Pavement Condition Report

Gary/Chicago International Airport

Project 13801869

Prepared for:
Indiana Department of Transportation
Office of Aviation
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Indiana Department of Transportation

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Executive Summary

Background

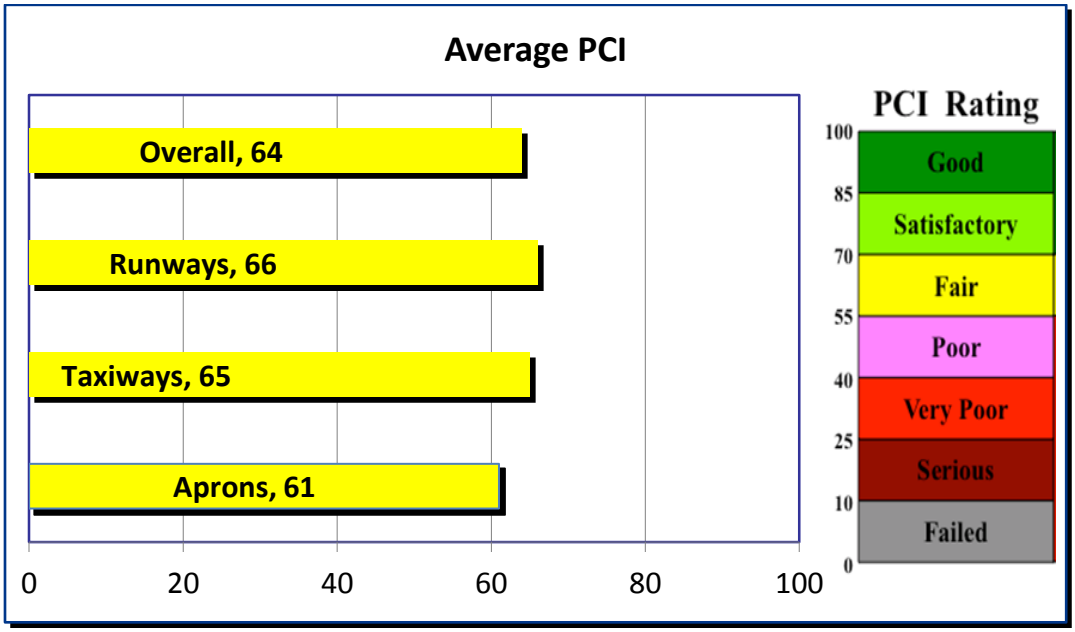
Since 1995, airports have been required to implement a pavement maintenance-management program to receive funding for any project constructed using Federal money. To assist individual airports in meeting this requirement and help improve airport pavement conditions statewide, the Indiana Department of Transportation, Office of Aviation contracted with Applied Research Associates, Inc. to provide pavement evaluation surveys at local airports. This report documents pavement condition at Gary/Chicago International Airport in September 2012.

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 at Gary/Chicago International Airport are shown below.

Runway	Taxiway	Apron
70	65	65

Pavement Condition

The overall Pavement Condition Index (PCI) for the airfield pavements was 64. Runways had an average inspected PCI of 66 and were below the desired MSL of 70. Taxiways had an average inspected PCI of 65, and ramps had an average inspected PCI of 61.



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 2012. The estimated cost for the rehabilitation actions that provide the greatest increase in pavement service life is approximately $4.5 million in 2012 dollars. If no action is taken, the overall PCI is projected to drop to 55 by 2016.

Project Year	Calendar Year	Amount
Year 1	2012	3,428,641
Year 2	2013	487,203
Year 3	2014	576,964
Year 4	2015	42,426
Year 5	2016	-
	5-Year Total	**$ 4,535,234**

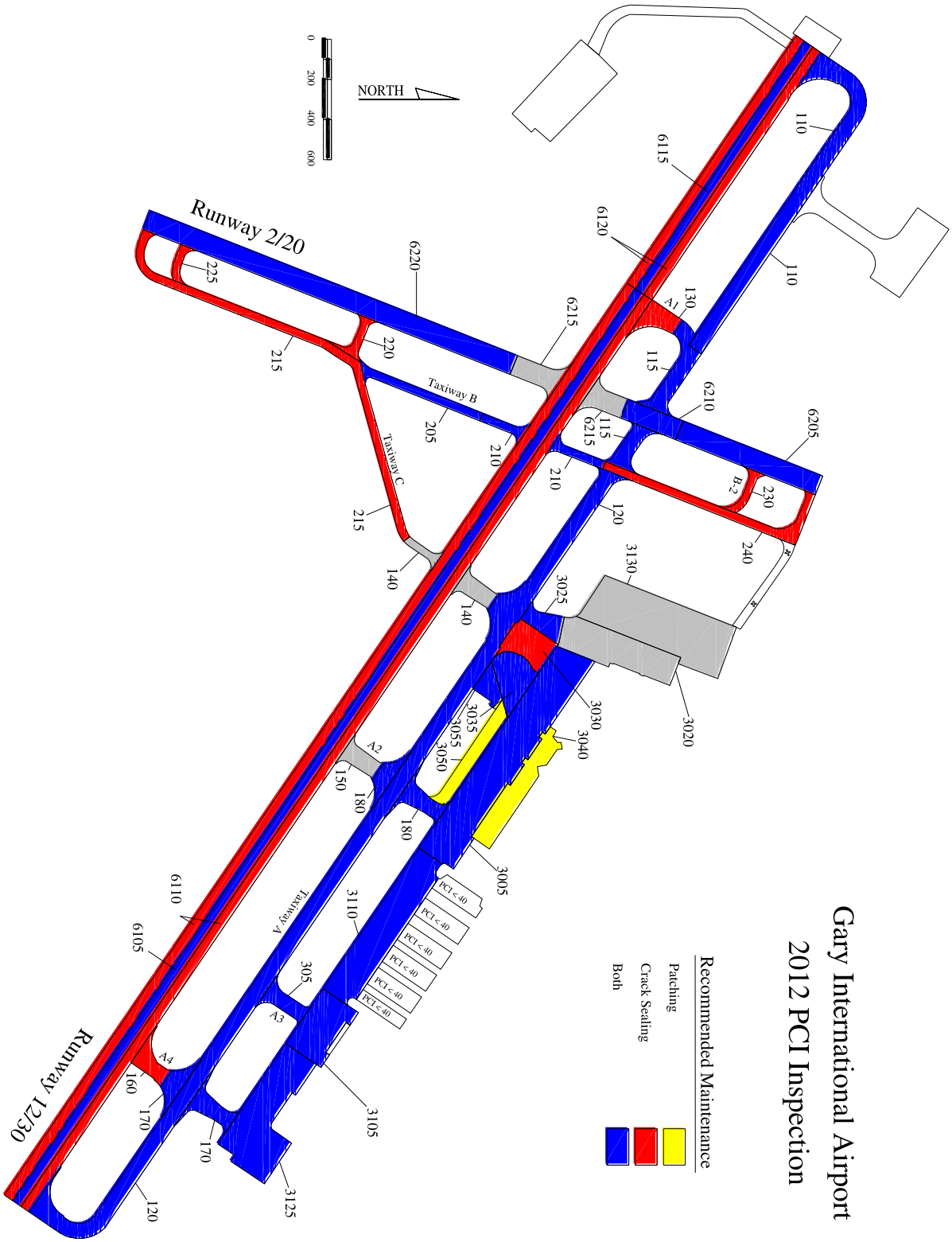
Maintenance

Analysis of potential maintenance projects identified approximately 24,000 square feet of patching needs and approximately 180,000 linear feet of crack sealing and crack repair needs, at an estimated total cost of approximately $460,000.

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	20,485	SF	$199,321
AC RESTORATIVE CRACK REPAIR	138,790	LF	$169,323
AC SUSTAINING CRACK REPAIR	35,839	LF	$30,541
PCC PATCHING	37	SF	$608
PCC RESTORATIVE SEAL REPAIR	6,740	LF	$14,828
SLAB REPAIR/REPLACEMENT	3,424	SF	$41,933
Total:			**$456,554**

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


Gary International Airport
2012 PCI Inspection
Recommended Maintenance
Patching
Crack Sealing
Both
NORTH
0
200
400
600
Runway 2/20
Runway 12/30
Taxiway A
Taxiway B
Taxiway C
A1
A2
A3
A4
B-2
PCI<40

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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 13801869.

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 D5340-11, *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 ft² ± 2,000 ft². 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. Table 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.

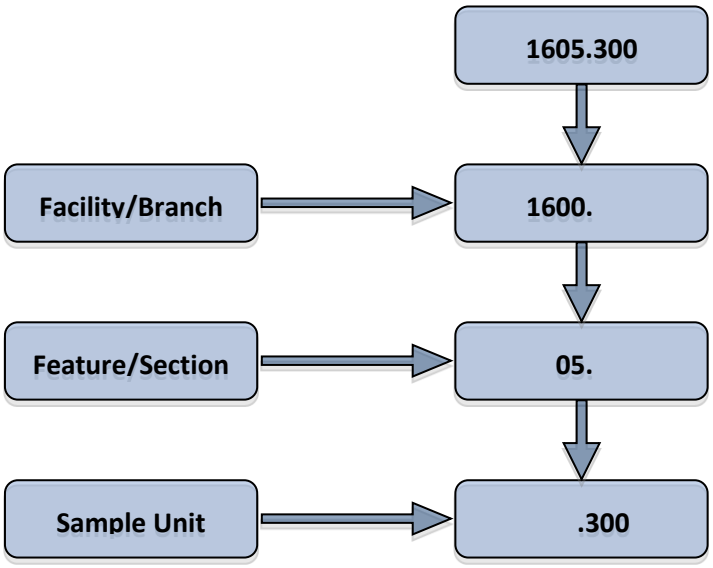


Figure 1-1. Pavement Numbering System

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 D5340-11. 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 D5340-11), 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 D5340-11 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.

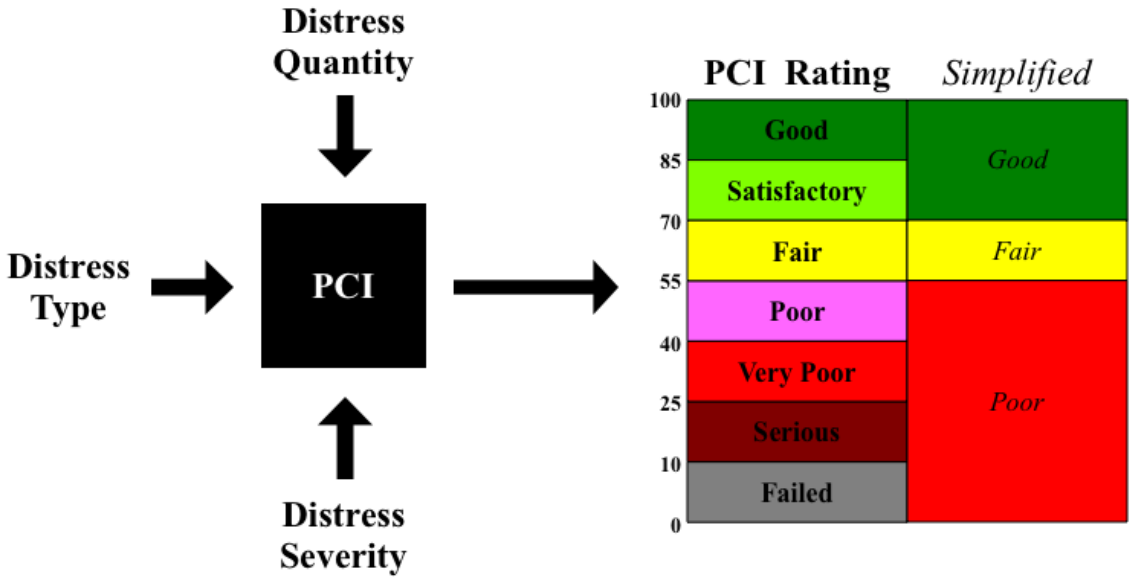


Figure 1-2. PCI Value and Descriptive Rating

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 one third of the total 3.5 million square feet of airside pavement was surveyed as part of this assessment. The average inspected PCI for all pavements was 64 (Fair). The average inspected PCI for the runways, taxiways, and ramps were as follows: 66 (Fair), 65 (Fair), and 61 (Fair). 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.	387,351	11%
	71-85	SATISFACTORY: Pavement has scattered low-severity distresses that need only routine maintenance.	58,158	2%
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.	2,307,071	66%
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.	347,225	10%
	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.	379,164	11%
	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.	-	-

Pavement sections 3005 (Terminal Ramp) and 3125 (FBO Ramp) had PCI range ratings of Very Poor, indicating intensive pavement rehabilitation is needed to maintain serviceability. Six pavement sections including: 170 (Twy A-4), 180 (Twy A-2), 205 (Twy B), 3030 (Ramp), 3105 (FBO Ramp), and 3110 (FBO Ramp) had PCI range ratings of Poor, indicating that either major M&R is needed or that near-term maintenance needs may be extensive in order to maintain serviceability. 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.

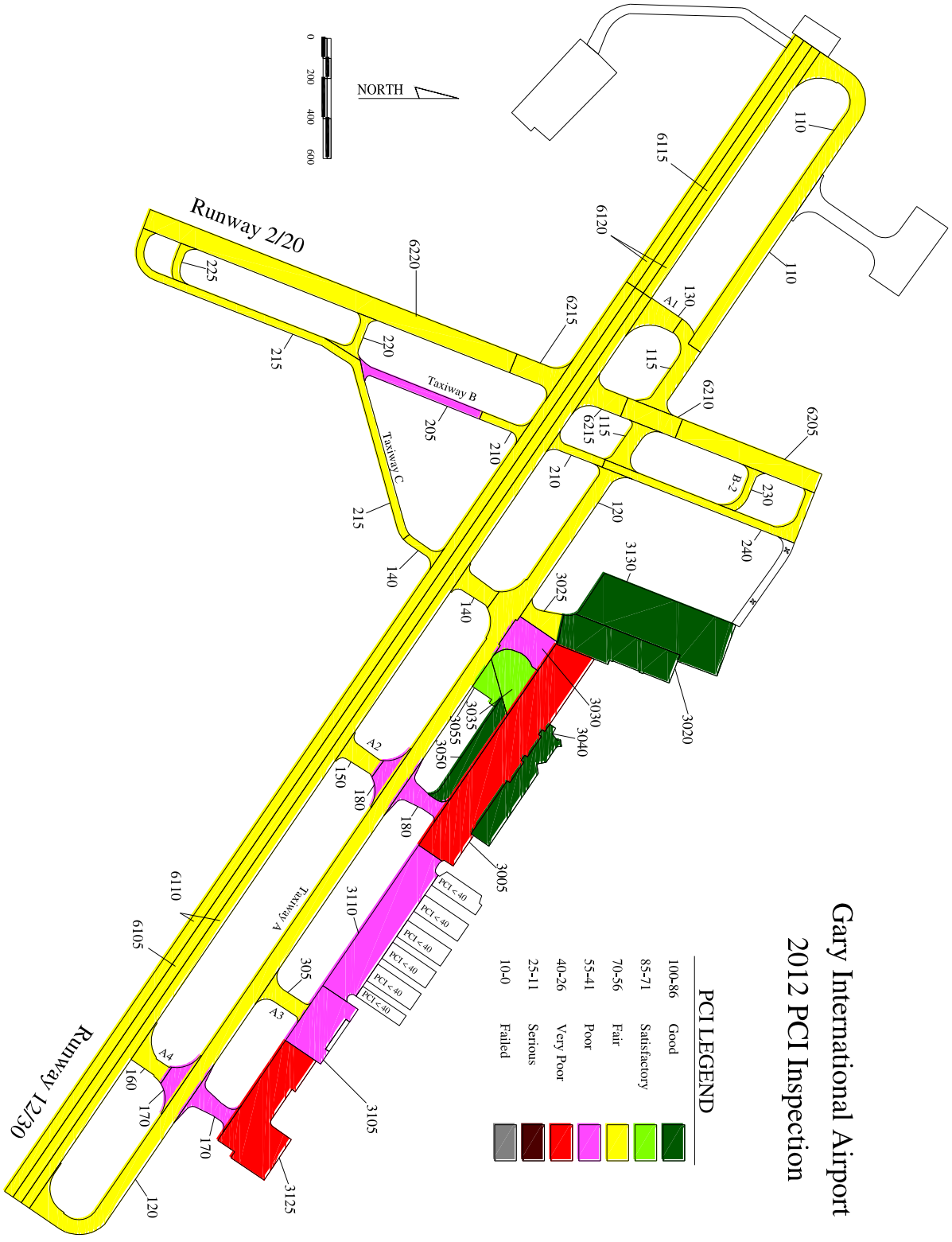


Figure 2-1. Inspected Pavement Condition

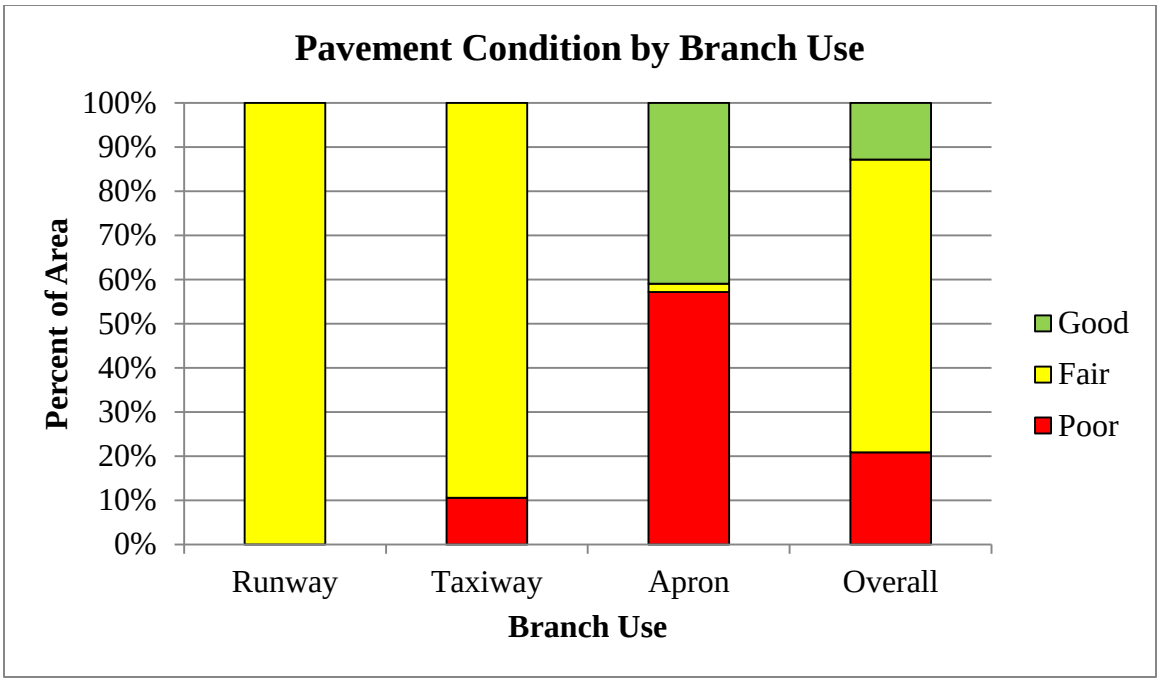


Figure 2-2. Pavement Condition by Branch Use

Figure 2-3. Typical Good PCC Pavement (Feature 3020)

Figure 2-4. Typical Satisfactory PCC Pavement (Feature 3035)

Figure 2-5. Typical Fair AC Pavement (Feature 6120)

Figure 2-6. Typical Poor AC Pavement (Feature 170)

Figure 2-7. Typical Very Poor AC Pavement (Feature 170)

2.2 Distress Types and Frequency

The inspectors surveyed approximately 810,000 ft^2 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, weathering and alligator cracking. L&T cracking and weathering are climate-related distresses, and alligator cracking is a load-related distress.

Table 2-2. Distress Frequency in AC Pavement

Distress	Sample Units	% Inspected Sample Units
L&T CRACKING	164	91
WEATHERING	100	55
ALLIGATOR CRACKING	90	50
BLOCK CRACKING	23	13
RUTTING	11	6
RAVELING	10	6
SWELL	9	5
BLEEDING	8	4
PATCHING	6	3
OIL SPILLAGE	4	2

The inspectors surveyed approximately 200,000 ft^2 of PCC pavement. The frequency of each distress type is shown in Table 2-3. The most common distresses, with respect to quantity (number of slabs) recorded, were joint seal damage and longitudinal, transverse, and diagonal (LTD) cracks.

Table 2-3. Distress Frequency in PCC Pavement

Distress	Sample Units	% Inspected Sample Units	Slabs	% Inspected Slabs
JOINT SEAL DAMAGE	8	38.1	166	38.8
LONG/TRANS/DIAG CRACKS	8	38.1	17	4.0
SHRINKAGE CRACKS	8	38.1	10	2.3
CORNER SPALLING	3	14.3	6	1.4
SHATTERED SLAB	2	9.5	4	0.9
PATCHING LARGE	1	4.8	1	0.2

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	2012 PCI
100 (Twy A)	65	110	AC	143,310	1991	66
		115	AC/AC	59,980	1991	65
		120	AC	389,862	1991	68
		130	AC/AC	21,520	1991	58
		140	AC/AC	18,930	1991	66
		150	AC/AC	18,910	1991	60
		160	AC/AC	19,333	1991	67
		170	AC/AC	40,024	1991	52
		180	AC/AC	38,289	1991	48
200 (Twy B)	63	205	AC/AC	26,772	1991	49
		210	AC/AC	22,705	1991	60
		215	AC/AC	90,270	1991	66
		220	AC/AC	11,640	1991	62
		225	AC/AC	8,178	1991	62
		230	AC/AC	10,380	1991	69
		240	AC/AC	52,370	1991	66
300 (Twy A-3)	70	305	AC/AC	19,710	1991	70
3000 (Term. Ramp)	62	3005	AC/AC	240,580	1996	32
		3020	PCC	96,960	2009	100
		3025	AC/AC	20,515	1991	57
		3030	AC/AC	38,900	1997	51
		3035	PCC	41,801	1997	83
		3040	PCC	65,058	1997	86
		3050	PCC	41,446	2009	93
		3055	PCC	16,357	1995	84
3100 (FBO Ramp)	61	3105	AC/AC	66,000	1999	45
		3110	AC/AC	137,240	1999	48
		3125	AC	138,584	1999	30
		3130	PCC	183,887	2005	99
6100 (Rwy 12-30)	68	6105	AC/AC	275,000	1991	65
		6110	AC/AC	553,470	1991	69
		6115	AC/AC	74,638	1991	67
		6120	AC/AC	147,100	1991	70

Table 2-4. PCI Results (cont.)

Branch ID	Branch PCI	Section	Surface	Area (sf)	Built	2012 PCI
6200 (Twy 2-20)	61	6205	AC/AC	75,000	1991	61
		6210	AC/AC	29,300	1991	57
		6215	AC/AC	49,350	1991	60
		6220	AC/AC	195,600	1991	62

2.4 Analysis Commentary

The following pages provide a brief overview of the 2012 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.

2.4.1 Runways

Runway 12-30 consisted of 4 sections of AAC pavement. The runway had a total area of 1,050,208 ft² with an area-weighted average PCI of 68 (Fair). Runway 2-20 consisted of 4 sections of AAC pavement. The runway had a total area of 349,250 ft² with an area-weighted average PCI of 61 (Fair). The most common runway distresses were L&T cracking and weathering.

Table 2-5. Runway Condition Distribution

PCI Range	Rating	Number of Sections	Pavement Area (ft²)	Pavement Area (%)
100-71	Good	-	-	-
70-56	Fair	8	1,399,458	100
55-0	Poor	-	-	-

2.4.1.1 Runway 12-30

Runway 12-30 consisted of 4 sections of AAC pavement. The branch had a total area of 1,050,200 ft² with an area-weighted average PCI of 68 (Fair). Section 6120 was at the MSL of 70. The remaining three pavement sections 6105, 6110, and 6115 were all below the MSL with average PCI values ranging from 65 to 69.

2.4.1.2 Runway 2-20

Runway 2-20 consisted of 4 sections of AAC pavement. The branch had a total area of 350,000 ft² with an area-weighted average PCI of 61 (Fair). All four pavement sections were below the MSL of 70. The pavement conditions were similar across all sections with PCI values ranging from 57 to 62.

2.4.2 Taxiways

The taxiways consisted of two branches containing 17 sections of AC and AAC pavement. The total area of the taxiways was 992,183 ft². The area-weighted average PCI was 65 (Fair). The distribution of taxiway pavement area and sections by PCI range is shown in Table 2-6.

Table 2-6. Taxiway Condition Distribution

PCI Range	Rating	Number of Sections	Pavement Area (ft²)	Pavement Area (%)
100-71	Good	-	-	-
70-56	Fair	14	887,098	89
55-0	Poor	3	105,085	11

2.4.2.1 Taxiway A

The Taxiway A complex consisted of 10 sections of AC and AAC pavement. The branch had a total area of 769,868 ft² with an area-weighted average PCI of 65 (Fair). The recorded distresses included alligator cracking, L&T cracking, weathering and swell.

2.4.2.2 Taxiway B

The Taxiway B complex consisted of 5 sections of AAC pavement. The branch had a total area of 120,405 ft² with an area-weighted average PCI of 63 (Fair). The recorded distresses included alligator cracking, L&T cracking, and weathering.

2.4.2.3 Taxiway C

The Taxiway C complex consisted of 2 sections of AAC pavement. The branch had a total area of 101,910 ft² with an area-weighted average PCI of 66 (Fair). The recorded distresses included L&T cracking, and weathering

2.4.3 Aprons

The aprons consisted of 2 branches containing 12 sections of AC, AAC and PCC pavement. The total area of apron pavements was 1,087,328 ft², and the area-weighted average PCI was 61 (Fair). 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 (ft²)	Pavement Area (%)
100-71	Good	6	445,509	41
70-56	Fair	1	20,515	2
55-0	Poor	5	621,304	57

2.4.3.1 Terminal Ramp

The terminal ramp is loosely described herein as the eight AAC and PCC pavement sections that serve as main-ramp aircraft parking. The branch had a total area of 561,617 ft² with an area-weighted average PCI of 62 (Fair). The recorded distresses included alligator cracking, block cracking and L&T cracking in the AAC pavement sections, and LTD cracks, shrinkage cracks and spalls in the PCC pavement sections.

2.4.3.2 FBO Ramp

The FBO ramps are loosely described herein as the four AC, AAC and PCC pavement sections that routinely support FBO and GA operations. The branch had a total area of 525,711 ft² with an area-weighted average PCI of 61 (Fair). The recorded distresses included alligator cracking, block cracking and L&T cracking in the AAC pavement sections, and LTD cracks and shrinkage cracks in the PCC pavement sections.

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	$12.65 /sf
Slab Replacement & Full Depth Patching	$12.24 /sf
Patching (Partial Depth)	$16.37 /sf
Slab Repair & Overlay	$4.60 /sf + $0.40 /sf/in > 4”
Joint Seal Replacement	$2.20 /lf
Joint Seal Repair	$0.85 /lf
Undersealing	$4.08 /sf
Flexible Pavement (AC)	
Reconstruction	$5.25 /sf
Resurfacing	$1.41 /sf
Structural Overlay	$2.21 /sf + $0.40 /sf/in > 4”
Surface Treatment	$0.38 /sf
Patching	$9.74 /sf
Crack Repair (Restorative)	$1.22 /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 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. Surface treatments are a cost effective way to address weathering and raveling. They perform best when applied to pavement that is still in fair to satisfactory condition.

3.2.2.5 Patching

Apply a high-quality, penetrating rejuvenating sealer.

3.2.2.6 Crack Repair (Restorative)

Apply a high-quality, penetrating rejuvenating sealer. This is typically a large project with significant prep work.

3.2.2.7 Crack Repair (Sustaining)

Apply a high-quality, penetrating rejuvenating sealer. 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

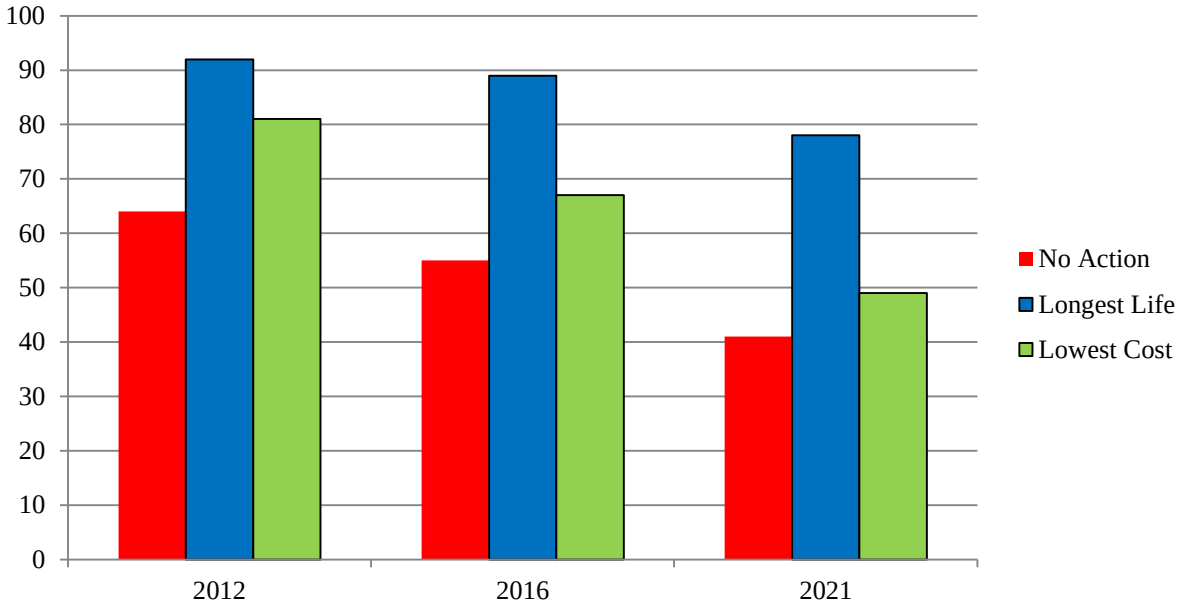


Figure 3-1. Programmed CIP

The longest life CIP scenario is projected to cost approximately **$4.5 million** over the next 10 years. The lowest annual cost scenario is projected to cost approximately **$2.6 million** 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, $
110	1991	TAXIWAY A	2013	Structural Overlay	259,391
115	1991	TAXIWAY A	2012	Structural Overlay	108,563
120	1991	TAXIWAY A	2014	Resurfacing	549,705
130	1991	TAXIWAY A-1	2012	Resurfacing	30,343
140	1991	TAXIWAY C	2013	Resurfacing	26,691
150	1991	TAXIWAY A-2	2012	Resurfacing	26,663
160	1991	TAXIWAY A-4	2014	Resurfacing	27,259
170	1991	TAXIWAY A-4	2012	Structural Overlay	72,443
180	1991	TAXIWAY A-2	2012	Resurfacing	53,987
205	1991	TAXIWAY B	2012	Resurfacing	37,748
210	1991	TAXIWAY B	2012	Structural Overlay	41,096

215	1991	TAXIWAY C	2013	Resurfacing	127,280
220	1991	TAXIWAY C	2012	Resurfacing	16,412
225	1991	TAXIWAY B-1	2012	Resurfacing	11,530
230	1991	TAXIWAY B-2	2015	Resurfacing	14,635
240	1991	TAXIWAY B	2013	Resurfacing	73,841
305	1991	TAXIWAY A-3	2015	Resurfacing	27,791
3005	1996	TERMINAL RAMP	2012	Structural Overlay	435,449
3025	1991	RAMP	2012	Resurfacing	28,926
3030	1997	RAMP	2012	Resurfacing	54,848
3105	1999	FBO RAMP	2012	Resurfacing	93,059
3110	1999	FBO RAMP	2012	Resurfacing	193,508
3125	1999	FBO RAMP	2012	Structural Overlay	250,837
6105	1991	RUNWAY 12-30 KEEL	2012	Resurfacing	387,749
6110	1991	RUNWAY 12-30 WING	2012	Resurfacing	780,392
6115	1991	RUNWAY 12-30 KEEL	2012	Resurfacing	105,239
6120	1991	RUNWAY 12-30 WING	2012	Resurfacing	207,410
6205	1991	RUNWAY 2-20	2012	Resurfacing	105,749
6210	1991	RUNWAY 2-20	2012	Resurfacing	41,312
6215	1991	RUNWAY 2-20	2012	Resurfacing	69,583
6220	1991	RUNWAY 2-20	2012	Resurfacing	275,795
				Total	**4,535,234**

Table 3-3. Lowest Annual Cost Repair

Feature	Built	Description	Action Yr	Work Item	Cost, $
110	1991	TAXIWAY A	2013	Surface Treatment	58,016
115	1991	TAXIWAY A	2012	Structural Overlay	108,563
120	1991	TAXIWAY A	2014	Resurfacing	549,705
130	1991	TAXIWAY A-1	2012	Surface Treatment	8,432
140	1991	TAXIWAY C	2013	Surface Treatment	7,284
150	1991	TAXIWAY A-2	2012	Surface Treatment	7,338
160	1991	TAXIWAY A-4	2014	Surface Treatment	7,524
170	1991	TAXIWAY A-4	2012	Structural Overlay	72,443
180	1991	TAXIWAY A-2	2012	Resurfacing	53,987
205	1991	TAXIWAY B	2012	Resurfacing	37,748
210	1991	TAXIWAY B	2012	Surface Treatment	8,819
215	1991	TAXIWAY C	2013	Surface Treatment	35,122
220	1991	TAXIWAY C	2012	Surface Treatment	4,559
225	1991	TAXIWAY B-1	2012	Surface Treatment	3,193
230	1991	TAXIWAY B-2	2015	Surface Treatment	4,096
240	1991	TAXIWAY B	2013	Surface Treatment	20,538
305	1991	TAXIWAY A-3	2015	Crack Repair	2,133
3005	1996	TERMINAL RAMP	2012	Structural Overlay	435,449
3025	1991	RAMP	2012	Resurfacing	28,926
3030	1997	RAMP	2012	Resurfacing	54,848
3105	1999	FBO RAMP	2012	Resurfacing	93,059

3110	1999	FBO RAMP	2012	Resurfacing	193,508
3125	1999	FBO RAMP	2012	Structural Overlay	250,837
6105	1991	RUNWAY 12-30 KEEL	2012	Surface Treatment	115,248
6110	1991	RUNWAY 12-30 WING	2012	Surface Treatment	218,610
6115	1991	RUNWAY 12-30 KEEL	2012	Surface Treatment	30,049
6120	1991	RUNWAY 12-30 WING	2012	Surface Treatment	59,227
6205	1991	RUNWAY 2-20	2012	Surface Treatment	30,399
6210	1991	RUNWAY 2-20	2012	Surface Treatment	11,991
6215	1991	RUNWAY 2-20	2012	Surface Treatment	19,190
6220	1991	RUNWAY 2-20	2012	Surface Treatment	76,575
				Total	**2,607,416**

Table 3-4. All Viable Options

Feature	Built	Description	Action Yr	Work Item	Cost, $
110	1991	TAXIWAY A	2013	Crack Repair	16,674
110	1991	TAXIWAY A	2013	Structural Overlay	259,391
110	1991	TAXIWAY A	2013	Surface Treatment	58,016
115	1991	TAXIWAY A	2012	Crack Repair	9,334
115	1991	TAXIWAY A	2012	Structural Overlay	108,563
120	1991	TAXIWAY A	2014	Crack Repair	57,397
120	1991	TAXIWAY A	2014	Resurfacing	549,705
130	1991	TAXIWAY A-1	2012	Resurfacing	30,343
130	1991	TAXIWAY A-1	2012	Surface Treatment	8,432
140	1991	TAXIWAY C	2013	Crack Repair	2,719
140	1991	TAXIWAY C	2013	Resurfacing	26,691
140	1991	TAXIWAY C	2013	Surface Treatment	7,284
150	1991	TAXIWAY A-2	2012	Resurfacing	26,663
150	1991	TAXIWAY A-2	2012	Surface Treatment	7,338
160	1991	TAXIWAY A-4	2014	Crack Repair	3,103
160	1991	TAXIWAY A-4	2014	Resurfacing	27,259
160	1991	TAXIWAY A-4	2014	Surface Treatment	7,524
170	1991	TAXIWAY A-4	2012	Structural Overlay	72,443
180	1991	TAXIWAY A-2	2012	Resurfacing	53,987
205	1991	TAXIWAY B	2012	Resurfacing	37,748
205	1991	TAXIWAY B	2012	Surface Treatment	10,735
210	1991	TAXIWAY B	2012	Structural Overlay	41,096
210	1991	TAXIWAY B	2012	Surface Treatment	8,819
215	1991	TAXIWAY C	2013	Crack Repair	12,957
215	1991	TAXIWAY C	2013	Resurfacing	127,280
215	1991	TAXIWAY C	2013	Surface Treatment	35,122
220	1991	TAXIWAY C	2012	Resurfacing	16,412
220	1991	TAXIWAY C	2012	Surface Treatment	4,559
225	1991	TAXIWAY B-1	2012	Resurfacing	11,530
225	1991	TAXIWAY B-1	2012	Surface Treatment	3,193
230	1991	TAXIWAY B-2	2015	Resurfacing	14,635

230	1991	TAXIWAY B-2	2015	Surface Treatment	4,096
240	1991	TAXIWAY B	2013	Crack Repair	4,295
240	1991	TAXIWAY B	2013	Resurfacing	73,841
240	1991	TAXIWAY B	2013	Surface Treatment	20,538
305	1991	TAXIWAY A-3	2015	Crack Repair	2,133
305	1991	TAXIWAY A-3	2015	Resurfacing	27,791
3005	1996	TERMINAL RAMP	2012	Structural Overlay	435,449
3005	1996	TERMINAL RAMP	2012	Surface Treatment	176,858
3025	1991	RAMP	2012	Resurfacing	28,926
3030	1997	RAMP	2012	Crack Repair	22,090
3030	1997	RAMP	2012	Resurfacing	54,848
3105	1999	FBO RAMP	2012	Resurfacing	93,059
3105	1999	FBO RAMP	2012	Surface Treatment	31,264
3110	1999	FBO RAMP	2012	Resurfacing	193,508
3110	1999	FBO RAMP	2012	Surface Treatment	59,030
3125	1999	FBO RAMP	2012	Structural Overlay	250,837
3125	1999	FBO RAMP	2012	Surface Treatment	96,172
6105	1991	RUNWAY 12-30 KEEL	2012	Resurfacing	387,749
6105	1991	RUNWAY 12-30 KEEL	2012	Surface Treatment	115,248
6110	1991	RUNWAY 12-30 WING	2012	Crack Repair	84,068
6110	1991	RUNWAY 12-30 WING	2012	Resurfacing	780,392
6110	1991	RUNWAY 12-30 WING	2012	Surface Treatment	218,610
6115	1991	RUNWAY 12-30 KEEL	2012	Resurfacing	105,239
6115	1991	RUNWAY 12-30 KEEL	2012	Surface Treatment	30,049
6120	1991	RUNWAY 12-30 WING	2012	Crack Repair	18,523
6120	1991	RUNWAY 12-30 WING	2012	Resurfacing	207,410
6120	1991	RUNWAY 12-30 WING	2012	Surface Treatment	59,227
6205	1991	RUNWAY 2-20	2012	Resurfacing	105,749
6205	1991	RUNWAY 2-20	2012	Surface Treatment	30,399
6210	1991	RUNWAY 2-20	2012	Resurfacing	41,312
6210	1991	RUNWAY 2-20	2012	Surface Treatment	11,991
6215	1991	RUNWAY 2-20	2012	Resurfacing	69,583
6215	1991	RUNWAY 2-20	2012	Surface Treatment	19,190
6220	1991	RUNWAY 2-20	2012	Resurfacing	275,795
6220	1991	RUNWAY 2-20	2012	Surface Treatment	76,575

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, 84 percent of the cracks were rated at low severity and require no maintenance beyond ongoing inspection and spot repair. About 14 percent of the cracks were rated at medium severity and would benefit from sealing and repair. Two percent of the cracks were rated at high severity and warrant patching to maintain safe operations.

