

GREENVILLE-SPARTANBURG INTERNATIONAL AIRPORT



DECEMBER 2019
APPENDICES



McFarland Johnson

GREENVILLE-SPARTANBURG INTERNATIONAL AIRPORT



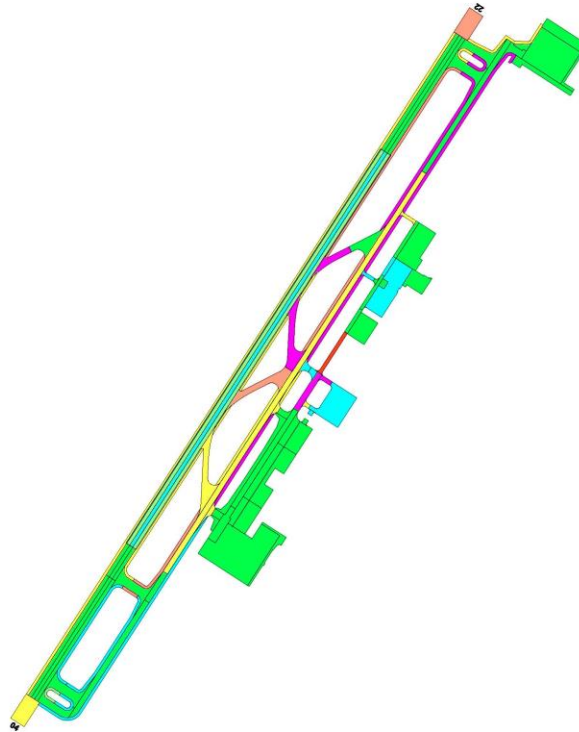
DECEMBER 2019
AIRPORT MASTER PLAN UPDATE
APPENDIX A: PAVEMENT MANAGEMENT PLAN



McFarland Johnson



GREENVILLE-SPARTANBURG AIRPORT DISTRICT



GREENVILLE-SPARTANBURG INTERNATIONAL AIRPORT (GSP)

AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

Executive Summary
Volume 1 of 2 – Summary Report
Volume 2 of 2 - Appendices

AUGUST 2018

Prepared By



AVCON, Inc.

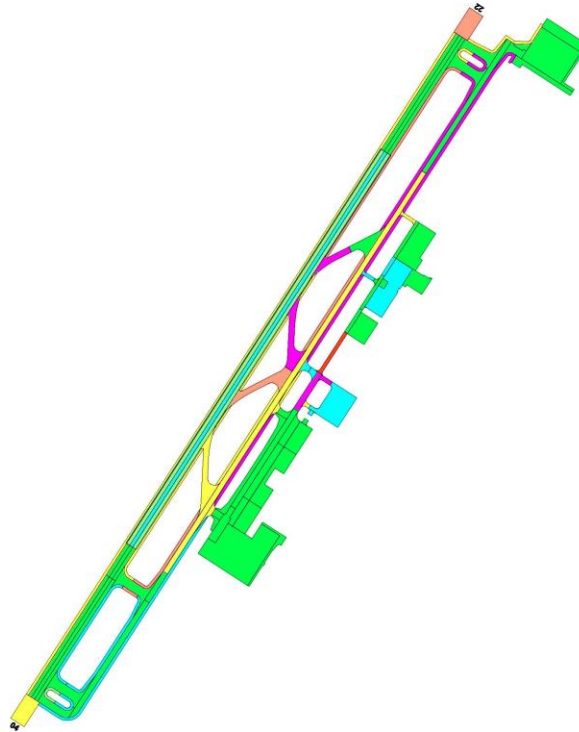
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GREENVILLE-SPARTANBURG INTERNATIONAL AIRPORT (GSP)

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AUGUST 2018

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In Association With



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EXECUTIVE SUMMARY

E.1 EXECUTIVE SUMMARY

In 2017, McFarland Johnson selected AVCON, Inc. to prepare the Pavement Management Plan (PMP) Update for Greenville Spartanburg International Airport (GSP). The PMP, also known as an Airfield Pavement Management System (APMS) for airside pavements is included in the Master Plan Update prepared by McFarland Johnson. The complete PMP includes the following components:

- Nondestructive Testing for Airside Pavements
- Visual Pavement Inspections
- PCN Computation
- Structural Evaluation
- Rehabilitation Recommendations
- Evaluation Report

This report contains the data gathered in the field and its analysis, rehabilitation recommendations, approximate cost estimates, and pertinent tables, figures and exhibits to support the aforementioned components. To accurately evaluate the airfield pavement condition, AVCON performed a Pavement Condition Index (PCI) survey inspection at GSP in June 2017. The PCI survey inspection is regulated by the FAA Advisory Circular 150/5380-7B *Airport Pavement Management Program (PMP)* and ASTM D5340-12 “*Standard Test Method for Airport Pavement Condition Index Surveys*”.

