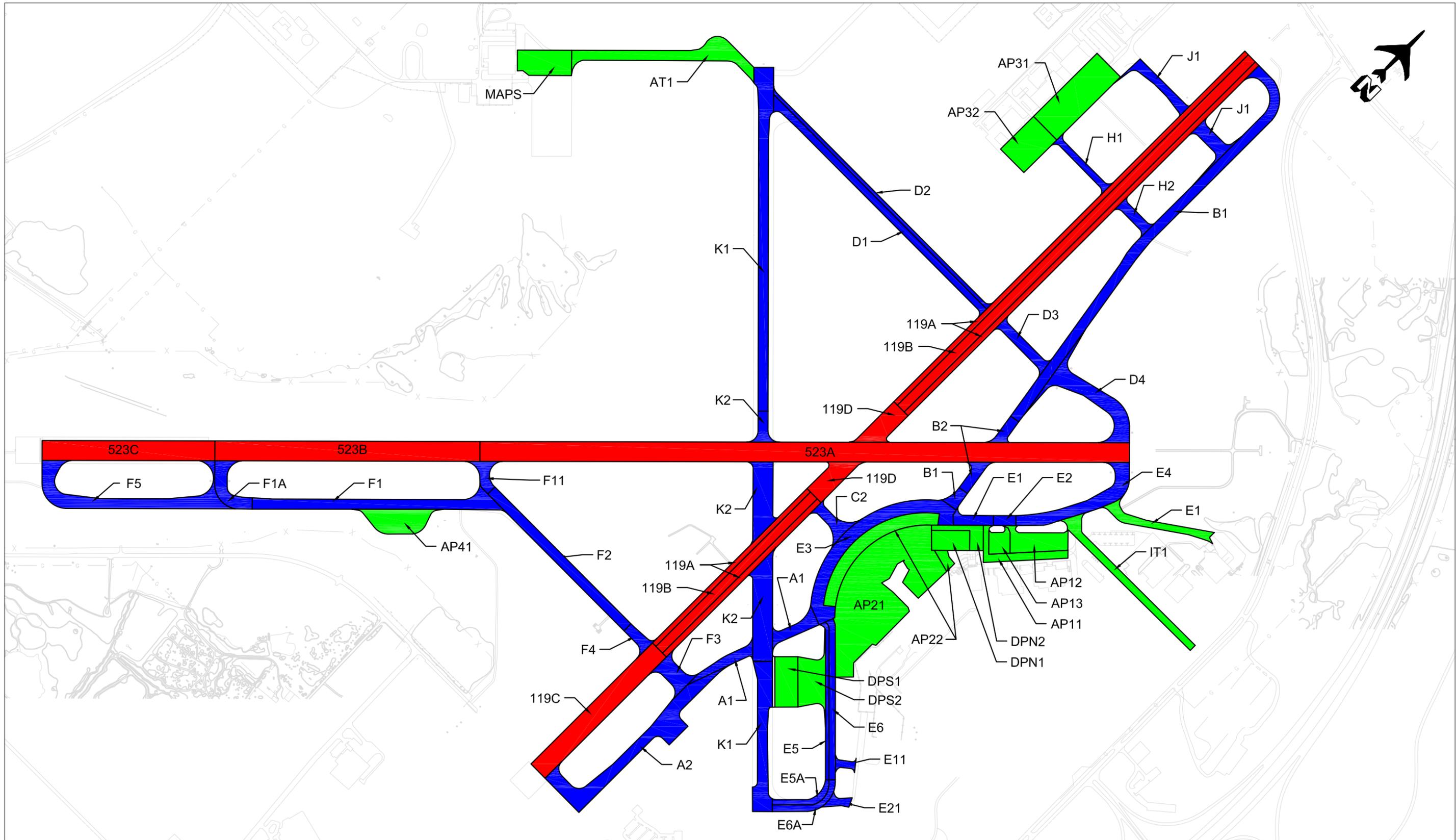


Appendix D

Airside and Landside Pavement Inventories



- RUNWAY PAVEMENT
- TAXIWAY PAVEMENT
- APRON / TAXILANE PAVEMENT

AKRON CANTON AIRPORT
PAVEMENT MANAGEMENT
AKRON CANTON AIRPORT
PAVEMENT MANAGEMENT
NETWORK

Runway 5-23

Section	Designation	Year	Pavement Section
523A	Runway 5-23	2010	2" Mill and 2" Bituminous Surface Course Overlay
		2001	2" Bituminous Surface Overlay
		1984	2" Bituminous Surface Course Partial Overlay (1,250' at intersection with Runway 1-19) on 0"-3" - Leveling Course
		1974	1-1/2" Bituminous Surface Course on 2-1/2" Leveling Course
		1966	1-1/2" Bituminous Surface Course Overlay
		1945	2" Bituminous Surface Course on 9" Crushed Aggregate Base on 8" Granular Aggregate Subbase
523B	Runway 5-23	2010	2" Mill and 2" Bituminous Surface Course Overlay
		2001	2" Bituminous Surface Overlay
		1987	4" Bituminous Surface Course on 3" Bituminous Base Course
		1987	4" Bituminous Surface Course on 19" Aggregate Base Course
523C	Runway 5-23	2010	4" Bituminous Surface Course on 7" Bituminous Base Course on 21" Crushed Aggregate Subbase

Runway 1-19

Section	Designation	Year	Pavement Section
119A	Runway 1-19	2010	2" Mill and 2" Bituminous Surface Course Overlay
		2002	Seal Coat
		2000	2" Bituminous Surface Course Overlay on 1/2"-3" Leveling Course
		1984	2" Bituminous Surface Course on 0"-3" Leveling Course
		1945	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 10" Granular Aggregate Subbase
119B	Runway 1-19	2010	2" Mill and 2" Bituminous Surface Course Overlay
		2002	Seal Coat
		1984	2" Bituminous Surface Course on 0"-3" Leveling Course
		1978	2" Mill and 2" Bituminous Surface Course Overlay of Keel
		1945	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 10" Granular Aggregate Subbase
119C	Runway 1-19	2010	2" Mill and 2" Bituminous Surface Course Overlay
		2002	8" Bituminous Surface Course on 8" Crushed Aggregate Base on 23" Crushed Aggregate Subbase
119D	Runway 1-19	2010	2" Mill and 2" Bituminous Surface Course Overlay
		2002	Seal Coat
		2001	2" Bituminous Overlay (with Ruway 5-23)
		1984	2" Bituminous Surface Course on 0"-3" Leveling Course
		1978	2" Mill and 2" Bituminous Surface Course Overlay of Keel
		1945	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 10" Granular Aggregate Subbase