4.1.2 Other Distress

In asphalt pavement, area measured distresses such as rutting, depressions, fatigue cracks, and raveling were recorded at low severity levels 51 percent of the time, medium severity 45 percent of the time, and high severity 4 percent of the time.

Joint seal damage was recorded on 39 percent of the inspected PCC slabs. When identified, joint seal damage severity levels were recorded as follows: 46 percent at low severity, 54 percent at medium severity, and 0 percent at 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	20,485	SF	$199,321
AC RESTORATIVE CRACK REPAIR	138,790	LF	$169,323
AC SUSTAINING CRACK REPAIR	35,839	LF	$30,541
PCC PATCHING	37	SF	$608
PCC RESTORATIVE SEAL REPAIR	6,740	LF	$14,828
SLAB REPAIR/REPLACEMENT	3,424	SF	$41,933
Total:			**$ 456,554**

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.

4.2.1 Patching

Table 4-2. Recommend AC Patching

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
110	AC PATCH	76	66	8	74
115	AC PATCH	19	65	4	69
120	AC PATCH	602	68	6	74
170	AC PATCH	706	52	13	65
180	AC PATCH	424	48	23	71
205	AC PATCH	294	49	16	65
210	AC PATCH	83	60	14	74
305	AC PATCH	35	70	6	76
3005	AC PATCH	6,595	32	12	44
3025	AC PATCH	105	57	9	66
3105	AC PATCH	928	45	13	58
3110	AC PATCH	4,863	48	17	65
3125	AC PATCH	5,443	30	14	44
6105	AC PATCH	147	65	5	70
6115	AC PATCH	6	67	1	68
6205	AC PATCH	127	61	6	67
6210	AC PATCH	15	57	1	58
6220	AC PATCH	15	62	-	62
	TOTAL:	20,485	S.F.		
EQUIPMENT: SAW, AIR COMPRESSOR, HEATING KETTLE, HAND TOOLS					
EST. MATERIALS: 501 TONS ASPHALT PATCH					
EST. MATERIAL COST: $50,073					
EST. CREW HOURS: 585.3					
EST. CREW COST: $149,247					
EST. PROJECT COST: $199,321					

Table 4-3. Recommend PCC Slab Replacement

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
3040	SLAB REPAIR/REPLACEMENT	2,437	86	5	91
3050	SLAB REPAIR/REPLACEMENT	986	93	3	96
	TOTAL:	3,424	S.F.		
EQUIPMENT: SAW, AIR COMPRESSOR, JACK HAMMER, MIXER, LOADER, HAND TOOLS					
EST. MATERIALS: 140 CUBIC YARDS CONCRETE MIX					
EST. MATERIAL COST: $13,394					
EST. CREW HOURS: 228.3					
EST. CREW COST: $28,538					
EST. PROJECT COST: $41,933					

Table 4-4. Recommend PCC Patching

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
3035	PCC PATCHING	20	83	4	87
3055	PCC PATCHING	16	84	3	87
	TOTAL:	36	S.F.		
EQUIPMENT: SAW, AIR COMPRESSOR, JACK HAMMER, MIXER, HAND TOOLS					
EST. MATERIALS: 1 CUBIC YARDS CONCRETE MIX					
EST. MATERIAL COST: $95					
EST. CREW HOURS: 3.7					
EST. CREW COST: $513					
EST. PROJECT COST: $608					

4.2.2 Crack Seal

Table 4-5. Recommend PCC Restorative Crack Repair

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
3035	PCC RESTORATIVE SEAL REPAIR	4,160	83	3	86
3055	PCC RESTORATIVE SEAL REPAIR	2,580	84	2	86
	TOTAL:	6,740	L.F.		
EQUIPMENT: ROUTER, SAND BLASTER, AIR COMPRESSOR, HEATING KETTLE, HAND TOOLS					
EST. MATERIALS: 1,348 POUNDS ASTM D3405 SEALANT OR EQUIVALENT					
EST. MATERIAL COST: $3,370					
EST. CREW HOURS: 56.2					
EST. CREW COST: $11,458					
EST. PROJECT COST: $14,828					

Table 4-6. Recommend AC Restorative Crack Repair

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
120	AC RESTORATIVE CRACK REPAIR	7,383	68	2	70
3005	AC RESTORATIVE CRACK REPAIR	56,781	32	14	46
3025	AC RESTORATIVE CRACK REPAIR	3,133	57	3	60
3030	AC RESTORATIVE CRACK REPAIR	10,346	51	17	68
3105	AC RESTORATIVE CRACK REPAIR	13,119	45	6	51
3110	AC RESTORATIVE CRACK REPAIR	14,735	48	5	53
3125	AC RESTORATIVE CRACK REPAIR	33,292	30	15	45
	TOTAL:	138,790	L.F.		
EQUIPMENT: AIR COMPRESSOR, HEATING KETTLE, HAND TOOLS					
EST. MATERIALS: 27,758 POUNDS ASTM D3405 SEALANT OR EQUIVALENT					
EST. MATERIAL COST: $27,758					
EST. CREW HOURS: 694.0					
EST. CREW COST: $141,565					
EST. PROJECT COST: $169,323					

Table 4-7. Recommend AC Sustaining Crack Repair

Feature	Work Item	Amount	Insp. PCI	Change	Est. PCI
110	AC SUSTAINING CRACK REPAIR	2,050	66	-	66
115	AC SUSTAINING CRACK REPAIR	1,147	65	-	65
130	AC SUSTAINING CRACK REPAIR	540	58	-	58
160	AC SUSTAINING CRACK REPAIR	381	67	-	67
170	AC SUSTAINING CRACK REPAIR	788	52	-	52
180	AC SUSTAINING CRACK REPAIR	966	48	-	48
205	AC SUSTAINING CRACK REPAIR	506	49	-	49
210	AC SUSTAINING CRACK REPAIR	419	60	-	60
215	AC SUSTAINING CRACK REPAIR	1,593	66	-	66
220	AC SUSTAINING CRACK REPAIR	207	62	-	62
225	AC SUSTAINING CRACK REPAIR	159	62	-	62
230	AC SUSTAINING CRACK REPAIR	135	69	-	69
240	AC SUSTAINING CRACK REPAIR	528	66	-	66
305	AC SUSTAINING CRACK REPAIR	261	70	-	70
6105	AC SUSTAINING CRACK REPAIR	5,447	65	-	65
6110	AC SUSTAINING CRACK REPAIR	10,336	69	-	69
6115	AC SUSTAINING CRACK REPAIR	1,410	67	-	67
6120	AC SUSTAINING CRACK REPAIR	2,277	70	-	70
6205	AC SUSTAINING CRACK REPAIR	1,180	61	-	61
6210	AC SUSTAINING CRACK REPAIR	677	57	-	57
6220	AC SUSTAINING CRACK REPAIR	4,824	62	-	62
	TOTAL:	35,839	L.F.		
EQUIPMENT: AIR COMPRESSOR, HEATING KETTLE, HAND TOOLS					
EST. MATERIALS: 7,168 POUNDS ASTM D3405 SEALANT OR EQUIVALENT					
EST. MATERIAL COST: $7,167					
EST. CREW HOURS: 155.8					
EST. CREW COST: $23,373					
EST. PROJECT COST: $30,541					

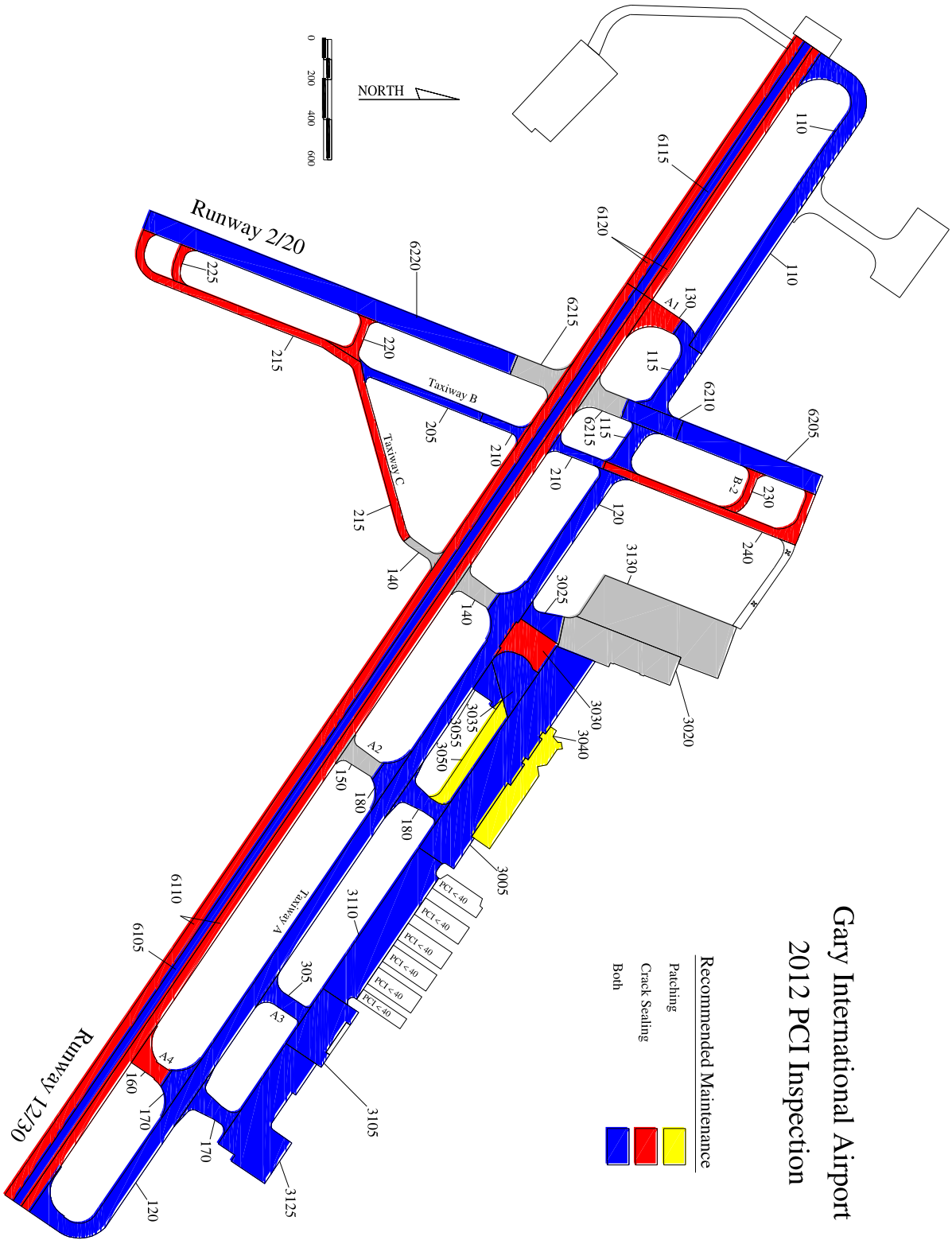


Figure 4-1. Recommended Maintenance

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.

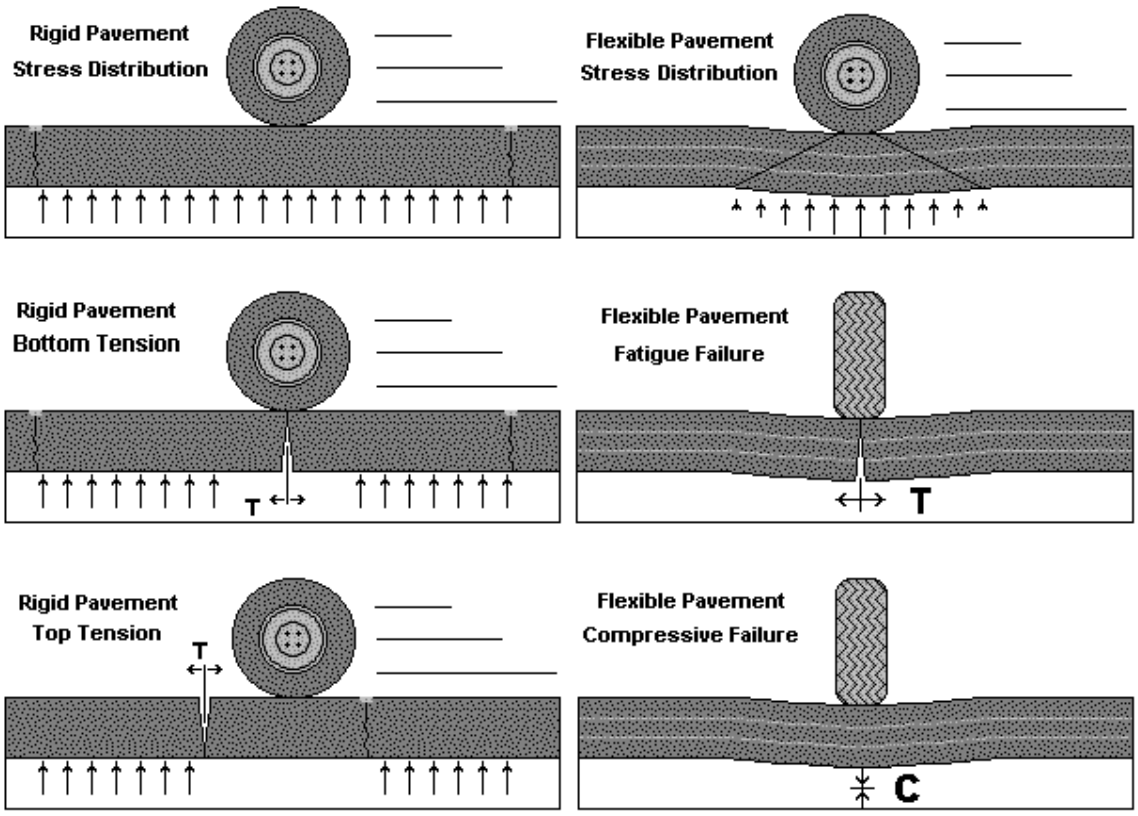
However, if the air voids become too high, air and water can penetrate the pavement, reducing both durability and flexibility. Air infiltration will accelerate oxidization of the binder, while water penetration will increase the moisture susceptibility of the mix (i.e., stripping of the asphalt cement 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 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

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

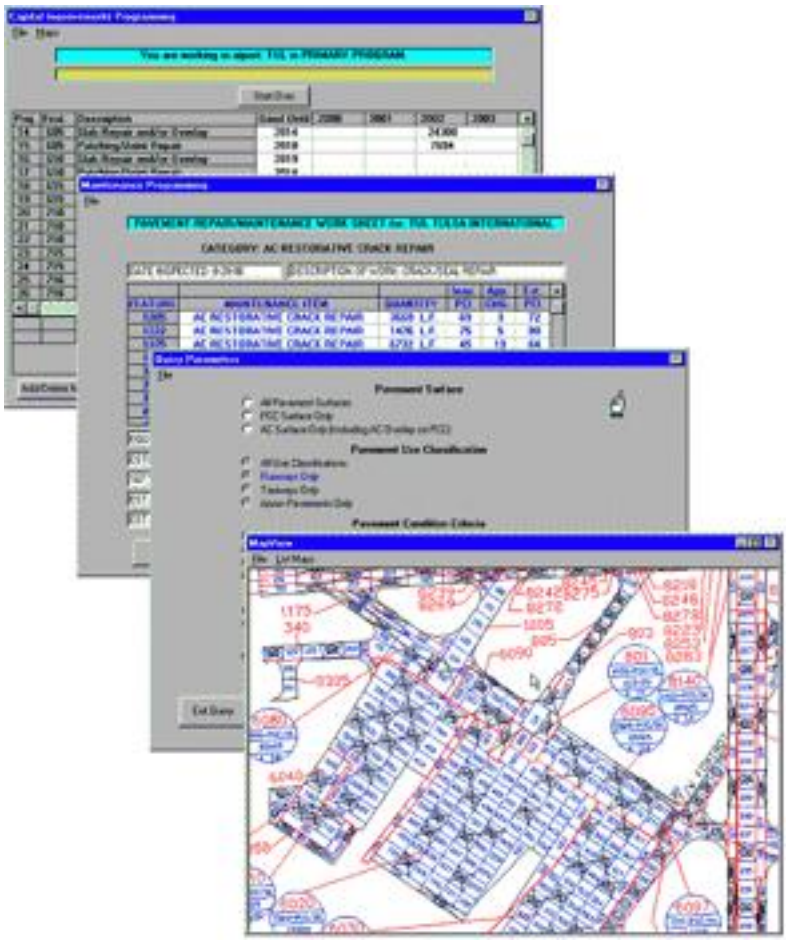
AIRPAV calculates and develops maintenance work orders organized by type of work. Maintenance work orders can be printed and issued directly to maintenance crews.

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

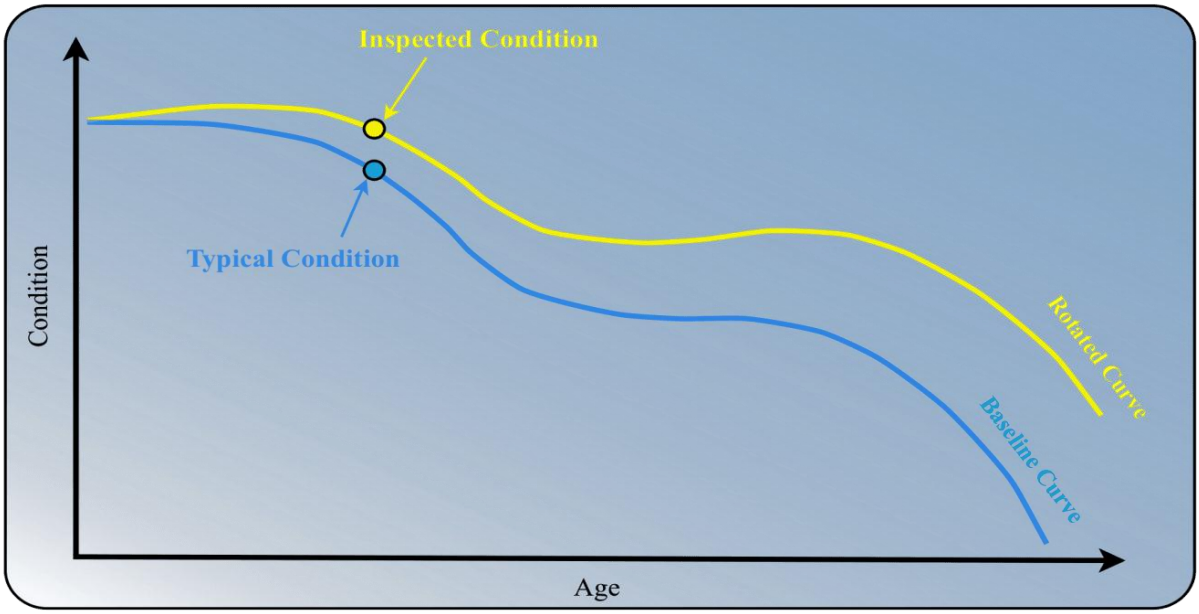
Pavement Performance Models

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.

$$PCI = X(Age)3 + Y(Age)2 + Z(Age)1 + C$$

Current Condition (rotating the curves)

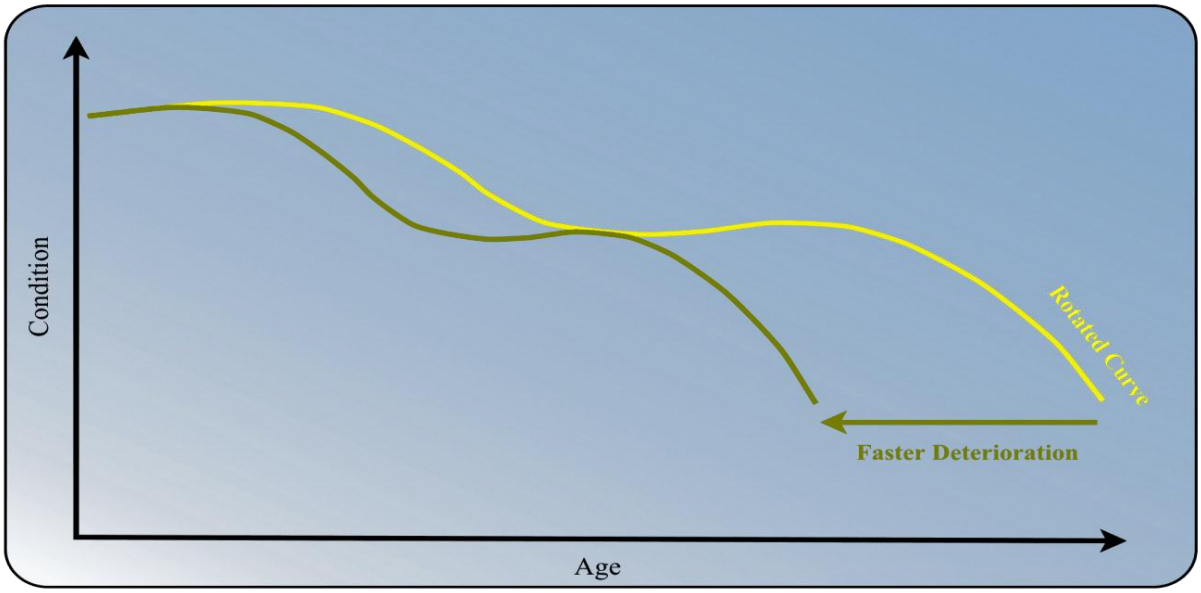
Starting with the baseline curve for comparison, current pavement condition is plotted, and the baseline curve is rotated to meet the current condition. The rotated curve provides the starting point for projecting the future pavement condition.



Advanced Analysis (accounting for distress)

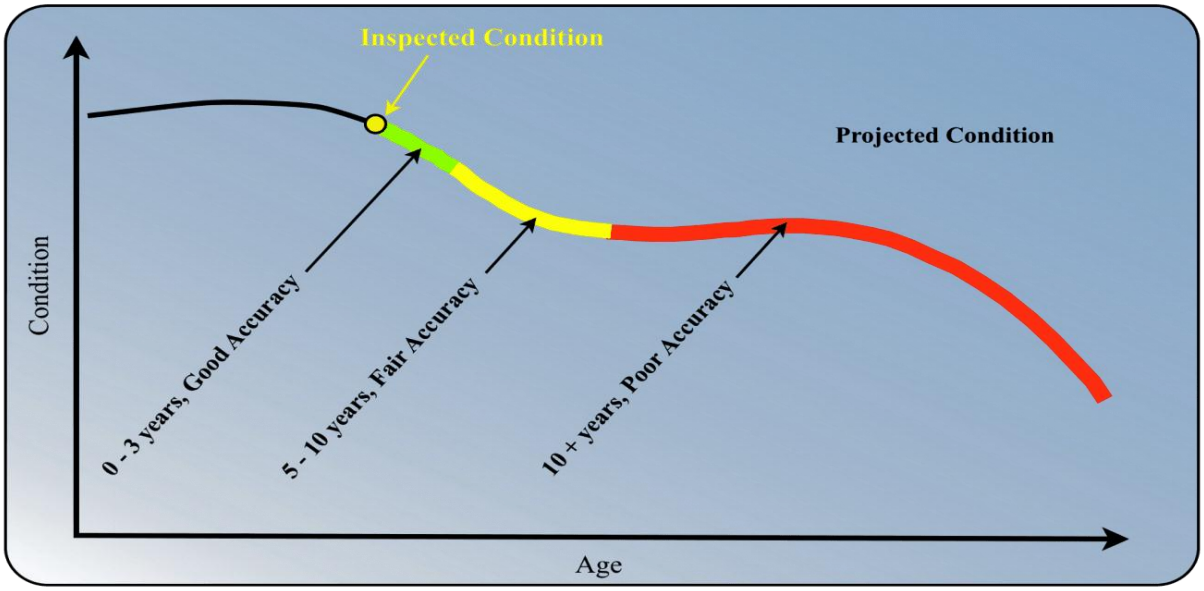
Some types of pavement distress have a greater impact on pavement deterioration than others. Rutting and alligator (fatigue) cracking are major structural failures and can lead to rapid pavement deterioration. Other distress types, like L&T cracking, develop slowly over time and typically do not cause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

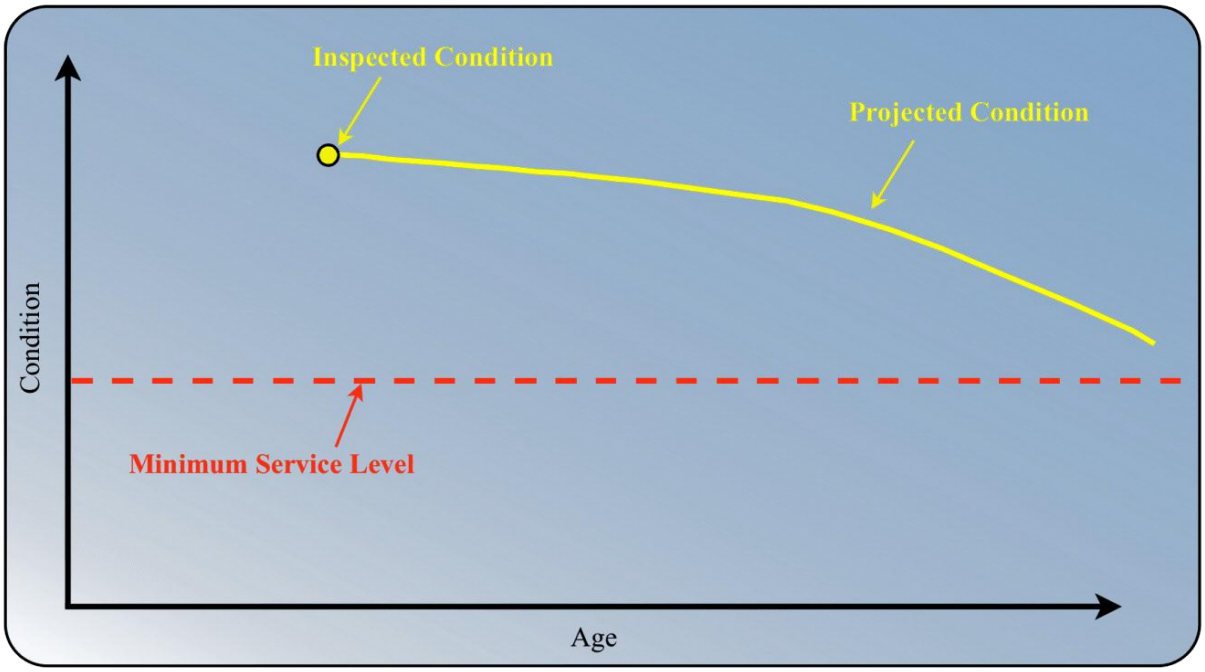


Projected PCI (why some features have unexpected projections)

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.



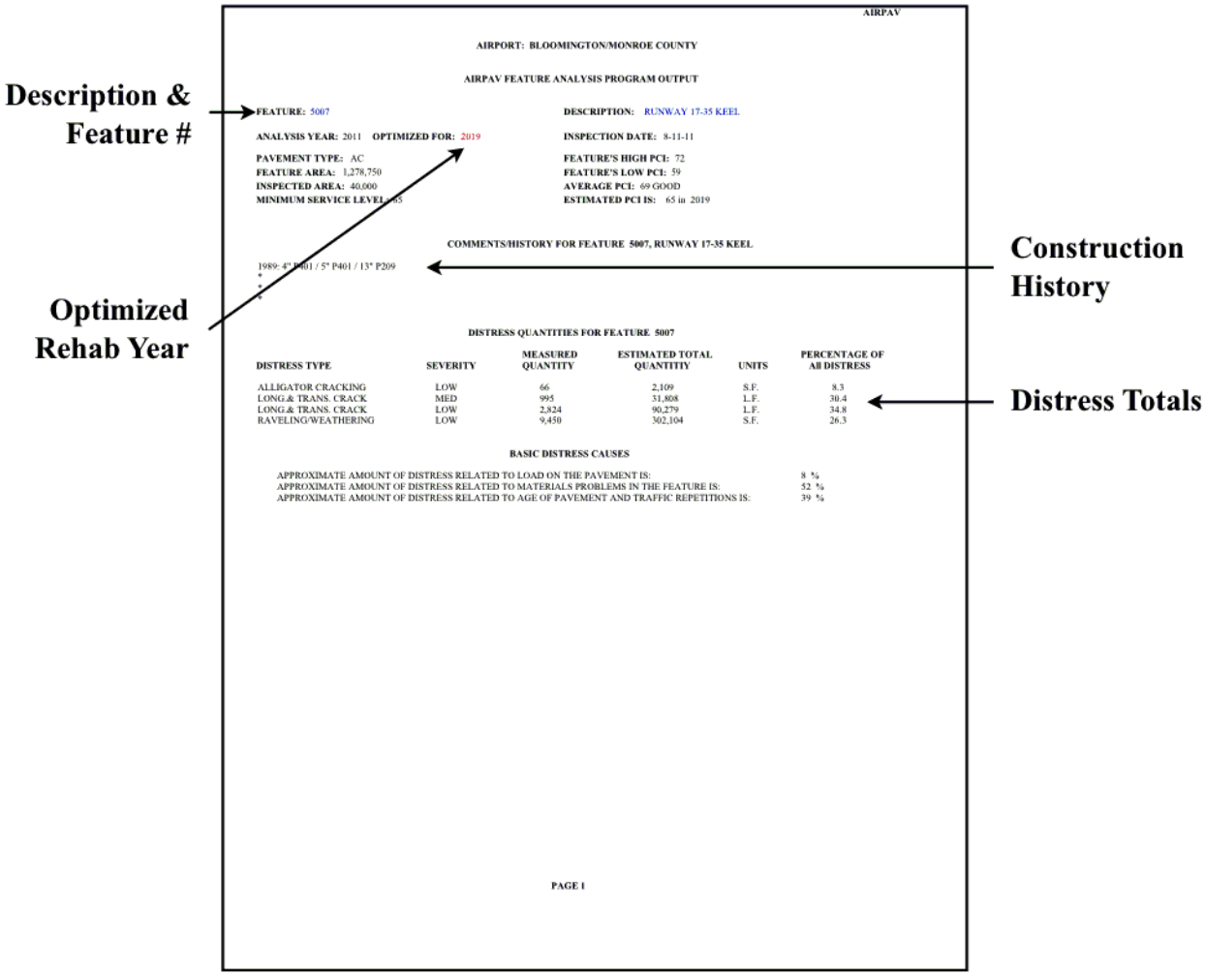
When long-term projections such as this are encountered, airport managers should not rely on projections in excess of 10 years. Managers can be confident that the pavement is performing much better than average and will not require rehabilitation within the current 5-year CIP planning window. As new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

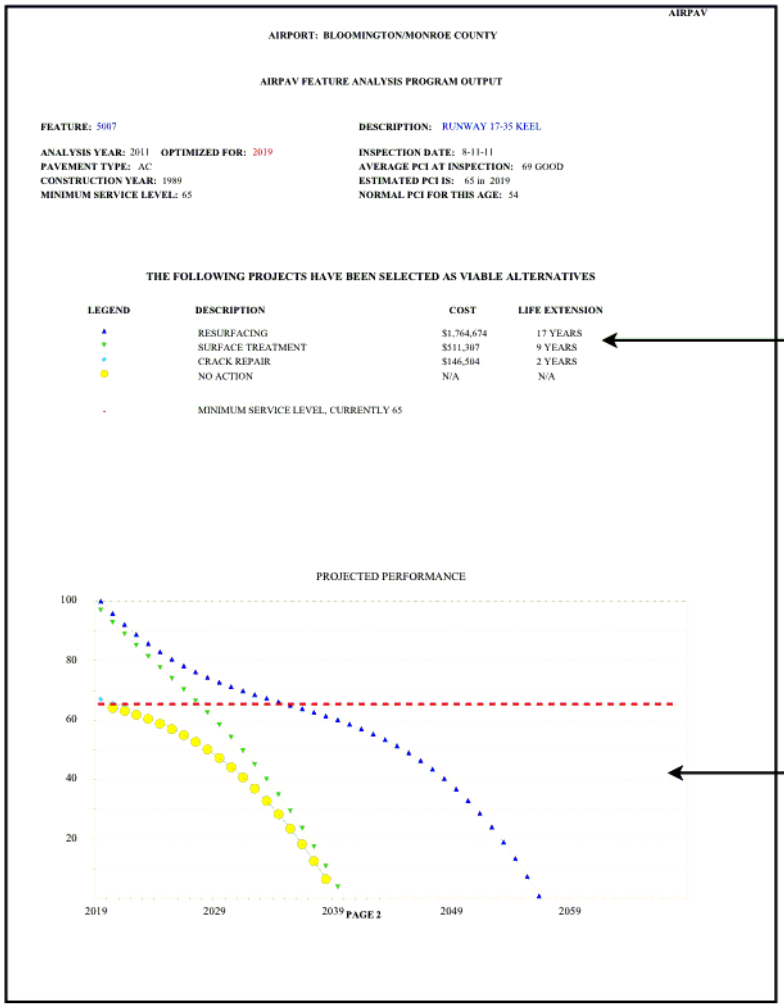
The first page of the analysis is a feature summary. Located near the top left-hand corner is the feature number and pavement description. Construction history and inspector comments are listed below, along with a photo of the pavement section if available. Distress totals recorded during the PCI survey 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.



Page 2

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.



