



Pavement Condition Report

Terre Haute International Airport

Project 1480370

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January 2014



Executive Summary

Background

Since 1995, airports have been required to implement a pavement maintenance-management program to receive funding for any project constructed using Federal money. To assist individual airports in meeting this requirement and help improve airport pavement conditions statewide, the Indiana Department of Transportation, Office of Aviation contracted with Applied Research Associates, Inc. to provide pavement evaluation surveys at local airports. This report documents pavement condition at Terre Haute International Airport in September 2013.

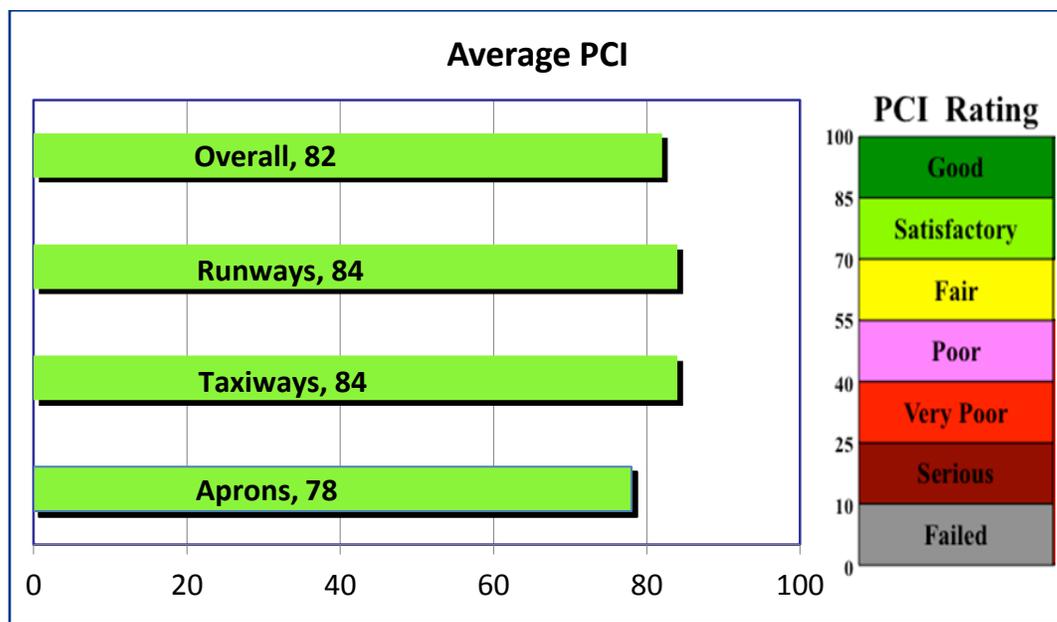
A primary objective of the pavement management program is to determine maintenance and rehabilitation needs by comparing pavement condition to a standardized benchmark called the minimum service level (MSL), defined as the minimum pavement condition acceptable in managing Indiana's airfield pavements. The benchmark MSL values used to trigger rehabilitation are shown below.

Runway	Taxiway	Apron
65	60	60

Pavement Condition

Runway 5-23 was newly reconstructed and is not included in this airfield evaluation. Runway 18-36 is below the MSL and is also not included in this airfield evaluation.

The overall Pavement Condition Index (PCI) for the remaining airfield pavements was 82. Runway 14-32 had an average inspected PCI of 84 and is above the desired MSL of 65. Taxiways had an average inspected PCI of 84, and ramps had an average inspected PCI of 78.



Capital Improvement Program

The table below provides a summary of the projected pavement rehabilitation needs for the next 5 years of the capital improvement program, starting in 2013. The estimated cost for the rehabilitation actions that provide the greatest increase in pavement service life is approximately \$2.8 million in 2013 dollars. If no action is taken, the overall PCI is projected to drop to 73 by 2017.

Project Year	Calendar Year	Amount
Year 1	2013	1,931,372
Year 2	2014	-
Year 3	2015	873,449
Year 4	2016	-
Year 5	2017	-
5-Year Total		\$ 2,804,821

Maintenance

Analysis of potential maintenance projects identified approximately 18,000 square feet of patching needs and approximately 320,000 linear feet of crack sealing and crack repair needs, at an estimated total cost of approximately \$920,000.

Specific recommendations to help prioritize airfield maintenance are found in chapter 4 of this report. A summary of all identified maintenance needs is shown in the table below and in the figure on the following page.

Work Item	Quantity	Unit	Cost
AC PATCH	1,463	SF	\$12,696
AC RESTORATIVE CRACK REPAIR	34,162	LF	\$42,360
AC SUSTAINING CRACK REPAIR	3,103	LF	\$2,685
PCC RESTORATIVE CRACK REPAIR	286,443	LF	\$642,588
PCC SLAB REPLACEMENT	14,649	LF	\$182,901
PCC PATCHING	2,185	SF	\$36,332
Total:			\$919,562

AC = asphalt concrete; PCC = portland cement concrete; S.F. = square feet; L.F. = linear feet

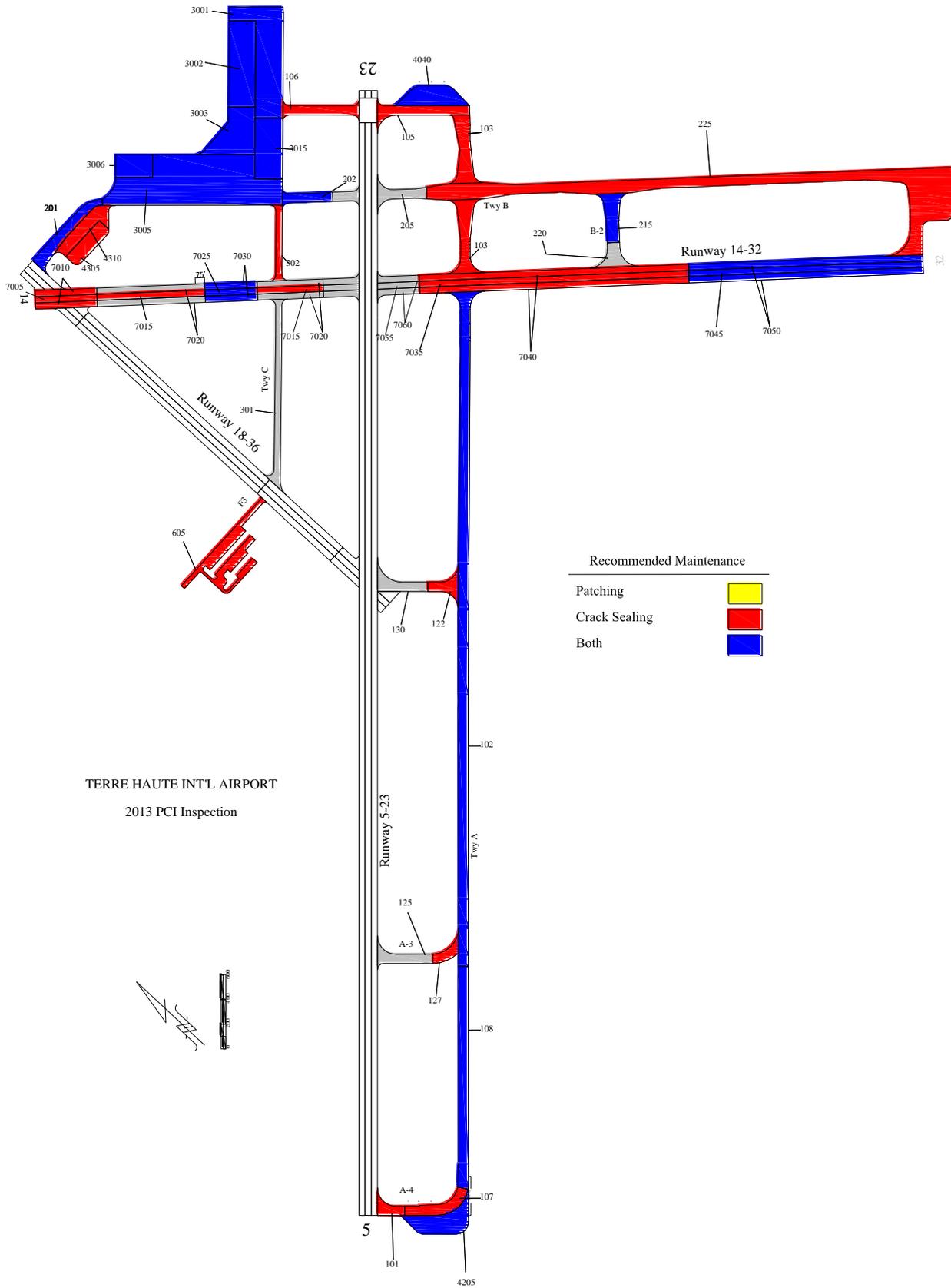


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GLOSSARY OF ABBREVIATIONS

AC	- asphalt concrete
ACC	- asphalt overlay on existing asphalt
APC	- asphalt overlay on existing concrete
APMS	- airport pavement management system
ARA	- Applied Research Associates, Inc.
CADD	- computer-aided design and drafting
CIP	- capital improvement program
FAA	- Federal Aviation Administration
FOD	- foreign object damage
GIS	- geographic information system
INDOT	- Indiana Department of Transportation
L&T	- longitudinal and transverse
LTD	- longitudinal, transverse, and diagonal
M&R	- maintenance and rehabilitation
MSL	- minimum service level
PCC	- portland cement concrete
PCI	- Pavement Condition Index
PCN	- Pavement Classification Number
PDF	- portable electronic document

1. Introduction

1.1 Objective and Scope

The Indiana Department of Transportation, Office of Aviation (INDOT) retained Applied Research Associates, Inc., (ARA) to provide airfield pavement inspection, pavement evaluation, and pavement management services for Indiana’s statewide network of airfield pavements. The pavement evaluations documented in this report were performed under purchase order number 14803170.

A primary objective of INDOT’s ongoing pavement evaluation and management program is to determine maintenance and rehabilitation (M&R) needs by comparing the Pavement Condition Index (PCI) to a standardized benchmark called the minimum service level (MSL). The MSL is defined as the minimum pavement condition acceptable in managing INDOT’s airside pavement. The benchmark MSL values used to trigger rehabilitation vary by airport classification and are shown in Table 1-1.

Table 1-1. Minimum Service Levels

Facility	Primary	Commercial Service	Large GA > 3600’Rwy	Large GA < 3600’Rwy
Runway	70	65	60	55
Taxiway	65	60	55	50
Apron	65	60	55	50

Additional goals of this project were to implement a software program to manage the pavement network, develop performance curves based on historical rates of pavement deterioration, forecast future pavement conditions, identify and recommend specific M&R actions to address the root cause of the documented pavement distress, and estimate the cost and ideal timing of the recommend M&R. The following tasks were performed in support of the project goals:

- Review record documents
- Define the pavement network
- Conduct an airfield condition survey
- Update the AIRPAV database & software
- Develop a 5-year airfield M&R work plan
- Report findings to INDOT

1.2 Description of Tasks Performed

1.2.1 Records Review

A detailed records review was performed to determine the airport’s construction history and the as-built cross section for each pavement feature. Plan sets for recent projects were provided to ARA in computer-aided design and drafting (CADD) format. Older plans sets were provided as hard copies or in portable electronic document (PDF) format.

1.2.2 Define Pavement Network

Prior to the field survey, a pavement network map was developed using available aerial photography and construction plans. The map was divided into facilities, features, and sample units. A facility is defined as a complete area of the airfield that is used for a particular type of operation. Facilities are typically named for complete functional elements of pavement, such as Runway 11-29, Taxiway A, or North Terminal Apron. After facilities are defined, they are divided into features based on pavement type, construction, structure, and usage. Note that the terms branch and section may be used interchangeably with facility and feature throughout this report.

Features are divided into sample units as prescribed by ASTM D5340-12, *Standard Test Method for Airport Pavement Condition Index Surveys*. A sample unit is a subdivision of a section used exclusively to aid in the inspection process and reduce the effort needed to determine distress quantities and the PCI. The specified sample unit size for an asphalt concrete (AC) pavement is $5,000 \text{ ft}^2 \pm 2,000 \text{ ft}^2$. Sample units on portland cement concrete (PCC) pavements contain 20 ± 8 slabs.

To allow users to search, sort, and identify airport pavement quickly, a numbering system is used in conjunction with the facility, feature, and sample unit convention. The format starts with facility, then feature, and finally identifies the sample unit. The number 1605.300 is parsed as an example in Figure 1-1. Most pavement references in this report are presented in this format.

Using statistical sampling methods, the PCI procedure provides a high confidence level in evaluating overall pavement condition while sampling only a portion of the pavement surface. Figure 1-2 shows the network-level inspection density used on this project. Where appropriate, “additional sample units” were identified and inspected to record pavement areas with distress patterns not representative of the overall pavement condition. The unique distress types documented in additional sample units are not extrapolated across the entire feature.

As the surveyors inspected the pavement, they were mindful to ensure that the pre-survey airfield map depicted the actual pavement, otherwise known as a “ground-truth” survey. Noticeable differences between what was present in the field and what was displayed on the maps were adjusted by a CADD technician.

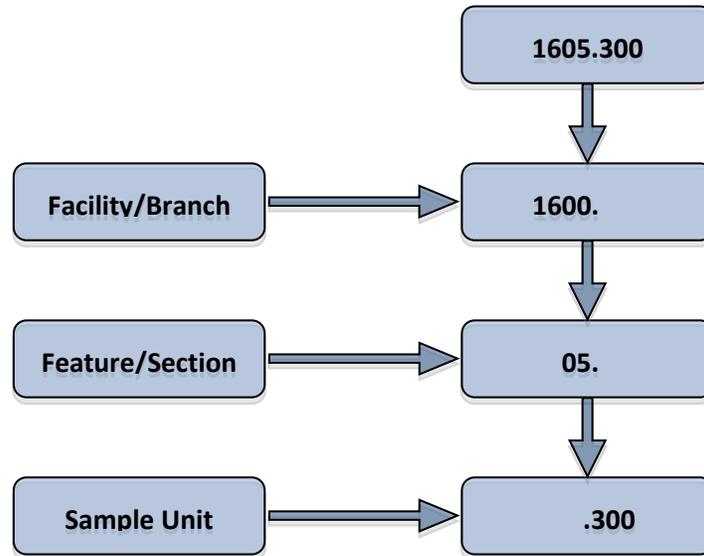


Figure 1-1. Pavement Numbering System

Table 1-2. Inspection Density

Sample Unit in Feature	Inspected Sample Units
1-2	ALL
3-4	2
5-7	3
8-10	4
11-14	5
15-19	6
20-25	7
26-30	8
31-37	9
38-45	10
46-55	11
56-80	12
> 80	15%

1.2.3 Conduct Airfield Condition Survey

The pavement condition surveys were performed in accordance with ASTM D5340-12. The procedure is based on the identification and measurement of visible distress at the pavement surface. Each PCI distress will deduct from the pavement's perfect condition of 100. Using pavement management software (or curves provided in ASTM D5340-12), a deduct value is determined for each combination of distress type, severity, and measured quantity. The PCI value is then determined from the unique combination of these variables.

A primary benefit of the PCI procedure is the ability to perform objective evaluations and compare pavement condition with an easy-to-understand numerical rating. Because the combined impact of multiple distresses is not cumulative, ASTM D5340-12 provides an additional family of curves to adjust for multiple distresses. The PCI is determined by applying the individual deduct value for each distress type along with any required correction factors to account for multiple distress types.

Figure 1-2 shows the relationship between PCI values, descriptive ratings, and typical repair actions. Generally, pavement maintenance is most cost-effective when the pavement is still in satisfactory condition. Rehabilitation, such as an asphalt mill and inlay, is typically performed for pavements with PCI values between 55 and 70. When the PCI value drops below 55, a mill an inlay may not provide the desired performance and complete reconstruction often becomes the most cost-effective means of repairing the pavement.

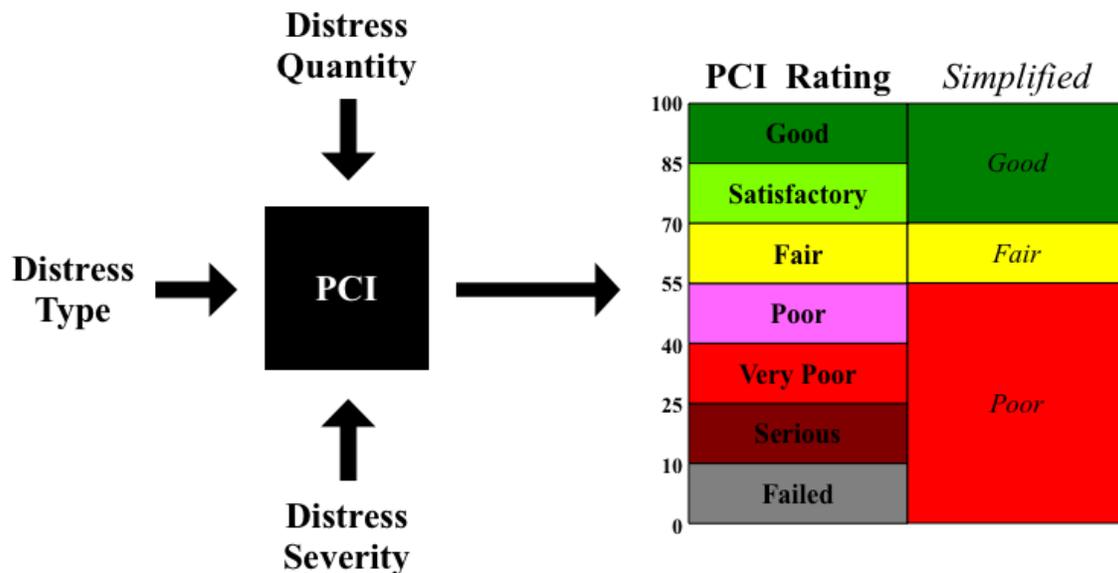


Figure 1-2. PCI Value and Descriptive Rating

1.2.4 Update AIRPAV Database & Software

The network definition, construction history, and data from the survey were entered into the AIRPAV pavement management system (APMS) software. After all data were entered, family curves were developed to model the change in pavement condition over time. These family curves are used to estimate future pavement condition. Typically, several curves are developed, with separate curves defined for different pavement surface types, such as AC, PCC, asphalt overlay on existing asphalt (ACC), and asphalt overlay on existing concrete (APC). The latest version of AIRPAV containing all survey data, deterioration curves, M&R policies, budgets, and construction history, was provided to INDOT on CD-ROM.

1.2.5 Develop 5-Year Airfield M&R Work Plans

A 5-year capital improvement program (CIP) was developed showing the year that each pavement feature was expected to fall below the MSL. The 5-year plan detailed in chapter 3 shows rehabilitation alternatives for each feature based on the PCI and the individual distress types observed during the pavement evaluation. The timing of each project is shown as the year that the PCI falls below the MSL and does not consider other important factors. Using reports like this for each airport in the State, INDOT engineers and planners develop a final 5-year statewide CIP plan that balances the sometimes conflicting priorities of pavement condition, operational constraints, construction staging considerations, and available funding.

1.2.6 Report Finding to INDOT

This report includes background information, PCI results and recommendations, and M&R budget scenarios. Photographs depicting typical pavement conditions observed during the survey are included in chapter 2. Appendix A contains general information about the AIRPAV pavement management software. Appendix B provides an analysis of each pavement section based on recorded distress. Appendix C contains a summary of general maintenance techniques and best practices. Appendix D provides a detailed summary of the airfield pavement condition. Appendix E describes common airfield distress types, and Appendix F contains exhibits to help the airport owner manage the airfield pavement system.

2. Pavement Condition Evaluation

2.1 Overview

Using statistical sampling methods, approximately 1.4 million square feet of airside pavement was surveyed as part of this assessment. The average inspected PCI for all pavements was 82 (Satisfactory). The average inspected PCI for runway 14-32, taxiways, and ramps were as follows: 84 (Satisfactory), 84 (Satisfactory), and 78 (Satisfactory). Table 2-1 provides a general description of the PCI rating categories, including a simplified rating scale of Good, Fair, and Poor. This table also shows the associated distress levels and general M&R requirements for each rating category.

Table 2-1. Definition and Distribution of PCI Ratings

Simplified PCI Rating	PCI Range	Definition	Pavement Area (ft ²)	Pavement Area (%)
Good	86-100	GOOD: Pavement has minor or no distresses and requires only routine maintenance.	2,247,575	51
	71-85	SATISFACTORY: Pavement has scattered low-severity distresses that need only routine maintenance.	1,631,202	37
Fair	56-70	FAIR: Pavement has a combination of generally low- and medium-severity distresses. M&R needs are routine to major in the near future.	150,100	3
Poor	41-55	POOR: Pavement has low-, medium-, and high-severity distresses that probably cause some operational problems. Near-term maintenance and repair needs may range from routine up to a requirement for reconstruction.	285,809	6
	26-40	VERY POOR: Pavement has predominantly medium- and high-severity distresses that cause considerable maintenance and operational problems. Near-term maintenance and repair needs will be intensive in nature.	112,014	3
	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 operations are no longer possible; complete reconstruction is required.	-	-

One pavement sections had a simplified PCI rating of Fair, indicating maintenance needs may vary from routine to major. Four pavement sections had a simplified PCI rating of Poor, indicating significant maintenance needs up to a requirement for reconstruction.

The pavement within each of the PCI condition categories is shown in Figure 2-1. The inspected PCI is summarized by branch use in Figure 2-2, and the photographs in Figure 2-3 through Figure 2-7 provide examples of the condition categories.

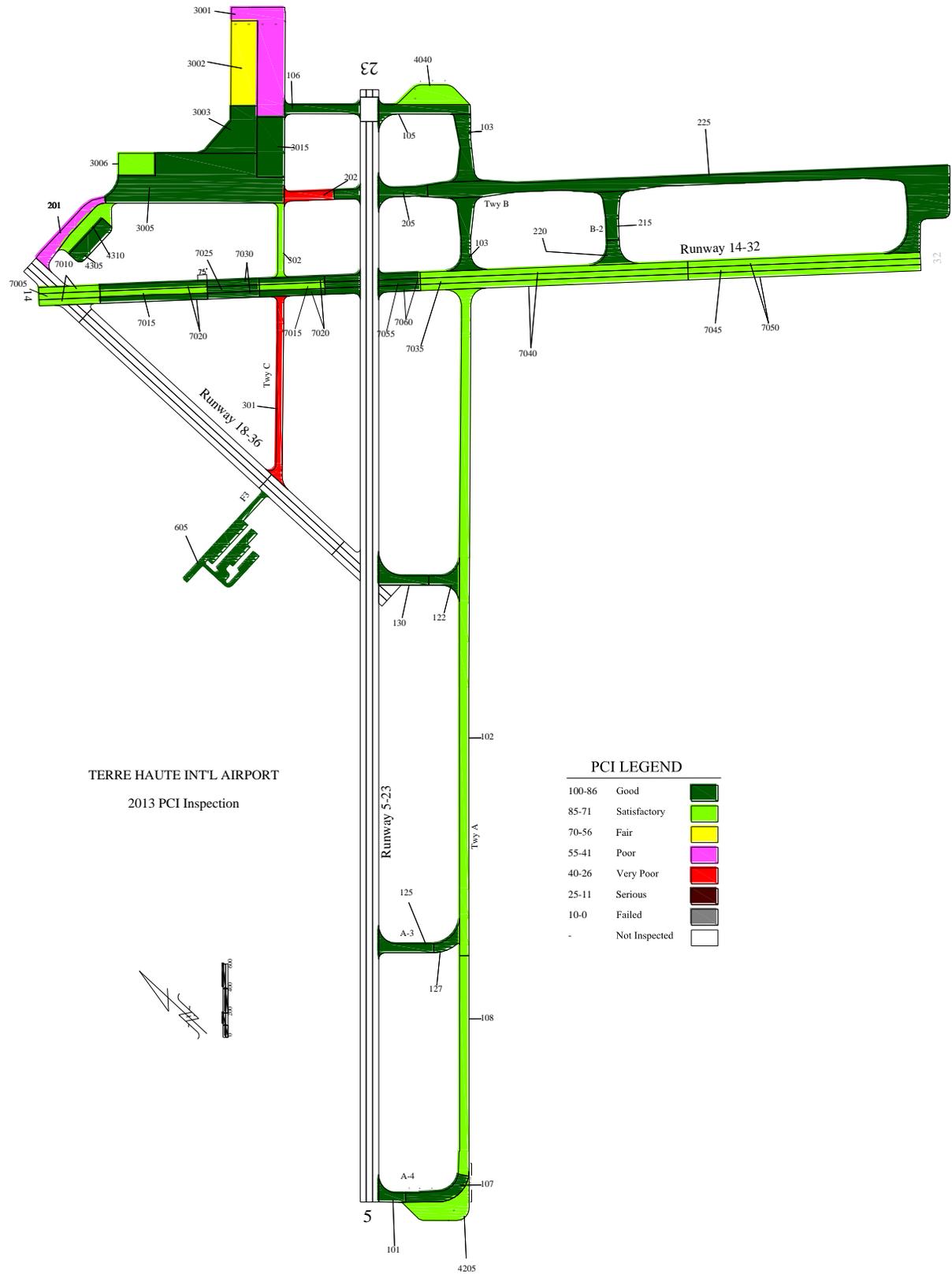


Figure 2-1. Inspected Pavement Condition

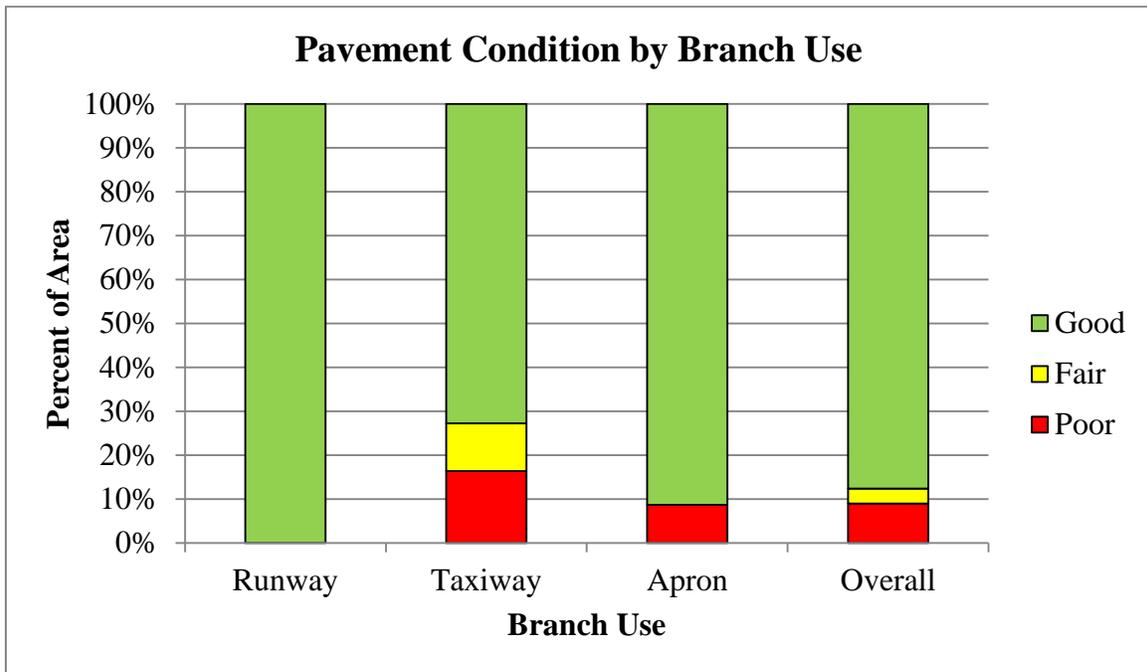


Figure 2-2. Pavement Condition by Branch Use



Figure 2-3. Typical Good AC Pavement (Feature 7060)



Figure 2-4. Typical Poor AC Pavement (Feature 201)



Figure 2-5. Typical Good PCC Pavement (Feature 7025)



Figure 2-6. Typical Poor AC Pavement (Feature 3002)



Figure 2-7. Typical Good PCC Pavement (Feature 3001)

2.2 Distress Types and Frequency

The inspectors surveyed approximately 470,000 ft² of AC pavement. The frequency of each distress type is shown in Table 2-2. The most common distress types were longitudinal and transverse (L&T) cracking, alligator cracking, depressions and ravelling. L&T cracking and ravelling are climate-related distresses, while alligator cracking is a load related distress

Table 2-2. Distress Frequency in AC Pavement

Distress	Sample Units	% Inspected Sample Units
L&T CRACKING	89	92
ALLIGATOR CRACKING	13	13
DEPRESSIONS	10	10
RAVELING	10	10
PATCHING	6	6
BLOCK CRACKING	1	1
OIL SPILLAGE	1	1
RUTTING	1	1
SWELL	1	1
WEATHERING	1	1

The inspectors surveyed approximately 930,000 ft² of PCC pavement. The frequency of each distress type is shown in Table 2-3. The most common distress types were joint seal damage, spalls and LTD cracks.

Table 2-3. Distress Frequency in PCC Pavement

Distress	Sample Units	% Inspected Sample Units	Slabs	% Inspected Slabs
JOINT SEAL DAMAGE	127	97	1,894	97
CORNER SPALLING	33	25	47	2
LONG/TRANS/DIAG CRACKS	25	19	44	2
PATCHING SMALL	26	20	42	2
JOINT SPALLING	32	24	41	2
SHRINKAGE CRACKS	21	16	33	2
SETTLEMENT OR FAULTING	10	8	17	1
PATCHING LARGE	10	8	16	1
CORNER BREAK	10	8	12	1
SHATTERED SLAB	9	7	11	1
SCALING/CRAZING/MAP CRACK	6	5	8	0
`D'CRACKING	3	2	6	0
PUMPING	1	1	6	0

2.3 PCI Summary

The branch and section PCI values are shown below, along with the surface type, area, and last year construction occurred.

Table 2-4. PCI Results

Branch ID	Branch PCI	Section	Surface	Area (sf)	Built	2010 PCI	2013 PCI
100	87	101	AC/PCC	21,126	2009	100	93
		102	PCC	431,770	1988	85	84
		103	PCC	132,716	1989	88	87
		105	PCC	61,930	1989	89	89
		106	PCC	48,372	1997	86	86
		107	PCC	46,661	1988	96	95
		108	PCC	138,393	1988	86	85
		122	PCC	28,374	1988	90	88
		125	AC	38,828	2009	100	93
		127	PCC	19,950	1988	88	88
		130	AC	39,174	2009	100	95
200	84	201	AC/AC	59,909	1997	53	49
		202	AC/AC	32,100	1971	38	33
		205	AC/PCC	54,848	2009	100	95
		215	PCC	47,293	1997	90	90
		220	AC/PCC	30,590	1998	93	91
		225	PCC	531,739	1997	91	89
300	49	301	AC	79,914	1971	39	38
		302	AC/AC	32,221	1971	81	78
600	92	605	AC	107,640	2002	97	92
3000	76	3001	PCC	225,900	1984	62	50
		3002	PCC	150,100	1978	70	63
		3003	PCC	113,154	1988	71	87
		3005	PCC	463,773	1984	88	87
		3006	PCC	54,930	1962	87	82
		3015	PCC	110,640	1978	93	90
4000	83	4040	PCC	71,465	1997	90	83
4200	79	4205	PCC	82,880	1988	89	79
4300	88	4305	PCC	49,151	1978	88	88
4300	83	4310	AC	59,415	1997	92	83
7000	84	7005	AC/AC	25,013	1998	81	78
		7010	AC/AC	50,158	1998	81	79
		7015	AC	70,476	1998	87	83
		7020	AC	140,952	1998	89	86
		7025	PCC	21,236	1998	92	91
		7030	PCC	42,472	1998	98	89
		7035	AC/AC	109,270	1998	79	77
		7040	AC	218,549	1998	87	82

Branch ID	Branch PCI	Section	Surface	Area (sf)	Built	2010 PCI	2013 PCI
		7045	PCC	94,985	1998	89	83
		7050	PCC	191,677	1998	84	82
		7055	AC	31,494	2009	100	92
		7060	AC	65,462	2009	100	100

2.4 Analysis Commentary

The following pages provide a brief overview of the 2013 inspected pavement conditions for each facility. Comments are based primarily on the AIRPAV analysis but also include field notes and remarks from the pavement condition inspectors. Where appropriate, individual pavement sections are referenced within the larger facility.

Feature 3001 had a 12 point PCI drop since the 2010 inspection, due largely to increased durability cracking (“d”-cracking) and shattered slabs. Feature 3003 had a 16 point PCI increase since the 2010 inspection due to airport maintenance and slab replacements.

2.4.1 Runways

Runway 14-32 consisted of 5 sections AC pavement, 3 sections AAC pavement and 4 sections PCC pavement. The runways had a total area of 1,061,744 ft² with an area-weighted average PCI of 84 (Good). The recorded distresses included L&T cracking, ravelling, weathering, depression and swell in the asphalt pavement; and joint seal damage, spalls, patches, shrinkage cracks and faulting in the PCC pavement.

Table 2-5. Runway Condition Distribution

PCI Range	Rating	Number of Sections	Pavement Area (ft ²)	Pavement Area (%)
100-71	Good	12	1,061,744	100
70-56	Fair	-	-	-
55-0	Poor	-	-	-

2.4.2 Taxiways

The taxiways consisted of four branches containing 4 sections of AC pavement, 3 sections of AAC pavement, 3 sections of APC pavement and 10 sections of PCC pavement. The total area of the taxiways was 1,983,548 ft². The area-weighted average PCI was 84 (Good).

Table 2-6. Taxiway Condition Distribution

PCI Range	Rating	Number of Sections	Pavement Area (ft ²)	Pavement Area (%)
100-71	Good	17	1,811,625	91
70-56	Fair	-	-	-
55-0	Poor	3	171,923	9

2.4.2.1 100 Series

The 100 series taxiways consisted of 2 sections of AC pavement, 1 sections of APC pavement and 8 sections of PCC pavement. The branch had a total area of 1,007,294 ft² with an area-weighted average PCI of 87 (Good). The recorded distresses included L&T cracking in the asphalt pavements, and joint seal damage, LTD cracks, shrinkage cracks, patches and spalls in the PCC.

2.4.2.2 200 Series

The 200 series taxiways consisted of 2 sections of AAC pavement, 2 sections of APC pavement and 2 sections of PCC pavement. The branch had a total area of 756,479 ft² with an area-weighted average PCI of 84 (Good). The main recorded distresses included L&T cracking and alligator cracking in the asphalt pavements, and joint seal damage, LTD cracks, shrinkage cracks, patches and spalls in the PCC.

2.4.2.3 300 Series

The 300 series taxiways consisted of 1 section of AC pavement and 1 section of AAC pavement. The branch had a total area of 112,135 ft² with a PCI of 49 (Poor). The recorded distresses included L&T cracking, alligator cracking, depression, ravelling and patching.

2.4.2.4 600 Series

The 600 series taxiway consisted of 1 section of AC pavement, with a total area of 107,640 ft² and an area-weighted average PCI of 92 (Good). The recorded distresses included L&T cracking, oil spill and ravelling.

2.4.3 Aprons

The aprons consisted of 1 section of AC and 9 sections of PCC pavement. The total area of apron pavements was 1,381,408 ft², and the area-weighted average PCI was 84 (Good). The distribution of pavement area and sections by PCI range are shown in Table 2-7.

Table 2-7. Apron Condition Distribution

PCI Range	Rating	Number of Sections	Pavement Area (ft ²)	Pavement Area (%)
100-71	Good	8	1,005,408	73
70-56	Fair	1	150,100	11
55-0	Poor	1	225,900	16

2.4.3.1 3000 Series

The 3000 series ramps consisted of 6 sections of PCC pavement. The branch had a total area of 1,118,497 ft² with a PCI of 76 (Good). The main recorded distresses in the PCC pavement included LTD cracking and spalls. Feature 3001 was below MSL and contained multiple distress types, other features contained corner breaks, LTD cracks, joint seal damage, spalls and patches.

2.4.3.2 4000 Series

The 4000 series ramps consisted of 1 section of PCC pavement with a total area of 7,465 ft² and an average PCI of 83 (Good). The recorded distresses included corner breaks, LTD cracks, joint seal damage, shrinkage cracks, spalls and patches.

2.4.3.3 4200 Series

The 4200 series ramps consisted of 1 section of PCC pavement. The branch had a total area of 82,880 ft² with an area-weighted average PCI of 79 (Good). The recorded distresses included joint seal damage, LTD cracks, faulting, and spalls.

2.4.3.4 4300 Series

The 4300 series ramps consisted of 1 section of AC pavement and 1 section of PCC pavement. The branch had a total area of 49,151 ft² with an area-weighted average PCI of 88 (Good). Joint seal damage was the only recorded distress in PCC pavement, L&T cracks were the only recorded distress in the asphalt.

3. Capital Improvement Program

3.1 Analysis

The individual feature analyses shown in appendix B document viable rehabilitation projects that address the causes of each pavement section failure while restoring the pavement to a condition above the desired MSL. The recommended timing of each improvement action is defined as the year that the pavement condition is projected to reach the MSL. By establishing benchmark MSL targets, it is possible to plan objectively for future needs against a standard set of performance criteria. This section categorizes the identified viable options into CIP strategies based on cost and expected service life.

The airport may find it desirable to adjust the timing of projects detailed in the CIP to meet fiscal and operational constraints. For example, if different sections of a runway were projected to reach the MSL in various years ranging from 2013 to 2015, it is not operationally feasible to stage rehabilitation over a 3-year period. Instead, runway rehabilitation would be programmed in a manner that balanced the need to minimize the length of the runway closure while maximizing the remaining service life.

3.2 Cost Estimates

Project costs were estimated based on the pavement area and the unit costs shown in Table 3-1 for specific M&R activities. Project costs are presented so planners and managers can compare the relative magnitude of funding required for various alternatives. The two-page AIRPAV feature analysis (see appendix B) provides cost estimates for each identified project. These cost estimates are for planning purposes only and do not constitute an engineering estimate.

Furthermore, these costs estimates represent the improvement of existing pavement structures and associated incidental work only. Other potential project line items, such as lighting, navigational aids, and drainage modifications are not included, and estimates for those items must be developed separately and incorporated into an overall project cost.

Typical examples of work that might be included in alternatives evaluated by AIRPAV are outlined on the following pages. These example projects would meet the requirements for each selected option; however, the descriptions are not intended to imply required, or even preferred, design configurations. Rehabilitation decisions, such as overlay thickness design, should be made in conjunction with engineering design analysis.

Table 3-1. Unit Costs

Rigid Pavement (PCC)	
Reconstruction	\$12.90 /sf
Slab Replacement & Full Depth Patching	\$12.48 /sf
Patching (Partial Depth)	\$16.70 /sf
Slab Repair & Overlay	\$4.69 /sf + \$0.41 /sf/in > 4"
Joint Seal Replacement	\$2.24 /lf
Joint Seal Repair	\$0.87 /lf
Undersealing	\$4.16 /sf
Flexible Pavement (AC)	
Reconstruction	\$5.36 /sf
Resurfacing	\$1.44 /sf
Structural Overlay	\$2.25 /sf + \$0.41 /sf/in > 4"
Surface Treatment	\$0.39 /sf
Patching	\$9.78 /lf
Crack Repair (Restorative)	\$1.24 /lf
Crack Repair (Sustaining)	\$0.85 /lf

3.2.1 Rigid Pavement Work Descriptions

The following descriptions provide additional information about the typical work items covered by the unit costs shown in Table 3-1.

3.2.1.1 Reconstruction

Reconstruction is recommended when the pavement defects would not be corrected by less extensive measures. Unit prices assume removal of the existing pavement to the subgrade and reconstruction pavement with 8 inches of high strength PCC pavement on 6 inches of aggregate subbase.



3.2.1.2 Repair and Overlay

This procedure usually consists of a crack and seat process, where the existing pavement is broken into segments of approximately 2 ft on a side by dropping a heavy breaker bar onto the pavement. Properly done, aggregate interlock between pavement segments is retained and reflective cracking is reduced. A flexible surface is then placed over the recycled PCC base.



3.2.1.3 Slab Replacement

Slab replacements are typically required for high-severity blow ups, scaling, and shattered slabs. Unit prices assume removal of the selected slab to the subgrade. Prepare subgrade to bearing strength equivalent to surrounding subgrade. Provide subbase support equivalent to existing and install load transfer steel as required. Place PCC pavement level with existing surface.



3.2.1.4 Patching (Partial Depth)

While partial depth patching is most commonly used to repair joint and corner spalls, it is effective for a wide variety of distress types. Saw cut and remove area of pavement to sound concrete above reinforcing steel. Treat existing concrete to ensure firm bond. Place PCC level with existing surface.



3.2.1.5 Joint Seal Replacement

Rout joints and cracks to a depth of at least 1-1/4 inches, clean joint wall surfaces to expose fresh vital concrete, install backing rope, and apply rubberized sealant meeting ASTM D3405 specification, or equivalent.



3.2.1.6 Joint Seal Repair

Press existing sealant into joint for use as backer material; apply joint sealant meeting ASTM D3405 specification, or equivalent.

3.2.1.7 Undersealing

Undersealing is used to repair faulting between slabs or when corner breaks have settled relative to the slab. High-pressure injection is used to force material into the underlying voids and continues until the settled pavement is restored to its original elevation. Several materials have been used for undersealing, including cement grout, asphalt slurries, and proprietary formulations of expansive Styrofoam.



3.2.2 Flexible Pavement Work Descriptions

3.2.2.1 Reconstruction

Reconstruction is recommended when the pavement defects would not be corrected by less extensive measures. Unit prices assume removal of existing pavement to subgrade. Scarify and compact subgrade to 6-inch depth. Construct 4 inches of P401 AC surface course on 8 inches of aggregate base course.



3.2.2.2 Resurfacing

Resurfacing assumes a nominal 2-inch asphalt mill and inlay on existing prepared pavement.



3.2.2.3 Structural Overlay

Structural overlays are used to address load related distress or to increase pavement load bearing capacity. Apply a 4-inch AC overlay on existing prepared pavement. Add additional thickness as needed to achieve required strength.

3.2.2.4 Surface Treatment

Apply a high-quality, penetrating rejuvenating sealer



3.2.2.5 Patching

High-performance cold patching products can be used for short term repairs. Long-term patches should be made with plant mixed hot asphalt meeting FAA P401 specs.

3.2.2.6 Crack Repair (Restorative)

Rout existing crack to a minimum depth of 1-1/4 inches, install backing rope and apply rubberized crack filler meeting ASTM D3405 specification.

3.2.2.7 Crack Repair (Sustaining)

This is typically spot repairs of existing crack sealant.



