15 (B-21) Core Photograph	FIGURE: 18	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-16 (B-16) Core Photograph	FIGURE: 19	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS



E2CR, INC.	BWI Airside PMP Update B-4701-17 (B-09) Core Photograph	FIGURE: 20	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-18 (B-07) Core Photograph	FIGURE: 21	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-19 (B-03) Core Photograph	FIGURE: 22	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-20 (B-23) Core Photograph	FIGURE: 23	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-22 (B-25) Core Photograph	FIGURE: 24	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-23 (B-10) Core Photograph	FIGURE: 25	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-24 (B-06) Core Photograph	FIGURE: 26	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-26 (B-38) Core Photograph	FIGURE: 27	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-27 (B-35) Core Photograph	FIGURE: 28	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-28 (B-36) Core Photograph	FIGURE: 29	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-29 (B-31) Core Photograph	FIGURE: 30	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-30 (B-33) Core Photograph	FIGURE: 31	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-31 (B-34) Core Photograph	FIGURE: 32	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-32 (B-02) Core Photograph	FIGURE: 33	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-33 (B-20) Core Photograph	FIGURE: 34	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-34 (B-37) Core Photograph	FIGURE: 35	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-35 (B-40) Core Photograph	FIGURE: 36	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-36 (C-10-2) Core Photograph	FIGURE: 37	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-37 (B-26) Core Photograph	FIGURE: 38	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-38 (B-27) Core Photograph	FIGURE: 39	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

E2CR, INC.	BWI Airside PMP Update B-4701-39 (B-30) Core Photograph	FIGURE: 40	DRAWN BY: MK	CHECKED BY: AAO
		DATE: Nov., 2016	JOB NO.: 16560-04	SCALE: NTS

APPENDIX C:

LABORATORY TEST RESULTS

SUMMARY OF LABORATORY TEST RESULTS

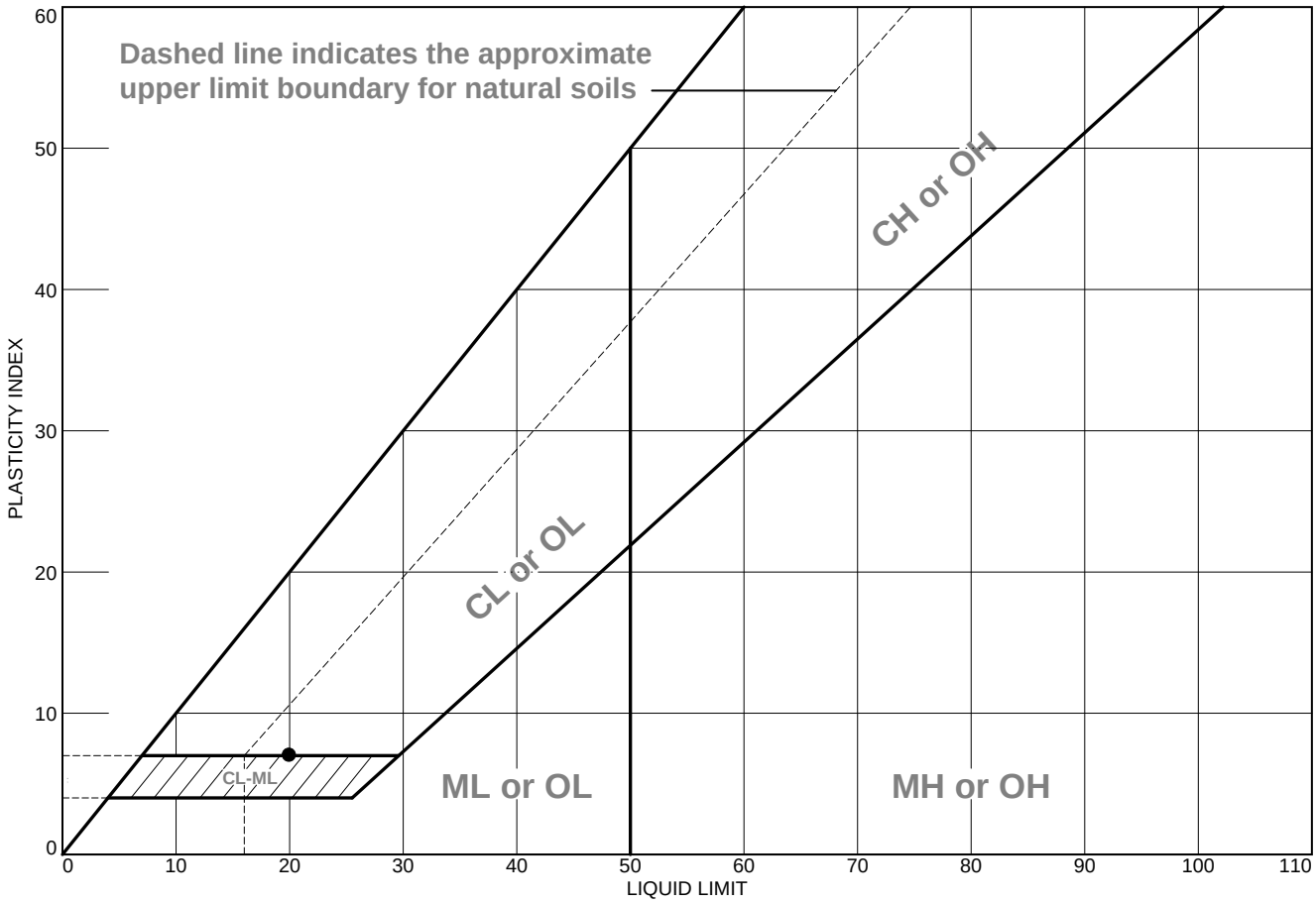
BWI Airport PMP Update

E2CR Project No. 16560-04

TABLE C-1

Boring No.	SAMPLE					CLASSIFICATION			Moisture	ATTERBERG			GRAIN SIZE DIST.			MODIFIED PROCTOR		CBR	Swell
	No.	Depth (feet)			Type	USCS	AASHTO	Soil Frost Group	Content (%)	LL	PL	PI	Gravel (%)	Sand (%)	Fines (%)	MDD (pcf)	OMC (%)	(%)	(%)
B-4701-1	B-1	1.5	-	5.0	Bulk	SC-SM	A-2-4(0)	FG-3	12.4	20	13	7	6.6	58.1	35.3	137.5	6.4	23.8	0.60
B-4701-2	B-1	1.5	-	5.0	Bulk	SC-SM	A-4(0)	FG-3	13.5	17	12	5	10.8	48.5	40.7	136.1	6.5	6.6	1.70
B-4701-5	B-1	1.5	-	5.0	Bulk	SM	A-2-4(0)	FG-2	7.4	NP	NP	NP	19.7	67.8	12.5	128.8	6.7	40.2	0.00
B-4701-7	B-1	1.5	-	5.0	Bulk	SM	A-1-b	FG-2	5.9	14	11	3	2.9	79.5	17.6	131.8	8.0	21.2	0.00
B-4701-8	B-1	1.0	-	5.0	Bulk	SM	A-2-4(0)	FG-3	12.4	NP	NP	NP	4.0	69.5	26.5	132.3	7.1	19.1	0.00
B-4701-9	B-1	2.0	-	5.0	Bulk	SC	A-4(0)	FG-3	9.1	19	9	10	4.5	59.9	35.6	134.2	7.7	8.9	0.60
B-4701-10	B-1	2.0	-	5.0	Bulk	CL-ML	A-4(1)	FG-4	12.3	21	14	7	2.2	46.3	51.5	133.4	7.7	1.0	5.00
B-4701-17	B-1	1.5	-	5.0	Bulk	SP-SM	A-1-b	FG-2	5.0	NP	NP	NP	7.6	82.0	10.4	122.6	8.9	16.7	0.00
B-4701-31	B-1	2.0	-	5.0	Bulk	SM	A-2-4(0)	FG-3	10.6	NP	NP	NP	2.8	76.9	20.3	117.5	10.3	23.9	0.00
B-4701-34	B-1	2.0	-	5.0	Bulk	SM	A-2-4(0)	FG-3	6.2	NP	NP	NP	7.5	75.9	16.6	127.0	9.3	18.1	0.00
B-4701-36	S-1	3.5	-	5.0	SPT	SP-SM	A-3	FG-2	5.5	NP	NP	NP	3.2	87.0	9.8				
B-4701-36	S-2	6.0	-	7.5	SPT	SP	A-1-b	FG-2	3.5	NP	NP	NP	5.4	91.7	2.9				
B-4701-36	S-3	8.5	-	10.0	SPT	SC-SM	A-2-4(0)	FG-3	11.5	17	12	5	8.4	68.4	23.2				
B-4701-39	B-1	2.0	-	5.0	Bulk	SM	A-2-4(0)	FG-3	5.2	NP	NP	NP	8.4	74.7	16.9	132.1	7.9	38.2	0.00

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Grayish brown, Silty Clayey SAND	20	13	7	66.2	35.3	SC-SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-1 **Depth:** 1.5'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=12.4%

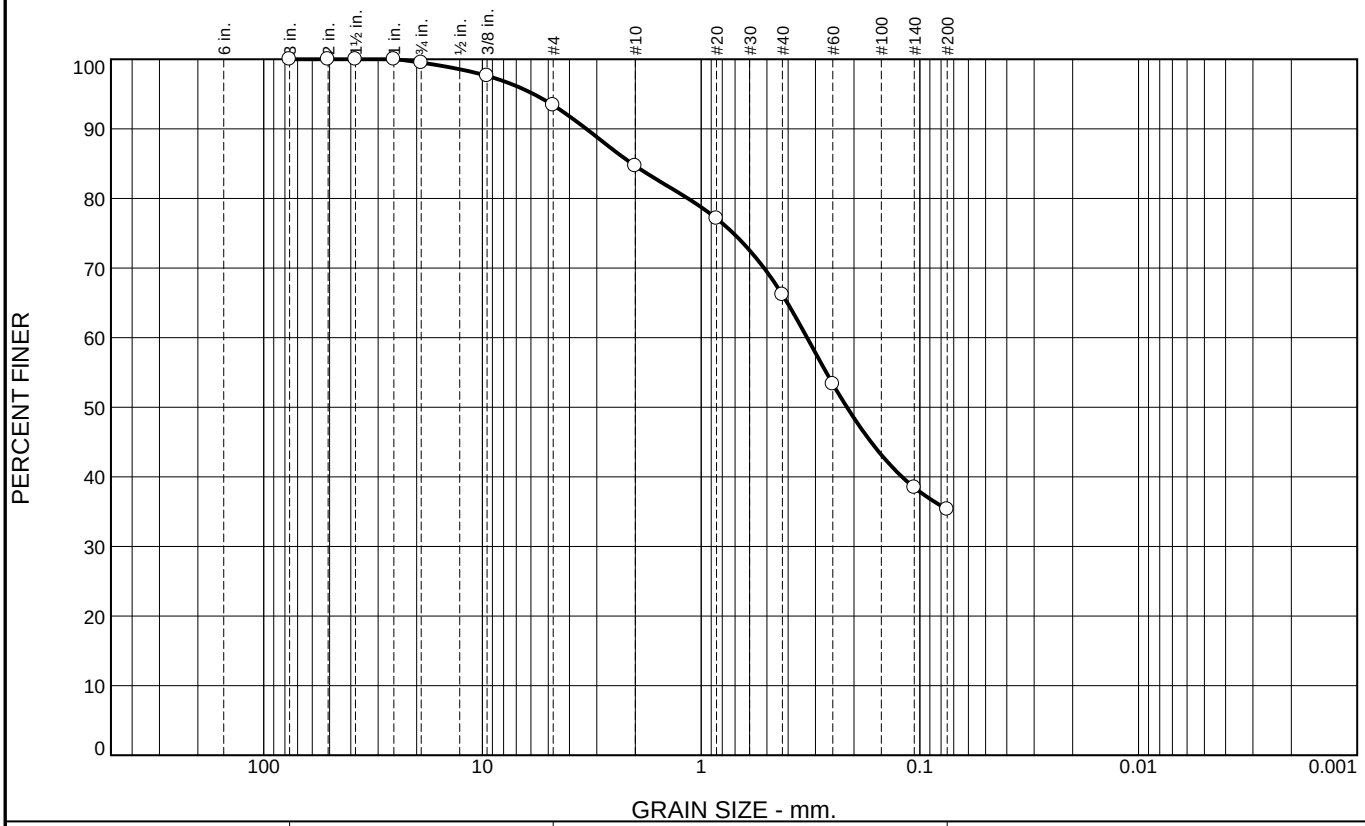
E2CR, Inc.

Baltimore, MD

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.5	6.1	8.7	18.5	30.9	35.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
3/4	99.5		
3/8	97.6		
#4	93.4		
#10	84.7		
#20	77.1		
#40	66.2		
#60	53.4		
#140	38.5		
#200	35.3		

* (no specification provided)

Material Description

Grayish brown, Silty Clayey SAND

Atterberg Limits

PL= 13 LL= 20 PI= 7

Coefficients

D_{90}= 3.3512 D_{85}= 2.0690 D_{60}= 0.3275
D_{50}= 0.2154 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC-SM AASHTO= A-2-4(0)

Remarks

Natural Moisture : 12.4%

Source of Sample: B-4701-1 **Depth:** 1.5'-5.0'
Sample Number: Bulk

Date: 11-5-16

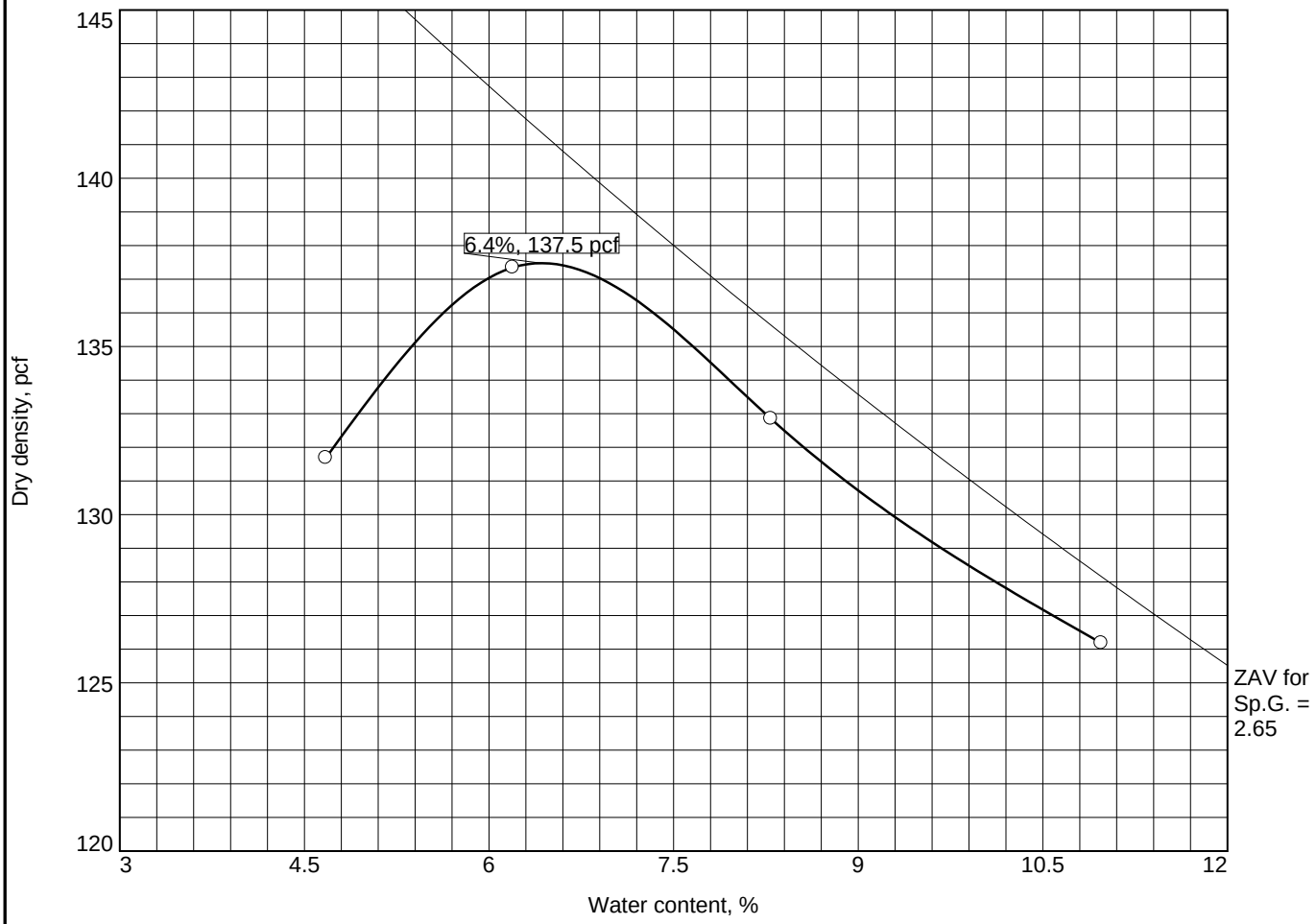
E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update

Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



Test specification: AASHTO T 180-01 Method C Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
1.5'-5.0'	SC-SM	A-2-4(0)	12.4	2.65	20	7	0.5	35.3

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 137.5 pcf Optimum moisture = 6.4 %	Grayish brown, Silty Clayey SAND

Project No. 16560-04 **Client:** AECOM
Project: BWI Airport PMP Update

○**Source of Sample:** B-4701-1 **Sample Number:** Bulk

E2CR, Inc.

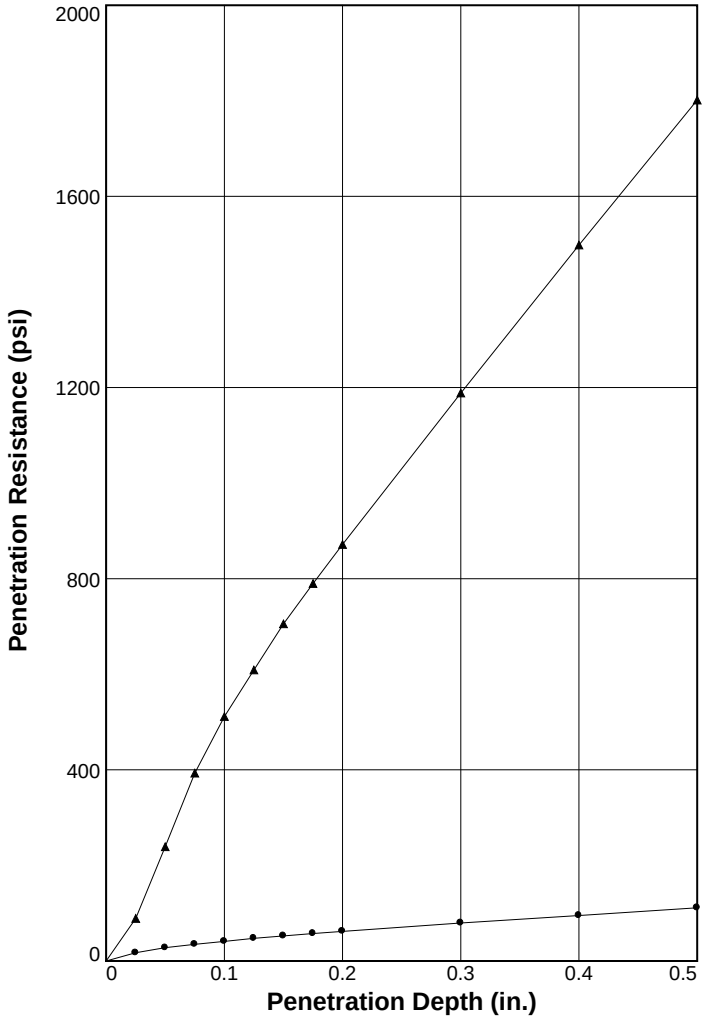
Baltimore, MD

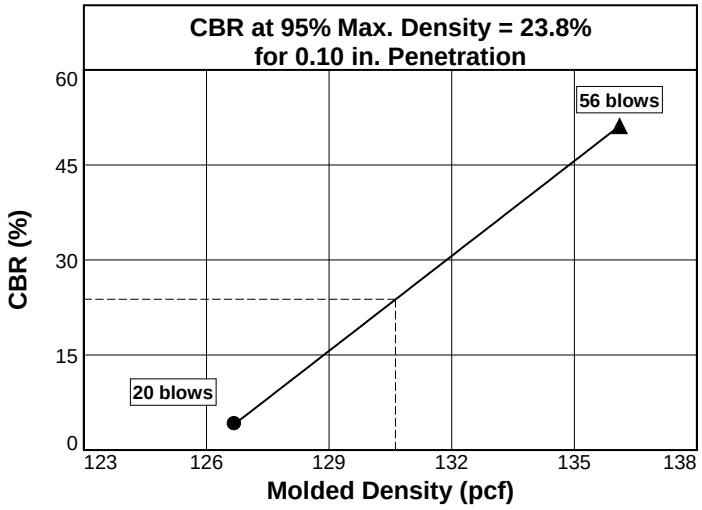
Remarks:

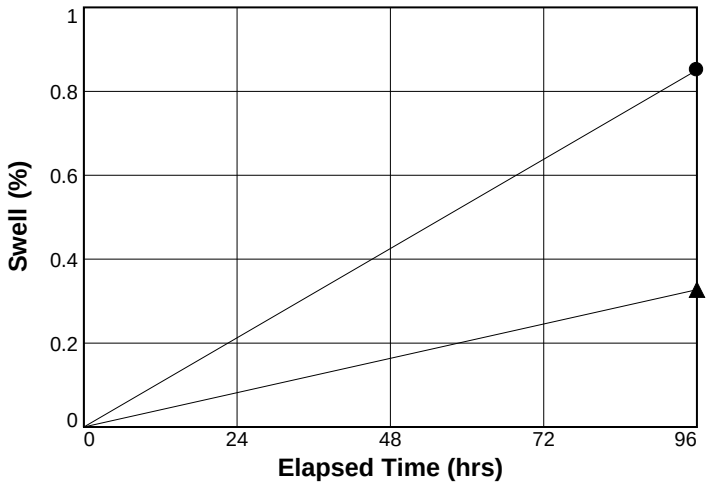
Figure

Tested By: AP **Checked By:** AAO

BEARING RATIO TEST REPORT
ASTM D 1883-07







	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	126.7	92.1	6.4	125.6	91.4	11.8	4.1	4.1	0.000	10	0.9
2 △	136.1	99	7.0	135.7	98.7	9.6	51.2	58.1	0.000	10	0.3
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Grayish brown, Silty Clayey SAND	SC-SM	137.5	6.4	20	7

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-1 **Depth:** 1.5'-5.0'

Sample Number: Bulk

Date: 11-5-16

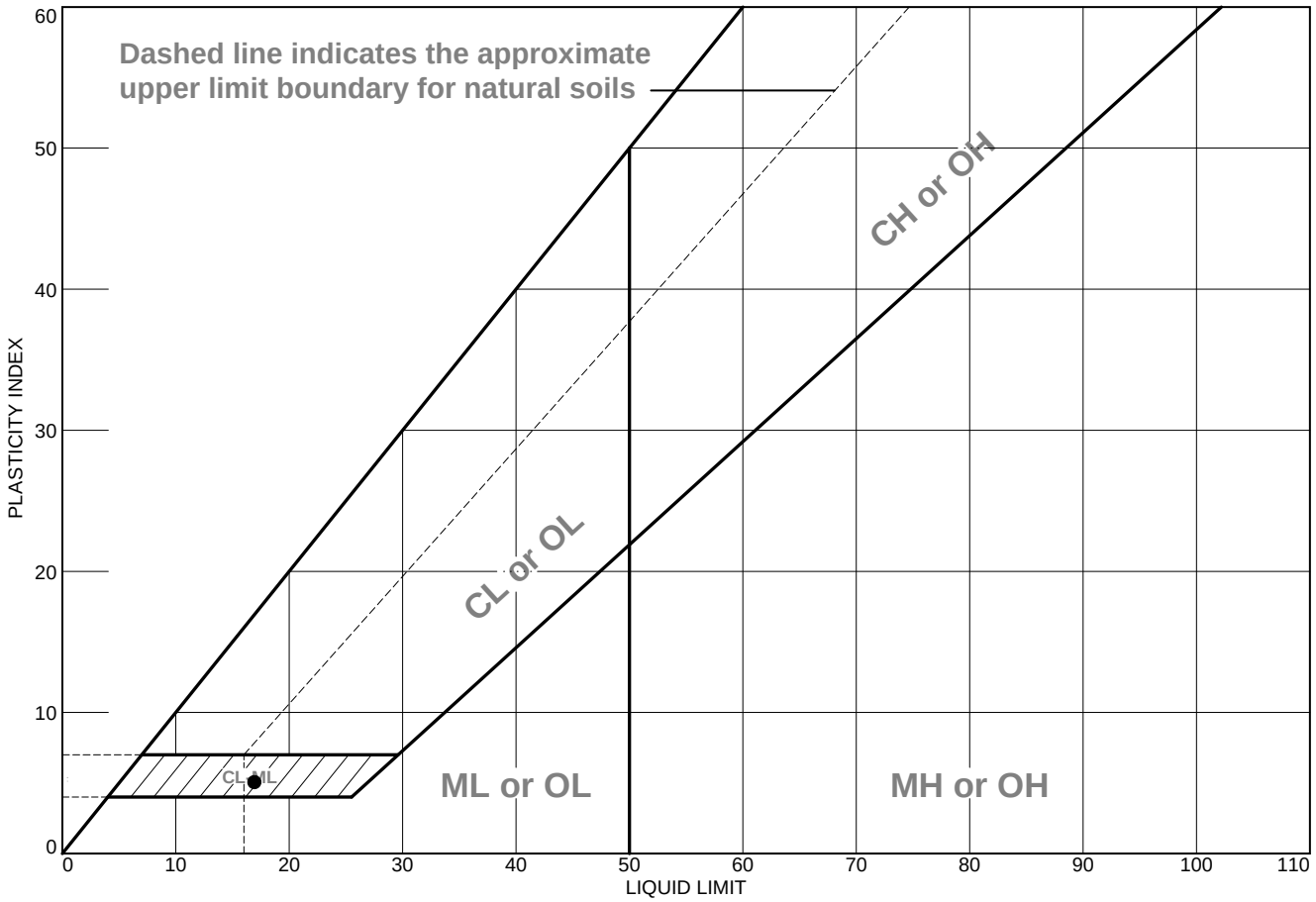
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Grayish brown, Silty Clayey SAND	17	12	5	71.9	40.7	SC-SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-2 **Depth:** 1.5'-5.0' **Sample Number:** Bulk

E2CR, Inc.

Baltimore, MD

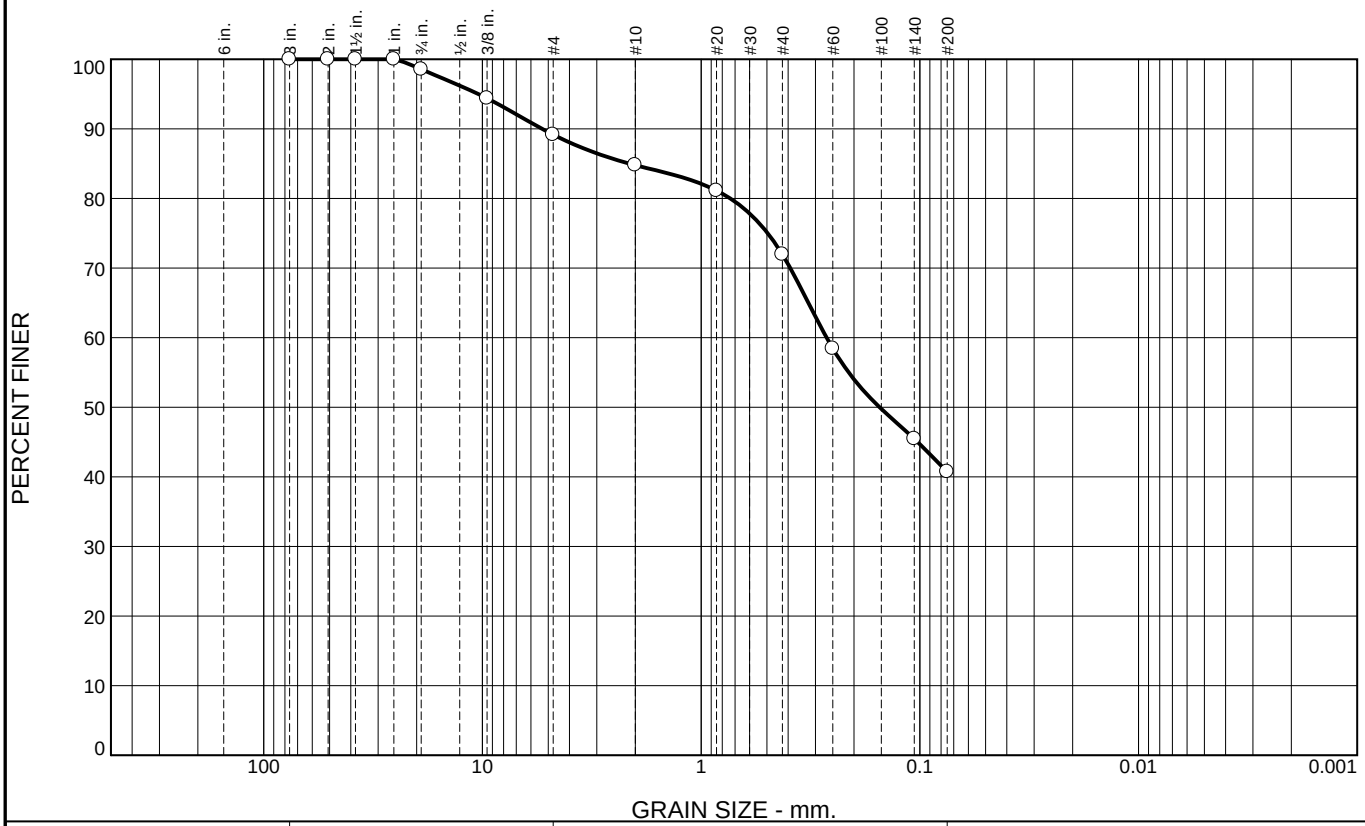
Remarks:

●Natural Moisture Content=13.5%

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.4	9.4	4.4	12.9	31.2	40.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
3/4	98.6		
3/8	94.4		
#4	89.2		
#10	84.8		
#20	81.1		
#40	71.9		
#60	58.4		
#140	45.5		
#200	40.7		

* (no specification provided)

Material Description

Grayish brown, Silty Clayey SAND

Atterberg Limits

PL= 12 LL= 17 PI= 5

Coefficients

D_{90}= 5.3302 D_{85}= 2.1230 D_{60}= 0.2669
D_{50}= 0.1526 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC-SM AASHTO= A-4(0)

Remarks

Natural Moisture : 13.5%

Source of Sample: B-4701-2 **Depth:** 1.5'-5.0'
Sample Number: Bulk

Date: 11-5-16

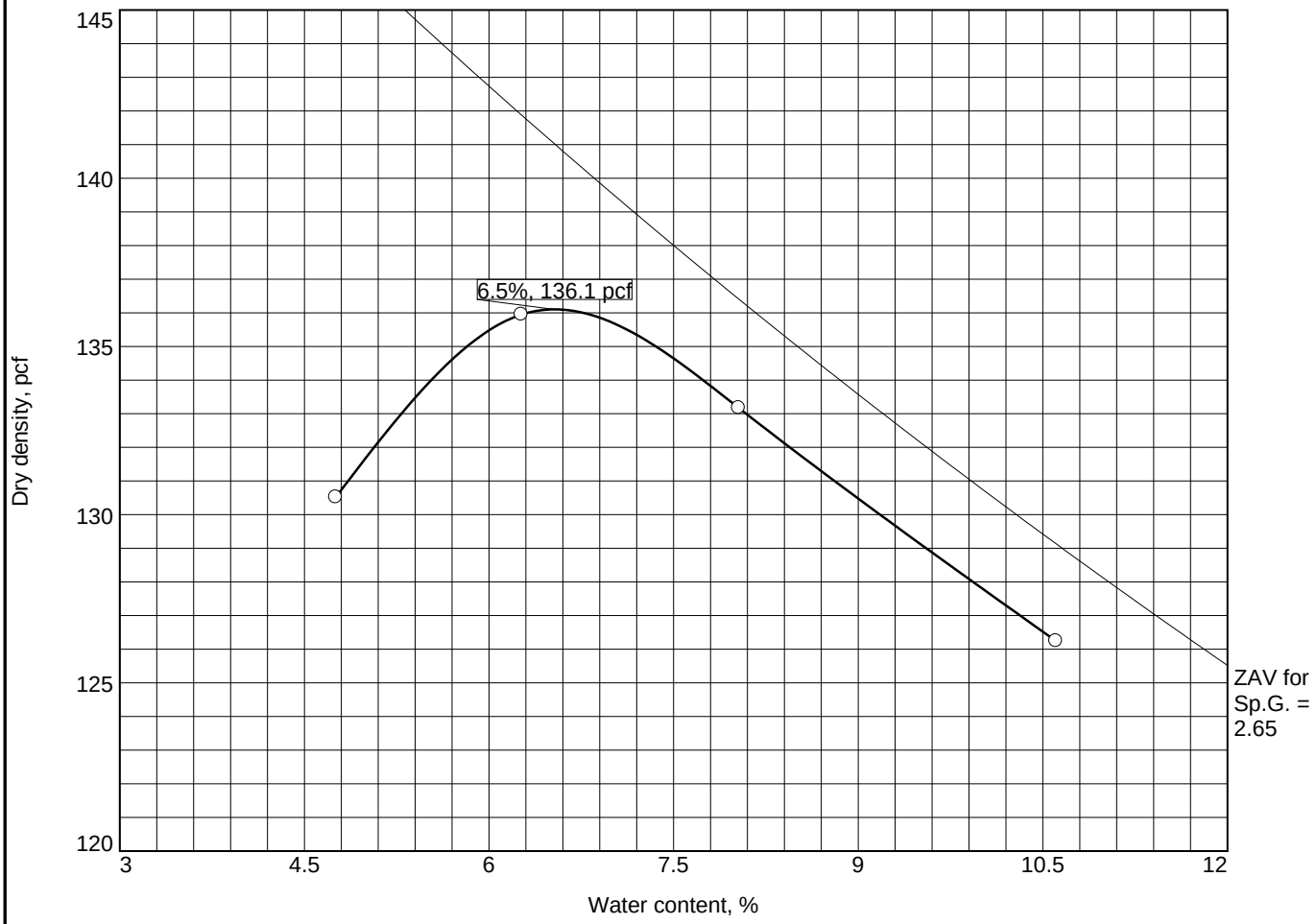
E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update

Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



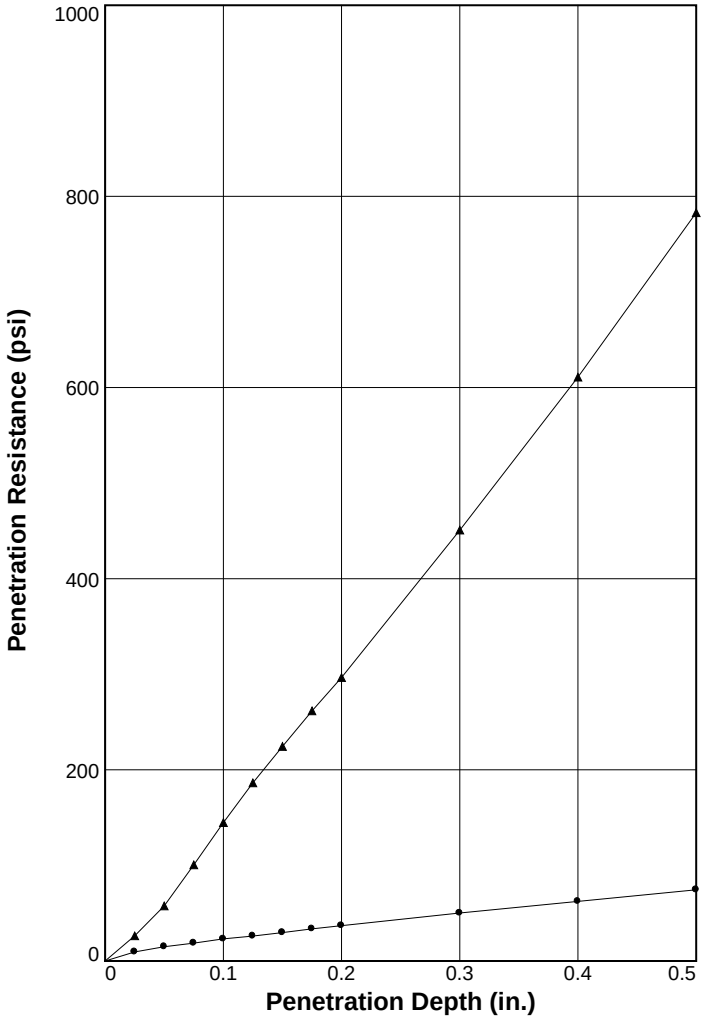
Test specification: AASHTO T 180-01 Method C Modified

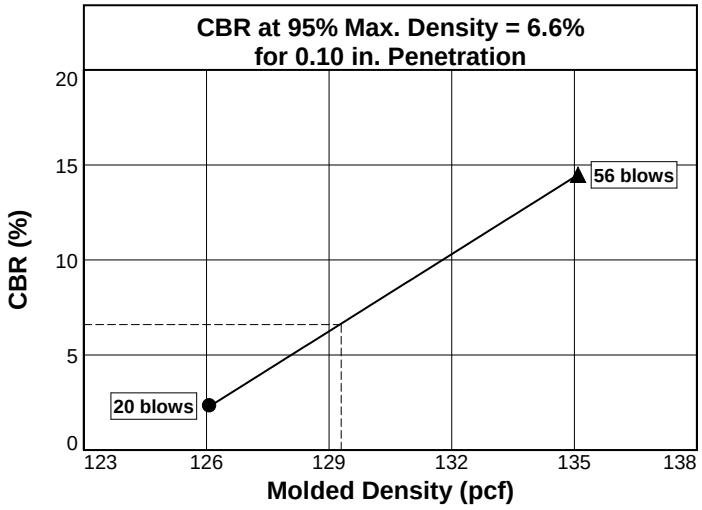
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
1.5'-5.0'	SC-SM	A-4(0)	13.5	2.65	17	5	1.4	40.7

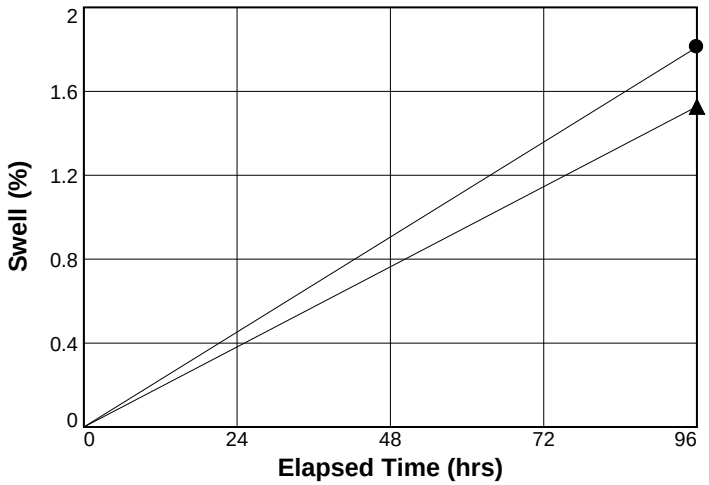
TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 136.1 pcf Optimum moisture = 6.5 %	Grayish brown, Silty Clayey SAND
Project No. 16560-04 **Client:** AECOM **Project:** BWI Airport PMP Update ○**Source of Sample:** B-4701-2 **Sample Number:** Bulk **E2CR, Inc.** **Baltimore, MD**	**Remarks:** **Figure**

Tested By: AP **Checked By:** AAO

BEARING RATIO TEST REPORT
ASTM D 1883-07







	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	126.1	92.7	7.1	123.8	91	12.4	2.3	2.5	0.000	10	1.8
2 △	135.1	99.3	7.1	133.1	97.8	10.9	14.5	19.8	0.000	10	1.5
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Grayish brown, Silty Clayey SAND	SC-SM	136.1	6.5	17	5

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-2 **Depth:** 1.5'-5.0'

Sample Number: Bulk

Date: 11-5-16

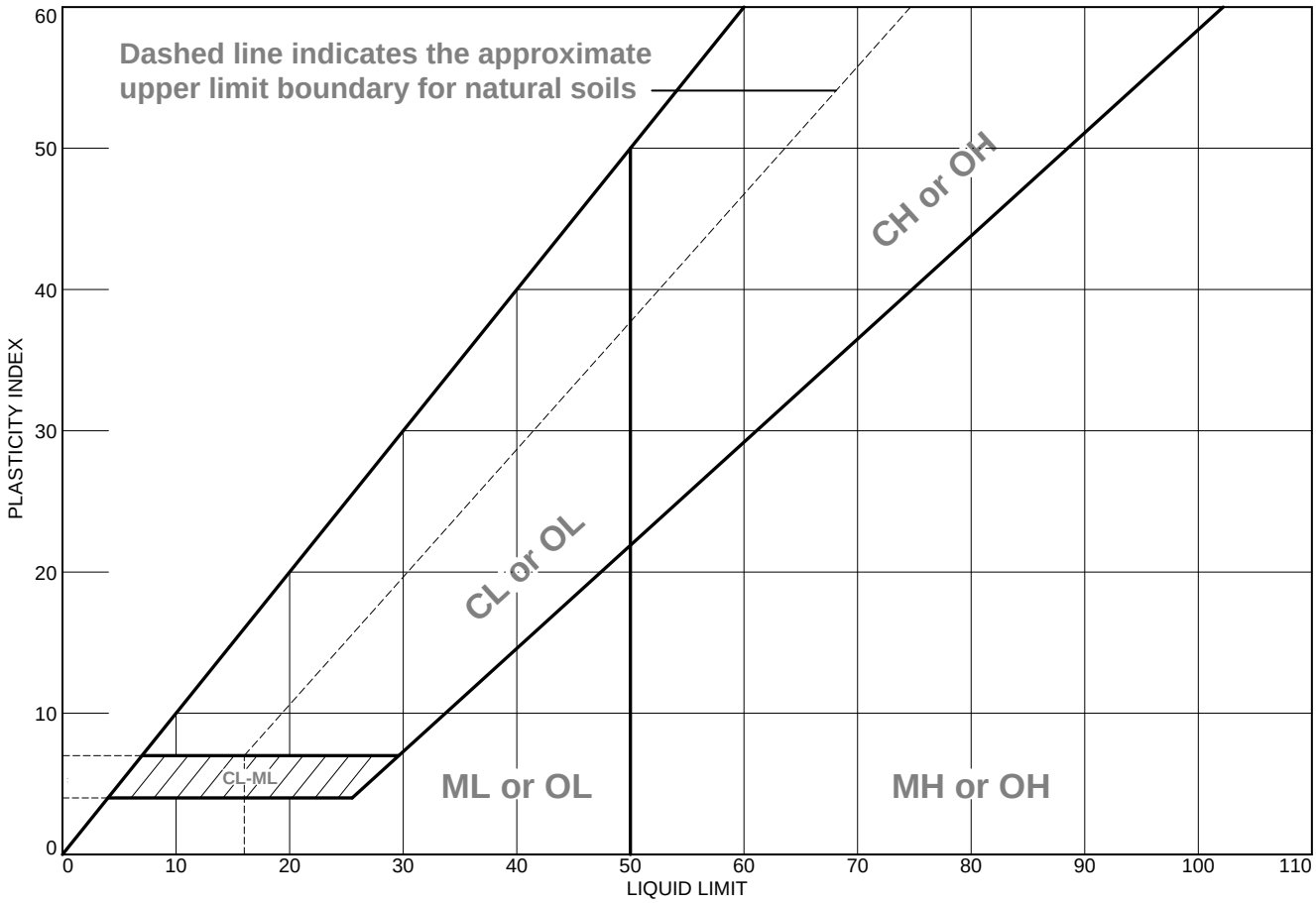
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Grayish brown, Silty SAND with Gravel	NV	NP	NP	59.0	12.5	SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-5 **Depth:** 1.5'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=7.4%

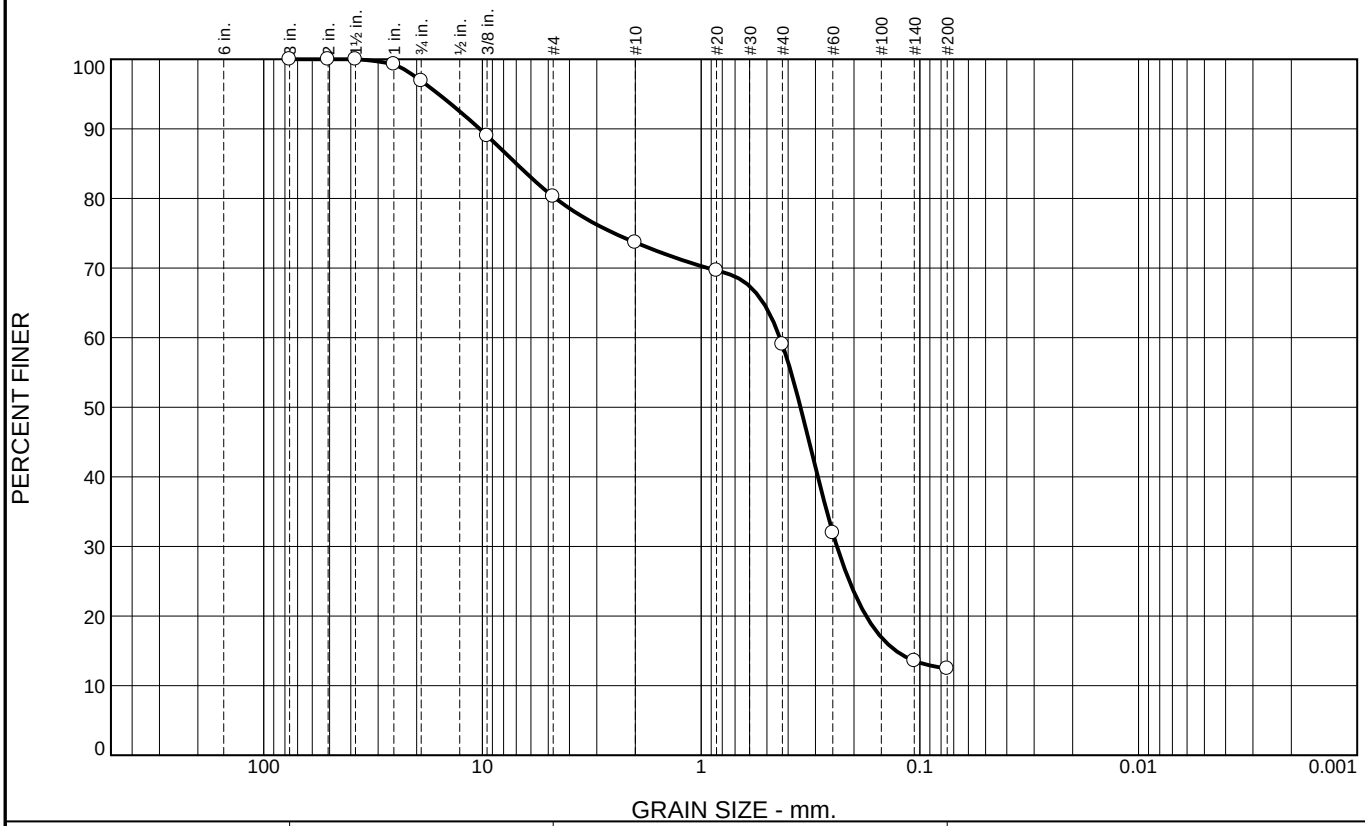
E2CR, Inc.

Baltimore, MD

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.1	16.6	6.6	14.7	46.5	12.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	99.3		
3/4	96.9		
3/8	89.0		
#4	80.3		
#10	73.7		
#20	69.7		
#40	59.0		
#60	32.0		
#140	13.6		
#200	12.5		

* (no specification provided)

Material Description

Grayish brown, Silty SAND with Gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 10.2985 D_{85}= 6.9990 D_{60}= 0.4360
D_{50}= 0.3511 D_{30}= 0.2392 D_{15}= 0.1285
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Natural Moisture : 7.4%

Source of Sample: B-4701-5 **Depth:** 1.5'-5.0'
Sample Number: Bulk

Date: 11-5-16

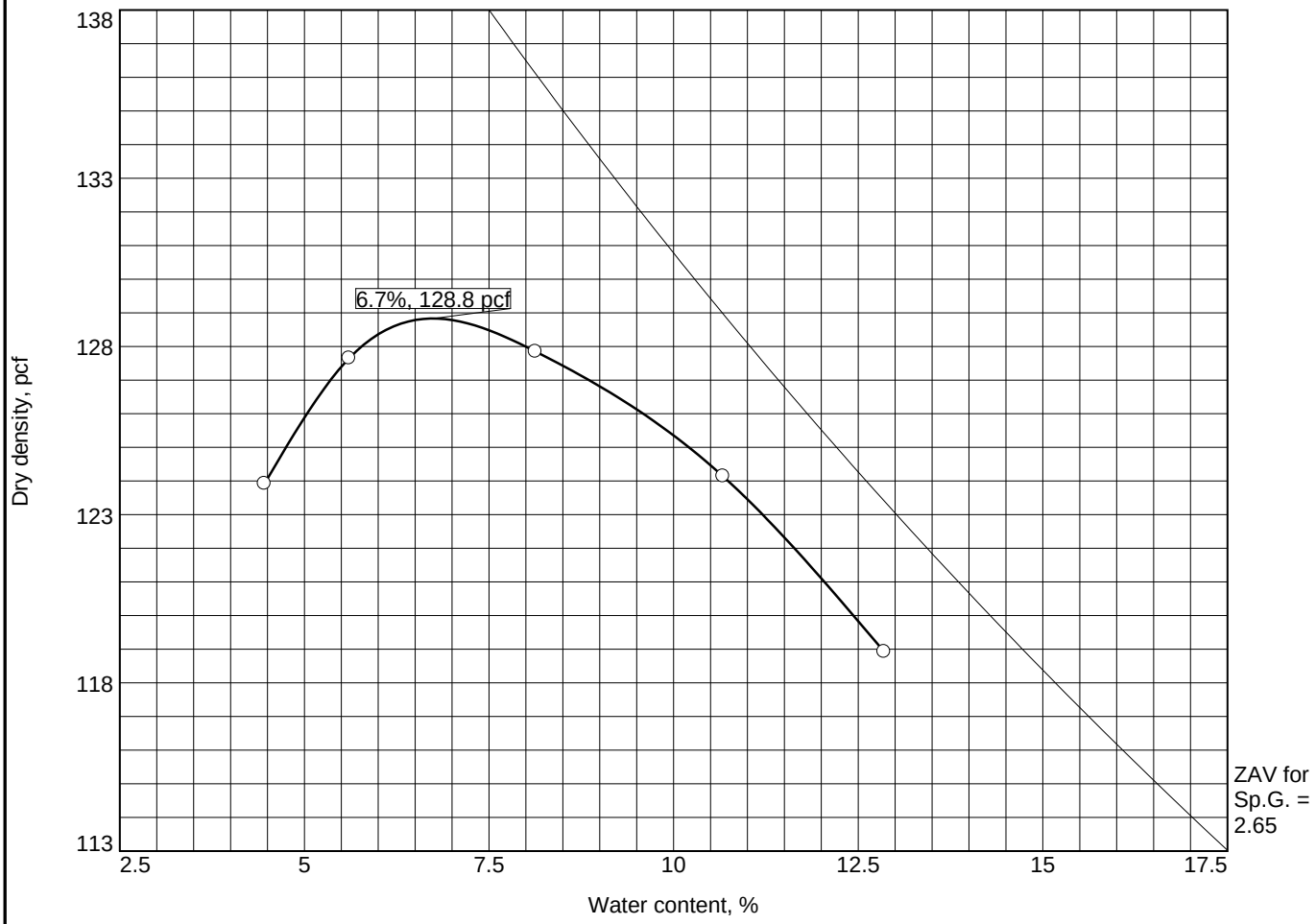
E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update

Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



Test specification: AASHTO T 180-01 Method C Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
1.5'-5.0'	SM	A-2-4(0)	7.4	2.65	NP	NP	3.1	12.5

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 128.8 pcf Optimum moisture = 6.7 %	Grayish brown, Silty SAND with Gravel

Project No. 16560-04 **Client:** AECOM
Project: BWI Airport PMP Update

○**Source of Sample:** B-4701-5 **Sample Number:** Bulk

E2CR, Inc.

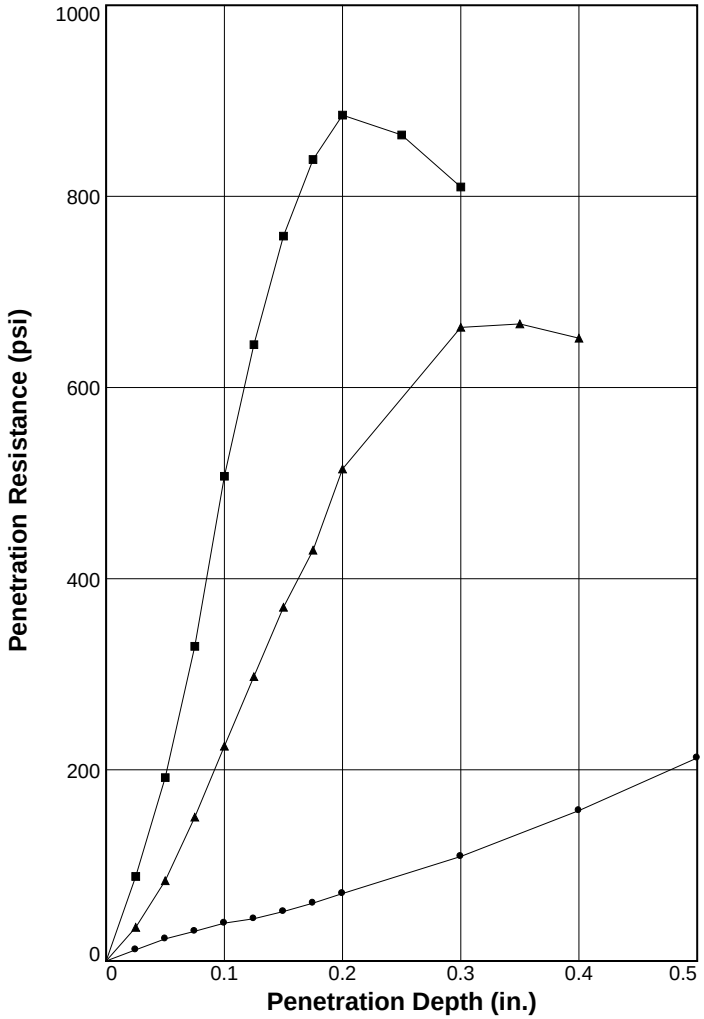
Baltimore, MD

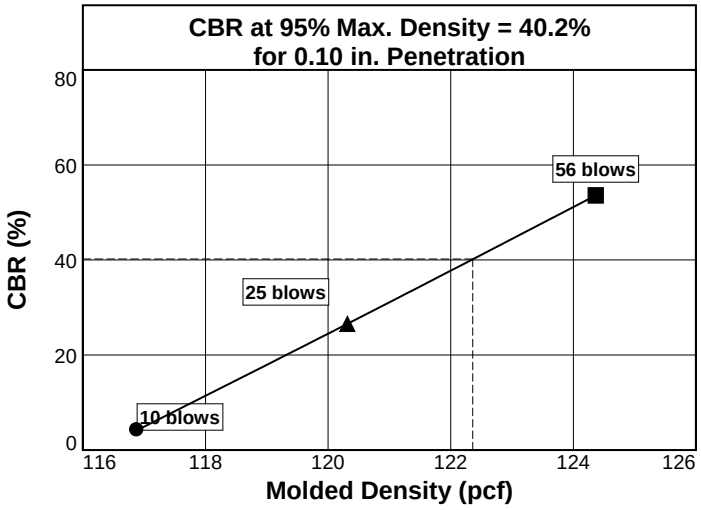
Remarks:

Figure

Tested By: AP **Checked By:** AAO

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	116.9	90.8	6.8	116.9	90.7	11.8	4.2	5.0	0.011	10	0
2 △	120.3	93.4	7.2	120.3	93.4	10.2	26.6	35.7	0.014	10	0
3 □	124.4	96.6	7.0	124.4	96.6	10.5	53.6	58.9	0.005	10	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Grayish brown, Silty SAND with Gravel	SM	128.8	6.7	NP	NP

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-5 **Depth:** 1.5'-5.0'

Sample Number: Bulk

Date: 11-5-16

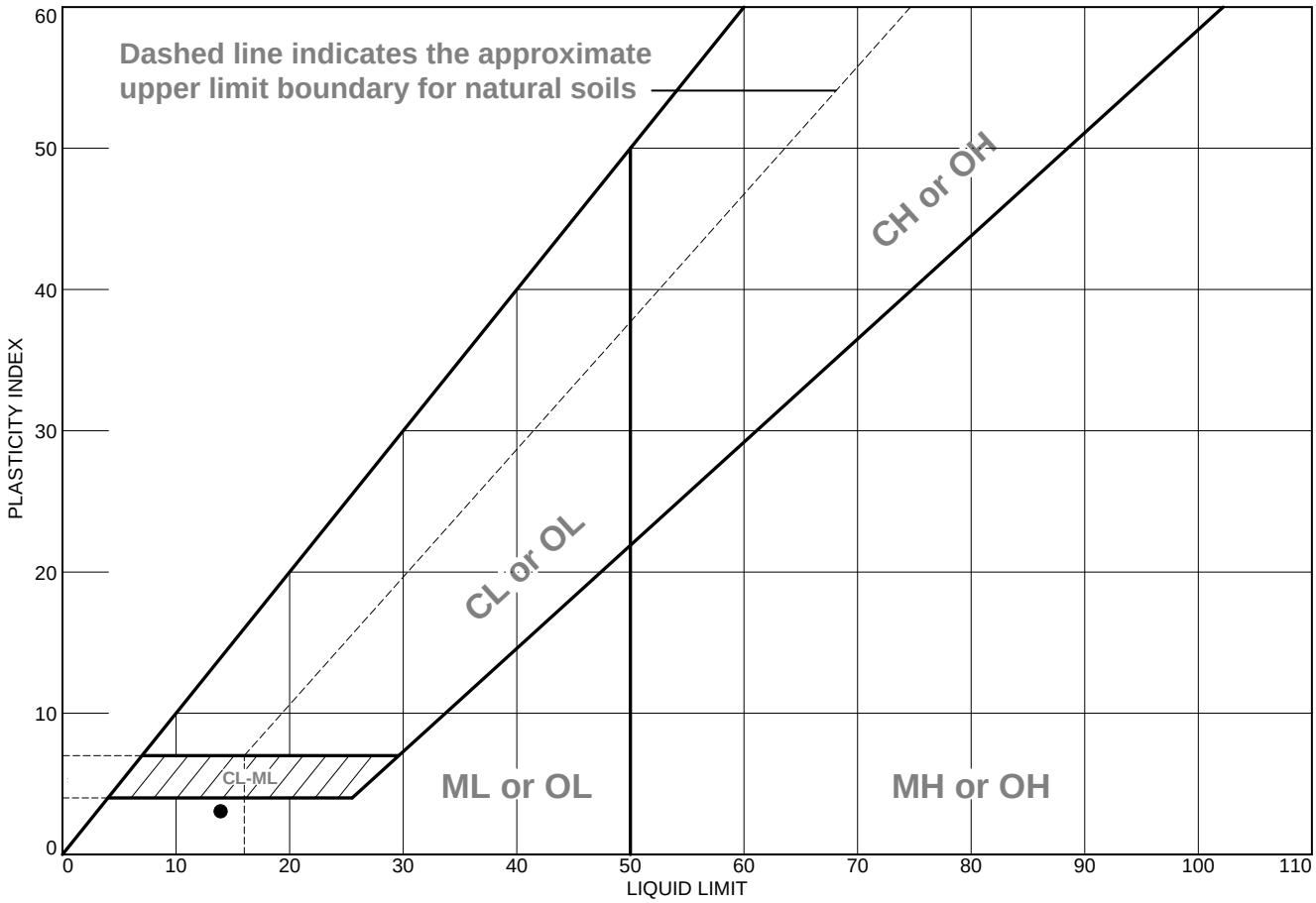
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown, Silty SAND	14	11	3	43.6	17.6	SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-7 **Depth:** 1.5'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=5.9%

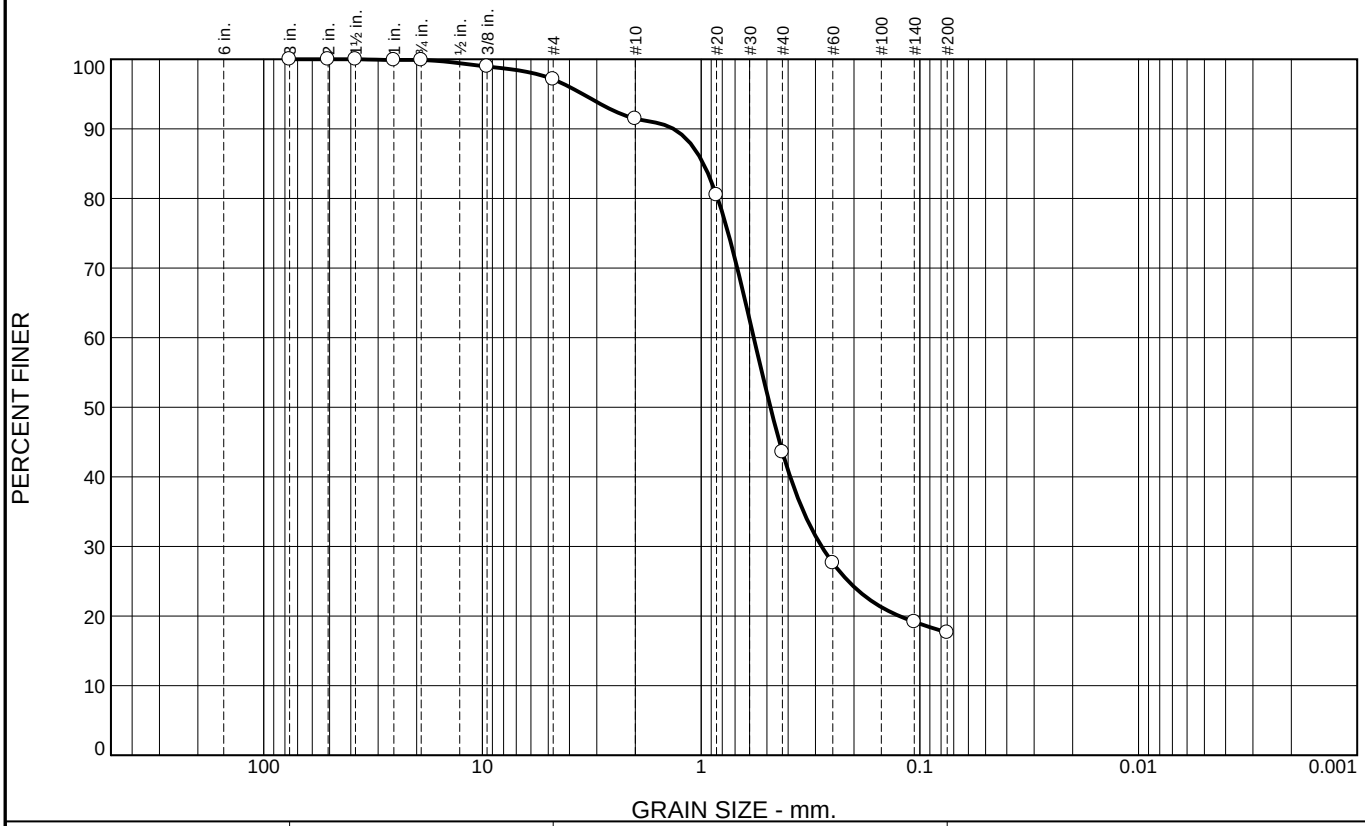
E2CR, Inc.

Baltimore, MD

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.1	2.8	5.6	47.9	26.0	17.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	99.9		
3/4	99.9		
3/8	99.0		
#4	97.1		
#10	91.5		
#20	80.5		
#40	43.6		
#60	27.6		
#140	19.2		
#200	17.6		

* (no specification provided)

Material Description

Brown, Silty SAND

Atterberg Limits

PL= 11 LL= 14 PI= 3

Coefficients

D_{90}= 1.3365 D_{85}= 0.9762 D_{60}= 0.5743
D_{50}= 0.4823 D_{30}= 0.2813 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Natural Moisture : 5.9%

Source of Sample: B-4701-7 **Depth:** 1.5'-5.0'
Sample Number: Bulk

Date: 11-5-16

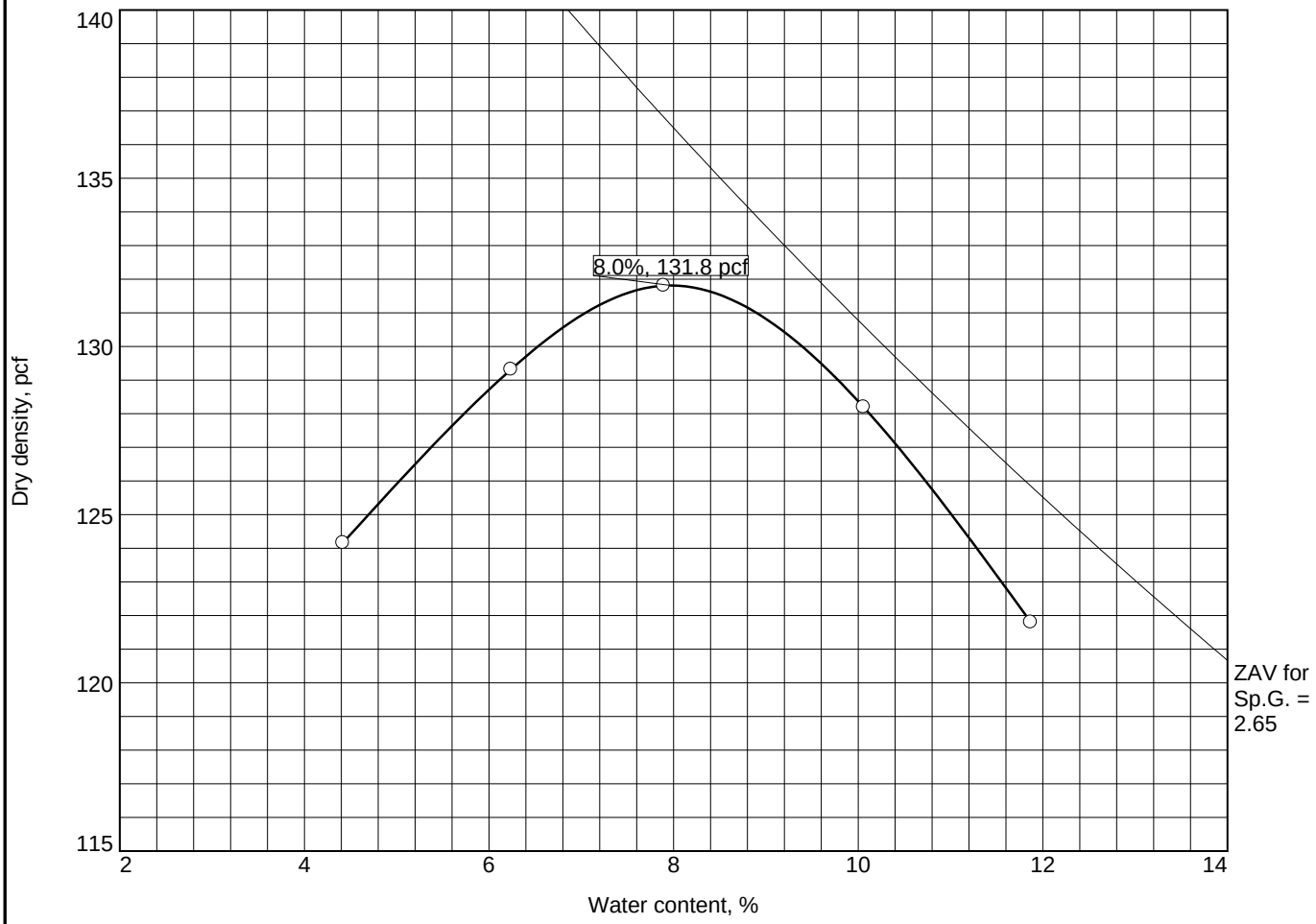
E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update

Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



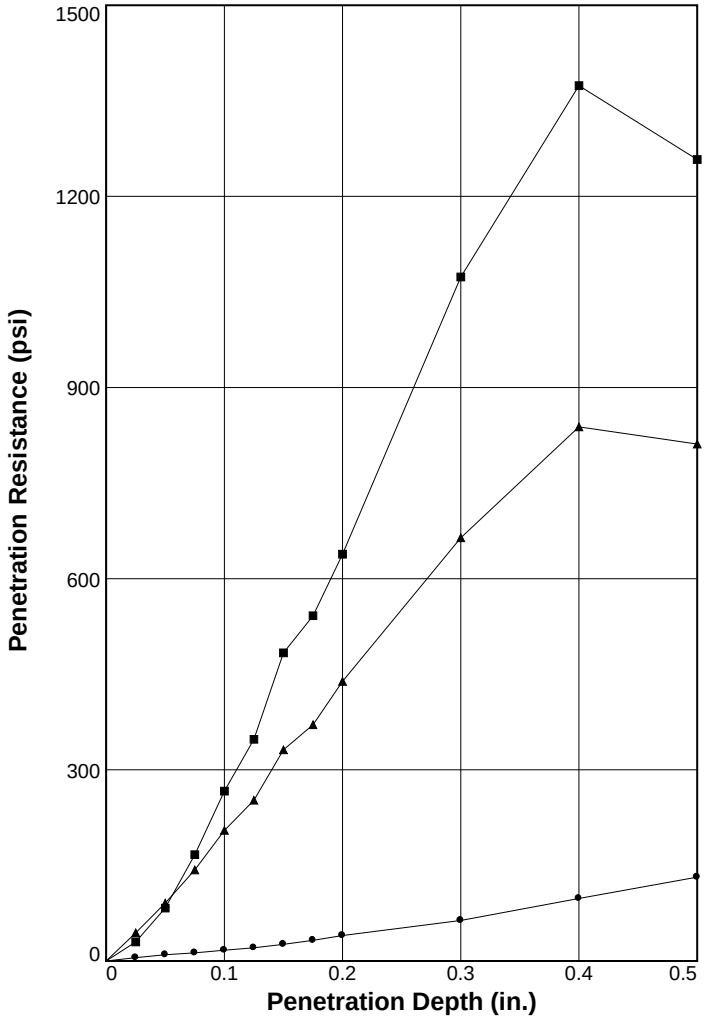
Test specification: AASHTO T 180-01 Method C Modified

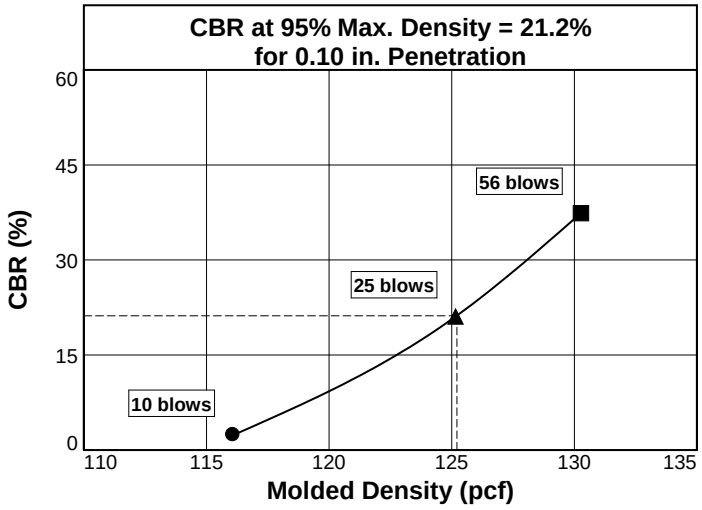
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
1.5'-5.0'	SM	A-1-b	5.9	2.65	14	3	0.1	17.6

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 131.8 pcf Optimum moisture = 8.0 %	Brown, Silty SAND
Project No. 16560-04 **Client:** AECOM **Project:** BWI Airport PMP Update ○**Source of Sample:** B-4701-7 **Sample Number:** Bulk	**Remarks:**
E2CR, Inc. **Baltimore, MD**	**Figure**

Tested By: AP **Checked By:** AAO

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	116.1	88.1	7.9	116.1	88.1	11.9	2.4	3.3	0.038	10	0
2 △	125.2	95	8.0	125.2	95	9.2	21.1	29.7	0.003	10	
3 □	130.3	98.9	7.9	130.3	98.8	9.1	37.4	51.2	0.030	10	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Brown, Silty SAND	SM	131.8	8.0	14	3

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-7 **Depth:** 1.5'-5.0'

Sample Number: Bulk

Date: 11-5-16

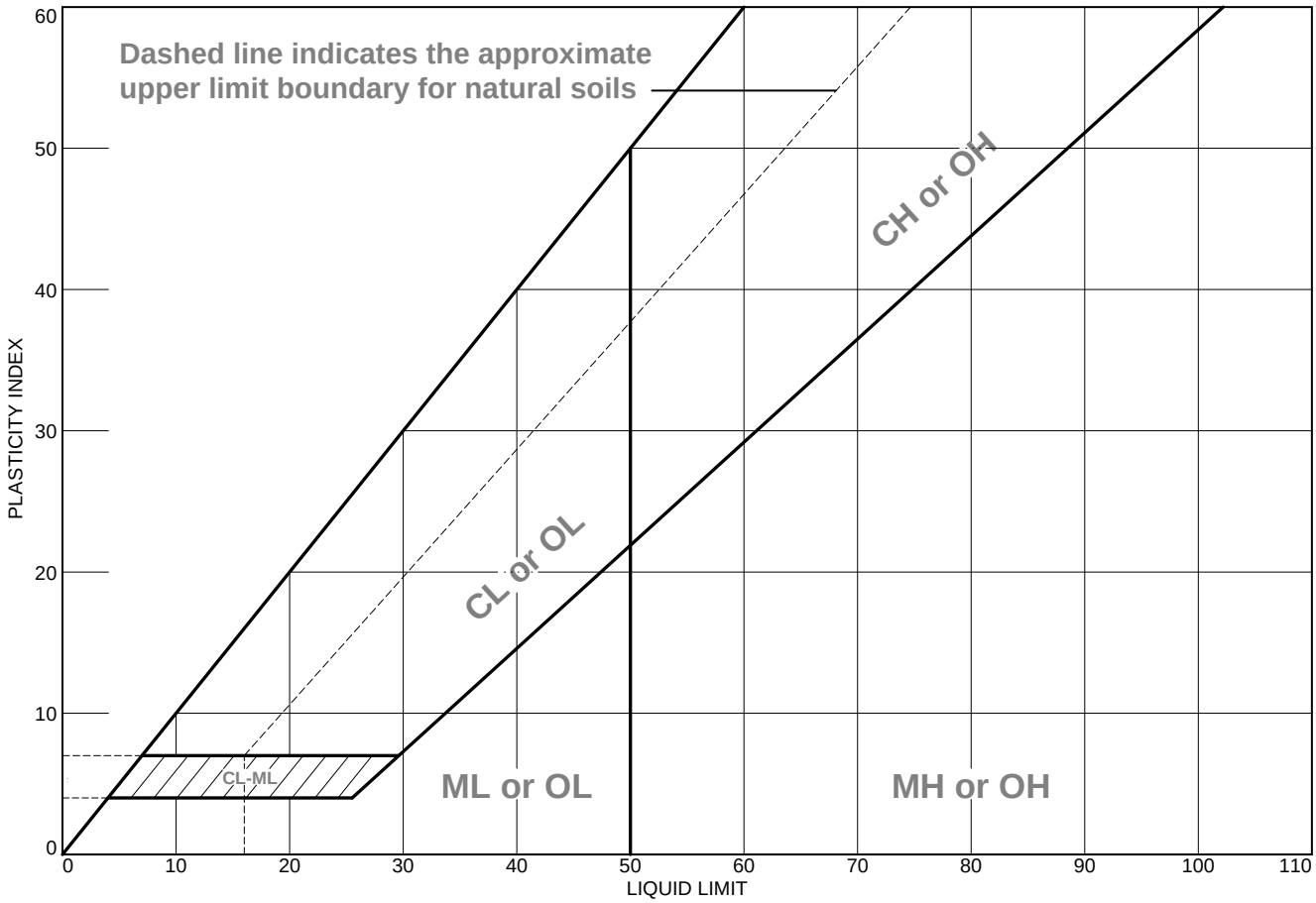
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown, Silty SAND	NV	NP	NP	57.6	26.5	SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-8 **Depth:** 1.0'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=12.4%

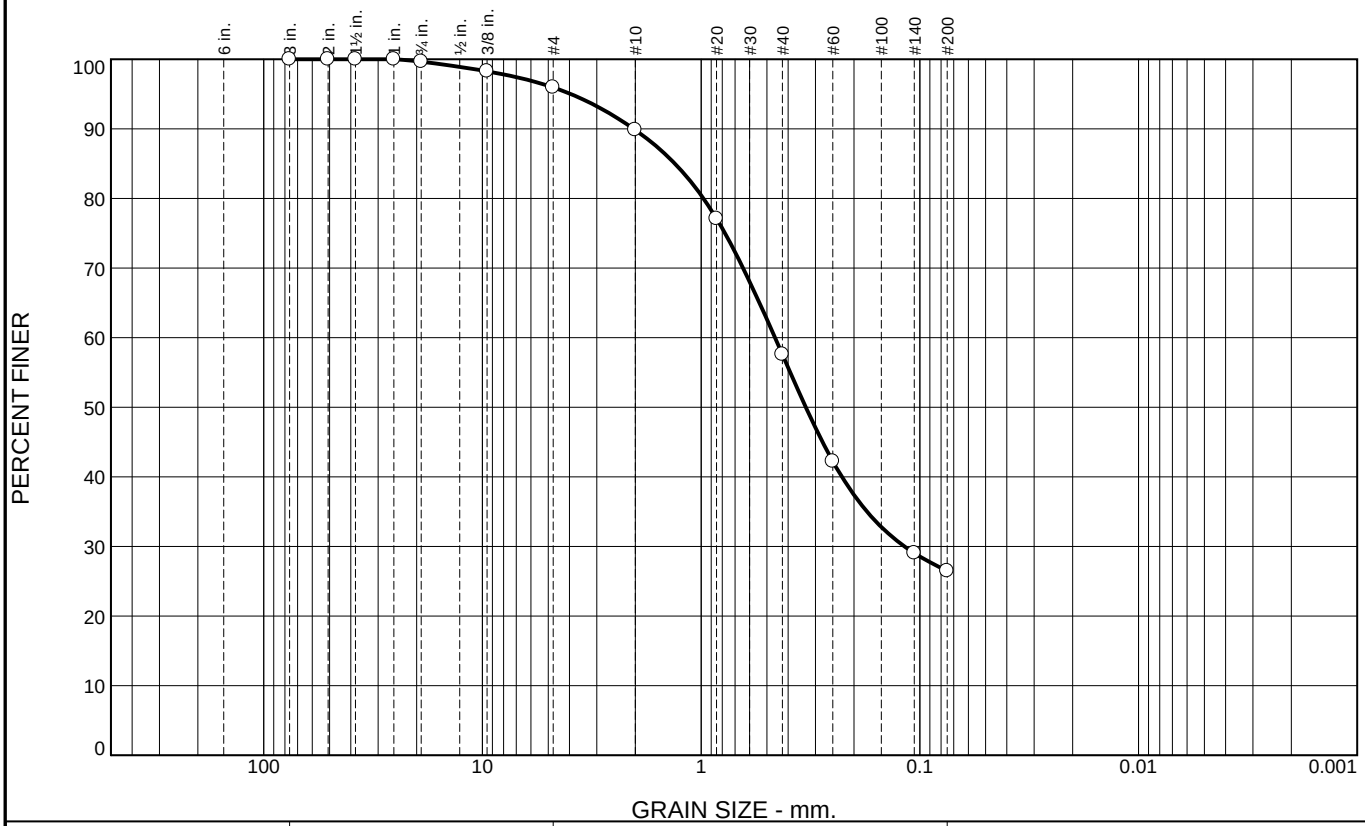
E2CR, Inc.

Baltimore, MD

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.4	3.6	6.2	32.2	31.1	26.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
3/4	99.6		
3/8	98.3		
#4	96.0		
#10	89.8		
#20	77.1		
#40	57.6		
#60	42.2		
#140	29.1		
#200	26.5		

* (no specification provided)

Material Description

Brown, Silty SAND

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 2.0342 D_{85}= 1.3178 D_{60}= 0.4594
D_{50}= 0.3320 D_{30}= 0.1175 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Natural Moisture : 12.4%

Source of Sample: B-4701-8 **Depth:** 1.0'-5.0'
Sample Number: Bulk

Date: 12-5-16

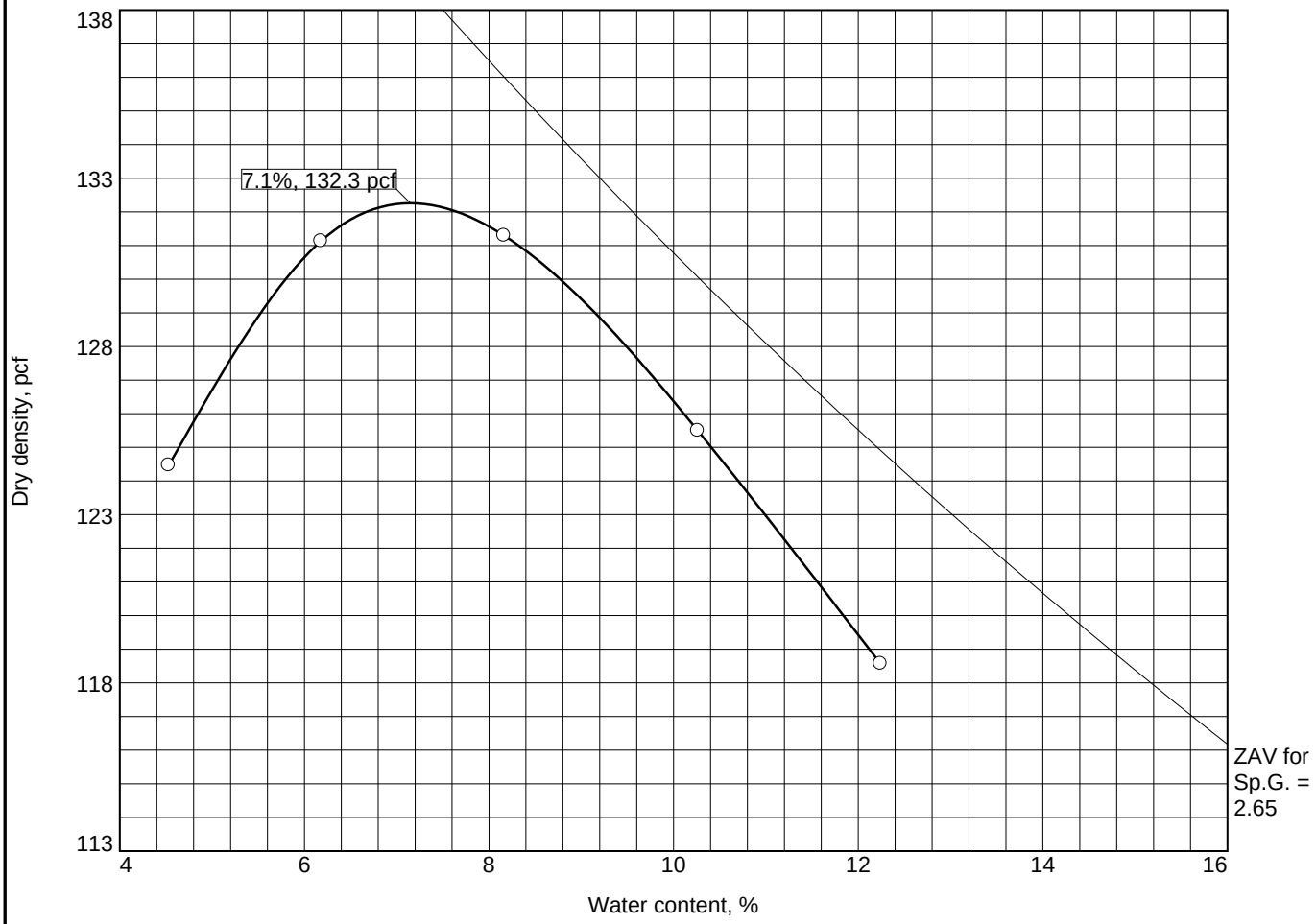
E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update

Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



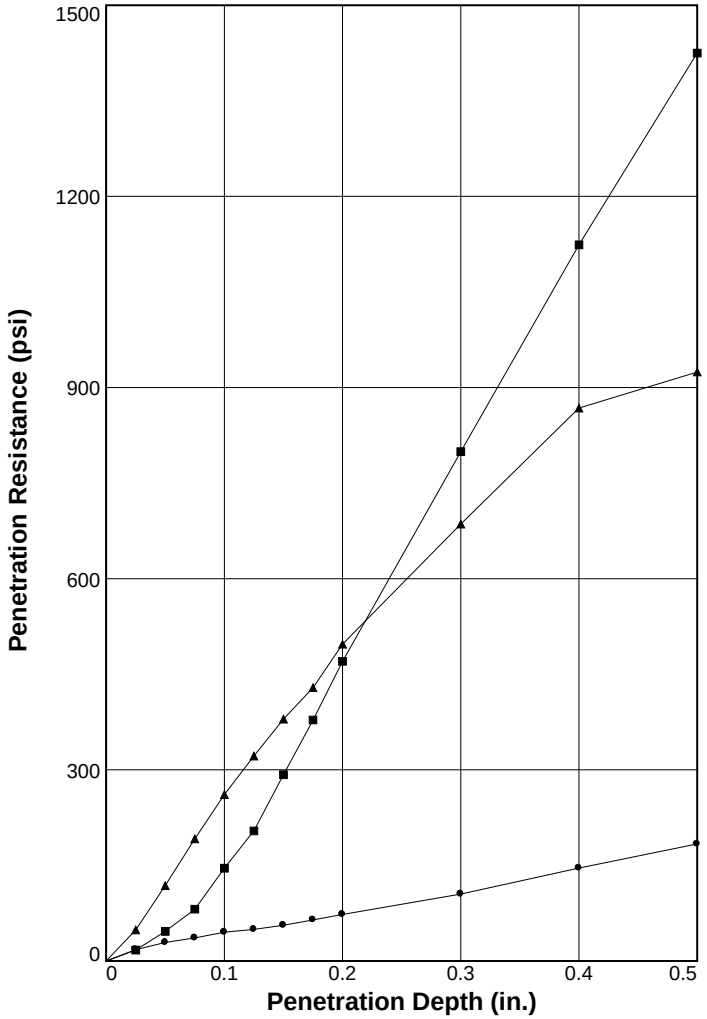
Test specification: AASHTO T 180-01 Method C Modified

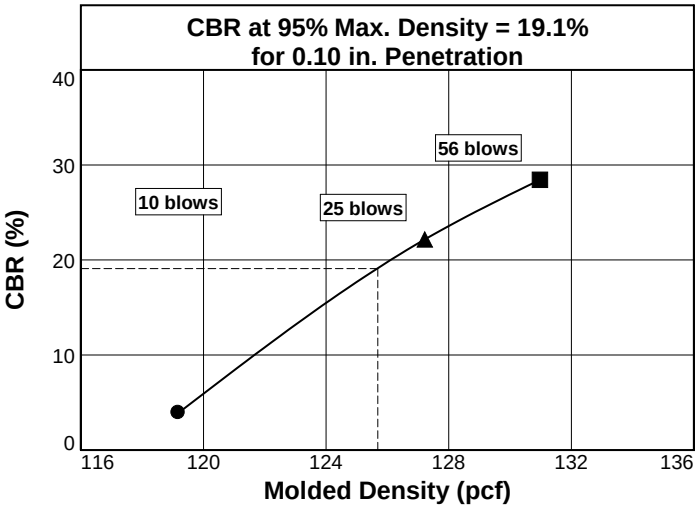
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
1.0'-5.0'	SM	A-2-4(0)	12.4	2.65	NP	NP	0.4	26.5

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 132.3 pcf Optimum moisture = 7.1 %	Brown, Silty SAND
Project No. 16560-04 **Client:** AECOM **Project:** BWI Airport PMP Update ○**Source of Sample:** B-4701-8 **Sample Number:** Bulk **E2CR, Inc.** **Baltimore, MD**	**Remarks:** **Figure**

Tested By: AP **Checked By:** AAO

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	119.2	90.1	8.0	119.2	90.1	10.6	3.9	4.5	-0.017	10	0
2 △	127.2	96.1	8.5	127.2	96.2	9.0	22.2	30.6	-0.014	10	0
3 □	131.0	99	8.7	131.0	99	8.1	28.4	41.8	0.048	10	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Brown, Silty SAND	SM	132.3	7.1	NP	NP

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-8 **Depth:** 1.0'-5.0'

Sample Number: Bulk

Date: 12-5-16

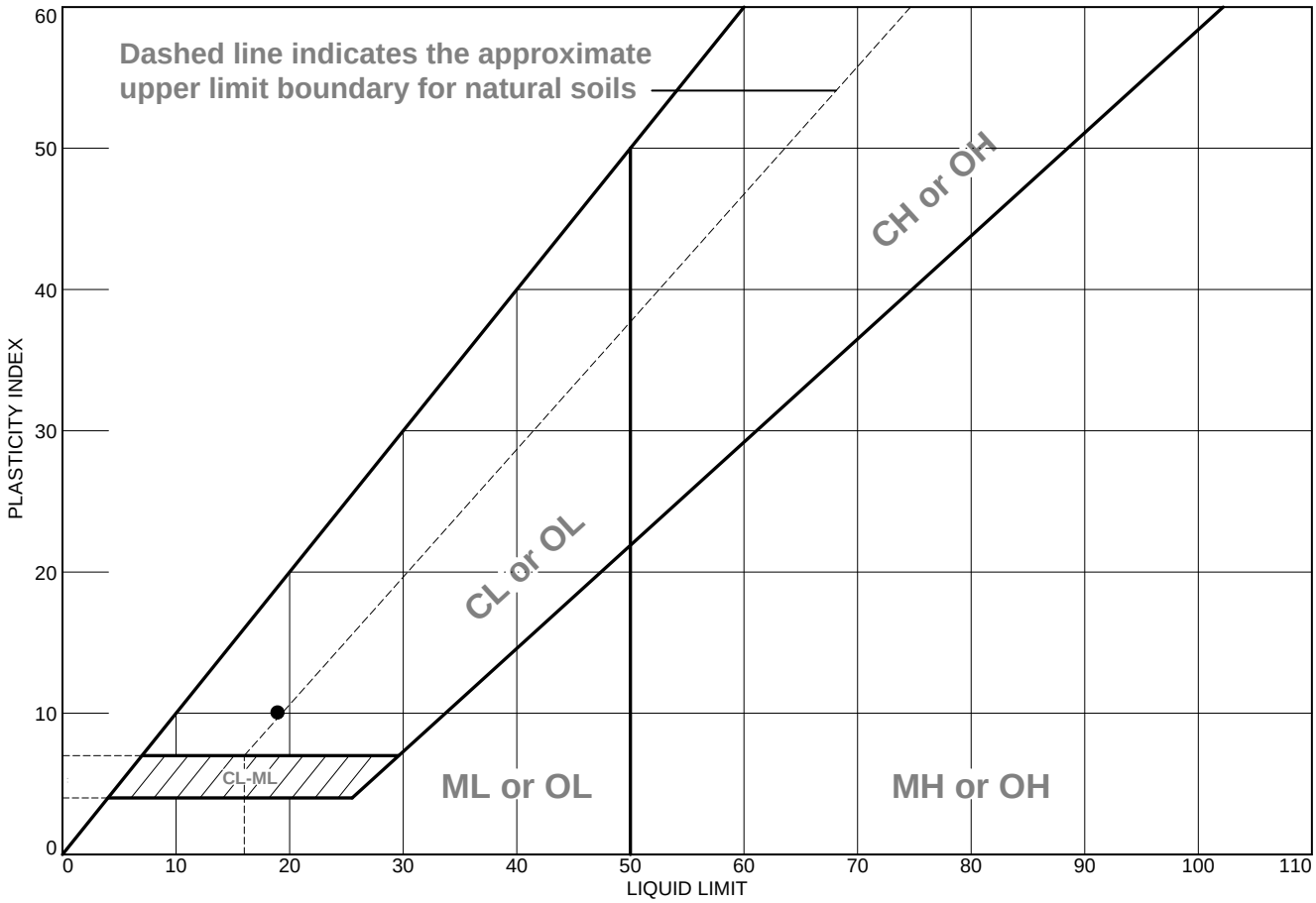
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Dark Brown, Clayey SAND	19	9	10	77.3	35.6	SC

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-9 **Depth:** 2.0'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=9.1%

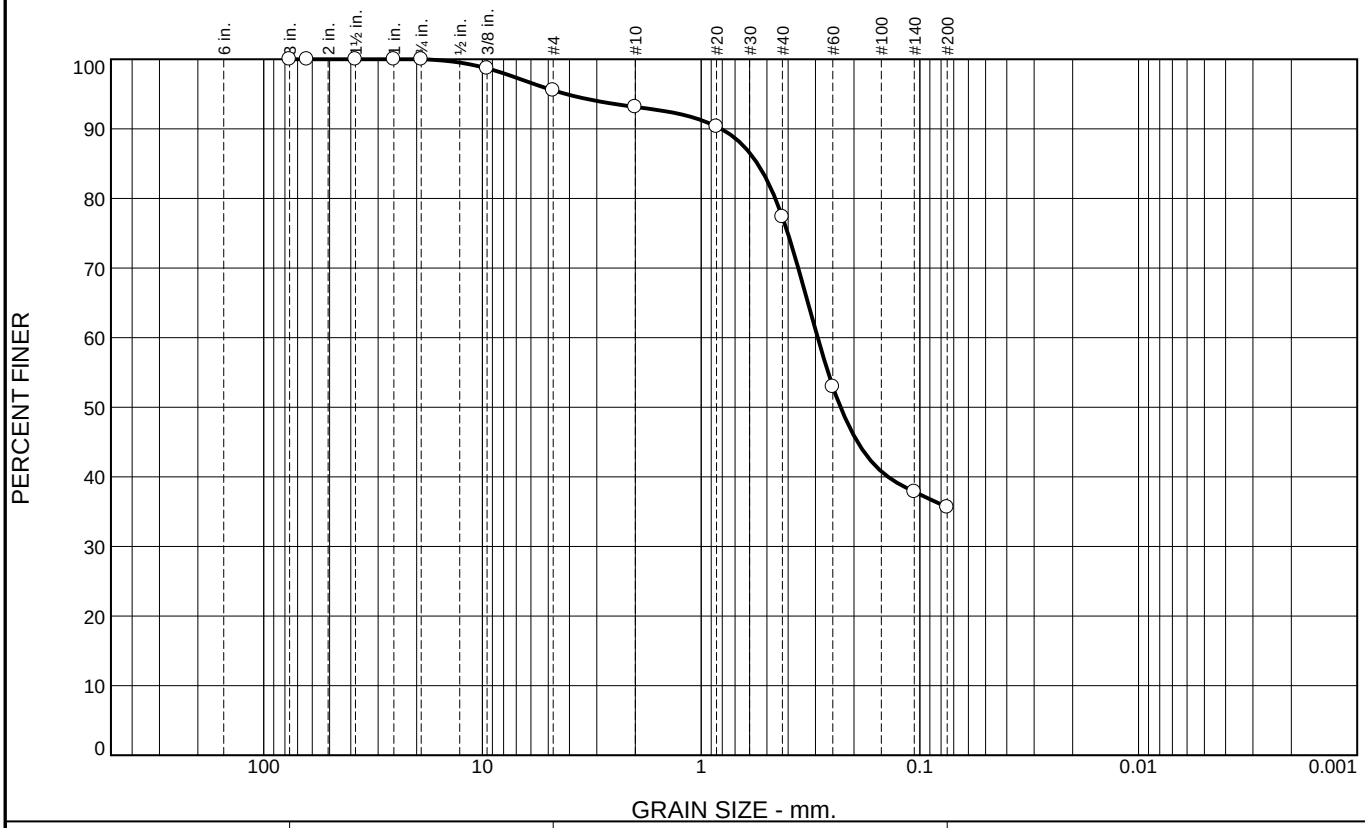
E2CR, Inc.

Baltimore, MD

Figure

Tested By: AP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.5	2.4	15.8	41.7	35.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2.5	100.0		
1.5	100.0		
1	100.0		
.75	100.0		
.375	98.7		
#4	95.5		
#10	93.1		
#20	90.3		
#40	77.3		
#60	53.0		
#140	37.9		
#200	35.6		

* (no specification provided)

Material Description

Dark Brown, Clayey SAND

Atterberg Limits

PL= 9 LL= 19 PI= 10

Coefficients

D_{90}= 0.8114 D_{85}= 0.5521 D_{60}= 0.2930
D_{50}= 0.2305 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-4(0)

Remarks

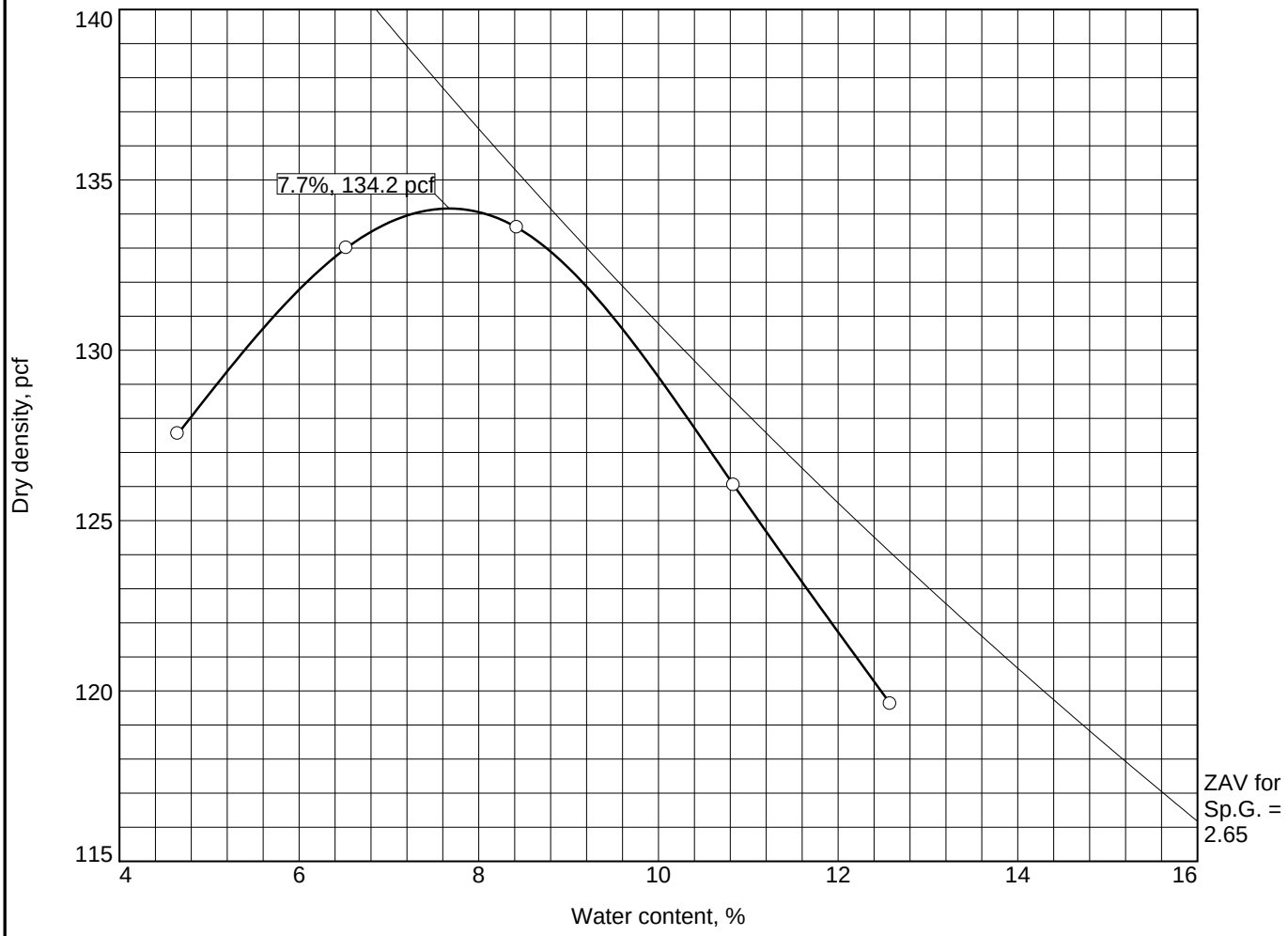
Source of Sample: B-4701-9 **Depth:** 2.0'-5.0'
Sample Number: Bulk **Date:**

E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update
Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



Test specification: AASHTO T 180-01 Method C Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
2.0'-5.0'	SC	A-4(0)	9.1	2.65	19	10	0.0	35.6

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 134.2 pcf Optimum moisture = 7.7 %	Dark Brown, Clayey SAND

Project No. 16560-04 **Client:** AECOM
Project: BWI Airport PMP Update

○**Source of Sample:** B-4701-9 **Sample Number:** Bulk

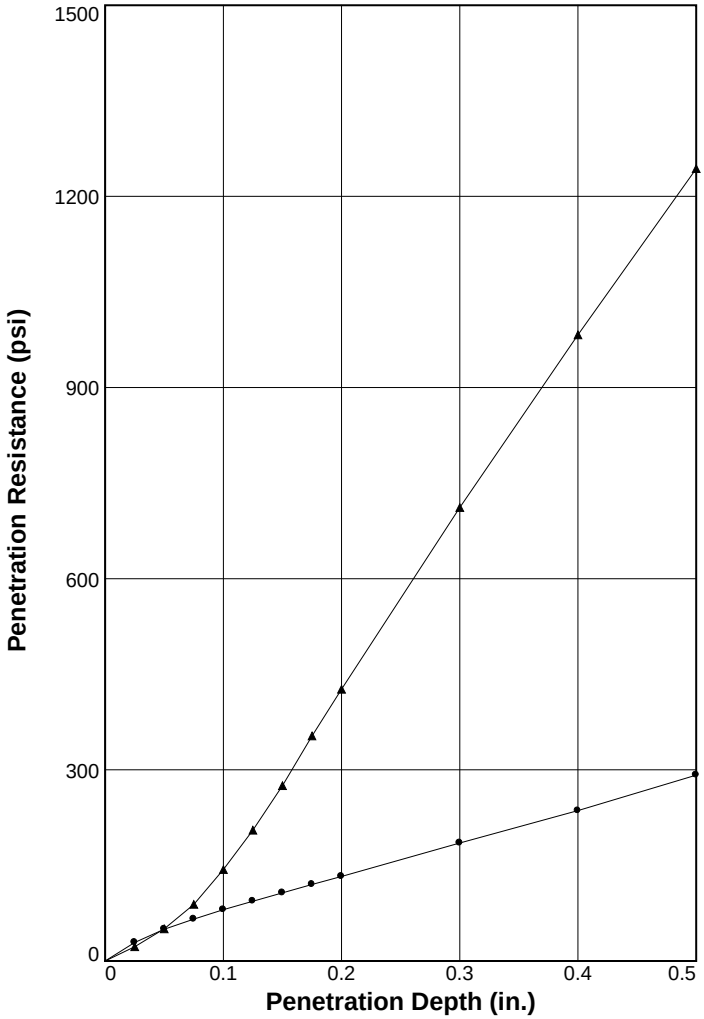
Remarks:

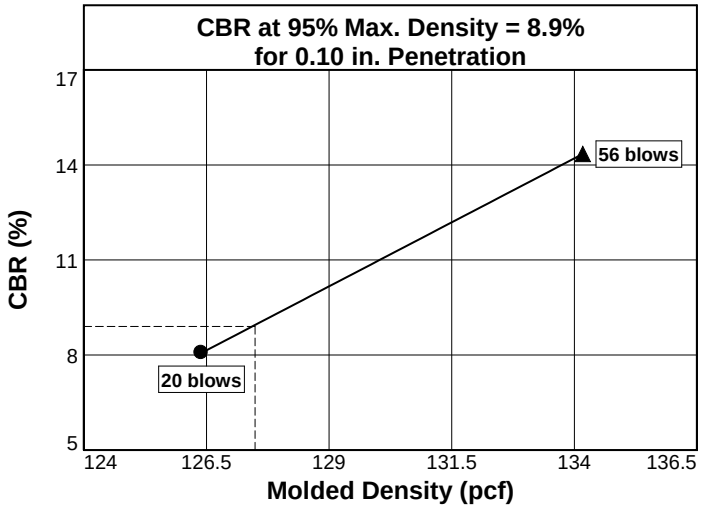
E2CR, Inc.