During the field inspection, qualified inspectors assessed the pavement condition in accordance with ASTM D5340-12, recording specific pavement distresses and their respective severity level. The use of MicroPaver software converts the number and severity of all distresses to a single PCI value for each pavement sample and section, ranging from 0 (failed) to 100 (excellent). The PCI analysis provides an indication of the degree of maintenance, repair, or rehabilitation efforts that will be required to sustain functional airfield pavement. Relative to PCI, functional pavement is represented by a PCI value greater than 40 and the critical PCI value to engage major rehabilitation is established as 70 for runways and 65 for taxiways and aprons. **Figure E.1** visually identifies the pavement areas and their area-weighted PCI values. **Table E.1** lists the area-weighted PCI values by branch for the entire airfield and highlights the pavement sections with an area-weighted PCI value below the critical PCI value established for that specific use of pavement. Further discussion on the PCI values and PCI forecast can be found in **Chapter 3**.

The overall area-weighted PCI for GSP is 81, indicating the pavements are generally in very good condition.

Runway 4 PCC pavement in excellent shape with no major pavement distresses (right)



Branch ID	Use	Area (SF)	Weighted Average PCI
RW04	Runway	1,650,000	87
BP	Overrun	176,000	62
ACARGON	Apron	518,176	94
ACARGOS	Apron	546,129	93
AGEN	Apron	556,391	92
AITIN	Apron	200,434	71
ATERM	Apron	465,289	100
FS	Apron	8,076	82
TL01	Taxilane	314,446	90
TL02	Taxilane	110,125	79
TWA	Taxiway	50,053	99
TWB	Taxiway	81,551	98
TWC	Taxiway	85,241	98
TWCARGO	Taxiway	49,399	93
TWD	Taxiway	107,176	68
TWE	Taxiway	100,487	58
TWF	Taxiway	100,487	49
TWG	Taxiway	107,026	77
TWJ	Taxiway	82,457	98
TWK	Taxiway	70,383	99
TWL	Taxiway	842,818	76
TWL2	Taxiway	41,980	85
TWL3	Taxiway	26,818	83
TWL4	Taxiway	26,657	73
TWL5	Taxiway	11,828	82
TWL6	Taxiway	11,403	56
SHRW04	Shoulder	741,091	67
SHTWC	Shoulder	8,503	55
SHTWK	Shoulder	46,553	66
SHTWL	Shoulder	731,472	58