3.3 Capital Improvement Strategies

Figure 3-1 shows a projection of the overall airport pavement condition for the next 10 years based on implementing one of three capital improvement strategies:

- No Action: No capital improvement action is undertaken
- Longest Life: The most comprehensive repair and longest life rehabilitation option
- Lowest Cost: The rehabilitation option with the projected lowest annual cost

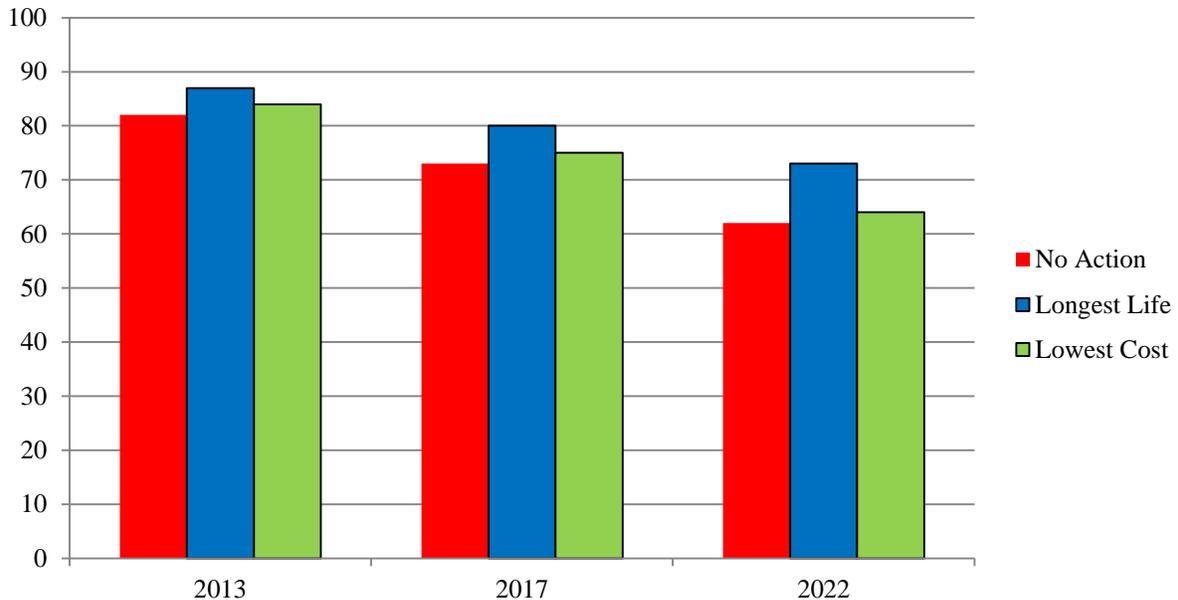


Figure 3-1. Programmed CIP

The longest life CIP scenario is projected to cost approximately **\$10.7 million** over the next 10 years. The lowest annual cost scenario is projected to cost approximately **\$870,000** over the next 10 years. Examples of each capital improvement strategy and a complete listing of all viable capital projects are presented in Table 3-2 through Table 3-4.

Table 3-2. Most Comprehensive Repair

Feature	Built	Description	Action Yr	Work Item	Cost, \$
102	1988	TAXIWAY A	2024	Repair and Overlay	2,379,052
108	1988	TAXIWAY A	2024	Repair and Overlay	762,545
201	1997	TAXIWAY D	2013	Resurfacing	86,268
202	1971	TAXIWAY B	2013	Reconstruction	172,056
301	1971	TAXIWAY C	2013	Reconstruction	428,339
302	1971	TAXIWAY C	2015	Resurfacing	46,398
3001	1984	TERMINAL RAMP	2013	Repair and Overlay	1,244,709
3002	1978	TERMINAL RAMP	2015	Repair and Overlay	827,051
3006	1962	RAMP	2020	Reconstruction	708,596
3015	1978	RAMP	2024	Reconstruction	1,427,255
4205	1988	RUNWAY 5 RUN UP	2022	Repair and Overlay	456,668

Feature	Built	Description	Action Yr	Work Item	Cost, \$
4305	1978	RUNWAY 36 RUN UP	2024	Repair and Overlay	270,822
7005	1998	RUNWAY 14-32 KEEL	2023	Resurfacing	36,018
7010	1998	RUNWAY 14-32 WING	2023	Resurfacing	72,227
7035	1998	RUNWAY 14-32 KEEL	2022	Resurfacing	157,348
7045	1998	RUNWAY 14-32 KEEL	2023	Repair and Overlay	523,367
7050	1998	RUNWAY 14-32 WING	2022	Repair and Overlay	1,056,140
				Total	10,654,859

Table 3-3. Lowest Annual Cost Repair

Feature	Built	Description	Action Yr	Work Item	Cost, \$
102	1988	TAXIWAY A	2024	Patching / Joint Repair	78,603
108	1988	TAXIWAY A	2024	Patching / Joint Repair	25,486
201	1997	TAXIWAY D	2013	Resurfacing	86,268
202	1971	TAXIWAY B	2013	Structural Overlay	72,546
301	1971	TAXIWAY C	2013	Structural Overlay	180,605
302	1971	TAXIWAY C	2015	Resurfacing	46,398
3001	1984	TERMINAL RAMP	2013	Patching / Joint Repair	73,451
3002	1978	TERMINAL RAMP	2015	Patching / Joint Repair	39,593
3006	1962	RAMP	2020	Joint/Crack Repair	8,026
3015	1978	RAMP	2024	Patching / Joint Repair	5,722
4205	1988	RUNWAY 5 RUN UP	2022	Patching / Joint Repair	15,344
4305	1978	RUNWAY 36 RUN UP	2024	Joint/Crack Repair	8,807
7005	1998	RUNWAY 14-32 KEEL	2023	Surface Treatment	10,558
7010	1998	RUNWAY 14-32 WING	2023	Crack Repair	3,733
7035	1998	RUNWAY 14-32 KEEL	2022	Resurfacing	157,348
7045	1998	RUNWAY 14-32 KEEL	2023	Patching / Joint Repair	17,444
7050	1998	RUNWAY 14-32 WING	2022	Patching / Joint Repair	35,372
				Total	865,304

Table 3-4. All Viable Options

Feature	Built	Description	Action Yr	Work Item	Cost, \$
101	2009	TAXIWAY A-4	2013	No Action	-
102	1988	TAXIWAY A	2024	Patching / Joint Repair	78,603
102	1988	TAXIWAY A	2024	Repair and Overlay	2,379,052
103	1989	TAXIWAY A	2013	No Action	-
105	1989	TAXIWAY A	2013	No Action	-
106	1997	TAXIWAY C1	2013	No Action	-
107	1988	TAXIWAY A	2013	No Action	-
108	1988	TAXIWAY A	2024	Patching / Joint Repair	25,486
108	1988	TAXIWAY A	2024	Repair and Overlay	762,545
122	1988	TAXIWAY A-2	2013	No Action	-
125	2009	TAXIWAY A-3	2013	No Action	-
127	1988	TAXIWAY A3	2013	No Action	-
130	2009	TAXIWAY A-2	2013	No Action	-

Feature	Built	Description	Action Yr	Work Item	Cost, \$
201	1997	TAXIWAY D	2013	Resurfacing	86,268
202	1971	TAXIWAY B	2013	Structural Overlay	72,546
202	1971	TAXIWAY B	2013	Surface Treatment	14,303
202	1971	TAXIWAY B	2013	Reconstruction	172,056
205	2009	TAXIWAY B	2013	No Action	-
215	1997	TAXIWAY B-2	2013	No Action	-
220	1998	TAXIWAY B-2	2013	No Action	-
225	1997	TAXIWAY B	2013	No Action	-
301	1971	TAXIWAY C	2013	Structural Overlay	180,605
301	1971	TAXIWAY C	2013	Surface Treatment	34,158
301	1971	TAXIWAY C	2013	Reconstruction	428,339
302	1971	TAXIWAY C	2015	Crack Repair	2,992
302	1971	TAXIWAY C	2015	Resurfacing	46,398
605	2002	WEST TEES	2013	No Action	-
3001	1984	TERMINAL RAMP	2013	Slab Replacement / Patching / Joint Seal	202,666
3001	1984	TERMINAL RAMP	2013	Patching / Joint Repair	73,451
3001	1984	TERMINAL RAMP	2013	Repair and Overlay	1,244,709
3002	1978	TERMINAL RAMP	2015	Slab Replacement / Patching / Joint Seal	95,791
3002	1978	TERMINAL RAMP	2015	Patching / Joint Repair	39,593
3002	1978	TERMINAL RAMP	2015	Repair and Overlay	827,051
3003	1988	TERMINAL RAMP	2013	No Action	-
3005	1984	RAMP	2013	No Action	-
3006	1962	RAMP	2020	Repair and Overlay	302,664
3006	1962	RAMP	2020	Joint/Crack Repair	8,026
3006	1962	RAMP	2020	Reconstruction	708,596
3015	1978	RAMP	2024	Repair and Overlay	609,626
3015	1978	RAMP	2024	Slab Replacement	15,008
3015	1978	RAMP	2024	Slab Replacement / Joint Seal	20,249
3015	1978	RAMP	2024	Slab Replacement / Patching / Joint Seal	20,731
3015	1978	RAMP	2024	Patching / Joint Repair	5,722
3015	1978	RAMP	2024	Reconstruction	1,427,255
4040	1997	RUNWAY 23 RUN UP	2013	No Action	-
4205	1988	RUNWAY 5 RUN UP	2022	Patching / Joint Repair	15,344
4205	1988	RUNWAY 5 RUN UP	2022	Repair and Overlay	456,668
4305	1978	RUNWAY 36 RUN UP	2024	Joint/Crack Repair	8,807
4305	1978	RUNWAY 36 RUN UP	2024	Repair and Overlay	270,822
4310	1997	RUNWAY 36 RUN UP	2013	No Action	-
7005	1998	RUNWAY 14-32 KEEL	2023	Surface Treatment	10,558
7005	1998	RUNWAY 14-32 KEEL	2023	Crack Repair	2,080
7005	1998	RUNWAY 14-32 KEEL	2023	Resurfacing	36,018
7010	1998	RUNWAY 14-32 WING	2023	Crack Repair	3,733

Feature	Built	Description	Action Yr	Work Item	Cost, \$
7010	1998	RUNWAY 14-32 WING	2023	Resurfacing	72,227
7015	1998	RUNWAY 14-32 KEEL	2013	No Action	-
7020	1998	RUNWAY 14-32 WING	2013	No Action	-
7025	1998	RUNWAY 14-32 KEEL	2013	No Action	-
7030	1998	RUNWAY 14-32 WINGS	2013	No Action	-
7035	1998	RUNWAY 14-32 KEEL	2022	Crack Repair	10,939
7035	1998	RUNWAY 14-32 KEEL	2022	Resurfacing	157,348
7040	1998	RUNWAY 14-32 WING	2013	No Action	-
7045	1998	RUNWAY 14-32 KEEL	2023	Patching / Joint Repair	17,444
7045	1998	RUNWAY 14-32 KEEL	2023	Repair and Overlay	523,367
7050	1998	RUNWAY 14-32 WING	2022	Patching / Joint Repair	35,372
7050	1998	RUNWAY 14-32 WING	2022	Repair and Overlay	1,056,140
7055	2009	RUNWAY 14-32	2013	No Action	-
7060	2009	RUNWAY 14-32	2013	No Action	-

4. Maintenance Management Program

4.1 General Comments

Most pavement distress is classified by severity (low, medium, or high). As a general rule, high-severity distresses should be patched, and medium-severity distress should be sealed. A detailed matrix of recommended maintenance policies to address various distress types is provided near the end of this section.

4.1.1 Inspected Crack Severity

Of the inspected pavement, 59 percent of the cracks were rated at low severity and require no maintenance beyond ongoing inspection and spot repair. About 34 percent of the cracks were rated at medium severity and would benefit from sealing and repair. Eight percent of the cracks were rated at high severity and may warrant patching to help maintain safe operations.

4.1.2 Other Distress

In asphalt pavement, area measured distresses such as rutting, depressions, fatigue cracks, and ravelling were recorded at low severity levels 85 percent of the time, and medium severity 15 percent of the time.

Joint seal damage was recorded on 97 percent of the inspected PCC slabs. When identified, joint seal damage severity levels were recorded as follows: 5 percent low severity, 37 percent medium severity, and 58 percent high severity.

4.2 Recommended Maintenance Actions

The following illustrations and tables show pavement areas that have maintenance and repair needs. Ongoing development of capital improvement projects may address some of these maintenance needs. To help budgeting and prevent duplication of effort, all pavement features recommended for maintenance should be compared to planned improvements prior to finalizing a maintenance program strategy.

Table 4-1. Recommend Maintenance Actions

Work Item	Quantity	Unit	Cost
AC PATCH	1,463	SF	\$12,696
AC RESTORATIVE CRACK REPAIR	34,162	LF	\$42,360
AC SUSTAINING CRACK REPAIR	3,103	LF	\$2,685
PCC RESTORATIVE CRACK REPAIR	286,443	LF	\$642,588
PCC SLAB REPLACEMENT	14,649	LF	\$182,901
PCC PATCHING	2,185	SF	\$36,332
Total:			\$919,562

In the following tables, pavement features shown in **grey** text cannot be raised above MSL via maintenance alone, and need only be included in a maintenance plan to provide continued safety or serviceability until their programmed major rehabilitation is implemented.

Note that while patching the medium severity alligator cracking could temporarily restore features 201 and 202 above the MSL, more extensive rehabilitation would also be warranted. The cost effectiveness for each of these repair strategies should be examined in greater detail.

4.2.1 Patching

Table 4-2. Recommend AC Patching

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
201	AC PATCH	694	49	21	70
202	AC PATCH	560	33	28	61
301	AC PATCH	209	38	18	56
	TOTAL:	1,463	S.F.		
EQUIPMENT: SAW, AIR COMPRESSOR, HEATING KETTLE, HAND TOOLS					
EST. MATERIALS: 18 TON ASPHALT PATCH					
EST. MATERIAL COST: \$1,824					
EST. CREW HOURS: 41.8					
EST. CREW COST: \$10,781					
EST. PROJECT COST: \$12,696					

Table 4-3. Recommend PCC Patching

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
102	PCC PATCHING	57	84	2	86
108	PCC PATCHING	15	85	-	85
215	PCC PATCHING	10	90	-	90
3001	PCC PATCHING	1,590	50	10	60
3002	PCC PATCHING	204	63	3	66
3003	PCC PATCHING	4	87	-	87
3005	PCC PATCHING	57	87	1	88
3006	PCC PATCHING	65	82	3	85
3015	PCC PATCHING	28	90	2	92
4040	PCC PATCHING	60	83	3	86
4205	PCC PATCHING	31	79	3	82
7025	PCC PATCHING	4	91	2	93
7030	PCC PATCHING	10	89	1	90
7045	PCC PATCHING	12	83	2	85
7050	PCC PATCHING	30	82	1	83
	TOTAL:	2,185	S.F.		
EQUIPMENT: SAW, AIR COMPRESSOR, JACK HAMMER, MIXER, HAND TOOLS					
EST. MATERIALS: 45 CUBIC YARDS CONCRETE MIX					
EST. MATERIAL COST: \$5,741					
EST. CREW HOURS: 218.5					
EST. CREW COST: \$30,590					
EST. PROJECT COST: \$36,332					

Table 4-4. Recommend PCC Slab Replacement

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
3001	SLAB REPAIR/REPLACEMENT	9,883	50	11	61
3002	SLAB REPAIR/REPLACEMENT	4,503	63	9	72
3003	SLAB REPAIR/REPLACEMENT	129	87	-	87
4040	SLAB REPAIR/REPLACEMENT	133	83	-	83
	TOTAL:	14,649	S.F.		
EQUIPMENT: SAW, AIR COMPRESSOR, JACK HAMMER, MIXER, LOADER HAND TOOLS					
EST. MATERIALS: 597 CUBIC YARDS CONCRETE MIX					
EST. MATERIAL COST: \$57,892					
EST. CREW HOURS: 976.6					
EST. CREW COST: \$125,008					
EST. PROJECT COST: \$182,901					

4.2.2 Crack Seal

Table 4-5. Recommend AC Restorative Crack Repair

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
101	AC RESTORATIVE CRACK REPAIR	187	93	3	96
202	AC RESTORATIVE CRACK REPAIR	2,542	33	5	38
301	AC RESTORATIVE CRACK REPAIR	6,323	38	3	41
302	AC RESTORATIVE CRACK REPAIR	2,413	78	3	81
7005	AC RESTORATIVE CRACK REPAIR	1,678	78	4	82
7010	AC RESTORATIVE CRACK REPAIR	3,011	79	5	84
7035	AC RESTORATIVE CRACK REPAIR	8,821	77	3	80
7040	AC RESTORATIVE CRACK REPAIR	9,187	82	6	88
	TOTAL:	34,162	L.F.		
EQUIPMENT: AIR COMPRESSOR, HEATING KETTLE, HAND TOOLS					
EST. MATERIALS: 6,832 POUNDS ASTM D3405 SEALANT OR EQUIVALENT					
EST. MATERIAL COST: \$6,832					
EST. CREW HOURS: 170.8					
EST. CREW COST: \$35,528					
EST. PROJECT COST: \$42,360					

Table 4-6. Recommend PCC Restorative Crack Repair

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
102	PCC RESTORATIVE SEAL REPAIR	34,500	84	9	93
103	PCC RESTORATIVE SEAL REPAIR	10,648	87	9	96
105	PCC RESTORATIVE SEAL REPAIR	4,950	89	9	98
106	PCC RESTORATIVE SEAL REPAIR	3,850	86	8	94
107	PCC RESTORATIVE SEAL REPAIR	3,996	95	3	98
108	PCC RESTORATIVE SEAL REPAIR	11,277	85	8	93
122	PCC RESTORATIVE SEAL REPAIR	2,250	88	10	98
127	PCC RESTORATIVE SEAL REPAIR	1,550	88	10	98
215	PCC RESTORATIVE SEAL REPAIR	4,043	90	7	97
225	PCC RESTORATIVE SEAL REPAIR	45,197	89	8	97
3001	PCC RESTORATIVE SEAL REPAIR	31,932	50	3	53
3002	PCC RESTORATIVE SEAL REPAIR	20,231	63	7	70
3003	PCC RESTORATIVE SEAL REPAIR	9,050	87	6	93
3005	PCC RESTORATIVE SEAL REPAIR	41,456	87	5	92
3006	PCC RESTORATIVE SEAL REPAIR	6,925	82	6	88
3015	PCC RESTORATIVE SEAL REPAIR	9,883	90		90
4040	PCC RESTORATIVE SEAL REPAIR	6,350	83	2	85
4205	PCC RESTORATIVE SEAL REPAIR	6,600	79	10	89
4305	PCC RESTORATIVE SEAL REPAIR	3,900	88	10	98
7025	PCC RESTORATIVE SEAL REPAIR	1,650	91	2	93
7030	PCC RESTORATIVE SEAL REPAIR	3,350	89	6	95
7045	PCC RESTORATIVE SEAL REPAIR	7,550	83	9	92
7050	PCC RESTORATIVE SEAL REPAIR	15,300	82	3	85
	TOTAL:	286,443	L.F.		
EQUIPMENT: AIR COMPRESSOR, HEATING KETTLE, HAND TOOLS					
EST. MATERIALS: 57,289 POUNDS ASTM D3405 SEALANT OR EQUIVALENT					
EST. MATERIAL COST: \$146,086					
EST. CREW HOURS: 2387.0					
EST. CREW COST: \$496,502					
EST. PROJECT COST: \$642,588					

Table 4-7. Recommend AC Sustaining Crack Repair

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
201	AC SUSTAINING CRACK REPAIR	1,917	49	N/A	49
605	AC SUSTAINING CRACK REPAIR	205	92	N/A	92
4310	AC SUSTAINING CRACK REPAIR	389	83	N/A	83
7015	AC SUSTAINING CRACK REPAIR	591	83	N/A	83
	TOTAL:	3,103	L.F.		
EQUIPMENT: AIR COMPRESSOR, HEATING KETTLE, HAND TOOLS					
EST. MATERIALS: 621 POUNDS ASTM D3405 SEALANT OR EQUIVALENT					
EST. MATERIAL COST: \$620					
EST. CREW HOURS: 13.5					
EST. CREW COST: \$2,064					
EST. PROJECT COST: \$2,685					

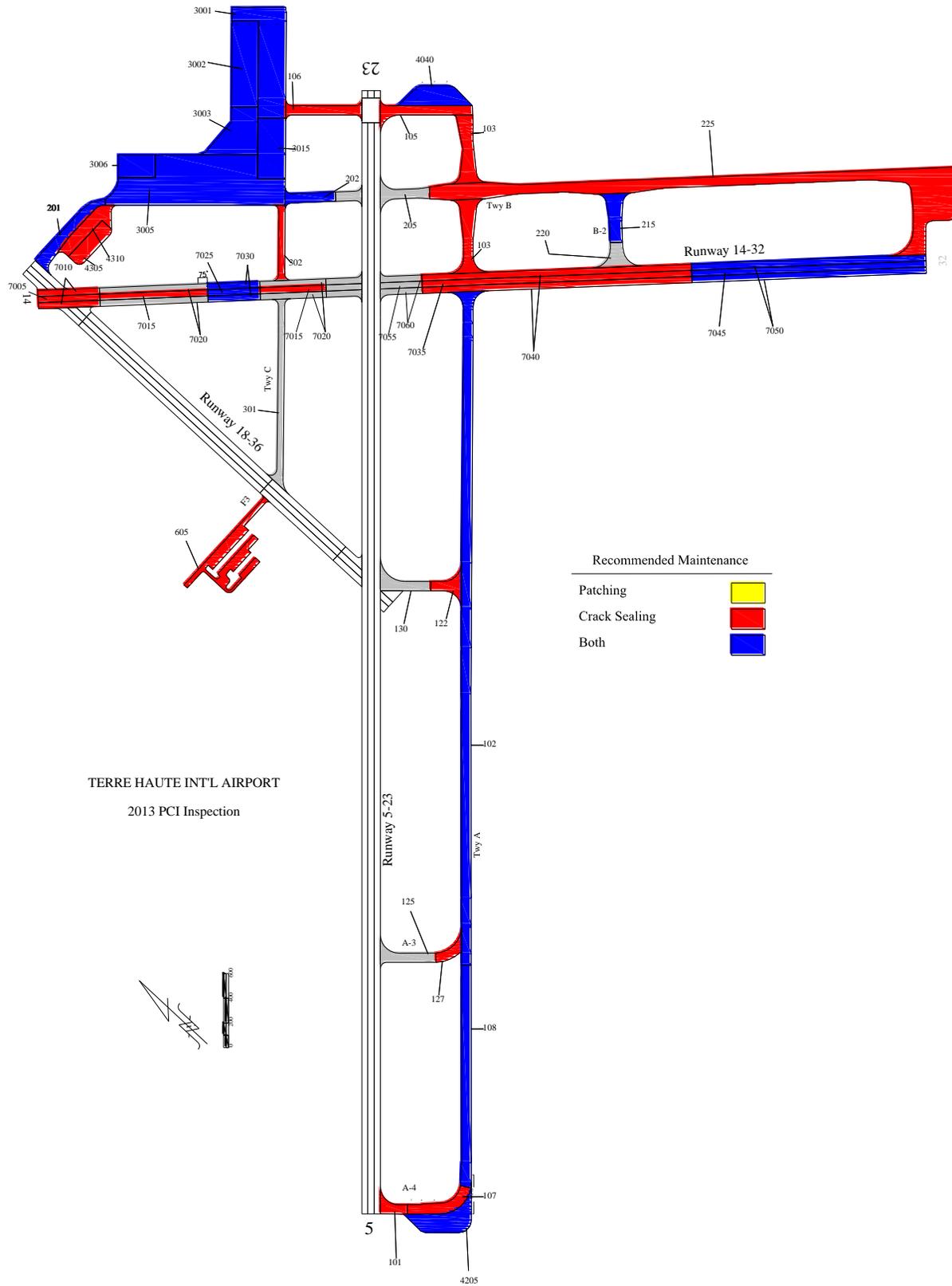


Figure 4-1. Recommended Maintenance

4.3 Pavement Deterioration

Before attempting maintenance and repairs, it helps to understand pavement performance and pavement deterioration. The factors that contribute most to deterioration are environmental, materials, and/or load related. Brief discussions of each are presented in the following sections.

4.3.1 *Environmental/Age-Related Deterioration*

Seasonal and daily temperature changes cause expansion and contraction of the pavement materials. The shear stresses created by expansion and contraction can cause transverse cracking in flexible pavement and mid-slab cracking in rigid pavement. Further, expansion and contraction will cause cracks, and rigid pavement joints, to open and close with changes in temperature.

Flexible pavement oxidizes as it ages, losing its lighter, volatile, components and becoming brittle with time. Surface treatments and seal coats are designed, in part, to provide a protective barrier and prevent this type of oxidation.

Subsurface water can have the greatest impact on pavement deterioration. A wet subgrade greatly reduces the ability of a pavement to support wheel loads, and the results often show up as rutting and cracking of flexible pavement. The fine materials in a wet base can be pumped up through the cracks and eventually result in a loss of support. This loss of support can be evidenced as corner breaks and faulting in rigid pavement. Moisture inside a pavement system expands when it freezes, creating stresses that cause the pavement surface to heave. Subsequent freeze-thaw cycles leave voids in the pavement structure that enable further rutting and breaking. Repeated freeze-thaw cycles eventually cause the pavement to disintegrate. Freeze-thaw deterioration requires frost-susceptible material, sub-zero temperatures, and water. If we remove one of these factors, freeze-thaw damage will not occur. One of the best ways to ensure pavement longevity is to provide drainage and keep it dry.

4.3.2 *Materials-Related Deterioration*

The pavement thickness and type of subgrade play a large role in the formation and spacing of transverse cracks. If the subgrade and base materials are smooth or rounded and allow for relatively free movement of the pavement surface, transverse cracks will often be spaced far apart (>60 feet). If the subgrade and base material are rough or angular and provide greater resistance to movement of the pavement surface, transverse cracks will be spaced more closely (<40 feet). The distance between transverse cracks also depends on the pavement thickness, as a thicker pavement can resist cracking for longer lengths. At general aviation airport pavements, around 50 feet is typical transverse crack spacing.

Aggregate is the biggest component of any pavement structure, and it is the contact between the aggregate particles that actually transfers the load and provides the strength. Aggregate durability and shape are major factors affecting pavement performance. Durability is the ability of the aggregate to perform satisfactorily over time and resist deterioration. Sharp, well-angled aggregates that interlock, compact densely, and resist movement are the most desirable.

In flexible pavement, the selection of asphalt cement can have a significant impact on pavement performance. Asphalt is visco-elastic, which means it is stiff at low temperatures and flows at high temperatures. With this in mind, we expect asphalt pavement to remain stiff on hot summer days to resist plastic deformation (rutting and shoving). In addition, we expect asphalt pavement to have

sufficient cold temperature flexible on cold winter days to resist transverse cracking. The proper selection of asphalt cement grade and maintaining adequate mix volumetrics (air voids, voids in the mineral aggregate, etc.) are key factors in the performance of flexible pavement.

As water freezes, it expands and occupies a greater volume than in a liquid state. In PCC pavement, interconnected, well-distributed air voids are required to allow for expansion of moisture with the PCC. PCC mixes with insufficient air entrainment are susceptible to freeze-thaw damage, as the expansive forces have been shown to cause concrete deterioration. Small, closely spaced, interconnected air voids provide the greatest degree of protection.

Asphalt paving mixes also require air voids, but for reasons different than for PCC pavement. When a well-constructed asphalt pavement is subjected to vehicle loading, it will nevertheless experience some minor secondary consolidation. Air voids allow for the safe movement of the asphalt binder within the mix. With insufficient air voids, the asphalt binder will migrate to the surface of the pavement—it will in essence, get squeezed out of the mix. This phenomenon is called flushing. In addition, these mixes become unstable and are prone to rutting in the wheel paths.

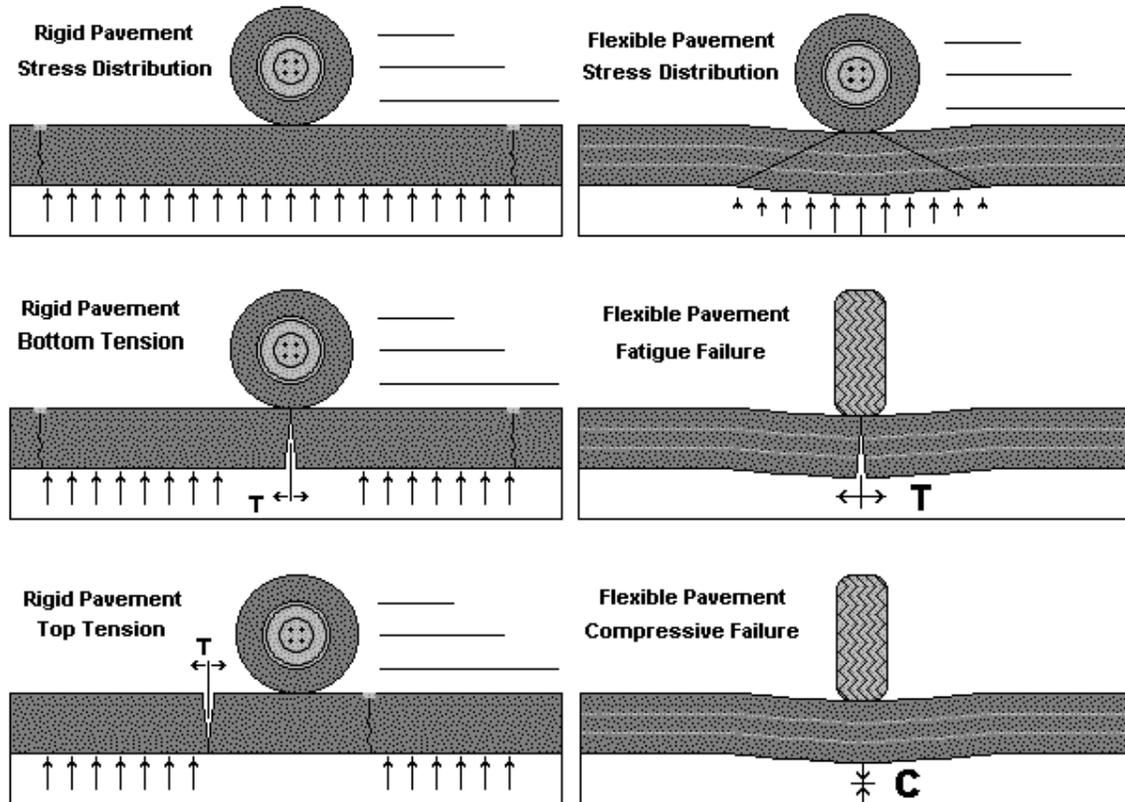
However, if the air voids become too high, air and water can penetrate the pavement, reducing both durability and flexibility. Air infiltration will accelerate oxidization of the binder, while water penetration will increase the moisture susceptibility of the mix (i.e., stripping of the asphalt cement from the aggregate). Air voids in flexible pavement should be kept low enough to prevent water and air from penetrating the asphalt layers, but high enough to minimize the potential of plastic deformation.

Regardless of whether the pavement binder is AC or PCC, binder materials are mixed with aggregate to coat all aggregate particles with a thin binder film. Durability of flexible asphalt pavement is increased with a thicker binder film, and the pavement becomes more resistant to age hardening; however, if the film is too thick, the asphalt acts like a lubricant, promoting ruts, shoving, and bleeding. Each asphalt mix should be customized for materials available locally.

With a concrete pavement, aggregate interlock supports the wheel loads, and the hydrated cement binder further interlocks the aggregate particles to inhibit all movement. “Hydration” is the term for the chemical reaction of portland cement with water. In the hydration process, dry cement particles react with water to form gels, and then crystals, that grow and bond with the aggregate and form a rigid interlocking structure. Hydration can continue for years, but much of the ultimate strength will be reached within 28 days. Hydration is a sensitive chemical process. Typically, any admixtures used to accelerate the hydration process will reduce durability, and admixture use should be considered carefully or avoided.

4.3.3 Load-Related Deterioration

As illustrated below, rigid and flexible pavements differ in the way loads are distributed. A concrete slab resists bending and transfers loads evenly, while an asphalt pavement is designed to bend, gradually spreading loads over wider areas.



Load-related cracks can start at the top or bottom of a pavement section. In asphalt sections, load-related (fatigue) cracks start at the bottom. If a load-related crack reaches the surface, it usually indicates structural deficiency. In rigid pavement, corner breaks are caused by tensile forces at the top of the slab, and the crack propagates downward. Mid-slab LTD cracks are distress examples resulting from tensile forces at the bottom of the slab.

Both wheel loads and environmental factors can cause spalls anytime there is movement between adjacent slabs. If non-compressible material (such as a small rock) is allowed into a joint, stresses will build up between adjacent slabs and can cause a spall. Keeping joint and crack sealant intact can help to reduce the infiltration of non-compressible material and minimize spalling.

4.4 Best Practices

4.4.1 Flexible Pavement

L&T cracks at medium severity should be filled with a good quality crack sealant material. High-severity cracks normally must be patched.

Cracks rated at low severity may be narrow unsealed cracks or sealed cracks up to 3 inches wide. The PCI procedure does not distinguish between narrow unfilled cracks and wider filled cracks. Some L&T cracks at low severity are included in the estimated sealing quantities and costs in this maintenance plan. In general, when medium- or high-severity cracking constitutes less than 25 percent of the total crack quantity, sustaining maintenance usually is more cost-effective. When 25 percent or more of the total crack quantity is at medium or high severity, a restorative program typically becomes more cost-effective.

Existing patches rated as medium and high severity should be replaced with new patches. Small areas (usually less than 100 square feet per patch) of alligator cracking and rutting at medium and high severity also may be repaired cost-effectively by patching. Larger patches should be considered if equipment can be made available to accomplish the work. Patching to repair up to 10 percent of the surface of a pavement feature that is otherwise serviceable can result in significant cost savings as compared to rehabilitation of the entire feature.

An example maintenance policy treatment matrix for flexible pavement is shown in Table 4-8. Examples of various maintenance techniques are provided in appendix C.

4.4.2 Rigid Pavement

Joint seal damage rated at medium and high severity should be repaired. If medium- and high-severity damage is limited to less than about 25 percent of the total joint length, sustaining maintenance is recommended. If medium- and high-severity damage exceeds 25 percent of the total joint length, the joint sealant should be removed and replaced under a restorative repair project.

LTD cracks at low and medium severity should be considered for sealing as part of the joint sealing project. High-severity LTD cracks require sealing, patching, or slab replacement, depending on the extent of deterioration.

Small patches are typically used to repair medium- and high-severity spalls or to replace deteriorated older patches. Restorative small patches are typically partial-depth repairs, usually to a maximum depth of 1/3 of the slab thickness. Large patches and corner breaks at medium and high severity should be repaired by full-depth large patches.

High-severity LTD cracks and shattered slabs are candidates for patching and slab replacement. Low-severity shattered slabs can be left in place pending further deterioration.

An example maintenance policy treatment matrix for rigid pavement is shown in Table 4-8. Examples of various maintenance techniques are provided in appendix C.

Table 4-8. General Maintenance Policy (AC)

Distress Type	Distress Severity	Maintenance Action
Alligator Cracking	Low	Crack Sealing - AC
	Medium	Patching - AC Deep
	High	Patching - AC Deep
Bleeding	N/A	Monitor
Depression	Low	Monitor
	Medium	Patching - AC Shallow
	High	Patching - AC Deep
Jet Blast	N/A	Patching - AC Shallow
Longitudinal, Transverse, Joint Reflective, & Block Cracking	Low	Monitor
	Medium	Crack Sealing - AC
	High	Patching - AC Deep
Oil Spill	N/A	Patching - AC Shallow
Patching	Low	Monitor
	Medium	Crack Sealing - AC
	High	Patching - AC Deep
Polished Aggregate	N/A	Monitor
Weathering / Raveling	Low	Monitor
	Medium	Surface Treatment
	High	Patching - AC Shallow
Rutting, Corrugation and Swell	Low	Monitor
	Medium	Patching - AC Deep
	High	Patching - AC Deep
Shoving	Low	Monitor
	Medium	Patching - AC Shallow
	High	Patching - AC Deep
Slippage Cracking	N/A	Patching - AC Shallow

Table 4-9. General Maintenance Policy (PCC)

Distress Type	Distress Severity	Maintenance Action
Blow Up	Low	Patching - PCC Partial Depth
	Medium	Slab Replacement - PCC
	High	Slab Replacement - PCC
Longitudinal, Transverse & Diagonal Cracking	Low	Monitor
	Medium	Crack Sealing - PCC
	High	Patching - PCC Full Depth
Durability Cracking	Low	Monitor
	Medium	Patching - PCC Full Depth
	High	Slab Replacement - PCC
Large Patch & Corner Break	Low	Monitor
	Medium	Patching - PCC Full Depth
	High	Patching - PCC Full Depth
Popout / Shrinkage Cracks	N/A	Monitor
Scaling	Low	Monitor
	Medium	Patching - PCC Partial Depth
	High	Slab Replacement - PCC
Faulting	Low	Monitor
	Medium	Grinding (Localized)
	High	Grinding (Localized)
Shattered Slab	Low	Monitor
	Medium	Crack Sealing - PCC
	High	Slab Replacement - PCC
Joint Spall, Corner Spall & Small Patch	Low	Monitor
	Medium	Patching - PCC Partial Depth
	High	Patching - PCC Partial Depth
Alkali Silica Reactivity	Low	Monitor
	Medium	Slab Replacement - PCC
	High	Slab Replacement - PCC

4.5 Pavement Repair Materials

New pavement repair materials are introduced and improved regularly. This section provides information on products compatible with airport needs.

4.5.1 Joint and Crack Sealer

Hot-poured, pressure-injected, polymeric rubberized asphalt sealant meeting ASTM D3405 specifications is suitable for most sealing requirements. This product is relatively inexpensive, durable, and suitable for both rigid and flexible pavements. Other, more expensive, hot-applied sealants that promise longer life are being developed for specialty applications. Twin component cold applied sealants also have been used with success. Contact your local distributor.

4.5.2 Flexible Pavement Patch

High-performance plant mixed cold patching products that can be stockpiled on-site can be used for short term repairs to maintain safety. Long-term patches should be made with high-quality plant mixed hot asphalt having a ¾-inch maximum aggregate size and meeting Federal Aviation Administration (FAA) P401, or highest quality highway specifications. Low-quality packaged materials available from local hardware type stores should be avoided.

4.5.3 Rigid Pavement Patch

Permanent patches in rigid pavement should be made with air-entrained concrete with 1-inch maximum size aggregate. If the area must be quickly opened to traffic, high early concrete should be considered. Concrete should have zero slump and a coarse texture. As with asphalt patches, low-quality packaged materials should be used only as temporary patches to maintain safety and service until a more permanent repair can be made.

4.6 Pavement Repair Equipment

Many pavement repair and sealing products are available. Specialized tools and equipment help ensure high-quality repairs. This section discusses equipment compatible with airport needs.

4.6.1 Air Compressor

Used to remove non-compressible sand and debris from prepared cracks and joints, the compressor should have a sustained capacity of 120 cubic feet per minute with a nozzle velocity of 100 psi. Trailer-mounted compressors typically have capacities in this range.

4.6.2 Concrete Saw

A saw capable of making a minimum 3-inch-deep cut is required. The saw should be capable of making cuts in both asphalt and concrete. Gasoline-powered 5- to 25-hp wheel-mounted saws typically are preferred for this type of work, but electric and pneumatic tools also are available.

4.6.3 Heating Kettle

Applying sealant is the most time-consuming operation, and a sealing machine with heating and pressure application capabilities is a critical item in a successful sealing program. The capacity of the sealing equipment dictates the rate at which a crew progresses. For large sealing projects, a minimum 100-gallons/hour sustained capacity is recommended. The unit should be a double boiler type, with mechanical agitators or continuous recirculation. Kettle temperature must be monitored to ensure that the sealant is not “burned.” Overheating the sealant will prematurely age harden the material.

4.6.4 Router

A concrete saw can be used to prepare joints, but for random cracking, a mechanical router with a vertical impact mechanism is preferred. When cracks are being routed, this activity will dictate the speed of the crew. Crack routers in the 25-hp range are commonly used and are available from a variety of manufacturers.

4.6.5 Sand Cleaner

A sand blaster helps to clean loose particles and dust from prepared cracks. The unit must have sufficient force to expose fresh, vital pavement to bond with sealant and patching materials.

4.6.6 Vibratory Roller or Plate Compactor

Required to compact plant mixed and packaged patching materials properly. Small rollers are best for pothole type applications; plate compactors are best for large areas.

4.6.7 Other Equipment

Other general use equipment that can be helpful in a maintenance program includes bucket loaders, dump trucks, water tanks, and a power sweeper unit.

Appendix A. AIRPAV Software

The Software

Data analysis was performed using the AIRPAV pavement evaluation and management software. In addition to calculating and documenting PCI values, AIRPAV evaluates the collected inspection data and recommends rehabilitation actions that address the cause of pavement distress. AIRPAV can incorporate traffic and structural capacity evaluations into the pavement evaluation matrix, and AIRPAV also performs preliminary life cycle cost analysis of the various rehabilitation alternatives, providing guidance on the lowest annual cost repair strategy.



A complete database, along with an updated version of AIRPAV, is provided on INDOT computers for ongoing management of the INDOT pavement systems.

Capital Improvements

AIRPAV creates interactive CIPs, providing the user with the ability to control unit costs, develop new projects, move projects between years, and even increase or decrease the scope and cost of individual projects.

Maintenance

AIRPAV calculates and develops maintenance work orders organized by type of work. Maintenance work orders can be printed and issued directly to maintenance crews.

Traffic

AIRPAV provides the ability to model aircraft ground movements. Traffic can be sorted by airline, aircraft type, destination gate or ramp, and runway used. The program graphically displays each taxi path, accumulates total operations, automatically determines design aircraft, and calculates structural overlay requirements for each pavement feature. The software can provide Pavement Classification Numbers (PCN) for each pavement feature or report results directly as inches of overlay required.

Maps

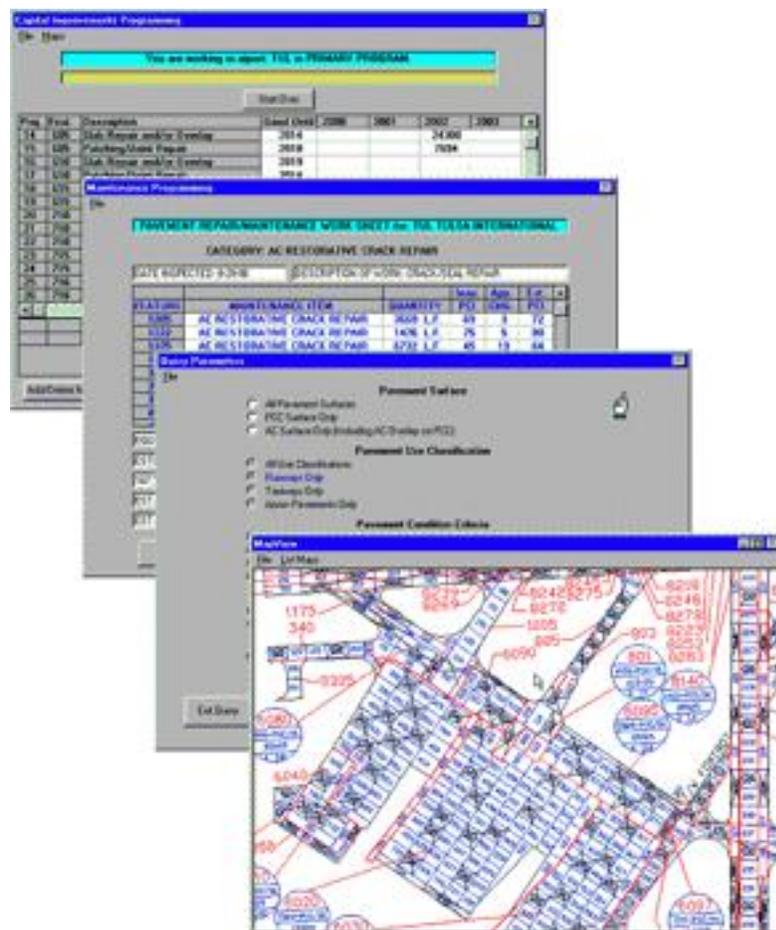
AIRPAV permits viewing and printing of PCI maps. Inspection layout, pavement condition, and other views are available from within the software.