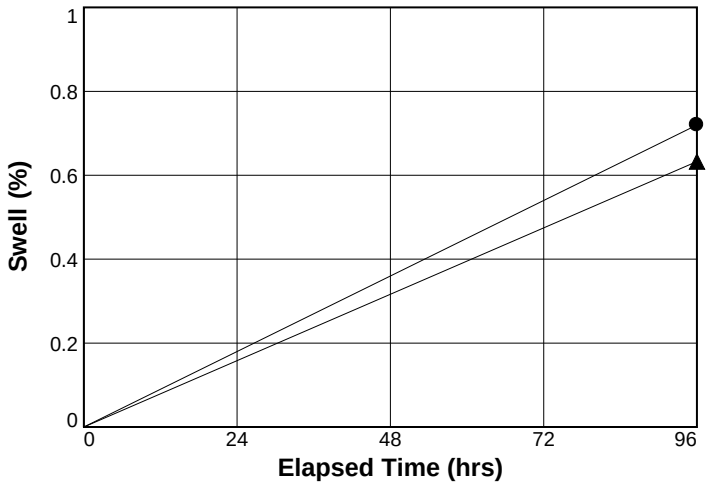
Baltimore, MD

Figure

BEARING RATIO TEST REPORT
ASTM D 1883-07







	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	126.4	94.2	8.5	125.5	93.5	11.4	8.1	8.8	0.000	10	0.7
2 △	134.2	100	7.9	133.3	99.4	9.7	14.3	28.4	0.000	10	0.6
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Dark Brown, Clayey SAND	SC	134.2	7.7	19	10

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-9 **Depth:** 2.0'-5.0'

Sample Number: Bulk

Date:

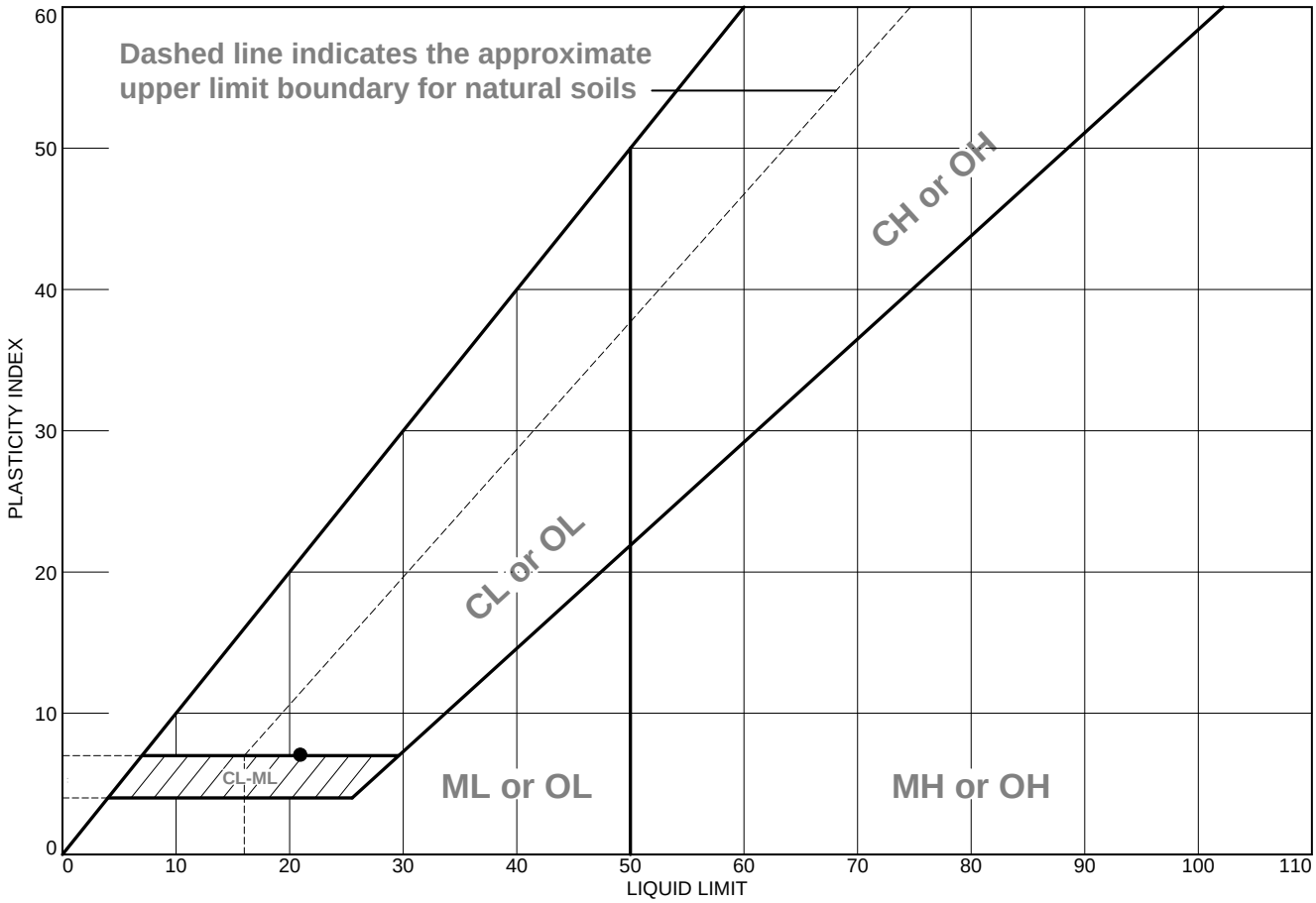
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Gray, brown, Sandy Silty CLAY	21	14	7	82.2	51.5	CL-ML

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-10 **Depth:** 2.0'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=12.3%

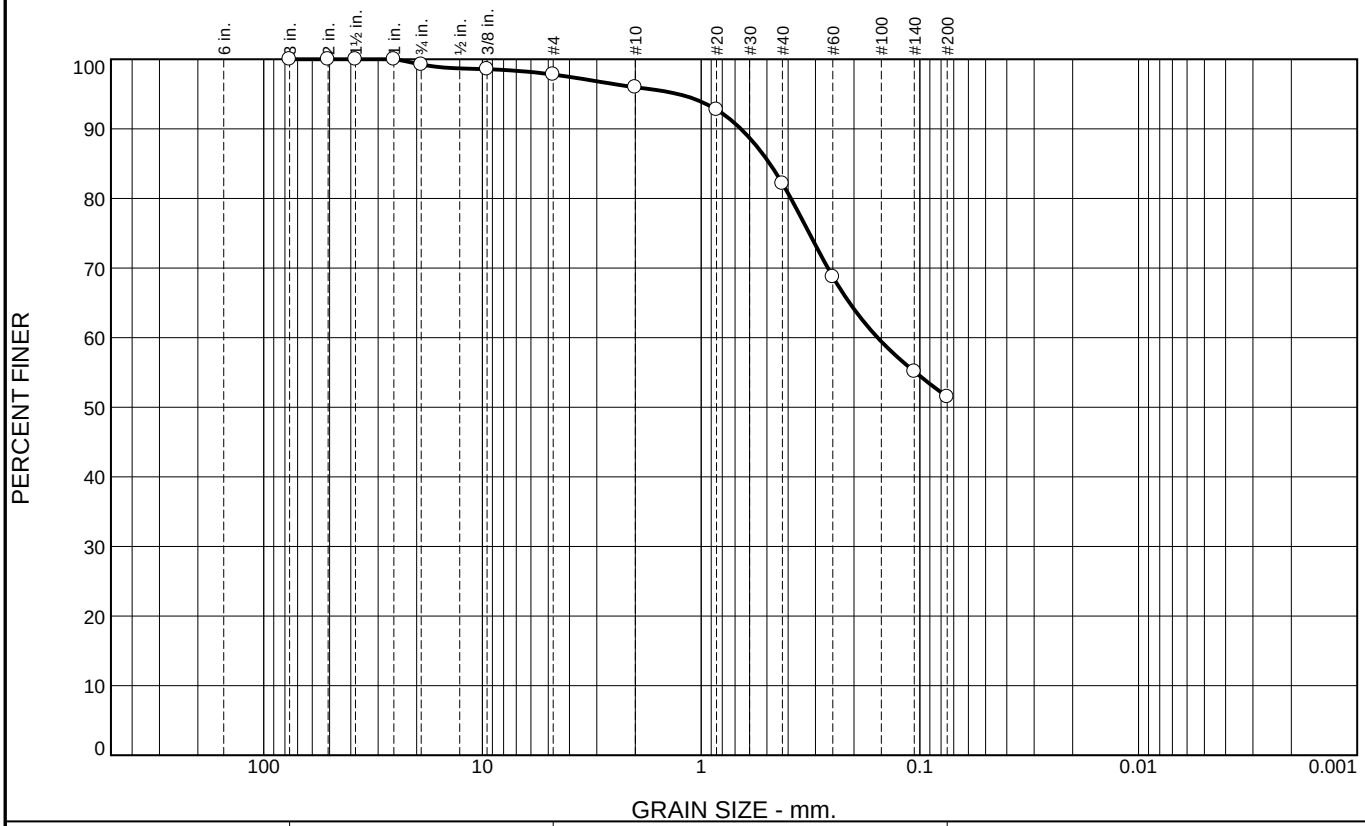
E2CR, Inc.

Baltimore, MD

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.8	1.4	1.8	13.8	30.7	51.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
3/4	99.2		
3/8	98.6		
#4	97.8		
#10	96.0		
#20	92.8		
#40	82.2		
#60	68.8		
#140	55.1		
#200	51.5		

* (no specification provided)

Material Description

Gray, brown, Sandy Silty CLAY

Atterberg Limits

PL= 14 LL= 21 PI= 7

Coefficients

D_{90}= 0.6580 D_{85}= 0.4853 D_{60}= 0.1559
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(1)

Remarks

Natural Moisture : 12.3%

Source of Sample: B-4701-10 **Depth:** 2.0'-5.0'
Sample Number: Bulk

Date: 12-5-16

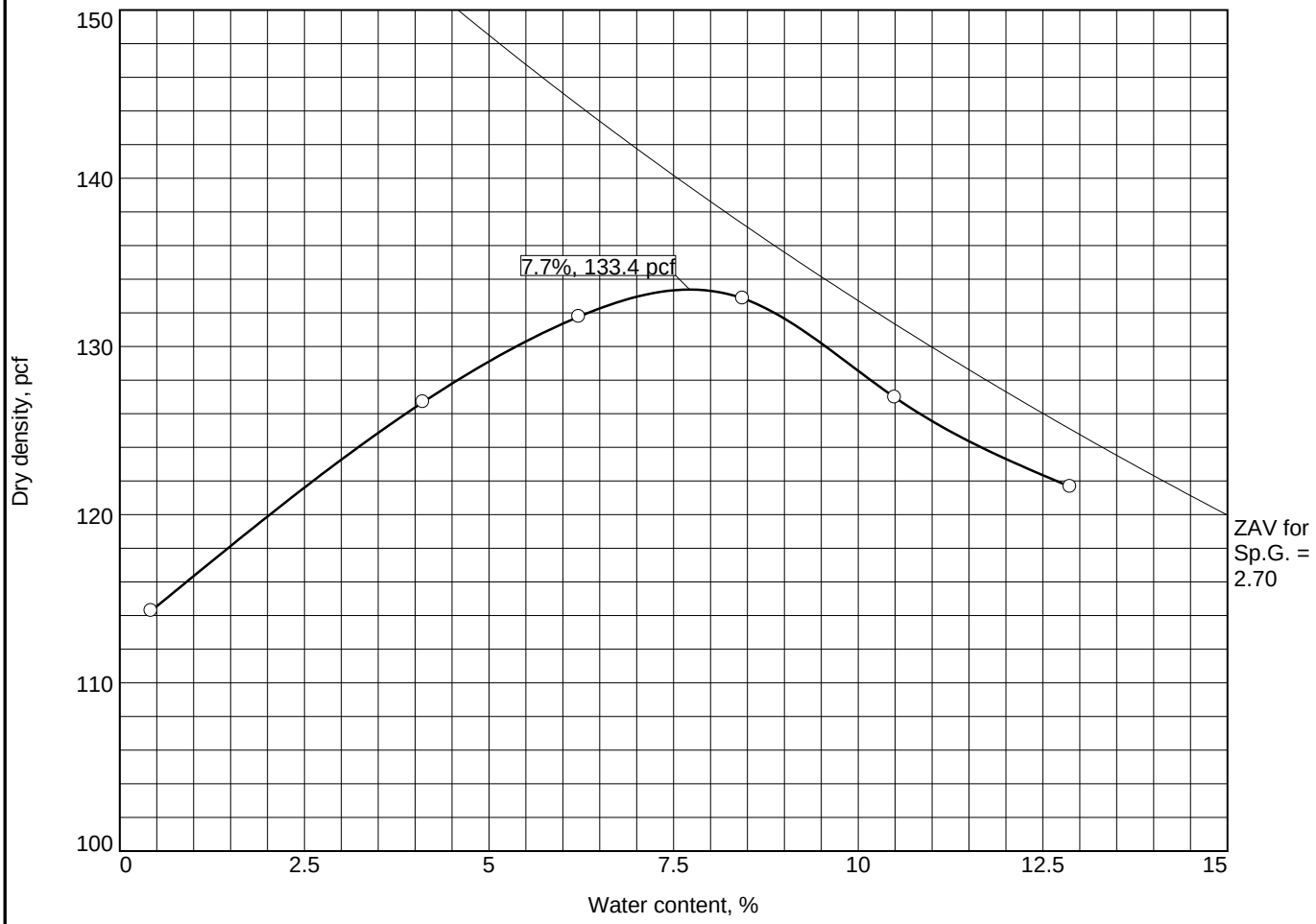
E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update

Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



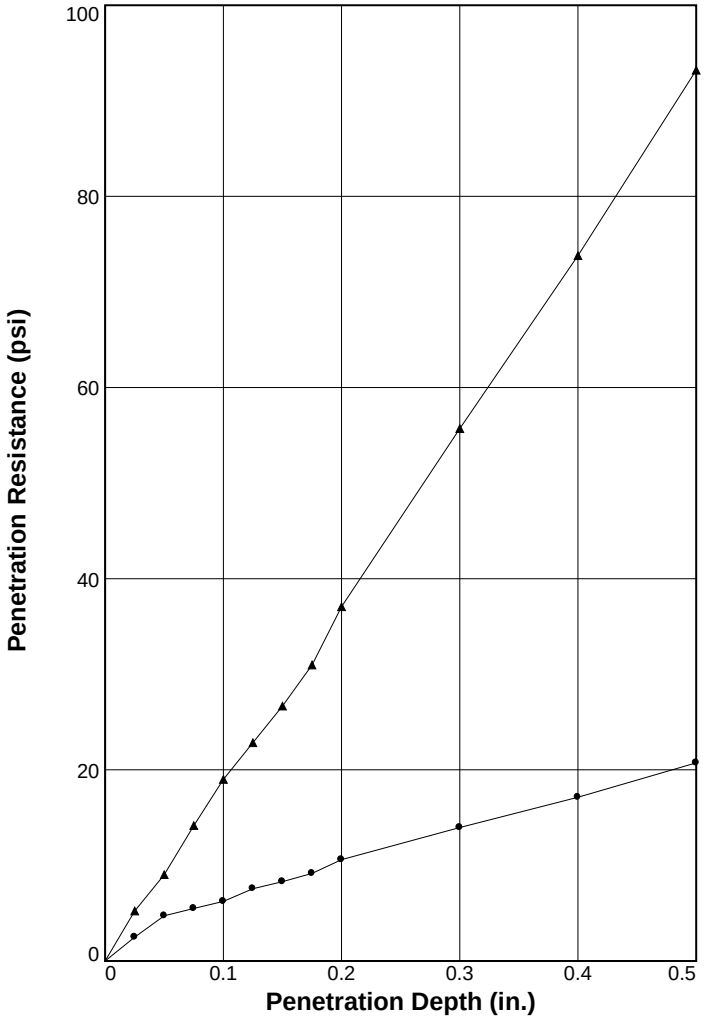
Test specification: AASHTO T 180-01 Method C Modified

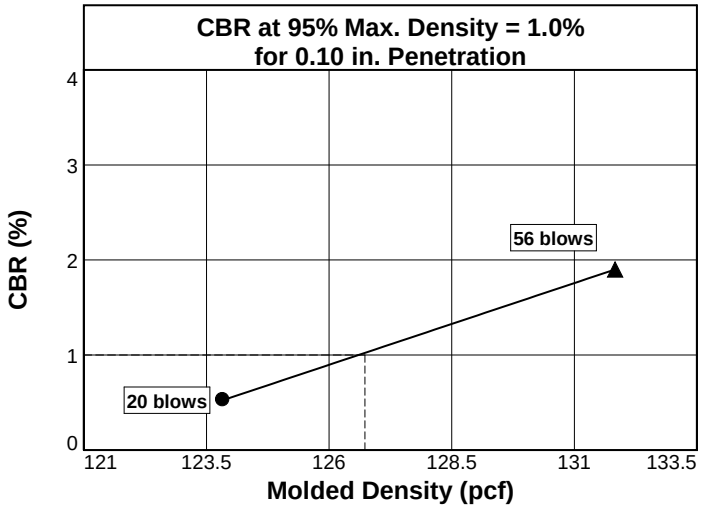
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
2.0'-5.0'	CL-ML	A-4(1)	12.3	2.7	21	7	0.8	51.5

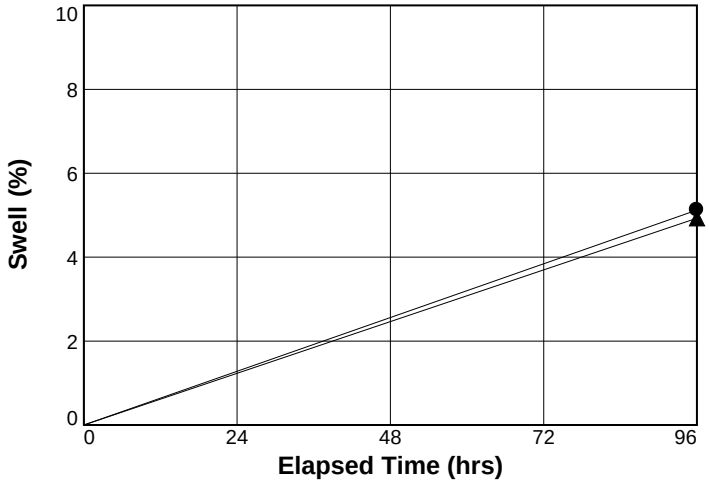
TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 133.4 pcf Optimum moisture = 7.7 %	Gray, brown, Sandy Silty CLAY
Project No. 16560-04 **Client:** AECOM **Project:** BWI Airport PMP Update ○**Source of Sample:** B-4701-10 **Sample Number:** Bulk	**Remarks:**
E2CR, Inc. **Baltimore, MD**	**Figure**

Tested By: AP **Checked By:** AAO

BEARING RATIO TEST REPORT
ASTM D 1883-07







	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	123.8	92.8	8.7	117.8	88.3	15.4	0.5	0.6	-0.033	10	5.1
2 △	131.8	98.8	9.2	125.6	94.2	12.6	1.9	2.5	0.000	10	4.9
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Gray, brown, Sandy Silty CLAY	CL-ML	133.4	7.7	21	7

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-10 **Depth:** 2.0'-5.0'

Sample Number: Bulk

Date: 12-5-16

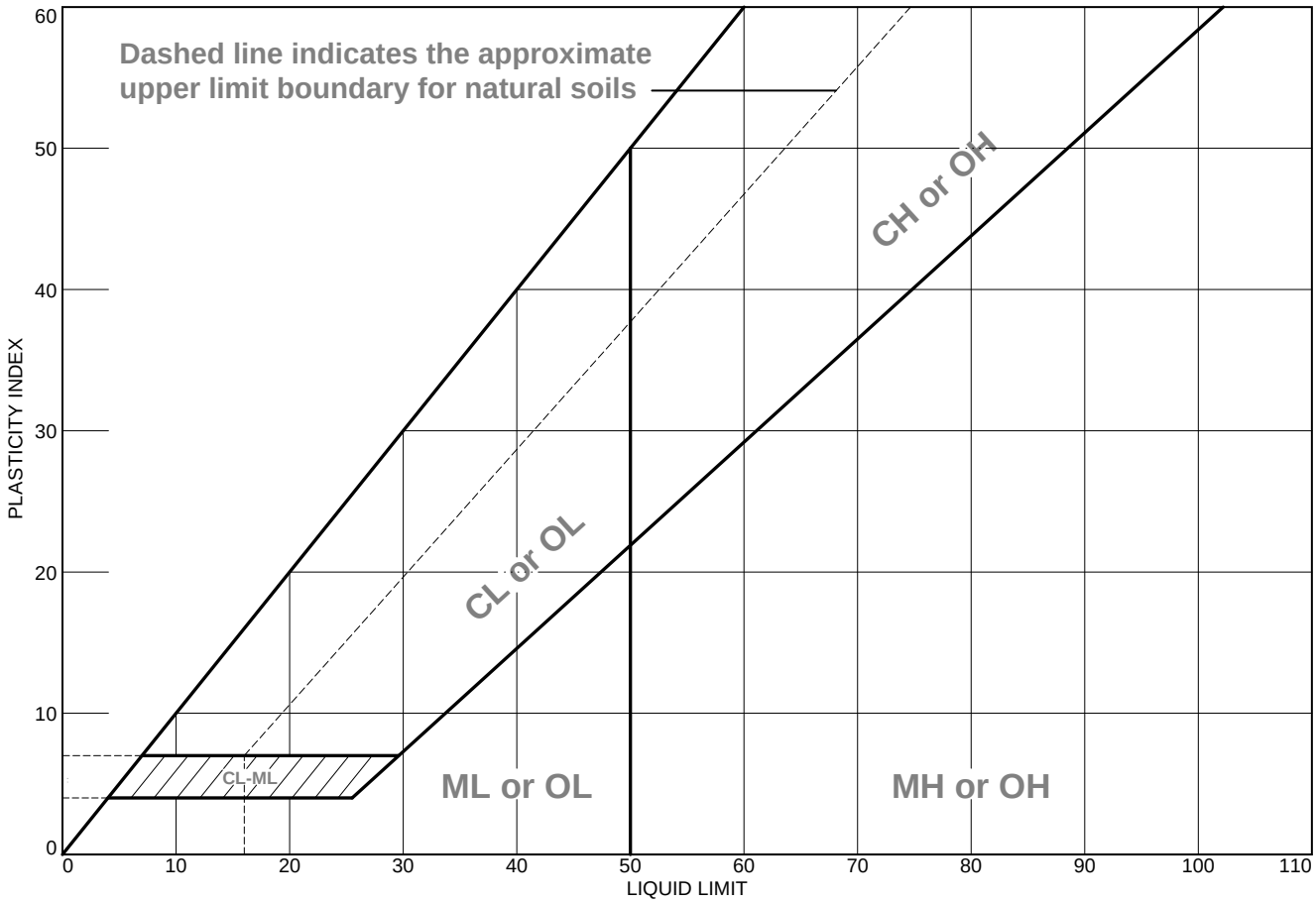
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown, poorly graded SAND with Silt	NV	NP	NP	35.7	10.4	SP-SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-17 **Depth:** 1.5'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=5.0%

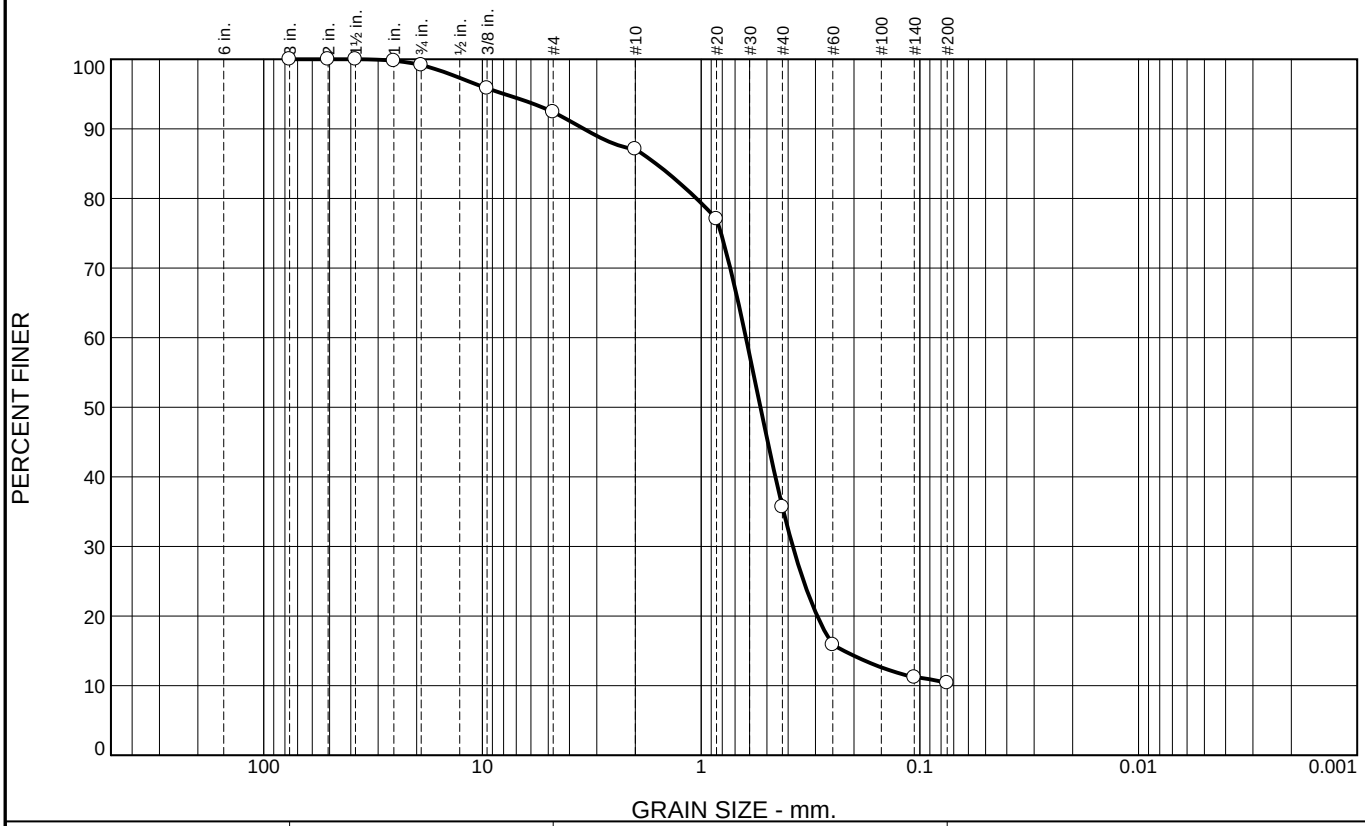
E2CR, Inc.

Baltimore, MD

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.8	6.8	5.3	51.4	25.3	10.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	99.8		
3/4	99.2		
3/8	95.8		
#4	92.4		
#10	87.1		
#20	77.1		
#40	35.7		
#60	15.9		
#140	11.2		
#200	10.4		

* (no specification provided)

Material Description

Brown, poorly graded SAND with Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 3.4376 D_{85}= 1.6090 D_{60}= 0.6238
D_{50}= 0.5355 D_{30}= 0.3808 D_{15}= 0.2221
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-1-b

Remarks

Natural Moisture : 5.0%

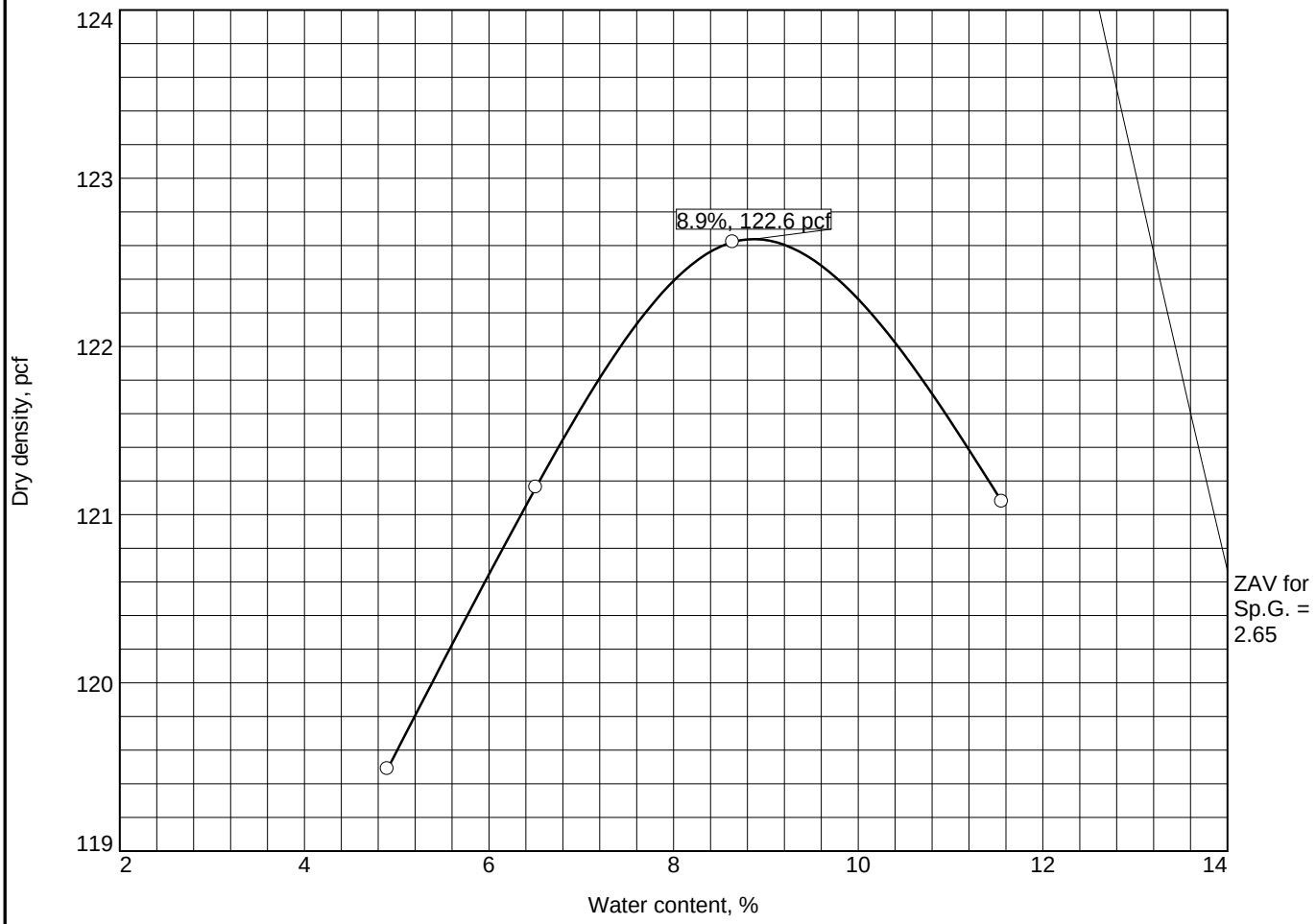
Source of Sample: B-4701-17 **Depth:** 1.5'-5.0'
Sample Number: Bulk **Date:** 11-5-16

E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update
Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



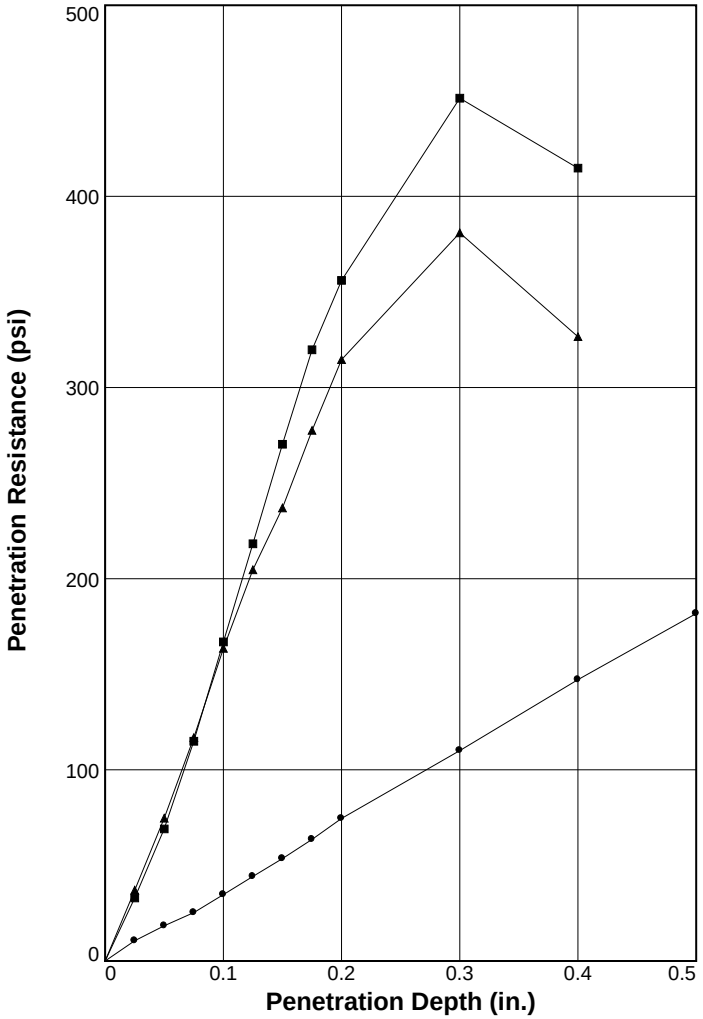
Test specification: AASHTO T 180-01 Method C Modified

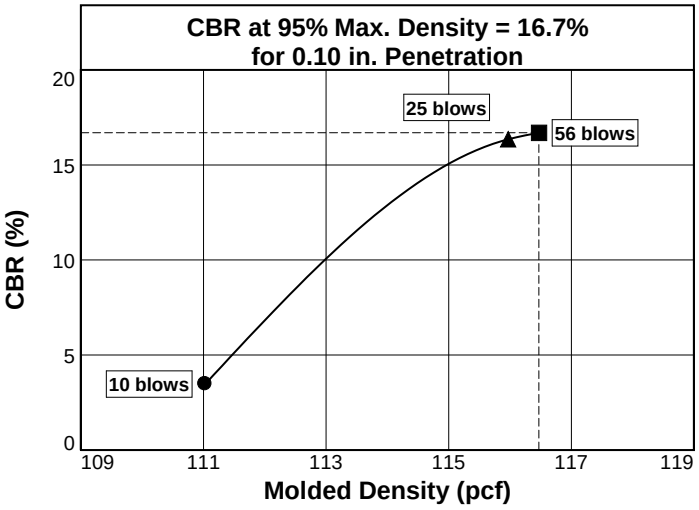
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
1.5'-5.0'	SP-SM	A-1-b	5.0	2.65	NV	NP	0.8	10.4

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 122.6 pcf Optimum moisture = 8.9 %	Brown, poorly graded SAND with Silt
Project No. 16560-04 **Client:** AECOM **Project:** BWI Airport PMP Update ○**Source of Sample:** B-4701-17 **Sample Number:** Bulk **E2CR, Inc.** **Baltimore, MD**	**Remarks:** **Figure**

Tested By: AP **Checked By:** AAO

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	111.0	90.5	9.0	111.0	90.6	13.4	3.5	5.0	0.000	10	0
2 △	116.0	94.6	9.0	116.0	94.6	12.8	16.4	21.0	0.000	10	0
3 □	116.5	95	8.7	116.5	95	12.5	16.7	23.7	0.000	10	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Brown, poorly graded SAND with Silt	SP-SM	122.6	8.9	NV	NP

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-17 **Depth:** 1.5'-5.0'

Sample Number: Bulk

Date: 11-5-16

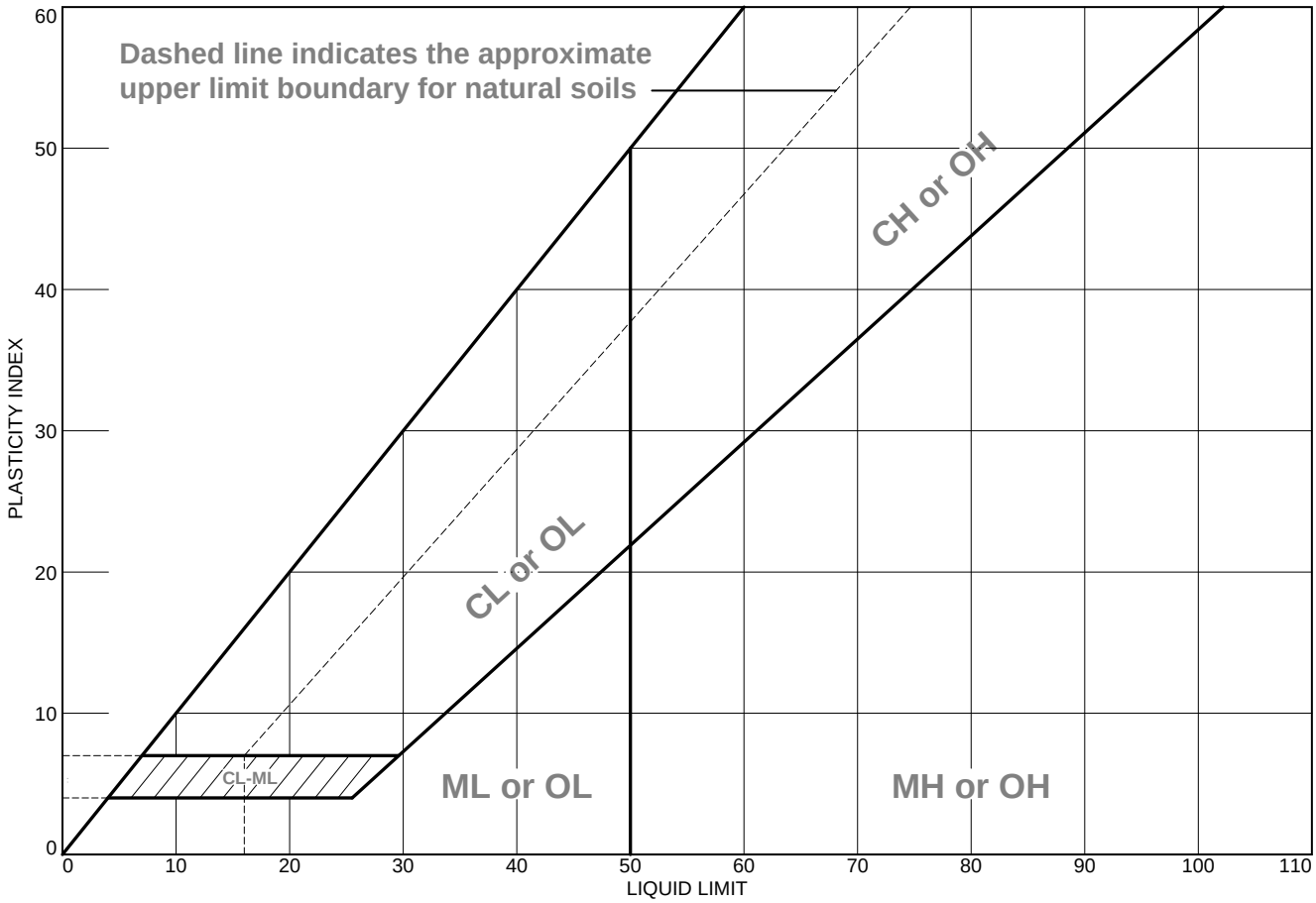
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Tan. orange, Silty SAND	NV	NP	NP	92.2	20.3	SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-31 **Depth:** 2.0'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=10.6%

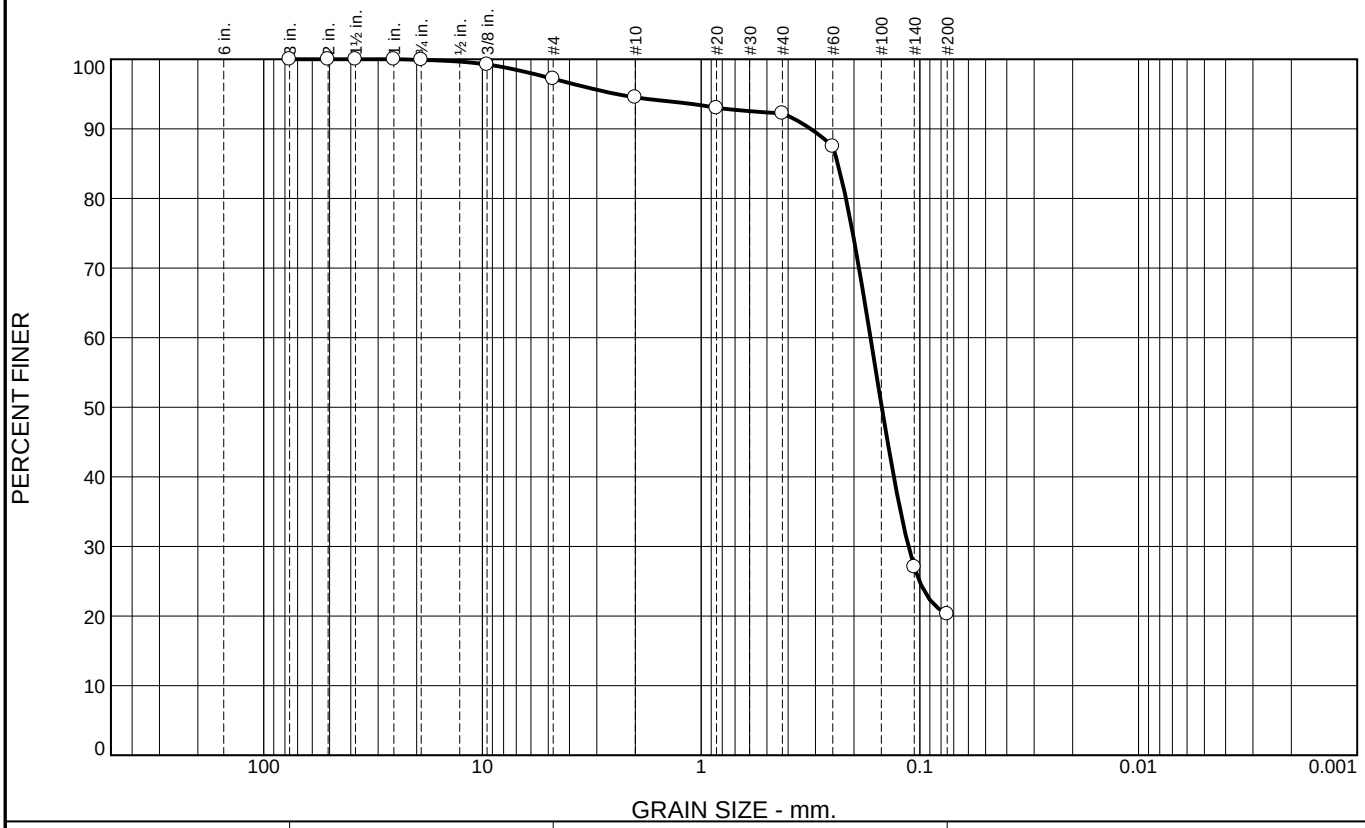
E2CR, Inc.

Baltimore, MD

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.1	2.7	2.7	2.3	71.9	20.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
3/4	99.9		
3/8	99.3		
#4	97.2		
#10	94.5		
#20	93.0		
#40	92.2		
#60	87.5		
#140	27.0		
#200	20.3		

* (no specification provided)

Material Description

Tan. orange, Silty SAND

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 0.3155 D_{85}= 0.2371 D_{60}= 0.1680
D_{50}= 0.1492 D_{30}= 0.1127 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Natural Moisture : 10.6%

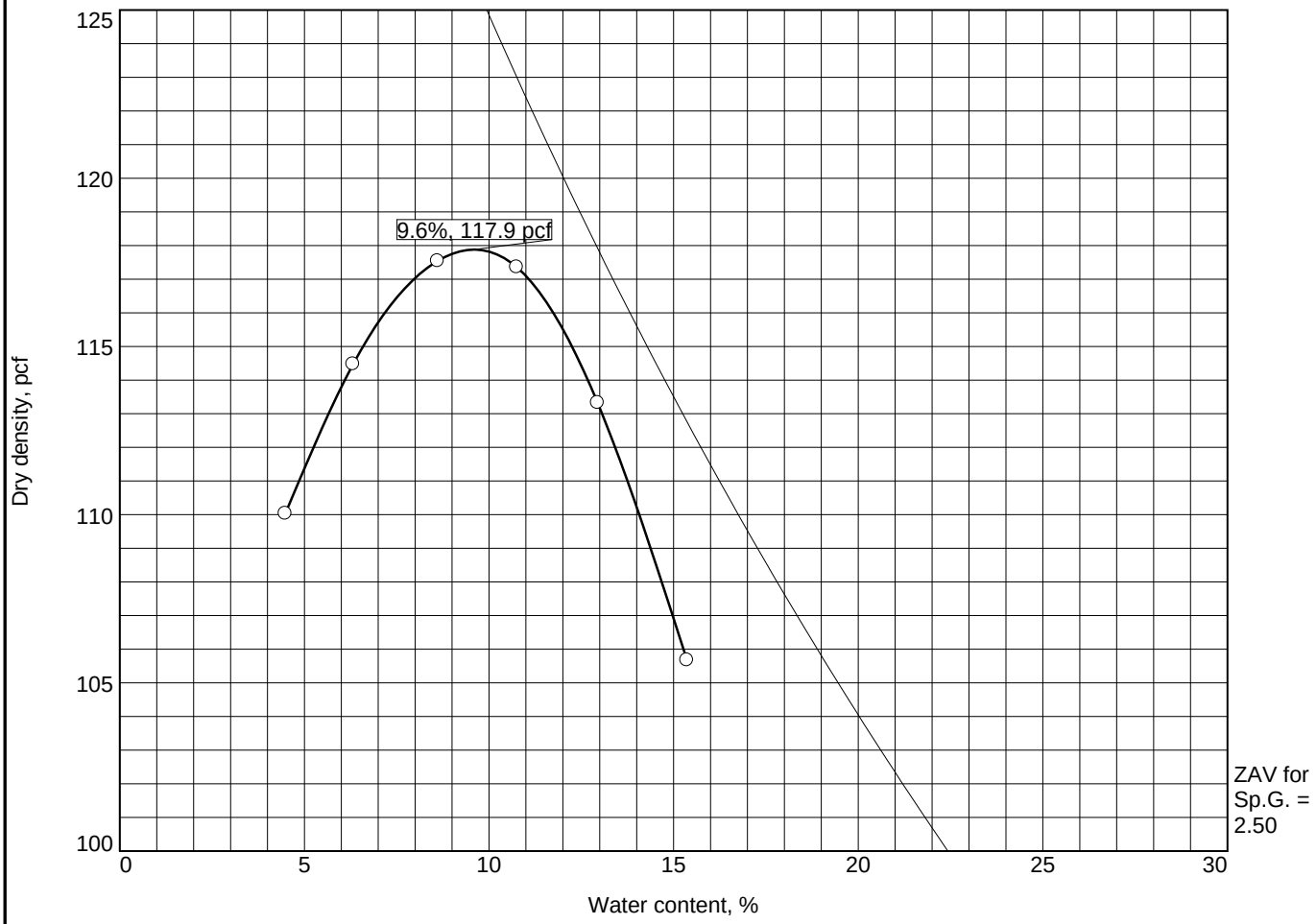
Source of Sample: B-4701-31 **Depth:** 2.0'-5.0'
Sample Number: Bulk **Date:** 11-5-16

E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update
Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



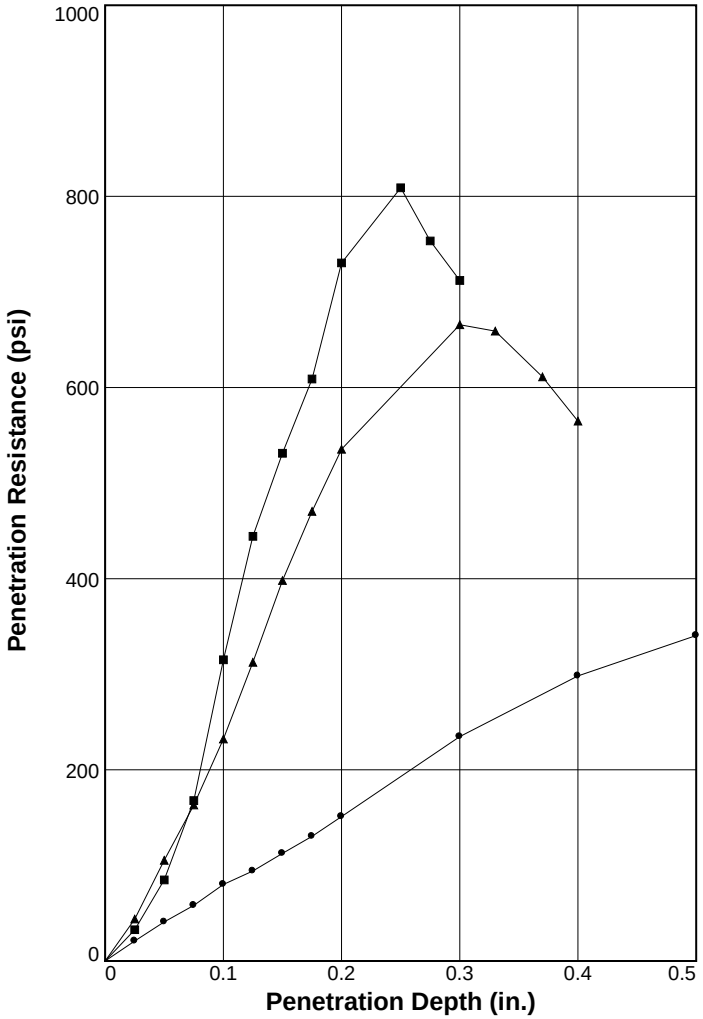
Test specification: AASHTO T 180-01 Method C Modified

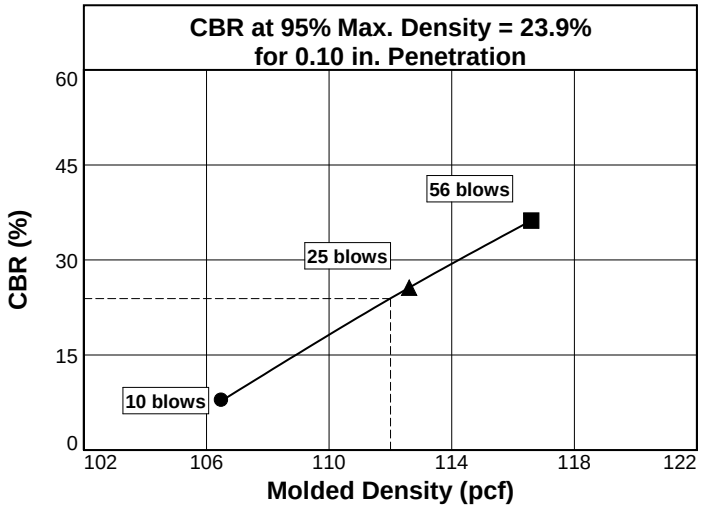
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
2.0'-5.0'	SM	A-2-4(0)	10.6	2.7	NP	NP	0.1	20.3

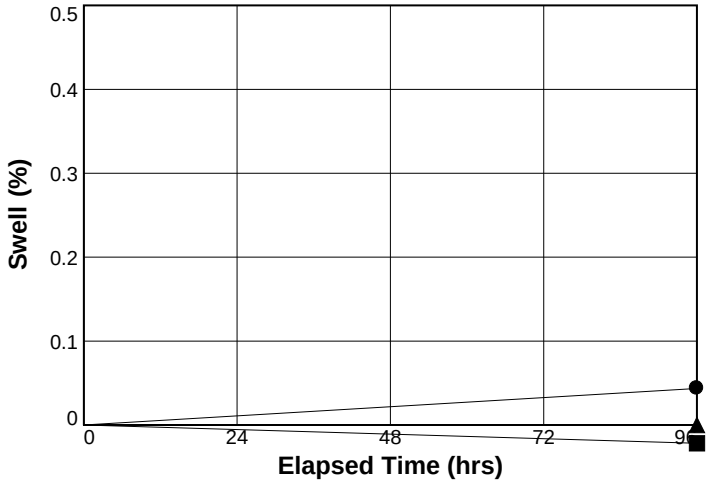
TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 117.9 pcf Optimum moisture = 9.6 %	Tan. orange, Silty SAND
Project No. 16560-04 **Client:** AECOM **Project:** BWI Airport PMP Update ○**Source of Sample:** B-4701-31 **Sample Number:** Bulk	**Remarks:**
E2CR, Inc. **Baltimore, MD**	**Figure**

Tested By: AP **Checked By:** AAO

BEARING RATIO TEST REPORT
ASTM D 1883-07







	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	106.5	90.3	10.3	106.5	90.3	16.4	7.8	9.9	-0.002	10	0
2 △	112.6	95.5	10.5	112.6	95.5	14.1	25.6	36.3	0.008	10	0
3 □	116.6	98.9	10.4	116.6	98.9	14.3	36.2	49.6	0.009	10	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Tan. orange, Silty SAND	SM	117.9	9.6	NP	NP

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-31 **Depth:** 2.0'-5.0'

Sample Number: Bulk

Date: 11-5-16

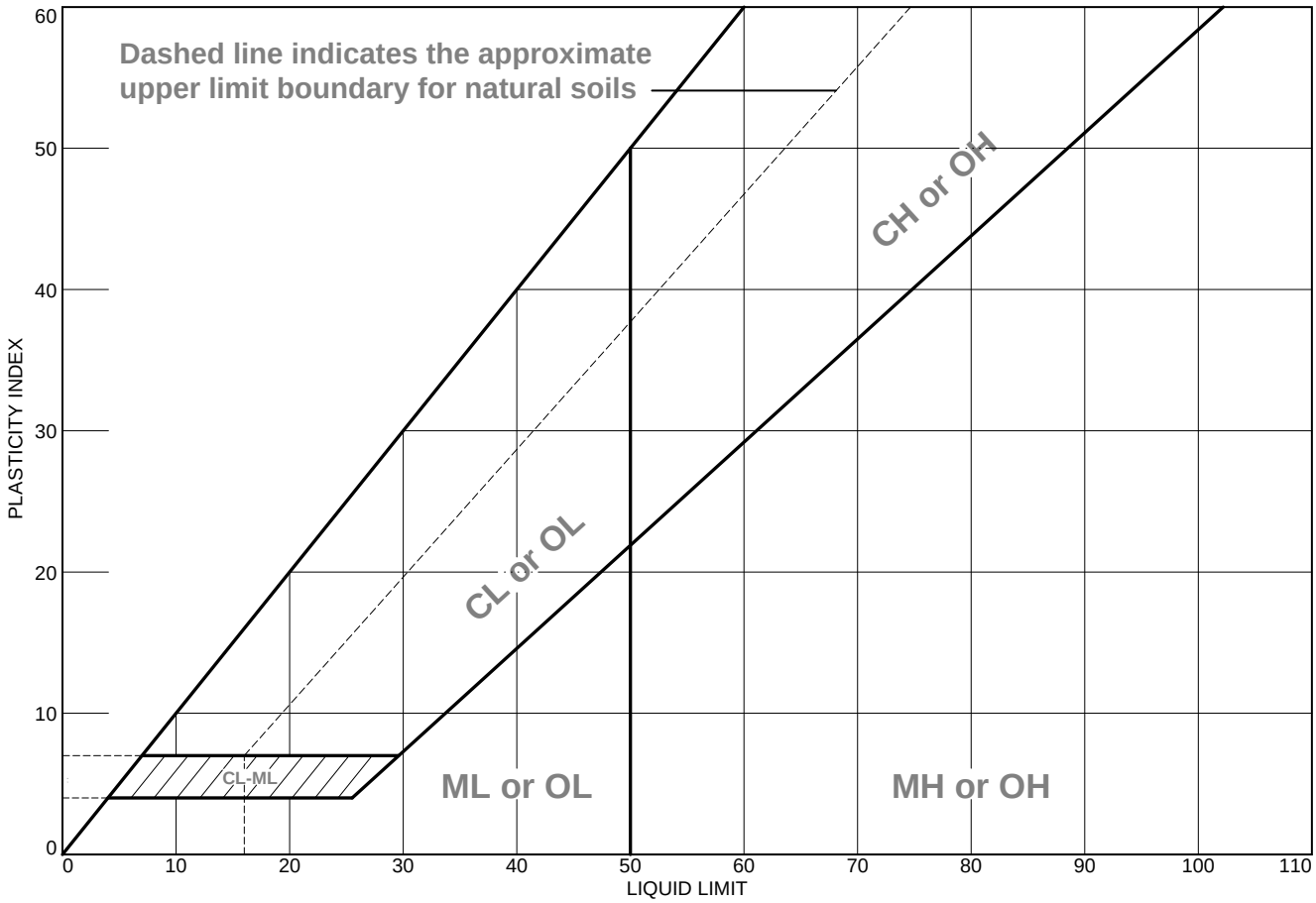
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Light Brown, Tan, Silty SAND	NV	NP	NP	59.8	16.6	SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-34 **Depth:** 2.0'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=6.2%

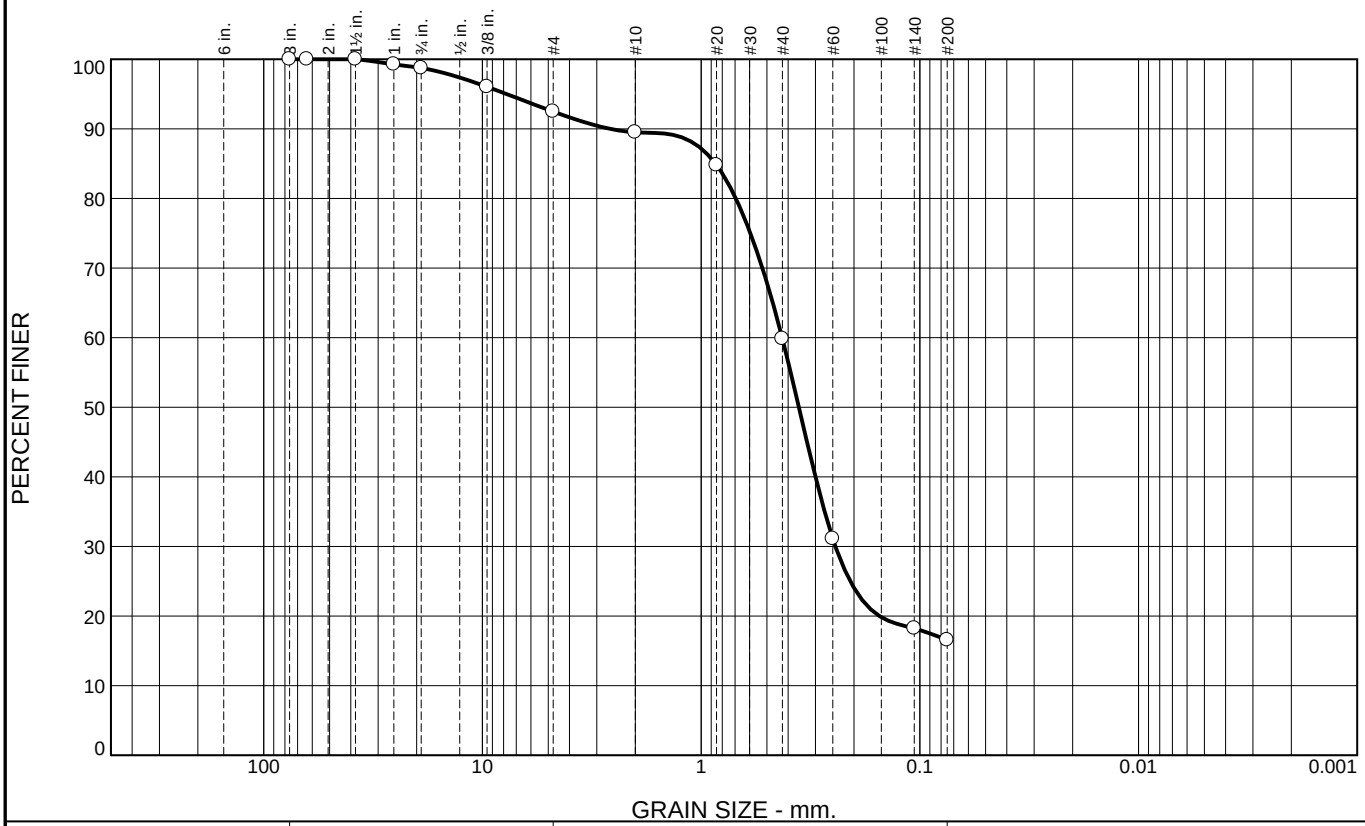
E2CR, Inc.

Baltimore, MD

Figure

Tested By: AP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.3	6.2	3.0	29.7	43.2	16.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2.5	100.0		
1.5	100.0		
1	99.3		
.75	98.7		
.375	96.0		
#4	92.5		
#10	89.5		
#20	84.8		
#40	59.8		
#60	31.1		
#140	18.2		
#200	16.6		

* (no specification provided)

Material Description

Light Brown, Tan, Silty SAND

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 2.6042 D_{85}= 0.8601 D_{60}= 0.4262
D_{50}= 0.3573 D_{30}= 0.2432 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Natural Moisture: 6.2%

Source of Sample: B-4701-34 **Depth:** 2.0'-5.0'
Sample Number: Bulk

Date: 11/14/2016

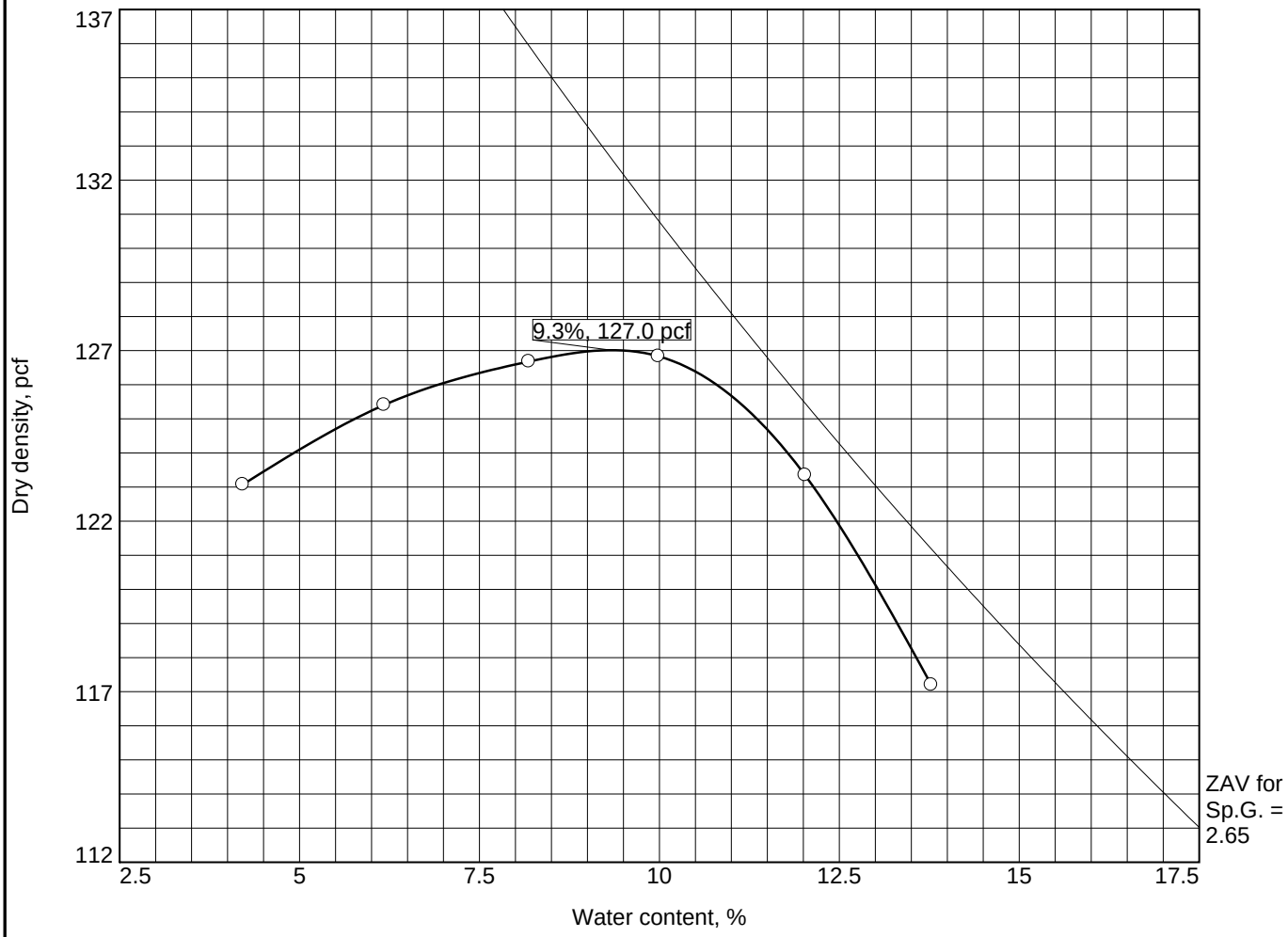
E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update

Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



Test specification: AASHTO T 180-01 Method C Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
2.0'-5.0'	SM	A-2-4(0)	6.2	2.65	NV	NP	1.3	16.6

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 127.0 pcf Optimum moisture = 9.3 %	Light Brown, Tan, Silty SAND

Project No. 16560-04 **Client:** AECOM
Project: BWI Airport PMP Update

○**Source of Sample:** B-4701-34 **Sample Number:** Bulk

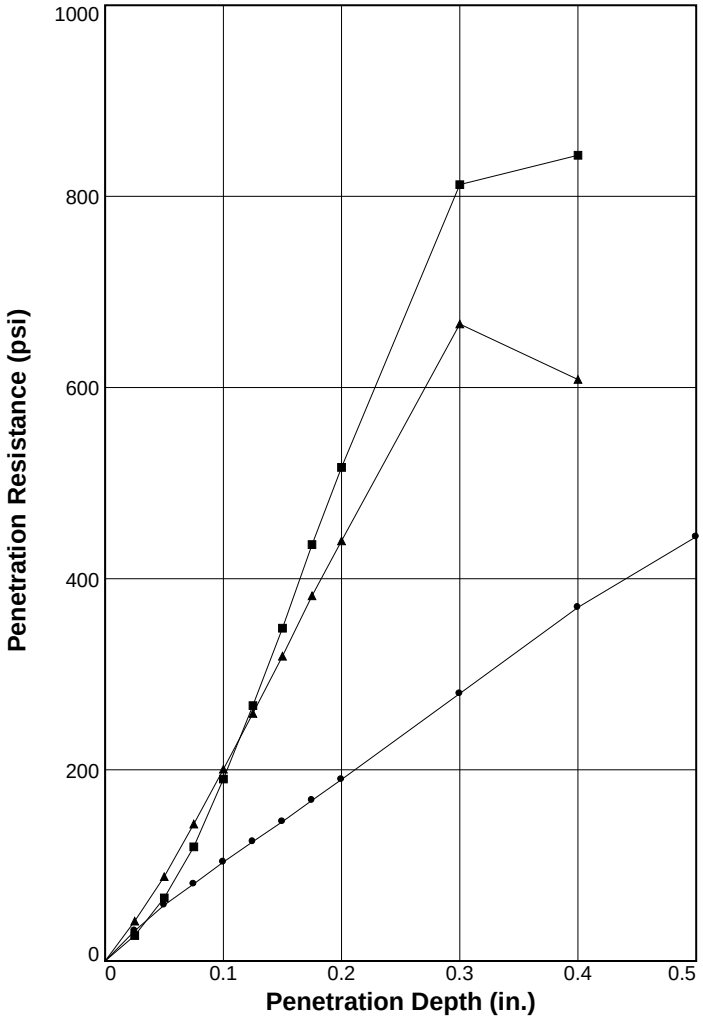
Remarks:

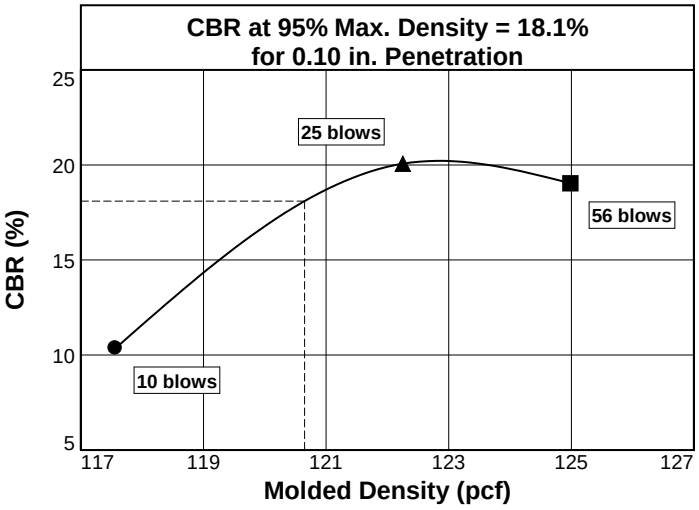
E2CR, Inc.

Baltimore, MD

Figure

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	117.6	92.6	9.3	117.6	92.6	11.8	10.3	12.7	0.000	10	0
2 △	122.3	96.3	9.2	122.3	96.3	10.8	20.1	29.3	0.000	10	0
3 □	125.0	98.4	9.4	125.0	98.4	10.0	19.0	34.4	0.000	10	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Light Brown, Tan, Silty SAND	SM	127.0	9.3	NV	NP

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-34 **Depth:** 2.0'-5.0'

Sample Number: Bulk

Date: 11/14/2016

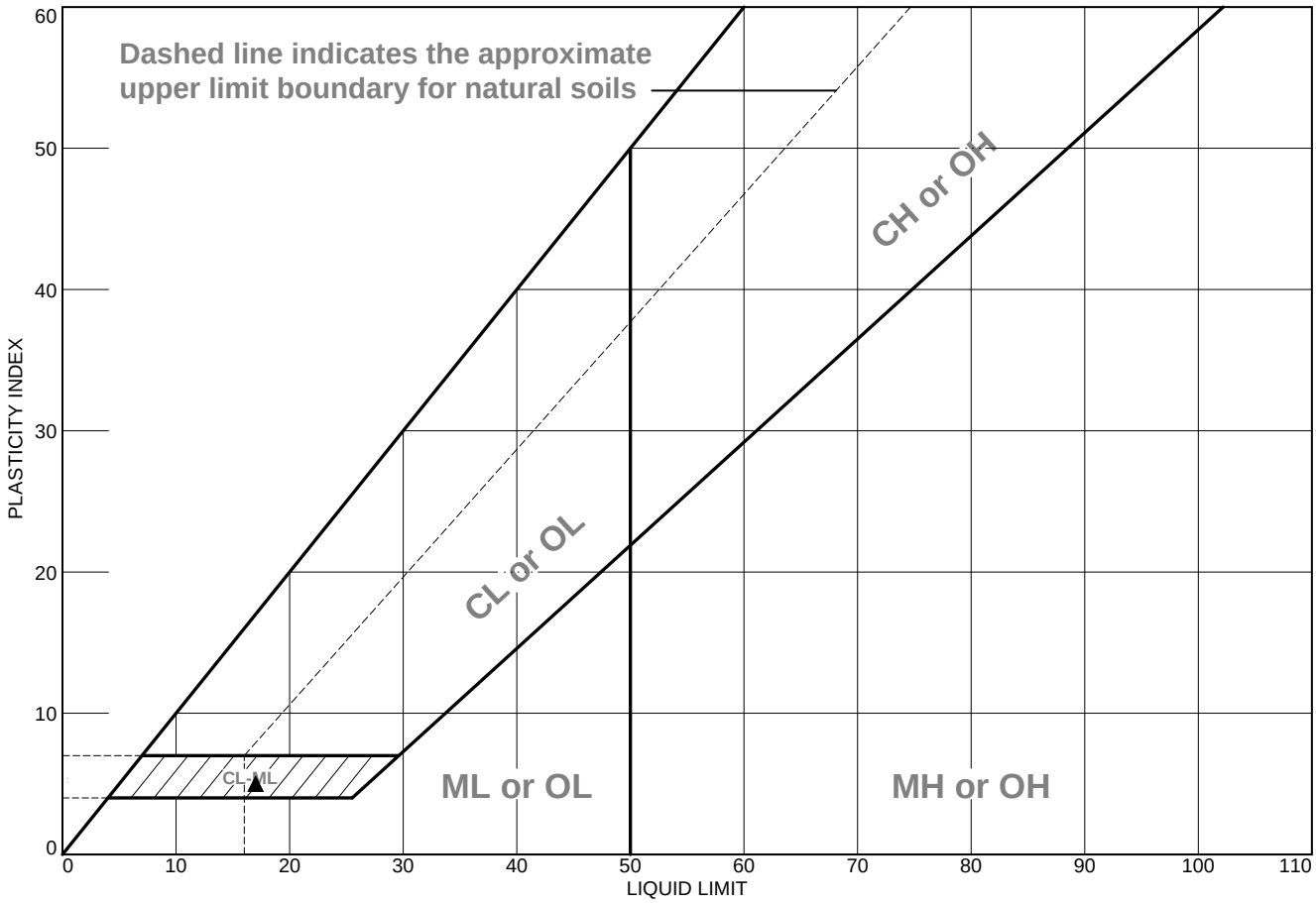
Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Grayish brown, poorly graded SAND with Silt	NV	NP	NP	64.8	9.8	SP-SM
■	Brown, poorly graded SAND	NV	NP	NP	13.1	2.9	SP
▲	Brown, Silty Clayey SAND	17	12	5	76.7	23.2	SC-SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-36 **Depth:** 3.5'-5.0' **Sample Number:** S-1

■**Source of Sample:** B-4701-36 **Depth:** 6.0'-7.5' **Sample Number:** S-2

▲**Source of Sample:** B-4701-36 **Depth:** 8.5'-10.0' **Sample Number:** S-3

E2CR, Inc.

Baltimore, MD

Remarks:

●Natural Moisture Content=5.5%

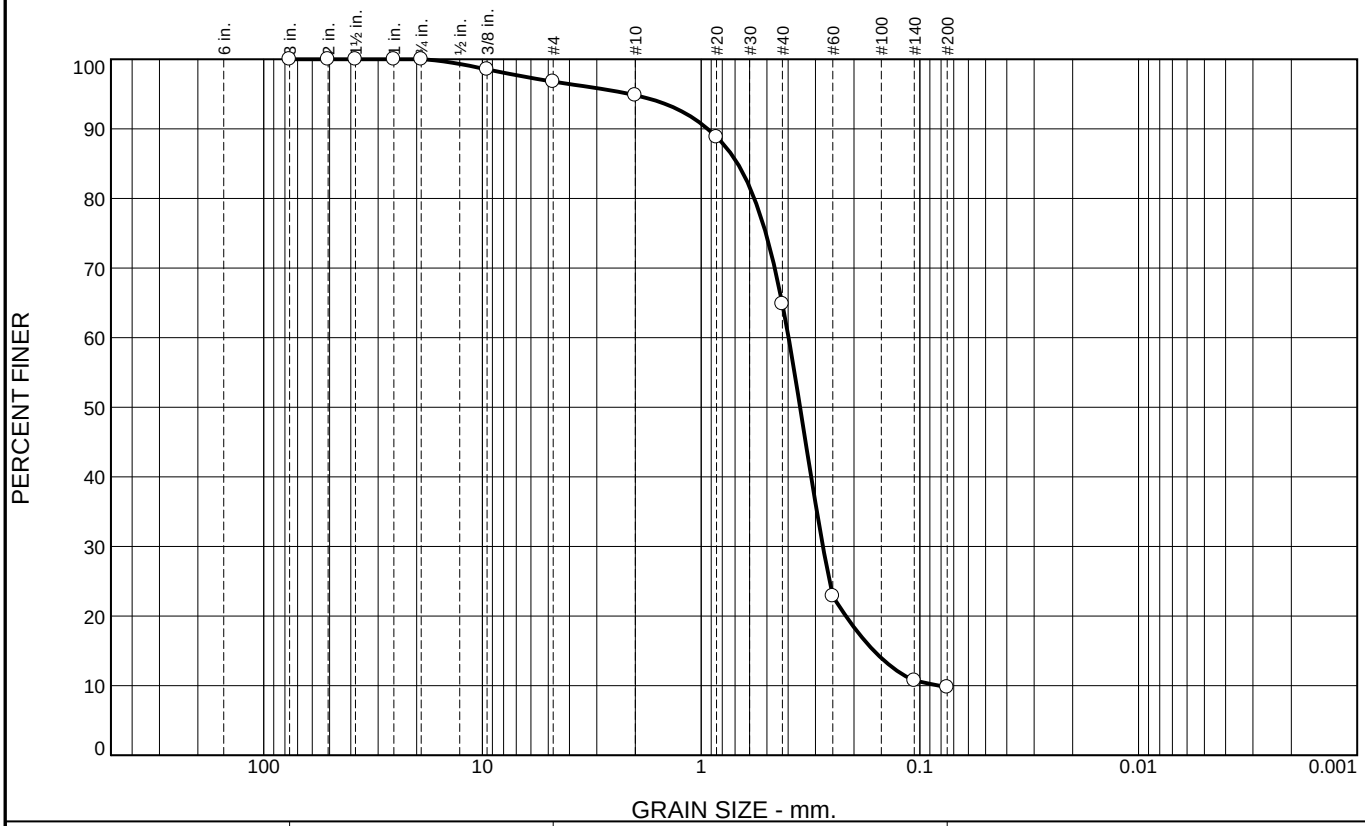
■Natural Moisture Content=3.5%

▲Natural Moisture Content=11.5%

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.2	2.0	30.0	55.0	9.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
3/4	100.0		
3/8	98.5		
#4	96.8		
#10	94.8		
#20	88.8		
#40	64.8		
#60	22.9		
#140	10.7		
#200	9.8		

* (no specification provided)

Material Description

Grayish brown, poorly graded SAND with Silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 0.9339 D_{85}= 0.6802 D_{60}= 0.3980
D_{50}= 0.3526 D_{30}= 0.2775 D_{15}= 0.1619
D_{10}= 0.0815 C_u= 4.88 C_c= 2.37

Classification

USCS= SP-SM AASHTO= A-3

Remarks

Natural Moisture : 5.5%

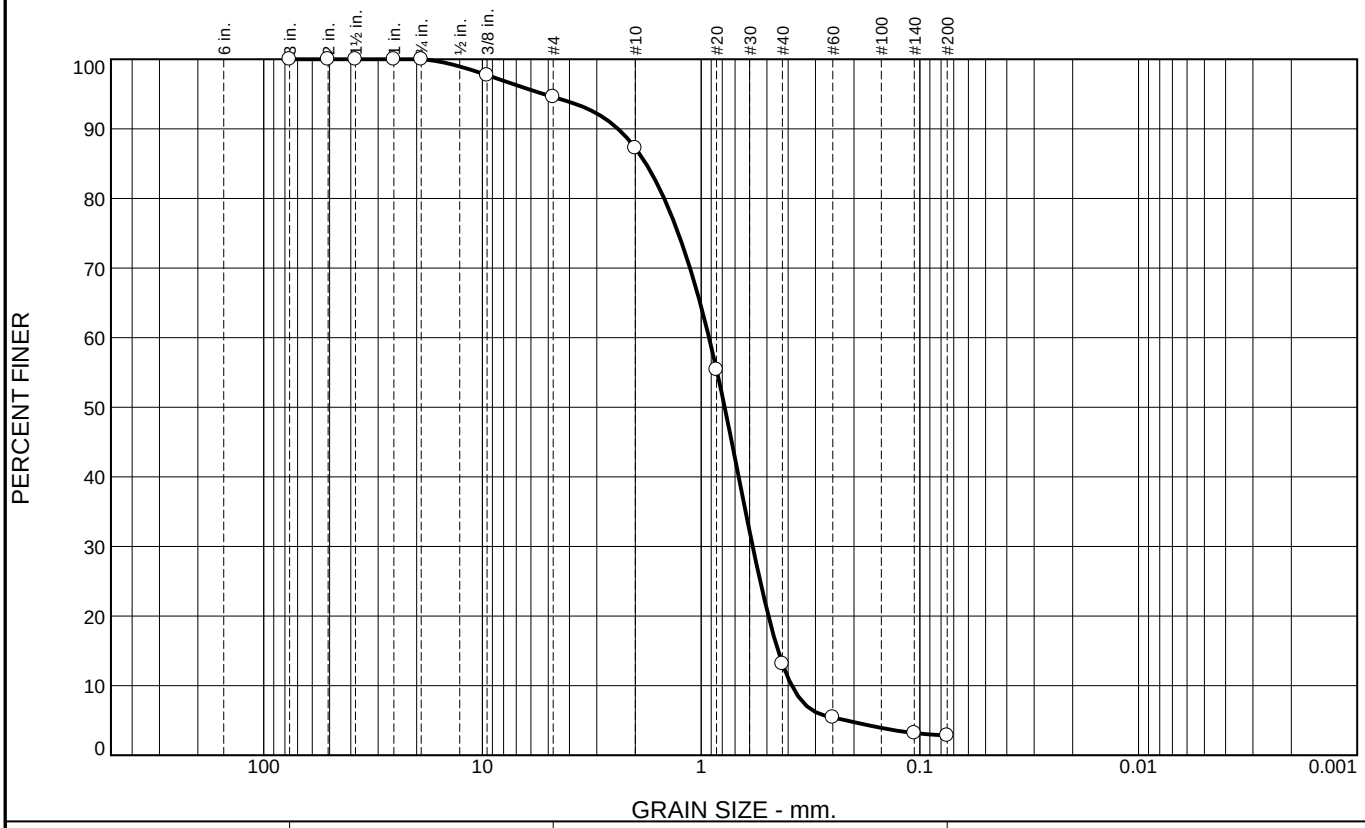
Source of Sample: B-4701-36 **Depth:** 3.5'-5.0'
Sample Number: S-1 **Date:** 11-5-16

E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update
Project No: 16560-04 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.4	7.4	74.1	10.2	2.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
3/4	100.0		
3/8	97.7		
#4	94.6		
#10	87.2		
#20	55.4		
#40	13.1		
#60	5.4		
#140	3.2		
#200	2.9		

* (no specification provided)

Material Description

Brown, poorly graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 2.3995 D_{85}= 1.7883 D_{60}= 0.9196
D_{50}= 0.7806 D_{30}= 0.5807 D_{15}= 0.4447
D_{10}= 0.3849 C_u= 2.39 C_c= 0.95

Classification

USCS= SP AASHTO= A-1-b

Remarks

Natural Moisture : 3.5%

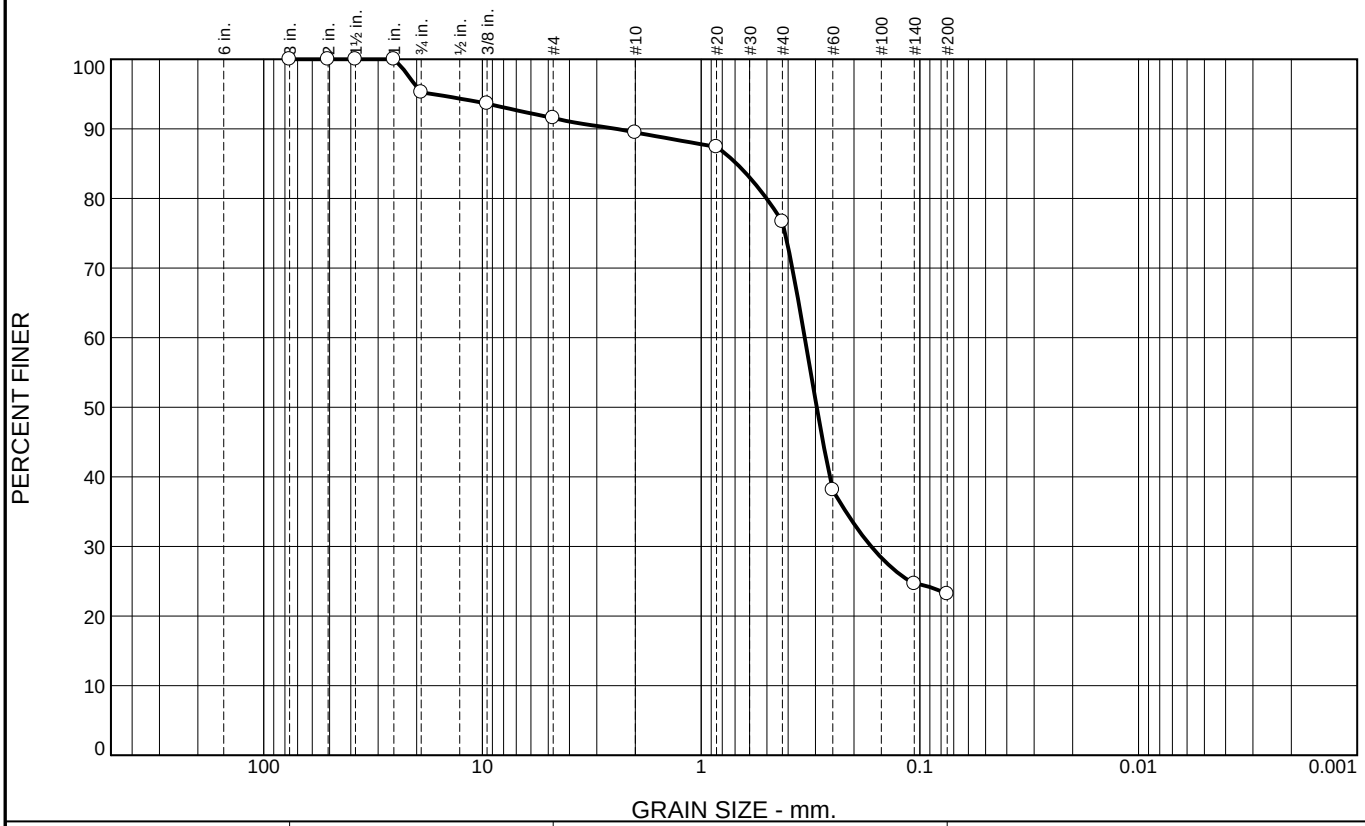
Source of Sample: B-4701-36 **Depth:** 6.0'-7.5'
Sample Number: S-2 **Date:** 11-5-16

E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update
Project No: 16560-04 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.8	3.6	2.1	12.8	53.5	23.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	100.0		
3/4	95.2		
3/8	93.6		
#4	91.6		
#10	89.5		
#20	87.4		
#40	76.7		
#60	38.1		
#140	24.6		
#200	23.2		

* (no specification provided)

Material Description

Brown, Silty Clayey SAND

Atterberg Limits

PL= 12 LL= 17 PI= 5

Coefficients

D_{90}= 2.4434 D_{85}= 0.6886 D_{60}= 0.3357
D_{50}= 0.2962 D_{30}= 0.1668 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC-SM AASHTO= A-2-4(0)

Remarks

Natural Moisture : 11.5%

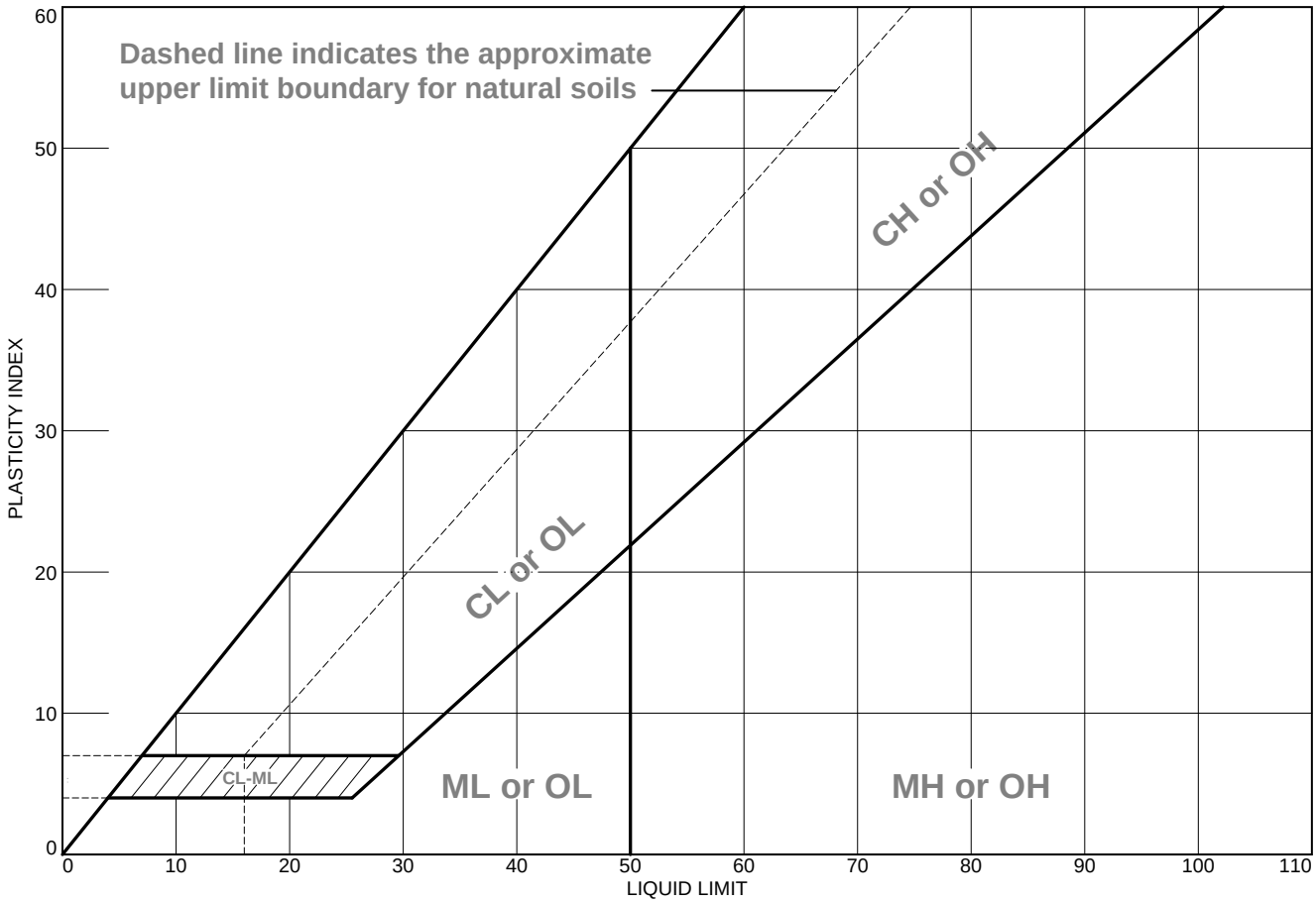
Source of Sample: B-4701-36 **Depth:** 8.5'-10.0'
Sample Number: S-3 **Date:** 11-5-16

E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update
Project No: 16560-04 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Grayish brown, Silty SAND	NV	NP	NP	55.2	16.9	SM

Project No. 16560-04 **Client:** AECOM

Project: BWI Airport PMP Update

●**Source of Sample:** B-4701-39 **Depth:** 2.0'-5.0' **Sample Number:** Bulk

Remarks:

●Natural Moisture Content=5.2%

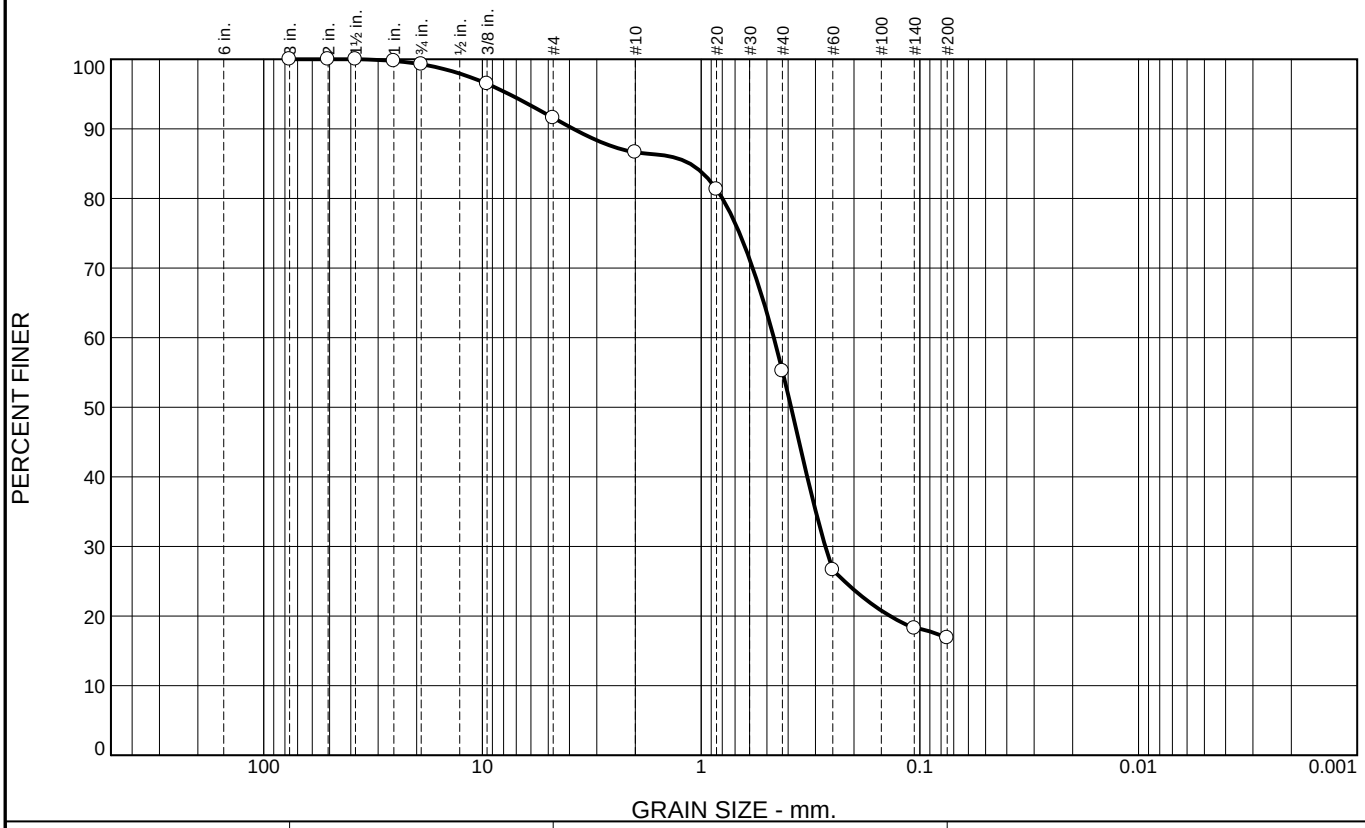
E2CR, Inc.

Baltimore, MD

Figure

Tested By: MP **Checked By:** AAO

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.7	7.7	5.0	31.4	38.3	16.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	100.0		
1.5	100.0		
1	99.8		
3/4	99.3		
3/8	96.5		
#4	91.6		
#10	86.6		
#20	81.3		
#40	55.2		
#60	26.6		
#140	18.3		
#200	16.9		

* (no specification provided)

Material Description

Grayish brown, Silty SAND

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 3.8371 D_{85}= 1.1244 D_{60}= 0.4651
D_{50}= 0.3878 D_{30}= 0.2706 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Natural Moisture : 5.2%

Source of Sample: B-4701-39 **Depth:** 2.0'-5.0'
Sample Number: Bulk

Date: 11-5-16

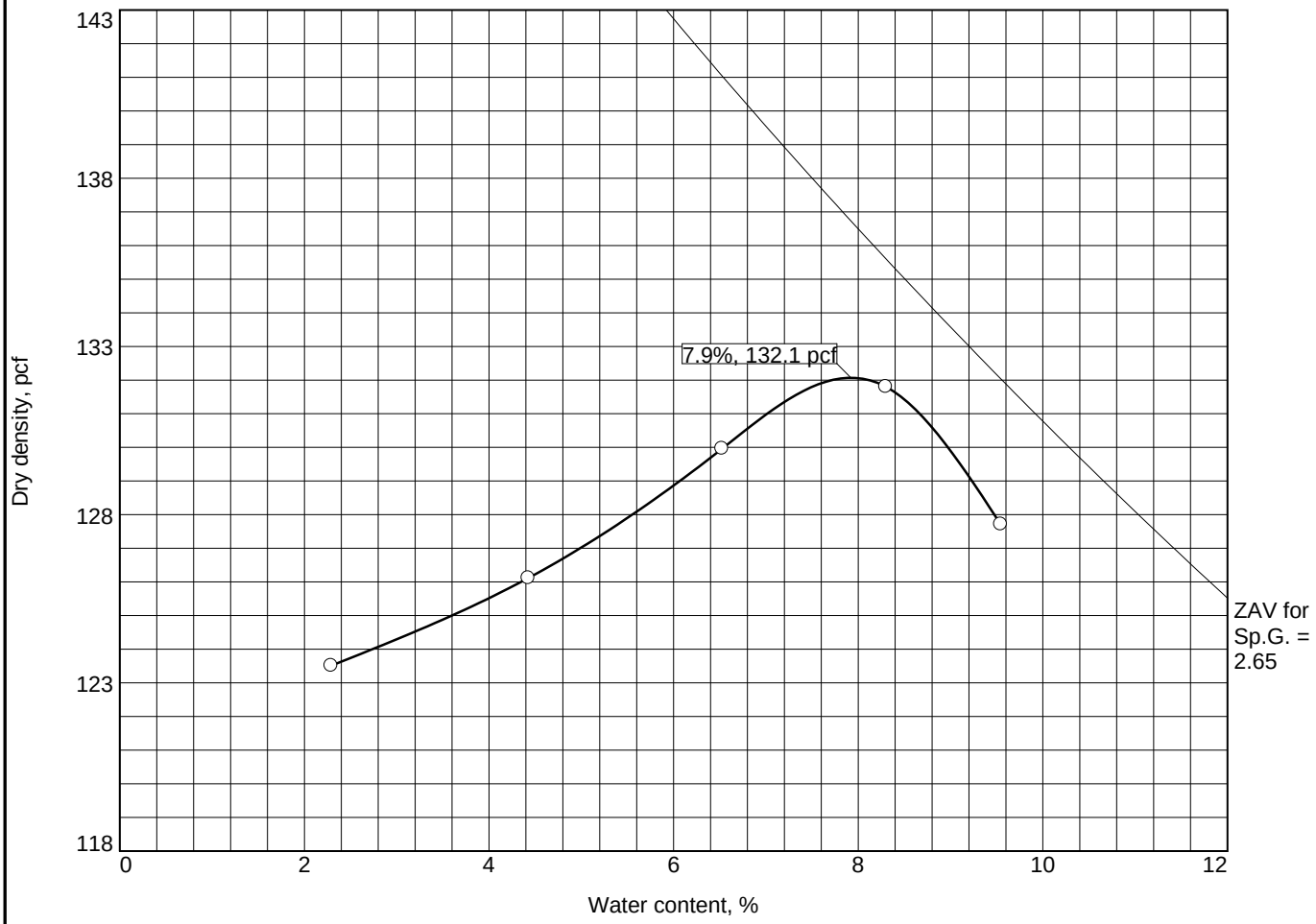
E2CR, Inc.

Baltimore, MD

Client: AECOM
Project: BWI Airport PMP Update

Project No: 16560-04 **Figure**

COMPACTION TEST REPORT



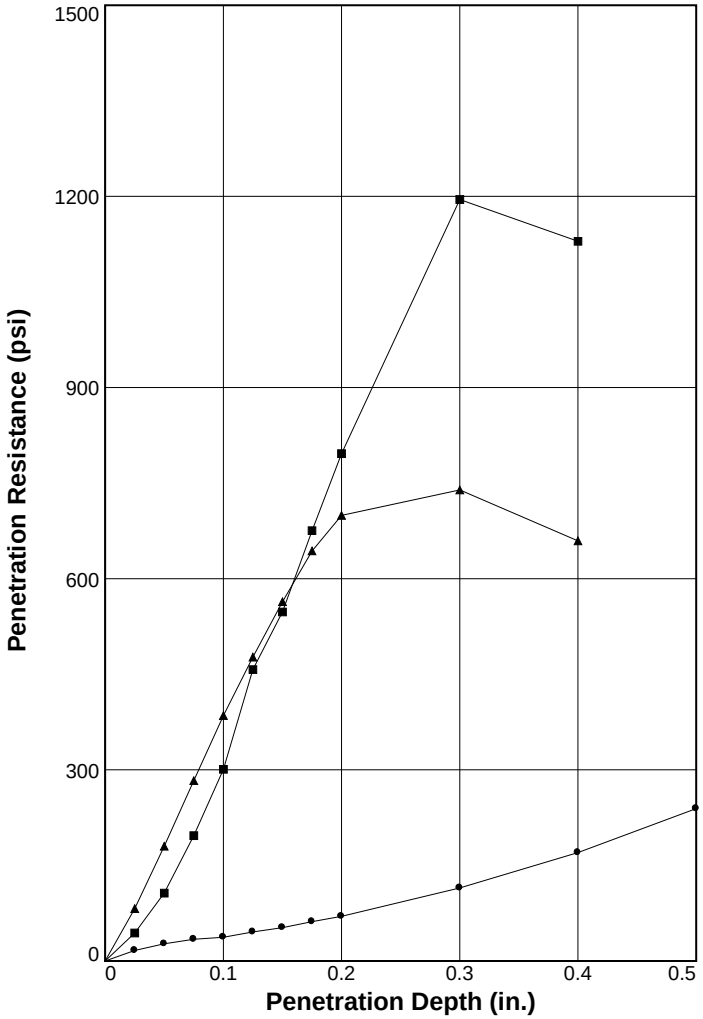
Test specification: AASHTO T 180-01 Method C Modified

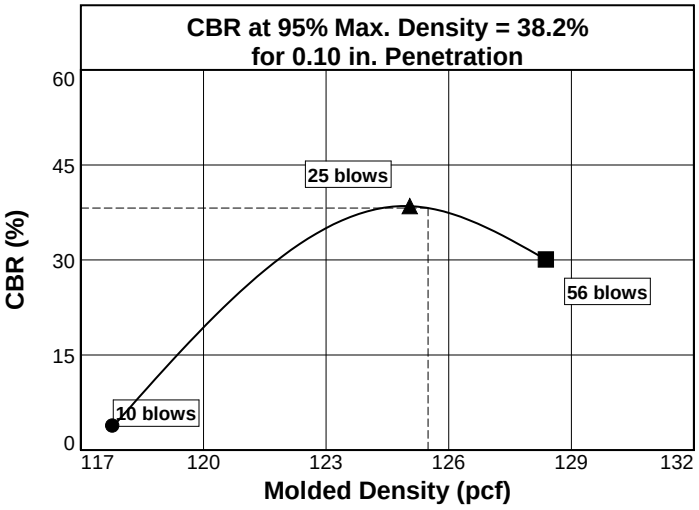
Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/4 in.	% < No.200
	USCS	AASHTO						
2.0'-5.0'	SM	A-2-4(0)	5.2	2.65	NP	NP	0.7	16.9

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 132.1 pcf Optimum moisture = 7.9 %	Grayish brown, Silty SAND
Project No. 16560-04 **Client:** AECOM **Project:** BWI Airport PMP Update ○**Source of Sample:** B-4701-39 **Sample Number:** Bulk **E2CR, Inc.** **Baltimore, MD**	**Remarks:** **Figure**

Tested By: AP **Checked By:** AAO

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	117.8	89.2	7.9	117.8	89.2	11.5	3.7	4.7	0.000	10	0
2 △	125.0	94.6	6.9	125.0	94.7	9.7	38.5	46.6	0.000	10	0
3 □	128.4	97.2	8.4	128.4	97.2	9.1	30.1	53.1	0.000	10	0

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Grayish brown, Silty SAND	SM	132.1	7.9	NP	NP

Project No: 16560-04

Project: BWI Airport PMP Update

Source of Sample: B-4701-39 **Depth:** 2.0'-5.0'

Sample Number: Bulk

Date: 11-5-16

Test Description/Remarks:

BEARING RATIO TEST REPORT

E2CR, Inc.

Figure _____

AECOM

Appendix G

Results from Non-Destructive Testing and ACN/PCN Analysis by PTS

Pavement Technical Solutions

43133 Huntsman Square, Ashburn, VA 20148 • 703 858 5875
153 Delta Lane, Colliers, WV 26035 • 304 527 2438
94-1221 Ka Uka Boulevard, #108, Box #321, Waipahu, HI 96797 • 808 672 2690

fax 703 858 1662 • www.pavementtechsolutions.com

December 19, 2016

Katherine Keegan, PE
AECOM
250 Apollo Drive
Chelmsford, MA

Re: Baltimore/Washington International Airport
Structural Evaluation Summary

Dear Ms. Keegan:

Pavement Technical Solutions, Inc. (PTS) is pleased to submit the following summary of findings for the structural evaluation of certain runway, taxiway, and ramp pavements at Baltimore/Washington International Airport (BWI) located in Linthicum, Maryland. The evaluation included Non-Destructive Testing (NDT) of the pavement and a subsequent structural analysis. PTS has prepared the following summary as a final deliverable in accordance with the agreed upon scope of work with AECOM.

The limits of the project are detailed in Attachment 1, "*Project Limits*", and include the following runways, taxiways, and ramp areas at BWI:

- Runway 10-28
- Runway 15L-33R
- Runway 15R-33L
- Taxiway F*
- Taxiway G*
- Taxiway J*
- Taxiway K*
- Taxiway L*
- Taxiway M*
- Taxiway Q*
- Taxiway R*
- Taxiway S*
- Taxiway T*
- Taxilane AA*
- Taxilane NN*
- Ramp DE*

*Note: Select portions of the taxiways and ramp areas were evaluated, per Attachment 1.

Non-Destructive Testing (NDT)

Non-Destructive Testing (NDT) was conducted on all pavement sections included within the project limits utilizing PTS's in-house Dynatest Model 8000 Falling Weight Deflectometer (FWD). Testing was conducted during the dates of June 14th – 24th, 2016. All NDT was conducted during overnight hours to minimize the impact to airport operations. NDT tests were generally conducted at the following intervals and offsets:

» ***Runways:*** NDT tests were conducted on 4 lanes total.

- Lanes 1 and 2 were conducted at offsets approximately 12.5 feet right and left of the runway centerline. Tests were spaced every 100 feet longitudinally, and staggered by 50 feet for adjacent lanes.
- Lanes 3 and 4 were conducted at offsets approximately 35 feet right and left of the runway centerline. Tests were spaced every 200 feet longitudinally, and staggered by 100 feet for adjacent lanes.

» ***Taxiways:*** NDT tests were conducted on 2 lanes total.

- Lanes 1 and 2 were conducted at offsets approximately 12.5 feet right and left of the taxiway centerline. Tests were spaced every 100 feet longitudinally, and staggered by 50 feet for adjacent lanes.

» ***Aprons:*** NDT tests were typically conducted on a 50' x 50' grid, where feasible.

Note: Portland Cement Concrete (PCC) pavements were tested at the mid-slab location only.

For each NDT test, three load applications were applied to the pavement surface. The corresponding pavement deflections were measured and recorded in the FWD's on-board computer for each load application. In addition, each FWD test location was recorded by station, offset, lane number, and GPS coordinate.

The NDT was conducted in accordance with FAA Advisory Circular 150/5370-11B, "*Use of Nondestructive Testing in the Evaluation of Airport Pavements*".

PTS utilized this deflection data to perform a structural evaluation of the in-place pavements.

Impulse Stiffness Modulus (ISM)

Impulse Stiffness Modulus (ISM) profile plots are used to verify individual sections for long pavement sections, such as runways. The maximum deflections (deflection occurring directly under the FWD load plate) were used to compute the ISM values as shown below. The results are plotted and used for identifying pavement section limits, locating isolated weak sections, and assessing the overall support conditions of the in-place pavements.

$$ISM = \left(\frac{L}{d_0} \right)$$

Where:

ISM	=	Impulse Stiffness Modulus, lbs./in.
L	=	Applied FWD load, lbs.
d_o	=	Maximum deflection, in.

The ISM profile plots and associated data can be found in Attachment 3, "*ISM Profiles & Data*".

Backcalculation of Pavement Layer's Strength

A pavement layer strength analysis was performed to identify the stiffness (strength) of the Asphalt Concrete (AC), Portland Cement Concrete (PCC), base courses, and the underlying subgrade support. The pavement layer strength analysis was performed using a technique called *backcalculation*.

The general principle of backcalculation is that the deflections measured by the FWD are dependent on the following parameters:

- Thickness and stiffness of the pavement layers
- Stiffness of the foundation
- Degree of friction between the pavement layers
- Magnitude of applied load
- Radius of applied load
- Rate of loading
- Position of the deflection sensors

If the loading, deflection, and layer thickness parameters are known and the interface friction condition is assumed, the measured pavement deflections may be used to solve for the stiffness of the pavement layers and foundation.

To complete the backcalculations, PTS was provided with a detailed summary of the existing pavement thickness and composition information from AECOM's records. PTS understands that some of the pavement thickness and composition information was derived from pavement cores taken after the NDT was completed. The existing pavement thickness and composition for each pavement section is summarized in Attachment 2, "*Structural Analysis Summary*".

The backcalculations result in an elastic modulus value for each pavement layer and subgrade of the particular section being evaluated. An "*Evaluation Subgrade Modulus*" for each pavement section is computed by subtracting one (1) standard deviation from the average backcalculated subgrade modulus. This "*Evaluation Subgrade Modulus*" is converted to a CBR for flexible pavements or a k-value for rigid pavements. The "*Evaluation CBR/k-value*" is used during the Pavement Classification Number (PCN) computations, detailed below. A summary of the "*Evaluation Subgrade Modulus*" and "*Evaluation CBR/k-value*" is presented in the table below.

Table 1: Evaluation Subgrade Results

Section	Evaluation Subgrade Modulus (psi)	Evaluation CBR (%)	Evaluation k-eff (psi/in.)
RW10/1	15,957	10.6	N/A
RW10/2	19,064	12.7	N/A
RW10/3	30,107	20.1	N/A
RW10/4	32,852	21.9	N/A
RW10/4A	42,943	28.6	N/A
RW10/5	41,886	27.9	N/A
RW10/6A	33,996	22.7	N/A
RW10/6	22,628	15.1	N/A
RW10/7	26,326	17.6	N/A
RW10/8	33,436	22.3	N/A
RW10/9	36,583	24.4	N/A
RW10/10	27,085	18.1	N/A
RW10/11	28,694	19.1	N/A
RW10/12	36,861	24.6	N/A
RW10/13	26,001	17.3	N/A
RW10/15	30,779	20.5	N/A
RW15R/2AK	30,896	N/A	248
RW15R/3K	35,048	23.4	N/A
RW15R/4K	41,537	27.7	N/A
RW15R/5K	31,673	21.1	N/A
RW15R/6K	50,000	33.3	N/A
RW15R/7K	32,391	21.6	N/A
RW15R/8K	37,695	25.1	N/A
RW15R/8AK	34,844	23.2	N/A
RW15R/9K	18,001	12.0	N/A
RW15R/10K	24,938	16.6	N/A
RW15R/12K	22,601	15.1	N/A
RW15R/14K	24,199	16.1	N/A
RW15R/15K	28,219	18.8	N/A
RW15R/16K	27,705	18.5	N/A
RW15R/17K	30,871	20.6	N/A
RW15R/18K	42,978	28.7	N/A
RW15R/19K	37,204	24.8	N/A
RW15R/21K	19,285	N/A	172
RW15L/1	14,766	9.8	N/A
RW15L/2	13,187	8.8	N/A
RW15L/3	14,420	9.6	N/A

Table 1 (cont.): Evaluation Subgrade Results

Section	Evaluation Subgrade Modulus (psi)	Evaluation CBR (%)	Evaluation k-eff (psi/in.)
RW15L/4	14,411	9.6	N/A
RW15L/5	16,274	10.8	N/A
RW15L/6	20,787	13.9	N/A
RW15L/7	14,432	9.6	N/A
RW15L/8	20,175	13.4	N/A
RW15L/9	19,727	13.2	N/A
TWF1	24,972	16.6	N/A
TWF5	27,875	18.6	N/A
TWF7	20,906	13.9	N/A
TWF8	29,938	20.0	N/A
TWG1	21,507	14.3	N/A
TWG4	21,660	14.4	N/A
TWJ1	29,410	19.6	N/A
TWJ1A	18,437	12.3	N/A
TWJ2	17,314	11.5	N/A
TWK1	18,042	12.0	N/A
TWK2	13,501	9.0	N/A
TWK2A	15,009	10.0	N/A
TWK3	11,602	7.7	N/A
TWL1	13,801	9.2	N/A
TWM1	18,076	12.1	N/A
TWM2	15,267	10.2	N/A
TWQ1	18,896	12.6	N/A
TWR2	23,590	15.7	N/A
TWR2A	23,515	15.7	N/A
TWR2C	22,707	15.1	N/A
TWS4	20,961	14.0	N/A
TWS5	15,577	10.4	N/A
TWS6	18,900	12.6	N/A
TWS7	23,541	15.7	N/A
TWS8	17,509	11.7	N/A
TWS9	17,224	11.5	N/A
TWS10	16,901	11.3	N/A
TWT2	16,376	10.9	N/A
TWT3A	16,980	11.3	N/A
TWT4	24,231	16.2	N/A
TWT5	16,640	11.1	N/A

Table 1 (cont.): Evaluation Subgrade Results

Section	Evaluation Subgrade Modulus (psi)	Evaluation CBR (%)	Evaluation k-eff (psi/in.)
TWT6	15,849	10.6	N/A
TWT7	14,513	9.7	N/A
TLAA1	25,081	16.7	N/A
TLAA2	19,301	12.9	N/A
TLNN1	15,493	10.3	N/A
TLNN2	14,307	9.5	N/A
MRDE1	16,741	11.2	N/A
MRDE2	15,166	10.1	N/A

The backcalculations were conducted using the FAA's BAKFAA software program. The detailed backcalculation results are presented in Attachment 2, "*Structural Analysis Summary*".