Taxiway A			
Section	Designation	Year	Pavement Section
A1	Taxiway A	2000	2" Bituminous Surface Course Overlay on 1/2"-3" Leveling Course
		1962	3" Bituminous Surface Course Overlay
		1945	2" or 2-1/2" Bituminous Surface Course on 9" Crushed Aggregate Base Course on 12" Granular Subbase Course
A2	Taxiway A	2002	8" Bituminous Surface Course on 8" Crushed Aggregate Base Course on 23" Crushed Aggregate Subbase

Taxiway B			
Section	Designation	Year	Pavement Section
B1	Taxiway B	2000	2" Bituminous Surface Course Overlay on 1/2"-3" Leveling Course
		1962	3" Bituminous Surface Course Overlay
		1945	2" or 2-1/2" Bituminous Surface Course on 9" Crushed Aggregate Base Course on 12" Granular Subbase Course
B2	Taxiway B	2001	2" Bituminous Surface Course Overlay (with Runway 5-23)
		2000	2" Bituminous Surface Course Overlay on 1/2"-3" Leveling Course
		1962	3" Bituminous Surface Course Overlay
		1945	2" or 2-1/2" Bituminous Surface Course on 9" Crushed Aggregate Base Course on 12" Granular Subbase Course

Taxiway C			
Section	Designation	Year	Pavement Section
C2	Taxiway C	2010	2"-17" Bituminous Surface Course Overlay
		2002	8" Bituminous Surface Course on 8" Crushed Aggregate Base Course on 23" Crushed Aggregate Subbase Course
		1984	2" Bituminous Surface Course on 0"-3" Leveling Course
		1962	3" Bituminous Surface Course Overlay
		1945	2" or 2-1/2" Bituminous Surface Course on 9" Crushed Aggregate Base Course on 12" Granular Subbase Course

Taxiway D			
Section	Designation	Year	Pavement Section
D1	Taxiway D	2012	4" Mill and 4" Bituminous Surface Course Overlay
		1978	4" Bituminous Surface Course Overlay
		1945	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 12" Granular Aggregate Subbase
D2	Taxiway D	2012	4" Mill and 4" Bituminous Surface Course Overlay
		1978	Taxiway D Widened 4" Bituminous Surface Course on 10" Crushed Aggregate Base Course on 10" Granular Subbase Course
D3	Taxiway D	1962	3" Bituminous Surface Course Overlay
		1945	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 12" Granular Aggregate Subbase
D4	Taxiway D	2010	4" Bituminous Surface Course on 7" Bituminous Base Course on 21" Grannular Subbase Course

Taxiway E			
Section	Designation	Year	Pavement Section
E1	Taxiway E	2010	2" Mill and 2" Bituminous Surface Course Overlay
		1993	2" Bituminous Surface Course on 3" Bituminous Base Course on Leveling Course
		1978	1-1/2" Bituminous Surface Course on 1-1/2" Leveling Course Overlay
		1945	2" Bituminous Surface Course on 3" Bituminous Base Course on 9" Crushed Aggregate Base on 12" Granular Aggregate Subbase
E2	Taxiway E	1993	2" Bituminous Surface Course on 3" Bituminous Base Course on Leveling Course
		1945	2" Bituminous Surface Course on 3" Bituminous Base Course on 9" Crushed Aggregate Base on 12" Granular Aggregate Subbase
		2013	3" Mill and 3" Bituminous Overlay
E3	Taxiway E	1987	4" Bituminous Surface Course on 7" Bituminous Base Course on 19" Grannular Subbase Course
		1945	2" Bituminous Surface Course on 9" Crushed Aggregate Base on 12" Granular Aggregate Subbase
E4	Taxiway E	2010	4" Bituminous Surface Course on 7" Bituminous Base Course on 21" Grannular Subbase Course
E6	Taxiway E	2013	4" Mill and 4" Bituminous Surface Overlay
		1978	Taxiway Widened 4" Bituminous Surface Course on 10" Crushed Aggregate Base Course on 17" Subbase Course
E6A	Taxiway E	2012	4" Mill and 4" Bituminous Surface Overlay
		1978	Taxiway Widened 4" Bituminous Surface Course on 10" Crushed Aggregate Base Course on 17" Subbase Course
		2013	4" Mill and 4" Bituminous Surface Overlay

E5	Taxiway E	1978	4" Bituminous Surface Course Overlay
		1945	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 12" Granular Aggregate Subbase

Taxiway E (cont.)

Section	Designation	Year	Pavement Section
E5A	Taxiway E	2012	4" Mill and 4" Bituminous Surface Overlay
		1978	4" Bituminous Surface Course Overlay
		1945	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 12" Granular Aggregate Subbase
E11	Taxiway E	1996	2" Bituminous Surface Course on 3" Bituminous Base Course on 6" Crushed Aggregate Base Course on 9" Subbase Course
		1967	Original Construction (Section Unknown)
E21	Taxiway E	1996	2" Bituminous Surface Course on 3" Bituminous Base Course on 6" Crushed Aggregate Base Course on 9" Subbase Course
		1967	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 12" Granular Aggregate Subbase

Taxiway F

Section	Designation	Year	Pavement Section
F1	Taxiway F	2001	2" Bituminous Surface Course Overlay
		1987	4" Bituminous Surface Course on 3" Bituminous Base Course
		1987	4" Bituminous Base Course on 19" Aggregate Base Course
F1A	Taxiway F	2010	2" Mill and 2" Bituminous Surface Course Overlay
		2001	2" Bituminous Surface Course Overlay
		1987	4" Bituminous Surface Course on 3" Bituminous Base Course
		1987	4" Bituminous Base Course on 19" Aggregate Base Course

Taxiway F (cont.)