Query

The AIRPAV query function is a powerful search tool that allows users to extract useful reports meeting various criteria. As examples, lists can be created for taxiway pavement, asphalt pavement, or areas below MSL at the time of inspection.

Global Information System (GIS) Integration

AIRPAV is fully GIS-enabled. A single click in AIRPAV exports all data to an MS Access database that can be linked to shape files used in an ESRI product. In this way, virtually all data in the pavement management database can be accessed in GIS format.



Appendix B. Feature Analysis

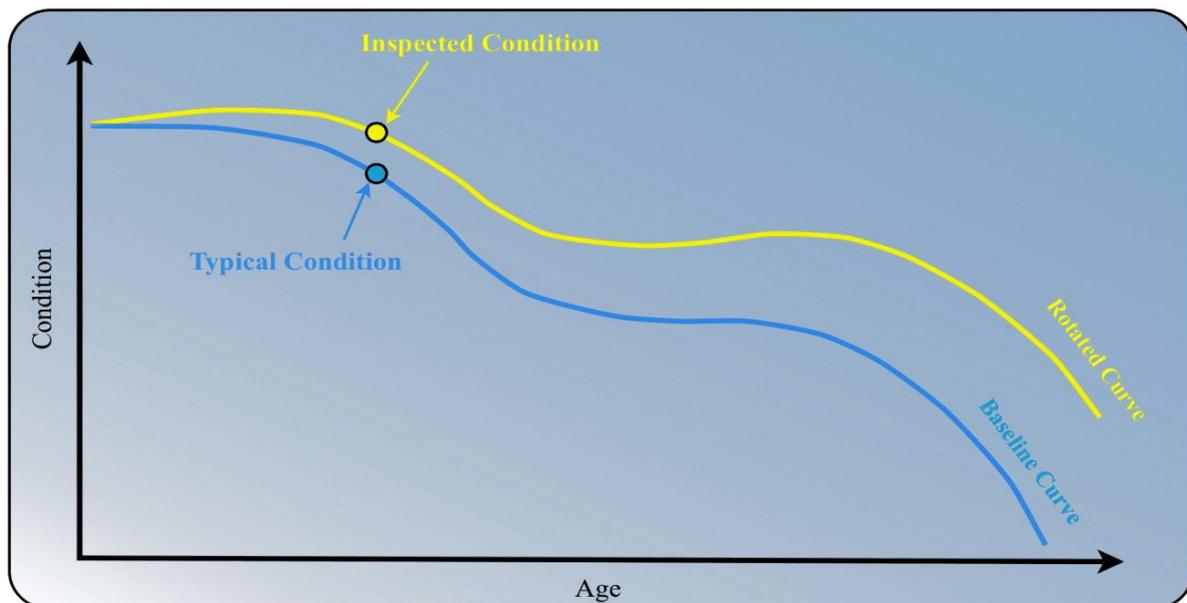
Pavement Performance Models

Projected performance is determined by relating current pavement condition to expected pavement condition. Projected performance varies based on pavement type. There are four pavement types in Indiana: AC, PCC, ACC, and APC. Each pavement type has a unique deterioration curve, created by plotting all data for that group as PCI vs. age and then finding a performance curve to best fit the data. These curves represent the historic performance of pavement in the group and become the baseline for future projections. The baseline curves are modeled with a third order polynomial equation as shown below.

$$PCI = X(\text{Age})^3 + Y(\text{Age})^2 + Z(\text{Age}) + C$$

Current Condition (rotating the curves)

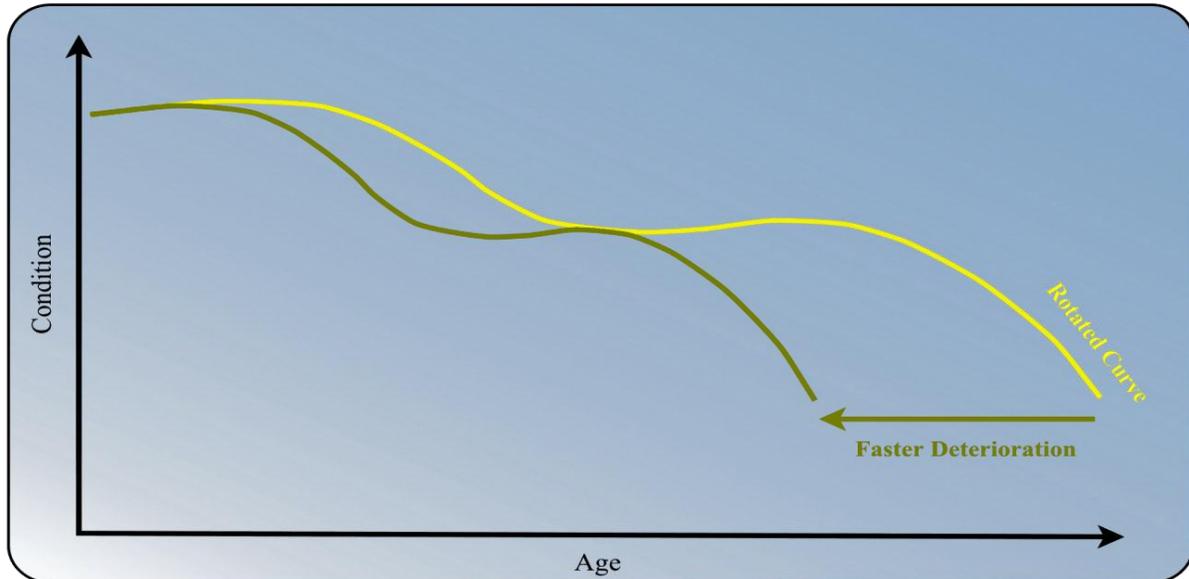
Starting with the baseline curve for comparison, current pavement condition is plotted, and the baseline curve is rotated to meet the current condition. The rotated curve provides the starting point for projecting the future pavement condition.



Advanced Analysis (accounting for distress)

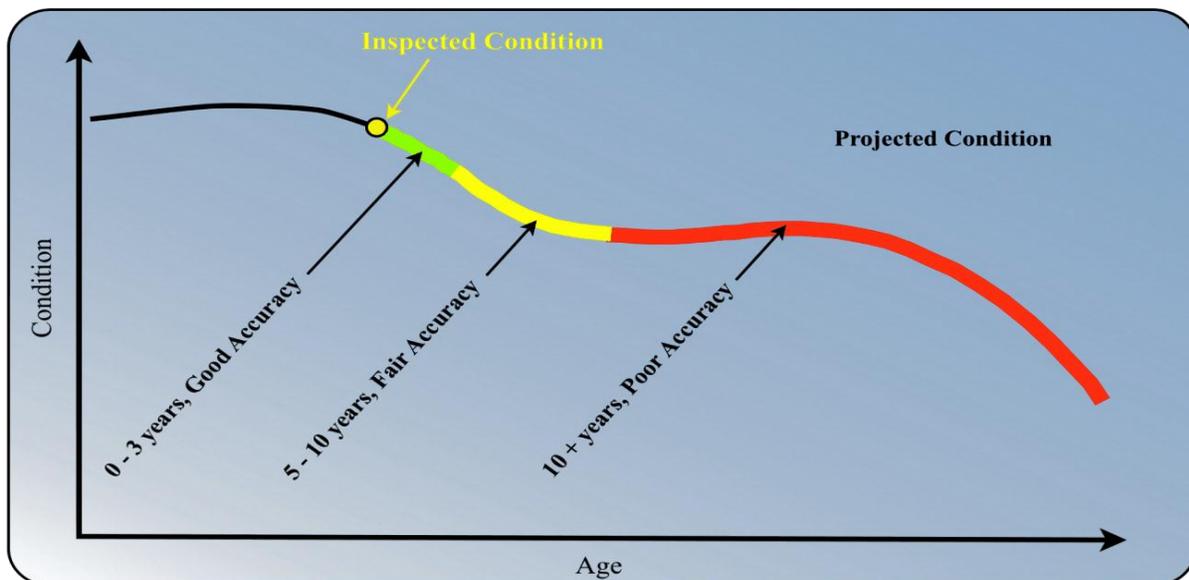
Some types of pavement distress have a greater impact on pavement deterioration than others. Rutting and alligator (fatigue) cracking are major structural failures and can lead to rapid pavement deterioration. Other distress types, like L&T cracking, develop slowly over time and typically do not cause a significant deviation from the baseline curve.

After current condition is accounted for with the curve rotation, pavement distress is addressed in the advanced analysis by compressing or expanding the baseline curve to account for the expected rate of pavement deterioration.



Projected PCI (near term vs. longer term)

Projecting pavement condition with advanced analysis is a combination of rotating, expanding, and contracting the baseline curves. This projection method provides good short-term results for all pavement sections and fair long-term projections on pavement sections with conditions near the baseline model. The long-term accuracy of outlier data is discussed on the following page.

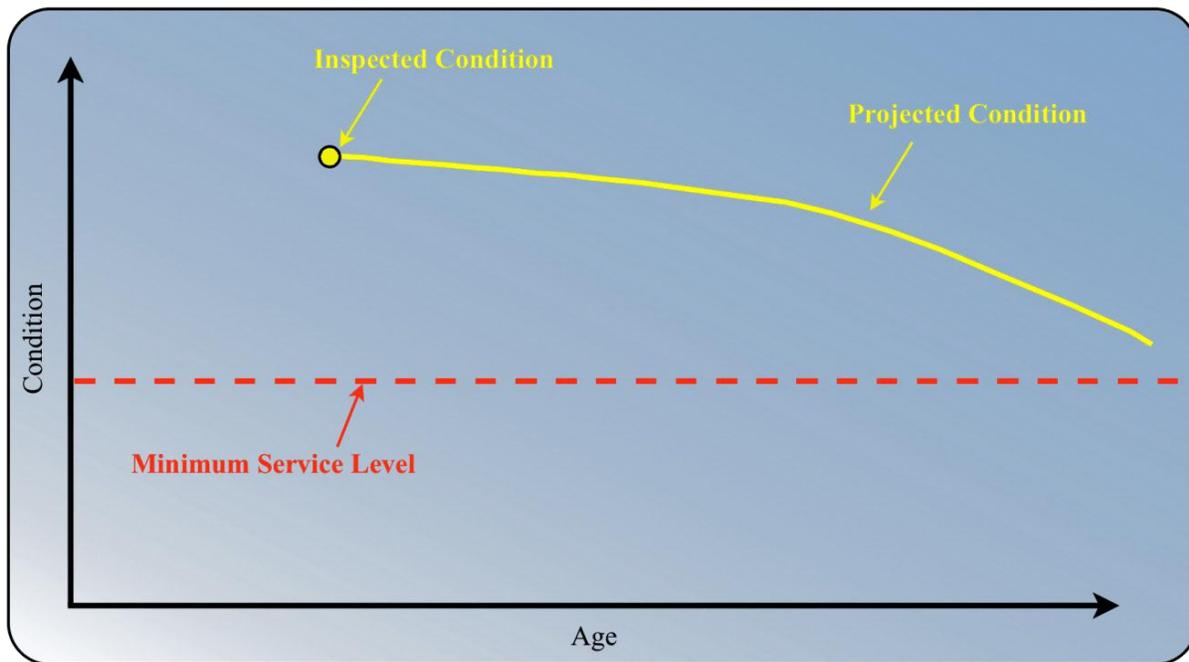


Projected PCI (why some features have unexpected projections)

Long-term PCI projections can be very useful for planning purposes. However, projections in excess of 10 years are well beyond the intended scope of the PCI procedure. FAA Advisory Circular 150/5380-6B establishes a maximum 3-year interval between detailed PCI surveys.

Curve rotation, expansion, and contraction are performed to produce the best possible accuracy of future pavement condition over the next 3 to 5 years. This methodology can overemphasize certain performance trends in the long term. This is especially true for outlier data, such as pavement features that are performing much better or worse than is typical.

The curve below shows an example of a performance trend being overemphasized in the long-term projection. Because the pavement feature is performing much better than the baseline curve, the long-term projection shows the pavement lasting an additional 30+ years before reaching the MSL. Rotation of the curve to provide the most accurate projection over 3 to 5 years has resulted in a long-term projection that is likely unrealistic.



When long-term projections such as this are encountered, airport managers should not rely on projections in excess of 10 years. Managers can be confident that the pavement is performing much better than average and will not require rehabilitation within the current 5-year CIP planning window. As new distress develops over time, future PCI surveys will determine the ideal timing for rehabilitation.

Feature Analysis

As part of the PCI evaluation, a detailed analysis is presented for each airside pavement feature using the two-page format depicted below.

Page 1

The first page of the analysis is a feature summary. Located near the top left-hand corner is the feature number and pavement description. Construction history and inspector comments are listed below, along with a photo of the pavement section if available. Distress totals recorded during the PCI survey are listed next, and an approximation of the cause of the pavement deterioration is shown at the bottom. If the pavement is projected to fall below the desired MSL during the next 12 years, the analysis year will be shown along with the optimum year for pavement rehabilitation.

AIRPAV

AIRPORT: BLOOMINGTON/MONROE COUNTY
AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 5007

ANALYSIS YEAR: 2011 **OPTIMIZED FOR: 2019**

PAVEMENT TYPE: AC
FEATURE AREA: 1,278,750
INSPECTED AREA: 40,000
MINIMUM SERVICE LEVEL: 65

DESCRIPTION: RUNWAY 17-35 KEEL

INSPECTION DATE: 8-11-11
FEATURE'S HIGH PCI: 72
FEATURE'S LOW PCI: 59
AVERAGE PCI: 69 GOOD
ESTIMATED PCI IS: 65 in 2019

COMMENTS/HISTORY FOR FEATURE 5007, RUNWAY 17-35 KEEL

1989: 4" P401 / 5" P401 / 13" P209
*
*

DISTRESS QUANTITIES FOR FEATURE 5007					
DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF ALL DISTRESS
ALLIGATOR CRACKING	LOW	66	2,199	S.F.	8.3
LONG & TRANS. CRACK	MED	995	31,808	L.F.	30.4
LONG & TRANS. CRACK	LOW	2,824	90,279	L.F.	34.8
RAVELING/WEATHERING	LOW	9,450	302,104	S.F.	26.3

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	8 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	52 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	39 %

PAGE 1

Description & Feature # →

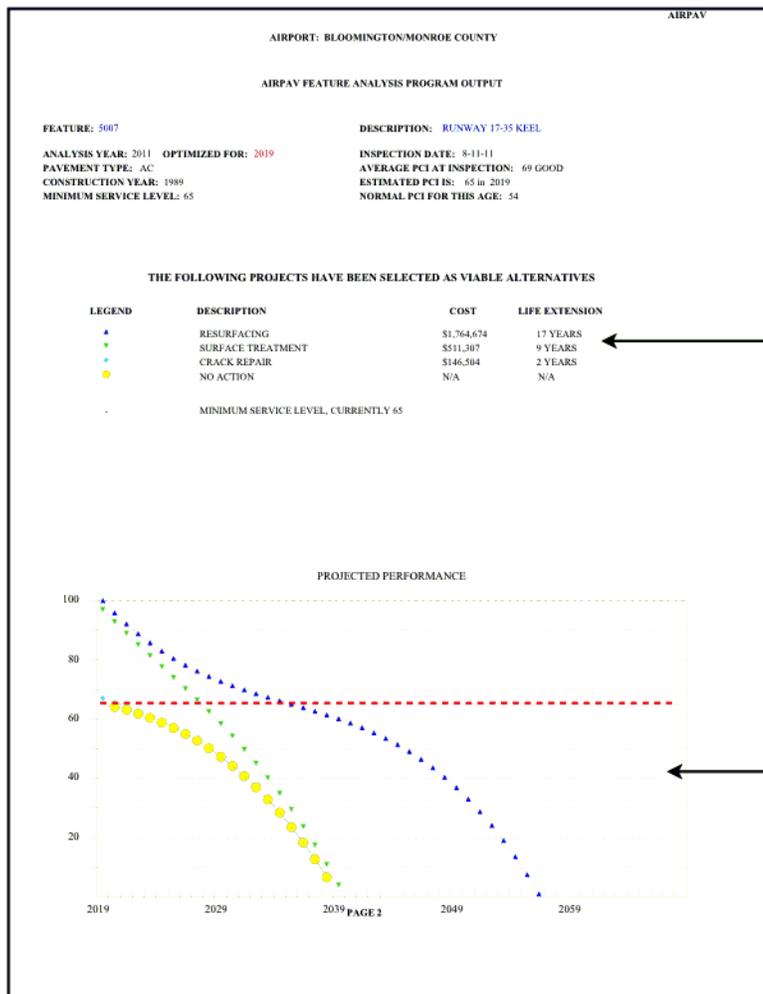
Optimized Rehab Year →

Construction History ←

Distress Totals ←

The second page is a graphic analysis of pavement deterioration. Pavement deterioration is forecast based on historic deterioration of similar Indiana pavement types. Remaining life is projected by stretching and rotating the baseline curves to fit the current condition determined from the PCI survey.

When pavement condition drops below the desired MSL, the software selects rehabilitation actions that address the cause of the pavement failure while restoring the pavement to a condition above the MSL. A NO ACTION recommendation indicates that the feature is expected to remain serviceable during the 12-year forecasting period without major repairs. NO ACTION recommendations do not diminish the need for regular maintenance.



Recommended Actions

Graphic Analysis

AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 101	DESCRIPTION: TAXIWAY A-4
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC on PCC	FEATURE'S HIGH PCI: 100
FEATURE AREA: 21,126	FEATURE'S LOW PCI: 83
INSPECTED AREA: 11,250	AVERAGE PCI: 93 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 93 in 2013

COMMENTS/HISTORY FOR FEATURE 101, TAXIWAY A-4

2009 AC MILL AND OVERLAY
 1989 - BIT. OVERLAY/1979 - 3" BIT. OVERLAY
 1953 - 11" PCC
 *

DISTRESS QUANTITIES FOR FEATURE 101

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	69	129	L.F.	66.9
LONG.& TRANS. CRACK	LOW	31	58	L.F.	33

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	67 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 101

DESCRIPTION: TAXIWAY A-4

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC on PCC

AVERAGE PCI AT INSPECTION: 93 GOOD

CONSTRUCTION YEAR: 2009

ESTIMATED PCI IS: 93 in 2013

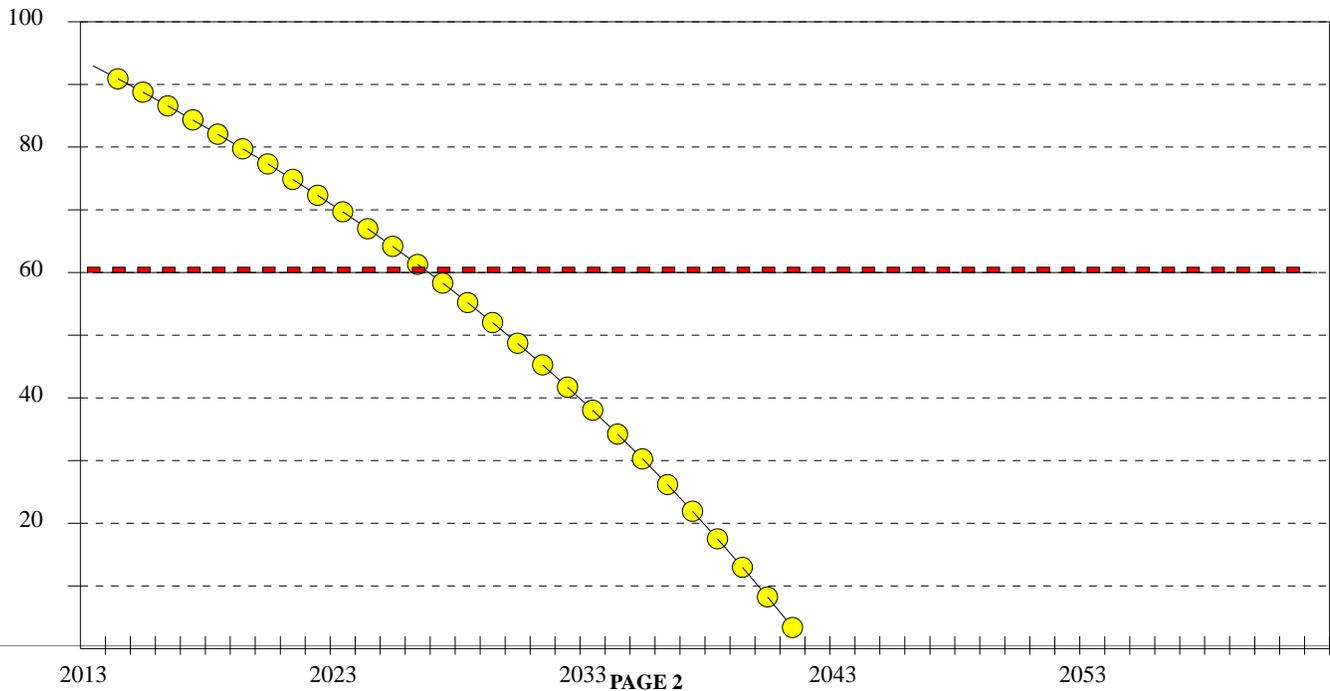
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 90

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 102

DESCRIPTION: TAXIWAY A

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2024

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 88

FEATURE AREA: 431,770

FEATURE'S LOW PCI: 63

INSPECTED AREA: 90,000

AVERAGE PCI: 84 SATISFACTORY

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 59 in 2024

COMMENTS/HISTORY FOR FEATURE 102, TAXIWAY A

1988 14" PCC Overlay

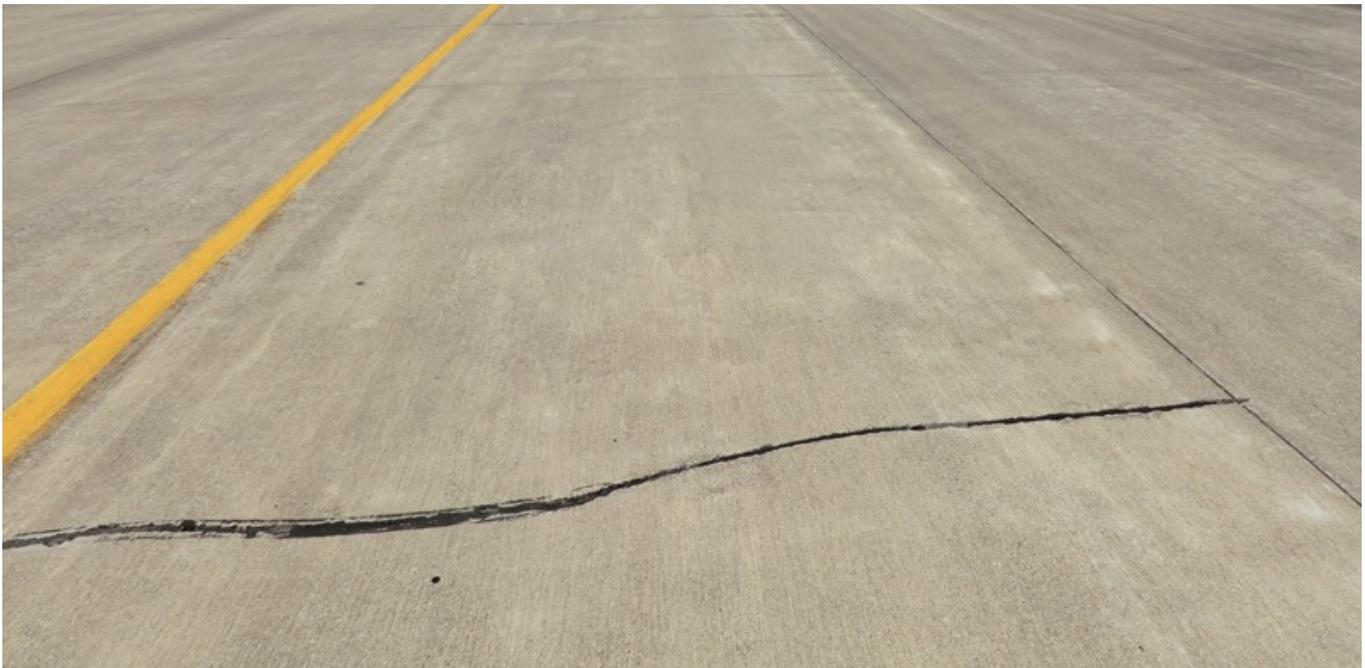
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DISTRESS QUANTITIES FOR FEATURE 102

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	MED	1	4	SLABS	7.9
LONG/TRAN/DIAG CRK.	LOW	3	14	SLABS	8.9
JOINT SEAL DAMAGE	HIGH	144	690	SLABS	68.7
PATCH<5 SF	LOW	1	4	SLABS	.5
SHRINKAGE CRACKS	N/A	3	14	SLABS	1.9
SPALLING-JOINTS	HIGH	1	4	SLABS	8.9
SPALLING-JOINTS	LOW	1	4	SLABS	1.2
SPALLING-CORNERS	LOW	1	4	SLABS	1.6

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	13 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	25 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	62 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 102

DESCRIPTION: TAXIWAY A

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2024

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 84 SATISFACTORY

CONSTRUCTION YEAR: 1988

ESTIMATED PCI IS: 59 in 2024

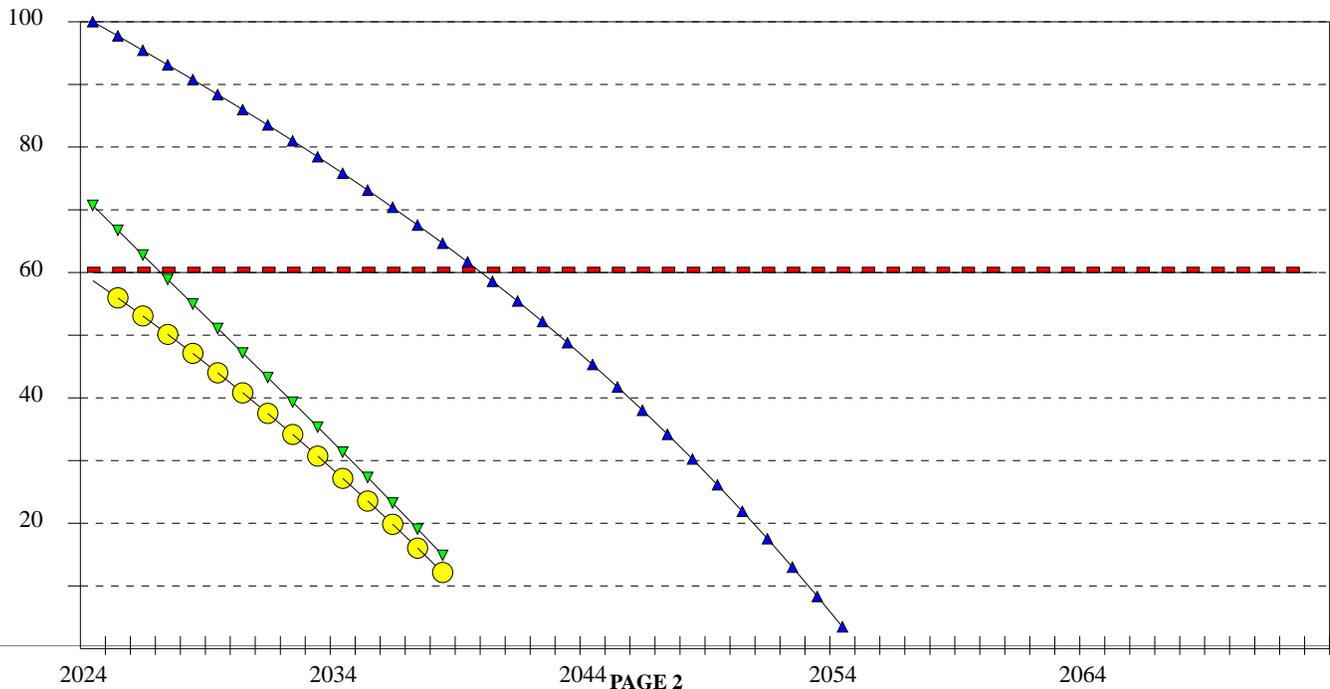
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 38

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	\$2,379,052	16 YEARS
▼	PATCHING/JOINT REPAIR	\$78,603	3 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 103

DESCRIPTION: TAXIWAY A

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 88

FEATURE AREA: 132,716

FEATURE'S LOW PCI: 83

INSPECTED AREA: 39,650

AVERAGE PCI: 87 GOOD

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 87 in 2013

COMMENTS/HISTORY FOR FEATURE 103, TAXIWAY A

1989 PCC 15"/6" stabilized base

*
*
*

DISTRESS QUANTITIES FOR FEATURE 103

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	LOW	1	3	SLABS	10
JOINT SEAL DAMAGE	HIGH	64	214	SLABS	88.3
SHRINKAGE CRACKS	N/A	1	3	SLABS	1.6

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	3 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	30 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	66 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 103

DESCRIPTION: TAXIWAY A

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 87 GOOD

CONSTRUCTION YEAR: 1989

ESTIMATED PCI IS: 87 in 2013

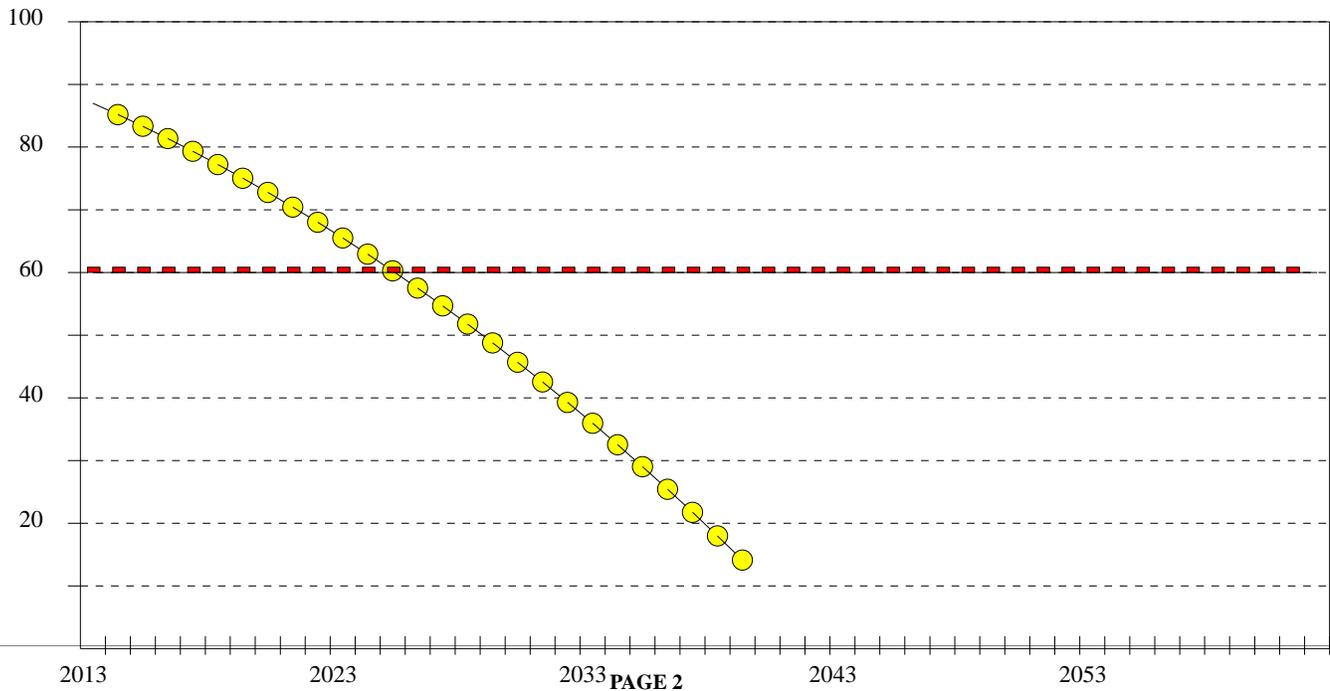
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 69

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 105

DESCRIPTION: TAXIWAY A

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 93

FEATURE AREA: 61,930

FEATURE'S LOW PCI: 88

INSPECTED AREA: 30,000

AVERAGE PCI: 89 GOOD

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 89 in 2013

COMMENTS/HISTORY FOR FEATURE 105, TAXIWAY A

1989 PCC 15"/ 6" Stabilized base

*
*
*

DISTRESS QUANTITIES FOR FEATURE 105

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	HIGH	36	74	SLABS	83.7
JOINT SEAL DAMAGE	MED	12	24	SLABS	16.2

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	33 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	67 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 105

DESCRIPTION: TAXIWAY A

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 89 GOOD

CONSTRUCTION YEAR: 1989

ESTIMATED PCI IS: 89 in 2013

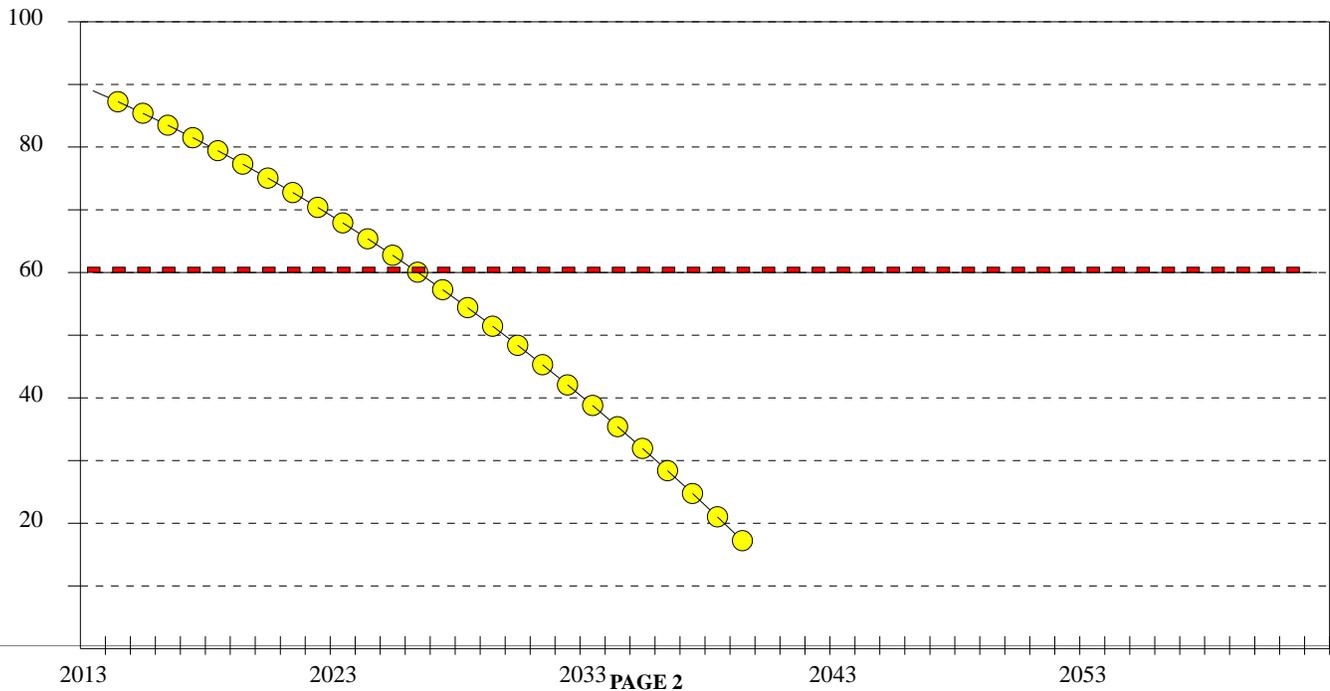
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 69

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 106

DESCRIPTION: TAXIWAY C1

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 88

FEATURE AREA: 48,372

FEATURE'S LOW PCI: 81

INSPECTED AREA: 22,500

AVERAGE PCI: 86 GOOD

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 86 in 2013

COMMENTS/HISTORY FOR FEATURE 106, TAXIWAY C1

1997 PCC
 1975 - 3" BIT. OVERLAY/1968 - 0.25" BIT. SURFACE TREATMENT
 1964 - 1.5" BIT. OVERLAY
 1943 - 2" BIT. SURFACE ON 8" COLD BIT. BASE

DISTRESS QUANTITIES FOR FEATURE 106

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	HIGH	36	77	SLABS	75.3
PATCH>5 SF/UTIL.CUT	LOW	3	6	SLABS	24.6

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 8 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 33 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 58 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 106

DESCRIPTION: TAXIWAY C1

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 86 GOOD

CONSTRUCTION YEAR: 1997

ESTIMATED PCI IS: 86 in 2013

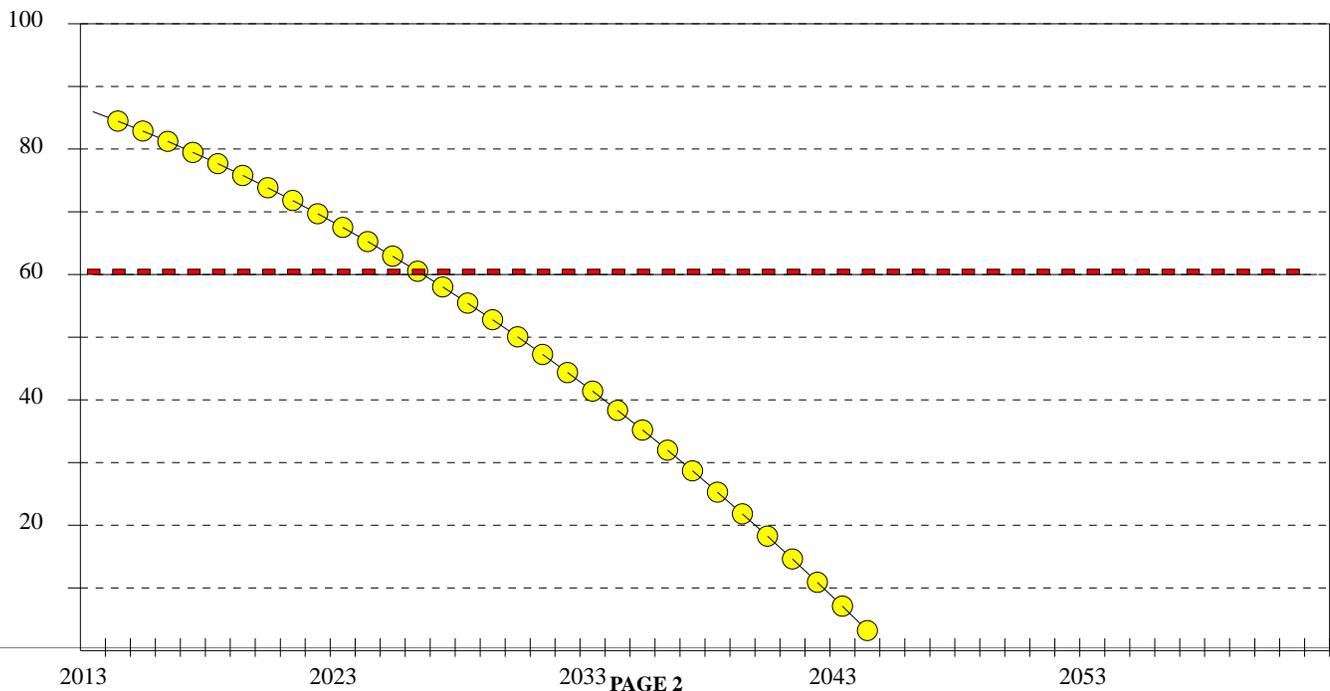
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 84

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 107	DESCRIPTION: TAXIWAY A
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: PCC	FEATURE'S HIGH PCI: 98
FEATURE AREA: 46,661	FEATURE'S LOW PCI: 93
INSPECTED AREA: 26,500	AVERAGE PCI: 95 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 95 in 2013

COMMENTS/HISTORY FOR FEATURE 107, TAXIWAY A

1988 14" PCC Overlay 1979 - 3" BIT. OVERLAY
 1976 - 2' BIT. OVERLAY
 1968 - 0.25" BIT. SURFACE TREATMENT
 1964 - 1.5" BIT. OVERLAY 1962 - 2" BIT. SURFACE ON 8" COLD BIT. BASE

DISTRESS QUANTITIES FOR FEATURE 107

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	MED	32	56	SLABS	87.5
JOINT SEAL DAMAGE	LOW	17	29	SLABS	12.5

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	33 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	67 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 107

DESCRIPTION: TAXIWAY A

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 95 GOOD

CONSTRUCTION YEAR: 1988

ESTIMATED PCI IS: 95 in 2013

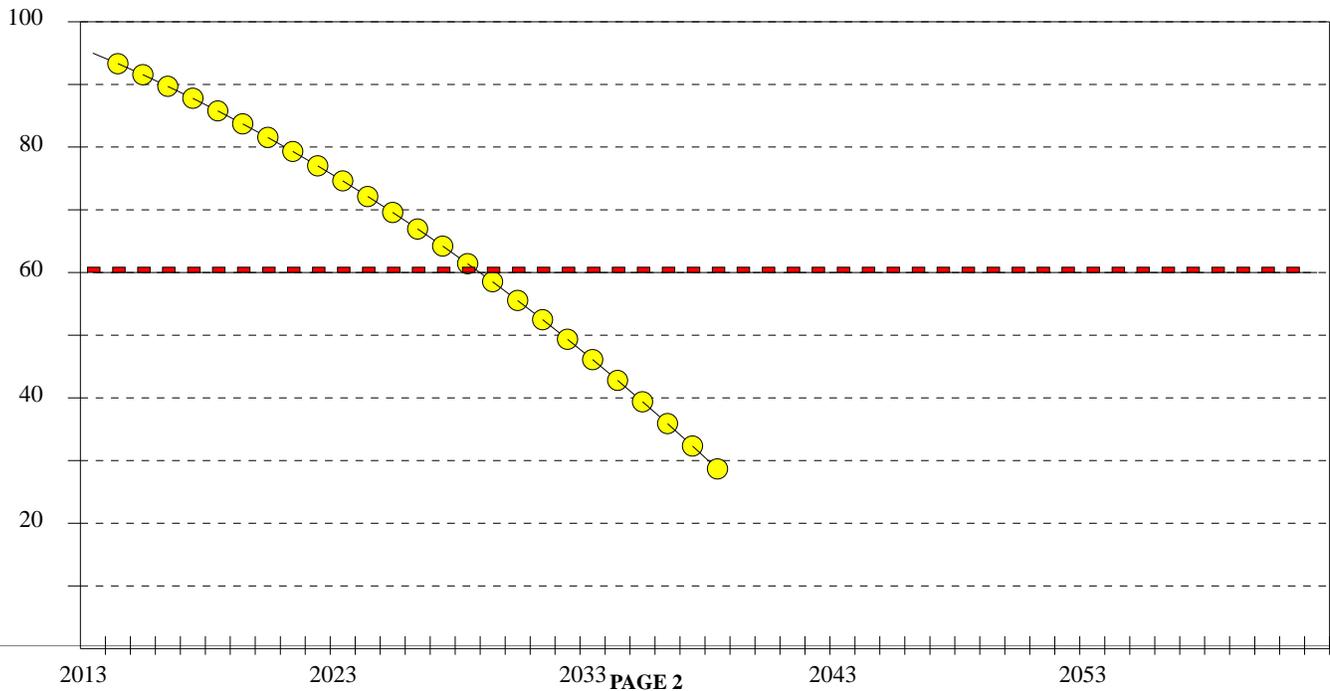
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 67