Pavement Classification Number (PCN)

The Pavement Classification Number (PCN) is established by a structural assessment of the pavement and indicates a pavement's ability to support an aircraft that has an Aircraft Classification Number (ACN) value equal to or less than the PCN value. The procedure for computing a pavement's PCN is detailed in FAA Advisory Circular 150/5335-5C, "*Standardized Method of Reporting Airport Pavement Strength – PCN*". The PCN is applicable to both flexible and rigid pavements. The PCN value also includes letter codes following the numerical value that present additional information from the following categories:

- Pavement Type
  - R = Rigid
  - F = Flexible

- Subgrade Strength Category
  - A = High (k > 442 psi/in or CBR > 13)
  - B = Medium (k = 221 to 442 psi/in or CBR = 8 to 13)
  - C = Low (k = 92 to 221 psi/in or CBR = 4 to 8)
  - D = Ultra Low (k < 92 psi/in or CBR < 4)

- Maximum Allowable Tire Pressure
  - W = Unlimited (No pressure limit)
  - X = High (Pressure limited to 254 psi)
  - Y = Medium (Pressure limited to 181 psi)
  - Z = Low (Pressure limited to 73 psi)

- Pavement Evaluation Method
  - T = Technical Evaluation
  - U = Using Aircraft

In addition to the pavement thickness and composition and backcalculated subgrade modulus, the aircraft traffic fleet mix is a key component to computing a PCN. AECOM provided PTS with the aircraft fleet mix data for each of the pavement sections included within the project limits. Additionally, AECOM detailed what percentage of the fleet mix should be applied to each pavement section. For the purposes of this evaluation, two fleet mixes were evaluated. The first, named “MRW”, was used for Runways 10-28 and 15R-33L, their surrounding taxiway systems, the ramp areas, and taxiways utilized by cargo aircraft. The second fleet mix, named “GA”, was used for Runway 15L-33R and its surrounding taxiways. The fleet mixes are summarized in Tables 2 and 3, below. Furthermore, Table 4 details which fleet mix and at what percentage it is applied to each pavement section within the project limits.

Table 2: MRW Fleet Mix

Aircraft	COMFAA Aircraft Used	COMFAA Weight Used (lbs.)	Average Annual Departures (Over 20-Year Pavement Life)
A300	A300-600 STD	380,518	1,346
A320	A320 Twin opt	172,842	13,172
A321	A321-200 opt	207,014	560
A350	A340-300 opt	611,552	32
B717	B717-200 HGW	122,000	12,519
B727	Adv. B727-200 Option	210,000	1,177
B737	B737-900 ER	188,200	77,142
B757	B757-300	271,000	4,373
B767	B767-400 ER	451,000	301
B777	B777-300 ER	777,000	256
B787	B787-9 (Preliminary)	555,000	118
E90	D-100	114,200	7,132
LJ35	Learjet-35A/65A	18,000	1,016
M80	MD83	161,000	552
CR9	RegionalJet-700	84,500	1,082
CR7	RegionalJet-700	72,500	13,853
CRJ	RegionalJet-200	47,450	13,064

Table 3: GA Fleet Mix

Aircraft	COMFAA Aircraft Used	COMFAA Weight Used (lbs.)	Average Annual Departures (Over 20-Year Pavement Life)
DH8	Dash 7	43,000	8,732
C208	GrnCaravan-CE-208B	9,000	4,404
Single Engine	Single Wheel 12.5	12,000	10,453
Multi-Engine	Single Wheel 20	20,000	1,629

Table 4: Traffic Distribution

Pavement Section	Fleet Mix	Percentage of Fleet Mix Applied to Section
Ramp DE	MRW	10%
RW10/1 - RW10/2	MRW	18%
RW 10/3	MRW	23%
RW10/4 - RW10/7	MRW	50%
RW10/8 - RW10/15	MRW	33%
RW15L/1	GA	69%
RW15L/2 - RW15L/5	GA	96%
RW15L/6 - RW15L/7	GA	82%
RW15L/8	GA	69%
RW15L/9	GA	82%
RW15R/2 - RW15R/4	MRW	18%
RW15R/5 - RW15R/7	MRW	25%
RW15R/8 - RW15R/10	MRW	49%
RW15R/12 - RW15R/18	MRW	44%
RW15R/19 - RW15R21	MRW	33%
Taxiway F	MRW	5%
Taxiway G	MRW	5%
Taxiway J1, J1A	GA	6%
Taxiway J2	MRW	2.3%
Taxiway K1, K2, K2A	GA	50%

Table 4 (cont.): Traffic Distribution

Pavement Section	Fleet Mix	Percentage of Fleet Mix Applied to Section
Taxiway K3	GA	75%
Taxiway L	GA	5%
Taxiway M	GA	5%
Taxiway Q	GA	12%
Taxiway R	MRW	5%
Taxiway S	MRW	2.3%
Taxiway T	MRW	10%
TL AA	MRW	10%
TLNN	MRW	10%

PTS has utilized this aircraft traffic data along with the backcalculated subgrade "*Evaluation CBR/k*" values and the pavement thickness and composition information to compute the PCN values for each of the pavement sections. For flexible (AC) pavements, the existing pavement thickness and composition information, including all pavement layers above the subgrade, is used to compute the "*Evaluation Thickness*" to be used during the PCN computations. The "*Evaluation Thickness*" is developed based on a "*Reference Section*" as defined in FAA Advisory Circular 150/5335-5C. The Advisory Circular defines two standard structural reference sections for flexible pavements, as detailed in Table 5, below. All flexible pavement sections receiving the "GA" fleet mix were analyzed using the reference section of 3-inches AC and 6-inches crushed aggregate base, while all sections receiving the "MRW" fleet mix were analyzed using the reference section of 5-inches AC and 8-inches crushed aggregate base.

Table 5: Standard Flexible Pavement Structural Reference Sections as Defined by FAA AC 150/5335-5C

Reference Section	All Aircraft Having Less than Four Wheels on Main Gear	One or More Aircraft Having Four or More Wheels on Main Gear
Asphalt Concrete (FAA Item P-401)	3"	5"
High Quality Granular Base (FAA Item P-209)	6"	8"

Additionally, the Advisory Circular allows for the "*Evaluation Thickness*" to be increased for flexible pavements based on AC, aggregate base, or other base course materials which may be in excess of the required thicknesses for the standard structural reference sections. The excess materials are converted to P-154, subbase, in accordance with Table 6, below. PTS utilized the recommended conversion factors, per Table 6, to develop the "*Evaluation Thickness*" for each pavement section.

Table 6: FAA Flexible Pavement Layer Equivalency Factor Range as Defined by FAA AC 150/5335-5C

Structural Item	Description	Range Convert to P-209	Recommended Convert to P-209	Range Convert to P-154	Recommended Convert to P-154
P-501	Portland Cement Concrete (PCC)	-	-	-	-
P-401	Plant Mix Bituminous Pavements (HMA)	1.2 to 1.6	1.6	1.7 to 2.3	2.3
P-403	Plant Mix Bituminous Pavements (HMA)	1.2 to 1.6	1.6	1.7 to 2.3	2.3
P-306	Econocrete Subbase Course (ESC)	1.2 to 1.6	1.2	1.6 to 2.3	1.6
P-304	Cement Treated Base Course (CTB)	1.2 to 1.6	1.2	1.6 to 2.3	1.6
P-212	Shell Base Course	-	-	-	-
P-213	Sand-Clay Base Course	-	-	-	-
P-220	Caliche Base Course	-	-	-	-
P-209	Crushed Aggregate Base Course	1.0	1.0	1.2 to 1.6	1.4
P-208	Aggregate Base Course	1.0	1.0	1.0 to 1.5	1.2
P-211	Lime Rock Base Course	1.0	1.0	1.0 to 1.5	1.2
P-301	Soil-Cement Base Course	N/A	-	1.0 to 1.5	1.2
P-154	Subbase Course	N/A	-	1.0	1.0
P-501	Portland Cement Concrete (PCC)	Range Convert to P-401: 2.2 to 2.5 Recommended Convert to P-401: 2.5			

The "*Evaluation Thickness*" for rigid pavements is equal to the thickness of the PCC slab. The "*Evaluation Thickness*" may be increased due to an AC overlay, if present. For the purposes of this evaluation, all rigid pavement "*Evaluation Thicknesses*" are equal to the thickness of the PCC slab. Any underlying base courses are used to develop an improved k-value. The improved k-value is intended to be the k-value directly beneath the PCC slab and is used during the PCN computations. Additionally, PTS utilized a PCC flexural strength of 650 psi for the PCN computations of all rigid pavements.

PCN values were computed with FAA software, COMFAA, in accordance with the procedures presented in FAA Advisory Circular 150/5335-5C. The computed PCNs were compared to the ACN values for each of the aircraft within each respective fleet mix. Tables 7 and 8 below summarize the ACN values for each aircraft of the two fleet mixes at the four different potential subgrade categories: A, B, C, and D.

Table 7: MRW Fleet Mix ACN Values

Aircraft	Weight (lbs.)	Flexible Pavement ACNs at Indicated Weight and Subgrade Strength (CBR)				Rigid Pavement ACNs at Indicated Weight and Subgrade Strength (k-value)			
		A (15)	B (10)	C (6)	D (3)	A (552)	B (295)	C (147)	D (74)
A300-600 STD	380,518	48.8	55.1	67.4	84.9	50.0	59.8	70.3	79.5
A320 Twin opt	172,842	41.0	42.9	47.3	53.1	46.7	49.3	51.7	53.7
A321-200 opt	207,014	52.2	55.1	61.0	66.6	60.1	63.0	65.8	68.0
A340-300 opt	611,552	57.1	61.9	71.7	96.9	52.9	61.2	72.7	84.9
B717-200 HGW	122,000	30.8	32.5	36.5	39.5	34.7	36.5	38.2	39.6
Adv. B727-200 Option	210,000	52.0	55.2	62.1	66.9	58.0	61.4	64.4	66.8
B737-900 ER	188,200	47.9	50.8	56.0	60.8	55.6	58.2	60.6	62.6
B757-300	271,000	32.9	36.6	45.1	58.1	34.8	41.4	48.5	54.7
B767-400 ER	451,000	56.7	63.0	78.6	100.1	57.8	68.8	80.8	91.7
B777-300 ER	777,000	63.8	71.3	89.3	120.3	66.1	85.7	109.7	131.9
B787-9 (Preliminary)	555,000	65.7	72.2	87.0	116.9	64.5	75.6	89.4	102.8
D-100 (E90)	114,200	30.0	32.0	35.3	37.6	33.0	34.8	36.4	37.7
Learjet-35A/65A	18,000	4.3	4.4	5.0	5.6	5.2	5.4	5.6	5.7
MD83	161,000	42.4	45.9	50.0	53.1	49.1	51.3	53.2	54.8
RegionalJet-700 (CR9)	84,500	21.7	23.0	25.7	27.6	25.3	26.5	27.5	28.4
RegionalJet-700	72,500	17.9	19.0	21.3	23.3	21.1	22.1	23.0	23.8
RegionalJet-200 (CRJ)	47,450	14.6	15.3	15.8	16.2	16.8	17.2	17.5	17.8

Table 8: GA Fleet Mix ACN Values

Aircraft	Weight (lbs.)	Flexible Pavement ACNs at Indicated Weight and Subgrade Strength (CBR)			
		A (15)	B (10)	C (6)	D (3)
Dash 7	43,000	9.3	10.5	12.1	13.4
GrnCaravan-CE-208B	9,000	2.4	2.9	3.4	3.5
Single Wheel 12.5	12,000	2.2	2.9	3.8	4.5
Single Wheel 20	20,000	5.3	6.4	7.5	7.9

Note: Rigid pavement ACNs were note included as none of the pavement sections receiving the GA fleet mix are rigid.

As previously stated, the PCN indicates a pavement's ability to support an aircraft that has an ACN value equal to or less than the PCN value. Table 9 indicates which sections were found to have PCN values less than the highest ACN in the fleet mix used for evaluation, resulting in an ACN/PCN ratio greater than 1.0. The detailed results of the PCN computations for all of the pavement sections can be found in Attachment 2, "*Structural Analysis Summary*".

Table 9: Sections with ACN/PCN Ratio Greater Than 1.0

Section	Aircraft with Highest ACN in Fleet Mix		PCN	ACN/PCN Ratio
	Aircraft	ACN		
TWG1	B787-9	65.7	**63 F/A/W/T**	**1.0429**
TWJ2	B787-9	72.2	**68 F/B/W/T**	**1.0618**
TWS8	B787-9	72.2	**68 F/B/W/T**	**1.0618**
TWT5	B787-9	72.2	**67 F/B/W/T**	**1.0776**
TWT7	B787-9	72.2	**67 F/B/W/T**	**1.0776**
TLAA2	B787-9	72.2	**64 F/B/W/T**	**1.1281**
TLNN2	B787-9	72.2	**45 F/B/W/T**	**1.6044**
MRDE1	B787-9	72.2	**39 F/B/W/T**	**1.8513**
MRDE2	B787-9	72.2	**54 F/B/W/T**	**1.3370**

As stated in FAA Advisory Circular 150/5335-5C, "The PCN value is for reporting relative pavement strength only and should not be used for pavement design or as a substitute for evaluation. Pavement design and evaluation are complex engineering problems that require detailed analyses. They cannot be reduced to a single number. The PCN rating system uses a continuous scale to compare pavement strength where higher values represent pavements with larger load capacity."

PTS has appreciated the opportunity to continue to work closely with AECOM on this pavement evaluation project. Should you have any questions or require additional information, please do not hesitate to contact me directly at 703-858-5875.

Sincerely,

Brian J. Orandello
President/CEO

Attachments:

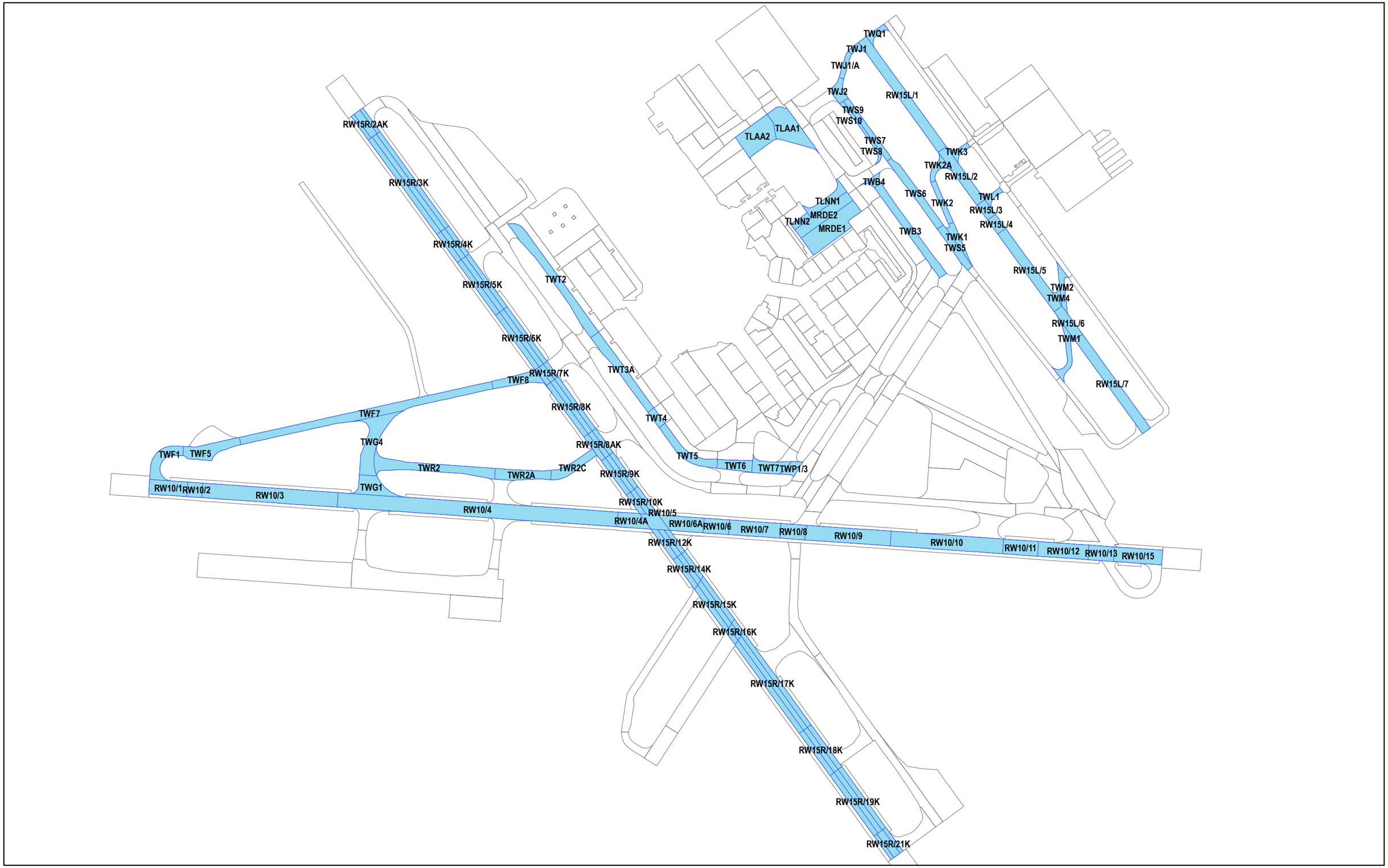
1. Project Limits
2. Structural Analysis Summary
3. ISM Profiles & Data

Cc: \ Mr. Robert L. Dodson III, P.E., PTS
Mr. Brian J. Santiestevan, PTS

Attachment 1

Project Limits

PTS
Pavement Technical Solutions


TWQ1
TWJ1
TWJ1/A
TWJ2
RW15L/1
TWS9
TWS10
TLAA2
TLAA1
TWS7
TWS8
TWK3
TWK2A
RW15L/2
TWB4
TWS6
TWL1
TWK2
RW15L/3
TLNN1
MRDE2
TLNN2
MRDE1
RW15L/4
TWB3
TWK1
TWS5
RW15L/5
TWM2
TWM4
RW15L/6
TWM1
RW15L/7
RW15R/2AK
RW15R/3K
RW15R/4K
RW15R/5K
TWT2
RW15R/6K
RW15R/7K
TWT3A
TWF8
TWF7
RW15R/8K
TWT4
TWG4
RW15R/8AK
TWF1
TWF5
TWR2
TWR2A
TWR2C
TWT5
TWT6
TWT7
TWP1/3
RW15R/9K
RW10/1
RW10/2
RW10/3
TWG1
RW15R/10K
RW10/4
RW10/5
RW10/4A
RW10/6A
RW10/6
RW10/7
RW10/8
RW10/9
RW10/10
RW10/11
RW10/12
RW10/13
RW10/15
RW15R/12K
RW15R/14K
RW15R/15K
RW15R/16K
RW15R/17K
RW15R/18K
RW15R/19K
RW15R/21K

Attachment 2

Structural Analysis Summary

PTS
Pavement Technical Solutions

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport (BWI)

Structural Analysis Summary

						BAKFAA Results								COMFAA Results					
Section	Surface	Existing Pavement Section				E-AC (psi)	E-PCC (psi)	E-CTB (psi)	E-AGBS (psi)	E-SBGR (psi)	Evaluation Subgrade Modulus	Evaluation CBR	Evaluation k-eff	Traffic		Aircraft with Highest ACN in Fleet Mix		PCN	ACN/PCN Ratio
		AC (in.)	PCC (in.)	CTB (in.)	AGBS (in.)	Avg.	Avg.	Avg.	Avg.	Avg.	(psi)	(%)	(psi/in.)	Fleet Mix	Percentage	Aircraft	ACN		
RUNWAY 10-28 (RW10)																			
RW10/1	AC	10.00			22.00	225,640			94,941	20,578	15,957	10.6		MRW	18%	B787-9	72.2	73 F/B/W/T	0.9890
RW10/2	AC	10.00			22.00	231,298			75,317	22,537	19,064	12.7		MRW	18%	B787-9	72.2	73 F/B/W/T	0.9890
RW10/3	AC	20.70				179,047				36,617	30,107	20.1		MRW	23%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/4	AC	21.30				153,792				39,468	32,852	21.9		MRW	50%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/4A	AC	21.00				105,931				45,682	42,943	28.6		MRW	50%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/5	AC	21.00				149,846				45,254	41,886	27.9		MRW	50%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/6	AC	21.00				245,551				26,028	22,628	15.1		MRW	50%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/6A	AC	24.00				123,248				39,043	33,996	22.7		MRW	50%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/7	AC	19.00				276,720				32,670	26,326	17.6		MRW	50%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/8	AC	26.00				153,812				38,117	33,436	22.3		MRW	33%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/9	AC	23.50				145,528				41,255	36,583	24.4		MRW	33%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/10	AC	23.00				203,525				34,920	27,085	18.1		MRW	33%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/11	AC	21.00				201,925				35,554	28,694	19.1		MRW	33%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/12	AC	21.00				165,178				40,684	36,861	24.6		MRW	33%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/13	AC	21.50				2,000,000				29,487	26,001	17.3		MRW	33%	B787-9	65.7	66 F/A/W/T	0.9955
RW10/15	AC	10.50			24.00	262,698			78,007	37,714	30,779	20.5		MRW	33%	B787-9	65.7	66 F/A/W/T	0.9955

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport (BWI)

Structural Analysis Summary

						BAKFAA Results								COMFAA Results					
Section	Surface	Existing Pavement Section				E-AC (psi)	E-PCC (psi)	E-CTB (psi)	E-AGBS (psi)	E-SBGR (psi)	Evaluation Subgrade Modulus	Evaluation CBR	Evaluation k-eff	Traffic		Aircraft with Highest ACN in Fleet Mix		PCN	ACN/PCN Ratio
		AC (in.)	PCC (in.)	CTB (in.)	AGBS (in.)	Avg.	Avg.	Avg.	Avg.	Avg.	(psi)	(%)	(psi/in.)	Fleet Mix	Percentage	Aircraft	ACN		
RUNWAY 15R-33L (RW15R)																			
RW15R/2AK	PCC		18.00	6.00			8,875,724	858,457		34,571	30,896		248	MRW	18%	B777-300 ER	85.7	89 R/B/W/T	0.9629
RW15R/3K	AC	20.00				362,667				42,391	35,048	23.4		MRW	18%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/4K	AC	19.00				194,941				43,472	41,537	27.7		MRW	18%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/5K	AC	22.00				202,432				38,827	31,673	21.1		MRW	25%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/6K	AC	17.50				223,591				50,000	50,000	33.3		MRW	25%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/7K	AC	17.50				334,465				33,100	32,391	21.6		MRW	25%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/8K	AC	22.00				218,632				44,424	37,695	25.1		MRW	49%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/8AK	AC	17.50				294,134				41,369	34,844	23.2		MRW	49%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/9K	AC	21.00				277,011				20,454	18,001	12.0		MRW	49%	B787-9	72.2	73 F/B/W/T	0.9890
RW15R/10K	AC	21.00				145,808				33,620	24,938	16.6		MRW	49%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/12K	AC	19.00			6.00	122,360			63,258	25,746	22,601	15.1		MRW	44%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/14K	AC	19.00				347,374				29,028	24,199	16.1		MRW	44%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/15K	AC	20.50				299,962				33,758	28,219	18.8		MRW	44%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/16K	AC	20.00				254,445				35,872	27,705	18.5		MRW	44%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/17K	AC	21.00				352,253				35,608	30,871	20.6		MRW	44%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/18K	AC	16.00				377,407				46,075	42,978	28.7		MRW	44%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/19K	AC	16.00				533,204				41,009	37,204	24.8		MRW	33%	B787-9	65.7	66 F/A/W/T	0.9955
RW15R/21K	PCC		18.00	6.00			9,341,665	388,523		20,470	19,285		172	MRW	33%	B777-300 ER	85.7	88 R/B/W/T	0.9739

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport (BWI)

Structural Analysis Summary

Section	Surface	Existing Pavement Section				BAKFAA Results								COMFAA Results					
						E-AC (psi)	E-PCC (psi)	E-CTB (psi)	E-AGBS (psi)	E-SBGR (psi)	Evaluation Subgrade Modulus	Evaluation CBR	Evaluation k-eff	Traffic		Aircraft with Highest ACN in Fleet Mix		PCN	ACN/PCN Ratio
		AC (in.)	PCC (in.)	CTB (in.)	AGBS (in.)	Avg.	Avg.	Avg.	Avg.	Avg.	(psi)	(%)	(psi/in.)	Fleet Mix	Percentage	Aircraft	ACN		
RUNWAY 15L-33R (RW15L)																			
RW15L/1	AC	8.50		7.50	6.00	417,412		550,723	62,207	20,719	14,766	9.8		GA	69%	Dash 7	10.5	11 F/B/W/T	0.9545
RW15L/2	AC	8.50		4.00	6.00	421,349		1,503,005	115,484	21,418	13,187	8.8		GA	96%	Dash 7	10.5	11 F/B/W/T	0.9545
RW15L/3	AC	5.00			12.00	797,846			130,292	18,405	14,420	9.6		GA	96%	Dash 7	10.5	11 F/B/W/T	0.9545
RW15L/4	AC	7.00			12.00	917,688			121,118	16,892	14,411	9.6		GA	96%	Dash 7	10.5	11 F/B/W/T	0.9545
RW15L/5	AC	9.00			12.00	503,889			155,097	22,994	16,274	10.8		GA	96%	Dash 7	10.5	11 F/B/W/T	0.9545
RW15L/6	AC	5.00			12.00	297,349			10,069	22,915	20,787	13.9		GA	82%	Dash 7	9.3	10 F/A/W/T	0.9300
RW15L/7	AC	5.00			12.00	215,134			15,701	18,079	14,432	9.6		GA	82%	Dash 7	10.5	11 F/B/W/T	0.9545
RW15L/8	AC	7.00		9.00		364,155		832,239		24,364	20,175	13.4		GA	69%	Dash 7	9.3	10 F/A/W/T	0.9300
RW15L/9	AC	6.00			7.00	166,134			17,785	22,877	19,727	13.2		GA	82%	Dash 7	9.3	10 F/A/W/T	0.9300
TAXIWAY F (TWF)																			
TWF1	AC	14.00			13.00	188,119			23,984	27,403	24,972	16.6		MRW	5%	B787-9	65.7	66 F/A/W/T	0.9955
TWF5	AC	17.00			13.00	322,895			81,128	34,411	27,875	18.6		MRW	5%	B787-9	65.7	66 F/A/W/T	0.9955
TWF7	AC	17.00			13.00	329,009			69,216	27,869	20,906	13.9		MRW	5%	B787-9	65.7	66 F/A/W/T	0.9955
TWF8	AC	16.00			20.00	339,384			68,261	37,068	29,938	20.0		MRW	5%	B787-9	65.7	66 F/A/W/T	0.9955
TAXIWAY G (TWG)																			
TWG1	AC	5.00		12.50		665,250		2,194,475		25,585	21,507	14.3		MRW	5%	B787-9	65.7	63 F/A/W/T	1.0429
TWG4	AC	14.00			6.00	465,063			78,337	28,927	21,660	14.44		MRW	5%	B787-9	65.7	66 F/A/W/T	0.9955

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport (BWI)

Structural Analysis Summary

						BAKFAA Results								COMFAA Results					
Section	Surface	Existing Pavement Section				E-AC (psi)	E-PCC (psi)	E-CTB (psi)	E-AGBS (psi)	E-SBGR (psi)	Evaluation Subgrade Modulus	Evaluation CBR	Evaluation k-eff	Traffic		Aircraft with Highest ACN in Fleet Mix		PCN	ACN/PCN Ratio
		AC (in.)	PCC (in.)	CTB (in.)	AGBS (in.)	Avg.	Avg.	Avg.	Avg.	Avg.	(psi)	(%)	(psi/in.)	Fleet Mix	Percentage	Aircraft	ACN		
TAXIWAY J (TWJ)																			
TWJ1	AC	17.00			19.00	368,974			39,976	32,188	29,410	19.6		GA	6%	Dash 7	9.3	10 F/A/W/T	0.9300
TWJ1A	AC	7.50			13.00	226,875			34,676	23,594	18,437	12.3		GA	6%	Dash 7	10.5	11 F/B/W/T	0.9545
TWJ2	AC	8.00			13.00	202,306			30,407	18,938	17,314	11.5		MRW	2.3%	B787-9	72.2	68 F/B/W/T	1.0618
TAXIWAY K (TWK)																			
TWK1	AC	7.00			4.00	254,535			80,847	23,313	18,042	12.0		GA	50%	Dash 7	10.5	11 F/B/W/T	0.9545
TWK2	AC	7.00			4.00	257,959			67,124	18,069	13,501	9.0		GA	50%	Dash 7	10.5	12 F/B/W/T	0.8750
TWK2A	AC	8.50			5.50	225,247			73,769	18,231	15,009	10.0		GA	50%	Dash 7	10.5	11 F/B/W/T	0.9545
TWK3	AC	5.50			9.00	258,719			38,259	15,109	11,602	7.7		GA	75%	Dash 7	12.1	13 F/C/W/T	0.9308
TAXIWAY L (TWL)																			
TWL1		5.00			9.00	727,844			155,477	17,567	13,801	9.2		GA	5%	Dash 7	10.5	11 F/B/W/T	0.9545
TAXIWAY M (TWM)																			
TWM1	AC	6.00			6.00	269,269			17,239	21,551	18,076	12.1		GA	5%	Dash 7	10.5	11 F/B/W/T	0.9545
TWM2	AC	4.50			7.50	280,073			15,296	18,671	15,267	10.2		GA	5%	Dash 7	10.5	11 F/B/W/T	0.9545
TAXIWAY Q (TWQ)																			
TWQ1	AC	8.00	6.00		4.00	374,227	995,819		75,246	22,283	18,896	12.6		GA	12%	Dash 7	10.5	11 F/B/W/T	0.9545
TAXIWAY R (TWR)																			
TWR2	AC	15.00			22.00	286,812			21,691	28,029	23,590	15.7		MRW	5%	B787-9	65.7	66 F/A/W/T	0.9955
TWR2A	AC	13.50			16.50	284,220			30,170	29,348	23,515	15.7		MRW	5%	B787-9	65.7	66 F/A/W/T	0.9955
TWR2C	AC	18.00			20.00	303,525			66,024	27,484	22,707	15.1		MRW	5%	B787-9	65.7	66 F/A/W/T	0.9955

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport (BWI)

Structural Analysis Summary

Section	Surface	Existing Pavement Section				BAKFAA Results					Evaluation Subgrade Modulus	Evaluation CBR	Evaluation k-eff	COMFAA Results					
						E-AC (psi)	E-PCC (psi)	E-CTB (psi)	E-AGBS (psi)	E-SBGR (psi)				Traffic		Aircraft with Highest ACN in Fleet Mix		PCN	ACN/PCN Ratio
		AC (in.)	PCC (in.)	CTB (in.)	AGBS (in.)	Avg.	Avg.	Avg.	Avg.	Avg.	(psi)	(%)	(psi/in.)	Fleet Mix	Percentage	Aircraft	ACN		
TAXIWAY S (TWS)																			
TWS4	AC	9.00			13.00	142,146			24,567	22,540	20,961	14.0		MRW	2.3%	B787-9	65.7	73 F/A/W/T	0.9000
TWS5	AC	9.50			14.00	83,961			21,258	19,908	15,577	10.4		MRW	2.3%	B787-9	72.2	76 F/B/W/T	0.9500
TWS6	AC	8.00			16.00	118,586			17,953	22,961	18,900	12.6		MRW	2.3%	B787-9	72.2	79 F/B/W/T	0.9139
TWS7	AC	7.00			13.00	168,937			21,250	25,318	23,541	15.7		MRW	2.3%	B787-9	65.7	73 F/A/W/T	0.9000
TWS8	AC	7.00			14.00	234,160			16,320	21,163	17,509	11.7		MRW	2.3%	B787-9	72.2	68 F/B/W/T	1.0618
TWS9	AC	8.50			14.00	137,879			21,363	21,353	17,224	11.5		MRW	2.3%	B787-9	72.2	76 F/B/W/T	0.9500
TWS10	AC	8.50			14.50	161,462			17,218	17,716	16,901	11.3		MRW	2.3%	B787-9	72.2	75 F/B/W/T	0.9627
TAXIWAY T (TWT)																			
TWT2	AC	14.00			20.00	298,917			41,372	22,604	16,376	10.9		MRW	10%	B787-9	72.2	73 F/B/W/T	0.9890
TWT3A	AC	11.00			12.00	329,560			72,609	22,294	16,980	11.3		MRW	10%	B787-9	72.2	79 F/B/W/T	0.9139
TWT4	AC	14.00			12.00	229,198			374,760	34,327	24,231	16.2		MRW	10%	B787-9	65.7	66 F/A/W/T	0.9955
TWT5	AC	9.50			11.50	389,031			770,758	26,279	16,640	11.1		MRW	10%	B787-9	72.2	67 F/B/W/T	1.0776
TWT6	AC	14.00			10.00	345,088			116,848	18,058	15,849	10.6		MRW	10%	B787-9	72.2	82 F/B/W/T	0.8805
TWT7	AC	8.00			15.50	195,488			23,061	18,734	14,513	9.7		MRW	10%	B787-9	72.2	67 F/B/W/T	1.0776
TAXILANE AA (TLAA)																			
TLAA1	AC	8.00			16.00	197,074			43,022	33,567	25,081	16.7		MRW	10%	B787-9	65.7	66 F/A/W/T	0.9955
TLAA2	AC	6.50			13.50	289,366			26,131	22,914	19,301	12.9		MRW	10%	B787-9	72.2	64 F/B/W/T	1.1281
TAXILANE NN (TLNN)																			
TLNN1	AC	9.00			15.00	167,254			32,550	21,589	15,493	10.3		MRW	10%	B787-9	72.2	84 F/B/W/T	0.8595
TLNN2	AC	8.00			12.00	313,165			65,051	16,836	14,307	9.5		MRW	10%	B787-9	72.2	45 F/B/W/T	1.6044

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport (BWI)

Structural Analysis Summary

Section	Surface	Existing Pavement Section				BAKFAA Results								COMFAA Results					
						E-AC (psi)	E-PCC (psi)	E-CTB (psi)	E-AGBS (psi)	E-SBGR (psi)	Evaluation Subgrade Modulus	Evaluation CBR	Evaluation k-eff	Traffic		Aircraft with Highest ACN in Fleet Mix		PCN	ACN/PCN Ratio
		AC (in.)	PCC (in.)	CTB (in.)	AGBS (in.)	Avg.	Avg.	Avg.	Avg.	Avg.	(psi)	(%)	(psi/in.)	Fleet Mix	Percentage	Aircraft	ACN		
RAMP DE (MRDE)																			
MRDE1	AC	6.00			12.00	158,981			65,240	21,575	16,741	11.2		MRW	10%	B787-9	72.2	39 F/B/W/T	1.8513
MRDE2	AC	8.00			13.00	186,912			49,738	20,195	15,166	10.1		MRW	10%	B787-9	72.2	54 F/B/W/T	1.3370

Legend:

AC - Asphalt Concrete Pavement

APC - Asphalt Overlay of PCC Pavement

PCC - Portland Cement Concrete

CTB - Cement Treated Base

AGBS - Aggregate Base

SBGR - Subgrade

Notes:

1) Backcalculations were computed using FAA software, BAKFAA.
2) PCNs were computed using FAA software, COMFAA.
3) The "*Evaluation Subgrade Modulus*" equals the Average Backcalculated Subgrade Modulus minus One Standard Deviation.
4) The existing pavement sections are based upon records provided by AECOM.

Attachment 3

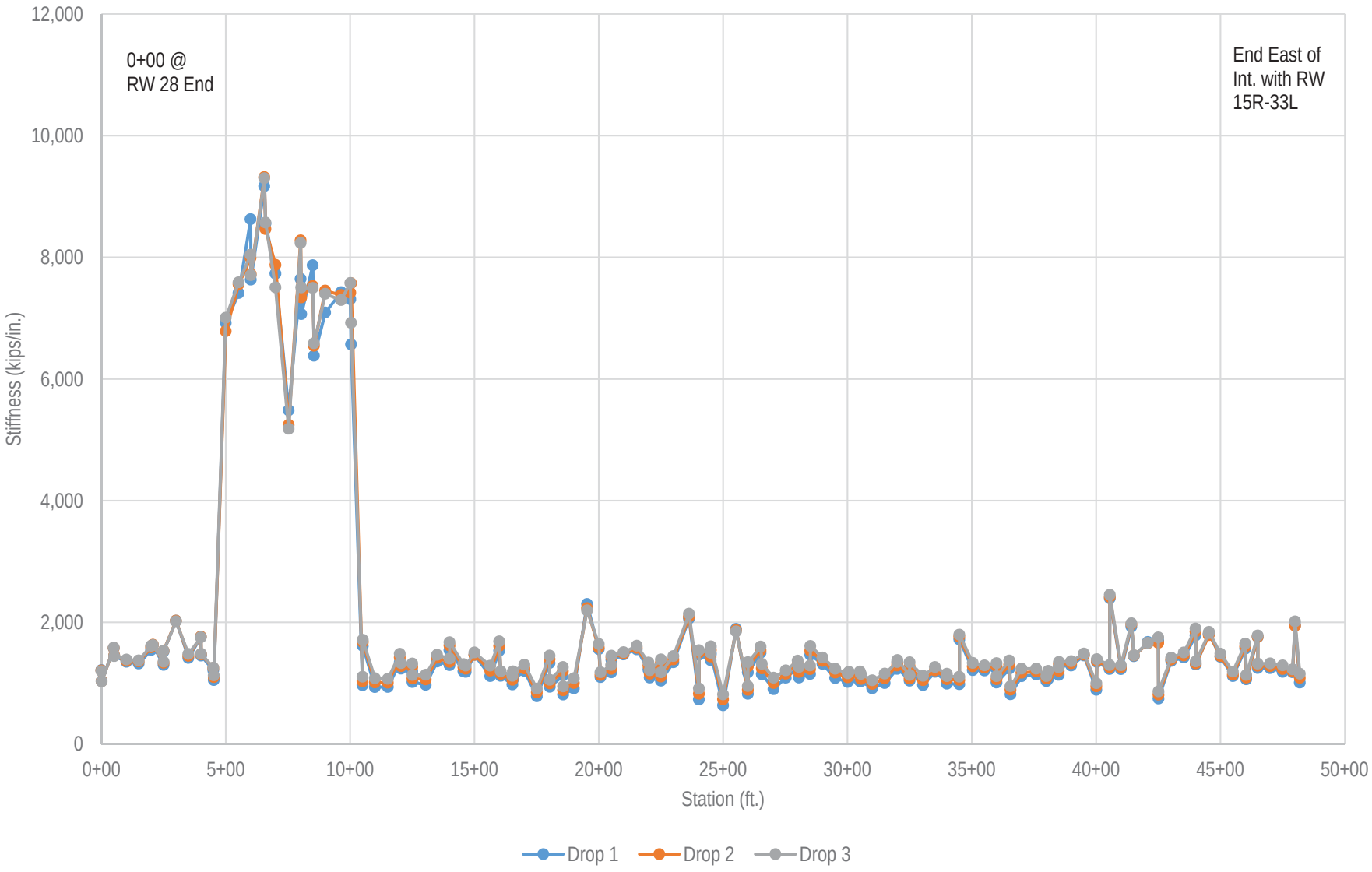
ISM Profiles & Data

PTS
Pavement Technical Solutions

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Runway 10-28 (Sections 6 - 15)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	12,874	10.61	6.33	3.91	2.74	2.07	1.62	1.29	1,213
Lane 4 - 27' Left	0+01	1	12,710	12.29	7.08	4.06	2.66	1.96	1.51	1.25	1,034
Lane 2 - 9' Left	0+50	1	12,715	8.07	4.22	2.24	1.61	1.35	1.09	0.87	1,576
Lane 3 - 27' Right	0+52	1	12,646	8.72	4.61	2.55	1.76	1.47	1.16	0.90	1,450
Lane 1 - 12.5' Right	1+01	1	12,742	9.44	4.66	2.27	1.77	1.48	1.08	0.87	1,350
Lane 2 - 9' Left	1+50	1	12,627	9.55	4.49	2.40	1.62	1.30	1.04	0.73	1,322
Lane 1 - 12.5' Right	2+00	1	12,778	8.27	3.74	2.17	1.47	1.24	1.00	0.82	1,545
Lane 4 - 27' Left	2+07	1	12,646	7.77	3.93	2.22	1.67	1.39	1.05	0.89	1,628
Lane 2 - 9' Left	2+50	1	12,611	9.71	4.52	2.32	1.67	1.27	1.03	0.74	1,299
Lane 3 - 27' Right	2+50	1	12,619	8.31	4.09	2.28	1.66	1.28	1.01	0.84	1,519
Lane 1 - 12.5' Right	3+00	1	12,746	6.29	3.59	2.42	1.78	1.37	1.06	0.99	2,026
Lane 2 - 9' Left	3+50	1	12,630	8.93	3.86	2.11	1.42	1.09	0.87	0.67	1,414
Lane 4 - 27' Left	4+00	1	12,623	7.17	3.52	2.08	1.56	1.26	1.02	0.83	1,761
Lane 1 - 12.5' Right	4+01	1	12,781	8.80	4.36	2.47	1.73	1.34	1.08	0.88	1,452
Lane 3 - 27' Right	4+50	1	12,445	10.26	5.78	3.68	2.64	1.97	1.53	1.20	1,213
Lane 2 - 9' Left	4+52	1	12,421	11.83	6.20	3.48	2.43	1.76	1.39	1.03	1,050
Lane 1 - 9' Right	5+00	1	12,874	1.86	1.72	1.52	1.44	1.29	1.16	1.05	6,922
Lane 2 - 9' Left	5+52	1	12,746	1.72	1.54	1.42	1.26	1.19	1.00	0.87	7,410
Lane 4 - 27' Left	6+00	1	12,766	1.48	1.45	1.35	1.17	1.13	0.98	0.85	8,626
Lane 1 - 9' Right	6+01	1	12,821	1.68	1.48	1.41	1.20	1.21	0.98	0.86	7,632
Lane 2 - 9' Left	6+55	1	12,742	1.39	1.24	1.14	1.05	1.04	0.83	0.75	9,167
Lane 3 - 27' Right	6+60	1	12,746	1.49	1.35	1.17	1.14	1.13	1.02	0.82	8,554
Lane 1 - 9' Right	7+00	1	12,834	1.66	1.55	1.41	1.30	1.18	1.02	0.91	7,731
Lane 2 - 9' Left	7+53	1	12,723	2.32	2.07	1.94	1.61	1.48	1.22	1.06	5,484
Lane 1 - 9' Right	8+01	1	12,842	1.68	1.45	1.29	1.26	1.11	0.97	0.84	7,644
Lane 4 - 27' Left	8+04	1	12,786	1.81	1.59	1.46	1.32	1.20	1.07	0.96	7,064
Lane 2 - 9' Left	8+50	1	12,746	1.62	1.56	1.43	1.36	1.22	1.06	0.92	7,868

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	8+55	1	12,762	2.00	1.81	1.67	1.56	1.46	1.30	1.15	6,381
Lane 1 - 9' Right	9+00	1	12,834	1.81	1.59	1.45	1.40	1.29	1.15	1.02	7,091
Lane 2 - 9' Left	9+64	1	12,699	1.71	1.57	1.48	1.30	1.22	1.10	1.01	7,426
Lane 1 - 9' Right	10+01	1	12,866	1.76	1.65	1.51	1.33	1.36	1.15	1.07	7,310
Lane 4 - 27' Left	10+04	1	12,742	1.94	1.56	1.44	1.32	1.30	1.07	0.95	6,568
Lane 3 - 27' Right	10+50	1	12,532	12.97	4.86	2.45	1.73	1.41	1.11	0.89	966
Lane 2 - 9' Left	10+51	1	12,535	7.77	2.94	2.07	1.80	1.51	1.16	0.96	1,613
Lane 1 - 9' Right	11+00	1	12,630	13.51	4.69	2.92	2.25	1.89	1.44	1.16	935
Lane 2 - 9' Left	11+52	1	12,460	13.31	3.71	1.83	1.54	1.26	1.07	0.85	936
Lane 4 - 27' Left	12+00	1	12,607	9.40	3.64	2.38	1.96	1.63	1.37	1.18	1,341
Lane 1 - 9' Right	12+05	1	12,627	10.20	4.04	2.57	2.00	1.60	1.28	1.02	1,238
Lane 3 - 27' Right	12+50	1	12,575	10.52	4.07	2.32	1.93	1.58	1.28	1.01	1,195
Lane 2 - 9' Left	12+51	1	12,503	12.30	3.93	2.31	1.99	1.79	1.47	1.54	1,017
Lane 1 - 9' Right	13+04	1	12,532	12.89	4.44	2.67	2.41	2.05	1.70	1.30	972
Lane 2 - 9' Left	13+50	1	12,535	9.25	3.05	2.11	1.77	1.48	1.25	1.06	1,355
Lane 1 - 9' Right	14+00	1	12,662	9.78	3.61	2.57	2.13	1.83	1.47	1.23	1,295
Lane 4 - 27' Left	14+00	1	12,619	8.19	3.28	2.07	1.73	1.50	1.20	0.96	1,541
Lane 2 - 9' Left	14+56	1	12,492	10.47	3.55	2.40	2.05	1.86	1.46	1.15	1,193
Lane 3 - 27' Right	14+65	1	12,572	10.61	4.90	3.28	2.66	2.13	1.74	1.39	1,185
Lane 1 - 9' Right	15+00	1	12,651	8.65	4.32	3.42	2.83	2.36	1.91	1.52	1,463
Lane 2 - 9' Left	15+64	1	12,519	11.23	3.68	2.20	2.08	1.81	1.39	1.02	1,115
Lane 4 - 27' Left	16+00	1	12,619	8.24	3.63	2.75	2.31	1.95	1.67	1.41	1,531
Lane 1 - 9' Right	16+06	1	12,591	11.26	5.01	3.42	2.87	2.26	1.78	1.36	1,118
Lane 3 - 27' Right	16+53	1	12,548	12.83	5.00	2.93	2.46	2.10	1.69	1.41	978
Lane 2 - 9' Left	16+55	1	12,516	11.87	4.67	2.72	2.37	2.08	1.61	1.31	1,054
Lane 1 - 9' Right	17+01	1	12,615	10.51	4.07	3.06	2.50	2.04	1.64	1.29	1,200
Lane 2 - 9' Left	17+51	1	12,488	15.94	5.94	2.47	2.04	1.65	1.37	1.16	783

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 27' Left	18+02	1	12,596	9.48	3.81	2.81	2.31	1.94	1.55	1.30	1,329
Lane 1 - 9' Right	18+03	1	12,591	13.41	4.70	3.06	2.46	2.03	1.61	1.23	939
Lane 2 - 9' Left	18+56	1	12,543	11.16	4.46	3.11	2.70	2.26	1.91	1.51	1,124
Lane 3 - 27' Right	18+57	1	12,472	15.35	5.16	2.99	2.60	2.18	1.69	1.24	813
Lane 1 - 9' Right	19+00	1	12,591	13.79	4.78	2.77	2.40	1.96	1.59	1.20	913
Lane 2 - 9' Left	19+53	1	12,603	5.48	3.17	2.71	2.25	1.93	1.51	1.19	2,300
Lane 4 - 27' Left	20+00	1	12,643	8.11	3.51	2.09	1.45	1.16	0.94	0.65	1,559
Lane 1 - 9' Right	20+07	1	12,627	11.50	5.27	3.26	2.52	1.91	1.53	1.11	1,098
Lane 3 - 27' Right	20+50	1	12,580	10.69	4.35	2.26	1.66	1.33	1.03	0.84	1,177
Lane 2 - 9' Left	20+51	1	12,559	9.11	3.63	2.27	1.78	1.44	1.15	0.89	1,379
Lane 1 - 9' Right	21+00	1	12,643	8.59	4.06	3.02	2.38	2.04	1.61	1.29	1,472
Lane 2 - 9' Left	21+53	1	12,583	8.09	3.67	2.77	2.23	1.74	1.43	1.09	1,555
Lane 4 - 27' Left	22+00	1	12,588	10.31	3.73	1.99	1.44	1.29	0.91	0.72	1,221
Lane 1 - 9' Right	22+05	1	12,611	11.57	4.51	3.00	2.27	1.87	1.31	0.94	1,090
Lane 2 - 9' Left	22+50	1	12,556	10.00	3.61	2.26	1.88	1.58	1.15	0.86	1,256
Lane 3 - 27' Right	22+50	1	12,572	12.09	3.85	2.10	1.40	1.04	0.79	0.62	1,040
Lane 1 - 9' Right	23+00	1	12,607	9.40	4.08	2.50	1.75	1.41	0.97	0.65	1,341
Lane 2 - 9' Left	23+63	1	12,551	6.09	3.20	2.48	1.88	1.53	1.08	0.81	2,061
Lane 1 - 9' Right	24+03	1	12,572	17.25	4.68	1.33	1.13	0.84	0.61	0.48	729
Lane 4 - 27' Left	24+03	1	12,575	8.57	3.30	1.83	1.35	1.02	0.82	0.59	1,467
Lane 2 - 9' Left	24+50	1	12,548	9.11	2.97	1.62	1.36	1.15	0.91	0.70	1,377
Lane 3 - 27' Right	24+51	1	12,575	8.49	2.86	1.41	1.05	0.88	0.60	0.49	1,481
Lane 1 - 9' Right	25+00	1	12,392	19.52	5.95	2.20	1.53	1.06	0.79	0.64	635
Lane 2 - 9' Left	25+52	1	12,511	6.62	4.03	3.40	2.91	2.52	2.01	1.67	1,890
Lane 1 - 9' Right	26+00	1	12,603	15.31	5.63	2.91	2.54	2.15	1.69	1.31	823
Lane 4 - 27' Left	26+00	1	12,559	10.67	3.64	2.05	1.62	1.36	1.09	0.87	1,177
Lane 3 - 27' Right	26+51	1	12,551	8.37	4.26	3.03	2.43	2.08	1.63	1.31	1,500

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	26+56	1	12,508	10.92	3.13	1.65	1.54	1.19	0.94	0.76	1,145
Lane 1 - 9' Right	27+03	1	12,548	13.94	4.15	2.06	1.09	0.87	0.78	0.65	900
Lane 2 - 9' Left	27+52	1	12,448	11.43	3.96	1.99	1.48	1.30	1.09	0.81	1,089
Lane 4 - 27' Left	28+00	1	12,559	10.07	3.63	2.08	1.60	1.35	1.10	0.93	1,247
Lane 1 - 9' Right	28+05	1	12,524	11.48	3.55	1.76	1.19	1.05	0.89	0.67	1,091
Lane 2 - 9' Left	28+50	1	12,468	10.85	4.00	1.88	1.42	1.25	1.03	0.87	1,149
Lane 3 - 27' Right	28+51	1	12,580	8.59	2.84	1.74	1.34	1.15	0.96	0.86	1,464
Lane 1 - 9' Right	29+00	1	12,583	9.57	3.66	2.00	1.49	1.17	0.99	0.82	1,315
Lane 2 - 9' Left	29+51	1	12,432	11.48	4.15	1.82	1.34	1.10	0.90	0.78	1,083
Lane 4 - 27' Left	30+01	1	12,548	12.33	4.44	2.04	1.44	1.29	1.00	0.86	1,018
Lane 1 - 9' Right	30+06	1	12,548	11.93	3.88	2.24	1.83	1.47	1.15	1.03	1,052
Lane 3 - 27' Right	30+50	1	12,548	12.18	3.92	1.86	1.48	1.23	0.98	0.82	1,030
Lane 2 - 9' Left	30+54	1	12,421	12.04	4.62	2.29	1.72	1.39	1.11	0.96	1,032
Lane 1 - 9' Right	31+00	1	12,511	13.69	4.94	2.31	1.78	1.50	1.13	0.98	914
Lane 2 - 9' Left	31+50	1	12,392	12.40	4.55	1.97	1.52	1.29	1.00	0.83	999
Lane 1 - 9' Right	32+00	1	12,511	10.14	4.27	2.35	1.75	1.46	1.16	0.99	1,234
Lane 4 - 27' Left	32+01	1	12,548	10.03	4.03	2.18	1.59	1.32	1.01	0.81	1,251
Lane 2 - 9' Left	32+50	1	12,421	11.95	4.53	2.14	1.63	1.29	1.09	0.86	1,039
Lane 3 - 27' Right	32+50	1	12,556	10.31	3.54	2.11	1.66	1.41	1.14	0.86	1,218
Lane 1 - 9' Right	33+04	1	12,480	12.91	4.74	1.97	1.43	1.14	0.89	0.76	967
Lane 2 - 9' Left	33+52	1	12,456	10.52	4.14	2.06	1.56	1.22	1.03	0.79	1,184
Lane 1 - 9' Right	34+00	1	12,460	12.24	4.23	2.43	1.80	1.49	1.08	1.02	1,018
Lane 4 - 27' Left	34+00	1	12,503	12.62	4.50	2.36	1.78	1.37	1.08	0.86	991
Lane 2 - 9' Left	34+50	1	12,389	12.61	4.70	2.17	1.61	1.37	1.10	0.81	982
Lane 3 - 27' Right	34+50	1	12,575	7.32	3.27	2.13	1.66	1.32	1.05	0.86	1,718
Lane 1 - 9' Right	35+04	1	12,492	10.29	4.17	2.70	2.05	1.70	1.44	1.12	1,214
Lane 2 - 9' Left	35+51	1	12,440	10.30	4.04	2.50	1.89	1.57	1.09	0.90	1,208

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	36+00	1	12,556	10.22	3.44	2.39	1.89	1.56	1.18	0.86	1,229
Lane 4 - 27' Left	36+00	1	12,548	12.44	4.69	2.65	1.93	1.46	1.13	0.96	1,009
Lane 3 - 27' Right	36+51	1	12,583	10.17	3.14	2.02	1.67	1.39	1.13	0.94	1,237
Lane 2 - 9' Left	36+56	1	12,397	15.20	4.96	2.69	1.97	1.63	1.22	0.94	816
Lane 1 - 9' Right	37+00	1	12,524	11.26	3.89	2.48	1.90	1.51	1.16	0.91	1,112
Lane 2 - 9' Left	37+59	1	12,460	10.91	4.33	2.33	1.61	1.43	1.02	0.80	1,142
Lane 4 - 27' Left	38+00	1	12,543	12.15	4.81	2.45	1.68	1.29	1.05	0.73	1,032
Lane 1 - 9' Right	38+07	1	12,472	11.68	3.76	2.41	1.77	1.47	1.20	0.97	1,068
Lane 2 - 9' Left	38+50	1	12,460	10.98	3.71	1.86	1.37	1.30	0.91	0.77	1,135
Lane 3 - 27' Right	38+51	1	12,540	9.79	3.33	2.31	1.81	1.55	1.24	1.09	1,281
Lane 1 - 9' Right	39+00	1	12,500	9.70	3.74	2.92	2.24	1.81	1.37	1.17	1,289
Lane 2 - 9' Left	39+51	1	12,492	8.59	3.69	2.39	1.89	1.48	1.03	0.86	1,454
Lane 4 - 27' Left	40+01	1	12,500	14.04	5.27	2.43	1.65	1.31	1.03	0.75	890
Lane 1 - 9' Right	40+03	1	12,535	9.30	4.26	2.85	2.16	1.74	1.36	1.08	1,348
Lane 2 - 9' Left	40+54	1	12,516	10.17	4.63	2.67	2.08	1.57	1.25	0.93	1,231
Lane 3 - 27' Right	40+55	1	12,643	5.28	2.52	1.93	1.50	1.20	0.96	0.79	2,395
Lane 1 - 9' Right	41+00	1	12,548	10.21	5.48	3.77	2.81	2.20	1.69	1.26	1,229
Lane 4 - 27' Left	41+42	1	12,583	6.52	3.19	2.33	1.83	1.62	1.24	1.00	1,930
Lane 2 - 9' Left	41+52	1	12,535	8.69	4.40	3.37	2.72	2.26	1.89	1.48	1,442
Lane 1 - 9' Right	42+08	1	12,511	7.47	3.67	2.56	1.92	1.47	1.21	1.01	1,675
Lane 2 - 9' Left	42+50	1	12,448	7.35	3.79	2.89	2.21	1.91	1.50	1.25	1,694
Lane 3 - 27' Right	42+51	1	12,488	16.76	5.25	2.57	2.06	1.71	1.39	1.17	745
Lane 1 - 9' Right	43+02	1	12,492	9.15	4.30	3.07	2.47	2.03	1.70	1.42	1,365
Lane 2 - 9' Left	43+53	1	12,448	8.76	4.44	3.00	2.39	1.94	1.59	1.27	1,421
Lane 4 - 27' Left	44+00	1	12,654	7.10	3.18	2.56	2.04	1.87	1.40	1.29	1,782
Lane 1 - 9' Right	44+01	1	12,460	9.55	4.42	3.40	2.70	2.39	1.86	1.58	1,305
Lane 2 - 9' Left	44+53	1	12,484	6.92	3.47	2.68	2.22	1.81	1.56	1.24	1,804

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	44+54	1	12,599	6.94	4.06	3.37	2.85	2.43	1.98	1.63	1,815
Lane 1 - 9' Right	45+00	1	12,500	8.73	4.74	3.63	3.00	2.48	1.96	1.64	1,432
Lane 2 - 9' Left	45+50	1	12,400	11.13	5.89	4.04	2.99	2.51	1.79	1.53	1,114
Lane 4 - 27' Left	46+00	1	12,675	8.10	4.22	3.07	2.40	1.98	1.61	1.27	1,565
Lane 1 - 9' Right	46+04	1	12,480	11.75	5.69	3.78	2.98	2.29	1.82	1.42	1,062
Lane 2 - 9' Left	46+50	1	12,476	7.10	4.09	3.20	2.56	2.18	1.74	1.36	1,757
Lane 3 - 27' Right	46+50	1	12,611	10.11	5.26	3.38	2.88	2.31	1.85	1.50	1,247
Lane 1 - 9' Right	47+00	1	12,492	10.02	4.86	3.47	2.71	2.12	1.67	1.33	1,247
Lane 2 - 9' Left	47+50	1	12,429	10.50	4.45	2.96	2.43	1.91	1.49	1.22	1,184
Lane 1 - 9' Right	47+90	1	12,468	10.58	4.46	3.07	2.41	1.98	1.57	1.24	1,178
Lane 4 - 27' Left	48+00	1	12,638	6.48	2.48	1.80	1.50	1.35	1.01	0.84	1,950
Lane 3 - 27' Right	48+19	1	12,543	12.45	4.10	2.85	2.20	1.71	1.38	1.07	1,007
Lane 1 - 12.5' Right	0+00	2	17,894	14.83	8.98	5.61	3.86	2.85	2.28	1.81	1,207
Lane 4 - 27' Left	0+01	2	17,714	17.16	9.96	5.76	3.81	2.70	2.14	1.68	1,032
Lane 2 - 9' Left	0+50	2	17,746	11.25	6.02	3.24	2.31	1.81	1.46	1.22	1,577
Lane 3 - 27' Right	0+52	2	17,695	12.17	6.50	3.69	2.51	1.99	1.57	1.23	1,454
Lane 1 - 12.5' Right	1+01	2	17,754	13.00	6.54	3.54	2.65	1.96	1.52	1.25	1,366
Lane 2 - 9' Left	1+50	2	17,664	13.03	6.30	3.33	2.41	1.82	1.47	1.09	1,356
Lane 1 - 12.5' Right	2+00	2	17,791	11.21	5.22	2.98	2.11	1.63	1.32	1.04	1,587
Lane 4 - 27' Left	2+07	2	17,691	10.85	5.60	3.19	2.40	1.82	1.50	1.24	1,631
Lane 2 - 9' Left	2+50	2	17,627	13.21	6.37	3.43	2.44	1.76	1.40	1.10	1,334
Lane 3 - 27' Right	2+50	2	17,656	11.52	5.76	3.25	2.34	1.79	1.41	1.17	1,533
Lane 1 - 12.5' Right	3+00	2	17,791	8.78	5.09	3.41	2.53	1.91	1.55	1.27	2,026
Lane 2 - 9' Left	3+50	2	17,687	12.21	5.45	2.96	2.07	1.51	1.21	0.94	1,449
Lane 4 - 27' Left	4+00	2	17,680	10.02	5.04	2.87	2.20	1.76	1.37	1.13	1,764
Lane 1 - 12.5' Right	4+01	2	17,786	12.09	6.15	3.50	2.49	1.89	1.53	1.20	1,471
Lane 3 - 27' Right	4+50	2	17,457	14.00	8.09	5.20	3.75	2.79	2.18	1.65	1,247

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	4+52	2	17,436	15.89	8.57	4.98	3.53	2.55	1.98	1.52	1,097
Lane 1 - 9' Right	5+00	2	17,977	2.65	2.39	2.13	1.99	1.78	1.59	1.41	6,784
Lane 2 - 9' Left	5+52	2	17,905	2.37	2.13	2.03	1.75	1.58	1.36	1.22	7,555
Lane 4 - 27' Left	6+00	2	17,894	2.24	2.03	1.78	1.66	1.47	1.29	1.12	7,988
Lane 1 - 9' Right	6+01	2	17,918	2.32	2.02	1.81	1.66	1.49	1.29	1.12	7,723
Lane 2 - 9' Left	6+55	2	17,889	1.92	1.72	1.52	1.45	1.31	1.19	1.00	9,317
Lane 3 - 27' Right	6+60	2	17,857	2.11	1.87	1.64	1.62	1.49	1.28	1.11	8,463
Lane 1 - 9' Right	7+00	2	17,950	2.28	2.14	1.95	1.80	1.62	1.43	1.28	7,873
Lane 2 - 9' Left	7+53	2	17,830	3.40	2.87	2.61	2.30	1.98	1.69	1.44	5,244
Lane 1 - 9' Right	8+01	2	17,961	2.17	1.99	1.81	1.67	1.53	1.35	1.20	8,277
Lane 4 - 27' Left	8+04	2	17,910	2.44	2.15	1.93	1.80	1.61	1.44	1.28	7,340
Lane 2 - 9' Left	8+50	2	17,842	2.37	2.17	2.03	1.92	1.72	1.49	1.30	7,528
Lane 3 - 27' Right	8+55	2	17,870	2.73	2.49	2.30	2.17	1.97	1.77	1.57	6,546
Lane 1 - 9' Right	9+00	2	17,958	2.41	2.25	2.04	1.92	1.77	1.58	1.39	7,451
Lane 2 - 9' Left	9+64	2	17,854	2.42	2.18	1.98	1.85	1.68	1.48	1.34	7,378
Lane 1 - 9' Right	10+01	2	17,950	2.42	2.21	2.02	1.89	1.75	1.56	1.40	7,417
Lane 4 - 27' Left	10+04	2	17,870	2.36	2.17	1.97	1.81	1.68	1.46	1.31	7,572
Lane 3 - 27' Right	10+50	2	17,600	17.10	6.67	3.47	2.51	1.96	1.56	1.24	1,029
Lane 2 - 9' Left	10+51	2	17,579	10.50	4.33	3.13	2.62	2.14	1.70	1.30	1,674
Lane 1 - 9' Right	11+00	2	17,691	17.50	6.64	4.26	3.37	2.69	2.17	1.65	1,011
Lane 2 - 9' Left	11+52	2	17,500	17.38	5.40	2.82	2.33	1.88	1.58	1.24	1,007
Lane 4 - 27' Left	12+00	2	17,632	12.42	5.11	3.45	2.80	2.33	1.96	1.69	1,420
Lane 1 - 9' Right	12+05	2	17,659	13.82	6.03	3.81	3.00	2.33	1.90	1.55	1,278
Lane 3 - 27' Right	12+50	2	17,592	13.91	5.69	3.31	2.71	2.23	1.80	1.41	1,265
Lane 2 - 9' Left	12+51	2	17,508	16.30	5.67	3.55	3.19	2.49	2.19	1.71	1,074
Lane 1 - 9' Right	13+04	2	17,556	16.56	6.37	3.95	3.48	2.73	2.31	1.87	1,060
Lane 2 - 9' Left	13+50	2	17,587	12.43	4.54	3.25	2.69	2.26	1.91	1.60	1,415

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	14+00	2	17,711	13.14	5.31	3.83	3.18	2.65	2.19	1.76	1,348
Lane 4 - 27' Left	14+00	2	17,648	10.91	4.57	3.00	2.45	2.04	1.68	1.34	1,618
Lane 2 - 9' Left	14+56	2	17,524	13.92	5.24	3.68	3.11	2.66	2.07	1.72	1,259
Lane 3 - 27' Right	14+65	2	17,587	14.23	6.73	4.60	3.72	2.97	2.41	1.95	1,236
Lane 1 - 9' Right	15+00	2	17,680	12.07	6.17	4.95	4.08	3.38	2.76	2.20	1,465
Lane 2 - 9' Left	15+64	2	17,540	14.56	5.22	3.27	3.03	2.52	2.04	1.66	1,205
Lane 4 - 27' Left	16+00	2	17,675	10.98	5.02	3.80	3.25	2.70	2.35	1.87	1,610
Lane 1 - 9' Right	16+06	2	17,627	15.30	7.24	5.13	4.21	3.30	2.64	2.04	1,152
Lane 3 - 27' Right	16+53	2	17,560	16.68	6.89	4.16	3.49	2.90	2.39	1.96	1,053
Lane 2 - 9' Left	16+55	2	17,552	15.61	6.52	4.00	3.41	2.86	2.33	1.90	1,124
Lane 1 - 9' Right	17+01	2	17,691	14.24	5.97	4.44	3.72	3.01	2.43	1.88	1,242
Lane 2 - 9' Left	17+51	2	17,500	20.67	8.14	3.74	3.04	2.47	2.04	1.69	847
Lane 4 - 27' Left	18+02	2	17,648	12.65	5.33	3.94	3.27	2.76	2.18	1.76	1,395
Lane 1 - 9' Right	18+03	2	17,627	17.72	6.77	4.51	3.68	2.87	2.32	1.78	995
Lane 2 - 9' Left	18+56	2	17,576	14.66	6.48	4.79	3.92	3.31	2.74	2.26	1,199
Lane 3 - 27' Right	18+57	2	17,508	19.86	7.07	4.15	3.70	2.96	2.37	1.85	882
Lane 1 - 9' Right	19+00	2	17,624	17.63	6.78	4.22	3.57	2.87	2.30	1.75	1,000
Lane 2 - 9' Left	19+53	2	17,699	7.93	4.83	4.03	3.48	2.82	2.24	1.69	2,232
Lane 4 - 27' Left	20+00	2	17,672	11.13	4.93	2.91	2.12	1.58	1.30	0.94	1,588
Lane 1 - 9' Right	20+07	2	17,643	15.57	7.57	4.72	3.60	2.80	2.19	1.64	1,133
Lane 3 - 27' Right	20+50	2	17,592	14.27	6.02	3.20	2.37	1.87	1.50	1.19	1,233
Lane 2 - 9' Left	20+51	2	17,616	12.41	5.51	3.43	2.75	2.25	1.78	1.34	1,420
Lane 1 - 9' Right	21+00	2	17,675	11.89	6.00	4.34	3.55	2.90	2.32	1.80	1,487
Lane 2 - 9' Left	21+53	2	17,635	11.16	5.43	4.08	3.39	2.65	2.11	1.65	1,580
Lane 4 - 27' Left	22+00	2	17,603	13.70	5.18	2.89	2.15	1.65	1.39	0.92	1,285
Lane 1 - 9' Right	22+05	2	17,635	15.28	6.46	4.31	3.31	2.56	1.91	1.36	1,154
Lane 2 - 9' Left	22+50	2	17,595	13.19	5.28	3.42	2.85	2.19	1.80	1.20	1,334

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	22+50	2	17,608	15.92	5.41	3.02	2.03	1.47	1.10	0.85	1,106
Lane 1 - 9' Right	23+00	2	17,675	12.72	5.83	3.57	2.56	1.83	1.39	1.00	1,390
Lane 2 - 9' Left	23+63	2	17,632	8.43	4.74	3.63	2.84	2.13	1.56	1.09	2,092
Lane 1 - 9' Right	24+03	2	17,611	21.36	6.47	2.11	1.66	1.23	0.95	0.76	824
Lane 4 - 27' Left	24+03	2	17,619	11.74	4.70	2.70	1.97	1.44	1.16	0.86	1,501
Lane 2 - 9' Left	24+50	2	17,611	12.26	4.37	2.52	2.09	1.62	1.33	1.03	1,436
Lane 3 - 27' Right	24+51	2	17,624	11.39	4.08	2.09	1.55	1.17	0.89	0.59	1,547
Lane 1 - 9' Right	25+00	2	17,409	23.81	8.13	3.49	2.35	1.61	1.15	0.92	731
Lane 2 - 9' Left	25+52	2	17,568	9.39	6.17	5.07	4.45	3.67	3.05	2.44	1,871
Lane 1 - 9' Right	26+00	2	17,568	19.76	7.95	4.33	3.68	3.12	2.44	1.87	889
Lane 4 - 27' Left	26+00	2	17,600	13.84	5.00	2.91	2.26	1.77	1.45	1.22	1,272
Lane 3 - 27' Right	26+51	2	17,600	11.43	5.88	4.16	3.48	2.85	2.34	1.87	1,540
Lane 2 - 9' Left	26+56	2	17,552	14.13	4.47	2.61	2.18	1.71	1.37	1.09	1,242
Lane 1 - 9' Right	27+03	2	17,608	17.60	5.99	3.05	1.56	1.24	1.14	0.95	1,000
Lane 2 - 9' Left	27+52	2	17,508	15.18	5.81	3.02	2.28	1.79	1.49	1.19	1,153
Lane 4 - 27' Left	28+00	2	17,608	13.37	5.12	2.94	2.36	1.81	1.59	1.25	1,317
Lane 1 - 9' Right	28+05	2	17,579	14.86	5.13	2.62	1.83	1.59	1.30	1.00	1,183
Lane 2 - 9' Left	28+50	2	17,508	14.24	5.68	2.74	2.17	1.72	1.58	1.18	1,229
Lane 3 - 27' Right	28+51	2	17,664	11.52	4.00	2.44	1.88	1.63	1.36	1.14	1,533
Lane 1 - 9' Right	29+00	2	17,659	12.94	5.33	3.02	2.26	1.75	1.50	1.19	1,365
Lane 2 - 9' Left	29+51	2	17,497	14.92	5.96	2.74	2.06	1.60	1.31	0.89	1,173
Lane 4 - 27' Left	30+01	2	17,576	16.05	6.05	2.92	2.12	1.79	1.45	1.18	1,095
Lane 1 - 9' Right	30+06	2	17,552	15.69	5.70	3.44	2.77	2.22	1.80	1.50	1,119
Lane 3 - 27' Right	30+50	2	17,579	15.67	5.40	2.70	2.11	1.68	1.39	1.15	1,122
Lane 2 - 9' Left	30+54	2	17,433	16.34	6.63	3.48	2.62	2.01	1.61	1.35	1,067
Lane 1 - 9' Right	31+00	2	17,524	17.76	7.20	3.71	2.79	2.22	1.78	1.47	987
Lane 2 - 9' Left	31+50	2	17,449	16.20	6.42	3.07	2.45	1.82	1.48	1.25	1,077

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	32+00	2	17,592	13.66	6.23	3.62	2.72	2.17	1.74	1.43	1,288
Lane 4 - 27' Left	32+01	2	17,595	13.31	5.61	3.14	2.32	1.88	1.48	1.17	1,322
Lane 2 - 9' Left	32+50	2	17,428	16.19	6.63	3.51	2.57	1.96	1.58	1.29	1,076
Lane 3 - 27' Right	32+50	2	17,616	13.80	5.00	3.10	2.41	2.01	1.62	1.26	1,277
Lane 1 - 9' Right	33+04	2	17,521	16.72	6.62	3.20	2.26	1.70	1.31	1.03	1,048
Lane 2 - 9' Left	33+52	2	17,460	14.45	5.98	3.22	2.38	1.84	1.51	1.21	1,208
Lane 1 - 9' Right	34+00	2	17,484	16.06	6.13	3.64	2.78	2.14	1.68	1.34	1,089
Lane 4 - 27' Left	34+00	2	17,532	16.49	6.33	3.48	2.63	2.03	1.65	1.28	1,063
Lane 2 - 9' Left	34+50	2	17,436	16.58	6.76	3.42	2.50	1.98	1.61	1.20	1,052
Lane 3 - 27' Right	34+50	2	17,632	10.00	4.66	3.14	2.38	1.84	1.49	1.22	1,763
Lane 1 - 9' Right	35+04	2	17,529	13.75	6.16	4.05	3.13	2.46	2.02	1.59	1,275
Lane 2 - 9' Left	35+51	2	17,484	13.94	5.99	3.73	2.85	2.12	1.62	1.31	1,254
Lane 1 - 9' Right	36+00	2	17,611	13.78	5.16	3.55	2.89	2.26	1.70	1.31	1,278
Lane 4 - 27' Left	36+00	2	17,556	16.52	6.58	3.74	2.80	2.07	1.69	1.34	1,063
Lane 3 - 27' Right	36+51	2	17,643	13.55	4.43	3.02	2.39	2.01	1.62	1.31	1,302
Lane 2 - 9' Left	36+56	2	17,413	19.53	7.18	4.20	3.03	2.38	1.83	1.41	892
Lane 1 - 9' Right	37+00	2	17,556	15.00	5.66	3.72	2.87	2.26	1.75	1.33	1,170
Lane 2 - 9' Left	37+59	2	17,500	14.70	6.26	3.39	2.37	1.90	1.47	1.07	1,190
Lane 4 - 27' Left	38+00	2	17,576	16.35	6.75	3.49	2.44	1.84	1.44	1.07	1,075
Lane 1 - 9' Right	38+07	2	17,513	15.42	5.50	3.58	2.68	2.13	1.73	1.37	1,136
Lane 2 - 9' Left	38+50	2	17,505	14.59	5.40	2.83	2.03	1.55	1.24	0.98	1,200
Lane 3 - 27' Right	38+51	2	17,576	13.36	4.88	3.43	2.69	2.20	1.79	1.44	1,316
Lane 1 - 9' Right	39+00	2	17,564	13.25	5.61	4.33	3.41	2.69	2.11	1.70	1,326
Lane 2 - 9' Left	39+51	2	17,532	11.96	5.44	3.63	2.85	2.15	1.74	1.29	1,466
Lane 4 - 27' Left	40+01	2	17,552	18.52	7.19	3.48	2.41	1.85	1.50	1.14	948
Lane 1 - 9' Right	40+03	2	17,595	12.88	6.13	4.17	3.18	2.52	2.00	1.60	1,366
Lane 2 - 9' Left	40+54	2	17,560	13.91	6.59	4.16	3.06	2.37	1.85	1.39	1,262

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	40+55	2	17,722	7.33	3.57	2.79	2.14	1.69	1.35	1.06	2,418
Lane 1 - 9' Right	41+00	2	17,595	13.96	7.74	5.43	4.05	3.15	2.44	1.79	1,260
Lane 4 - 27' Left	41+42	2	17,659	8.98	4.49	3.34	2.65	2.15	1.78	1.41	1,966
Lane 2 - 9' Left	41+52	2	17,579	12.09	6.51	4.78	4.09	3.30	2.74	2.19	1,454
Lane 1 - 9' Right	42+08	2	17,587	10.62	5.48	3.71	2.89	2.22	1.79	1.42	1,656
Lane 2 - 9' Left	42+50	2	17,521	10.55	5.58	4.13	3.39	2.75	2.28	1.85	1,661
Lane 3 - 27' Right	42+51	2	17,532	21.66	7.20	3.77	2.96	2.39	1.96	1.59	809
Lane 1 - 9' Right	43+02	2	17,505	12.62	6.34	4.63	3.73	3.08	2.48	2.09	1,387
Lane 2 - 9' Left	43+53	2	17,524	12.05	6.52	4.53	3.60	2.94	2.38	1.88	1,454
Lane 4 - 27' Left	44+00	2	17,719	9.60	4.49	3.56	2.91	2.42	2.03	1.72	1,846
Lane 1 - 9' Right	44+01	2	17,521	13.24	6.61	5.04	4.11	3.44	2.79	2.42	1,323
Lane 2 - 9' Left	44+53	2	17,540	9.81	5.06	4.00	3.31	2.74	2.29	1.89	1,788
Lane 3 - 27' Right	44+54	2	17,675	9.73	5.77	4.81	4.10	3.47	2.86	2.33	1,817
Lane 1 - 9' Right	45+00	2	17,540	12.15	6.89	5.41	4.46	3.61	2.94	2.38	1,444
Lane 2 - 9' Left	45+50	2	17,421	15.29	8.56	5.96	4.51	3.67	2.81	2.29	1,139
Lane 4 - 27' Left	46+00	2	17,714	11.07	5.85	4.32	3.36	2.73	2.24	1.77	1,600
Lane 1 - 9' Right	46+04	2	17,516	16.07	8.11	5.66	4.35	3.38	2.69	2.07	1,090
Lane 2 - 9' Left	46+50	2	17,497	9.93	5.98	4.70	3.86	3.20	2.67	2.06	1,762
Lane 3 - 27' Right	46+50	2	17,616	13.72	7.31	5.07	4.05	3.31	2.74	2.20	1,284
Lane 1 - 9' Right	47+00	2	17,529	13.70	7.10	5.19	4.05	3.15	2.50	2.01	1,279
Lane 2 - 9' Left	47+50	2	17,476	14.19	6.38	4.58	3.60	2.80	2.21	1.78	1,232
Lane 1 - 9' Right	47+90	2	17,468	14.62	6.56	4.58	3.63	2.94	2.37	1.81	1,195
Lane 4 - 27' Left	48+00	2	17,699	9.11	3.54	2.54	2.15	1.79	1.48	1.25	1,943
Lane 3 - 27' Right	48+19	2	17,603	16.22	5.72	4.00	3.16	2.46	2.01	1.54	1,085
Lane 1 - 12.5' Right	0+00	3	23,299	19.48	11.88	7.45	5.04	3.70	2.88	2.34	1,196
Lane 4 - 27' Left	0+01	3	23,145	22.54	13.14	7.61	5.02	3.53	2.76	2.16	1,027
Lane 2 - 9' Left	0+50	3	23,288	14.71	7.97	4.41	3.10	2.30	1.92	1.60	1,583

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	0+52	3	23,216	16.07	8.64	4.83	3.28	2.55	2.07	1.65	1,445
Lane 1 - 12.5' Right	1+01	3	23,235	16.75	8.67	4.74	3.55	2.56	2.06	1.71	1,387
Lane 2 - 9' Left	1+50	3	23,208	16.90	8.39	4.37	3.27	2.38	1.80	1.53	1,373
Lane 1 - 12.5' Right	2+00	3	23,283	14.45	6.90	4.01	2.79	2.11	1.72	1.37	1,611
Lane 4 - 27' Left	2+07	3	23,204	14.28	7.48	4.38	3.20	2.44	1.99	1.64	1,625
Lane 2 - 9' Left	2+50	3	23,227	17.17	8.45	4.51	3.38	2.32	1.74	1.45	1,353
Lane 3 - 27' Right	2+50	3	23,177	15.10	7.67	4.40	3.07	2.37	1.87	1.52	1,535
Lane 1 - 12.5' Right	3+00	3	23,370	11.60	6.77	4.58	3.37	2.54	2.02	1.68	2,015
Lane 2 - 9' Left	3+50	3	23,267	15.72	7.19	4.00	2.79	2.01	1.59	1.26	1,480
Lane 4 - 27' Left	4+00	3	23,243	13.26	6.70	3.98	2.89	2.28	1.83	1.55	1,753
Lane 1 - 12.5' Right	4+01	3	23,323	15.75	8.22	4.90	3.31	2.48	1.97	1.60	1,481
Lane 3 - 27' Right	4+50	3	22,973	18.33	10.62	6.97	4.93	3.68	2.84	2.23	1,253
Lane 2 - 9' Left	4+52	3	22,918	20.34	11.19	6.63	4.79	3.39	2.56	2.02	1,127
Lane 1 - 9' Right	5+00	3	23,609	3.37	3.09	2.76	2.58	2.30	2.04	1.80	7,006
Lane 2 - 9' Left	5+52	3	23,593	3.11	2.80	2.52	2.31	2.08	1.81	1.61	7,586
Lane 4 - 27' Left	6+00	3	23,558	2.93	2.67	2.39	2.17	1.95	1.70	1.49	8,040
Lane 1 - 9' Right	6+01	3	23,582	3.06	2.69	2.40	2.19	1.94	1.69	1.47	7,707
Lane 2 - 9' Left	6+55	3	23,621	2.54	2.28	2.05	1.88	1.67	1.52	1.36	9,300
Lane 3 - 27' Right	6+60	3	23,566	2.75	2.46	2.26	2.07	1.85	1.66	1.50	8,569
Lane 1 - 9' Right	7+00	3	23,640	3.15	2.80	2.56	2.37	2.13	1.88	1.65	7,505
Lane 2 - 9' Left	7+53	3	23,574	4.55	3.72	3.50	3.01	2.62	2.23	1.92	5,181
Lane 1 - 9' Right	8+01	3	23,633	2.87	2.62	2.39	2.21	2.03	1.79	1.57	8,234
Lane 4 - 27' Left	8+04	3	23,558	3.14	2.82	2.51	2.35	2.10	1.89	1.63	7,503
Lane 2 - 9' Left	8+50	3	23,609	3.15	2.89	2.68	2.58	2.29	2.00	1.72	7,495
Lane 3 - 27' Right	8+55	3	23,513	3.57	3.21	3.00	2.80	2.56	2.31	2.07	6,586
Lane 1 - 9' Right	9+00	3	23,601	3.19	2.93	2.66	2.50	2.30	2.05	1.82	7,398
Lane 2 - 9' Left	9+64	3	23,566	3.23	2.85	2.58	2.42	2.20	1.95	1.76	7,296

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	10+01	3	23,640	3.12	2.86	2.62	2.42	2.23	1.99	1.77	7,577
Lane 4 - 27' Left	10+04	3	23,537	3.40	2.82	2.50	2.35	2.13	1.88	1.68	6,923
Lane 3 - 27' Right	10+50	3	23,129	20.95	8.63	4.65	3.31	2.59	2.06	1.66	1,104
Lane 2 - 9' Left	10+51	3	23,188	13.56	5.93	4.17	3.63	2.88	2.28	1.83	1,710
Lane 1 - 9' Right	11+00	3	23,227	21.49	8.82	5.76	4.60	3.59	2.89	2.24	1,081
Lane 2 - 9' Left	11+52	3	23,061	21.58	7.31	4.09	3.28	2.60	2.25	1.67	1,069
Lane 4 - 27' Left	12+00	3	23,196	15.65	6.67	4.57	3.73	3.05	2.55	2.18	1,482
Lane 1 - 9' Right	12+05	3	23,192	17.47	8.09	5.20	4.12	3.19	2.58	2.08	1,328
Lane 3 - 27' Right	12+50	3	23,113	17.50	7.40	4.46	3.59	2.85	2.37	1.89	1,321
Lane 2 - 9' Left	12+51	3	23,084	20.39	7.70	4.89	4.42	3.67	3.06	2.81	1,132
Lane 1 - 9' Right	13+04	3	23,113	20.34	8.47	5.49	4.73	3.68	3.07	2.55	1,136
Lane 2 - 9' Left	13+50	3	23,192	15.84	6.19	4.48	3.79	3.13	2.70	2.13	1,464
Lane 1 - 9' Right	14+00	3	23,243	16.57	7.18	5.22	4.34	3.58	2.94	2.34	1,403
Lane 4 - 27' Left	14+00	3	23,204	13.88	5.98	3.98	3.24	2.63	2.18	1.78	1,672
Lane 2 - 9' Left	14+56	3	23,113	17.62	7.15	5.11	4.32	3.57	2.96	2.40	1,312
Lane 3 - 27' Right	14+65	3	23,097	17.96	8.67	6.06	4.86	3.85	3.13	2.55	1,286
Lane 1 - 9' Right	15+00	3	23,248	15.47	8.14	6.53	5.42	4.51	3.67	2.90	1,503
Lane 2 - 9' Left	15+64	3	23,156	18.00	6.89	4.61	4.07	3.33	2.79	2.27	1,286
Lane 4 - 27' Left	16+00	3	23,243	13.78	6.46	4.94	4.19	3.52	3.02	2.48	1,687
Lane 1 - 9' Right	16+06	3	23,153	19.39	9.63	6.87	5.65	4.46	3.48	2.79	1,194
Lane 3 - 27' Right	16+53	3	23,089	20.62	8.89	5.57	4.60	3.80	3.10	2.61	1,120
Lane 2 - 9' Left	16+55	3	23,108	19.39	8.44	5.31	4.63	3.87	3.04	2.26	1,192
Lane 1 - 9' Right	17+01	3	23,232	17.82	7.92	5.97	4.96	3.99	3.24	2.51	1,304
Lane 2 - 9' Left	17+51	3	23,076	25.44	10.44	5.04	4.16	3.39	2.71	2.31	907
Lane 4 - 27' Left	18+02	3	23,212	15.97	6.90	5.17	4.28	3.55	2.93	2.37	1,453
Lane 1 - 9' Right	18+03	3	23,172	21.98	8.96	6.04	4.94	3.90	3.13	2.41	1,054
Lane 2 - 9' Left	18+56	3	23,196	18.34	8.64	6.48	5.45	4.50	3.66	3.00	1,265

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	18+57	3	22,978	24.30	9.05	5.48	4.77	3.83	3.11	2.42	946
Lane 1 - 9' Right	19+00	3	23,180	21.48	8.94	5.77	4.86	3.92	3.15	2.43	1,079
Lane 2 - 9' Left	19+53	3	23,339	10.63	6.68	5.63	4.84	3.95	3.18	2.42	2,196
Lane 4 - 27' Left	20+00	3	23,227	14.13	6.50	3.76	2.91	2.07	1.72	1.27	1,644
Lane 1 - 9' Right	20+07	3	23,216	19.72	10.00	6.43	4.91	3.80	2.98	2.24	1,177
Lane 3 - 27' Right	20+50	3	23,169	17.87	7.82	4.31	3.13	2.47	1.93	1.57	1,297
Lane 2 - 9' Left	20+51	3	23,248	16.03	7.64	4.90	3.94	3.13	2.49	1.91	1,450
Lane 1 - 9' Right	21+00	3	23,280	15.44	8.00	5.83	4.83	3.89	3.12	2.40	1,508
Lane 2 - 9' Left	21+53	3	23,267	14.42	7.37	5.67	4.67	3.67	2.93	2.30	1,614
Lane 4 - 27' Left	22+00	3	23,161	17.32	6.72	3.87	2.92	2.09	1.61	1.35	1,337
Lane 1 - 9' Right	22+05	3	23,227	19.17	8.60	5.84	4.51	3.39	2.60	1.92	1,212
Lane 2 - 9' Left	22+50	3	23,208	16.70	7.22	4.76	3.93	3.00	2.46	1.76	1,390
Lane 3 - 27' Right	22+50	3	23,145	19.68	7.14	4.06	2.73	1.97	1.48	1.13	1,176
Lane 1 - 9' Right	23+00	3	23,264	16.10	7.69	4.90	3.44	2.49	1.81	1.36	1,445
Lane 2 - 9' Left	23+63	3	23,288	10.88	6.48	4.97	3.91	2.92	2.16	1.51	2,140
Lane 1 - 9' Right	24+03	3	23,161	25.44	8.43	3.13	2.33	1.70	1.24	0.98	910
Lane 4 - 27' Left	24+03	3	23,177	15.05	6.28	3.62	2.65	1.94	1.56	1.17	1,540
Lane 2 - 9' Left	24+50	3	23,232	15.52	5.97	3.60	2.84	2.24	1.84	1.42	1,497
Lane 3 - 27' Right	24+51	3	23,256	14.50	5.48	2.89	2.11	1.51	1.17	0.95	1,604
Lane 1 - 9' Right	25+00	3	22,926	28.19	10.51	4.96	3.33	2.27	1.68	1.25	813
Lane 2 - 9' Left	25+52	3	23,192	12.54	8.50	7.10	6.07	5.01	4.15	3.39	1,849
Lane 1 - 9' Right	26+00	3	23,089	24.27	10.52	5.77	4.91	4.12	3.23	2.53	951
Lane 4 - 27' Left	26+00	3	23,140	17.22	6.57	3.89	2.97	2.40	1.98	1.59	1,344
Lane 3 - 27' Right	26+51	3	23,192	14.50	7.58	5.43	4.52	3.67	3.04	2.44	1,599
Lane 2 - 9' Left	26+56	3	23,153	17.61	6.15	3.63	3.07	2.31	1.85	1.47	1,315
Lane 1 - 9' Right	27+03	3	23,161	21.28	7.93	4.21	2.05	1.61	1.46	1.25	1,088
Lane 2 - 9' Left	27+52	3	23,089	19.10	7.90	4.15	3.23	2.43	1.97	1.62	1,209

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 27' Left	28+00	3	23,153	16.91	6.76	3.89	3.15	2.44	2.14	1.69	1,369
Lane 1 - 9' Right	28+05	3	23,200	18.35	6.91	3.66	2.58	2.13	1.72	1.35	1,264
Lane 2 - 9' Left	28+50	3	23,121	17.93	7.56	3.82	2.87	2.30	1.95	1.64	1,290
Lane 3 - 27' Right	28+51	3	23,248	14.43	5.27	3.31	2.52	2.17	1.78	1.56	1,611
Lane 1 - 9' Right	29+00	3	23,243	16.36	7.17	4.20	3.10	2.39	1.97	1.59	1,421
Lane 2 - 9' Left	29+51	3	23,084	18.68	8.05	4.00	2.86	2.18	1.83	1.37	1,236
Lane 4 - 27' Left	30+01	3	23,081	19.89	7.82	3.87	2.85	2.35	1.98	1.55	1,160
Lane 1 - 9' Right	30+06	3	23,137	19.53	7.74	4.82	3.84	3.07	2.48	2.02	1,185
Lane 3 - 27' Right	30+50	3	23,145	19.43	7.00	3.67	2.81	2.24	1.82	1.49	1,191
Lane 2 - 9' Left	30+54	3	23,013	20.03	8.86	4.96	3.68	2.81	2.29	1.87	1,149
Lane 1 - 9' Right	31+00	3	23,089	22.08	9.71	5.36	3.98	3.04	2.44	2.00	1,046
Lane 2 - 9' Left	31+50	3	22,997	19.91	8.55	4.48	3.44	2.54	2.09	1.72	1,155
Lane 1 - 9' Right	32+00	3	23,180	17.23	8.41	5.09	3.87	3.01	2.44	1.94	1,345
Lane 4 - 27' Left	32+01	3	23,192	16.82	7.35	4.17	3.14	2.47	1.99	1.54	1,379
Lane 2 - 9' Left	32+50	3	23,026	20.31	8.97	4.97	3.65	2.77	2.22	1.77	1,134
Lane 3 - 27' Right	32+50	3	23,204	17.30	6.61	4.24	3.25	2.69	2.17	1.71	1,341
Lane 1 - 9' Right	33+04	3	23,137	20.68	8.76	4.41	3.15	2.31	1.80	1.43	1,119
Lane 2 - 9' Left	33+52	3	23,045	18.24	8.10	4.48	3.31	2.52	2.04	1.59	1,263
Lane 1 - 9' Right	34+00	3	23,116	20.05	8.20	5.09	3.90	3.00	2.33	1.85	1,153
Lane 4 - 27' Left	34+00	3	23,061	20.74	8.30	4.79	3.54	2.74	2.15	1.70	1,112
Lane 2 - 9' Left	34+50	3	22,986	20.80	9.09	4.89	3.57	2.76	2.22	1.66	1,105
Lane 3 - 27' Right	34+50	3	23,232	12.93	6.24	4.14	3.20	2.48	1.99	1.63	1,797
Lane 1 - 9' Right	35+04	3	23,116	17.35	8.30	5.69	4.37	3.43	2.78	2.19	1,332
Lane 2 - 9' Left	35+51	3	23,073	17.87	8.11	5.31	3.94	2.97	2.27	1.79	1,291
Lane 1 - 9' Right	36+00	3	23,204	17.49	7.04	5.10	3.96	3.07	2.39	1.81	1,327
Lane 4 - 27' Left	36+00	3	23,124	20.80	8.61	5.09	3.76	2.81	2.20	1.80	1,112
Lane 3 - 27' Right	36+51	3	23,169	16.91	5.86	4.07	3.20	2.67	2.16	1.79	1,370

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	36+56	3	22,930	24.17	9.61	5.67	4.30	3.22	2.45	1.96	949
Lane 1 - 9' Right	37+00	3	23,148	18.72	7.67	5.11	3.92	3.06	2.39	1.82	1,237
Lane 2 - 9' Left	37+59	3	23,081	18.65	8.43	4.70	3.28	2.54	2.01	1.47	1,238
Lane 4 - 27' Left	38+00	3	23,069	20.71	8.91	4.71	3.28	2.47	1.98	1.44	1,114
Lane 1 - 9' Right	38+07	3	23,100	19.24	7.51	4.91	3.73	2.92	2.35	1.83	1,201
Lane 2 - 9' Left	38+50	3	23,026	18.31	7.25	3.96	2.82	1.95	1.59	1.32	1,258
Lane 3 - 27' Right	38+51	3	23,129	17.15	6.68	4.45	3.70	2.98	2.41	1.98	1,349
Lane 1 - 9' Right	39+00	3	23,192	17.04	7.69	5.95	4.67	3.69	2.89	2.33	1,361
Lane 2 - 9' Left	39+51	3	23,148	15.58	7.36	5.15	3.93	3.00	2.31	1.79	1,486
Lane 4 - 27' Left	40+01	3	23,073	23.13	9.17	4.56	3.30	2.50	1.94	1.48	998
Lane 1 - 9' Right	40+03	3	23,219	16.67	8.11	5.63	4.31	3.39	2.69	2.15	1,393
Lane 2 - 9' Left	40+54	3	23,129	17.82	8.87	5.42	4.36	3.17	2.64	1.82	1,298
Lane 3 - 27' Right	40+55	3	23,362	9.53	4.73	3.49	2.85	2.20	1.79	1.40	2,451
Lane 1 - 9' Right	41+00	3	23,204	17.95	10.15	7.20	5.43	4.18	3.26	2.41	1,293
Lane 4 - 27' Left	41+42	3	23,280	11.74	5.90	4.31	3.51	2.85	2.26	1.83	1,983
Lane 2 - 9' Left	41+52	3	23,161	15.88	8.67	6.45	5.48	4.41	3.67	2.91	1,459
Lane 1 - 9' Right	42+08	3	23,232	13.99	7.46	5.16	3.99	3.09	2.44	1.95	1,661
Lane 2 - 9' Left	42+50	3	23,089	13.18	7.47	5.64	4.59	3.70	3.06	2.43	1,752
Lane 3 - 27' Right	42+51	3	23,034	26.67	9.25	5.09	3.92	3.15	2.59	2.06	864
Lane 1 - 9' Right	43+02	3	23,116	16.30	8.52	6.31	5.08	4.17	3.39	2.79	1,418
Lane 2 - 9' Left	43+53	3	23,073	15.35	8.70	6.10	4.89	3.95	3.23	2.48	1,503
Lane 4 - 27' Left	44+00	3	23,224	12.24	5.83	4.66	3.75	3.10	2.61	2.27	1,897
Lane 1 - 9' Right	44+01	3	23,108	17.05	8.95	6.89	5.60	4.62	3.79	3.20	1,355
Lane 2 - 9' Left	44+53	3	23,140	12.70	6.77	5.47	4.46	3.66	3.12	2.49	1,822
Lane 3 - 27' Right	44+54	3	23,232	12.62	7.56	6.33	5.40	4.58	3.78	3.09	1,841
Lane 1 - 9' Right	45+00	3	23,105	15.57	9.15	7.28	6.01	4.79	3.96	3.14	1,484
Lane 2 - 9' Left	45+50	3	22,965	19.31	11.39	8.06	6.13	4.94	3.86	3.09	1,189

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

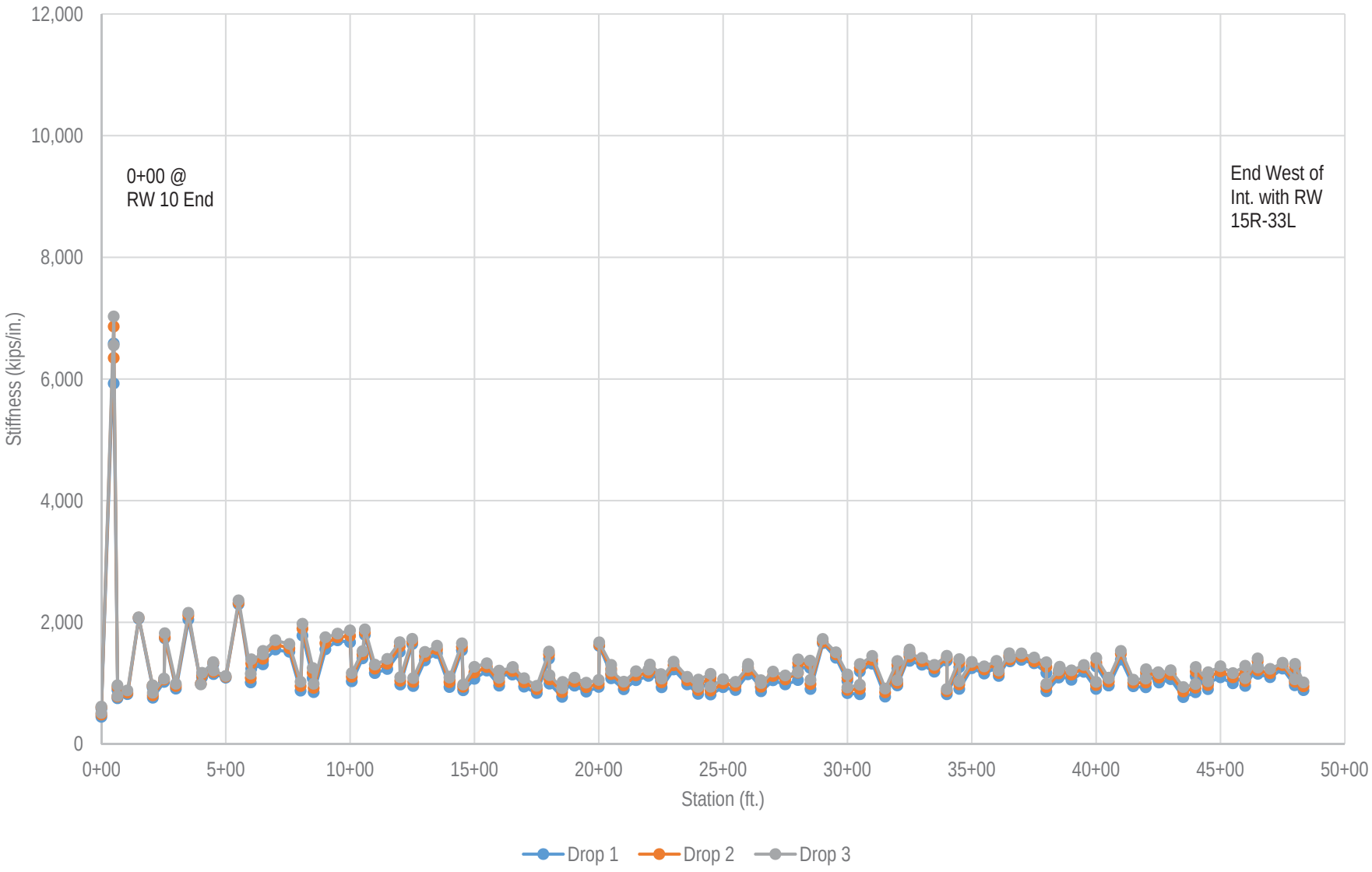
Runway 10-28 (Sections 6 - 15)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 27' Left	46+00	3	23,259	14.10	7.57	5.53	4.38	3.55	2.90	2.25	1,650
Lane 1 - 9' Right	46+04	3	23,097	20.39	10.65	7.55	5.86	4.54	3.62	2.79	1,133
Lane 2 - 9' Left	46+50	3	23,100	12.96	8.01	6.28	5.26	4.28	3.52	2.79	1,782
Lane 3 - 27' Right	46+50	3	23,180	17.57	9.69	6.70	5.43	4.39	3.63	2.93	1,319
Lane 1 - 9' Right	47+00	3	23,084	17.44	9.56	6.84	5.51	4.30	3.44	2.73	1,324
Lane 2 - 9' Left	47+50	3	23,029	17.83	8.48	6.03	4.85	3.79	3.04	2.39	1,292
Lane 1 - 9' Right	47+90	3	23,081	18.85	8.82	6.27	4.93	4.00	3.21	2.47	1,224
Lane 4 - 27' Left	48+00	3	23,235	11.54	4.66	3.39	2.85	2.31	1.95	1.63	2,013
Lane 3 - 27' Right	48+19	3	23,129	20.06	7.45	5.39	4.15	3.23	2.63	2.06	1,153
										Average:	1,991

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Runway 10-28 (Sections 1 - 4)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	0+00	1	12,702	28.48	15.18	8.17	5.46	4.07	3.25	2.59	446
Lane 4 - 35' Left	0+00	1	12,511	21.65	12.11	5.85	3.43	2.34	1.90	1.52	578
Lane 2 - 12.5' Left	0+50	1	12,702	1.93	1.78	1.83	1.50	1.60	1.45	1.31	6,581
Lane 3 - 35' Right	0+50	1	12,739	2.15	2.02	1.85	1.70	1.70	1.54	1.41	5,925
Lane 2 - 12.5' Left	0+65	1	12,472	14.08	7.56	4.51	3.40	2.87	2.15	1.74	886
Lane 3 - 35' Right	0+65	1	12,468	16.60	8.27	4.94	3.63	3.01	2.44	2.02	751
Lane 1 - 9' Right	1+05	1	12,667	15.50	8.42	5.13	3.86	3.20	2.53	2.06	817
Lane 2 - 12.5' Left	1+50	1	12,635	6.14	3.73	2.81	2.25	1.94	1.67	1.41	2,058
Lane 4 - 35' Left	2+06	1	12,445	13.39	6.29	3.37	2.33	1.95	1.70	1.53	929
Lane 1 - 9' Right	2+07	1	12,667	16.69	9.01	5.49	3.80	3.19	2.62	2.16	759
Lane 2 - 12.5' Left	2+52	1	12,484	12.25	6.91	4.23	3.03	2.74	2.11	1.87	1,019
Lane 3 - 35' Right	2+55	1	12,603	7.26	4.29	2.72	2.12	1.89	1.57	1.52	1,736
Lane 1 - 9' Right	3+00	1	12,662	13.96	7.39	4.63	3.51	2.88	2.41	2.06	907
Lane 2 - 12.5' Left	3+50	1	12,527	6.13	3.53	2.54	2.21	2.17	1.85	1.54	2,044
Lane 4 - 35' Left	4+00	1	12,424	12.54	6.87	3.99	2.93	2.42	2.02	1.76	991
Lane 1 - 9' Right	4+05	1	12,686	11.59	6.58	4.38	3.37	2.78	2.30	1.87	1,095
Lane 3 - 35' Right	4+50	1	12,599	9.63	5.22	3.10	2.22	1.93	1.61	1.26	1,308
Lane 2 - 12.5' Left	4+51	1	12,472	10.86	6.68	4.41	3.13	2.54	2.00	1.56	1,148
Lane 1 - 9' Right	5+00	1	12,651	11.63	5.77	3.49	2.57	2.09	1.69	1.25	1,088
Lane 2 - 12.5' Left	5+52	1	12,607	5.49	3.33	2.22	1.66	1.37	1.14	0.93	2,296
Lane 1 - 9' Right	6+01	1	12,675	12.55	4.44	2.27	1.69	1.37	1.12	0.88	1,010
Lane 4 - 35' Left	6+03	1	12,472	10.09	3.12	1.69	1.35	1.33	1.01	0.80	1,236
Lane 2 - 12.5' Left	6+50	1	12,508	9.57	2.69	1.56	1.21	1.06	0.74	0.66	1,307
Lane 3 - 35' Right	6+50	1	12,575	9.22	2.88	1.55	1.29	1.09	0.85	0.65	1,364
Lane 1 - 9' Right	7+00	1	12,746	8.22	2.89	1.78	1.31	1.03	0.77	0.63	1,551
Lane 2 - 12.5' Left	7+56	1	12,564	8.30	3.55	2.12	1.47	1.17	0.85	0.69	1,514
Lane 4 - 35' Left	8+01	1	12,437	14.22	4.63	2.65	1.95	1.56	1.20	1.01	875

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	8+09	1	12,638	7.10	2.41	1.84	1.50	1.21	1.04	0.88	1,780
Lane 2 - 12.5' Left	8+50	1	12,480	11.56	3.74	2.10	1.53	1.28	1.11	0.88	1,080
Lane 3 - 35' Right	8+54	1	12,460	14.64	4.44	1.93	1.49	1.20	0.95	0.72	851
Lane 1 - 9' Right	9+01	1	12,651	8.14	2.55	1.74	1.34	1.19	0.73	0.69	1,554
Lane 2 - 12.5' Left	9+50	1	12,480	7.33	3.74	2.53	1.93	1.59	1.28	1.11	1,703
Lane 1 - 9' Right	10+00	1	12,651	7.57	2.40	1.69	1.31	1.07	0.83	0.75	1,671
Lane 4 - 35' Left	10+07	1	12,286	11.95	3.71	1.74	1.44	1.22	0.94	0.73	1,028
Lane 2 - 12.5' Left	10+50	1	12,484	8.88	4.16	2.71	1.98	1.67	1.41	1.14	1,406
Lane 3 - 35' Right	10+60	1	12,583	7.02	2.62	1.80	1.41	1.20	0.96	0.80	1,792
Lane 1 - 9' Right	11+00	1	12,627	10.84	3.99	2.26	1.67	1.52	1.19	1.05	1,165
Lane 2 - 12.5' Left	11+50	1	12,480	10.13	3.59	2.56	2.01	1.87	1.55	1.24	1,232
Lane 1 - 9' Right	12+00	1	12,683	8.39	2.84	1.93	1.55	1.22	0.96	0.79	1,512
Lane 4 - 35' Left	12+02	1	12,456	12.76	5.04	2.62	2.09	1.79	1.43	1.25	976
Lane 2 - 12.5' Left	12+50	1	12,495	7.61	3.29	2.28	1.80	1.53	1.18	0.89	1,642
Lane 3 - 35' Right	12+54	1	12,543	13.20	3.72	2.19	1.75	1.47	1.12	0.98	950
Lane 1 - 9' Right	13+01	1	12,619	9.19	3.19	2.31	1.74	1.51	1.15	0.99	1,373
Lane 2 - 12.5' Left	13+50	1	12,476	8.35	3.59	2.65	2.14	1.98	1.34	1.14	1,494
Lane 1 - 9' Right	14+00	1	12,556	13.43	4.54	2.96	2.35	1.93	1.73	1.36	935
Lane 4 - 35' Left	14+01	1	12,437	12.65	4.75	3.10	2.61	2.55	2.05	1.67	983
Lane 2 - 12.5' Left	14+50	1	12,472	8.11	3.86	3.12	2.56	2.32	1.83	1.55	1,538
Lane 3 - 35' Right	14+55	1	12,500	14.19	5.43	2.89	2.20	1.89	1.60	1.19	881
Lane 1 - 9' Right	15+00	1	12,567	11.76	3.97	2.79	2.40	1.95	1.61	1.33	1,069
Lane 2 - 12.5' Left	15+50	1	12,413	10.31	3.95	2.72	1.98	1.77	1.56	1.24	1,204
Lane 1 - 9' Right	16+00	1	12,564	13.13	5.16	3.49	2.85	2.31	1.88	1.51	957
Lane 4 - 35' Left	16+00	1	12,500	11.06	5.78	4.03	3.23	2.64	2.19	1.83	1,130
Lane 2 - 12.5' Left	16+53	1	12,437	10.92	4.93	3.78	3.23	2.67	2.24	1.71	1,139
Lane 3 - 35' Right	16+55	1	12,527	10.82	4.79	2.85	2.23	1.83	1.50	1.18	1,158