AIRPAV

AIRPORT: BLOOMINGTON/MONROE COUNTY

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 5007 DESCRIPTION: RUNWAY 17-35 KEEL

ANALYSIS YEAR: 2011 OPTIMIZED FOR: 2019
PAVEMENT TYPE: AC
CONSTRUCTION YEAR: 1989
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 8-11-11
AVERAGE PCI AT INSPECTION: 69 GOOD
ESTIMATED PCI IS: 65 in 2019
NORMAL PCI FOR THIS AGE: 54

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$1,764,674	17 YEARS
▼	SURFACE TREATMENT	$511,307	9 YEARS
◆	CRACK REPAIR	$146,504	2 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE

100
80
60
40
20
2019
2029
2039
2049
2059

PAGE 2

Recommended Actions

Graphic Analysis

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 110 **DESCRIPTION:** TAXIWAY A

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2013 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC **FEATURE'S HIGH PCI:** 70
FEATURE AREA: 143,310 **FEATURE'S LOW PCI:** 61
INSPECTED AREA: 33,750 **AVERAGE PCI:** 66 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 64 in 2013

COMMENTS/HISTORY FOR FEATURE 110, TAXIWAY A

1991 VBL-13.5" P401
9" P209
*
*

DISTRESS QUANTITIES FOR FEATURE 110

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	18	76	S.F.	6.5
ALLIGATOR CRACKING	LOW	233	989	S.F.	27.7
BLEEDING	N/A	35	148	S.F.	1.3
LONG.& TRANS. CRACK	MED	687	2,917	L.F.	25.7
LONG.& TRANS. CRACK	LOW	2,532	10,751	L.F.	34.3
RAVELING	LOW	1,000	4,246	S.F.	3.2
SWELL	LOW	36	152	S.F.	.6
WEATHERING	MED	24	101	S.F.	.1
WEATHERING	LOW	420	1,783	S.F.	.2

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 34 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 43 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 22 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 110 **DESCRIPTION:** TAXIWAY A

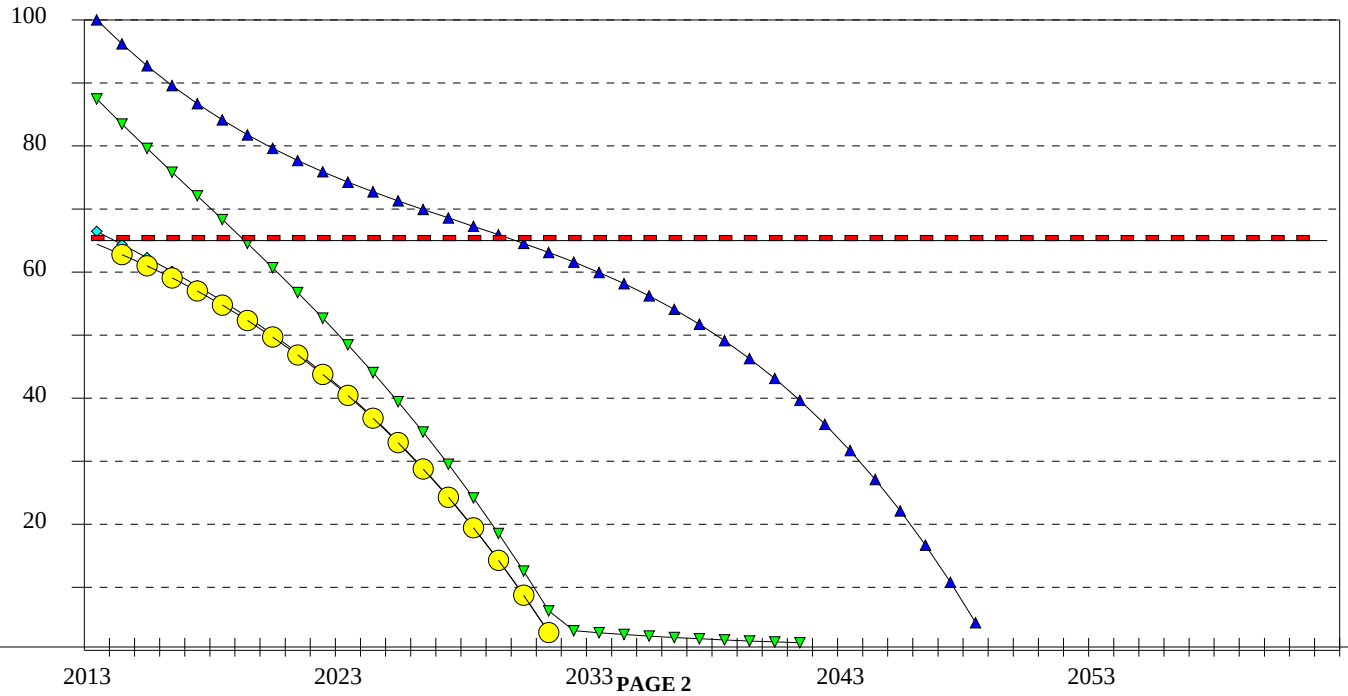
ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2013
PAVEMENT TYPE: AC
CONSTRUCTION YEAR: 1991
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 9-13-12
AVERAGE PCI AT INSPECTION: 66 FAIR
ESTIMATED PCI IS: 64 in 2013
NORMAL PCI FOR THIS AGE: 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	STRUCTURAL OVERLAY	$259,391	17 YEARS
▼	SURFACE TREATMENT	$58,016	6 YEARS
◆	CRACK REPAIR	$16,674	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 115 **DESCRIPTION:** TAXIWAY A

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 71
FEATURE AREA: 59,980 **FEATURE'S LOW PCI:** 59
INSPECTED AREA: 18,750 **AVERAGE PCI:** 65 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 65 in 2012

COMMENTS/HISTORY FOR FEATURE 115, TAXIWAY A

1991 3" P401
UNKNOWN EXISTING
*
*

DISTRESS QUANTITIES FOR FEATURE 115

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	6	19	S.F.	4.8
ALLIGATOR CRACKING	LOW	54	172	S.F.	16.9
LONG.& TRANS. CRACK	MED	336	1,074	L.F.	24.6
LONG.& TRANS. CRACK	LOW	2,056	6,577	L.F.	44.5
PATCH & UTILITY CUT	LOW	474	1,516	S.F.	6.1
SWELL	LOW	105	335	S.F.	2.8

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	26 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	51 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	23 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

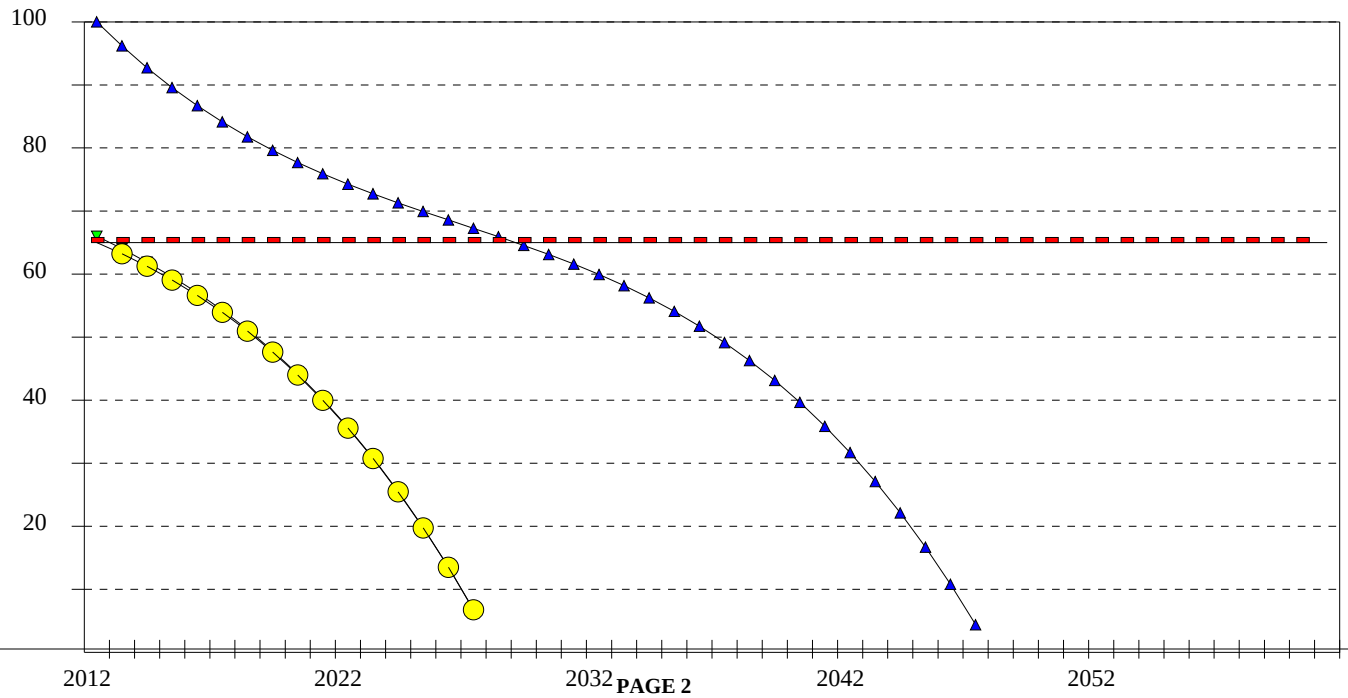
FEATURE: 115 **DESCRIPTION:** TAXIWAY A

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 65 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 65 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	STRUCTURAL OVERLAY	$108,563	17 YEARS
▼	CRACK REPAIR	$9,334	1 YEAR
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 120 **DESCRIPTION:** TAXIWAY A

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2014 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC **FEATURE'S HIGH PCI:** 78
FEATURE AREA: 389,862 **FEATURE'S LOW PCI:** 49
INSPECTED AREA: 62,750 **AVERAGE PCI:** 68 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 65 in 2014

COMMENTS/HISTORY FOR FEATURE 120, TAXIWAY A

1991 VBL-13.5" P401
9" P209
*
*

DISTRESS QUANTITIES FOR FEATURE 120

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	LOW	122	748	S.F.	9.5
ALLIGATOR CRACKING	MED	97	634	S.F.	8
LONG.& TRANS. CRACK	LOW	6,529	40,132	L.F.	51
LONG.& TRANS. CRACK	MED	1,105	6,915	L.F.	28.8
SWELL	LOW	104	104	S.F.	0
SWELL	MED	76	76	S.F.	0

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 18 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 54 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 27 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 120 **DESCRIPTION:** TAXIWAY A

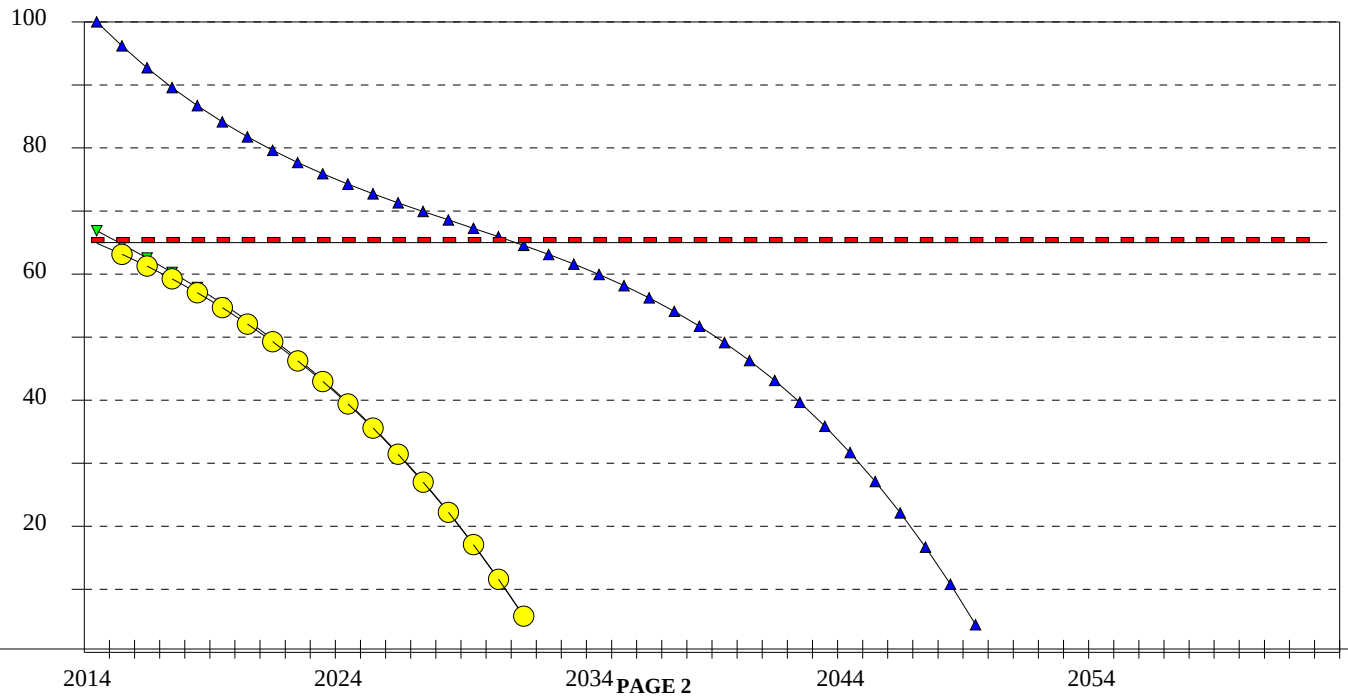
ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2014
PAVEMENT TYPE: AC
CONSTRUCTION YEAR: 1991
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 9-13-12
AVERAGE PCI AT INSPECTION: 68 FAIR
ESTIMATED PCI IS: 65 in 2014
NORMAL PCI FOR THIS AGE: 56

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$549,705	17 YEARS
▼	CRACK REPAIR	$57,397	1 YEAR
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 130 **DESCRIPTION:** TAXIWAY A-1

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 58
FEATURE AREA: 21,520 **FEATURE'S LOW PCI:** 57
INSPECTED AREA: 8,000 **AVERAGE PCI:** 58 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 58 in 2012

COMMENTS/HISTORY FOR FEATURE 130, TAXIWAY A-1

1991 3" P401
UNKNOWN EXISTING
*
*

DISTRESS QUANTITIES FOR FEATURE 130

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	78	209	L.F.	20.7
LONG.& TRANS. CRACK	LOW	1,261	3,392	L.F.	61.9
SWELL	LOW	6	16	S.F.	1.3
WEATHERING	MED	400	1,076	S.F.	6.5
WEATHERING	LOW	5,200	13,988	S.F.	9.4

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:	62 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	38 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

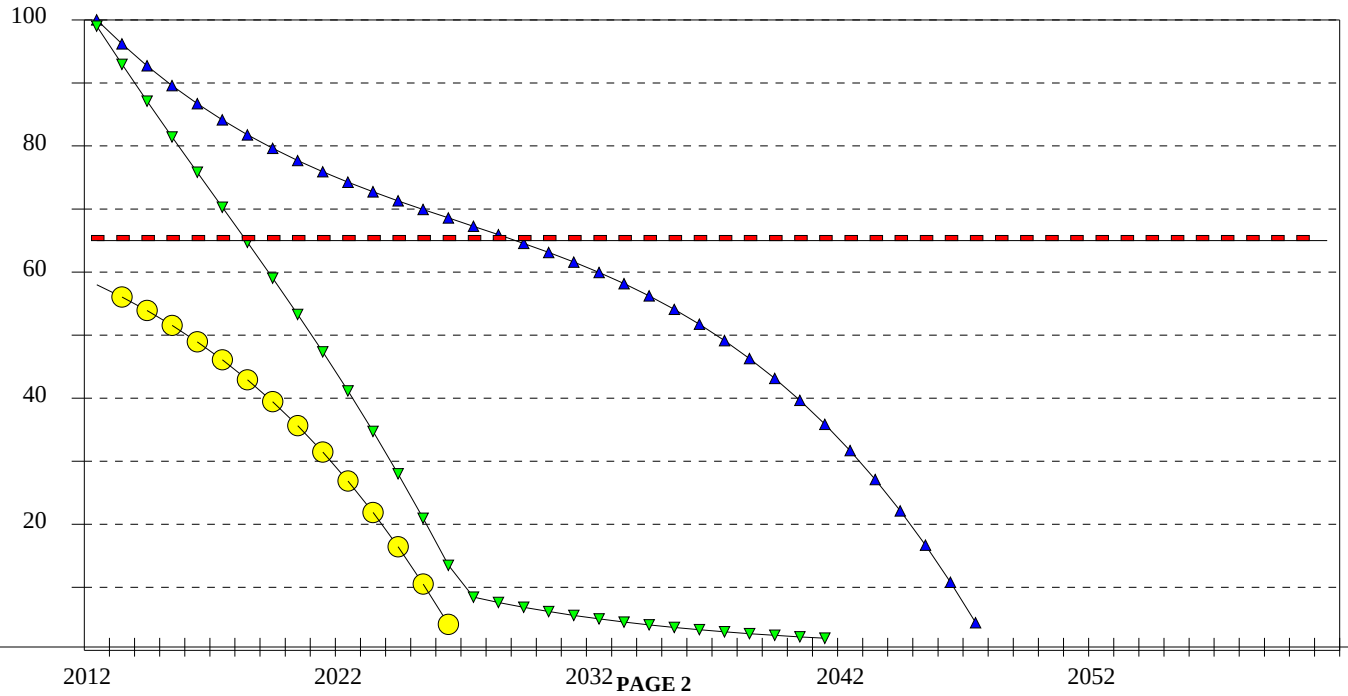
FEATURE: 130 **DESCRIPTION:** TAXIWAY A-1

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 58 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 58 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$30,343	17 YEARS
▼	SURFACE TREATMENT	$8,432	6 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 140 **DESCRIPTION:** TAXIWAY C

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2013 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 73
FEATURE AREA: 18,930 **FEATURE'S LOW PCI:** 60
INSPECTED AREA: 12,000 **AVERAGE PCI:** 66 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 64 in 2013

COMMENTS/HISTORY FOR FEATURE 140, TAXIWAY C

1991 3" P401
UNKNOWN EXISTING
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DISTRESS QUANTITIES FOR FEATURE 140

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	48	75	L.F.	13.9
LONG.& TRANS. CRACK	LOW	1,366	2,154	L.F.	62.3
RAVELING	LOW	700	1,104	S.F.	11
WEATHERING	MED	600	946	S.F.	6.4
WEATHERING	LOW	3,650	5,757	S.F.	6.1

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:	59 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	41 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 140 **DESCRIPTION:** TAXIWAY C

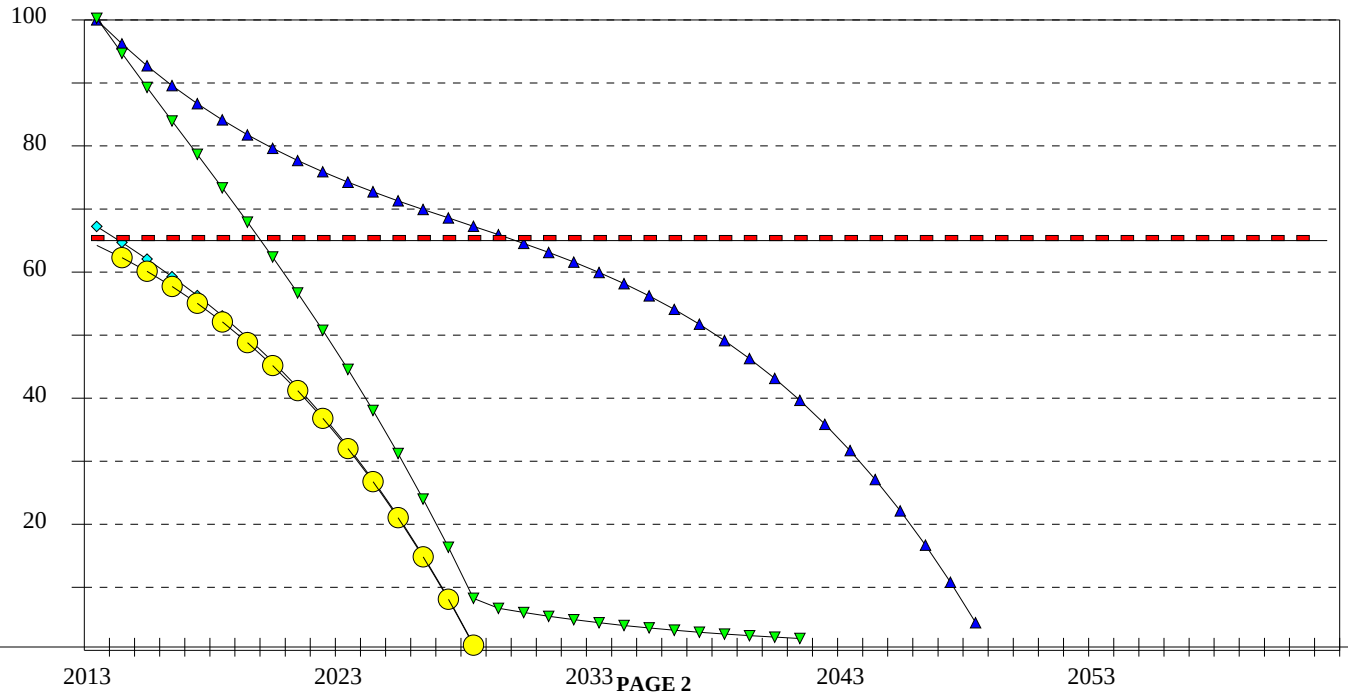
ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2013
PAVEMENT TYPE: AC OVERLAY
CONSTRUCTION YEAR: 1991
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 9-13-12
AVERAGE PCI AT INSPECTION: 66 FAIR
ESTIMATED PCI IS: 64 in 2013
NORMAL PCI FOR THIS AGE: 56

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$26,691	17 YEARS
▼	SURFACE TREATMENT	$7,284	7 YEARS
◇	CRACK REPAIR	$2,719	1 YEAR
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 150 **DESCRIPTION:** TAXIWAY A-2

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 60
FEATURE AREA: 18,910 **FEATURE'S LOW PCI:** 60
INSPECTED AREA: 8,000 **AVERAGE PCI:** 60 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 60 in 2012

COMMENTS/HISTORY FOR FEATURE 150, TAXIWAY A-2

1991 3" P401
UNKNOWN EXISTING
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DISTRESS QUANTITIES FOR FEATURE 150

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	53	125	L.F.	19.7
LONG.& TRANS. CRACK	LOW	1,309	3,094	L.F.	67.7
WEATHERING	MED	370	874	S.F.	6.3
WEATHERING	LOW	2,259	5,339	S.F.	6.1

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:	63 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	37 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

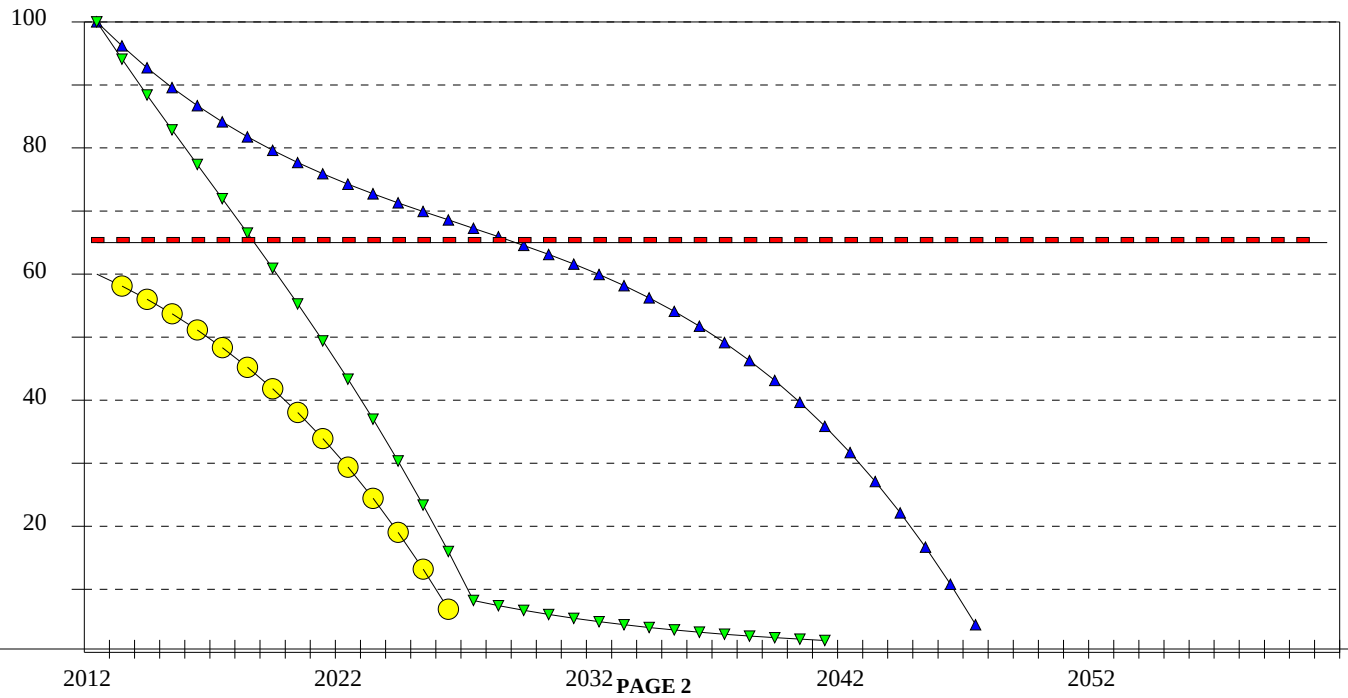
FEATURE: 150 **DESCRIPTION:** TAXIWAY A-2

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 60 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 60 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$26,663	17 YEARS
▼	SURFACE TREATMENT	$7,338	7 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 160 **DESCRIPTION:** TAXIWAY A-4

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2014 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 67
FEATURE AREA: 19,333 **FEATURE'S LOW PCI:** 66
INSPECTED AREA: 12,000 **AVERAGE PCI:** 67 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 63 in 2014

COMMENTS/HISTORY FOR FEATURE 160, TAXIWAY A-4

1991 3" P401
UNKNOWN EXISTING
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DISTRESS QUANTITIES FOR FEATURE 160

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	91	146	L.F.	24.8
LONG.& TRANS. CRACK	LOW	1,489	2,398	L.F.	68.6
WEATHERING	MED	60	96	S.F.	.4
WEATHERING	LOW	2,650	4,269	S.F.	6.1

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:	64 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	36 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 160 **DESCRIPTION:** TAXIWAY A-4

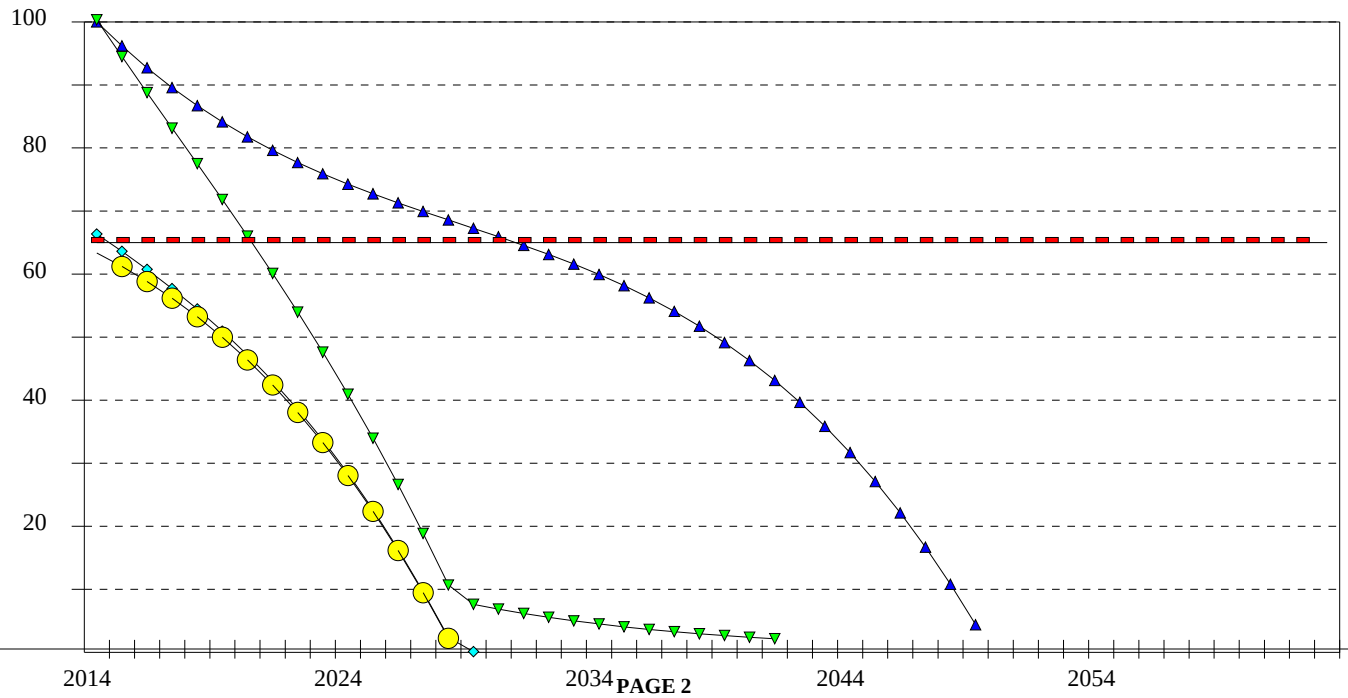
ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2014
PAVEMENT TYPE: AC OVERLAY
CONSTRUCTION YEAR: 1991
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 9-13-12
AVERAGE PCI AT INSPECTION: 67 FAIR
ESTIMATED PCI IS: 63 in 2014
NORMAL PCI FOR THIS AGE: 54

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$27,259	17 YEARS
▼	SURFACE TREATMENT	$7,524	7 YEARS
◆	CRACK REPAIR	$3,103	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 170 **DESCRIPTION:** TAXIWAY A-4

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 62
FEATURE AREA: 40,024 **FEATURE'S LOW PCI:** 44
INSPECTED AREA: 14,625 **AVERAGE PCI:** 52 POOR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 52 in 2012

COMMENTS/HISTORY FOR FEATURE 170, TAXIWAY A-4

1991 3" P401
UNKNOWN EXISTING
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DISTRESS QUANTITIES FOR FEATURE 170

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	258	706	S.F.	40.1
ALLIGATOR CRACKING	LOW	75	205	S.F.	8.6
LONG.& TRANS. CRACK	MED	376	1,029	L.F.	21.2
LONG.& TRANS. CRACK	LOW	1,545	4,228	L.F.	29.8

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:	34 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	17 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

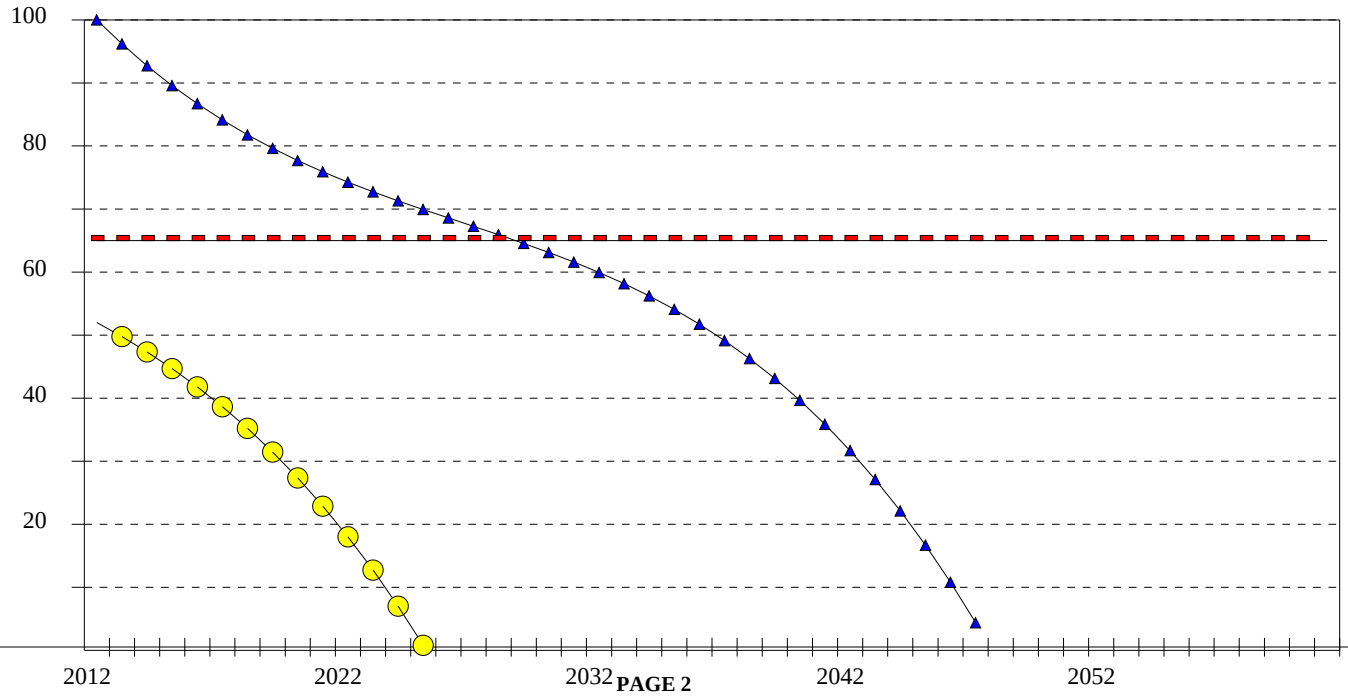
FEATURE: 170 **DESCRIPTION:** TAXIWAY A-4

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 52 POOR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 52 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	STRUCTURAL OVERLAY	$72,443	17 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 180 **DESCRIPTION:** TAXIWAY A-2

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 63
FEATURE AREA: 38,289 **FEATURE'S LOW PCI:** 31
INSPECTED AREA: 13,725 **AVERAGE PCI:** 48 POOR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 48 in 2012

COMMENTS/HISTORY FOR FEATURE 180, TAXIWAY A-2

1991 3" P401
UNKNOWN EXISTING
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DISTRESS QUANTITIES FOR FEATURE 180

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	152	424	S.F.	20.6
ALLIGATOR CRACKING	LOW	187	521	S.F.	20.3
LONG.& TRANS. CRACK	MED	384	1,071	L.F.	18.4
LONG.& TRANS. CRACK	LOW	1,926	5,373	L.F.	29.2
RUTTING	LOW	66	184	S.F.	11.3

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:	36 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	16 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

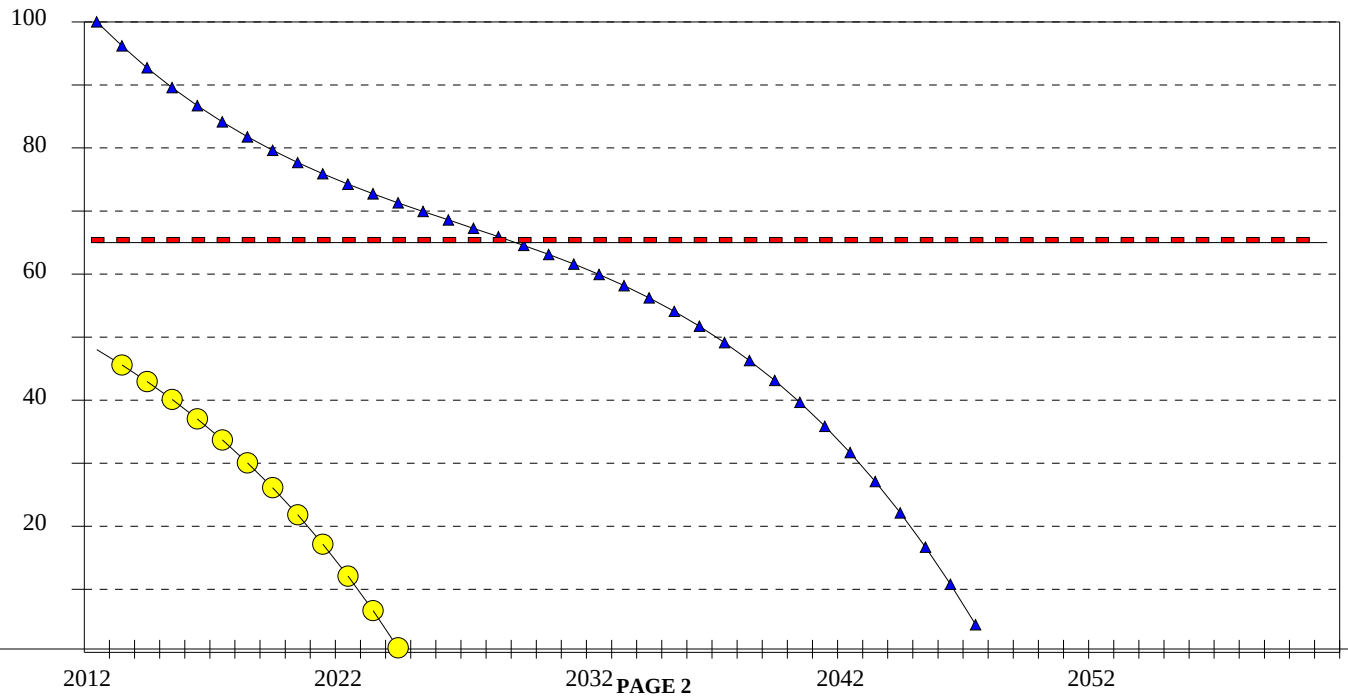
FEATURE: 180 **DESCRIPTION:** TAXIWAY A-2