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 108

DESCRIPTION: TAXIWAY A

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2024

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 88

FEATURE AREA: 138,393

FEATURE'S LOW PCI: 81

INSPECTED AREA: 45,700

AVERAGE PCI: 85 SATISFACTORY

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 60 in 2024

COMMENTS/HISTORY FOR FEATURE 108, TAXIWAY A

1988 14" PCC Overlay
 1979 - 5" BIT. OVERLAY
 1953 - 3" BIT. SURFACE ON 7" AGG. BASE
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DISTRESS QUANTITIES FOR FEATURE 108

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	LOW	3	9	SLABS	19.1
JOINT SEAL DAMAGE	HIGH	76	230	SLABS	73.8
SHRINKAGE CRACKS	N/A	2	6	SLABS	2.1
SPALLING-JOINTS	MED	1	3	SLABS	4.7

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	10 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	26 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	65 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 108

DESCRIPTION: TAXIWAY A

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2024

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 85 SATISFACTORY

CONSTRUCTION YEAR: 1988

ESTIMATED PCI IS: 60 in 2024

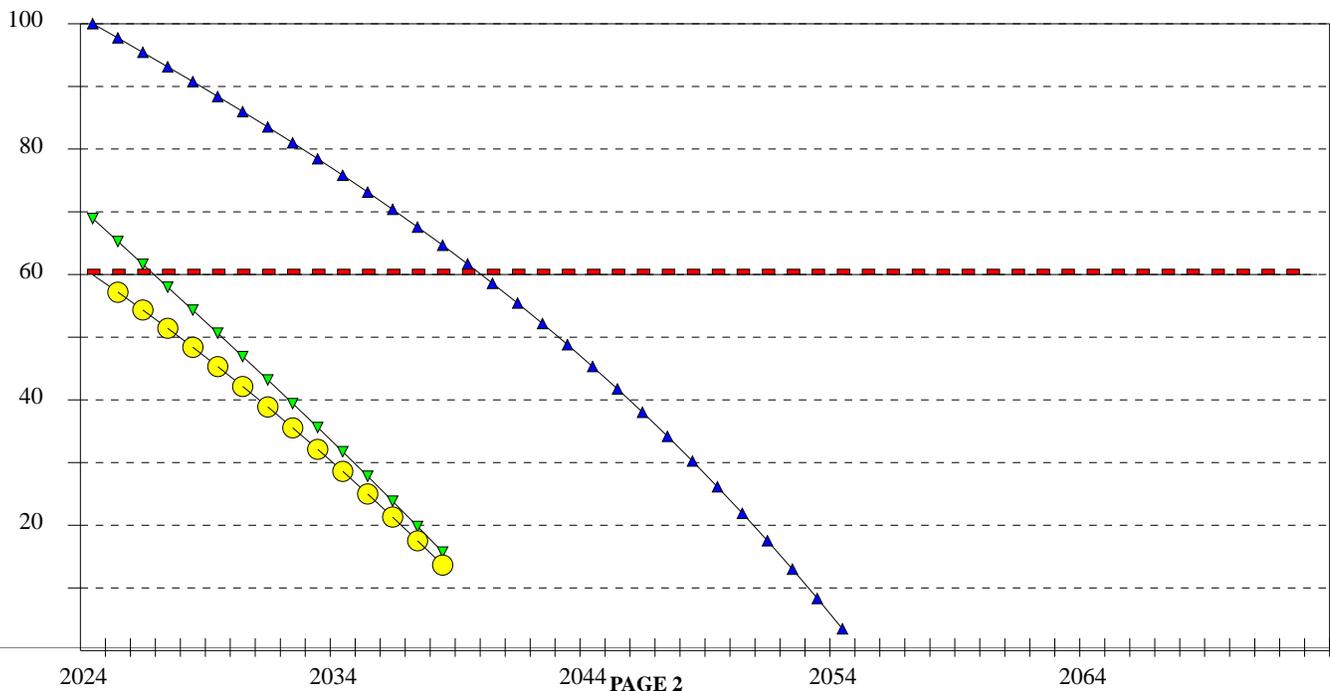
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 38

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	\$762,545	16 YEARS
▼	PATCHING/JOINT REPAIR	\$25,486	3 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 122	DESCRIPTION: TAXIWAY A-2
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: PCC	FEATURE'S HIGH PCI: 88
FEATURE AREA: 28,374	FEATURE'S LOW PCI: 88
INSPECTED AREA: 18,750	AVERAGE PCI: 88 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 88 in 2013

COMMENTS/HISTORY FOR FEATURE 122, TAXIWAY A-2

1988 16" PCC/ 6" stabilized base

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DISTRESS QUANTITIES FOR FEATURE 122

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF ALL DISTRESS
JOINT SEAL DAMAGE	HIGH	30	45	SLABS	100

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	33 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	67 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 122

DESCRIPTION: TAXIWAY A-2

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 88 GOOD

CONSTRUCTION YEAR: 1988

ESTIMATED PCI IS: 88 in 2013

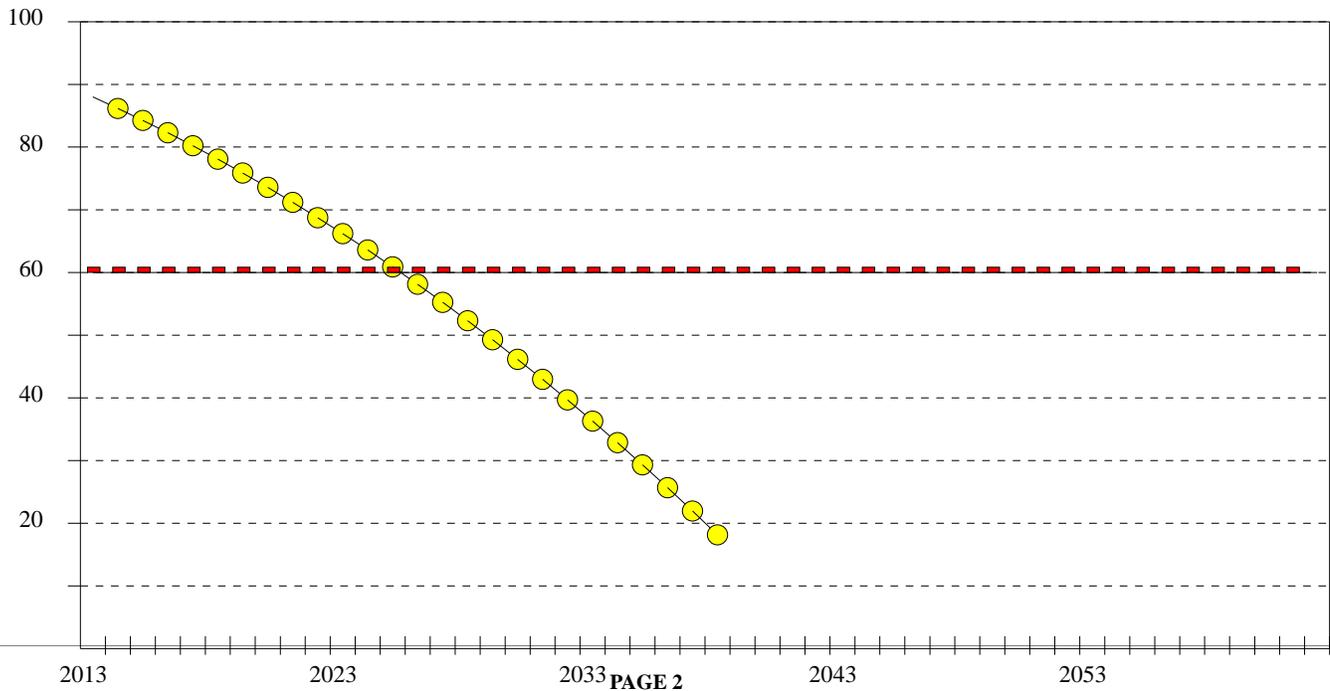
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 67

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 125	DESCRIPTION: TAXIWAY A-3
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC	FEATURE'S HIGH PCI: 95
FEATURE AREA: 38,828	FEATURE'S LOW PCI: 90
INSPECTED AREA: 15,000	AVERAGE PCI: 93 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 90 in 2013

COMMENTS/HISTORY FOR FEATURE 125, TAXIWAY A-3

2009 AC MILL AND OVERLAY
 est 1990 AC
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DISTRESS QUANTITIES FOR FEATURE 125

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	LOW	292	755	L.F.	100

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	67 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 125

DESCRIPTION: TAXIWAY A-3

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC

AVERAGE PCI AT INSPECTION: 93 GOOD

CONSTRUCTION YEAR: 2009

ESTIMATED PCI IS: 90 in 2013

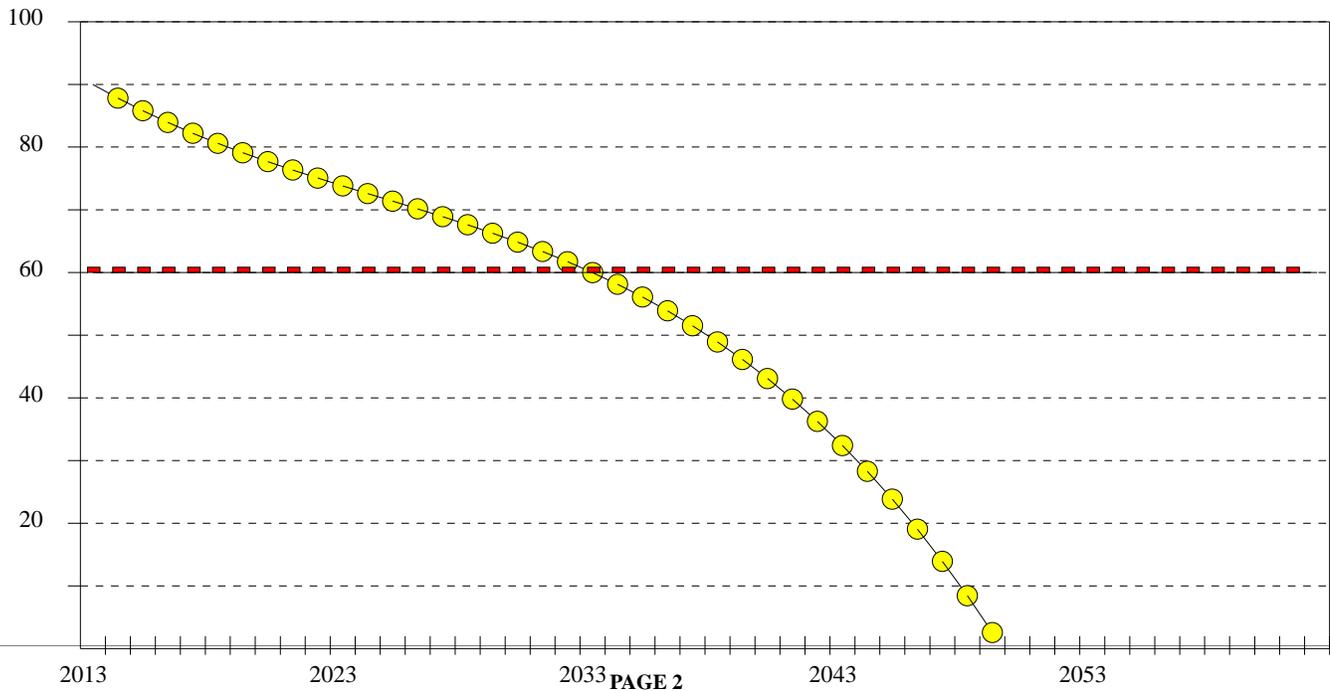
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 88

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 127	DESCRIPTION: TAXIWAY A3
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: PCC	FEATURE'S HIGH PCI: 88
FEATURE AREA: 19,950	FEATURE'S LOW PCI: 88
INSPECTED AREA: 15,000	AVERAGE PCI: 88 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 88 in 2013

COMMENTS/HISTORY FOR FEATURE 127, TAXIWAY A3

1988 16" PCC/ 6" stabilized base

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DISTRESS QUANTITIES FOR FEATURE 127

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	HIGH	24	31	SLABS	100

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	33 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	67 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 127

DESCRIPTION: TAXIWAY A3

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 88 GOOD

CONSTRUCTION YEAR: 1988

ESTIMATED PCI IS: 88 in 2013

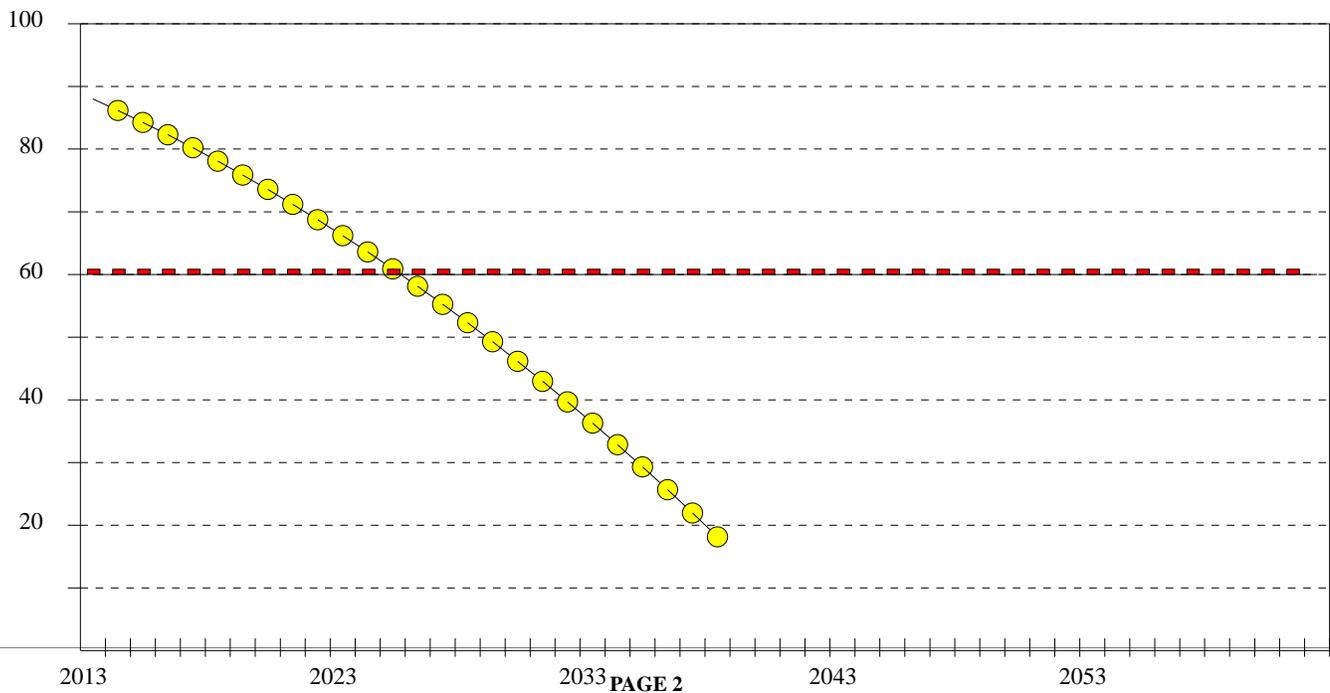
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 67

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 130	DESCRIPTION: TAXIWAY A-2
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC +	FEATURE'S HIGH PCI: 96
FEATURE AREA: 39,174	FEATURE'S LOW PCI: 95
INSPECTED AREA: 15,000	AVERAGE PCI: 95 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 94 in 2013

COMMENTS/HISTORY FOR FEATURE 130, TAXIWAY A-2

2009 AC MILL AND OVERLAY

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DISTRESS QUANTITIES FOR FEATURE 130

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF ALL DISTRESS
LONG.& TRANS. CRACK	LOW	160	417	L.F.	100

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	67 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 130

DESCRIPTION: TAXIWAY A-2

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

AVERAGE PCI AT INSPECTION: 95 GOOD

CONSTRUCTION YEAR: 2009

ESTIMATED PCI IS: 94 in 2013

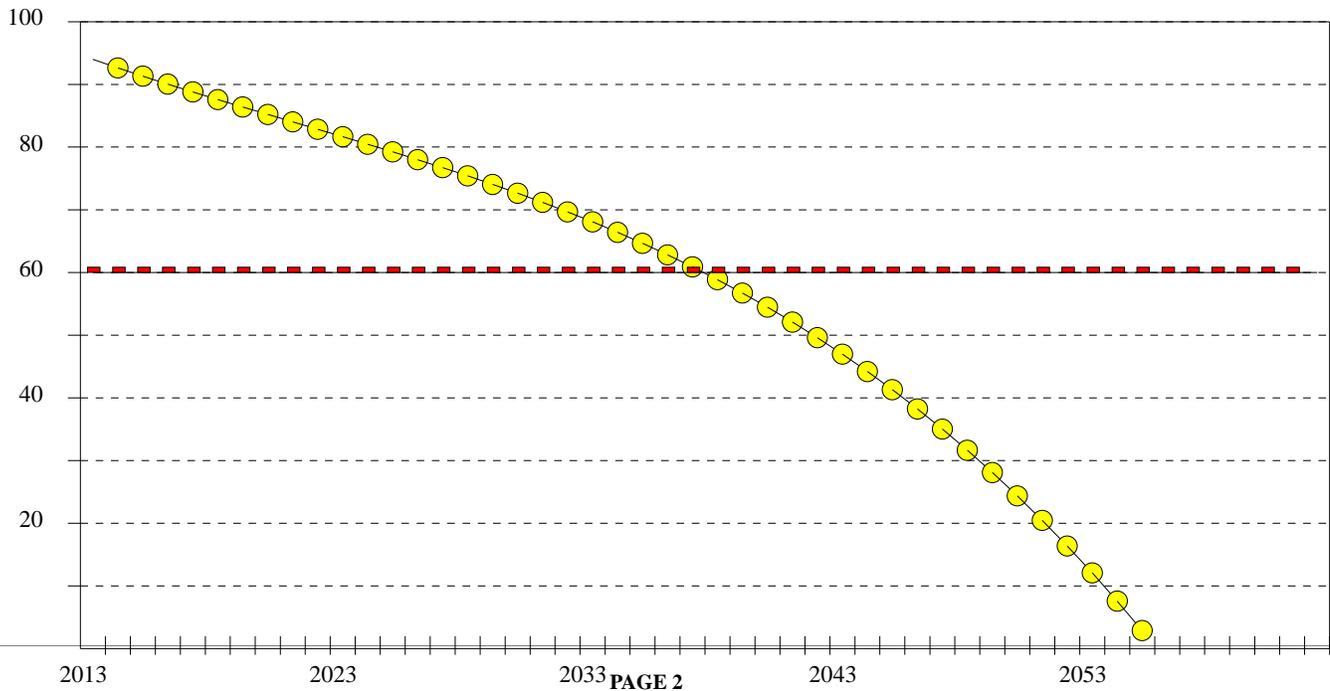
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 94

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 201	DESCRIPTION: TAXIWAY D
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC OVERLAY	FEATURE'S HIGH PCI: 58
FEATURE AREA: 59,909	FEATURE'S LOW PCI: 36
INSPECTED AREA: 20,000	AVERAGE PCI: 49 POOR
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 49 in 2013

COMMENTS/HISTORY FOR FEATURE 201, TAXIWAY D

1997 AC 1992 - BIT. OVERLAY & WIDENING est
 1971 - 2" BIT. OVERLAY ON 4" BIT. BASE
 1964 - 1.5" BIT. OVERLAY
 1943 - 2" BIT. SURFACE ON 8" COLD BIT. BASE

DISTRESS QUANTITIES FOR FEATURE 201

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	232	694	S.F.	17.5
ALLIGATOR CRACKING	LOW	215	644	S.F.	21.8
BLOCK CRACKING	LOW	780	2,336	S.F.	4.7
LONG.& TRANS. CRACK	MED	537	1,608	L.F.	19.7
LONG.& TRANS. CRACK	LOW	3,497	10,475	L.F.	36

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	39 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	37 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	23 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 201

DESCRIPTION: TAXIWAY D

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

AVERAGE PCI AT INSPECTION: 49 POOR

CONSTRUCTION YEAR: 1997

ESTIMATED PCI IS: 49 in 2013

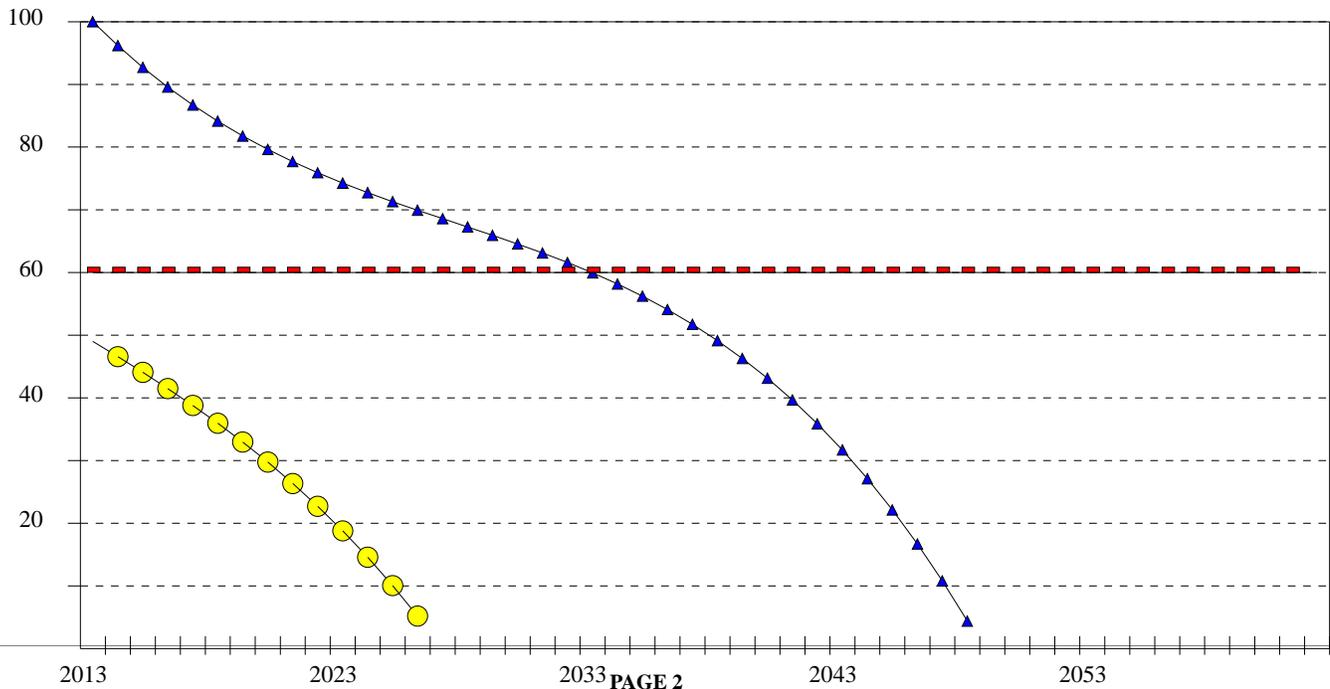
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 65

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	\$86,268	20 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 202

DESCRIPTION: TAXIWAY B

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

FEATURE'S HIGH PCI: 34

FEATURE AREA: 32,100

FEATURE'S LOW PCI: 33

INSPECTED AREA: 14,025

AVERAGE PCI: 33 VERY POOR

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 33 in 2013

COMMENTS/HISTORY FOR FEATURE 202, TAXIWAY B

1971 - 2" BIT. OVERLAY ON 4" BIT. BASE

1964 - 1.5" BIT. OVERLAY

1943 - 2" BIT. SURFACE ON 8" COLD BIT. BASE

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DISTRESS QUANTITIES FOR FEATURE 202

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	245	560	S.F.	25.6
ALLIGATOR CRACKING	LOW	285	652	S.F.	19.4
DEPRESSION	LOW	40	91	S.F.	1.3
LONG.& TRANS. CRACK	MED	629	1,439	L.F.	17.6
LONG.& TRANS. CRACK	LOW	482	1,103	L.F.	7.4
RAVELING	MED	325	743	S.F.	7.7
RAVELING	LOW	6,700	15,334	S.F.	15.3
RUTTING	LOW	48	109	S.F.	5.4

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	49 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	28 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	24 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 202

DESCRIPTION: TAXIWAY B

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

AVERAGE PCI AT INSPECTION: 33 VERY POOR

CONSTRUCTION YEAR: 1971

ESTIMATED PCI IS: 33 in 2013

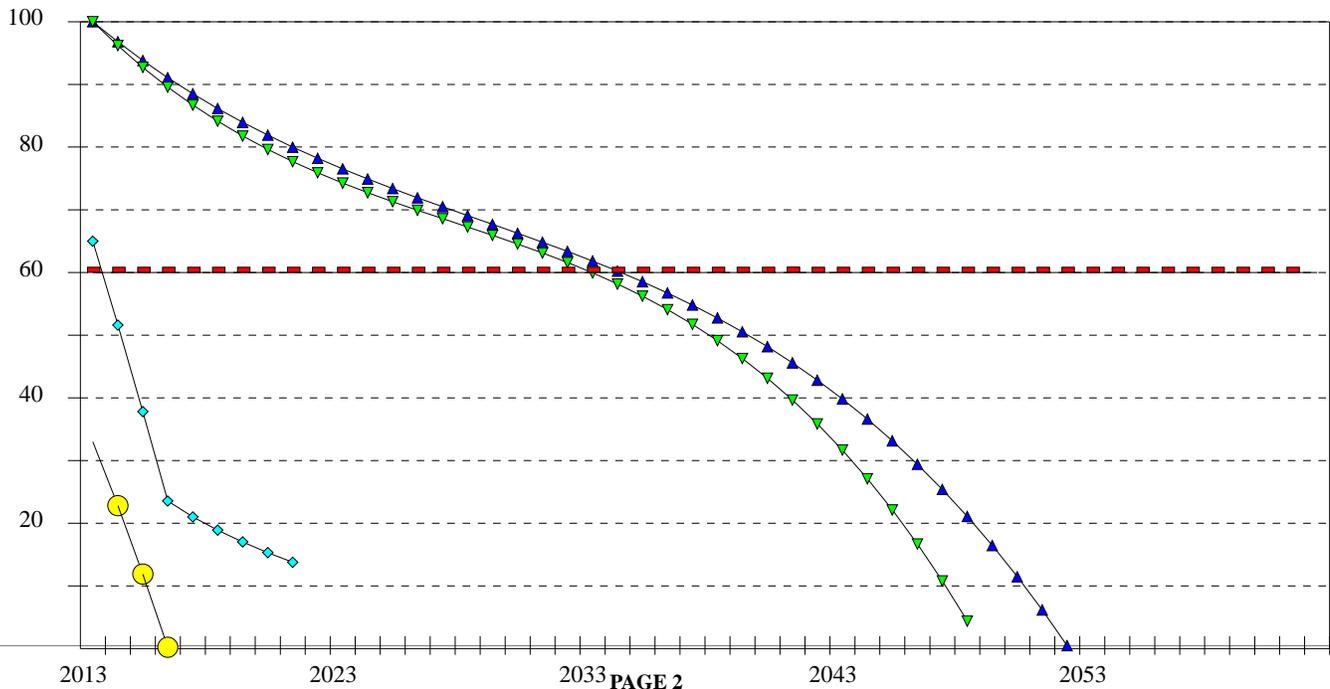
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 0

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RECONSTRUCTION	\$172,056	22 YEARS
▼	STRUCTURAL OVERLAY	\$72,546	20 YEARS
◆	SURFACE TREATMENT	\$14,303	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 205	DESCRIPTION: TAXIWAY B
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC on PCC	FEATURE'S HIGH PCI: 96
FEATURE AREA: 54,848	FEATURE'S LOW PCI: 93
INSPECTED AREA: 22,500	AVERAGE PCI: 95 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 95 in 2013

COMMENTS/HISTORY FOR FEATURE 205, TAXIWAY B

2009 AC OVERLAY
 1971 - 2" BIT. OVERLAY ON 4" BIT. BASE
 1964 - 1.5" BIT. OVERLAY
 1943 - 2" BIT. SURFACE ON 8" COLD BIT. BASE

DISTRESS QUANTITIES FOR FEATURE 205

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	LOW	262	638	L.F.	100

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	67 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 205

DESCRIPTION: TAXIWAY B

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC on PCC

AVERAGE PCI AT INSPECTION: 95 GOOD

CONSTRUCTION YEAR: 2009

ESTIMATED PCI IS: 95 in 2013

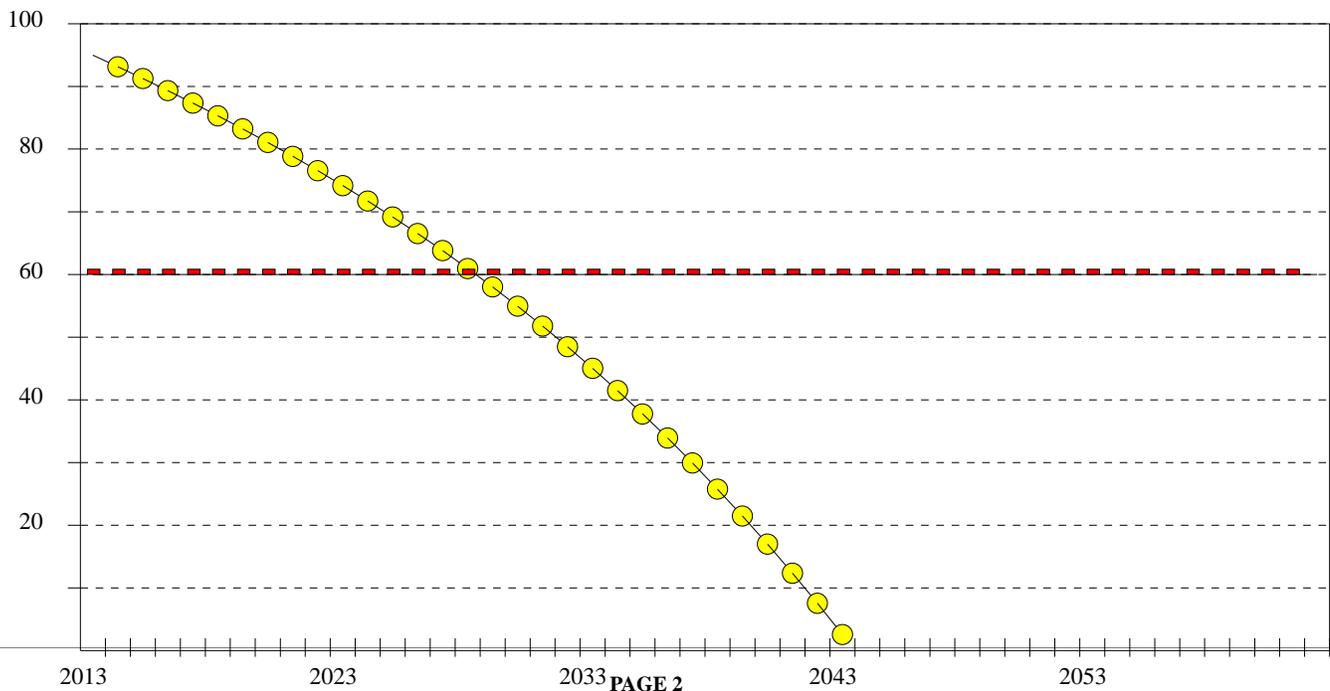
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 90

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 215

DESCRIPTION: TAXIWAY B-2

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 91

FEATURE AREA: 47,293

FEATURE'S LOW PCI: 88

INSPECTED AREA: 21,600

AVERAGE PCI: 90 GOOD

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 90 in 2013

COMMENTS/HISTORY FOR FEATURE 215, TAXIWAY B-2

1997 PCC est

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DISTRESS QUANTITIES FOR FEATURE 215

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	HIGH	16	35	SLABS	57.4
JOINT SEAL DAMAGE	MED	24	52	SLABS	33.5
PATCH<5 SF	LOW	1	2	SLABS	2.5
SPALLING-JOINTS	LOW	1	2	SLABS	6.5

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	4 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	32 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	64 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 215

DESCRIPTION: TAXIWAY B-2

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 90 GOOD

CONSTRUCTION YEAR: 1997

ESTIMATED PCI IS: 90 in 2013

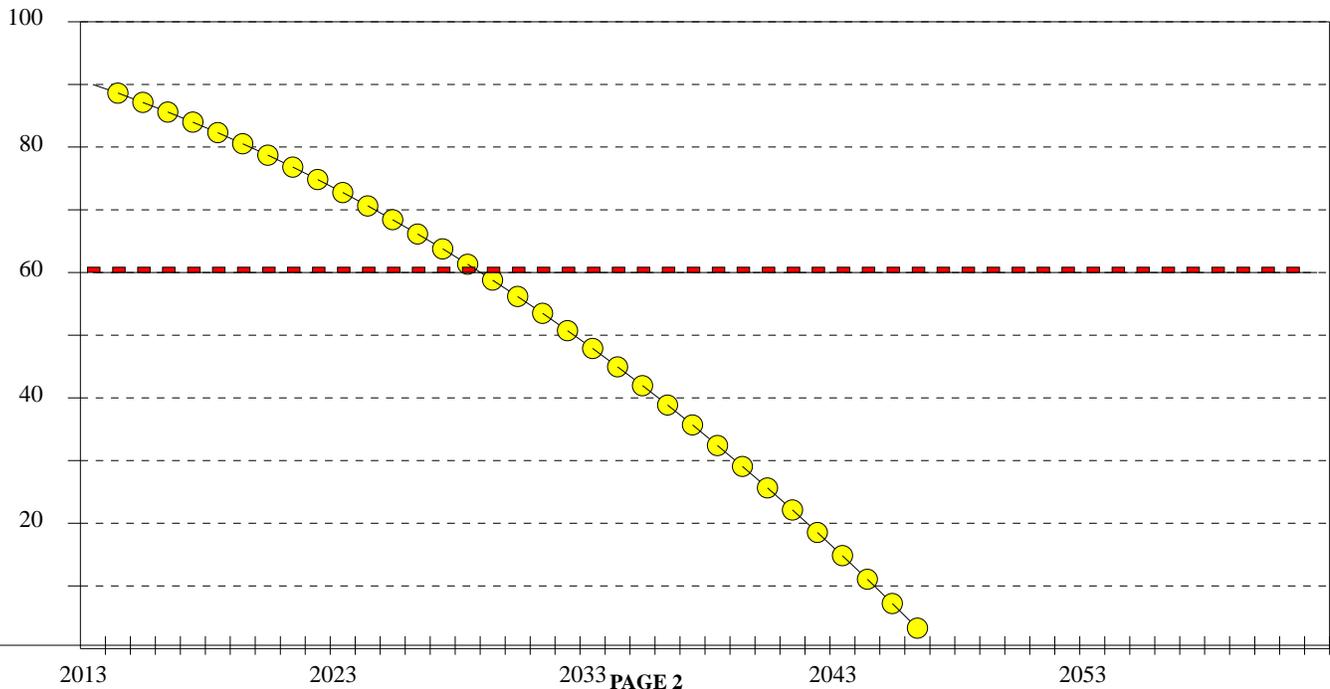
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 84

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 220	DESCRIPTION: TAXIWAY B-2
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC on PCC	FEATURE'S HIGH PCI: 94
FEATURE AREA: 30,590	FEATURE'S LOW PCI: 88
INSPECTED AREA: 15,000	AVERAGE PCI: 91 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 91 in 2013

COMMENTS/HISTORY FOR FEATURE 220, TAXIWAY B-2

1998 AC est

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DISTRESS QUANTITIES FOR FEATURE 220

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	LOW	460	938	L.F.	100

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	67 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 220

DESCRIPTION: TAXIWAY B-2

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC on PCC

AVERAGE PCI AT INSPECTION: 91 GOOD

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 91 in 2013

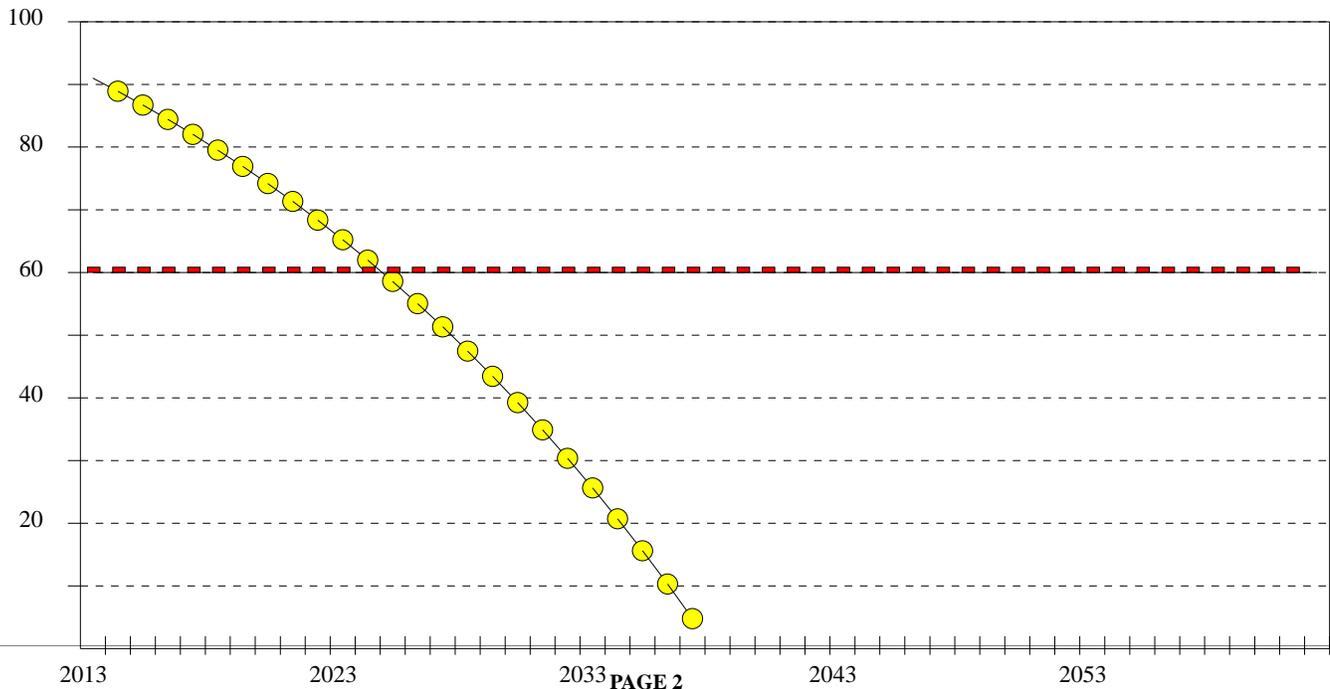
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 61

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 225

DESCRIPTION: TAXIWAY B

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 93

FEATURE AREA: 531,739

FEATURE'S LOW PCI: 86

INSPECTED AREA: 84,150

AVERAGE PCI: 89 GOOD

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 89 in 2013

COMMENTS/HISTORY FOR FEATURE 225, TAXIWAY B

1997 PCC est

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DISTRESS QUANTITIES FOR FEATURE 225

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	LOW	1	6	SLABS	3.3
JOINT SEAL DAMAGE	HIGH	86	543	SLABS	65.2
JOINT SEAL DAMAGE	MED	66	417	SLABS	27.1
PATCH<5 SF	LOW	1	6	SLABS	.8
SHRINKAGE CRACKS	N/A	4	25	SLABS	3.4

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	1 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	33 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	66 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 225

DESCRIPTION: TAXIWAY B

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 89 GOOD

CONSTRUCTION YEAR: 1997

ESTIMATED PCI IS: 89 in 2013

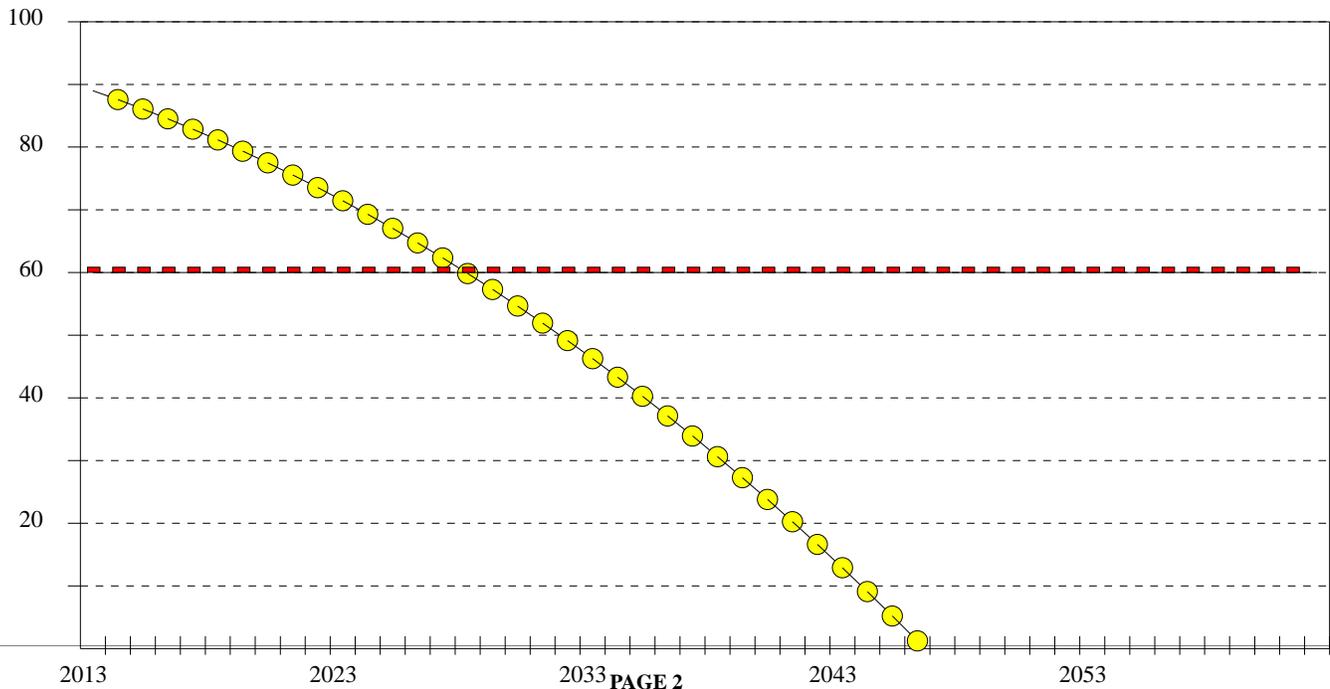
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 84

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 301	DESCRIPTION: TAXIWAY C
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC	FEATURE'S HIGH PCI: 42
FEATURE AREA: 79,914	FEATURE'S LOW PCI: 32
INSPECTED AREA: 30,000	AVERAGE PCI: 38 VERY POOR
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 38 in 2013

COMMENTS/HISTORY FOR FEATURE 301, TAXIWAY C

1971 - 2" Bit on 8" bit base

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DISTRESS QUANTITIES FOR FEATURE 301