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	17+00	1	12,575	13.37	5.19	3.69	3.03	2.48	2.09	1.81	941
Lane 2 - 12.5' Left	17+51	1	12,416	14.85	5.87	3.41	2.71	2.17	1.69	1.34	836
Lane 4 - 35' Left	18+00	1	12,508	8.92	3.01	2.13	1.68	1.69	1.15	1.20	1,402
Lane 1 - 9' Right	18+02	1	12,540	12.66	4.43	2.64	2.15	1.67	1.33	1.08	991
Lane 2 - 12.5' Left	18+53	1	12,421	16.08	5.48	2.60	2.11	1.79	1.47	1.26	772
Lane 3 - 35' Right	18+55	1	12,453	13.56	5.22	2.48	1.80	1.46	1.28	1.01	918
Lane 1 - 9' Right	19+03	1	12,572	13.13	4.29	2.58	2.06	1.60	1.29	1.09	958
Lane 2 - 12.5' Left	19+50	1	12,408	14.46	3.78	2.08	1.59	1.53	1.26	1.01	858
Lane 1 - 9' Right	20+00	1	12,575	13.42	5.38	2.93	2.40	1.91	1.52	1.24	937
Lane 4 - 35' Left	20+02	1	12,484	7.75	3.56	2.48	1.99	1.67	1.44	1.19	1,611
Lane 2 - 12.5' Left	20+50	1	12,456	10.91	3.96	2.35	1.95	1.60	1.33	1.07	1,142
Lane 3 - 35' Right	20+50	1	12,567	11.66	4.20	2.59	2.19	1.78	1.46	1.19	1,078
Lane 1 - 9' Right	21+01	1	12,564	14.00	5.06	2.71	2.25	1.87	1.52	1.22	897
Lane 2 - 12.5' Left	21+50	1	12,484	11.92	4.37	2.61	2.25	1.88	1.59	1.31	1,047
Lane 4 - 35' Left	22+00	1	12,445	11.14	3.90	2.64	2.18	1.79	1.52	1.27	1,117
Lane 1 - 9' Right	22+06	1	12,619	10.87	4.57	3.46	2.87	2.41	2.04	1.70	1,161
Lane 3 - 35' Right	22+50	1	12,543	12.08	5.26	3.63	2.96	2.40	2.01	1.61	1,038
Lane 2 - 12.5' Left	22+53	1	12,448	13.38	4.69	2.85	2.50	2.06	1.75	1.39	930
Lane 1 - 9' Right	23+01	1	12,556	10.27	4.48	3.43	2.90	2.47	2.04	1.69	1,223
Lane 2 - 12.5' Left	23+56	1	12,440	12.72	4.69	3.16	2.75	2.33	1.91	1.62	978
Lane 4 - 35' Left	24+00	1	12,368	15.04	5.91	3.63	3.03	2.47	2.08	1.63	822
Lane 1 - 9' Right	24+01	1	12,492	13.67	5.21	3.49	2.92	2.39	2.02	1.67	914
Lane 2 - 12.5' Left	24+50	1	12,476	12.31	5.01	3.22	2.71	2.28	1.91	1.57	1,013
Lane 3 - 35' Right	24+50	1	12,540	15.44	5.69	3.22	2.65	2.31	2.03	1.62	812
Lane 1 - 9' Right	25+00	1	12,508	13.42	5.33	3.48	2.94	2.42	2.07	1.66	932
Lane 2 - 12.5' Left	25+50	1	12,408	14.02	4.65	2.95	2.54	2.11	1.67	1.34	885
Lane 1 - 9' Right	26+00	1	12,564	10.98	3.69	2.33	1.78	1.39	1.10	0.82	1,144

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 35' Left	26+01	1	12,588	10.70	4.48	2.41	1.96	1.57	1.31	1.04	1,176
Lane 3 - 35' Right	26+52	1	12,500	13.41	4.06	2.19	1.84	1.44	1.26	1.04	932
Lane 2 - 12.5' Left	26+53	1	12,424	14.38	5.41	3.22	2.52	1.91	1.52	1.14	864
Lane 1 - 9' Right	27+01	1	12,519	11.98	3.15	1.77	1.40	1.13	0.95	0.72	1,045
Lane 2 - 12.5' Left	27+50	1	12,408	12.70	4.49	2.91	2.43	1.91	1.72	1.29	977
Lane 4 - 35' Left	28+01	1	12,440	11.86	4.65	2.70	2.06	1.87	1.48	1.35	1,049
Lane 1 - 9' Right	28+02	1	12,519	9.93	3.85	2.53	2.11	1.75	1.47	1.25	1,261
Lane 3 - 35' Right	28+50	1	12,564	10.05	4.26	2.94	2.44	2.00	1.67	1.30	1,250
Lane 2 - 12.5' Left	28+52	1	12,349	13.69	4.13	2.37	1.85	1.51	1.21	0.94	902
Lane 1 - 9' Right	29+01	1	12,516	7.56	3.59	2.49	1.94	1.52	1.27	0.93	1,656
Lane 2 - 12.5' Left	29+54	1	12,408	8.77	3.49	2.14	1.63	1.32	1.08	0.83	1,415
Lane 1 - 9' Right	30+00	1	12,480	12.05	4.52	2.70	1.96	1.46	1.08	0.80	1,036
Lane 4 - 35' Left	30+00	1	12,440	14.90	4.58	2.27	1.74	1.35	1.05	0.85	835
Lane 2 - 12.5' Left	30+50	1	12,318	15.10	5.13	2.30	1.72	1.25	0.98	0.71	816
Lane 3 - 35' Right	30+50	1	12,508	10.50	3.69	2.34	1.87	1.50	1.20	0.96	1,191
Lane 1 - 9' Right	31+00	1	12,464	9.46	3.43	2.15	1.70	1.30	1.04	0.73	1,318
Lane 2 - 12.5' Left	31+52	1	12,305	15.85	4.85	2.41	1.81	1.35	1.15	0.84	776
Lane 1 - 9' Right	32+01	1	12,445	10.03	3.81	2.28	1.70	1.35	1.10	0.81	1,241
Lane 4 - 35' Left	32+01	1	12,413	12.91	4.99	2.47	1.78	1.39	1.08	0.86	962
Lane 2 - 12.5' Left	32+50	1	12,424	8.49	3.11	2.13	1.63	1.34	1.00	0.86	1,463
Lane 3 - 35' Right	32+50	1	12,583	9.22	3.12	2.11	1.69	1.34	1.03	0.84	1,365
Lane 1 - 9' Right	33+00	1	12,476	9.59	3.03	2.15	1.69	1.30	1.06	0.79	1,301
Lane 2 - 12.5' Left	33+50	1	12,389	10.44	3.70	2.01	1.64	1.39	0.98	0.78	1,187
Lane 1 - 9' Right	34+00	1	12,429	9.09	3.15	2.26	1.69	1.36	1.08	0.88	1,367
Lane 4 - 35' Left	34+00	1	12,429	15.22	4.97	2.11	1.62	1.26	1.02	0.78	817
Lane 2 - 12.5' Left	34+50	1	12,421	9.86	3.41	1.85	1.45	1.20	0.95	0.72	1,260
Lane 3 - 35' Right	34+50	1	12,448	13.78	4.39	2.23	1.78	1.44	1.14	0.85	903

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	35+00	1	12,480	10.03	3.48	2.29	1.73	1.35	1.09	0.85	1,244
Lane 2 - 12.5' Left	35+50	1	12,405	10.73	3.91	2.16	1.72	1.32	1.11	0.82	1,156
Lane 1 - 9' Right	36+00	1	12,445	9.90	3.60	2.16	1.72	1.31	1.06	0.82	1,257
Lane 4 - 35' Left	36+09	1	12,527	11.21	4.33	2.25	1.74	1.34	1.09	0.82	1,117
Lane 3 - 35' Right	36+51	1	12,559	8.85	3.85	2.14	1.65	1.30	1.11	0.89	1,419
Lane 2 - 12.5' Left	36+54	1	12,408	9.15	3.85	2.43	1.70	1.44	1.03	0.93	1,356
Lane 1 - 9' Right	37+00	1	12,453	9.02	3.17	2.07	1.49	1.18	0.94	0.81	1,381
Lane 2 - 12.5' Left	37+51	1	12,416	9.37	3.69	2.25	1.61	1.29	1.00	0.80	1,325
Lane 1 - 9' Right	38+00	1	12,408	10.64	3.02	2.00	1.52	1.20	1.00	0.78	1,166
Lane 4 - 35' Left	38+00	1	12,297	14.22	5.17	2.93	2.19	1.67	1.30	0.93	865
Lane 2 - 12.5' Left	38+50	1	12,548	11.52	3.99	2.49	1.80	1.41	1.14	0.91	1,089
Lane 3 - 35' Right	38+54	1	12,472	11.15	3.85	2.13	1.63	1.51	1.14	0.90	1,119
Lane 1 - 9' Right	39+01	1	12,376	11.74	3.08	2.06	1.65	1.26	0.96	0.95	1,054
Lane 2 - 12.5' Left	39+51	1	12,352	10.43	4.11	2.33	1.67	1.41	1.17	0.92	1,184
Lane 4 - 35' Left	40+00	1	12,392	13.72	5.04	2.61	1.93	1.53	1.20	0.97	903
Lane 1 - 9' Right	40+01	1	12,424	9.76	3.42	2.24	1.80	1.52	1.19	1.03	1,273
Lane 2 - 12.5' Left	40+50	1	12,329	12.82	4.95	2.83	2.04	1.63	1.20	0.96	962
Lane 3 - 35' Right	40+51	1	12,432	12.94	4.77	2.75	2.19	1.90	1.51	1.14	961
Lane 1 - 9' Right	41+00	1	12,408	8.96	3.94	2.50	2.01	1.60	1.27	1.00	1,385
Lane 2 - 12.5' Left	41+50	1	12,341	13.03	5.76	3.41	2.32	1.78	1.26	0.89	947
Lane 4 - 35' Left	42+00	1	12,389	13.31	4.02	1.93	1.39	1.14	0.94	0.87	931
Lane 1 - 9' Right	42+01	1	12,397	11.11	4.10	2.38	1.80	1.39	1.07	0.83	1,116
Lane 2 - 12.5' Left	42+50	1	12,337	11.74	4.28	1.87	1.34	1.07	0.87	0.69	1,051
Lane 3 - 35' Right	42+53	1	12,453	12.34	3.92	1.82	1.42	1.26	0.94	0.74	1,009
Lane 1 - 9' Right	43+00	1	12,376	11.64	3.73	2.50	1.91	1.47	1.20	0.93	1,063
Lane 2 - 12.5' Left	43+51	1	12,294	16.00	4.67	1.78	1.51	1.22	1.01	0.61	768
Lane 4 - 35' Left	44+00	1	12,397	14.61	5.04	2.14	1.53	1.24	1.02	0.83	849

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	44+01	1	12,392	11.13	3.79	2.68	2.21	1.79	1.45	1.09	1,113
Lane 3 - 35' Right	44+50	1	12,456	13.85	4.07	2.16	1.65	1.39	1.19	0.96	899
Lane 2 - 12.5' Left	44+51	1	12,329	12.20	3.64	1.89	1.54	1.28	1.02	0.85	1,011
Lane 1 - 9' Right	45+00	1	12,384	11.32	3.33	2.18	1.80	1.44	1.16	0.89	1,094
Lane 2 - 12.5' Left	45+50	1	12,352	12.41	3.68	2.06	1.70	1.29	1.04	0.94	995
Lane 1 - 9' Right	46+00	1	12,397	11.02	3.90	2.80	2.26	1.76	1.44	1.00	1,125
Lane 4 - 35' Left	46+00	1	12,400	13.01	4.40	2.28	1.58	1.48	1.07	0.91	953
Lane 2 - 12.5' Left	46+50	1	12,408	9.63	3.93	2.43	1.79	1.43	1.18	0.91	1,288
Lane 3 - 35' Right	46+51	1	12,440	10.81	3.74	2.21	1.76	1.38	1.08	0.93	1,151
Lane 1 - 9' Right	47+00	1	12,413	11.33	3.84	2.56	1.93	1.44	1.15	0.87	1,096
Lane 2 - 12.5' Left	47+50	1	12,381	10.01	3.52	2.10	1.50	1.06	0.88	0.72	1,237
Lane 4 - 35' Left	47+99	1	12,445	12.91	4.66	2.29	1.72	1.36	1.09	0.82	964
Lane 1 - 9' Right	48+00	1	12,445	10.33	3.39	2.06	1.67	1.25	1.00	0.63	1,205
Lane 3 - 35' Right	48+34	1	12,397	14.05	4.29	2.07	1.56	1.32	1.01	0.86	882
Lane 1 - 9' Right	0+00	2	17,595	36.58	19.88	11.04	7.38	5.44	4.33	3.61	481
Lane 4 - 35' Left	0+00	2	17,476	28.96	16.37	7.98	4.88	3.33	2.64	2.05	603
Lane 2 - 12.5' Left	0+50	2	17,838	2.60	2.48	2.38	2.31	2.09	1.99	1.72	6,861
Lane 3 - 35' Right	0+50	2	17,830	2.81	2.71	2.61	2.34	2.27	1.98	1.86	6,345
Lane 2 - 12.5' Left	0+65	2	17,465	18.75	10.54	6.43	4.85	3.88	3.02	2.41	931
Lane 3 - 35' Right	0+65	2	17,425	22.41	11.51	6.93	5.09	4.14	3.44	2.88	778
Lane 1 - 9' Right	1+05	2	17,648	20.94	11.56	7.21	5.41	4.34	3.54	2.87	843
Lane 2 - 12.5' Left	1+50	2	17,719	8.54	5.32	3.91	3.20	2.70	2.33	2.02	2,075
Lane 4 - 35' Left	2+06	2	17,449	18.23	8.93	4.65	3.37	2.59	2.28	1.81	957
Lane 1 - 9' Right	2+07	2	17,600	22.06	12.26	7.59	5.35	4.37	3.63	3.01	798
Lane 2 - 12.5' Left	2+52	2	17,460	16.52	9.62	5.99	4.33	3.57	2.89	2.48	1,057
Lane 3 - 35' Right	2+55	2	17,643	10.07	5.88	3.69	2.96	2.57	2.22	1.92	1,752
Lane 1 - 9' Right	3+00	2	17,656	18.57	10.12	6.46	4.88	3.98	3.37	2.80	951

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	3+50	2	17,608	8.34	4.85	3.42	3.07	2.79	2.48	2.05	2,111
Lane 4 - 35' Left	4+00	2	17,417	17.62	9.81	5.84	4.20	3.33	2.72	2.21	988
Lane 1 - 9' Right	4+05	2	17,659	15.62	9.11	6.12	4.74	3.82	3.16	2.65	1,131
Lane 3 - 35' Right	4+50	2	17,640	13.20	7.30	4.28	3.16	2.65	2.18	1.76	1,336
Lane 2 - 12.5' Left	4+51	2	17,505	14.82	9.19	6.12	4.36	3.42	2.76	2.26	1,181
Lane 1 - 9' Right	5+00	2	17,667	16.00	8.20	5.18	3.69	2.89	2.27	1.84	1,104
Lane 2 - 12.5' Left	5+52	2	17,691	7.63	4.61	3.09	2.33	1.87	1.57	1.30	2,319
Lane 1 - 9' Right	6+01	2	17,687	16.31	6.13	3.27	2.50	1.96	1.56	1.24	1,084
Lane 4 - 35' Left	6+03	2	17,516	13.26	4.35	2.39	1.97	1.82	1.37	1.11	1,321
Lane 2 - 12.5' Left	6+50	2	17,564	12.55	3.79	2.26	1.79	1.39	1.06	0.80	1,400
Lane 3 - 35' Right	6+50	2	17,616	12.11	3.96	2.21	1.80	1.48	1.17	0.89	1,455
Lane 1 - 9' Right	7+00	2	17,799	10.87	4.06	2.62	1.87	1.45	1.12	0.85	1,637
Lane 2 - 12.5' Left	7+56	2	17,592	11.20	4.91	2.93	2.09	1.61	1.27	0.94	1,571
Lane 4 - 35' Left	8+01	2	17,449	18.36	6.34	3.70	2.81	2.15	1.76	1.37	950
Lane 1 - 9' Right	8+09	2	17,707	9.34	3.44	2.63	2.14	1.78	1.43	1.20	1,896
Lane 2 - 12.5' Left	8+50	2	17,508	14.98	5.17	2.94	2.21	1.73	1.47	1.18	1,169
Lane 3 - 35' Right	8+54	2	17,489	18.99	5.98	2.76	2.13	1.65	1.36	1.06	921
Lane 1 - 9' Right	9+01	2	17,714	10.70	3.58	2.42	1.89	1.57	1.19	0.98	1,656
Lane 2 - 12.5' Left	9+50	2	17,576	10.02	5.23	3.42	2.67	2.17	1.70	1.45	1,754
Lane 1 - 9' Right	10+00	2	17,703	9.97	3.37	2.48	1.90	1.48	1.23	1.03	1,776
Lane 4 - 35' Left	10+07	2	17,322	15.72	5.01	2.47	2.06	1.62	1.31	1.03	1,102
Lane 2 - 12.5' Left	10+50	2	17,537	11.93	5.67	3.69	2.81	2.24	1.84	1.48	1,470
Lane 3 - 35' Right	10+60	2	17,632	9.62	3.68	2.50	2.09	1.65	1.42	1.10	1,833
Lane 1 - 9' Right	11+00	2	17,675	14.28	5.57	3.24	2.48	2.00	1.69	1.41	1,238
Lane 2 - 12.5' Left	11+50	2	17,552	13.33	5.06	3.49	2.89	2.45	2.06	1.75	1,317
Lane 1 - 9' Right	12+00	2	17,714	11.06	4.05	2.78	2.21	1.72	1.39	1.08	1,602
Lane 4 - 35' Left	12+02	2	17,492	16.88	6.86	3.73	2.98	2.56	2.12	1.74	1,036

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	12+50	2	17,579	10.45	4.65	3.39	2.61	2.09	1.68	1.33	1,682
Lane 3 - 35' Right	12+54	2	17,537	17.22	5.15	3.18	2.48	2.03	1.57	1.37	1,018
Lane 1 - 9' Right	13+01	2	17,648	12.22	4.52	3.24	2.51	2.05	1.63	1.30	1,444
Lane 2 - 12.5' Left	13+50	2	17,500	11.24	5.05	3.70	3.05	2.59	2.00	1.57	1,557
Lane 1 - 9' Right	14+00	2	17,584	17.32	6.29	4.14	3.29	2.67	2.24	1.83	1,015
Lane 4 - 35' Left	14+01	2	17,476	16.66	6.41	4.22	3.63	3.26	2.76	2.28	1,049
Lane 2 - 12.5' Left	14+50	2	17,540	11.00	5.35	4.21	3.57	3.06	2.54	2.11	1,595
Lane 3 - 35' Right	14+55	2	17,505	18.63	7.34	3.86	3.12	2.53	2.15	1.64	940
Lane 1 - 9' Right	15+00	2	17,568	15.00	5.46	4.09	3.36	2.71	2.24	1.89	1,171
Lane 2 - 12.5' Left	15+50	2	17,468	13.81	5.52	3.77	2.96	2.52	2.07	1.62	1,265
Lane 1 - 9' Right	16+00	2	17,548	17.16	7.19	4.97	4.06	3.28	2.66	2.12	1,023
Lane 4 - 35' Left	16+00	2	17,532	15.03	8.02	5.54	4.53	3.72	3.02	2.43	1,166
Lane 2 - 12.5' Left	16+53	2	17,421	14.56	6.89	5.44	4.48	3.73	3.10	2.56	1,196
Lane 3 - 35' Right	16+55	2	17,560	14.48	6.65	4.06	3.19	2.61	2.13	1.69	1,213
Lane 1 - 9' Right	17+00	2	17,600	17.40	7.22	5.20	4.35	3.53	2.97	2.53	1,011
Lane 2 - 12.5' Left	17+51	2	17,421	19.37	8.18	4.91	3.83	3.03	2.37	1.89	899
Lane 4 - 35' Left	18+00	2	17,544	11.94	4.18	2.85	2.39	2.11	1.74	1.41	1,469
Lane 1 - 9' Right	18+02	2	17,592	16.61	6.14	3.82	3.06	2.37	1.91	1.52	1,059
Lane 2 - 12.5' Left	18+53	2	17,460	20.51	7.47	3.74	3.00	2.46	2.06	1.76	851
Lane 3 - 35' Right	18+55	2	17,468	17.96	7.12	3.50	2.57	2.04	1.79	1.42	973
Lane 1 - 9' Right	19+03	2	17,627	17.19	6.01	3.74	2.98	2.28	1.82	1.50	1,025
Lane 2 - 12.5' Left	19+50	2	17,413	18.69	5.25	2.98	2.39	2.02	1.69	1.32	932
Lane 1 - 9' Right	20+00	2	17,592	17.76	7.33	4.27	3.43	2.74	2.20	1.77	991
Lane 4 - 35' Left	20+02	2	17,552	10.78	5.02	3.48	2.84	2.35	1.99	1.65	1,628
Lane 2 - 12.5' Left	20+50	2	17,516	14.23	5.52	3.38	2.79	2.27	1.91	1.52	1,231
Lane 3 - 35' Right	20+50	2	17,600	15.35	5.77	3.69	3.06	2.49	2.04	1.68	1,147
Lane 1 - 9' Right	21+01	2	17,640	18.33	7.00	3.99	3.28	2.68	2.19	1.76	962

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	21+50	2	17,548	15.56	6.08	3.76	3.19	2.64	2.21	1.83	1,128
Lane 4 - 35' Left	22+00	2	17,497	14.92	5.51	3.73	3.11	2.54	2.16	1.81	1,173
Lane 1 - 9' Right	22+06	2	17,643	14.26	6.36	4.83	4.06	3.35	2.85	2.34	1,237
Lane 3 - 35' Right	22+50	2	17,579	16.06	7.18	5.05	4.07	3.35	2.77	2.22	1,095
Lane 2 - 12.5' Left	22+53	2	17,500	17.29	6.55	4.16	3.58	2.93	2.45	1.96	1,012
Lane 1 - 9' Right	23+01	2	17,635	13.63	6.27	4.86	4.11	3.46	2.86	2.37	1,294
Lane 2 - 12.5' Left	23+56	2	17,492	16.74	6.67	4.63	3.97	3.33	2.75	2.32	1,045
Lane 4 - 35' Left	24+00	2	17,373	19.61	8.09	5.07	4.19	3.41	2.85	2.24	886
Lane 1 - 9' Right	24+01	2	17,540	17.83	7.22	4.91	4.09	3.33	2.79	2.31	984
Lane 2 - 12.5' Left	24+50	2	17,524	16.20	7.05	4.67	3.90	3.26	2.75	2.27	1,082
Lane 3 - 35' Right	24+50	2	17,537	20.05	7.62	4.41	3.74	3.21	2.76	2.21	875
Lane 1 - 9' Right	25+00	2	17,537	17.61	7.40	5.02	4.21	3.48	2.97	2.39	996
Lane 2 - 12.5' Left	25+50	2	17,441	18.22	6.65	4.44	3.70	2.98	2.43	1.94	957
Lane 1 - 9' Right	26+00	2	17,603	14.56	5.39	3.50	2.65	2.05	1.62	1.22	1,209
Lane 4 - 35' Left	26+01	2	17,576	14.04	6.17	3.45	2.76	2.23	1.91	1.48	1,252
Lane 3 - 35' Right	26+52	2	17,548	17.67	5.66	3.12	2.63	2.09	1.79	1.48	993
Lane 2 - 12.5' Left	26+53	2	17,449	18.61	7.55	4.65	3.63	2.75	2.15	1.63	938
Lane 1 - 9' Right	27+01	2	17,576	15.75	4.56	2.74	2.07	1.66	1.33	1.11	1,116
Lane 2 - 12.5' Left	27+50	2	17,425	16.45	6.49	4.42	3.53	2.78	2.33	1.86	1,059
Lane 4 - 35' Left	28+01	2	17,452	14.92	6.36	3.77	2.94	2.54	2.11	1.85	1,170
Lane 1 - 9' Right	28+02	2	17,556	13.20	5.48	3.72	3.06	2.52	2.09	1.76	1,330
Lane 3 - 35' Right	28+50	2	17,627	13.40	5.87	4.14	3.46	2.85	2.35	1.85	1,315
Lane 2 - 12.5' Left	28+52	2	17,357	17.63	6.05	3.54	2.75	2.15	1.74	1.41	985
Lane 1 - 9' Right	29+01	2	17,579	10.48	5.15	3.62	2.80	2.20	1.78	1.36	1,677
Lane 2 - 12.5' Left	29+54	2	17,460	11.87	5.11	3.34	2.41	1.92	1.52	1.17	1,471
Lane 1 - 9' Right	30+00	2	17,492	16.09	6.46	3.99	2.89	2.15	1.61	1.17	1,087
Lane 4 - 35' Left	30+00	2	17,492	19.71	6.36	3.28	2.47	1.92	1.49	1.23	887

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	30+50	2	17,325	19.15	7.28	3.65	2.56	1.85	1.41	1.07	905
Lane 3 - 35' Right	30+50	2	17,537	14.04	5.11	3.29	2.63	2.11	1.67	1.33	1,249
Lane 1 - 9' Right	31+00	2	17,505	12.68	4.94	3.31	2.43	1.87	1.46	1.09	1,381
Lane 2 - 12.5' Left	31+52	2	17,309	20.38	7.00	3.69	2.74	2.00	1.61	1.24	849
Lane 1 - 9' Right	32+01	2	17,468	13.45	5.46	3.37	2.54	1.98	1.58	1.17	1,299
Lane 4 - 35' Left	32+01	2	17,433	17.38	6.83	3.50	2.53	1.95	1.56	1.18	1,003
Lane 2 - 12.5' Left	32+50	2	17,449	11.59	4.57	3.01	2.43	1.81	1.53	1.22	1,506
Lane 3 - 35' Right	32+50	2	17,627	12.29	4.36	3.10	2.41	1.92	1.49	1.20	1,434
Lane 1 - 9' Right	33+00	2	17,513	12.90	4.47	3.18	2.49	1.95	1.59	1.19	1,358
Lane 2 - 12.5' Left	33+50	2	17,425	13.99	5.39	3.17	2.46	1.96	1.50	1.11	1,246
Lane 1 - 9' Right	34+00	2	17,481	12.39	4.75	3.48	2.56	2.01	1.60	1.23	1,411
Lane 4 - 35' Left	34+00	2	17,492	20.23	6.82	3.11	2.29	1.78	1.42	1.10	865
Lane 2 - 12.5' Left	34+50	2	17,452	13.07	4.88	2.78	2.16	1.67	1.34	1.04	1,335
Lane 3 - 35' Right	34+50	2	17,513	17.93	5.97	3.23	2.50	1.98	1.58	1.21	977
Lane 1 - 9' Right	35+00	2	17,513	13.54	5.07	3.40	2.55	1.97	1.56	1.21	1,293
Lane 2 - 12.5' Left	35+50	2	17,428	14.24	5.56	3.25	2.60	1.91	1.51	1.20	1,224
Lane 1 - 9' Right	36+00	2	17,481	13.30	5.27	3.29	2.54	1.93	1.53	1.19	1,314
Lane 4 - 35' Left	36+09	2	17,595	15.11	6.10	3.37	2.48	1.95	1.59	1.25	1,164
Lane 3 - 35' Right	36+51	2	17,632	12.15	5.41	3.06	2.31	1.82	1.52	1.16	1,451
Lane 2 - 12.5' Left	36+54	2	17,409	12.55	5.62	3.55	2.62	2.02	1.49	1.15	1,387
Lane 1 - 9' Right	37+00	2	17,513	12.18	4.75	3.16	2.22	1.70	1.31	1.07	1,438
Lane 2 - 12.5' Left	37+51	2	17,513	12.91	5.43	3.36	2.49	1.91	1.47	1.13	1,357
Lane 1 - 9' Right	38+00	2	17,460	13.80	4.42	2.85	2.29	1.76	1.40	1.12	1,265
Lane 4 - 35' Left	38+00	2	17,266	18.49	7.24	4.33	3.17	2.39	1.88	1.55	934
Lane 2 - 12.5' Left	38+50	2	17,595	15.21	5.79	3.64	2.70	2.02	1.59	1.20	1,157
Lane 3 - 35' Right	38+54	2	17,476	14.57	5.35	2.99	2.36	1.90	1.53	1.18	1,199
Lane 1 - 9' Right	39+01	2	17,441	15.31	4.55	3.03	2.41	1.82	1.50	1.30	1,139

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	39+51	2	17,386	13.85	5.99	3.63	2.63	2.00	1.67	1.28	1,255
Lane 4 - 35' Left	40+00	2	17,405	18.01	6.87	3.60	2.72	2.07	1.70	1.38	966
Lane 1 - 9' Right	40+01	2	17,492	13.11	4.85	3.33	2.65	2.19	1.76	1.34	1,334
Lane 2 - 12.5' Left	40+50	2	17,349	16.83	7.05	4.27	3.13	2.31	1.81	1.32	1,031
Lane 3 - 35' Right	40+51	2	17,441	17.01	6.54	3.83	3.07	2.58	2.06	1.73	1,025
Lane 1 - 9' Right	41+00	2	17,481	11.80	5.60	3.71	2.94	2.37	1.89	1.44	1,481
Lane 2 - 12.5' Left	41+50	2	17,389	17.30	8.02	4.89	3.44	2.48	1.91	1.45	1,005
Lane 4 - 35' Left	42+00	2	17,436	17.30	5.51	2.73	2.13	1.65	1.41	1.03	1,008
Lane 1 - 9' Right	42+01	2	17,449	14.86	5.87	3.61	2.71	2.07	1.58	1.19	1,174
Lane 2 - 12.5' Left	42+50	2	17,397	15.56	5.93	2.81	1.99	1.55	1.25	0.98	1,118
Lane 3 - 35' Right	42+53	2	17,476	16.03	5.38	2.57	2.00	1.67	1.35	1.15	1,090
Lane 1 - 9' Right	43+00	2	17,401	15.26	5.41	3.62	2.78	2.14	1.72	1.28	1,140
Lane 2 - 12.5' Left	43+51	2	17,298	20.10	6.35	2.65	2.20	1.68	1.30	0.96	861
Lane 4 - 35' Left	44+00	2	17,373	18.78	6.84	3.04	2.17	1.76	1.53	1.23	925
Lane 1 - 9' Right	44+01	2	17,425	14.65	5.50	3.94	3.23	2.57	2.07	1.57	1,189
Lane 3 - 35' Right	44+50	2	17,441	18.04	5.63	3.06	2.40	1.93	1.60	1.29	967
Lane 2 - 12.5' Left	44+51	2	17,378	15.74	5.26	3.00	2.32	1.80	1.51	1.27	1,104
Lane 1 - 9' Right	45+00	2	17,436	14.61	4.87	3.26	2.69	2.14	1.72	1.33	1,193
Lane 2 - 12.5' Left	45+50	2	17,378	15.89	5.24	3.03	2.53	1.89	1.56	1.27	1,094
Lane 1 - 9' Right	46+00	2	17,436	14.50	5.66	4.13	3.35	2.59	2.10	1.51	1,202
Lane 4 - 35' Left	46+00	2	17,413	16.91	6.03	3.02	2.39	1.91	1.48	1.16	1,030
Lane 2 - 12.5' Left	46+50	2	17,460	12.85	5.59	3.51	2.66	2.06	1.69	1.32	1,359
Lane 3 - 35' Right	46+51	2	17,513	14.49	5.25	3.11	2.47	1.94	1.54	1.29	1,209
Lane 1 - 9' Right	47+00	2	17,441	15.00	5.59	3.81	2.85	2.14	1.70	1.34	1,163
Lane 2 - 12.5' Left	47+50	2	17,428	13.46	5.28	3.11	2.23	1.61	1.31	1.00	1,295
Lane 4 - 35' Left	47+99	2	17,425	17.07	6.44	3.35	2.46	1.95	1.57	1.21	1,021
Lane 1 - 9' Right	48+00	2	17,444	13.84	4.98	3.17	2.37	1.81	1.41	1.05	1,260

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 35' Right	48+34	2	17,452	18.42	5.93	2.94	2.20	1.80	1.41	1.17	947
Lane 1 - 9' Right	0+00	3	22,787	44.87	24.72	13.98	9.42	6.91	5.48	4.55	508
Lane 4 - 35' Left	0+00	3	22,827	37.23	21.16	10.62	6.51	4.45	3.53	2.90	613
Lane 2 - 12.5' Left	0+50	3	23,534	3.35	3.14	3.22	2.71	2.85	2.51	2.37	7,025
Lane 3 - 35' Right	0+50	3	23,455	3.58	3.37	3.46	2.88	2.82	2.57	2.29	6,552
Lane 2 - 12.5' Left	0+65	3	22,957	23.83	13.74	8.46	6.39	4.89	3.93	3.15	963
Lane 3 - 35' Right	0+65	3	22,878	28.98	15.17	9.08	6.58	5.28	4.41	3.60	789
Lane 1 - 9' Right	1+05	3	23,018	26.19	14.89	9.33	7.07	5.50	4.54	3.64	879
Lane 2 - 12.5' Left	1+50	3	23,359	11.22	6.99	5.10	4.14	3.46	2.98	2.59	2,082
Lane 4 - 35' Left	2+06	3	22,886	23.76	12.04	6.26	4.52	3.44	2.84	2.55	963
Lane 1 - 9' Right	2+07	3	23,013	27.38	15.65	9.78	7.00	5.58	4.66	3.82	841
Lane 2 - 12.5' Left	2+52	3	23,026	21.43	12.66	7.81	5.83	4.62	3.68	3.02	1,074
Lane 3 - 35' Right	2+55	3	23,232	12.77	7.61	4.79	3.74	3.24	2.80	2.48	1,819
Lane 1 - 9' Right	3+00	3	23,092	23.39	13.06	8.41	6.31	5.09	4.29	3.62	987
Lane 2 - 12.5' Left	3+50	3	23,264	10.80	6.38	4.31	4.03	3.47	3.13	2.65	2,154
Lane 4 - 35' Left	4+00	3	22,870	23.38	13.31	7.87	5.68	4.39	3.56	3.01	978
Lane 1 - 9' Right	4+05	3	23,121	19.81	11.84	7.99	6.18	4.91	4.05	3.40	1,167
Lane 3 - 35' Right	4+50	3	23,192	17.26	9.61	5.65	4.07	3.34	2.80	2.28	1,344
Lane 2 - 12.5' Left	4+51	3	23,097	19.13	11.92	7.91	5.65	4.35	3.58	2.93	1,207
Lane 1 - 9' Right	5+00	3	23,184	20.76	10.99	6.98	5.04	3.85	3.09	2.40	1,117
Lane 2 - 12.5' Left	5+52	3	23,378	9.91	6.05	4.12	3.00	2.41	2.02	1.67	2,359
Lane 1 - 9' Right	6+01	3	23,208	20.11	7.92	4.50	3.39	2.65	2.09	1.67	1,154
Lane 4 - 35' Left	6+03	3	23,092	16.59	5.70	3.24	2.60	2.24	1.81	1.49	1,392
Lane 2 - 12.5' Left	6+50	3	23,192	15.72	5.06	3.09	2.40	1.78	1.43	1.17	1,475
Lane 3 - 35' Right	6+50	3	23,188	15.17	5.17	2.74	2.40	1.91	1.56	1.13	1,529
Lane 1 - 9' Right	7+00	3	23,347	13.70	5.34	3.37	2.54	1.94	1.51	1.13	1,704
Lane 2 - 12.5' Left	7+56	3	23,251	14.16	6.39	3.94	2.81	2.11	1.65	1.27	1,642

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 35' Left	8+01	3	22,946	22.50	8.12	4.84	3.68	2.82	2.24	1.82	1,020
Lane 1 - 9' Right	8+09	3	23,291	11.80	4.54	3.47	2.84	2.30	1.93	1.57	1,974
Lane 2 - 12.5' Left	8+50	3	23,084	18.51	6.69	3.87	2.93	2.28	1.89	1.50	1,247
Lane 3 - 35' Right	8+54	3	22,970	23.25	7.59	3.64	2.72	2.13	1.76	1.35	988
Lane 1 - 9' Right	9+01	3	23,283	13.28	4.67	3.30	2.54	2.04	1.57	1.27	1,753
Lane 2 - 12.5' Left	9+50	3	23,200	12.79	6.76	4.34	3.43	2.78	2.22	1.84	1,814
Lane 1 - 9' Right	10+00	3	23,267	12.47	4.42	3.17	2.53	2.00	1.64	1.33	1,866
Lane 4 - 35' Left	10+07	3	22,870	19.64	6.43	3.32	2.68	2.12	1.74	1.32	1,164
Lane 2 - 12.5' Left	10+50	3	23,177	15.20	7.33	4.78	3.69	2.94	2.39	1.90	1,525
Lane 3 - 35' Right	10+60	3	23,256	12.35	4.88	3.39	2.68	2.22	1.80	1.46	1,883
Lane 1 - 9' Right	11+00	3	23,240	17.83	7.26	4.41	3.30	2.67	2.26	1.87	1,303
Lane 2 - 12.5' Left	11+50	3	23,164	16.59	6.57	4.57	3.83	3.20	2.70	2.30	1,396
Lane 1 - 9' Right	12+00	3	23,304	13.94	5.38	3.72	2.94	2.27	1.85	1.41	1,672
Lane 4 - 35' Left	12+02	3	23,018	20.98	8.80	5.02	3.98	3.31	2.78	2.32	1,097
Lane 2 - 12.5' Left	12+50	3	23,212	13.44	6.14	4.40	3.49	2.77	2.29	1.79	1,727
Lane 3 - 35' Right	12+54	3	23,049	21.30	6.68	4.09	3.26	2.65	2.07	1.79	1,082
Lane 1 - 9' Right	13+01	3	23,240	15.38	5.97	4.35	3.37	2.70	2.18	1.74	1,511
Lane 2 - 12.5' Left	13+50	3	23,124	14.33	6.67	4.94	4.08	3.39	2.65	2.07	1,614
Lane 1 - 9' Right	14+00	3	23,129	21.22	8.25	5.53	4.37	3.51	2.91	2.39	1,090
Lane 4 - 35' Left	14+01	3	22,986	20.76	8.16	5.41	4.67	4.15	3.54	2.95	1,107
Lane 2 - 12.5' Left	14+50	3	23,164	14.01	6.95	5.39	4.63	3.94	3.29	2.73	1,653
Lane 3 - 35' Right	14+55	3	23,002	23.57	9.39	5.11	4.04	3.25	2.74	2.11	976
Lane 1 - 9' Right	15+00	3	23,156	18.29	7.10	5.30	4.39	3.59	3.04	2.26	1,266
Lane 2 - 12.5' Left	15+50	3	23,089	17.41	7.15	4.65	4.12	3.24	2.56	1.99	1,326
Lane 1 - 9' Right	16+00	3	23,097	21.27	9.31	6.54	5.30	4.25	3.48	2.74	1,086
Lane 4 - 35' Left	16+00	3	23,116	19.20	10.47	7.28	5.87	4.83	3.95	3.21	1,204
Lane 2 - 12.5' Left	16+53	3	23,026	18.34	8.99	7.03	5.99	4.87	4.11	3.25	1,256

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 35' Right	16+55	3	23,137	18.29	8.69	5.35	4.20	3.43	2.77	2.17	1,265
Lane 1 - 9' Right	17+00	3	23,145	21.44	9.35	6.85	5.70	4.65	3.92	3.28	1,080
Lane 2 - 12.5' Left	17+51	3	23,013	24.08	10.56	6.79	5.13	4.00	3.13	2.46	956
Lane 4 - 35' Left	18+00	3	23,156	15.26	5.46	3.76	3.12	2.68	2.23	1.88	1,517
Lane 1 - 9' Right	18+02	3	23,172	20.52	7.93	5.19	4.04	3.17	2.54	1.94	1,129
Lane 2 - 12.5' Left	18+53	3	22,994	25.12	9.54	4.69	3.96	3.12	2.63	2.31	915
Lane 3 - 35' Right	18+55	3	22,986	22.56	9.14	4.62	3.39	2.71	2.32	1.83	1,019
Lane 1 - 9' Right	19+03	3	23,188	21.33	7.88	5.03	3.97	3.05	2.41	1.95	1,087
Lane 2 - 12.5' Left	19+50	3	23,026	22.89	6.86	4.01	3.21	2.64	2.13	1.73	1,006
Lane 1 - 9' Right	20+00	3	23,184	22.04	9.44	5.68	4.63	3.65	2.91	2.28	1,052
Lane 4 - 35' Left	20+02	3	23,161	13.88	6.59	4.56	3.73	3.06	2.57	2.11	1,669
Lane 2 - 12.5' Left	20+50	3	23,161	17.83	7.17	4.46	3.67	2.96	2.41	1.95	1,299
Lane 3 - 35' Right	20+50	3	23,140	19.32	7.43	4.80	3.99	3.22	2.65	2.17	1,198
Lane 1 - 9' Right	21+01	3	23,212	22.70	9.06	5.35	4.43	3.56	2.87	2.30	1,023
Lane 2 - 12.5' Left	21+50	3	23,153	19.37	7.92	5.02	4.20	3.43	2.84	2.39	1,195
Lane 4 - 35' Left	22+00	3	23,076	18.91	7.26	4.92	4.12	3.38	2.74	2.34	1,220
Lane 1 - 9' Right	22+06	3	23,264	17.83	8.22	6.29	5.26	4.37	3.68	3.03	1,305
Lane 3 - 35' Right	22+50	3	23,113	20.16	9.18	6.48	5.24	4.30	3.57	2.83	1,146
Lane 2 - 12.5' Left	22+53	3	23,116	21.54	8.52	5.53	4.74	3.85	3.25	2.53	1,073
Lane 1 - 9' Right	23+01	3	23,235	17.17	8.10	6.28	5.31	4.47	3.69	2.99	1,353
Lane 2 - 12.5' Left	23+56	3	23,116	20.98	8.79	6.22	5.30	4.36	3.61	2.99	1,102
Lane 4 - 35' Left	24+00	3	22,914	24.47	10.38	6.61	5.39	4.39	3.64	2.94	936
Lane 1 - 9' Right	24+01	3	23,092	21.86	9.33	6.48	5.35	4.33	3.64	2.99	1,056
Lane 2 - 12.5' Left	24+50	3	23,140	20.08	9.15	6.17	5.13	4.27	3.60	2.91	1,152
Lane 3 - 35' Right	24+50	3	23,084	24.61	9.57	5.70	4.81	4.09	3.51	2.83	938
Lane 1 - 9' Right	25+00	3	23,129	21.76	9.55	6.62	5.53	4.54	3.86	3.09	1,063
Lane 2 - 12.5' Left	25+50	3	23,021	22.58	8.93	6.05	5.01	4.07	3.29	2.65	1,020

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	26+00	3	23,224	18.35	7.29	4.85	3.68	2.82	2.22	1.63	1,266
Lane 4 - 35' Left	26+01	3	23,196	17.65	8.02	4.56	3.67	2.94	2.44	1.94	1,314
Lane 3 - 35' Right	26+52	3	23,089	22.04	7.39	4.26	3.49	2.79	2.43	1.94	1,048
Lane 2 - 12.5' Left	26+53	3	23,026	23.01	9.81	6.23	4.87	3.68	2.86	2.16	1,001
Lane 1 - 9' Right	27+01	3	23,192	19.52	6.14	3.68	2.85	2.26	1.79	1.47	1,188
Lane 2 - 12.5' Left	27+50	3	23,029	20.49	8.62	5.77	4.70	3.71	3.11	2.48	1,124
Lane 4 - 35' Left	28+01	3	23,061	19.53	8.24	4.96	3.87	3.28	2.76	2.37	1,181
Lane 1 - 9' Right	28+02	3	23,212	16.72	7.31	5.07	4.17	3.41	2.81	2.38	1,388
Lane 3 - 35' Right	28+50	3	23,256	16.98	7.61	5.41	4.52	3.72	3.05	2.43	1,370
Lane 2 - 12.5' Left	28+52	3	22,938	21.76	8.13	5.00	3.80	2.89	2.35	1.84	1,054
Lane 1 - 9' Right	29+01	3	23,232	13.47	6.83	4.85	3.76	2.98	2.39	1.80	1,725
Lane 2 - 12.5' Left	29+54	3	23,140	15.36	6.94	4.46	3.33	2.60	2.05	1.55	1,507
Lane 1 - 9' Right	30+00	3	23,092	20.22	8.60	5.41	3.94	2.87	2.15	1.55	1,142
Lane 4 - 35' Left	30+00	3	23,002	24.80	8.33	4.37	3.28	2.54	2.00	1.59	928
Lane 2 - 12.5' Left	30+50	3	22,906	23.51	9.72	5.22	3.64	2.58	1.99	1.40	974
Lane 3 - 35' Right	30+50	3	23,140	17.63	6.66	4.35	3.46	2.78	2.22	1.75	1,313
Lane 1 - 9' Right	31+00	3	23,113	15.98	6.72	4.50	3.35	2.54	1.96	1.45	1,446
Lane 2 - 12.5' Left	31+52	3	22,843	25.08	9.43	5.30	3.84	2.76	2.19	1.71	911
Lane 1 - 9' Right	32+01	3	23,076	16.94	7.26	4.57	3.50	2.68	2.11	1.57	1,362
Lane 4 - 35' Left	32+01	3	22,997	21.95	8.81	4.64	3.38	2.59	2.09	1.57	1,048
Lane 2 - 12.5' Left	32+50	3	23,137	14.92	6.32	4.33	3.37	2.54	2.04	1.66	1,551
Lane 3 - 35' Right	32+50	3	23,264	15.67	5.74	3.98	3.19	2.54	1.97	1.59	1,485
Lane 1 - 9' Right	33+00	3	23,140	16.37	6.15	4.44	3.46	2.65	2.10	1.63	1,414
Lane 2 - 12.5' Left	33+50	3	23,034	17.73	7.20	4.32	3.41	2.64	2.05	1.50	1,299
Lane 1 - 9' Right	34+00	3	23,089	15.94	6.57	4.78	3.57	2.75	2.17	1.69	1,448
Lane 4 - 35' Left	34+00	3	23,002	25.50	8.92	4.24	3.07	2.38	1.87	1.50	902
Lane 2 - 12.5' Left	34+50	3	23,113	16.59	6.62	3.77	3.06	2.24	1.80	1.48	1,393

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 35' Right	34+50	3	23,042	22.42	7.67	4.21	3.28	2.59	2.09	1.60	1,028
Lane 1 - 9' Right	35+00	3	23,116	17.14	6.90	4.67	3.47	2.69	2.12	1.62	1,349
Lane 2 - 12.5' Left	35+50	3	23,069	18.10	7.52	4.49	3.61	2.61	2.03	1.61	1,275
Lane 1 - 9' Right	36+00	3	23,084	16.92	7.15	4.59	3.48	2.61	2.07	1.63	1,364
Lane 4 - 35' Left	36+09	3	23,180	19.21	8.04	4.50	3.41	2.59	2.10	1.62	1,207
Lane 3 - 35' Right	36+51	3	23,216	15.58	7.11	4.09	3.09	2.37	2.00	1.54	1,490
Lane 2 - 12.5' Left	36+54	3	23,100	16.21	7.63	4.94	3.64	2.70	2.04	1.56	1,425
Lane 1 - 9' Right	37+00	3	23,105	15.54	6.53	4.28	3.03	2.33	1.83	1.54	1,487
Lane 2 - 12.5' Left	37+51	3	23,100	16.26	7.35	4.63	3.48	2.57	2.00	1.54	1,421
Lane 1 - 9' Right	38+00	3	23,053	17.18	6.00	3.84	3.15	2.41	1.72	1.48	1,342
Lane 4 - 35' Left	38+00	3	22,779	23.05	9.54	5.80	4.26	3.18	2.51	2.02	988
Lane 2 - 12.5' Left	38+50	3	23,288	19.22	7.82	5.09	3.77	2.84	2.20	1.68	1,212
Lane 3 - 35' Right	38+54	3	23,073	18.20	7.02	4.04	3.10	2.48	2.02	1.61	1,268
Lane 1 - 9' Right	39+01	3	23,021	19.04	6.15	4.18	3.28	2.47	1.94	1.68	1,209
Lane 2 - 12.5' Left	39+51	3	23,018	17.75	8.10	4.95	3.68	2.76	2.24	1.74	1,297
Lane 4 - 35' Left	40+00	3	22,965	22.56	8.91	4.80	3.58	2.72	2.24	1.78	1,018
Lane 1 - 9' Right	40+01	3	23,089	16.35	6.41	4.41	3.56	2.87	2.31	1.85	1,412
Lane 2 - 12.5' Left	40+50	3	22,922	21.05	9.35	5.79	4.32	3.11	2.40	1.88	1,089
Lane 3 - 35' Right	40+51	3	22,994	21.28	8.44	5.05	4.02	3.30	2.70	2.22	1,081
Lane 1 - 9' Right	41+00	3	23,073	15.09	7.33	4.94	3.96	3.17	2.53	1.92	1,529
Lane 2 - 12.5' Left	41+50	3	23,018	21.83	10.49	6.61	4.66	3.30	2.54	1.94	1,054
Lane 4 - 35' Left	42+00	3	22,949	21.36	7.23	3.66	2.80	2.21	1.84	1.64	1,074
Lane 1 - 9' Right	42+01	3	23,065	18.78	7.82	4.93	3.74	2.81	2.15	1.59	1,228
Lane 2 - 12.5' Left	42+50	3	23,037	19.57	7.82	3.97	2.78	2.08	1.70	1.34	1,177
Lane 3 - 35' Right	42+53	3	23,084	19.86	6.99	3.49	2.67	2.17	1.81	1.48	1,162
Lane 1 - 9' Right	43+00	3	23,026	19.03	7.24	4.96	3.76	2.91	2.29	1.72	1,210
Lane 2 - 12.5' Left	43+51	3	22,954	24.54	8.21	3.79	2.98	2.28	1.79	1.37	935

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

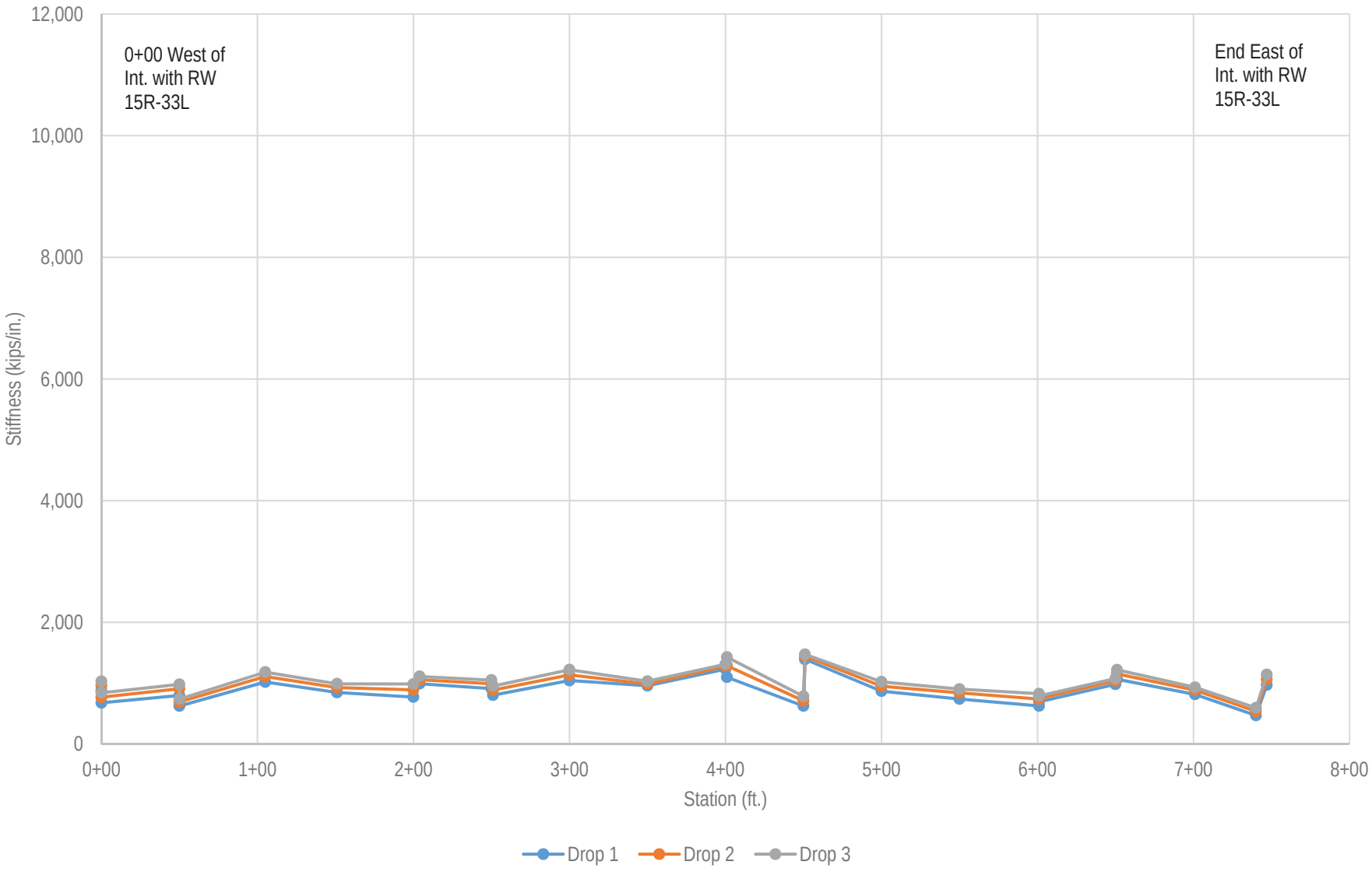
Runway 10-28 (Sections 1 - 4)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 35' Left	44+00	3	22,926	23.31	8.85	4.11	2.88	2.31	1.96	1.59	984
Lane 1 - 9' Right	44+01	3	23,018	18.20	7.38	5.36	4.35	3.44	2.76	2.10	1,265
Lane 3 - 35' Right	44+50	3	23,037	22.39	7.41	4.11	3.19	2.56	2.16	1.73	1,029
Lane 2 - 12.5' Left	44+51	3	23,029	19.56	7.30	3.93	3.30	2.52	2.01	1.68	1,177
Lane 1 - 9' Right	45+00	3	23,037	18.06	6.57	4.52	3.64	2.89	2.33	1.78	1,276
Lane 2 - 12.5' Left	45+50	3	23,049	19.79	7.02	4.14	3.52	2.46	1.98	1.82	1,165
Lane 1 - 9' Right	46+00	3	23,029	17.93	7.57	5.59	4.51	3.52	2.86	2.06	1,284
Lane 4 - 35' Left	46+00	3	22,962	21.26	7.86	4.12	3.10	2.50	1.97	1.58	1,080
Lane 2 - 12.5' Left	46+50	3	23,140	16.46	7.43	4.59	3.74	2.83	2.12	1.85	1,406
Lane 3 - 35' Right	46+51	3	23,100	18.39	6.81	4.15	3.22	2.55	2.02	1.72	1,256
Lane 1 - 9' Right	47+00	3	23,061	18.71	7.51	5.14	3.90	2.92	2.27	1.71	1,233
Lane 2 - 12.5' Left	47+50	3	23,061	17.30	7.27	4.38	3.09	2.28	1.75	1.38	1,333
Lane 4 - 35' Left	47+99	3	22,978	21.64	8.49	4.48	3.28	2.55	2.06	1.58	1,062
Lane 1 - 9' Right	48+00	3	23,092	17.56	6.89	4.37	3.36	2.54	1.96	1.48	1,315
Lane 3 - 35' Right	48+34	3	23,026	22.81	7.77	4.00	2.94	2.37	1.87	1.52	1,009
										Average:	1,266

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Runway 10-28 (Sections 4A - 6A)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 4A - 6A)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	12,318	14.02	3.78	2.26	1.68	1.33	1.05	0.78	879
Lane 4 - 35' Left	0+00	1	12,373	18.28	4.62	2.22	1.83	1.52	1.21	1.00	677
Lane 2 - 12.5' Left	0+50	1	12,318	15.44	4.28	1.98	1.52	1.28	0.94	0.82	798
Lane 3 - 35' Right	0+50	1	12,373	19.80	5.59	2.72	1.83	1.43	1.10	0.91	625
Lane 1 - 12.5' Right	1+05	1	12,310	12.08	3.65	2.11	1.53	1.19	0.96	0.80	1,019
Lane 2 - 12.5' Left	1+51	1	12,345	14.57	4.71	2.22	1.46	1.23	0.93	0.65	847
Lane 1 - 12.5' Right	2+00	1	12,325	15.95	3.89	1.88	1.33	1.25	0.87	0.64	773
Lane 4 - 35' Left	2+04	1	12,456	12.57	4.30	2.27	1.65	1.32	1.04	0.75	991
Lane 2 - 12.5' Left	2+50	1	12,333	13.54	4.44	1.81	1.33	0.98	0.82	0.60	911
Lane 3 - 35' Right	2+51	1	12,413	15.46	3.80	2.01	1.57	1.41	1.15	0.86	803
Lane 1 - 12.5' Right	3+00	1	12,349	11.83	3.48	1.66	1.28	1.19	0.93	0.73	1,044
Lane 2 - 12.5' Left	3+50	1	12,310	12.85	4.74	2.39	1.78	1.39	0.96	0.65	958
Lane 1 - 12.5' Right	4+00	1	12,329	10.02	3.85	2.14	1.52	1.20	0.89	0.64	1,230
Lane 4 - 35' Left	4+01	1	12,453	11.34	2.93	1.65	1.32	1.03	0.90	0.67	1,098
Lane 3 - 35' Right	4+50	1	12,365	19.80	3.80	1.82	1.51	1.31	0.99	0.74	624
Lane 2 - 12.5' Left	4+51	1	12,384	8.90	3.52	1.92	1.41	1.18	0.88	0.76	1,391
Lane 1 - 12.5' Right	5+00	1	12,408	14.29	4.73	2.22	1.50	1.17	0.93	0.76	868
Lane 2 - 12.5' Left	5+50	1	12,313	16.65	4.08	2.28	1.67	1.34	0.96	0.74	740
Lane 1 - 12.5' Right	6+01	1	12,246	19.57	5.56	1.80	1.33	1.18	0.96	0.70	626
Lane 4 - 35' Left	6+01	1	12,373	17.82	5.54	2.38	1.95	1.54	1.20	0.81	694
Lane 2 - 12.5' Left	6+50	1	12,289	12.51	4.23	2.62	1.91	1.46	1.26	1.07	982
Lane 3 - 35' Right	6+51	1	12,500	11.75	3.31	2.37	1.76	1.55	1.20	0.95	1,064
Lane 1 - 12.5' Right	7+01	1	12,294	15.08	4.83	2.58	2.04	1.64	1.32	0.83	815
Lane 4 - 35' Left	7+40	1	12,241	26.05	6.53	2.65	2.24	1.75	1.35	1.00	470
Lane 2 - 12.5' Left	7+47	1	12,273	12.65	3.74	2.66	2.07	1.60	1.23	0.93	970
Lane 1 - 12.5' Right	0+00	2	17,346	18.02	5.57	3.37	2.46	1.83	1.41	1.04	963
Lane 4 - 35' Left	0+00	2	17,357	22.57	6.31	3.29	2.64	2.07	1.60	1.37	769

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 10-28 (Sections 4A - 6A)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	0+50	2	17,346	19.07	5.98	2.98	2.26	1.73	1.22	1.03	910
Lane 3 - 35' Right	0+50	2	17,341	25.14	7.72	3.82	2.64	1.93	1.56	1.20	690
Lane 1 - 12.5' Right	1+05	2	17,341	15.63	5.17	3.02	2.24	1.65	1.30	0.98	1,109
Lane 2 - 12.5' Left	1+51	2	17,341	18.70	6.69	3.26	2.25	1.72	1.33	1.03	927
Lane 1 - 12.5' Right	2+00	2	17,333	19.45	5.55	2.78	2.12	1.56	1.28	1.02	891
Lane 4 - 35' Left	2+04	2	17,505	16.58	6.07	3.41	2.39	1.89	1.48	1.11	1,056
Lane 2 - 12.5' Left	2+50	2	17,370	17.52	6.39	2.80	2.02	1.48	1.14	0.91	991
Lane 3 - 35' Right	2+51	2	17,433	19.66	5.33	2.88	2.30	1.84	1.56	1.19	887
Lane 1 - 12.5' Right	3+00	2	17,362	15.28	4.95	2.39	1.86	1.65	1.30	1.00	1,136
Lane 2 - 12.5' Left	3+50	2	17,341	17.57	6.67	3.37	2.77	1.91	1.28	0.91	987
Lane 1 - 12.5' Right	4+00	2	17,357	13.57	5.59	3.21	2.27	1.70	1.32	1.02	1,279
Lane 4 - 35' Left	4+01	2	17,521	13.62	4.18	2.49	1.95	1.51	1.23	0.94	1,286
Lane 3 - 35' Right	4+50	2	17,373	24.46	5.28	2.68	2.23	1.71	1.40	1.13	710
Lane 2 - 12.5' Left	4+51	2	17,441	12.09	5.08	2.82	2.16	1.69	1.32	1.05	1,443
Lane 1 - 12.5' Right	5+00	2	17,449	18.37	6.46	3.24	2.23	1.71	1.35	1.10	950
Lane 2 - 12.5' Left	5+50	2	17,317	20.59	5.98	3.52	2.53	1.92	1.36	0.99	841
Lane 1 - 12.5' Right	6+01	2	17,230	23.33	7.40	2.86	2.13	1.63	1.35	1.06	739
Lane 4 - 35' Left	6+01	2	17,330	23.20	7.77	3.60	2.79	2.17	1.73	1.29	747
Lane 2 - 12.5' Left	6+50	2	17,333	16.70	6.41	4.03	2.97	2.22	1.75	1.37	1,038
Lane 3 - 35' Right	6+51	2	17,476	15.15	4.86	3.44	2.61	2.15	1.73	1.37	1,154
Lane 1 - 12.5' Right	7+01	2	17,266	19.54	7.03	3.99	3.07	2.40	1.90	1.37	884
Lane 4 - 35' Left	7+40	2	17,166	31.91	8.74	3.96	3.15	2.49	2.01	1.48	538
Lane 2 - 12.5' Left	7+47	2	17,314	16.27	5.70	4.10	3.16	2.38	1.83	1.43	1,064
Lane 1 - 12.5' Right	0+00	3	22,933	22.30	7.51	4.81	3.37	2.46	1.96	1.47	1,028
Lane 4 - 35' Left	0+00	3	22,851	27.16	8.26	4.38	3.52	2.63	2.08	1.75	841
Lane 2 - 12.5' Left	0+50	3	22,946	23.41	7.96	4.26	3.13	2.22	1.72	1.51	980
Lane 3 - 35' Right	0+50	3	22,843	30.88	10.00	5.26	3.48	2.55	1.95	1.59	740

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

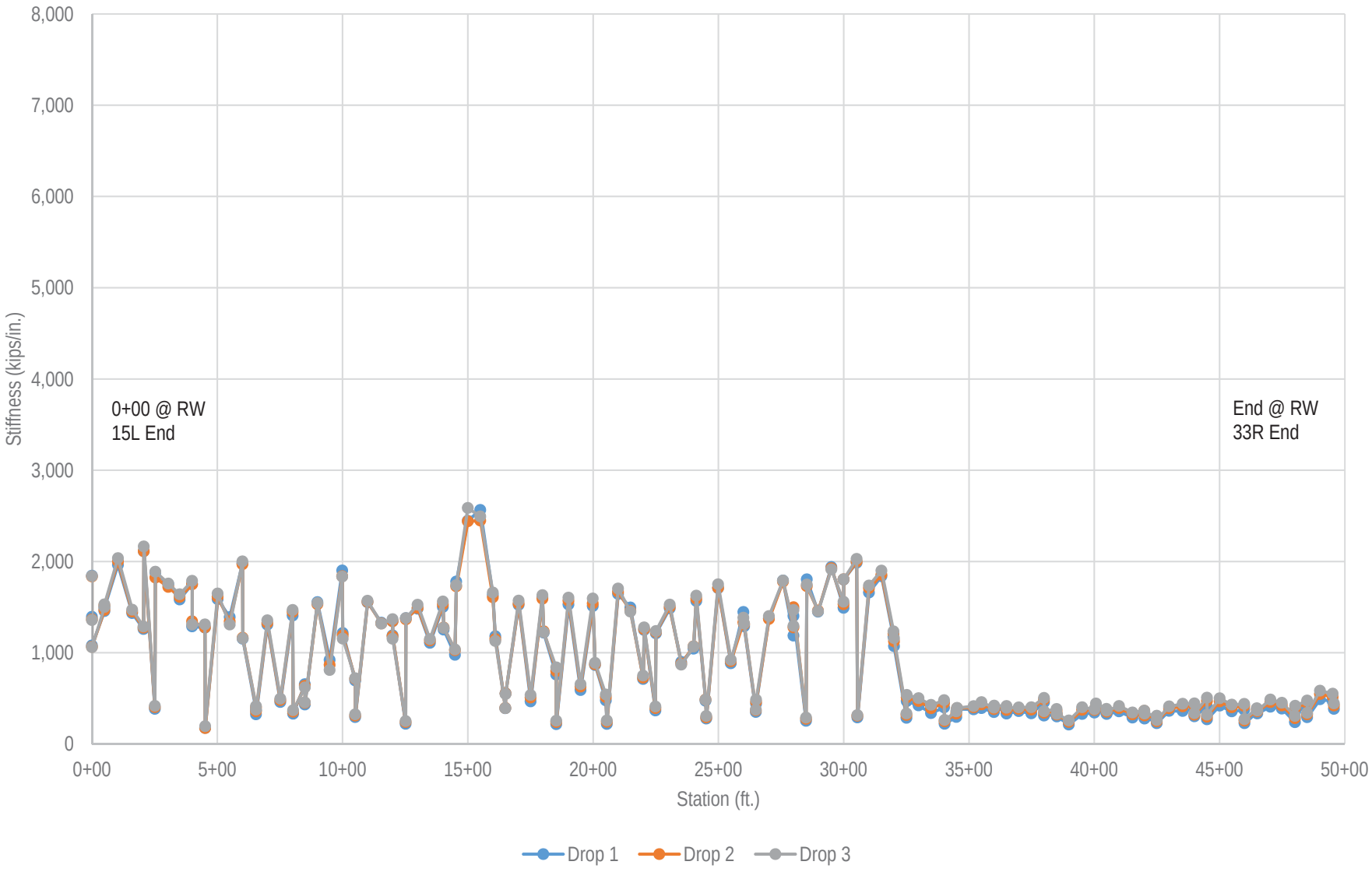
Runway 10-28 (Sections 4A - 6A)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	1+05	3	22,933	19.41	6.85	4.22	3.03	2.28	1.80	1.48	1,182
Lane 2 - 12.5' Left	1+51	3	22,970	23.22	9.00	4.62	3.16	2.28	1.80	1.46	989
Lane 1 - 12.5' Right	2+00	3	22,938	23.27	7.33	3.77	2.95	2.02	1.68	1.40	986
Lane 4 - 35' Left	2+04	3	23,097	20.81	7.78	4.58	3.27	2.54	1.99	1.57	1,110
Lane 2 - 12.5' Left	2+50	3	22,981	21.88	8.55	4.02	2.84	2.01	1.53	1.20	1,050
Lane 3 - 35' Right	2+51	3	22,978	24.13	6.96	3.95	3.00	2.48	2.10	1.71	952
Lane 1 - 12.5' Right	3+00	3	23,045	18.88	6.67	3.42	2.56	2.16	1.80	1.43	1,221
Lane 2 - 12.5' Left	3+50	3	22,946	22.25	8.84	4.79	3.76	2.61	1.87	1.32	1,031
Lane 1 - 12.5' Right	4+00	3	23,005	17.55	7.61	4.52	3.19	2.37	1.81	1.46	1,311
Lane 4 - 35' Left	4+01	3	23,140	16.21	5.64	3.49	2.66	2.02	1.64	1.31	1,428
Lane 3 - 35' Right	4+50	3	22,918	29.25	6.91	3.58	2.92	2.27	1.85	1.49	784
Lane 2 - 12.5' Left	4+51	3	23,156	15.71	6.93	3.90	3.05	2.31	1.81	1.56	1,474
Lane 1 - 12.5' Right	5+00	3	23,065	22.56	8.46	4.41	3.07	2.33	1.86	1.45	1,022
Lane 2 - 12.5' Left	5+50	3	22,949	25.43	8.27	5.01	3.57	2.58	1.97	1.52	902
Lane 1 - 12.5' Right	6+01	3	22,870	27.66	9.50	3.95	2.98	2.26	1.80	1.44	827
Lane 4 - 35' Left	6+01	3	22,838	28.87	10.24	4.84	3.67	2.88	2.28	1.81	791
Lane 2 - 12.5' Left	6+50	3	22,894	21.28	9.02	5.74	4.21	3.13	2.47	1.94	1,076
Lane 3 - 35' Right	6+51	3	23,100	18.94	6.66	4.72	3.59	2.88	2.34	1.85	1,220
Lane 1 - 12.5' Right	7+01	3	22,902	24.60	9.54	5.63	4.35	3.35	2.65	1.98	931
Lane 4 - 35' Left	7+40	3	22,632	38.00	11.15	5.33	4.25	3.34	2.65	1.98	596
Lane 2 - 12.5' Left	7+47	3	22,883	20.04	7.85	5.62	4.34	3.28	2.52	1.92	1,142
										Average:	953

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Runway 15L-33R



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	13,104	7.11	4.94	3.76	3.07	2.40	1.89	1.51	1,843
Lane 2 - 12.5' Left	0+00	1	12,607	9.05	6.07	4.62	3.65	2.68	2.10	1.54	1,393
Lane 4 - 35' Left	0+00	1	12,596	11.68	8.53	5.65	3.98	2.74	2.17	1.65	1,078
Lane 2 - 12.5' Left	0+50	1	12,699	8.72	6.23	4.98	4.00	3.00	2.46	1.81	1,456
Lane 3 - 35' Right	0+50	1	12,813	8.58	4.97	3.59	2.75	2.00	1.62	1.16	1,493
Lane 1 - 12.5' Right	1+04	1	13,226	6.74	4.13	3.30	2.65	1.94	1.60	1.19	1,962
Lane 2 - 12.5' Left	1+61	1	12,746	8.89	5.78	4.04	3.26	2.30	1.70	1.26	1,434
Lane 4 - 35' Left	2+06	1	12,508	9.93	6.67	4.89	3.58	2.35	1.79	1.25	1,260
Lane 1 - 12.5' Right	2+07	1	13,067	6.19	3.47	2.64	2.27	1.76	1.46	1.08	2,111
Lane 3 - 35' Right	2+51	1	12,246	31.83	16.31	6.64	3.07	1.76	1.33	1.09	385
Lane 2 - 12.5' Left	2+53	1	12,453	6.63	5.35	4.23	3.22	2.19	1.66	1.18	1,878
Lane 1 - 12.5' Right	3+05	1	12,937	7.39	4.41	3.48	2.89	2.19	1.79	1.35	1,751
Lane 2 - 12.5' Left	3+50	1	12,678	8.01	5.76	4.60	3.66	2.69	2.22	1.70	1,583
Lane 1 - 12.5' Right	4+00	1	12,953	7.39	4.72	3.83	3.15	2.38	2.00	1.54	1,753
Lane 4 - 35' Left	4+00	1	12,583	9.77	7.34	5.75	4.32	2.90	2.20	1.59	1,288
Lane 2 - 12.5' Left	4+51	1	12,437	9.76	7.83	6.35	4.88	3.22	2.33	1.69	1,274
Lane 3 - 35' Right	4+52	1	11,765	67.29	34.69	12.16	4.83	2.96	2.65	2.40	175
Lane 1 - 12.5' Right	5+02	1	12,889	8.12	5.37	4.47	3.73	2.89	2.43	1.89	1,587
Lane 2 - 12.5' Left	5+50	1	12,453	8.96	7.15	5.49	4.04	2.50	1.84	1.30	1,390
Lane 1 - 12.5' Right	6+01	1	12,940	6.53	3.99	3.17	2.50	1.83	1.51	1.18	1,982
Lane 4 - 35' Left	6+02	1	12,527	10.87	7.15	5.23	3.73	2.53	1.89	1.42	1,152
Lane 2 - 12.5' Left	6+55	1	12,217	32.98	19.93	9.44	5.14	2.94	2.41	1.74	370
Lane 3 - 35' Right	6+55	1	12,265	37.89	19.11	7.85	4.59	3.21	2.70	2.13	324
Lane 1 - 12.5' Right	7+00	1	12,739	9.75	6.97	5.74	4.76	3.65	3.10	2.42	1,307
Lane 2 - 12.5' Left	7+52	1	12,273	26.70	17.09	10.57	7.31	5.01	3.85	2.91	460
Lane 1 - 12.5' Right	8+01	1	12,766	9.08	6.04	4.90	3.99	2.97	2.46	1.89	1,406
Lane 4 - 35' Left	8+03	1	12,230	36.98	17.89	8.79	5.17	3.11	2.33	1.65	331

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	8+50	1	12,337	18.84	12.09	7.22	4.47	2.69	1.92	1.43	655
Lane 3 - 35' Right	8+50	1	12,321	28.54	15.18	5.90	2.85	1.78	1.46	1.24	432
Lane 1 - 12.5' Right	9+00	1	12,818	8.25	5.78	4.50	3.46	2.44	1.93	1.46	1,554
Lane 2 - 12.5' Left	9+49	1	12,424	13.50	9.50	6.30	4.20	2.62	1.94	1.42	920
Lane 1 - 12.5' Right	9+99	1	12,715	6.69	4.37	3.48	2.75	2.00	1.58	1.15	1,901
Lane 4 - 35' Left	10+01	1	12,508	10.29	8.11	5.97	4.33	2.85	2.21	1.63	1,216
Lane 2 - 12.5' Left	10+51	1	12,603	18.12	12.10	6.63	4.30	3.00	2.38	1.84	696
Lane 3 - 35' Right	10+51	1	12,202	41.59	23.79	10.27	5.22	3.44	2.88	2.32	293
Lane 1 - 12.5' Right	11+00	1	12,964	8.35	5.39	4.30	3.38	2.44	1.98	1.42	1,553
Lane 2 - 12.5' Left	11+55	1	12,731	9.58	6.98	5.11	3.78	2.52	1.94	1.40	1,329
Lane 1 - 12.5' Right	12+00	1	12,623	9.39	6.36	4.97	3.95	2.87	2.31	1.71	1,344
Lane 4 - 35' Left	12+00	1	12,508	10.52	8.55	6.36	4.71	3.09	2.35	1.63	1,189
Lane 3 - 35' Right	12+52	1	12,019	54.43	26.41	7.87	3.64	3.35	3.02	2.57	221
Lane 2 - 12.5' Left	12+53	1	12,548	9.11	7.41	5.86	4.68	3.39	2.76	2.06	1,377
Lane 1 - 12.5' Right	13+00	1	12,651	8.54	6.18	5.06	4.24	3.30	2.77	2.24	1,481
Lane 2 - 12.5' Left	13+49	1	12,456	11.24	8.33	6.17	4.64	3.34	2.70	2.03	1,108
Lane 1 - 12.5' Right	14+01	1	12,654	8.43	6.03	4.99	4.11	3.11	2.63	2.09	1,501
Lane 4 - 35' Left	14+04	1	12,492	9.97	7.30	5.32	4.13	2.83	2.15	1.57	1,253
Lane 3 - 35' Right	14+49	1	12,456	12.75	7.69	4.69	3.15	2.13	1.73	1.37	977
Lane 2 - 12.5' Left	14+54	1	12,472	7.01	5.21	3.94	3.09	2.30	1.94	1.54	1,779
Lane 1 - 12.5' Right	15+00	1	12,718	5.20	3.11	2.44	2.12	1.68	1.39	1.17	2,446
Lane 2 - 12.5' Left	15+50	1	12,516	4.88	3.34	2.57	1.99	1.40	1.21	0.90	2,565
Lane 1 - 12.5' Right	16+00	1	12,516	7.66	3.72	2.74	2.11	1.46	1.20	0.85	1,634
Lane 4 - 35' Left	16+10	1	12,440	10.54	7.85	6.06	4.34	2.82	2.04	1.56	1,180
Lane 3 - 35' Right	16+50	1	12,286	31.38	19.11	8.91	4.63	2.78	2.27	1.83	392
Lane 2 - 12.5' Left	16+51	1	12,325	22.19	13.40	8.19	5.46	3.48	2.69	1.93	555
Lane 1 - 12.5' Right	17+03	1	12,588	8.26	5.63	4.80	4.03	3.23	2.72	2.21	1,524

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	17+51	1	12,182	26.12	17.76	11.02	7.20	4.60	3.56	2.63	466
Lane 1 - 12.5' Right	17+98	1	12,583	7.82	5.94	4.96	4.17	3.26	2.68	2.09	1,609
Lane 4 - 35' Left	18+03	1	12,464	10.22	8.46	6.51	5.02	3.67	2.88	2.21	1,220
Lane 2 - 12.5' Left	18+53	1	12,460	16.40	11.71	8.03	5.81	4.05	3.24	2.46	760
Lane 3 - 35' Right	18+53	1	11,979	55.28	25.87	7.77	3.40	2.74	2.41	2.11	217
Lane 1 - 12.5' Right	19+02	1	12,543	8.21	6.25	5.12	4.25	3.26	2.70	2.11	1,528
Lane 2 - 12.5' Left	19+50	1	12,289	20.83	13.62	8.27	5.59	3.78	2.94	2.26	590
Lane 1 - 12.5' Right	19+99	1	12,548	8.31	5.52	4.43	3.64	2.80	2.38	1.88	1,510
Lane 4 - 35' Left	20+08	1	12,413	14.35	9.67	5.89	3.92	2.63	2.04	1.54	865
Lane 2 - 12.5' Left	20+51	1	12,257	25.68	18.51	11.33	6.74	3.76	2.74	2.11	477
Lane 3 - 35' Right	20+55	1	12,024	54.82	22.48	5.26	3.16	2.64	2.34	1.94	219
Lane 1 - 12.5' Right	21+00	1	12,540	7.63	4.61	3.76	3.19	2.54	2.15	1.71	1,644
Lane 2 - 12.5' Left	21+49	1	12,408	8.30	6.14	4.99	3.87	2.91	2.37	1.85	1,495
Lane 4 - 35' Left	22+00	1	12,360	17.38	11.48	6.76	4.59	3.08	2.46	1.87	711
Lane 1 - 12.5' Right	22+04	1	12,646	10.13	7.75	6.09	4.84	3.61	2.96	2.31	1,248
Lane 3 - 35' Right	22+49	1	12,318	33.59	16.17	5.57	2.67	2.02	1.75	1.43	367
Lane 2 - 12.5' Left	22+51	1	12,389	10.23	8.94	7.19	5.37	3.09	2.44	1.94	1,211
Lane 1 - 12.5' Right	23+06	1	12,551	8.45	6.05	4.86	3.86	2.85	2.34	1.80	1,485
Lane 2 - 12.5' Left	23+52	1	12,376	13.77	10.85	7.57	5.45	3.74	2.93	2.22	899
Lane 4 - 35' Left	24+01	1	12,476	11.96	9.44	7.37	5.55	3.79	2.85	2.00	1,043
Lane 1 - 12.5' Right	24+12	1	12,500	7.98	6.02	4.86	3.96	3.00	2.46	1.87	1,566
Lane 2 - 12.5' Left	24+49	1	12,249	25.87	16.06	8.06	4.24	2.23	1.45	0.99	473
Lane 3 - 35' Right	24+52	1	12,182	43.87	20.41	8.22	4.99	3.71	3.05	2.41	278
Lane 1 - 12.5' Right	24+99	1	12,524	7.34	5.49	4.51	3.78	2.92	2.35	1.78	1,706
Lane 2 - 12.5' Left	25+50	1	12,349	13.98	9.27	6.44	4.96	3.74	2.96	2.28	883
Lane 4 - 35' Left	26+00	1	12,381	8.56	7.26	5.80	4.36	3.08	2.43	1.81	1,446
Lane 1 - 12.5' Right	26+03	1	12,524	9.72	7.03	5.56	4.46	3.37	2.80	2.18	1,288

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 35' Right	26+50	1	12,278	35.09	18.28	7.19	3.94	2.86	2.49	2.09	350
Lane 2 - 12.5' Left	26+51	1	12,167	27.67	19.13	10.94	7.01	4.52	3.48	2.65	440
Lane 1 - 12.5' Right	27+02	1	12,500	9.07	6.45	5.04	4.06	3.05	2.57	2.05	1,378
Lane 2 - 12.5' Left	27+58	1	12,421	6.94	5.71	4.47	3.48	2.51	1.85	1.41	1,790
Lane 1 - 12.5' Right	28+00	1	12,508	10.54	5.90	4.56	3.55	2.64	2.13	1.64	1,187
Lane 4 - 35' Left	28+00	1	12,492	8.91	6.50	5.18	4.06	2.93	2.30	1.66	1,402
Lane 3 - 35' Right	28+50	1	12,209	48.31	20.52	7.10	3.96	3.07	2.39	1.86	253
Lane 2 - 12.5' Left	28+53	1	12,500	6.93	5.26	3.95	2.97	2.09	1.70	1.28	1,804
Lane 1 - 12.5' Right	28+98	1	12,543	8.66	5.78	4.37	3.44	2.52	2.04	1.56	1,448
Lane 2 - 12.5' Left	29+51	1	12,468	6.43	4.55	3.43	2.68	1.89	1.56	1.22	1,939
Lane 1 - 12.5' Right	30+00	1	12,511	8.39	4.95	3.69	2.98	2.25	1.90	1.45	1,491
Lane 4 - 35' Left	30+00	1	12,580	6.99	4.99	3.98	3.22	2.41	1.98	1.53	1,800
Lane 2 - 12.5' Left	30+52	1	12,511	6.30	4.07	3.19	2.54	1.89	1.57	1.22	1,986
Lane 3 - 35' Right	30+55	1	12,159	41.88	20.71	6.98	3.53	2.48	2.15	1.70	290
Lane 1 - 12.5' Right	31+01	1	12,527	7.55	4.40	3.43	2.88	2.25	1.95	1.56	1,659
Lane 2 - 12.5' Left	31+51	1	12,440	6.77	3.39	2.50	2.17	1.66	1.31	0.87	1,838
Lane 1 - 12.5' Right	31+99	1	12,532	10.70	5.75	3.52	2.71	2.09	1.78	1.43	1,171
Lane 4 - 35' Left	32+01	1	12,519	11.68	6.94	3.98	2.82	2.09	1.67	1.31	1,072
Lane 3 - 35' Right	32+51	1	12,302	42.98	16.20	4.30	2.65	1.91	1.65	1.31	286
Lane 2 - 12.5' Left	32+52	1	12,238	26.07	15.63	6.96	3.38	1.88	1.40	1.11	469
Lane 1 - 12.5' Right	32+99	1	12,318	29.19	14.89	5.37	2.48	1.70	1.50	1.24	422
Lane 2 - 12.5' Left	33+49	1	12,175	36.04	18.37	6.00	2.67	1.85	1.68	1.46	338
Lane 1 - 12.5' Right	34+01	1	12,297	30.66	16.31	6.10	2.39	1.35	1.17	0.96	401
Lane 4 - 35' Left	34+03	1	12,000	54.48	27.42	8.87	3.02	1.86	1.67	1.29	220
Lane 2 - 12.5' Left	34+50	1	12,246	41.42	20.29	7.19	2.95	1.72	1.34	1.15	296
Lane 3 - 35' Right	34+53	1	12,337	32.17	16.56	6.85	3.20	1.83	1.43	1.11	383
Lane 1 - 12.5' Right	35+19	1	12,488	32.94	17.36	6.56	2.72	1.66	1.46	1.15	379

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	35+50	1	12,273	31.25	16.81	6.85	3.31	1.81	1.42	1.10	393
Lane 4 - 35' Left	36+00	1	12,225	35.09	18.96	6.97	3.02	1.82	1.54	1.23	348
Lane 1 - 12.5' Right	36+01	1	12,310	32.46	18.80	7.77	3.38	1.94	1.61	1.31	379
Lane 2 - 12.5' Left	36+50	1	12,198	32.39	16.63	7.13	3.37	1.91	1.45	1.12	377
Lane 3 - 35' Right	36+50	1	12,059	36.31	20.07	7.76	3.24	1.79	1.35	1.16	332
Lane 1 - 12.5' Right	36+99	1	12,305	34.21	18.08	6.48	2.52	1.55	1.39	1.22	360
Lane 2 - 12.5' Left	37+49	1	12,230	36.53	19.91	8.18	3.67	2.15	1.75	1.52	335
Lane 1 - 12.5' Right	38+00	1	12,376	27.12	15.69	7.09	3.66	2.15	1.69	1.37	456
Lane 4 - 35' Left	38+00	1	12,186	39.27	21.39	7.75	3.27	2.07	1.89	1.59	310
Lane 2 - 12.5' Left	38+50	1	12,373	38.06	19.13	6.87	3.11	1.82	1.59	1.16	325
Lane 3 - 35' Right	38+51	1	12,209	40.56	23.96	10.30	4.80	2.68	2.12	1.73	301
Lane 1 - 12.5' Right	38+99	1	12,194	57.46	28.19	7.96	2.00	1.28	1.51	1.38	212
Lane 2 - 12.5' Left	39+52	1	12,397	37.81	18.69	6.64	3.16	2.06	1.76	1.39	328
Lane 4 - 35' Left	40+01	1	12,233	35.61	19.73	7.78	3.38	2.25	1.93	1.46	344
Lane 1 - 12.5' Right	40+07	1	12,313	32.44	17.97	7.60	3.82	2.50	1.95	1.60	380
Lane 2 - 12.5' Left	40+49	1	12,087	35.73	19.59	7.93	3.67	2.28	1.93	1.62	338
Lane 3 - 35' Right	40+50	1	12,222	37.26	20.42	8.59	4.40	2.96	2.30	1.90	328
Lane 1 - 12.5' Right	40+99	1	12,278	34.39	18.59	7.85	3.95	2.35	2.05	1.60	357
Lane 2 - 12.5' Left	41+53	1	12,106	41.88	19.90	7.10	3.31	2.21	2.06	1.63	289
Lane 4 - 35' Left	42+00	1	12,254	35.48	19.00	7.30	3.38	2.19	1.86	1.54	345
Lane 1 - 12.5' Right	42+01	1	12,143	43.65	23.66	8.25	3.40	2.24	2.08	1.91	278
Lane 2 - 12.5' Left	42+50	1	12,114	47.70	23.89	7.36	2.68	2.14	1.93	1.55	254
Lane 3 - 35' Right	42+50	1	12,027	52.96	23.21	3.82	2.46	2.40	2.20	1.97	227
Lane 1 - 12.5' Right	42+99	1	12,241	33.76	18.97	8.11	3.97	2.58	2.22	1.91	363
Lane 2 - 12.5' Left	43+53	1	12,151	33.72	18.39	8.17	4.79	3.57	3.15	2.64	360
Lane 1 - 12.5' Right	44+00	1	12,233	31.85	18.73	9.36	6.05	4.52	3.85	3.12	384
Lane 4 - 35' Left	44+00	1	12,313	40.78	21.60	7.82	3.78	2.73	2.52	2.10	302

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	44+50	1	12,230	29.96	16.72	7.71	4.54	3.38	3.12	2.58	408
Lane 3 - 35' Right	44+50	1	12,170	45.13	20.10	9.17	6.04	4.68	3.65	2.75	270
Lane 1 - 12.5' Right	45+01	1	12,289	29.28	16.81	8.57	5.80	4.59	3.89	3.26	420
Lane 2 - 12.5' Left	45+49	1	12,238	34.36	17.32	8.02	5.33	4.06	3.52	3.01	356
Lane 1 - 12.5' Right	45+99	1	12,190	32.50	18.04	7.30	3.97	3.00	2.59	2.26	375
Lane 4 - 35' Left	46+00	1	12,055	53.12	23.44	7.65	3.78	2.76	2.39	2.10	227
Lane 2 - 12.5' Left	46+49	1	12,337	35.69	19.37	7.76	3.92	2.64	2.27	1.87	346
Lane 3 - 35' Right	46+51	1	12,222	36.60	18.76	7.51	3.92	2.63	2.20	1.85	334
Lane 1 - 12.5' Right	47+03	1	12,241	30.04	15.97	6.74	3.70	2.57	2.17	1.75	407
Lane 2 - 12.5' Left	47+49	1	12,202	31.49	16.48	6.54	3.33	2.20	1.88	1.53	387
Lane 4 - 35' Left	48+01	1	12,119	50.83	21.27	5.24	2.56	2.22	1.81	1.36	238
Lane 1 - 12.5' Right	48+02	1	12,230	34.61	17.46	6.43	3.40	2.37	1.99	1.64	353
Lane 2 - 12.5' Left	48+50	1	12,421	30.92	14.64	5.40	2.99	2.02	1.74	1.41	402
Lane 3 - 35' Right	48+50	1	12,373	42.23	19.78	6.99	3.49	2.50	2.11	1.63	293
Lane 1 - 12.5' Right	49+01	1	12,575	25.71	11.68	4.92	3.00	2.10	1.77	1.33	489
Lane 2 - 12.5' Left	49+52	1	12,424	26.54	12.63	5.12	2.90	1.93	1.58	1.34	468
Lane 4 - 35' Left	49+57	1	12,456	32.41	18.56	7.81	3.59	2.07	1.53	1.46	384
Lane 1 - 12.5' Right	0+00	2	18,199	9.92	6.90	5.32	4.30	3.22	2.74	2.13	1,835
Lane 2 - 12.5' Left	0+00	2	17,648	12.93	8.63	6.54	5.06	3.65	2.99	2.21	1,365
Lane 4 - 35' Left	0+00	2	17,619	16.57	11.87	8.09	5.62	3.83	3.05	2.21	1,063
Lane 2 - 12.5' Left	0+50	2	17,783	12.11	8.62	6.95	5.54	4.13	3.39	2.57	1,468
Lane 3 - 35' Right	0+50	2	17,826	11.74	6.98	5.13	3.91	2.81	2.23	1.63	1,518
Lane 1 - 12.5' Right	1+04	2	18,302	9.15	5.65	4.52	3.67	2.68	2.20	1.65	2,000
Lane 2 - 12.5' Left	1+61	2	17,794	12.27	7.94	5.85	4.41	3.08	2.46	1.80	1,450
Lane 4 - 35' Left	2+06	2	17,537	13.77	9.26	6.76	4.96	3.24	2.47	1.73	1,274
Lane 1 - 12.5' Right	2+07	2	18,064	8.55	4.72	3.88	3.08	2.33	1.93	1.48	2,113
Lane 3 - 35' Right	2+51	2	17,143	42.48	21.81	9.27	4.44	2.55	2.00	1.64	404

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	2+53	2	17,476	9.59	7.46	5.99	4.52	3.08	2.33	1.65	1,822
Lane 1 - 12.5' Right	3+05	2	17,889	10.40	6.16	4.93	3.98	2.91	2.56	1.95	1,720
Lane 2 - 12.5' Left	3+50	2	17,754	11.02	7.91	6.37	5.02	3.63	3.01	2.33	1,611
Lane 1 - 12.5' Right	4+00	2	17,838	10.20	6.54	5.31	4.35	3.24	2.72	2.18	1,749
Lane 4 - 35' Left	4+00	2	17,560	13.07	10.21	8.00	6.01	3.98	3.05	2.19	1,344
Lane 2 - 12.5' Left	4+51	2	17,457	13.67	10.76	8.74	6.70	4.44	3.28	2.37	1,277
Lane 3 - 35' Right	4+52	2	16,297	94.00	51.33	19.54	7.52	4.10	3.64	3.08	173
Lane 1 - 12.5' Right	5+02	2	17,822	11.06	7.38	6.13	5.12	3.95	3.35	2.61	1,611
Lane 2 - 12.5' Left	5+50	2	17,460	13.01	10.32	7.98	5.88	3.64	2.69	1.89	1,342
Lane 1 - 12.5' Right	6+01	2	17,842	9.06	5.54	4.38	3.45	2.52	2.19	1.59	1,969
Lane 4 - 35' Left	6+02	2	17,537	15.08	10.14	7.46	5.33	3.61	2.70	2.04	1,163
Lane 2 - 12.5' Left	6+55	2	17,147	42.87	26.83	12.56	7.10	4.17	3.41	2.34	400
Lane 3 - 35' Right	6+55	2	17,150	48.15	24.81	10.59	6.27	4.49	3.74	2.98	356
Lane 1 - 12.5' Right	7+00	2	17,699	13.35	9.46	7.83	6.49	4.96	4.20	3.27	1,326
Lane 2 - 12.5' Left	7+52	2	17,171	35.81	22.78	14.25	9.86	6.78	5.27	4.02	480
Lane 1 - 12.5' Right	8+01	2	17,691	12.25	8.22	6.67	5.42	4.06	3.37	2.56	1,444
Lane 4 - 35' Left	8+03	2	17,116	48.61	24.25	12.16	7.24	4.41	3.31	2.51	352
Lane 2 - 12.5' Left	8+50	2	17,341	27.24	17.66	10.75	6.65	4.00	2.88	2.09	637
Lane 3 - 35' Right	8+50	2	17,262	38.36	20.60	8.25	4.03	2.53	2.06	1.76	450
Lane 1 - 12.5' Right	9+00	2	17,735	11.59	8.02	6.28	4.84	3.38	2.71	2.04	1,530
Lane 2 - 12.5' Left	9+49	2	17,389	20.08	14.15	9.43	6.30	3.93	2.90	2.14	866
Lane 1 - 12.5' Right	9+99	2	17,719	9.64	6.26	5.00	3.96	2.84	2.28	1.66	1,838
Lane 4 - 35' Left	10+01	2	17,516	14.72	11.79	8.73	6.32	4.14	3.19	2.35	1,190
Lane 2 - 12.5' Left	10+51	2	17,624	24.65	16.56	9.31	6.13	4.27	3.42	2.67	715
Lane 3 - 35' Right	10+51	2	17,020	54.88	31.44	13.98	7.23	4.74	4.06	3.35	310
Lane 1 - 12.5' Right	11+00	2	17,897	11.49	7.48	6.04	4.71	3.39	2.71	2.02	1,558
Lane 2 - 12.5' Left	11+55	2	17,815	13.49	9.79	7.23	5.32	3.53	2.76	2.00	1,321

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	12+00	2	17,600	13.08	8.85	7.01	5.50	4.00	3.25	2.47	1,346
Lane 4 - 35' Left	12+00	2	17,497	14.83	12.00	8.93	6.59	4.33	3.34	2.37	1,180
Lane 3 - 35' Right	12+52	2	16,761	69.96	35.07	11.65	5.27	4.60	4.28	3.65	240
Lane 2 - 12.5' Left	12+53	2	17,556	12.85	10.29	8.16	6.50	4.71	3.83	2.86	1,366
Lane 1 - 12.5' Right	13+00	2	17,667	11.85	8.55	7.06	5.85	4.51	3.81	3.06	1,491
Lane 2 - 12.5' Left	13+49	2	17,492	15.43	11.48	8.53	6.43	4.64	3.77	2.87	1,134
Lane 1 - 12.5' Right	14+01	2	17,643	11.54	8.28	6.85	5.60	4.27	3.61	2.88	1,529
Lane 4 - 35' Left	14+04	2	17,529	13.74	10.13	7.51	5.67	3.87	3.02	2.21	1,276
Lane 3 - 35' Right	14+49	2	17,552	17.11	10.71	6.59	4.41	2.92	2.38	1.88	1,026
Lane 2 - 12.5' Left	14+54	2	17,544	10.16	7.27	5.50	4.31	3.19	2.68	2.13	1,727
Lane 1 - 12.5' Right	15+00	2	17,762	7.28	4.35	3.51	3.00	2.34	1.96	1.58	2,440
Lane 2 - 12.5' Left	15+50	2	17,648	7.21	4.82	3.71	2.85	2.00	1.64	1.26	2,448
Lane 1 - 12.5' Right	16+00	2	17,521	10.90	5.30	3.97	3.02	2.09	1.69	1.22	1,607
Lane 4 - 35' Left	16+10	2	17,476	15.19	11.43	8.79	6.30	4.02	2.87	2.20	1,150
Lane 3 - 35' Right	16+50	2	17,111	43.52	26.63	12.69	6.52	3.81	3.08	2.66	393
Lane 2 - 12.5' Left	16+51	2	17,266	31.29	19.02	11.85	7.93	5.01	3.85	2.75	552
Lane 1 - 12.5' Right	17+03	2	17,576	11.43	7.77	6.63	5.53	4.41	3.76	3.04	1,538
Lane 2 - 12.5' Left	17+51	2	17,123	33.67	23.04	14.45	9.54	6.21	4.79	3.64	509
Lane 1 - 12.5' Right	17+98	2	17,608	11.07	8.19	6.93	5.74	4.43	3.71	2.91	1,591
Lane 4 - 35' Left	18+03	2	17,497	14.18	11.81	8.92	7.00	5.06	3.98	2.98	1,234
Lane 2 - 12.5' Left	18+53	2	17,428	21.84	15.52	10.74	7.80	5.50	4.40	3.39	798
Lane 3 - 35' Right	18+53	2	16,790	70.06	33.18	10.21	4.37	3.60	3.30	2.86	240
Lane 1 - 12.5' Right	19+02	2	17,556	11.19	8.61	7.21	5.89	4.46	3.74	2.89	1,569
Lane 2 - 12.5' Left	19+50	2	17,270	27.50	18.02	11.08	7.54	5.19	4.09	3.15	628
Lane 1 - 12.5' Right	19+99	2	17,576	11.42	7.59	6.14	5.02	3.87	3.29	2.60	1,539
Lane 4 - 35' Left	20+08	2	17,413	19.94	13.33	8.17	5.48	3.66	2.87	2.15	873
Lane 2 - 12.5' Left	20+51	2	17,219	33.56	23.89	14.59	8.84	4.99	3.74	2.88	513

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 35' Right	20+55	2	16,885	69.77	28.79	6.82	3.96	3.53	3.17	2.68	242
Lane 1 - 12.5' Right	21+00	2	17,587	10.54	6.39	5.27	4.40	3.52	3.02	2.39	1,669
Lane 2 - 12.5' Left	21+49	2	17,457	11.96	8.74	7.06	5.51	4.10	3.37	2.63	1,460
Lane 4 - 35' Left	22+00	2	17,346	23.85	15.66	9.37	6.37	4.27	3.42	2.66	727
Lane 1 - 12.5' Right	22+04	2	17,664	14.04	10.71	8.49	6.71	5.00	4.09	3.19	1,258
Lane 3 - 35' Right	22+49	2	17,243	43.94	21.17	7.57	3.69	2.86	2.50	2.02	392
Lane 2 - 12.5' Left	22+51	2	17,428	14.21	12.35	9.80	7.21	4.31	3.44	2.62	1,226
Lane 1 - 12.5' Right	23+06	2	17,537	11.69	8.40	6.74	5.37	3.99	3.28	2.56	1,500
Lane 2 - 12.5' Left	23+52	2	17,373	19.75	15.66	10.91	7.81	5.28	4.13	3.18	880
Lane 4 - 35' Left	24+01	2	17,489	16.35	13.33	10.41	7.86	5.34	4.07	2.87	1,070
Lane 1 - 12.5' Right	24+12	2	17,521	11.00	8.33	6.82	5.52	4.18	3.45	2.63	1,593
Lane 2 - 12.5' Left	24+49	2	17,254	35.45	22.36	11.68	6.36	3.37	2.29	1.52	487
Lane 3 - 35' Right	24+52	2	17,052	58.61	26.89	11.04	6.72	5.06	4.16	3.26	291
Lane 1 - 12.5' Right	24+99	2	17,576	10.27	7.65	6.34	5.21	3.96	3.25	2.48	1,711
Lane 2 - 12.5' Left	25+50	2	17,354	19.17	12.83	8.98	6.94	5.26	4.19	3.16	905
Lane 4 - 35' Left	26+00	2	17,373	13.05	10.09	8.20	6.10	4.29	3.42	2.48	1,331
Lane 1 - 12.5' Right	26+03	2	17,544	13.38	9.84	7.84	6.24	4.68	3.91	3.04	1,311
Lane 3 - 35' Right	26+50	2	17,147	46.63	24.22	9.70	5.36	3.96	3.49	2.89	368
Lane 2 - 12.5' Left	26+51	2	17,111	37.11	25.18	14.89	9.67	6.24	4.93	3.80	461
Lane 1 - 12.5' Right	27+02	2	17,524	12.80	8.98	7.05	5.65	4.24	3.56	2.86	1,369
Lane 2 - 12.5' Left	27+58	2	17,489	9.83	7.97	6.29	4.86	3.48	2.74	2.02	1,779
Lane 1 - 12.5' Right	28+00	2	17,521	13.72	8.20	6.36	4.93	3.65	2.97	2.28	1,277
Lane 4 - 35' Left	28+00	2	17,532	11.70	9.06	7.18	5.64	4.04	3.18	2.29	1,498
Lane 3 - 35' Right	28+50	2	17,100	62.07	27.24	9.96	5.43	4.15	3.44	2.84	275
Lane 2 - 12.5' Left	28+53	2	17,564	10.16	7.39	5.52	4.17	2.91	2.40	1.82	1,729
Lane 1 - 12.5' Right	28+98	2	17,571	12.03	8.03	6.08	4.77	3.49	2.84	2.19	1,461
Lane 2 - 12.5' Left	29+51	2	17,497	9.09	6.37	4.83	3.76	2.63	2.19	1.70	1,925

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	30+00	2	17,516	11.44	6.83	5.16	4.10	3.07	2.61	1.99	1,531
Lane 4 - 35' Left	30+00	2	17,608	9.76	6.95	5.60	4.53	3.34	2.76	2.09	1,804
Lane 2 - 12.5' Left	30+52	2	17,595	8.80	5.72	4.47	3.57	2.64	2.20	1.71	1,999
Lane 3 - 35' Right	30+55	2	17,023	55.10	27.44	9.52	4.77	3.48	3.01	2.42	309
Lane 1 - 12.5' Right	31+01	2	17,544	10.28	6.06	4.76	3.98	3.10	2.69	2.15	1,707
Lane 2 - 12.5' Left	31+51	2	17,500	9.44	4.72	3.60	2.91	2.19	1.82	1.41	1,854
Lane 1 - 12.5' Right	31+99	2	17,568	14.53	7.85	4.94	3.77	2.87	2.43	1.98	1,209
Lane 4 - 35' Left	32+01	2	17,548	15.62	9.36	5.66	3.95	2.86	2.33	1.81	1,123
Lane 3 - 35' Right	32+51	2	17,211	54.22	21.63	6.27	3.60	2.58	2.26	1.88	317
Lane 2 - 12.5' Left	32+52	2	17,174	33.68	20.31	9.34	4.57	2.57	1.98	1.53	510
Lane 1 - 12.5' Right	32+99	2	17,278	36.72	19.08	7.37	3.51	2.36	2.03	1.74	471
Lane 2 - 12.5' Left	33+49	2	17,214	44.08	22.77	7.91	3.71	2.49	2.34	2.01	391
Lane 1 - 12.5' Right	34+01	2	17,222	38.34	20.87	8.41	3.49	1.98	1.69	1.43	449
Lane 4 - 35' Left	34+03	2	16,822	67.81	34.49	11.74	4.14	2.48	2.33	2.06	248
Lane 2 - 12.5' Left	34+50	2	17,166	51.65	25.87	9.78	4.15	2.36	1.90	1.61	332
Lane 3 - 35' Right	34+53	2	17,230	44.15	22.90	9.83	4.57	2.50	1.98	1.54	390
Lane 1 - 12.5' Right	35+19	2	17,397	43.41	23.16	9.19	3.89	2.33	2.06	1.70	401
Lane 2 - 12.5' Left	35+50	2	17,198	39.74	21.85	9.37	4.67	2.54	2.07	1.62	433
Lane 4 - 35' Left	36+00	2	17,174	44.95	24.64	9.56	4.25	2.55	2.13	1.70	382
Lane 1 - 12.5' Right	36+01	2	17,166	42.53	24.74	10.61	4.72	2.70	2.27	1.93	404
Lane 2 - 12.5' Left	36+50	2	17,100	42.67	22.28	10.01	4.68	2.60	1.81	1.63	401
Lane 3 - 35' Right	36+50	2	17,000	45.68	25.49	10.35	4.46	2.44	1.92	1.66	372
Lane 1 - 12.5' Right	36+99	2	17,206	44.88	23.63	8.64	3.37	2.02	1.89	1.56	383
Lane 2 - 12.5' Left	37+49	2	17,243	45.92	25.50	11.07	5.13	3.00	2.47	2.18	376
Lane 1 - 12.5' Right	38+00	2	17,306	35.60	20.81	9.76	5.12	3.00	2.37	1.94	486
Lane 4 - 35' Left	38+00	2	17,063	49.90	27.38	10.48	4.61	2.94	2.63	2.24	342
Lane 2 - 12.5' Left	38+50	2	17,298	47.69	24.75	9.61	4.38	2.50	2.16	1.78	363

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 35' Right	38+51	2	17,087	53.12	31.17	13.72	6.55	3.60	2.92	2.37	322
Lane 1 - 12.5' Right	38+99	2	17,004	70.72	35.69	11.11	2.93	1.64	2.09	1.96	240
Lane 2 - 12.5' Left	39+52	2	17,346	46.41	23.85	9.14	4.46	2.90	2.47	2.01	374
Lane 4 - 35' Left	40+01	2	17,158	46.35	25.89	10.74	4.83	3.08	2.69	2.29	370
Lane 1 - 12.5' Right	40+07	2	17,219	41.34	23.03	10.13	5.24	3.44	2.74	2.30	417
Lane 2 - 12.5' Left	40+49	2	17,000	46.39	25.85	11.05	5.19	3.21	2.76	2.33	366
Lane 3 - 35' Right	40+50	2	17,147	48.70	26.92	11.69	6.09	4.01	3.26	2.76	352
Lane 1 - 12.5' Right	40+99	2	17,182	43.74	24.21	10.65	5.41	3.32	2.77	2.26	393
Lane 2 - 12.5' Left	41+53	2	16,996	52.52	25.78	9.94	4.72	3.10	2.85	2.29	324
Lane 4 - 35' Left	42+00	2	17,127	47.30	25.97	10.54	4.89	3.09	2.63	2.19	362
Lane 1 - 12.5' Right	42+01	2	17,012	54.64	30.00	11.26	4.85	3.15	2.97	2.61	311
Lane 2 - 12.5' Left	42+50	2	16,988	59.22	30.34	10.15	3.86	2.87	2.69	2.25	287
Lane 3 - 35' Right	42+50	2	16,872	68.08	30.80	5.69	3.44	3.26	3.11	2.80	248
Lane 1 - 12.5' Right	42+99	2	17,166	43.94	24.86	11.17	5.59	3.59	3.09	2.73	391
Lane 2 - 12.5' Left	43+53	2	17,108	41.59	23.34	10.96	6.59	4.88	4.31	3.65	411
Lane 1 - 12.5' Right	44+00	2	17,158	40.82	24.03	12.42	8.23	6.22	5.26	4.19	420
Lane 4 - 35' Left	44+00	2	17,163	53.72	28.49	10.67	5.30	3.82	3.47	2.99	319
Lane 2 - 12.5' Left	44+50	2	17,163	36.41	21.09	10.19	6.18	4.63	4.26	3.54	471
Lane 3 - 35' Right	44+50	2	17,023	57.05	26.52	12.74	8.38	6.27	5.03	3.99	298
Lane 1 - 12.5' Right	45+01	2	17,251	36.97	21.34	11.28	7.79	6.18	5.24	4.40	467
Lane 2 - 12.5' Left	45+49	2	17,143	42.70	21.96	10.71	7.22	5.52	4.77	4.09	401
Lane 1 - 12.5' Right	45+99	2	17,147	41.21	23.02	9.82	5.46	4.11	3.61	3.08	416
Lane 4 - 35' Left	46+00	2	16,909	66.44	29.73	10.16	5.21	3.87	3.41	3.03	255
Lane 2 - 12.5' Left	46+49	2	17,282	46.05	25.18	10.56	5.43	3.70	3.17	2.68	375
Lane 3 - 35' Right	46+51	2	17,095	47.96	24.83	10.18	5.35	3.65	3.08	2.61	356
Lane 1 - 12.5' Right	47+03	2	17,222	37.59	20.50	9.17	5.20	3.63	3.07	2.50	458
Lane 2 - 12.5' Left	47+49	2	17,243	41.00	21.60	9.08	4.88	3.26	2.70	2.26	421

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 35' Left	48+01	2	17,052	60.65	26.21	7.31	3.72	3.16	2.66	2.17	281
Lane 1 - 12.5' Right	48+02	2	17,206	43.64	22.65	8.75	4.71	3.27	2.80	2.31	394
Lane 2 - 12.5' Left	48+50	2	17,409	38.75	19.16	7.54	4.22	2.81	2.41	2.06	449
Lane 3 - 35' Right	48+50	2	17,254	53.35	25.56	9.51	4.76	3.39	2.97	2.51	323
Lane 1 - 12.5' Right	49+01	2	17,611	32.23	15.35	6.94	4.24	2.94	2.54	1.91	546
Lane 2 - 12.5' Left	49+52	2	17,468	33.84	16.67	7.15	4.08	2.72	2.25	1.88	516
Lane 4 - 35' Left	49+57	2	17,349	41.20	24.15	10.60	5.12	2.96	2.30	1.96	421
Lane 1 - 12.5' Right	0+00	3	23,466	12.76	8.85	6.81	5.48	4.11	3.42	2.68	1,839
Lane 2 - 12.5' Left	0+00	3	23,188	17.09	11.48	8.65	6.66	4.74	3.90	2.83	1,357
Lane 4 - 35' Left	0+00	3	23,069	21.76	15.50	10.73	7.37	4.99	3.97	2.83	1,060
Lane 2 - 12.5' Left	0+50	3	23,402	15.59	11.11	8.92	7.12	5.32	4.34	3.28	1,501
Lane 3 - 35' Right	0+50	3	23,439	15.33	9.19	6.77	5.13	3.67	2.89	2.12	1,529
Lane 1 - 12.5' Right	1+04	3	23,764	11.67	7.18	5.77	4.67	3.40	2.80	2.09	2,036
Lane 2 - 12.5' Left	1+61	3	23,447	15.94	10.32	7.73	5.63	3.90	3.22	2.37	1,471
Lane 4 - 35' Left	2+06	3	23,089	17.94	12.05	8.80	6.43	4.22	3.23	2.22	1,287
Lane 1 - 12.5' Right	2+07	3	23,518	10.87	6.11	5.03	4.02	3.03	2.47	1.92	2,164
Lane 3 - 35' Right	2+51	3	22,449	53.89	28.07	12.22	5.96	3.46	2.73	2.25	417
Lane 2 - 12.5' Left	2+53	3	23,081	12.23	9.72	7.79	5.91	4.01	3.07	2.18	1,887
Lane 1 - 12.5' Right	3+05	3	23,296	13.26	7.95	6.45	5.17	3.82	3.26	2.46	1,757
Lane 2 - 12.5' Left	3+50	3	23,351	14.24	10.12	8.12	6.39	4.69	3.87	3.01	1,640
Lane 1 - 12.5' Right	4+00	3	23,267	13.02	8.44	6.87	5.60	4.23	3.57	2.76	1,787
Lane 4 - 35' Left	4+00	3	23,137	17.69	13.36	10.43	7.84	5.18	3.95	2.81	1,308
Lane 2 - 12.5' Left	4+51	3	23,026	17.59	13.80	11.21	8.60	5.72	4.26	3.07	1,309
Lane 3 - 35' Right	4+52	3	20,865	107.44	69.18	27.98	10.41	5.02	4.47	3.87	194
Lane 1 - 12.5' Right	5+02	3	23,275	14.12	9.43	7.90	6.59	5.06	4.28	3.35	1,648
Lane 2 - 12.5' Left	5+50	3	22,986	17.57	13.98	10.91	7.97	4.97	3.61	2.59	1,308
Lane 1 - 12.5' Right	6+01	3	23,351	11.67	7.26	5.76	4.53	3.23	2.71	2.08	2,001