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 48 POOR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 48 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$53,987	17 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 205 **DESCRIPTION:** TAXIWAY B

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 61
FEATURE AREA: 26,772 **FEATURE'S LOW PCI:** 41
INSPECTED AREA: 12,000 **AVERAGE PCI:** 49 POOR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 49 in 2012

COMMENTS/HISTORY FOR FEATURE 205, TAXIWAY B

1991 AC Overlay est
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DISTRESS QUANTITIES FOR FEATURE 205

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	132	294	S.F.	33.9
ALLIGATOR CRACKING	LOW	9	20	S.F.	4.3
LONG.& TRANS. CRACK	MED	207	461	L.F.	15.1
LONG.& TRANS. CRACK	LOW	1,307	2,915	L.F.	27.7
RUTTING	LOW	15	33	S.F.	4.9
SWELL	LOW	83	185	S.F.	2.4
WEATHERING	MED	1,650	3,681	S.F.	6.9
WEATHERING	LOW	6,600	14,724	S.F.	4.5

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 42 %
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: 22 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

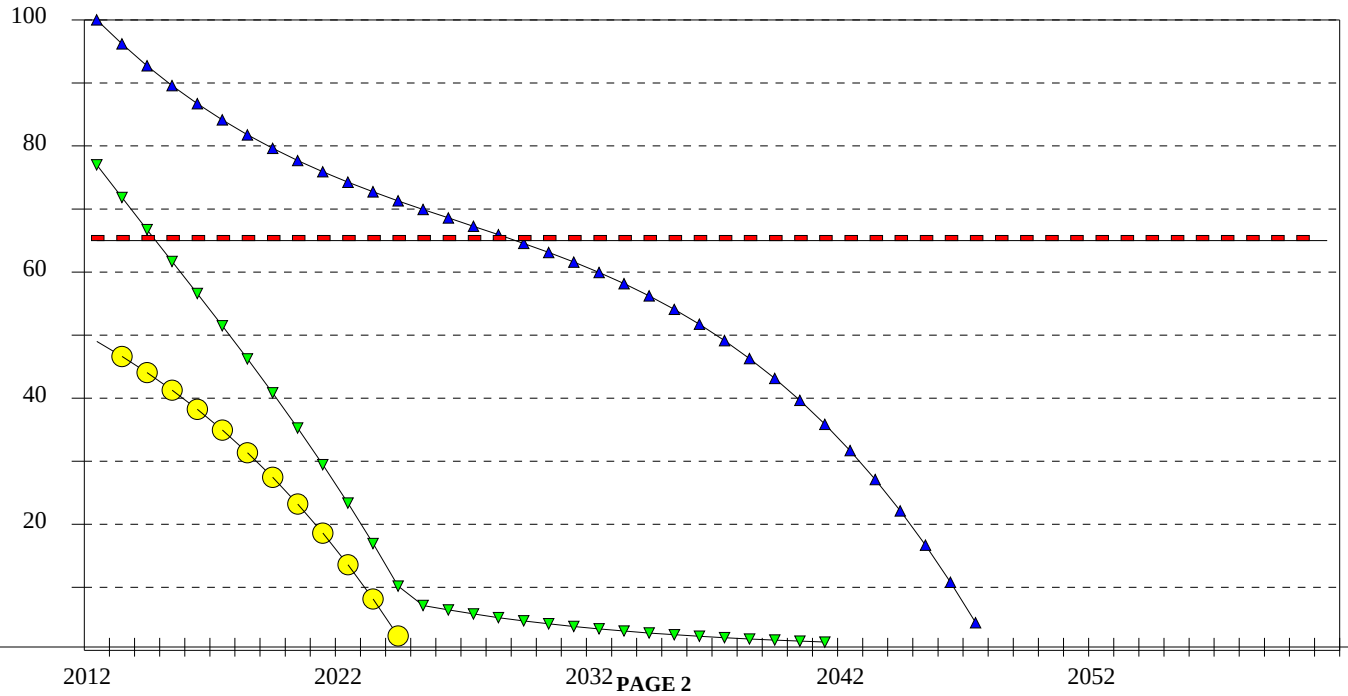
FEATURE: 205 **DESCRIPTION:** TAXIWAY B

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 49 POOR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 49 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$37,748	17 YEARS
▼	SURFACE TREATMENT	$10,735	3 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 210 **DESCRIPTION:** TAXIWAY B

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 65
FEATURE AREA: 22,705 **FEATURE'S LOW PCI:** 56
INSPECTED AREA: 12,000 **AVERAGE PCI:** 60 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 60 in 2012

COMMENTS/HISTORY FOR FEATURE 210, TAXIWAY B

1991 3" P401
UNKNOWN EXISTING
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DISTRESS QUANTITIES FOR FEATURE 210

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	44	83	S.F.	17.4
ALLIGATOR CRACKING	LOW	36	68	S.F.	11.8
LONG.& TRANS. CRACK	MED	83	157	L.F.	11.6
LONG.& TRANS. CRACK	LOW	1,394	2,637	L.F.	43.7
RUTTING	LOW	20	37	S.F.	7.9
WEATHERING	LOW	7,200	13,623	S.F.	7.4

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	35 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	42 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	23 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

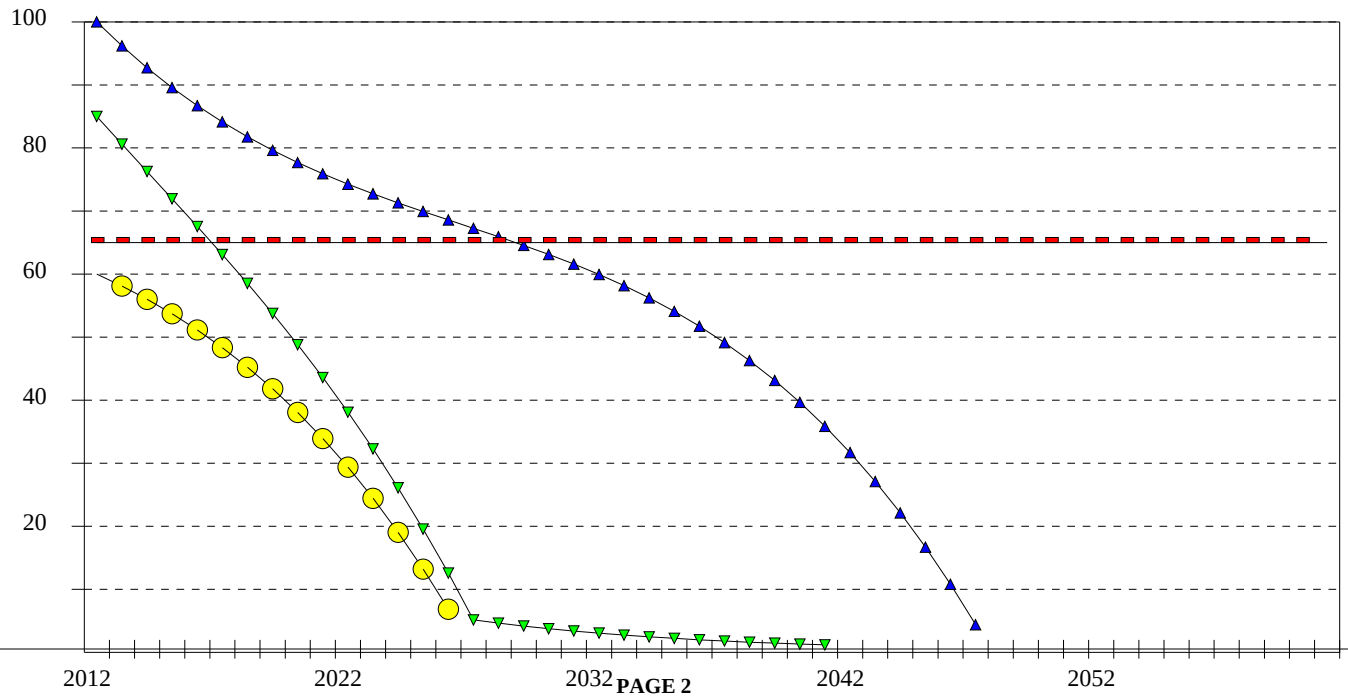
FEATURE: 210 **DESCRIPTION:** TAXIWAY B

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 60 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 60 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	STRUCTURAL OVERLAY	$41,096	17 YEARS
▼	SURFACE TREATMENT	$8,819	5 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 215 **DESCRIPTION:** TAXIWAY C

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2013 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 71
FEATURE AREA: 90,270 **FEATURE'S LOW PCI:** 53
INSPECTED AREA: 28,335 **AVERAGE PCI:** 66 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 64 in 2013

COMMENTS/HISTORY FOR FEATURE 215, TAXIWAY C

1991 3" P401
UNKNOWN EXISTING
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DISTRESS QUANTITIES FOR FEATURE 215

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	LOW	8	25	S.F.	3.7
LONG.& TRANS. CRACK	MED	211	672	L.F.	22.8
LONG.& TRANS. CRACK	LOW	3,123	9,949	L.F.	60.2
PATCH & UTILITY CUT	LOW	128	407	S.F.	2.8
SWELL	LOW	51	162	S.F.	1.5
WEATHERING	LOW	15,800	50,335	S.F.	8.7

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	6 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	61 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	34 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

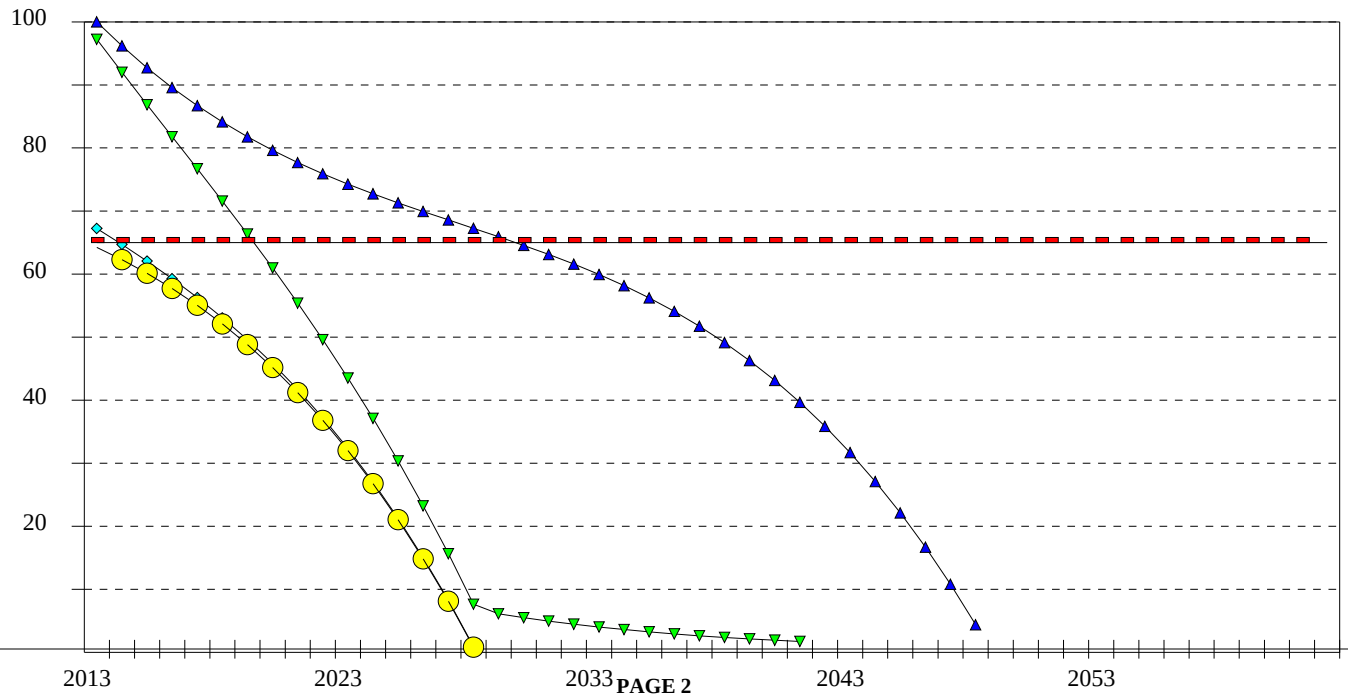
FEATURE: 215 **DESCRIPTION:** TAXIWAY C

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2013
INSPECTION DATE: 9-13-12
PAVEMENT TYPE: AC OVERLAY
AVERAGE PCI AT INSPECTION: 66 FAIR
CONSTRUCTION YEAR: 1991
ESTIMATED PCI IS: 64 in 2013
MINIMUM SERVICE LEVEL: 65
NORMAL PCI FOR THIS AGE: 56

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$127,280	17 YEARS
▼	SURFACE TREATMENT	$35,122	7 YEARS
◆	CRACK REPAIR	$12,957	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 220 **DESCRIPTION:** TAXIWAY C

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 68
FEATURE AREA: 11,640 **FEATURE'S LOW PCI:** 56
INSPECTED AREA: 8,940 **AVERAGE PCI:** 62 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 62 in 2012

COMMENTS/HISTORY FOR FEATURE 220, TAXIWAY C

1991 3" P401
UNKNOWN EXISTING
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DISTRESS QUANTITIES FOR FEATURE 220

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	86	112	L.F.	19.8
LONG.& TRANS. CRACK	LOW	976	1,270	L.F.	50.5
RAVELING	MED	182	236	S.F.	21.7
WEATHERING	MED	300	390	S.F.	4.4
WEATHERING	LOW	1,600	2,083	S.F.	3.4

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:	57 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	43 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

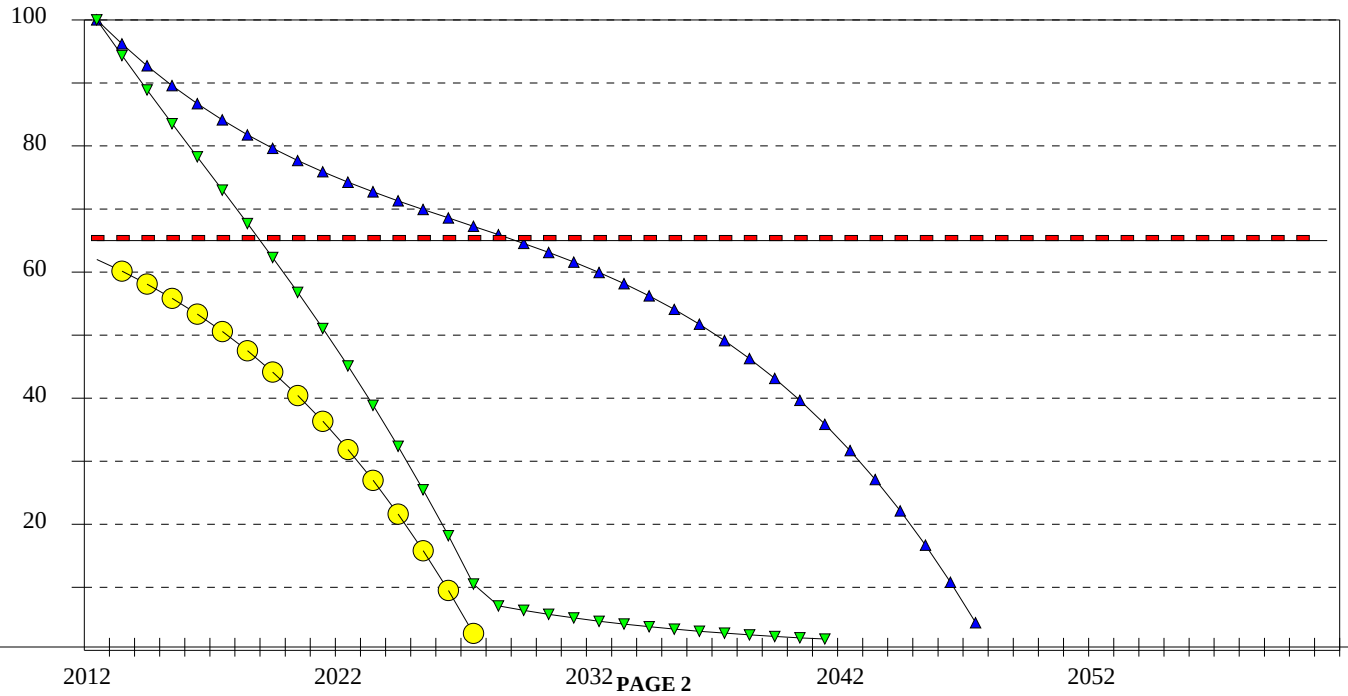
FEATURE: 220 **DESCRIPTION:** TAXIWAY C

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 62 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 62 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$16,412	17 YEARS
▼	SURFACE TREATMENT	$4,559	7 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 225 **DESCRIPTION:** TAXIWAY B-1

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 63
FEATURE AREA: 8,178 **FEATURE'S LOW PCI:** 61
INSPECTED AREA: 8,110 **AVERAGE PCI:** 62 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 62 in 2012

COMMENTS/HISTORY FOR FEATURE 225, TAXIWAY B-1

1991 3" P401
UNKNOWN EXISTING
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DISTRESS QUANTITIES FOR FEATURE 225

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	LOW	9	9	S.F.	10.9
LONG.& TRANS. CRACK	MED	70	70	L.F.	20.7
LONG.& TRANS. CRACK	LOW	986	994	L.F.	52.3
RAVELING	LOW	400	403	S.F.	9.8
WEATHERING	MED	40	40	S.F.	.5
WEATHERING	LOW	2,200	2,218	S.F.	5.5

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: 54 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 35 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

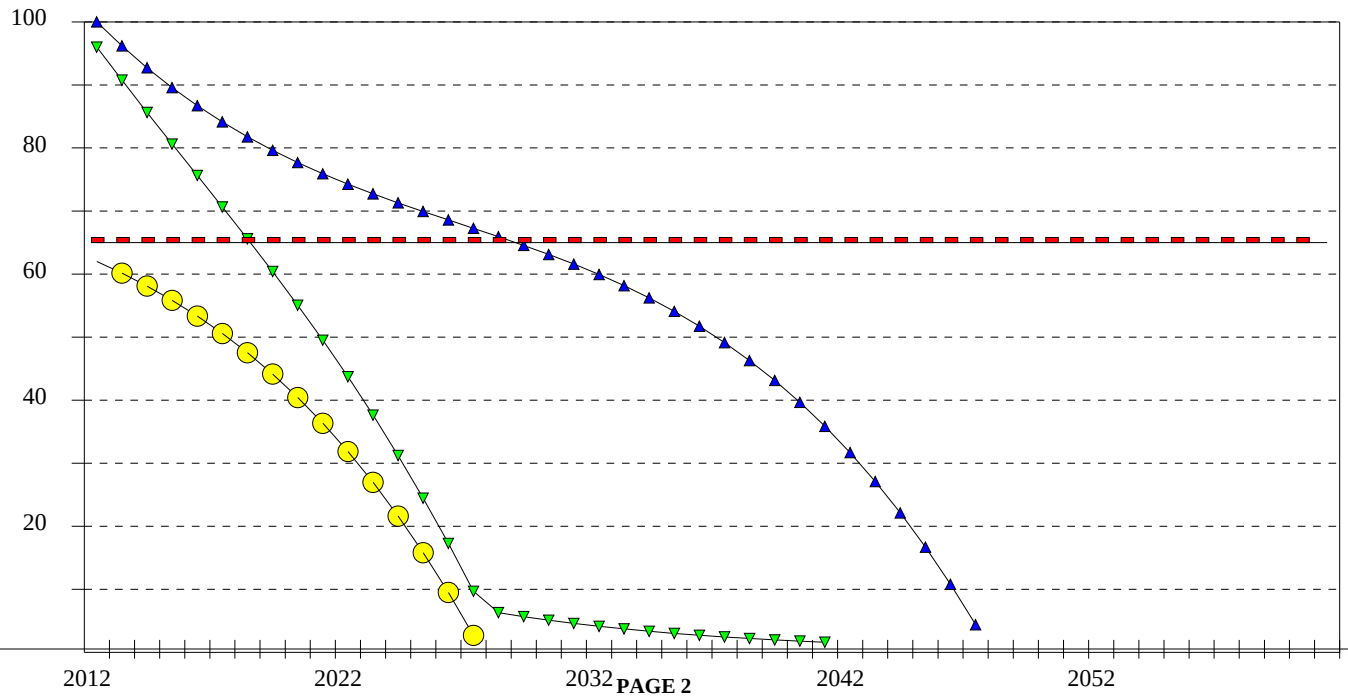
FEATURE: 225 **DESCRIPTION:** TAXIWAY B-1

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 62 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 62 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$11,530	17 YEARS
▼	SURFACE TREATMENT	$3,193	7 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 230 **DESCRIPTION:** TAXIWAY B-2

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2015 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 71
FEATURE AREA: 10,380 **FEATURE'S LOW PCI:** 66
INSPECTED AREA: 8,670 **AVERAGE PCI:** 69 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 63 in 2015

COMMENTS/HISTORY FOR FEATURE 230, TAXIWAY B-2

1991 3" P401
UNKNOWN EXISTING
*
*

DISTRESS QUANTITIES FOR FEATURE 230

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	LOW	21	25	S.F.	17.7
LONG.& TRANS. CRACK	MED	105	125	L.F.	26.4
LONG.& TRANS. CRACK	LOW	651	779	L.F.	44.4
WEATHERING	MED	300	359	S.F.	4.5
WEATHERING	LOW	2,700	3,232	S.F.	6.7

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	18 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	51 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	31 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 230 **DESCRIPTION:** TAXIWAY B-2

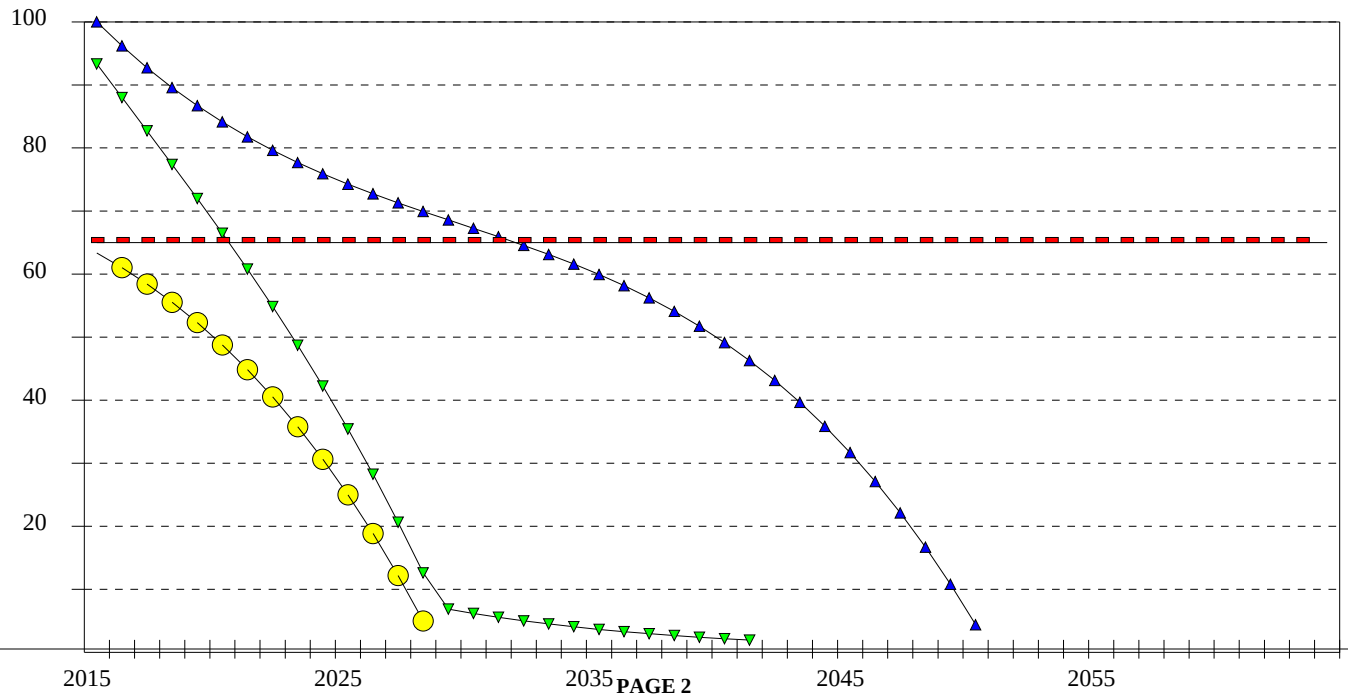
ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2015
PAVEMENT TYPE: AC OVERLAY
CONSTRUCTION YEAR: 1991
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 9-13-12
AVERAGE PCI AT INSPECTION: 69 FAIR
ESTIMATED PCI IS: 63 in 2015
NORMAL PCI FOR THIS AGE: 51

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$14,635	17 YEARS
▼	SURFACE TREATMENT	$4,096	6 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 240 **DESCRIPTION:** TAXIWAY B

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2013 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 82
FEATURE AREA: 52,370 **FEATURE'S LOW PCI:** 52
INSPECTED AREA: 20,000 **AVERAGE PCI:** 66 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 64 in 2013

COMMENTS/HISTORY FOR FEATURE 240, TAXIWAY B

1991 AC Overlay
*
*
*

DISTRESS QUANTITIES FOR FEATURE 240

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	LOW	167	437	S.F.	27.1
LONG.& TRANS. CRACK	MED	200	523	L.F.	26.6
LONG.& TRANS. CRACK	LOW	1,145	2,998	L.F.	35.1
SWELL	LOW	10	26	S.F.	.6
WEATHERING	HIGH	20	52	S.F.	3
WEATHERING	MED	300	785	S.F.	2.2
WEATHERING	LOW	3,900	10,212	S.F.	5.1

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 27 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 45 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 28 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

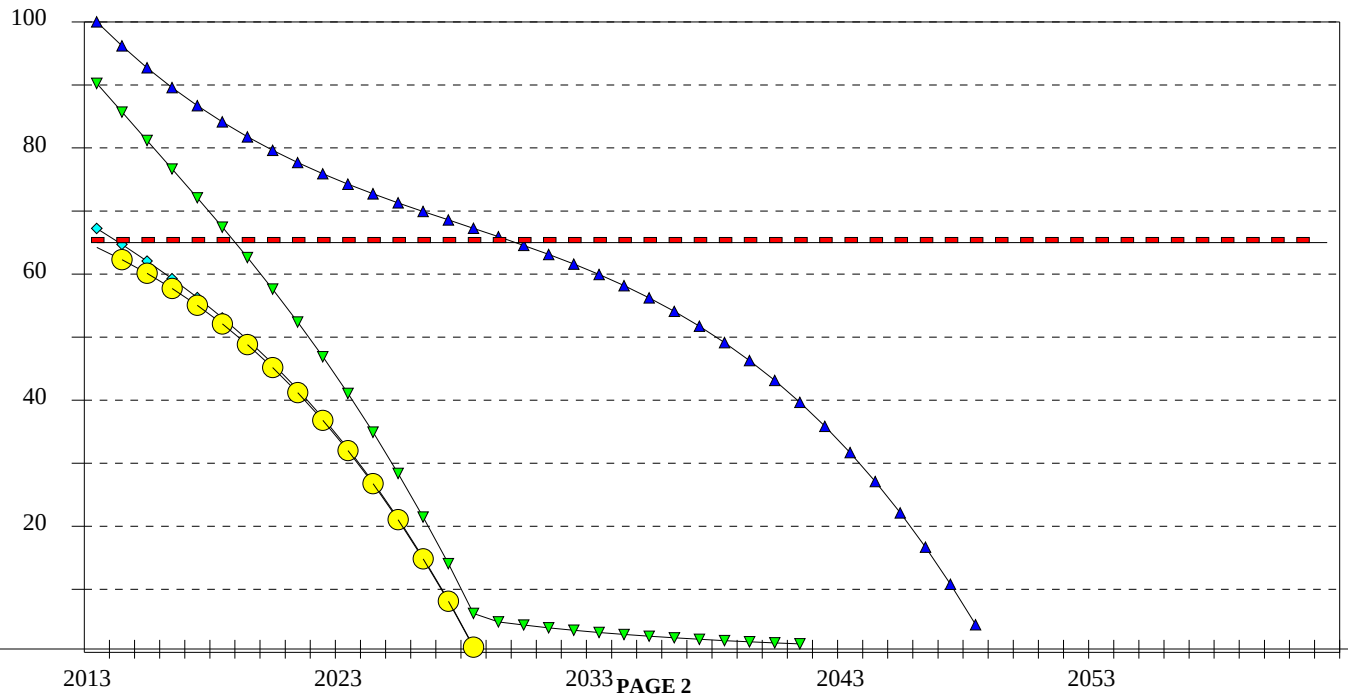
FEATURE: 240 **DESCRIPTION:** TAXIWAY B

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2013
INSPECTION DATE: 9-13-12
PAVEMENT TYPE: AC OVERLAY
AVERAGE PCI AT INSPECTION: 66 FAIR
CONSTRUCTION YEAR: 1991
ESTIMATED PCI IS: 64 in 2013
MINIMUM SERVICE LEVEL: 65
NORMAL PCI FOR THIS AGE: 56

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$73,841	17 YEARS
▼	SURFACE TREATMENT	$20,538	6 YEARS
◆	CRACK REPAIR	$4,295	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 305 **DESCRIPTION:** TAXIWAY A-3

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2015 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 75
FEATURE AREA: 19,710 **FEATURE'S LOW PCI:** 63
INSPECTED AREA: 11,250 **AVERAGE PCI:** 70 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 64 in 2015

COMMENTS/HISTORY FOR FEATURE 305, TAXIWAY A-3

1991 3" P401
1980 11" P401
4" P209
*

DISTRESS QUANTITIES FOR FEATURE 305

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	18	31	S.F.	27.8
LONG.& TRANS. CRACK	HIGH	2	3	L.F.	5
LONG.& TRANS. CRACK	MED	179	313	L.F.	27.3
LONG.& TRANS. CRACK	LOW	818	1,433	L.F.	39.7

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 28 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 48 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 24 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

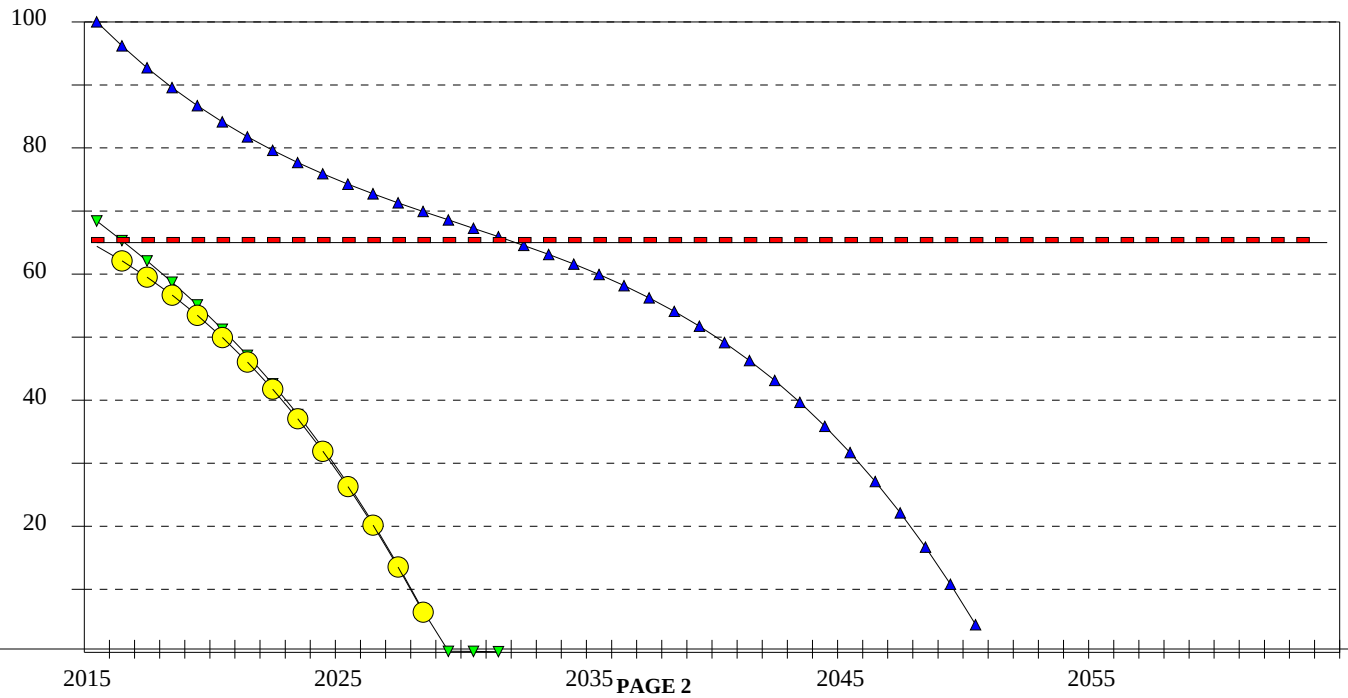
FEATURE: 305 **DESCRIPTION:** TAXIWAY A-3

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2015
INSPECTION DATE: 9-13-12
PAVEMENT TYPE: AC OVERLAY
AVERAGE PCI AT INSPECTION: 70 FAIR
CONSTRUCTION YEAR: 1991
ESTIMATED PCI IS: 64 in 2015
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	$27,791	17 YEARS
▼	CRACK REPAIR	$2,133	2 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3005 **DESCRIPTION:** TERMINAL RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 56
FEATURE AREA: 240,580 **FEATURE'S LOW PCI:** 11
INSPECTED AREA: 53,800 **AVERAGE PCI:** 32 VERY POOR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 32 in 2012

COMMENTS/HISTORY FOR FEATURE 3005, TERMINAL RAMP

1996 3" P401
UNKNOWN EXISTING
*
*

DISTRESS QUANTITIES FOR FEATURE 3005

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	1,475	6,595	S.F.	26.6
ALLIGATOR CRACKING	LOW	77	344	S.F.	3.6
BLEEDING	N/A	32	143	S.F.	.3
BLOCK CRACKING	HIGH	2,400	10,732	S.F.	13
BLOCK CRACKING	MED	22,100	98,825	S.F.	28.3
BLOCK CRACKING	LOW	13,850	61,933	S.F.	15.9
LONG.& TRANS. CRACK	MED	961	4,297	L.F.	6
LONG.& TRANS. CRACK	LOW	952	4,257	L.F.	4.1
PATCH & UTILITY CUT	LOW	35	156	S.F.	.2
RUTTING	LOW	9	40	S.F.	1.2
WEATHERING	LOW	2,900	12,968	S.F.	.4

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 31 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 8 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 61 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

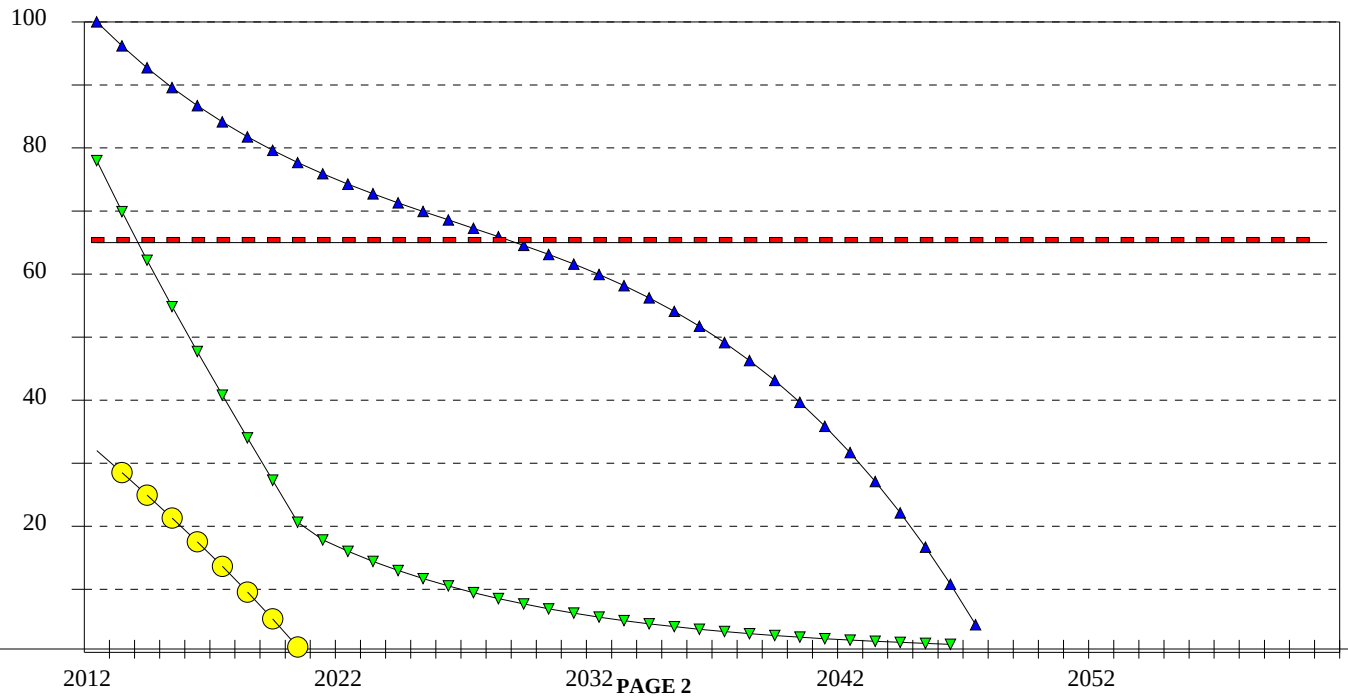
FEATURE: 3005 **DESCRIPTION:** TERMINAL RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 32 VERY POOR
CONSTRUCTION YEAR: 1996 **ESTIMATED PCI IS:** 32 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 65