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	66	175	S.F.	5.6
ALLIGATOR CRACKING	LOW	1,217	3,241	S.F.	25.7
DEPRESSION	LOW	826	2,200	S.F.	10
LONG.& TRANS. CRACK	HIGH	9	24	L.F.	1.1
LONG.& TRANS. CRACK	MED	897	2,389	L.F.	14.5
LONG.& TRANS. CRACK	LOW	1,477	3,934	L.F.	11.2
PATCH & UTILITY CUT	LOW	1,379	3,673	S.F.	7.8
RAVELING	MED	2,000	5,327	S.F.	13.8
RAVELING	LOW	4,500	11,987	S.F.	9.8

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	37 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	39 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	25 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 301

DESCRIPTION: TAXIWAY C

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC

AVERAGE PCI AT INSPECTION: 38 VERY POOR

CONSTRUCTION YEAR: 1971

ESTIMATED PCI IS: 38 in 2013

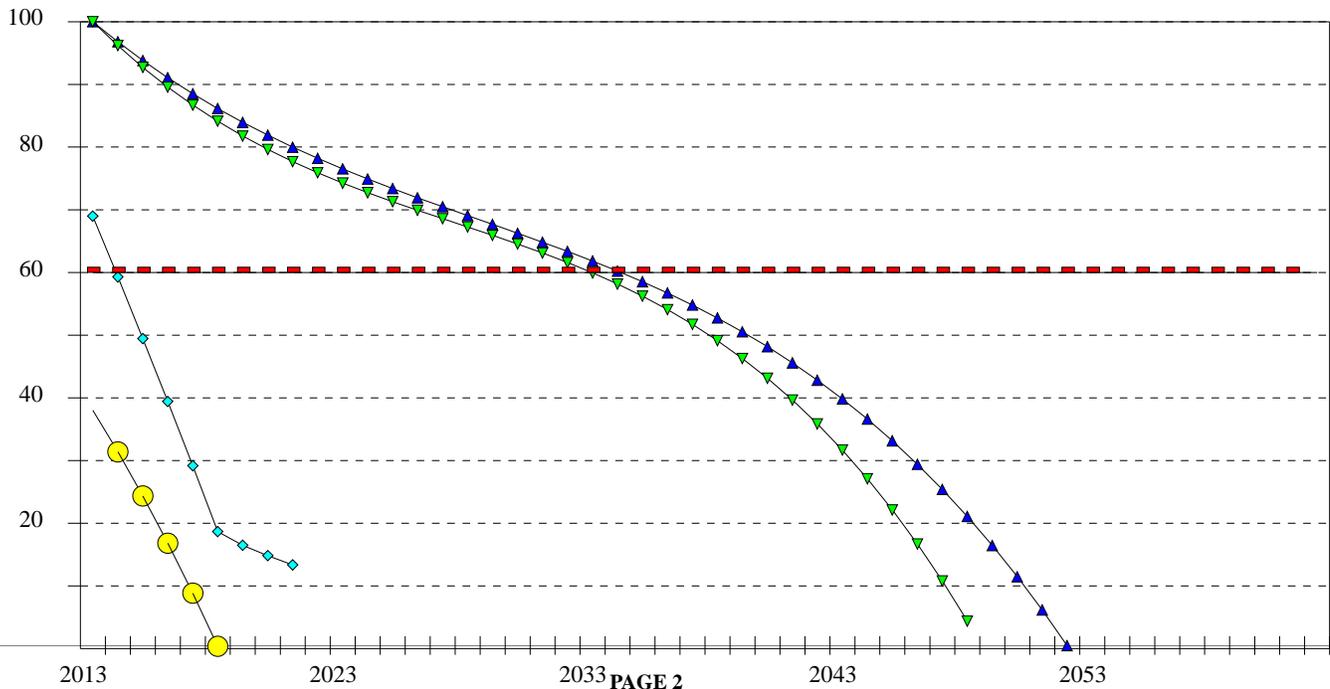
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 0

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RECONSTRUCTION	\$428,339	22 YEARS
▼	STRUCTURAL OVERLAY	\$180,605	20 YEARS
◆	SURFACE TREATMENT	\$34,158	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 302

DESCRIPTION: TAXIWAY C

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2015

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

FEATURE'S HIGH PCI: 79

FEATURE AREA: 32,221

FEATURE'S LOW PCI: 76

INSPECTED AREA: 15,000

AVERAGE PCI: 78 SATISFACTORY

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 58 in 2015

COMMENTS/HISTORY FOR FEATURE 302, TAXIWAY C

1971 - 3" BIT. OVERLAY
 1964 - 2" BIT. OVERLAY
 1943 - 2" BIT. SURFACE ON 8" COLD BIT. BASE
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DISTRESS QUANTITIES FOR FEATURE 302

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
DEPRESSION	LOW	6	12	S.F.	0
LONG.& TRANS. CRACK	MED	422	906	L.F.	56.3
LONG.& TRANS. CRACK	LOW	702	1,507	L.F.	43.6

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 0 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 67 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 302

DESCRIPTION: TAXIWAY C

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2015

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

AVERAGE PCI AT INSPECTION: 78 SATISFACTORY

CONSTRUCTION YEAR: 1971

ESTIMATED PCI IS: 58 in 2015

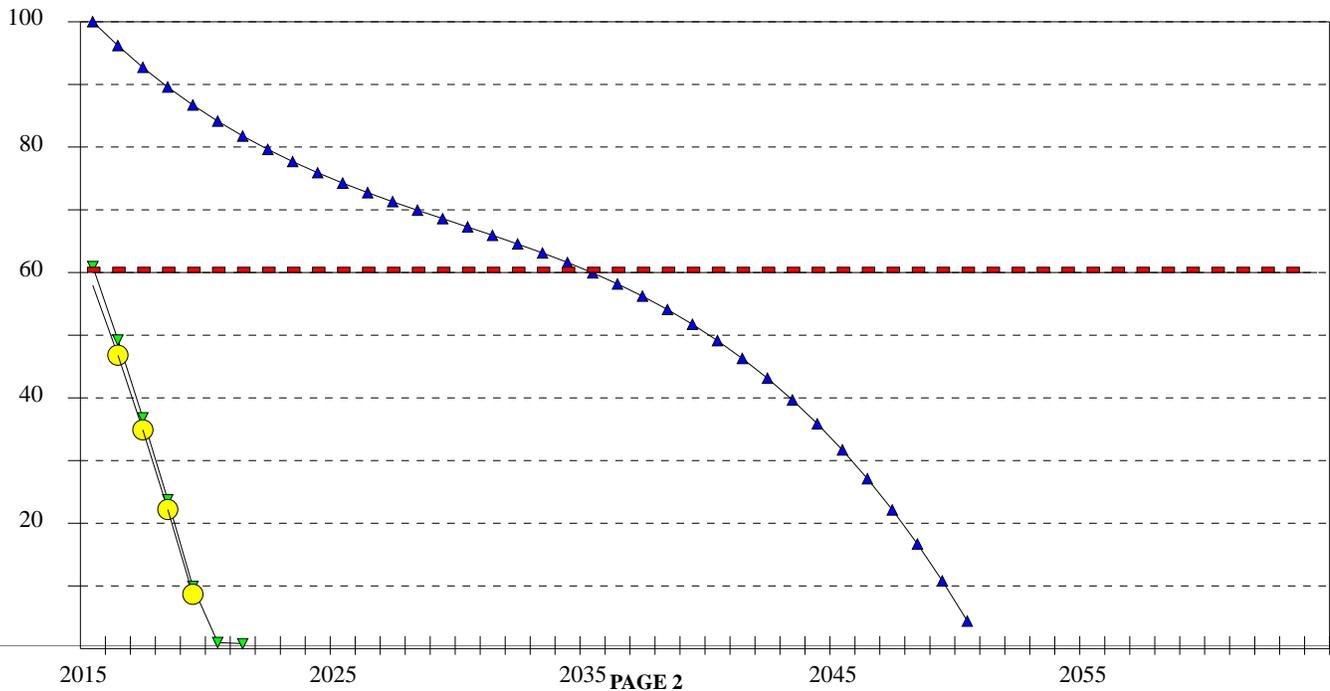
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 0

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	\$46,398	20 YEARS
▼	CRACK REPAIR	\$2,992	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 605

DESCRIPTION: WEST TEES

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

FEATURE'S HIGH PCI: 98

FEATURE AREA: 107,640

FEATURE'S LOW PCI: 84

INSPECTED AREA: 38,000

AVERAGE PCI: 92 GOOD

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 85 in 2013

COMMENTS/HISTORY FOR FEATURE 605, WEST TEES

2002 AC est

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DISTRESS QUANTITIES FOR FEATURE 605

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF ALL DISTRESS
LONG.& TRANS. CRACK	MED	46	130	L.F.	36.3
LONG.& TRANS. CRACK	LOW	437	1,237	L.F.	56.4
OIL SPILLAGE	N/A	6	17	S.F.	3.5
RAVELING	LOW	25	70	S.F.	3.6

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	63 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	37 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 605

DESCRIPTION: WEST TEES

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

AVERAGE PCI AT INSPECTION: 92 GOOD

CONSTRUCTION YEAR: 2002

ESTIMATED PCI IS: 85 in 2013

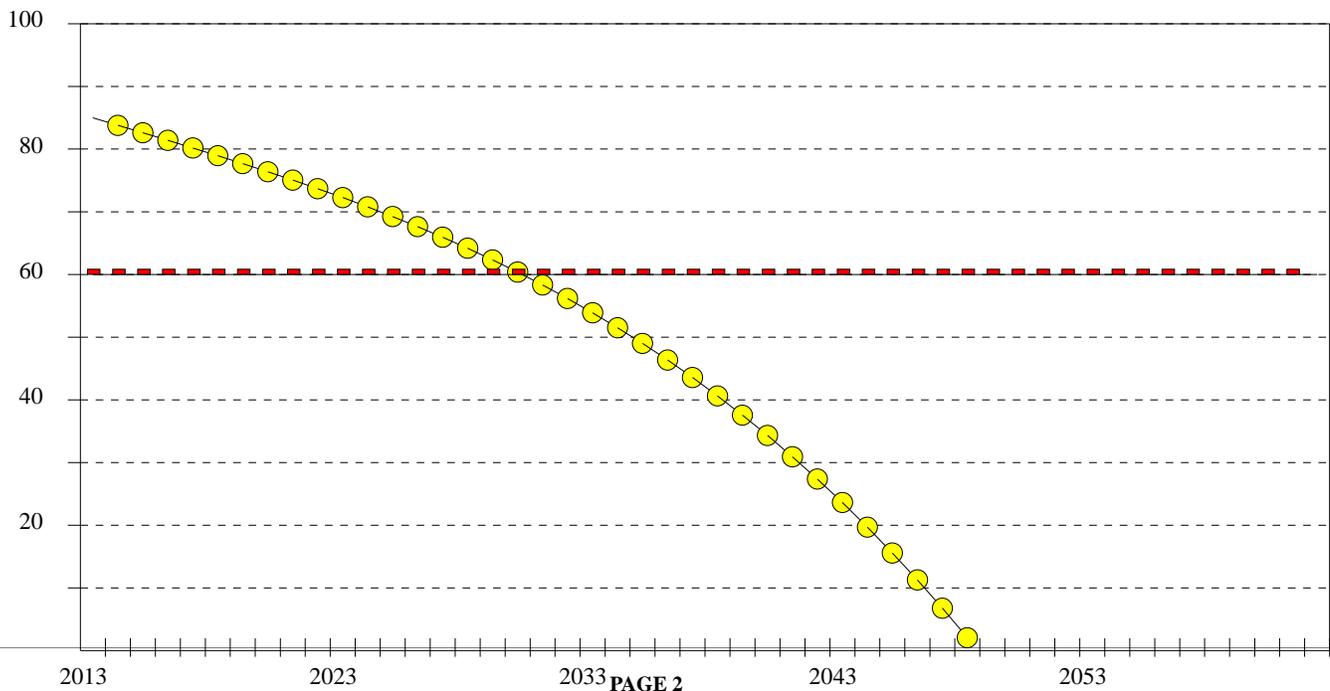
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 85

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3001

DESCRIPTION: TERMINAL RAMP

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 73

FEATURE AREA: 225,900

FEATURE'S LOW PCI: 26

INSPECTED AREA: 48,000

AVERAGE PCI: 50 POOR

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 50 in 2013

COMMENTS/HISTORY FOR FEATURE 3001, TERMINAL RAMP

1984: 9" PCC / 6" AC

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DISTRESS QUANTITIES FOR FEATURE 3001

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF ALL DISTRESS
CORNER BREAK	HIGH	1	4	SLABS	1.2
CORNER BREAK	MED	1	4	SLABS	.7
CORNER BREAK	LOW	7	32	SLABS	3.4
LONG/TRAN/DIAG CRK.	HIGH	1	4	SLABS	1.7
LONG/TRAN/DIAG CRK.	MED	4	18	SLABS	5
LONG/TRAN/DIAG CRK.	LOW	15	70	SLABS	6.1
'D' CRACKING	MED	2	9	SLABS	.8
'D' CRACKING	LOW	4	18	SLABS	.8
JOINT SEAL DAMAGE	HIGH	86	404	SLABS	5.9
JOINT SEAL DAMAGE	MED	154	724	SLABS	6
PATCH<5 SF	MED	18	84	SLABS	5.1
PATCH>5 SF/UTIL.CUT	MED	2	9	SLABS	2
PATCH>5 SF/UTIL.CUT	LOW	1	4	SLABS	.3
SCALING/CRAZING	MED	2	9	SLABS	1.1
SETTLEMENT/FAULT	LOW	8	37	SLABS	3.5
DIVIDED SLAB	HIGH	4	18	SLABS	14.6
DIVIDED SLAB	MED	3	14	SLABS	7
DIVIDED SLAB	LOW	1	4	SLABS	.9
SHRINKAGE CRACKS	N/A	7	32	SLABS	.6
SPALLING-JOINTS	HIGH	11	51	SLABS	13.9
SPALLING-JOINTS	MED	15	70	SLABS	6.2
SPALLING-JOINTS	LOW	6	28	SLABS	1.1
SPALLING-CORNERS	HIGH	4	18	SLABS	2.2
SPALLING-CORNERS	MED	18	84	SLABS	7
SPALLING-CORNERS	LOW	7	32	SLABS	1.7

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	44 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	25 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	31 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3001

DESCRIPTION: TERMINAL RAMP

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 50 POOR

CONSTRUCTION YEAR: 1984

ESTIMATED PCI IS: 50 in 2013

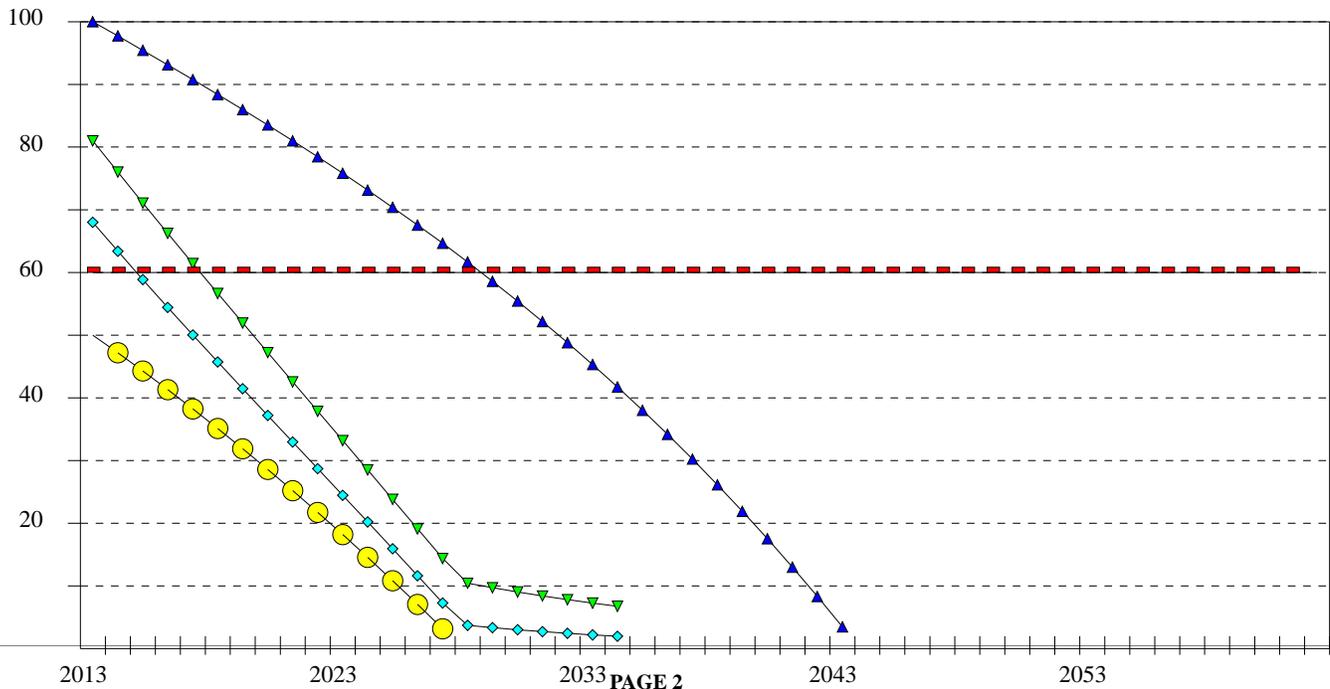
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 57

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	\$1,244,709	16 YEARS
▼	SLAB REPLACEMENT/PATCHING/JOINT SEAL	\$202,666	5 YEARS
◆	PATCHING/JOINT REPAIR	\$73,451	2 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3002

DESCRIPTION: TERMINAL RAMP

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2015

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 87

FEATURE AREA: 150,100

FEATURE'S LOW PCI: 37

INSPECTED AREA: 44,000

AVERAGE PCI: 63 FAIR

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 57 in 2015

COMMENTS/HISTORY FOR FEATURE 3002, TERMINAL RAMP

1978: 9" PCC / 6" AC

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DISTRESS QUANTITIES FOR FEATURE 3002

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
CORNER BREAK	LOW	2	6	SLABS	1.8
LONG/TRAN/DIAG CRK.	MED	11	37	SLABS	19.9
LONG/TRAN/DIAG CRK.	LOW	17	58	SLABS	13.3
JOINT SEAL DAMAGE	HIGH	120	409	SLABS	15
JOINT SEAL DAMAGE	MED	80	272	SLABS	5.8
PATCH<5 SF	LOW	4	13	SLABS	.5
PATCH>5 SF/UTIL.CUT	LOW	4	13	SLABS	2.3
SETTLEMENT/FAULT	LOW	3	10	SLABS	2.6
DIVIDED SLAB	HIGH	2	6	SLABS	12.5
DIVIDED SLAB	MED	4	13	SLABS	11
SHRINKAGE CRACKS	N/A	2	6	SLABS	.3
SPALLING-JOINTS	HIGH	2	6	SLABS	5.4
SPALLING-JOINTS	MED	2	6	SLABS	1.5
SPALLING-JOINTS	LOW	4	13	SLABS	1.3
SPALLING-CORNERS	HIGH	3	10	SLABS	3
SPALLING-CORNERS	LOW	7	23	SLABS	3.1

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 38 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 20 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 42 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3002

DESCRIPTION: TERMINAL RAMP

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2015

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 63 FAIR

CONSTRUCTION YEAR: 1978

ESTIMATED PCI IS: 57 in 2015

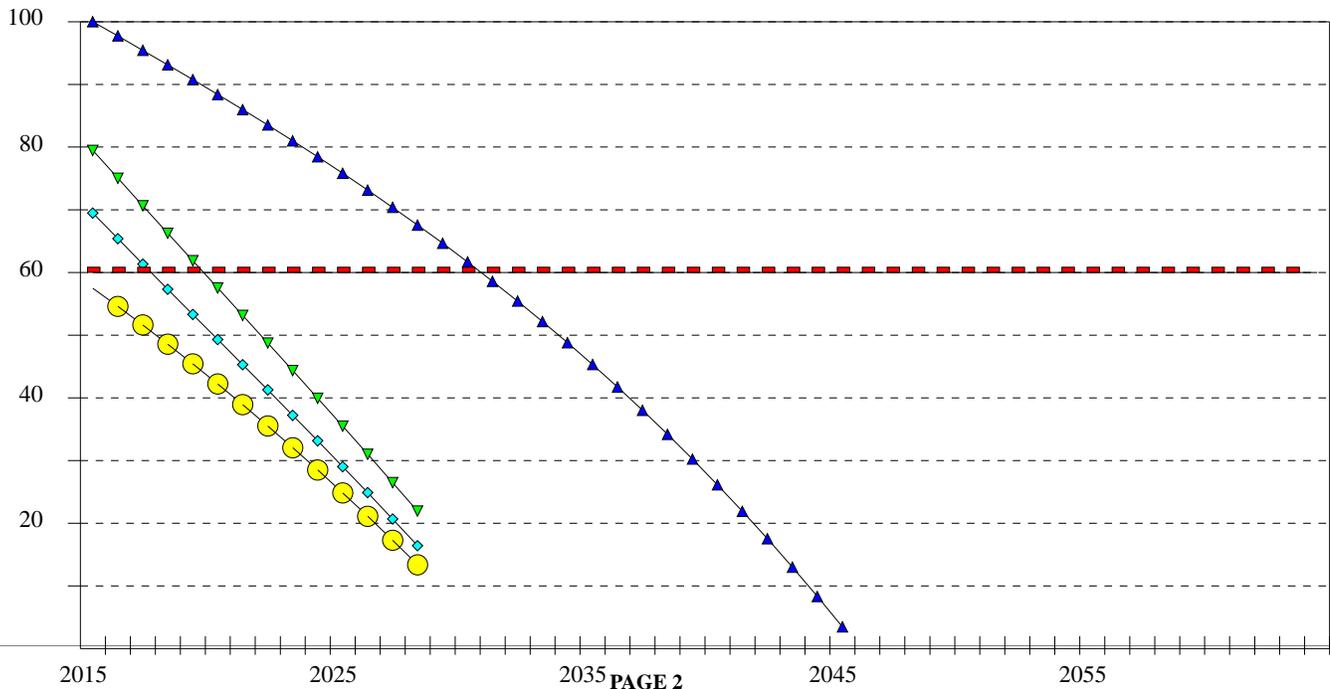
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 35

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	\$827,051	16 YEARS
▼	SLAB REPLACEMENT/PATCHING/JOINT SEAL	\$95,791	5 YEARS
◆	PATCHING/JOINT REPAIR	\$39,593	3 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3003	DESCRIPTION: TERMINAL RAMP
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: PCC	FEATURE'S HIGH PCI: 99
FEATURE AREA: 113,154	FEATURE'S LOW PCI: 75
INSPECTED AREA: 52,500	AVERAGE PCI: 87 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 87 in 2013

COMMENTS/HISTORY FOR FEATURE 3003, TERMINAL RAMP

1988 - 14" PCC/6" Econocrete

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DISTRESS QUANTITIES FOR FEATURE 3003

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
CORNER BREAK	MED	1	2	SLABS	10.6
JOINT SEAL DAMAGE	MED	48	103	SLABS	27
PATCH<5 SF	LOW	2	4	SLABS	2
PATCH>5 SF/UTIL.CUT	LOW	4	8	SLABS	17.4
SCALING/CRAZING	MED	5	10	SLABS	37.1
SPALLING-CORNERS	MED	1	2	SLABS	5.6

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	15 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	46 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	39 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3003

DESCRIPTION: TERMINAL RAMP

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 87 GOOD

CONSTRUCTION YEAR: 1988

ESTIMATED PCI IS: 87 in 2013

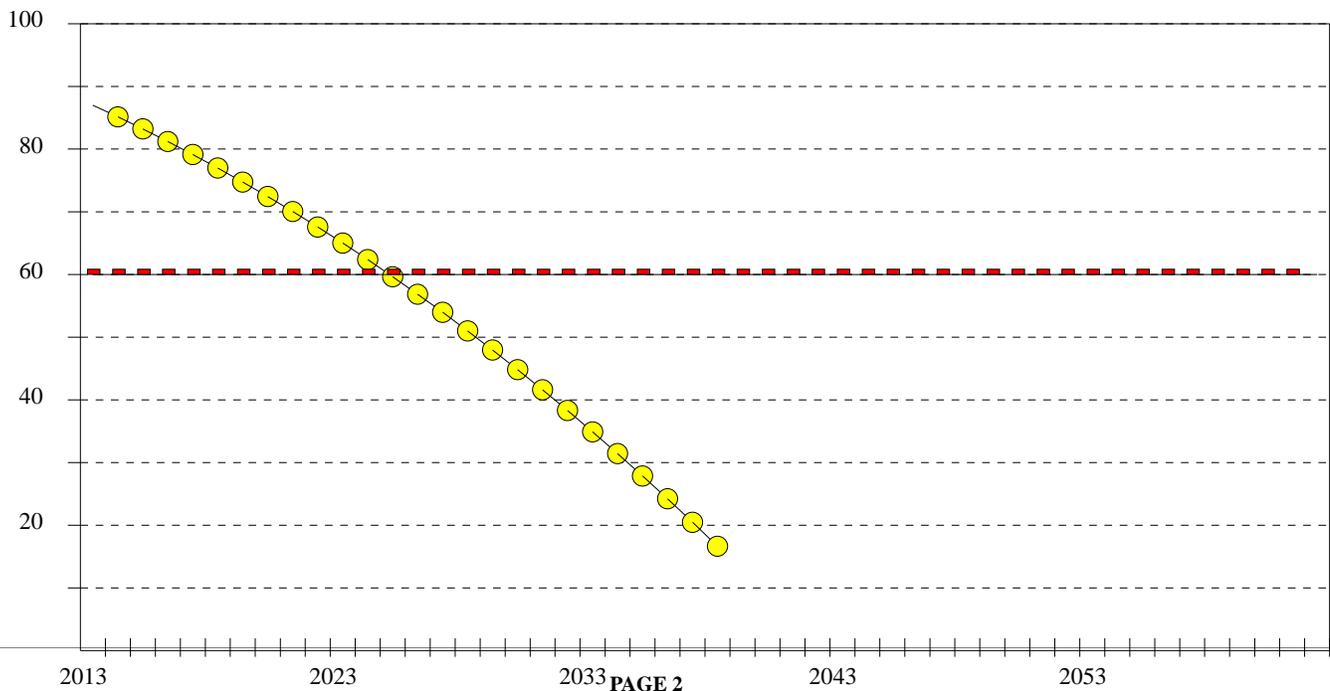
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 67

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3005

DESCRIPTION: RAMP

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 93

FEATURE AREA: 463,773

FEATURE'S LOW PCI: 68

INSPECTED AREA: 97,500

AVERAGE PCI: 87 GOOD

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 87 in 2013

COMMENTS/HISTORY FOR FEATURE 3005, RAMP

1984 - 9" PCC/ 6" Asphalt

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DISTRESS QUANTITIES FOR FEATURE 3005

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	HIGH	85	404	SLABS	37.4
JOINT SEAL DAMAGE	MED	110	523	SLABS	27.3
PUMPING	N/A	6	28	SLABS	20.3
SPALLING-JOINTS	HIGH	1	4	SLABS	10.1
SPALLING-JOINTS	MED	1	4	SLABS	2.3
SPALLING-CORNERS	MED	1	4	SLABS	2.3

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	16 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	36 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	48 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3005

DESCRIPTION: RAMP

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 87 GOOD

CONSTRUCTION YEAR: 1984

ESTIMATED PCI IS: 87 in 2013

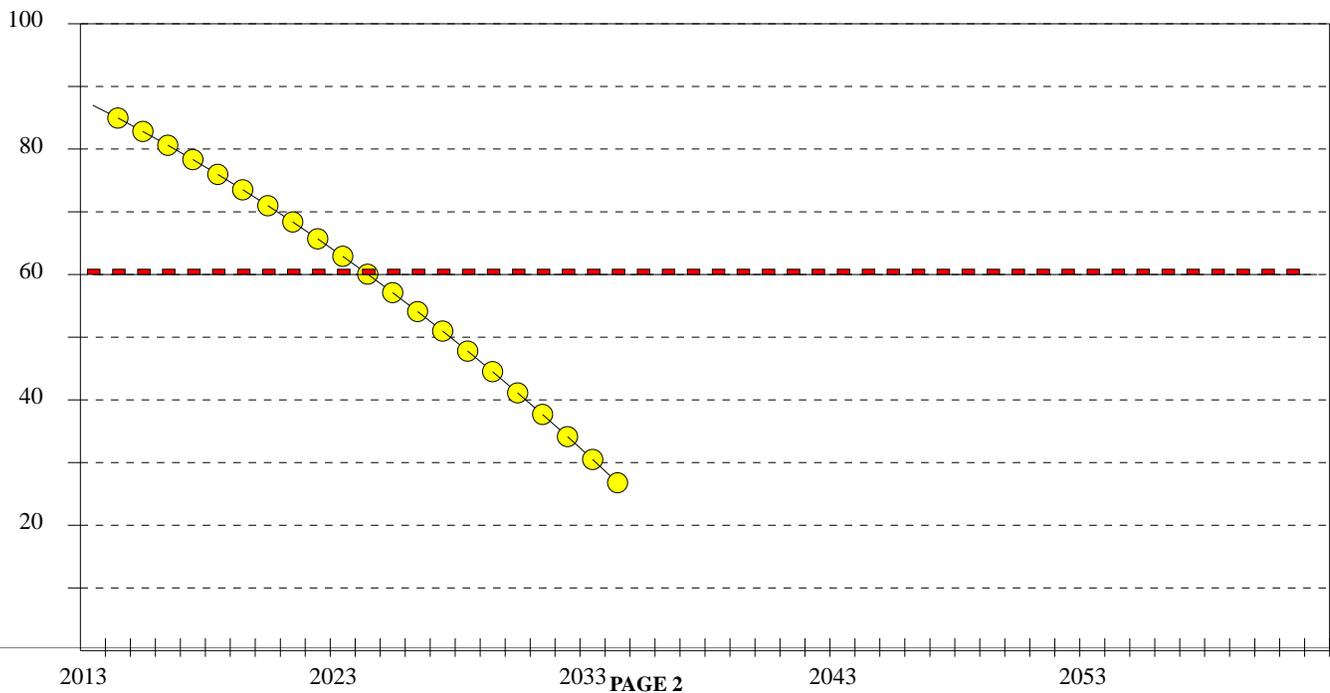
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 57

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3006	DESCRIPTION: RAMP
ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2020	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: PCC	FEATURE'S HIGH PCI: 88
FEATURE AREA: 54,930	FEATURE'S LOW PCI: 75
INSPECTED AREA: 25,000	AVERAGE PCI: 82 SATISFACTORY
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 56 in 2020

COMMENTS/HISTORY FOR FEATURE 3006, RAMP

1962 - 9" PCC
1975/1982 PANEL REPLACEMENT

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DISTRESS QUANTITIES FOR FEATURE 3006

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	MED	1	2	SLABS	11.2
LONG/TRAN/DIAG CRK.	LOW	4	8	SLABS	15.5
JOINT SEAL DAMAGE	HIGH	20	43	SLABS	12.1
JOINT SEAL DAMAGE	MED	80	175	SLABS	28.4
PATCH<5 SF	LOW	2	4	SLABS	1.3
SPALLING-JOINTS	MED	3	6	SLABS	11.1
SPALLING-JOINTS	LOW	1	2	SLABS	1.6
SPALLING-CORNERS	HIGH	1	2	SLABS	5.1
SPALLING-CORNERS	MED	3	6	SLABS	11.1
SPALLING-CORNERS	LOW	1	2	SLABS	2.2

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	24 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	21 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	56 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3006

DESCRIPTION: RAMP

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2020

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 82 SATISFACTORY

CONSTRUCTION YEAR: 1962

ESTIMATED PCI IS: 56 in 2020

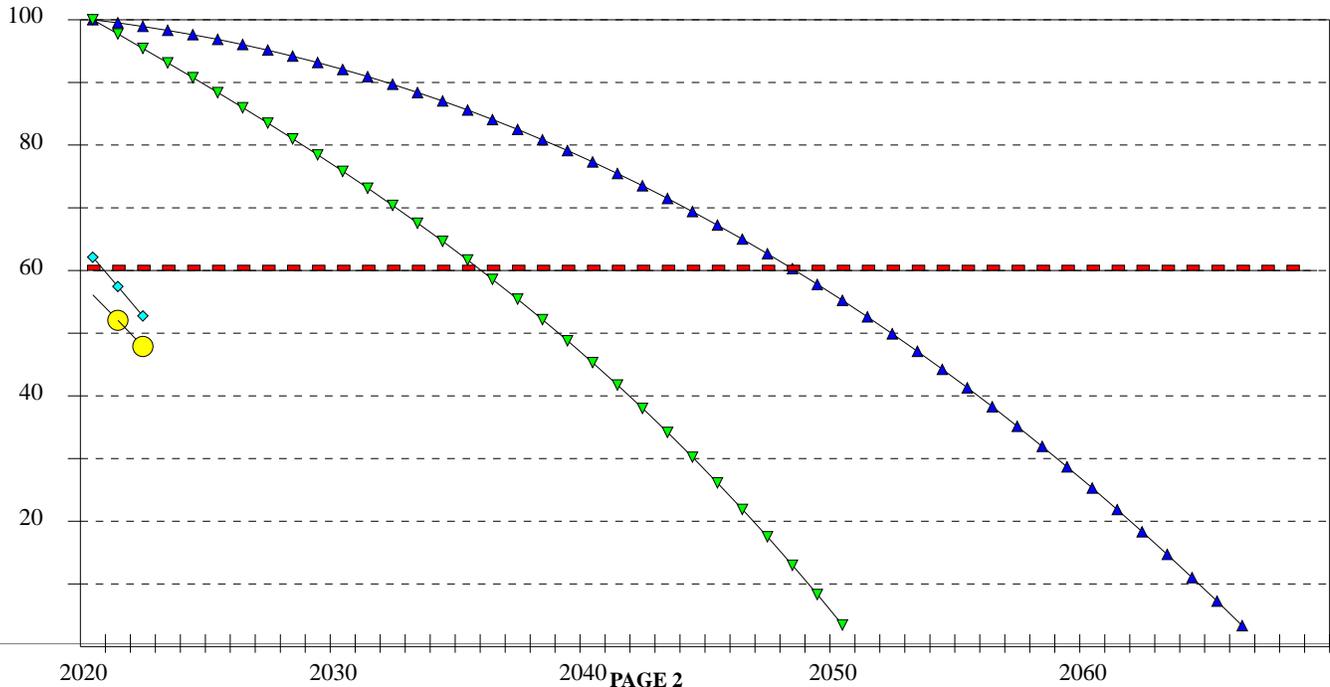
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 0

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RECONSTRUCTION	\$708,596	29 YEARS
▼	REPAIR AND/OR OVERLAY	\$302,664	16 YEARS
◆	JOINT/CRACK REPAIR	\$8,026	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3015	DESCRIPTION: RAMP
ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2024	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: PCC	FEATURE'S HIGH PCI: 98
FEATURE AREA: 110,640	FEATURE'S LOW PCI: 75
INSPECTED AREA: 46,000	AVERAGE PCI: 90 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 60 in 2024

COMMENTS/HISTORY FOR FEATURE 3015, RAMP

1978 PCC est

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DISTRESS QUANTITIES FOR FEATURE 3015

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	MED	56	134	SLABS	38.4
JOINT SEAL DAMAGE	LOW	36	86	SLABS	7.3
SCALING/CRAZING	MED	1	2	SLABS	11.5
SPALLING-JOINTS	HIGH	1	2	SLABS	28.2
SPALLING-JOINTS	LOW	1	2	SLABS	2.9
SPALLING-CORNERS	HIGH	1	2	SLABS	11.4

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	25 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	27 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	49 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3015

DESCRIPTION: RAMP

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2024

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 90 GOOD

CONSTRUCTION YEAR: 1978

ESTIMATED PCI IS: 60 in 2024

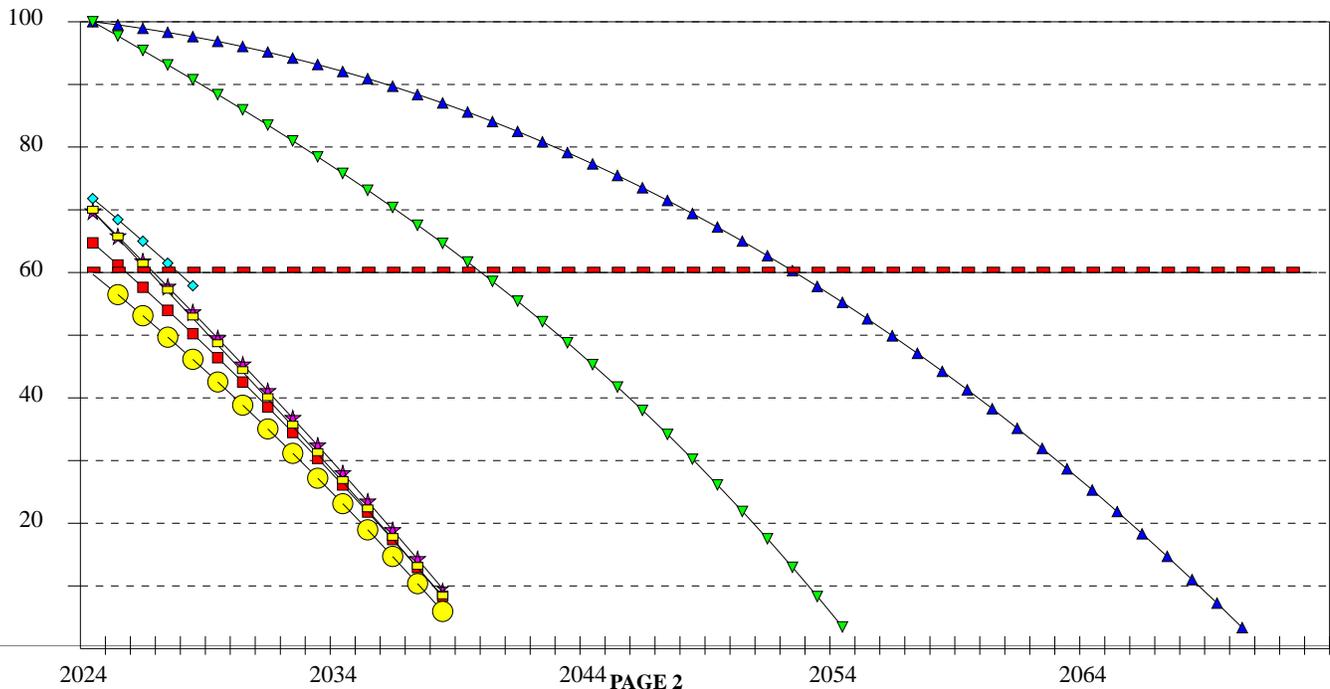
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 3

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RECONSTRUCTION	\$1,427,255	29 YEARS
▼	REPAIR AND/OR OVERLAY	\$609,626	16 YEARS
◆	SLAB REPLACEMENT	\$15,008	4 YEARS
■	SLAB REPLACEMENT/JOINT SEAL	\$20,249	2 YEARS
★	SLAB REPLACEMENT/PATCHING/JOINT SEAL	\$20,731	3 YEARS
□	PATCHING/JOINT REPAIR	\$5,722	3 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 4040

DESCRIPTION: RUNWAY 23 RUN UP

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 87

FEATURE AREA: 71,465

FEATURE'S LOW PCI: 77

INSPECTED AREA: 32,000

AVERAGE PCI: 83 SATISFACTORY

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 83 in 2013

COMMENTS/HISTORY FOR FEATURE 4040, RUNWAY 23 RUN UP

1997 PCC est

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DISTRESS QUANTITIES FOR FEATURE 4040

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
CORNER BREAK	MED	1	2	SLABS	11.2
JOINT SEAL DAMAGE	HIGH	16	35	SLABS	15.9
JOINT SEAL DAMAGE	MED	16	35	SLABS	9.3
JOINT SEAL DAMAGE	LOW	16	35	SLABS	2.6
PATCH>5 SF/UTIL.CUT	LOW	3	6	SLABS	14.4
SHRINKAGE CRACKS	N/A	1	2	SLABS	1.4
SPALLING-JOINTS	MED	2	4	SLABS	12.3
SPALLING-JOINTS	LOW	1	2	SLABS	2.6
SPALLING-CORNERS	MED	4	8	SLABS	23.1
SPALLING-CORNERS	LOW	2	4	SLABS	6.7

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 32 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 29 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 39 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 4040

DESCRIPTION: RUNWAY 23 RUN UP

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 83 SATISFACTORY

CONSTRUCTION YEAR: 1997

ESTIMATED PCI IS: 83 in 2013

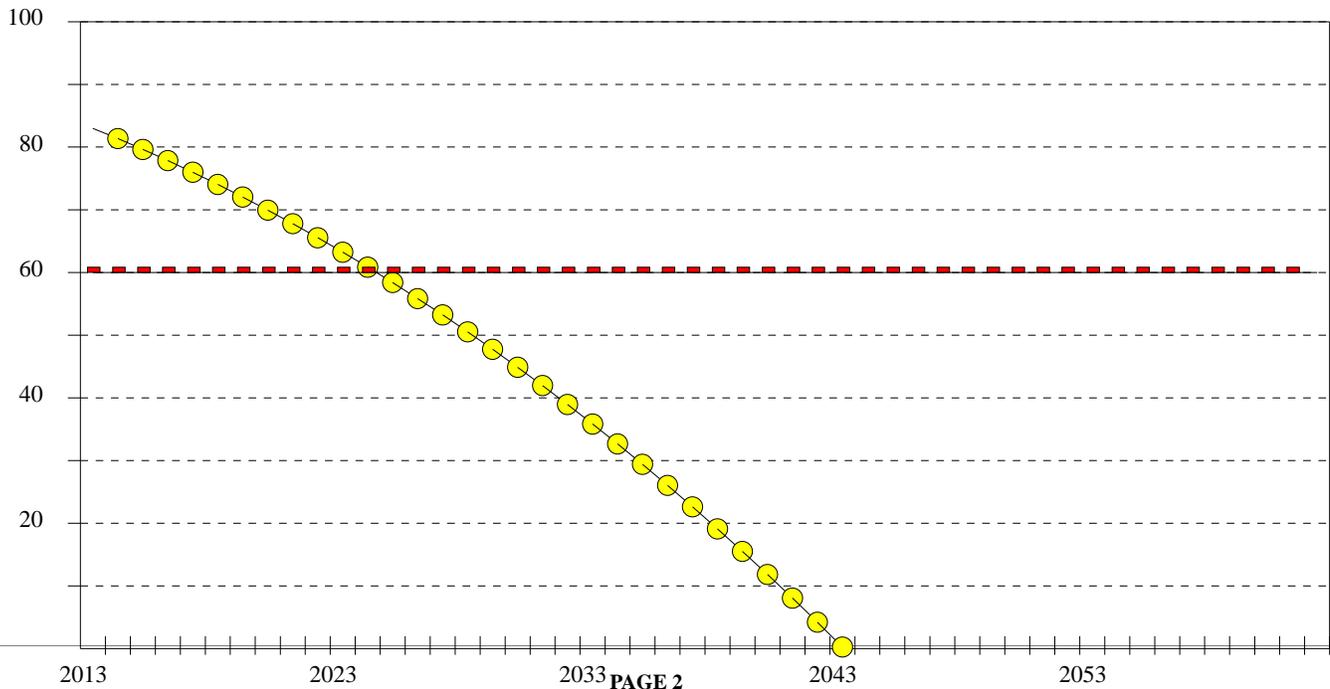
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 84