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 35' Left	6+02	3	23,140	20.01	13.50	10.04	7.15	4.81	3.61	2.74	1,156
Lane 2 - 12.5' Left	6+55	3	22,525	54.44	42.91	15.80	9.10	5.50	4.49	3.27	414
Lane 3 - 35' Right	6+55	3	22,446	59.73	31.45	13.59	8.06	5.80	4.88	3.94	376
Lane 1 - 12.5' Right	7+00	3	23,121	17.07	12.06	9.92	8.20	6.28	5.30	4.14	1,354
Lane 2 - 12.5' Left	7+52	3	22,536	45.49	28.67	17.97	12.44	8.51	6.68	5.14	495
Lane 1 - 12.5' Right	8+01	3	23,172	15.78	10.51	8.55	6.93	5.17	4.31	3.32	1,468
Lane 4 - 35' Left	8+03	3	22,406	60.64	31.15	15.80	9.54	5.84	4.43	3.35	369
Lane 2 - 12.5' Left	8+50	3	22,716	36.72	23.89	14.63	9.13	5.52	3.98	2.91	619
Lane 3 - 35' Right	8+50	3	22,584	49.65	26.88	11.00	5.38	3.32	2.76	2.42	455
Lane 1 - 12.5' Right	9+00	3	23,196	15.02	10.49	8.24	6.36	4.47	3.60	2.70	1,544
Lane 2 - 12.5' Left	9+49	3	22,814	28.15	19.91	13.29	8.88	5.53	4.06	2.93	810
Lane 1 - 12.5' Right	9+99	3	23,192	12.65	8.39	6.80	5.31	3.77	2.99	2.34	1,833
Lane 4 - 35' Left	10+01	3	23,034	19.95	16.00	11.85	8.58	5.62	4.31	3.19	1,155
Lane 2 - 12.5' Left	10+51	3	23,124	32.09	21.46	12.23	8.14	5.69	4.57	3.54	721
Lane 3 - 35' Right	10+51	3	22,179	68.54	39.63	17.90	9.41	6.22	5.31	4.42	324
Lane 1 - 12.5' Right	11+00	3	23,423	14.93	9.81	7.85	6.17	4.45	3.61	2.64	1,569
Lane 2 - 12.5' Left	11+55	3	23,447	17.79	12.87	9.59	7.04	4.72	3.71	2.70	1,318
Lane 1 - 12.5' Right	12+00	3	23,037	16.85	11.49	9.15	7.14	5.20	4.26	3.27	1,367
Lane 4 - 35' Left	12+00	3	23,045	19.99	15.96	11.89	8.76	5.74	4.46	3.19	1,153
Lane 3 - 35' Right	12+52	3	21,786	87.20	45.18	15.51	6.99	5.98	5.43	4.68	250
Lane 2 - 12.5' Left	12+53	3	23,184	16.81	13.39	10.65	8.46	6.12	5.00	3.76	1,379
Lane 1 - 12.5' Right	13+00	3	23,081	15.13	10.94	9.02	7.47	5.72	4.85	3.91	1,526
Lane 2 - 12.5' Left	13+49	3	23,049	20.07	14.82	11.01	8.35	6.04	4.92	3.69	1,148
Lane 1 - 12.5' Right	14+01	3	23,140	14.82	10.60	8.79	7.17	5.45	4.64	3.73	1,561
Lane 4 - 35' Left	14+04	3	23,081	18.14	13.24	10.14	7.35	5.00	4.02	2.92	1,272
Lane 3 - 35' Right	14+49	3	23,045	22.25	13.91	8.59	5.72	3.82	3.10	2.47	1,036
Lane 2 - 12.5' Left	14+54	3	23,161	13.31	9.56	7.25	5.65	4.19	3.54	2.81	1,740

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	15+00	3	23,304	9.01	5.68	4.72	3.93	3.05	2.68	2.09	2,586
Lane 2 - 12.5' Left	15+50	3	23,267	9.33	6.50	5.01	3.84	2.69	2.17	1.67	2,494
Lane 1 - 12.5' Right	16+00	3	23,005	13.87	7.05	5.35	4.03	2.79	2.22	1.59	1,659
Lane 4 - 35' Left	16+10	3	22,994	20.38	15.57	12.03	8.58	5.42	3.77	2.87	1,128
Lane 3 - 35' Right	16+50	3	22,303	56.77	35.04	16.94	8.59	4.85	3.99	3.44	393
Lane 2 - 12.5' Left	16+51	3	22,708	41.55	25.43	15.94	10.70	6.70	5.15	3.70	547
Lane 1 - 12.5' Right	17+03	3	23,069	14.69	9.98	8.52	7.03	5.57	4.76	3.89	1,570
Lane 2 - 12.5' Left	17+51	3	22,573	42.18	28.43	17.87	11.84	7.80	6.06	4.69	535
Lane 1 - 12.5' Right	17+98	3	23,076	14.15	10.52	8.88	7.33	5.65	4.74	3.70	1,631
Lane 4 - 35' Left	18+03	3	23,002	18.79	15.39	11.67	9.13	6.55	5.19	3.91	1,224
Lane 2 - 12.5' Left	18+53	3	22,994	27.43	19.49	13.49	9.83	6.96	5.62	4.37	838
Lane 3 - 35' Right	18+53	3	21,890	85.93	41.47	12.72	5.09	4.44	4.23	3.74	255
Lane 1 - 12.5' Right	19+02	3	23,029	14.36	11.04	9.24	7.53	5.69	4.76	3.72	1,604
Lane 2 - 12.5' Left	19+50	3	22,727	34.70	22.44	13.91	9.50	6.57	5.26	4.07	655
Lane 1 - 12.5' Right	19+99	3	23,069	14.48	9.71	7.85	6.38	4.90	4.13	3.39	1,593
Lane 4 - 35' Left	20+08	3	22,894	25.80	17.21	10.63	7.07	4.67	3.72	2.78	887
Lane 2 - 12.5' Left	20+51	3	22,613	41.77	29.68	17.78	10.82	6.17	4.71	3.67	541
Lane 3 - 35' Right	20+55	3	22,049	85.71	35.91	8.37	4.70	4.34	4.05	3.46	257
Lane 1 - 12.5' Right	21+00	3	23,132	13.59	8.24	6.80	5.65	4.55	3.81	3.10	1,702
Lane 2 - 12.5' Left	21+49	3	23,076	15.91	11.69	9.35	7.34	5.39	4.46	3.46	1,450
Lane 4 - 35' Left	22+00	3	22,854	30.55	20.15	12.14	8.26	5.54	4.44	3.44	748
Lane 1 - 12.5' Right	22+04	3	23,192	18.16	13.79	10.94	8.63	6.41	5.27	4.13	1,277
Lane 3 - 35' Right	22+49	3	22,584	55.08	26.85	9.62	4.73	3.79	3.34	2.68	410
Lane 2 - 12.5' Left	22+51	3	23,002	18.60	15.94	12.54	9.10	5.50	4.48	3.45	1,237
Lane 1 - 12.5' Right	23+06	3	23,065	15.11	10.92	8.78	6.99	5.18	4.22	3.32	1,526
Lane 2 - 12.5' Left	23+52	3	22,846	26.30	21.02	14.58	10.33	6.92	5.41	4.19	869
Lane 4 - 35' Left	24+01	3	23,061	21.60	17.67	13.80	10.38	7.05	5.34	3.75	1,068

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	24+12	3	23,029	14.17	10.69	8.73	7.06	5.32	4.41	3.45	1,625
Lane 2 - 12.5' Left	24+49	3	22,541	46.49	29.52	15.87	8.89	4.79	3.22	2.16	485
Lane 3 - 35' Right	24+52	3	22,250	72.54	33.91	13.92	8.55	6.45	5.24	4.26	307
Lane 1 - 12.5' Right	24+99	3	23,097	13.20	9.86	8.19	6.69	5.03	4.20	3.19	1,750
Lane 2 - 12.5' Left	25+50	3	22,811	24.76	16.46	11.59	8.94	6.77	5.37	4.12	921
Lane 4 - 35' Left	26+00	3	22,933	16.57	13.21	10.61	7.94	5.59	4.45	3.22	1,384
Lane 1 - 12.5' Right	26+03	3	23,081	17.49	12.79	10.14	8.12	6.06	5.06	3.94	1,320
Lane 3 - 35' Right	26+50	3	22,454	59.85	31.06	12.57	6.88	5.14	4.58	3.81	375
Lane 2 - 12.5' Left	26+51	3	22,517	46.40	31.41	18.79	12.33	8.03	6.39	4.93	485
Lane 1 - 12.5' Right	27+02	3	23,069	16.46	11.69	9.19	7.29	5.48	4.61	3.70	1,402
Lane 2 - 12.5' Left	27+58	3	23,148	12.93	10.39	8.21	6.36	4.55	3.60	2.73	1,790
Lane 1 - 12.5' Right	28+00	3	23,045	17.82	10.64	8.26	6.38	4.70	3.83	2.94	1,293
Lane 4 - 35' Left	28+00	3	23,196	15.80	11.87	9.44	7.37	5.27	4.07	3.05	1,468
Lane 3 - 35' Right	28+50	3	22,342	77.40	34.93	12.89	6.94	5.28	4.43	3.71	289
Lane 2 - 12.5' Left	28+53	3	23,275	13.33	9.72	7.25	5.51	3.87	3.17	2.41	1,746
Lane 1 - 12.5' Right	28+98	3	23,113	15.90	10.41	7.88	6.18	4.53	3.71	2.87	1,454
Lane 2 - 12.5' Left	29+51	3	23,161	12.11	8.37	6.35	4.94	3.48	2.87	2.24	1,913
Lane 1 - 12.5' Right	30+00	3	23,076	14.81	8.87	6.76	5.31	3.96	3.38	2.58	1,558
Lane 4 - 35' Left	30+00	3	23,240	12.87	9.09	7.35	5.89	4.35	3.59	2.72	1,806
Lane 2 - 12.5' Left	30+52	3	23,272	11.48	7.53	5.89	4.66	3.44	2.87	2.20	2,027
Lane 3 - 35' Right	30+55	3	22,207	70.16	35.25	12.20	6.01	4.44	3.91	3.25	317
Lane 1 - 12.5' Right	31+01	3	23,140	13.33	7.85	6.16	5.16	4.01	3.47	2.75	1,736
Lane 2 - 12.5' Left	31+51	3	23,192	12.21	6.20	4.76	3.80	2.83	2.39	1.88	1,899
Lane 1 - 12.5' Right	31+99	3	23,053	18.70	10.15	6.47	4.90	3.73	3.18	2.52	1,233
Lane 4 - 35' Left	32+01	3	23,124	19.95	12.06	7.31	5.21	3.77	3.04	2.39	1,159
Lane 3 - 35' Right	32+51	3	22,525	67.62	27.81	8.51	4.55	3.27	2.91	2.46	333
Lane 2 - 12.5' Left	32+52	3	22,573	42.06	25.29	11.84	5.85	3.28	2.57	1.97	537

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	32+99	3	22,668	45.17	23.56	9.35	4.53	3.07	2.68	2.28	502
Lane 2 - 12.5' Left	33+49	3	22,605	52.92	27.36	9.85	4.75	3.16	3.04	2.65	427
Lane 1 - 12.5' Right	34+01	3	22,613	47.16	25.85	10.72	4.65	2.69	2.32	1.94	479
Lane 4 - 35' Left	34+03	3	21,877	83.25	42.84	15.02	5.26	3.19	3.07	2.72	263
Lane 2 - 12.5' Left	34+50	3	22,485	63.06	31.90	12.63	5.45	3.14	2.62	2.17	357
Lane 3 - 35' Right	34+53	3	22,568	57.13	30.14	12.96	6.17	3.37	2.71	2.10	395
Lane 1 - 12.5' Right	35+19	3	22,716	54.81	29.44	12.04	5.18	3.09	2.75	2.30	414
Lane 2 - 12.5' Left	35+50	3	22,584	49.37	27.63	12.28	6.18	3.42	2.80	2.28	457
Lane 4 - 35' Left	36+00	3	22,509	56.57	31.38	12.55	5.58	3.30	2.79	2.28	398
Lane 1 - 12.5' Right	36+01	3	22,462	53.52	31.09	13.65	6.15	3.55	3.03	2.56	420
Lane 2 - 12.5' Left	36+50	3	22,454	54.11	28.61	13.13	6.26	3.42	2.58	2.20	415
Lane 3 - 35' Right	36+50	3	22,263	56.20	31.68	13.11	5.71	3.14	2.52	2.20	396
Lane 1 - 12.5' Right	36+99	3	22,485	56.14	29.59	10.93	4.22	2.55	2.44	2.14	401
Lane 2 - 12.5' Left	37+49	3	22,565	56.09	31.58	14.07	6.61	3.90	3.20	2.90	402
Lane 1 - 12.5' Right	38+00	3	22,663	44.93	26.30	12.63	6.67	3.94	3.13	2.58	504
Lane 4 - 35' Left	38+00	3	22,295	62.28	34.28	13.40	5.96	3.86	3.50	2.97	358
Lane 2 - 12.5' Left	38+50	3	22,616	59.08	31.17	12.63	5.76	3.26	2.82	2.34	383
Lane 3 - 35' Right	38+51	3	22,319	67.76	39.57	17.61	8.45	4.67	3.82	3.12	329
Lane 1 - 12.5' Right	38+99	3	22,049	85.71	44.29	14.52	3.93	2.11	2.63	2.55	257
Lane 2 - 12.5' Left	39+52	3	22,684	56.38	29.53	11.89	5.93	3.85	3.29	2.72	402
Lane 4 - 35' Left	40+01	3	22,422	59.06	33.13	14.05	6.41	4.07	3.56	3.01	380
Lane 1 - 12.5' Right	40+07	3	22,536	50.97	28.56	12.80	6.66	4.36	3.58	3.04	442
Lane 2 - 12.5' Left	40+49	3	22,330	58.17	32.68	14.44	6.94	4.26	3.56	3.04	384
Lane 3 - 35' Right	40+50	3	22,390	61.41	34.35	15.13	7.83	5.13	4.29	3.64	365
Lane 1 - 12.5' Right	40+99	3	22,470	54.05	30.26	13.60	7.01	4.26	3.64	2.96	416
Lane 2 - 12.5' Left	41+53	3	22,342	64.74	32.46	13.17	6.43	4.16	3.73	3.06	345
Lane 4 - 35' Left	42+00	3	22,303	61.04	33.93	14.17	6.53	4.00	3.37	2.90	365

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

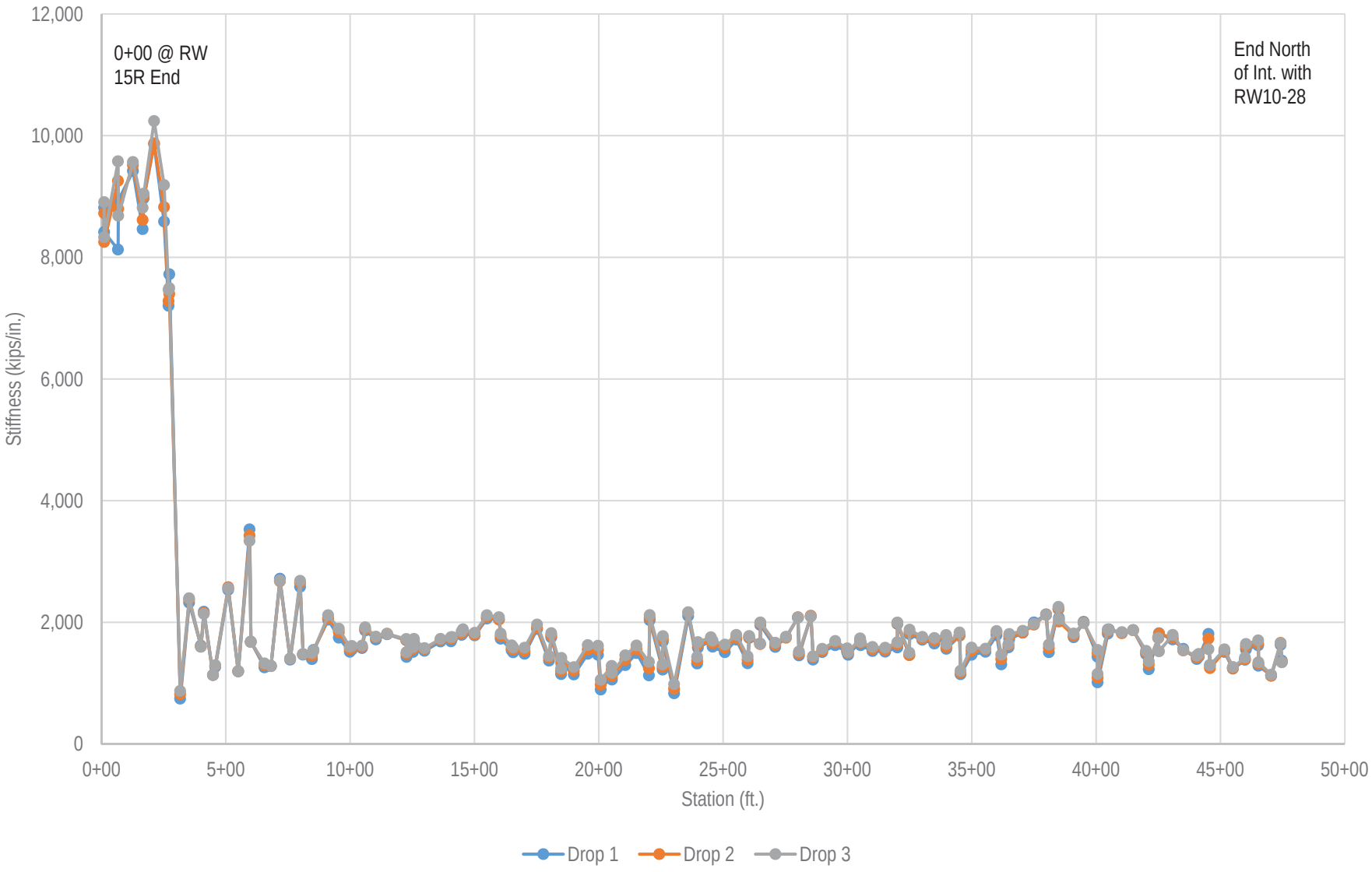
Runway 15L-33R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	42+01	3	22,219	66.85	36.24	14.25	6.33	4.16	3.87	3.34	332
Lane 2 - 12.5' Left	42+50	3	22,330	72.24	37.59	13.24	5.28	3.80	3.51	2.94	309
Lane 3 - 35' Right	42+50	3	22,020	84.08	39.37	7.56	4.32	4.14	4.06	3.58	262
Lane 1 - 12.5' Right	42+99	3	22,438	54.60	31.18	14.34	7.24	4.70	3.99	3.50	411
Lane 2 - 12.5' Left	43+53	3	22,512	51.19	28.53	13.78	8.44	6.28	5.55	4.68	440
Lane 1 - 12.5' Right	44+00	3	22,489	50.67	29.46	15.39	10.31	7.86	6.67	5.29	444
Lane 4 - 35' Left	44+00	3	22,406	66.58	35.68	13.63	6.88	4.99	4.51	3.77	337
Lane 2 - 12.5' Left	44+50	3	22,644	44.67	25.90	12.61	7.82	5.86	5.48	4.52	507
Lane 3 - 35' Right	44+50	3	22,303	69.68	33.50	16.39	10.81	8.05	6.48	5.16	320
Lane 1 - 12.5' Right	45+01	3	22,640	45.28	26.10	13.97	9.78	7.82	6.64	5.57	500
Lane 2 - 12.5' Left	45+49	3	22,557	52.42	27.04	13.39	9.20	7.07	6.13	5.26	430
Lane 1 - 12.5' Right	45+99	3	22,489	51.29	28.44	12.50	7.06	5.35	4.68	4.06	438
Lane 4 - 35' Left	46+00	3	22,120	81.82	37.18	12.80	6.60	5.19	4.78	4.00	270
Lane 2 - 12.5' Left	46+49	3	22,652	57.94	31.61	13.60	7.02	4.81	4.18	3.52	391
Lane 3 - 35' Right	46+51	3	22,366	61.13	31.84	13.17	6.92	4.73	4.02	3.44	366
Lane 1 - 12.5' Right	47+03	3	22,616	46.44	25.52	11.74	6.76	4.76	4.03	3.30	487
Lane 2 - 12.5' Left	47+49	3	22,517	49.88	26.94	11.78	6.31	4.22	3.57	2.93	451
Lane 4 - 35' Left	48+01	3	22,342	73.07	32.47	9.31	4.82	4.09	3.57	2.94	306
Lane 1 - 12.5' Right	48+02	3	22,573	53.89	28.39	11.15	6.08	4.28	3.66	3.01	419
Lane 2 - 12.5' Left	48+50	3	22,822	48.02	24.15	9.89	5.57	3.74	3.19	2.69	475
Lane 3 - 35' Right	48+50	3	22,533	66.06	32.10	12.05	6.00	4.35	3.90	3.34	341
Lane 1 - 12.5' Right	49+01	3	23,097	39.62	19.32	8.99	5.57	3.91	3.30	2.59	583
Lane 2 - 12.5' Left	49+52	3	22,930	41.64	21.07	9.31	5.33	3.59	2.98	2.51	551
Lane 4 - 35' Left	49+57	3	22,700	51.11	29.90	13.70	6.70	3.90	3.06	2.67	444
										Average	914

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	0+11	1	13,660	1.55	1.43	1.28	1.21	1.16	0.99	0.89	8,813
Lane 4 - 27' Left	0+11	1	12,789	1.52	1.44	1.33	1.20	1.19	1.01	0.94	8,414
Lane 3 - 27' Right	0+67	1	12,758	1.57	1.32	1.22	1.07	1.07	0.90	0.81	8,126
Lane 2 - 9' Left	0+68	1	12,778	1.43	1.29	1.19	1.10	1.03	0.86	0.79	8,936
Lane 1 - 9' Right	1+27	1	13,469	1.43	1.30	1.15	1.06	1.07	0.87	0.75	9,419
Lane 3 - 27' Right	1+66	1	12,691	1.50	1.31	1.24	1.05	1.10	0.94	0.82	8,461
Lane 2 - 9' Left	1+70	1	12,734	1.42	1.28	1.19	1.07	1.08	0.82	0.81	8,968
Lane 1 - 9' Right	2+12	1	13,406	1.36	1.23	1.12	1.03	1.01	0.84	0.71	9,857
Lane 4 - 27' Left	2+52	1	12,707	1.48	1.28	1.27	1.16	1.15	1.06	1.01	8,586
Lane 3 - 27' Right	2+70	1	12,675	1.76	1.64	1.59	1.45	1.39	1.22	1.24	7,202
Lane 2 - 9' Left	2+73	1	12,739	1.65	1.61	1.48	1.40	1.30	1.20	1.13	7,721
Lane 1 - 9' Right	3+17	1	12,905	17.36	8.06	4.35	2.94	2.47	1.87	1.50	743
Lane 2 - 9' Left	3+53	1	12,611	5.43	2.70	1.83	1.52	1.35	1.15	0.98	2,322
Lane 4 - 27' Left	4+00	1	12,611	7.80	4.26	2.51	1.87	1.51	1.19	1.02	1,617
Lane 1 - 9' Right	4+12	1	13,128	6.04	3.06	2.22	1.84	1.61	1.31	1.17	2,174
Lane 2 - 9' Left	4+49	1	12,532	11.05	4.68	2.34	1.41	1.02	0.76	0.57	1,134
Lane 3 - 27' Right	4+58	1	12,580	9.94	4.37	2.10	1.29	1.07	0.77	0.58	1,266
Lane 1 - 9' Right	5+10	1	13,044	5.15	2.24	1.87	1.64	1.40	1.09	0.85	2,533
Lane 2 - 9' Left	5+50	1	12,535	10.50	3.80	1.46	1.10	0.98	0.78	0.65	1,194
Lane 1 - 9' Right	5+96	1	13,048	3.70	2.07	1.86	1.57	1.37	1.12	0.87	3,526
Lane 4 - 27' Left	6+01	1	12,627	7.51	3.78	2.33	1.59	1.33	0.98	0.80	1,681
Lane 3 - 27' Right	6+56	1	12,551	9.97	4.54	2.31	1.45	1.11	0.72	0.66	1,259
Lane 2 - 9' Left	6+82	1	12,567	9.83	4.30	2.27	1.46	1.09	0.80	0.68	1,278
Lane 1 - 9' Right	7+18	1	13,009	4.79	1.97	1.76	1.45	1.35	1.03	0.81	2,716
Lane 2 - 9' Left	7+59	1	12,516	9.04	3.90	2.13	1.42	1.03	0.74	0.67	1,385
Lane 1 - 9' Right	7+99	1	12,961	5.02	1.97	1.85	1.54	1.38	1.06	0.91	2,582
Lane 4 - 27' Left	8+11	1	12,580	8.58	3.81	2.32	1.67	1.35	0.98	0.78	1,466

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	8+47	1	12,599	9.04	3.62	1.69	1.12	0.84	0.65	0.48	1,394
Lane 2 - 9' Left	8+53	1	12,535	8.11	3.54	1.76	1.15	0.96	0.72	0.55	1,546
Lane 1 - 9' Right	9+12	1	12,953	6.34	2.21	1.55	1.25	1.10	0.90	0.74	2,043
Lane 2 - 9' Left	9+55	1	12,492	7.16	1.72	1.37	1.15	1.07	0.89	0.84	1,745
Lane 4 - 27' Left	9+99	1	12,583	8.31	3.42	1.94	1.46	1.15	0.93	0.73	1,514
Lane 1 - 9' Right	10+07	1	12,924	8.35	3.45	2.26	1.83	1.58	1.29	1.02	1,548
Lane 3 - 27' Right	10+48	1	12,603	8.00	3.40	2.05	1.59	1.37	1.00	0.74	1,575
Lane 2 - 9' Left	10+61	1	12,548	6.73	2.71	1.63	1.22	1.06	0.84	0.68	1,864
Lane 1 - 9' Right	11+04	1	12,921	7.53	2.89	1.65	1.17	0.96	0.80	0.61	1,716
Lane 2 - 9' Left	11+49	1	12,492	6.93	2.95	1.64	1.18	0.96	0.67	0.54	1,803
Lane 4 - 27' Left	12+26	1	12,575	7.38	3.28	2.05	1.44	1.18	0.90	0.72	1,704
Lane 1 - 9' Right	12+27	1	12,850	8.98	3.15	1.78	1.31	1.00	0.75	0.61	1,431
Lane 3 - 27' Right	12+53	1	12,556	8.31	3.37	2.07	1.55	1.37	0.95	0.74	1,511
Lane 2 - 9' Left	12+57	1	12,495	7.55	2.79	1.72	1.30	1.01	0.78	0.64	1,655
Lane 1 - 9' Right	12+99	1	12,869	8.41	3.13	1.91	1.31	1.07	0.77	0.64	1,530
Lane 2 - 9' Left	13+64	1	12,540	7.45	3.07	1.73	1.19	1.03	0.71	0.60	1,683
Lane 1 - 9' Right	14+06	1	12,826	7.61	2.68	1.64	1.17	1.06	0.82	0.65	1,685
Lane 4 - 27' Left	14+10	1	12,607	7.28	3.45	2.04	1.41	1.26	0.85	0.69	1,732
Lane 2 - 9' Left	14+49	1	12,548	7.00	2.63	1.37	1.11	0.89	0.71	0.58	1,793
Lane 3 - 27' Right	14+54	1	12,623	6.94	2.99	1.89	1.30	1.10	0.81	0.65	1,819
Lane 1 - 9' Right	15+01	1	12,866	7.21	2.52	1.55	1.10	0.90	0.68	0.65	1,784
Lane 2 - 9' Left	15+50	1	12,548	6.09	2.20	1.39	1.11	0.92	0.73	0.61	2,060
Lane 4 - 27' Left	15+99	1	12,596	6.15	2.59	1.71	1.37	1.33	0.94	0.77	2,048
Lane 1 - 9' Right	16+06	1	12,913	7.47	2.67	1.67	1.37	1.16	0.89	0.72	1,729
Lane 3 - 27' Right	16+50	1	12,588	8.17	3.65	2.35	1.68	1.43	1.12	0.91	1,541
Lane 2 - 9' Left	16+56	1	12,492	8.30	2.99	1.76	1.37	1.29	0.99	0.87	1,505
Lane 1 - 9' Right	17+02	1	12,834	8.66	3.15	2.03	1.48	1.28	0.96	0.78	1,482

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	17+52	1	12,527	6.63	2.52	1.41	1.14	0.93	0.79	0.69	1,889
Lane 1 - 9' Right	18+00	1	12,850	9.39	3.98	2.39	1.75	1.39	1.22	0.76	1,368
Lane 4 - 27' Left	18+09	1	12,596	7.19	3.66	2.33	1.90	1.61	1.32	1.15	1,752
Lane 3 - 27' Right	18+49	1	12,508	10.91	5.28	2.99	2.13	1.77	1.46	1.17	1,146
Lane 2 - 9' Left	18+50	1	12,484	9.47	4.07	2.35	1.90	1.63	1.31	1.13	1,318
Lane 1 - 9' Right	19+00	1	12,813	11.23	4.41	2.38	1.72	1.52	1.21	1.01	1,141
Lane 2 - 9' Left	19+56	1	12,535	8.46	3.15	1.72	1.41	1.28	1.01	0.96	1,482
Lane 4 - 27' Left	19+97	1	12,540	8.56	4.43	2.66	1.94	1.74	1.37	1.21	1,465
Lane 1 - 9' Right	20+08	1	12,754	14.26	6.99	3.28	2.33	2.03	1.58	1.38	894
Lane 2 - 9' Left	20+52	1	12,448	11.06	4.80	2.35	1.85	1.56	1.32	1.12	1,125
Lane 3 - 27' Right	20+53	1	12,540	11.85	5.29	2.98	2.39	2.13	1.67	1.46	1,058
Lane 1 - 9' Right	21+07	1	12,829	9.91	3.85	2.16	1.75	1.61	1.43	1.19	1,295
Lane 2 - 9' Left	21+52	1	12,516	8.38	3.33	2.22	1.93	1.81	1.38	1.20	1,494
Lane 1 - 9' Right	22+02	1	12,739	11.31	3.93	2.11	1.65	1.44	1.23	1.00	1,126
Lane 4 - 27' Left	22+05	1	12,556	6.17	2.75	1.94	1.61	1.42	1.15	0.86	2,035
Lane 3 - 27' Right	22+57	1	12,500	10.23	4.94	3.00	2.45	2.07	1.82	1.45	1,222
Lane 2 - 9' Left	22+58	1	12,532	7.43	3.61	2.82	2.41	2.12	1.74	1.42	1,687
Lane 1 - 9' Right	23+03	1	12,662	15.21	6.76	3.58	2.68	2.35	1.80	1.58	832
Lane 2 - 9' Left	23+60	1	12,519	5.95	2.62	1.94	1.69	1.56	1.30	1.05	2,104
Lane 1 - 9' Right	23+96	1	12,754	9.65	3.57	2.26	1.75	1.63	1.18	1.10	1,322
Lane 4 - 27' Left	23+99	1	12,540	7.93	3.37	2.10	1.72	1.56	1.28	1.06	1,581
Lane 2 - 9' Left	24+51	1	12,500	7.35	3.10	2.25	1.91	1.54	1.28	1.06	1,701
Lane 3 - 27' Right	24+58	1	12,540	7.85	3.77	2.54	1.89	1.59	1.27	1.07	1,597
Lane 1 - 9' Right	25+07	1	12,786	8.48	3.13	1.85	1.33	1.23	0.97	0.85	1,508
Lane 2 - 9' Left	25+53	1	12,468	7.27	2.81	1.84	1.48	1.35	1.08	0.89	1,715
Lane 1 - 9' Right	25+99	1	12,731	9.60	3.41	2.14	1.72	1.55	1.15	0.98	1,326
Lane 4 - 27' Left	26+05	1	12,580	7.22	3.66	2.45	1.73	1.39	1.08	0.84	1,742

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	26+49	1	12,527	7.60	3.57	2.13	1.68	1.39	1.06	0.83	1,648
Lane 3 - 27' Right	26+50	1	12,564	6.43	2.78	1.76	1.28	1.06	0.80	0.66	1,954
Lane 1 - 9' Right	27+10	1	12,718	7.98	2.91	1.82	1.29	1.12	0.76	0.65	1,594
Lane 2 - 9' Left	27+53	1	12,519	7.13	2.93	1.72	1.21	1.10	0.83	0.61	1,756
Lane 4 - 27' Left	28+01	1	12,619	6.07	2.66	1.80	1.35	1.16	0.93	0.73	2,079
Lane 1 - 9' Right	28+05	1	12,734	8.76	3.36	1.93	1.37	1.02	0.84	0.69	1,454
Lane 2 - 9' Left	28+53	1	12,511	5.96	2.51	1.58	1.24	1.13	0.85	0.64	2,099
Lane 3 - 27' Right	28+62	1	12,484	9.02	4.06	2.14	1.61	1.09	0.83	0.72	1,384
Lane 1 - 9' Right	28+99	1	12,734	8.43	3.54	1.71	1.31	1.03	0.86	0.58	1,511
Lane 2 - 9' Left	29+51	1	12,476	7.69	2.81	1.75	1.34	1.09	0.87	0.75	1,622
Lane 1 - 9' Right	29+99	1	12,615	8.35	3.31	1.95	1.47	1.11	0.90	0.76	1,511
Lane 4 - 27' Left	30+03	1	12,572	8.58	3.62	2.04	1.46	1.13	0.95	0.75	1,465
Lane 3 - 27' Right	30+51	1	12,583	7.48	3.23	2.02	1.47	1.33	1.00	0.80	1,682
Lane 2 - 9' Left	30+53	1	12,484	7.69	2.93	1.79	1.34	1.27	0.84	0.74	1,623
Lane 1 - 9' Right	31+01	1	12,659	8.29	3.13	1.92	1.43	1.23	0.98	0.81	1,527
Lane 2 - 9' Left	31+52	1	12,535	8.27	3.02	1.82	1.39	1.14	0.91	0.74	1,516
Lane 1 - 9' Right	32+01	1	12,591	7.94	2.85	1.69	1.30	1.07	0.80	0.68	1,586
Lane 4 - 27' Left	32+01	1	12,667	6.42	2.65	1.87	1.40	1.13	0.81	0.67	1,973
Lane 2 - 9' Left	32+49	1	12,476	8.54	3.16	1.83	1.46	1.24	0.94	0.99	1,461
Lane 3 - 27' Right	32+50	1	12,615	6.99	2.50	1.81	1.42	1.20	0.98	0.80	1,805
Lane 1 - 9' Right	33+01	1	12,580	7.35	2.46	1.78	1.38	1.14	0.87	0.89	1,712
Lane 2 - 9' Left	33+50	1	12,484	7.57	2.69	1.91	1.69	1.46	1.23	0.97	1,649
Lane 4 - 27' Left	33+97	1	12,567	7.15	3.57	2.79	2.37	2.09	1.76	1.39	1,758
Lane 1 - 9' Right	33+98	1	12,572	8.04	3.68	2.93	2.41	2.20	1.82	1.69	1,564
Lane 3 - 27' Right	34+51	1	12,564	7.07	3.19	2.36	2.05	1.80	1.51	1.31	1,777
Lane 2 - 9' Left	34+55	1	12,456	10.87	4.27	2.90	2.46	2.12	1.71	1.38	1,146
Lane 1 - 9' Right	34+99	1	12,559	8.57	2.94	1.91	1.61	1.45	1.11	0.97	1,465

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	35+55	1	12,492	8.25	3.23	2.20	1.65	1.40	1.21	1.02	1,514
Lane 4 - 27' Left	36+00	1	12,548	7.02	2.51	1.76	1.41	1.31	1.01	0.87	1,787
Lane 1 - 9' Right	36+19	1	12,495	9.56	2.81	2.05	1.61	1.35	1.07	0.90	1,307
Lane 2 - 9' Left	36+48	1	12,492	7.87	3.17	2.06	1.59	1.38	1.03	0.86	1,587
Lane 3 - 27' Right	36+51	1	12,564	7.29	2.69	1.54	1.29	1.03	0.86	0.66	1,723
Lane 1 - 9' Right	37+05	1	12,519	6.85	2.85	1.81	1.44	1.13	0.87	0.61	1,828
Lane 2 - 9' Left	37+50	1	12,480	6.25	2.76	1.89	1.50	1.25	0.87	0.70	1,997
Lane 4 - 27' Left	37+99	1	12,654	5.94	2.58	1.81	1.38	1.15	0.90	0.70	2,130
Lane 1 - 9' Right	38+10	1	12,524	8.31	2.46	1.60	1.20	1.06	0.80	0.60	1,507
Lane 3 - 27' Right	38+49	1	12,599	5.69	2.33	1.53	1.21	1.00	0.84	0.65	2,214
Lane 2 - 9' Left	38+51	1	12,476	6.02	2.61	1.66	1.24	1.05	0.82	0.62	2,072
Lane 1 - 9' Right	39+10	1	12,532	7.15	2.56	1.19	1.19	1.06	0.84	0.57	1,753
Lane 2 - 9' Left	39+50	1	12,500	6.23	2.56	1.71	1.33	1.16	0.86	0.70	2,006
Lane 1 - 9' Right	40+06	1	12,453	8.70	2.66	1.79	1.28	1.20	0.85	0.77	1,431
Lane 4 - 27' Left	40+06	1	12,511	12.35	3.52	1.98	1.50	1.21	1.03	0.77	1,013
Lane 3 - 27' Right	40+47	1	12,532	6.91	2.61	1.83	1.43	1.13	0.84	0.71	1,814
Lane 2 - 9' Left	40+51	1	12,516	6.65	2.74	1.80	1.44	1.26	0.96	0.78	1,882
Lane 1 - 9' Right	41+04	1	12,527	6.85	2.56	1.79	1.37	1.11	0.79	0.73	1,829
Lane 2 - 9' Left	41+49	1	12,476	6.66	2.93	1.87	1.55	1.37	1.03	0.80	1,873
Lane 1 - 9' Right	42+01	1	12,476	8.46	3.35	2.26	1.80	1.43	1.10	0.96	1,475
Lane 4 - 27' Left	42+12	1	12,564	10.23	3.61	2.24	1.68	1.37	1.20	0.88	1,228
Lane 2 - 9' Left	42+50	1	12,460	7.12	2.99	2.09	1.65	1.32	1.12	0.86	1,750
Lane 3 - 27' Right	42+53	1	12,511	6.88	3.44	2.40	2.08	1.63	1.42	1.04	1,818
Lane 1 - 9' Right	43+08	1	12,543	7.31	3.82	2.70	2.13	1.90	1.54	1.35	1,716
Lane 2 - 9' Left	43+51	1	12,445	7.96	3.81	2.85	2.03	1.75	1.44	1.19	1,563
Lane 4 - 27' Left	44+05	1	12,492	8.95	4.58	3.31	2.74	2.29	1.83	1.57	1,396
Lane 1 - 9' Right	44+13	1	12,421	8.65	4.79	3.59	2.85	2.57	2.08	1.79	1,436

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	44+52	1	12,503	6.91	4.39	3.59	3.03	2.63	2.23	1.92	1,809
Lane 2 - 9' Left	44+58	1	12,214	9.42	5.58	4.08	3.39	2.87	2.29	1.98	1,297
Lane 1 - 9' Right	45+16	1	12,421	8.21	4.60	3.41	2.77	2.25	1.90	1.60	1,513
Lane 2 - 9' Left	45+50	1	12,254	9.91	5.72	4.24	3.44	2.81	2.31	1.83	1,237
Lane 1 - 9' Right	45+99	1	12,440	9.00	5.31	4.07	3.14	2.78	2.20	1.72	1,382
Lane 4 - 27' Left	46+03	1	12,567	8.09	4.76	3.73	3.06	2.58	2.06	1.59	1,553
Lane 3 - 27' Right	46+52	1	12,519	7.73	5.15	4.11	3.36	2.88	2.33	2.00	1,620
Lane 2 - 9' Left	46+53	1	12,365	9.62	5.88	4.61	3.80	3.35	2.65	2.15	1,285
Lane 1 - 9' Right	47+04	1	12,400	11.06	6.31	4.61	3.63	2.85	2.19	1.77	1,121
Lane 4 - 27' Left	47+42	1	12,421	7.63	4.72	3.52	2.78	2.39	2.01	1.62	1,628
Lane 2 - 9' Left	47+47	1	12,384	9.05	5.21	3.94	3.18	2.70	2.14	1.69	1,368
Lane 1 - 9' Right	0+11	2	18,580	2.13	1.88	1.73	1.59	1.48	1.28	1.19	8,723
Lane 4 - 27' Left	0+11	2	17,905	2.17	1.95	1.81	1.67	1.56	1.34	1.27	8,251
Lane 3 - 27' Right	0+67	2	17,862	1.93	1.80	1.63	1.50	1.43	1.26	1.15	9,255
Lane 2 - 9' Left	0+68	2	17,850	2.03	1.79	1.60	1.52	1.37	1.20	1.04	8,793
Lane 1 - 9' Right	1+27	2	18,363	1.93	1.69	1.53	1.42	1.32	1.17	1.03	9,515
Lane 3 - 27' Right	1+66	2	17,830	2.07	1.81	1.64	1.54	1.42	1.26	1.10	8,614
Lane 2 - 9' Left	1+70	2	17,818	1.98	1.74	1.59	1.48	1.30	1.19	1.00	8,999
Lane 1 - 9' Right	2+12	2	18,263	1.85	1.62	1.44	1.39	1.27	1.13	1.02	9,872
Lane 4 - 27' Left	2+52	2	17,826	2.02	1.82	1.69	1.67	1.57	1.46	1.24	8,825
Lane 3 - 27' Right	2+70	2	17,762	2.44	2.27	2.11	2.03	1.93	1.75	1.61	7,280
Lane 2 - 9' Left	2+73	2	17,826	2.41	2.20	1.99	1.95	1.81	1.66	1.53	7,397
Lane 1 - 9' Right	3+17	2	17,786	21.75	10.74	6.05	4.15	3.30	2.72	2.08	818
Lane 2 - 9' Left	3+53	2	17,703	7.46	3.88	2.63	2.18	1.87	1.59	1.41	2,373
Lane 4 - 27' Left	4+00	2	17,675	11.03	6.11	3.68	2.74	2.11	1.71	1.43	1,602
Lane 1 - 9' Right	4+12	2	18,045	8.39	4.39	3.19	2.64	2.31	1.97	1.68	2,151
Lane 2 - 9' Left	4+49	2	17,540	15.48	6.96	3.52	2.19	1.45	1.10	0.79	1,133

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	4+58	2	17,584	13.74	6.18	2.98	1.85	1.41	1.09	0.85	1,280
Lane 1 - 9' Right	5+10	2	18,005	6.99	3.19	2.80	2.44	2.03	1.56	1.28	2,576
Lane 2 - 9' Left	5+50	2	17,564	14.74	5.46	2.17	1.59	1.29	1.08	0.87	1,192
Lane 1 - 9' Right	5+96	2	18,024	5.26	3.03	2.70	2.34	2.00	1.62	1.29	3,427
Lane 4 - 27' Left	6+01	2	17,651	10.53	5.39	3.33	2.40	1.81	1.39	1.09	1,676
Lane 3 - 27' Right	6+56	2	17,600	13.60	6.28	3.18	2.07	1.51	1.14	0.90	1,294
Lane 2 - 9' Left	6+82	2	17,568	13.69	6.20	3.30	2.15	1.50	1.15	0.91	1,283
Lane 1 - 9' Right	7+18	2	17,973	6.72	2.90	2.59	2.24	1.91	1.51	1.18	2,675
Lane 2 - 9' Left	7+59	2	17,548	12.51	5.71	3.12	2.06	1.46	1.12	0.89	1,403
Lane 1 - 9' Right	7+99	2	17,937	6.78	2.87	2.61	2.23	1.92	1.56	1.27	2,646
Lane 4 - 27' Left	8+11	2	17,640	11.96	5.51	3.35	2.48	1.88	1.40	0.99	1,475
Lane 3 - 27' Right	8+47	2	17,616	12.17	5.02	2.45	1.60	1.15	0.87	0.67	1,447
Lane 2 - 9' Left	8+53	2	17,587	11.49	5.22	2.60	1.66	1.25	1.01	0.78	1,531
Lane 1 - 9' Right	9+12	2	17,910	8.65	3.19	2.24	1.81	1.56	1.28	1.05	2,071
Lane 2 - 9' Left	9+55	2	17,568	9.56	2.48	1.93	1.71	1.40	1.24	0.92	1,838
Lane 4 - 27' Left	9+99	2	17,664	11.34	4.83	2.79	2.11	1.61	1.32	1.05	1,558
Lane 1 - 9' Right	10+07	2	17,878	11.35	4.97	3.35	2.69	2.25	1.87	1.49	1,575
Lane 3 - 27' Right	10+48	2	17,627	11.06	4.82	3.06	2.29	1.86	1.42	1.06	1,594
Lane 2 - 9' Left	10+61	2	17,616	9.33	3.96	2.35	1.85	1.45	1.13	0.77	1,888
Lane 1 - 9' Right	11+04	2	17,854	10.21	4.13	2.38	1.70	1.33	1.11	0.84	1,749
Lane 2 - 9' Left	11+49	2	17,548	9.69	4.32	2.49	1.74	1.27	1.02	0.76	1,811
Lane 4 - 27' Left	12+26	2	17,648	10.31	4.70	2.88	2.16	1.65	1.30	0.96	1,712
Lane 1 - 9' Right	12+27	2	17,807	12.02	4.61	2.67	1.93	1.43	1.08	0.83	1,481
Lane 3 - 27' Right	12+53	2	17,627	11.31	4.75	2.99	2.27	1.84	1.39	1.02	1,559
Lane 2 - 9' Left	12+57	2	17,576	10.37	4.06	2.53	1.91	1.48	1.17	0.95	1,695
Lane 1 - 9' Right	12+99	2	17,822	11.42	4.46	2.76	1.91	1.55	1.12	0.91	1,561
Lane 2 - 9' Left	13+64	2	17,587	10.26	4.38	2.48	1.74	1.35	1.05	0.82	1,714

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	14+06	2	17,838	10.29	3.83	2.34	1.75	1.41	1.15	0.88	1,734
Lane 4 - 27' Left	14+10	2	17,680	10.16	4.90	2.92	2.05	1.60	1.23	0.97	1,740
Lane 2 - 9' Left	14+49	2	17,600	9.67	3.73	2.04	1.60	1.26	1.08	0.80	1,820
Lane 3 - 27' Right	14+54	2	17,672	9.52	4.17	2.61	1.94	1.51	1.19	0.94	1,856
Lane 1 - 9' Right	15+01	2	17,818	9.92	3.61	2.17	1.60	1.27	1.01	0.85	1,796
Lane 2 - 9' Left	15+50	2	17,619	8.44	3.16	2.03	1.63	1.21	1.06	0.68	2,088
Lane 4 - 27' Left	15+99	2	17,656	8.64	3.66	2.48	2.02	1.65	1.39	1.11	2,044
Lane 1 - 9' Right	16+06	2	17,822	10.06	3.74	2.41	1.89	1.60	1.29	1.04	1,772
Lane 3 - 27' Right	16+50	2	17,624	11.18	5.06	3.28	2.47	1.98	1.61	1.26	1,576
Lane 2 - 9' Left	16+56	2	17,521	11.29	4.31	2.57	2.10	1.63	1.40	1.06	1,552
Lane 1 - 9' Right	17+02	2	17,815	11.67	4.44	2.97	2.19	1.77	1.37	1.07	1,527
Lane 2 - 9' Left	17+52	2	17,603	9.22	3.58	2.07	1.66	1.39	1.13	0.88	1,909
Lane 1 - 9' Right	18+00	2	17,815	12.58	5.54	3.46	2.46	1.95	1.57	1.22	1,416
Lane 4 - 27' Left	18+09	2	17,619	9.89	5.08	3.33	2.65	2.12	1.81	1.49	1,781
Lane 3 - 27' Right	18+49	2	17,560	14.65	7.26	4.24	3.09	2.49	2.10	1.71	1,199
Lane 2 - 9' Left	18+50	2	17,537	12.92	5.72	3.43	2.75	2.20	1.80	1.49	1,357
Lane 1 - 9' Right	19+00	2	17,794	14.76	5.99	3.34	2.49	2.11	1.72	1.43	1,206
Lane 2 - 9' Left	19+56	2	17,608	11.36	4.31	2.45	1.98	1.68	1.43	1.23	1,550
Lane 4 - 27' Left	19+97	2	17,608	11.37	5.94	3.58	2.68	2.25	1.91	1.62	1,549
Lane 1 - 9' Right	20+08	2	17,707	18.20	9.08	4.48	3.23	2.81	2.27	1.87	973
Lane 2 - 9' Left	20+52	2	17,500	14.46	6.46	3.31	2.65	2.20	1.83	1.52	1,210
Lane 3 - 27' Right	20+53	2	17,548	15.72	7.19	4.17	3.35	2.89	2.44	2.07	1,116
Lane 1 - 9' Right	21+07	2	17,791	12.86	5.27	3.07	2.40	2.12	1.93	1.60	1,383
Lane 2 - 9' Left	21+52	2	17,552	11.28	4.66	3.22	2.85	2.41	2.04	1.70	1,556
Lane 1 - 9' Right	22+02	2	17,699	14.24	5.27	2.98	2.39	1.98	1.69	1.35	1,243
Lane 4 - 27' Left	22+05	2	17,648	8.51	3.87	2.80	2.29	1.89	1.60	1.30	2,074
Lane 3 - 27' Right	22+57	2	17,544	13.88	6.94	4.35	3.48	2.96	2.56	2.14	1,264

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	22+58	2	17,568	10.20	5.15	4.02	3.42	2.91	2.48	2.04	1,722
Lane 1 - 9' Right	23+03	2	17,556	19.38	9.08	4.97	3.79	3.17	2.65	2.09	906
Lane 2 - 9' Left	23+60	2	17,603	8.16	3.69	2.74	2.39	2.03	1.75	1.50	2,157
Lane 1 - 9' Right	23+96	2	17,703	12.92	4.86	3.07	2.39	2.11	1.72	1.49	1,370
Lane 4 - 27' Left	23+99	2	17,627	10.80	4.61	2.93	2.43	2.04	1.74	1.42	1,632
Lane 2 - 9' Left	24+51	2	17,548	10.38	4.33	3.11	2.64	2.20	1.85	1.44	1,691
Lane 3 - 27' Right	24+58	2	17,595	10.63	5.15	3.53	2.68	2.17	1.76	1.42	1,655
Lane 1 - 9' Right	25+07	2	17,751	11.23	4.24	2.54	1.90	1.63	1.37	1.16	1,581
Lane 2 - 9' Left	25+53	2	17,537	10.05	3.98	2.61	2.14	1.82	1.45	1.19	1,745
Lane 1 - 9' Right	25+99	2	17,651	12.76	4.70	2.98	2.39	2.02	1.58	1.35	1,383
Lane 4 - 27' Left	26+05	2	17,651	10.04	5.09	3.36	2.47	1.90	1.56	1.18	1,758
Lane 2 - 9' Left	26+49	2	17,587	10.72	5.16	3.07	2.55	1.85	1.53	1.17	1,641
Lane 3 - 27' Right	26+50	2	17,627	8.87	3.90	2.49	1.86	1.46	1.14	0.90	1,987
Lane 1 - 9' Right	27+10	2	17,746	10.88	4.16	2.55	1.89	1.49	1.19	0.89	1,631
Lane 2 - 9' Left	27+53	2	17,571	10.07	4.27	2.64	1.89	1.40	1.15	0.92	1,745
Lane 4 - 27' Left	28+01	2	17,683	8.50	3.83	2.51	1.95	1.57	1.28	1.04	2,080
Lane 1 - 9' Right	28+05	2	17,624	11.86	4.74	2.76	1.95	1.45	1.21	0.95	1,486
Lane 2 - 9' Left	28+53	2	17,571	8.34	3.65	2.39	1.83	1.46	1.20	0.96	2,107
Lane 3 - 27' Right	28+62	2	17,552	12.30	5.67	3.18	2.22	1.58	1.22	1.02	1,427
Lane 1 - 9' Right	28+99	2	17,608	11.51	4.90	2.49	1.73	1.35	1.13	0.95	1,530
Lane 2 - 9' Left	29+51	2	17,532	10.50	4.11	2.50	1.91	1.50	1.22	0.99	1,670
Lane 1 - 9' Right	29+99	2	17,675	11.52	4.77	2.85	2.13	1.63	1.34	1.04	1,534
Lane 4 - 27' Left	30+03	2	17,643	11.82	5.15	2.90	2.15	1.64	1.28	0.98	1,493
Lane 3 - 27' Right	30+51	2	17,640	10.28	4.56	2.87	2.10	1.78	1.39	1.10	1,716
Lane 2 - 9' Left	30+53	2	17,537	10.53	4.28	2.63	2.00	1.63	1.33	1.07	1,665
Lane 1 - 9' Right	31+01	2	17,640	11.31	4.52	2.81	2.09	1.72	1.39	1.19	1,560
Lane 2 - 9' Left	31+52	2	17,544	11.37	4.39	2.69	2.06	1.61	1.33	1.02	1,543

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	32+01	2	17,707	10.80	4.15	2.43	1.87	1.48	1.18	0.95	1,640
Lane 4 - 27' Left	32+01	2	17,711	8.90	3.77	2.64	2.06	1.56	1.22	0.88	1,990
Lane 2 - 9' Left	32+49	2	17,484	11.97	4.59	2.80	2.24	1.84	1.56	1.23	1,461
Lane 3 - 27' Right	32+50	2	17,667	9.63	3.55	2.50	2.07	1.68	1.40	1.14	1,835
Lane 1 - 9' Right	33+01	2	17,571	10.15	3.60	2.54	2.04	1.67	1.33	1.09	1,731
Lane 2 - 9' Left	33+50	2	17,540	10.34	3.94	2.73	2.37	2.04	1.77	1.60	1,696
Lane 4 - 27' Left	33+97	2	17,640	10.02	5.08	4.02	3.40	2.85	2.46	2.00	1,760
Lane 1 - 9' Right	33+98	2	17,548	11.03	5.22	4.07	3.50	3.06	2.60	2.26	1,591
Lane 3 - 27' Right	34+51	2	17,635	9.87	4.48	3.32	2.94	2.46	2.12	1.82	1,787
Lane 2 - 9' Left	34+55	2	17,465	14.91	6.25	4.23	3.60	3.04	2.51	1.98	1,171
Lane 1 - 9' Right	34+99	2	17,560	11.46	4.21	2.80	2.30	1.98	1.64	1.37	1,532
Lane 2 - 9' Left	35+55	2	17,532	11.28	4.65	3.09	2.44	1.96	1.66	1.37	1,554
Lane 4 - 27' Left	36+00	2	17,611	9.57	3.59	2.49	2.07	1.66	1.42	1.26	1,840
Lane 1 - 9' Right	36+19	2	17,513	12.55	4.04	2.96	2.35	1.93	1.50	1.23	1,395
Lane 2 - 9' Left	36+48	2	17,529	10.82	4.62	3.03	2.35	1.88	1.42	1.23	1,620
Lane 3 - 27' Right	36+51	2	17,603	9.97	3.87	2.35	1.81	1.43	1.17	0.98	1,766
Lane 1 - 9' Right	37+05	2	17,556	9.59	4.19	2.77	2.16	1.74	1.35	1.12	1,831
Lane 2 - 9' Left	37+50	2	17,576	8.97	4.07	2.78	2.20	1.72	1.39	1.10	1,959
Lane 4 - 27' Left	37+99	2	17,683	8.33	3.72	2.58	2.07	1.61	1.28	1.00	2,123
Lane 1 - 9' Right	38+10	2	17,560	11.14	3.54	2.30	1.78	1.41	1.13	0.90	1,576
Lane 3 - 27' Right	38+49	2	17,659	7.95	3.30	2.14	1.74	1.40	1.16	0.89	2,221
Lane 2 - 9' Left	38+51	2	17,556	8.73	3.78	2.46	1.88	1.45	1.21	0.90	2,011
Lane 1 - 9' Right	39+10	2	17,544	9.85	3.81	1.96	1.72	1.44	1.17	0.94	1,781
Lane 2 - 9' Left	39+50	2	17,548	8.81	3.60	2.50	1.98	1.47	1.26	1.05	1,992
Lane 1 - 9' Right	40+06	2	17,444	11.68	3.88	2.62	2.01	1.70	1.36	1.13	1,493
Lane 4 - 27' Left	40+06	2	17,548	16.09	4.94	2.81	2.16	1.67	1.37	1.07	1,091
Lane 3 - 27' Right	40+47	2	17,627	9.55	3.70	2.61	2.02	1.62	1.26	1.05	1,846

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	40+51	2	17,584	9.38	3.98	2.62	2.10	1.61	1.42	1.11	1,875
Lane 1 - 9' Right	41+04	2	17,524	9.63	3.68	2.54	2.02	1.57	1.30	1.07	1,820
Lane 2 - 9' Left	41+49	2	17,571	9.41	4.24	2.83	2.30	1.86	1.50	1.19	1,867
Lane 1 - 9' Right	42+01	2	17,529	11.68	4.83	3.33	2.63	2.09	1.65	1.37	1,501
Lane 4 - 27' Left	42+12	2	17,611	13.50	5.05	3.11	2.48	1.96	1.61	1.30	1,305
Lane 2 - 9' Left	42+50	2	17,508	10.06	4.43	3.16	2.52	2.01	1.68	1.26	1,740
Lane 3 - 27' Right	42+53	2	17,571	9.69	4.95	3.63	2.93	2.51	1.96	1.83	1,813
Lane 1 - 9' Right	43+08	2	17,532	10.05	5.48	3.91	3.15	2.61	2.21	1.85	1,744
Lane 2 - 9' Left	43+51	2	17,473	11.37	5.63	4.10	3.24	2.58	2.13	1.68	1,537
Lane 4 - 27' Left	44+05	2	17,497	12.30	6.52	4.81	3.92	3.19	2.68	2.24	1,423
Lane 1 - 9' Right	44+13	2	17,417	12.04	6.78	4.98	4.20	3.51	2.98	2.56	1,447
Lane 3 - 27' Right	44+52	2	17,595	10.17	6.04	4.87	4.20	3.59	3.05	2.59	1,730
Lane 2 - 9' Left	44+58	2	17,166	13.78	7.98	5.88	4.89	3.97	3.37	2.78	1,246
Lane 1 - 9' Right	45+16	2	17,428	11.41	6.51	4.82	3.91	3.20	2.66	2.22	1,527
Lane 2 - 9' Left	45+50	2	17,238	13.83	8.32	6.23	5.06	4.13	3.41	2.75	1,246
Lane 1 - 9' Right	45+99	2	17,386	12.50	7.44	5.64	4.51	3.75	3.08	2.43	1,391
Lane 4 - 27' Left	46+03	2	17,587	10.96	6.53	5.09	4.22	3.44	2.86	2.22	1,605
Lane 3 - 27' Right	46+52	2	17,584	10.63	7.01	5.54	4.64	3.82	3.18	2.63	1,654
Lane 2 - 9' Left	46+53	2	17,378	13.19	8.26	6.44	5.37	4.59	3.68	3.06	1,318
Lane 1 - 9' Right	47+04	2	17,381	15.50	9.08	6.75	5.27	4.16	3.26	2.59	1,121
Lane 4 - 27' Left	47+42	2	17,449	10.50	6.59	4.83	4.04	3.34	2.82	2.23	1,662
Lane 2 - 9' Left	47+47	2	17,397	12.92	7.68	5.85	4.79	3.96	3.17	2.52	1,347
Lane 1 - 9' Right	0+11	3	23,955	2.69	2.40	2.20	2.04	1.81	1.66	1.47	8,905
Lane 4 - 27' Left	0+11	3	23,486	2.82	2.48	2.22	2.16	1.94	1.80	1.56	8,328
Lane 3 - 27' Right	0+67	3	23,463	2.45	2.31	2.07	1.96	1.77	1.59	1.40	9,577
Lane 2 - 9' Left	0+68	3	23,442	2.70	2.31	2.14	1.92	1.72	1.53	1.35	8,682
Lane 1 - 9' Right	1+27	3	23,815	2.49	2.18	1.95	1.82	1.60	1.46	1.29	9,564

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	1+66	3	23,442	2.66	2.37	2.15	1.96	1.77	1.60	1.45	8,813
Lane 2 - 9' Left	1+70	3	23,426	2.59	2.24	2.04	1.90	1.68	1.54	1.35	9,045
Lane 1 - 9' Right	2+12	3	23,756	2.32	2.11	1.89	1.74	1.52	1.44	1.31	10,240
Lane 4 - 27' Left	2+52	3	23,426	2.55	2.36	2.23	2.08	1.94	1.83	1.72	9,187
Lane 3 - 27' Right	2+70	3	23,367	3.13	2.91	2.75	2.57	2.44	2.20	2.07	7,465
Lane 2 - 9' Left	2+73	3	23,455	3.13	2.89	2.57	2.56	2.41	2.17	2.00	7,494
Lane 1 - 9' Right	3+17	3	23,057	26.50	13.81	8.04	5.58	4.31	3.60	2.82	870
Lane 2 - 9' Left	3+53	3	23,208	9.69	5.22	3.55	2.93	2.47	2.15	1.86	2,395
Lane 4 - 27' Left	4+00	3	23,129	14.49	8.15	4.98	3.70	2.80	2.28	1.83	1,596
Lane 1 - 9' Right	4+12	3	23,466	10.97	5.96	4.34	3.63	3.13	2.67	2.26	2,139
Lane 2 - 9' Left	4+49	3	22,962	20.28	9.50	4.89	3.02	1.96	1.48	1.05	1,132
Lane 3 - 27' Right	4+58	3	23,069	17.81	8.20	4.01	2.48	1.79	1.41	1.13	1,295
Lane 1 - 9' Right	5+10	3	23,407	9.15	4.39	3.85	3.33	2.78	2.23	1.74	2,558
Lane 2 - 9' Left	5+50	3	23,018	19.27	7.37	2.88	2.10	1.67	1.39	1.13	1,194
Lane 1 - 9' Right	5+96	3	23,474	7.03	4.16	3.71	3.24	2.74	2.24	1.76	3,339
Lane 4 - 27' Left	6+01	3	23,148	13.82	7.19	4.51	3.23	2.38	1.85	1.48	1,675
Lane 3 - 27' Right	6+56	3	23,081	17.44	8.19	4.25	2.76	1.98	1.53	1.22	1,323
Lane 2 - 9' Left	6+82	3	23,057	18.00	8.33	4.53	2.95	2.06	1.54	1.21	1,281
Lane 1 - 9' Right	7+18	3	23,399	8.71	3.99	3.59	3.06	2.60	2.09	1.63	2,686
Lane 2 - 9' Left	7+59	3	23,029	16.43	7.78	4.28	2.79	2.00	1.56	1.17	1,402
Lane 1 - 9' Right	7+99	3	23,383	8.72	3.91	3.50	3.06	2.55	2.13	1.70	2,682
Lane 4 - 27' Left	8+11	3	23,137	15.66	7.39	4.55	3.33	2.47	1.92	1.47	1,477
Lane 3 - 27' Right	8+47	3	23,124	15.50	6.57	3.33	2.20	1.56	1.17	0.90	1,492
Lane 2 - 9' Left	8+53	3	23,076	15.04	7.17	3.62	2.24	1.70	1.30	0.98	1,534
Lane 1 - 9' Right	9+12	3	23,354	11.04	4.31	3.05	2.47	2.06	1.69	1.37	2,115
Lane 2 - 9' Left	9+55	3	23,073	12.18	3.33	2.67	2.22	1.89	1.65	1.45	1,894
Lane 4 - 27' Left	9+99	3	23,132	14.50	6.31	3.74	2.79	2.16	1.74	1.40	1,595

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	10+07	3	23,256	14.44	6.67	4.55	3.67	3.00	2.51	1.96	1,611
Lane 3 - 27' Right	10+48	3	23,153	14.33	6.41	4.10	3.09	2.42	1.90	1.47	1,616
Lane 2 - 9' Left	10+61	3	23,113	12.06	5.31	3.34	2.44	1.90	1.67	1.39	1,917
Lane 1 - 9' Right	11+04	3	23,304	13.21	5.58	3.24	2.33	1.76	1.46	1.08	1,764
Lane 2 - 9' Left	11+49	3	23,061	12.74	5.82	3.46	2.41	1.71	1.32	1.02	1,810
Lane 4 - 27' Left	12+26	3	23,180	13.44	6.25	3.91	2.85	2.20	1.72	1.26	1,725
Lane 1 - 9' Right	12+27	3	23,219	15.39	6.33	3.76	2.69	1.92	1.48	1.11	1,509
Lane 3 - 27' Right	12+53	3	23,132	14.55	6.26	4.02	3.04	2.40	1.84	1.37	1,590
Lane 2 - 9' Left	12+57	3	23,076	13.37	5.49	3.40	2.60	2.01	1.65	1.27	1,726
Lane 1 - 9' Right	12+99	3	23,288	14.78	6.02	3.79	2.67	2.06	1.53	1.21	1,576
Lane 2 - 9' Left	13+64	3	23,113	13.38	5.83	3.41	2.37	1.79	1.36	1.13	1,727
Lane 1 - 9' Right	14+06	3	23,264	13.27	5.07	3.17	2.39	1.86	1.52	1.17	1,753
Lane 4 - 27' Left	14+10	3	23,200	13.20	6.44	3.92	2.72	2.13	1.61	1.30	1,758
Lane 2 - 9' Left	14+49	3	23,164	12.52	4.91	2.91	2.14	1.70	1.35	1.07	1,850
Lane 3 - 27' Right	14+54	3	23,208	12.31	5.45	3.47	2.54	1.97	1.56	1.24	1,885
Lane 1 - 9' Right	15+01	3	23,259	12.73	4.85	2.95	2.20	1.73	1.39	1.09	1,827
Lane 2 - 9' Left	15+50	3	23,153	10.94	4.23	2.81	2.18	1.69	1.37	1.09	2,116
Lane 4 - 27' Left	15+99	3	23,196	11.13	4.81	3.31	2.64	2.17	1.80	1.49	2,084
Lane 1 - 9' Right	16+06	3	23,323	12.86	4.93	3.19	2.54	2.14	1.67	1.29	1,814
Lane 3 - 27' Right	16+50	3	23,153	14.28	6.59	4.34	3.27	2.60	2.13	1.68	1,621
Lane 2 - 9' Left	16+56	3	23,034	14.53	5.69	3.31	2.87	2.21	1.89	1.50	1,585
Lane 1 - 9' Right	17+02	3	23,267	14.71	5.89	3.88	2.93	2.34	1.82	1.43	1,582
Lane 2 - 9' Left	17+52	3	23,132	11.79	4.74	2.90	2.18	1.78	1.49	1.25	1,962
Lane 1 - 9' Right	18+00	3	23,243	16.07	7.24	4.57	3.37	2.59	2.05	1.61	1,446
Lane 4 - 27' Left	18+09	3	23,188	12.74	6.60	4.41	3.52	2.80	2.40	1.97	1,820
Lane 3 - 27' Right	18+49	3	23,029	18.60	9.29	5.54	4.07	3.25	2.75	2.22	1,238
Lane 2 - 9' Left	18+50	3	23,045	16.30	7.43	4.57	3.67	2.92	2.35	1.91	1,414

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	19+00	3	23,219	18.41	7.70	4.46	3.33	2.78	2.30	1.89	1,261
Lane 2 - 9' Left	19+56	3	23,121	14.23	5.49	3.22	2.54	2.10	1.83	1.67	1,625
Lane 4 - 27' Left	19+97	3	23,124	14.32	7.51	4.60	3.49	2.91	2.49	2.07	1,615
Lane 1 - 9' Right	20+08	3	23,129	21.98	11.12	5.79	4.28	3.62	2.96	2.46	1,052
Lane 2 - 9' Left	20+52	3	23,010	17.93	8.12	4.50	3.52	2.94	2.44	1.95	1,283
Lane 3 - 27' Right	20+53	3	23,034	19.71	9.16	5.44	4.35	3.66	3.14	2.64	1,169
Lane 1 - 9' Right	21+07	3	23,259	15.96	6.78	4.05	3.09	2.67	2.52	1.99	1,457
Lane 2 - 9' Left	21+52	3	23,092	14.26	6.05	4.28	3.76	3.17	2.69	2.24	1,619
Lane 1 - 9' Right	22+02	3	23,137	17.16	6.72	3.98	3.20	2.65	2.31	1.83	1,348
Lane 4 - 27' Left	22+05	3	23,204	10.96	5.06	3.66	3.02	2.48	2.11	1.67	2,117
Lane 3 - 27' Right	22+57	3	23,042	17.63	9.01	5.83	4.68	3.96	3.39	2.85	1,307
Lane 2 - 9' Left	22+58	3	23,100	13.04	6.74	5.35	4.53	3.87	3.27	2.67	1,771
Lane 1 - 9' Right	23+03	3	22,978	23.42	11.51	6.57	5.05	4.15	3.54	2.79	981
Lane 2 - 9' Left	23+60	3	23,172	10.70	4.90	3.70	3.20	2.71	2.31	1.92	2,166
Lane 1 - 9' Right	23+96	3	23,153	16.19	6.35	4.01	3.20	2.69	2.31	2.00	1,430
Lane 4 - 27' Left	23+99	3	23,156	13.83	5.93	3.84	3.16	2.61	2.24	1.85	1,674
Lane 2 - 9' Left	24+51	3	23,100	13.17	5.69	4.19	3.53	2.91	2.42	1.89	1,754
Lane 3 - 27' Right	24+58	3	23,132	13.63	6.64	4.56	3.52	2.83	2.31	1.89	1,697
Lane 1 - 9' Right	25+07	3	23,251	14.24	5.52	3.39	2.51	2.13	1.76	1.52	1,633
Lane 2 - 9' Left	25+53	3	23,057	12.87	5.40	3.41	2.91	2.34	1.87	1.68	1,792
Lane 1 - 9' Right	25+99	3	23,049	16.01	6.08	3.87	3.14	2.44	2.15	1.72	1,440
Lane 4 - 27' Left	26+05	3	23,177	13.06	6.66	4.35	3.24	2.49	1.98	1.54	1,775
Lane 2 - 9' Left	26+49	3	23,100	14.04	7.01	4.10	3.45	2.56	2.13	1.70	1,645
Lane 3 - 27' Right	26+50	3	23,184	11.61	5.12	3.31	2.48	1.93	1.51	1.20	1,997
Lane 1 - 9' Right	27+10	3	23,105	13.89	5.58	3.34	2.54	1.87	1.56	1.20	1,663
Lane 2 - 9' Left	27+53	3	23,073	13.10	5.80	3.66	2.59	1.90	1.57	1.23	1,761
Lane 4 - 27' Left	28+01	3	23,227	11.19	5.08	3.39	2.61	2.07	1.69	1.36	2,076

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	28+05	3	23,100	15.22	6.36	3.82	2.65	1.96	1.59	1.25	1,518
Lane 2 - 9' Left	28+53	3	23,132	11.04	4.93	3.28	2.52	1.96	1.61	1.33	2,095
Lane 3 - 27' Right	28+62	3	23,069	16.01	7.40	4.23	3.00	2.12	1.61	1.31	1,441
Lane 1 - 9' Right	28+99	3	23,124	14.80	6.53	3.37	2.37	1.80	1.47	1.31	1,562
Lane 2 - 9' Left	29+51	3	23,053	13.63	5.53	3.44	2.62	2.05	1.65	1.35	1,691
Lane 1 - 9' Right	29+99	3	23,076	14.68	6.34	3.93	2.91	2.19	1.74	1.37	1,572
Lane 4 - 27' Left	30+03	3	23,145	15.32	6.85	3.98	2.92	2.19	1.73	1.39	1,511
Lane 3 - 27' Right	30+51	3	23,156	13.35	6.03	3.80	2.81	2.29	1.83	1.39	1,735
Lane 2 - 9' Left	30+53	3	23,081	13.76	5.76	3.69	2.76	2.19	1.78	1.42	1,677
Lane 1 - 9' Right	31+01	3	23,092	14.48	6.07	3.78	2.85	2.24	1.84	1.52	1,595
Lane 2 - 9' Left	31+52	3	23,061	14.59	5.95	3.79	2.84	2.10	1.73	1.50	1,581
Lane 1 - 9' Right	32+01	3	23,084	13.81	5.54	3.33	2.51	1.90	1.57	1.22	1,672
Lane 4 - 27' Left	32+01	3	23,192	11.62	5.02	3.55	2.70	2.02	1.57	1.19	1,996
Lane 2 - 9' Left	32+49	3	22,989	15.34	6.34	3.74	3.07	2.41	1.94	1.98	1,499
Lane 3 - 27' Right	32+50	3	23,177	12.34	4.72	3.39	2.73	2.22	1.85	1.52	1,878
Lane 1 - 9' Right	33+01	3	23,065	13.11	4.91	3.58	2.81	2.24	1.84	1.43	1,759
Lane 2 - 9' Left	33+50	3	23,076	13.26	5.28	3.57	3.22	2.74	2.34	2.05	1,740
Lane 4 - 27' Left	33+97	3	23,137	12.93	6.69	5.30	4.48	3.70	3.13	2.72	1,789
Lane 1 - 9' Right	33+98	3	23,084	14.07	6.91	5.39	4.64	4.02	3.44	2.85	1,641
Lane 3 - 27' Right	34+51	3	23,129	12.63	5.81	4.37	3.81	3.20	2.74	2.34	1,831
Lane 2 - 9' Left	34+55	3	22,954	19.07	8.43	5.85	4.85	4.04	3.33	2.75	1,204
Lane 1 - 9' Right	34+99	3	23,065	14.56	5.61	3.77	3.09	2.58	2.20	1.66	1,584
Lane 2 - 9' Left	35+55	3	23,049	14.72	6.19	3.70	3.44	2.67	2.16	1.82	1,566
Lane 4 - 27' Left	36+00	3	23,121	12.46	4.77	3.34	2.72	2.20	1.86	1.61	1,856
Lane 1 - 9' Right	36+19	3	22,997	15.68	5.48	3.96	3.23	2.63	2.04	1.59	1,467
Lane 2 - 9' Left	36+48	3	23,061	14.06	6.21	4.08	3.20	2.51	2.01	1.62	1,640
Lane 3 - 27' Right	36+51	3	23,132	12.81	5.20	3.16	2.40	1.85	1.49	1.32	1,806

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	37+05	3	23,057	12.40	5.64	3.80	2.99	2.23	1.82	1.52	1,859
Lane 2 - 9' Left	37+50	3	23,105	11.70	5.46	3.79	2.99	2.38	1.90	1.58	1,975
Lane 4 - 27' Left	37+99	3	23,243	10.96	5.00	3.57	2.79	2.17	1.73	1.36	2,121
Lane 1 - 9' Right	38+10	3	23,045	14.12	4.72	3.12	2.41	1.86	1.54	1.22	1,632
Lane 3 - 27' Right	38+49	3	23,188	10.29	4.37	2.91	2.31	1.84	1.52	1.22	2,253
Lane 2 - 9' Left	38+51	3	23,116	11.29	5.15	3.40	2.59	2.02	1.58	1.25	2,047
Lane 1 - 9' Right	39+10	3	23,053	12.70	5.11	2.80	2.34	1.89	1.59	1.25	1,815
Lane 2 - 9' Left	39+50	3	23,076	11.60	4.79	3.37	2.80	2.07	1.77	1.54	1,989
Lane 1 - 9' Right	40+06	3	22,938	14.85	5.24	3.55	2.84	2.29	1.88	1.51	1,545
Lane 4 - 27' Left	40+06	3	23,005	19.98	6.54	3.82	2.85	2.19	1.83	1.49	1,151
Lane 3 - 27' Right	40+47	3	23,145	12.30	4.85	3.46	2.66	2.13	1.69	1.35	1,882
Lane 2 - 9' Left	40+51	3	23,145	12.36	5.51	3.66	2.87	2.24	1.79	1.67	1,873
Lane 1 - 9' Right	41+04	3	23,037	12.54	5.08	3.63	2.79	2.19	1.76	1.39	1,837
Lane 2 - 9' Left	41+49	3	23,069	12.35	5.81	3.91	3.19	2.49	2.04	1.65	1,868
Lane 1 - 9' Right	42+01	3	22,994	15.02	6.41	4.45	3.52	2.81	2.31	1.70	1,531
Lane 4 - 27' Left	42+12	3	23,145	17.03	6.59	4.24	3.25	2.59	2.15	1.72	1,359
Lane 2 - 9' Left	42+50	3	23,037	13.23	6.03	4.42	3.45	2.80	2.24	1.83	1,741
Lane 3 - 27' Right	42+53	3	23,105	15.17	6.54	4.87	3.92	3.28	2.64	2.19	1,523
Lane 1 - 9' Right	43+08	3	23,057	12.87	7.23	5.24	4.20	3.48	2.93	2.46	1,792
Lane 2 - 9' Left	43+51	3	22,965	14.93	7.68	5.69	4.47	3.56	2.89	2.30	1,538
Lane 4 - 27' Left	44+05	3	22,986	15.85	8.57	6.37	5.18	4.17	3.49	2.92	1,450
Lane 1 - 9' Right	44+13	3	22,883	15.48	8.83	6.46	5.56	4.50	3.84	3.25	1,478
Lane 3 - 27' Right	44+52	3	23,076	14.82	7.72	6.28	5.33	4.57	3.86	3.30	1,557
Lane 2 - 9' Left	44+58	3	22,613	17.47	10.72	7.77	6.55	5.11	4.39	3.69	1,294
Lane 1 - 9' Right	45+16	3	22,933	14.74	8.63	6.43	5.22	4.29	3.54	2.93	1,556
Lane 2 - 9' Left	45+50	3	22,703	17.97	11.05	8.13	6.80	5.61	4.63	3.94	1,263
Lane 1 - 9' Right	45+99	3	22,878	16.11	9.80	7.39	5.97	4.84	4.05	3.20	1,420

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

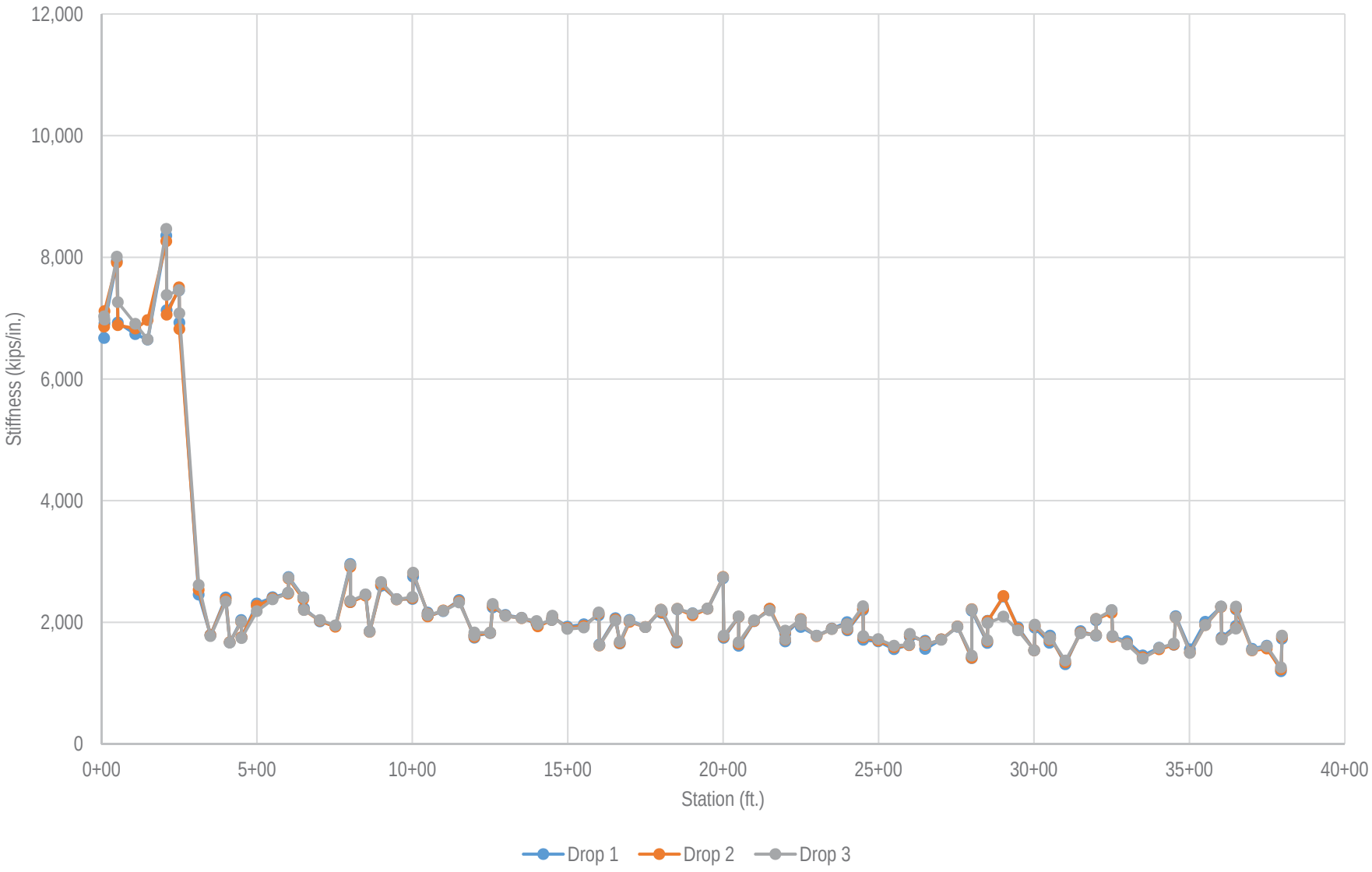
Runway 15R-33L (Sections 2K,L,R - 9K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 27' Left	46+03	3	23,105	14.06	8.41	6.65	5.41	4.40	3.61	2.90	1,643
Lane 3 - 27' Right	46+52	3	23,084	13.56	8.91	7.07	5.86	4.89	4.04	3.40	1,702
Lane 2 - 9' Left	46+53	3	22,894	17.06	10.74	8.39	7.01	5.81	4.82	4.04	1,342
Lane 1 - 9' Right	47+04	3	22,827	20.03	12.02	8.94	7.07	5.57	4.38	3.51	1,140
Lane 4 - 27' Left	47+42	3	22,954	13.86	8.56	6.40	5.22	4.34	3.65	2.93	1,656
Lane 2 - 9' Left	47+47	3	22,870	17.04	10.40	7.98	6.52	5.35	4.33	3.46	1,342
										Average	2,181

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	0+09	1	13,144	1.97	1.85	1.76	1.57	1.46	1.28	1.19	6,672
Lane 4 - 27' Left	0+10	1	12,858	1.86	1.77	1.65	1.52	1.51	1.24	1.19	6,913
Lane 2 - 9' Left	0+50	1	12,861	1.62	1.48	1.45	1.33	1.34	1.16	1.08	7,939
Lane 3 - 27' Left	0+53	1	12,882	1.86	1.75	1.58	1.61	1.52	1.39	1.19	6,926
Lane 1 - 9' Right	1+09	1	13,067	1.94	1.86	1.76	1.65	1.62	1.43	1.29	6,736
Lane 2 - 9' Left	1+49	1	12,826	1.93	1.80	1.70	1.58	1.46	1.32	1.19	6,646
Lane 4 - 27' Left	2+09	1	12,866	1.54	1.43	1.37	1.22	1.31	1.10	1.11	8,355
Lane 1 - 9' Right	2+10	1	13,115	1.84	1.74	1.52	1.61	1.60	1.41	1.22	7,128
Lane 2 - 9' Left	2+50	1	12,821	1.72	1.65	1.59	1.40	1.39	1.19	1.08	7,454
Lane 3 - 27' Left	2+51	1	12,813	1.85	1.72	1.66	1.51	1.44	1.29	1.17	6,926
Lane 1 - 9' Right	3+13	1	12,929	5.27	2.27	1.42	1.14	1.01	0.87	0.74	2,453
Lane 2 - 9' Left	3+51	1	12,726	7.10	3.76	2.48	1.84	1.55	1.26	1.09	1,792
Lane 4 - 27' Left	4+00	1	12,659	5.26	3.24	2.52	2.01	1.59	1.30	1.04	2,407
Lane 1 - 9' Right	4+13	1	12,874	7.72	3.41	2.37	1.86	1.52	0.35	0.99	1,668
Lane 3 - 27' Left	4+50	1	12,786	6.28	3.32	2.37	1.90	1.54	1.24	1.03	2,036
Lane 2 - 9' Left	4+51	1	12,726	7.26	3.71	2.64	1.86	1.55	1.17	0.98	1,753
Lane 1 - 9' Right	5+00	1	12,853	5.57	3.20	2.75	2.28	1.99	1.57	1.41	2,308
Lane 2 - 9' Left	5+51	1	12,773	5.30	3.11	2.58	1.98	1.76	1.39	1.22	2,410
Lane 4 - 27' Left	6+01	1	12,781	5.15	3.08	2.53	2.08	1.78	1.44	1.30	2,482
Lane 1 - 9' Right	6+02	1	12,866	4.69	2.66	2.25	1.97	1.67	1.38	1.14	2,743
Lane 3 - 27' Right	6+50	1	12,805	5.32	2.86	2.17	1.91	1.65	1.35	1.09	2,407
Lane 2 - 9' Left	6+52	1	12,734	5.71	3.12	2.56	2.00	1.74	1.50	1.28	2,230
Lane 1 - 9' Right	7+03	1	12,789	6.35	2.97	2.29	1.89	1.72	1.30	1.04	2,014
Lane 2 - 9' Left	7+53	1	12,699	6.56	3.22	2.49	1.97	1.75	1.41	1.25	1,936
Lane 1 - 9' Right	8+01	1	12,778	4.32	2.29	1.74	1.43	1.31	1.07	0.91	2,958
Lane 4 - 27' Left	8+01	1	12,758	5.48	3.04	2.49	2.03	1.82	1.54	1.33	2,328
Lane 3 - 27' Right	8+50	1	12,750	5.20	2.82	2.15	1.80	1.55	1.21	1.01	2,452

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	8+63	1	12,715	6.87	3.53	2.35	1.80	1.48	1.22	0.99	1,851
Lane 1 - 9' Right	9+00	1	12,778	4.92	2.01	1.71	1.47	1.32	1.06	0.98	2,597
Lane 2 - 9' Left	9+50	1	12,710	5.34	2.62	2.04	1.62	1.38	1.13	1.03	2,380
Lane 4 - 27' Left	10+01	1	12,742	5.35	2.63	2.13	1.77	1.52	1.27	1.07	2,382
Lane 1 - 9' Right	10+03	1	12,810	4.66	1.88	1.58	1.36	1.21	1.09	0.94	2,749
Lane 2 - 9' Left	10+50	1	12,678	5.87	2.76	1.87	1.52	1.33	1.10	0.89	2,160
Lane 3 - 27' Right	10+50	1	12,723	6.06	3.39	2.39	1.93	1.56	1.26	1.01	2,100
Lane 1 - 9' Right	11+00	1	12,786	5.86	2.69	1.91	1.44	1.17	0.99	0.92	2,182
Lane 2 - 9' Left	11+51	1	12,723	5.38	2.81	2.11	1.46	1.40	1.12	1.07	2,365
Lane 1 - 9' Right	12+00	1	12,773	7.32	3.31	2.10	1.45	1.19	1.04	0.93	1,745
Lane 4 - 27' Left	12+00	1	12,683	7.13	3.33	2.54	2.06	1.77	1.44	1.19	1,779
Lane 2 - 9' Left	12+51	1	12,718	6.98	2.98	2.24	1.60	1.39	1.15	1.04	1,822
Lane 3 - 27' Right	12+59	1	12,766	5.69	2.66	2.07	1.76	1.46	1.22	1.00	2,244
Lane 1 - 9' Right	13+00	1	12,739	6.01	2.56	1.68	1.34	1.25	1.06	0.93	2,120
Lane 2 - 9' Left	13+52	1	12,691	6.12	3.02	2.19	1.67	1.56	1.17	0.95	2,074
Lane 1 - 9' Right	14+00	1	12,805	6.48	2.76	1.86	1.42	1.38	1.08	0.93	1,976
Lane 4 - 27' Left	14+04	1	12,750	6.56	3.65	2.93	2.46	2.07	1.67	1.41	1,944
Lane 2 - 9' Left	14+49	1	12,707	6.24	3.15	2.25	1.70	1.41	1.15	0.96	2,036
Lane 3 - 27' Right	14+51	1	12,739	6.10	3.40	2.49	2.16	1.81	1.46	1.15	2,088
Lane 1 - 9' Right	14+99	1	12,762	6.62	3.34	2.12	1.50	1.24	1.01	0.83	1,928
Lane 2 - 9' Left	15+52	1	12,758	6.49	3.57	2.43	1.85	1.52	1.22	0.99	1,966
Lane 4 - 27' Left	16+00	1	12,773	6.04	3.30	2.52	2.11	1.73	1.42	1.08	2,115
Lane 1 - 9' Right	16+02	1	12,750	7.81	4.02	2.54	1.69	1.33	1.19	0.93	1,633
Lane 2 - 9' Left	16+54	1	12,710	6.15	3.18	2.15	1.64	1.36	1.08	0.80	2,067
Lane 3 - 27' Right	16+68	1	12,702	7.70	4.36	3.02	2.38	1.92	1.52	1.15	1,650
Lane 1 - 9' Right	16+99	1	12,762	6.26	3.09	2.32	1.84	1.57	1.20	0.94	2,039
Lane 2 - 9' Left	17+50	1	12,726	6.63	3.41	2.22	1.70	1.44	1.11	0.89	1,919

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 27' Left	18+00	1	12,739	5.81	3.04	2.22	1.77	1.54	1.15	0.95	2,193
Lane 1 - 9' Right	18+03	1	12,781	5.94	2.88	2.14	1.68	1.47	1.24	1.04	2,152
Lane 3 - 27' Right	18+51	1	12,718	7.65	3.94	2.75	2.15	1.68	1.35	1.04	1,662
Lane 2 - 9' Left	18+53	1	12,746	5.76	2.93	2.26	1.80	1.58	1.27	0.99	2,213
Lane 1 - 9' Right	19+02	1	12,773	5.95	3.18	2.37	1.86	1.50	1.15	0.96	2,147
Lane 2 - 9' Left	19+50	1	12,742	5.74	3.20	2.44	1.93	1.59	1.21	1.05	2,220
Lane 4 - 27' Left	20+00	1	12,766	4.69	2.50	1.97	1.63	1.47	1.19	0.90	2,722
Lane 1 - 9' Right	20+02	1	12,739	7.31	3.63	2.78	2.11	1.81	1.33	1.08	1,743
Lane 2 - 9' Left	20+50	1	12,758	6.11	3.44	2.61	2.11	1.76	1.40	1.11	2,088
Lane 3 - 27' Right	20+50	1	12,686	7.87	3.98	2.71	2.07	1.74	1.35	1.09	1,612
Lane 1 - 9' Right	21+00	1	12,770	6.33	3.61	2.81	2.30	1.88	1.53	1.15	2,017
Lane 2 - 9' Left	21+50	1	12,702	5.72	3.25	2.64	2.00	1.70	1.30	1.34	2,221
Lane 1 - 9' Right	22+00	1	12,750	7.57	4.04	3.02	2.42	1.92	1.58	1.23	1,684
Lane 4 - 27' Left	22+00	1	12,723	7.04	4.02	2.80	2.19	1.74	1.41	1.13	1,807
Lane 2 - 9' Left	22+50	1	12,627	6.17	3.33	2.48	1.96	1.67	1.33	1.15	2,047
Lane 3 - 27' Right	22+50	1	12,619	6.57	4.32	3.39	2.71	2.26	1.84	1.48	1,921
Lane 1 - 9' Right	23+01	1	12,718	7.15	3.88	3.17	2.48	2.09	1.63	1.37	1,779
Lane 2 - 9' Left	23+50	1	12,651	6.67	3.59	2.64	2.11	1.72	1.40	1.08	1,897
Lane 1 - 9' Right	23+99	1	12,754	6.37	3.30	2.53	2.13	1.78	1.46	1.19	2,002
Lane 4 - 27' Left	24+00	1	12,758	6.84	3.91	2.91	2.34	2.01	1.56	1.27	1,865
Lane 3 - 27' Right	24+50	1	12,742	5.79	3.49	2.73	2.29	1.91	1.59	1.28	2,201
Lane 2 - 9' Left	24+51	1	12,635	7.39	3.51	2.48	2.01	1.78	1.38	1.11	1,710
Lane 1 - 9' Right	24+99	1	12,731	7.55	3.95	3.12	2.57	2.10	1.69	1.34	1,686
Lane 2 - 9' Left	25+50	1	12,646	8.12	3.60	2.58	2.11	1.76	1.38	1.02	1,557
Lane 1 - 9' Right	25+99	1	12,723	7.81	3.50	2.72	2.16	1.88	1.48	1.14	1,629
Lane 4 - 27' Left	26+01	1	12,667	7.19	4.35	3.51	2.89	2.48	2.01	1.57	1,762
Lane 2 - 9' Left	26+50	1	12,675	7.47	3.93	2.71	2.04	1.64	1.25	0.96	1,697

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	26+50	1	12,731	8.16	4.36	3.22	2.69	2.17	1.76	1.37	1,560
Lane 1 - 9' Right	27+02	1	12,723	7.40	4.23	3.10	2.46	2.09	1.72	1.46	1,719
Lane 2 - 9' Left	27+54	1	12,670	6.58	3.39	2.61	2.01	1.72	1.26	1.08	1,926
Lane 1 - 9' Right	28+00	1	12,667	8.99	4.68	3.16	2.33	1.83	1.40	1.13	1,409
Lane 4 - 27' Left	28+00	1	12,702	5.80	3.15	2.17	1.65	1.27	1.02	0.78	2,190
Lane 3 - 27' Right	28+50	1	12,715	7.66	3.52	2.09	1.57	1.27	0.96	0.74	1,660
Lane 2 - 9' Left	28+51	1	12,686	6.27	2.87	1.90	1.46	1.14	0.88	0.70	2,023
Lane 1 - 9' Right	29+02	1	12,683	5.24	2.22	1.63	1.32	1.06	0.83	0.71	2,420
Lane 2 - 9' Left	29+49	1	12,638	6.60	3.43	2.28	1.67	1.41	1.00	0.86	1,915
Lane 1 - 9' Right	30+01	1	12,623	8.21	3.68	2.58	1.79	1.44	1.09	0.89	1,538
Lane 4 - 27' Left	30+03	1	12,662	6.63	3.61	2.44	1.87	1.69	1.27	0.97	1,910
Lane 3 - 27' Right	30+50	1	12,707	7.65	3.77	2.71	2.19	1.76	1.47	1.21	1,661
Lane 2 - 9' Left	30+52	1	12,638	7.10	3.96	2.83	2.23	1.96	1.59	1.41	1,780
Lane 1 - 9' Right	31+01	1	12,630	9.65	4.67	2.99	2.46	2.02	1.69	1.39	1,309
Lane 2 - 9' Left	31+50	1	12,675	6.84	3.54	2.46	2.03	1.72	1.39	1.19	1,853
Lane 1 - 9' Right	32+00	1	12,638	7.11	3.63	2.53	1.98	1.58	1.33	1.09	1,777
Lane 4 - 27' Left	32+00	1	12,683	6.24	3.72	2.81	2.31	1.94	1.61	1.37	2,033
Lane 2 - 9' Left	32+50	1	12,667	5.77	3.02	2.23	1.73	1.60	1.22	1.02	2,195
Lane 3 - 27' Right	32+53	1	12,781	7.23	4.00	2.87	2.26	1.78	1.44	1.18	1,768
Lane 1 - 9' Right	33+00	1	12,623	7.48	3.79	2.83	2.19	1.85	1.51	1.18	1,688
Lane 2 - 9' Left	33+50	1	12,607	8.67	4.59	3.11	2.44	2.04	1.67	1.45	1,454
Lane 1 - 9' Right	34+03	1	12,611	7.97	4.68	3.58	2.83	2.22	1.75	1.30	1,582
Lane 2 - 9' Left	34+50	1	12,596	7.73	4.07	2.96	2.30	1.93	1.45	1.15	1,629
Lane 3 - 27' Right	34+56	1	12,742	6.07	3.56	2.54	1.98	1.56	1.25	0.95	2,099
Lane 1 - 9' Right	35+02	1	12,588	8.10	4.25	3.06	2.41	1.93	1.50	1.18	1,554
Lane 2 - 9' Left	35+51	1	12,662	6.31	3.40	2.44	2.01	1.59	1.29	1.02	2,007
Lane 4 - 27' Left	36+02	1	12,691	5.63	3.31	2.50	2.07	1.72	1.41	1.18	2,254

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	36+04	1	12,638	7.22	4.38	3.50	2.85	2.41	1.96	1.65	1,750
Lane 2 - 9' Left	36+50	1	12,615	6.50	3.66	2.63	2.13	1.71	1.35	1.08	1,941
Lane 3 - 27' Right	36+50	1	12,750	5.77	3.69	2.93	2.48	2.11	1.81	1.52	2,210
Lane 1 - 9' Right	37+02	1	12,619	8.07	4.42	3.36	2.63	2.33	1.86	1.62	1,564
Lane 2 - 9' Left	37+49	1	12,615	7.81	4.59	3.38	2.59	2.21	1.80	1.49	1,615
Lane 1 - 9' Right	37+95	1	12,543	10.50	5.32	3.76	3.01	2.52	2.04	1.71	1,195
Lane 4 - 27' Left	37+98	1	12,715	7.35	4.53	3.37	2.78	2.36	1.99	1.71	1,730
Lane 1 - 9' Right	0+09	2	18,175	2.65	2.46	2.31	2.14	1.98	1.79	1.61	6,858
Lane 4 - 27' Left	0+10	2	17,926	2.52	2.39	2.22	2.09	1.89	1.78	1.54	7,113
Lane 2 - 9' Left	0+50	2	17,958	2.27	2.04	1.92	1.84	1.72	1.59	1.46	7,911
Lane 3 - 27' Left	0+53	2	17,965	2.61	2.41	2.26	2.13	1.98	1.73	1.69	6,883
Lane 1 - 9' Right	1+09	2	18,093	2.65	2.50	2.35	2.23	2.13	1.89	1.72	6,828
Lane 2 - 9' Left	1+49	2	17,905	2.57	2.41	2.28	2.15	1.96	1.83	1.61	6,967
Lane 4 - 27' Left	2+09	2	18,013	2.18	1.99	1.84	1.83	1.62	1.55	1.43	8,263
Lane 1 - 9' Right	2+10	2	18,061	2.56	2.34	2.15	2.09	2.11	1.87	1.69	7,055
Lane 2 - 9' Left	2+50	2	17,937	2.39	2.23	2.04	1.96	1.80	1.70	1.48	7,505
Lane 3 - 27' Left	2+51	2	17,937	2.63	2.37	2.22	2.11	1.95	1.78	1.57	6,820
Lane 1 - 9' Right	3+13	2	17,942	7.08	3.04	1.92	1.54	1.34	1.16	1.05	2,534
Lane 2 - 9' Left	3+51	2	17,730	9.92	5.39	3.51	2.71	2.18	1.80	1.37	1,787
Lane 4 - 27' Left	4+00	2	17,722	7.46	4.57	3.42	2.79	2.27	1.83	1.40	2,376
Lane 1 - 9' Right	4+13	2	17,905	10.71	4.94	3.50	2.74	2.22	1.78	1.37	1,672
Lane 3 - 27' Left	4+50	2	17,810	8.88	4.73	3.33	2.70	2.17	1.78	1.39	2,006
Lane 2 - 9' Left	4+51	2	17,751	10.14	5.32	3.49	2.82	2.19	1.85	1.34	1,751
Lane 1 - 9' Right	5+00	2	17,878	7.88	4.56	3.92	3.26	2.78	2.28	1.93	2,269
Lane 2 - 9' Left	5+51	2	17,794	7.44	4.26	3.30	2.91	2.37	2.04	1.59	2,392
Lane 4 - 27' Left	6+01	2	17,850	7.23	4.32	3.37	3.03	2.56	2.14	1.60	2,469
Lane 1 - 9' Right	6+02	2	17,905	6.59	3.78	3.20	2.77	2.37	1.98	1.61	2,717

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	6+50	2	17,857	7.50	4.02	3.15	2.68	2.28	1.89	1.54	2,381
Lane 2 - 9' Left	6+52	2	17,738	8.05	4.43	3.51	3.06	2.51	2.13	1.68	2,203
Lane 1 - 9' Right	7+03	2	17,786	8.78	4.26	3.30	2.73	2.35	1.89	1.51	2,026
Lane 2 - 9' Left	7+53	2	17,730	9.21	4.55	3.43	2.84	2.45	1.98	1.58	1,925
Lane 1 - 9' Right	8+01	2	17,810	6.12	3.25	2.47	2.05	1.83	1.49	1.27	2,910
Lane 4 - 27' Left	8+01	2	17,815	7.64	4.22	3.26	2.89	2.54	2.06	1.59	2,332
Lane 3 - 27' Right	8+50	2	17,794	7.30	3.97	3.00	2.54	2.13	1.73	1.41	2,438
Lane 2 - 9' Left	8+63	2	17,767	9.65	5.03	3.33	2.65	2.12	1.74	1.40	1,841
Lane 1 - 9' Right	9+00	2	17,834	6.81	2.85	2.38	2.11	1.85	1.57	1.38	2,619
Lane 2 - 9' Left	9+50	2	17,775	7.49	3.72	2.74	2.35	1.95	1.74	1.39	2,373
Lane 4 - 27' Left	10+01	2	17,759	7.41	3.63	2.86	2.52	2.10	1.78	1.46	2,397
Lane 1 - 9' Right	10+03	2	17,818	6.35	2.63	2.18	1.92	1.68	1.47	1.27	2,806
Lane 2 - 9' Left	10+50	2	17,738	8.29	4.00	2.75	2.24	1.85	1.56	1.31	2,140
Lane 3 - 27' Right	10+50	2	17,754	8.47	4.74	3.40	2.71	2.22	1.80	1.43	2,096
Lane 1 - 9' Right	11+00	2	17,810	8.12	3.87	2.71	2.05	1.65	1.40	1.24	2,193
Lane 2 - 9' Left	11+51	2	17,762	7.58	3.98	2.71	2.34	1.89	1.54	1.18	2,343
Lane 1 - 9' Right	12+00	2	17,762	10.10	4.72	3.02	2.09	1.73	1.48	1.31	1,759
Lane 4 - 27' Left	12+00	2	17,746	9.89	4.56	3.44	2.88	2.45	1.97	1.57	1,794
Lane 2 - 9' Left	12+51	2	17,722	9.70	4.23	3.11	2.37	1.96	1.64	1.37	1,827
Lane 3 - 27' Right	12+59	2	17,815	7.85	3.69	2.92	2.47	2.08	1.72	1.43	2,269
Lane 1 - 9' Right	13+00	2	17,770	8.44	3.65	2.41	1.95	1.74	1.52	1.30	2,105
Lane 2 - 9' Left	13+52	2	17,754	8.59	4.32	3.01	2.44	2.00	1.65	1.34	2,067
Lane 1 - 9' Right	14+00	2	17,815	8.93	3.90	2.62	2.01	1.87	1.54	1.28	1,995
Lane 4 - 27' Left	14+04	2	17,818	9.22	5.07	4.06	3.43	2.84	2.35	1.92	1,933
Lane 2 - 9' Left	14+49	2	17,775	8.71	4.50	3.06	2.48	1.98	1.63	1.30	2,041
Lane 3 - 27' Right	14+51	2	17,870	8.52	4.84	3.68	3.03	2.52	2.04	1.71	2,097
Lane 1 - 9' Right	14+99	2	17,775	9.32	4.77	3.06	2.16	1.70	1.43	1.18	1,907

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	15+52	2	17,767	9.17	5.14	3.56	2.74	2.20	1.74	1.43	1,938
Lane 4 - 27' Left	16+00	2	17,830	8.33	4.57	3.49	2.90	2.38	1.95	1.54	2,140
Lane 1 - 9' Right	16+02	2	17,799	11.01	5.74	3.61	2.48	1.93	1.63	1.26	1,617
Lane 2 - 9' Left	16+54	2	17,775	8.69	4.58	3.09	2.39	1.91	1.51	1.20	2,045
Lane 3 - 27' Right	16+68	2	17,743	10.71	6.05	4.24	3.37	2.64	2.13	1.65	1,657
Lane 1 - 9' Right	16+99	2	17,791	8.87	4.37	3.26	2.63	2.20	1.69	1.32	2,006
Lane 2 - 9' Left	17+50	2	17,786	9.26	4.84	3.15	2.47	1.99	1.58	1.27	1,921
Lane 4 - 27' Left	18+00	2	17,850	8.09	4.23	3.15	2.50	2.07	1.61	1.34	2,206
Lane 1 - 9' Right	18+03	2	17,822	8.23	4.04	3.00	2.41	2.11	1.70	1.39	2,165
Lane 3 - 27' Right	18+51	2	17,770	10.62	5.51	3.88	2.98	2.35	1.87	1.45	1,673
Lane 2 - 9' Left	18+53	2	17,810	8.02	4.17	3.18	2.64	2.17	1.74	1.40	2,221
Lane 1 - 9' Right	19+02	2	17,818	8.43	4.49	3.37	2.66	2.11	1.65	1.33	2,114
Lane 2 - 9' Left	19+50	2	17,783	8.00	4.51	3.40	2.80	2.28	1.87	1.35	2,223
Lane 4 - 27' Left	20+00	2	17,810	6.49	3.55	2.77	2.30	1.94	1.53	1.26	2,744
Lane 1 - 9' Right	20+02	2	17,746	10.07	5.09	3.93	3.07	2.48	1.92	1.49	1,762
Lane 2 - 9' Left	20+50	2	17,815	8.53	4.81	3.68	3.00	2.45	1.95	1.49	2,089
Lane 3 - 27' Right	20+50	2	17,746	10.80	5.48	3.76	2.89	2.37	1.86	1.52	1,643
Lane 1 - 9' Right	21+00	2	17,791	8.81	5.11	4.04	3.30	2.70	2.13	1.64	2,019
Lane 2 - 9' Left	21+50	2	17,783	8.00	4.59	3.57	2.99	2.46	1.94	1.48	2,223
Lane 1 - 9' Right	22+00	2	17,767	10.37	5.73	4.34	3.49	2.74	2.28	1.72	1,713
Lane 4 - 27' Left	22+00	2	17,802	9.67	5.56	3.88	3.04	2.37	1.96	1.54	1,841
Lane 2 - 9' Left	22+50	2	17,687	8.62	4.78	3.48	2.85	2.29	1.85	1.37	2,052
Lane 3 - 27' Right	22+50	2	17,691	9.00	5.99	4.73	3.81	3.15	2.56	1.97	1,966
Lane 1 - 9' Right	23+01	2	17,759	10.03	5.56	4.41	3.64	2.95	2.37	1.79	1,771
Lane 2 - 9' Left	23+50	2	17,683	9.35	5.13	3.85	3.12	2.52	2.04	1.53	1,891
Lane 1 - 9' Right	23+99	2	17,791	9.06	4.76	3.69	3.07	2.59	2.09	1.68	1,964
Lane 4 - 27' Left	24+00	2	17,807	9.44	5.39	4.04	3.25	2.68	2.20	1.74	1,886