Section	Designation	Year	Pavement Section
F2	Taxiway F	2001	2" Bituminous Surface Course Overlay
		1984	2" Bituminous Surface Course on 0"-3" Leveling Course
		1945	2" or 2-1/2" Bituminous Surface Course on 9" Crushed Aggregate Base Course on 12" Granular Subbase Course
F3	Taxiway F	2002	2" Bituminous Surface Course Overlay
		2000	2" Bituminous Surface Course on 1/2"-3" Leveling Course
		1962	3" Bituminous Surface Course Overlay
		1945	2" or 2-1/2" Bituminous Surface Course on 9" Crushed Aggregate Base Course on 12" Granular Subbase Course
F4	Taxiway F	2000	2" Bituminous Surface Course on 1/2"-3" Leveling Course
		1984	2" Bituminous Surface Course on 0"-3" Leveling Course
		1945	2" or 2-1/2" Bituminous Surface Course on 9" Crushed Aggregate Base Course on 12" Granular Subbase Course
F5	Taxiway F	2010	4" Bituminous Surface Course on 7" Bituminous Base Course on 21" Crushed Aggregate Subbase Course

Taxiway H			
Section	Designation	Year	Pavement Section
H1	Taxiway H	1997	2" Bituminous Surface Course on 3" Bituminous Base Course
		1978	4" Bituminous Surface Course on 14" Crushed Aggregate Base Course
H2	Taxiway H	2000	2" Bituminous Surface Course on 1/2"-3" Leveling Course
		1962	3" Bituminous Surface Course Overlay
		1945	2" or 2-1/2" Bituminous Surface Course on 9" Crushed Aggregate Base Course on 12" Granular Subbase Course

Taxiway J			
Section	Designation	Year	Pavement Section
J1	Taxiway J	2002	8" Bituminous Surface Course on 8" Crushed Aggregate Base Course on 23" Crushed Aggregate Base Course

Taxiway K			
Section	Designation	Year	Pavement Section
K1	Taxiway K	2012	6" Mill and 6" Bituminous Surface Course Overlay (Width reduced to 75')
		2004	Seal Coat
		1984	2" Bituminous Surface Course Partial Overlay (900' at Runway 1-19 intersection) on 0"-3" Leveling Course
		1978	4" Bituminous Surface Course Overlay
		1945	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 8" Granular Aggregate Subbase
K2	Taxiway K	2010	2" Mill and 2" Bituminous Surface Course Overlay
		2004	Seal Coat
		2001	Overlay (with Runway 5-23)
		1984	2" Bituminous Surface Course Partial Overlay (900' at Runway 1-19 intersection) on 0"-3" Leveling Course
		1978	4" Bituminous Surface Course Overlay
		1945	4" Bituminous Surface Course on 9" Crushed Aggregate Base on 8" Granular Aggregate Subbase

Taxilane E			
Section	Designation	Year	Pavement Section
E1	Taxilane E	2010	4" Bituminous Surface Course on 7" Bituminous Base Course on 21" Crushed Aggregate Subbase

Access Taxiway

Section	Designation	Year	Pavement Section
AT1	Access Taxiway	1993	4" Bituminous Surface Course Overlay
		1945	6" Bituminous Surface Course on 6" Limestone Base Course on 12" Granular Subbase

Inner Taxiway

Section	Designation	Year	Pavement Section
IT1	Inner Taxiway	1993	3" Bituminous Surface Course Overlay
		1945	Original Construction (Section Unknown)

Apron 1

Section	Designation	Year	Pavement Section
AP11	Apron 1	1997	Seal Coat
		1992	3" Bituminous Surface Course Overlay
		1945	3" Bituminous Surface Course on Crushed Aggregate Base Course
AP12	Apron 1	1997	Seal Coat
		1992	5" Bituminous Surface Course Overlay
		1967	2" Bituminous Surface Course on 6" Bituminous Base Course on 4" Subbase Course
AP13	Apron 1	1997	Seal Coat
		1994	2" Bituminous Surface Course on 3" Bituminous Base Course on 12" Crushed Aggregate Base Course

Apron 2			
Section	Designation	Year	Pavement Section
AP21	Apron 2	1989-1993	16" Portland Cement Concrete on 8" Aggregate Subbase
AP22	Apron 2	1987	4" Bituminous Surface Course on 7" Bituminous Base Course on 19" Granular Subbase Course
		1945	2" Bituminous Surface Course on 9" Crushed Aggregate Base on 12" Granular Aggregate Subbase

Apron 3			
Section	Designation	Year	Pavement Section
AP31	Apron 3	2012	4" Mill and 4" Bituminous Surface Course Overlay
		1997	Seal Coat
		1978	4" Bituminous Surface Course on 14" Crushed Aggregate Base Course
AP32	Apron 3	1997	Seal Coat
		1995	4" Bituminous Surface Course on 6" Crushed Aggregate Base Course on 18" Granular Subbase Course

Apron 4			
Section	Designation	Year	Pavement Section
AP41	Apron 4	2010	4" Bituminous Surface Course on 7" Bituminous Base Course on 21" Crushed Aggregate Subbase

North Deice Pad			
Section	Designation	Year	Pavement Section
DPN1	North Deice Pad	2008	12" Portland Cement Concrete on 6" Bituminous Base Course on 8" Subbase Course
DPN2	North Deice Pad	2008	2" Bituminous Surface Course on 4" Bituminous Base Course on 8" Crushed Aggregate Base Course on 12" Subbase Course

South Deice Pad

Section	Designation	Year	Pavement Section
DPS1	South Deice Pad	2005	12" Portland Cement Concrete on 6" Bituminous Base Course on 8" Subbase Course
DPS2	South Deice Pad	2013	4" Bituminous Surface Course on 5" Bituminous Base Course on 18" Crushed Aggregate Base Course
		2005	2" Bituminous Surface Course on 4" Bituminous Base Course on 8" Crushed Aggregate Base Course on 12" Subbase Course
DPS3	South Deice Pad	2013	12" Portland Cement Concrete on 6" Bituminous Base Course on 18" Subbase Course

Landside Airfield Pavement Condition

Akron Canton Airport (CAK) did not have an existing pavement management program for the Landside Pavement areas. Therefore, an evaluation of those pavements was conducted to establish a Pavement Condition Index (PCI), a measurement of the structural integrity of the existing pavement.