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	STRUCTURAL OVERLAY	$435,449	17 YEARS
▼	SURFACE TREATMENT	$176,858	2 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3020 **DESCRIPTION:** NORTH RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: PCC **FEATURE'S HIGH PCI:** 100
FEATURE AREA: 96,960 **FEATURE'S LOW PCI:** 99
INSPECTED AREA: 45,000 **AVERAGE PCI:** 100 GOOD
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 100 in 2012

COMMENTS/HISTORY FOR FEATURE 3020, NORTH RAMP

2009 PCC
*
*
*

DISTRESS QUANTITIES FOR FEATURE 3020

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
SHRINKAGE CRACKS	N/A	1	2	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:	50 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	50 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3020 **DESCRIPTION:** NORTH RAMP

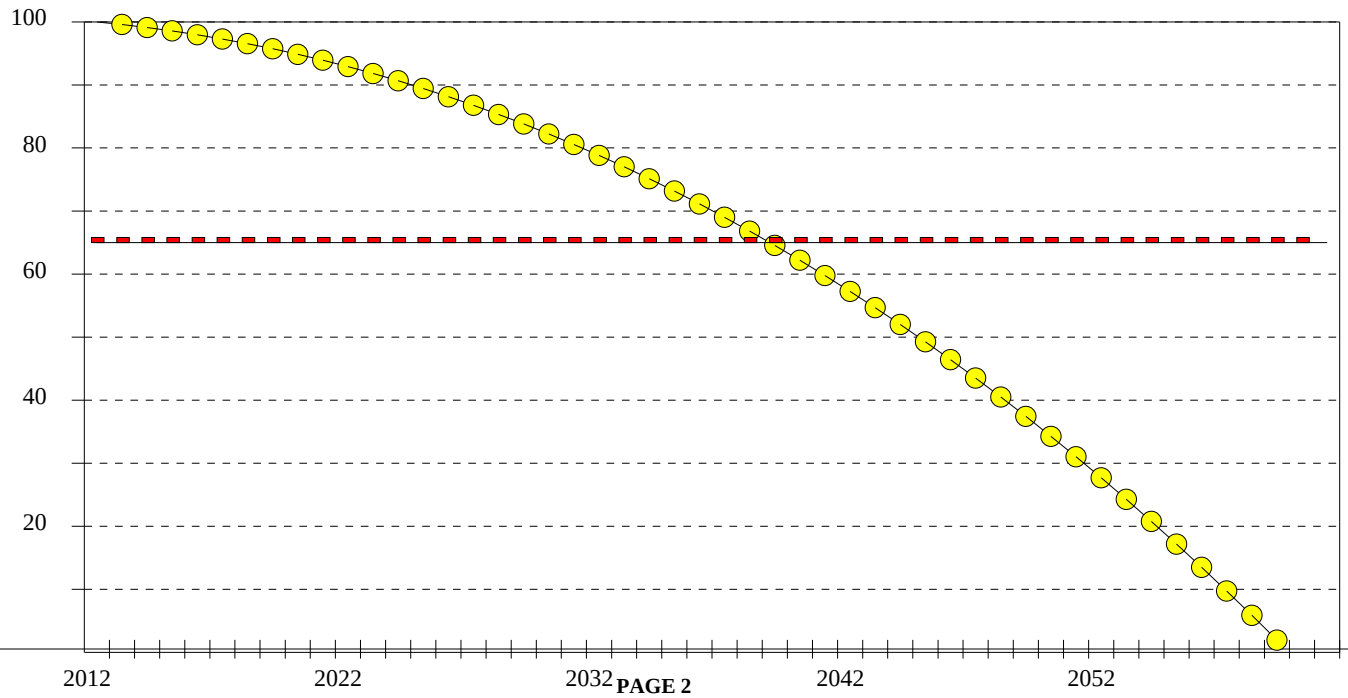
ANALYSIS YEAR: 2012
PAVEMENT TYPE: PCC
CONSTRUCTION YEAR: 2009
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 9-13-12
AVERAGE PCI AT INSPECTION: 100 GOOD
ESTIMATED PCI IS: 100 in 2012
NORMAL PCI FOR THIS AGE: 98

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: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3025 **DESCRIPTION:** RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 67
FEATURE AREA: 20,515 **FEATURE'S LOW PCI:** 47
INSPECTED AREA: 10,100 **AVERAGE PCI:** 57 FAIR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 57 in 2012

COMMENTS/HISTORY FOR FEATURE 3025, RAMP

1991 3" P401
UNKNOWN EXISTING
*
*

DISTRESS QUANTITIES FOR FEATURE 3025

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	52	105	S.F.	17.9
ALLIGATOR CRACKING	LOW	64	130	S.F.	21.8
LONG.& TRANS. CRACK	MED	474	962	L.F.	29.5
LONG.& TRANS. CRACK	LOW	1,069	2,171	L.F.	30.6

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	40 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	40 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	20 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

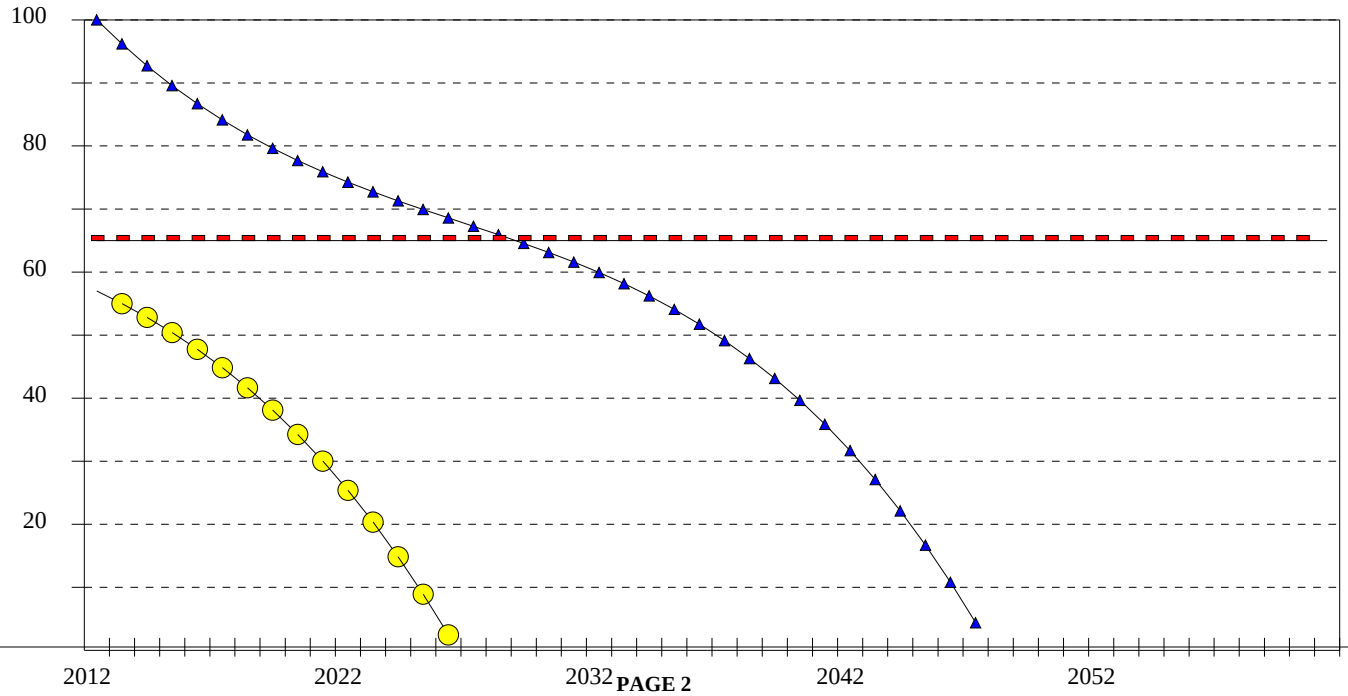
FEATURE: 3025 **DESCRIPTION:** RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 57 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 57 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$28,926	17 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3030 **DESCRIPTION:** RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 56
FEATURE AREA: 38,900 **FEATURE'S LOW PCI:** 45
INSPECTED AREA: 20,000 **AVERAGE PCI:** 51 POOR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 51 in 2012

COMMENTS/HISTORY FOR FEATURE 3030, RAMP

1997 1" P401 WITH LEVELING
1991 3" P401
UNKNOWN EXISTING
*

DISTRESS QUANTITIES FOR FEATURE 3030

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	LOW	74	143	S.F.	12.7
BLOCK CRACKING	MED	4,300	8,363	S.F.	35.3
BLOCK CRACKING	LOW	9,000	17,505	S.F.	30.3
LONG.& TRANS. CRACK	MED	240	466	L.F.	8.2
LONG.& TRANS. CRACK	LOW	1,090	2,120	L.F.	13.2

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:	14 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	73 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

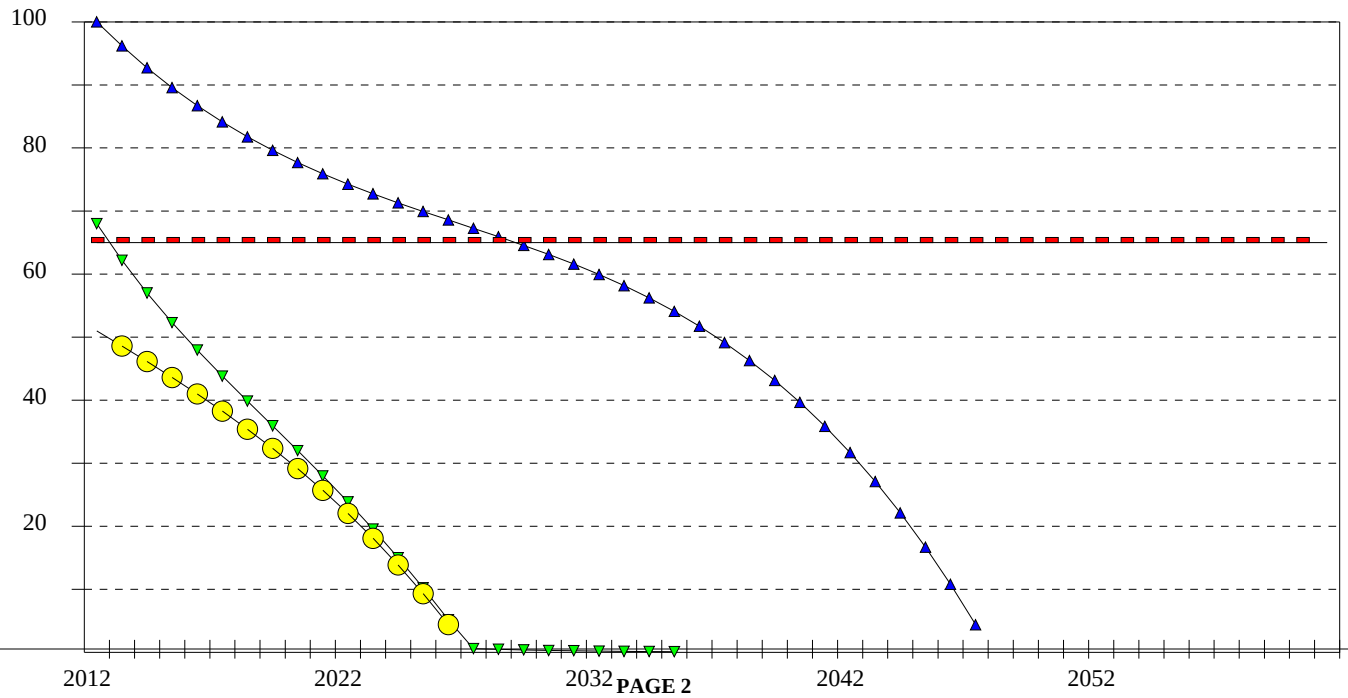
FEATURE: 3030 **DESCRIPTION:** RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 51 POOR
CONSTRUCTION YEAR: 1997 **ESTIMATED PCI IS:** 51 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 67

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$54,848	17 YEARS
▼	CRACK REPAIR	$22,090	1 YEAR
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3035 **DESCRIPTION:** RAMP

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2022 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: PCC **FEATURE'S HIGH PCI:** 93
FEATURE AREA: 41,801 **FEATURE'S LOW PCI:** 77
INSPECTED AREA: 24,000 **AVERAGE PCI:** 83 SATISFACTORY
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 63 in 2022

COMMENTS/HISTORY FOR FEATURE 3035, RAMP

1997 12.5" P501
6" P209
COMPACTED SUBGRADE
*

DISTRESS QUANTITIES FOR FEATURE 3035

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	LOW	4	6	SLABS	27.9
JOINT SEAL DAMAGE	MED	60	104	SLABS	36.9
SHRINKAGE CRACKS	N/A	2	3	SLABS	3
SPALLING-CORNERS	HIGH	1	1	SLABS	8.8
SPALLING-CORNERS	MED	2	3	SLABS	12.8
SPALLING-CORNERS	LOW	3	5	SLABS	10.3

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 20 %
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: 55 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3035 **DESCRIPTION:** RAMP

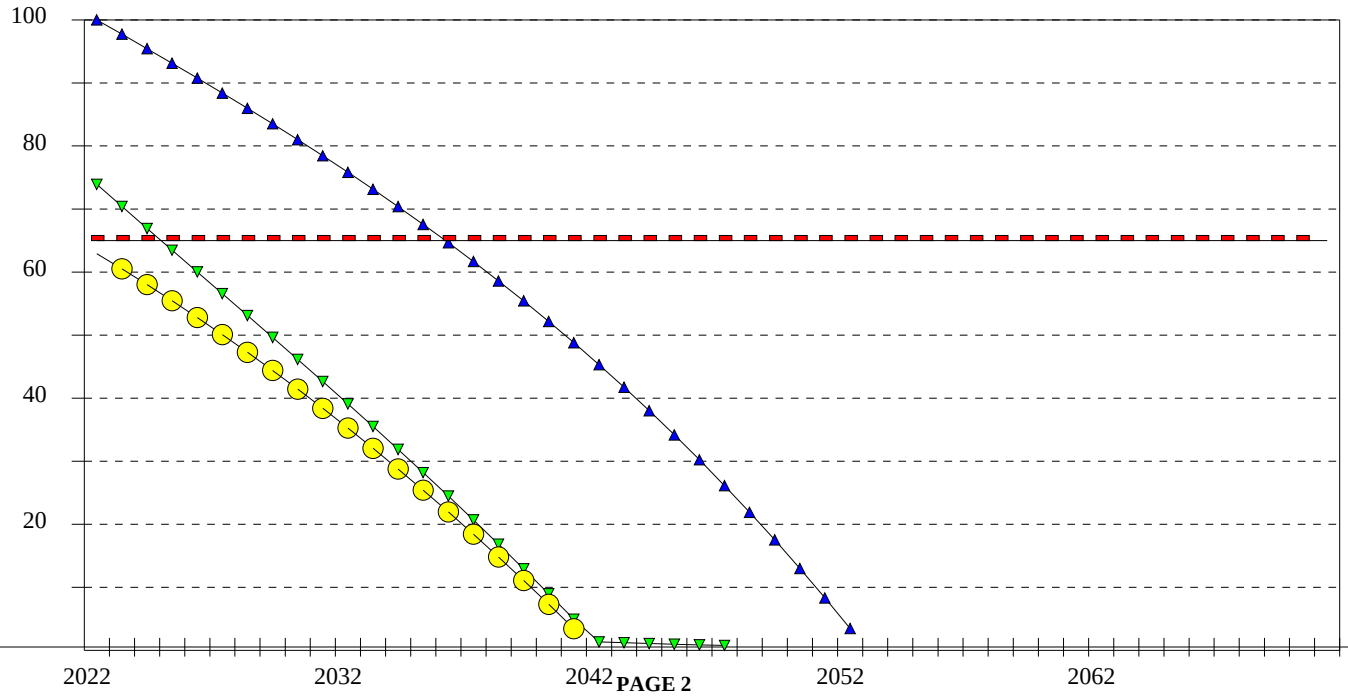
ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2022
PAVEMENT TYPE: PCC
CONSTRUCTION YEAR: 1997
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 9-13-12
AVERAGE PCI AT INSPECTION: 83 SATISFACTORY
ESTIMATED PCI IS: 63 in 2022
NORMAL PCI FOR THIS AGE: 67

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	$225,725	14 YEARS
▼	PATCHING/JOINT REPAIR	$4,237	3 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3040 **DESCRIPTION:** TERMINAL RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: PCC **FEATURE'S HIGH PCI:** 100
FEATURE AREA: 65,058 **FEATURE'S LOW PCI:** 64
INSPECTED AREA: 26,820 **AVERAGE PCI:** 86 GOOD
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 86 in 2012

COMMENTS/HISTORY FOR FEATURE 3040, TERMINAL RAMP

1997 6" P501
6" CRUSHED AGG
COMPACTED SUBGRADE
*

DISTRESS QUANTITIES FOR FEATURE 3040

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	MED	1	2	SLABS	17.2
LONG/TRAN/DIAG CRK.	LOW	4	9	SLABS	28.7
JOINT SEAL DAMAGE	LOW	56	135	SLABS	9.3
PATCH>5 SF/UTIL.CUT	LOW	1	2	SLABS	7.3
DIVIDED SLAB	LOW	3	7	SLABS	34.5
SHRINKAGE CRACKS	N/A	2	4	SLABS	2.6

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 41 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 18 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 41 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

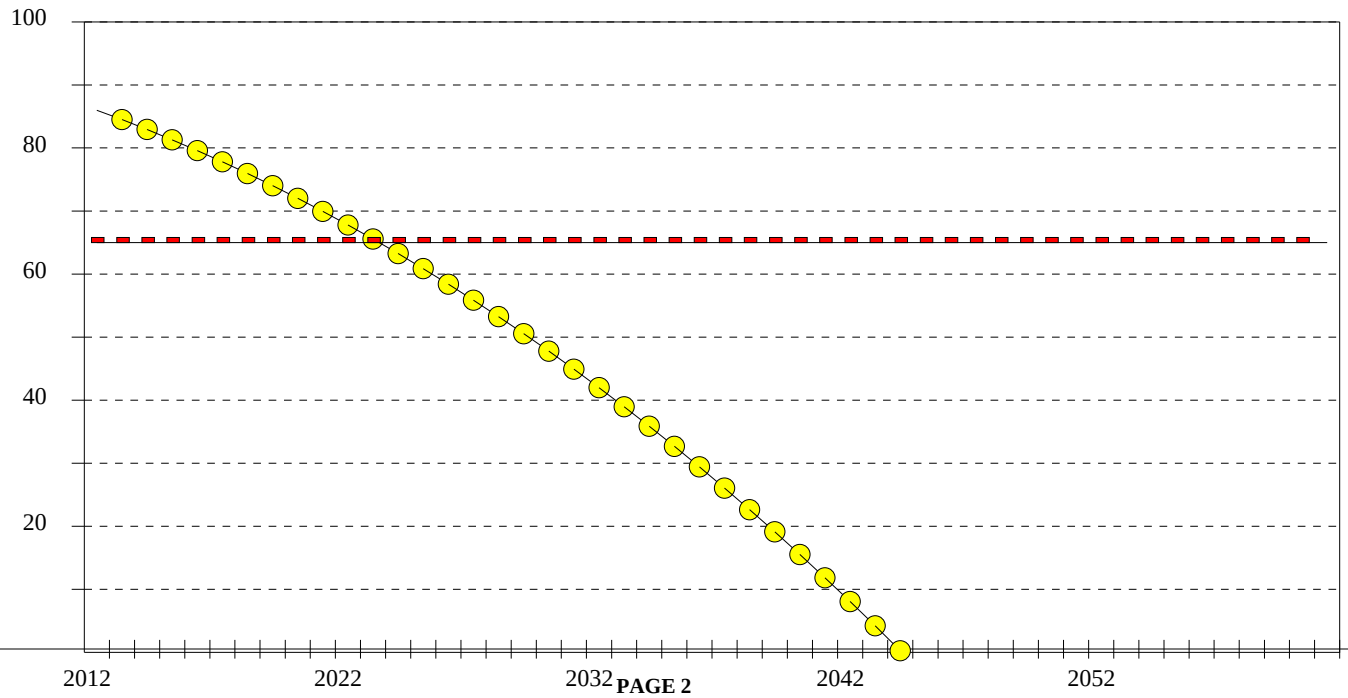
FEATURE: 3040 **DESCRIPTION:** TERMINAL RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: PCC **AVERAGE PCI AT INSPECTION:** 86 GOOD
CONSTRUCTION YEAR: 1997 **ESTIMATED PCI IS:** 86 in 2012
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: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3050 **DESCRIPTION:** TERMINAL RAMP

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2023 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: PCC **FEATURE'S HIGH PCI:** 100
FEATURE AREA: 41,446 **FEATURE'S LOW PCI:** 86
INSPECTED AREA: 26,250 **AVERAGE PCI:** 93 GOOD
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 62 in 2023

COMMENTS/HISTORY FOR FEATURE 3050, TERMINAL RAMP

2009 PCC
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*
*

DISTRESS QUANTITIES FOR FEATURE 3050

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	LOW	2	3	SLABS	45.5
DIVIDED SLAB	LOW	1	1	SLABS	49.3
SHRINKAGE CRACKS	N/A	1	1	SLABS	5

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	48 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	19 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	33 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3050 **DESCRIPTION:** TERMINAL RAMP

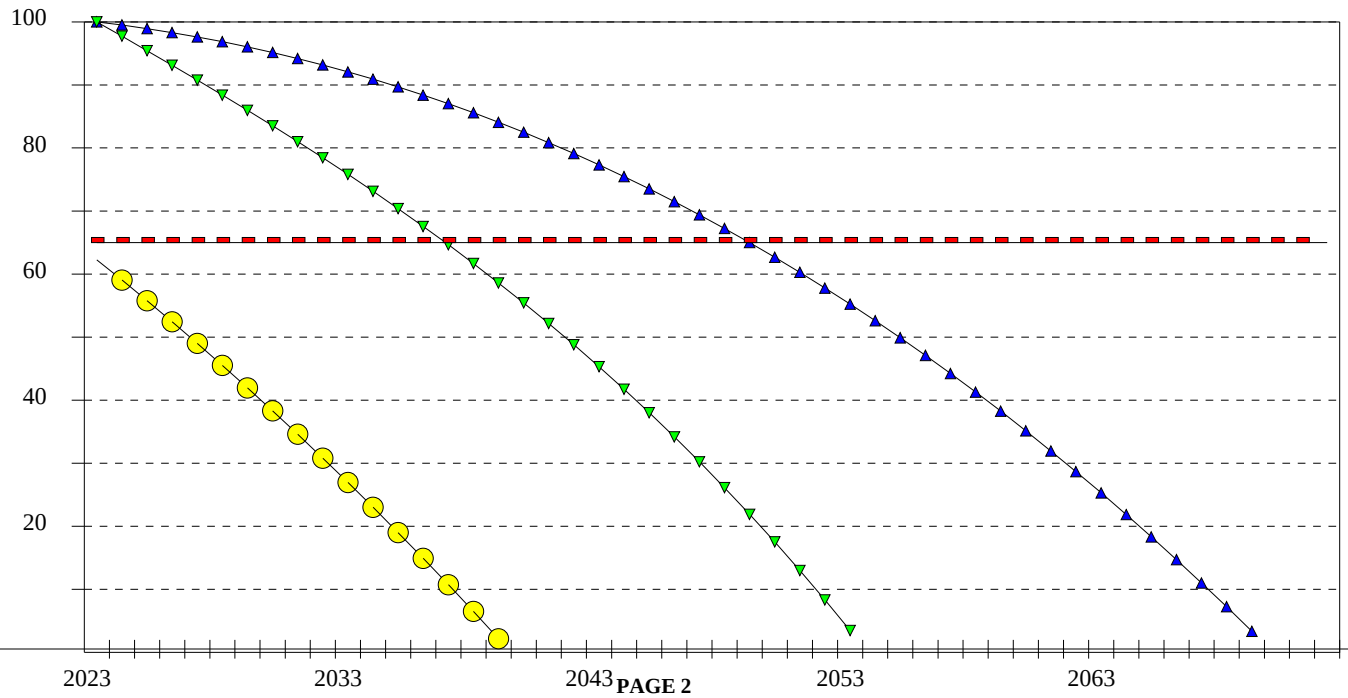
ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2023
PAVEMENT TYPE: PCC
CONSTRUCTION YEAR: 2009
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 9-13-12
AVERAGE PCI AT INSPECTION: 93 GOOD
ESTIMATED PCI IS: 62 in 2023
NORMAL PCI FOR THIS AGE: 87

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RECONSTRUCTION	$524,291	26 YEARS
▼	REPAIR AND/OR OVERLAY	$223,808	14 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3055 **DESCRIPTION:** RAMP

ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2022 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: PCC **FEATURE'S HIGH PCI:** 93
FEATURE AREA: 16,357 **FEATURE'S LOW PCI:** 74
INSPECTED AREA: 8,025 **AVERAGE PCI:** 84 SATISFACTORY
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 65 in 2022

COMMENTS/HISTORY FOR FEATURE 3055, RAMP

1995 PCC est
*
*
*

DISTRESS QUANTITIES FOR FEATURE 3055

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	LOW	4	8	SLABS	36.3
JOINT SEAL DAMAGE	MED	30	61	SLABS	18.8
JOINT SEAL DAMAGE	LOW	20	40	SLABS	5.3
SHRINKAGE CRACKS	N/A	1	2	SLABS	2.3
SPALLING-CORNERS	HIGH	2	4	SLABS	25.8
SPALLING-CORNERS	LOW	2	4	SLABS	11.2

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: 22 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 54 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3055 **DESCRIPTION:** RAMP

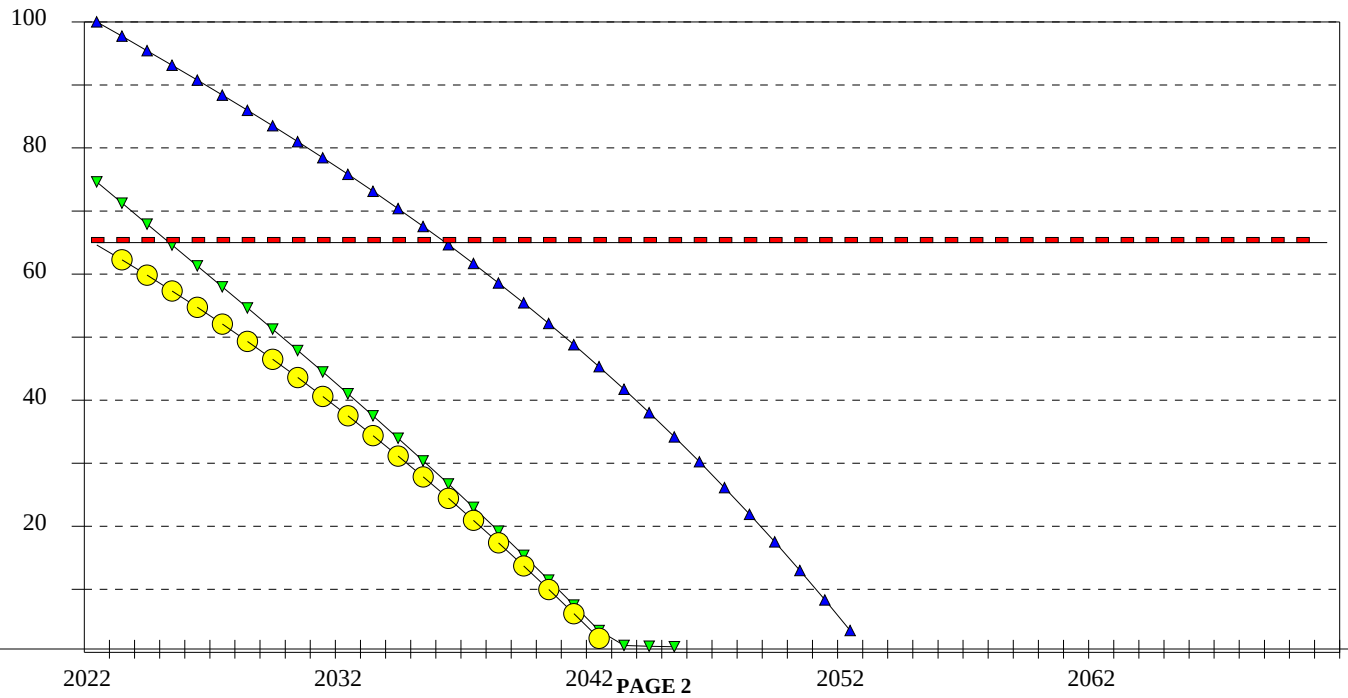
ANALYSIS YEAR: 2012 **OPTIMIZED FOR:** 2022
PAVEMENT TYPE: PCC
CONSTRUCTION YEAR: 1995
MINIMUM SERVICE LEVEL: 65

INSPECTION DATE: 9-13-12
AVERAGE PCI AT INSPECTION: 84 SATISFACTORY
ESTIMATED PCI IS: 65 in 2022
NORMAL PCI FOR THIS AGE: 62

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	REPAIR AND/OR OVERLAY	$88,327	14 YEARS
▼	PATCHING/JOINT REPAIR	$1,850	3 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3105 **DESCRIPTION:** FBO RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 52
FEATURE AREA: 66,000 **FEATURE'S LOW PCI:** 37
INSPECTED AREA: 28,800 **AVERAGE PCI:** 45 POOR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 45 in 2012

COMMENTS/HISTORY FOR FEATURE 3105, FBO RAMP

1999 1.5" AC
1996 3" AC
1980 11" P401
4" P209

DISTRESS QUANTITIES FOR FEATURE 3105

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	405	928	S.F.	31.3
ALLIGATOR CRACKING	LOW	58	132	S.F.	6
BLEEDING	N/A	97	222	S.F.	2.3
BLOCK CRACKING	MED	2,400	5,500	S.F.	7.5
BLOCK CRACKING	LOW	6,000	13,750	S.F.	13.5
LONG.& TRANS. CRACK	MED	772	1,769	L.F.	16.6
LONG.& TRANS. CRACK	LOW	2,433	5,575	L.F.	20
OIL SPILLAGE	N/A	125	286	S.F.	2
WEATHERING	LOW	700	1,604	S.F.	.3

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: 27 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 36 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

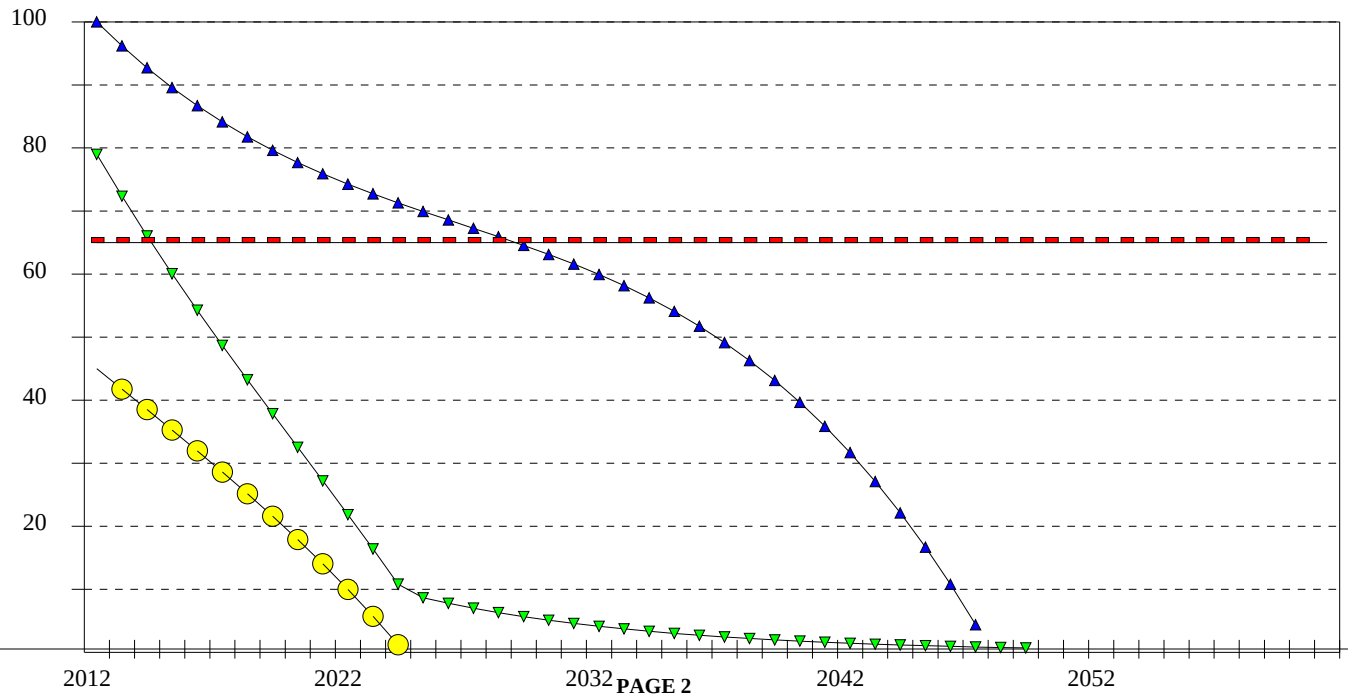
FEATURE: 3105 **DESCRIPTION:** FBO RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 45 POOR
CONSTRUCTION YEAR: 1999 **ESTIMATED PCI IS:** 45 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 69

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$93,059	17 YEARS
▼	SURFACE TREATMENT	$31,264	3 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3110 **DESCRIPTION:** FBO RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 59
FEATURE AREA: 137,240 **FEATURE'S LOW PCI:** 27
INSPECTED AREA: 43,000 **AVERAGE PCI:** 48 POOR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 48 in 2012

COMMENTS/HISTORY FOR FEATURE 3110, FBO RAMP

1999 3" AC WITH 3" MILLING
ESTIMATED 1972 AC
ESTIMATED 1957 AC
*

DISTRESS QUANTITIES FOR FEATURE 3110

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	1,233	3,935	S.F.	28.2
ALLIGATOR CRACKING	LOW	187	596	S.F.	10.8
LONG.& TRANS. CRACK	HIGH	194	619	L.F.	10.5
LONG.& TRANS. CRACK	MED	1,573	5,020	L.F.	23.8
LONG.& TRANS. CRACK	LOW	3,044	9,715	L.F.	20.1
OIL SPILLAGE	N/A	45	143	S.F.	.5
RAVELING	LOW	41	130	S.F.	.3
RUTTING	LOW	65	207	S.F.	4.6
WEATHERING	LOW	1,725	5,505	S.F.	.5

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 42 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 38 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 19 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

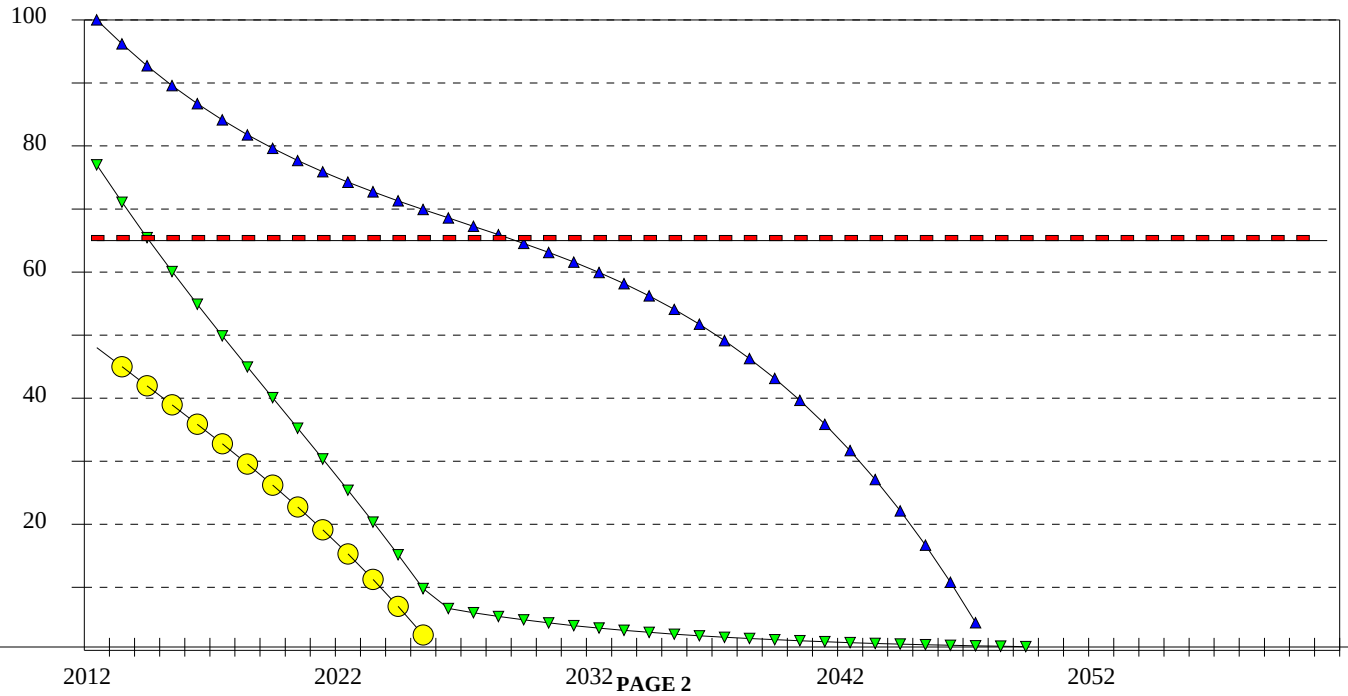
FEATURE: 3110 **DESCRIPTION:** FBO RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 48 POOR
CONSTRUCTION YEAR: 1999 **ESTIMATED PCI IS:** 48 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 69