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	24+50	2	17,815	8.02	4.81	3.79	3.15	2.67	2.13	1.75	2,221
Lane 2 - 9' Left	24+51	2	17,680	10.11	5.03	3.57	2.96	2.36	1.95	1.56	1,749
Lane 1 - 9' Right	24+99	2	17,783	10.46	5.64	4.45	3.71	3.03	2.41	1.88	1,700
Lane 2 - 9' Left	25+50	2	17,703	11.14	5.13	3.76	3.07	2.54	1.99	1.54	1,589
Lane 1 - 9' Right	25+99	2	17,735	10.93	5.07	3.85	3.18	2.66	2.18	1.66	1,623
Lane 4 - 27' Left	26+01	2	17,738	9.91	5.95	4.77	4.00	3.35	2.66	2.04	1,790
Lane 2 - 9' Left	26+50	2	17,719	10.56	5.66	3.83	2.94	2.25	1.81	1.31	1,678
Lane 3 - 27' Right	26+50	2	17,778	10.95	6.02	4.53	3.67	3.00	2.41	1.90	1,624
Lane 1 - 9' Right	27+02	2	17,738	10.32	6.06	4.35	3.48	2.91	2.38	1.92	1,719
Lane 2 - 9' Left	27+54	2	17,775	9.20	4.79	3.69	2.99	2.42	1.92	1.50	1,932
Lane 1 - 9' Right	28+00	2	17,648	12.47	6.67	4.55	3.36	2.63	2.03	1.56	1,415
Lane 4 - 27' Left	28+00	2	17,810	8.04	4.46	3.17	2.34	1.82	1.42	1.11	2,215
Lane 3 - 27' Right	28+50	2	17,802	10.55	4.92	3.06	2.23	1.70	1.36	1.06	1,687
Lane 2 - 9' Left	28+51	2	17,719	8.78	4.20	2.83	2.14	1.64	1.27	1.06	2,018
Lane 1 - 9' Right	29+02	2	17,743	7.30	3.13	2.31	1.85	1.48	1.20	0.96	2,431
Lane 2 - 9' Left	29+49	2	17,683	9.35	5.06	3.32	2.48	1.96	1.44	1.07	1,891
Lane 1 - 9' Right	30+01	2	17,672	11.48	5.64	3.22	2.71	2.31	1.79	1.36	1,539
Lane 4 - 27' Left	30+03	2	17,743	9.14	5.02	3.48	2.68	2.19	1.77	1.38	1,941
Lane 3 - 27' Right	30+50	2	17,719	10.39	5.28	3.86	3.01	2.44	2.02	1.61	1,705
Lane 2 - 9' Left	30+52	2	17,683	10.13	5.64	4.07	3.24	2.70	2.22	1.90	1,746
Lane 1 - 9' Right	31+01	2	17,648	13.18	6.67	4.35	3.59	2.89	2.35	1.91	1,339
Lane 2 - 9' Left	31+50	2	17,735	9.69	5.15	3.69	2.96	2.50	2.00	1.70	1,830
Lane 1 - 9' Right	32+00	2	17,659	9.88	5.25	3.72	2.91	2.30	1.91	1.50	1,787
Lane 4 - 27' Left	32+00	2	17,778	8.66	5.15	3.90	3.20	2.67	2.20	1.83	2,053
Lane 2 - 9' Left	32+50	2	17,762	8.24	4.28	3.12	2.50	2.09	1.73	1.45	2,156
Lane 3 - 27' Right	32+53	2	17,778	10.11	5.64	4.14	3.23	2.57	2.05	1.67	1,758
Lane 1 - 9' Right	33+00	2	17,656	10.73	5.67	4.16	3.33	2.71	2.16	1.69	1,645

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	33+50	2	17,659	12.41	6.80	4.65	3.65	3.07	2.56	2.09	1,423
Lane 1 - 9' Right	34+03	2	17,640	11.35	6.69	5.15	4.11	3.23	2.56	1.89	1,554
Lane 2 - 9' Left	34+50	2	17,643	10.81	5.88	4.31	3.39	2.71	2.13	1.72	1,632
Lane 3 - 27' Right	34+56	2	17,783	8.55	5.06	3.65	2.83	2.26	1.67	1.36	2,080
Lane 1 - 9' Right	35+02	2	17,548	11.68	6.22	4.51	3.57	2.83	2.18	1.66	1,502
Lane 2 - 9' Left	35+51	2	17,719	9.08	4.98	3.68	2.96	2.37	1.94	1.53	1,951
Lane 4 - 27' Left	36+02	2	17,754	7.89	4.63	3.53	2.90	2.44	1.97	1.66	2,250
Lane 1 - 9' Right	36+04	2	17,648	10.23	6.30	5.03	4.19	3.52	2.88	2.35	1,725
Lane 2 - 9' Left	36+50	2	17,659	9.25	5.31	3.91	3.15	2.49	2.00	1.57	1,909
Lane 3 - 27' Right	36+50	2	17,822	8.01	5.18	4.13	3.48	2.96	2.52	2.11	2,225
Lane 1 - 9' Right	37+02	2	17,635	11.48	6.43	4.77	4.01	3.22	2.84	2.32	1,536
Lane 2 - 9' Left	37+49	2	17,730	11.31	6.75	4.89	3.97	3.26	2.66	2.16	1,568
Lane 1 - 9' Right	37+95	2	17,571	14.34	7.57	5.47	4.35	3.58	2.90	2.40	1,225
Lane 4 - 27' Left	37+98	2	17,746	10.11	6.27	4.70	3.88	3.30	2.78	2.30	1,755
Lane 1 - 9' Right	0+09	3	23,617	3.36	3.15	2.92	2.69	2.50	2.26	2.03	7,029
Lane 4 - 27' Left	0+10	3	23,505	3.37	3.07	2.77	2.69	2.44	2.38	1.99	6,975
Lane 2 - 9' Left	0+50	3	23,466	2.93	2.64	2.46	2.35	2.16	2.04	1.89	8,009
Lane 3 - 27' Left	0+53	3	23,526	3.24	3.11	2.89	2.70	2.46	2.28	2.13	7,261
Lane 1 - 9' Right	1+09	3	23,550	3.41	3.21	3.02	2.83	2.67	2.41	2.22	6,906
Lane 2 - 9' Left	1+49	3	23,466	3.53	3.11	2.90	2.77	2.56	2.29	2.03	6,648
Lane 4 - 27' Left	2+09	3	23,621	2.79	2.56	2.34	2.28	2.11	1.96	1.86	8,466
Lane 1 - 9' Right	2+10	3	23,534	3.19	2.99	2.80	2.66	2.48	2.39	2.16	7,377
Lane 2 - 9' Left	2+50	3	23,490	3.15	2.84	2.61	2.49	2.28	2.07	1.89	7,457
Lane 3 - 27' Left	2+51	3	23,494	3.32	3.04	2.87	2.67	2.49	2.24	2.06	7,077
Lane 1 - 9' Right	3+13	3	23,375	8.95	3.83	2.50	1.98	1.71	1.49	1.31	2,612
Lane 2 - 9' Left	3+51	3	23,204	13.09	7.18	4.76	3.63	2.89	2.36	1.84	1,773
Lane 4 - 27' Left	4+00	3	23,219	9.93	6.02	4.51	3.65	2.93	2.36	1.87	2,338

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	4+13	3	23,212	13.93	6.57	4.60	3.66	2.91	2.33	1.77	1,666
Lane 3 - 27' Left	4+50	3	23,320	11.58	6.28	4.48	3.59	2.87	2.33	1.87	2,014
Lane 2 - 9' Left	4+51	3	23,227	13.35	7.05	4.83	3.71	2.83	2.34	1.78	1,740
Lane 1 - 9' Right	5+00	3	23,335	10.70	6.00	5.06	4.32	3.64	3.03	2.43	2,181
Lane 2 - 9' Left	5+51	3	23,280	9.80	5.70	4.47	3.77	3.13	2.61	2.12	2,376
Lane 4 - 27' Left	6+01	3	23,399	9.42	5.58	4.63	3.85	3.24	2.67	2.20	2,484
Lane 1 - 9' Right	6+02	3	23,367	8.56	5.03	4.26	3.67	3.11	2.60	2.13	2,730
Lane 3 - 27' Right	6+50	3	23,351	9.70	5.27	4.16	3.52	2.91	2.45	2.03	2,407
Lane 2 - 9' Left	6+52	3	23,216	10.55	5.82	4.65	3.94	3.28	2.77	2.24	2,201
Lane 1 - 9' Right	7+03	3	23,243	11.41	5.62	4.36	3.61	3.00	2.47	1.98	2,037
Lane 2 - 9' Left	7+53	3	23,232	11.92	5.99	4.64	3.74	3.12	2.59	2.09	1,949
Lane 1 - 9' Right	8+01	3	23,331	7.93	4.28	3.29	2.71	2.37	1.95	1.65	2,942
Lane 4 - 27' Left	8+01	3	23,367	9.94	5.43	4.28	3.70	3.20	2.70	2.20	2,351
Lane 3 - 27' Right	8+50	3	23,323	9.49	5.22	4.00	3.31	2.72	2.31	1.83	2,458
Lane 2 - 9' Left	8+63	3	23,248	12.60	6.58	4.52	3.48	2.78	2.32	1.87	1,845
Lane 1 - 9' Right	9+00	3	23,312	8.76	3.70	3.09	2.70	2.37	2.02	1.74	2,661
Lane 2 - 9' Left	9+50	3	23,299	9.81	4.86	3.59	3.03	2.54	2.28	1.83	2,375
Lane 4 - 27' Left	10+01	3	23,307	9.65	4.72	3.78	3.20	2.71	2.26	1.91	2,415
Lane 1 - 9' Right	10+03	3	23,304	8.28	3.43	2.85	2.51	2.19	1.90	1.65	2,814
Lane 2 - 9' Left	10+50	3	23,232	10.89	5.30	3.57	3.04	2.48	2.07	1.72	2,133
Lane 3 - 27' Right	10+50	3	23,304	11.00	6.22	4.51	3.56	2.87	2.35	1.85	2,119
Lane 1 - 9' Right	11+00	3	23,291	10.65	5.13	3.55	2.69	2.16	1.80	1.52	2,187
Lane 2 - 9' Left	11+51	3	23,264	10.01	5.29	3.76	2.98	2.47	2.08	1.70	2,324
Lane 1 - 9' Right	12+00	3	23,208	13.02	6.26	3.93	2.74	2.22	1.90	1.64	1,782
Lane 4 - 27' Left	12+00	3	23,219	12.68	5.89	4.49	3.70	3.08	2.54	2.06	1,831
Lane 2 - 9' Left	12+51	3	23,232	12.68	5.60	4.00	3.18	2.59	2.15	1.80	1,832
Lane 3 - 27' Right	12+59	3	23,351	10.15	4.79	3.81	3.20	2.69	2.24	1.83	2,301

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	13+00	3	23,235	11.05	4.87	3.22	2.57	2.32	2.02	1.67	2,103
Lane 2 - 9' Left	13+52	3	23,280	11.25	5.76	4.07	3.22	2.56	2.16	1.77	2,069
Lane 1 - 9' Right	14+00	3	23,259	11.52	5.15	3.42	2.65	2.33	1.99	1.69	2,019
Lane 4 - 27' Left	14+04	3	23,327	11.86	6.51	5.20	4.44	3.63	3.01	2.41	1,967
Lane 2 - 9' Left	14+49	3	23,264	11.41	5.94	4.16	3.30	2.61	2.16	1.72	2,039
Lane 3 - 27' Right	14+51	3	23,323	11.07	6.29	4.75	4.00	3.28	2.66	2.10	2,107
Lane 1 - 9' Right	14+99	3	23,227	12.29	6.39	4.14	2.91	2.24	1.89	1.50	1,890
Lane 2 - 9' Left	15+52	3	23,272	12.17	6.89	4.81	3.72	2.93	2.33	1.88	1,912
Lane 4 - 27' Left	16+00	3	23,402	10.83	5.91	4.52	3.75	3.09	2.52	1.99	2,161
Lane 1 - 9' Right	16+02	3	23,219	14.32	7.63	4.84	3.27	2.55	2.14	1.66	1,621
Lane 2 - 9' Left	16+54	3	23,267	11.47	6.08	4.17	3.20	2.51	2.00	1.51	2,029
Lane 3 - 27' Right	16+68	3	23,259	13.85	7.88	5.52	4.32	3.43	2.74	2.14	1,679
Lane 1 - 9' Right	16+99	3	23,304	11.50	5.76	4.43	3.51	2.89	2.24	1.74	2,026
Lane 2 - 9' Left	17+50	3	23,256	12.12	6.37	4.24	3.26	2.56	2.06	1.66	1,919
Lane 4 - 27' Left	18+00	3	23,370	10.59	5.49	4.07	3.24	2.59	2.10	1.74	2,207
Lane 1 - 9' Right	18+03	3	23,304	10.63	5.30	3.99	3.15	2.68	2.23	1.82	2,192
Lane 3 - 27' Right	18+51	3	23,224	13.70	7.19	5.07	3.90	3.03	2.45	1.90	1,695
Lane 2 - 9' Left	18+53	3	23,327	10.51	5.48	4.24	3.46	2.82	2.30	1.85	2,220
Lane 1 - 9' Right	19+02	3	23,296	10.86	5.86	4.42	3.50	2.74	2.12	1.71	2,145
Lane 2 - 9' Left	19+50	3	23,335	10.48	5.96	4.41	3.72	2.99	2.39	1.96	2,227
Lane 4 - 27' Left	20+00	3	23,394	8.54	4.63	3.64	3.01	2.46	2.02	1.64	2,739
Lane 1 - 9' Right	20+02	3	23,243	13.05	6.68	5.05	4.04	3.17	2.52	1.95	1,781
Lane 2 - 9' Left	20+50	3	23,320	11.13	6.31	4.89	3.94	3.23	2.60	2.01	2,095
Lane 3 - 27' Right	20+50	3	23,232	13.92	7.07	4.78	3.72	2.97	2.39	1.94	1,669
Lane 1 - 9' Right	21+00	3	23,296	11.46	6.70	5.33	4.35	3.55	2.82	2.16	2,033
Lane 2 - 9' Left	21+50	3	23,312	10.63	6.09	4.79	3.96	3.23	2.61	2.17	2,193
Lane 1 - 9' Right	22+00	3	23,251	13.51	7.54	5.78	4.61	3.66	2.97	2.31	1,721

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 27' Left	22+00	3	23,331	12.53	7.15	5.02	3.96	3.09	2.51	1.96	1,862
Lane 2 - 9' Left	22+50	3	23,180	11.35	6.31	4.71	3.80	3.06	2.52	1.93	2,042
Lane 3 - 27' Right	22+50	3	23,132	11.80	7.72	6.00	4.90	4.02	3.26	2.60	1,960
Lane 1 - 9' Right	23+01	3	23,216	13.06	7.36	5.93	4.83	3.95	3.15	2.48	1,778
Lane 2 - 9' Left	23+50	3	23,232	12.31	6.86	5.14	4.17	3.41	2.75	2.14	1,887
Lane 1 - 9' Right	23+99	3	23,283	11.85	6.33	4.94	4.13	3.42	2.77	2.20	1,965
Lane 4 - 27' Left	24+00	3	23,327	12.24	6.96	5.22	4.20	3.44	2.81	2.29	1,906
Lane 3 - 27' Right	24+50	3	23,343	10.31	6.23	4.94	4.11	3.44	2.79	2.29	2,264
Lane 2 - 9' Left	24+51	3	23,208	13.10	6.68	4.85	3.94	3.21	2.61	2.11	1,772
Lane 1 - 9' Right	24+99	3	23,259	13.50	7.44	5.93	4.91	4.01	3.18	2.52	1,723
Lane 2 - 9' Left	25+50	3	23,188	14.37	6.85	5.05	4.13	3.43	2.70	2.04	1,614
Lane 1 - 9' Right	25+99	3	23,208	14.21	6.81	5.20	4.32	3.56	2.89	2.27	1,633
Lane 4 - 27' Left	26+01	3	23,288	12.87	7.70	6.22	5.17	4.24	3.39	2.74	1,809
Lane 2 - 9' Left	26+50	3	23,243	13.96	7.63	5.35	4.00	3.08	2.39	1.82	1,665
Lane 3 - 27' Right	26+50	3	23,243	14.20	7.80	5.88	4.83	3.90	3.17	2.48	1,637
Lane 1 - 9' Right	27+02	3	23,251	13.59	8.11	5.83	4.67	3.89	3.18	2.54	1,711
Lane 2 - 9' Left	27+54	3	23,315	12.09	6.31	4.88	3.92	3.15	2.51	1.98	1,928
Lane 1 - 9' Right	28+00	3	23,108	15.94	8.77	6.15	4.55	3.53	2.72	2.13	1,450
Lane 4 - 27' Left	28+00	3	23,367	10.58	5.90	4.17	3.13	2.44	1.89	1.46	2,209
Lane 3 - 27' Right	28+50	3	23,280	13.66	6.50	4.07	2.95	2.30	1.79	1.39	1,704
Lane 2 - 9' Left	28+51	3	23,323	11.74	5.69	3.86	2.95	2.23	1.76	1.34	1,987
Lane 1 - 9' Right	29+02	3	23,264	11.11	4.15	3.07	2.48	1.98	1.59	1.27	2,094
Lane 2 - 9' Left	29+49	3	23,208	12.43	6.90	4.56	3.42	2.63	1.97	1.50	1,867
Lane 1 - 9' Right	30+01	3	23,113	15.02	7.54	4.77	3.67	2.91	2.29	1.80	1,539
Lane 4 - 27' Left	30+03	3	23,251	11.86	6.52	4.46	3.50	2.80	2.22	1.76	1,960
Lane 3 - 27' Right	30+50	3	23,288	13.52	7.02	5.14	4.09	3.26	2.67	2.14	1,722
Lane 2 - 9' Left	30+52	3	23,227	13.31	7.61	5.54	4.42	3.66	2.97	2.48	1,745

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

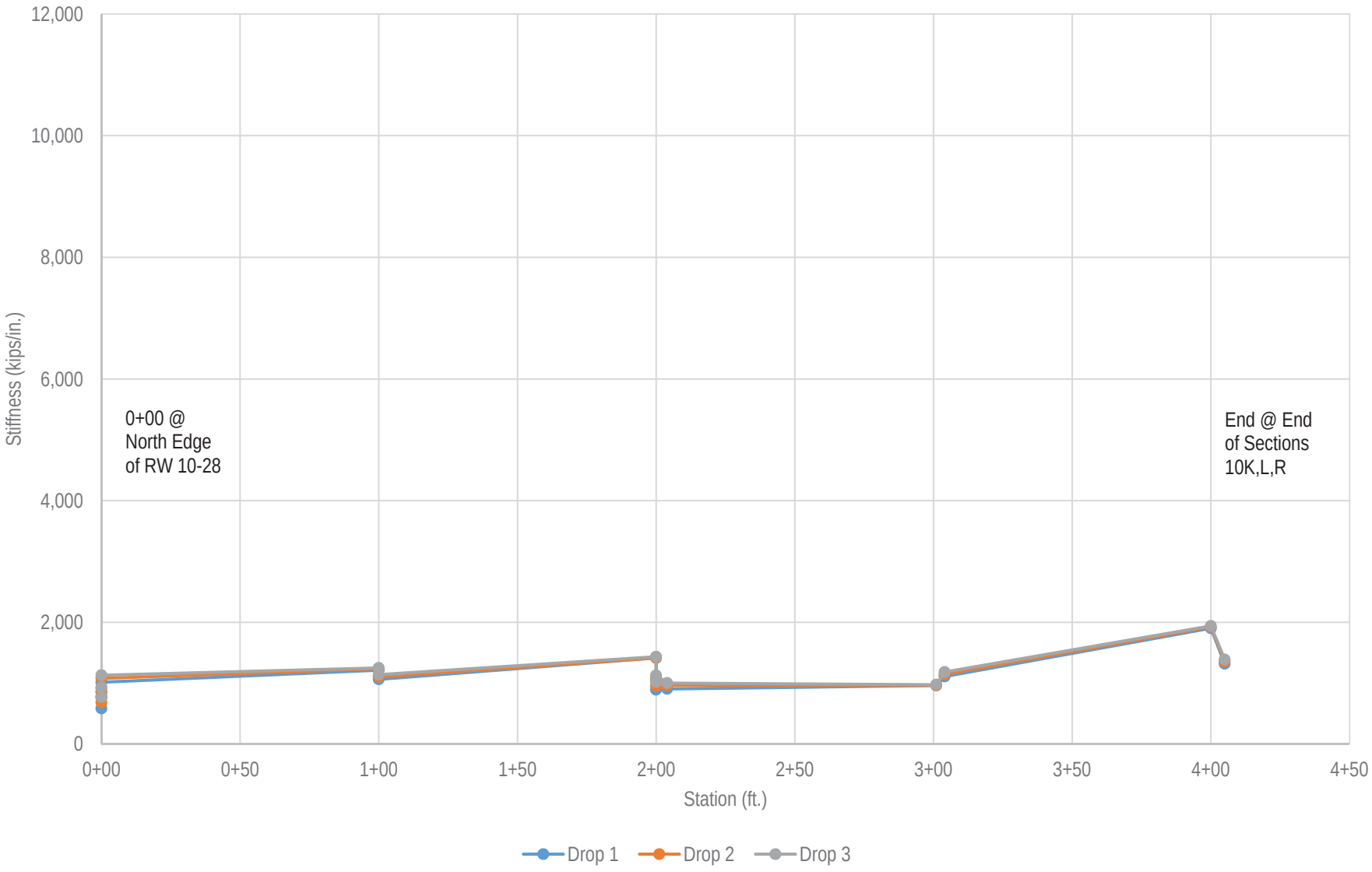
Runway 15R-33L (Sections 14K,L,R - 21K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	31+01	3	23,076	16.84	8.82	6.02	4.81	3.89	3.17	2.57	1,370
Lane 2 - 9' Left	31+50	3	23,288	12.82	6.94	4.93	4.10	3.37	2.73	2.27	1,817
Lane 1 - 9' Right	32+00	3	23,188	12.97	7.08	5.06	3.99	3.12	2.59	1.99	1,788
Lane 4 - 27' Left	32+00	3	23,315	11.35	6.75	5.12	4.20	3.51	2.89	2.40	2,054
Lane 2 - 9' Left	32+50	3	23,291	10.59	5.70	4.19	3.34	2.80	2.27	1.87	2,199
Lane 3 - 27' Right	32+53	3	23,272	13.12	7.44	5.47	4.29	3.36	2.70	2.16	1,774
Lane 1 - 9' Right	33+00	3	23,161	14.16	7.65	5.74	4.53	3.67	2.91	2.29	1,636
Lane 2 - 9' Left	33+50	3	23,169	16.53	9.18	6.33	4.94	4.14	3.41	2.77	1,402
Lane 1 - 9' Right	34+03	3	23,092	14.64	8.78	6.78	5.44	4.30	3.33	2.43	1,577
Lane 2 - 9' Left	34+50	3	23,148	14.04	7.83	5.76	4.58	3.65	2.93	2.26	1,649
Lane 3 - 27' Right	34+56	3	23,296	11.19	6.70	4.88	3.77	3.01	2.38	1.85	2,082
Lane 1 - 9' Right	35+02	3	23,061	15.41	8.39	6.14	4.86	3.86	2.98	2.24	1,496
Lane 2 - 9' Left	35+51	3	23,283	11.93	6.70	4.99	4.07	3.24	2.64	2.07	1,952
Lane 4 - 27' Left	36+02	3	23,299	10.31	6.07	4.63	3.80	3.18	2.56	2.15	2,260
Lane 1 - 9' Right	36+04	3	23,116	13.46	8.31	6.70	5.55	4.67	3.85	3.10	1,717
Lane 2 - 9' Left	36+50	3	23,235	12.26	7.13	5.30	4.29	3.42	2.74	2.13	1,895
Lane 3 - 27' Right	36+50	3	23,370	10.35	6.63	5.33	4.47	3.83	3.24	2.71	2,258
Lane 1 - 9' Right	37+02	3	23,084	14.96	8.60	6.47	5.31	4.35	3.72	3.08	1,543
Lane 2 - 9' Left	37+49	3	23,216	14.48	8.86	6.57	5.37	4.30	3.48	2.70	1,603
Lane 1 - 9' Right	37+95	3	23,042	18.31	9.96	7.28	5.80	4.78	3.85	3.18	1,258
Lane 4 - 27' Left	37+98	3	23,299	13.09	8.10	6.10	5.02	4.23	3.56	2.94	1,780
										Average:	2,434

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Runway 15R-33L (Sections 10K,L,R)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 10K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 9' Right	0+00	1	12,413	15.91	4.75	2.37	1.70	1.31	0.96	0.67	780
Lane 2 - 9' Left	0+00	1	12,265	21.02	4.85	2.66	2.08	1.42	1.09	0.78	583
Lane 3 - 27' Right	0+00	1	12,508	16.45	4.23	2.51	1.89	1.52	1.18	0.97	760
Lane 4 - 27' Left	0+00	1	12,511	12.33	3.85	2.45	1.70	1.34	1.02	0.81	1,015
Lane 1 - 9' Right	1+00	1	12,373	10.19	4.63	2.70	1.90	1.37	1.08	0.76	1,214
Lane 2 - 9' Left	1+00	1	12,421	11.69	5.56	3.07	2.01	1.52	1.13	0.98	1,063
Lane 1 - 9' Right	2+00	1	12,413	8.76	4.45	2.75	1.94	1.46	0.97	0.85	1,417
Lane 3 - 27' Right	2+00	1	12,318	13.81	4.42	2.50	1.94	1.62	1.24	1.06	892
Lane 4 - 27' Left	2+00	1	12,508	12.06	4.76	2.87	2.06	1.65	1.24	0.97	1,037
Lane 2 - 9' Left	2+04	1	12,413	13.71	5.27	2.39	1.69	1.41	1.13	0.89	905
Lane 2 - 9' Left	3+01	1	12,532	13.02	7.86	5.20	3.58	2.73	2.09	1.62	963
Lane 1 - 9' Right	3+04	1	12,405	11.18	5.76	4.00	3.04	2.46	1.97	1.63	1,110
Lane 4 - 27' Left	4+00	1	12,615	6.63	3.94	3.22	2.68	2.17	1.73	1.36	1,903
Lane 3 - 27' Right	4+05	1	12,556	9.52	5.22	3.57	2.84	2.39	1.99	1.59	1,319
Lane 1 - 9' Right	0+00	2	17,394	20.30	6.74	3.56	2.54	1.88	1.46	1.04	857
Lane 2 - 9' Left	0+00	2	17,227	25.20	6.91	4.19	3.06	2.18	1.68	1.18	684
Lane 3 - 27' Right	0+00	2	17,516	20.44	6.07	3.64	2.77	2.12	1.68	1.37	857
Lane 4 - 27' Left	0+00	2	17,505	16.22	5.46	3.43	2.55	1.94	1.49	1.04	1,079
Lane 1 - 9' Right	1+00	2	17,397	14.06	6.68	4.00	2.78	2.00	1.57	1.12	1,237
Lane 2 - 9' Left	1+00	2	17,401	15.78	7.92	4.59	3.02	2.20	1.70	1.36	1,103
Lane 1 - 9' Right	2+00	2	17,476	12.36	6.43	4.00	2.86	2.13	1.57	1.20	1,414
Lane 3 - 27' Right	2+00	2	17,282	18.04	6.21	3.59	2.76	2.22	1.76	1.41	958
Lane 4 - 27' Left	2+00	2	17,592	16.10	6.74	4.14	3.00	2.32	1.81	1.38	1,093
Lane 2 - 9' Left	2+04	2	17,381	18.08	7.46	3.65	2.62	2.05	1.65	1.28	961
Lane 2 - 9' Left	3+01	2	17,508	18.16	11.24	7.46	5.22	3.97	3.11	2.31	964
Lane 1 - 9' Right	3+04	2	17,441	15.22	8.18	5.78	4.42	3.61	2.93	2.33	1,146
Lane 4 - 27' Left	4+00	2	17,643	9.16	5.52	4.56	3.78	3.06	2.49	1.93	1,926

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

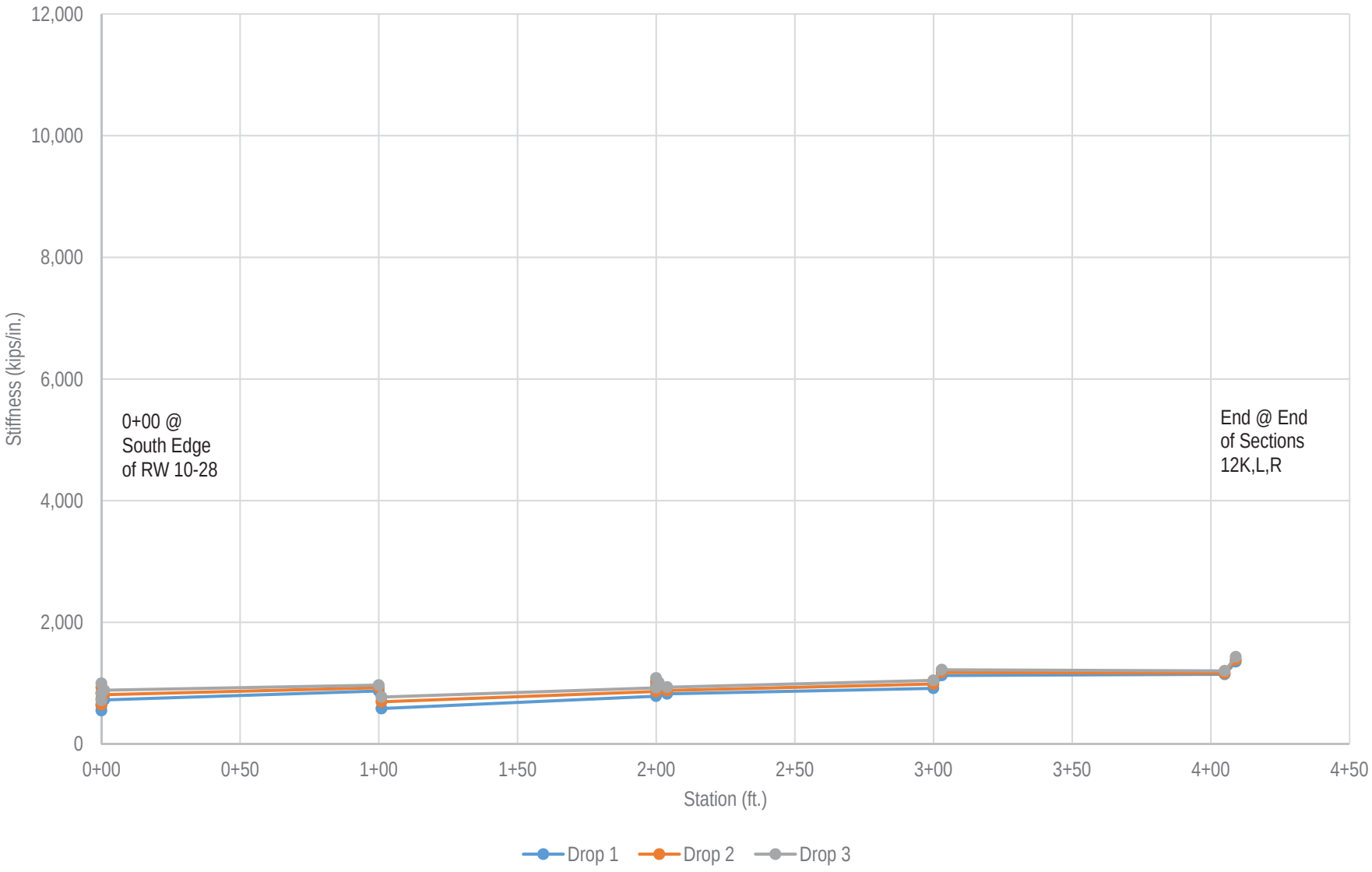
Runway 15R-33L (Sections 10K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	4+05	2	17,611	13.01	7.27	5.07	4.00	3.31	2.80	2.24	1,354
Lane 1 - 9' Right	0+00	3	22,910	24.97	8.96	4.90	3.52	2.56	2.02	1.36	918
Lane 2 - 9' Left	0+00	3	22,759	29.64	9.34	5.82	4.23	2.99	2.32	1.61	768
Lane 3 - 27' Right	0+00	3	22,994	24.69	8.18	4.99	3.79	2.85	2.28	1.85	931
Lane 4 - 27' Left	0+00	3	23,069	20.40	7.24	4.76	3.37	2.57	1.98	1.52	1,131
Lane 1 - 9' Right	1+00	3	22,949	18.36	9.04	5.53	3.87	2.75	2.11	1.46	1,250
Lane 2 - 9' Left	1+00	3	23,029	20.20	10.65	6.34	4.23	3.02	2.32	1.77	1,140
Lane 1 - 9' Right	2+00	3	23,089	16.09	8.64	5.56	3.97	2.91	2.19	1.68	1,435
Lane 3 - 27' Right	2+00	3	22,727	22.30	8.15	4.88	3.70	2.93	2.35	1.85	1,019
Lane 4 - 27' Left	2+00	3	23,097	20.51	8.94	5.64	4.06	3.04	2.39	1.86	1,126
Lane 2 - 9' Left	2+04	3	22,946	22.90	9.98	5.17	3.69	2.85	2.30	1.78	1,002
Lane 2 - 9' Left	3+01	3	22,922	23.52	14.83	9.99	7.01	5.34	4.12	3.06	975
Lane 1 - 9' Right	3+04	3	22,989	19.44	10.79	7.71	5.88	4.76	3.88	3.13	1,183
Lane 4 - 27' Left	4+00	3	23,288	12.00	7.28	6.01	5.00	4.03	3.28	2.54	1,941
Lane 3 - 27' Right	4+05	3	23,153	16.69	9.43	6.59	5.22	4.31	3.60	2.90	1,387
										Average:	1,114

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Runway 15R-33L (Sections 12K,L,R)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Runway 15R-33L (Sections 12K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 9' Left	0+00	1	12,437	22.61	6.44	3.08	2.44	1.89	1.35	1.04	550
Lane 3 - 27' Right	0+00	1	12,384	19.67	3.38	2.32	1.99	1.80	1.44	1.24	630
Lane 4 - 27' Left	0+00	1	12,519	15.02	3.91	2.10	1.78	1.46	1.08	0.83	833
Lane 1 - 9' Right	0+01	1	12,297	16.96	5.88	3.26	2.64	2.18	1.76	1.41	725
Lane 1 - 9' Right	1+00	1	12,373	14.20	7.27	4.05	2.59	2.15	1.47	1.18	871
Lane 2 - 9' Left	1+01	1	12,349	21.19	6.51	3.78	2.83	2.40	1.98	1.70	583
Lane 2 - 9' Left	2+00	1	12,270	15.59	6.09	3.87	3.24	2.62	2.17	1.89	787
Lane 3 - 27' Right	2+00	1	12,564	13.20	4.96	3.02	2.47	2.04	1.70	1.43	952
Lane 4 - 27' Left	2+01	1	12,516	13.67	5.20	3.96	3.22	2.92	2.24	1.99	916
Lane 1 - 9' Right	2+04	1	12,405	15.05	7.15	4.35	3.20	2.79	2.13	1.72	824
Lane 2 - 9' Left	3+00	1	12,384	13.52	6.19	3.87	2.83	2.17	1.72	1.34	916
Lane 1 - 9' Right	3+03	1	12,492	11.09	5.41	3.87	2.99	2.60	2.06	1.69	1,126
Lane 4 - 27' Left	4+05	1	12,556	10.96	5.22	3.55	2.84	2.30	1.82	1.51	1,146
Lane 3 - 27' Right	4+09	1	12,596	9.32	4.76	3.48	2.78	2.32	1.92	1.63	1,352
Lane 2 - 9' Left	0+00	2	17,405	26.85	9.02	4.78	3.59	2.82	2.15	1.56	648
Lane 3 - 27' Right	0+00	2	17,381	23.38	4.74	3.28	2.79	2.41	2.00	1.69	743
Lane 4 - 27' Left	0+00	2	17,584	18.95	5.53	3.10	2.61	1.98	1.57	1.22	928
Lane 1 - 9' Right	0+01	2	17,254	21.28	8.14	4.87	3.85	3.11	2.51	1.96	811
Lane 1 - 9' Right	1+00	2	17,378	18.79	9.99	5.56	3.81	2.87	2.07	1.59	925
Lane 2 - 9' Left	1+01	2	17,282	24.89	8.75	5.35	3.98	3.33	2.78	2.34	694
Lane 2 - 9' Left	2+00	2	17,274	20.01	8.59	5.52	4.66	3.69	3.05	2.57	863
Lane 3 - 27' Right	2+00	2	17,532	17.08	6.74	4.23	3.36	2.80	2.35	1.91	1,026
Lane 4 - 27' Left	2+01	2	17,516	18.14	7.29	5.55	4.56	3.93	3.20	2.76	966
Lane 1 - 9' Right	2+04	2	17,417	19.80	9.75	6.03	4.54	3.72	2.94	2.44	880
Lane 2 - 9' Left	3+00	2	17,365	17.60	8.50	5.38	3.99	3.08	2.34	1.80	987
Lane 1 - 9' Right	3+03	2	17,497	14.86	7.66	5.43	4.32	3.57	2.80	2.40	1,177
Lane 4 - 27' Left	4+05	2	17,603	15.15	7.35	5.05	4.07	3.20	2.65	2.14	1,162

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

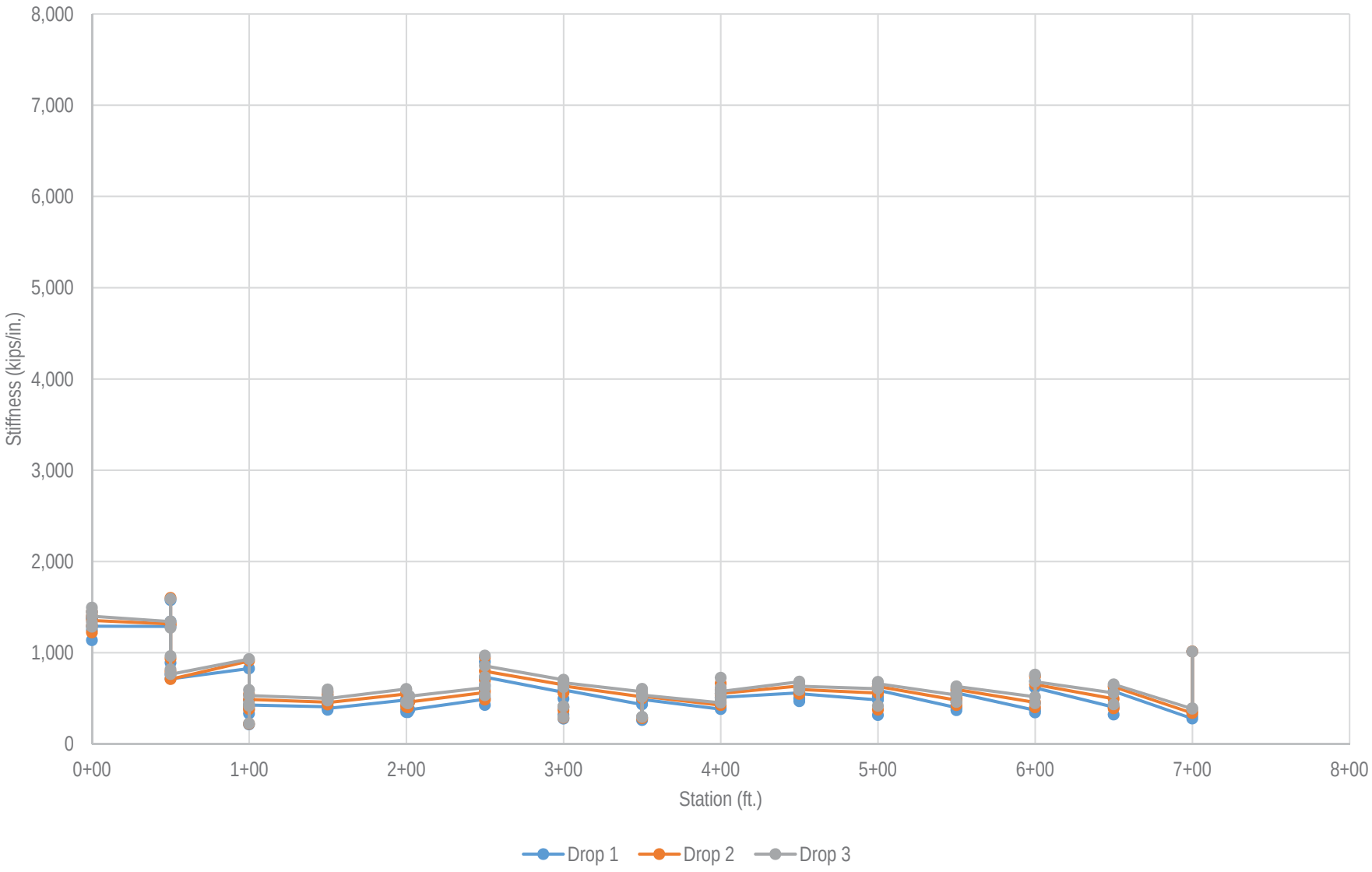
Runway 15R-33L (Sections 12K,L,R)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 27' Right	4+09	2	17,608	12.72	6.59	4.80	3.90	3.24	2.73	2.21	1,384
Lane 2 - 9' Left	0+00	3	22,914	31.94	11.80	6.54	4.91	3.78	2.88	2.15	717
Lane 3 - 27' Right	0+00	3	22,875	27.59	6.25	4.29	3.63	3.01	2.61	2.17	829
Lane 4 - 27' Left	0+00	3	23,172	23.29	7.31	4.07	3.59	2.71	2.09	1.71	995
Lane 1 - 9' Right	0+01	3	22,724	25.70	10.62	6.45	5.18	4.10	3.34	2.64	884
Lane 1 - 9' Right	1+00	3	22,899	23.65	12.88	7.41	5.14	3.76	2.86	2.24	968
Lane 2 - 9' Left	1+01	3	22,767	29.47	11.28	7.03	5.29	4.33	3.61	3.05	773
Lane 2 - 9' Left	2+00	3	22,819	24.72	11.26	7.52	6.21	4.96	4.09	3.46	923
Lane 3 - 27' Right	2+00	3	23,129	21.33	8.75	5.54	4.39	3.63	3.02	2.45	1,084
Lane 4 - 27' Left	2+01	3	23,069	22.83	9.48	7.27	5.94	5.08	4.15	3.61	1,010
Lane 1 - 9' Right	2+04	3	22,914	24.52	12.49	7.74	5.94	4.69	3.86	3.29	935
Lane 2 - 9' Left	3+00	3	22,970	21.96	11.03	7.17	5.35	4.10	3.19	2.56	1,046
Lane 1 - 9' Right	3+03	3	23,029	18.87	10.08	7.31	5.74	4.71	3.79	3.24	1,220
Lane 4 - 27' Left	4+05	3	23,161	19.26	9.58	6.67	5.29	4.23	3.46	2.80	1,203
Lane 3 - 27' Right	4+09	3	23,212	16.21	8.47	6.31	5.08	4.17	3.48	2.87	1,432
										Average:	939

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Ramp DE



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 50' Left	0+00	1	12,770	10.21	6.44	4.51	3.31	2.60	2.00	1.62	1,251
Lane 2 - 100' Left	0+00	1	12,715	9.26	6.08	4.16	3.10	2.44	1.98	1.58	1,373
Lane 3 - 150' Left	0+00	1	12,699	11.17	7.18	4.92	3.67	3.00	2.28	1.89	1,137
Lane 4 - 200' Left	0+00	1	12,718	9.21	5.88	4.10	2.98	2.35	1.91	1.52	1,381
Lane 5 - 250' Left	0+00	1	12,630	9.14	6.39	4.80	3.70	2.89	2.32	1.89	1,382
Lane 6 - 300' Left	0+00	1	12,662	9.81	6.64	4.78	3.53	2.83	2.17	1.77	1,291
Lane 1 - 50' Left	0+50	1	12,818	9.95	7.11	5.45	4.29	3.37	2.66	2.12	1,288
Lane 2 - 100' Left	0+50	1	12,691	14.27	9.14	5.82	3.93	2.83	2.13	1.60	889
Lane 3 - 150' Left	0+50	1	12,615	16.62	8.95	5.24	3.59	2.68	2.17	1.58	759
Lane 4 - 200' Left	0+50	1	12,702	8.06	5.40	4.03	3.20	2.65	2.24	1.87	1,576
Lane 5 - 250' Left	0+50	1	12,654	9.43	6.55	5.00	3.69	2.95	2.37	1.98	1,342
Lane 6 - 300' Left	0+50	1	12,424	17.39	11.06	6.06	3.68	2.57	1.86	1.31	714
Lane 1 - 50' Left	1+00	1	12,603	15.24	8.91	5.74	4.13	2.94	2.26	1.66	827
Lane 2 - 100' Left	1+00	1	12,476	26.16	10.51	5.51	3.47	2.43	1.81	1.41	477
Lane 3 - 150' Left	1+00	1	12,365	32.50	12.30	6.12	4.13	2.95	2.27	1.83	380
Lane 4 - 200' Left	1+00	1	12,416	37.31	16.22	8.78	5.85	4.25	3.28	2.52	333
Lane 5 - 250' Left	1+00	1	11,931	55.89	37.15	15.53	7.59	4.40	2.74	1.91	213
Lane 6 - 300' Left	1+00	1	12,357	28.96	13.12	6.64	4.11	2.83	2.12	1.63	427
Lane 1 - 50' Left	1+50	1	12,519	30.72	12.43	6.87	4.37	3.33	2.44	2.02	408
Lane 2 - 100' Left	1+50	1	12,440	26.19	12.89	6.90	4.46	3.25	2.57	2.05	475
Lane 3 - 150' Left	1+50	1	12,527	23.35	11.98	7.28	4.77	3.50	2.64	2.11	536
Lane 4 - 200' Left	1+50	1	12,484	30.85	12.05	5.63	3.56	2.50	1.87	1.48	405
Lane 5 - 250' Left	1+50	1	12,305	32.98	13.27	6.77	4.04	2.63	2.04	1.63	373
Lane 6 - 300' Left	1+50	1	12,297	31.46	13.54	7.39	4.60	3.16	2.43	1.87	391
Lane 1 - 50' Left	2+00	1	12,464	25.82	11.74	6.88	4.56	3.33	2.57	2.04	483
Lane 3 - 150' Left	2+00	1	12,397	35.61	14.41	7.04	4.97	3.89	3.15	2.43	348
Lane 4 - 200' Left	2+00	1	12,389	32.82	15.02	7.76	4.58	2.89	2.04	1.59	377

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 6 - 300' Left	2+00	1	12,437	25.15	12.15	7.32	4.94	3.50	2.52	1.89	495
Lane 2 - 100' Left	2+01	1	12,445	35.89	13.75	6.36	4.43	3.28	2.60	2.07	347
Lane 5 - 250' Left	2+02	1	12,278	32.76	14.30	7.83	5.02	3.44	2.47	2.13	375
Lane 1 - 50' Left	2+50	1	12,524	25.52	9.15	4.78	2.96	2.15	1.71	1.49	491
Lane 2 - 100' Left	2+50	1	12,702	24.98	10.79	5.53	3.75	2.87	2.40	1.95	508
Lane 3 - 150' Left	2+50	1	12,583	29.55	11.59	6.69	4.69	3.71	2.83	2.23	426
Lane 4 - 200' Left	2+50	1	12,580	19.54	9.61	5.12	3.48	2.73	2.06	1.74	644
Lane 5 - 250' Left	2+50	1	12,707	14.12	5.81	3.18	1.96	1.37	1.03	0.84	900
Lane 6 - 300' Left	2+50	1	12,686	17.32	10.23	6.76	4.86	3.67	2.82	2.15	732
Lane 1 - 50' Left	3+00	1	12,599	22.23	10.69	6.24	4.15	3.11	2.40	2.03	567
Lane 2 - 100' Left	3+00	1	12,540	25.31	11.11	5.85	3.97	3.08	2.43	2.04	495
Lane 3 - 150' Left	3+00	1	12,345	38.55	15.18	7.30	4.57	3.31	2.74	2.16	320
Lane 4 - 200' Left	3+00	1	12,286	44.52	16.80	6.90	3.24	1.59	1.15	0.89	276
Lane 5 - 250' Left	3+00	1	12,360	30.74	16.01	7.43	4.24	2.75	1.88	1.43	402
Lane 6 - 300' Left	3+00	1	12,540	21.15	11.69	6.39	3.74	2.90	2.13	1.75	593
Lane 1 - 50' Left	3+50	1	12,516	28.91	11.40	5.56	3.63	2.67	2.11	1.66	433
Lane 2 - 100' Left	3+50	1	12,500	26.26	12.66	6.99	4.63	3.51	2.81	2.31	476
Lane 3 - 150' Left	3+50	1	12,162	46.59	18.04	7.12	4.20	2.91	2.32	1.89	261
Lane 4 - 200' Left	3+50	1	12,281	45.09	20.35	8.94	4.77	2.67	1.80	1.43	272
Lane 5 - 250' Left	3+50	1	12,472	26.01	13.35	6.65	4.12	2.78	1.99	1.51	480
Lane 6 - 300' Left	3+50	1	12,249	25.06	14.07	7.57	4.87	3.51	2.66	2.13	489
Lane 1 - 50' Left	4+00	1	12,416	32.51	14.90	7.90	5.13	3.76	2.92	2.21	382
Lane 2 - 100' Left	4+00	1	12,535	21.43	8.98	3.97	2.15	1.56	1.15	0.89	585
Lane 3 - 150' Left	4+00	1	12,381	31.06	11.80	5.15	3.30	2.48	2.06	1.73	399
Lane 4 - 200' Left	4+00	1	12,532	24.82	10.59	4.72	2.68	1.83	1.41	1.04	505
Lane 5 - 250' Left	4+00	1	12,551	22.69	11.07	5.37	3.28	2.48	1.99	1.66	553
Lane 6 - 300' Left	4+00	1	12,460	24.35	12.70	5.96	3.63	2.61	2.20	1.35	512

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 50' Left	4+50	1	12,492	22.28	9.44	4.69	2.94	2.26	1.69	1.33	561
Lane 2 - 100' Left	4+50	1	12,453	26.67	8.73	4.08	2.61	1.87	1.48	1.05	467
Lane 3 - 150' Left	4+50	1	12,516	24.95	9.31	4.29	2.65	2.09	1.72	1.28	502
Lane 4 - 200' Left	4+50	1	12,619	22.86	8.28	3.57	2.10	1.45	1.10	0.85	552
Lane 5 - 250' Left	4+50	1	12,500	25.48	9.80	4.80	3.12	2.36	1.94	1.59	491
Lane 6 - 300' Left	4+50	1	12,408	22.50	11.69	5.46	3.28	2.46	1.98	1.68	551
Lane 1 - 50' Left	5+00	1	12,448	25.77	10.96	5.35	3.09	1.95	1.41	1.04	483
Lane 2 - 100' Left	5+00	1	12,556	25.20	10.08	4.44	2.48	1.61	1.14	0.89	498
Lane 3 - 150' Left	5+00	1	12,230	38.72	16.13	6.29	3.23	2.22	1.55	1.26	316
Lane 4 - 200' Left	5+00	1	12,376	21.87	9.10	4.26	2.68	1.96	1.52	1.22	566
Lane 5 - 250' Left	5+00	1	12,500	24.10	10.50	4.94	3.00	2.22	1.68	1.32	519
Lane 6 - 300' Left	5+00	1	12,540	21.26	11.54	5.54	3.25	2.21	1.70	1.27	590
Lane 1 - 50' Left	5+50	1	12,437	31.26	14.22	6.69	3.65	2.44	2.12	1.70	398
Lane 2 - 100' Left	5+50	1	12,392	30.58	12.30	5.83	3.78	2.91	2.24	1.89	405
Lane 3 - 150' Left	5+50	1	12,345	33.40	10.58	4.00	2.33	1.65	1.12	0.85	370
Lane 4 - 200' Left	5+50	1	12,500	23.41	8.23	3.80	2.31	1.53	1.17	0.81	534
Lane 5 - 250' Left	5+50	1	12,472	27.22	10.80	5.09	3.17	2.22	1.74	1.36	458
Lane 6 - 300' Left	5+50	1	12,456	22.28	12.47	5.87	3.44	2.50	1.94	1.47	559
Lane 2 - 100' Left	6+00	1	12,368	33.48	13.58	5.88	3.22	2.12	1.60	1.06	369
Lane 3 - 150' Left	6+00	1	12,262	35.63	12.76	4.96	2.91	2.15	1.78	1.41	344
Lane 4 - 200' Left	6+00	1	12,453	18.13	8.26	4.33	2.74	1.94	1.47	1.15	687
Lane 6 - 300' Left	6+00	1	12,495	20.30	10.67	4.62	2.51	1.79	1.24	0.96	616
Lane 2 - 100' Left	6+50	1	12,432	30.74	11.43	5.19	3.32	2.60	1.96	1.57	404
Lane 3 - 150' Left	6+50	1	12,329	38.37	13.14	5.14	2.83	1.94	1.49	1.24	321
Lane 4 - 200' Left	6+50	1	12,572	21.80	10.16	4.86	2.83	1.96	1.51	1.11	577
Lane 2 - 100' Left	7+00	1	12,222	43.93	15.59	6.39	3.97	2.48	1.78	1.22	278
Lane 3 - 150' Left	7+00	1	12,238	39.60	16.82	7.10	4.26	2.63	2.04	1.52	309

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 200' Left	7+00	1	12,715	12.57	6.73	2.58	1.17	0.84	0.69	0.46	1,012
Lane 1 - 50' Left	0+00	2	17,810	13.76	8.71	6.15	4.57	3.54	2.79	2.27	1,294
Lane 2 - 100' Left	0+00	2	17,799	12.77	8.14	5.59	4.26	3.30	2.76	2.21	1,394
Lane 3 - 150' Left	0+00	2	17,778	14.56	9.42	6.51	4.94	3.91	3.24	2.44	1,221
Lane 4 - 200' Left	0+00	2	17,810	12.29	7.95	5.54	4.11	3.20	2.61	2.09	1,449
Lane 5 - 250' Left	0+00	2	17,695	12.60	8.80	6.59	5.14	4.00	3.20	2.55	1,404
Lane 6 - 300' Left	0+00	2	17,727	13.09	9.01	6.49	4.94	3.83	3.01	2.37	1,354
Lane 1 - 50' Left	0+50	2	17,857	13.57	9.72	7.48	5.89	4.68	3.69	2.93	1,316
Lane 2 - 100' Left	0+50	2	17,722	18.96	12.35	8.00	5.56	3.96	3.04	2.27	935
Lane 3 - 150' Left	0+50	2	17,624	22.19	12.30	7.37	5.13	3.77	2.97	2.34	794
Lane 4 - 200' Left	0+50	2	17,770	11.10	7.60	5.74	4.52	3.75	3.14	2.58	1,601
Lane 5 - 250' Left	0+50	2	17,683	13.51	9.69	7.22	5.49	4.33	3.45	2.80	1,309
Lane 6 - 300' Left	0+50	2	17,425	24.55	14.80	8.31	5.11	3.52	2.60	1.90	710
Lane 1 - 50' Left	1+00	2	17,635	19.36	12.11	7.97	5.65	4.10	3.15	2.40	911
Lane 2 - 100' Left	1+00	2	17,468	32.11	13.43	7.39	4.77	3.37	2.58	2.01	544
Lane 3 - 150' Left	1+00	2	17,285	42.06	16.71	8.91	6.11	4.37	3.32	2.66	411
Lane 4 - 200' Left	1+00	2	17,354	45.52	20.84	11.74	7.94	5.80	4.47	3.53	381
Lane 5 - 250' Left	1+00	2	16,591	75.40	51.85	24.00	11.98	6.53	3.87	2.59	220
Lane 6 - 300' Left	1+00	2	17,346	35.53	16.67	8.83	5.55	3.87	2.98	2.26	488
Lane 1 - 50' Left	1+50	2	17,492	38.12	16.11	9.27	6.04	4.46	3.53	2.96	459
Lane 2 - 100' Left	1+50	2	17,449	32.39	15.69	8.82	5.91	4.34	3.52	2.84	539
Lane 3 - 150' Left	1+50	2	17,500	30.78	16.24	10.11	6.79	4.75	3.73	3.00	569
Lane 4 - 200' Left	1+50	2	17,497	37.96	15.58	8.00	5.32	3.79	2.87	2.25	461
Lane 5 - 250' Left	1+50	2	17,270	40.00	17.29	9.49	5.80	3.88	3.00	2.44	432
Lane 6 - 300' Left	1+50	2	17,251	37.96	17.61	10.17	6.58	4.62	3.43	2.74	454
Lane 1 - 50' Left	2+00	2	17,449	31.79	15.09	9.24	6.25	4.65	3.69	2.90	549
Lane 3 - 150' Left	2+00	2	17,322	42.35	17.47	9.29	6.68	5.28	4.25	3.41	409

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 200' Left	2+00	2	17,341	40.67	19.42	10.59	6.47	4.15	3.01	2.30	426
Lane 6 - 300' Left	2+00	2	17,417	31.02	16.12	10.27	7.08	5.07	3.72	2.76	561
Lane 2 - 100' Left	2+01	2	17,389	43.44	16.77	8.40	5.91	4.36	3.52	2.88	400
Lane 5 - 250' Left	2+02	2	17,306	37.53	17.47	10.06	6.98	4.84	3.85	3.06	461
Lane 1 - 50' Left	2+50	2	17,529	30.99	12.02	6.71	4.43	3.24	2.57	2.16	566
Lane 2 - 100' Left	2+50	2	17,691	30.11	13.98	7.87	5.43	4.17	3.43	2.80	588
Lane 3 - 150' Left	2+50	2	17,592	36.25	14.76	9.16	6.66	5.26	4.19	3.31	485
Lane 4 - 200' Left	2+50	2	17,619	25.25	13.21	7.77	5.30	3.94	3.02	2.64	698
Lane 5 - 250' Left	2+50	2	17,746	18.69	8.39	4.79	3.02	2.03	1.51	1.15	949
Lane 6 - 300' Left	2+50	2	17,703	22.20	13.64	9.18	6.63	5.05	3.87	3.01	797
Lane 1 - 50' Left	3+00	2	17,627	27.22	13.59	8.21	5.71	4.33	3.47	2.85	648
Lane 2 - 100' Left	3+00	2	17,532	31.32	14.00	7.85	5.58	4.30	3.47	2.90	560
Lane 3 - 150' Left	3+00	2	17,274	46.80	18.87	9.74	6.49	4.74	3.87	3.10	369
Lane 4 - 200' Left	3+00	2	17,055	59.53	25.62	11.13	4.96	2.04	1.41	1.24	286
Lane 5 - 250' Left	3+00	2	17,274	42.44	23.41	11.50	6.66	4.05	2.63	2.06	407
Lane 6 - 300' Left	3+00	2	17,537	27.57	15.61	8.48	5.46	3.99	3.11	2.44	636
Lane 1 - 50' Left	3+50	2	17,537	33.89	14.32	7.53	5.06	3.75	2.94	2.37	517
Lane 2 - 100' Left	3+50	2	17,529	31.81	15.70	9.09	6.26	4.83	3.82	3.21	551
Lane 3 - 150' Left	3+50	2	16,984	59.92	25.16	10.96	6.51	4.19	3.20	2.43	283
Lane 4 - 200' Left	3+50	2	17,076	59.89	29.45	13.50	6.96	3.65	2.39	1.94	285
Lane 5 - 250' Left	3+50	2	17,409	34.92	18.76	10.02	6.17	4.12	2.93	2.15	499
Lane 6 - 300' Left	3+50	2	17,195	32.80	19.20	10.61	6.93	4.91	3.76	3.01	524
Lane 1 - 50' Left	4+00	2	17,306	40.67	19.93	11.20	7.25	5.31	4.04	3.16	426
Lane 2 - 100' Left	4+00	2	17,568	26.48	11.24	5.27	3.17	2.17	1.70	1.35	663
Lane 3 - 150' Left	4+00	2	17,357	37.93	14.88	7.26	4.87	3.72	3.09	2.51	458
Lane 4 - 200' Left	4+00	2	17,552	32.92	15.45	7.37	4.19	2.71	2.04	1.61	533
Lane 5 - 250' Left	4+00	2	17,552	29.43	15.26	7.82	4.86	3.51	2.86	2.34	596

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 6 - 300' Left	4+00	2	17,417	31.47	16.85	8.38	5.42	3.75	3.18	2.05	553
Lane 1 - 50' Left	4+50	2	17,529	27.54	12.60	6.61	4.30	3.14	2.43	1.85	636
Lane 2 - 100' Left	4+50	2	17,473	31.91	11.24	5.66	3.82	2.74	2.16	1.47	548
Lane 3 - 150' Left	4+50	2	17,548	30.69	12.03	5.91	3.83	2.94	2.41	1.88	572
Lane 4 - 200' Left	4+50	2	17,616	29.23	11.62	5.31	3.15	2.11	1.59	1.19	603
Lane 5 - 250' Left	4+50	2	17,524	31.45	13.33	7.02	4.57	3.52	2.83	2.31	557
Lane 6 - 300' Left	4+50	2	17,428	29.13	15.56	7.77	4.82	3.56	2.87	2.40	598
Lane 1 - 50' Left	5+00	2	17,421	31.24	13.91	7.15	4.26	2.73	2.00	1.48	558
Lane 2 - 100' Left	5+00	2	17,571	29.37	12.38	5.92	3.47	2.27	1.65	1.24	598
Lane 3 - 150' Left	5+00	2	17,195	45.83	19.35	8.26	4.58	3.14	2.35	1.81	375
Lane 4 - 200' Left	5+00	2	17,370	27.62	12.28	6.06	3.84	2.75	2.15	1.79	629
Lane 5 - 250' Left	5+00	2	17,505	30.43	14.07	7.00	4.34	3.08	2.36	1.87	575
Lane 6 - 300' Left	5+00	2	17,508	27.76	15.36	7.81	4.70	3.19	2.42	1.80	631
Lane 1 - 50' Left	5+50	2	17,436	36.31	17.35	8.86	5.05	3.52	3.08	2.76	480
Lane 2 - 100' Left	5+50	2	17,436	35.80	15.02	7.76	5.19	3.95	3.22	2.49	487
Lane 3 - 150' Left	5+50	2	17,325	40.74	13.58	5.93	3.40	2.26	1.53	1.28	425
Lane 4 - 200' Left	5+50	2	17,481	29.97	11.42	5.60	3.39	2.26	1.67	1.23	583
Lane 5 - 250' Left	5+50	2	17,452	33.98	14.50	7.30	4.60	3.22	2.52	1.96	514
Lane 6 - 300' Left	5+50	2	17,421	29.12	16.57	8.31	5.02	3.61	2.75	2.07	598
Lane 2 - 100' Left	6+00	2	17,428	38.26	16.26	7.59	4.41	2.98	2.31	1.69	456
Lane 3 - 150' Left	6+00	2	17,222	43.04	16.09	7.09	4.28	3.08	2.54	2.05	400
Lane 4 - 200' Left	6+00	2	17,449	23.57	11.61	6.33	4.08	2.85	2.17	1.70	740
Lane 6 - 300' Left	6+00	2	17,492	26.83	14.61	6.94	3.91	2.64	1.86	1.45	652
Lane 2 - 100' Left	6+50	2	17,452	35.25	13.73	6.65	4.50	3.48	2.81	2.15	495
Lane 3 - 150' Left	6+50	2	17,346	44.54	16.07	7.13	4.15	2.89	2.21	1.83	389
Lane 4 - 200' Left	6+50	2	17,568	28.02	13.97	6.99	4.18	2.86	2.19	1.69	627
Lane 2 - 100' Left	7+00	2	17,214	50.89	18.65	8.06	5.22	3.24	2.40	1.87	338

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 150' Left	7+00	2	17,150	48.22	21.15	9.50	5.80	3.70	2.91	2.26	356
Lane 4 - 200' Left	7+00	2	17,743	17.52	9.33	3.59	1.62	1.11	0.92	0.58	1,013
Lane 1 - 50' Left	0+00	3	23,251	17.46	11.10	7.88	5.87	4.47	3.54	2.86	1,332
Lane 2 - 100' Left	0+00	3	23,307	16.05	10.37	7.16	5.43	4.22	3.49	2.82	1,452
Lane 3 - 150' Left	0+00	3	23,267	18.13	11.81	8.23	6.25	4.91	4.06	3.17	1,283
Lane 4 - 200' Left	0+00	3	23,327	15.61	10.20	7.07	5.25	4.09	3.30	2.65	1,494
Lane 5 - 250' Left	0+00	3	23,212	16.09	11.37	8.51	6.62	5.17	4.16	3.28	1,443
Lane 6 - 300' Left	0+00	3	23,200	16.56	11.43	8.31	6.27	4.81	3.84	3.06	1,401
Lane 1 - 50' Left	0+50	3	23,394	17.43	12.46	9.63	7.57	6.00	4.76	3.77	1,342
Lane 2 - 100' Left	0+50	3	23,192	24.09	15.92	10.45	7.37	5.25	3.96	3.13	963
Lane 3 - 150' Left	0+50	3	23,116	28.31	16.00	9.82	6.84	4.99	3.95	3.06	817
Lane 4 - 200' Left	0+50	3	23,431	14.74	10.01	7.56	6.01	4.91	4.10	3.41	1,590
Lane 5 - 250' Left	0+50	3	23,256	18.27	13.32	9.91	7.65	5.90	4.71	3.72	1,273
Lane 6 - 300' Left	0+50	3	22,838	29.87	18.86	10.77	6.73	4.58	3.43	2.52	765
Lane 1 - 50' Left	1+00	3	23,057	24.78	15.31	10.23	7.27	5.28	4.07	3.15	930
Lane 2 - 100' Left	1+00	3	22,875	38.71	16.84	9.62	6.29	4.43	3.35	2.63	591
Lane 3 - 150' Left	1+00	3	22,576	51.45	21.48	12.15	8.24	5.90	4.54	3.54	439
Lane 4 - 200' Left	1+00	3	22,727	54.60	26.04	14.98	10.22	7.49	5.69	4.54	416
Lane 5 - 250' Left	1+00	3	21,480	95.48	67.13	33.55	17.12	9.16	5.12	3.27	225
Lane 6 - 300' Left	1+00	3	22,692	42.72	20.65	11.28	7.13	5.04	3.92	3.01	531
Lane 1 - 50' Left	1+50	3	22,851	45.74	20.21	11.83	7.74	5.70	4.64	3.87	500
Lane 2 - 100' Left	1+50	3	22,851	40.09	19.06	11.01	7.41	5.53	4.48	3.61	570
Lane 3 - 150' Left	1+50	3	22,886	38.35	21.17	13.41	9.07	6.21	4.92	3.93	597
Lane 4 - 200' Left	1+50	3	22,910	45.28	19.54	10.70	7.19	5.13	3.89	3.05	506
Lane 5 - 250' Left	1+50	3	22,632	47.64	21.77	12.21	7.68	5.19	4.02	3.30	475
Lane 6 - 300' Left	1+50	3	22,597	45.31	22.45	13.35	8.82	6.22	4.65	3.70	499
Lane 1 - 50' Left	2+00	3	22,835	37.87	18.74	11.55	7.98	5.94	4.65	3.75	603

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 3 - 150' Left	2+00	3	22,687	49.70	21.34	11.85	8.59	6.80	5.48	4.46	456
Lane 4 - 200' Left	2+00	3	22,703	49.26	24.46	13.76	8.61	5.52	3.98	3.08	461
Lane 6 - 300' Left	2+00	3	22,779	38.21	20.89	13.57	9.54	6.81	5.04	3.67	596
Lane 2 - 100' Left	2+01	3	22,748	51.22	20.51	10.55	7.49	5.54	4.50	3.75	444
Lane 5 - 250' Left	2+02	3	22,676	43.24	21.26	12.70	8.92	6.38	5.06	4.09	524
Lane 1 - 50' Left	2+50	3	22,989	37.19	15.27	8.97	6.04	4.43	3.51	2.94	618
Lane 2 - 100' Left	2+50	3	23,164	36.04	17.46	10.30	7.19	5.49	4.48	3.65	643
Lane 3 - 150' Left	2+50	3	22,986	43.14	18.18	11.60	8.60	6.74	5.39	4.43	533
Lane 4 - 200' Left	2+50	3	23,105	31.41	17.05	10.56	7.24	5.38	4.12	3.43	736
Lane 5 - 250' Left	2+50	3	23,256	24.00	11.52	6.77	4.32	2.82	2.01	1.66	969
Lane 6 - 300' Left	2+50	3	23,153	27.05	16.93	11.56	8.36	6.38	4.99	3.88	856
Lane 1 - 50' Left	3+00	3	23,081	32.83	16.93	10.46	7.35	5.63	4.48	3.79	703
Lane 2 - 100' Left	3+00	3	23,005	37.02	17.41	10.22	7.27	5.64	4.56	3.78	621
Lane 3 - 150' Left	3+00	3	22,592	55.05	23.06	12.39	8.41	6.20	5.04	3.98	410
Lane 4 - 200' Left	3+00	3	22,107	76.05	36.05	16.35	7.05	2.58	1.70	1.53	291
Lane 5 - 250' Left	3+00	3	22,441	54.47	31.54	16.48	9.50	5.52	3.52	2.63	412
Lane 6 - 300' Left	3+00	3	22,906	34.10	19.61	10.91	7.20	5.16	4.10	3.22	672
Lane 1 - 50' Left	3+50	3	22,930	39.97	17.71	9.77	6.61	4.94	3.89	3.31	574
Lane 2 - 100' Left	3+50	3	23,005	38.06	19.27	11.34	8.04	6.23	4.93	4.17	604
Lane 3 - 150' Left	3+50	3	22,104	74.39	33.74	15.73	9.26	5.67	4.21	3.12	297
Lane 4 - 200' Left	3+50	3	22,128	74.87	39.20	18.67	9.13	4.61	2.92	2.49	296
Lane 5 - 250' Left	3+50	3	22,708	44.09	24.52	13.16	8.38	5.59	3.93	2.99	515
Lane 6 - 300' Left	3+50	3	22,497	41.91	24.76	14.09	9.18	6.43	4.95	3.98	537
Lane 1 - 50' Left	4+00	3	22,589	49.94	25.98	14.99	9.74	6.98	5.39	4.18	452
Lane 2 - 100' Left	4+00	3	23,010	31.73	14.00	6.94	4.26	2.89	2.27	1.85	725
Lane 3 - 150' Left	4+00	3	22,803	45.36	18.44	9.55	6.54	5.01	4.11	3.35	503
Lane 4 - 200' Left	4+00	3	22,910	41.71	21.16	10.63	5.99	3.78	2.78	2.13	549

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 5 - 250' Left	4+00	3	22,914	37.19	20.24	10.87	6.73	4.80	3.78	3.20	616
Lane 6 - 300' Left	4+00	3	22,775	39.55	21.54	11.16	7.31	5.08	4.30	2.84	576
Lane 1 - 50' Left	4+50	3	22,899	33.54	16.27	8.92	5.85	4.19	3.30	2.58	683
Lane 2 - 100' Left	4+50	3	22,910	38.83	14.41	7.70	5.18	3.78	3.02	2.03	590
Lane 3 - 150' Left	4+50	3	22,965	37.06	15.14	7.88	5.16	3.93	3.21	2.58	620
Lane 4 - 200' Left	4+50	3	23,065	36.08	15.56	7.35	4.45	2.89	2.22	1.63	639
Lane 5 - 250' Left	4+50	3	22,941	37.80	17.07	9.27	6.33	4.43	3.76	3.03	607
Lane 6 - 300' Left	4+50	3	22,806	36.00	19.67	10.29	6.50	4.74	3.82	3.22	634
Lane 1 - 50' Left	5+00	3	22,862	37.75	17.57	9.32	5.63	3.67	2.72	2.03	606
Lane 2 - 100' Left	5+00	3	23,049	35.12	15.63	7.88	4.71	3.12	2.28	1.73	656
Lane 3 - 150' Left	5+00	3	22,533	54.14	23.78	10.71	6.08	4.19	3.07	2.43	416
Lane 4 - 200' Left	5+00	3	22,830	33.59	16.02	8.29	5.20	3.70	2.85	2.33	680
Lane 5 - 250' Left	5+00	3	22,933	37.09	18.07	9.30	5.86	4.00	3.01	2.47	618
Lane 6 - 300' Left	5+00	3	22,946	34.77	19.50	10.32	6.31	4.24	3.16	2.45	660
Lane 1 - 50' Left	5+50	3	22,827	42.55	21.32	11.17	6.52	4.65	4.17	3.64	536
Lane 2 - 100' Left	5+50	3	22,811	41.92	18.56	9.94	6.87	5.18	4.25	3.47	544
Lane 3 - 150' Left	5+50	3	22,636	49.28	17.56	8.07	4.72	3.02	2.17	1.67	459
Lane 4 - 200' Left	5+50	3	22,954	37.35	15.07	7.70	4.63	3.08	2.25	1.69	615
Lane 5 - 250' Left	5+50	3	22,899	41.52	18.64	9.82	6.20	4.32	3.34	2.63	552
Lane 6 - 300' Left	5+50	3	22,811	36.17	20.89	10.98	6.69	4.81	3.80	2.84	631
Lane 2 - 100' Left	6+00	3	22,854	44.22	19.79	9.64	5.72	3.92	3.03	2.35	517
Lane 3 - 150' Left	6+00	3	22,576	50.70	20.37	9.48	5.75	4.11	3.32	2.59	445
Lane 4 - 200' Left	6+00	3	22,941	30.19	15.29	8.57	5.59	3.87	2.94	2.31	760
Lane 6 - 300' Left	6+00	3	22,899	33.58	18.83	9.49	5.44	3.57	2.57	2.00	682
Lane 2 - 100' Left	6+50	3	22,894	40.95	16.83	8.71	5.92	4.60	3.69	2.78	559
Lane 3 - 150' Left	6+50	3	22,668	52.26	19.95	9.39	5.66	3.85	3.00	2.43	434
Lane 4 - 200' Left	6+50	3	22,978	35.15	18.44	9.55	5.75	3.90	3.00	2.35	654

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

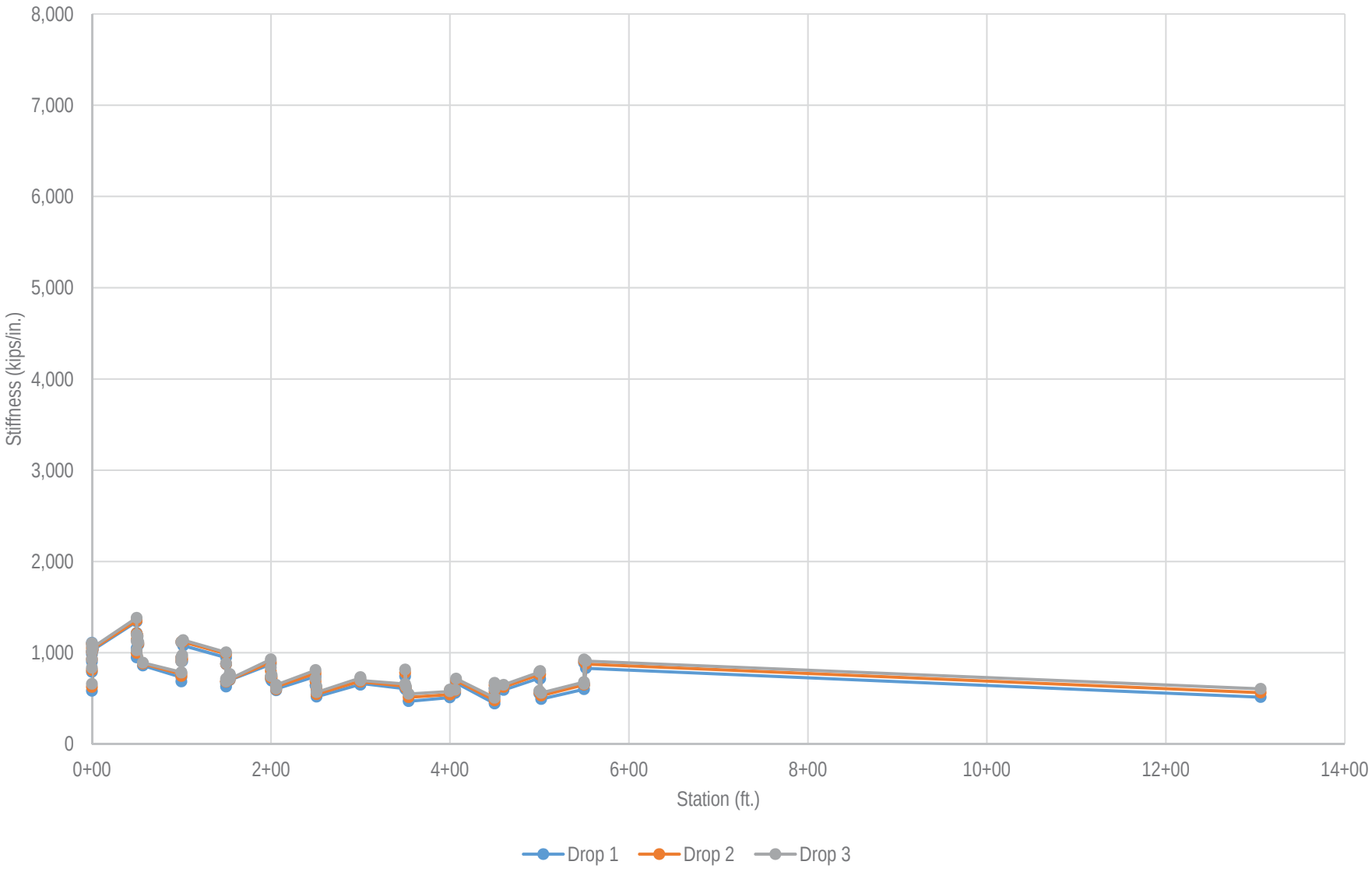
Ramp DE

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 100' Left	7+00	3	22,560	58.49	22.52	10.35	6.53	4.20	3.15	2.64	386
Lane 3 - 150' Left	7+00	3	22,465	57.48	26.17	12.16	7.52	4.82	3.85	2.95	391
Lane 4 - 200' Left	7+00	3	23,243	22.97	12.27	4.81	2.09	1.41	1.19	0.76	1,012
										Average:	626

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxilane AA



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxilane AA

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 50' Left	0+00	1	12,829	16.24	8.82	4.35	2.91	2.26	1.75	1.38	790
Lane 3 - 150' Left	0+00	1	12,932	12.77	4.96	2.28	1.69	1.39	1.09	0.84	1,013
Lane 4 - 200' Left	0+00	1	12,853	13.08	6.46	2.68	1.50	1.11	0.91	0.66	983
Lane 5 - 250' Left	0+00	1	12,837	14.24	6.26	2.47	1.42	1.04	0.64	0.68	901
Lane 7 - 10' Left	0+00	1	12,885	11.62	5.35	2.48	1.43	1.03	0.74	0.48	1,109
TLAA 50' Left	0+00	1	12,921	22.22	12.15	5.81	3.10	1.95	1.37	1.13	582
Lane 6 - 300' Left	0+01	1	12,750	12.37	5.28	2.41	1.50	1.06	0.74	0.59	1,031
Lane 3 - 150' Left	0+50	1	12,937	9.65	5.54	2.72	1.69	1.36	1.09	0.82	1,341
Lane 5 - 250' Left	0+50	1	12,889	10.61	4.52	2.14	1.39	1.06	0.82	0.58	1,215
Lane 6 - 300' Left	0+50	1	12,627	12.06	5.59	2.39	1.41	1.02	0.82	0.65	1,047
TLAA 50' Left	0+50	1	13,001	13.71	6.87	3.11	1.92	1.41	1.05	0.87	948
Lane 7 - 10' Left	0+51	1	12,794	10.85	5.12	2.65	1.50	1.13	0.80	0.49	1,179
Lane 2 - 50' Left	0+52	1	12,874	11.83	5.53	2.77	1.89	1.43	1.16	1.00	1,088
Lane 4 - 200' Left	0+57	1	12,770	14.87	7.01	3.11	1.86	1.36	0.99	0.72	859
Lane 3 - 150' Left	1+00	1	12,842	17.58	7.96	3.87	2.57	1.89	1.44	1.02	730
Lane 4 - 200' Left	1+00	1	12,746	18.64	8.91	4.02	2.30	1.54	1.21	0.86	684
Lane 5 - 250' Left	1+00	1	12,786	11.49	5.12	2.67	1.76	1.39	1.04	0.81	1,113
Lane 6 - 300' Left	1+00	1	12,758	14.11	6.72	3.24	1.90	1.39	0.95	0.70	904
Lane 7 - 10' Left	1+00	1	12,718	13.48	6.55	2.97	1.78	1.18	0.85	0.58	943
Lane 2 - 50' Left	1+01	1	12,901	14.23	6.59	3.28	2.25	1.65	1.26	0.94	907
TLAA 50' Left	1+02	1	13,067	12.12	5.68	3.11	1.94	1.53	1.18	0.98	1,078
Lane 3 - 150' Left	1+50	1	12,853	13.56	6.39	2.89	1.58	1.14	0.94	0.78	948
Lane 4 - 200' Left	1+50	1	12,638	20.11	11.04	5.74	3.46	2.28	1.64	1.18	628
Lane 5 - 250' Left	1+50	1	12,742	14.61	7.16	3.46	2.22	1.63	1.24	0.91	872
Lane 7 - 10' Left	1+50	1	12,583	18.63	9.23	3.92	1.94	1.24	0.96	0.66	675
TLAA 50' Left	1+50	1	12,921	19.64	9.09	4.39	2.76	2.02	1.69	1.24	658
Lane 2 - 50' Left	1+54	1	12,834	16.83	9.07	4.74	3.13	2.34	1.80	1.36	763

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxilane AA

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 6 - 300' Left	1+54	1	12,646	18.05	10.37	5.68	3.64	2.67	2.00	1.64	701
Lane 2 - 50' Left	2+00	1	12,802	14.63	7.71	3.66	2.42	1.78	1.43	1.16	875
Lane 3 - 150' Left	2+00	1	12,694	17.28	8.50	3.94	2.46	1.81	1.50	1.23	735
TLAA 50' Left	2+00	1	12,885	18.06	10.05	4.84	2.83	2.03	1.53	1.18	713
Lane 4 - 200' Left	2+01	1	12,667	18.30	9.30	4.78	3.06	2.35	1.87	1.46	692
Lane 5 - 250' Left	2+06	1	12,603	21.47	11.20	5.80	3.79	2.79	2.14	1.68	587
Lane 7 - 10' Left	2+06	1	12,572	20.85	10.79	5.24	2.97	1.90	1.44	1.00	603
Lane 2 - 50' Left	2+50	1	12,770	17.22	9.04	4.49	2.88	2.14	1.71	1.24	742
Lane 3 - 150' Left	2+50	1	12,646	19.74	10.58	5.13	2.98	2.27	1.66	1.30	641
Lane 4 - 200' Left	2+51	1	12,519	21.37	12.18	6.55	4.20	3.04	2.28	1.80	586
TLAA 50' Left	2+51	1	12,773	24.69	14.65	7.49	4.27	2.63	1.87	1.37	517
Lane 2 - 50' Left	3+00	1	12,726	19.46	11.09	5.24	3.07	2.10	1.56	1.18	654
Lane 3 - 150' Left	3+00	1	12,623	19.35	10.09	4.50	2.61	1.72	1.30	1.00	652
Lane 4 - 200' Left	3+00	1	12,654	19.51	11.26	6.01	3.59	2.40	1.63	1.10	649
TLAA 50' Left	3+00	1	12,909	19.41	12.51	7.11	4.28	2.83	1.94	1.49	665
Lane 3 - 150' Left	3+50	1	12,742	21.03	12.93	6.37	3.41	2.09	1.38	1.04	606
Lane 4 - 200' Left	3+50	1	12,659	17.06	8.93	4.29	2.45	1.66	1.20	0.79	742
TLAA 50' Left	3+51	1	12,829	21.59	12.43	5.90	3.17	2.02	1.39	1.06	594
Lane 2 - 50' Left	3+54	1	12,619	26.95	13.92	6.34	3.37	2.08	1.45	1.05	468
Lane 3 - 150' Left	4+00	1	12,615	24.78	15.10	8.03	4.80	3.07	2.40	1.78	509
TLAA 50' Left	4+00	1	12,699	22.18	13.49	6.38	4.00	2.44	1.65	1.18	573
Lane 2 - 50' Left	4+06	1	12,734	22.76	14.00	6.85	3.55	2.16	1.48	1.11	559
Lane 4 - 200' Left	4+07	1	12,564	18.81	10.77	5.31	3.34	2.38	1.78	1.40	668
Lane 3 - 150' Left	4+50	1	12,623	28.55	17.59	9.04	5.30	3.48	2.61	1.97	442
Lane 4 - 200' Left	4+50	1	12,651	20.78	11.21	5.77	3.44	2.36	1.78	1.27	609
TLAA 50' Left	4+50	1	12,837	24.39	14.65	7.34	3.83	2.02	1.09	0.74	526
Lane 2 - 50' Left	4+60	1	12,694	21.46	13.12	6.71	3.94	2.44	1.68	1.15	592

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxilane AA

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 200' Left	5+00	1	12,686	17.58	10.09	4.98	2.91	2.09	1.61	1.30	722
TLAA 50' Left	5+00	1	12,726	23.02	14.89	7.58	3.93	2.19	1.34	0.91	553
Lane 3 - 150' Left	5+01	1	12,726	17.80	10.19	4.98	3.03	2.24	1.87	1.49	715
Lane 2 - 50' Left	5+02	1	12,675	25.75	15.88	8.06	4.33	2.68	1.85	1.25	492
Lane 3 - 150' Left	5+50	1	12,638	21.07	11.91	6.18	3.95	2.88	2.24	1.84	600
Lane 4 - 200' Left	5+50	1	12,670	14.26	8.76	4.71	2.89	2.11	1.58	1.32	888
TLAA 50' Left	5+50	1	12,834	19.90	13.09	6.90	3.63	2.13	1.36	1.02	645
Lane 2 - 50' Left	5+52	1	12,874	15.51	7.91	4.33	2.82	2.17	1.65	1.26	830
TLAA 50' Left	13+06	1	12,731	24.80	12.20	5.55	3.04	1.91	1.46	1.03	513
Lane 2 - 50' Left	0+00	2	17,822	22.02	12.01	6.10	4.06	3.10	2.46	1.93	809
Lane 3 - 150' Left	0+00	2	17,926	17.08	6.98	3.26	2.39	1.89	1.50	1.29	1,050
Lane 4 - 200' Left	0+00	2	17,870	17.73	8.98	3.92	2.14	1.48	1.23	0.98	1,008
Lane 5 - 250' Left	0+00	2	17,854	19.23	8.90	3.68	2.12	1.30	1.10	0.74	928
Lane 7 - 10' Left	0+00	2	17,870	16.30	7.55	3.55	2.11	1.44	1.06	0.75	1,096
TLAA 50' Left	0+00	2	17,838	28.56	16.00	7.87	4.42	2.69	1.97	1.40	625
Lane 6 - 300' Left	0+01	2	17,783	17.04	7.43	3.46	2.15	1.48	1.07	0.84	1,044
Lane 3 - 150' Left	0+50	2	17,969	13.28	7.56	3.81	2.37	1.89	1.52	1.16	1,353
Lane 5 - 250' Left	0+50	2	17,878	14.77	6.54	3.09	2.04	1.48	1.14	0.91	1,210
Lane 6 - 300' Left	0+50	2	17,675	15.50	7.87	3.47	2.05	1.47	1.24	0.91	1,140
TLAA 50' Left	0+50	2	17,992	18.05	9.27	4.49	2.73	1.94	1.47	1.20	997
Lane 7 - 10' Left	0+51	2	17,815	14.97	7.30	3.67	2.26	1.48	1.17	0.72	1,190
Lane 2 - 50' Left	0+52	2	17,905	16.28	7.71	3.90	2.61	2.00	1.64	1.35	1,100
Lane 4 - 200' Left	0+57	2	17,762	20.17	9.91	4.50	2.73	1.90	1.43	0.97	881
Lane 3 - 150' Left	1+00	2	17,802	23.26	10.98	5.50	3.62	2.62	2.03	1.50	765
Lane 4 - 200' Left	1+00	2	17,746	23.83	11.83	5.56	3.26	2.16	1.66	1.23	745
Lane 5 - 250' Left	1+00	2	17,783	15.89	7.37	3.87	2.59	1.90	1.52	1.11	1,119
Lane 6 - 300' Left	1+00	2	17,695	19.49	9.71	4.72	2.76	1.93	1.46	1.04	908

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxilane AA

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 7 - 10' Left	1+00	2	17,719	18.71	9.33	4.48	2.50	1.71	1.26	0.94	947
Lane 2 - 50' Left	1+01	2	17,894	19.12	9.01	4.64	3.14	2.25	1.78	1.41	936
TLAA 50' Left	1+02	2	18,064	16.14	7.79	4.16	2.73	2.03	1.65	1.36	1,119
Lane 3 - 150' Left	1+50	2	17,854	18.08	8.84	4.07	2.26	1.48	1.28	1.01	988
Lane 4 - 200' Left	1+50	2	17,619	25.89	14.62	7.79	4.78	3.15	2.28	1.67	681
Lane 5 - 250' Left	1+50	2	17,687	20.17	10.20	5.15	3.13	2.25	1.76	1.36	877
Lane 7 - 10' Left	1+50	2	17,529	25.66	13.38	5.95	2.89	1.77	1.34	1.00	683
TLAA 50' Left	1+50	2	17,873	26.06	12.40	6.12	3.91	2.83	2.26	1.75	686
Lane 2 - 50' Left	1+54	2	17,818	23.54	12.82	6.91	4.53	3.31	2.56	1.87	757
Lane 6 - 300' Left	1+54	2	17,571	24.89	14.71	8.17	5.24	3.79	2.86	2.32	706
Lane 2 - 50' Left	2+00	2	17,746	19.79	10.46	5.26	3.41	2.54	2.04	1.65	897
Lane 3 - 150' Left	2+00	2	17,695	22.13	11.11	5.45	3.44	2.55	2.09	1.75	800
TLAA 50' Left	2+00	2	17,865	24.57	13.95	7.01	4.17	2.85	2.22	1.72	727
Lane 4 - 200' Left	2+01	2	17,611	24.15	12.87	6.74	4.44	3.30	2.65	2.12	729
Lane 5 - 250' Left	2+06	2	17,505	29.25	15.98	8.60	5.59	4.02	3.04	2.41	598
Lane 7 - 10' Left	2+06	2	17,484	27.85	14.89	7.50	4.31	2.75	2.06	1.49	628
Lane 2 - 50' Left	2+50	2	17,778	22.93	12.22	6.20	4.01	2.93	2.44	1.75	775
Lane 3 - 150' Left	2+50	2	17,616	25.69	14.24	6.73	4.23	2.99	2.43	1.89	686
Lane 4 - 200' Left	2+51	2	17,465	28.94	16.48	9.22	6.02	4.30	3.36	2.59	603
TLAA 50' Left	2+51	2	17,687	32.41	19.09	10.03	5.84	3.66	2.65	1.96	546
Lane 2 - 50' Left	3+00	2	17,699	25.69	14.79	7.33	4.33	2.93	2.24	1.67	689
Lane 3 - 150' Left	3+00	2	17,600	25.15	13.59	6.33	3.67	2.48	1.86	1.43	700
Lane 4 - 200' Left	3+00	2	17,627	25.84	15.09	8.29	5.08	3.37	2.43	1.67	682
TLAA 50' Left	3+00	2	17,807	26.07	16.87	9.78	5.94	3.90	2.78	2.12	683
Lane 3 - 150' Left	3+50	2	17,675	27.90	17.14	8.56	4.89	2.84	2.00	1.51	634
Lane 4 - 200' Left	3+50	2	17,619	22.56	11.94	6.05	3.45	2.41	1.77	1.28	781
TLAA 50' Left	3+51	2	17,751	28.97	16.94	8.30	4.52	2.85	1.98	1.51	613

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxilane AA

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 50' Left	3+54	2	17,568	34.31	18.24	8.58	4.76	2.80	1.97	1.54	512
Lane 3 - 150' Left	4+00	2	17,571	32.44	19.62	10.73	6.44	4.28	3.35	2.61	542
TLAA 50' Left	4+00	2	17,627	29.94	18.61	9.21	5.61	3.49	2.41	1.71	589
Lane 2 - 50' Left	4+06	2	17,635	30.32	18.75	9.44	5.05	2.98	2.09	1.59	582
Lane 4 - 200' Left	4+07	2	17,564	25.28	14.76	7.70	4.88	3.52	2.59	2.07	695
Lane 3 - 150' Left	4+50	2	17,587	36.92	22.57	11.88	7.13	4.79	3.68	2.76	476
Lane 4 - 200' Left	4+50	2	17,640	27.50	15.25	8.07	4.95	3.33	2.56	1.82	641
TLAA 50' Left	4+50	2	17,778	31.02	18.73	9.65	5.22	2.93	1.68	1.17	573
Lane 2 - 50' Left	4+60	2	17,664	28.30	17.44	9.16	5.48	3.37	2.31	1.67	624
Lane 4 - 200' Left	5+00	2	17,664	23.22	13.56	6.99	4.21	3.02	2.32	1.82	761
TLAA 50' Left	5+00	2	17,672	31.07	19.87	10.21	5.51	3.02	1.95	1.42	569
Lane 3 - 150' Left	5+01	2	17,735	23.19	13.54	7.00	4.43	3.28	2.70	2.26	765
Lane 2 - 50' Left	5+02	2	17,587	33.15	20.38	10.71	5.97	3.76	2.61	1.85	531
Lane 3 - 150' Left	5+50	2	17,595	27.07	15.80	8.51	5.52	3.94	3.11	2.56	650
Lane 4 - 200' Left	5+50	2	17,680	19.52	12.13	6.75	4.14	2.93	2.27	1.89	906
TLAA 50' Left	5+50	2	17,783	27.30	17.82	9.65	5.23	3.05	2.06	1.42	651
Lane 2 - 50' Left	5+52	2	17,910	20.43	10.90	6.18	4.17	3.12	2.42	1.85	877
TLAA 50' Left	13+06	2	17,648	31.37	15.64	7.43	4.20	2.64	2.01	1.55	563
Lane 2 - 50' Left	0+00	3	23,200	27.78	15.45	8.08	5.36	4.04	3.23	2.54	835
Lane 3 - 150' Left	0+00	3	23,347	21.71	9.29	4.48	3.09	2.46	2.01	1.65	1,075
Lane 4 - 200' Left	0+00	3	23,320	23.02	11.93	5.30	2.91	2.07	1.62	1.27	1,013
Lane 5 - 250' Left	0+00	3	23,212	24.92	11.94	5.20	2.83	1.78	1.39	1.06	931
Lane 7 - 10' Left	0+00	3	23,291	21.08	10.05	4.74	2.89	1.89	1.47	1.00	1,105
TLAA 50' Left	0+00	3	23,053	35.01	20.01	10.06	5.67	3.45	2.53	2.03	658
Lane 6 - 300' Left	0+01	3	23,224	21.93	9.81	4.62	2.87	1.92	1.42	1.15	1,059
Lane 3 - 150' Left	0+50	3	23,418	16.94	9.86	5.06	3.19	2.42	1.98	1.59	1,382
Lane 5 - 250' Left	0+50	3	23,312	19.48	8.93	4.17	2.69	1.95	1.45	1.25	1,197

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxilane AA

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 6 - 300' Left	0+50	3	23,164	20.57	10.63	4.78	2.80	1.94	1.57	1.17	1,126
TLAA 50' Left	0+50	3	23,323	22.74	11.95	5.98	3.66	2.58	2.00	1.59	1,026
Lane 7 - 10' Left	0+51	3	23,264	19.68	9.79	4.94	3.11	2.02	1.56	1.00	1,182
Lane 2 - 50' Left	0+52	3	23,299	20.91	10.04	5.13	3.37	2.59	2.27	1.87	1,114
Lane 4 - 200' Left	0+57	3	23,177	26.03	13.17	6.23	3.69	2.58	1.93	1.38	890
Lane 3 - 150' Left	1+00	3	23,164	29.48	14.41	7.35	4.84	3.49	2.75	1.99	786
Lane 4 - 200' Left	1+00	3	23,148	29.64	15.22	7.36	4.35	2.91	2.24	1.68	781
Lane 5 - 250' Left	1+00	3	23,184	20.72	9.97	5.27	3.43	2.52	1.96	1.54	1,119
Lane 6 - 300' Left	1+00	3	23,061	25.53	13.18	6.49	3.78	2.54	1.93	1.41	903
Lane 7 - 10' Left	1+00	3	23,100	24.30	12.49	6.16	3.40	2.24	1.72	1.23	951
Lane 2 - 50' Left	1+01	3	23,243	23.89	11.66	5.96	4.11	2.93	2.33	1.84	973
TLAA 50' Left	1+02	3	23,418	20.58	10.12	5.52	3.61	2.61	2.15	1.77	1,138
Lane 3 - 150' Left	1+50	3	23,275	23.19	11.54	5.48	2.99	1.98	1.66	1.44	1,004
Lane 4 - 200' Left	1+50	3	22,954	32.11	18.43	10.04	6.19	4.09	2.98	2.23	715
Lane 5 - 250' Left	1+50	3	23,069	26.09	13.64	6.98	4.21	2.95	2.31	1.83	884
Lane 7 - 10' Left	1+50	3	22,859	33.41	18.04	8.34	4.06	2.39	1.76	1.33	684
TLAA 50' Left	1+50	3	23,172	32.94	16.09	8.16	5.18	3.76	3.04	2.27	703
Lane 2 - 50' Left	1+54	3	23,124	30.18	16.83	9.31	6.07	4.39	3.36	2.55	766
Lane 6 - 300' Left	1+54	3	22,883	32.09	19.41	10.91	7.04	4.96	3.82	3.13	713
Lane 2 - 50' Left	2+00	3	23,156	24.96	13.53	6.99	4.47	3.30	2.68	2.17	928
Lane 3 - 150' Left	2+00	3	23,132	27.56	14.10	6.90	4.50	3.30	2.83	2.19	839
TLAA 50' Left	2+00	3	23,180	31.19	18.15	9.37	5.61	3.76	2.92	2.23	743
Lane 4 - 200' Left	2+01	3	22,965	30.47	16.83	8.98	5.94	4.35	3.49	2.82	754
Lane 5 - 250' Left	2+06	3	22,819	37.59	21.16	11.72	7.61	5.38	4.11	3.30	607
Lane 7 - 10' Left	2+06	3	22,811	35.19	19.35	9.88	5.81	3.73	2.72	1.90	648
Lane 2 - 50' Left	2+50	3	23,140	28.58	15.54	8.10	5.24	3.80	3.18	2.36	810
Lane 3 - 150' Left	2+50	3	23,021	32.12	18.03	8.98	5.51	3.82	3.15	2.57	717

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxilane AA

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 4 - 200' Left	2+51	3	22,790	36.19	21.03	12.11	7.99	5.64	4.41	3.47	630
TLAA 50' Left	2+51	3	22,957	40.51	23.92	12.88	7.59	4.78	3.51	2.70	567
Lane 2 - 50' Left	3+00	3	23,053	31.82	18.67	9.48	5.67	3.82	2.99	2.31	724
Lane 3 - 150' Left	3+00	3	22,978	31.39	17.31	8.30	4.90	3.23	2.44	1.94	732
Lane 4 - 200' Left	3+00	3	23,010	32.46	19.04	10.69	6.66	4.37	3.16	2.30	709
TLAA 50' Left	3+00	3	23,084	33.18	21.47	12.56	7.70	5.01	3.63	2.81	696
Lane 3 - 150' Left	3+50	3	22,997	34.99	21.57	11.06	6.31	3.80	2.68	2.02	657
Lane 4 - 200' Left	3+50	3	23,053	28.26	15.18	7.92	4.64	3.22	2.39	1.80	816
TLAA 50' Left	3+51	3	23,065	36.70	21.70	10.82	5.96	3.74	2.69	2.05	628
Lane 2 - 50' Left	3+54	3	22,843	41.62	22.70	11.02	6.17	3.67	2.69	2.11	549
Lane 3 - 150' Left	4+00	3	22,886	39.71	24.31	13.06	8.40	5.28	4.39	3.51	576
TLAA 50' Left	4+00	3	22,859	38.36	24.18	11.85	7.63	4.66	3.22	2.29	596
Lane 2 - 50' Left	4+06	3	22,910	38.62	23.78	12.14	6.66	3.95	2.78	2.02	593
Lane 4 - 200' Left	4+07	3	22,933	32.05	19.06	9.80	6.49	4.76	3.45	2.83	716
Lane 3 - 150' Left	4+50	3	22,899	45.24	27.66	14.91	9.13	6.26	4.81	3.63	506
Lane 4 - 200' Left	4+50	3	23,029	34.41	19.60	10.65	6.61	4.48	3.42	2.54	669
TLAA 50' Left	4+50	3	23,076	38.41	23.36	12.28	6.86	3.84	2.35	1.46	601
Lane 2 - 50' Left	4+60	3	23,010	35.52	22.07	11.85	7.15	4.44	3.10	2.30	648
Lane 4 - 200' Left	5+00	3	23,100	29.31	17.47	9.39	5.75	4.04	3.13	2.63	788
TLAA 50' Left	5+00	3	22,894	39.37	25.24	13.15	7.26	3.96	2.63	1.99	582
Lane 3 - 150' Left	5+01	3	23,192	29.01	17.05	9.13	5.96	4.40	3.59	2.97	799
Lane 2 - 50' Left	5+02	3	22,891	40.96	25.22	13.41	7.77	4.94	3.48	2.55	559
Lane 3 - 150' Left	5+50	3	23,018	33.93	20.09	10.90	7.52	5.19	4.01	3.28	678
Lane 4 - 200' Left	5+50	3	23,121	24.96	15.86	8.98	5.57	3.81	3.05	2.50	926
TLAA 50' Left	5+50	3	23,034	35.02	22.88	12.55	6.95	4.02	2.68	1.98	658
Lane 2 - 50' Left	5+52	3	23,339	25.67	14.14	8.17	5.64	4.23	3.26	2.48	909
TLAA 50' Left	13+06	3	22,803	37.73	19.19	9.35	5.41	3.40	2.68	1.97	604

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

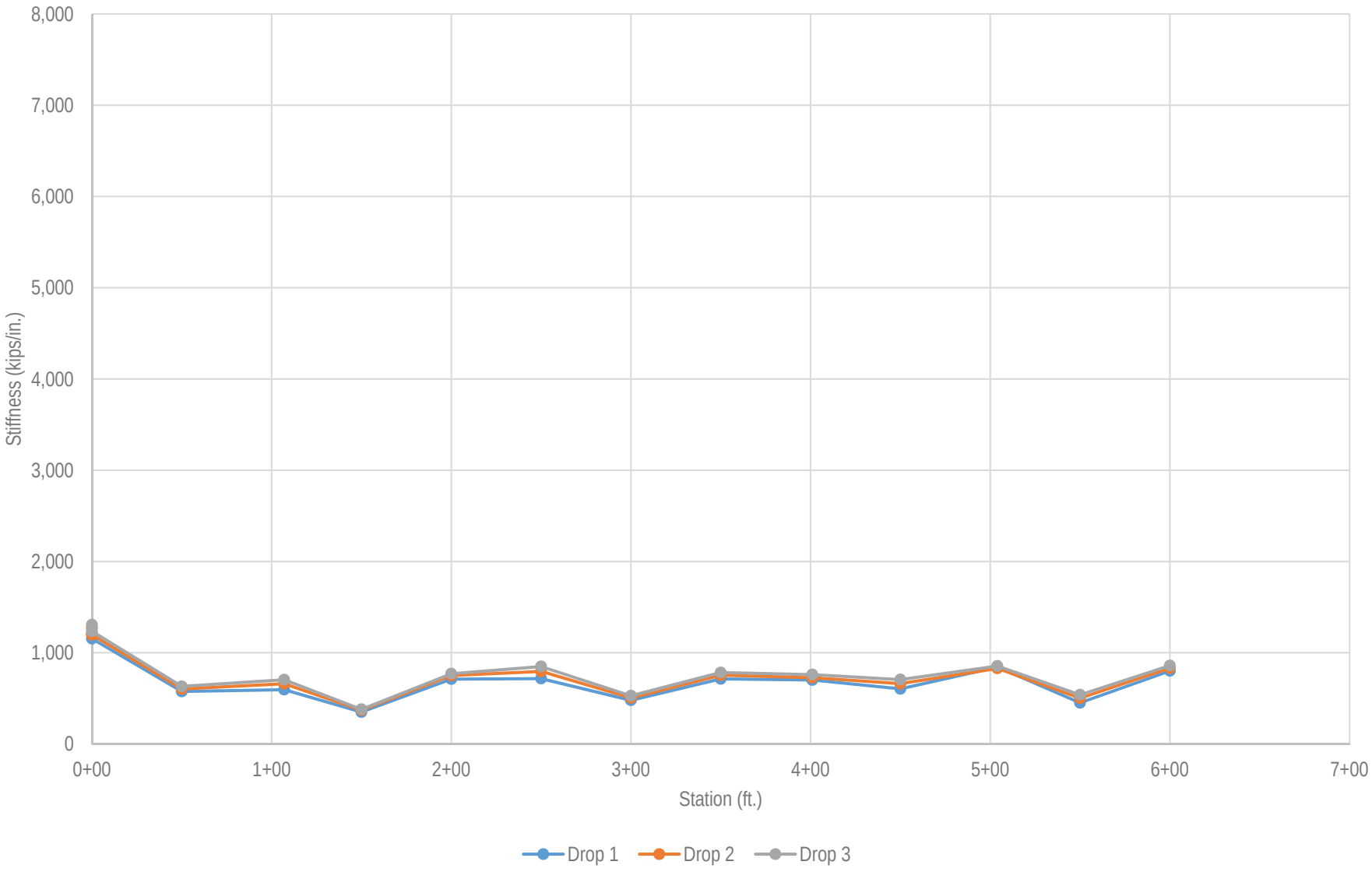
Taxilane AA

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
										Average:	785

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxilane NN



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxilane NN

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' right	0+00	1	12,932	10.74	7.45	5.26	4.21	3.22	2.54	1.95	1,204
Lane 2 - 12.5' Left	0+00	1	12,850	11.13	8.18	6.00	4.69	3.64	2.82	2.20	1,155
Lane 2 - 12.5' Left	0+50	1	12,659	22.00	14.65	8.34	4.98	3.40	2.57	1.91	575
Lane 1 - 12.5' right	1+07	1	12,762	21.43	12.22	7.09	4.54	3.13	2.21	1.82	596
Lane 2 - 12.5' Left	1+50	1	12,488	35.65	17.74	9.62	5.91	3.89	2.94	2.15	350
Lane 1 - 12.5' right	2+00	1	12,746	17.92	10.25	5.83	3.69	2.58	1.88	1.48	711
Lane 2 - 12.5' Left	2+50	1	12,877	17.96	10.00	5.76	3.97	2.78	2.09	1.60	717
Lane 1 - 12.5' right	3+00	1	12,686	26.48	15.81	8.67	5.04	3.34	2.44	1.85	479
Lane 2 - 12.5' Left	3+50	1	12,686	17.79	10.51	5.94	3.94	2.78	2.09	1.63	713
Lane 1 - 12.5' right	4+01	1	12,794	18.24	9.64	5.22	3.42	2.53	1.93	1.29	701
Lane 2 - 12.5' Left	4+50	1	12,646	20.94	10.51	5.04	3.07	2.20	1.64	1.19	604
Lane 1 - 12.5' right	5+04	1	11,785	13.97	7.87	3.74	2.57	1.71	1.16	1.26	844
Lane 2 - 12.5' Left	5+50	1	12,535	27.78	14.83	8.07	5.28	3.84	2.95	2.29	451
Lane 1 - 12.5' right	6+00	1	12,773	15.93	8.40	4.15	2.52	1.65	1.19	0.91	802
Lane 1 - 12.5' right	0+00	2	17,921	14.06	9.87	7.29	5.56	4.30	3.44	2.67	1,275
Lane 2 - 12.5' Left	0+00	2	17,881	14.94	10.96	8.09	6.40	4.93	3.85	3.05	1,197
Lane 2 - 12.5' Left	0+50	2	17,624	29.21	19.25	11.19	6.83	4.70	3.54	2.68	603
Lane 1 - 12.5' right	1+07	2	17,719	26.81	15.40	9.17	6.08	4.22	3.19	2.46	661
Lane 2 - 12.5' Left	1+50	2	17,278	46.70	24.89	14.11	8.69	5.60	4.15	3.04	370
Lane 1 - 12.5' right	2+00	2	17,632	23.50	14.05	8.33	5.43	3.80	2.78	2.12	750
Lane 2 - 12.5' Left	2+50	2	17,854	22.43	12.93	7.85	5.49	3.94	2.98	2.34	796
Lane 1 - 12.5' right	3+00	2	17,587	34.80	21.17	12.07	7.26	4.86	3.63	2.74	505
Lane 2 - 12.5' Left	3+50	2	17,616	23.35	14.35	8.40	5.64	3.96	2.98	2.29	754
Lane 1 - 12.5' right	4+01	2	17,802	24.51	13.32	7.54	4.93	3.56	2.83	2.15	726
Lane 2 - 12.5' Left	4+50	2	17,587	26.58	13.98	7.09	4.46	3.12	2.35	1.80	662
Lane 1 - 12.5' right	5+04	2	17,699	21.36	11.96	6.43	3.96	2.72	1.91	1.41	829
Lane 2 - 12.5' Left	5+50	2	17,473	34.75	19.17	10.82	7.19	5.24	4.10	3.32	503