The specific objectives of the condition survey were:

- To determine the present functional condition of the Landside Pavement system in terms of operational surface condition;
- To provide a common index for comparing the condition and performance of pavements, using the Pavement Condition Index (PCI); and
- To provide supporting information to support the prioritization and justification of pavement rehabilitation projects.

Methodology

The Pavement Condition Index (PCI) is a measurement of the structural integrity of the existing pavement based on a visual analysis of the primary distress manifestations (i.e., cracking and deformation). The Landside Pavement inspection was done over the course of six (6) days from January 24 to January 31, 2012. The assessment procedure is not a 100% inspection, but rather a systematic approach for completing an assessment of a portion of the pavement to provide an overall representative pavement condition.

The landside pavement areas were first identified then categorized and separated by usage type. The landside pavement area Network is separated into Branches which are divided into Sections. The sections were then measured and divided into units based on the overall section dimension and a determination of a reasonable unit size that would yield a representative assessment of the pavement condition. Typically, roadway and parking area units range in size from 1,000 to 3,000 square feet, depending on the width and length of the roadway or parking section. The number of units for each section determines the number of inspection units with total number of units inspected ranging from 100% for Sections with a single unit to 10% for Sections with 40 or more units. For each inspection unit, the existing pavement distresses were quantified and input to MicroPAVER 6.1 software to calculate the PCI for each pavement section. This pavement distress condition rating procedure is the process developed by the U.S. Army Corps of Engineers and the process adopted as the standard procedure by the Federal Aviation Administration.

Since CAK did not have an existing Landside Pavement Management Program, the nomenclature and pavement categorization had to be developed before the inspection. The landside pavement area usages are mainly roadway and parking. The roadway usages are for the entrance to and the exit from the airport terminal area and the parking areas as well as the roadways to airport hangars, private businesses and airport facilities.

The roads were separated based on the area served by the roadway and the direction of traffic on the roadway where both are required. An example of the roadway nomenclature is CAK Terminal (Network), Center Rd (Branch), EB-Mid (Section) which stands for eastbound middle.

The parking areas were separated by position or by construction phase when visibly apparent. An example of the parking area nomenclature is CAK Terminal, Parking, South #1 where CAK Terminal is the Network ID, Parking is the Branch ID and South #1 is the Section ID which stands for the first parking lot on the south side of the landside area.

Results

The PCI is based on the quantities and severity of a number of distinct distress types commonly found in roadway and parking pavements. After all distresses for each sample unit are measured and catalogued, the data is entered into the Micro-PAVER™ computer program, and the PCI is computed as a numerical rating index from 0 to 100, with a PCI of 100 being a pavement in “excellent” condition. The PCI rating schedule with subjective description is shown on the following page:

<u>PCI RANGE</u>	<u>PAVEMENT CONDITION</u>
86 – 100	Excellent
71 – 85	Very Good
56 – 70	Good
41 – 55	Fair
26 – 40	Poor
11 – 25	Very Poor
0 – 10	Failed

The landside pavement PCI values range from “Very Poor” (PCI = 19) to “Excellent” (PCI = 100). Most of the landside roadways are in Fair to Poor condition and most of the parking areas are in Poor to Very Poor condition. Table 1 and Figures 1 - 5 summarize the results of the PCI analysis. The exceptions are the Westbound Entrance Roads (Good condition), the Short-Term Parking Area (Very Good condition) and the newly constructed parking areas (Excellent condition).

Recommendations

While there are no specific rules or guidance regarding minimum PCI levels for roadway and parking pavements, the PCI should be maintained at a level sufficient to provide safe and reliable service. This requires integration of the following considerations in the evaluation process:

- Pavement condition should be sufficient to preclude damage to vehicles.
- All cracks should be sealed to prevent raveling and to prevent water intrusion from weakening the pavement system.
- Accumulation of load induced distress can indicate the onset of a rapid decrease in serviceability.
- Continued maintenance and recurring distress patterns can affect the reliability of the operational surface and result in increased rehabilitation costs and decreased operational efficiency.
- Studies of pavement life cycles and costs indicate that below certain levels, pavement condition and serviceability will decrease rapidly, affecting future rehabilitation costs. In other words, pavement performance does not necessarily degrade linearly. Deferral of scheduled rehabilitation for several years can result in a two to three fold increase in repair costs.

Recognizing these and other factors, military and civil pavement engineering experts have generally agreed that for primary facilities at airports (e.g., main runways, taxiways, and aprons), the PCI should be maintained above 70. However, vehicles using landside pavements are not as sensitive to pavement conditions as aircraft. Therefore, rehabilitating and maintaining pavements to achieve a PCI of at least 56 has been identified as the objective of this Landside Pavement Management Program.