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 4205	DESCRIPTION: RUNWAY 5 RUN UP
ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2022	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: PCC	FEATURE'S HIGH PCI: 80
FEATURE AREA: 82,880	FEATURE'S LOW PCI: 78
INSPECTED AREA: 45,000	AVERAGE PCI: 79 SATISFACTORY
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 58 in 2022

COMMENTS/HISTORY FOR FEATURE 4205, RUNWAY 5 RUN UP

1988 14" PCC Overlay

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DISTRESS QUANTITIES FOR FEATURE 4205

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	LOW	1	1	SLABS	5.8
JOINT SEAL DAMAGE	HIGH	72	132	SLABS	57.7
SETTLEMENT/FAULT	LOW	3	5	SLABS	17.3
SPALLING-JOINTS	MED	2	3	SLABS	10
SPALLING-JOINTS	LOW	1	1	SLABS	2.1
SPALLING-CORNERS	HIGH	1	1	SLABS	6.8

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	24 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	27 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	49 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 4205

DESCRIPTION: RUNWAY 5 RUN UP

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2022

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 79 SATISFACTORY

CONSTRUCTION YEAR: 1988

ESTIMATED PCI IS: 58 in 2022

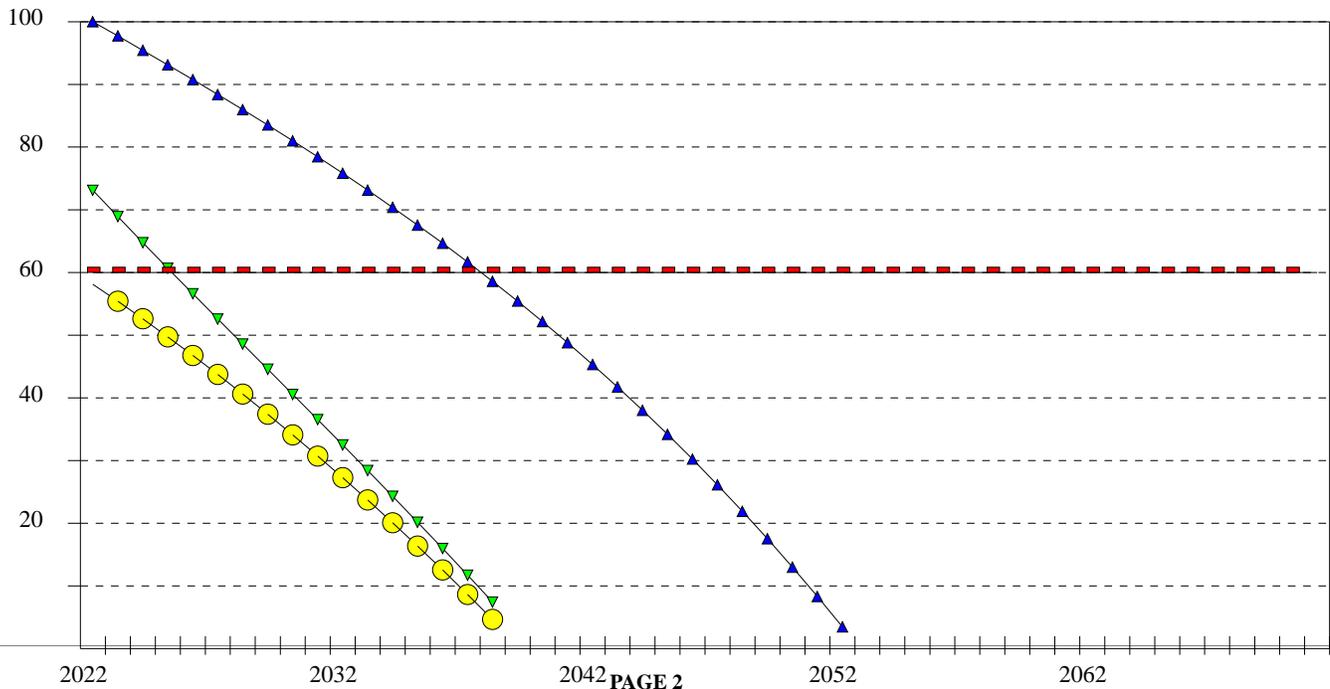
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 44

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	\$456,668	16 YEARS
▼	PATCHING/JOINT REPAIR	\$15,344	4 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 4305	DESCRIPTION: RUNWAY 36 RUN UP
ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2024	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: PCC	FEATURE'S HIGH PCI: 88
FEATURE AREA: 49,151	FEATURE'S LOW PCI: 88
INSPECTED AREA: 25,000	AVERAGE PCI: 88 GOOD
MINIMUM SERVICE LEVEL: 60	ESTIMATED PCI IS: 57 in 2024

COMMENTS/HISTORY FOR FEATURE 4305, RUNWAY 36 RUN UP

1978 PCC est

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DISTRESS QUANTITIES FOR FEATURE 4305

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	HIGH	40	78	SLABS	100

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	33 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	67 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 4305

DESCRIPTION: RUNWAY 36 RUN UP

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2024

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 88 GOOD

CONSTRUCTION YEAR: 1978

ESTIMATED PCI IS: 57 in 2024

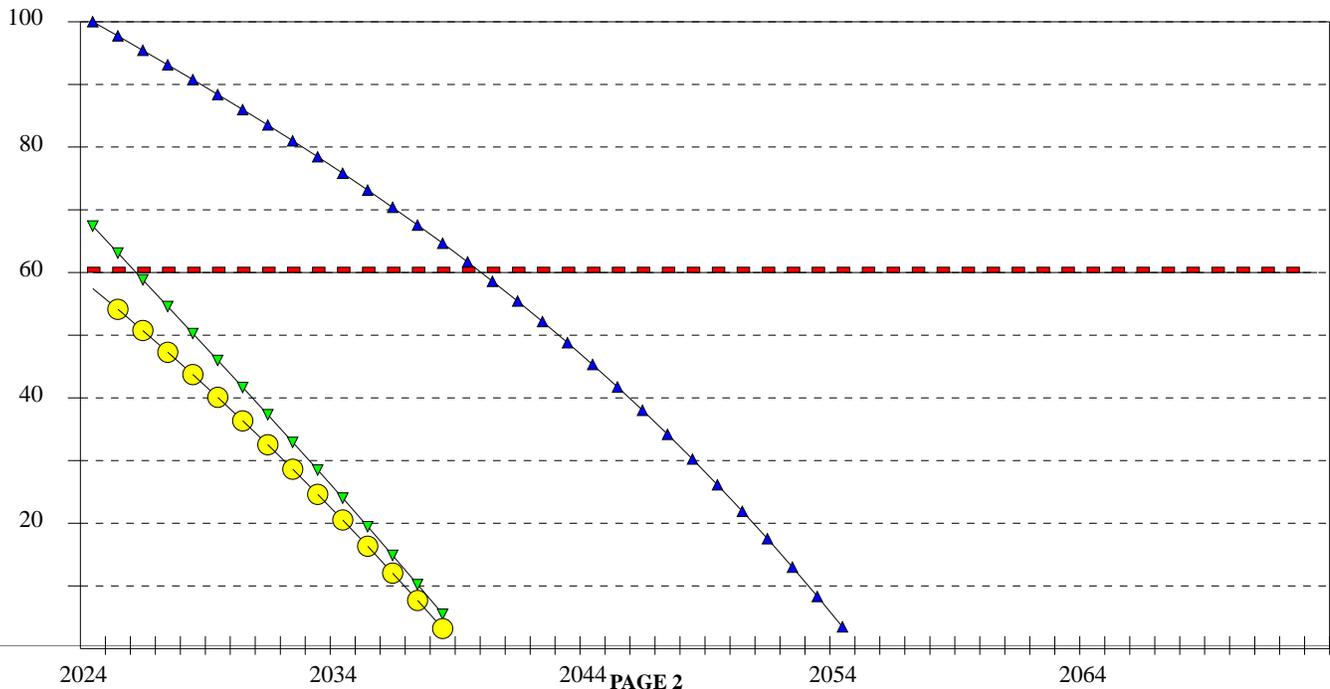
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 3

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	\$270,822	16 YEARS
▼	JOINT/CRACK REPAIR	\$8,807	2 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 4310

DESCRIPTION: RUNWAY 36 RUN UP

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

FEATURE'S HIGH PCI: 87

FEATURE AREA: 59,415

FEATURE'S LOW PCI: 79

INSPECTED AREA: 20,000

AVERAGE PCI: 83 SATISFACTORY

MINIMUM SERVICE LEVEL: 60

ESTIMATED PCI IS: 79 in 2013

COMMENTS/HISTORY FOR FEATURE 4310, RUNWAY 36 RUN UP

1997 AC est

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DISTRESS QUANTITIES FOR FEATURE 4310

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	196	582	L.F.	48.8
LONG.& TRANS. CRACK	LOW	678	2,014	L.F.	51.1

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	67 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 4310

DESCRIPTION: RUNWAY 36 RUN UP

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

AVERAGE PCI AT INSPECTION: 83 SATISFACTORY

CONSTRUCTION YEAR: 1997

ESTIMATED PCI IS: 79 in 2013

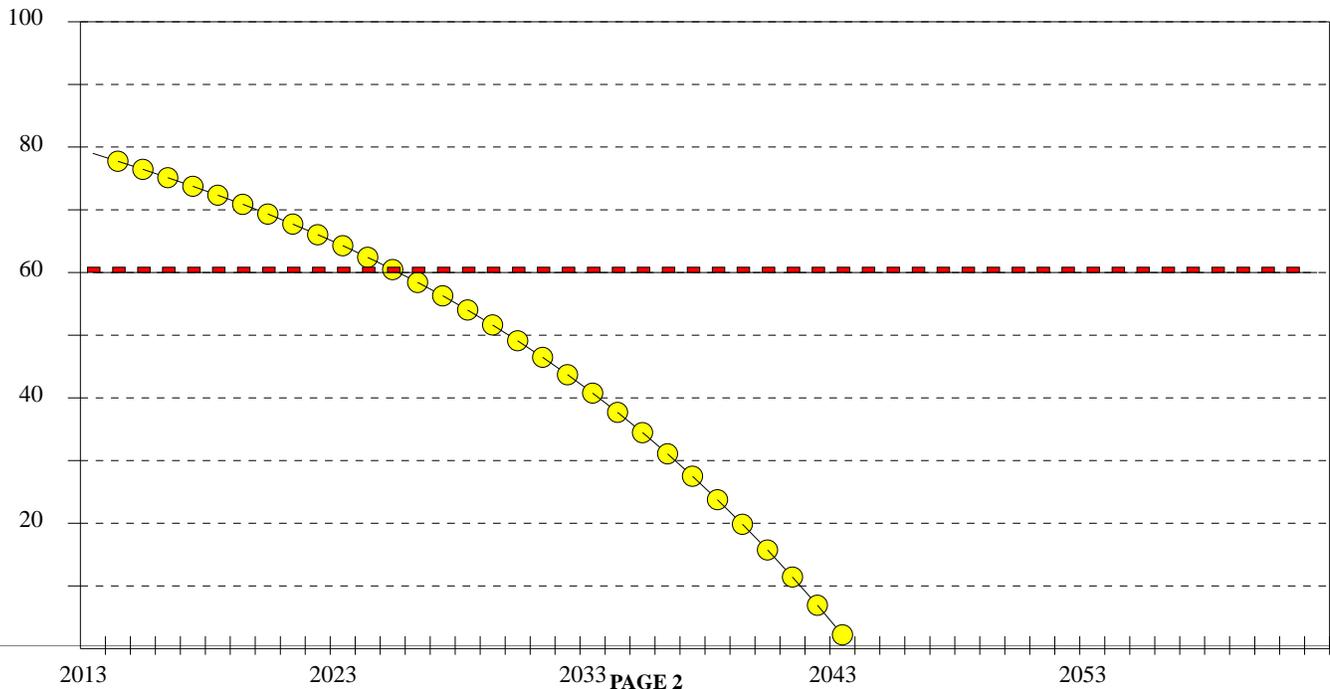
MINIMUM SERVICE LEVEL: 60

NORMAL PCI FOR THIS AGE: 79

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 60		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7005

DESCRIPTION: RUNWAY 14-32 KEEL

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2023

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

FEATURE'S HIGH PCI: 82

FEATURE AREA: 25,013

FEATURE'S LOW PCI: 76

INSPECTED AREA: 15,000

AVERAGE PCI: 78 SATISFACTORY

MINIMUM SERVICE LEVEL: 65

ESTIMATED PCI IS: 63 in 2023

COMMENTS/HISTORY FOR FEATURE 7005, RUNWAY 14-32 KEEL

1998: 2.5" Mill & 4.5" AC Overlay
 1980: 3" AC Overlay
 1975: 3" AC / 4" Base
 1969: 2" AC / 8" COLD Laid Base

DISTRESS QUANTITIES FOR FEATURE 7005

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	389	648	L.F.	57.1
LONG.& TRANS. CRACK	LOW	618	1,030	L.F.	41.9
WEATHERING	LOW	300	500	S.F.	.9

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 0 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 66 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 34 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7005

DESCRIPTION: RUNWAY 14-32 KEEL

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2023

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

AVERAGE PCI AT INSPECTION: 78 SATISFACTORY

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 63 in 2023

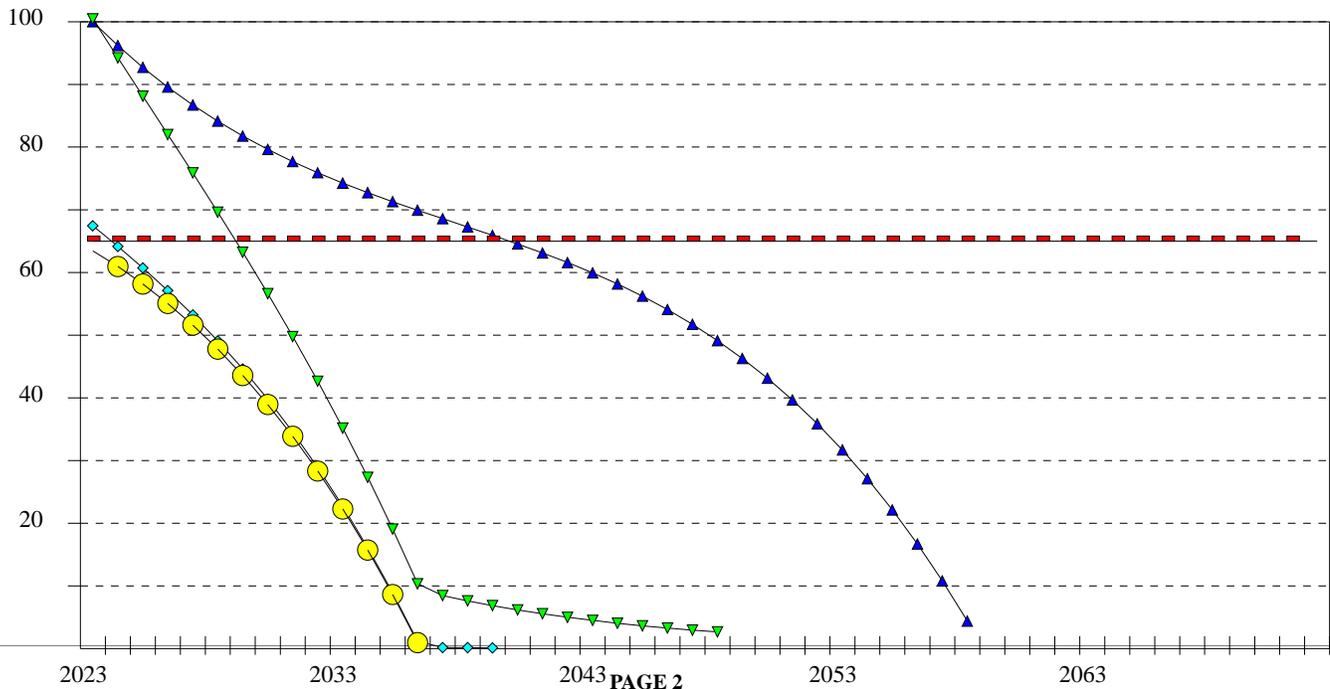
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 49

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	\$36,018	17 YEARS
▼	SURFACE TREATMENT	\$10,558	6 YEARS
◆	CRACK REPAIR	\$2,080	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7010

DESCRIPTION: RUNWAY 14-32 WING

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2023

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

FEATURE'S HIGH PCI: 83

FEATURE AREA: 50,158

FEATURE'S LOW PCI: 77

INSPECTED AREA: 20,000

AVERAGE PCI: 79 SATISFACTORY

MINIMUM SERVICE LEVEL: 65

ESTIMATED PCI IS: 65 in 2023

COMMENTS/HISTORY FOR FEATURE 7010, RUNWAY 14-32 WING

1998: 2.5" Mill & 4.5" AC Overlay
 1980: 3" AC Overlay
 1975: 3" AC / 4" Base
 1969: 2" AC / 8" COLD Laid Base

DISTRESS QUANTITIES FOR FEATURE 7010

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	486	1,218	L.F.	60.6
LONG.& TRANS. CRACK	LOW	715	1,793	L.F.	39.3

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 0 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 67 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7010

DESCRIPTION: RUNWAY 14-32 WING

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2023

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

AVERAGE PCI AT INSPECTION: 79 SATISFACTORY

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 65 in 2023

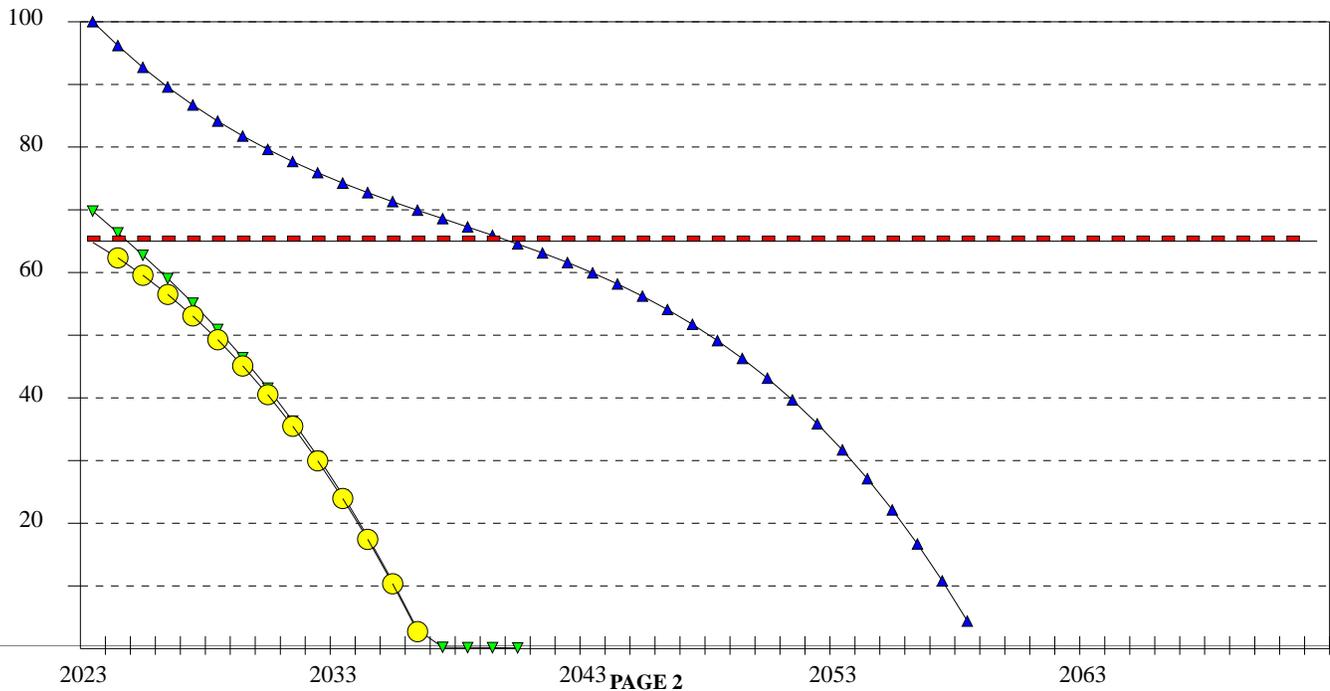
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 49

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	\$72,227	17 YEARS
▼	CRACK REPAIR	\$3,733	2 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7015

DESCRIPTION: RUNWAY 14-32 KEEL

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

FEATURE'S HIGH PCI: 92

FEATURE AREA: 70,476

FEATURE'S LOW PCI: 77

INSPECTED AREA: 30,000

AVERAGE PCI: 83 SATISFACTORY

MINIMUM SERVICE LEVEL: 65

ESTIMATED PCI IS: 83 in 2013

COMMENTS/HISTORY FOR FEATURE 7015, RUNWAY 14-32 KEEL

1998: 2.5" Mill & 4.5" AC Overlay
 1975: 3" AC Overlay
 1964: 1.5" AC / 4" Base
 1943: 2" AC / 8" Cold Laid AC Base

DISTRESS QUANTITIES FOR FEATURE 7015

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	114	267	L.F.	23.2
LONG.& TRANS. CRACK	LOW	1,565	3,676	L.F.	76.7

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 0 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 67 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7015

DESCRIPTION: RUNWAY 14-32 KEEL

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

AVERAGE PCI AT INSPECTION: 83 SATISFACTORY

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 83 in 2013

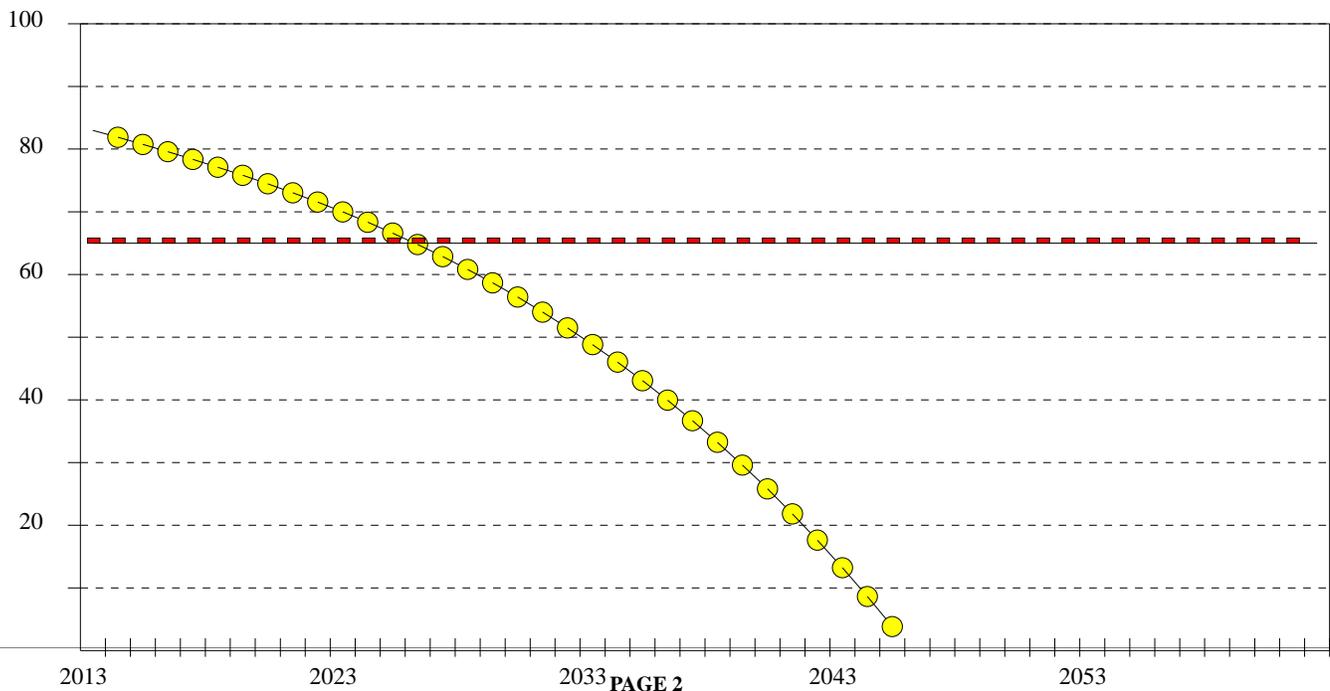
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 81

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7020

DESCRIPTION: RUNWAY 14-32 WING

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

FEATURE'S HIGH PCI: 96

FEATURE AREA: 140,952

FEATURE'S LOW PCI: 79

INSPECTED AREA: 39,000

AVERAGE PCI: 86 GOOD

MINIMUM SERVICE LEVEL: 65

ESTIMATED PCI IS: 86 in 2013

COMMENTS/HISTORY FOR FEATURE 7020, RUNWAY 14-32 WING

1998: 2.5" Mill & 4.5" AC Overlay
 1975: 3" AC Overlay
 1964: 1.5" AC / 4" Base
 1943: 2" AC / 8" Cold Laid AC Base

DISTRESS QUANTITIES FOR FEATURE 7020

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
DEPRESSION	LOW	4	14	S.F.	0
LONG.& TRANS. CRACK	MED	11	39	L.F.	9.5
LONG.& TRANS. CRACK	LOW	1,639	5,923	L.F.	90.4

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 0 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 67 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7020

DESCRIPTION: RUNWAY 14-32 WING

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

AVERAGE PCI AT INSPECTION: 86 GOOD

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 86 in 2013

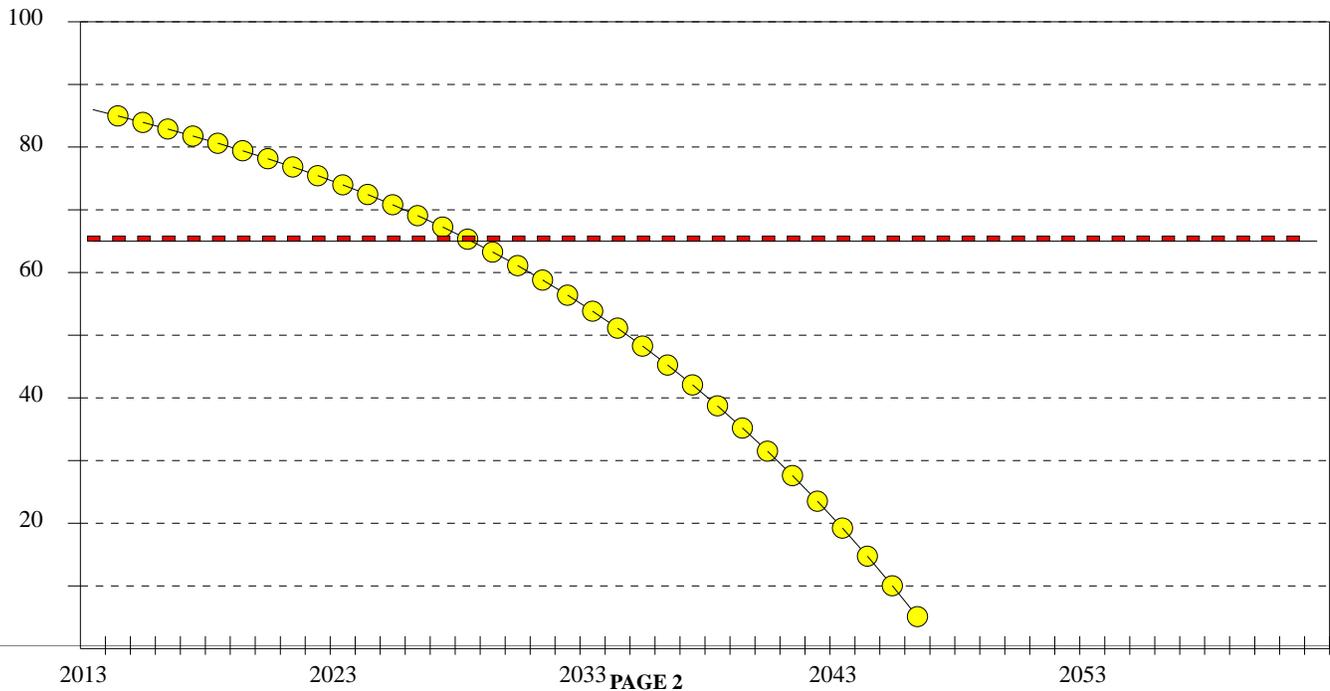
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 81

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7025

DESCRIPTION: RUNWAY 14-32 KEEL

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 93

FEATURE AREA: 21,236

FEATURE'S LOW PCI: 90

INSPECTED AREA: 10,000

AVERAGE PCI: 91 GOOD

MINIMUM SERVICE LEVEL: 65

ESTIMATED PCI IS: 91 in 2013

COMMENTS/HISTORY FOR FEATURE 7025, RUNWAY 14-32 KEEL

1998: 16" P501 / 6" P401 / 12" P155 (25'x25'slabs)
 ASSUME SAME SECTION AS RUNWAY EXTENSION
 AT ARRESTER

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DISTRESS QUANTITIES FOR FEATURE 7025

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	MED	8	17	SLABS	40.3
JOINT SEAL DAMAGE	LOW	8	17	SLABS	11.5
SPALLING-CORNERS	MED	1	2	SLABS	48.1

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	16 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	33 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	51 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7025

DESCRIPTION: RUNWAY 14-32 KEEL

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 91 GOOD

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 91 in 2013

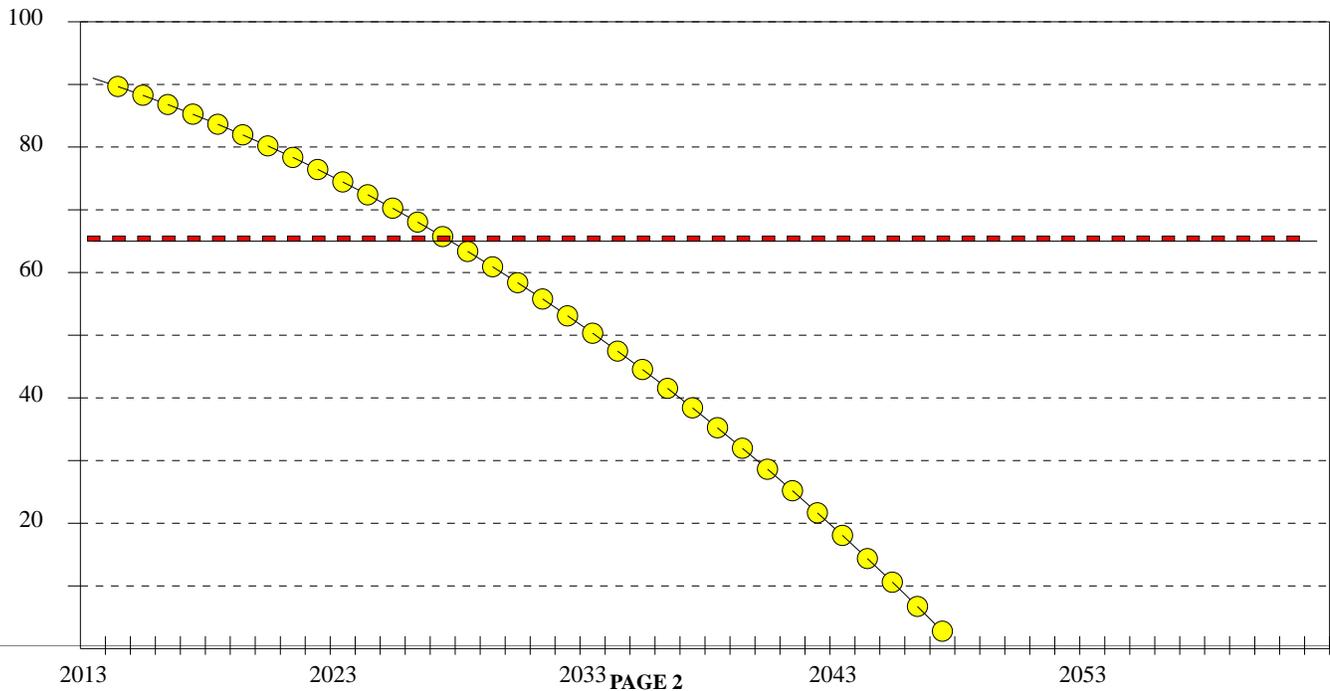
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 85

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7030

DESCRIPTION: RUNWAY 14-32 WINGS

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 93

FEATURE AREA: 42,472

FEATURE'S LOW PCI: 86

INSPECTED AREA: 20,000

AVERAGE PCI: 89 GOOD

MINIMUM SERVICE LEVEL: 65

ESTIMATED PCI IS: 89 in 2013

COMMENTS/HISTORY FOR FEATURE 7030, RUNWAY 14-32 WINGS

1998: 16" P501 / 6" P401 / 12" P155 (25'x25'slabs)
 ASSUME SAME SECTION AS RUNWAY EXTENSION

*
 *

DISTRESS QUANTITIES FOR FEATURE 7030

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	HIGH	16	34	SLABS	51.2
JOINT SEAL DAMAGE	MED	16	34	SLABS	29.8
SPALLING-JOINTS	MED	1	2	SLABS	18.9

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 13 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 27 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 60 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7030

DESCRIPTION: RUNWAY 14-32 WINGS

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 89 GOOD

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 89 in 2013

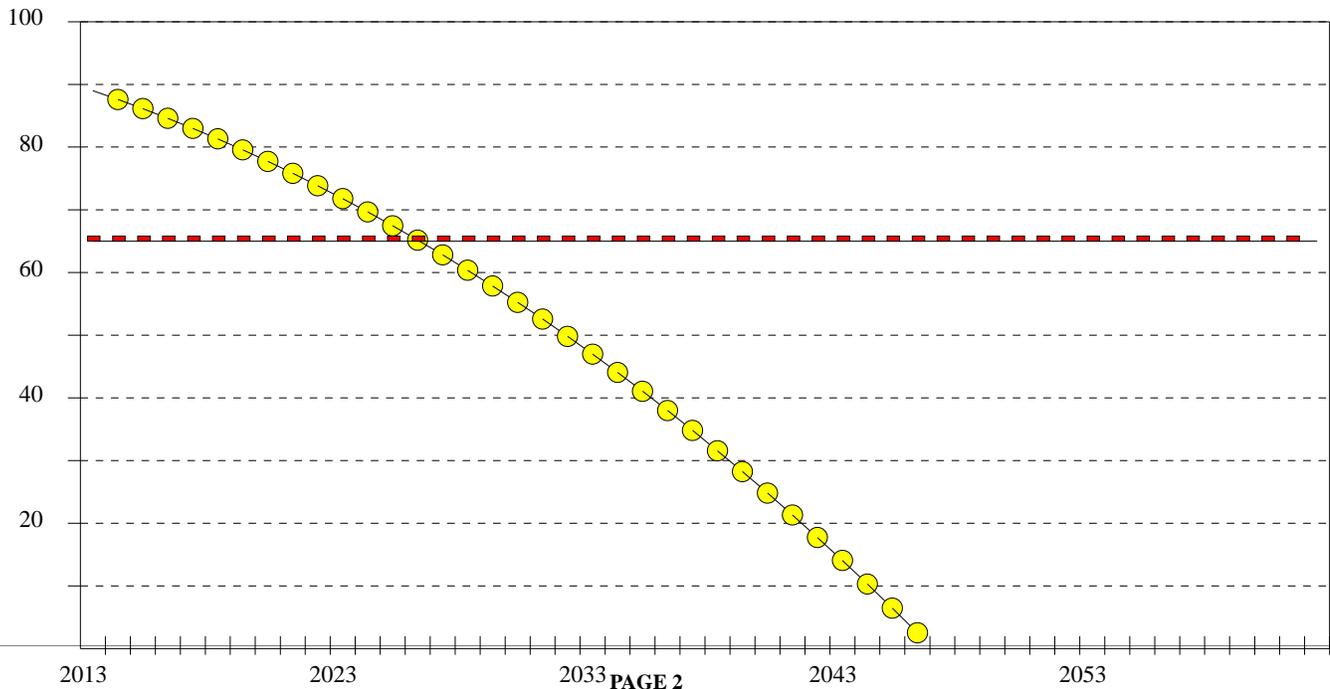
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 85

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7035	DESCRIPTION: RUNWAY 14-32 KEEL
ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2022	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC OVERLAY	FEATURE'S HIGH PCI: 80
FEATURE AREA: 109,270	FEATURE'S LOW PCI: 72
INSPECTED AREA: 35,000	AVERAGE PCI: 77 SATISFACTORY
MINIMUM SERVICE LEVEL: 65	ESTIMATED PCI IS: 64 in 2022

COMMENTS/HISTORY FOR FEATURE 7035, RUNWAY 14-32 KEEL

1998: 2.5" Mill & 4.5" AC Overlay
 1975: 3" AC Overlay
 1964: 1.5" AC / 4" Base
 1943: 2" AC / 8" COLD Laid AC Base

DISTRESS QUANTITIES FOR FEATURE 7035

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	1,008	3,147	L.F.	54.8
LONG.& TRANS. CRACK	LOW	1,818	5,675	L.F.	45.1

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	67 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7035

DESCRIPTION: RUNWAY 14-32 KEEL

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2022

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC OVERLAY

AVERAGE PCI AT INSPECTION: 77 SATISFACTORY

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 64 in 2022

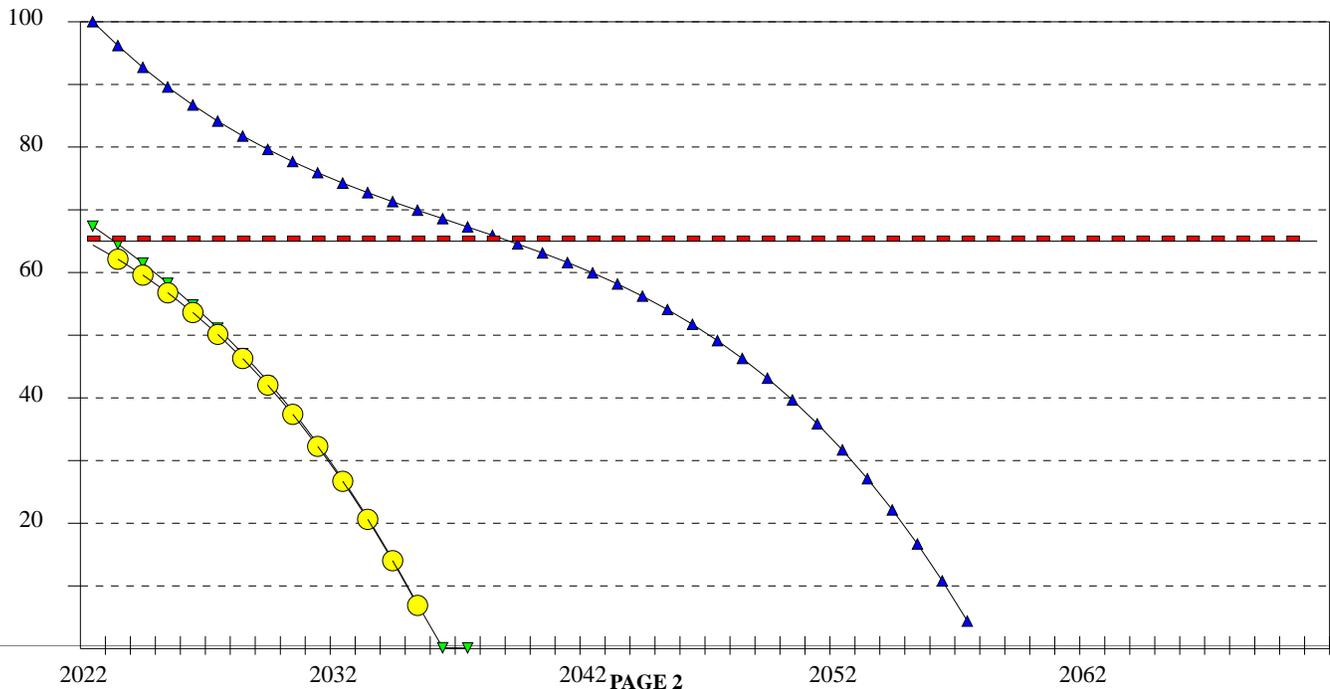
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 51

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	\$157,348	17 YEARS
▼	CRACK REPAIR	\$10,939	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7040

DESCRIPTION: RUNWAY 14-32 WING

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

FEATURE'S HIGH PCI: 90

FEATURE AREA: 218,549

FEATURE'S LOW PCI: 74

INSPECTED AREA: 50,000

AVERAGE PCI: 82 SATISFACTORY

MINIMUM SERVICE LEVEL: 65

ESTIMATED PCI IS: 82 in 2013

COMMENTS/HISTORY FOR FEATURE 7040, RUNWAY 14-32 WING

1998: 2.5" Mill & 4.5" AC Overlay
 1975: 3" AC Overlay
 1964: 1.5" AC / 4" Base
 1943: 2" AC / 8" Cold Laid AC Base

DISTRESS QUANTITIES FOR FEATURE 7040

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	928	4,056	L.F.	63.5
LONG.& TRANS. CRACK	LOW	1,174	5,131	L.F.	36.4

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 0 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 67 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7040

DESCRIPTION: RUNWAY 14-32 WING

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

AVERAGE PCI AT INSPECTION: 82 SATISFACTORY

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 82 in 2013

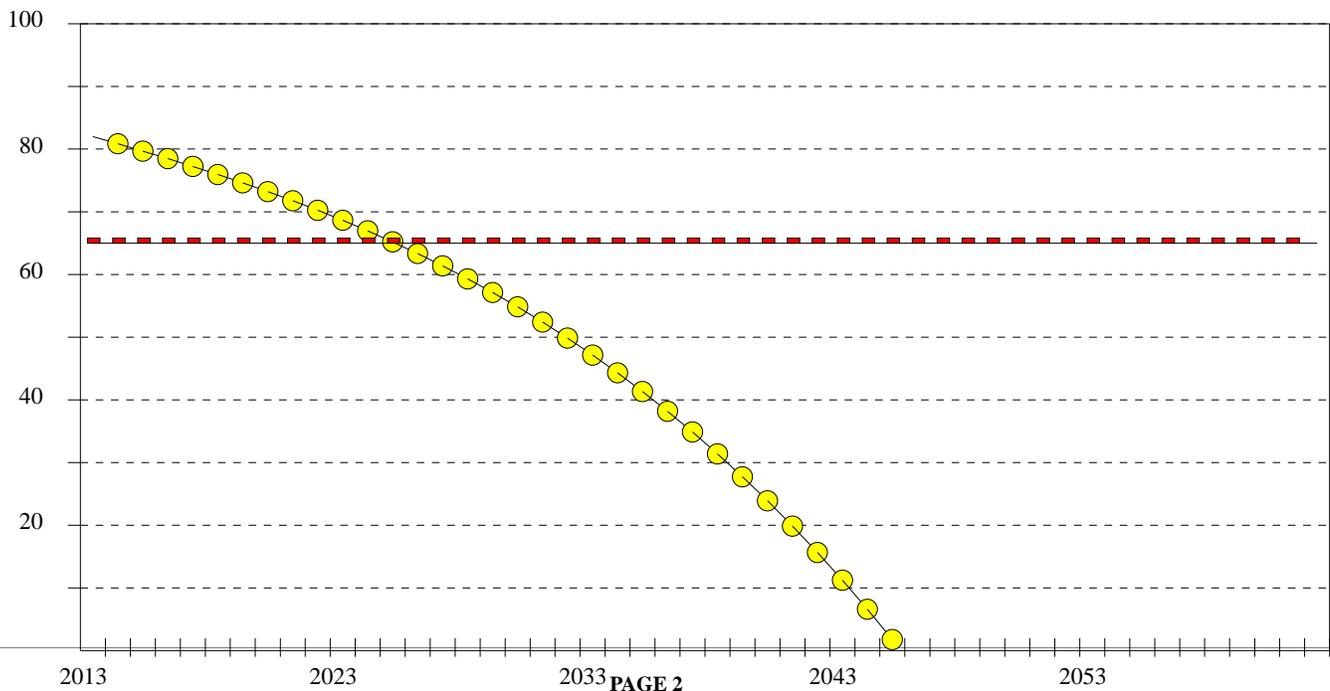
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 81