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

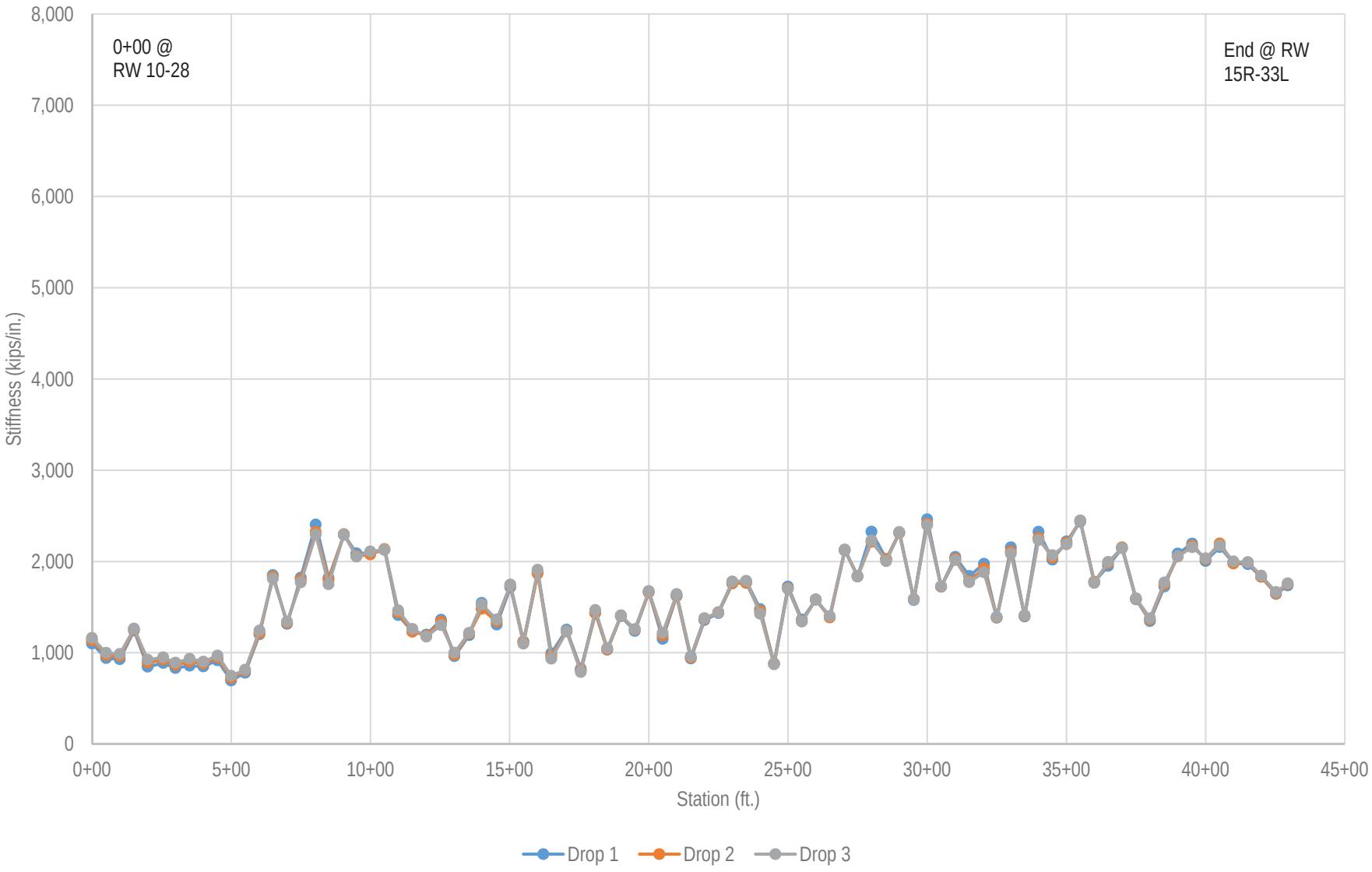
Taxilane NN

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' right	6+00	2	17,746	21.34	11.47	5.97	3.57	2.44	1.83	1.39	832
Lane 1 - 12.5' right	0+00	3	23,235	17.77	12.41	9.14	7.07	5.44	4.35	3.37	1,308
Lane 2 - 12.5' Left	0+00	3	23,259	18.82	13.80	10.24	8.09	6.23	4.93	3.70	1,236
Lane 2 - 12.5' Left	0+50	3	22,883	36.24	23.96	14.15	8.80	6.09	4.62	3.51	631
Lane 1 - 12.5' right	1+07	3	23,005	32.64	18.88	11.39	7.81	5.49	4.19	3.22	705
Lane 2 - 12.5' Left	1+50	3	22,377	58.96	33.24	19.28	11.85	7.46	5.40	3.94	380
Lane 1 - 12.5' right	2+00	3	22,933	29.79	18.32	11.25	7.39	5.13	3.67	2.88	770
Lane 2 - 12.5' Left	2+50	3	23,259	27.38	16.11	10.09	7.13	5.21	4.02	3.14	849
Lane 1 - 12.5' right	3+00	3	22,756	43.04	26.65	15.64	9.58	6.46	4.84	3.69	529
Lane 2 - 12.5' Left	3+50	3	22,918	29.26	18.48	11.03	7.47	5.24	3.92	3.07	783
Lane 1 - 12.5' right	4+01	3	23,188	30.50	17.31	10.17	6.68	4.74	3.74	2.94	760
Lane 2 - 12.5' Left	4+50	3	22,946	32.49	17.60	9.26	5.92	4.11	3.10	2.43	706
Lane 1 - 12.5' right	5+04	3	23,069	26.99	15.20	8.43	5.52	3.62	2.66	2.06	855
Lane 2 - 12.5' Left	5+50	3	22,756	42.21	23.79	13.72	9.13	6.68	5.26	4.35	539
Lane 1 - 12.5' right	6+00	3	23,113	26.89	14.84	7.96	4.93	3.31	2.45	1.87	860
										Average:	745

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway F



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	13,083	11.89	7.10	4.35	2.99	2.27	1.87	1.50	1,100
Lane 2 - 12.5' Left	0+51	1	12,802	13.61	8.22	4.73	3.05	2.19	1.59	1.19	941
Lane 1 - 12.5' Right	1+00	1	12,882	13.86	7.91	4.34	2.69	2.02	1.46	1.10	929
Lane 2 - 12.5' Left	1+51	1	13,009	10.46	6.49	4.13	2.80	2.22	1.53	1.17	1,244
Lane 1 - 12.5' Right	2+00	1	12,834	15.16	8.28	4.70	2.92	1.98	1.46	1.04	847
Lane 2 - 12.5' Left	2+56	1	12,932	14.57	7.87	4.38	2.76	2.10	1.55	1.15	888
Lane 1 - 12.5' Right	3+00	1	12,829	15.41	8.90	4.86	3.19	2.06	1.51	1.16	833
Lane 2 - 12.5' Left	3+51	1	12,921	15.06	7.89	4.47	2.93	2.37	1.89	1.35	858
Lane 1 - 12.5' Right	4+00	1	12,794	15.06	8.53	4.78	3.27	2.39	1.93	1.43	850
Lane 2 - 12.5' Left	4+51	1	12,961	14.15	8.16	4.71	3.13	2.33	1.76	1.31	916
Lane 1 - 12.5' Right	5+00	1	12,746	18.34	10.55	5.77	3.57	2.39	1.70	1.26	695
Lane 2 - 12.5' Left	5+50	1	12,877	16.50	9.93	5.70	3.63	2.50	1.85	1.33	780
Lane 1 - 12.5' Right	6+02	1	12,805	10.66	4.48	2.33	1.61	1.33	1.06	0.72	1,201
Lane 2 - 12.5' Left	6+50	1	13,044	7.05	3.59	2.26	1.67	1.41	1.06	0.83	1,850
Lane 1 - 12.5' Right	7+01	1	12,893	9.79	4.43	2.80	2.14	1.72	1.39	1.12	1,317
Lane 2 - 12.5' Left	7+50	1	12,961	7.11	4.13	3.07	2.28	1.88	1.43	1.13	1,823
Lane 1 - 12.5' Right	8+04	1	12,937	5.38	3.29	2.30	1.76	1.47	1.17	0.91	2,405
Lane 2 - 12.5' Left	8+50	1	12,969	7.13	4.48	3.17	2.30	1.76	1.40	1.16	1,819
Lane 1 - 12.5' Right	9+05	1	13,040	5.69	3.05	2.03	1.56	1.35	1.09	0.89	2,292
Lane 2 - 12.5' Left	9+50	1	13,080	6.26	3.69	2.37	1.78	1.44	1.19	0.97	2,089
Lane 1 - 12.5' Right	10+00	1	12,953	6.19	3.74	2.65	2.09	1.69	1.39	1.13	2,093
Lane 2 - 12.5' Left	10+51	1	13,001	6.11	3.58	2.43	1.88	1.54	1.30	1.07	2,128
Lane 1 - 12.5' Right	11+00	1	12,901	9.14	5.65	4.04	3.00	2.31	1.70	1.36	1,411
Lane 2 - 12.5' Left	11+51	1	12,945	10.50	5.40	3.11	2.26	1.76	1.37	1.07	1,233
Lane 1 - 12.5' Right	12+01	1	12,913	10.78	6.00	3.42	2.48	1.93	1.64	1.27	1,198
Lane 2 - 12.5' Left	12+54	1	12,924	9.49	5.44	3.45	2.42	1.93	1.52	1.22	1,362
Lane 1 - 12.5' Right	13+02	1	12,861	13.36	7.87	5.38	4.17	3.50	2.84	2.34	963

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	13+55	1	12,913	10.83	5.76	2.95	2.05	1.56	1.16	0.82	1,192
Lane 1 - 12.5' Right	14+00	1	12,909	8.35	5.27	3.84	3.00	2.54	2.00	1.60	1,546
Lane 2 - 12.5' Left	14+54	1	12,932	9.88	5.58	3.64	2.80	2.30	1.80	1.49	1,309
Lane 1 - 12.5' Right	15+03	1	12,956	7.54	4.04	2.59	1.82	1.46	1.08	0.88	1,718
Lane 2 - 12.5' Left	15+50	1	12,869	11.48	6.33	3.80	2.62	2.04	1.40	1.30	1,121
Lane 1 - 12.5' Right	16+01	1	12,977	6.89	4.39	3.21	2.33	1.80	1.43	1.07	1,883
Lane 2 - 12.5' Left	16+50	1	12,885	12.97	8.02	4.97	3.47	2.64	1.89	1.43	993
Lane 1 - 12.5' Right	17+05	1	12,913	10.31	6.72	4.50	3.52	2.91	2.28	1.91	1,252
Lane 2 - 12.5' Left	17+56	1	12,758	15.49	9.22	5.15	3.33	2.40	1.80	1.36	824
Lane 1 - 12.5' Right	18+08	1	12,916	9.01	5.80	4.02	3.11	2.57	2.09	1.66	1,434
Lane 2 - 12.5' Left	18+51	1	12,726	12.32	7.43	4.46	3.35	2.74	2.22	1.79	1,033
Lane 1 - 12.5' Right	19+00	1	12,909	9.22	6.33	4.83	3.69	3.01	2.51	2.10	1,400
Lane 2 - 12.5' Left	19+50	1	12,889	10.41	6.70	4.88	3.72	3.06	2.45	1.96	1,238
Lane 1 - 12.5' Right	20+00	1	13,004	7.80	5.49	4.47	3.64	3.02	2.53	2.14	1,667
Lane 2 - 12.5' Left	20+50	1	12,853	11.16	6.37	3.76	2.78	2.33	2.06	1.29	1,152
Lane 1 - 12.5' Right	21+00	1	12,969	8.00	5.18	3.64	2.98	2.48	1.93	1.54	1,621
Lane 2 - 12.5' Left	21+51	1	12,750	13.61	8.18	5.20	3.98	3.32	2.56	2.31	937
Lane 1 - 12.5' Right	22+00	1	13,012	9.59	5.44	3.29	2.46	2.00	1.56	1.26	1,357
Lane 2 - 12.5' Left	22+50	1	12,837	8.95	5.09	3.59	2.56	2.05	1.70	1.56	1,434
Lane 1 - 12.5' Right	23+00	1	12,945	7.36	5.04	3.86	3.09	2.56	2.09	1.74	1,759
Lane 2 - 12.5' Left	23+50	1	12,905	7.24	4.78	3.40	2.60	2.12	1.77	1.46	1,782
Lane 1 - 12.5' Right	24+00	1	12,945	8.76	5.16	3.34	2.33	1.73	1.31	1.02	1,478
Lane 2 - 12.5' Left	24+50	1	12,810	14.57	7.69	3.75	2.47	1.89	1.44	1.09	879
Lane 1 - 12.5' Right	25+00	1	12,932	7.50	4.43	3.15	2.35	1.87	1.40	1.15	1,724
Lane 2 - 12.5' Left	25+50	1	12,905	9.47	5.99	3.74	2.46	1.77	1.28	0.96	1,363
Lane 1 - 12.5' Right	26+00	1	12,901	8.16	4.32	2.75	1.95	1.56	1.17	0.94	1,581
Lane 2 - 12.5' Left	26+50	1	12,885	9.26	5.24	3.38	2.38	2.24	1.46	1.15	1,391

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	27+04	1	12,996	6.13	3.30	2.13	1.54	1.32	1.05	0.86	2,120
Lane 2 - 12.5' Left	27+50	1	12,916	7.02	3.77	2.35	1.68	1.39	1.08	0.87	1,840
Lane 1 - 12.5' Right	28+00	1	12,961	5.57	3.68	2.76	2.10	1.67	1.18	0.96	2,327
Lane 2 - 12.5' Left	28+53	1	12,929	6.38	4.23	3.10	2.27	1.71	1.35	1.03	2,026
Lane 1 - 12.5' Right	29+00	1	12,980	5.61	3.10	2.33	1.87	1.48	1.11	0.73	2,314
Lane 2 - 12.5' Left	29+52	1	12,889	8.17	4.49	3.15	2.29	1.78	1.35	1.00	1,578
Lane 1 - 12.5' Right	30+00	1	13,001	5.28	3.65	2.84	2.41	1.86	1.50	1.16	2,462
Lane 2 - 12.5' Left	30+50	1	12,858	7.46	4.22	3.07	2.24	1.86	1.30	1.18	1,724
Lane 1 - 12.5' Right	31+01	1	12,929	6.31	3.97	3.04	2.21	1.87	1.43	1.13	2,049
Lane 2 - 12.5' Left	31+51	1	12,882	7.00	4.62	3.57	2.71	2.14	1.56	1.26	1,840
Lane 1 - 12.5' Right	32+04	1	12,916	6.54	4.54	3.41	2.49	2.05	1.51	1.28	1,975
Lane 2 - 12.5' Left	32+50	1	12,874	9.31	5.97	3.96	2.89	2.24	1.70	1.35	1,383
Lane 1 - 12.5' Right	33+01	1	12,905	5.99	3.96	2.95	2.13	1.82	1.37	1.09	2,154
Lane 2 - 12.5' Left	33+50	1	12,953	9.27	5.05	3.13	2.15	1.72	1.26	1.04	1,397
Lane 1 - 12.5' Right	34+00	1	12,972	5.58	3.59	2.79	2.17	1.88	1.39	1.13	2,325
Lane 2 - 12.5' Left	34+50	1	12,845	6.36	3.48	2.65	2.03	1.63	1.30	1.07	2,020
Lane 1 - 12.5' Right	35+01	1	12,945	5.83	3.39	2.50	1.89	1.50	1.17	1.12	2,220
Lane 2 - 12.5' Left	35+50	1	12,913	5.30	3.27	2.59	1.97	1.66	1.26	1.00	2,436
Lane 1 - 12.5' Right	36+00	1	12,916	7.27	4.03	2.70	2.06	1.64	1.34	1.11	1,777
Lane 2 - 12.5' Left	36+50	1	12,901	6.61	3.97	2.96	2.28	1.79	1.41	1.14	1,952
Lane 1 - 12.5' Right	37+00	1	12,932	6.02	3.46	2.46	1.90	1.52	1.30	1.09	2,148
Lane 2 - 12.5' Left	37+50	1	12,813	8.08	5.13	3.82	2.88	2.22	1.70	1.34	1,586
Lane 1 - 12.5' Right	38+00	1	12,905	9.58	6.54	4.53	3.22	2.45	1.70	1.33	1,347
Lane 2 - 12.5' Left	38+52	1	12,885	7.47	4.56	3.15	2.22	1.65	1.26	0.95	1,725
Lane 1 - 12.5' Right	39+00	1	12,913	6.19	3.70	2.37	1.62	1.21	0.86	0.68	2,086
Lane 2 - 12.5' Left	39+52	1	12,932	5.89	3.50	2.30	1.53	1.19	0.87	0.68	2,196
Lane 1 - 12.5' Right	40+00	1	12,969	6.47	3.64	2.29	1.56	1.19	0.83	0.71	2,004

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	40+51	1	13,183	6.11	3.37	2.26	1.57	1.17	0.90	0.71	2,158
Lane 1 - 12.5' Right	41+00	1	13,107	6.60	3.71	2.42	1.71	1.28	1.04	0.85	1,986
Lane 2 - 12.5' Left	41+52	1	13,040	6.62	3.84	2.61	1.87	1.45	1.14	0.91	1,970
Lane 1 - 12.5' Right	42+00	1	13,052	7.13	4.30	2.88	2.09	1.60	1.28	1.00	1,831
Lane 2 - 12.5' Left	42+53	1	12,977	7.89	4.29	2.78	1.98	1.70	1.24	1.04	1,645
Lane 1 - 12.5' Right	42+95	1	13,012	7.49	3.69	2.35	1.65	1.26	1.10	0.88	1,737
Lane 1 - 12.5' Right	0+00	2	18,056	15.89	9.70	6.02	4.24	3.17	2.61	2.18	1,136
Lane 2 - 12.5' Left	0+51	2	17,846	18.35	11.20	6.59	4.22	2.94	2.18	1.81	973
Lane 1 - 12.5' Right	1+00	2	17,818	18.51	10.92	6.20	3.94	2.77	2.09	1.60	963
Lane 2 - 12.5' Left	1+51	2	18,096	14.41	9.06	5.73	3.97	2.96	2.15	1.65	1,256
Lane 1 - 12.5' Right	2+00	2	17,794	19.96	11.13	6.39	4.13	2.78	2.09	1.48	891
Lane 2 - 12.5' Left	2+56	2	18,000	19.47	10.71	6.03	3.89	2.79	2.13	1.65	924
Lane 1 - 12.5' Right	3+00	2	17,791	20.50	12.00	6.94	4.42	2.99	2.16	1.71	868
Lane 2 - 12.5' Left	3+51	2	18,013	19.94	10.71	6.13	4.23	3.13	2.38	1.86	903
Lane 1 - 12.5' Right	4+00	2	17,759	20.12	11.89	6.68	4.63	3.33	2.62	1.99	883
Lane 2 - 12.5' Left	4+51	2	18,053	19.04	11.21	6.62	4.45	3.22	2.50	1.91	948
Lane 1 - 12.5' Right	5+00	2	17,699	24.49	14.33	7.89	5.13	3.37	2.38	1.76	723
Lane 2 - 12.5' Left	5+50	2	17,902	22.28	13.70	8.22	5.19	3.54	2.59	1.89	804
Lane 1 - 12.5' Right	6+02	2	17,838	14.70	6.31	3.37	2.37	1.81	1.44	1.04	1,213
Lane 2 - 12.5' Left	6+50	2	18,148	9.91	5.21	3.38	2.44	1.97	1.50	1.21	1,831
Lane 1 - 12.5' Right	7+01	2	17,902	13.48	6.28	4.02	3.08	2.43	1.91	1.54	1,328
Lane 2 - 12.5' Left	7+50	2	18,108	10.07	5.96	4.51	3.38	2.60	2.02	1.58	1,798
Lane 1 - 12.5' Right	8+04	2	18,008	7.75	4.79	3.31	2.54	2.04	1.61	1.30	2,324
Lane 2 - 12.5' Left	8+50	2	18,148	10.10	6.44	4.47	3.30	2.52	1.98	1.59	1,797
Lane 1 - 12.5' Right	9+05	2	18,093	7.87	4.31	2.89	2.26	1.87	1.56	1.25	2,299
Lane 2 - 12.5' Left	9+50	2	18,196	8.83	5.31	3.43	2.58	2.06	1.74	1.38	2,061
Lane 1 - 12.5' Right	10+00	2	18,069	8.70	5.25	3.80	2.94	2.35	1.92	1.57	2,077

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	10+51	2	18,128	8.49	5.07	3.44	2.65	2.17	1.81	1.48	2,135
Lane 1 - 12.5' Right	11+00	2	17,961	12.47	7.86	5.63	4.21	3.19	2.45	1.91	1,440
Lane 2 - 12.5' Left	11+51	2	18,032	14.65	7.52	4.45	3.21	2.52	1.97	1.52	1,231
Lane 1 - 12.5' Right	12+01	2	17,937	15.11	8.57	5.11	3.66	2.80	2.28	1.83	1,187
Lane 2 - 12.5' Left	12+54	2	18,061	13.50	8.04	5.07	3.71	2.68	2.14	1.62	1,338
Lane 1 - 12.5' Right	13+02	2	17,913	18.33	10.94	7.56	5.85	4.83	3.98	3.27	977
Lane 2 - 12.5' Left	13+55	2	17,985	14.87	8.10	4.35	2.93	2.16	1.64	1.23	1,209
Lane 1 - 12.5' Right	14+00	2	17,953	12.12	7.46	5.46	4.28	3.48	2.83	2.27	1,481
Lane 2 - 12.5' Left	14+54	2	17,989	13.40	7.78	5.21	3.98	3.26	2.60	2.08	1,342
Lane 1 - 12.5' Right	15+03	2	18,056	10.38	5.67	3.62	2.57	1.97	1.49	1.18	1,739
Lane 2 - 12.5' Left	15+50	2	17,934	15.99	9.23	5.56	3.90	2.85	2.09	1.50	1,122
Lane 1 - 12.5' Right	16+01	2	18,053	9.67	6.12	4.44	3.35	2.56	1.94	1.50	1,867
Lane 2 - 12.5' Left	16+50	2	17,958	18.67	11.95	7.59	5.25	3.83	2.79	2.07	962
Lane 1 - 12.5' Right	17+05	2	17,958	14.57	9.52	6.46	5.04	3.98	3.26	2.59	1,233
Lane 2 - 12.5' Left	17+56	2	17,783	22.03	13.42	7.65	4.92	3.47	2.51	1.87	807
Lane 1 - 12.5' Right	18+08	2	18,008	12.52	8.02	5.75	4.41	3.63	2.91	2.41	1,438
Lane 2 - 12.5' Left	18+51	2	17,822	17.20	10.49	6.56	4.89	3.92	3.23	2.62	1,036
Lane 1 - 12.5' Right	19+00	2	18,008	12.80	8.87	6.70	5.34	4.31	3.55	2.86	1,407
Lane 2 - 12.5' Left	19+50	2	18,016	14.35	9.49	6.85	5.28	4.21	3.41	2.72	1,255
Lane 1 - 12.5' Right	20+00	2	18,101	10.89	7.65	6.24	5.13	4.27	3.54	2.92	1,662
Lane 2 - 12.5' Left	20+50	2	17,958	15.11	8.71	5.35	3.97	3.15	2.58	2.06	1,188
Lane 1 - 12.5' Right	21+00	2	18,072	11.10	7.21	5.15	4.22	3.34	2.75	2.20	1,628
Lane 2 - 12.5' Left	21+51	2	17,842	18.85	11.39	7.41	5.58	4.50	3.65	2.97	947
Lane 1 - 12.5' Right	22+00	2	18,101	13.20	7.70	4.85	3.57	2.80	2.25	1.87	1,371
Lane 2 - 12.5' Left	22+50	2	17,942	12.43	7.19	4.79	3.61	2.87	2.40	2.05	1,443
Lane 1 - 12.5' Right	23+00	2	18,056	10.25	7.07	5.39	4.38	3.59	2.96	2.49	1,762
Lane 2 - 12.5' Left	23+50	2	18,008	10.21	6.69	4.77	3.69	2.98	2.36	1.94	1,764

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	24+00	2	18,016	12.38	7.46	4.88	3.44	2.50	1.88	1.43	1,455
Lane 2 - 12.5' Left	24+50	2	17,929	20.39	11.19	5.76	3.74	2.78	2.10	1.60	879
Lane 1 - 12.5' Right	25+00	2	18,064	10.58	6.35	4.52	3.48	2.66	2.10	1.52	1,707
Lane 2 - 12.5' Left	25+50	2	18,005	13.38	8.60	5.44	3.61	2.52	1.81	1.33	1,346
Lane 1 - 12.5' Right	26+00	2	18,024	11.39	6.25	4.04	2.95	2.29	1.75	1.32	1,582
Lane 2 - 12.5' Left	26+50	2	17,997	12.98	7.47	4.55	3.58	2.81	2.47	1.85	1,387
Lane 1 - 12.5' Right	27+04	2	18,128	8.52	4.63	2.95	2.23	1.72	1.43	1.18	2,128
Lane 2 - 12.5' Left	27+50	2	17,985	9.80	5.37	3.33	2.44	1.94	1.56	1.22	1,835
Lane 1 - 12.5' Right	28+00	2	18,120	8.18	5.24	3.94	3.02	2.35	1.77	1.30	2,215
Lane 2 - 12.5' Left	28+53	2	18,061	8.92	6.00	4.37	3.25	2.47	1.94	1.49	2,025
Lane 1 - 12.5' Right	29+00	2	18,108	7.83	4.43	3.41	2.69	2.14	1.69	1.27	2,313
Lane 2 - 12.5' Left	29+52	2	17,997	11.33	6.40	4.41	3.29	2.54	1.92	1.46	1,588
Lane 1 - 12.5' Right	30+00	2	18,151	7.52	5.15	4.10	3.37	2.75	2.17	1.71	2,414
Lane 2 - 12.5' Left	30+50	2	17,965	10.42	6.00	4.30	3.25	2.54	2.02	1.53	1,724
Lane 1 - 12.5' Right	31+01	2	18,048	8.89	5.72	4.31	3.31	2.60	2.03	1.59	2,030
Lane 2 - 12.5' Left	31+51	2	17,992	10.07	6.70	5.08	3.96	3.06	2.43	1.88	1,787
Lane 1 - 12.5' Right	32+04	2	18,032	9.37	6.61	4.97	3.80	2.95	2.31	1.70	1,924
Lane 2 - 12.5' Left	32+50	2	18,008	12.98	8.40	5.63	4.15	3.15	2.43	1.89	1,387
Lane 1 - 12.5' Right	33+01	2	18,032	8.55	5.76	4.24	3.22	2.47	2.00	1.50	2,109
Lane 2 - 12.5' Left	33+50	2	18,032	12.83	7.12	4.50	3.13	2.34	1.85	1.47	1,405
Lane 1 - 12.5' Right	34+00	2	18,088	8.01	5.17	3.94	3.12	2.61	2.06	1.56	2,258
Lane 2 - 12.5' Left	34+50	2	17,953	8.79	5.00	3.83	2.99	2.38	1.92	1.52	2,042
Lane 1 - 12.5' Right	35+01	2	18,064	8.19	4.81	3.52	2.80	2.24	1.80	1.47	2,206
Lane 2 - 12.5' Left	35+50	2	18,045	7.37	4.61	3.59	2.89	2.30	1.83	1.48	2,448
Lane 1 - 12.5' Right	36+00	2	18,024	10.15	5.79	3.98	3.02	2.39	1.93	1.61	1,776
Lane 2 - 12.5' Left	36+50	2	18,005	9.09	5.48	4.08	3.18	2.51	1.96	1.56	1,981
Lane 1 - 12.5' Right	37+00	2	18,080	8.39	4.97	3.58	2.80	2.23	1.87	1.54	2,155

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	37+50	2	17,926	11.27	7.24	5.40	4.09	3.11	2.45	1.92	1,591
Lane 1 - 12.5' Right	38+00	2	17,992	13.19	9.00	6.27	4.50	3.35	2.48	1.88	1,364
Lane 2 - 12.5' Left	38+52	2	18,008	10.29	6.27	4.31	3.12	2.31	1.74	1.34	1,750
Lane 1 - 12.5' Right	39+00	2	18,056	8.79	5.21	3.38	2.36	1.72	1.28	0.98	2,054
Lane 2 - 12.5' Left	39+52	2	18,048	8.31	4.84	3.12	2.21	1.63	1.19	0.90	2,172
Lane 1 - 12.5' Right	40+00	2	18,108	8.94	5.06	3.22	2.19	1.62	1.20	0.99	2,026
Lane 2 - 12.5' Left	40+51	2	18,302	8.33	4.67	3.14	2.23	1.63	1.28	1.00	2,197
Lane 1 - 12.5' Right	41+00	2	18,231	9.22	5.11	3.36	2.37	1.76	1.43	1.15	1,977
Lane 2 - 12.5' Left	41+52	2	18,172	9.13	5.36	3.70	2.69	2.06	1.61	1.30	1,990
Lane 1 - 12.5' Right	42+00	2	18,148	9.90	6.02	4.11	2.99	2.31	1.81	1.47	1,833
Lane 2 - 12.5' Left	42+53	2	18,061	10.94	5.94	3.87	2.83	2.28	1.71	1.40	1,651
Lane 1 - 12.5' Right	42+95	2	18,128	10.34	5.13	3.26	2.31	1.77	1.54	1.24	1,753
Lane 1 - 12.5' Right	0+00	3	23,208	19.97	12.39	7.81	5.51	4.16	3.41	2.83	1,162
Lane 2 - 12.5' Left	0+51	3	23,275	23.32	14.54	8.69	5.53	3.83	2.91	2.41	998
Lane 1 - 12.5' Right	1+00	3	23,076	23.41	14.13	8.22	5.28	3.59	2.74	2.10	986
Lane 2 - 12.5' Left	1+51	3	23,613	18.67	11.89	7.58	5.26	3.77	2.80	2.15	1,265
Lane 1 - 12.5' Right	2+00	3	23,092	25.02	14.15	8.28	5.40	3.67	2.64	1.89	923
Lane 2 - 12.5' Left	2+56	3	23,450	24.71	13.69	7.82	5.07	3.61	2.76	2.14	949
Lane 1 - 12.5' Right	3+00	3	23,049	25.89	15.33	9.04	5.84	3.96	2.89	2.16	890
Lane 2 - 12.5' Left	3+51	3	23,450	25.13	13.71	8.01	5.50	4.08	3.21	2.52	933
Lane 1 - 12.5' Right	4+00	3	23,005	25.50	15.42	8.94	6.11	4.36	3.36	2.63	902
Lane 2 - 12.5' Left	4+51	3	23,521	24.28	14.50	8.69	5.85	4.20	3.25	2.52	969
Lane 1 - 12.5' Right	5+00	3	22,930	30.71	18.30	10.50	6.68	4.48	3.20	2.41	747
Lane 2 - 12.5' Left	5+50	3	23,320	28.67	17.85	10.64	6.94	4.70	3.43	2.61	813
Lane 1 - 12.5' Right	6+02	3	23,243	18.71	8.40	4.58	3.19	2.39	1.87	1.44	1,242
Lane 2 - 12.5' Left	6+50	3	23,693	13.08	7.02	4.56	3.37	2.64	2.04	1.57	1,811
Lane 1 - 12.5' Right	7+01	3	23,331	17.39	8.38	5.41	4.13	3.21	2.50	1.98	1,342

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	7+50	3	23,617	13.34	7.98	5.99	4.46	3.50	2.70	2.09	1,770
Lane 1 - 12.5' Right	8+04	3	23,474	10.23	6.39	4.48	3.41	2.68	2.16	1.74	2,295
Lane 2 - 12.5' Left	8+50	3	23,669	13.52	8.52	5.98	4.43	3.36	2.63	2.07	1,751
Lane 1 - 12.5' Right	9+05	3	23,553	10.26	5.70	3.86	3.01	2.42	2.04	1.64	2,296
Lane 2 - 12.5' Left	9+50	3	23,796	11.59	7.16	4.67	3.53	2.78	2.26	1.79	2,053
Lane 1 - 12.5' Right	10+00	3	23,558	11.17	6.90	4.95	3.93	3.15	2.60	2.06	2,109
Lane 2 - 12.5' Left	10+51	3	23,696	11.13	6.72	4.56	3.51	2.84	2.38	1.90	2,129
Lane 1 - 12.5' Right	11+00	3	23,386	15.98	10.20	7.36	5.51	4.16	3.25	2.51	1,463
Lane 2 - 12.5' Left	11+51	3	23,569	18.70	9.92	6.00	4.34	3.36	2.65	2.03	1,260
Lane 1 - 12.5' Right	12+01	3	23,339	19.84	11.49	6.96	4.98	3.77	3.05	2.42	1,176
Lane 2 - 12.5' Left	12+54	3	23,582	18.11	11.03	7.07	5.10	3.75	2.91	2.31	1,302
Lane 1 - 12.5' Right	13+02	3	23,291	23.30	14.21	9.88	7.65	6.24	5.16	4.26	1,000
Lane 2 - 12.5' Left	13+55	3	23,510	19.31	10.72	5.88	3.93	2.86	2.18	1.65	1,218
Lane 1 - 12.5' Right	14+00	3	23,434	15.33	9.89	7.27	5.69	4.61	3.73	2.97	1,529
Lane 2 - 12.5' Left	14+54	3	23,561	17.27	10.28	6.91	5.36	4.30	3.48	2.77	1,364
Lane 1 - 12.5' Right	15+03	3	23,550	13.48	7.54	4.91	3.49	2.61	2.01	1.61	1,747
Lane 2 - 12.5' Left	15+50	3	23,407	21.30	12.43	7.82	5.45	3.96	2.94	2.04	1,099
Lane 1 - 12.5' Right	16+01	3	20,897	10.95	7.06	5.18	3.91	3.00	2.27	1.80	1,908
Lane 2 - 12.5' Left	16+50	3	23,399	25.06	16.46	10.72	7.41	5.31	3.85	2.83	934
Lane 1 - 12.5' Right	17+05	3	23,426	18.98	12.65	8.79	6.77	5.32	4.31	3.51	1,234
Lane 2 - 12.5' Left	17+56	3	23,188	29.44	18.16	10.56	6.77	4.65	3.39	2.59	788
Lane 1 - 12.5' Right	18+08	3	23,502	16.01	10.37	7.45	5.76	4.67	3.74	3.13	1,468
Lane 2 - 12.5' Left	18+51	3	23,288	22.17	13.84	8.83	6.61	5.29	4.29	3.47	1,050
Lane 1 - 12.5' Right	19+00	3	23,482	16.67	11.62	8.80	6.95	5.65	4.63	3.80	1,409
Lane 2 - 12.5' Left	19+50	3	23,518	18.69	12.42	8.92	6.90	5.44	4.38	3.50	1,258
Lane 1 - 12.5' Right	20+00	3	23,633	14.11	9.93	8.07	6.67	5.54	4.64	3.81	1,675
Lane 2 - 12.5' Left	20+50	3	23,497	19.28	11.21	7.01	5.19	4.15	3.40	2.73	1,219

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	21+00	3	23,637	14.39	9.38	6.78	5.50	4.33	3.61	2.91	1,643
Lane 2 - 12.5' Left	21+51	3	23,307	24.26	14.85	9.62	7.34	5.89	4.79	3.87	961
Lane 1 - 12.5' Right	22+00	3	23,558	17.09	10.15	6.67	4.78	3.72	3.00	2.49	1,378
Lane 2 - 12.5' Left	22+50	3	23,537	16.35	9.52	6.33	4.82	3.80	3.22	2.51	1,440
Lane 1 - 12.5' Right	23+00	3	23,633	13.27	9.12	7.00	5.67	4.67	3.85	3.20	1,781
Lane 2 - 12.5' Left	23+50	3	23,648	13.23	8.76	6.28	4.86	3.83	3.23	2.61	1,787
Lane 1 - 12.5' Right	24+00	3	23,550	16.51	10.12	6.67	4.69	3.40	2.55	1.90	1,426
Lane 2 - 12.5' Left	24+50	3	23,375	26.78	15.21	8.11	5.29	3.87	2.84	2.22	873
Lane 1 - 12.5' Right	25+00	3	23,585	13.87	8.49	6.11	4.66	3.59	2.77	2.11	1,700
Lane 2 - 12.5' Left	25+50	3	23,550	17.57	11.43	7.21	4.87	3.37	2.42	1.76	1,340
Lane 1 - 12.5' Right	26+00	3	23,574	14.89	8.41	5.63	4.06	3.08	2.39	1.82	1,583
Lane 2 - 12.5' Left	26+50	3	23,569	16.82	9.93	6.25	4.75	3.81	3.00	2.42	1,401
Lane 1 - 12.5' Right	27+04	3	23,701	11.13	6.13	4.11	2.96	2.30	1.89	1.56	2,129
Lane 2 - 12.5' Left	27+50	3	23,585	12.86	7.15	4.59	3.26	2.56	2.04	1.61	1,834
Lane 1 - 12.5' Right	28+00	3	23,725	10.64	6.98	5.28	4.04	3.15	2.37	1.79	2,230
Lane 2 - 12.5' Left	28+53	3	23,680	11.82	7.93	5.81	4.33	3.31	2.59	1.94	2,003
Lane 1 - 12.5' Right	29+00	3	23,733	10.22	5.88	4.46	3.61	2.82	2.24	1.71	2,322
Lane 2 - 12.5' Left	29+52	3	23,609	14.89	8.53	5.93	4.43	3.39	2.61	1.99	1,586
Lane 1 - 12.5' Right	30+00	3	23,760	9.91	6.82	5.48	4.54	3.67	2.85	2.24	2,398
Lane 2 - 12.5' Left	30+50	3	23,585	13.65	7.96	5.73	4.33	3.36	2.61	2.05	1,728
Lane 1 - 12.5' Right	31+01	3	23,696	11.76	7.70	5.90	4.44	3.46	2.72	2.14	2,015
Lane 2 - 12.5' Left	31+51	3	23,613	13.32	9.00	6.87	5.36	4.12	3.26	2.53	1,773
Lane 1 - 12.5' Right	32+04	3	23,640	12.56	8.92	6.71	5.11	3.94	3.04	2.33	1,882
Lane 2 - 12.5' Left	32+50	3	23,561	16.92	11.01	7.55	5.47	4.09	3.22	2.44	1,392
Lane 1 - 12.5' Right	33+01	3	23,656	11.34	7.72	5.70	4.31	3.35	2.59	2.04	2,086
Lane 2 - 12.5' Left	33+50	3	23,625	16.75	9.44	6.02	4.19	3.08	2.41	1.94	1,410
Lane 1 - 12.5' Right	34+00	3	23,741	10.62	6.91	5.34	4.24	3.46	2.67	2.09	2,235

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

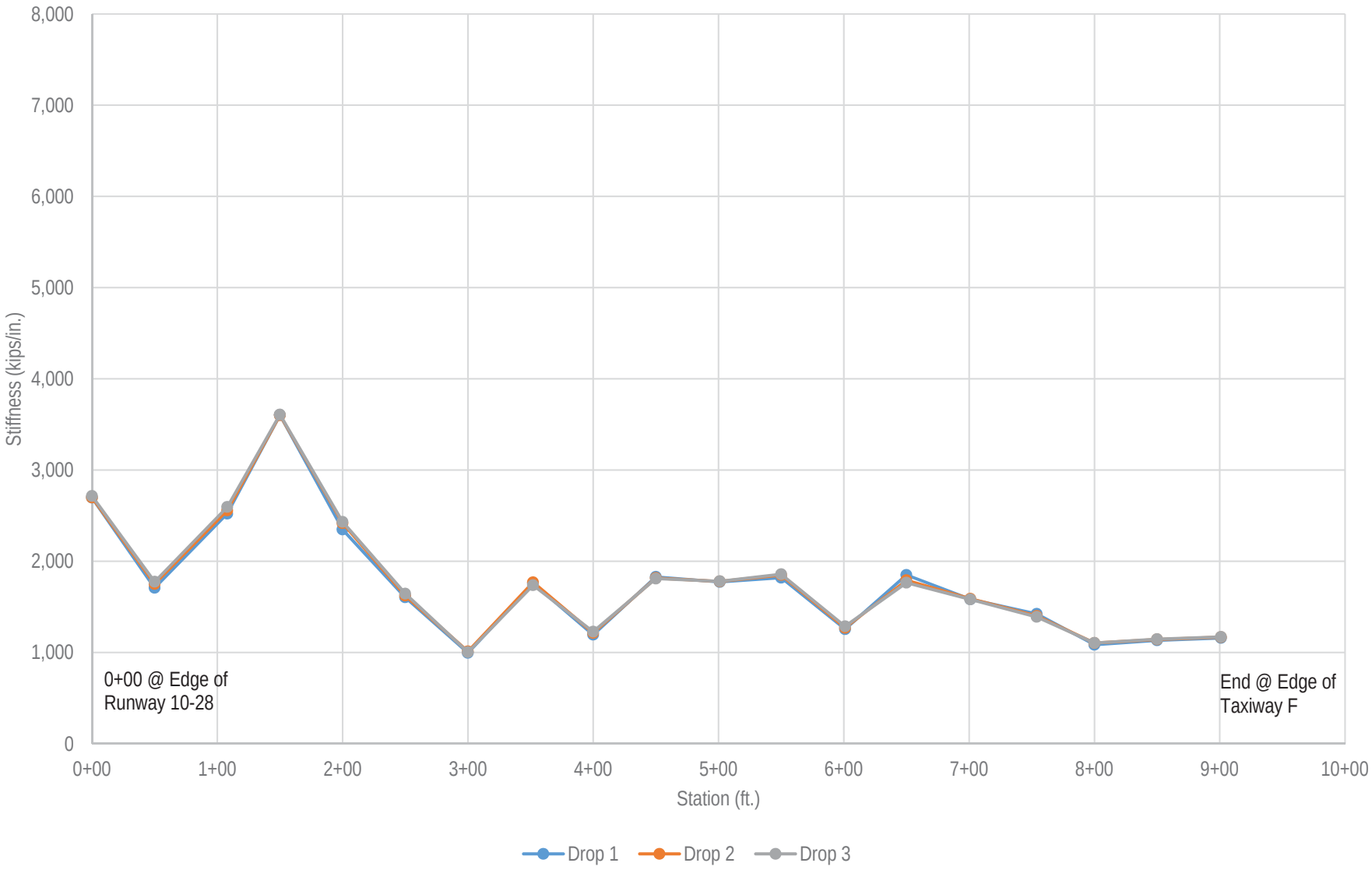
Taxiway F

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	34+50	3	23,606	11.41	6.70	5.13	3.99	3.17	2.55	2.00	2,069
Lane 1 - 12.5' Right	35+01	3	23,685	10.83	6.42	4.79	3.70	2.91	2.39	2.05	2,187
Lane 2 - 12.5' Left	35+50	3	23,717	9.69	6.07	4.70	3.82	3.04	2.43	1.94	2,448
Lane 1 - 12.5' Right	36+00	3	23,645	13.40	7.77	5.45	4.14	3.24	2.63	2.18	1,765
Lane 2 - 12.5' Left	36+50	3	23,680	11.87	7.17	5.33	4.16	3.30	2.58	2.04	1,995
Lane 1 - 12.5' Right	37+00	3	23,677	11.03	6.65	4.78	3.74	2.95	2.44	2.00	2,147
Lane 2 - 12.5' Left	37+50	3	23,529	14.74	9.53	7.13	5.41	4.11	3.24	2.52	1,596
Lane 1 - 12.5' Right	38+00	3	23,569	17.10	11.70	8.19	5.92	4.36	3.28	2.45	1,378
Lane 2 - 12.5' Left	38+52	3	23,629	13.35	8.15	5.69	4.11	3.06	2.31	1.79	1,770
Lane 1 - 12.5' Right	39+00	3	23,648	11.50	6.92	4.56	3.17	2.33	1.72	1.33	2,056
Lane 2 - 12.5' Left	39+52	3	23,677	10.98	6.37	4.20	2.93	2.12	1.58	1.20	2,156
Lane 1 - 12.5' Right	40+00	3	23,648	11.62	6.61	4.27	2.92	2.14	1.61	1.30	2,035
Lane 2 - 12.5' Left	40+51	3	23,828	10.95	6.11	4.13	2.94	2.17	1.69	1.33	2,176
Lane 1 - 12.5' Right	41+00	3	23,701	11.85	6.66	4.44	3.12	2.33	1.87	1.53	2,000
Lane 2 - 12.5' Left	41+52	3	23,712	11.91	7.00	4.84	3.55	2.70	2.10	1.71	1,991
Lane 1 - 12.5' Right	42+00	3	23,704	12.85	7.89	5.45	4.03	3.08	2.42	1.96	1,845
Lane 2 - 12.5' Left	42+53	3	23,577	14.17	7.83	5.19	3.78	2.98	2.35	1.90	1,664
Lane 1 - 12.5' Right	42+95	3	23,685	13.46	6.72	4.32	3.05	2.35	1.96	1.61	1,760
										Average:	1,581

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway G



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway G

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	13,004	4.82	3.71	3.28	2.68	2.55	1.97	1.69	2,698
Lane 2 - 12.5' Left	0+50	1	12,913	7.56	4.88	3.87	3.18	2.69	2.19	1.84	1,708
Lane 1 - 12.5' Right	1+08	1	12,885	5.11	2.96	2.60	2.21	2.00	1.63	1.35	2,522
Lane 2 - 12.5' Left	1+50	1	12,932	3.59	2.77	2.34	2.02	1.76	1.53	1.27	3,602
Lane 1 - 12.5' Right	2+00	1	12,889	5.49	4.03	3.46	2.99	2.56	2.20	1.81	2,348
Lane 2 - 12.5' Left	2+50	1	12,853	8.01	5.87	4.51	3.55	2.94	2.35	1.90	1,605
Lane 1 - 12.5' Right	3+00	1	12,885	12.94	7.08	4.40	3.12	2.31	1.80	1.39	996
Lane 2 - 12.5' Left	3+52	1	12,874	7.33	5.25	3.96	3.04	2.31	1.75	1.31	1,756
Lane 1 - 12.5' Right	4+00	1	12,866	10.77	7.63	5.31	3.91	2.83	2.17	1.65	1,195
Lane 2 - 12.5' Left	4+50	1	12,853	7.03	4.57	3.30	2.44	1.83	1.36	0.98	1,828
Lane 1 - 12.5' Right	5+01	1	12,889	7.27	5.17	3.86	2.84	2.18	1.69	1.37	1,773
Lane 2 - 12.5' Left	5+50	1	12,937	7.11	5.05	4.04	3.26	2.64	2.10	1.67	1,820
Lane 1 - 12.5' Right	6+01	1	12,853	10.24	6.35	3.53	2.59	2.00	1.51	1.16	1,255
Lane 2 - 12.5' Left	6+50	1	12,889	6.97	4.63	3.06	2.20	1.70	1.37	1.12	1,849
Lane 1 - 12.5' Right	7+01	1	12,837	8.11	5.15	3.43	2.39	1.70	1.24	0.88	1,583
Lane 2 - 12.5' Left	7+54	1	12,834	9.02	5.79	3.45	2.22	1.48	1.04	0.75	1,423
Lane 1 - 12.5' Right	8+00	1	12,858	11.86	7.15	4.05	2.35	1.51	0.96	0.68	1,084
Lane 2 - 12.5' Left	8+50	1	12,813	11.31	6.26	3.69	2.52	1.83	1.37	1.03	1,133
Lane 1 - 12.5' Right	9+01	1	12,818	11.06	7.12	4.52	2.90	2.00	1.44	1.02	1,159
Lane 1 - 12.5' Right	0+00	2	18,112	6.71	5.17	4.41	3.80	3.35	2.78	2.30	2,699
Lane 2 - 12.5' Left	0+50	2	18,005	10.28	6.67	5.25	4.35	3.65	3.10	2.46	1,751
Lane 1 - 12.5' Right	1+08	2	18,048	7.06	4.17	3.63	3.10	2.67	2.28	1.91	2,556
Lane 2 - 12.5' Left	1+50	2	18,077	5.02	3.87	3.28	2.83	2.44	2.09	1.77	3,601
Lane 1 - 12.5' Right	2+00	2	18,061	7.47	5.50	4.71	4.10	3.51	2.98	2.50	2,418
Lane 2 - 12.5' Left	2+50	2	17,953	11.06	8.11	6.13	4.93	3.92	3.23	2.53	1,623
Lane 1 - 12.5' Right	3+00	2	17,958	17.76	10.26	6.50	4.60	3.40	2.62	2.02	1,011
Lane 2 - 12.5' Left	3+52	2	17,989	10.17	7.44	5.60	4.29	3.26	2.48	1.88	1,769

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway G

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	4+00	2	17,958	14.79	10.35	7.10	5.23	3.85	2.96	2.33	1,214
Lane 2 - 12.5' Left	4+50	2	17,997	9.91	6.46	4.73	3.49	2.62	1.95	1.41	1,816
Lane 1 - 12.5' Right	5+01	2	17,981	10.11	7.21	5.37	4.09	3.10	2.38	1.78	1,779
Lane 2 - 12.5' Left	5+50	2	17,992	9.73	6.98	5.61	4.52	3.65	2.96	2.35	1,849
Lane 1 - 12.5' Right	6+01	2	17,958	14.14	8.81	4.92	3.66	2.83	2.16	1.61	1,270
Lane 2 - 12.5' Left	6+50	2	18,021	10.06	6.63	4.43	3.21	2.46	1.97	1.59	1,791
Lane 1 - 12.5' Right	7+01	2	17,965	11.31	7.30	4.91	3.43	2.43	1.77	1.26	1,588
Lane 2 - 12.5' Left	7+54	2	17,918	12.80	8.17	4.93	3.18	2.13	1.47	1.02	1,400
Lane 1 - 12.5' Right	8+00	2	17,945	16.26	10.00	5.78	3.50	2.16	1.35	0.95	1,104
Lane 2 - 12.5' Left	8+50	2	17,913	15.68	8.78	5.28	3.56	2.59	1.94	1.48	1,142
Lane 1 - 12.5' Right	9+01	2	17,881	15.31	10.04	6.28	4.21	2.83	1.98	1.48	1,168
Lane 1 - 12.5' Right	0+00	3	23,756	8.75	6.69	5.70	4.92	4.25	3.61	2.98	2,715
Lane 2 - 12.5' Left	0+50	3	23,569	13.28	8.65	6.80	5.60	4.70	3.87	3.26	1,775
Lane 1 - 12.5' Right	1+08	3	23,637	9.11	5.48	4.74	4.04	3.46	2.93	2.47	2,595
Lane 2 - 12.5' Left	1+50	3	23,776	6.59	5.10	4.35	3.75	3.22	2.76	2.36	3,608
Lane 1 - 12.5' Right	2+00	3	23,680	9.74	7.16	6.13	5.32	4.54	3.84	3.22	2,431
Lane 2 - 12.5' Left	2+50	3	23,513	14.30	10.49	8.04	6.35	5.11	4.16	3.37	1,644
Lane 1 - 12.5' Right	3+00	3	23,463	23.39	13.92	8.92	6.30	4.61	3.53	2.67	1,003
Lane 2 - 12.5' Left	3+52	3	23,569	13.57	9.83	7.41	5.68	4.27	3.25	2.49	1,737
Lane 1 - 12.5' Right	4+00	3	23,494	19.13	13.33	9.05	6.63	4.91	3.82	3.04	1,228
Lane 2 - 12.5' Left	4+50	3	23,617	13.05	8.57	6.32	4.66	3.48	2.62	1.89	1,810
Lane 1 - 12.5' Right	5+01	3	23,609	13.26	9.49	7.12	5.39	4.12	3.22	2.48	1,780
Lane 2 - 12.5' Left	5+50	3	23,669	12.74	9.09	7.31	5.90	4.75	3.83	3.03	1,858
Lane 1 - 12.5' Right	6+01	3	23,502	18.27	11.50	6.43	4.84	3.70	2.85	2.13	1,286
Lane 2 - 12.5' Left	6+50	3	23,629	13.39	8.89	6.07	4.35	3.30	2.64	2.11	1,765
Lane 1 - 12.5' Right	7+01	3	23,569	14.90	9.70	6.62	4.63	3.26	2.39	1.70	1,582
Lane 2 - 12.5' Left	7+54	3	23,513	16.92	10.94	6.68	4.32	2.88	1.98	1.39	1,390

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

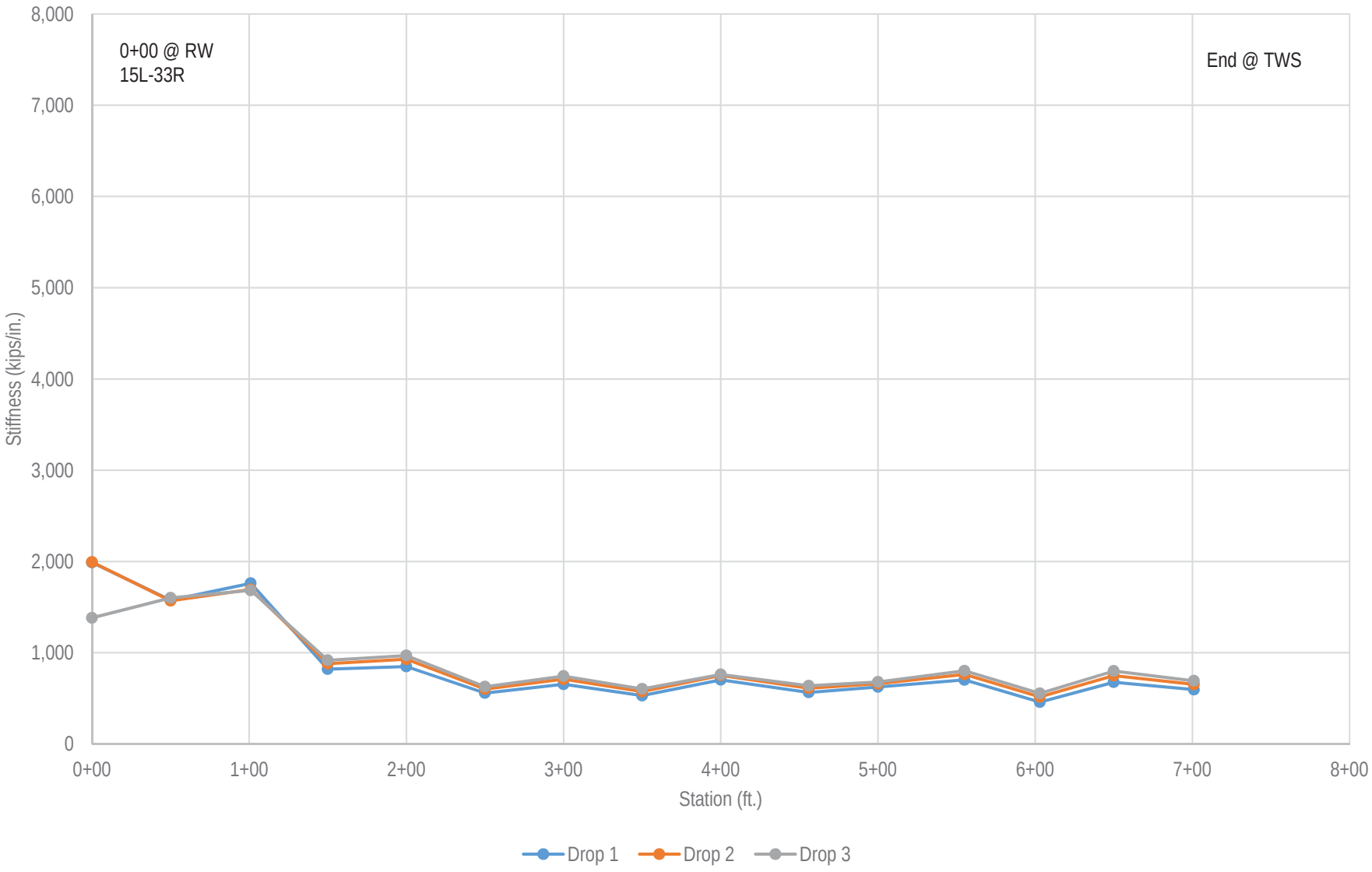
Taxiway G

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	8+00	3	23,502	21.28	13.28	7.85	4.80	3.00	1.96	1.39	1,104
Lane 2 - 12.5' Left	8+50	3	23,482	20.49	11.63	6.94	4.74	3.33	2.53	1.93	1,146
Lane 1 - 12.5' Right	9+01	3	23,447	20.03	13.28	8.43	5.58	3.78	2.70	1.96	1,171
										Average:	1,763

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway J



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway J

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	13,711	6.89	4.33	3.16	2.47	1.80	1.47	1.15	1,990
Lane 2 - 12.5' Left	0+50	1	12,654	8.03	5.26	3.63	2.65	1.81	1.38	1.02	1,576
Lane 1 - 12.5' Right	1+01	1	13,453	7.64	4.97	3.19	2.66	1.92	1.47	0.94	1,761
Lane 2 - 12.5' Left	1+50	1	12,773	15.57	8.54	4.59	2.79	1.76	1.31	0.95	820
Lane 1 - 12.5' Right	2+00	1	12,909	15.20	8.81	5.03	3.22	2.13	1.63	1.24	849
Lane 2 - 12.5' Left	2+50	1	12,781	22.88	11.62	4.98	2.42	1.49	1.18	0.97	559
Lane 1 - 12.5' Right	3+00	1	12,797	19.54	10.89	5.89	3.76	2.64	2.31	1.80	655
Lane 2 - 12.5' Left	3+50	1	12,723	23.99	14.06	7.59	4.70	3.12	2.53	1.94	530
Lane 1 - 12.5' Right	4+00	1	12,786	18.19	10.78	5.90	3.74	2.54	2.17	1.80	703
Lane 2 - 12.5' Left	4+56	1	12,742	22.54	12.74	6.36	3.76	2.50	2.00	1.59	565
Lane 1 - 12.5' Right	5+00	1	12,805	20.48	11.07	6.07	4.04	2.98	2.30	1.96	625
Lane 2 - 12.5' Left	5+55	1	12,754	18.15	11.01	5.93	3.72	2.54	2.04	1.69	703
Lane 1 - 12.5' Right	6+03	1	12,746	27.77	14.92	7.43	4.40	2.84	2.32	1.93	459
Lane 2 - 12.5' Left	6+50	1	12,770	18.86	12.28	7.39	4.86	3.28	2.55	1.98	677
Lane 1 - 12.5' Right	7+01	1	12,739	21.38	12.80	7.53	4.82	3.11	2.35	1.85	596
Lane 1 - 12.5' Right	0+00	2	18,882	9.47	6.08	4.46	3.50	2.52	2.06	1.59	1,994
Lane 2 - 12.5' Left	0+50	2	17,619	11.22	7.31	5.09	3.74	2.53	1.99	1.46	1,570
Lane 1 - 12.5' Right	1+01	2	18,172	10.73	6.96	4.83	3.72	2.70	2.15	1.56	1,694
Lane 2 - 12.5' Left	1+50	2	17,865	20.28	11.31	6.33	3.91	2.46	1.91	1.46	881
Lane 1 - 12.5' Right	2+00	2	18,164	19.55	11.57	6.80	4.46	2.88	2.30	1.67	929
Lane 2 - 12.5' Left	2+50	2	17,786	29.52	15.41	7.16	3.61	2.18	1.71	1.57	603
Lane 1 - 12.5' Right	3+00	2	17,985	25.30	14.51	8.22	5.29	3.70	3.12	2.53	711
Lane 2 - 12.5' Left	3+50	2	17,687	30.75	18.38	10.43	6.56	4.36	3.63	2.90	575
Lane 1 - 12.5' Right	4+00	2	17,886	23.77	14.55	8.34	5.42	3.69	3.13	2.53	752
Lane 2 - 12.5' Left	4+56	2	17,730	28.99	16.74	8.79	5.34	3.55	2.89	2.32	612
Lane 1 - 12.5' Right	5+00	2	17,958	27.21	14.75	8.22	5.56	4.04	3.29	2.73	660
Lane 2 - 12.5' Left	5+55	2	17,783	23.30	14.28	7.98	5.10	3.54	2.90	2.43	763

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

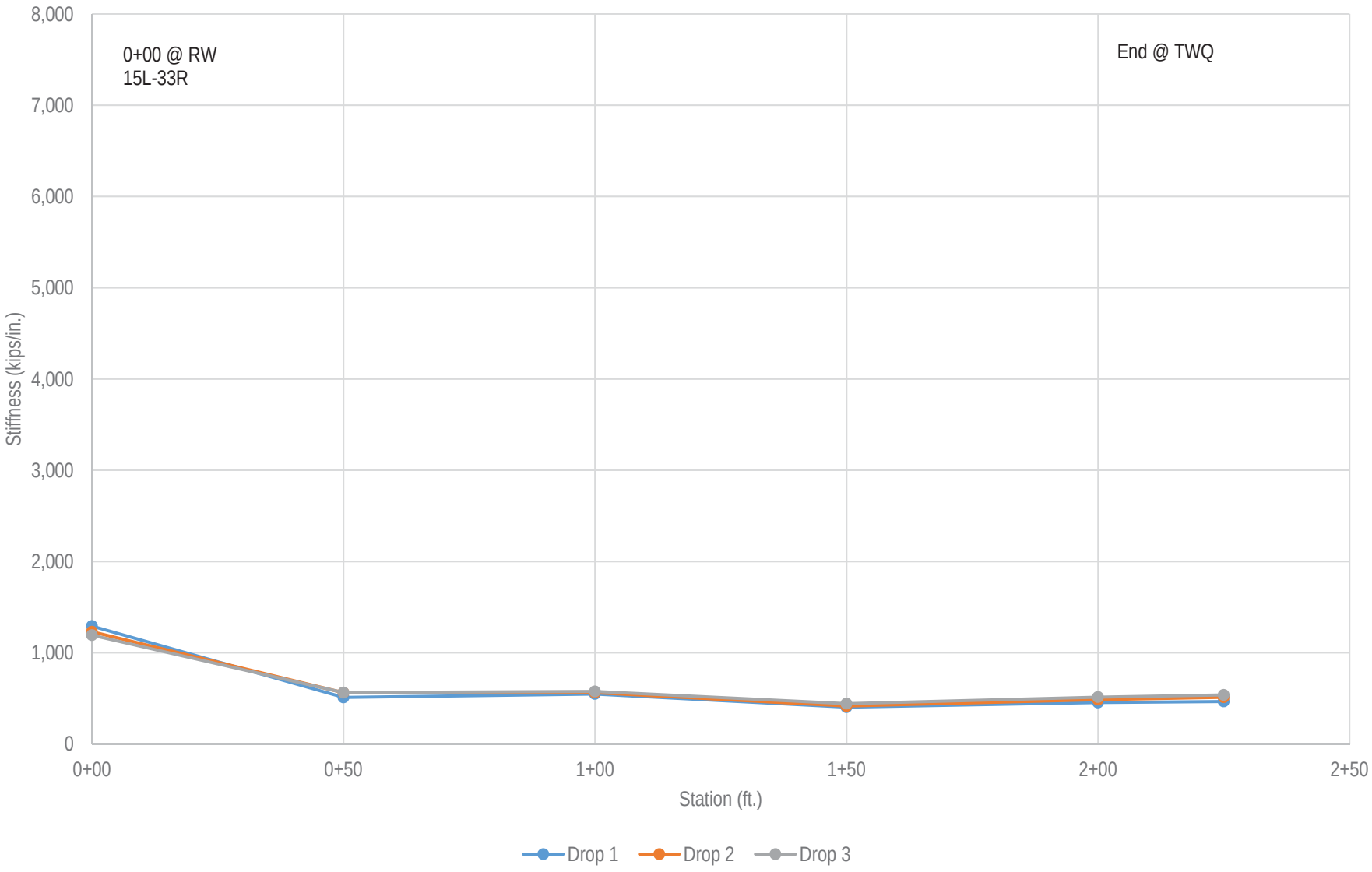
Taxiway J

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	6+03	2	17,802	34.51	18.54	9.54	5.87	3.93	3.22	2.73	516
Lane 2 - 12.5' Left	6+50	2	17,799	23.74	15.69	9.65	6.54	4.46	3.55	2.78	750
Lane 1 - 12.5' Right	7+01	2	17,802	27.24	16.64	10.06	6.47	4.13	3.22	2.54	654
Lane 1 - 12.5' Right	0+00	3	24,440	17.68	7.95	5.85	4.58	3.31	2.70	2.03	1,382
Lane 2 - 12.5' Left	0+50	3	23,092	14.42	9.57	6.72	4.92	3.34	2.59	1.91	1,601
Lane 1 - 12.5' Right	1+01	3	23,648	14.04	9.18	6.55	4.92	3.48	2.78	2.12	1,684
Lane 2 - 12.5' Left	1+50	3	23,370	25.47	14.29	8.18	5.12	3.26	2.52	1.96	918
Lane 1 - 12.5' Right	2+00	3	23,748	24.50	14.60	8.77	5.75	3.76	2.99	2.23	969
Lane 2 - 12.5' Left	2+50	3	23,283	37.05	19.85	9.54	5.01	2.97	2.36	2.10	628
Lane 1 - 12.5' Right	3+00	3	23,426	31.49	18.39	10.67	6.94	4.88	4.04	3.32	744
Lane 2 - 12.5' Left	3+50	3	23,124	38.30	23.22	13.45	8.58	5.71	4.78	3.88	604
Lane 1 - 12.5' Right	4+00	3	23,315	30.61	19.09	11.30	7.43	5.02	4.19	3.33	762
Lane 2 - 12.5' Left	4+56	3	23,164	36.30	21.31	11.46	7.01	4.67	3.78	3.10	638
Lane 1 - 12.5' Right	5+00	3	23,343	34.34	18.58	10.44	7.09	5.15	4.22	3.49	680
Lane 2 - 12.5' Left	5+55	3	23,307	29.06	18.06	10.29	6.67	4.59	3.80	3.18	802
Lane 1 - 12.5' Right	6+03	3	23,137	41.75	22.69	11.92	7.50	5.13	4.10	3.41	554
Lane 2 - 12.5' Left	6+50	3	23,307	29.13	19.43	12.12	8.22	5.70	4.56	3.60	800
Lane 1 - 12.5' Right	7+01	3	23,184	33.48	20.76	12.72	8.21	5.25	4.06	3.21	692
										Average:	893

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway K (Section TWK3)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

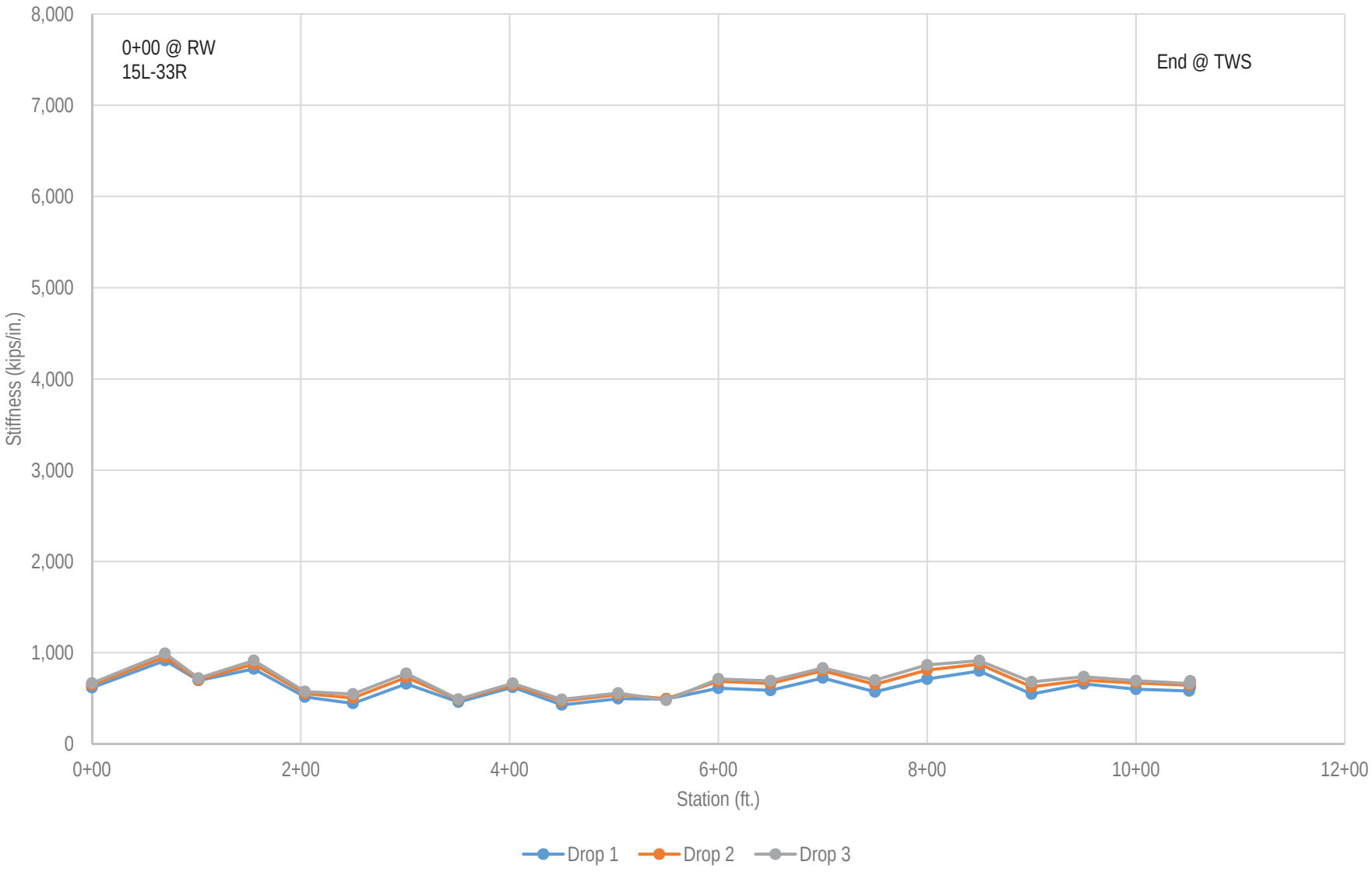
Taxiway K (Section TWK3)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	13,107	10.15	9.11	3.45	2.09	1.37	1.21	1.07	1,291
Lane 2 - 12.5' Left	0+50	1	13,247	25.98	15.84	7.53	4.09	2.84	2.26	1.74	510
Lane 1 - 12.5' Right	1+00	1	13,072	23.88	14.18	7.75	5.00	3.43	2.76	2.03	547
Lane 2 - 12.5' Left	1+50	1	13,255	32.87	19.23	11.70	8.33	5.77	4.56	3.52	403
Lane 1 - 12.5' Right	2+00	1	12,710	27.98	18.25	10.53	7.01	4.90	3.95	3.13	454
Lane 2 - 12.5' Left	2+25	1	12,924	27.76	16.06	7.94	4.66	3.03	2.39	1.86	466
Lane 1 - 12.5' Right	0+00	2	18,077	14.70	13.10	5.11	3.04	1.95	1.68	1.49	1,230
Lane 2 - 12.5' Left	0+50	2	19,006	33.84	20.64	10.13	5.64	3.90	3.22	2.54	562
Lane 1 - 12.5' Right	1+00	2	18,156	32.27	19.41	10.77	6.96	4.73	3.81	2.79	563
Lane 2 - 12.5' Left	1+50	2	18,108	43.57	25.71	15.76	11.21	7.76	6.13	4.76	416
Lane 1 - 12.5' Right	2+00	2	17,611	36.27	23.82	14.23	9.64	6.81	5.48	4.39	486
Lane 2 - 12.5' Left	2+25	2	18,223	35.57	20.78	10.59	6.34	4.24	3.38	2.56	512
Lane 1 - 12.5' Right	0+00	3	23,633	19.83	17.75	7.06	4.12	2.60	2.23	1.95	1,192
Lane 2 - 12.5' Left	0+50	3	23,863	42.37	25.85	12.82	7.25	5.07	4.19	3.35	563
Lane 1 - 12.5' Right	1+00	3	23,736	41.25	24.95	13.94	8.97	6.05	4.85	3.57	575
Lane 2 - 12.5' Left	1+50	3	23,982	54.31	32.38	19.93	14.14	9.79	7.73	6.01	442
Lane 1 - 12.5' Right	2+00	3	22,883	44.55	29.35	17.87	12.24	8.72	7.04	5.63	514
Lane 2 - 12.5' Left	2+25	3	23,526	43.80	25.67	13.26	8.00	5.35	4.33	3.35	537
										Average:	626

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway K (Sections 1, 2, & 2A)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway K (Sections 1, 2, & 2A)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	12,623	20.46	11.35	6.20	4.04	2.62	2.11	1.76	617
Lane 2 - 12.5' Left	0+70	1	13,099	14.32	9.72	6.78	4.82	3.36	2.67	2.03	915
Lane 1 - 12.5' Right	1+02	1	13,234	19.01	12.53	7.69	5.15	3.43	2.57	1.82	696
Lane 2 - 12.5' Left	1+55	1	13,358	16.24	8.80	5.07	3.45	2.46	2.06	1.67	823
Lane 1 - 12.5' Right	2+04	1	12,953	25.13	15.44	9.21	6.21	4.18	3.20	2.61	515
Lane 2 - 12.5' Left	2+50	1	13,091	29.42	16.83	8.40	5.15	3.55	2.73	2.09	445
Lane 1 - 12.5' Right	3+01	1	12,909	19.58	12.68	7.42	4.81	3.30	2.54	1.97	659
Lane 2 - 12.5' Left	3+51	1	12,694	27.63	19.36	11.67	7.40	4.81	3.85	3.01	459
Lane 1 - 12.5' Right	4+03	1	13,239	21.28	14.46	8.79	5.91	4.19	3.45	2.80	622
Lane 2 - 12.5' Left	4+50	1	13,048	30.44	18.52	9.94	5.78	3.76	3.05	2.61	429
Lane 1 - 12.5' Right	5+04	1	13,032	26.20	16.49	9.72	6.35	4.54	3.61	2.84	497
Lane 2 - 12.5' Left	5+50	1	12,901	26.19	16.83	8.86	4.67	2.37	1.61	1.13	493
Lane 1 - 12.5' Right	6+00	1	12,837	21.00	11.44	5.82	3.72	2.63	2.19	1.80	611
Lane 2 - 12.5' Left	6+50	1	12,964	22.05	12.65	6.15	3.57	2.39	1.94	1.45	588
Lane 1 - 12.5' Right	7+00	1	12,818	17.72	10.43	5.36	3.39	2.44	2.01	1.70	723
Lane 2 - 12.5' Left	7+50	1	12,980	22.71	9.23	4.31	2.83	1.99	1.65	1.18	572
Lane 1 - 12.5' Right	8+00	1	12,897	18.12	7.71	3.96	2.68	1.93	1.52	1.24	712
Lane 2 - 12.5' Left	8+50	1	12,837	16.05	8.76	5.56	3.86	2.73	2.27	1.82	800
Lane 1 - 12.5' Right	9+00	1	12,916	23.59	8.93	4.41	3.26	2.60	2.15	1.78	548
Lane 2 - 12.5' Left	9+50	1	13,314	20.19	12.13	6.94	4.28	2.73	2.03	1.53	659
Lane 1 - 12.5' Right	10+00	1	12,754	21.24	11.35	5.58	3.38	2.42	1.96	1.55	600
Lane 2 - 12.5' Left	10+51	1	12,718	21.86	12.70	6.87	4.21	2.76	2.04	1.60	582
Lane 2 - 12.5' Left	10+52	1	12,707	20.37	14.17	8.44	5.26	3.17	2.28	1.81	624
Lane 1 - 12.5' Right	0+00	2	17,680	27.29	15.41	8.87	5.67	3.63	2.94	2.26	648
Lane 2 - 12.5' Left	0+70	2	18,180	19.07	13.07	8.98	6.52	4.62	3.72	2.93	953
Lane 1 - 12.5' Right	1+02	2	18,124	25.71	17.11	10.66	7.08	4.61	3.52	2.61	705
Lane 2 - 12.5' Left	1+55	2	18,363	20.98	11.72	7.05	4.85	3.50	2.86	2.43	875

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway K (Sections 1, 2, & 2A)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	2+04	2	18,164	32.83	20.65	12.55	8.59	5.79	4.49	3.58	553
Lane 2 - 12.5' Left	2+50	2	18,064	35.81	20.95	11.10	6.96	4.89	3.82	2.97	504
Lane 1 - 12.5' Right	3+01	2	18,112	24.79	16.13	9.81	6.55	4.61	3.63	2.93	731
Lane 2 - 12.5' Left	3+51	2	18,040	37.24	26.00	15.91	10.19	6.67	5.33	4.25	484
Lane 1 - 12.5' Right	4+03	2	18,244	28.19	19.29	12.08	8.07	5.83	4.77	4.02	647
Lane 2 - 12.5' Left	4+50	2	18,164	38.60	23.56	12.87	7.64	5.03	4.15	3.63	471
Lane 1 - 12.5' Right	5+04	2	18,323	33.89	21.46	12.93	8.63	6.18	4.94	4.03	541
Lane 2 - 12.5' Left	5+50	2	18,128	36.51	23.50	12.72	6.81	3.44	2.29	1.69	497
Lane 1 - 12.5' Right	6+00	2	18,402	26.81	15.14	8.08	5.28	3.74	3.12	2.55	686
Lane 2 - 12.5' Left	6+50	2	18,414	27.78	16.08	8.20	4.94	3.35	2.74	2.18	663
Lane 1 - 12.5' Right	7+00	2	18,366	22.83	13.37	7.31	4.46	3.32	2.83	2.30	804
Lane 2 - 12.5' Left	7+50	2	18,307	27.99	11.77	5.96	3.94	2.71	2.25	1.77	654
Lane 1 - 12.5' Right	8+00	2	18,228	22.48	10.01	5.39	3.70	2.64	2.13	1.73	811
Lane 2 - 12.5' Left	8+50	2	18,302	20.91	11.48	7.45	5.29	3.81	3.16	2.57	875
Lane 1 - 12.5' Right	9+00	2	18,112	28.94	11.45	6.03	4.47	3.56	3.02	2.56	626
Lane 2 - 12.5' Left	9+50	2	18,085	25.88	15.74	9.28	5.87	3.80	2.91	2.22	699
Lane 1 - 12.5' Right	10+00	2	18,032	26.96	14.98	7.95	4.89	3.39	2.78	2.26	669
Lane 2 - 12.5' Left	10+51	2	18,271	28.36	16.59	9.28	5.75	3.80	2.96	2.45	644
Lane 2 - 12.5' Left	10+52	2	18,339	27.05	18.91	11.74	7.21	4.31	3.22	2.66	678
Lane 1 - 12.5' Right	0+00	3	23,177	34.76	19.87	11.54	7.34	4.75	3.79	2.92	667
Lane 2 - 12.5' Left	0+70	3	23,653	23.83	16.36	11.28	8.23	5.84	4.74	3.72	993
Lane 1 - 12.5' Right	1+02	3	23,720	32.86	22.09	13.89	9.24	5.95	4.57	3.48	722
Lane 2 - 12.5' Left	1+55	3	23,926	26.14	14.98	9.18	6.41	4.61	3.91	3.16	915
Lane 1 - 12.5' Right	2+04	3	23,776	41.35	26.17	16.10	10.98	7.46	5.81	4.60	575
Lane 2 - 12.5' Left	2+50	3	23,502	42.94	25.60	13.98	8.85	6.21	4.92	3.88	547
Lane 1 - 12.5' Right	3+01	3	23,807	30.77	19.98	12.42	8.44	5.98	4.80	3.89	774
Lane 2 - 12.5' Left	3+51	3	23,335	47.62	33.14	20.43	13.13	8.63	6.88	5.46	490

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

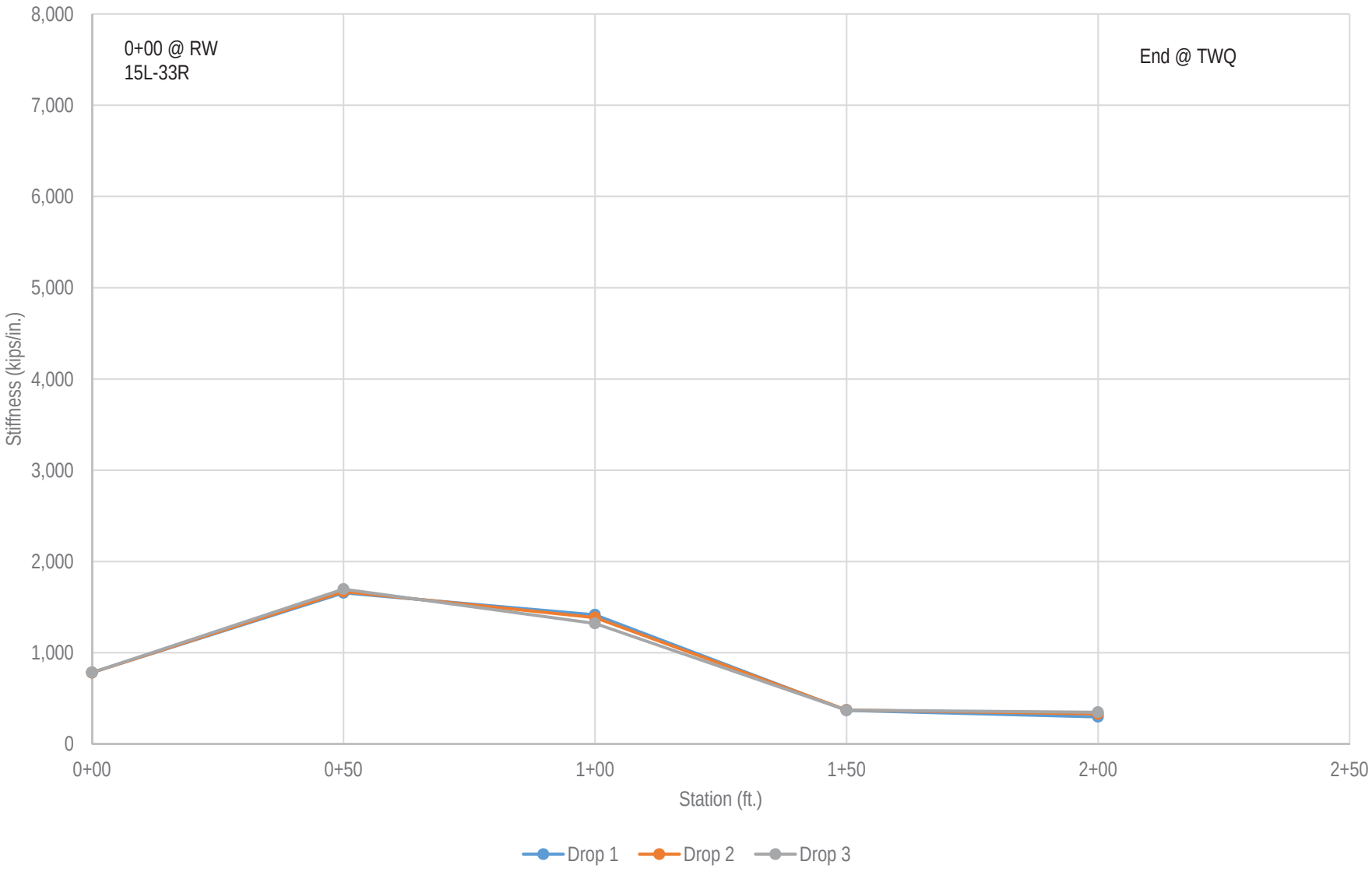
Taxiway K (Sections 1, 2, & 2A)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	4+03	3	23,955	36.03	24.62	15.43	10.48	7.52	6.18	5.18	665
Lane 2 - 12.5' Left	4+50	3	23,275	47.65	28.98	15.95	9.52	6.37	5.29	4.63	488
Lane 1 - 12.5' Right	5+04	3	23,677	42.42	26.83	16.39	10.96	7.82	6.28	5.15	558
Lane 2 - 12.5' Left	5+50	3	23,497	49.04	31.87	17.70	9.60	4.76	3.01	2.14	479
Lane 1 - 12.5' Right	6+00	3	23,931	33.59	19.19	10.54	6.95	4.98	4.12	3.37	712
Lane 2 - 12.5' Left	6+50	3	23,693	34.23	19.72	10.28	6.33	4.37	3.60	2.84	692
Lane 1 - 12.5' Right	7+00	3	23,839	28.65	16.59	9.31	5.75	4.34	3.72	3.03	832
Lane 2 - 12.5' Left	7+50	3	23,788	34.02	14.71	7.69	5.12	3.60	2.96	2.36	699
Lane 1 - 12.5' Right	8+00	3	23,796	27.46	12.56	6.95	4.77	3.42	2.77	2.27	867
Lane 2 - 12.5' Left	8+50	3	23,891	26.15	14.50	9.50	6.81	4.94	4.03	3.31	914
Lane 1 - 12.5' Right	9+00	3	23,566	34.60	14.20	7.80	5.76	4.59	3.95	3.33	681
Lane 2 - 12.5' Left	9+50	3	23,653	32.08	19.80	11.87	7.62	4.97	3.80	2.96	737
Lane 1 - 12.5' Right	10+00	3	23,625	34.02	19.47	10.66	6.64	4.51	3.66	2.95	694
Lane 2 - 12.5' Left	10+51	3	23,828	35.99	21.19	12.07	7.58	4.98	3.92	3.22	662
Lane 2 - 12.5' Left	10+52	3	23,788	34.42	24.10	15.18	9.42	5.77	4.32	3.49	691
										Average:	662

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway L



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

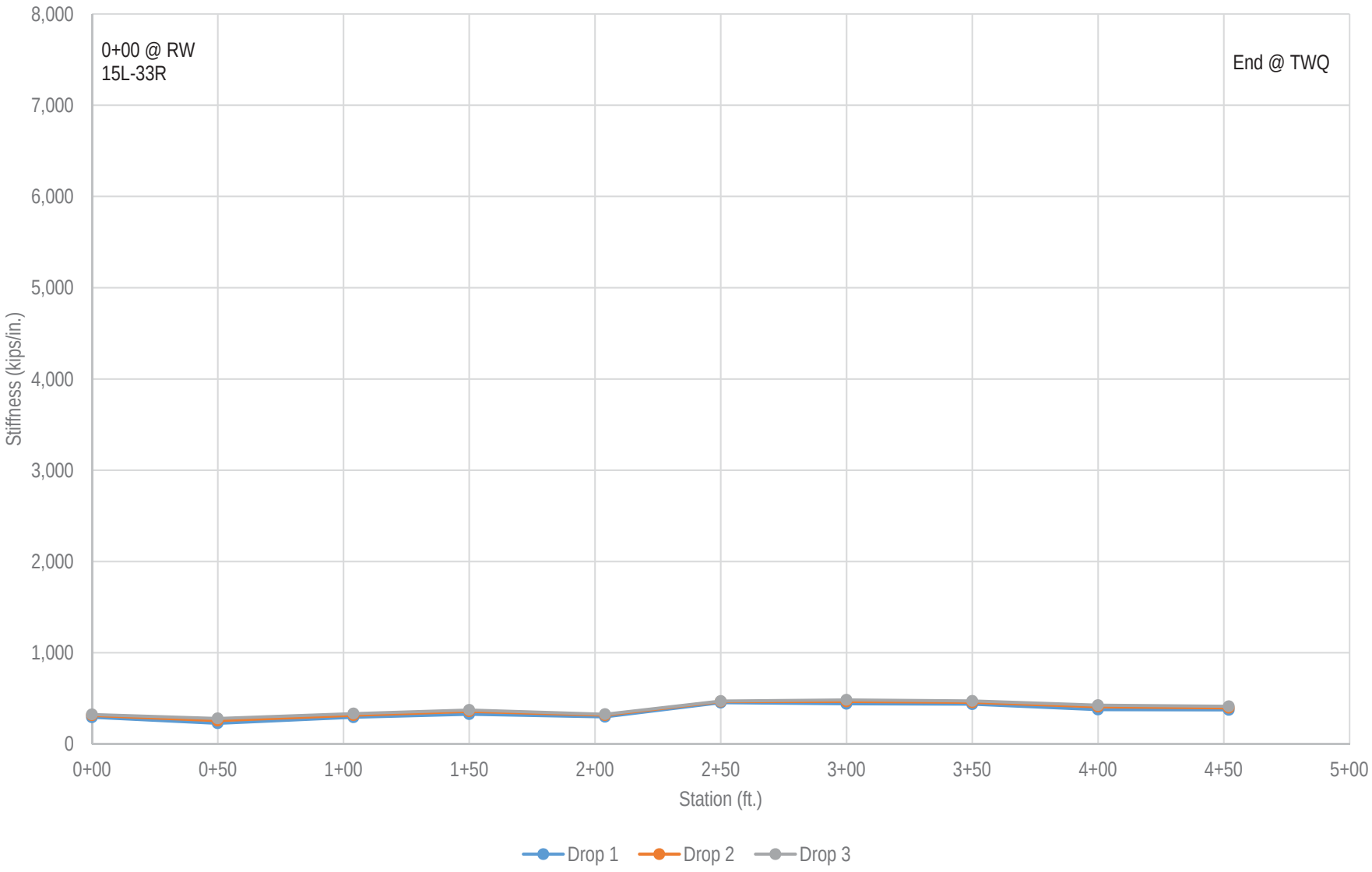
Taxiway L

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	12,710	16.23	8.29	5.06	3.81	2.84	2.35	1.88	783
Lane 2 - 12.5' Left	0+50	1	12,770	7.71	4.85	3.99	3.25	2.44	2.07	1.59	1,656
Lane 1 - 12.5' Right	1+00	1	12,742	9.00	6.12	4.99	4.04	3.06	2.54	1.96	1,416
Lane 2 - 12.5' Left	1+50	1	12,615	34.19	19.57	9.51	5.75	4.02	3.28	2.61	369
Lane 1 - 12.5' Right	2+00	1	12,611	42.37	20.17	8.34	4.92	3.34	2.67	2.00	298
Lane 1 - 12.5' Right	0+00	2	17,656	22.59	11.34	7.12	5.35	3.96	3.32	2.69	782
Lane 2 - 12.5' Left	0+50	2	17,854	10.69	6.67	5.52	4.50	3.38	2.84	2.15	1,670
Lane 1 - 12.5' Right	1+00	2	17,500	12.63	8.47	6.93	5.56	4.17	3.46	2.61	1,386
Lane 2 - 12.5' Left	1+50	2	17,405	46.70	26.70	13.07	7.94	5.52	4.55	3.57	373
Lane 1 - 12.5' Right	2+00	2	17,648	53.49	25.77	11.33	6.90	4.70	3.78	2.83	330
Lane 1 - 12.5' Right	0+00	3	22,973	29.33	14.44	9.09	6.89	5.11	4.30	3.46	783
Lane 2 - 12.5' Left	0+50	3	23,386	13.78	8.66	7.15	5.81	4.35	3.66	2.72	1,697
Lane 1 - 12.5' Right	1+00	3	21,829	16.52	11.08	8.98	7.21	5.37	4.48	3.41	1,321
Lane 2 - 12.5' Left	1+50	3	22,533	60.66	34.49	16.91	10.24	7.06	5.75	4.52	371
Lane 1 - 12.5' Right	2+00	3	22,727	65.27	31.91	14.39	8.87	6.09	4.89	3.64	348
										Average:	906

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway M (Section TWM2)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway M (Section TWM2)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	12,540	42.81	20.63	7.60	3.05	1.67	1.39	1.06	293
Lane 2 - 12.5' Left	0+50	1	12,059	53.16	26.19	8.56	2.20	1.27	1.52	1.48	227
Lane 1 - 12.5' Right	1+04	1	12,453	42.55	19.78	7.69	4.43	3.04	2.49	1.97	293
Lane 2 - 12.5' Left	1+50	1	12,225	37.44	18.04	7.27	4.20	2.95	2.22	2.00	327
Lane 1 - 12.5' Right	2+04	1	12,381	41.57	19.51	7.92	4.56	3.23	2.66	2.17	298
Lane 2 - 12.5' Left	2+50	1	12,325	27.23	14.09	5.11	2.43	1.74	1.62	1.32	453
Lane 1 - 12.5' Right	3+00	1	12,400	28.17	13.85	5.93	3.54	2.60	2.18	1.72	440
Lane 2 - 12.5' Left	3+50	1	12,349	28.32	17.29	8.28	4.63	2.99	2.41	1.91	436
Lane 1 - 12.5' Right	4+00	1	12,345	32.74	16.76	6.87	3.83	2.72	2.31	1.82	377
Lane 2 - 12.5' Left	4+52	1	12,405	33.20	18.91	8.18	4.33	3.02	2.52	1.98	374
Lane 1 - 12.5' Right	0+00	2	17,330	55.11	26.85	10.49	4.39	2.28	1.99	1.60	314
Lane 2 - 12.5' Left	0+50	2	16,817	65.67	32.98	11.45	3.41	1.93	2.17	2.07	256
Lane 1 - 12.5' Right	1+04	2	17,262	54.68	25.81	10.43	6.07	4.22	3.46	2.81	316
Lane 2 - 12.5' Left	1+50	2	17,095	47.80	23.46	10.06	5.93	4.06	3.22	2.76	358
Lane 1 - 12.5' Right	2+04	2	17,198	54.39	25.63	10.90	6.28	4.36	3.65	2.95	316
Lane 2 - 12.5' Left	2+50	2	17,190	36.98	19.33	7.29	3.31	2.43	2.12	2.18	465
Lane 1 - 12.5' Right	3+00	2	17,243	36.99	18.32	8.15	4.92	3.53	2.94	2.44	466
Lane 2 - 12.5' Left	3+50	2	17,195	37.64	23.03	11.30	6.38	4.13	3.34	2.70	457
Lane 1 - 12.5' Right	4+00	2	17,238	42.23	21.87	9.47	5.31	3.79	3.30	2.62	408
Lane 2 - 12.5' Left	4+52	2	17,362	43.85	25.03	11.20	5.93	4.18	3.57	2.97	396
Lane 1 - 12.5' Right	0+00	3	22,369	69.09	33.93	13.67	5.86	3.04	2.67	2.36	324
Lane 2 - 12.5' Left	0+50	3	21,755	77.65	40.78	14.53	4.46	2.57	2.88	2.69	280
Lane 1 - 12.5' Right	1+04	3	22,382	67.16	32.35	13.51	7.80	5.38	4.44	3.61	333
Lane 2 - 12.5' Left	1+50	3	22,184	59.51	29.62	12.95	7.65	5.26	4.24	3.58	373
Lane 1 - 12.5' Right	2+04	3	22,263	68.22	32.76	14.04	8.13	5.57	4.69	3.80	326
Lane 2 - 12.5' Left	2+50	3	22,414	47.64	25.15	9.66	4.56	3.17	2.82	2.54	470
Lane 1 - 12.5' Right	3+00	3	22,454	46.48	23.31	10.52	6.34	4.55	3.82	3.19	483

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

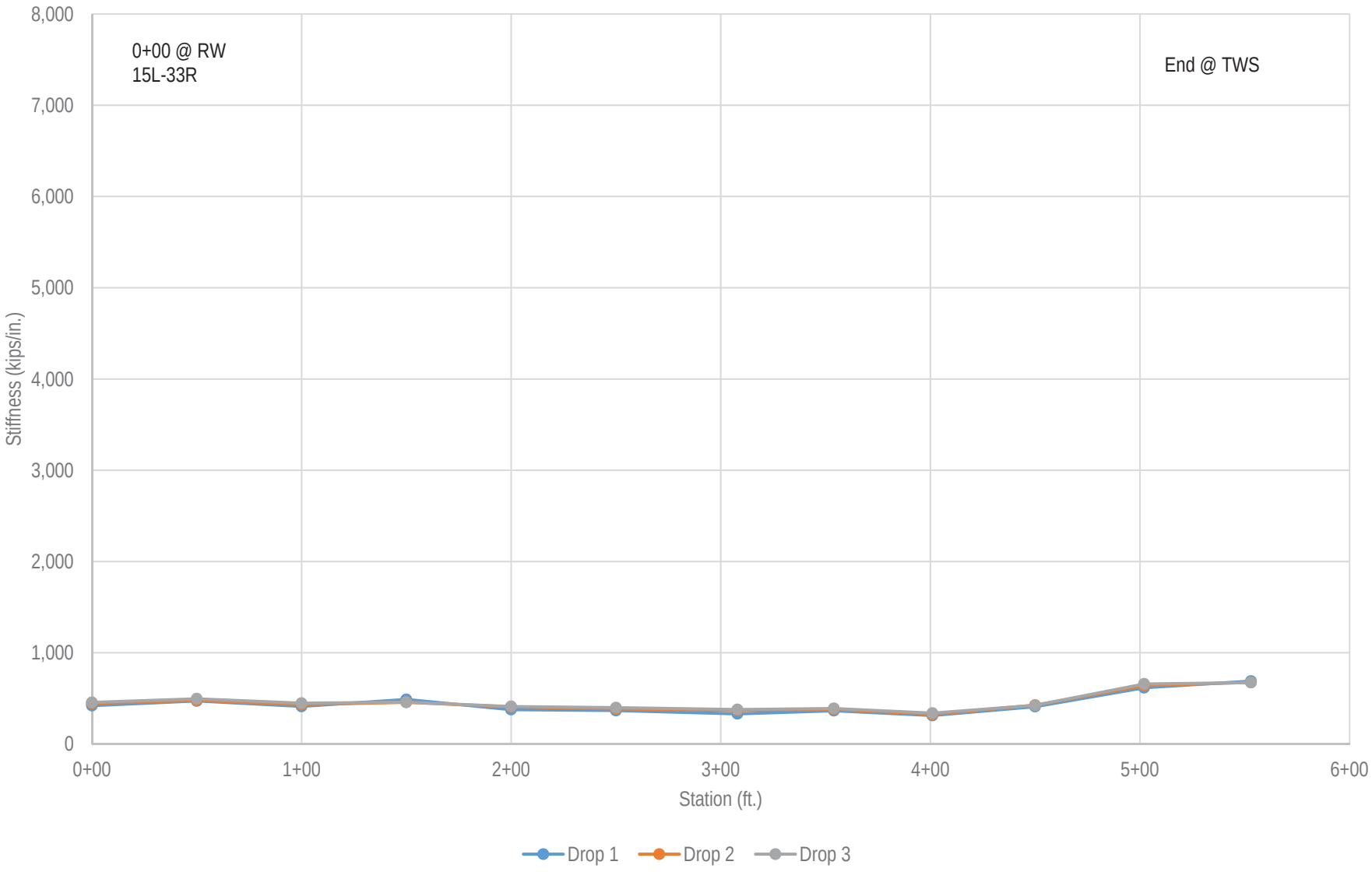
Taxiway M (Section TWM2)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	3+50	3	22,414	47.50	29.10	14.48	8.21	5.31	4.34	3.47	472
Lane 1 - 12.5' Right	4+00	3	22,473	52.81	27.48	12.06	6.85	4.92	4.25	3.42	426
Lane 2 - 12.5' Left	4+52	3	22,493	54.41	31.23	14.24	7.69	5.34	4.59	3.83	413
										Average:	372

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway M (Section TWM1)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway M (Section TWM1)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	13,266	31.56	18.77	8.30	3.86	1.98	1.48	1.43	420
Lane 2 - 12.5' Left	0+50	1	13,811	29.28	17.09	7.78	3.69	2.13	1.59	1.15	472
Lane 1 - 12.5' Right	1+00	1	13,295	32.29	18.93	7.50	3.01	1.60	1.26	1.13	412
Lane 2 - 12.5' Left	1+50	1	14,418	29.54	17.04	7.59	3.39	1.72	1.39	1.12	488
Lane 1 - 12.5' Right	2+00	1	12,750	33.80	18.94	7.72	3.46	2.07	1.61	1.26	377
Lane 2 - 12.5' Left	2+50	1	13,036	35.53	17.84	6.65	3.07	1.95	1.56	1.22	367
Lane 1 - 12.5' Right	3+08	1	12,635	38.20	21.40	8.24	3.21	1.62	1.17	1.07	331
Lane 2 - 12.5' Left	3+54	1	12,603	34.55	19.34	8.44	4.16	2.50	2.00	1.47	365
Lane 1 - 12.5' Right	4+01	1	13,326	42.71	25.02	10.40	4.41	2.39	1.78	1.61	312
Lane 2 - 12.5' Left	4+50	1	12,977	31.67	18.51	8.87	4.49	2.40	1.73	1.23	410
Lane 1 - 12.5' Right	5+02	1	13,358	21.67	12.70	5.92	3.53	2.37	2.00	1.57	616
Lane 2 - 12.5' Left	5+53	1	13,496	19.59	12.94	7.97	5.45	3.78	3.02	2.37	689
Lane 1 - 12.5' Right	0+00	2	18,310	41.16	24.71	11.30	5.44	2.77	2.22	2.04	445
Lane 2 - 12.5' Left	0+50	2	18,143	37.97	22.62	10.82	5.34	3.10	2.32	1.74	478
Lane 1 - 12.5' Right	1+00	2	18,021	41.80	24.79	10.42	4.49	2.37	1.92	1.67	431
Lane 2 - 12.5' Left	1+50	2	17,738	38.85	22.70	10.63	5.07	2.65	2.09	1.61	457
Lane 1 - 12.5' Right	2+00	2	17,818	43.83	25.18	11.13	5.22	3.16	2.45	2.03	407
Lane 2 - 12.5' Left	2+50	2	17,854	46.33	24.11	9.80	4.61	2.84	2.20	1.76	385
Lane 1 - 12.5' Right	3+08	2	17,905	48.78	28.34	12.12	5.05	2.52	1.75	1.54	367
Lane 2 - 12.5' Left	3+54	2	17,767	46.88	26.66	12.06	5.91	3.56	2.89	2.26	379
Lane 1 - 12.5' Right	4+01	2	18,021	55.58	32.60	13.98	6.15	3.29	2.58	2.33	324
Lane 2 - 12.5' Left	4+50	2	18,251	42.93	25.44	12.50	6.41	3.47	2.55	1.83	425
Lane 1 - 12.5' Right	5+02	2	18,402	28.74	17.07	8.78	5.11	3.41	2.80	2.11	640
Lane 2 - 12.5' Left	5+53	2	18,386	27.22	18.03	11.23	7.67	5.32	4.35	3.38	675
Lane 1 - 12.5' Right	0+00	3	23,537	51.66	31.17	14.63	7.15	3.80	3.09	2.66	456
Lane 2 - 12.5' Left	0+50	3	23,613	47.63	28.59	14.08	7.07	4.09	3.10	2.37	496
Lane 1 - 12.5' Right	1+00	3	23,410	52.37	31.45	13.71	6.10	3.30	2.63	2.26	447

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

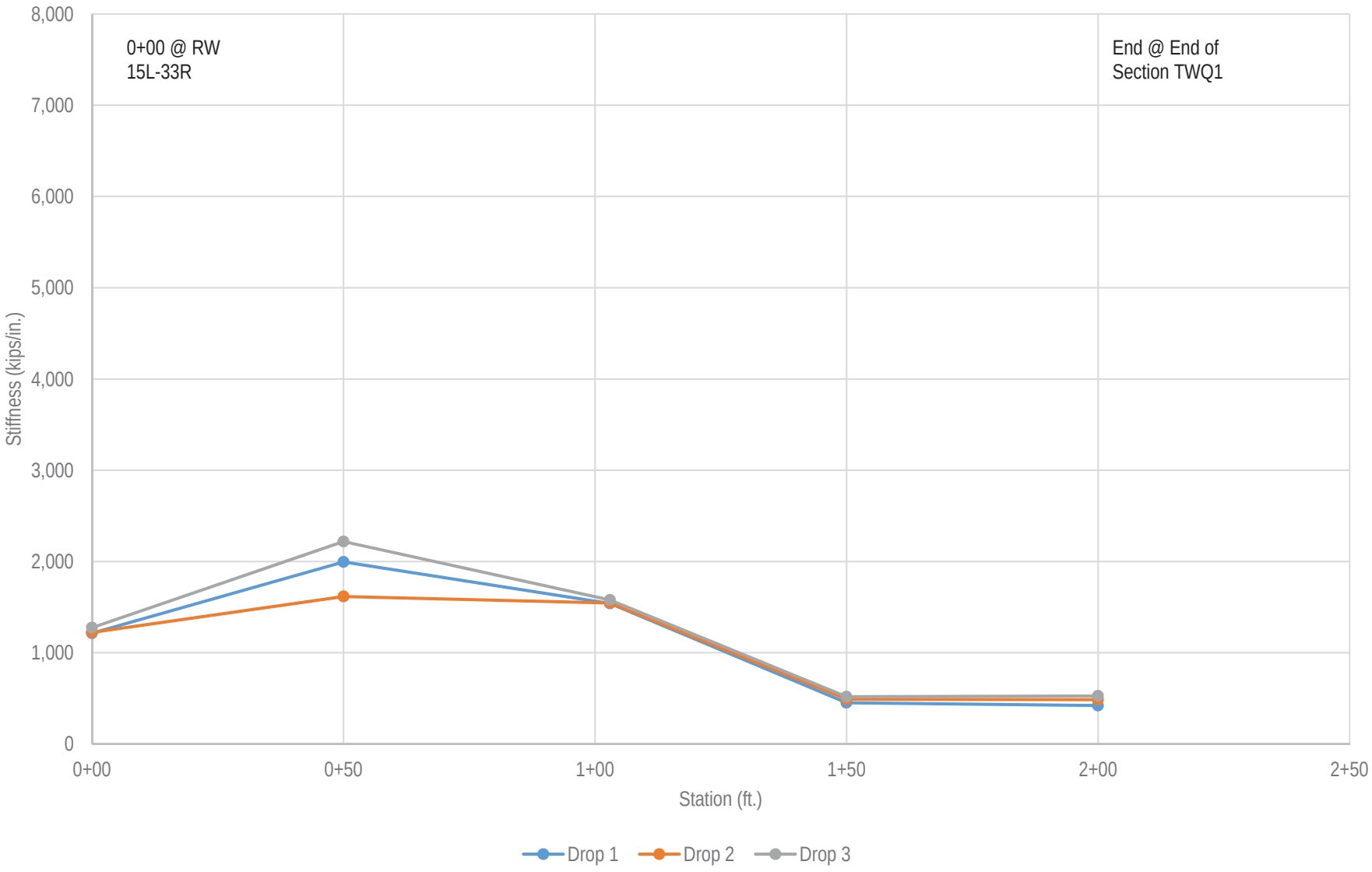
Taxiway M (Section TWM1)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	1+50	3	22,470	49.02	28.89	13.79	6.85	3.65	2.78	2.19	458
Lane 1 - 12.5' Right	2+00	3	22,906	55.70	31.96	15.17	6.96	4.41	3.31	2.64	411
Lane 2 - 12.5' Left	2+50	3	23,184	58.19	31.00	13.17	6.34	3.85	2.95	2.38	398
Lane 1 - 12.5' Right	3+08	3	22,814	60.46	35.58	16.09	6.96	3.42	2.37	2.00	377
Lane 2 - 12.5' Left	3+54	3	23,312	59.94	34.63	16.07	7.93	4.71	3.83	3.03	389
Lane 1 - 12.5' Right	4+01	3	23,362	69.15	40.65	17.81	7.93	4.34	3.46	3.16	338
Lane 2 - 12.5' Left	4+50	3	23,347	55.05	32.81	16.47	8.52	4.64	3.37	2.46	424
Lane 1 - 12.5' Right	5+02	3	24,141	36.67	22.07	11.59	6.86	4.58	3.76	2.89	658
Lane 2 - 12.5' Left	5+53	3	23,879	35.46	23.50	14.65	9.96	6.88	5.53	4.36	673
										Average:	450

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway Q (Section TWQ1)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

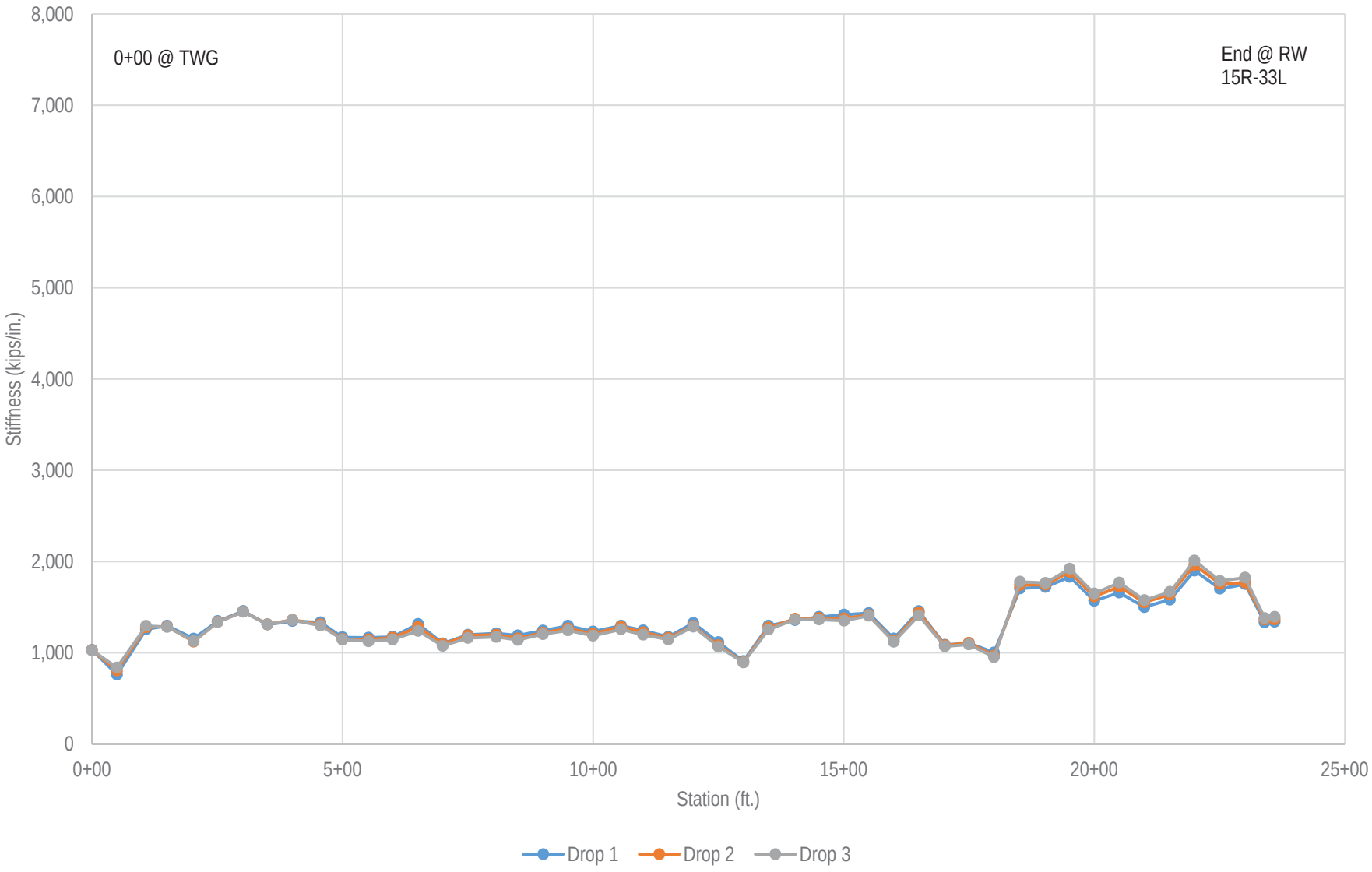
Taxiway Q (Section TWQ1)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	13,147	10.83	7.01	5.12	4.01	2.91	2.39	1.73	1,214
Lane 2 - 12.5' Left	0+50	1	12,670	6.35	4.57	3.55	3.06	2.44	2.03	1.42	1,995
Lane 1 - 12.5' Right	1+03	1	12,723	8.26	6.23	5.17	4.15	3.10	2.55	1.96	1,540
Lane 2 - 12.5' Left	1+50	1	12,421	27.47	15.65	6.67	3.44	2.25	1.86	1.56	452
Lane 1 - 12.5' Right	2+00	1	12,691	30.13	12.61	4.68	2.47	1.80	1.56	1.29	421
Lane 1 - 12.5' Right	0+00	2	18,005	14.72	9.48	6.96	5.46	3.94	3.26	2.44	1,223
Lane 2 - 12.5' Left	0+50	2	17,746	10.98	6.20	4.90	4.14	3.15	2.73	2.20	1,616
Lane 1 - 12.5' Right	1+03	2	17,738	11.48	8.53	7.07	5.70	4.20	3.47	2.65	1,545
Lane 2 - 12.5' Left	1+50	2	17,373	35.47	20.06	8.92	4.66	3.14	2.65	2.25	490
Lane 1 - 12.5' Right	2+00	2	17,664	36.34	16.26	6.78	3.67	2.60	2.28	1.89	486
Lane 1 - 12.5' Right	0+00	3	23,383	18.34	12.04	8.81	6.90	4.97	4.08	2.97	1,275
Lane 2 - 12.5' Left	0+50	3	23,232	10.47	7.89	6.29	5.18	3.92	3.41	2.84	2,219
Lane 1 - 12.5' Right	1+03	3	23,188	14.69	10.96	9.06	7.24	5.33	4.39	3.38	1,578
Lane 2 - 12.5' Left	1+50	3	22,684	43.78	24.70	11.07	5.91	3.98	3.43	2.88	518
Lane 1 - 12.5' Right	2+00	3	23,013	43.66	20.37	8.96	5.02	3.48	3.00	2.47	527
										Average:	1,140