In general, the required pavement management activities for landside pavements are as follows:

<u>PCI RANGE</u>	<u>PAVEMENT CONDITION</u>
86 – 100	Routine Maintenance
71 – 85	Preventative Maintenance
56 – 70	Corrective Maintenance/Rehabilitation
41 – 55	Rehabilitation/Reconstruction
26 – 40	Rehabilitation/Reconstruction
11 – 25	Reconstruction
0 – 10	Reconstruction

As the Master Planning process continues and with the upcoming selection of a Consultant for the Design of the Airport Entrance Road Reconstruction, the near term recommended actions for the Landside Pavements are:

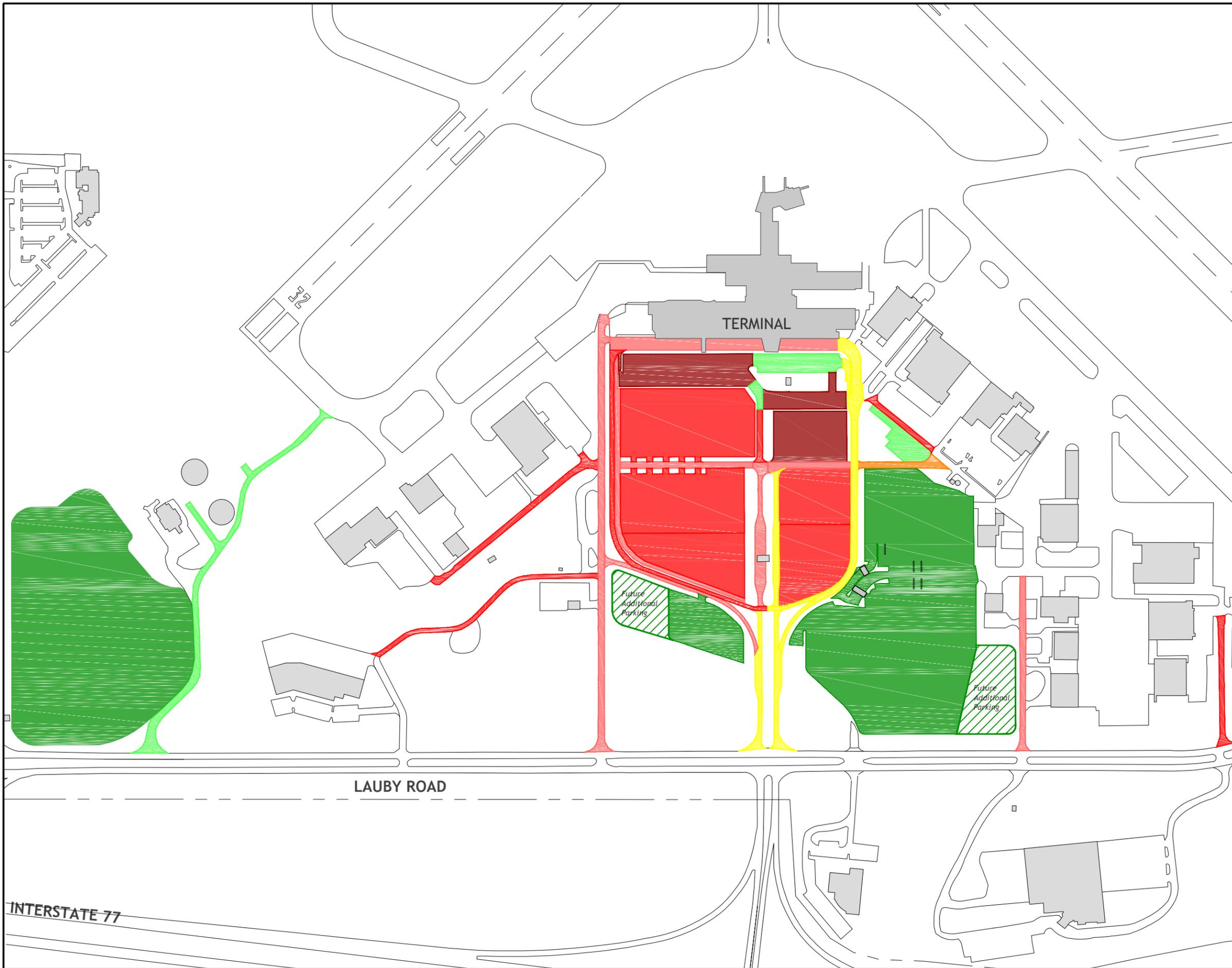
1. Repair any significant defects (e.g., large potholes) that could result in damage to private vehicles;
2. Prioritize roadway sections based on the Master Plan and importance to the public using the airport; and
3. Select the highest priority sections for more detailed inspections to obtain information necessary to develop appropriate maintenance and repair projects and cost estimates.

TABLE 1: CAK LANDSIDE PAVEMENT CONDITION INDEX

Network ID	Branch ID	Section ID	Inspection Date	SURFACE	PCI	PCI Category	Constructed /last Rehab
CAK_R	CenterRd	EB_LOW	1/30/2012	APC	64	Good	
CAK_R	CenterRd	EB_MID	1/30/2012	APC	47	Fair	
CAK_R	CenterRd	SHORT TERM	1/30/2012	APC	71	Very Good	
CAK_R	CenterRd	TERMINAL	1/30/2012	APC	52	Fair	
CAK_R	CenterRd	WB_LOW	1/30/2012	APC	61	Good	
CAK_R	CenterRd	WB_MID_P	1/30/2012	APC	56	Good	
CAK_R	CenterRd	WB_MID_T	1/30/2012	APC	61	Good	
CAK_R	CenterRd	WB_TOP_P	1/30/2012	APC	34	Poor	
CAK_R	CenterRd	WB_TOP_T	1/30/2012	APC	66	Good	
CAK_R	Deicing Rd	Service Rd	1/31/2012	APC	83	Very Good	
CAK_R	EastBound	EB_RETURN	1/31/2012	APC	32	Poor	
CAK_R	EastBound	SIDE ENTRY	1/31/2012	APC	41	Fair	
CAK_R	Good Year	GoodYear	1/31/2012	APC	36	Poor	
CAK_R	Hangar1	Rental_R	1/31/2012	APC	43	Fair	
CAK_R	Hanger2	H2_Rd	1/31/2012	APC	48	Fair	
CAK_R	Hanger3	H3_Road	1/31/2012	APC	35	Poor	
CAK_R	Parking_N	North_1	1/31/2012	PCC	83	Very Good	
CAK_R	Parking_N	North_2	1/31/2012	APC	23	Very Poor	
CAK_R	Parking_N	North_3	1/31/2012	APC	24	Very Poor	
CAK_R	Parking_N	North_4	1/31/2012	APC	35	Poor	
CAK_R	Parking_N	North_5	1/31/2012	APC	38	Poor	
CAK_R	Parking_N	North_6	1/31/2012	APC	100	Excellent	Current Const.
CAK_R	Parking_N	ServiceRd	1/31/2012	APC	44	Fair	
CAK_R	Parking_S	ServiceRd1	1/31/2012	APC	44	Fair	
CAK_R	Parking_S	ServiceRd2	1/31/2012	APC	41	Fair	
CAK_R	Parking_S	South_1	1/31/2012	APC	20	Very Poor	
CAK_R	Parking_S	South_2	1/31/2012	APC	34	Poor	
CAK_R	Parking_S	South_3	1/31/2012	APC	36	Poor	
CAK_R	Parking_S	South_4	1/31/2012	APC	39	Poor	
CAK_R	Parking_S	South_5	1/31/2012	APC	100	Excellent	Current Const.
CAK_R	Rental	Facility	1/31/2012	APC	38	Poor	
CAK_R	US Air	Drive1	1/31/2012	APC	28	Poor	
CAK_R	US Air	Drive2	1/31/2012	APC	19	Very Poor	
CAK_R	US Air	Parking	1/31/2012	APC	77	Very Good	
CAK_R	WAirDr	Drive_1	1/31/2012	APC	70	Good	
CAK_R	WAirDr	Drive_2	1/31/2012	APC	59	Good	