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$193,508	17 YEARS
▼	SURFACE TREATMENT	$59,030	3 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3125 **DESCRIPTION:** FBO RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC **FEATURE'S HIGH PCI:** 38
FEATURE AREA: 138,584 **FEATURE'S LOW PCI:** 23
INSPECTED AREA: 41,500 **AVERAGE PCI:** 30 VERY POOR
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 30 in 2012

COMMENTS/HISTORY FOR FEATURE 3125, FBO RAMP

1999 AC
*
*
*

DISTRESS QUANTITIES FOR FEATURE 3125

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	1,630	5,443	S.F.	32.4
BLEEDING	N/A	73	243	S.F.	.8
BLOCK CRACKING	HIGH	1,800	6,010	S.F.	9.9
BLOCK CRACKING	MED	16,000	53,430	S.F.	30.7
BLOCK CRACKING	LOW	16,900	56,435	S.F.	20.9
LONG.& TRANS. CRACK	LOW	100	333	L.F.	.6
PATCH & UTILITY CUT	LOW	1,100	3,673	S.F.	3.1
RUTTING	LOW	20	66	S.F.	1.2

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS:	35 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS:	3 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	62 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

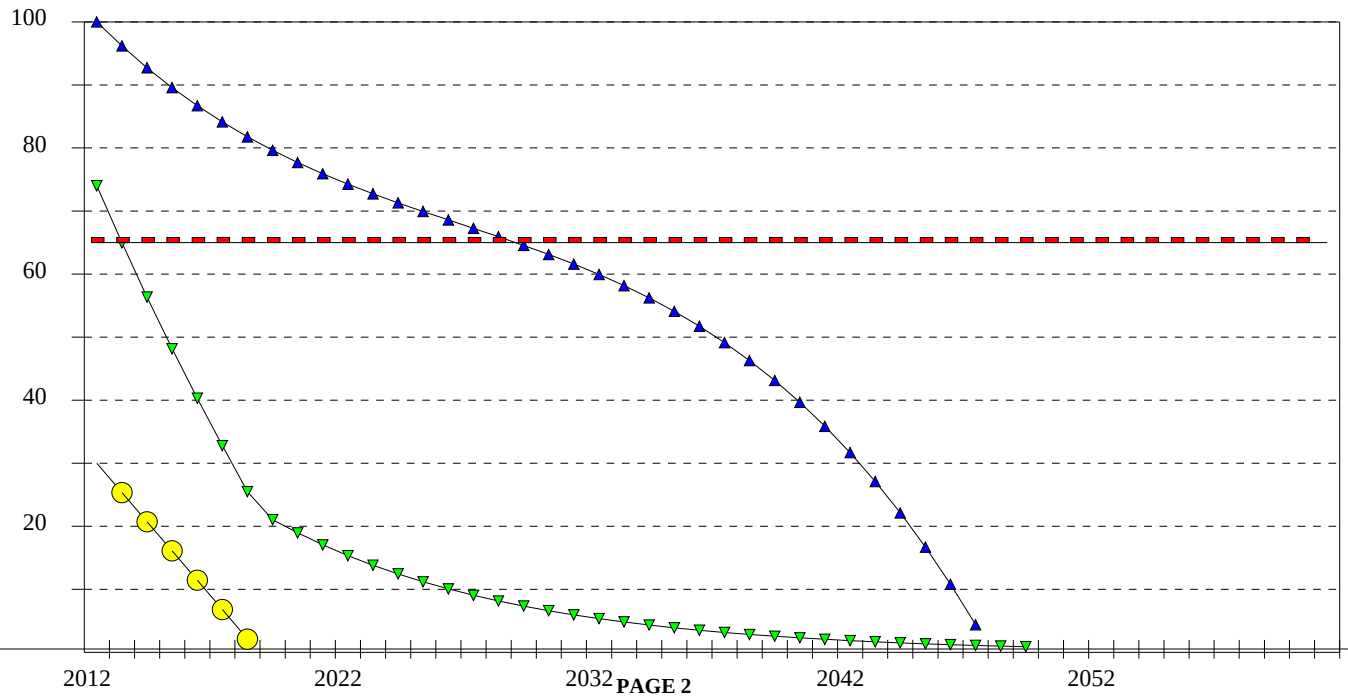
FEATURE: 3125 **DESCRIPTION:** FBO RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC **AVERAGE PCI AT INSPECTION:** 30 VERY POOR
CONSTRUCTION YEAR: 1999 **ESTIMATED PCI IS:** 30 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 71

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	STRUCTURAL OVERLAY	$250,837	17 YEARS
▼	SURFACE TREATMENT	$96,172	1 YEAR
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 65		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 3130 **DESCRIPTION:** NORTH RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: PCC **FEATURE'S HIGH PCI:** 100
FEATURE AREA: 183,887 **FEATURE'S LOW PCI:** 85
INSPECTED AREA: 70,000 **AVERAGE PCI:** 99 GOOD
MINIMUM SERVICE LEVEL: 65 **ESTIMATED PCI IS:** 99 in 2012

COMMENTS/HISTORY FOR FEATURE 3130, NORTH RAMP

2005 PCC
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*
*

DISTRESS QUANTITIES FOR FEATURE 3130

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG/TRAN/DIAG CRK.	LOW	4	4	SLABS	45.2
SHRINKAGE CRACKS	N/A	3	6	SLABS	96.9

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: 34 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 55 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

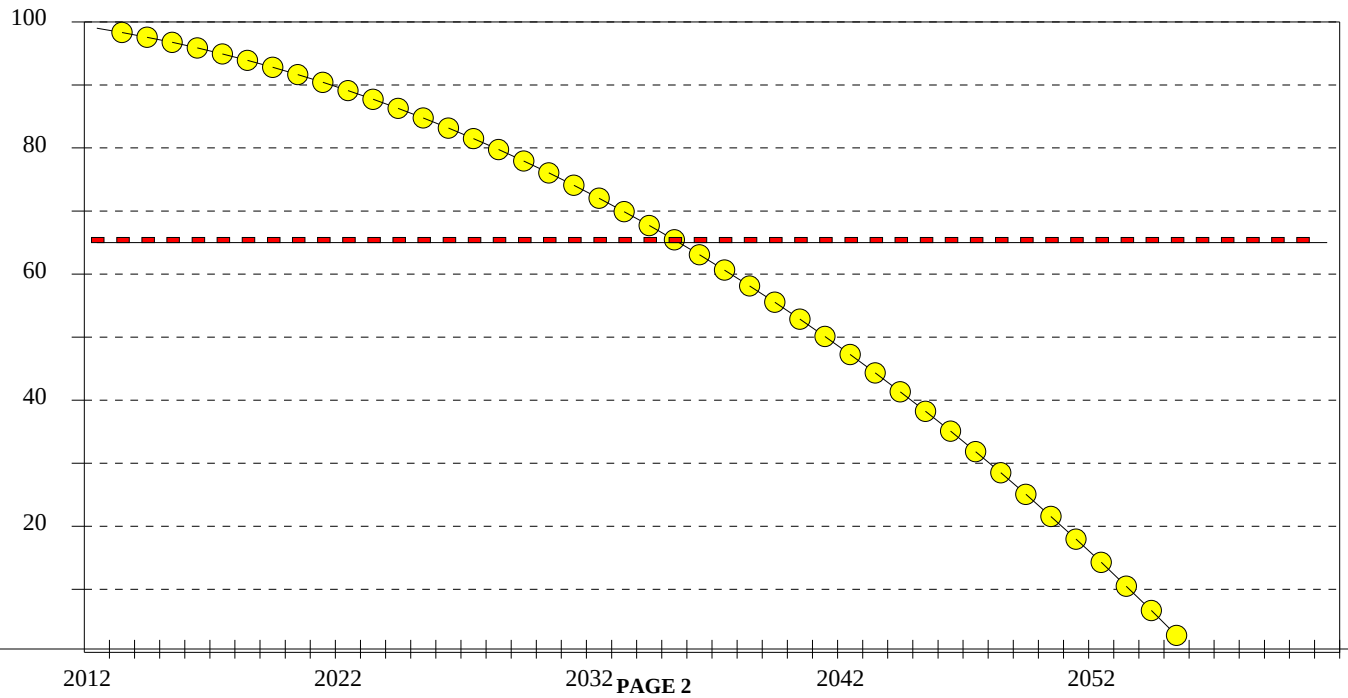
FEATURE: 3130 **DESCRIPTION:** NORTH RAMP

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: PCC **AVERAGE PCI AT INSPECTION:** 99 GOOD
CONSTRUCTION YEAR: 2005 **ESTIMATED PCI IS:** 99 in 2012
MINIMUM SERVICE LEVEL: 65 **NORMAL PCI FOR THIS AGE:** 95

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: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 6105 **DESCRIPTION:** RUNWAY 12-30 KEEL

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 76
FEATURE AREA: 275,000 **FEATURE'S LOW PCI:** 57
INSPECTED AREA: 55,000 **AVERAGE PCI:** 65 FAIR
MINIMUM SERVICE LEVEL: 70 **ESTIMATED PCI IS:** 65 in 2012

COMMENTS/HISTORY FOR FEATURE 6105, RUNWAY 12-30 KEEL

1991 3" P401
1972 5" P401
1949 .75" SURFACE TRT
4.5" P209

DISTRESS QUANTITIES FOR FEATURE 6105

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	25	125	S.F.	7.9
ALLIGATOR CRACKING	LOW	102	510	S.F.	11.5
LONG.& TRANS. CRACK	HIGH	3	15	L.F.	2.3
LONG.& TRANS. CRACK	MED	1,759	8,795	L.F.	33.7
LONG.& TRANS. CRACK	LOW	5,504	27,520	L.F.	41
WEATHERING	MED	83	415	S.F.	.1
WEATHERING	LOW	9,190	45,950	S.F.	3.3

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 19 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO MATERIALS PROBLEMS IN THE FEATURE IS: 53 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 28 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

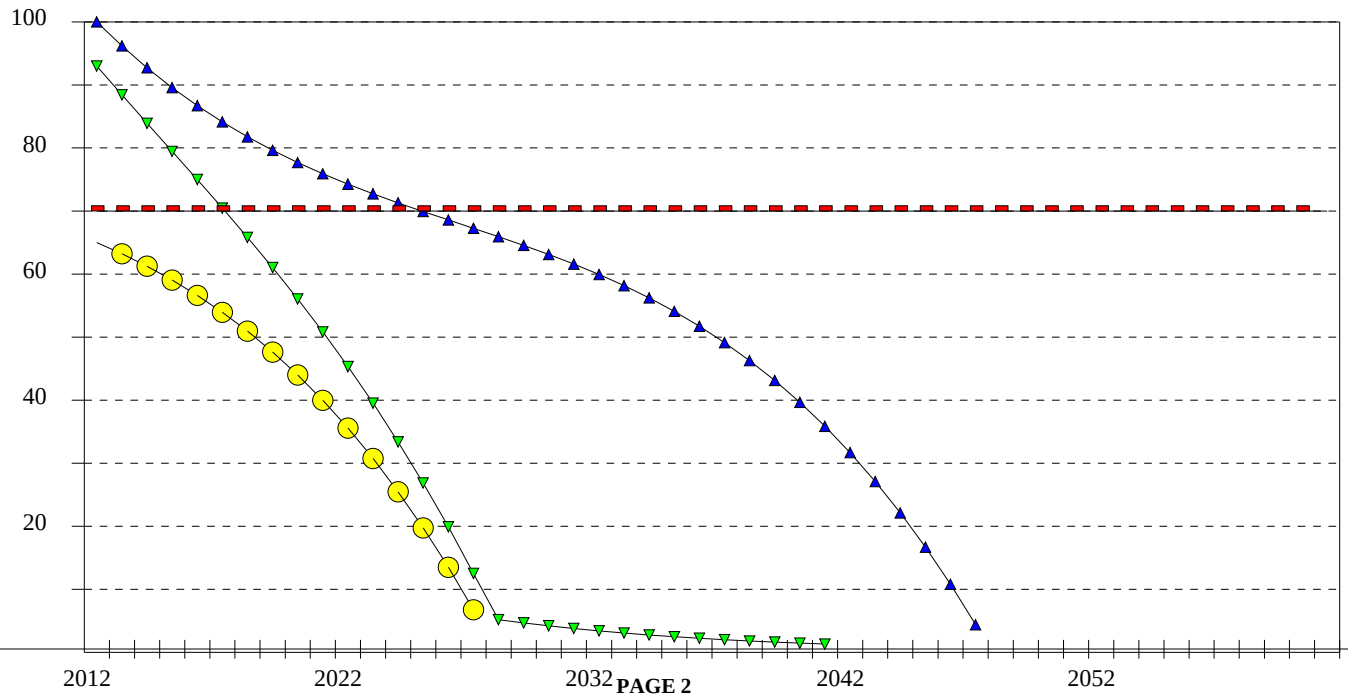
FEATURE: 6105 **DESCRIPTION:** RUNWAY 12-30 KEEL

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 65 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 65 in 2012
MINIMUM SERVICE LEVEL: 70 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$387,749	13 YEARS
▼	SURFACE TREATMENT	$115,248	6 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 70		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 6110 **DESCRIPTION:** RUNWAY 12-30 WING

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 75
FEATURE AREA: 553,470 **FEATURE'S LOW PCI:** 64
INSPECTED AREA: 85,000 **AVERAGE PCI:** 69 FAIR
MINIMUM SERVICE LEVEL: 70 **ESTIMATED PCI IS:** 69 in 2012

COMMENTS/HISTORY FOR FEATURE 6110, RUNWAY 12-30 WING

1991 3" P401
1972 5" P401
1949 .75" SURFACE TRT
4.5" P209

DISTRESS QUANTITIES FOR FEATURE 6110

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	1,044	6,797	L.F.	29.7
LONG.& TRANS. CRACK	LOW	9,539	62,112	L.F.	65.9
WEATHERING	LOW	12,830	83,541	S.F.	4.3

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:	65 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	35 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

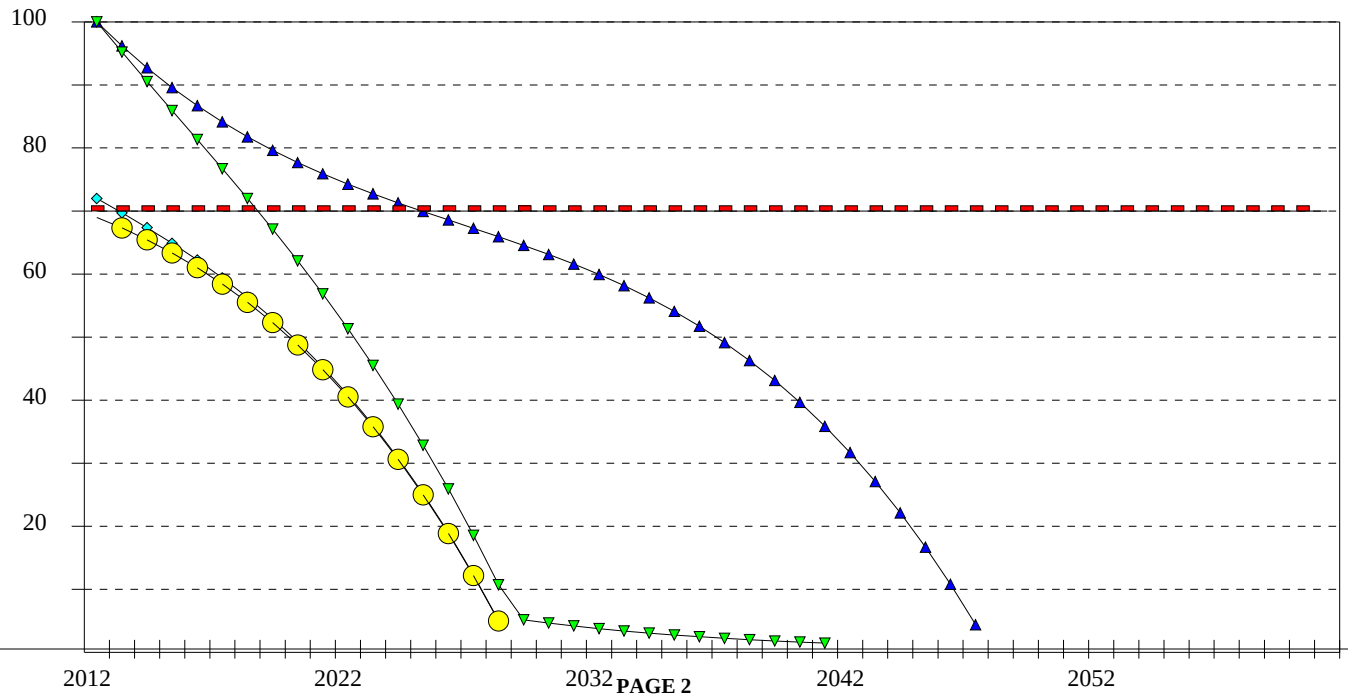
FEATURE: 6110 **DESCRIPTION:** RUNWAY 12-30 WING

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 69 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 69 in 2012
MINIMUM SERVICE LEVEL: 70 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$780,392	13 YEARS
▼	SURFACE TREATMENT	$218,610	7 YEARS
◆	CRACK REPAIR	$84,068	1 YEAR
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 70		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 6115 **DESCRIPTION:** RUNWAY 12-30 KEEL

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 71
FEATURE AREA: 74,638 **FEATURE'S LOW PCI:** 62
INSPECTED AREA: 30,000 **AVERAGE PCI:** 67 FAIR
MINIMUM SERVICE LEVEL: 70 **ESTIMATED PCI IS:** 67 in 2012

COMMENTS/HISTORY FOR FEATURE 6115, RUNWAY 12-30 KEEL

1991 3" P401
1972 3" AC
1957 AC
1949 P401 WEST 300' 1969 2" AC ON 9" P209

DISTRESS QUANTITIES FOR FEATURE 6115

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	LOW	5	12	S.F.	2.7
LONG.& TRANS. CRACK	HIGH	2	5	L.F.	2.7
LONG.& TRANS. CRACK	MED	554	1,378	L.F.	31.8
LONG.& TRANS. CRACK	LOW	3,227	8,028	L.F.	55.9
WEATHERING	MED	510	1,268	S.F.	2.4
WEATHERING	LOW	4,750	11,817	S.F.	4.1

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:	63 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	35 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

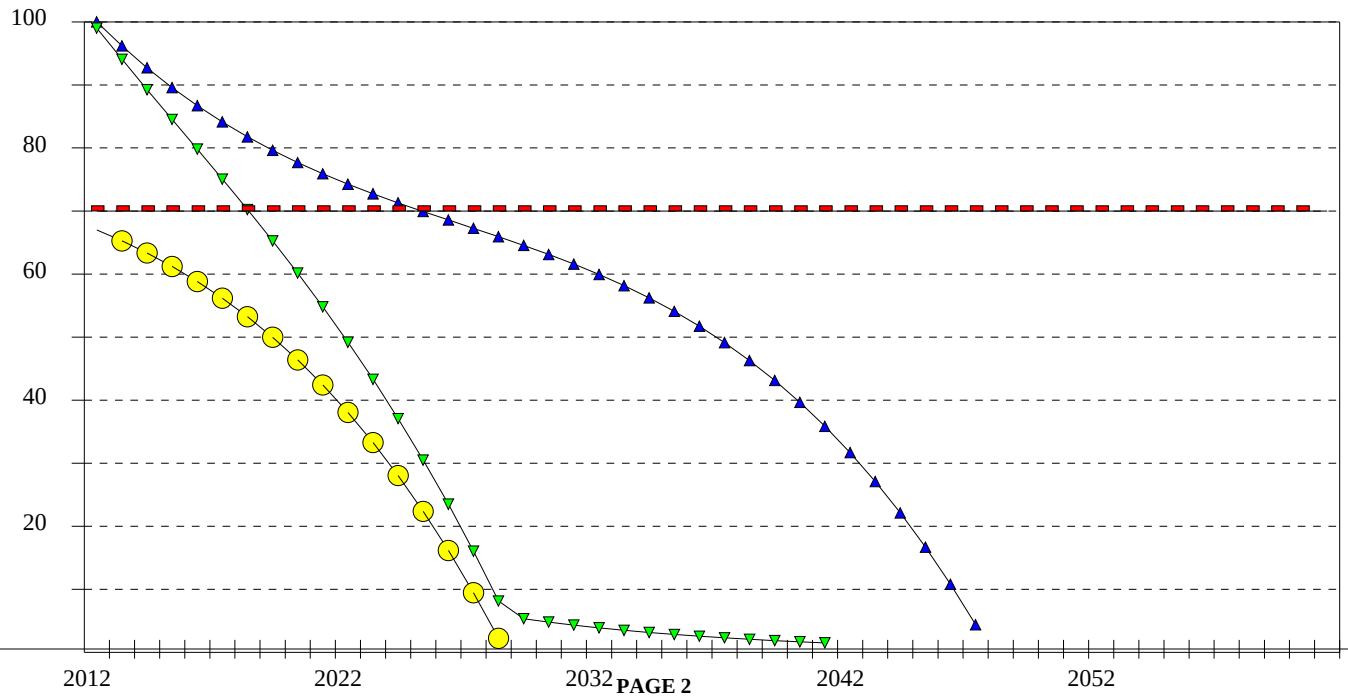
FEATURE: 6115 **DESCRIPTION:** RUNWAY 12-30 KEEL

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 67 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 67 in 2012
MINIMUM SERVICE LEVEL: 70 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$105,239	13 YEARS
▼	SURFACE TREATMENT	$30,049	7 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 70		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 6120 **DESCRIPTION:** RUNWAY 12-30 WING

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 76
FEATURE AREA: 147,100 **FEATURE'S LOW PCI:** 59
INSPECTED AREA: 45,000 **AVERAGE PCI:** 70 FAIR
MINIMUM SERVICE LEVEL: 70 **ESTIMATED PCI IS:** 70 in 2012

COMMENTS/HISTORY FOR FEATURE 6120, RUNWAY 12-30 WING

1991 3" P401
1972 3" AC
1957 AC
1949 P401 WEST 300' 1969 2" AC ON 9" P209

DISTRESS QUANTITIES FOR FEATURE 6120

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
LONG.& TRANS. CRACK	MED	835	2,729	L.F.	36.8
LONG.& TRANS. CRACK	LOW	3,810	12,454	L.F.	56.4
WEATHERING	MED	700	2,288	S.F.	2.2
WEATHERING	LOW	6,300	20,594	S.F.	4.3

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:	64 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	36 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

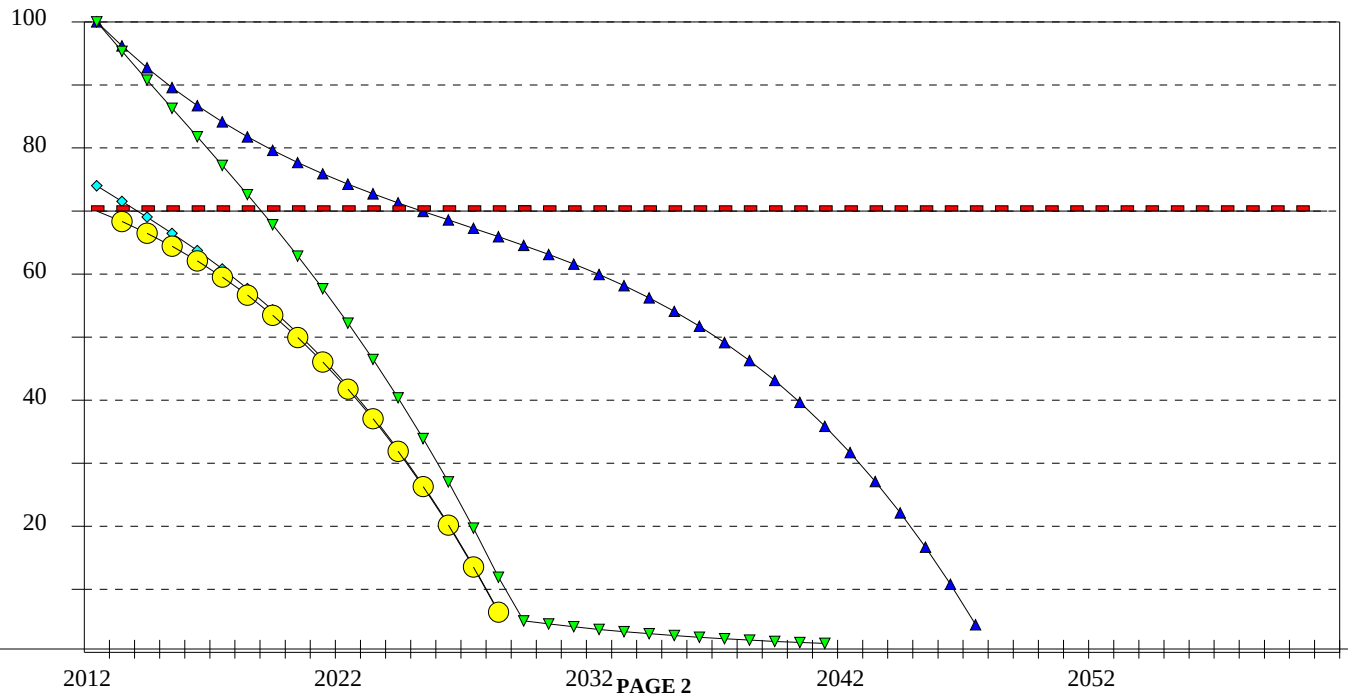
FEATURE: 6120 **DESCRIPTION:** RUNWAY 12-30 WING

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 70 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 70 in 2012
MINIMUM SERVICE LEVEL: 70 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$207,410	13 YEARS
▼	SURFACE TREATMENT	$59,227	7 YEARS
◆	CRACK REPAIR	$18,523	2 YEARS
●	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 70		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 6205 **DESCRIPTION:** RUNWAY 2-20

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 71
FEATURE AREA: 75,000 **FEATURE'S LOW PCI:** 56
INSPECTED AREA: 30,000 **AVERAGE PCI:** 61 FAIR
MINIMUM SERVICE LEVEL: 70 **ESTIMATED PCI IS:** 61 in 2012

COMMENTS/HISTORY FOR FEATURE 6205, RUNWAY 2-20

1991 3" P401
1977-72-57 2" AC
1947 .75" SURFACE TRT
4.5" P209

DISTRESS QUANTITIES FOR FEATURE 6205

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	LOW	191	477	S.F.	26.7
LONG.& TRANS. CRACK	HIGH	34	85	L.F.	7.9
LONG.& TRANS. CRACK	MED	589	1,472	L.F.	23.3
LONG.& TRANS. CRACK	LOW	2,558	6,395	L.F.	34.5
WEATHERING	MED	600	1,500	S.F.	2
WEATHERING	LOW	12,500	31,250	S.F.	5.3

BASIC DISTRESS CAUSES

APPROXIMATE AMOUNT OF DISTRESS RELATED TO LOAD ON THE PAVEMENT IS: 27 %
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: 27 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

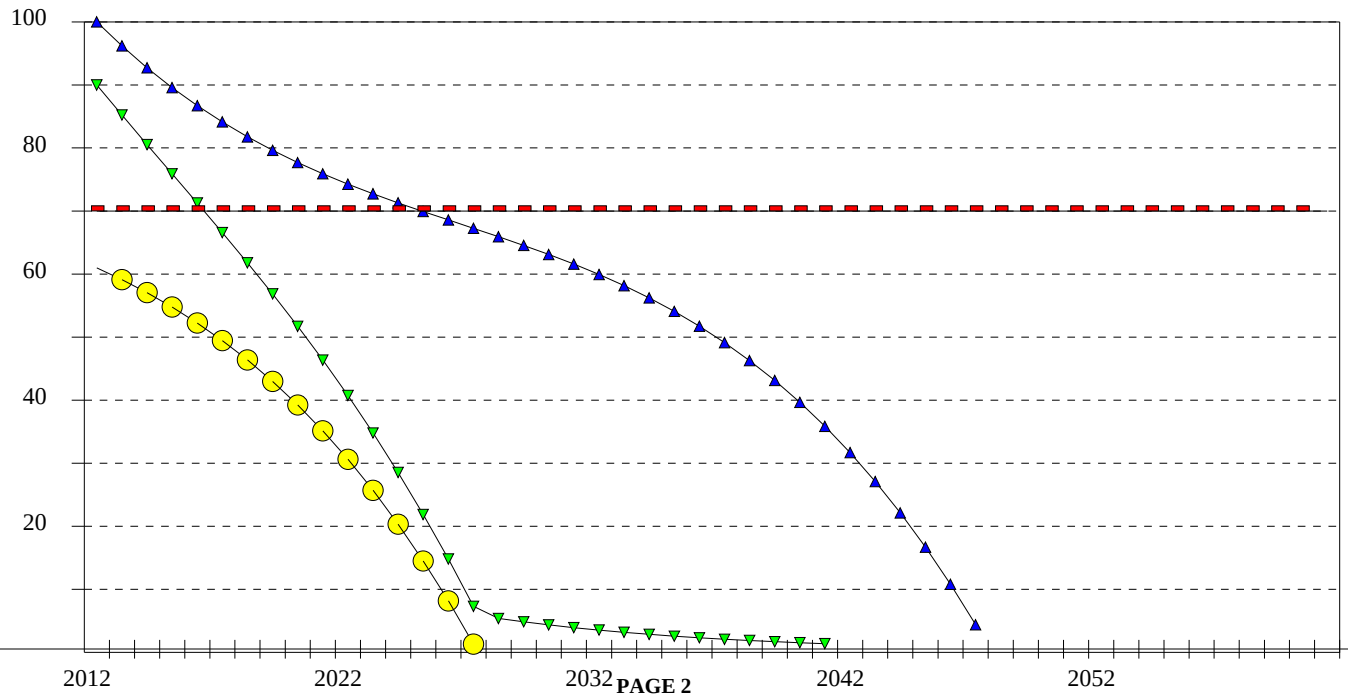
FEATURE: 6205 **DESCRIPTION:** RUNWAY 2-20

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 61 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 61 in 2012
MINIMUM SERVICE LEVEL: 70 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$105,749	13 YEARS
▼	SURFACE TREATMENT	$30,399	5 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 70		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 6210 **DESCRIPTION:** RUNWAY 2-20

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 60
FEATURE AREA: 29,300 **FEATURE'S LOW PCI:** 52
INSPECTED AREA: 15,000 **AVERAGE PCI:** 57 FAIR
MINIMUM SERVICE LEVEL: 70 **ESTIMATED PCI IS:** 57 in 2012

COMMENTS/HISTORY FOR FEATURE 6210, RUNWAY 2-20

1991 3" P401
1977-72-57 2" AC
1947 .75" SURFACE TRT
4.5" P209

DISTRESS QUANTITIES FOR FEATURE 6210

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	8	15	S.F.	7.3
ALLIGATOR CRACKING	LOW	9	17	S.F.	8.3
LONG.& TRANS. CRACK	MED	360	703	L.F.	26.3
LONG.& TRANS. CRACK	LOW	1,953	3,814	L.F.	44.9
SWELL	LOW	164	320	S.F.	4.8
WEATHERING	MED	300	586	S.F.	2
WEATHERING	LOW	6,450	12,599	S.F.	5.9

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: 55 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS: 29 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

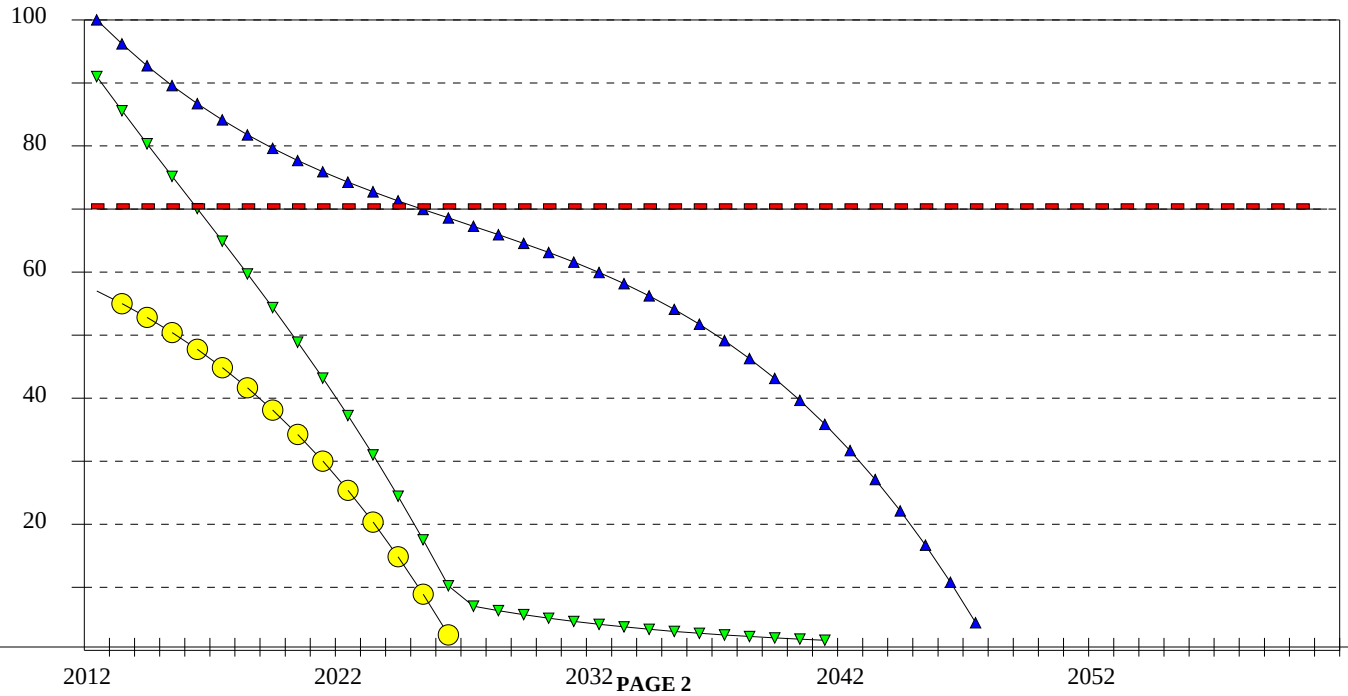
FEATURE: 6210 **DESCRIPTION:** RUNWAY 2-20

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 57 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 57 in 2012
MINIMUM SERVICE LEVEL: 70 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$41,312	13 YEARS
▼	SURFACE TREATMENT	$11,991	5 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 70		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 6215 **DESCRIPTION:** RUNWAY 2-20

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 60
FEATURE AREA: 49,350 **FEATURE'S LOW PCI:** 59
INSPECTED AREA: 14,700 **AVERAGE PCI:** 60 FAIR
MINIMUM SERVICE LEVEL: 70 **ESTIMATED PCI IS:** 60 in 2012

COMMENTS/HISTORY FOR FEATURE 6215, RUNWAY 2-20

1991 3" P401
UNKNOWN EXISTING
*
*

DISTRESS QUANTITIES FOR FEATURE 6215

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
BLEEDING	N/A	5	16	S.F.	.2
LONG.& TRANS. CRACK	MED	107	359	L.F.	15
LONG.& TRANS. CRACK	LOW	2,249	7,550	L.F.	49.9
RAVELING	LOW	5,350	17,960	S.F.	31
SWELL	LOW	164	550	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:	58 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	42 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