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7045

DESCRIPTION: RUNWAY 14-32 KEEL

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2023

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

FEATURE'S HIGH PCI: 86

FEATURE AREA: 94,985

FEATURE'S LOW PCI: 79

INSPECTED AREA: 30,000

AVERAGE PCI: 83 SATISFACTORY

MINIMUM SERVICE LEVEL: 65

ESTIMATED PCI IS: 63 in 2023

COMMENTS/HISTORY FOR FEATURE 7045, RUNWAY 14-32 KEEL

1998: 16" P501 / 6" P401 / 12" P155 (25'x25'slabs)

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DISTRESS QUANTITIES FOR FEATURE 7045

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	HIGH	48	152	SLABS	68.2
PATCH<5 SF	LOW	5	15	SLABS	7.9
SHRINKAGE CRACKS	N/A	4	12	SLABS	7.8
SPALLING-CORNERS	HIGH	1	3	SLABS	11
SPALLING-CORNERS	LOW	1	3	SLABS	4.8

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 5 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 37 %
 APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 57 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7045

DESCRIPTION: RUNWAY 14-32 KEEL

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2023

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 83 SATISFACTORY

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 63 in 2023

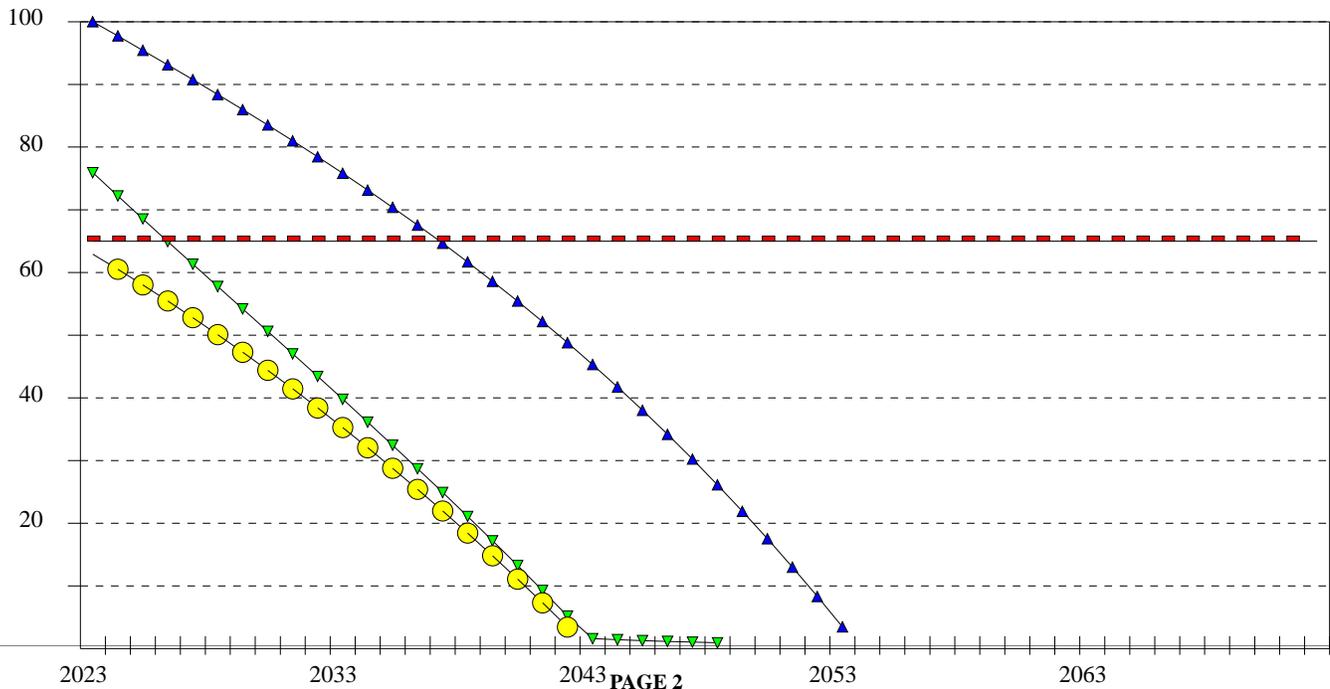
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 67

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	\$523,367	14 YEARS
▼	PATCHING/JOINT REPAIR	\$17,444	3 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7050	DESCRIPTION: RUNWAY 14-32 WING
ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2022	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: PCC	FEATURE'S HIGH PCI: 88
FEATURE AREA: 191,677	FEATURE'S LOW PCI: 70
INSPECTED AREA: 50,000	AVERAGE PCI: 82 SATISFACTORY
MINIMUM SERVICE LEVEL: 65	ESTIMATED PCI IS: 64 in 2022

COMMENTS/HISTORY FOR FEATURE 7050, RUNWAY 14-32 WING

1998: 16" P501 / 6" P401 / 12" P155 (25'x25'slabs)

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DISTRESS QUANTITIES FOR FEATURE 7050

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
JOINT SEAL DAMAGE	HIGH	80	306	SLABS	63.4
PATCH<5 SF	LOW	7	26	SLABS	6.1
SETTLEMENT/FAULT	LOW	3	11	SLABS	12.1
SHRINKAGE CRACKS	N/A	9	34	SLABS	9.5
SPALLING-CORNERS	LOW	4	15	SLABS	8.6

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	11 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	37 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	52 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7050

DESCRIPTION: RUNWAY 14-32 WING

ANALYSIS YEAR: 2013 OPTIMIZED FOR: 2022

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: PCC

AVERAGE PCI AT INSPECTION: 82 SATISFACTORY

CONSTRUCTION YEAR: 1998

ESTIMATED PCI IS: 64 in 2022

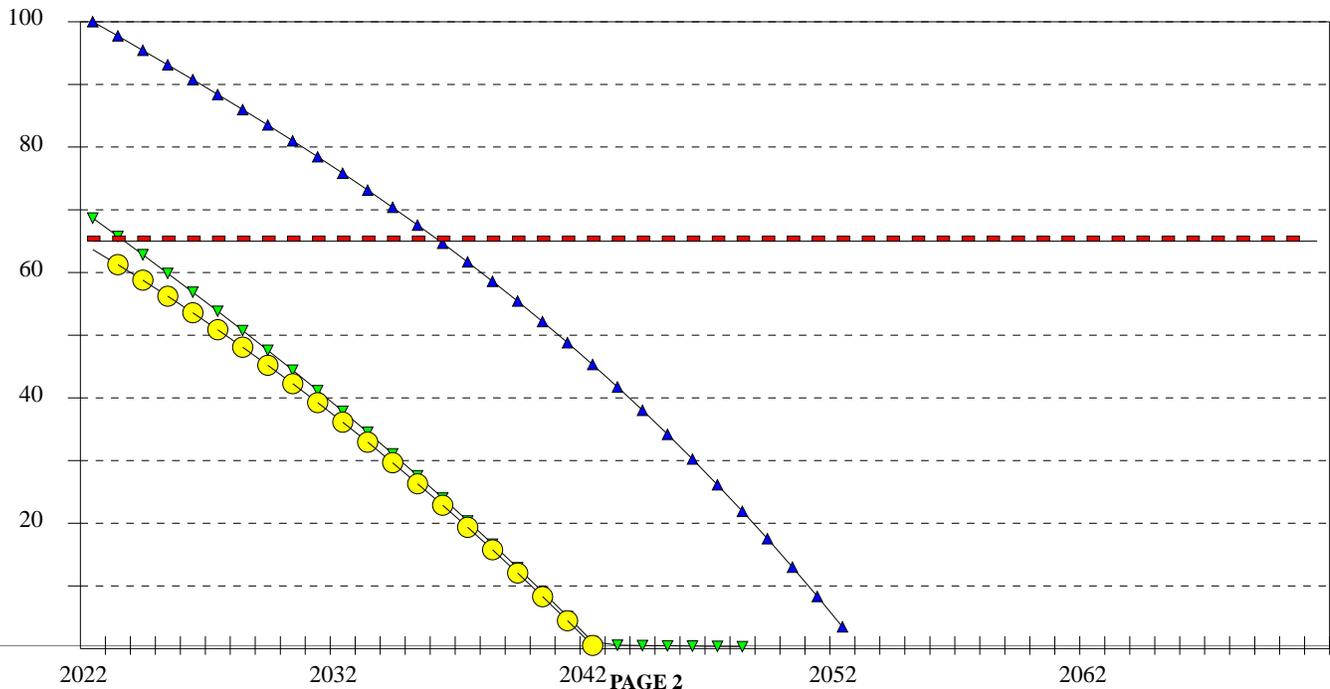
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 69

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	\$1,056,140	14 YEARS
▼	PATCHING/JOINT REPAIR	\$35,372	2 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7055	DESCRIPTION: RUNWAY 14-32
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC +	FEATURE'S HIGH PCI: 96
FEATURE AREA: 31,494	FEATURE'S LOW PCI: 89
INSPECTED AREA: 18,000	AVERAGE PCI: 92 GOOD
MINIMUM SERVICE LEVEL: 65	ESTIMATED PCI IS: 93 in 2013

COMMENTS/HISTORY FOR FEATURE 7055, RUNWAY 14-32

2009 AC OVERLAY
 1998: 2.5" Mill & 4.5" AC Overlay
 1975: 3" AC Overlay
 1964: 1.5" AC / 4" Base/1943: 2" AC / 8" Cold Laid AC Base

DISTRESS QUANTITIES FOR FEATURE 7055

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	7	12	L.F.	14.8
LONG.& TRANS. CRACK	LOW	292	510	L.F.	74.8
RAVELING	LOW	6	10	S.F.	6.3
SWELL	LOW	6	10	S.F.	3.9

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	66 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	34 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7055

DESCRIPTION: RUNWAY 14-32

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

AVERAGE PCI AT INSPECTION: 92 GOOD

CONSTRUCTION YEAR: 2009

ESTIMATED PCI IS: 93 in 2013

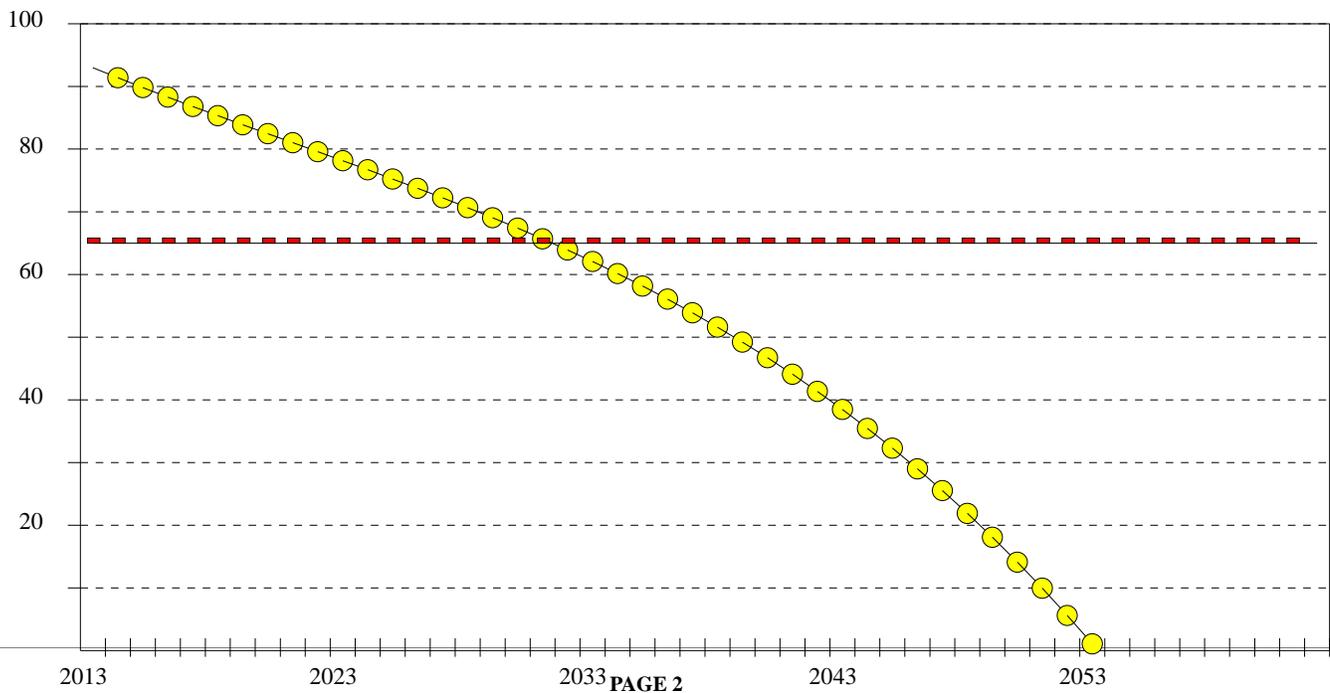
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 94

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7060	DESCRIPTION: RUNWAY 14-32
ANALYSIS YEAR: 2013	INSPECTION DATE: 9-6-13
PAVEMENT TYPE: AC +	FEATURE'S HIGH PCI: 100
FEATURE AREA: 65,462	FEATURE'S LOW PCI: 97
INSPECTED AREA: 33,000	AVERAGE PCI: 100 GOOD
MINIMUM SERVICE LEVEL: 65	ESTIMATED PCI IS: 94 in 2013

COMMENTS/HISTORY FOR FEATURE 7060, RUNWAY 14-32

2009 AC OVERLAY
 1998: 2.5" Mill & 4.5" AC Overlay
 1975: 3" AC Overlay
 1964: 1.5" AC / 4" Base/1943: 2" AC / 8" Cold Laid AC Base

DISTRESS QUANTITIES FOR FEATURE 7060

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	LOW	16	31	L.F.	100

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	0 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	67 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	33 %



AIRPORT: TERRE HAUTE INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 7060

DESCRIPTION: RUNWAY 14-32

ANALYSIS YEAR: 2013

INSPECTION DATE: 9-6-13

PAVEMENT TYPE: AC +

AVERAGE PCI AT INSPECTION: 100 GOOD

CONSTRUCTION YEAR: 2009

ESTIMATED PCI IS: 94 in 2013

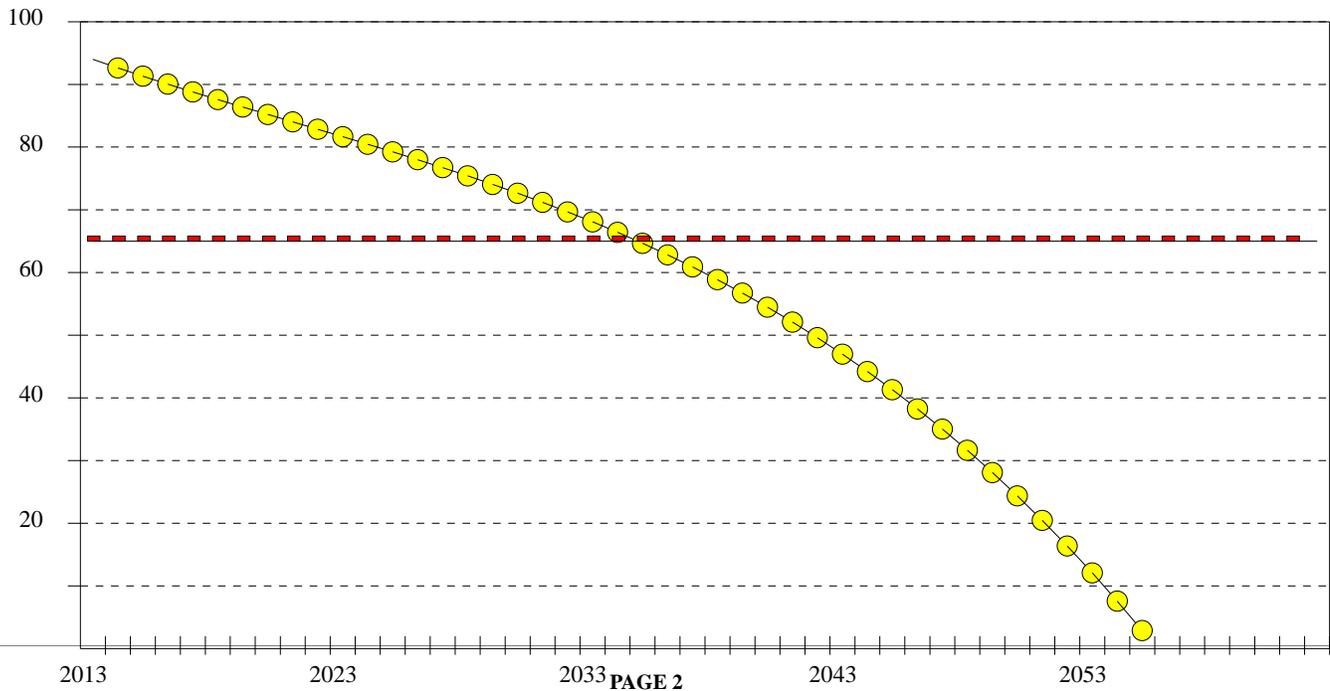
MINIMUM SERVICE LEVEL: 65

NORMAL PCI FOR THIS AGE: 94

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

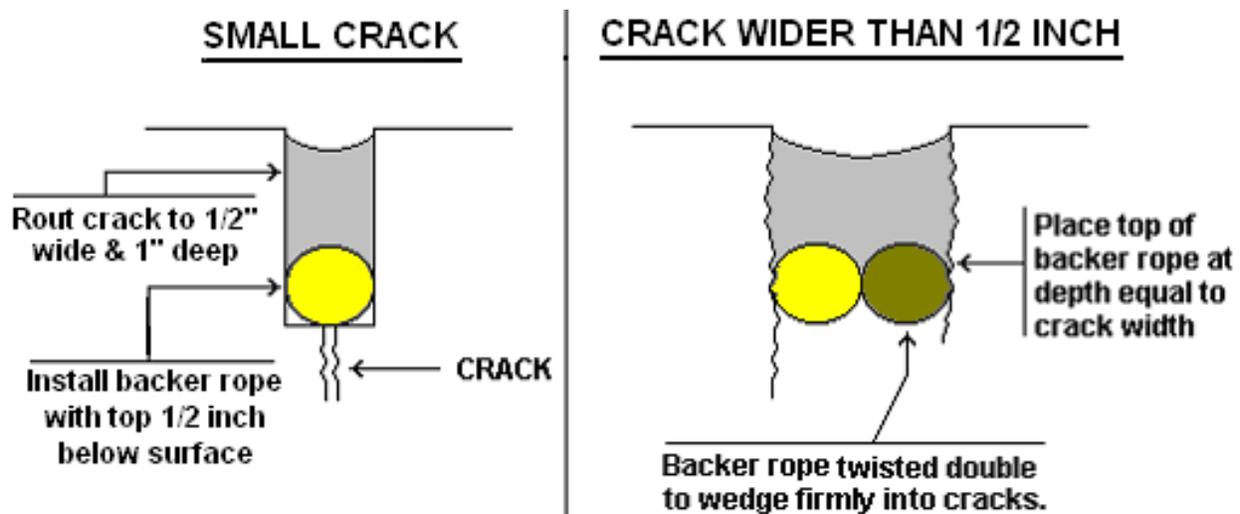
PROJECTED PERFORMANCE



Appendix C. General Maintenance Techniques

Crack Sealing

- Cracks over ¼ inches wide should be sealed.
- Cracks wider than 3 inches should be patched.
- Sealant depth above the backer rope should be equal to the width of the reservoir, or as recommended by the manufacturer.
- Routed cracks should be sand blasted, to prepare for bonding with the sealant.
- Clean cracks with compressed air prior to sealing.
- Backing material should always be placed into the cracks. Commercial products are available. Several sizes of rope should be available to accommodate various crack sizes.
- Apply sealant after placing the backer rope. Follow the manufacturer's instructions. Sealant should be applied to within ¼ inch of the pavement surface.
- The final activity is to clean the surrounding pavement areas. A vacuum sweeper works well for this. Allow the sealant time to set before using a broom.
- Consider hot-applied, pourable patch material for cracks > ½ inch and any subsidence or depressions.



Overband Technique

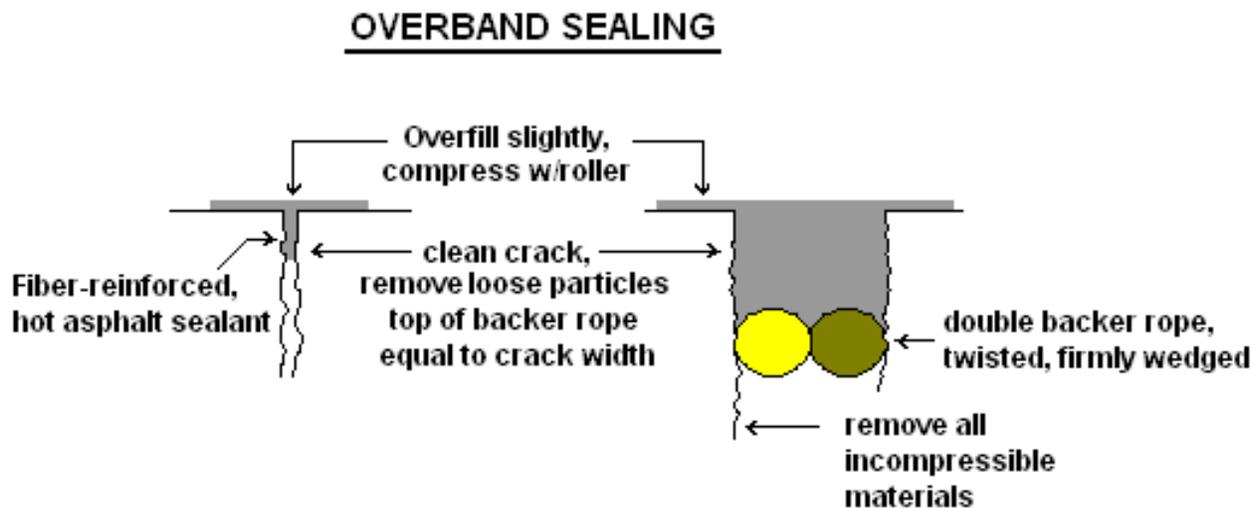
An alternate crack sealing technique using the procedures outlined below.

Material

- Blend grade 20 or equivalent asphalt cement and latex rubber at 5 percent by weight asphalt.
- Again, at 5 percent by weight of asphalt, add polyester fibers into agitator tank.
- Maintain blended asphalt temperature at least 20 degrees below flash point.
- Continuously recycle hot blended asphalt through pumps and hoses when heating kettle is in standby mode.

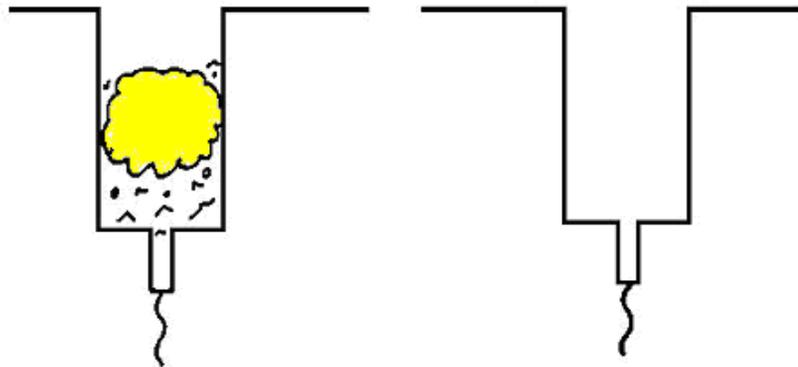
Application

- Sealant should be applied to dry pavement, with ambient temperatures above 40 degrees.
- Cracks should be sand cleaned and blown free of debris immediately before sealing.
- Application of sealant immediately follows cleaning of the crack.
- Sealant should be pressure applied from a wand-type applicator with “overband” nozzle.
- Seat the sealant with a steel-wheeled roller immediately after placement.
- In wider cracks, a backer rope is recommended to limit material quantities required.



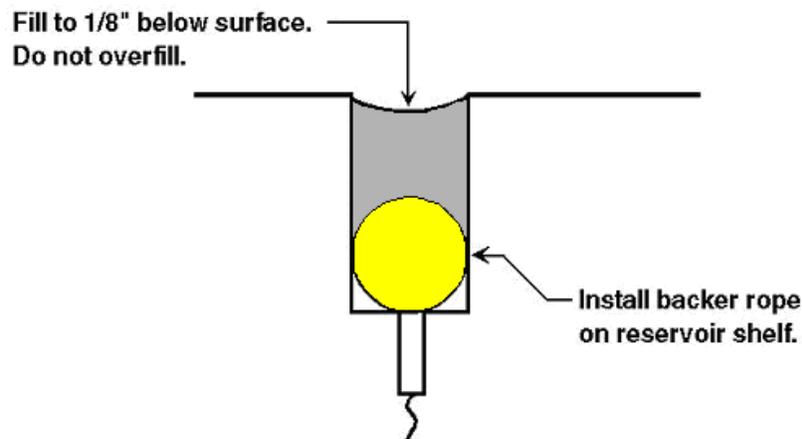
Joint Repair (portland cement)

- Rout a reservoir for the sealant $\frac{1}{2}$ inch wide and 1 inch deep.
- Cracks wider than $\frac{1}{2}$ inch should have reservoirs $\frac{1}{4}$ inch wider than the crack. Reservoir height above backer rope should be less than reservoir width, or as recommended by manufacturer.
- Routed cracks should be cleaned to expose fresh, vital pavement on the vertical crack edge.
- Cracks should be cleaned to remove all sand, debris, and other materials from the crack.
- Backing material should be placed into the crack.
- Apply sealant to within $\frac{1}{4}$ inch of pavement surface, following manufacturer's instructions.
- Clean the surrounding pavement area.



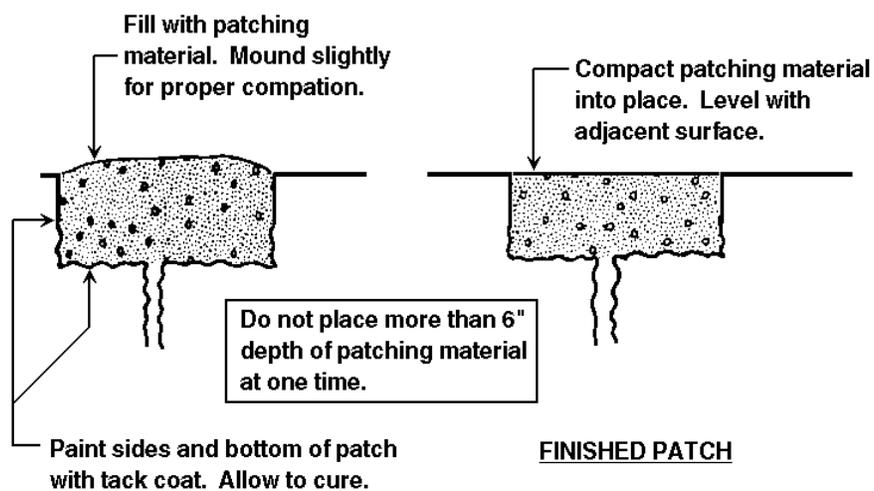
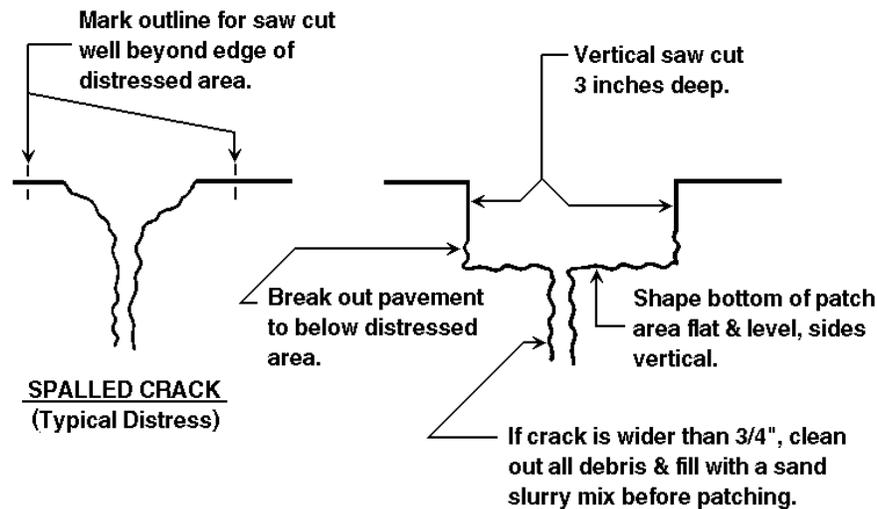
Typical failed joint sealant, w/ debris and incompressibles.

Clean joints exposing fresh, clean concrete and stone. Retain existing reservoir shape.



Patching (bituminous material)

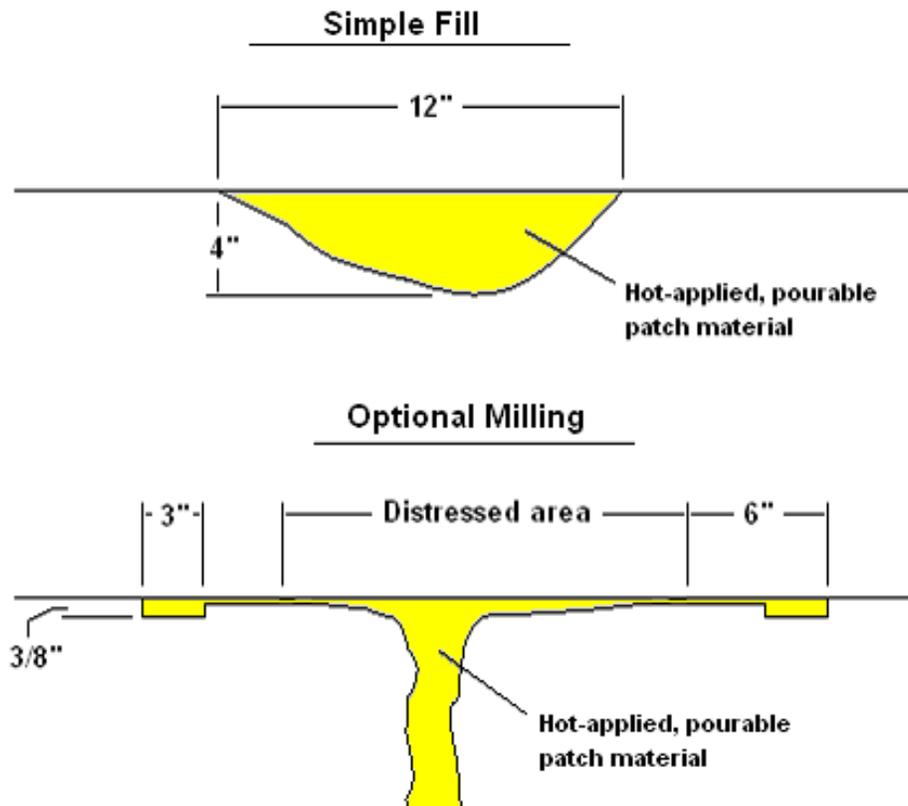
- Examine distressed area and mark patch outline.
- Cut patch area with saw, no less than 3 inches deep.
- Remove enclosed pavement, leaving the vertical sawed edges undamaged.
- Clean sides and bottom and blow out with compressed air
- Paint sides and bottom with rapid curing asphalt tack coat. Prevent pooling on bottom.
- Allow tack coat to cure until it reaches a gummy consistency.
- Place hot mixed asphalt concrete and mound slightly, allowing for compaction.
- Compact with vibratory roller or plate compactor, in layers no greater than 6 inches.



Patching (pourable materials)

Hot-applied, pourable materials generally are used to repair deficiencies larger than can be repaired by sealants, but smaller than those where traditional techniques would be required. Suggested uses for this type of repair include cracks over 2 inches wide, potholes less than 4 inches deep, as a leveling for small depressions, as a cap for settled utility cuts, and as a skin patch for areas of alligator cracking.

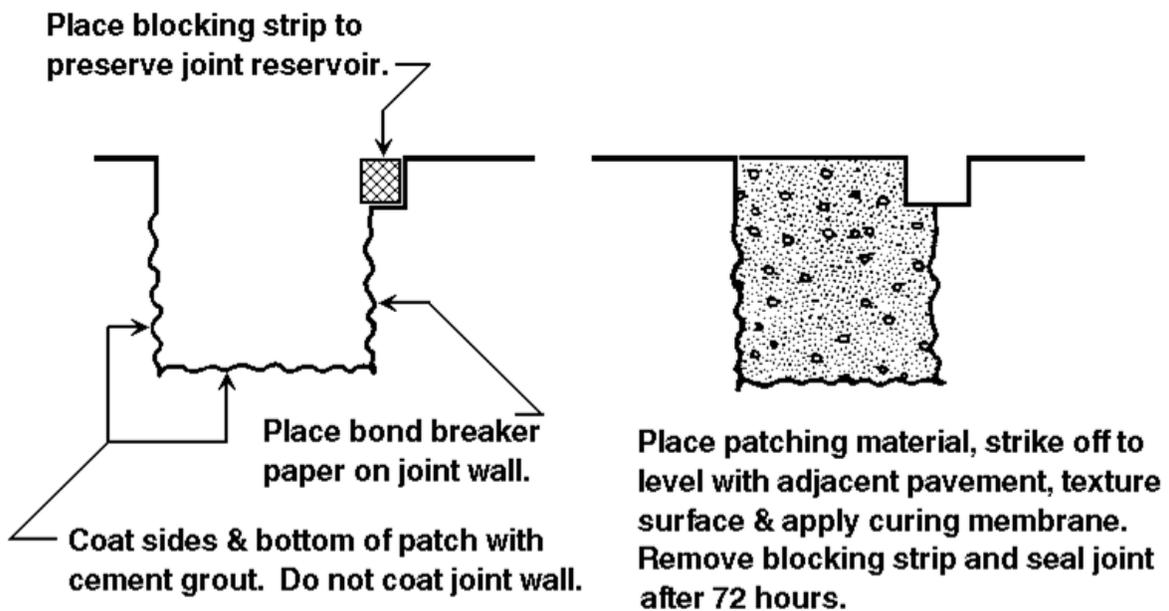
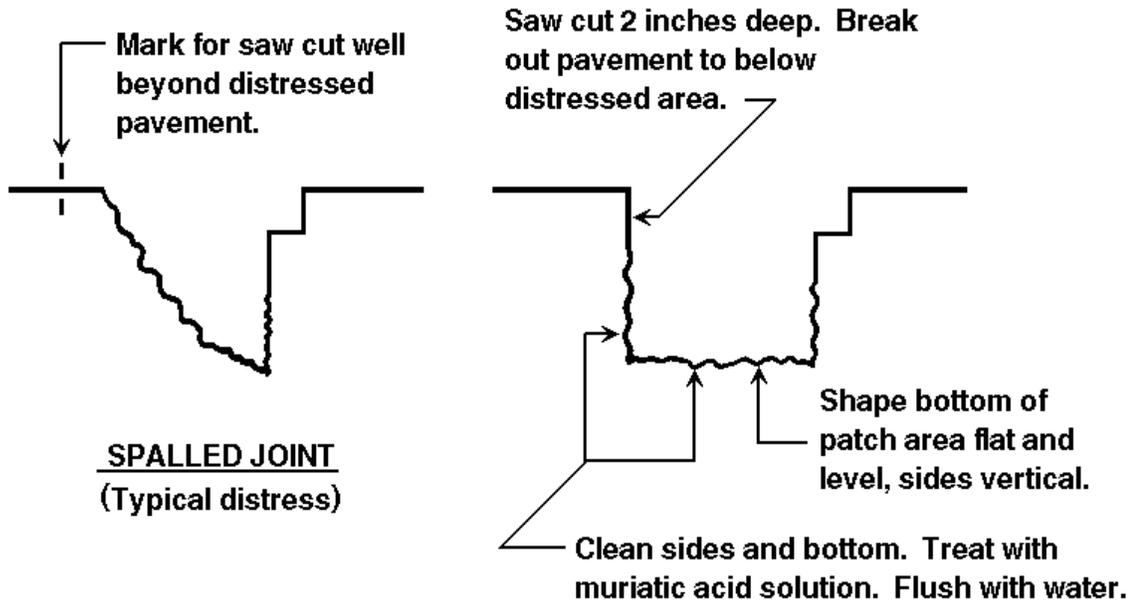
- Examine and mark the patch outline. Boundaries should extend to sound pavement.
- Apply patch material to clean, dry surfaces.
- A heating lance to preheat or dry existing pavement is recommended in cold or wet conditions.
- Patch material should be poured into the area to be repaired and leveled as appropriate.
- Patch edges should be sealed after application to assure good adhesion, preventing surface moisture from migrating under patch edges.



Patching (PCC)

The technique outlined here simulates a thin bonded PCC overlay. This procedure has been proven effective in service throughout the country.

- Examine and mark patch outline.
- Saw cut area to a depth of 2 inches. The enclosed area is then chipped or jack hammered to solid pavement, but not less than a 2-inch nominal depth.
- The sides and bottom are sand cleaned and air-blasted to expose vital, clean concrete.
- A 25 percent solution of muriatic acid is applied to all exposed surfaces within the patch.
- The muriatic acid solution is thoroughly flushed from the patch area with water.
- Compressed air is used to remove excess water from the area, but exposed concrete must be maintained in a moist condition.
- The sides and bottom of the area are then coated with approximately a 1/16-inch layer of cement grout applied at the consistency of paste. The grout acts as an adhesive to bond the fresh concrete to existing concrete.
- If the patch is adjacent to joints, the continuity of the joint must be maintained by placing inserts approximately the shape of the desired joint against the wall of the patch.
- Before concrete grout begins to dry, concrete is placed in the patch area and is compacted into position with hand tampers or a vibrating plate tamper.
- When the patch has been struck to the proper slope and elevation, a surface texture is applied to approximate the texture of adjacent pavement.
- Joint edges may be edged slightly to remove sharp edges. The patch should be covered with polyethylene or sprayed with a curing compound.
- Clean the surrounding pavement before concrete spillover has a chance to set up.
- The patch may be open to traffic in 72 hours.



Appendix D. PCI Summary

The PCI summary provides an index of pavement conditions at the airport. The letter in the first column indicates the type of pavement, asphalt or portland cement. The last column lists the distress types found in each sample unit. The distress types are listed by a numbering code for each type of pavement, shown at the beginning of the summary.

AIRPAV						
CONDITION SURVEY SUMMARY						
AIRPORT: 417 GREENCASTLE-PUTNAM COUNTY				DATE: 12-30-2009		
"A" FLEXIBLE PAVEMENT DISTRESS CODES				"T" RIGID PAVEMENT DISTRESS CODES		
1. ALLIGATOR CRACKING 2. BLEEDING 3. BLOCK CRACKING 4. CORRUGATION 5. DEPRESSION 6. JET BLAST EROSION 7. JOINT REFL. CRACKING 8. LONG. & TRANS. CRACKING 9. OIL SPILL 10. PATCHING 11. POLISHED AGGREGATE 12. RAVELLING/WEATHERING 13. RUTTING 14. SHOIVING FROM PCC SLAB 15. SLIPPAGE CRACKING 16. SWELLING				1. BLOW UP 2. CORNER BREAK 3. LTD CRACKING 4. "D" CRACKING 5. JOINT SEAL DAMAGE 6. SMALL PATCH 7. LARGE PATCH 8. POPOUTS 9. PUMPING 10. SCALING-MAP CRACKING/CRAZING 11. FAULTING 12. SHATTERED SLAB 13. SHRINKAGE CRACKING 14. JOINT SPALLING 15. CORNER SPALLING		
FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
105 A	105.100	3750	8-16-09	JB	83	8 12
105 A	105.103	3500	8-16-09	JB	79	8 12
105 A	105.105	3500	8-16-09	JB	63	5 8 10 12*
105 A	105.106	3500	8-16-09	AN	79	1 8
105 A	105.109	3500	8-16-09	AN	86	8
105 A	105.112	3500	8-16-09	AN	84	8 12
MEAN FEATURE PCI = 81 BASED ON A SAMPLED AREA OF 21250 SQUARE FEET - PCI SPREAD FOR FEATURE = 22.74 DESCRIPTION: TAXIWAY A						
110 A	110.102	3500	8-16-09	JB	100	
110 A	110.106	3500	8-16-09	JB	100	
110 A	110.110	3500	8-16-09	JB	100	
110 A	110.112	3500	8-16-09	JB	100	
110 A	110.114	3500	8-16-09	JB	100	
110 A	110.118	1750	8-16-09	JB	94	8
AVERAGE FEATURE PCI = 99 BASED ON A SAMPLED AREA OF 19250 SQUARE FEET - PCI SPREAD FOR FEATURE = 6.20 DESCRIPTION: TAXIWAY A						
115 A	115.118	1750	8-16-09	JB	94	8
115 A	115.122	3500	8-16-09	JB	95	8
115 A	115.126	3500	8-16-09	JB	96	8
115 A	115.130	3500	8-16-09	JB	96	8
115 A	115.134	3500	8-16-09	JB	96	8
115 A	115.136	3500	8-16-09	JB	94	8
115 A	115.138	3500	8-16-09	JB	96	8
115 A	115.142	3500	8-16-09	AN	93	8
AVERAGE FEATURE PCI = 95 BASED ON A SAMPLED AREA OF 26250 SQUARE FEET - PCI SPREAD FOR FEATURE = 3.38 DESCRIPTION: TAXIWAY A						
210 A	210.200	3500	8-16-09	AN	94	8
210 A	210.201	3500	8-16-09	AN	94	8
210 A	210.202	1190	8-16-09	AN	86	8
AVERAGE FEATURE PCI = 91 BASED ON A SAMPLED AREA OF 8190 SQUARE FEET - PCI SPREAD FOR FEATURE = 7.93 DESCRIPTION: CONNECTOR TAXIWAY B						

Sample units marked with an asterisk (*) are additional sample units. Additional sample units do not represent the typical condition of surrounding sample units in the pavement features.

The PCI summary provides a quick overview of the pavement condition and consistency. Are the distress types similar? Do the individual sample units have consistent PCI ratings? Answering these questions is a start to understanding your dynamic pavement system.