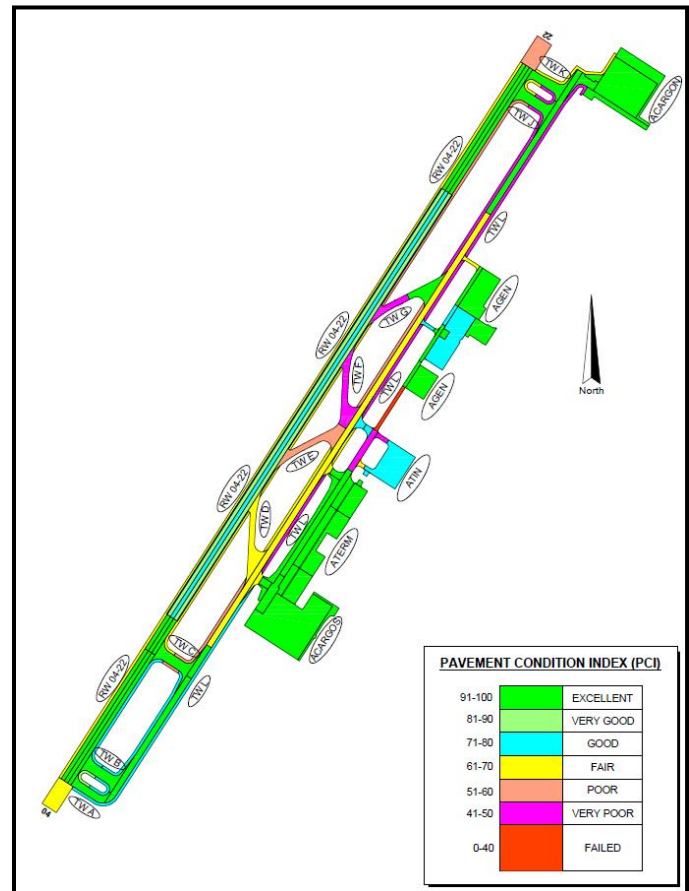


Figure E.1 – Pavement Condition Index (PCI) Rating Map

Table E.1 – Area-Weighted Average PCI

In addition to the PCI analysis, AVCON also performed an analysis of the structural capacity of the existing pavement structures and an analysis of the current and forecast fleet mix utilizing the airfield. **Figure E.2** visually identifies the pavement areas with structural capacity concerns. **Table E.2** lists the pavement sections that have been identified as having from a structural remaining life less than 20 years and highlights pavement sections that may require weight or traffic restrictions. Further discussion of the remaining life analysis can be found in **Chapter 4**.

Branch ID	Section ID	Surface Type	Structural Remaining Life (Years)
RW04	10, 20, 30, 40, 50, 60	PCC	3.2
	100, 110, 120	PCC	5
TL02	10, 30	PCC	0
	15	PCC	0.1
TWA	10	PCC	3.4
TWB	10	PCC	1.4
TWC	10	PCC	8.7
TWCARGO	10	PCC	0.6
TWJ	10	PCC	1.5
TWK	10	PCC	1.6
TWL	10, 20	PCC	1.1
	40	PCC	0.3
TWL2	10	AAC	11.3
	20	PCC	5.6
TWL3	10	AAC	18.4
	20	PCC	6.5
TWL5	20	PCC	0.2
TWL6	10	AC	0
ACARGON	10, 30	PCC	2.4
	20	PCC	0.3
ACARGOS	20	PCC	0.5
AGEN	10, 20, 30, 40	PCC	0
AITIN	30	PCC	0
FS	10, 20	PCC	0

Table E.2 – Pavement Sections with Structural Remaining Life <20 years

The existing pavement sections, in conjunction with estimated subgrade strengths and fleet mix/annual operations, for each respective pavement branch identified several areas at GSP to monitor or rehabilitate over the near term if structural deficiencies propagate at increased rates.