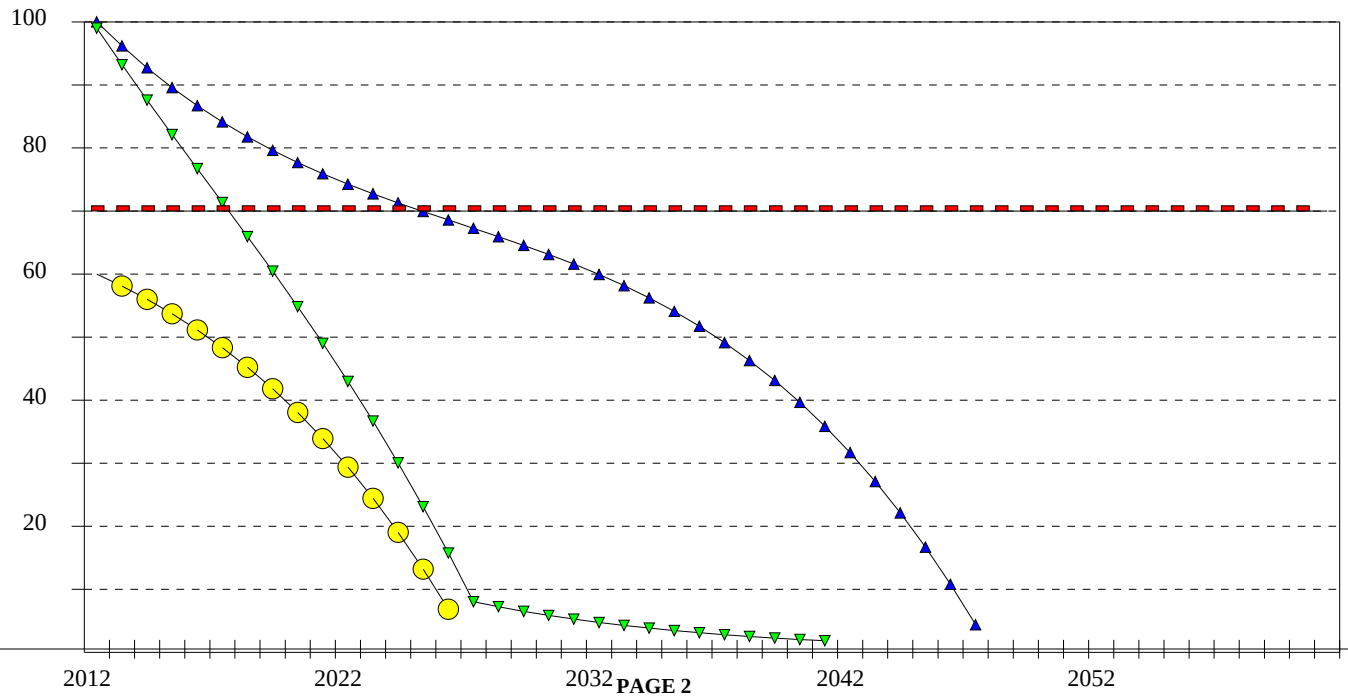
FEATURE: 6215 **DESCRIPTION:** RUNWAY 2-20

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 60 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 60 in 2012
MINIMUM SERVICE LEVEL: 70 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$69,583	13 YEARS
▼	SURFACE TREATMENT	$19,190	6 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 70		

PROJECTED PERFORMANCE



AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

FEATURE: 6220 **DESCRIPTION:** RUNWAY 2-20

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12

PAVEMENT TYPE: AC OVERLAY **FEATURE'S HIGH PCI:** 69
FEATURE AREA: 195,600 **FEATURE'S LOW PCI:** 57
INSPECTED AREA: 50,000 **AVERAGE PCI:** 62 FAIR
MINIMUM SERVICE LEVEL: 70 **ESTIMATED PCI IS:** 62 in 2012

COMMENTS/HISTORY FOR FEATURE 6220, RUNWAY 2-20

1991 3" P401
1977-72-57 2" AC
1947 .75" SURFACE TRT
4.5" P209

DISTRESS QUANTITIES FOR FEATURE 6220

DISTRESS TYPE	SEVERITY	MEASURED QUANTITY	ESTIMATED TOTAL QUANTITIY	UNITS	PERCENTAGE OF All DISTRESS
ALLIGATOR CRACKING	MED	4	15	S.F.	2.3
LONG.& TRANS. CRACK	MED	471	1,842	L.F.	21.6
LONG.& TRANS. CRACK	LOW	7,751	30,321	L.F.	67.8
PATCH & UTILITY CUT	LOW	72	281	S.F.	1.1
WEATHERING	LOW	16,200	63,374	S.F.	6.9

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:	62 %
APPROXIMATE AMOUNT OF DISTRESS RELATED TO AGE OF PAVEMENT AND TRAFFIC REPETITIONS IS:	34 %

AIRPORT: GARY/CHICAGO INTERNATIONAL

AIRPAV FEATURE ANALYSIS PROGRAM OUTPUT

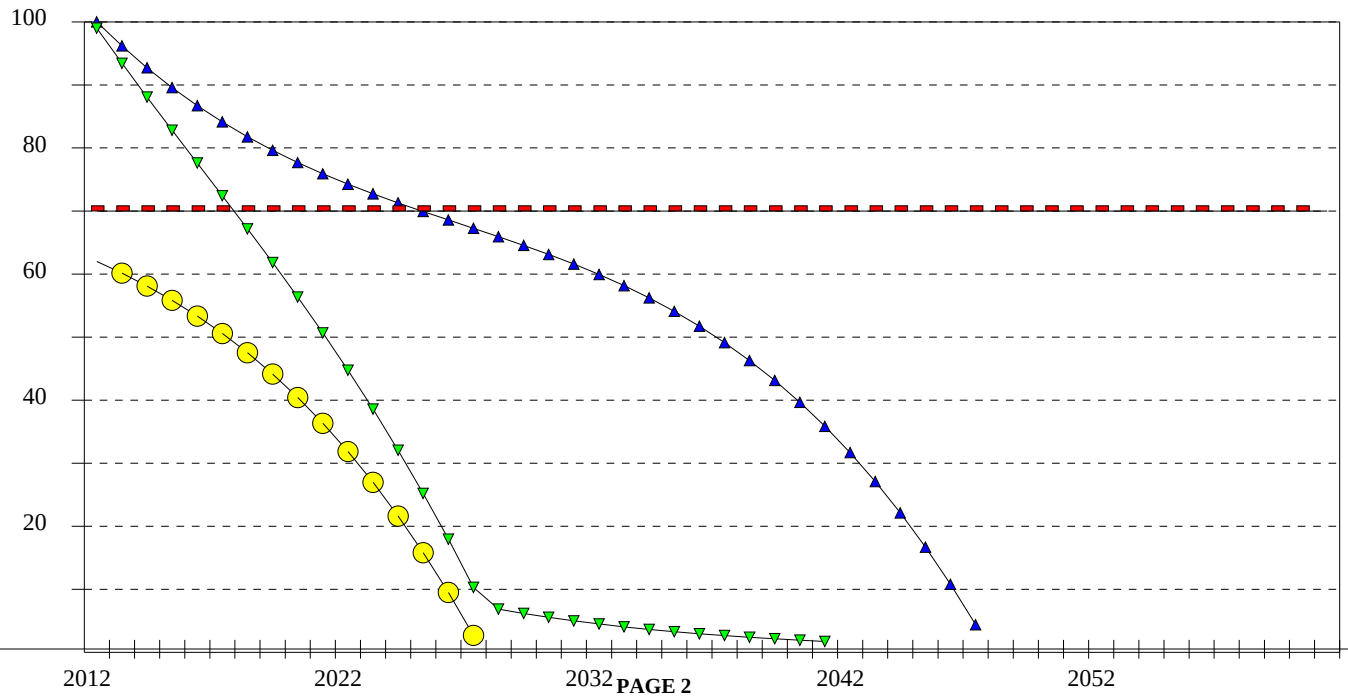
FEATURE: 6220 **DESCRIPTION:** RUNWAY 2-20

ANALYSIS YEAR: 2012 **INSPECTION DATE:** 9-13-12
PAVEMENT TYPE: AC OVERLAY **AVERAGE PCI AT INSPECTION:** 62 FAIR
CONSTRUCTION YEAR: 1991 **ESTIMATED PCI IS:** 62 in 2012
MINIMUM SERVICE LEVEL: 70 **NORMAL PCI FOR THIS AGE:** 58

THE FOLLOWING PROJECTS HAVE BEEN SELECTED AS VIABLE ALTERNATIVES

LEGEND	DESCRIPTION	COST	LIFE EXTENSION
▲	RESURFACING	$275,795	13 YEARS
▼	SURFACE TREATMENT	$76,575	6 YEARS
○	NO ACTION	N/A	N/A
-	MINIMUM SERVICE LEVEL, CURRENTLY 70		

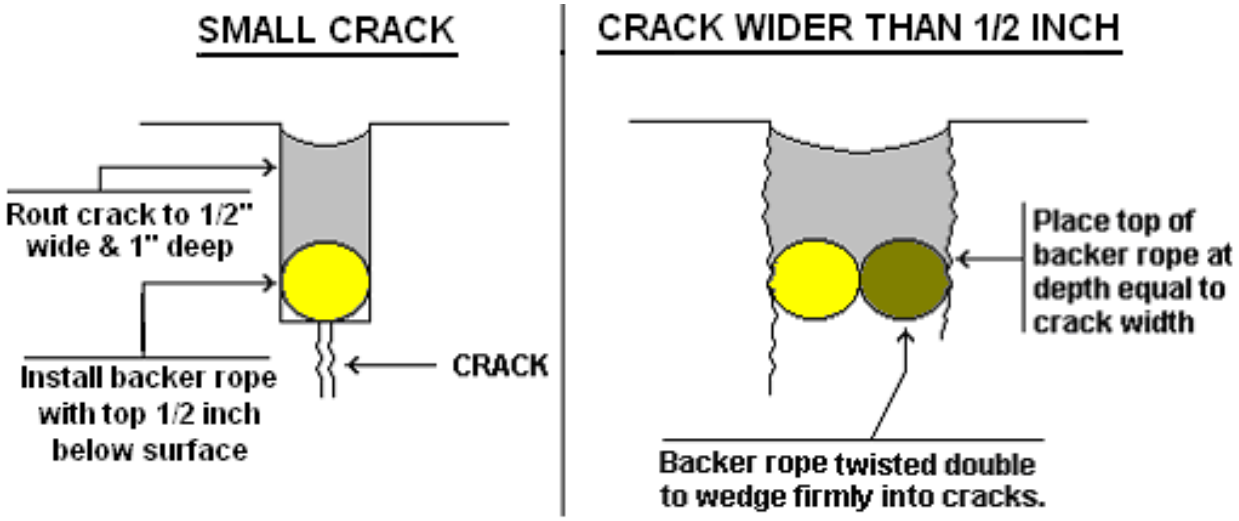
PROJECTED PERFORMANCE



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

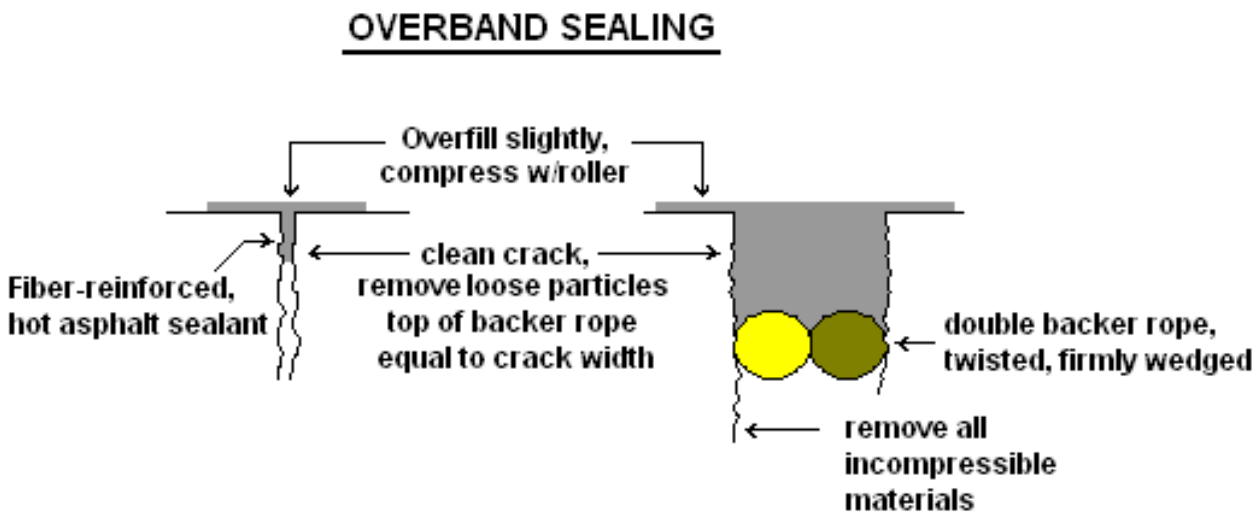
An alternate crack sealing technique using the procedures outlined below.

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.

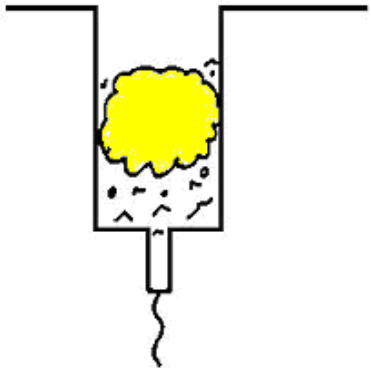
Application

- 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.

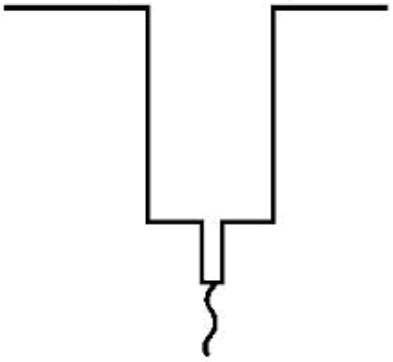


Joint Repair (portland cement)

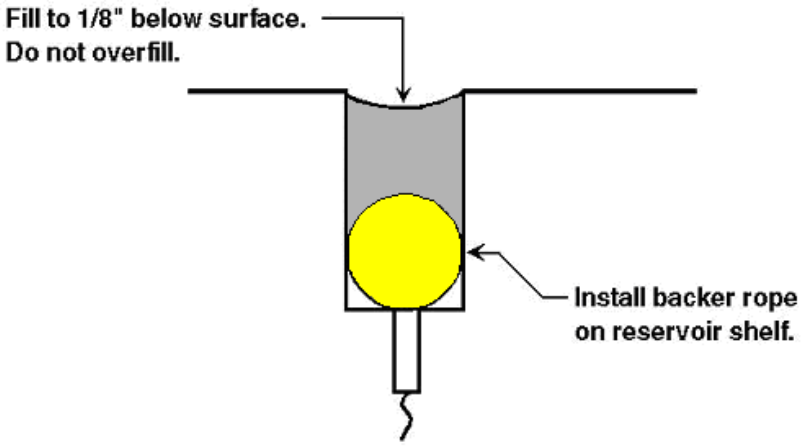
- Rout a reservoir for the sealant ½ inch wide and 1 inch deep.
- Cracks wider than ½ inch should have reservoirs ¼ inch wider than the crack. Reservoir height above backer rope should be less than reservoir width, or as recommended by manufacturer.
- Routed cracks should be cleaned to expose fresh, 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 ¼ inch of pavement surface, following manufacturer's instructions.
- Clean the surrounding pavement area.



Typical failed joint sealant, w/ debris and incompressibles.

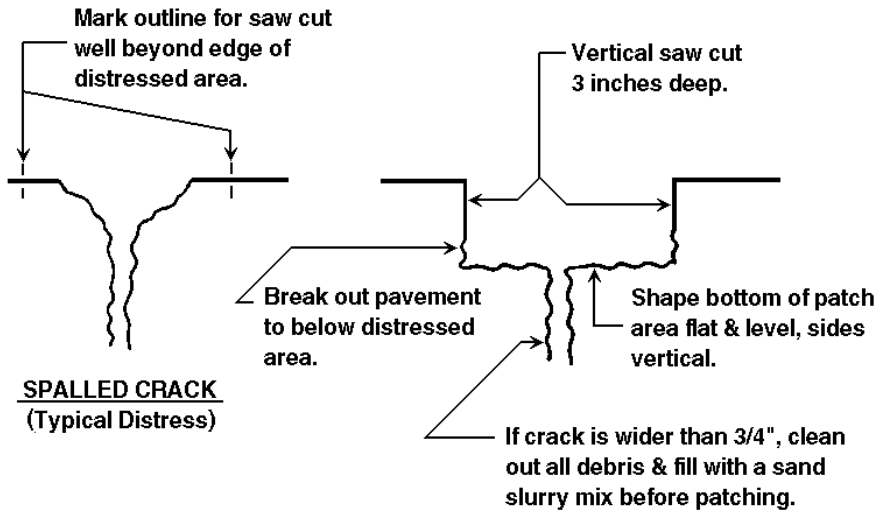


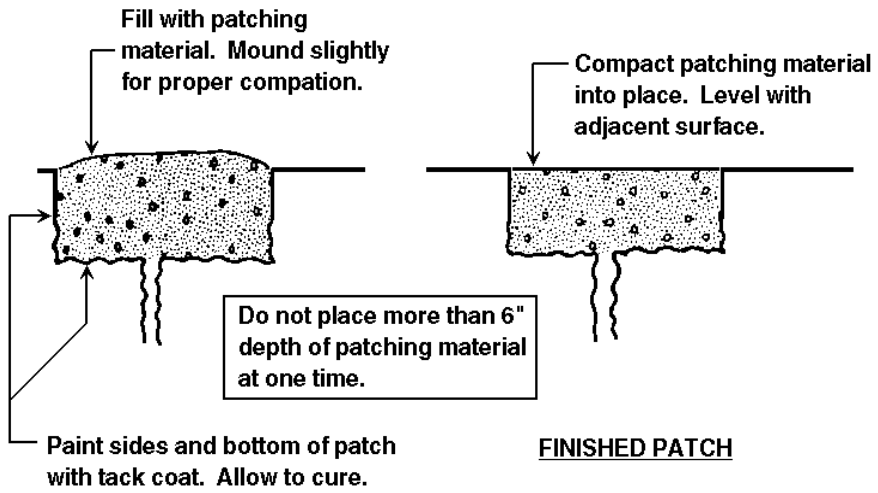
Clean joints exposing fresh, clean concrete and stone. Retain existing resevoir shape.



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.

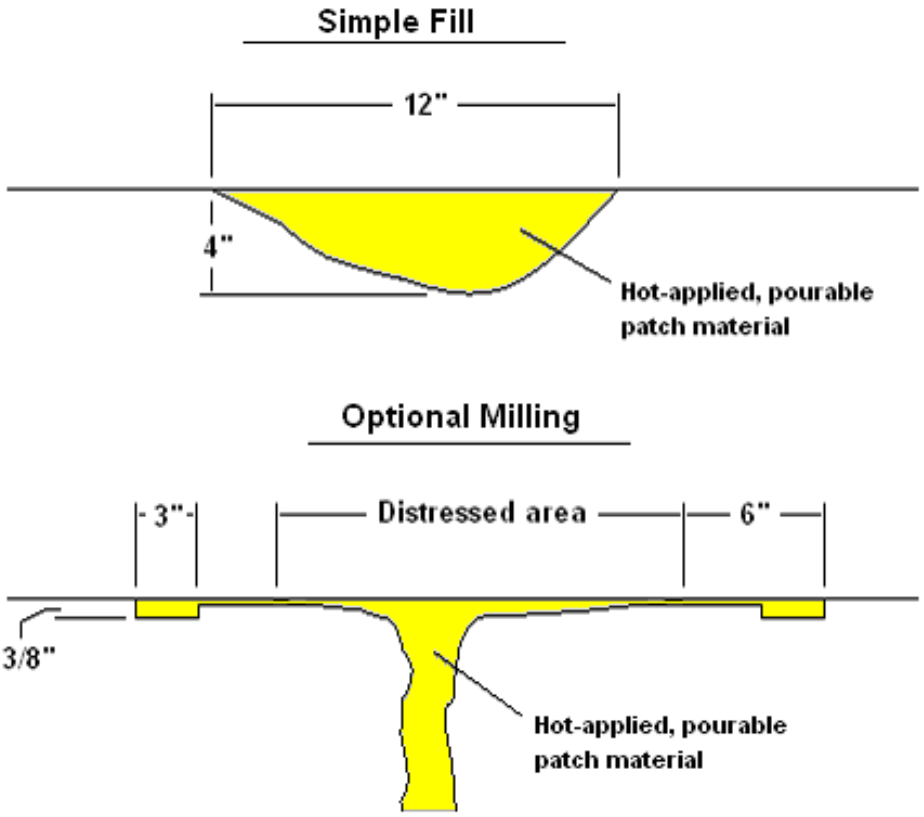




Patching (pourable materials)

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.

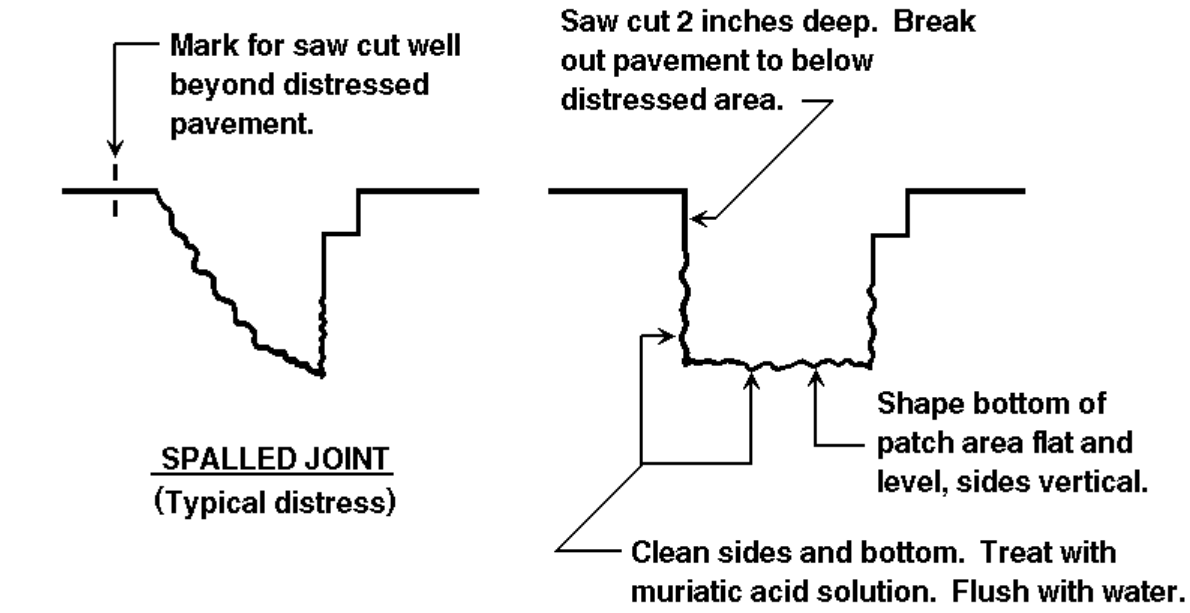
- Examine and mark the patch outline. Boundaries should extend to sound pavement.
- Apply patch material to clean, dry surfaces.
- A heating lance to preheat or dry existing pavement is recommended in cold or wet conditions.
- Patch material should be poured into the area to be repaired and leveled as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

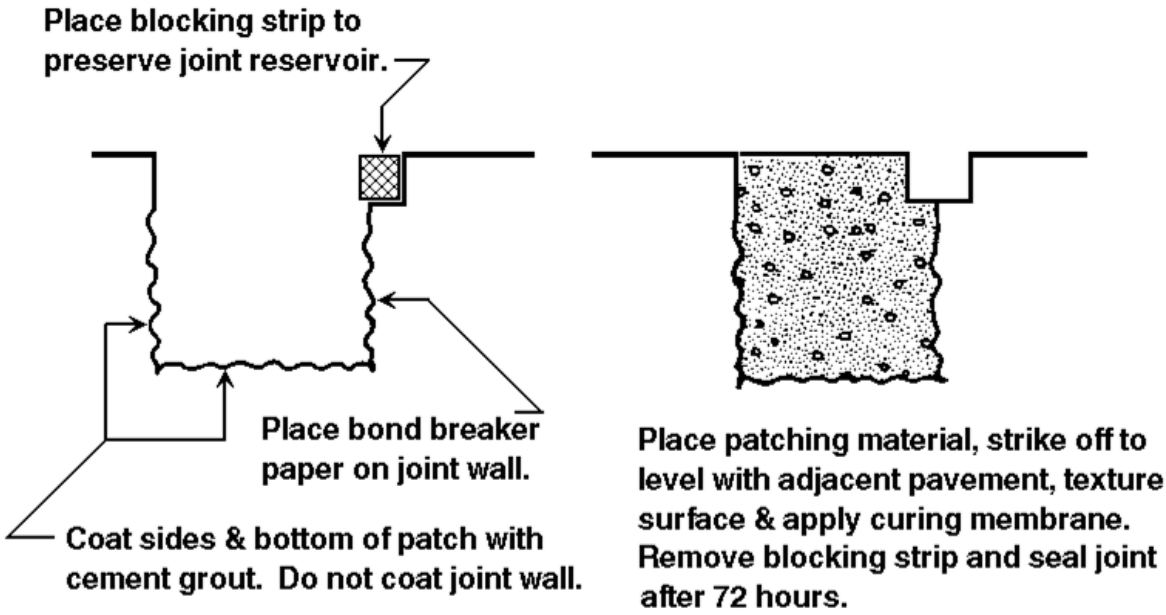


Patching (PCC)

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

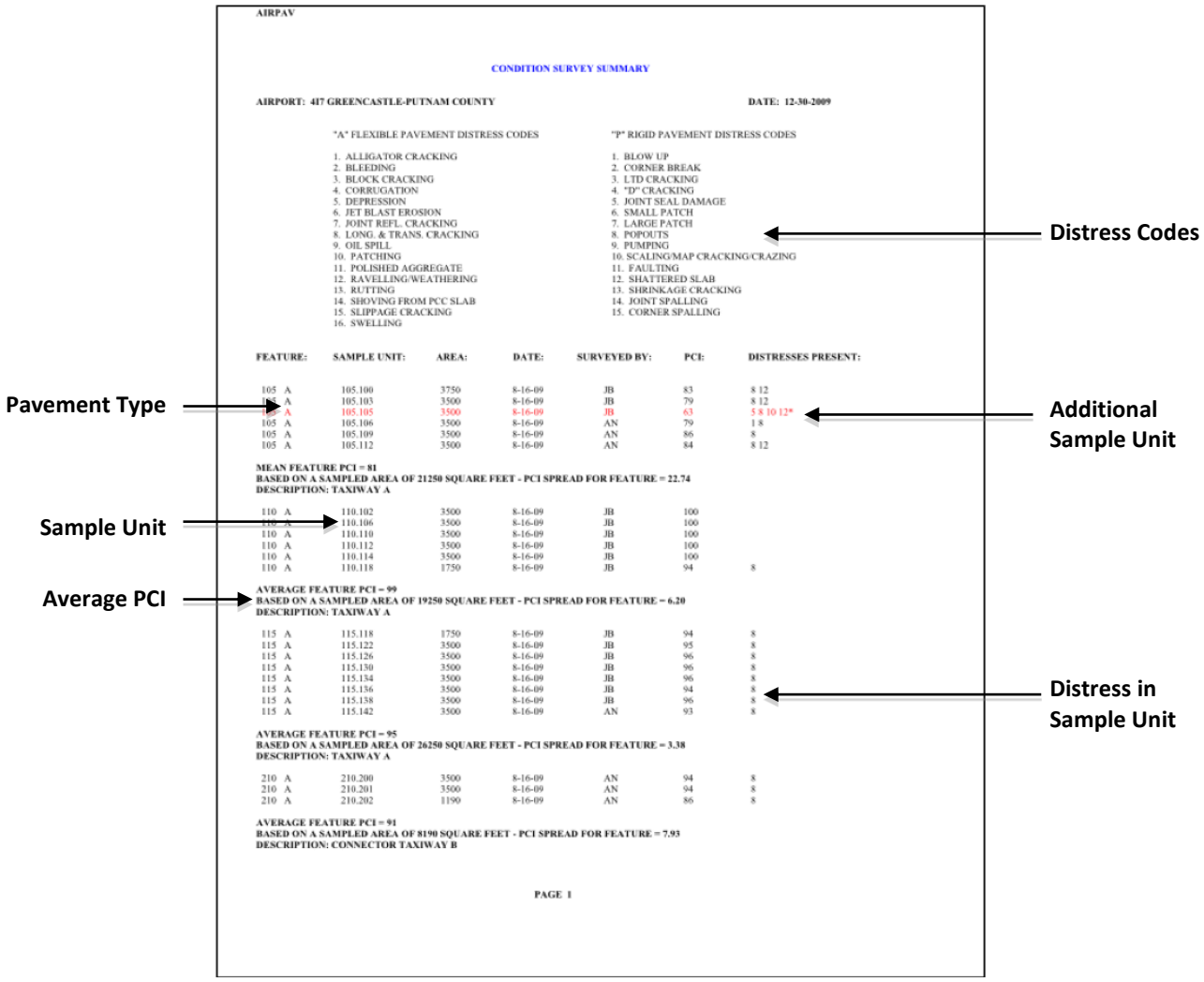
- Examine and mark patch outline.
- Saw cut area to a depth of 2 inches. The enclosed area is then chipped or jack hammered to solid pavement, but not less than a 2-inch nominal depth.
- The sides and bottom are sand cleaned and air-blasted to expose vital, clean concrete.
- A 25 percent solution of 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.


Mark for saw cut well beyond distressed pavement.
Saw cut 2 inches deep. Break out pavement to below distressed area.
SPALLED JOINT
(Typical distress)
Shape bottom of patch area flat and level, sides vertical.
Clean sides and bottom. Treat with muriatic acid solution. Flush with water.


Place blocking strip to preserve joint reservoir.
Place bond breaker paper on joint wall.
Coat sides & bottom of patch with cement grout. Do not coat joint wall.
Place patching material, strike off to level with adjacent pavement, texture surface & apply curing membrane. Remove blocking strip and seal joint after 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

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. SHOVING FROM PCC SLAB
15. SLIPPAGE CRACKING
16. SWELLING

"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

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

PAGE 1

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: GYY GARY/CHICAGO INTERNATIONAL **DATE: 09-30-2012**

"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:
110	A	110.100	3750	8-24-12	ARA	61	1 8 17
110	A	110.102	3750	8-24-12	ARA	63	2 8 12
110	A	110.108	3750	9-13-12	ARA	64	1 8 16
110	A	110.112	3750	9-13-12	ARA	70	1 8
110	A	110.116	3750	9-13-12	ARA	66	1 8
110	A	110.121	3750	9-13-12	ARA	66	1 8
110	A	110.125	3750	9-13-12	ARA	68	1 8
110	A	110.129	3750	9-13-12	ARA	70	1 8
110	A	110.133	3750	9-13-12	ARA	64	1 8

AVERAGE FEATURE PCI = 66
BASED ON A SAMPLED AREA OF 33750 SQUARE FEET - PCI SPREAD FOR FEATURE = 9.26

115	A	115.137	3750	9-13-12	ARA	71	8
115	A	115.139	3750	9-13-12	ARA	59	1 8 16
115	A	115.141	3750	9-13-12	ARA	62	1 8
115	A	115.146	3750	9-13-12	ARA	67	1 8
115	A	115.148	3750	9-13-12	ARA	64	1 8 10

AVERAGE FEATURE PCI = 65
BASED ON A SAMPLED AREA OF 18750 SQUARE FEET - PCI SPREAD FOR FEATURE = 12.38

120	A	120.151	3750	9-13-12	ARA	54	1 8 16*
120	A	120.152	3750	9-13-12	ARA	71	8
120	A	120.158	3750	9-13-12	ARA	67	1 8
120	A	120.164	3750	9-13-12	ARA	49	1 8
120	A	120.170	3250	9-13-12	ARA	71	8
120	A	120.176	3250	9-13-12	ARA	70	8
120	A	120.182	3750	9-13-12	ARA	62	1 8
120	A	120.188	3750	9-13-12	ARA	70	8
120	A	120.194	3750	9-13-12	ARA	72	8
120	A	120.200	3750	9-13-12	ARA	69	8
120	A	120.207	3750	9-13-12	ARA	71	8
120	A	120.214	3750	9-13-12	ARA	74	8
120	A	120.221	3750	9-13-12	ARA	71	8
120	A	120.231	3750	9-13-12	ARA	71	8
120	A	120.235	3750	9-13-12	ARA	71	1 8
120	A	120.237	3750	9-13-12	ARA	78	8

FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
120 A	120.242	3750	9-13-12	ARA	55	1 8

MEAN FEATURE PCI = 68
BASED ON A SAMPLED AREA OF 62750 SQUARE FEET - PCI SPREAD FOR FEATURE = 29.66

130 A	130.101	4000	8-24-12	EOJ	58	8 17
130 A	130.102	4000	8-24-12	ABN	57	8 16 17

AVERAGE FEATURE PCI = 58
BASED ON A SAMPLED AREA OF 8000 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.66

140 A	140.100	4000	8-24-12	ARA	60	8 17
140 A	140.102	4000	8-24-12	ARA	66	8 17
140 A	140.123	4000	9-13-12	ARA	73	8 12

AVERAGE FEATURE PCI = 66
BASED ON A SAMPLED AREA OF 12000 SQUARE FEET - PCI SPREAD FOR FEATURE = 12.69

150 A	150.100	4000	8-24-12	ARA	60	8 17
150 A	150.102	4000	8-24-12	ARA	60	8 17

AVERAGE FEATURE PCI = 60
BASED ON A SAMPLED AREA OF 8000 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.05

160 A	160.100	4000	8-24-12	ARA	67	8 17
160 A	160.102	4000	8-24-12	ARA	67	8 17
160 A	160.103	4000	8-24-12	ARA	66	8 17

AVERAGE FEATURE PCI = 67
BASED ON A SAMPLED AREA OF 12000 SQUARE FEET - PCI SPREAD FOR FEATURE = 1.46

170 A	170.104	3375	9-13-12	ARA	62	1 8
170 A	170.108	3750	9-13-12	ARA	44	1 8
170 A	170.109	3750	9-13-12	ARA	54	1 8
170 A	170.110	3750	9-13-12	ARA	49	1 8

AVERAGE FEATURE PCI = 52
BASED ON A SAMPLED AREA OF 14625 SQUARE FEET - PCI SPREAD FOR FEATURE = 17.89

180 A	180.104	3750	9-13-12	ARA	63	8
180 A	180.108	3750	9-13-12	ARA	55	1 8 13
180 A	180.109	3750	9-13-12	ARA	44	1 8 13
180 A	180.111	2475	9-13-12	ARA	31	1 8 13

AVERAGE FEATURE PCI = 48
BASED ON A SAMPLED AREA OF 13725 SQUARE FEET - PCI SPREAD FOR FEATURE = 32.26

205 A	205.115	4000	9-13-12	ARA	61	1 8 17
205 A	205.117	4000	9-13-12	ARA	41	1 8 13 17
205 A	205.119	4000	9-13-12	ARA	44	1 8 16 17

AVERAGE FEATURE PCI = 49
BASED ON A SAMPLED AREA OF 12000 SQUARE FEET - PCI SPREAD FOR FEATURE = 19.56

210 A	210.121	4000	8-24-12	ARA	65	8 17
210 A	210.125	4000	8-24-12	ARA	60	1 8 13 17
210 A	210.126	4000	8-24-12	ARA	56	1 8 17

AVERAGE FEATURE PCI = 60
BASED ON A SAMPLED AREA OF 12000 SQUARE FEET - PCI SPREAD FOR FEATURE = 8.99

215 A	215.100	4335	9-13-12	ARA	65	8 17
215 A	215.103	4000	9-13-12	ARA	67	1 8 17
215 A	215.107	4000	9-13-12	ARA	68	8 17
215 A	215.110	4000	9-13-12	ARA	68	8 17
215 A	215.114	4000	9-13-12	ARA	53	8 10 16 17
215 A	215.117	4000	9-13-12	ARA	71	8
215 A	215.121	4000	9-13-12	ARA	67	8

AVERAGE FEATURE PCI = 66
BASED ON A SAMPLED AREA OF 28335 SQUARE FEET - PCI SPREAD FOR FEATURE = 17.91

FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
220 A	220.200	4670	9-13-12	ARA	68	8 12
220 A	220.201	4270	9-13-12	ARA	56	8 12 17

AVERAGE FEATURE PCI = 62
BASED ON A SAMPLED AREA OF 8940 SQUARE FEET - PCI SPREAD FOR FEATURE = 11.99

225 A	225.100	4350	9-13-12	EOJ	61	1 8 12 17
225 A	225.101	3760	9-13-12	EOJ	63	8 17

AVERAGE FEATURE PCI = 62
BASED ON A SAMPLED AREA OF 8110 SQUARE FEET - PCI SPREAD FOR FEATURE = 2.08

230 A	230.300	4670	9-13-12	ARA	66	1 8 17
230 A	230.301	4000	9-13-12	ARA	71	8 17

AVERAGE FEATURE PCI = 69
BASED ON A SAMPLED AREA OF 8670 SQUARE FEET - PCI SPREAD FOR FEATURE = 4.76

240 A	240.129	4000	9-13-12	ARA	82	8 17
240 A	240.131	4000	9-13-12	ARA	69	8 17
240 A	240.133	4000	9-13-12	ARA	69	8 17
240 A	240.135	4000	9-13-12	ARA	60	1 8 16 17
240 A	240.136	4000	9-13-12	ARA	52	1 8 17