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway R



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	13,036	12.64	8.03	4.88	3.32	2.53	1.96	1.55	1,031
Lane 2 - 12.5' Left	0+50	1	12,889	16.94	11.02	6.65	4.41	3.20	2.52	1.96	761
Lane 1 - 12.5' Right	1+08	1	12,882	10.24	5.76	3.45	2.30	1.77	1.30	1.02	1,258
Lane 2 - 12.5' Left	1+50	1	12,829	9.90	6.54	4.34	3.09	2.46	1.90	1.53	1,296
Lane 1 - 12.5' Right	2+03	1	12,916	11.19	7.54	5.14	3.76	2.93	2.28	1.82	1,154
Lane 2 - 12.5' Left	2+51	1	12,853	9.55	6.33	4.21	2.93	2.37	1.85	1.48	1,346
Lane 1 - 12.5' Right	3+02	1	12,869	8.83	5.94	3.77	2.50	1.87	1.41	1.06	1,457
Lane 2 - 12.5' Left	3+50	1	12,842	9.81	6.47	4.20	2.80	2.12	1.55	1.24	1,309
Lane 1 - 12.5' Right	4+00	1	12,882	9.56	5.93	3.84	2.63	2.06	1.54	1.22	1,347
Lane 2 - 12.5' Left	4+56	1	12,850	9.64	6.13	3.89	2.63	1.94	1.46	1.22	1,333
Lane 1 - 12.5' Right	5+00	1	12,702	10.87	7.66	4.96	3.28	2.31	1.77	1.26	1,169
Lane 2 - 12.5' Left	5+52	1	12,845	11.02	7.37	4.93	3.32	2.32	1.75	1.25	1,166
Lane 1 - 12.5' Right	6+00	1	12,877	10.97	7.35	4.81	3.26	2.26	1.62	1.21	1,174
Lane 2 - 12.5' Left	6+51	1	12,813	9.74	6.58	4.29	3.01	2.38	1.62	1.26	1,316
Lane 1 - 12.5' Right	7+00	1	12,885	11.69	7.78	5.18	3.52	2.51	1.89	1.41	1,102
Lane 2 - 12.5' Left	7+50	1	12,818	10.71	6.99	4.59	3.10	2.24	1.67	1.26	1,197
Lane 1 - 12.5' Right	8+07	1	12,834	10.59	6.73	4.25	2.88	2.04	1.56	1.23	1,212
Lane 2 - 12.5' Left	8+50	1	12,770	10.73	7.22	4.71	3.21	2.26	1.68	1.32	1,190
Lane 1 - 12.5' Right	9+00	1	12,837	10.33	6.81	4.41	3.02	2.16	1.56	1.21	1,243
Lane 2 - 12.5' Left	9+50	1	12,829	9.90	6.42	4.22	2.84	2.06	1.51	1.22	1,296
Lane 1 - 12.5' Right	10+00	1	12,853	10.43	6.71	4.22	2.86	2.08	1.58	1.19	1,232
Lane 2 - 12.5' Left	10+56	1	12,766	9.85	6.33	4.12	2.81	2.05	1.56	1.19	1,296
Lane 1 - 12.5' Right	11+00	1	12,874	10.35	6.55	4.06	2.73	2.02	1.48	1.12	1,244
Lane 2 - 12.5' Left	11+50	1	12,770	10.88	6.76	4.21	2.88	2.10	1.57	1.17	1,174
Lane 1 - 12.5' Right	12+00	1	12,810	9.66	6.21	3.90	2.69	1.96	1.53	1.13	1,326
Lane 2 - 12.5' Left	12+50	1	12,826	11.49	7.79	5.18	3.65	2.60	1.91	1.39	1,116
Lane 1 - 12.5' Right	13+00	1	12,691	13.98	8.77	5.49	3.70	2.60	1.90	1.36	908

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	13+50	1	12,877	9.94	6.33	4.10	2.78	2.09	1.53	1.22	1,295
Lane 1 - 12.5' Right	14+03	1	12,837	9.46	5.58	3.17	2.03	1.41	1.09	0.81	1,357
Lane 2 - 12.5' Left	14+51	1	12,810	9.20	5.86	3.83	2.59	2.01	1.40	1.16	1,392
Lane 1 - 12.5' Right	15+01	1	12,937	9.13	5.58	3.16	2.06	1.51	1.14	0.83	1,417
Lane 2 - 12.5' Left	15+50	1	12,853	8.96	5.41	3.33	2.25	1.65	1.27	0.96	1,434
Lane 1 - 12.5' Right	16+00	1	12,813	11.09	7.28	4.48	2.98	2.15	1.59	1.20	1,155
Lane 2 - 12.5' Left	16+50	1	12,853	8.83	5.57	3.66	2.47	1.86	1.42	1.12	1,456
Lane 1 - 12.5' Right	17+02	1	12,845	11.82	7.37	4.57	3.09	2.22	1.67	1.28	1,087
Lane 2 - 12.5' Left	17+50	1	12,821	11.59	7.15	4.39	2.94	2.13	1.67	1.22	1,106
Lane 1 - 12.5' Right	18+00	1	12,882	12.85	8.45	5.22	3.45	2.43	1.80	1.34	1,002
Lane 2 - 12.5' Left	18+52	1	12,850	7.54	4.48	3.02	2.23	1.71	1.33	1.11	1,704
Lane 1 - 12.5' Right	19+03	1	12,921	7.51	4.41	2.91	2.14	1.66	1.33	1.09	1,721
Lane 2 - 12.5' Left	19+51	1	12,893	7.04	4.28	2.81	1.99	1.49	1.20	0.97	1,831
Lane 1 - 12.5' Right	20+00	1	12,909	8.23	4.52	2.93	2.10	1.63	1.31	1.04	1,569
Lane 2 - 12.5' Left	20+50	1	12,842	7.74	4.39	2.93	2.06	1.63	1.35	1.15	1,659
Lane 1 - 12.5' Right	21+00	1	12,866	8.58	5.35	3.73	2.77	2.19	1.79	1.48	1,500
Lane 2 - 12.5' Left	21+51	1	12,953	8.19	4.68	3.21	2.36	1.95	1.59	1.34	1,582
Lane 1 - 12.5' Right	22+00	1	12,977	6.83	3.63	2.47	1.96	1.81	1.52	1.35	1,900
Lane 2 - 12.5' Left	22+51	1	12,929	7.60	4.57	3.13	2.33	1.98	1.61	1.42	1,701
Lane 1 - 12.5' Right	23+01	1	12,889	7.36	4.99	3.48	2.54	2.09	1.67	1.46	1,751
Lane 2 - 12.5' Left	23+40	1	12,861	9.65	6.09	4.11	3.04	2.40	1.92	1.53	1,333
Lane 1 - 12.5' Right	23+60	1	12,874	9.61	6.34	4.41	3.39	2.72	2.24	1.80	1,340
Lane 1 - 12.5' Right	0+00	2	18,064	17.57	11.30	6.87	4.70	3.50	2.78	2.16	1,028
Lane 2 - 12.5' Left	0+50	2	17,894	22.22	14.57	8.95	5.97	4.35	3.44	2.70	805
Lane 1 - 12.5' Right	1+08	2	17,958	14.04	8.21	4.94	3.31	2.39	1.81	1.40	1,279
Lane 2 - 12.5' Left	1+50	2	17,897	13.89	9.31	6.19	4.46	3.38	2.65	2.16	1,288
Lane 1 - 12.5' Right	2+03	2	17,950	16.00	10.77	7.22	5.37	4.07	3.18	2.56	1,122

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	2+51	2	17,934	13.40	8.93	5.91	4.21	3.14	2.41	1.98	1,338
Lane 1 - 12.5' Right	3+02	2	17,913	12.35	8.38	5.38	3.61	2.60	1.94	1.52	1,450
Lane 2 - 12.5' Left	3+50	2	17,942	13.69	9.07	5.84	4.02	2.92	2.21	1.70	1,311
Lane 1 - 12.5' Right	4+00	2	17,918	13.17	8.31	5.40	3.71	2.77	2.09	1.64	1,361
Lane 2 - 12.5' Left	4+56	2	17,918	13.67	8.91	5.45	3.94	2.60	2.11	1.48	1,311
Lane 1 - 12.5' Right	5+00	2	17,770	15.46	10.87	7.08	4.74	3.29	2.41	1.79	1,149
Lane 2 - 12.5' Left	5+52	2	17,973	15.68	10.73	7.06	4.85	3.38	2.43	1.70	1,146
Lane 1 - 12.5' Right	6+00	2	17,934	15.39	10.42	6.85	4.72	3.24	2.35	1.70	1,165
Lane 2 - 12.5' Left	6+51	2	17,913	13.97	9.63	6.45	4.55	3.35	2.42	1.82	1,282
Lane 1 - 12.5' Right	7+00	2	17,926	16.38	11.05	7.51	5.06	3.69	2.74	2.02	1,094
Lane 2 - 12.5' Left	7+50	2	17,918	15.06	10.25	6.63	4.61	3.27	2.52	1.72	1,190
Lane 1 - 12.5' Right	8+07	2	17,902	14.96	9.71	6.27	4.25	3.01	2.27	1.66	1,197
Lane 2 - 12.5' Left	8+50	2	17,870	15.44	10.57	6.99	4.78	3.35	2.48	1.90	1,157
Lane 1 - 12.5' Right	9+00	2	17,937	14.71	9.81	6.48	4.43	3.20	2.27	1.74	1,219
Lane 2 - 12.5' Left	9+50	2	17,913	14.16	9.29	6.11	4.24	3.00	2.26	1.70	1,265
Lane 1 - 12.5' Right	10+00	2	17,934	14.85	9.72	6.25	4.21	3.00	2.23	1.68	1,208
Lane 2 - 12.5' Left	10+56	2	17,857	13.91	9.13	5.94	4.14	2.97	2.23	1.72	1,284
Lane 1 - 12.5' Right	11+00	2	17,961	14.69	9.48	6.02	4.04	2.91	2.15	1.63	1,223
Lane 2 - 12.5' Left	11+50	2	17,870	15.38	9.74	6.16	4.24	2.96	2.21	1.74	1,162
Lane 1 - 12.5' Right	12+00	2	17,842	13.80	8.99	5.78	3.95	2.87	2.15	1.62	1,293
Lane 2 - 12.5' Left	12+50	2	17,889	16.53	11.28	7.65	5.35	3.80	2.81	2.01	1,082
Lane 1 - 12.5' Right	13+00	2	17,746	19.80	12.58	8.13	5.45	3.81	2.78	2.02	896
Lane 2 - 12.5' Left	13+50	2	17,929	14.05	9.04	5.91	4.09	2.98	2.26	1.67	1,276
Lane 1 - 12.5' Right	14+03	2	17,902	13.04	7.89	4.61	2.92	2.07	1.56	1.20	1,373
Lane 2 - 12.5' Left	14+51	2	17,918	12.98	8.47	5.56	3.90	2.83	2.13	1.57	1,380
Lane 1 - 12.5' Right	15+01	2	18,056	13.12	8.14	4.76	3.06	2.19	1.66	1.26	1,376
Lane 2 - 12.5' Left	15+50	2	17,997	12.73	7.75	4.81	3.33	2.39	1.79	1.35	1,414

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	16+00	2	17,873	15.82	10.47	6.61	4.36	3.13	2.28	1.72	1,130
Lane 2 - 12.5' Left	16+50	2	17,953	12.46	7.98	5.20	3.63	2.63	2.02	1.52	1,441
Lane 1 - 12.5' Right	17+02	2	17,918	16.57	10.59	6.74	4.54	3.20	2.43	1.83	1,081
Lane 2 - 12.5' Left	17+50	2	17,950	16.21	10.24	6.39	4.35	3.11	2.35	1.73	1,107
Lane 1 - 12.5' Right	18+00	2	17,918	18.52	12.28	7.76	5.17	3.61	2.67	1.96	967
Lane 2 - 12.5' Left	18+52	2	17,958	10.31	6.09	4.07	3.11	2.35	1.85	1.53	1,742
Lane 1 - 12.5' Right	19+03	2	18,024	10.33	6.06	4.01	2.96	2.33	1.89	1.52	1,745
Lane 2 - 12.5' Left	19+51	2	18,005	9.55	5.74	3.81	2.73	2.07	1.68	1.35	1,885
Lane 1 - 12.5' Right	20+00	2	18,021	11.15	6.12	3.99	2.90	2.24	1.81	1.47	1,616
Lane 2 - 12.5' Left	20+50	2	17,989	10.44	5.90	3.92	2.86	2.30	1.87	1.55	1,723
Lane 1 - 12.5' Right	21+00	2	17,985	11.59	7.25	5.09	3.84	3.03	2.50	2.07	1,552
Lane 2 - 12.5' Left	21+51	2	18,072	11.03	6.32	4.36	3.29	2.69	2.26	1.85	1,638
Lane 1 - 12.5' Right	22+00	2	18,108	9.23	4.92	3.47	2.73	2.39	2.12	1.88	1,962
Lane 2 - 12.5' Left	22+51	2	18,024	10.28	6.18	4.24	3.26	2.68	2.24	1.84	1,753
Lane 1 - 12.5' Right	23+01	2	18,024	10.19	6.72	4.72	3.47	2.79	2.32	1.98	1,769
Lane 2 - 12.5' Left	23+40	2	17,961	13.17	8.40	5.70	4.25	3.33	2.68	2.13	1,364
Lane 1 - 12.5' Right	23+60	2	17,969	13.16	8.74	6.07	4.74	3.78	3.10	2.46	1,365
Lane 1 - 12.5' Right	0+00	3	23,450	22.85	14.79	9.01	6.11	4.50	3.56	2.77	1,026
Lane 2 - 12.5' Left	0+50	3	23,407	27.94	18.37	11.41	7.67	5.59	4.41	3.51	838
Lane 1 - 12.5' Right	1+08	3	23,455	18.12	10.96	6.68	4.46	3.15	2.40	1.93	1,294
Lane 2 - 12.5' Left	1+50	3	23,478	18.30	12.42	8.32	5.99	4.46	3.54	2.86	1,283
Lane 1 - 12.5' Right	2+03	3	23,426	20.79	14.09	9.73	7.11	5.41	4.28	3.40	1,127
Lane 2 - 12.5' Left	2+51	3	23,497	17.60	11.79	7.86	5.56	4.09	3.15	2.52	1,335
Lane 1 - 12.5' Right	3+02	3	23,450	16.18	11.12	7.17	4.85	3.41	2.59	1.98	1,449
Lane 2 - 12.5' Left	3+50	3	23,505	17.93	11.96	7.80	5.32	3.82	2.87	2.28	1,311
Lane 1 - 12.5' Right	4+00	3	23,518	17.31	11.04	7.26	4.99	3.67	2.76	2.19	1,359
Lane 2 - 12.5' Left	4+56	3	23,486	18.09	11.86	7.54	5.22	3.53	2.81	1.98	1,298

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	5+00	3	23,240	20.30	14.48	9.51	6.39	4.44	3.25	2.36	1,145
Lane 2 - 12.5' Left	5+52	3	23,497	20.87	14.51	9.57	6.64	4.63	3.31	2.28	1,126
Lane 1 - 12.5' Right	6+00	3	23,463	20.50	13.91	9.26	6.39	4.40	3.17	2.33	1,145
Lane 2 - 12.5' Left	6+51	3	23,434	18.91	13.13	8.83	6.33	4.48	3.34	2.39	1,239
Lane 1 - 12.5' Right	7+00	3	23,359	21.73	14.81	10.08	6.95	4.97	3.68	2.69	1,075
Lane 2 - 12.5' Left	7+50	3	23,458	20.19	13.88	9.22	6.39	4.53	3.37	2.42	1,162
Lane 1 - 12.5' Right	8+07	3	23,415	19.95	13.12	8.59	5.81	4.08	3.07	2.23	1,174
Lane 2 - 12.5' Left	8+50	3	23,370	20.49	14.35	9.42	6.59	4.61	3.41	2.57	1,141
Lane 1 - 12.5' Right	9+00	3	23,450	19.49	13.25	8.90	6.09	4.31	3.09	2.35	1,203
Lane 2 - 12.5' Left	9+50	3	23,494	18.87	12.63	8.44	5.86	4.13	3.07	2.31	1,245
Lane 1 - 12.5' Right	10+00	3	23,426	19.74	13.16	8.63	5.85	4.12	3.04	2.21	1,187
Lane 2 - 12.5' Left	10+56	3	23,418	18.62	12.39	8.21	5.70	4.09	3.04	2.34	1,258
Lane 1 - 12.5' Right	11+00	3	23,518	19.64	12.94	8.36	5.59	3.97	2.89	2.20	1,197
Lane 2 - 12.5' Left	11+50	3	23,370	20.40	13.13	8.54	5.80	4.11	3.06	2.34	1,146
Lane 1 - 12.5' Right	12+00	3	23,450	18.24	12.30	8.06	5.53	3.95	2.95	2.19	1,286
Lane 2 - 12.5' Left	12+50	3	23,447	21.98	15.26	10.32	7.34	5.17	3.76	2.74	1,067
Lane 1 - 12.5' Right	13+00	3	23,208	25.98	16.85	11.00	7.49	5.24	3.78	2.72	893
Lane 2 - 12.5' Left	13+50	3	23,494	18.74	12.18	7.98	5.61	4.06	3.11	2.19	1,254
Lane 1 - 12.5' Right	14+03	3	23,490	17.21	10.60	6.35	4.07	2.83	2.13	1.57	1,365
Lane 2 - 12.5' Left	14+51	3	23,470	17.21	11.41	7.52	5.31	3.80	2.93	2.05	1,364
Lane 1 - 12.5' Right	15+01	3	23,582	17.46	11.16	6.68	4.27	2.99	2.25	1.68	1,351
Lane 2 - 12.5' Left	15+50	3	23,558	16.76	10.35	6.57	4.50	3.22	2.41	1.75	1,406
Lane 1 - 12.5' Right	16+00	3	23,383	20.87	14.21	9.14	6.09	4.25	3.09	2.31	1,120
Lane 2 - 12.5' Left	16+50	3	23,510	16.68	10.80	7.17	4.95	3.56	2.71	1.99	1,409
Lane 1 - 12.5' Right	17+02	3	23,463	21.92	14.30	9.28	6.30	4.37	3.27	2.45	1,070
Lane 2 - 12.5' Left	17+50	3	23,466	21.51	13.72	8.61	5.86	4.17	3.11	2.22	1,091
Lane 1 - 12.5' Right	18+00	3	23,439	24.61	16.70	10.71	7.15	4.93	3.61	2.62	952

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

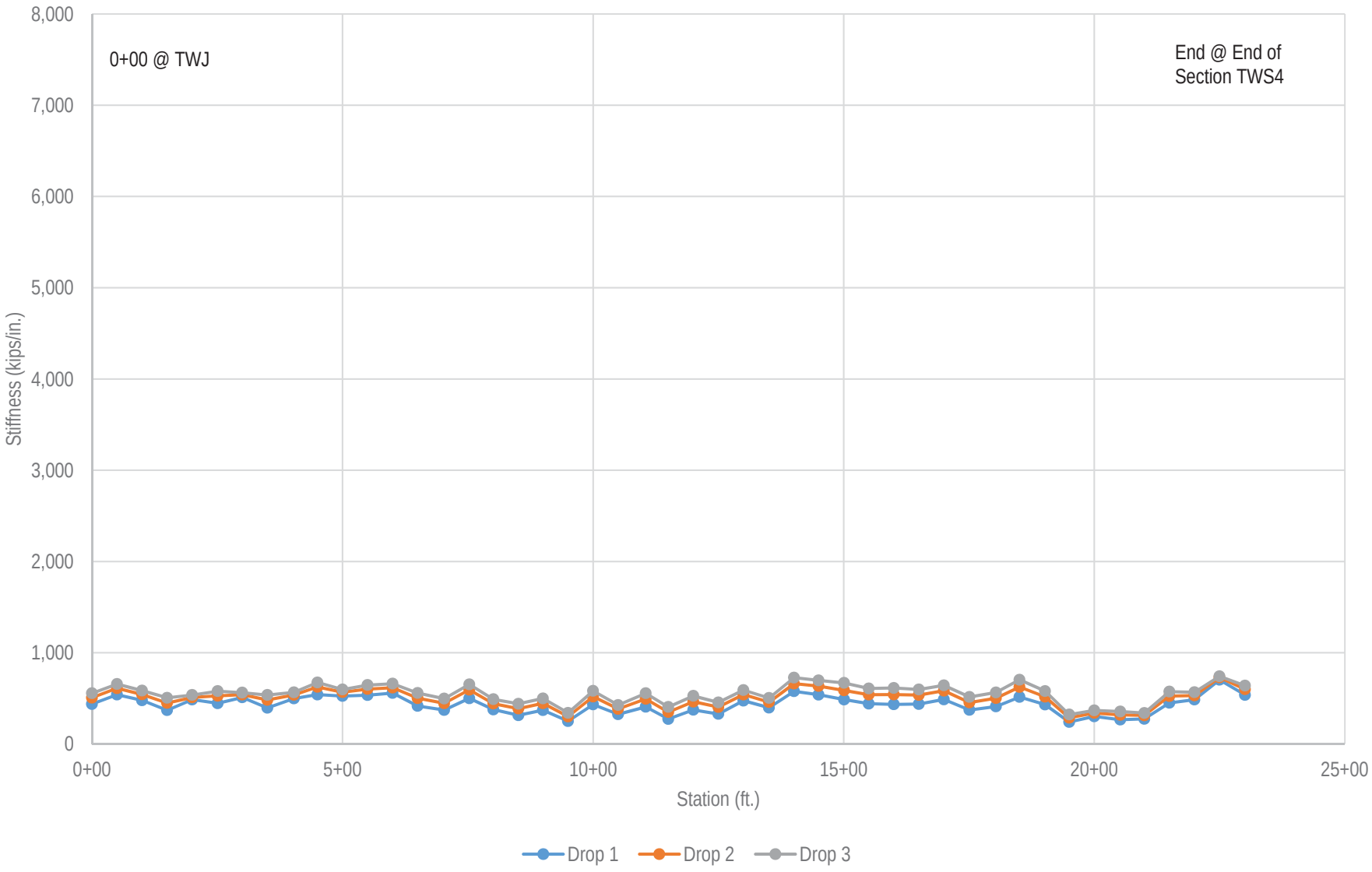
Taxiway R

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	18+52	3	23,625	13.29	7.82	5.38	4.01	3.03	2.42	1.98	1,778
Lane 1 - 12.5' Right	19+03	3	23,625	13.39	7.85	5.26	3.86	3.05	2.47	1.98	1,764
Lane 2 - 12.5' Left	19+51	3	23,677	12.33	7.33	4.89	3.56	2.70	2.17	1.74	1,920
Lane 1 - 12.5' Right	20+00	3	23,637	14.34	7.81	5.13	3.78	2.91	2.34	1.86	1,648
Lane 2 - 12.5' Left	20+50	3	23,637	13.37	7.49	5.01	3.71	2.96	2.39	1.96	1,768
Lane 1 - 12.5' Right	21+00	3	23,613	14.98	9.29	6.61	4.99	3.94	3.22	2.65	1,576
Lane 2 - 12.5' Left	21+51	3	23,640	14.18	8.07	5.71	4.24	3.46	2.90	2.41	1,667
Lane 1 - 12.5' Right	22+00	3	23,744	11.81	6.29	4.40	3.54	3.05	2.70	2.43	2,010
Lane 2 - 12.5' Left	22+51	3	23,653	13.24	7.94	5.55	4.31	3.52	2.93	2.46	1,786
Lane 1 - 12.5' Right	23+01	3	23,640	12.97	8.61	6.07	4.50	3.58	2.93	2.53	1,823
Lane 2 - 12.5' Left	23+40	3	23,561	17.09	10.92	7.44	5.56	4.33	3.48	2.78	1,379
Lane 1 - 12.5' Right	23+60	3	23,537	16.89	11.26	7.85	6.13	4.89	3.99	3.19	1,394
										Average:	1,325

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway S (Sections 4 - 10)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway S (Sections 4 - 10)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	0+00	1	12,948	29.59	15.87	8.20	5.13	3.56	2.61	2.04	438
Lane 2 - 12.5' Left	0+50	1	12,734	23.54	12.51	6.01	3.39	2.26	1.69	1.17	541
Lane 1 - 12.5' Right	1+00	1	12,853	26.85	15.84	8.13	4.85	3.13	2.22	1.60	479
Lane 2 - 12.5' Left	1+50	1	12,599	34.07	18.17	7.60	3.69	2.07	1.59	1.02	370
Lane 1 - 12.5' Right	2+00	1	12,778	26.24	15.51	7.88	4.39	2.84	1.97	1.43	487
Lane 2 - 12.5' Left	2+51	1	12,678	28.43	16.05	7.43	3.85	2.23	1.38	0.98	446
Lane 1 - 12.5' Right	3+00	1	12,901	25.25	15.85	7.65	4.20	2.59	1.84	1.28	511
Lane 2 - 12.5' Left	3+50	1	12,619	31.87	16.43	7.52	3.95	2.30	1.46	1.03	396
Lane 1 - 12.5' Right	4+03	1	12,786	25.64	15.05	7.88	4.59	2.82	1.87	1.33	499
Lane 2 - 12.5' Left	4+50	1	12,718	23.49	11.83	5.37	2.88	2.02	1.30	0.98	541
Lane 1 - 12.5' Right	5+00	1	12,773	24.29	15.27	8.16	4.63	3.01	2.23	1.71	526
Lane 2 - 12.5' Left	5+50	1	12,746	23.81	12.35	5.67	3.01	1.92	1.37	1.09	535
Lane 1 - 12.5' Right	6+00	1	12,750	22.82	13.87	6.02	3.51	2.28	1.83	1.52	559
Lane 2 - 12.5' Left	6+50	1	12,611	30.26	14.13	5.56	2.82	1.81	1.26	1.17	417
Lane 1 - 12.5' Right	7+03	1	12,662	34.00	15.07	5.37	2.68	1.69	1.28	0.98	372
Lane 2 - 12.5' Left	7+53	1	12,686	25.33	12.26	5.59	3.19	2.24	1.69	1.27	501
Lane 1 - 12.5' Right	8+01	1	12,611	33.38	15.72	5.81	3.04	2.15	1.57	1.15	378
Lane 2 - 12.5' Left	8+51	1	12,492	39.67	19.15	7.54	3.39	1.83	0.99	0.76	315
Lane 1 - 12.5' Right	9+00	1	12,630	34.09	15.76	5.48	3.23	2.24	1.76	1.32	370
Lane 2 - 12.5' Left	9+50	1	12,384	49.43	20.98	6.65	2.72	1.55	1.23	1.09	251
Lane 1 - 12.5' Right	10+00	1	12,691	29.30	15.72	7.14	3.90	2.61	1.96	1.52	433
Lane 2 - 12.5' Left	10+50	1	12,500	38.38	17.81	6.25	2.81	1.61	1.13	0.93	326
Lane 1 - 12.5' Right	11+05	1	12,654	31.08	14.28	5.57	2.51	1.49	0.93	0.80	407
Lane 2 - 12.5' Left	11+50	1	12,225	44.62	21.62	8.31	3.98	2.28	1.57	1.05	274
Lane 1 - 12.5' Right	12+00	1	12,635	33.79	16.57	7.28	3.52	2.07	1.45	1.01	374
Lane 2 - 12.5' Left	12+50	1	12,480	37.90	18.71	7.57	4.09	2.52	1.67	1.22	329
Lane 1 - 12.5' Right	13+00	1	12,691	26.76	14.33	6.72	3.67	2.34	1.75	1.30	474

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway S (Sections 4 - 10)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	13+51	1	12,488	31.39	17.18	8.62	5.07	3.55	2.58	2.46	398
Lane 1 - 12.5' Right	14+01	1	12,810	22.18	13.11	7.07	4.25	2.96	2.32	1.79	578
Lane 2 - 12.5' Left	14+50	1	12,667	23.45	12.06	6.13	3.91	3.03	2.44	2.15	540
Lane 1 - 12.5' Right	15+01	1	12,758	26.20	13.30	6.43	3.65	2.62	2.11	1.76	487
Lane 2 - 12.5' Left	15+50	1	12,607	28.52	13.57	5.97	3.19	2.44	1.96	2.33	442
Lane 1 - 12.5' Right	16+00	1	12,715	29.26	15.04	6.64	3.55	2.39	1.84	1.50	435
Lane 2 - 12.5' Left	16+50	1	12,603	28.79	14.87	6.18	3.37	2.24	1.70	1.36	438
Lane 1 - 12.5' Right	17+00	1	12,667	25.96	14.42	6.38	3.35	2.27	1.63	1.20	488
Lane 2 - 12.5' Left	17+51	1	12,429	33.33	12.54	5.50	3.37	2.38	1.81	1.34	373
Lane 1 - 12.5' Right	18+04	1	12,659	30.80	14.28	5.81	3.59	2.33	1.80	1.39	411
Lane 2 - 12.5' Left	18+51	1	12,619	24.51	10.57	4.92	3.09	2.31	1.86	1.61	515
Lane 1 - 12.5' Right	19+02	1	12,643	29.28	14.47	6.48	3.66	2.78	2.04	1.58	432
Lane 2 - 12.5' Left	19+50	1	12,135	50.44	21.28	7.71	4.41	2.83	1.95	1.45	241
Lane 1 - 12.5' Right	20+00	1	12,511	41.37	20.89	8.27	4.20	2.53	1.76	1.37	302
Lane 2 - 12.5' Left	20+52	1	12,341	46.34	22.06	8.72	4.85	3.21	2.33	1.67	266
Lane 1 - 12.5' Right	21+00	1	12,429	45.20	22.19	9.31	4.79	2.84	2.09	1.60	275
Lane 2 - 12.5' Left	21+50	1	12,551	27.84	13.44	6.57	3.98	2.96	2.19	1.65	451
Lane 1 - 12.5' Right	22+00	1	12,667	26.04	13.10	6.09	3.70	2.72	2.11	1.63	486
Lane 2 - 12.5' Left	22+50	1	12,651	17.99	10.54	5.60	3.44	2.33	1.82	1.50	703
Lane 1 - 12.5' Right	23+01	1	12,651	23.53	11.12	5.18	3.13	2.24	1.78	1.38	538
Lane 1 - 12.5' Right	0+00	2	17,711	34.89	19.20	10.44	6.60	4.44	3.43	2.73	508
Lane 2 - 12.5' Left	0+50	2	17,703	28.96	15.90	8.07	4.79	3.19	2.34	1.79	611
Lane 1 - 12.5' Right	1+00	2	17,568	32.31	19.44	10.51	6.50	4.28	3.14	2.34	544
Lane 2 - 12.5' Left	1+50	2	17,537	39.01	21.65	9.94	5.22	3.09	2.32	1.58	450
Lane 1 - 12.5' Right	2+00	2	17,568	34.39	20.61	10.95	6.31	4.14	2.87	2.11	511
Lane 2 - 12.5' Left	2+51	2	17,651	33.44	19.45	9.63	5.28	3.17	2.03	1.53	528
Lane 1 - 12.5' Right	3+00	2	17,560	32.46	20.59	10.31	5.83	3.62	2.62	1.85	541

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway S (Sections 4 - 10)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	3+50	2	17,552	36.34	19.32	9.44	5.21	3.14	2.12	1.57	483
Lane 1 - 12.5' Right	4+03	2	17,632	32.76	19.68	10.73	6.43	4.02	2.76	1.94	538
Lane 2 - 12.5' Left	4+50	2	17,719	28.34	14.69	7.04	4.03	2.61	1.87	1.31	625
Lane 1 - 12.5' Right	5+00	2	17,584	30.94	19.76	10.88	6.46	4.28	3.19	2.45	568
Lane 2 - 12.5' Left	5+50	2	17,719	29.43	15.78	7.74	4.32	2.79	2.06	1.65	602
Lane 1 - 12.5' Right	6+00	2	17,664	28.61	17.72	8.34	4.95	3.35	2.51	2.13	617
Lane 2 - 12.5' Left	6+50	2	17,568	35.01	17.12	7.50	4.14	2.65	1.88	1.41	502
Lane 1 - 12.5' Right	7+03	2	17,513	39.26	18.19	7.39	3.97	2.57	1.95	1.46	446
Lane 2 - 12.5' Left	7+53	2	17,687	29.77	14.90	7.04	4.28	3.13	2.39	1.95	594
Lane 1 - 12.5' Right	8+01	2	17,529	39.61	18.96	7.44	4.09	2.73	2.20	1.72	443
Lane 2 - 12.5' Left	8+51	2	17,489	45.06	21.91	9.09	4.50	2.52	1.75	1.24	388
Lane 1 - 12.5' Right	9+00	2	17,556	39.38	18.44	7.03	4.34	2.86	2.42	1.83	446
Lane 2 - 12.5' Left	9+50	2	17,270	57.32	25.53	9.37	4.22	2.38	1.78	1.56	301
Lane 1 - 12.5' Right	10+00	2	17,643	33.96	18.93	9.26	5.43	3.70	2.89	2.35	520
Lane 2 - 12.5' Left	10+50	2	17,417	45.31	21.52	8.22	4.15	2.44	1.66	1.60	384
Lane 1 - 12.5' Right	11+05	2	17,603	35.63	17.11	7.22	3.65	2.10	1.57	1.28	494
Lane 2 - 12.5' Left	11+50	2	17,206	49.24	24.16	10.15	5.19	3.13	2.22	1.88	349
Lane 1 - 12.5' Right	12+00	2	17,556	37.89	19.12	9.10	4.87	3.00	2.15	1.61	463
Lane 2 - 12.5' Left	12+50	2	17,468	43.17	21.51	9.28	5.30	3.28	2.33	1.71	405
Lane 1 - 12.5' Right	13+00	2	17,632	32.57	17.81	8.92	5.13	3.39	2.54	2.00	541
Lane 2 - 12.5' Left	13+51	2	17,397	37.89	21.12	11.25	7.14	4.89	3.72	2.84	459
Lane 1 - 12.5' Right	14+01	2	17,775	26.87	16.07	9.11	5.76	4.17	3.26	2.60	662
Lane 2 - 12.5' Left	14+50	2	17,672	27.84	14.91	7.95	5.36	4.18	3.48	2.76	635
Lane 1 - 12.5' Right	15+01	2	17,722	30.17	15.75	8.13	5.02	3.69	3.00	2.54	587
Lane 2 - 12.5' Left	15+50	2	17,600	32.56	16.10	7.51	4.72	3.43	2.91	2.39	541
Lane 1 - 12.5' Right	16+00	2	17,687	32.64	17.36	8.25	4.81	3.36	2.67	2.24	542
Lane 2 - 12.5' Left	16+50	2	17,616	32.82	17.52	8.06	4.62	3.26	2.61	2.28	537

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway S (Sections 4 - 10)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	17+00	2	17,635	30.20	17.35	8.22	4.78	3.14	2.28	1.89	584
Lane 2 - 12.5' Left	17+51	2	17,428	38.32	14.72	7.03	4.41	3.12	2.43	2.07	455
Lane 1 - 12.5' Right	18+04	2	17,656	35.14	16.35	7.48	4.72	3.28	2.55	2.10	502
Lane 2 - 12.5' Left	18+51	2	17,664	28.28	12.80	6.50	4.30	3.30	2.79	2.37	625
Lane 1 - 12.5' Right	19+02	2	17,571	33.96	17.12	8.15	5.04	3.76	2.98	2.30	517
Lane 2 - 12.5' Left	19+50	2	17,000	59.25	26.35	10.95	6.11	4.02	2.91	2.13	287
Lane 1 - 12.5' Right	20+00	2	17,349	51.03	26.59	11.13	6.07	3.65	2.84	2.16	340
Lane 2 - 12.5' Left	20+52	2	17,227	54.05	26.41	11.65	6.81	4.52	3.33	2.65	319
Lane 1 - 12.5' Right	21+00	2	17,254	54.99	27.77	12.41	6.53	3.89	2.86	2.29	314
Lane 2 - 12.5' Left	21+50	2	17,540	33.42	17.04	8.97	5.54	3.88	3.13	2.37	525
Lane 1 - 12.5' Right	22+00	2	17,632	33.18	16.80	8.34	5.20	3.80	2.94	2.32	531
Lane 2 - 12.5' Left	22+50	2	17,691	24.24	14.39	7.86	4.95	3.42	2.59	2.02	730
Lane 1 - 12.5' Right	23+01	2	17,624	29.41	14.51	7.19	4.42	3.13	2.54	1.98	599
Lane 1 - 12.5' Right	0+00	3	22,751	40.94	23.09	13.02	8.26	5.60	4.34	3.28	556
Lane 2 - 12.5' Left	0+50	3	23,034	35.06	19.96	10.41	6.38	4.22	3.04	2.44	657
Lane 1 - 12.5' Right	1+00	3	22,767	38.91	23.84	13.33	8.39	5.54	4.15	3.13	585
Lane 2 - 12.5' Left	1+50	3	22,859	45.17	26.21	12.76	6.90	4.21	3.11	2.28	506
Lane 1 - 12.5' Right	2+00	3	22,783	42.48	26.26	14.44	8.55	5.57	3.91	2.91	536
Lane 2 - 12.5' Left	2+51	3	23,005	39.74	23.85	12.28	6.96	4.13	2.66	2.03	579
Lane 1 - 12.5' Right	3+00	3	22,787	40.50	26.00	13.56	7.62	4.78	3.47	2.52	563
Lane 2 - 12.5' Left	3+50	3	22,918	42.72	23.48	12.00	6.72	4.11	2.81	2.11	536
Lane 1 - 12.5' Right	4+03	3	22,835	40.35	24.66	13.79	8.46	5.35	3.63	2.62	566
Lane 2 - 12.5' Left	4+50	3	23,105	34.28	18.33	9.24	5.36	3.38	2.49	1.87	674
Lane 1 - 12.5' Right	5+00	3	22,878	38.33	24.76	13.98	8.41	5.62	4.20	3.35	597
Lane 2 - 12.5' Left	5+50	3	23,113	35.77	19.87	10.11	5.85	3.76	2.80	2.16	646
Lane 1 - 12.5' Right	6+00	3	22,941	34.73	22.03	10.64	6.54	4.43	3.54	2.91	661
Lane 2 - 12.5' Left	6+50	3	22,949	41.07	21.11	9.93	5.49	3.56	2.61	2.11	559

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway S (Sections 4 - 10)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 12.5' Right	7+03	3	22,759	45.80	22.26	9.83	5.45	3.51	2.66	1.94	497
Lane 2 - 12.5' Left	7+53	3	23,116	35.39	18.17	9.11	5.55	3.96	3.13	2.64	653
Lane 1 - 12.5' Right	8+01	3	22,779	46.46	23.17	9.57	5.35	3.61	2.81	2.28	490
Lane 2 - 12.5' Left	8+51	3	22,790	51.71	25.76	11.34	5.85	3.40	2.41	1.72	441
Lane 1 - 12.5' Right	9+00	3	22,819	45.69	22.09	9.21	5.62	3.80	3.11	2.38	499
Lane 2 - 12.5' Left	9+50	3	22,512	66.11	31.09	12.41	5.84	3.35	2.43	2.11	341
Lane 1 - 12.5' Right	10+00	3	22,973	39.50	22.88	11.76	7.09	4.91	3.82	3.13	582
Lane 2 - 12.5' Left	10+50	3	22,687	53.12	26.09	11.30	5.46	3.51	2.76	1.97	427
Lane 1 - 12.5' Right	11+05	3	22,965	41.34	20.83	9.26	4.82	2.80	2.17	1.74	556
Lane 2 - 12.5' Left	11+50	3	22,505	55.50	28.34	12.54	6.62	4.05	2.96	2.85	405
Lane 1 - 12.5' Right	12+00	3	22,899	43.46	22.92	11.44	6.43	4.00	2.88	2.17	527
Lane 2 - 12.5' Left	12+50	3	22,830	50.14	25.78	12.35	6.72	4.30	3.11	2.46	455
Lane 1 - 12.5' Right	13+00	3	22,994	38.94	21.93	11.34	6.73	4.52	3.38	2.70	590
Lane 2 - 12.5' Left	13+51	3	22,708	45.09	25.98	14.59	9.19	6.37	4.84	3.65	504
Lane 1 - 12.5' Right	14+01	3	23,177	31.88	19.43	11.41	7.35	5.36	4.22	3.44	727
Lane 2 - 12.5' Left	14+50	3	23,116	33.15	18.19	9.97	6.89	5.44	4.57	3.35	697
Lane 1 - 12.5' Right	15+01	3	23,073	34.49	18.75	10.10	6.48	4.82	3.98	3.39	669
Lane 2 - 12.5' Left	15+50	3	23,026	37.85	19.37	9.56	6.08	4.50	3.78	3.13	608
Lane 1 - 12.5' Right	16+00	3	23,034	37.53	20.77	10.37	6.19	4.46	3.63	3.04	614
Lane 2 - 12.5' Left	16+50	3	23,034	38.56	21.22	10.37	6.02	4.18	3.42	2.87	597
Lane 1 - 12.5' Right	17+00	3	23,037	35.85	21.34	10.53	6.42	4.19	2.99	2.52	643
Lane 2 - 12.5' Left	17+51	3	22,870	44.37	17.79	8.80	5.67	4.18	3.31	2.65	515
Lane 1 - 12.5' Right	18+04	3	23,005	40.72	19.47	9.47	6.06	4.28	3.48	2.85	565
Lane 2 - 12.5' Left	18+51	3	23,121	32.86	15.58	8.28	5.63	4.37	3.63	3.04	704
Lane 1 - 12.5' Right	19+02	3	22,997	39.68	20.56	10.28	6.62	4.87	3.98	3.18	580
Lane 2 - 12.5' Left	19+50	3	22,171	68.85	32.59	14.62	8.33	5.41	3.92	2.83	322
Lane 1 - 12.5' Right	20+00	3	22,536	61.17	33.07	14.82	8.19	4.94	3.76	2.89	368

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

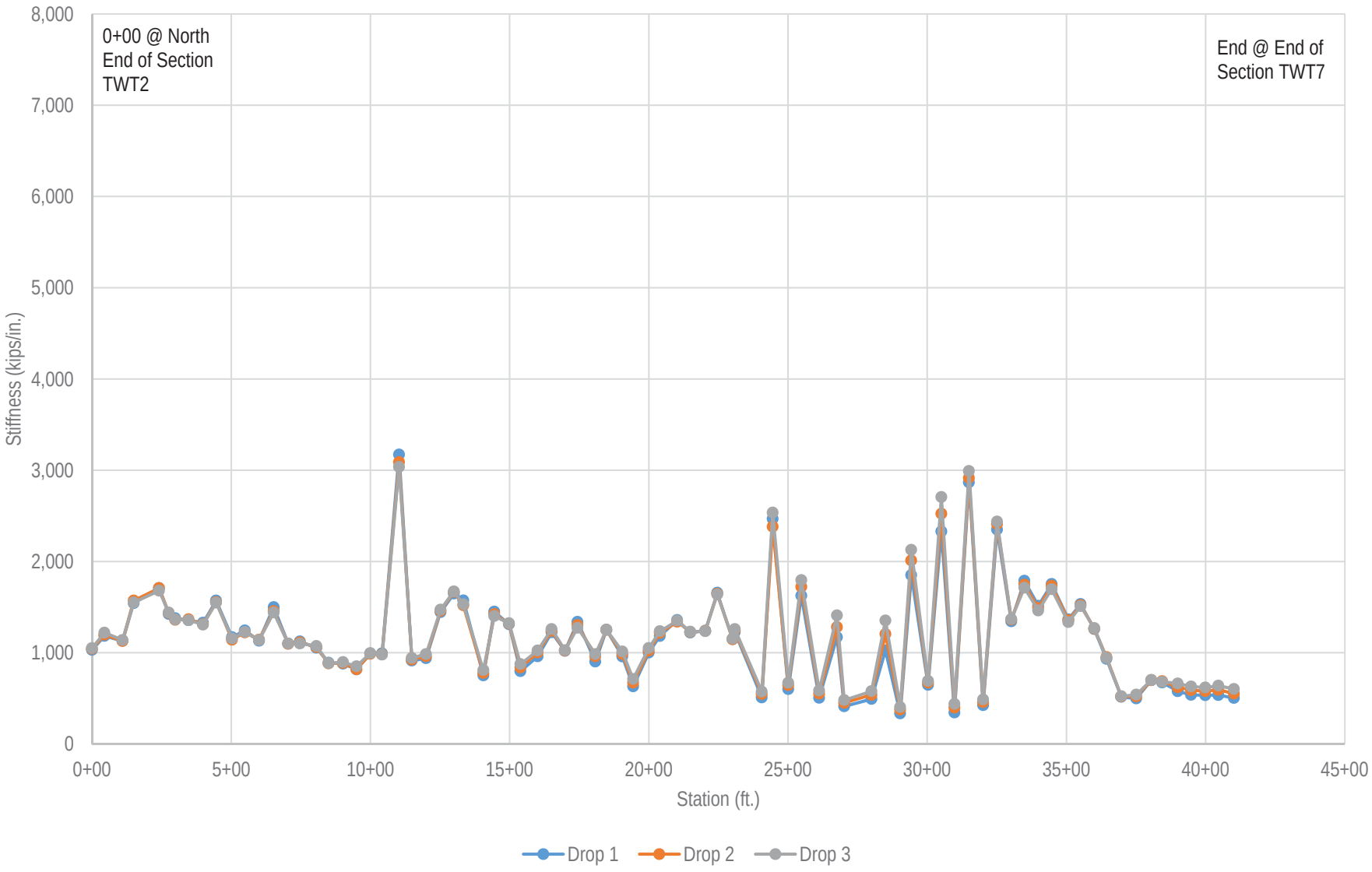
Taxiway S (Sections 4 - 10)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 12.5' Left	20+52	3	22,470	63.13	32.13	15.13	9.07	5.93	4.44	3.48	356
Lane 1 - 12.5' Right	21+00	3	22,422	66.10	34.84	16.30	8.59	5.10	3.75	3.02	339
Lane 2 - 12.5' Left	21+50	3	22,914	39.97	21.28	11.52	7.24	5.04	3.94	3.19	573
Lane 1 - 12.5' Right	22+00	3	22,941	40.41	21.09	10.86	6.84	4.85	3.89	2.99	568
Lane 2 - 12.5' Left	22+50	3	23,092	31.13	18.53	10.45	6.53	4.47	3.38	2.61	742
Lane 1 - 12.5' Right	23+01	3	23,042	36.06	18.33	9.35	5.82	4.02	3.20	2.51	639
										Average:	497

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Profile

Taxiway T (Sections 2 - 7)



Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 10' Right	0+00	1	12,511	12.13	7.25	4.59	2.96	1.99	1.36	1.04	1,031
Lane 2 - 10' Left	0+45	1	12,384	10.46	5.45	3.16	2.10	1.48	1.27	1.08	1,184
Lane 1 - 10' Right	1+10	1	12,421	10.99	6.77	4.11	2.95	2.22	1.63	1.24	1,130
Lane 2 - 10' Left	1+50	1	12,516	8.11	4.97	3.12	2.22	1.66	1.32	1.07	1,543
Lane 2 - 10' Left	2+41	1	12,472	7.30	4.39	2.74	1.85	1.52	0.95	0.72	1,708
Lane 1 - 10' Right	2+76	1	12,500	8.78	5.76	3.82	2.58	1.97	1.43	1.13	1,424
Lane 1 - 10' Right	2+99	1	12,453	9.04	5.96	3.90	2.76	2.13	1.66	1.33	1,378
Lane 2 - 10' Left	3+47	1	12,440	9.17	5.33	3.33	2.41	2.11	1.67	1.47	1,357
Lane 1 - 10' Right	3+99	1	12,460	9.38	6.21	4.13	2.97	2.28	1.72	1.41	1,328
Lane 2 - 10' Left	4+46	1	12,413	7.90	4.95	3.25	2.39	1.91	1.55	1.24	1,571
Lane 1 - 10' Right	5+03	1	12,460	10.65	7.58	5.40	4.06	3.13	2.48	1.99	1,170
Lane 2 - 10' Left	5+49	1	12,365	9.94	6.40	4.30	3.19	2.59	2.12	1.84	1,244
Lane 1 - 10' Right	6+00	1	12,405	10.97	6.93	4.62	3.26	2.54	2.00	1.51	1,131
Lane 2 - 10' Left	6+53	1	12,464	8.31	5.35	3.59	2.62	1.96	1.54	1.28	1,500
Lane 1 - 10' Right	7+05	1	12,368	11.25	7.38	4.84	3.41	2.44	1.81	1.65	1,099
Lane 2 - 10' Left	7+47	1	12,233	10.89	6.85	4.39	2.96	2.12	1.57	1.21	1,123
Lane 1 - 10' Right	8+06	1	12,392	11.76	7.83	5.38	3.85	2.96	2.06	1.78	1,054
Lane 2 - 10' Left	8+50	1	12,278	13.78	9.62	6.61	4.70	3.70	2.69	2.22	891
Lane 1 - 10' Right	9+02	1	12,460	14.17	9.57	6.37	4.55	3.46	2.68	2.15	879
Lane 2 - 10' Left	9+50	1	12,310	15.07	9.11	5.32	3.98	2.87	2.36	1.90	817
Lane 1 - 10' Right	10+00	1	12,445	12.53	8.43	5.53	3.73	2.67	1.77	1.22	993
Lane 2 - 10' Left	10+42	1	12,400	12.48	8.04	5.03	3.24	2.41	1.61	1.20	994
Lane 1 - 10' Right	11+03	1	12,781	4.03	4.24	4.47	2.13	2.04	1.70	1.48	3,171
Lane 2 - 10' Left	11+49	1	12,384	13.56	9.25	6.15	4.33	3.10	2.39	1.74	913
Lane 1 - 10' Right	12+00	1	12,476	13.28	9.19	6.10	4.42	3.33	2.48	1.98	939
Lane 2 - 10' Left	12+52	1	12,416	8.59	5.68	4.05	3.09	2.50	2.09	1.65	1,445
Lane 1 - 10' Right	13+00	1	12,572	7.63	5.41	4.08	3.33	2.76	2.33	1.95	1,648

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 10' Left	13+34	1	12,329	7.84	5.20	3.84	3.11	2.83	2.34	1.86	1,573
Lane 1 - 10' Right	14+06	1	12,278	16.34	8.69	5.11	3.57	2.79	2.05	1.65	751
Lane 2 - 10' Left	14+45	1	12,384	8.54	5.62	4.14	3.43	2.78	2.33	2.17	1,450
Lane 1 - 10' Right	14+98	1	12,440	9.48	6.38	4.55	3.57	2.82	2.27	1.79	1,312
Lane 2 - 10' Left	15+39	1	12,405	15.56	7.45	4.52	3.28	2.54	2.04	1.65	797
Lane 1 - 10' Right	16+01	1	12,416	12.93	7.56	5.06	3.75	2.85	2.27	1.85	960
Lane 2 - 10' Left	16+51	1	12,453	10.18	7.78	5.75	4.35	3.45	2.68	2.17	1,223
Lane 1 - 10' Right	16+99	1	12,453	12.20	8.25	5.72	4.14	3.06	2.39	1.84	1,021
Lane 2 - 10' Left	17+44	1	12,389	9.26	6.45	4.45	3.23	2.67	2.08	1.65	1,338
Lane 1 - 10' Right	18+08	1	12,392	13.72	7.33	4.41	3.17	2.40	1.85	1.61	903
Lane 2 - 10' Left	18+48	1	12,376	9.89	6.70	4.28	2.79	2.06	1.43	1.22	1,251
Lane 1 - 10' Right	19+05	1	12,373	12.90	7.35	4.65	3.22	2.27	1.63	1.21	959
Lane 2 - 10' Left	19+44	1	12,286	19.48	8.87	4.73	3.32	2.45	1.97	1.60	631
Lane 1 - 10' Right	20+00	1	12,400	12.38	8.04	5.48	3.95	2.87	2.13	1.47	1,002
Lane 2 - 10' Left	20+40	1	12,408	10.49	7.01	4.70	3.41	2.48	1.85	1.44	1,183
Lane 1 - 10' Right	21+02	1	12,460	9.17	6.42	4.50	3.31	2.53	1.85	1.43	1,359
Lane 2 - 10' Left	21+49	1	12,453	10.20	6.65	4.44	3.21	2.36	1.84	1.41	1,221
Lane 1 - 10' Right	22+03	1	12,464	10.04	6.78	4.50	3.11	2.23	1.58	1.18	1,241
Lane 2 - 10' Left	22+46	1	12,464	7.52	4.28	2.51	1.74	1.44	1.11	0.92	1,657
Lane 1 - 10' Right	23+01	1	12,464	10.85	7.61	5.20	3.70	2.53	1.79	1.40	1,149
Lane 2 - 10' Left	23+09	1	12,445	10.15	6.13	3.72	2.48	1.85	1.32	1.14	1,226
Lane 1 - 10' Right	24+06	1	12,368	24.27	14.24	7.11	3.72	2.20	1.41	1.03	510
Lane 2 - 10' Left	24+45	1	12,556	5.09	2.24	1.35	1.24	1.11	0.96	0.80	2,467
Lane 1 - 10' Right	25+01	1	12,416	20.65	10.53	5.03	2.72	1.72	1.02	0.82	601
Lane 2 - 10' Left	25+48	1	12,448	7.66	2.93	1.85	1.59	1.34	1.09	0.85	1,625
Lane 1 - 10' Right	26+12	1	12,413	24.56	13.68	6.11	3.26	2.21	1.69	1.28	505
Lane 2 - 10' Left	26+76	1	12,440	10.63	2.93	2.29	2.01	1.79	1.54	1.22	1,170

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 10' Right	27+02	1	12,352	29.95	14.61	6.62	3.91	2.71	2.02	1.64	412
Lane 1 - 10' Right	28+00	1	12,408	25.18	14.49	7.25	4.27	2.85	2.08	1.65	493
Lane 2 - 10' Left	28+50	1	12,532	12.23	3.78	2.00	1.91	1.81	1.50	1.32	1,025
Lane 1 - 10' Right	29+03	1	12,257	36.58	17.41	7.84	4.28	2.85	2.00	1.50	335
Lane 2 - 10' Left	29+43	1	12,472	6.74	1.74	1.40	1.30	1.21	1.01	0.83	1,850
Lane 1 - 10' Right	30+03	1	12,480	19.28	11.72	6.23	3.37	2.15	1.45	1.09	647
Lane 2 - 10' Left	30+51	1	12,556	5.39	2.14	1.69	1.53	1.43	1.26	1.13	2,329
Lane 1 - 10' Right	30+98	1	12,273	35.62	17.89	7.44	3.76	2.40	1.81	1.48	345
Lane 2 - 10' Left	31+50	1	12,675	4.42	2.80	2.35	2.14	2.04	1.82	1.57	2,868
Lane 1 - 10' Right	32+01	1	12,154	28.63	14.60	6.87	4.09	2.78	2.02	1.69	425
Lane 2 - 10' Left	32+51	1	12,524	5.33	2.87	2.35	2.14	1.89	1.70	1.47	2,350
Lane 1 - 10' Right	33+02	1	12,511	9.31	6.32	4.77	3.60	3.08	2.35	1.99	1,344
Lane 2 - 10' Left	33+49	1	12,596	7.04	4.88	3.68	2.89	2.47	1.94	1.62	1,789
Lane 1 - 10' Right	33+99	1	12,543	8.28	5.66	4.16	3.22	2.58	2.17	1.84	1,515
Lane 2 - 10' Left	34+47	1	12,588	7.18	4.95	3.73	2.93	2.44	2.00	1.71	1,753
Lane 1 - 10' Right	35+07	1	12,500	9.15	5.82	4.25	3.36	2.70	2.22	1.82	1,366
Lane 2 - 10' Left	35+51	1	12,564	8.19	5.87	4.45	3.54	2.96	2.37	2.05	1,534
Lane 1 - 10' Right	36+00	1	12,472	9.91	7.11	5.33	4.14	3.36	2.63	2.07	1,259
Lane 2 - 10' Left	36+44	1	12,583	13.48	8.14	5.70	4.41	3.60	2.82	2.44	933
Lane 1 - 10' Right	36+97	1	12,297	23.82	12.86	6.86	4.59	3.12	2.51	1.82	516
Lane 2 - 10' Left	37+51	1	12,424	24.93	12.34	5.17	2.72	1.79	1.26	0.91	498
Lane 1 - 10' Right	38+05	1	12,476	17.86	10.44	6.01	3.75	2.61	1.68	1.24	699
Lane 2 - 10' Left	38+44	1	12,392	18.39	9.12	5.08	3.20	2.00	1.59	1.11	674
Lane 1 - 10' Right	39+00	1	12,453	21.54	13.52	8.09	5.10	3.31	2.22	1.54	578
Lane 2 - 10' Left	39+48	1	12,500	23.24	13.46	7.10	4.13	2.71	1.95	1.33	538
Lane 1 - 10' Right	39+99	1	12,495	23.37	14.97	8.51	5.09	3.37	2.34	1.64	535
Lane 2 - 10' Left	40+46	1	12,527	23.38	14.29	8.32	5.29	3.54	2.44	1.78	536

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 10' Right	41+02	1	12,313	24.42	14.87	8.58	5.23	3.39	2.27	1.70	504
Lane 1 - 10' Right	0+00	2	17,473	16.74	10.18	6.54	4.24	2.84	2.00	1.48	1,044
Lane 2 - 10' Left	0+45	2	17,457	14.57	7.69	4.53	3.01	2.13	1.65	1.26	1,198
Lane 1 - 10' Right	1+10	2	17,394	15.42	9.51	6.02	4.32	3.13	2.37	1.84	1,128
Lane 2 - 10' Left	1+50	2	17,603	11.20	7.09	4.51	3.20	2.36	1.91	1.50	1,572
Lane 2 - 10' Left	2+41	2	17,492	10.24	6.30	3.70	2.75	1.98	1.74	1.35	1,708
Lane 1 - 10' Right	2+76	2	17,524	12.20	8.17	5.44	3.85	2.76	2.13	1.65	1,436
Lane 1 - 10' Right	2+99	2	17,476	12.85	8.46	5.63	3.99	3.04	2.42	1.91	1,360
Lane 2 - 10' Left	3+47	2	17,473	12.78	7.61	4.86	3.62	2.86	2.39	2.00	1,367
Lane 1 - 10' Right	3+99	2	17,481	13.33	8.94	5.98	4.33	3.24	2.51	2.01	1,311
Lane 2 - 10' Left	4+46	2	17,452	11.22	7.14	4.79	3.54	2.76	2.21	1.81	1,555
Lane 1 - 10' Right	5+03	2	17,346	15.19	10.67	7.68	5.73	4.43	3.48	2.82	1,142
Lane 2 - 10' Left	5+49	2	17,378	14.21	9.13	6.26	4.75	3.80	3.11	2.65	1,223
Lane 1 - 10' Right	6+00	2	17,405	15.22	9.80	6.62	4.86	3.55	2.82	2.22	1,144
Lane 2 - 10' Left	6+53	2	17,476	12.00	7.79	5.32	3.91	2.94	2.30	1.87	1,456
Lane 1 - 10' Right	7+05	2	17,357	15.83	10.52	7.07	5.00	3.55	2.69	2.06	1,096
Lane 2 - 10' Left	7+47	2	17,190	15.44	10.14	6.64	4.50	3.22	2.33	1.77	1,113
Lane 1 - 10' Right	8+06	2	17,362	16.35	11.04	7.66	5.63	4.15	3.22	2.63	1,062
Lane 2 - 10' Left	8+50	2	17,290	19.58	13.94	9.70	6.98	5.19	3.97	3.04	883
Lane 1 - 10' Right	9+02	2	17,436	19.66	13.46	9.15	6.56	4.83	3.78	3.01	887
Lane 2 - 10' Left	9+50	2	17,333	21.17	12.56	7.64	5.50	3.95	3.24	2.66	819
Lane 1 - 10' Right	10+00	2	17,465	17.68	11.96	7.98	5.44	3.75	2.60	1.82	988
Lane 2 - 10' Left	10+42	2	17,357	17.67	11.52	7.42	4.91	3.40	2.43	1.79	982
Lane 1 - 10' Right	11+03	2	17,878	5.79	6.03	6.33	3.15	2.89	2.53	2.19	3,088
Lane 2 - 10' Left	11+49	2	17,401	18.81	12.86	8.69	6.18	4.48	3.41	2.56	925
Lane 1 - 10' Right	12+00	2	17,505	18.20	12.66	8.48	6.29	4.55	3.50	2.72	962
Lane 2 - 10' Left	12+52	2	17,441	11.95	8.01	5.77	4.42	3.50	2.91	2.32	1,459

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 10' Right	13+00	2	17,611	10.56	7.66	5.83	4.72	3.95	3.29	2.77	1,668
Lane 2 - 10' Left	13+34	2	17,349	11.42	7.31	5.57	4.77	3.75	3.11	2.72	1,519
Lane 1 - 10' Right	14+06	2	17,238	22.15	12.19	7.55	5.34	4.04	3.06	2.46	778
Lane 2 - 10' Left	14+45	2	17,378	12.21	8.19	6.10	4.96	4.06	3.44	2.89	1,423
Lane 1 - 10' Right	14+98	2	17,449	13.23	9.07	6.61	5.14	4.02	3.22	2.58	1,319
Lane 2 - 10' Left	15+39	2	17,413	20.76	10.24	6.45	4.73	3.64	2.91	2.21	839
Lane 1 - 10' Right	16+01	2	17,441	17.40	10.42	7.10	5.24	3.98	3.16	2.55	1,002
Lane 2 - 10' Left	16+51	2	17,505	14.11	10.78	8.06	6.06	4.58	3.68	3.07	1,241
Lane 1 - 10' Right	16+99	2	17,452	17.06	11.67	8.26	6.06	4.48	3.46	2.72	1,023
Lane 2 - 10' Left	17+44	2	17,468	13.41	9.45	6.69	4.93	3.83	3.00	2.44	1,303
Lane 1 - 10' Right	18+08	2	17,386	18.12	10.14	6.26	4.47	3.32	2.55	2.23	959
Lane 2 - 10' Left	18+48	2	17,405	13.91	9.47	6.12	4.12	2.91	2.13	1.68	1,251
Lane 1 - 10' Right	19+05	2	17,370	17.62	10.33	6.78	4.61	3.32	2.40	1.95	986
Lane 2 - 10' Left	19+44	2	17,270	25.67	11.87	6.60	4.65	3.45	2.76	2.24	673
Lane 1 - 10' Right	20+00	2	17,397	17.00	11.21	7.78	5.62	4.07	3.06	2.21	1,023
Lane 2 - 10' Left	20+40	2	17,457	14.34	9.78	6.75	4.82	3.57	2.75	2.10	1,217
Lane 1 - 10' Right	21+02	2	17,457	13.03	9.11	6.56	4.84	3.63	2.75	2.05	1,340
Lane 2 - 10' Left	21+49	2	17,481	14.24	9.41	6.38	4.63	3.43	2.68	2.05	1,228
Lane 1 - 10' Right	22+03	2	17,468	14.11	9.70	6.54	4.59	3.24	2.30	1.75	1,238
Lane 2 - 10' Left	22+46	2	17,544	10.66	6.08	3.76	2.61	2.02	1.65	1.34	1,646
Lane 1 - 10' Right	23+01	2	17,468	15.22	10.70	7.37	5.37	3.69	2.59	1.97	1,148
Lane 2 - 10' Left	23+09	2	17,497	14.07	8.57	5.34	3.58	2.56	1.92	1.63	1,244
Lane 1 - 10' Right	24+06	2	17,301	31.55	19.05	10.05	5.39	3.19	2.12	1.67	548
Lane 2 - 10' Left	24+45	2	17,672	7.42	3.09	2.01	1.76	1.56	1.33	1.12	2,382
Lane 1 - 10' Right	25+01	2	17,436	27.06	14.66	7.31	4.09	2.52	1.70	1.21	644
Lane 2 - 10' Left	25+48	2	17,532	10.18	4.13	2.69	2.26	1.89	1.58	1.32	1,722
Lane 1 - 10' Right	26+12	2	17,378	31.47	18.30	8.72	4.96	3.28	2.53	1.99	552

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 10' Left	26+76	2	17,492	13.65	4.22	3.32	2.91	2.50	2.14	1.82	1,281
Lane 1 - 10' Right	27+02	2	17,246	38.29	19.70	9.41	5.78	3.99	3.01	2.50	450
Lane 1 - 10' Right	28+00	2	17,338	32.20	19.06	10.12	6.22	4.14	3.13	2.57	538
Lane 2 - 10' Left	28+50	2	17,584	14.60	4.84	2.81	2.57	2.37	2.07	1.80	1,204
Lane 1 - 10' Right	29+03	2	17,163	45.56	22.88	10.71	6.19	4.08	2.96	2.30	377
Lane 2 - 10' Left	29+43	2	17,540	8.72	2.44	1.90	1.78	1.58	1.43	1.19	2,011
Lane 1 - 10' Right	30+03	2	17,449	25.95	15.94	8.74	4.89	3.06	2.10	1.63	672
Lane 2 - 10' Left	30+51	2	17,640	6.99	2.95	2.36	2.12	1.96	1.72	1.53	2,524
Lane 1 - 10' Right	30+98	2	17,219	43.36	22.86	10.20	5.37	3.35	2.58	2.19	397
Lane 2 - 10' Left	31+50	2	17,778	6.10	3.84	3.26	2.99	2.76	2.41	2.11	2,914
Lane 1 - 10' Right	32+01	2	17,079	37.19	19.69	10.12	6.13	4.20	3.13	2.52	459
Lane 2 - 10' Left	32+51	2	17,548	7.28	3.94	3.28	2.95	2.63	2.34	2.05	2,410
Lane 1 - 10' Right	33+02	2	17,544	12.87	9.02	6.74	5.21	4.23	3.32	2.78	1,363
Lane 2 - 10' Left	33+49	2	17,643	10.11	7.09	5.35	4.21	3.46	2.81	2.25	1,745
Lane 1 - 10' Right	33+99	2	17,587	11.80	8.25	6.14	4.78	3.82	3.11	2.49	1,490
Lane 2 - 10' Left	34+47	2	17,603	10.16	7.10	5.29	4.26	3.43	2.82	2.25	1,733
Lane 1 - 10' Right	35+07	2	17,540	12.94	8.53	6.26	4.92	3.94	3.19	2.53	1,355
Lane 2 - 10' Left	35+51	2	17,619	11.58	8.36	6.34	5.05	4.11	3.33	2.81	1,522
Lane 1 - 10' Right	36+00	2	17,497	13.83	10.03	7.54	5.85	4.67	3.74	2.99	1,265
Lane 2 - 10' Left	36+44	2	17,600	18.49	11.88	8.37	6.48	5.15	4.20	3.38	952
Lane 1 - 10' Right	36+97	2	17,254	33.14	18.85	10.72	6.78	4.85	3.65	2.91	521
Lane 2 - 10' Left	37+51	2	17,349	33.22	17.50	7.85	4.07	2.50	1.78	1.27	522
Lane 1 - 10' Right	38+05	2	17,476	24.99	15.07	8.83	5.65	3.84	2.67	1.89	699
Lane 2 - 10' Left	38+44	2	17,354	25.22	13.18	7.60	4.76	3.06	2.23	1.71	688
Lane 1 - 10' Right	39+00	2	17,421	28.01	17.59	10.73	6.95	4.61	3.20	2.25	622
Lane 2 - 10' Left	39+48	2	17,476	29.59	17.35	9.41	5.74	3.79	2.83	1.90	591
Lane 1 - 10' Right	39+99	2	17,473	30.17	19.29	11.23	6.98	4.72	3.40	2.52	579

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 10' Left	40+46	2	17,500	29.49	18.22	10.91	7.07	4.71	3.33	2.43	593
Lane 1 - 10' Right	41+02	2	17,293	31.30	19.26	11.52	7.31	4.76	3.36	2.45	552
Lane 1 - 10' Right	0+00	3	22,751	21.66	13.31	8.65	5.74	3.79	2.67	1.82	1,050
Lane 2 - 10' Left	0+45	3	22,906	18.78	10.20	6.13	4.06	2.86	2.20	1.72	1,220
Lane 1 - 10' Right	1+10	3	22,703	19.93	12.40	8.09	5.78	4.19	3.18	2.51	1,139
Lane 2 - 10' Left	1+50	3	23,097	14.89	9.41	6.11	4.34	3.17	2.50	1.99	1,551
Lane 2 - 10' Left	2+41	3	22,994	13.69	8.43	5.29	3.70	2.70	2.11	1.65	1,680
Lane 1 - 10' Right	2+76	3	22,949	15.94	10.76	7.30	5.16	3.73	2.89	2.17	1,440
Lane 1 - 10' Right	2+99	3	22,862	16.75	11.15	7.53	5.35	4.05	3.19	2.48	1,365
Lane 2 - 10' Left	3+47	3	22,938	16.91	10.20	6.62	4.92	3.86	3.19	2.67	1,356
Lane 1 - 10' Right	3+99	3	22,875	17.49	11.89	8.07	5.86	4.37	3.38	2.66	1,308
Lane 2 - 10' Left	4+46	3	22,938	14.81	9.55	6.47	4.76	3.69	2.94	2.40	1,549
Lane 1 - 10' Right	5+03	3	22,759	19.67	14.04	10.27	7.70	5.94	4.61	3.61	1,157
Lane 2 - 10' Left	5+49	3	22,790	18.56	12.06	8.39	6.39	5.07	4.13	3.47	1,228
Lane 1 - 10' Right	6+00	3	22,756	19.98	13.07	8.96	6.53	4.82	3.79	2.93	1,139
Lane 2 - 10' Left	6+53	3	22,973	15.94	10.48	7.25	5.38	4.09	3.17	2.40	1,441
Lane 1 - 10' Right	7+05	3	22,719	20.65	13.87	9.51	6.68	4.80	3.55	2.68	1,100
Lane 2 - 10' Left	7+47	3	22,584	20.51	13.84	9.24	6.33	4.41	3.24	2.39	1,101
Lane 1 - 10' Right	8+06	3	22,716	21.15	14.44	10.16	7.44	5.52	4.20	3.53	1,074
Lane 2 - 10' Left	8+50	3	22,628	25.58	18.59	13.08	9.50	6.87	5.19	4.03	885
Lane 1 - 10' Right	9+02	3	22,783	25.37	17.55	12.07	8.69	6.42	4.98	3.93	898
Lane 2 - 10' Left	9+50	3	22,724	26.70	16.07	10.07	7.02	5.09	4.15	3.45	851
Lane 1 - 10' Right	10+00	3	22,854	22.97	15.76	10.70	7.37	5.09	3.53	2.50	995
Lane 2 - 10' Left	10+42	3	22,759	23.25	15.39	9.96	6.80	4.67	3.35	2.44	979
Lane 1 - 10' Right	11+03	3	23,439	7.72	8.01	8.35	4.26	3.85	3.38	2.98	3,036
Lane 2 - 10' Left	11+49	3	22,878	24.26	16.58	11.39	8.14	5.94	4.52	3.43	943
Lane 1 - 10' Right	12+00	3	22,870	23.21	16.26	11.11	8.12	5.93	4.54	3.52	985

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 2 - 10' Left	12+52	3	22,941	15.59	10.56	7.70	5.92	4.69	3.86	3.08	1,472
Lane 1 - 10' Right	13+00	3	23,065	13.80	10.14	7.80	6.27	5.19	4.33	3.62	1,671
Lane 2 - 10' Left	13+34	3	22,790	14.89	9.89	7.58	6.12	5.04	4.19	3.50	1,531
Lane 1 - 10' Right	14+06	3	22,568	27.87	15.92	10.20	7.24	5.41	4.17	3.33	810
Lane 2 - 10' Left	14+45	3	22,883	16.32	11.00	8.25	6.64	5.49	4.56	3.71	1,402
Lane 1 - 10' Right	14+98	3	22,899	17.31	12.02	8.87	6.85	5.41	4.30	3.43	1,323
Lane 2 - 10' Left	15+39	3	22,875	26.13	13.29	8.67	6.37	4.92	3.96	3.03	875
Lane 1 - 10' Right	16+01	3	22,883	22.33	13.56	9.37	6.91	5.26	4.11	3.38	1,025
Lane 2 - 10' Left	16+51	3	22,973	18.24	13.99	10.52	7.93	6.01	4.86	4.03	1,259
Lane 1 - 10' Right	16+99	3	22,870	22.27	15.44	11.09	8.20	6.13	4.74	3.70	1,027
Lane 2 - 10' Left	17+44	3	22,918	18.00	12.64	9.00	6.69	5.09	4.03	3.24	1,273
Lane 1 - 10' Right	18+08	3	22,787	23.13	13.07	8.24	5.88	4.36	3.43	2.89	985
Lane 2 - 10' Left	18+48	3	22,867	18.27	12.47	8.12	5.56	3.87	2.91	2.20	1,252
Lane 1 - 10' Right	19+05	3	22,783	22.49	13.59	9.09	6.26	4.49	3.27	2.57	1,013
Lane 2 - 10' Left	19+44	3	22,640	31.83	14.91	8.52	6.02	4.46	3.55	2.90	711
Lane 1 - 10' Right	20+00	3	22,835	21.71	14.50	10.22	7.41	5.39	4.02	2.98	1,052
Lane 2 - 10' Left	20+40	3	22,926	18.55	12.73	8.84	6.34	4.69	3.59	2.77	1,236
Lane 1 - 10' Right	21+02	3	22,922	16.96	12.00	8.67	6.48	4.86	3.70	2.82	1,352
Lane 2 - 10' Left	21+49	3	22,938	18.65	12.34	8.46	6.19	4.62	3.61	2.78	1,230
Lane 1 - 10' Right	22+03	3	22,883	18.51	12.84	8.77	6.30	4.42	3.20	2.44	1,236
Lane 2 - 10' Left	22+46	3	23,013	14.04	8.11	5.07	3.54	2.65	2.15	1.78	1,639
Lane 1 - 10' Right	23+01	3	22,899	19.81	14.01	9.82	7.10	4.93	3.50	2.62	1,156
Lane 2 - 10' Left	23+09	3	22,922	18.21	11.31	7.23	4.76	3.39	2.58	2.03	1,259
Lane 1 - 10' Right	24+06	3	22,628	39.40	24.30	13.22	7.35	4.35	2.93	2.24	574
Lane 2 - 10' Left	24+45	3	23,248	9.17	4.03	2.63	2.33	2.06	1.79	1.50	2,535
Lane 1 - 10' Right	25+01	3	22,783	33.94	19.28	9.93	5.67	3.42	2.36	1.74	671
Lane 2 - 10' Left	25+48	3	23,034	12.83	5.36	3.60	3.00	2.51	2.13	1.75	1,795

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 10' Right	26+12	3	22,716	38.78	23.35	11.72	6.86	4.55	3.48	2.79	586
Lane 2 - 10' Left	26+76	3	22,994	16.31	5.58	4.43	3.83	3.28	2.80	2.40	1,410
Lane 1 - 10' Right	27+02	3	22,528	46.89	25.14	12.74	7.78	5.36	4.07	3.37	480
Lane 1 - 10' Right	28+00	3	22,671	39.15	23.87	13.25	8.33	5.65	4.28	3.56	579
Lane 2 - 10' Left	28+50	3	23,092	17.06	5.93	3.66	3.35	3.03	2.68	2.35	1,354
Lane 1 - 10' Right	29+03	3	22,401	55.28	29.06	14.26	8.21	5.45	4.04	3.08	405
Lane 2 - 10' Left	29+43	3	23,081	10.85	3.11	2.56	2.27	2.03	1.81	1.57	2,127
Lane 1 - 10' Right	30+03	3	22,803	33.00	20.74	11.67	6.67	4.13	2.85	2.22	691
Lane 2 - 10' Left	30+51	3	23,188	8.57	3.80	3.03	2.74	2.52	2.20	1.96	2,706
Lane 1 - 10' Right	30+98	3	22,497	51.32	28.32	13.28	7.31	4.51	3.52	2.98	438
Lane 2 - 10' Left	31+50	3	23,359	7.81	4.98	4.15	3.83	3.48	3.10	2.73	2,991
Lane 1 - 10' Right	32+01	3	22,358	45.81	25.06	13.78	8.35	5.72	4.33	3.49	488
Lane 2 - 10' Left	32+51	3	23,105	9.48	5.09	4.30	3.84	3.42	3.03	2.65	2,437
Lane 1 - 10' Right	33+02	3	23,053	16.85	11.92	9.00	7.00	5.62	4.48	3.65	1,368
Lane 2 - 10' Left	33+49	3	23,161	13.53	9.57	7.30	5.77	4.67	3.78	3.09	1,712
Lane 1 - 10' Right	33+99	3	23,084	15.78	11.14	8.34	6.52	5.20	4.22	3.44	1,463
Lane 2 - 10' Left	34+47	3	23,121	13.63	9.53	7.22	5.73	4.65	3.81	3.15	1,696
Lane 1 - 10' Right	35+07	3	23,005	17.23	11.59	8.61	6.74	5.37	4.30	3.46	1,335
Lane 2 - 10' Left	35+51	3	23,121	15.31	11.14	8.53	6.76	5.45	4.44	3.69	1,510
Lane 1 - 10' Right	36+00	3	22,949	18.06	13.20	10.07	7.76	6.15	4.94	3.98	1,271
Lane 2 - 10' Left	36+44	3	23,010	24.38	15.92	11.34	8.70	6.82	5.43	4.47	944
Lane 1 - 10' Right	36+97	3	22,497	43.01	25.36	14.76	9.48	6.64	4.96	3.91	523
Lane 2 - 10' Left	37+51	3	22,652	41.90	23.01	10.88	5.60	3.31	2.36	1.83	541
Lane 1 - 10' Right	38+05	3	22,830	32.49	20.24	12.16	7.84	5.23	3.66	2.59	703
Lane 2 - 10' Left	38+44	3	22,700	33.29	17.93	10.66	6.75	4.30	3.11	2.33	682
Lane 1 - 10' Right	39+00	3	22,819	34.42	21.87	13.60	8.93	6.00	4.21	3.08	663
Lane 2 - 10' Left	39+48	3	22,811	36.20	21.51	12.12	7.47	4.98	3.70	2.72	630

Pavement Technical Solutions, Inc. (PTS)

Baltimore/Washington International Airport
Impulse Stiffness Modulus (ISM) Data

Taxiway T (Sections 2 - 7)

Lane	Station	Drop ID	Load (lbs.)	Measured Deflections (mils)							ISM (kips/in.)
				D1 (0")	D2 (12")	D3 (24")	D4 (36")	D5 (48")	D6 (60")	D7 (72")	
Lane 1 - 10' Right	39+99	3	22,806	36.87	23.80	14.14	9.00	6.13	4.51	3.45	619
Lane 2 - 10' Left	40+46	3	22,838	35.74	22.35	13.62	8.94	5.99	4.32	3.25	639
Lane 1 - 10' Right	41+02	3	22,628	37.54	23.81	14.65	9.43	6.29	4.51	3.41	603
										Average:	1,182

Appendix H

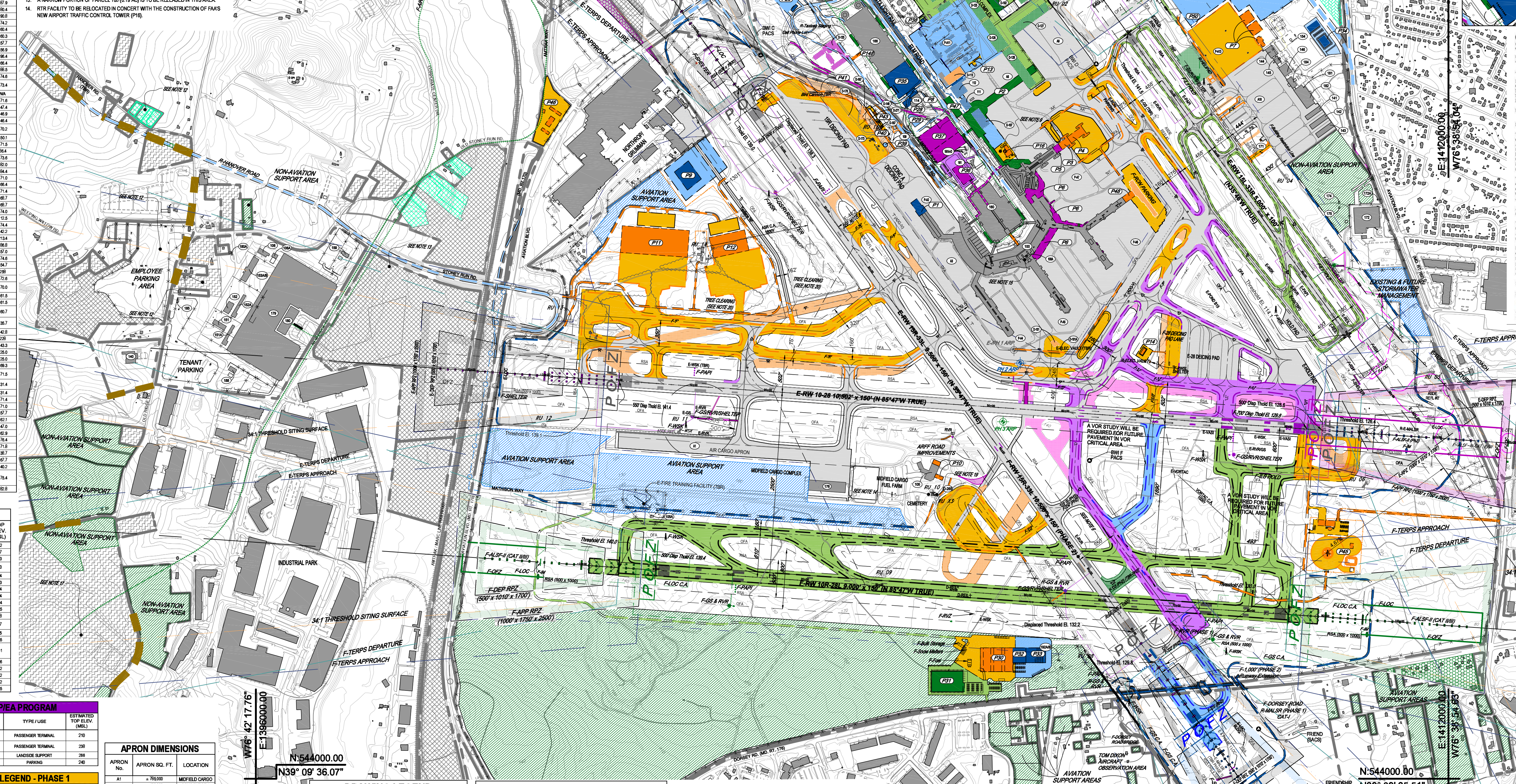
2015 Future Airport Layout Plan

EXISTING FACILITY LEGEND

FACILITY No.	FACILITY DESCRIPTION	TOP ELEV. (MSL)
100	PASSENGER TERMINAL BLDG.	238.1
100A	A.T.C.T. 258 MSL. F.F.	281
D-101	FIELD LIGHTING VAULT	157.9
D-101A	GLYCOL PUMP CONTROL BLDG	153.7
D-102	CARGO BUILDING "F"	210.6
D-103	GAS STATION	194.7
D-104	TRITURATOR BUILDING (1)	171.8
105	ARFF STATION	176.3
105A	ARFF TRAINING FACILITY	161.5
106	CAR RENTAL ADMIN. BLDG/MAINT	171.5
106A	CAR RENTAL ADMIN. BLDG/MAINT	166.5
D-107	AIRLINE CARGO BUILDING	186.7
D-108	GATE G GUARD BUILDING	168.9
109	GATE A GUARD BUILDING	149.9
D-111	F.B.O. STORAGE BUILDING	187.3
D-112	AIRLINE CARGO BUILDING	186.8
D-113	MAA STORAGE BUILDING	193.9
114	CENTRAL UTILITY PLANT (CUP)	188.6
D-115	MAA WAREHOUSE / SNOW TEAM DORM	178.9
D-116	FIELD MAINTENANCE SHOP	180.1
D-117	EQUIPMENT SHED	171.9
D-118	EQUIPMENT SHED	171.5
D-119	STORAGE SHED	167.6
D-120	FIELD MAINTENANCE OFFICES	162.3
D-121	MAA AUTO MAINT. BUILDING	170.8
D-122	CANINE FACILITY	164.2
D-123	EQUIPMENT MAINT. BUILDING	172.2
D-124	CARGO BUILDING "A"	187.0
D-125	CARGO BUILDING "B"	187.3
D-126	CARGO BUILDING "C"	187.9
D-127	CARGO BUILDING "D"	180.4
D-128	CARGO BUILDING "E"	190.8
D-129	MAA MAINTENANCE BUILDING	174.2
131	MES TEST LAB	160.4
131A	MES TEST LAB	160.3
132	FUEL FARM PUMP STATION	157.7
132A	PUMP STATION STORAGE BLDG.	156.9
D-133	SHERATON HOTEL COMPLEX	196.4
134	F.B.O. AUTO MAINT. BUILDING	166.4
D-135	SALT DOME	188.5
D-136	STORAGE BUILDING	174.6
D-137	MAA MAINTENANCE STORAGE SHED	173.4
139B-D	BUS/LIMO STAGING AREA	N/A
140	BUS MAINTENANCE FACILITY	171.6
141	T-HANGAR - G.A. RAMP	147.4
142	T-HANGAR - G.A. RAMP	146.9
143	T-HANGAR - G.A. RAMP	146.4
144	F.B.O. STORAGE HANGAR-G.A. RAMP	170.2
145	GENERAL AVIATION TERMINAL	150.1
146	NORTHROP-GRUMMAN HANGAR	171.5
147	BWI AMTRAK / MARC STATION	86.4
D-148	TAXI / BUS STAGING AREA	173.6
D-149	AIRLINE COMMISSARY	182.0
150	AIRLINE COMMISSARY	184.4
151	CAR RENTAL ADMIN. BLDG/MAINT	171.0
151A	CAR RENTAL ADMIN. BLDG/MAINT	166.4
152	CAR RENTAL ADMIN. BLDG/MAINT	171.4
152A	CAR RENTAL ADMIN. BLDG/MAINT	168.7
153A/B	CAR RENTAL ADMIN. BLDG/MAINT	168.7
154	CNG FUEL FACILITY	174.0
155	MAA KAUFFMAN BUILDING	112.5
D-158	EQUIPMENT SHED	174.4
159	CAR RENTAL ADMIN. BUILDING	142.2
160	HOURLY GARAGE	213.4
161	PARKING ADMIN. BUILDING	186.8
163	FOAM BUILDING	157.0
164	GLYCOL PUMP / CONTROL BLDG.	174.6
165	BENSON-HAMMOND HOUSE	154.7
166	DAILY GARAGE	258
D-167	HUDSON GENERAL BUS STORAGE	172.6
168	OPERATIONS AND MAINTENANCE BLDG	170.0
169	AMTRAK PARKING GARAGE 1	161.5
169A	AMTRAK PARKING GARAGE 2	161.5
D-170	DEICING CONTROL BUILDING (RW 15R)	160.7
171	DEICING CONTROL BUILDING (GA RAMP)	135.7
172	AIRPORT MAINTENANCE ADMIN.	142.8
172A	800 MHz ANTENNA	228
D-173	GLYCOL STORAGE BUILDING	143.3
174	MES STORAGE BUILDING	125.0
175	MES STORAGE BUILDING	125.0
176	MIDFIELD CARGO "G"	169.3
179	CONSOLIDATED RENTAL CAR PARKING GARAGE	171.5
180	CONSOLIDATED RENTAL CAR FACILITY	131.4
180A	CAR RENTAL STORAGE BUILDING	131.4
181	G.A. HANGAR NO. 1	171.4
182	G.A. HANGAR NO. 2	171.0
D-183	TRITURATOR BUILDING (2)	157.7
184	FBO EXECUTIVE TERMINAL	162.1
D-185	SUBSTATION	147.0
186A	LIGHT RAIL SUBSTATION	162.9
186B	LIGHT RAIL SUBSTATION	176.4
D-187	TRITURATOR BUILDING (3)	171.8
188	CAR RENTAL ADMIN. BUILDING	139.7
191A-D	NORTH SUBSTATION	167.7
192A/B	SOUTH SUBSTATION	140.2
D-265	BALE SX TRANSMITTER/ROTATING BEACON	175.4
D-271	RTR BUILDINGS	182.8

NOTES:

1. THE DEPICTED AIRPORT LAYOUT PLAN IS BASED ON GIS TOPOGRAPHY DATA AND OTHER SOURCES. BEFORE ANY ENGINEERING, DESIGN, OR CONSTRUCTION PROJECTS ARE UNDERTAKEN, THE EXACT LOCATION OF EXISTING FACILITIES SHOULD BE FIELD CHECKED AND VERIFIED.
2. ALL TWS ARE 75' WIDE UNLESS OTHERWISE NOTED. EXIT TW WIDTH MAY VARY DEPENDING ON LOCATION AND DESIGN. SEE SHEET 5 FOR MORE DETAIL.
3. FOR ADDITIONAL INFORMATION, SEE DATA SHEET.
4. FOR PROPERTY INFORMATION SEE "AIRPORT PROPERTY MAP (SHEET 22)".
5. MODIFICATION OF STANDARDS TABLE IS SHOWN ON SHEET 5.
6. IMPROVEMENTS TO RUNWAY 33L ARE PLANNED TO OCCUR PRIOR TO ANY FUTURE CONSIDERATION FOR PLANNED RUNWAY 10R-28L. IF CONSTRUCTED, ALL AIRFIELD AND RELATED ELEMENTS, INCLUDING INTERSECTING GRADIENTS OF FUTURE RUNWAY 10R-28L WILL MEET FAA DESIGN STANDARDS.
7. ALL DEVELOPMENT DEPICTED IN THE ASR CRITICAL AREA IS SUBJECT TO A RADAR REFLECTIVITY STUDY.
8. RUNWAY 15R-33L RSA PROJECT TO BE COMPLETE IN DECEMBER 2014. THE RELOCATED NAVAIDS ASSOCIATED WITH THIS PROJECT WILL BE COMMISSIONED IN THE SPRING OF 2015.
9. LOWER RAMP 6 FEET IN CONJUNCTION WITH ATCT PROJECT.
10. THE 33L END WILL BE EXTENDED 1,000' AND THE 500' PHASE 1 DISPLACED THRESHOLD WILL BE REMOVED. THE 1,000' EXTENSION WILL REQUIRE DORSEY ROAD TO BE TUNNELED UNDER THE RUNWAY. THE 1,000' EXTENSION WILL HELP ADDRESS FUTURE AIRCRAFT FLEET DEMAND. EXISTING GS, LOCALIZER, PAPI, RVR, AND ALL SAFETY AREAS WILL ALSO NEED TO BE MOVED ACCORDINGLY AT BOTH RUNWAY ENDS TO MEET FAA DESIGN STANDARDS.
11. ALL NEW PAVEMENTS WILL HAVE SHOULDERS ADDED AS NECESSARY TO MEET FAA AIRFIELD DESIGN STANDARDS.
12. MAA TO FORMALLY UNDERGO RELEASE PROCESS TO REIMBURSE THE FAA FOR PREVIOUS NOISE GRANTS. AT THE END OF THE RELEASE PROCESS, THESE PARCELS WILL BE RETAINED BY THE MAA.
13. A NARROW PORTION OF PARCEL 108 (0.19 AC) IS TO BE RELEASED IN THIS AREA.
14. RTR FACILITY TO BE RELOCATED IN CONCERT WITH THE CONSTRUCTION OF FAA'S NEW AIRPORT TRAFFIC CONTROL TOWER (P16).
15. MULTIPLE ASDEX UNITS ARE COLLOCATED AT THE ATCT. SEE ASDEX TABLE FOR DENOTATION OF " * " WHICH SIGNIFIES ASDEX UNIT SITED AT THE ATCT.
16. ON SEPTEMBER 26, 2013 A RESTRICTIVE COVENANT FOR CONSERVATION AREA (79.88 ACRES) WAS EXECUTED ON PARCELS 88, 116, 87, AND 36.
17. MAA TO FORMALLY UNDERGO RELEASE PROCESS TO REIMBURSE THE FAA FOR PREVIOUS NOISE GRANTS. AT THE END OF THE RELEASE PROCESS, PENDING REFORESTATION MASTER PLAN, THIS PARCEL WILL BE RETAINED BY THE MAA.
18. THE FAA DOES NOT SUPPORT THE FUTURE RUNWAY 10R-28L AS IDENTIFIED.
19. AIRPORT BEACON RELOCATION MAY BE REQUIRED FOR CONSTRUCTION OF NEW APRON. A STUDY SHALL BE PERFORMED TO DETERMINE AN APPROPRIATE NEW LOCATION IF REQUIRED AS PART OF THE IMPROVEMENTS.
20. TREE CLEARING REQUIRED FOR CLEAR LINE-OF-SIGHT FROM PROPOSED ATCT SITE 2A (P16), IF NOT PREVIOUSLY CLEARED BY PROPOSED SITE DEVELOPMENT OR OBSTRUCTION REMOVAL PROJECT.
21. ALL NEW TAXIWAY GEOMETRY WILL MEET THE CURRENT FAA ADVISORY CIRCULAR DESIGN STANDARD FOR TAXIWAY EDGE SAFETY MARGINS (TESM).



ENLARGED NORTH AIR CARGO, FUEL FARM AREA

U. S. Department of Transportation
Federal Aviation Administration

WASHINGTON AIRPORTS DISTRICT OFFICE
23723 Air Freight Lane, Suite 210
Dulles, Virginia 20166
Telephone: 703/661-1359 Fax: 703/661-1370

April 2, 2015

Mr. Paul Shank, P.E.
Chief Engineer
Maryland Aviation Administration
P.O. Box 8766
BWI Airport, Maryland 21240

RECEIVED APR 13 2015 MD AVIATION ADMINISTRATION PLANNING & ENVIRONMENTAL SERVICES

Reference: Baltimore-Washington International Airport Interim Airport Layout Plan (ALP)

Dear Mr. Shank:

The proposed interim Airport Layout Plan (ALP) submitted November 2014 consisting of sheet 3 for the Baltimore-Washington International Airport is hereby approved. This ALP included changes to primarily reflect as built Runway Safety Area (RSA), LOI funded taxiway improvements, and minor terminal security improvement projects. The limiting conditions in our previous ALP approval letters remain in effect, most notably that the FAA has not concurred with the proposed runway 10R/28L. The review process included coordination with other FAA divisions through the airspace process (case number 2014-AEA-1269-NRA).

The contents of the ALP revision do not necessarily reflect the official views or policies of the FAA. Approval of the ALP by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein. No new modifications to FAA design standards are noted on this revision to the ALP.

All proposed development identified on the ALP requires environmental review and shall not be underaken without prior written environmental approval by the FAA.

You are also reminded of your continuing responsibility to keep your ALP current at all times. Each revision must be submitted to this office for review and approval. Your ALP should be reviewed at regular intervals and updated as necessary to include this revision and any other previous revisions.

FAA's approval of this ALP represents acceptance of the location of the facilities depicted. Prior to construction, the airport owner is required to resubmit for approval the final locations, heights, and exterior finishes of structures if they have changed from that previously presented. FAA's concerns are obstructions, impact on electronic aids and adverse effect of controller view of aircraft approaches and ground movements, which could adversely effect the safety, efficiency or utility of the airport.

Please contact me if you have any questions concerning this approval.

Sincerely,

[illegible]

Thomas A. Priscilla, Jr.
Washington Airports District Office

ASDEX - RU SITES

FACILITY No.	NEAREST TO	TOP ELEV. (MSL)
* RU-01	EAST SIDE OF ATCT	272
RU-02	UPS CARGO FACILITY	187
RU-03	GREEN FIELD @ 33R LOC.	173
RU-04	GREENFIELD @ GENERAL AVIATION	160
RU-05	GREENFIELD @ RW 33R MALSR	164
RU-06	GREENFIELD @ RW 28	173
RU-07	GREENFIELD @ BIKE PATH	174
RU-08	GREENFIELD @ RW 33L	174
RU-09	GREENFIELD NEAR RW 4 END	214
RU-10	RTR TRANSMITTER SITE	215
RU-11	RW 10 GLIDE SLOPE	168
RU-12	GREENFIELD @ WEST OF RW 10 END	177
RU-13	GREENFIELD @ RW 10 ALSF	175
RU-14	AT ASR-9	255
RU-15	GREENFIELD @ ELKRIDGE LANDING RD	261
RU-16	RTR RECEIVER SITE	206
* RU-17	WEST SITE OF ATCT	272
* RU-X1	EAST SIDE OF ATCT	272
* RU-X2	WEST SIDE OF ATCT	272
RU-X3	RTR TRANSMITTER	215

APPROVED ALP/EA PROGRAM

FACILITY No.	FACILITY DESCRIPTION	TYPE / USE	ESTIMATED TOP ELEV. (MSL)
P5	INTERNATIONAL TERMINAL BAG SCREENING IMPROVEMENTS	PASSENGER TERMINAL	210
P6	TERMINAL AND CONCOURSE EXPANSIONS	PASSENGER TERMINAL	238
P36	HOTEL AND PARKING	LANDSIDE SUPPORT	266
P37	HOURLY GARAGE EXPANSION	PARKING	240

FUTURE FACILITY LEGEND - PHASE 1

FACILITY No.	FACILITY DESCRIPTION	TYPE / USE	ESTIMATED TOP ELEV. (MSL)
P3	CONCOURSE E (2-GATE EXPANSION)	PASSENGER TERMINAL	210
P4	CONCOURSE E (2-GATE EXPANSION)	PASSENGER TERMINAL	210
P7	SECOND FBO	TERMINAL	170
P10	ARFF EXPANSION	AVIATION SUPPORT	177
P11	AIRCRAFT MAINTENANCE FACILITY	AIRCRAFT MAINTENANCE	235
P12	AIRCRAFT MAINTENANCE FACILITY	AIRCRAFT MAINTENANCE	210
P13	DEICING TANKS AND ACCESS ROAD	AVIATION SUPPORT	206
P14	AIRFIELD LIGHTING VAULT	AVIATION SUPPORT	172
P16	AIRPORT TRAFFIC CONTROL TOWER	AVIATION SUPPORT	376
P24	TERMINAL RESPONSE FIRE STATION	AVIATION SUPPORT	175
P30	SNOW EQUIPMENT STORAGE	AVIATION SUPPORT	187
P40	GLYCOL STORAGE/TRUCK STAGING	AVIATION SUPPORT	-
P41	SNOW DUMP	MAINTENANCE	-
P43	TRITURATOR	AVIATION SUPPORT	-
P45	FIRE TRAINING FACILITY	AVIATION SUPPORT	155
P46	VEHICLE SERVICE STATION	LANDSIDE SUPPORT	120
P48	CONCOURSE D/Y EXPANSION (2 GATE)	PASSENGER TERMINAL	175
P50	RELOCATE CHECKPOINT J	AVIATION SUPPORT	145
P148	TAXICAB ADMINISTRATIVE BUILDING	LANDSIDE SUPPORT	175

FUTURE FACILITY LEGEND - PHASE 3

FACILITY No.	FACILITY DESCRIPTION	TYPE / USE	ESTIMATED TOP ELEV. (MSL)
P2	F - CONCOURSE F (14 GATES)	PASSENGER TERMINAL	220
P17	CONCESSION SCREENING	AVIATION SUPPORT	-
P18	FREIGHT CARGO	AVIATION SUPPORT	-
P19	BELLY CARGO	AVIATION SUPPORT	-
P20	FREIGHT CARGO	AVIATION SUPPORT	-
P21	FREIGHT CARGO	AVIATION SUPPORT	-
P25	TRUCK STAGING	GROUND TRANSPORATION	-
P31	MAC BUILDING	ADMINISTRATION	-
P44	AIRPORT PEOPLE MOVER MAINTENANCE FACILITY	GROUND TRANSPORTATION MX	-
P47	LIGHT RAIL STATION	GROUND TRANSPORTATION	-

APRON DIMENSIONS

APRON No.	APRON SQ. FT.	LOCATION
A1	± 785,000	MIDFIELD CARGO
P-A2	± 400,000	CONCOURSE A
A3	± 211,000	TERMINAL A/B
P-A4	± 583,000	CONCOURSE B
P-A5	± 943,000	CONCOURSE C
P-A6	± 1,664,000	CONCOURSE D
P-A7	± 1,059,000	CONCOURSE E
A8	± 770,000	NORTH AIR CARGO
A9	± 547,000	NORTH AIR CARGO
A10	± 1,027,000	GA
P-A11	± 644,000	NORTH AIR CARGO
P-A12	± 1,152,000	NORTH AIR CARGO
P-A13	± 550,000	GA

FUTURE FACILITY LEGEND - PHASE 2

FACILITY No.	FACILITY DESCRIPTION	TYPE / USE	ESTIMATED TOP ELEV. (MSL)
P1	CONCOURSE "A" EXTENSION	PASSENGER TERMINAL	206
P8	CENTRAL UTILITY PLANT EXPANSION	UTILITIES	189
P9	NORTHROP-GRUMMAN HANGAR	GA TERMINALS	151.5
P22	LIMO/BUS/SHARED RIDE/STAGING	GROUND TRANSPORTATION	-
P23	GAS STATION	LANDSIDE SUPPORT	-
P26	TAXICAB STAGING	GROUND TRANSPORTATION	-
P28	CO-GEN & CHILLER REPLACEMENT	UTILITIES	-
P29	RELOCATED SUBSTATIONS	UTILITIES	-
P32	MAINTENANCE MAIN BUILDING	MAINTENANCE	-
P33	MAINTENANCE BAYS/STORAGE	MAINTENANCE	-
P34	POLICE STATION	EMERGENCY SERVICES	-
P35	DAILY GARAGE EXPANSION	PARKING	-
P38	TRITURATOR	AVIATION SUPPORT	-
P39	PUMP STATIONS	UTILITIES	-
P42	LIGHT RAIL STATION	GROUND TRANSPORTATION	-
P49	FUELING STATION	LANDSIDE SUPPORT	180

DRAWING LEGEND

ITEM	EXISTING
BIRD CANNONS	
GROUND CONTOUR	25
15L-33R NAVAIDS GRADING (PHASE 3)	
AIRPORT PROPERTY LINE	
RDS / PAVEMENT	
BUILDINGS	
AIRFIELD PAVEMENT	
SECURITY FENCE	
NAVAIDS	
BEACON	
AIRPORT REFERENCE POINT	
SURFACE DRAINAGE	
CREEK / STREAM / WATER AREA	
HIKER / BIKER TRAIL	
EXISTING ENVIRONMENTAL MITIGATION	
COMMUNITY SPACE	
PACS / SACS	
ASDE-X SITES	RU xx
RESERVED FOR FUTURE ENVIRONMENTAL MITIGATION SUBJECT TO FAA CONCURRENCE	
RIGHT-OF-WAY PROPERTY RELEASE	
PROPERTY RELEASE	
DIMENSIONS EXISTING	400'
DIMENSIONS FUTURE	400'
AIRPORT AUTO PARK TO BE REMOVED	

TERMINOLOGY LEGEND

ALSF	APPROACH LIGHTING SYSTEM W/SEQUENCED FLASHING LIGHTS
APP	APPROACH
ARP	AIRPORT REFERENCE POINT
ASR	AIRPORT SURVEILLANCE RADAR
CA	CRITICAL AREA
TBD-	TO BE DEMOLISHED
DEP	DEPARTURE
DER	DEPARTURE END OF RUNWAY
DISP THOLD	DISPLACED TRESHOLD
E-	EXISTING
EL	ELEVATION
F-	FUTURE
GA	GENERAL AVIATION
GS	GLIDE SLOPE
LOC	LOCALIZER
MALS	MEDIUM INTENSITY APPROACH LIGHT SYSTEM
MALSR	MED. INTENSITY APPROACH LIGHT SYSTEM - INCLUDING R/W ALIGNMENT INDICATOR LIGHTS
OFA	OBJECT FREE AREA
OFZ	OBJECT FREE ZONE
PAPI	PRECISION APPROACH PATH INDICATOR
PH	PHASE
RPZ	RUNWAY PROTECTION ZONE
RSA	RUNWAY SAFETY AREA
POFZ	PRECISION OBSTACLE FREE ZONE
MM	MIDDLE MARKER
WSK	WIND SOCK
R-	RELOCATED
RVR	RUNWAY VISUAL RANGE
RVZ	RUNWAY VISIBILITY ZONE
THOLD	THRESHOLD
TBR	TO BE RELOCATED
VASI	VISUAL APPROACH SLOPE INDICATOR

FAA DISCLAIMER:

1. THE FAA'S APPROVAL OF THIS AIRPORT LAYOUT PLAN (ALP) REPRESENTS ACCEPTANCE OF THE GENERAL LOCATION OF FUTURE FACILITIES DEPICTED. DURING THE PRELIMINARY DESIGN PHASE, THE AIRPORT OWNER SHALL SUBMIT, FOR FAA APPROVAL: FINAL LOCATIONS, HEIGHTS, AND EXTERIOR FINISH OF ALL STRUCTURES. THE FAA'S CONCERNS ARE OBSTRUCTIONS, IMPACT ON ELECTRONIC AIDS, AND ADVERSE IMPACT ON CONTROLLER VIEW OF AIRCRAFT APPROACHES AND GROUND MOVEMENT AREAS WHICH COULD ADVERSELY AFFECT THE SAFETY, EFFICIENCY, OR UTILITY OF THE AIRPORT.

PHASING LEGEND

	Approved ALP/Env Finding/ Construction in Progress	PHASE 1 (2016-2020)	PHASE 2 (2021-2025)	PHASE 3 (2026-ULT)
PAVEMENT IMPROVEMENTS				
PROPOSED STRUCTURES				
PROPOSED PROJECT AREAS				
PROPERTY INTEREST				
DEMOLITION				
VEHICLE ROADWAY IMPROVEMENTS				
PEDESTRIAN WALKWAY				
HIKER/BIKER TRAIL RELOCATION				
ROADWAY IMPROVEMENTS				
LIGHT RAIL				
PROPOSED TUNNEL				
AIRPORT PEOPLE MOVER ALIGNMENT				

10 ACRES

600' 300' 0 600' 1200'

SOURCES:
1. Topography and planimetrics are based on the compilation of aerial photography taken and interpolated by both Airborne Solutions International LLC (November 2005) and Keystone Aerial Surveys, Inc. (August 2011).
2. Baltimore-Washington International Airport MAA O.P.E.S.

BWI BALTIMORE/WASHINGTON INTERNATIONAL Thurgood Marshall AIRPORT

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION
OFFICE OF PLANNING and ENVIRONMENTAL SERVICES (OPES)

JOB DESCRIPTION: AIRPORT LAYOUT PLAN

SHEET TITLE: FUTURE AIRPORT LAYOUT PLAN

DESIGNED	DRAWN	CHECKED	APPROVED
KMF	JMW	SPA	WBS

AECOM ADCI

SCALE	CONTR. NO.
AS SHOWN	MAA-AE-11-005
DATE	SHEET
NOVEMBER 2014	3

DATE	BY	REVISIONS

S:\PLNG\DAFP\ALPS\BWI\BWI ALP 04-02-15 _SHT 3 ONLY\910 References\Sheet_3_ALP FUTURE_FAA Approved.dwg Color Table: BWI ALP 2010.ctb
Ltscale: 1 Saved On: April 27, 2015 Plotted: 5/5/2015 11:00 AM