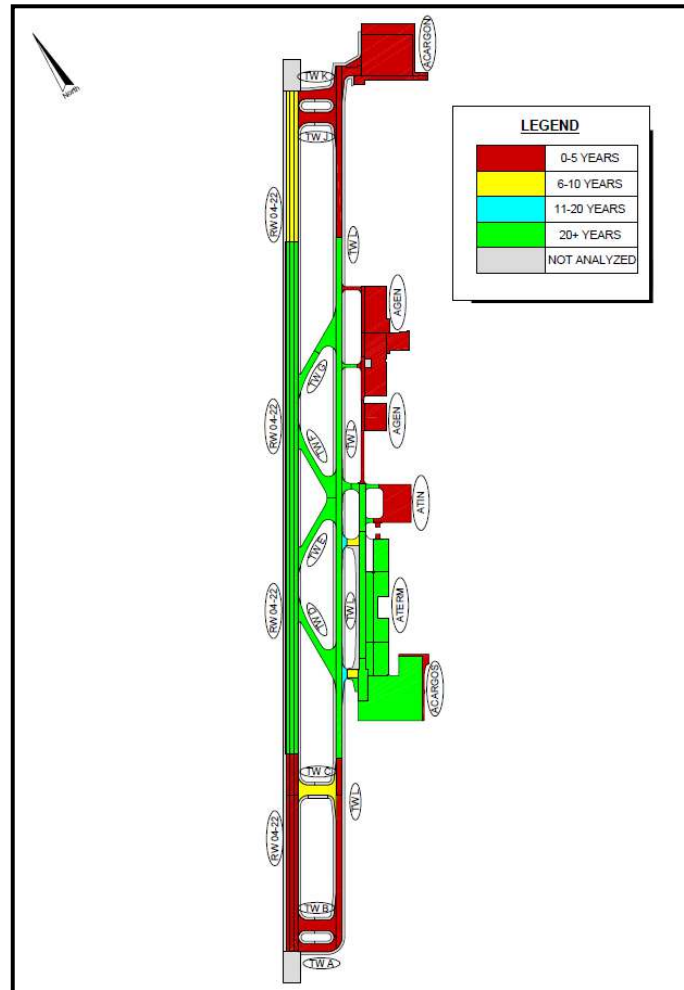


Figure E.2 – Structural Remaining Life Map

There are several components that are considered in the priority matrix for the development of the Airfield Pavement Capital Improvements Program (CIP). The PCI values and Structural Remaining Life are only two variables in the matrix. Other variables may include the PCN value, criticality of a pavement branch and its section use, the need to rehab contiguous sections in a project, the need to make other planning related changes to meet new geometric pavement design criteria and safety initiatives, the associated lighting or drainage impacts a project may have, and of course the availability and the ability to secure sufficient funding to perform the recommended rehabilitation. Some of these variables in the matrix can be quantified, and where known items existed and could be conceptually estimated with either a lump sum rough order of magnitude figure or a relative percentage of pavement costs. Major ongoing airfield planning efforts and future landside developments have not been considered in the development of the estimated project costs.

AVCON developed a five-year CIP based on the various variables. For planning purposes, cost estimates were generated for each major rehabilitation project. **Table E.3** lists the proposed CIP rehabilitation projects and their associated estimated project costs. **Figure E.3** identifies the approximate CIP project areas and construction years and costs. Further discussion on the rehabilitation projects and their respective costs can be found in **Chapter 6** and **Appendix J**. A Maintenance Plan, as found in **Appendix K**, was also developed for near-term needs on higher severity distresses and totaled an estimated \$850,000.

Priority	Design Year	Construction Year	Project Description	Total Construction Cost	Total Project Cost
1	2019	2020	Taxiway L & High Speed Taxiways Rehabilitation <i>Mill and overlay 4" on Taxiways D & G, mill and overlay 2" on Taxiway L, Taxiways L2 through L4, and shoulders and full depth reconstruction of Taxiways L5 & L6. Remove Taxiways E & F</i>	\$ 7,845,000	\$ 11,300,000
2	2020	2021	Localized PCC Repairs and Joint Sealing - 3 Phases <i>Perform localized PCC repairs and rout, clean and seal joints on PCC portions of the South Cargo Apron, North Cargo Apron, and General Aviation</i>	\$ 1,982,000	\$ 2,900,000
3	2021	2022	Runway 04-22 Asphalt Rehabilitation <i>Mill and overlay 2" Runway, Shoulders, and Blast Pad</i>	\$ 6,689,000	\$ 9,700,000
4	2022	2023	Localized PCC Repairs and Joint Sealing <i>Perform localized PCC repairs and rout, clean, and seal joints on PCC portions of Runway 04-22 and Taxiways A, B, C, J, K & L</i>	\$ 1,470,000	\$ 2,200,000
5	2023	2024	Reconstruct Itinerant Apron <i>Full depth reconstruction on Itinerant Apron, Fire Station Apron and adjacent portion of Taxilane 2</i>	\$ 9,564,000	\$ 13,800,000
Total Five-Year Cost				\$ 27,550,000	\$ 39,900,000