CONDITION SURVEY SUMMARY

AIRPORT: HUF TERRE HAUTE INTERNATIONAL

DATE: 12-15-2013

"A" FLEXIBLE PAVEMENT DISTRESS CODES

1. ALLIGATOR CRACKING
2. BLEEDING
3. BLOCK CRACKING
4. CORRUGATION
5. DEPRESSION
6. JET BLAST EROSION
7. JOINT REFL. CRACKING
8. LONG. & TRANS. CRACKING
9. OIL SPILL
10. PATCHING
11. POLISHED AGGREGATE
12. RAVELLING
13. RUTTING
14. SHOVING FROM PCC SLAB
15. SLIPPAGE CRACKING
16. SWELLING
17. WEATHERING

"P" RIGID PAVEMENT DISTRESS CODES

1. BLOW UP
2. CORNER BREAK
3. LTD CRACKING
4. "D" CRACKING
5. JOINT SEAL DAMAGE
6. SMALL PATCH
7. LARGE PATCH
8. POPOUTS
9. PUMPING
10. SCALING/MAP CRACKING/CRAZING
11. FAULTING
12. SHATTERED SLAB
13. SHRINKAGE CRACKING
14. JOINT SPALLING
15. CORNER SPALLING
16. ALKALI SILICA REACTION

FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
101 A	101.101	3750	9-6-13	ARA	100	
101 A	101.102	3750	9-6-13	ARA	83	8
101 A	101.103	3750	9-6-13	ARA	97	8

AVERAGE FEATURE PCI = 93

BASED ON A SAMPLED AREA OF 11250 SQUARE FEET - PCI SPREAD FOR FEATURE = 16.70

DESCRIPTION: TAXIWAY A-4

102 P	102.127	7500	9-6-13	ARA	88	5
102 P	102.130	7500	9-6-13	ARA	84	5 13
102 P	102.133	7500	9-6-13	ARA	88	5
102 P	102.136	7500	9-6-13	ARA	81	3 5
102 P	102.139	7500	9-6-13	ARA	63	3 5 14
102 P	102.142	7500	9-6-13	ARA	88	5
102 P	102.146	7500	9-6-13	ARA	83	5 6 15
102 P	102.151	7500	9-6-13	ARA	88	5
102 P	102.156	7500	9-6-13	ARA	88	5
102 P	102.164	7500	9-6-13	ARA	83	3 5
102 P	102.168	7500	9-6-13	ARA	88	5
102 P	102.174	7500	9-6-13	ARA	88	5

AVERAGE FEATURE PCI = 84

BASED ON A SAMPLED AREA OF 90000 SQUARE FEET - PCI SPREAD FOR FEATURE = 25.42

DESCRIPTION: TAXIWAY A

103 P	103.102	7500	9-6-13	ARA	88	5
103 P	103.104	9650	9-6-13	ARA	87	5 13
103 P	103.109	7500	9-6-13	ARA	88	5
103 P	103.110	7500	9-6-13	ARA	88	5
103 P	103.111	7500	9-6-13	ARA	83	3 5

AVERAGE FEATURE PCI = 87

BASED ON A SAMPLED AREA OF 39650 SQUARE FEET - PCI SPREAD FOR FEATURE = 5.00

DESCRIPTION: TAXIWAY A

105 P	105.101	7500	9-6-13	ARA	88	5
105 P	105.103	7500	9-6-13	ARA	88	5
105 P	105.104	7500	9-6-13	ARA	88	5

FEATURE: SAMPLE UNIT: AREA: DATE: SURVEYED BY: PCI: DISTRESSES PRESENT:

105 P 105.106 7500 9-6-13 ARA 93 5

**AVERAGE FEATURE PCI = 89
 BASED ON A SAMPLED AREA OF 30000 SQUARE FEET - PCI SPREAD FOR FEATURE = 5.00
 DESCRIPTION: TAXIWAY A**

106 P 106.102 7500 9-6-13 AN 81 5 7
 106 P 106.103 7500 9-6-13 ARA 88 5
 106 P 106.104 7500 9-6-13 ARA 88 5

**AVERAGE FEATURE PCI = 86
 BASED ON A SAMPLED AREA OF 22500 SQUARE FEET - PCI SPREAD FOR FEATURE = 6.99
 DESCRIPTION: TAXIWAY C1**

107 P 107.103 8000 9-6-13 ARA 93 5
 107 P 107.104 9000 9-6-13 ARA 93 5
 107 P 107.105 9500 9-6-13 ARA 98 5

**AVERAGE FEATURE PCI = 95
 BASED ON A SAMPLED AREA OF 26500 SQUARE FEET - PCI SPREAD FOR FEATURE = 5.00
 DESCRIPTION: TAXIWAY A**

108 P 108.109 8200 9-6-13 ARA 81 5 13 14
 108 P 108.112 7500 9-6-13 ARA 88 5
 108 P 108.116 7500 9-6-13 ARA 81 3 5
 108 P 108.119 7500 9-6-13 ARA 88 5
 108 P 108.121 7500 9-6-13 ARA 83 3 5
 108 P 108.124 7500 9-6-13 ARA 88 5

**AVERAGE FEATURE PCI = 85
 BASED ON A SAMPLED AREA OF 45700 SQUARE FEET - PCI SPREAD FOR FEATURE = 7.07
 DESCRIPTION: TAXIWAY A**

122 P 122.110 3750 9-6-13 ARA 88 5
 122 P 122.111 7500 9-6-13 ARA 88 5
 122 P 122.112 7500 9-6-13 ARA 88 5

**AVERAGE FEATURE PCI = 88
 BASED ON A SAMPLED AREA OF 18750 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.00
 DESCRIPTION: TAXIWAY A-2**

125 A 125.102 3750 9-6-13 ARA 93 8
 125 A 125.104 3750 9-6-13 ARA 95 8
 125 A 125.106 3750 9-6-13 ARA 95 8
 125 A 125.107 3750 9-6-13 ARA 90 8

**AVERAGE FEATURE PCI = 93
 BASED ON A SAMPLED AREA OF 15000 SQUARE FEET - PCI SPREAD FOR FEATURE = 5.14
 DESCRIPTION: TAXIWAY A-3**

127 P 127.109 7500 9-6-13 ARA 88 5
 127 P 127.110 7500 9-6-13 ARA 88 5

**AVERAGE FEATURE PCI = 88
 BASED ON A SAMPLED AREA OF 15000 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.00
 DESCRIPTION: TAXIWAY A3**

130 A 130.102 3750 9-6-13 ARA 95 8
 130 A 130.104 3750 9-6-13 ARA 95 8
 130 A 130.105 3750 9-6-13 ARA 96 8
 130 A 130.106 3750 9-6-13 ARA 95 8

**AVERAGE FEATURE PCI = 95
 BASED ON A SAMPLED AREA OF 15000 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.56
 DESCRIPTION: TAXIWAY A-2**

201 A 201.103 4500 9-6-13 ARA 50 1 3 8
 201 A 201.104 4250 9-6-13 ARA 45 1 8
 201 A 201.106 3750 9-6-13 ARA 58 1 8

FEATURE: SAMPLE UNIT: AREA: DATE: SURVEYED BY: PCI: DISTRESSES PRESENT:

201 A	201.108	3750	9-6-13	ARA	57	1 8
201 A	201.111	3750	9-6-13	ARA	36	1 8

**AVERAGE FEATURE PCI = 49
 BASED ON A SAMPLED AREA OF 20000 SQUARE FEET - PCI SPREAD FOR FEATURE = 22.26
 DESCRIPTION: TAXIWAY D**

202 A	202.102	6525	9-6-13	ARA	34	1 5 8 12
202 A	202.104	7500	9-6-13	ARA	33	1 8 12 13

**AVERAGE FEATURE PCI = 33
 BASED ON A SAMPLED AREA OF 14025 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.85
 DESCRIPTION: TAXIWAY B**

205 A	205.101	7500	9-6-13	ARA	96	8
205 A	205.201	7500	9-6-13	ARA	96	8
205 A	205.202	7500	9-6-13	ARA	93	8

**AVERAGE FEATURE PCI = 95
 BASED ON A SAMPLED AREA OF 22500 SQUARE FEET - PCI SPREAD FOR FEATURE = 2.79
 DESCRIPTION: TAXIWAY B**

215 P	215.102	10000	9-6-13	ARA	88	5
215 P	215.104	11600	9-6-13	ARA	91	5 6 14

**AVERAGE FEATURE PCI = 90
 BASED ON A SAMPLED AREA OF 21600 SQUARE FEET - PCI SPREAD FOR FEATURE = 3.11
 DESCRIPTION: TAXIWAY B-2**

220 A	220.101	5000	9-6-13	ARA	88	8
220 A	220.102	5000	9-6-13	ARA	91	8
220 A	220.103	5000	9-6-13	ARA	94	8

**AVERAGE FEATURE PCI = 91
 BASED ON A SAMPLED AREA OF 15000 SQUARE FEET - PCI SPREAD FOR FEATURE = 6.61
 DESCRIPTION: TAXIWAY B-2**

225 P	225.204	9900	9-6-13	ARA	88	3 5 13
225 P	225.210	7500	9-6-13	ARA	93	5
225 P	225.215	7500	9-6-13	ARA	93	5
225 P	225.219	7500	9-6-13	ARA	93	5
225 P	225.224	3750	9-6-13	ARA	88	5
225 P	225.229	7500	9-6-13	ARA	88	5
225 P	225.233	7500	9-6-13	ARA	87	5 6
225 P	225.237	7500	9-6-13	ARA	87	5 13
225 P	225.241	7500	9-6-13	ARA	88	5
225 P	225.246	10000	9-6-13	ARA	86	5 13
225 P	225.444	4000	9-6-13	ARA	93	5
225 P	225.646	4000	9-6-13	ARA	88	5

**AVERAGE FEATURE PCI = 89
 BASED ON A SAMPLED AREA OF 84150 SQUARE FEET - PCI SPREAD FOR FEATURE = 7.13
 DESCRIPTION: TAXIWAY B**

301 A	301.104	5000	9-6-13	ARA	37	1 5 8 10 12
301 A	301.106	5000	9-6-13	ARA	42	1 5 8 10 12
301 A	301.108	5000	9-6-13	ARA	32	1 5 8 10 12
301 A	301.110	5000	9-6-13	ARA	39	1 5 8 10 12
301 A	301.112	5000	9-6-13	DMY	36	1 5 8 10 12
301 A	301.114	5000	9-6-13	DMY	39	1 5 8 10 12

**AVERAGE FEATURE PCI = 38
 BASED ON A SAMPLED AREA OF 30000 SQUARE FEET - PCI SPREAD FOR FEATURE = 10.13
 DESCRIPTION: TAXIWAY C**

302 A	302.116	5000	9-6-13	ARA	76	5 8
302 A	302.118	5000	9-6-13	ARA	78	8
302 A	302.119	5000	9-6-13	ARA	79	8

**AVERAGE FEATURE PCI = 78
 BASED ON A SAMPLED AREA OF 15000 SQUARE FEET - PCI SPREAD FOR FEATURE = 2.52
 DESCRIPTION: TAXIWAY C**

FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
605 A	605.101	3500	9-6-13	ARA	84	8
605 A	605.103	8500	9-6-13	ARA	93	8 12
605 A	605.105	8500	9-6-13	ARA	89	8
605 A	605.107	3500	9-6-13	ARA	89	8
605 A	605.201	7000	9-6-13	ARA	98	8
605 A	605.301	2000	9-6-13	ARA	93	8
605 A	605.305	5000	9-6-13	ARA	98	9

AVERAGE FEATURE PCI = 92

BASED ON A SAMPLED AREA OF 38000 SQUARE FEET - PCI SPREAD FOR FEATURE = 13.79

DESCRIPTION: WEST TEES

3001 P	3001.099	4400	9-6-13	ARA	26	2 3 5 11 12 13 14 15
3001 P	3001.103	4400	9-6-13	ARA	51	3 5 6 13 14 15
3001 P	3001.106	4400	9-6-13	ARA	52	3 4 5 6 10 11 13 14 15
3001 P	3001.110	4400	9-6-13	ARA	40	3 5 6 10 12 14 15
3001 P	3001.115	4400	9-6-13	ARA	51	3 4 5 6 12 14 15
3001 P	3001.200	4400	9-6-13	ARA	63	2 5 14 15
3001 P	3001.204	4400	9-6-13	ARA	73	5 14 15
3001 P	3001.207	4400	9-6-13	ARA	41	2 3 5 11 12 14 15
3001 P	3001.211	4400	9-6-13	ARA	59	3 4 5 6 14 15
3001 P	3001.216	4400	9-6-13	ARA	32	2 3 5 6 7 12 13 14 15
3001 P	3001.298	4000	9-6-13	ARA	65	2 5 14 15

AVERAGE FEATURE PCI = 50

BASED ON A SAMPLED AREA OF 48000 SQUARE FEET - PCI SPREAD FOR FEATURE = 46.15

DESCRIPTION: TERMINAL RAMP

3002 P	3002.302	4400	9-6-13	ARA	81	5 15
3002 P	3002.305	4400	9-6-13	ARA	68	3 5 14 15
3002 P	3002.308	4400	9-6-13	ARA	79	2 5 7 11
3002 P	3002.311	4400	9-6-13	ARA	37	3 5 12 14
3002 P	3002.314	4400	9-6-13	ARA	68	2 3 5 6 11 13
3002 P	3002.401	4400	9-6-13	ARA	47	3 5 7 12 13 14 15
3002 P	3002.405	4400	9-6-13	ARA	40	3 5 11 12 14 15
3002 P	3002.408	4400	9-6-13	ARA	52	3 5 12 14 15
3002 P	3002.411	4400	9-6-13	ARA	87	5 6
3002 P	3002.414	4400	9-6-13	ARA	69	3 5 6 14

AVERAGE FEATURE PCI = 63

BASED ON A SAMPLED AREA OF 44000 SQUARE FEET - PCI SPREAD FOR FEATURE = 50.02

DESCRIPTION: TERMINAL RAMP

3003 P	3003.408	7500	9-6-13	ARA	86	6 7 10
3003 P	3003.410	7500	9-6-13	ARA	75	2 5 10
3003 P	3003.508	7500	9-6-13	ARA	99	6
3003 P	3003.509	7500	9-6-13	ARA	80	10 15
3003 P	3003.609	7500	9-6-13	ARA	93	5
3003 P	3003.709	7500	9-6-13	ARA	86	5 7
3003 P	3003.809	7500	9-6-13	ARA	88	5 7

AVERAGE FEATURE PCI = 87

BASED ON A SAMPLED AREA OF 52500 SQUARE FEET - PCI SPREAD FOR FEATURE = 24.22

DESCRIPTION: TERMINAL RAMP

3005 P	3005.103	10000	9-6-13	ARA	68	5 9
3005 P	3005.108	10000	9-6-13	ARA	88	5
3005 P	3005.200	12500	9-6-13	ARA	88	5
3005 P	3005.206	10000	9-6-13	ARA	93	5
3005 P	3005.209	10000	9-6-13	ARA	88	5
3005 P	3005.304	10000	9-6-13	ARA	82	5 14
3005 P	3005.308	10000	9-6-13	ARA	93	5
3005 P	3005.406	12500	9-6-13	ARA	93	5
3005 P	3005.409	12500	9-6-13	ARA	87	5 14 15

AVERAGE FEATURE PCI = 87

BASED ON A SAMPLED AREA OF 97500 SQUARE FEET - PCI SPREAD FOR FEATURE = 24.54

DESCRIPTION: RAMP

FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
3006 P	3006.350	5000	9-6-13	ARA	88	5
3006 P	3006.351	5000	9-6-13	ARA	77	3 5 6
3006 P	3006.401	5000	9-6-13	ARA	86	5 14 15
3006 P	3006.402	5000	9-6-13	ARA	85	5 14 15
3006 P	3006.450	5000	9-6-13	ARA	75	3 5 14 15

AVERAGE FEATURE PCI = 82

BASED ON A SAMPLED AREA OF 25000 SQUARE FEET - PCI SPREAD FOR FEATURE = 13.19

DESCRIPTION: RAMP

3015 P	3015.312	10000	9-6-13	ARA	91	5 14
3015 P	3015.412	10000	9-6-13	ARA	93	5
3015 P	3015.511	8000	9-6-13	ARA	92	5 10
3015 P	3015.612	10000	9-6-13	ARA	98	5
3015 P	3015.711	8000	9-6-13	ARA	75	5 14 15

AVERAGE FEATURE PCI = 90

BASED ON A SAMPLED AREA OF 46000 SQUARE FEET - PCI SPREAD FOR FEATURE = 23.40

DESCRIPTION: RAMP

4040 P	4040.201	8000	9-6-13	ARA	77	2 5 13 15
4040 P	4040.204	8000	9-6-13	ARA	87	7 15
4040 P	4040.302	8000	9-6-13	ARA	85	5 7 14 15
4040 P	4040.303	8000	9-6-13	ARA	83	5 7 14

AVERAGE FEATURE PCI = 83

BASED ON A SAMPLED AREA OF 32000 SQUARE FEET - PCI SPREAD FOR FEATURE = 9.91

DESCRIPTION: RUNWAY 23 RUN UP

4205 P	4205.101	15000	9-6-13	ARA	78	3 5 11 14
4205 P	4205.102	15000	9-6-13	ARA	80	5 11 15
4205 P	4205.103	15000	9-6-13	ARA	80	5 11 14

AVERAGE FEATURE PCI = 79

BASED ON A SAMPLED AREA OF 45000 SQUARE FEET - PCI SPREAD FOR FEATURE = 2.52

DESCRIPTION: RUNWAY 5 RUN UP

4305 P	4305.101	12500	9-6-13	ARA	88	5
4305 P	4305.102	12500	9-6-13	ARA	88	5

AVERAGE FEATURE PCI = 88

BASED ON A SAMPLED AREA OF 25000 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.00

DESCRIPTION: RUNWAY 36 RUN UP

4310 A	4310.205	5000	9-6-13	ARA	83	8
4310 A	4310.207	5000	9-6-13	ARA	83	8
4310 A	4310.209	5000	9-6-13	ARA	87	8
4310 A	4310.211	5000	9-6-13	ARA	79	8

AVERAGE FEATURE PCI = 83

BASED ON A SAMPLED AREA OF 20000 SQUARE FEET - PCI SPREAD FOR FEATURE = 7.61

DESCRIPTION: RUNWAY 36 RUN UP

7005 A	7005.300	5000	9-6-13	ARA	82	8 17
7005 A	7005.301	5000	9-6-13	ARA	78	8
7005 A	7005.302	5000	9-6-13	ARA	76	8

AVERAGE FEATURE PCI = 78

BASED ON A SAMPLED AREA OF 15000 SQUARE FEET - PCI SPREAD FOR FEATURE = 5.59

DESCRIPTION: RUNWAY 14-32 KEEL

7010 A	7010.101	5000	9-6-13	ARA	77	8
7010 A	7010.103	5000	9-6-13	ARA	80	8
7010 A	7010.500	5000	9-6-13	ARA	77	8
7010 A	7010.503	5000	9-6-13	ARA	83	8

AVERAGE FEATURE PCI = 79

BASED ON A SAMPLED AREA OF 20000 SQUARE FEET - PCI SPREAD FOR FEATURE = 5.75

DESCRIPTION: RUNWAY 14-32 WING

FEATURE: SAMPLE UNIT: AREA: DATE: SURVEYED BY: PCI: DISTRESSES PRESENT:

7015 A	7015.306	5000	9-6-13	ARA	77	8
7015 A	7015.309	5000	9-6-13	ARA	78	8
7015 A	7015.312	5000	9-6-13	ARA	78	8
7015 A	7015.319	5000	9-6-13	ARA	86	8
7015 A	7015.322	5000	9-6-13	ARA	88	8
7015 A	7015.323	5000	9-6-13	ARA	92	8

**AVERAGE FEATURE PCI = 83
 BASED ON A SAMPLED AREA OF 30000 SQUARE FEET - PCI SPREAD FOR FEATURE = 14.94
 DESCRIPTION: RUNWAY 14-32 KEEL**

7020 A	7020.107	5000	9-6-13	ARA	92	8
7020 A	7020.110	5000	9-6-13	ARA	80	5 8
7020 A	7020.112	5000	9-6-13	ARA	88	5 8
7020 A	7020.120	5000	9-6-13	ARA	85	8
7020 A	7020.123	2000	9-6-13	ARA	88	8
7020 A	7020.507	5000	9-6-13	ARA	96	8
7020 A	7020.510	5000	9-6-13	ARA	85	8
7020 A	7020.520	5000	9-6-13	ARA	81	8
7020 A	7020.523	2000	9-6-13	ARA	79	8

**AVERAGE FEATURE PCI = 86
 BASED ON A SAMPLED AREA OF 39000 SQUARE FEET - PCI SPREAD FOR FEATURE = 16.23
 DESCRIPTION: RUNWAY 14-32 WING**

7025 P	7025.315	5000	9-6-13	ARA	93	5
7025 P	7025.317	5000	9-6-13	ARA	90	5 15

**AVERAGE FEATURE PCI = 91
 BASED ON A SAMPLED AREA OF 10000 SQUARE FEET - PCI SPREAD FOR FEATURE = 3.36
 DESCRIPTION: RUNWAY 14-32 KEEL**

7030 P	7030.115	5000	9-6-13	ARA	88	5
7030 P	7030.117	5000	9-6-13	ARA	86	5 14
7030 P	7030.515	5000	9-6-13	ARA	88	5
7030 P	7030.517	5000	9-6-13	ARA	93	5

**AVERAGE FEATURE PCI = 89
 BASED ON A SAMPLED AREA OF 20000 SQUARE FEET - PCI SPREAD FOR FEATURE = 6.87
 DESCRIPTION: RUNWAY 14-32 WINGS**

7035 A	7035.333	5000	9-6-13	ARA	77	8
7035 A	7035.336	5000	9-6-13	ARA	77	8
7035 A	7035.339	5000	9-6-13	ARA	76	8
7035 A	7035.342	5000	9-6-13	ARA	78	8
7035 A	7035.345	5000	9-6-13	ARA	80	8
7035 A	7035.348	5000	9-6-13	ARA	72	8
7035 A	7035.351	5000	9-6-13	ARA	78	8

**AVERAGE FEATURE PCI = 77
 BASED ON A SAMPLED AREA OF 35000 SQUARE FEET - PCI SPREAD FOR FEATURE = 8.75
 DESCRIPTION: RUNWAY 14-32 KEEL**

7040 A	7040.135	5000	9-6-13	ARA	74	8
7040 A	7040.138	5000	9-6-13	ARA	83	8
7040 A	7040.141	5000	9-6-13	ARA	87	8
7040 A	7040.144	5000	9-6-13	ARA	84	8
7040 A	7040.150	5000	9-6-13	ARA	79	8
7040 A	7040.537	5000	9-6-13	ARA	82	8
7040 A	7040.540	5000	9-6-13	ARA	77	8
7040 A	7040.543	5000	9-6-13	ARA	78	8
7040 A	7040.546	5000	9-6-13	ARA	83	8
7040 A	7040.552	5000	9-6-13	ARA	90	8

**AVERAGE FEATURE PCI = 82
 BASED ON A SAMPLED AREA OF 50000 SQUARE FEET - PCI SPREAD FOR FEATURE = 15.59
 DESCRIPTION: RUNWAY 14-32 WING**

7045 P	7045.356	5000	9-6-13	ARA	79	5 13 15
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FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
7045 P	7045.358	5000	9-6-13	ARA	86	5 6
7045 P	7045.361	5000	9-6-13	ARA	85	5 6
7045 P	7045.364	5000	9-6-13	ARA	81	5 13 15
7045 P	7045.367	5000	9-6-13	ARA	86	5 6
7045 P	7045.370	5000	9-6-13	ARA	82	5 6 13

AVERAGE FEATURE PCI = 83

BASED ON A SAMPLED AREA OF 30000 SQUARE FEET - PCI SPREAD FOR FEATURE = 7.08

DESCRIPTION: RUNWAY 14-32 KEEL

7050 P	7050.154	5000	9-6-13	ARA	88	5
7050 P	7050.157	5000	9-6-13	ARA	86	5 6
7050 P	7050.160	5000	9-6-13	ARA	88	5
7050 P	7050.163	5000	9-6-13	ARA	88	5
7050 P	7050.166	5000	9-6-13	ARA	84	5 6 13
7050 P	7050.556	5000	9-6-13	ARA	79	5 6 13 15
7050 P	7050.559	5000	9-6-13	ARA	81	5 6 13
7050 P	7050.562	5000	9-6-13	ARA	84	5 13
7050 P	7050.565	5000	9-6-13	ARA	76	5 6 13 15
7050 P	7050.568	5000	9-6-13	ARA	70	5 6 11

AVERAGE FEATURE PCI = 82

BASED ON A SAMPLED AREA OF 50000 SQUARE FEET - PCI SPREAD FOR FEATURE = 18.25

DESCRIPTION: RUNWAY 14-32 WING

7055 A	7055.323	3000	9-6-13	ARA	92	8 12 16
7055 A	7055.324	5000	9-6-13	ARA	96	8
7055 A	7055.329	5000	9-6-13	ARA	89	8
7055 A	7055.330	5000	9-6-13	ARA	93	8

AVERAGE FEATURE PCI = 92

BASED ON A SAMPLED AREA OF 18000 SQUARE FEET - PCI SPREAD FOR FEATURE = 6.62

DESCRIPTION: RUNWAY 14-32

7060 A	7060.123	4000	9-6-13	ARA	100	
7060 A	7060.124	5000	9-6-13	ARA	100	
7060 A	7060.129	5000	9-6-13	ARA	97	8
7060 A	7060.130	5000	9-6-13	ARA	100	
7060 A	7060.523	4000	9-6-13	ARA	100	
7060 A	7060.524	5000	9-6-13	ARA	100	
7060 A	7060.529	5000	9-6-13	ARA	100	

AVERAGE FEATURE PCI = 100

BASED ON A SAMPLED AREA OF 33000 SQUARE FEET - PCI SPREAD FOR FEATURE = 2.83

DESCRIPTION: RUNWAY 14-32

9125 A	9125.383	5000	9-6-13	ARA	97	8
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AVERAGE FEATURE PCI = 97

BASED ON A SAMPLED AREA OF 5000 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.00

9130 A	9130.183	5000	9-6-13	ARA	95	8
9130 A	9130.583	5000	9-6-13	ARA	95	8

AVERAGE FEATURE PCI = 95

BASED ON A SAMPLED AREA OF 10000 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.20

TOTAL NUMBER OF INSPECTED FEATURES = 44

TOTAL NUMBER OF INSPECTED SAMPLE UNITS = 227

TOTAL AREA OF INSPECTED PAVEMENT = 1,389,625 S.F.

* INDICATES "ADDITIONAL" SAMPLE UNITS.

Appendix E. Distress Identification

This chapter describes pavement distress types commonly identified during airport PCI inspections.

Rigid Pavement Distress

Longitudinal, Transverse & Diagonal Cracking

LTD cracking is often a result of load or temperature deformations. External loads cause flexure. Temperature changes can cause curling. When any of these stresses exceed the slab strength, cracking occurs.

LTD cracking is recorded at low, medium, or high severity, depending on the width of crack opening and degree of deterioration.

At low severity, a crack is less than 1/8 inch wide with little spalling, and no corrective action is indicated. At medium severity, LTD cracks can be up to 1 inch wide with moderate spalling and should be repaired using procedures similar to joint sealing. At high severity, cracks exceed 1 inch in width and may be severely spalled. High-severity LTD cracking is evidence of serious load failure, and correction may require patching or slab replacement. If distress occurs in several adjacent slabs at medium or high severity, major rehabilitation of that area is indicated.

A slab divided into four or more pieces is said to be “divided” or “shattered.” Shattered slab is a separate distress category and indicates a significant structural failure. A shattered slab has lost its ability to distribute loads. Shattered slabs are rated in three severities, but the recommended action in any case is slab replacement.



Shrinkage Cracking

Shrinkage cracks are small, non-working cracks visible at the pavement surface but not penetrating the full depth of concrete. Shrinkage cracks most commonly occur shortly after construction due to concrete shrinkage during the curing process.

Shrinkage cracks are usually so small that they are not visible until staining or loss of material at crack edges begins to take place. Shrinkage cracks do not represent structural weakness, and no corrective action is prescribed.



Durability Cracking

Durability cracking (D-cracking) is caused by environmental factors, the most common being freeze/thaw. D-cracking usually appears as either a pattern of hairline cracks running parallel to a joint or crack, or in a corner, where water tends to collect. D-cracking eventually leads to disintegration of the pavement, creating foreign object damage (FOD) potential.

At low severity, D-cracking is evident, but no disintegration has occurred. Medium severity is evident over a significant area of the slab, and some disintegration and FOD potential exist. High-severity D-cracking is evidenced by extensive cracking with loose and missing pieces and significant FOD potential.



Joint Spall and Corner Spall

Spalls at slab joints and corners are caused by excessive internal stress in the pavement. Spalls occur when these stresses exceed the shear strength of the concrete.

Spalling usually results from thermal expansion during hot weather when slabs push and expand against one another. If the joints are filled with incompressible material, such as sand, stresses can become severe, causing spalls. Spalling can be reduced significantly by maintenance of joint sealant.

Spall repair requires patching. The extent and severity of spalling suggests the appropriate action. At low severity, spalled concrete remains securely in place in the slab. A low-severity spall should be monitored closely for further deterioration and should be patched when spalled particles become loose, or during the next scheduled patching activity. Medium- and high-severity spalls should be repaired immediately to prevent FOD. If the pavement can be restored to serviceable condition, spalls should be patched for long-term service. If the pavement is beyond repair, temporary patching should be considered to control FOD.



Patches, Large and Small

Large and small patches, by PCI inspection criteria, are distress conditions. Patches indicate deterioration and aging of pavement that contributes to shortened service life. However, patching also indicates that pavement is being maintained.

A patch that is performing well and shows no outward distress is recorded at low severity, and no corrective action is required. Medium-severity patches are serviceable but are beginning to deteriorate. Maintenance or replacement is indicated. At high severity, replacement is indicated.

By definition, small patches are smaller than 5 square feet in surface area, and they usually result from spall repair at slab joints and corners.

Large patches also may be the result of spall repair, but they often indicate more serious deficiencies, such as corner breaks or other full-depth failure smaller than panel size.



Joint Seal Damage

When joint sealant is in perfect condition (no damage), there is no distress.

At low severity, at least 10 percent of the sealant is debonded but still in contact with the joint edges. Medium-severity joint seal damage is recorded when at least 10 percent of the sealant has visible gaps smaller than 1/8 inch and is an indicator that replacement should be programmed as soon as is practical. In the meantime, aggressive inspection and sustaining maintenance is recommended to minimize subsurface damage from moisture penetration. At high severity, visible gaps exceed 1/8 inch, and the amount and degree of joint seal damage typically requires complete removal and replacement of the existing sealant.

On serviceable pavement, deteriorated joint sealant should be repaired or replaced to preserve pavement and subgrade integrity and prolong service life. The issue is not so clear-cut with unserviceable pavement. Pavement that can be restored to serviceable condition by maintenance activities such as patching and joint seal repair, or by slab replacement, should be so maintained as long as the process is cost-effective. However, when age and condition preclude economical return to serviceable condition by such means, joint seal repair would no longer be cost-effective and should be suspended except for an interim maintenance program to control FOD potential.



Flexible Pavement Distress

Longitudinal & Trans. Cracking

L&T cracks are caused by age, construction, and subsurface conditions. Age-related cracking occurs as oxidizing pavement loses components to the atmosphere and becomes more brittle. Consistent application of seal coats can help to prevent age-related cracks.

Construction-related cracking often develops along paving joints. Ensuring that joints are made when both sides are still hot, and near the same temperature, is one of the best ways to mitigate this potential problem.

Seasonal movement caused by changes in subsurface moisture or temperature differences also can cause pavement cracking. Asphalt pavement placed over a PCC pavement or cement stabilized base course may evidence reflective cracking from the underlying material. Wheel loads do not cause L&T cracks, although traffic may worsen their condition.

Low-severity L&T cracks are less than ¼ inch wide, or if sealed with suitable filler material in satisfactory condition can be any width less than 3 inches, if they are not spalled. Maintenance usually is not indicated for low-severity cracking. Moderately spalled cracks and cracks wider than ¼ inch which are not satisfactorily sealed are at medium severity. Medium-severity cracks should be sealed with a high-quality crack filling material. Severely spalled cracks and cracks wider than 3 inches are at high severity. High-severity L&T cracks normally require patching.



Alligator Cracking

Alligator cracks are a series of interconnected load-related cracks caused by fatigue of the asphalt surface. Alligator cracking is a significant structural distress and develops only in places subject to traffic loads. These cracks typically initiate at the bottom of the asphalt layer and propagate upward. Once a fatigue crack is visible at the surface, significant damage has already occurred.

At low severity, alligator cracks are evidenced by a series of parallel hairline cracks (usually in a wheel path). Medium-severity alligator cracking is a well-defined pattern of interconnected cracks, and some spalling may be present. High-severity alligator cracks have lost aggregate interlock between adjacent pieces, and the cracks may be severely spalled with FOD potential. Most likely, the pieces will move freely under traffic.

Alligator cracking is a serious structural failure that cannot be repaired with sealant. The proper repair is patching.



Raveling/Weathering

Raveling and weathering are the wearing away of the pavement surface. Failure can be caused by the dislodging of aggregate particles or the loss of asphalt binder. These distresses are usually evident over large areas and may indicate that the asphalt binder has hardened significantly.

Raveling is the loss of coarse aggregate, weathering is the loss of fine aggregate or binder.

Raveling: At low severity, 5 to 20 coarse aggregate particles are missing per square yard. Medium severity is defined by 20 to 40 missing coarse aggregate particles per square yard. At high severity, more than 40 coarse aggregate particles are missing per square yard, and the top layer of aggregate has eroded away.

Weathering: At low severity, edges of coarse aggregate are exposed less than 1 mm. At medium severity, loss of fine aggregate is noticeable and edges of coarse aggregate are exposed up to 6 mm (1/4 inch). High severity weathering has edges of coarse aggregate exposed > 6 mm, with considerable loss of fine aggregate matrix and potential for loss of coarse aggregate.



Rutting

Ruts are localized areas of pavement having elevations lower than the surrounding sections.

Rutting is due to base and subgrade consolidation caused by excessive wheel loads or poor compaction. Ruts indicate structural failure and can cause hydroplaning.

At low severity, ruts have an average depth of ¼ to ½ inches. At medium severity, ruts have an average depth of ½ to 1 inch. At high severity, ruts have an average depth greater than 1 inch. Patching is the appropriate repair for ruts.



Appendix F. Airport Responsibilities

Grant Assurances

In 1995, Congress mandated that the FAA require, as a condition of grant funding, that airport sponsors prepare documentation of a maintenance management program on pavement that has been constructed, reconstructed, or repaired with Federal assistance.

This report fulfills many of the grant assurance requirements, including documenting:

- Locating all runways, taxiways, and aprons.
- Documenting pavement dimensions.
- Documenting types of pavement.
- Documenting year of construction or most recent major rehabilitation.

The airport owners must be an active participant in maintaining compliance. Actions taken to ensure compliance include:

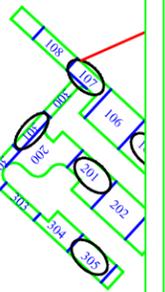
- Annotating areas constructed or repaired with Federal aid.
- Conducting monthly drive-by inspections to detect changes in pavement condition.
- Recording each drive-by inspection and any maintenance performed as a result.
- Keeping complete records of all maintenance activities.
- Keeping records for 5 years.
- Documenting detailed inspection information with a history of recorded pavement deterioration by PCI survey (e.g., this report).

ASSURANCES Airport Sponsors	
A. General.	<ol style="list-style-type: none"> 1. These assurances shall be complied with in the performance of grant agreements for airport development, airport planning, and noise compatibility program grants for airport sponsors. 2. These assurances are required to be submitted as part of the project application by sponsors requesting funds under the provisions of Title 49, U.S.C., subtitle VII, as amended. As used herein, the term "public agency sponsor" means a public agency with control of a public-use airport; the term "private sponsor" means a private owner of a public-use airport; and the term "sponsor" includes both public agency sponsors and private sponsors. 3. Upon acceptance of the grant offer by the sponsor, these assurances are incorporated in and become part of the grant agreement.
B. Duration and Applicability.	<ol style="list-style-type: none"> 1. Airport development or Noise Compatibility Program Projects Undertaken by a Public Agency Sponsor. The terms, conditions and assurances of the grant agreement shall remain in full force and effect throughout the useful life of the facilities developed or equipment acquired for an airport development or noise compatibility program project, or throughout the useful life of the project items installed within a facility under a noise compatibility program project, but in any event not to exceed twenty (20) years from the date of acceptance of a grant offer of Federal funds for the project. However, there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport. There shall be no limit on the duration of the terms, conditions, and assurances with respect to real property acquired with federal funds. Furthermore, the duration of the Civil Rights assurance shall be specified in the assurances. 2. Airport Development or Noise Compatibility Projects Undertaken by a Private Sponsor. The preceding paragraph 1 also applies to a private sponsor except that the useful life of project items installed within a facility or the useful life of the facilities developed or equipment acquired under an airport development or noise compatibility program project shall be no less than ten (10) years from the date of acceptance of Federal aid for the project. 3. Airport Planning Undertaken by a Sponsor. Unless otherwise specified in the grant agreement, only Assurances 1, 2, 3, 5, 6, 13, 18, 30, 32, 33, and 34 in section C apply to planning projects. The terms, conditions, and assurances of the grant agreement shall remain in full force and effect during the life of the project.
C. Sponsor Certification.	<p>The sponsor hereby assures and certifies, with respect to this grant that:</p> <ol style="list-style-type: none"> 1. General Federal Requirements. It will comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance and use of Federal funds for this project including but not limited to the following: <ul style="list-style-type: none"> Federal Legislation a. Title 49, U.S.C., subtitle VII, as amended. b. Davis-Bacon Act - 40 U.S.C. 276(a), <i>et seq.</i>¹ c. Federal Fair Labor Standards Act - 29 U.S.C. 201, <i>et seq.</i> d. Hatch Act - 5 U.S.C. 1501, <i>et seq.</i>²
<hr/> Airport Assurances (3/2005)	

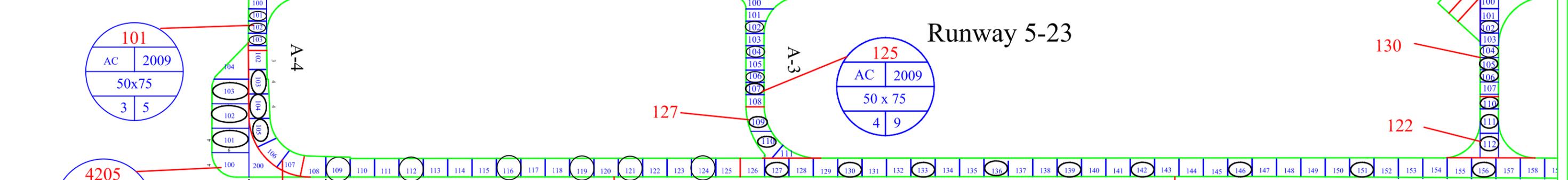
The table on the following pages is available for maintaining a record of drive-by inspections and maintenance repairs.

122		127		130		6110		6115		9125		9130	
PCC	1988	PCC	1988	AC	2009	AC	2009	AC	2009	AC	2009	AC	2009
4 x 3 sb 100 x 75		4 x 3 sb 100 x 75		50 x 75		100 x 50		100 x 50		100x50		100x50	
3	5	2	3	4	9	2	3	3	6	1	89	2	178

50 X 10	
0	8
7010	
AC/AC	19
100 x 5	
4	10



188	187	186	185	184	183	182	181	180	179	178	177	176	175	174	173	172	171	170	169	168	167	166	165	164	163	162	161	160	159	158	157	156	155	154	153	152	151	150	149	148	147	146	145	144	143	142	141	140	139	138	137	136
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3	5

4205	
PCC	1988
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3	6

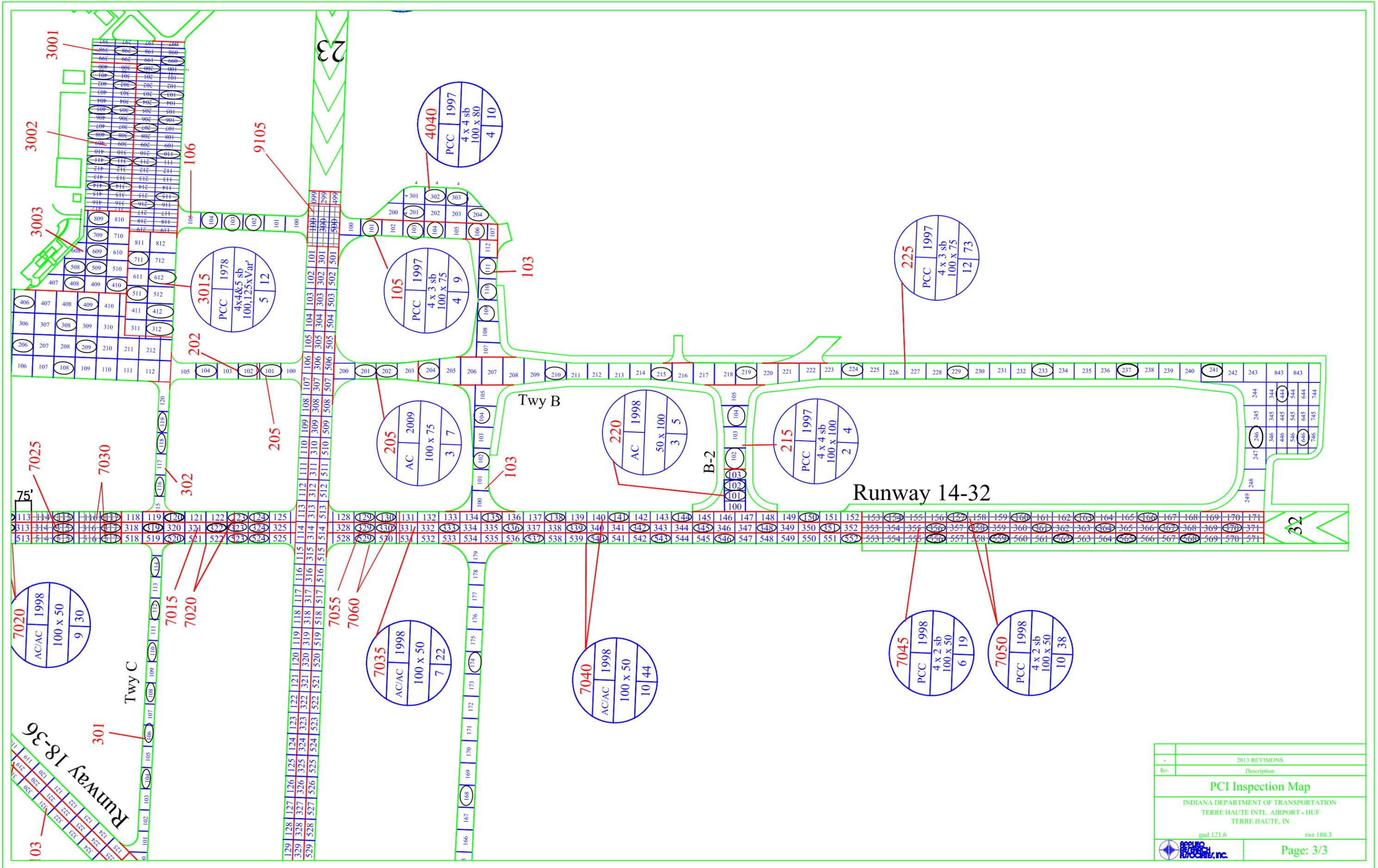
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102	
PCC	1988
4 x 3 sb 100 x 75	
12	54

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