MASTER PLAN UPDATE May 2013



PCI*	COLOR
0-10 (Failed)	Grey
10-25 (Very Poor)	Dark Red
26-40 (Poor)	Red
41-55 (Fair)	Light Red
56-70 (Good)	Yellow
71-85 (Very Good)	Light Green
86-100 (Excellent)	Dark Green

* Pavement Condition Index

Note: See Figures 2 through 5 for location and limits of specific pavement sections



Figure 1
Landside Pavement Conditions

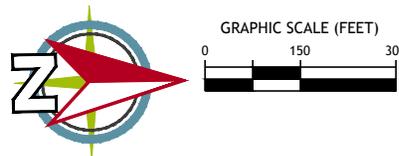
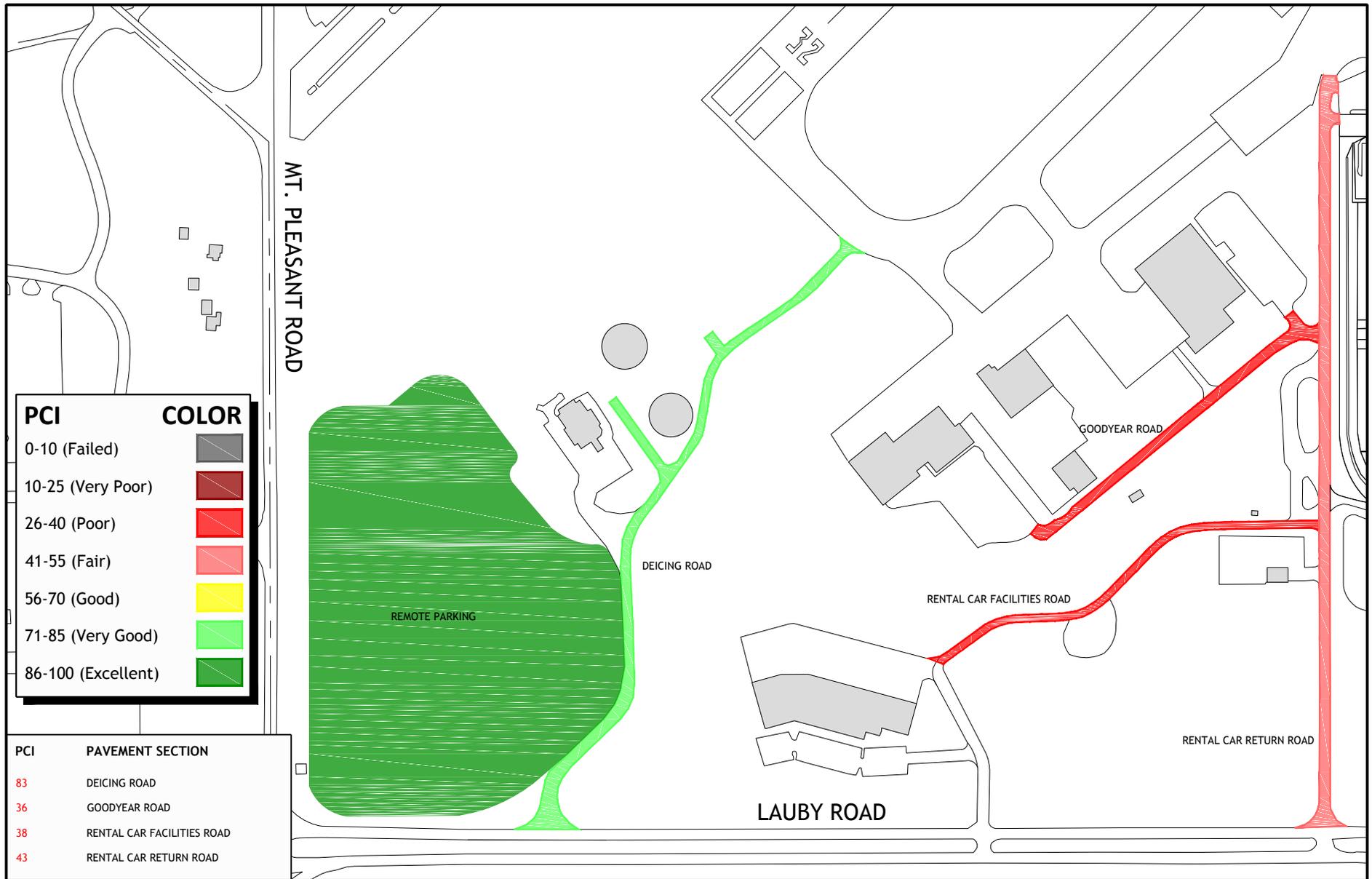