Table E.3 – Capital Improvement Plan (CIP) Summary

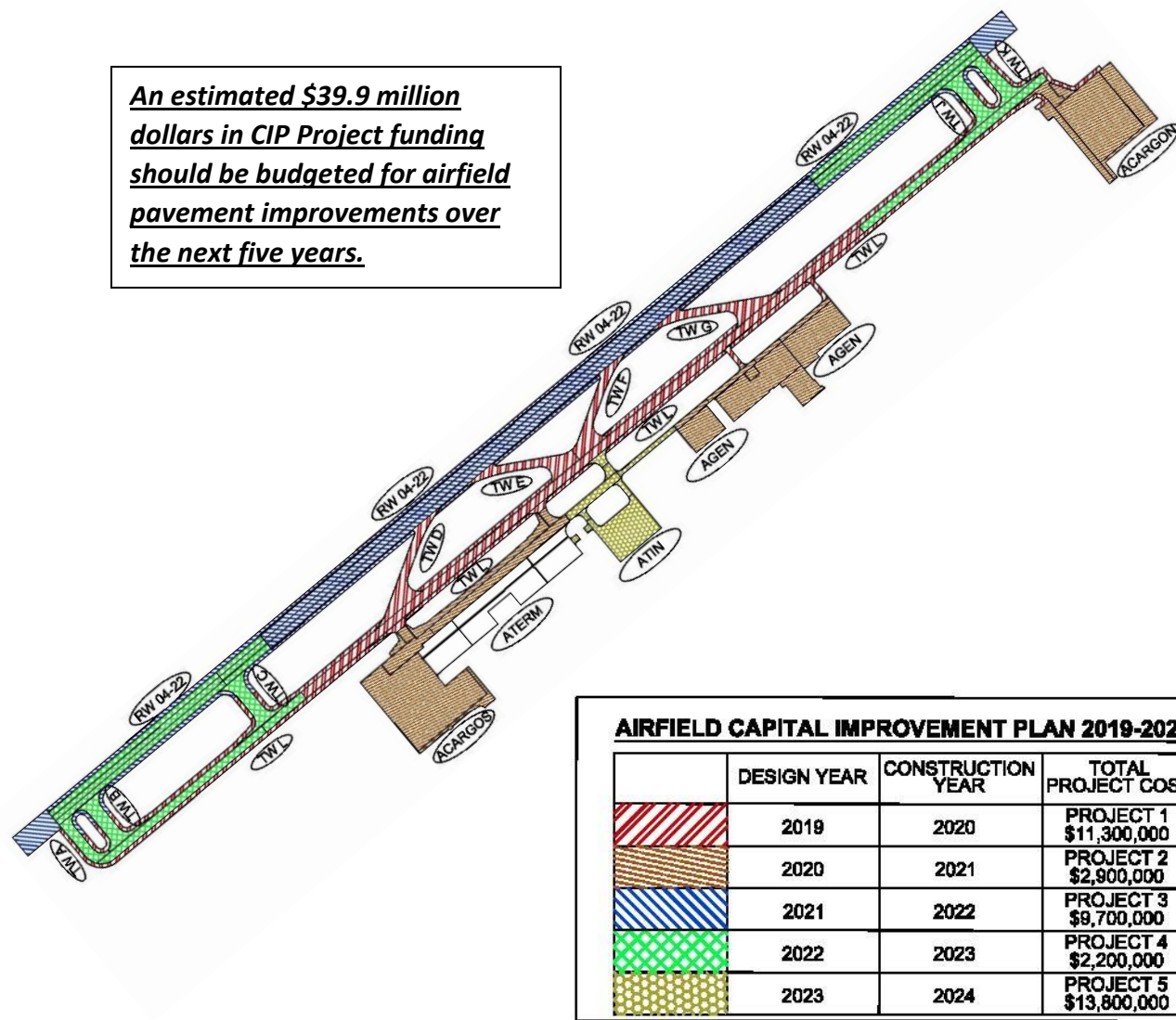
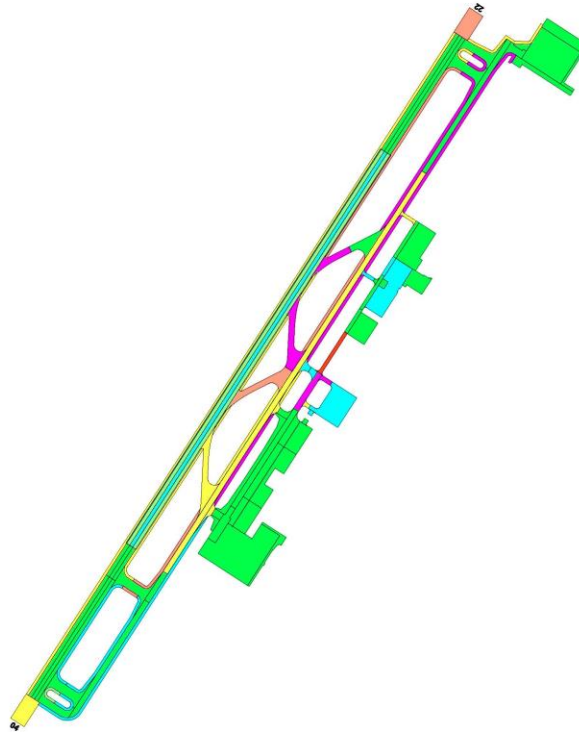


Figure E.3 – GSP Capital Improvement Plan Map

The PMP is the elemental in the planning and budgeting of airfield pavement maintenance and rehabilitation efforts. The information in this document is for planning purposes only and is intended to aid the GSAC in maintaining and enhancing the overall operation and performance of the airfield pavements at GSP. The continual updating (every 3-5 years) of this document is necessary to extract the true value in the planning process.