AVERAGE FEATURE PCI = 66
BASED ON A SAMPLED AREA OF 20000 SQUARE FEET - PCI SPREAD FOR FEATURE = 29.95

305 A	305.101	3750	9-13-12	ARA	71	1 8
305 A	305.102	3750	9-13-12	ARA	63	1 8
305 A	305.103	3750	9-13-12	ARA	75	1 8

AVERAGE FEATURE PCI = 70
BASED ON A SAMPLED AREA OF 11250 SQUARE FEET - PCI SPREAD FOR FEATURE = 11.39

3005 A	3005.103	3800	9-13-12	EOJ	56	1 8 13
3005 A	3005.111	5000	9-13-12	EOJ	29	1 2 3 10 17
3005 A	3005.204	5000	9-13-12	EOJ	39	1 8
3005 A	3005.206	5000	9-13-12	EOJ	32	1 3 13
3005 A	3005.208	5000	9-13-12	EOJ	32	1 3 8
3005 A	3005.301	5000	9-13-12	ABN	34	1 3
3005 A	3005.305	5000	9-13-12	ABN	42	1 3 8
3005 A	3005.309	5000	9-13-12	ABN	28	3 17
3005 A	3005.402	5000	9-13-12	ABN	11	1 3
3005 A	3005.406	5000	9-13-12	ABN	27	1 3
3005 A	3005.410	5000	9-13-12	ABN	24	1 3 17

AVERAGE FEATURE PCI = 32
BASED ON A SAMPLED AREA OF 53800 SQUARE FEET - PCI SPREAD FOR FEATURE = 45.66

3020 P	3020.100	11250	9-13-12	ABN	100	
3020 P	3020.102	11250	9-13-12	ABN	100	
3020 P	3020.201	7500	9-13-12	ABN	100	
3020 P	3020.203	15000	9-13-12	ABN	99	13

AVERAGE FEATURE PCI = 100
BASED ON A SAMPLED AREA OF 45000 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.74

3025 A	3025.612	6100	9-13-12	EOJ	47	1 8
3025 A	3025.812	4000	9-13-12	ARA	67	1 8

AVERAGE FEATURE PCI = 57
BASED ON A SAMPLED AREA OF 10100 SQUARE FEET - PCI SPREAD FOR FEATURE = 19.56

3030 A	3030.511	5000	9-13-12	ABN	56	8
3030 A	3030.610	5000	9-13-12	ABN	56	3
3030 A	3030.711	5000	9-13-12	EOJ	45	1 3 8
3030 A	3030.811	5000	9-13-12	EOJ	47	1 3

AVERAGE FEATURE PCI = 51
BASED ON A SAMPLED AREA OF 20000 SQUARE FEET - PCI SPREAD FOR FEATURE = 10.58

FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
3035 P	3035.509	8000	9-13-12	EOJ	77	3 5 13 15
3035 P	3035.510	8000	9-13-12	EOJ	78	3 5 15
3035 P	3035.710	8000	9-13-12	EOJ	93	5

AVERAGE FEATURE PCI = 83
BASED ON A SAMPLED AREA OF 24000 SQUARE FEET - PCI SPREAD FOR FEATURE = 16.33

3040 P	3040.100	7700	9-13-12	EOJ	100	
3040 P	3040.102	8800	9-13-12	ABN	94	3 5
3040 P	3040.104	5840	9-13-12	EOJ	64	3 5 12 13
3040 P	3040.106	4480	9-13-12	ABN	86	3 5 7

AVERAGE FEATURE PCI = 86
BASED ON A SAMPLED AREA OF 26820 SQUARE FEET - PCI SPREAD FOR FEATURE = 35.78

3050 P	3050.101	13125	9-13-12	ABN	100	
3050 P	3050.102	13125	9-13-12	ABN	86	3 12 13

AVERAGE FEATURE PCI = 93
BASED ON A SAMPLED AREA OF 26250 SQUARE FEET - PCI SPREAD FOR FEATURE = 14.09

3055 P	3055.608	3275	9-13-12	EOJ	74	3 5 13 15
3055 P	3055.708	4750	9-13-12	EOJ	93	5

AVERAGE FEATURE PCI = 84
BASED ON A SAMPLED AREA OF 8025 SQUARE FEET - PCI SPREAD FOR FEATURE = 18.55

3105 A	3105.106	5000	9-13-12	ARA	48	1 3 8
3105 A	3105.108	5000	9-13-12	ARA	47	1 8
3105 A	3105.207	5000	9-13-12	ARA	52	1 3 8
3105 A	3105.306	5000	9-13-12	ARA	37	1 2 3 9 17
3105 A	3105.308	5000	9-13-12	ARA	46	1 2 8 9 17
3105 A	3105.407	3800	9-13-12	ARA	40	1 2 8 9

AVERAGE FEATURE PCI = 45
BASED ON A SAMPLED AREA OF 28800 SQUARE FEET - PCI SPREAD FOR FEATURE = 15.06

3110 A	3110.111	5000	9-13-12	ABN	55	1 8 17
3110 A	3110.113	5000	9-13-12	EOJ	54	8 9 13
3110 A	3110.117	5000	9-13-12	EOJ	59	1 8 17
3110 A	3110.211	5000	9-13-12	ABN	34	1 8 12
3110 A	3110.213	5000	9-13-12	EOJ	42	1 8
3110 A	3110.215	5000	9-13-12	EOJ	56	1 8 13 17
3110 A	3110.312	6500	9-13-12	ABN	27	1 8 13 17
3110 A	3110.316	6500	9-13-12	ABN	54	1 8

AVERAGE FEATURE PCI = 48
BASED ON A SAMPLED AREA OF 43000 SQUARE FEET - PCI SPREAD FOR FEATURE = 31.98

3125 A	3125.100	5000	9-14-12	ARA	34	1 3 8 13
3125 A	3125.103	5000	9-14-12	ARA	26	1 3 10
3125 A	3125.104	5000	9-14-12	ARA	25	1 2 3
3125 A	3125.201	5000	9-14-12	ARA	26	1 3
3125 A	3125.205	5000	9-14-12	ARA	23	1 3
3125 A	3125.302	5000	9-14-12	ARA	38	1 3 10
3125 A	3125.400	6500	9-14-12	ARA	35	1 3
3125 A	3125.501	5000	9-14-12	ARA	30	1 2 3

AVERAGE FEATURE PCI = 30
BASED ON A SAMPLED AREA OF 41500 SQUARE FEET - PCI SPREAD FOR FEATURE = 14.99

3130 P	3130.102	11250	9-14-12	EOJ	99	13
3130 P	3130.104	11250	9-14-12	EOJ	100	
3130 P	3130.106	11250	9-14-12	EOJ	99	13
3130 P	3130.108	11250	9-14-12	EOJ	100	
3130 P	3130.110	11250	9-14-12	EOJ	85	3 13*
3130 P	3130.112	13750	9-14-12	EOJ	100	

MEAN FEATURE PCI = 99
BASED ON A SAMPLED AREA OF 70000 SQUARE FEET - PCI SPREAD FOR FEATURE = 15.42

FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
6105 A	6105.202	5000	8-24-12	ARA	74	8 17
6105 A	6105.206	5000	8-24-12	ARA	68	8 17
6105 A	6105.210	5000	8-24-12	ARA	66	8 17
6105 A	6105.216	5000	8-24-12	ARA	57	1 8 17
6105 A	6105.220	5000	8-24-12	ARA	63	1 8 17
6105 A	6105.224	5000	8-24-12	ARA	58	1 8 17
6105 A	6105.227	5000	8-24-12	ARA	61	1 8 17
6105 A	6105.232	5000	8-24-12	ARA	76	8 17
6105 A	6105.238	5000	8-24-12	ARA	62	1 8 17
6105 A	6105.241	5000	8-24-12	ARA	61	1 8 17
6105 A	6105.248	5000	8-24-12	ARA	69	8 17

AVERAGE FEATURE PCI = 65
BASED ON A SAMPLED AREA OF 55000 SQUARE FEET - PCI SPREAD FOR FEATURE = 19.21

6110 A	6110.103	5000	8-24-12	EOJ	73	8 17
6110 A	6110.107	5000	8-24-12	EOJ	72	8 17
6110 A	6110.110	5000	8-24-12	EOJ	70	8 17
6110 A	6110.117	5000	8-24-12	EOJ	68	8 17
6110 A	6110.121	5000	8-24-12	EOJ	64	8 17
6110 A	6110.125	5000	8-24-12	EOJ	69	8 17
6110 A	6110.128	5000	8-24-12	EOJ	66	8 17
6110 A	6110.139	5000	8-24-12	EOJ	75	8 17
6110 A	6110.149	5000	8-24-12	EOJ	64	8 17
6110 A	6110.301	5000	8-24-12	ABN	67	8
6110 A	6110.305	5000	8-24-12	ABN	75	8 17
6110 A	6110.309	5000	8-24-12	ABN	72	8 17
6110 A	6110.315	5000	8-24-12	ABN	69	8 17
6110 A	6110.319	5000	8-24-12	ABN	66	8 17
6110 A	6110.323	5000	8-24-12	ABN	67	8 17
6110 A	6110.331	5000	8-24-12	ABN	72	8 17
6110 A	6110.340	5000	8-24-12	ABN	71	8 17

AVERAGE FEATURE PCI = 69
BASED ON A SAMPLED AREA OF 85000 SQUARE FEET - PCI SPREAD FOR FEATURE = 11.08

6115 A	6115.256	5000	8-24-12	ARA	65	8 17
6115 A	6115.258	5000	8-24-12	ARA	62	8 17
6115 A	6115.260	5000	8-24-12	ARA	71	8 17
6115 A	6115.262	5000	8-24-12	ARA	68	8 17
6115 A	6115.265	5000	8-24-12	ARA	69	8 17
6115 A	6115.267	5000	8-24-12	ARA	66	1 8 17

AVERAGE FEATURE PCI = 67
BASED ON A SAMPLED AREA OF 30000 SQUARE FEET - PCI SPREAD FOR FEATURE = 8.30

6120 A	6120.158	5000	8-24-12	EOJ	68	8 17
6120 A	6120.161	5000	8-24-12	EOJ	59	8 17
6120 A	6120.163	5000	8-24-12	EOJ	72	8 17
6120 A	6120.165	5000	8-24-12	EOJ	72	8 17
6120 A	6120.355	5000	8-24-12	ABN	75	8 17
6120 A	6120.357	5000	8-24-12	ABN	72	8 17
6120 A	6120.362	5000	8-24-12	ABN	76	8 17
6120 A	6120.366	5000	8-24-12	ABN	68	8 17
6120 A	6120.368	5000	8-24-12	ABN	70	8 17

AVERAGE FEATURE PCI = 70
BASED ON A SAMPLED AREA OF 45000 SQUARE FEET - PCI SPREAD FOR FEATURE = 17.22

6205 A	6205.101	5000	9-14-12	ARA	71	1 8
6205 A	6205.105	5000	9-14-12	ARA	66	1 8 17
6205 A	6205.107	5000	9-14-12	ARA	56	1 8 17
6205 A	6205.109	5000	9-14-12	ARA	60	1 8 17
6205 A	6205.112	5000	9-14-12	ARA	58	1 8 17
6205 A	6205.114	5000	9-14-12	ARA	56	1 8 17

AVERAGE FEATURE PCI = 61
BASED ON A SAMPLED AREA OF 30000 SQUARE FEET - PCI SPREAD FOR FEATURE = 15.21

FEATURE:	SAMPLE UNIT:	AREA:	DATE:	SURVEYED BY:	PCI:	DISTRESSES PRESENT:
6210 A	6210.115	5000	9-14-12	ARA	52	1 8 16 17
6210 A	6210.118	5000	9-14-12	ARA	60	1 8 17
6210 A	6210.120	5000	9-14-12	ARA	60	1 8 17

AVERAGE FEATURE PCI = 57
BASED ON A SAMPLED AREA OF 15000 SQUARE FEET - PCI SPREAD FOR FEATURE = 8.30

6215 A	6215.121	1500	9-14-12	ARA	59	8 12
6215 A	6215.123	5000	9-14-12	ARA	60	8 12
6215 A	6215.129	5000	9-14-12	ARA	59	8 12 16
6215 A	6215.131	3200	9-14-12	ARA	60	2 8 12

AVERAGE FEATURE PCI = 60
BASED ON A SAMPLED AREA OF 14700 SQUARE FEET - PCI SPREAD FOR FEATURE = 0.99

6220 A	6220.135	5000	9-14-12	ARA	58	8 10 17
6220 A	6220.137	5000	9-14-12	ARA	62	8 17
6220 A	6220.139	5000	9-14-12	ARA	57	1 8 17
6220 A	6220.143	5000	9-14-12	ARA	62	8 17
6220 A	6220.148	5000	9-14-12	ARA	64	8 17
6220 A	6220.152	5000	9-14-12	ARA	61	8 17
6220 A	6220.156	5000	9-14-12	ARA	61	8 17
6220 A	6220.160	5000	9-14-12	ARA	63	8 17
6220 A	6220.166	5000	9-14-12	ARA	68	8 17
6220 A	6220.170	5000	9-14-12	ARA	69	8 17

AVERAGE FEATURE PCI = 62
BASED ON A SAMPLED AREA OF 50000 SQUARE FEET - PCI SPREAD FOR FEATURE = 12.53

TOTAL NUMBER OF INSPECTED FEATURES = 37
TOTAL NUMBER OF INSPECTED SAMPLE UNITS = 202 **TOTAL AREA OF INSPECTED PAVEMENT = 1,014,900 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.

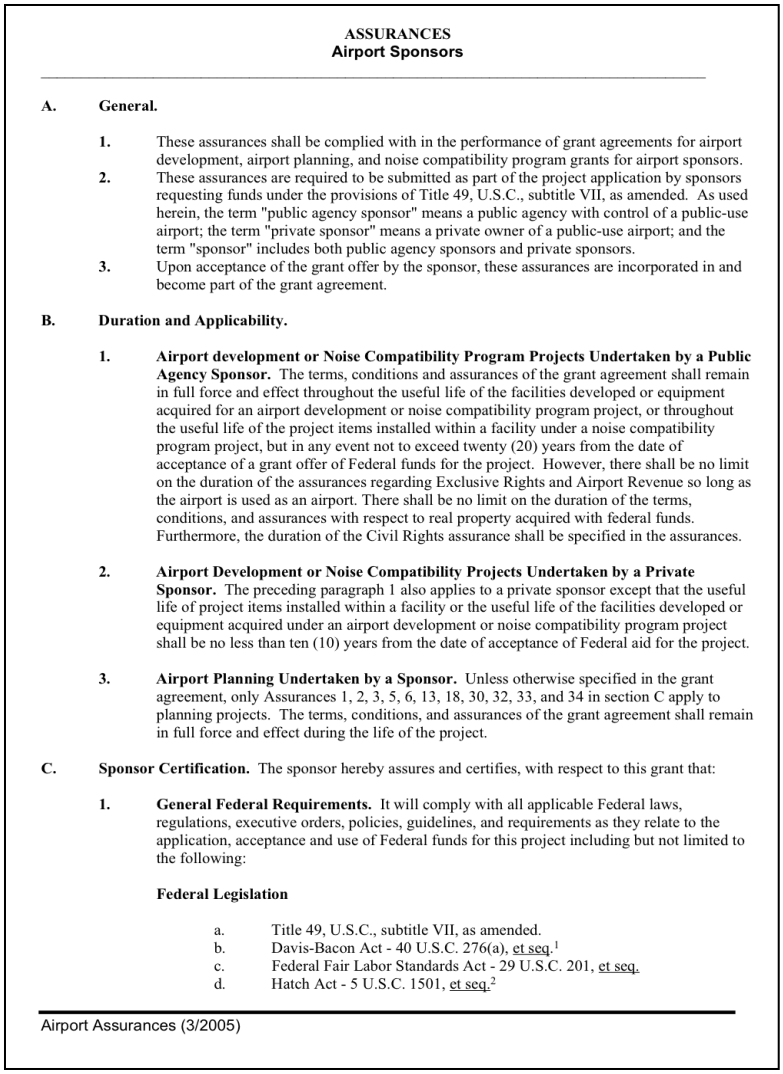
Appendix F. Airport Responsibilities

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.



ASSURANCES
Airport Sponsors

A. General.

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.

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. The sponsor hereby assures and certifies, with respect to this grant that:

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:

Federal Legislation

a. Title 49, U.S.C., subtitle VII, as amended.
b. Davis-Bacon Act - 40 U.S.C. 276(a), et seq.[1]
c. Federal Fair Labor Standards Act - 29 U.S.C. 201, et seq.
d. Hatch Act - 5 U.S.C. 1501, et seq.[2]

Airport Assurances (3/2005)

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).

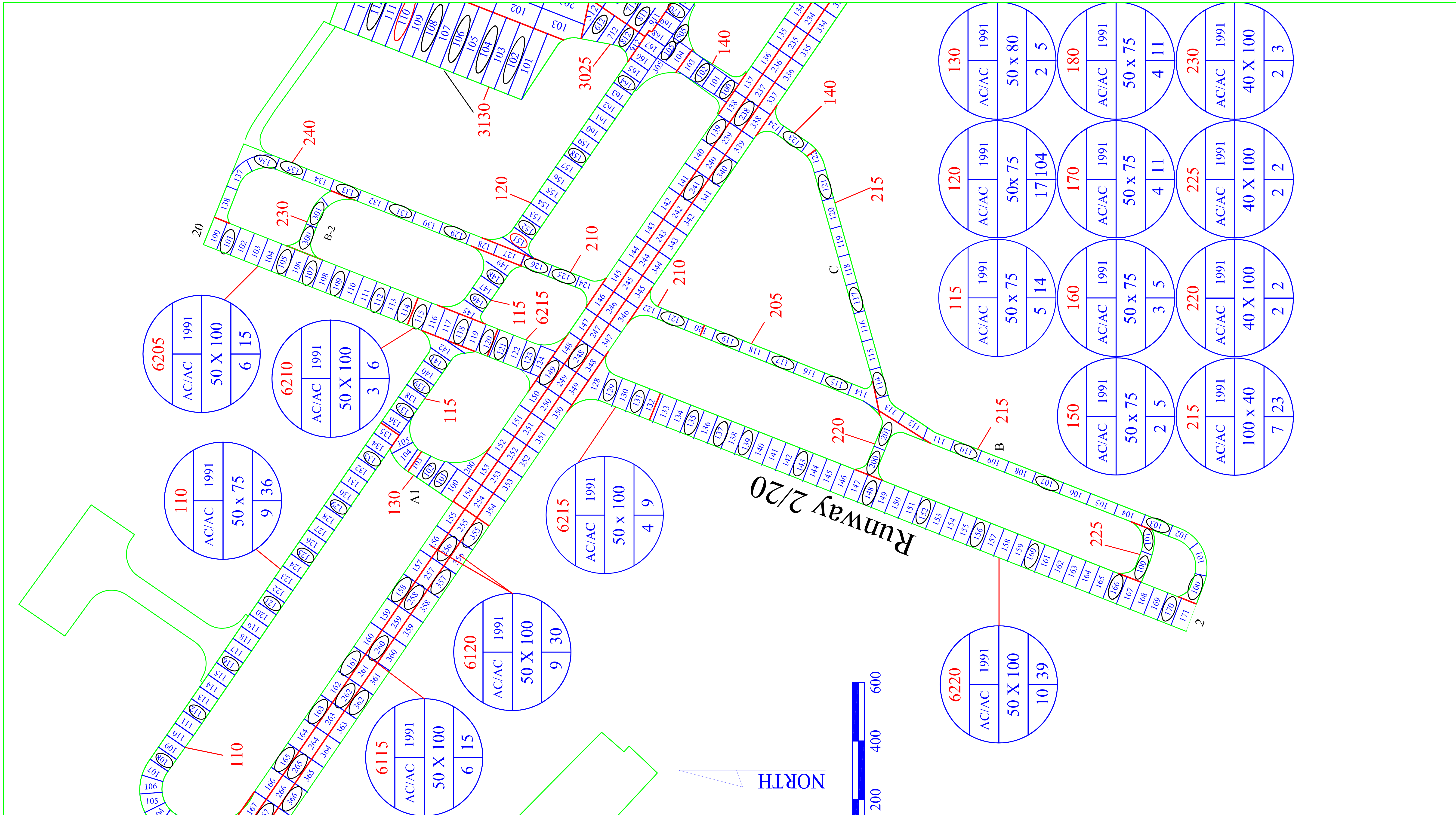
The table on the following pages is available for maintaining a record of drive-by inspections and maintenance repairs.

Table F-1. Monthly Pavement Inspection Log

Date	Inspector	Conditions/Changes	Repairs/Work Order

Date	Inspector	Conditions/Changes	Repairs/Work Order

Date	Inspector	Conditions/Changes	Repairs/Work Order

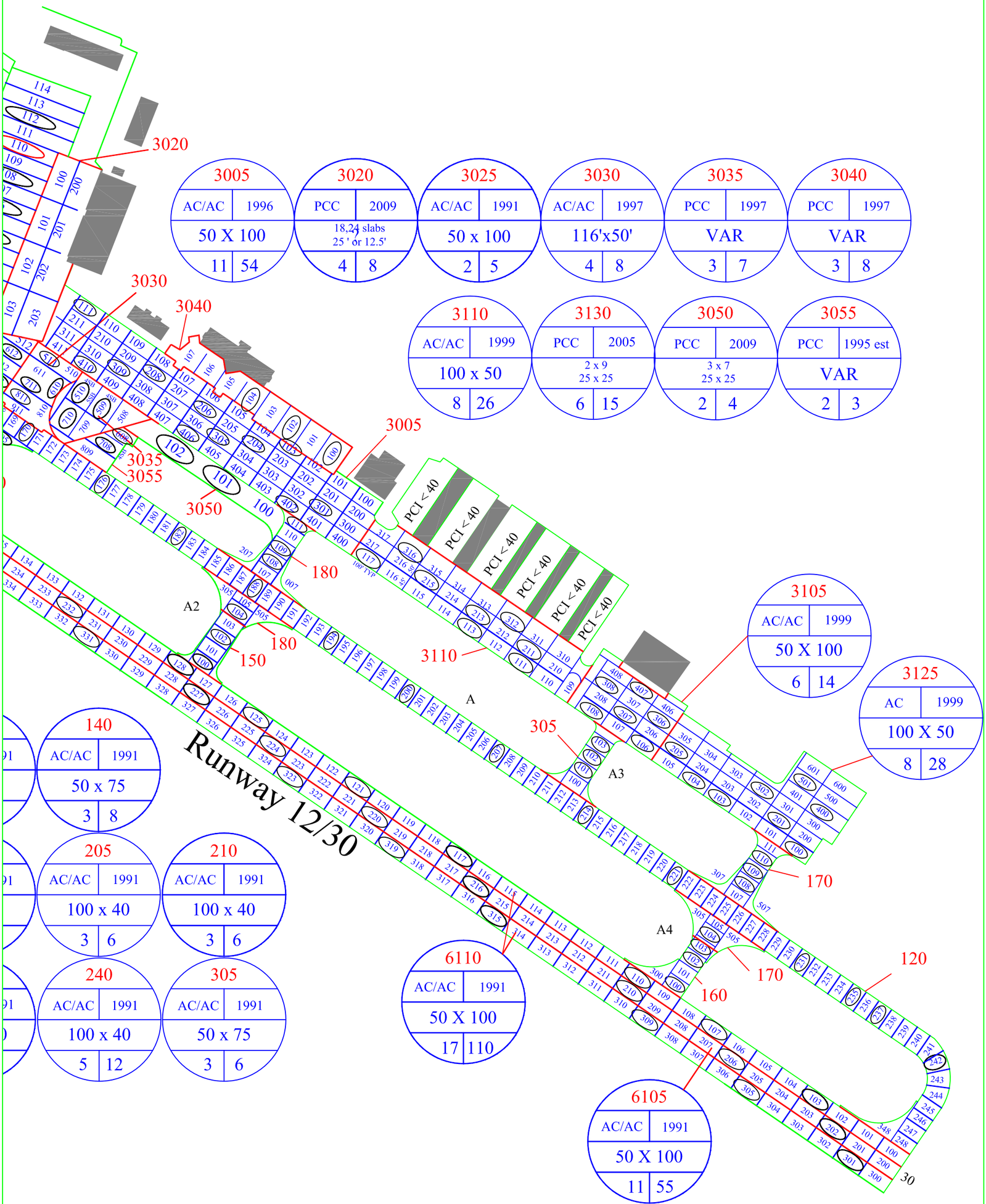


Rev.	Description	By
	2012 REVISIONS	AN

PCI Inspection Map

Indiana Dept. of Transportation
Gary/Chicago Regional Airport - GYY
Gary, Indiana 121.9

Applied Research Associates, Inc.



Indiana Dept. of Transportation
Gary/Chicago Regional Airport - GYY
Gary, Indiana

PCI Inspection Map

Rev.	Description	By
	2012 REVISIONS	AN

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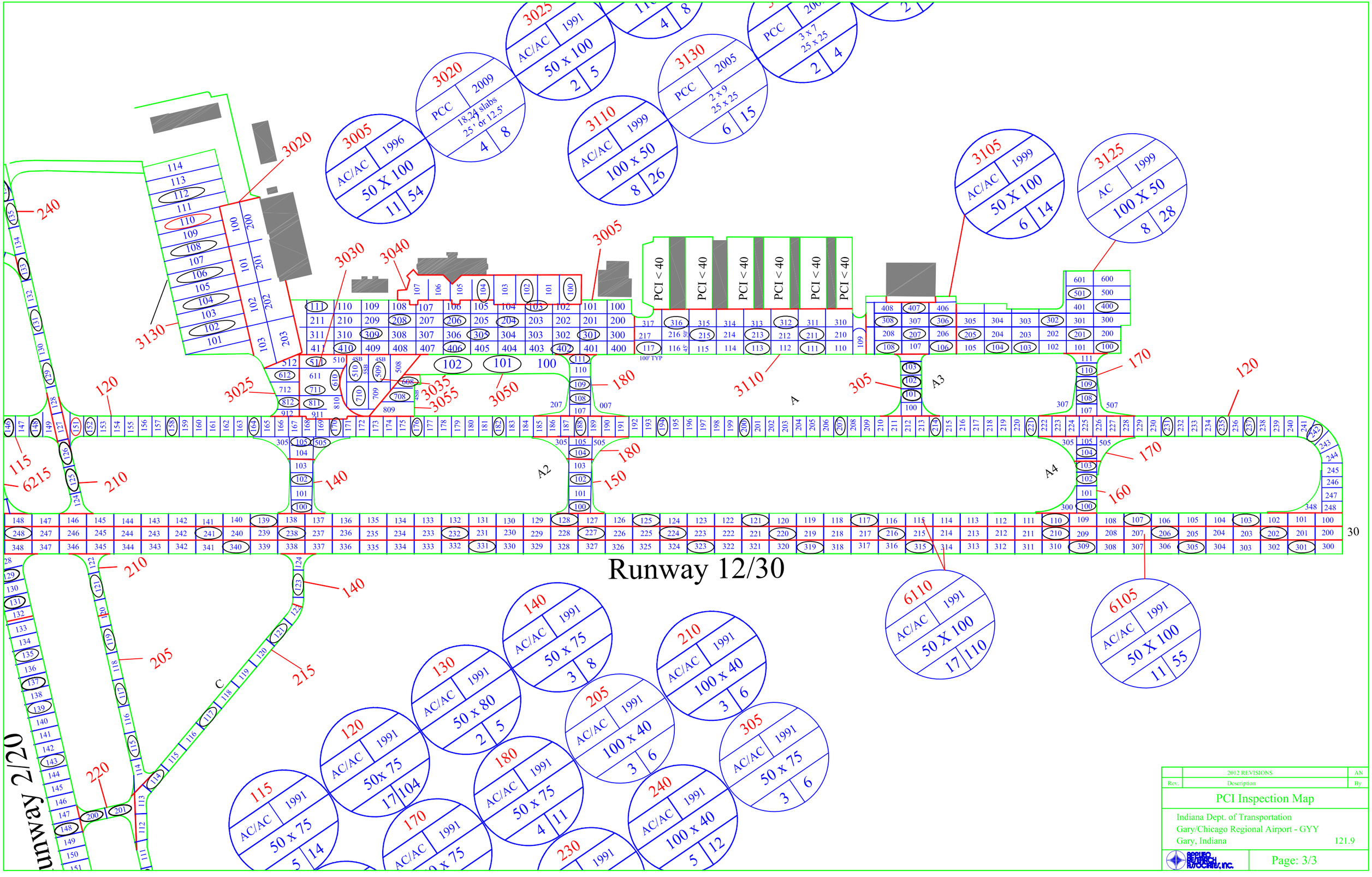
3020
PCC
2009
18,24 slabs
25' or 12.5'
4
8
3025
AC/AC
1991
50 x 100
2
5
3130
PCC
2005
2 x 9
25 x 25
6
15
3005
AC/AC
1996
50 X 100
11
54
3110
AC/AC
1999
100 x 50
8
26
3105
AC/AC
1999
50 X 100
6
14
3125
AC
1999
100 X 50
8
28
PCC
3 x 7
25 x 25
2
4
Runway 12/30
Runway 2/20
A
A2
A3
A4
C
6110
AC/AC
1991
50 X 100
17
110
6105
AC/AC
1991
50 X 100
11
55
140
AC/AC
1991
50 x 75
3
8
130
AC/AC
1991
50 x 80
2
5
120
AC/AC
1991
50x 75
17
104
115
AC/AC
1991
50 x 75
5
14
205
AC/AC
1991
100 x 40
3
6
180
AC/AC
1991
50 x 75
4
11
170
AC/AC
1991
50 x 75
210
AC/AC
1991
100 x 40
3
6
305
AC/AC
1991
50 x 75
3
6
240
AC/AC
1991
100 x 40
5
12
230
1991
PCI < 40
100' TYP
2012 REVISIONS
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Description
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PCI Inspection Map
Indiana Dept. of Transportation
Gary/Chicago Regional Airport - GYY
Gary, Indiana
121.9
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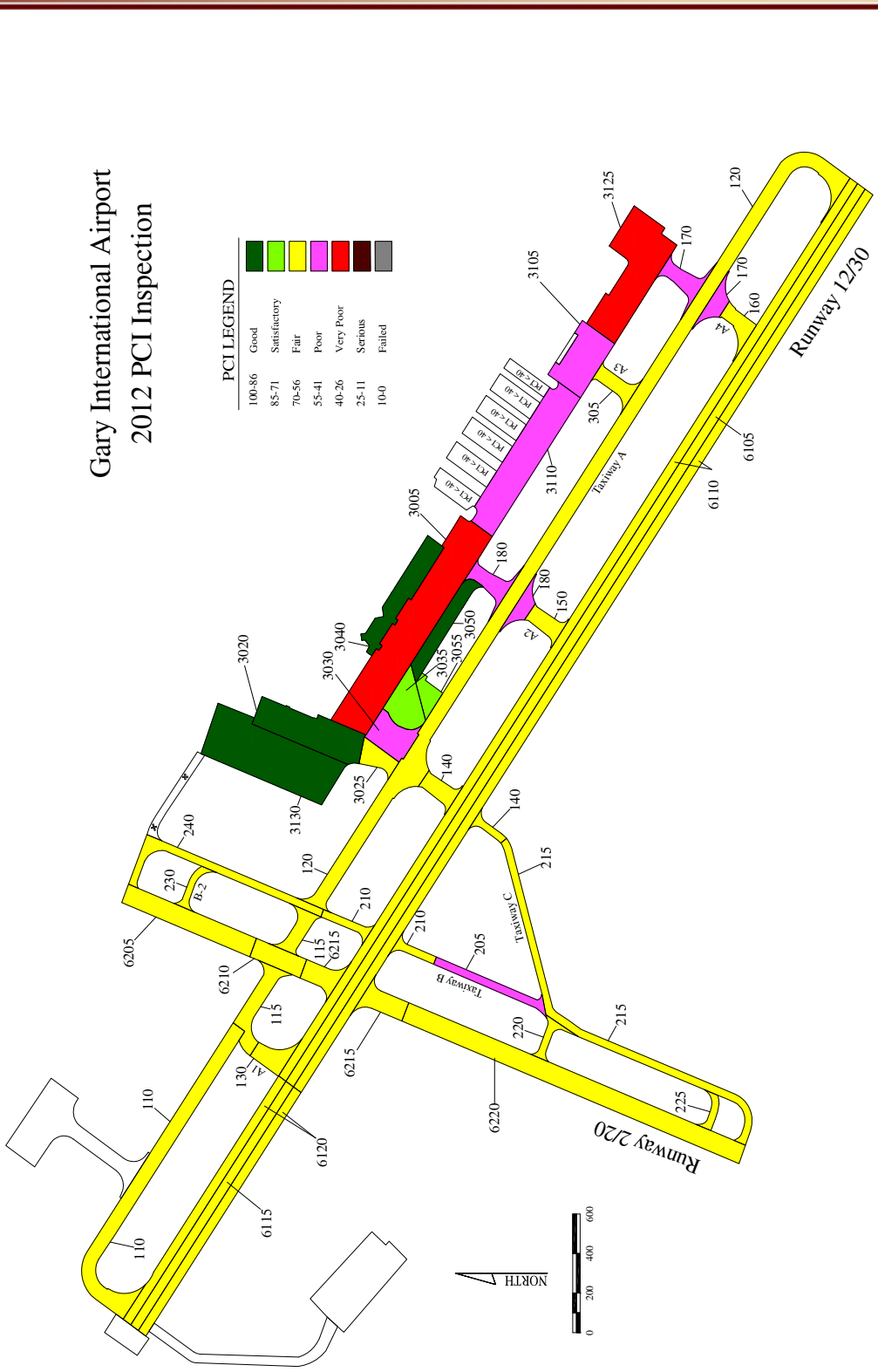
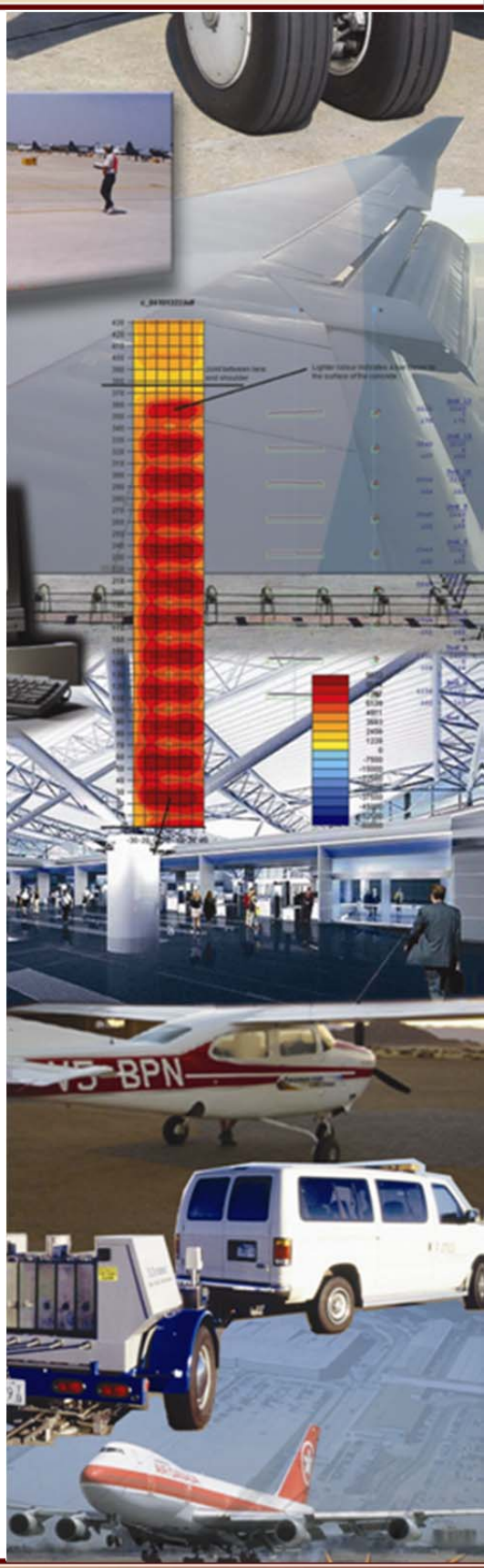

Gary International Airport
2012 PCI Inspection
PCI LEGEND
100-86 Good
85-71 Satisfactory
70-56 Fair
55-41 Poor
40-26 Very Poor
25-11 Serious
10-0 Failed
PCI<40
Runway 12/30
Runway 2/20
Taxiway A
Taxiway B
Taxiway C
A1
A2
A3
A4
B-2
NORTH
0
200
400
600


N5 BPN