Figure 2
Service Road Pavement Sections, South

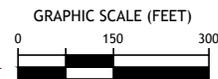
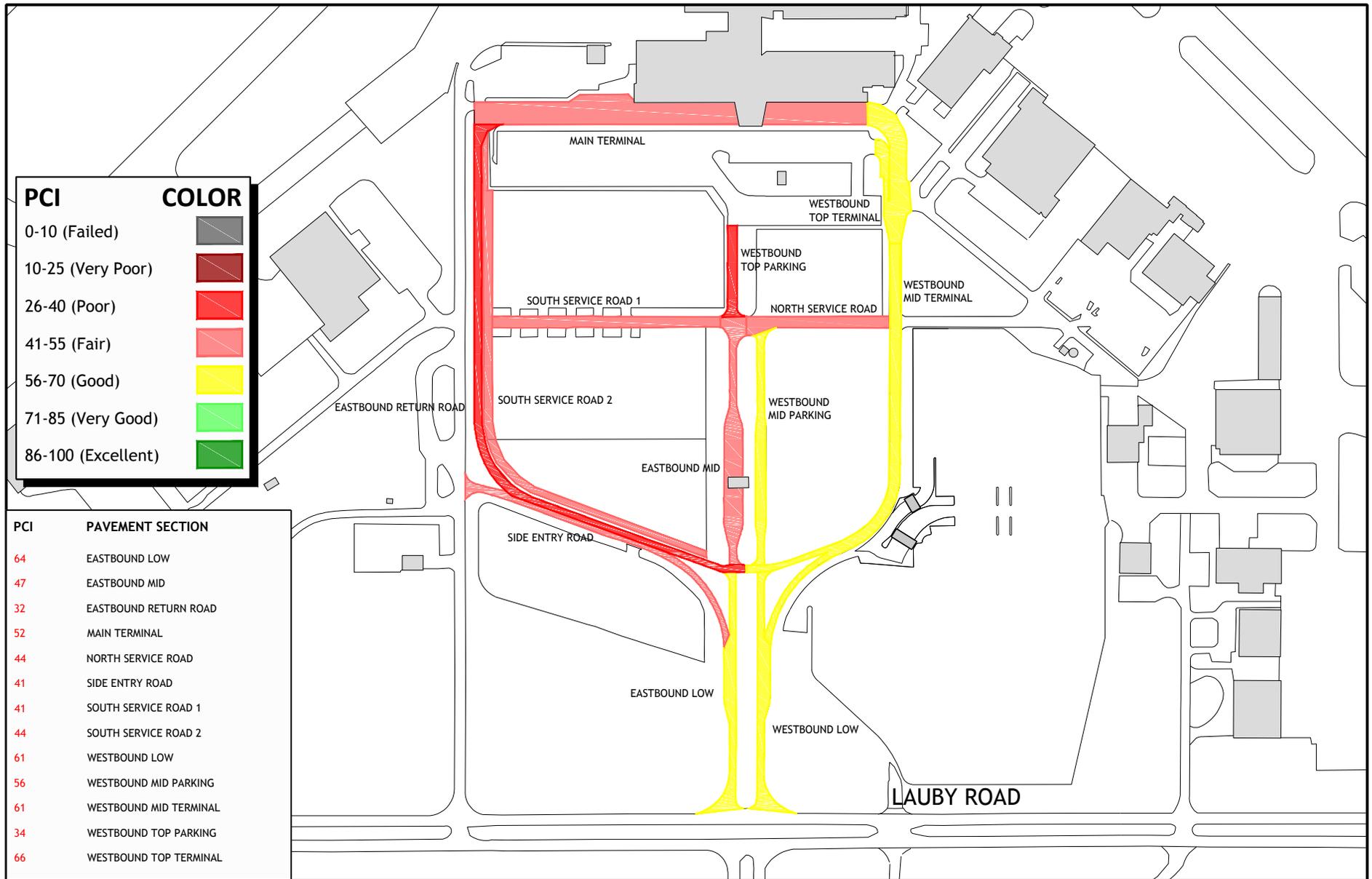


Figure 3
Service Road Pavement Sections, Terminal Building

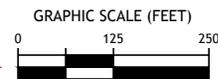
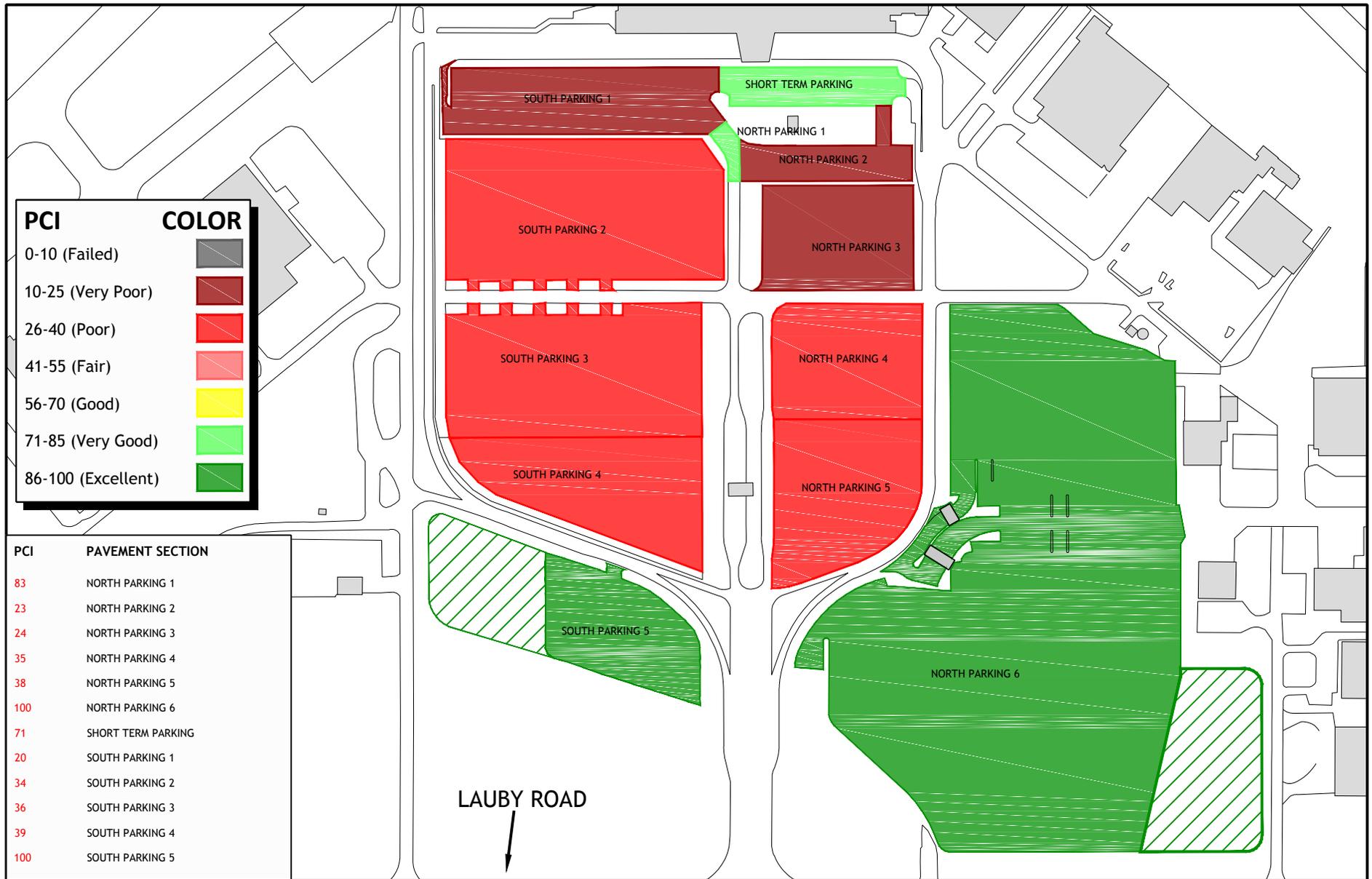


Figure 4
Parking Pavement Sections

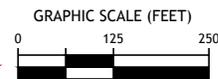
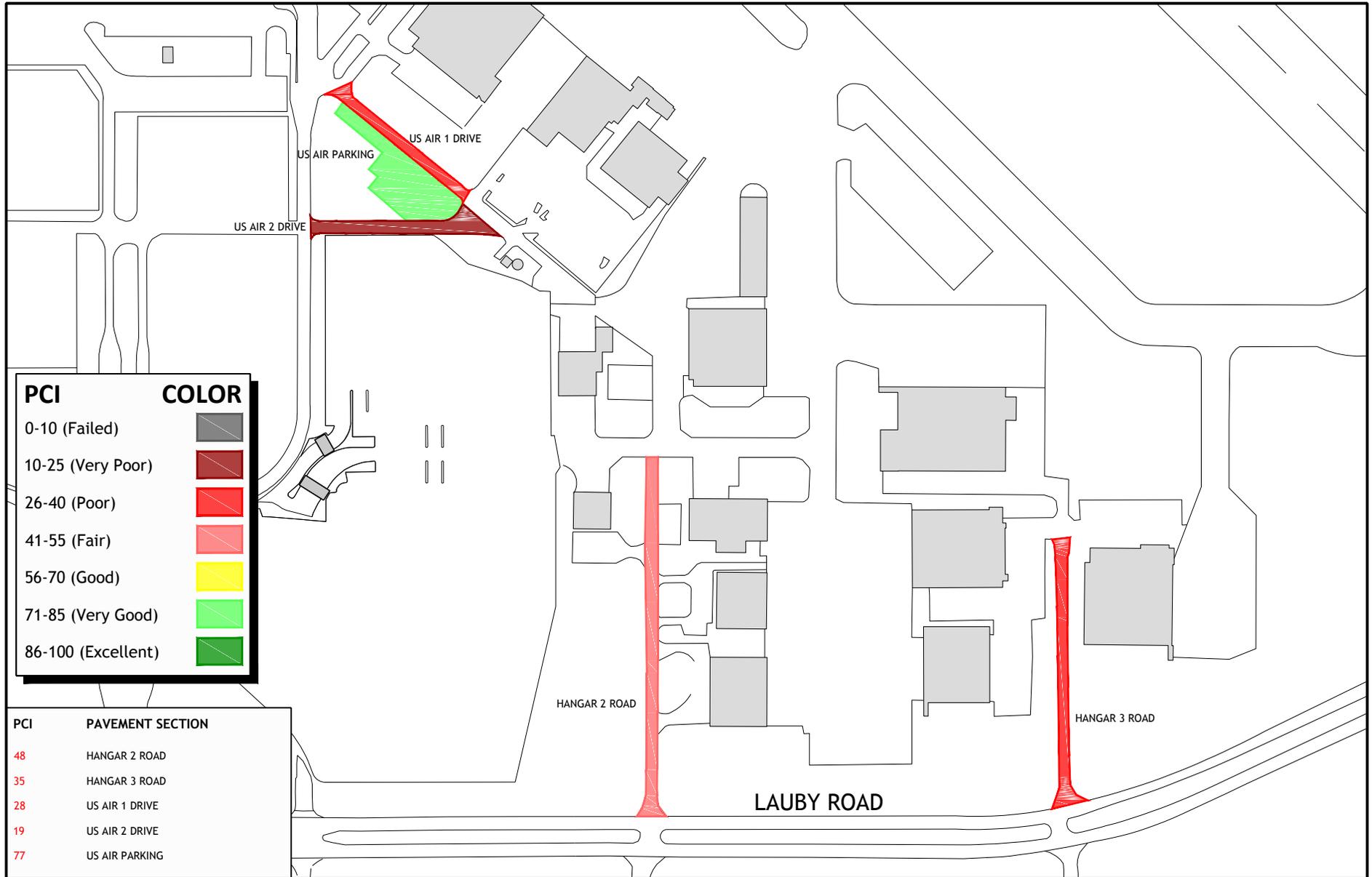


Figure 5
Service Road Pavement Sections, North