GREENVILLE-SPARTANBURG AIRPORT DISTRICT



GREENVILLE-SPARTANBURG INTERNATIONAL AIRPORT (GSP)

AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

Volume 1 of 2
Summary Report

AUGUST 2018

Prepared By



AVCON, Inc.

In Association With



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CHAPTER 1: INTRODUCTION



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

CHAPTER 1 – INTRODUCTION

1.1 PROJECT OVERVIEW

From its inception in 1962, Greenville-Spartanburg International Airport (GSP), located in Greer, South Carolina, has grown to be the center of transportation for the upstate of South Carolina. GSP has maintained a steady growth throughout the last few years and is determined to meet the growing air transportation needs of South Carolina, and the southeastern United States. GSP is included in the Federal Aviation Administration (FAA) National Plan of Integrated Airport Systems for 2017-2021.

Given that GSP is the second busiest airport in South Carolina, serving over 2.1 million annual passengers in 2017, the Airport plays a critical role in the regional transportation system. Due to this constant demand on the Airport's facilities, pavement closures and other such service interruptions have a considerable impact on all Airport users. As a result, it is essential that the Airport keep airfield pavement surfaces in satisfactory operational condition at all times and maintain a program capable of timely detection and repair of deteriorating pavements that may diminish the Airport's performance. In addition, current FAA and South Carolina Department of Transportation (SCDOT) funding and grant conditions require that recipients of Federal and State grants subscribe to a progressive and continuing pavement management process in order to protect the long-term investment in capital airfield projects. Throughout the industry, such a program is known as a Pavement Management Program (PMP) or Airport Pavement Management System (APMS).

An APMS offers several benefits, including:

- ➔ Providing an objective and consistent evaluation of the condition of a network of pavements;
- ➔ Presenting a systematic and documentable engineering basis for determining maintenance and rehabilitation needs;
- ➔ Identifying budget requirements necessary to maintain pavements at various levels of serviceability;
- ➔ Documenting the present and future projected condition of the pavements in a network; and
- ➔ Identifying the impact on the pavement network as a result of performing no repairs.

1.2 PROJECT BACKGROUND

AVCON has teamed with Dynatest to evaluate the pavements at GSP and update the Airport's APMS. This APMS report provides an updated baseline validation of the pavements and specific guidance toward necessary maintenance activities as they pertain to the airfield systems at GSP. In order to facilitate the proactive management of the pavements at GSP, as well as provide a consistent framework from which to address the rate of change in pavement conditions, the APMS Update has been made an important part of the Master Plan Update.

A key component of an APMS Update is to identify rehabilitation/construction projects completed since the previous study (Statewide Airfield Pavement Management System Update, prepared by Kimley Horn and Associates, 2016) and update the network definition map accordingly. For the 2017 update, minor revisions to the network map were necessary. Extensive rehabilitation efforts have been completed on the air carrier terminal apron, which altered the respective pavement structures thus impacting the network definition map.

Another vital element of the APMS is a physical pavement inspection which is done in accordance with ASTM D5340-12 "Standard Test Method for Airport Pavement Condition Index Surveys." Most airside pavement sections were re-surveyed and assessed using the Pavement Condition Index (PCI) procedure – the industry standard in aviation for visually assessing the condition of pavements. During a PCI inspection, qualified engineers and technicians identify signs of deterioration on the surface of the pavement called distresses. The type, severity, and amount of distresses present in a pavement are documented during the pavement survey.

The results of the survey are entered in a computer pavement management database (MicroPAVER) and used to develop a composite index (PCI number). The PCI number represents the overall condition of the pavement in numerical terms, ranging from 0 (failed) to 100 (excellent), and is an indication of the level of maintenance or rehabilitation work that will be required to maintain or repair the pavement. This number also helps provide an objective means of prioritizing, scheduling, and budgeting pavement rehabilitation work. Further, the individual distress information, such as cracking or rutting, provides insight into what may be causing the pavement to deteriorate. These factors can then be used to program the appropriate maintenance or rehabilitation action to correct the problem.

Finally, the findings from the various field evaluation and data analysis activities are collectively considered in the development of a 5-Year Airfield Capital Improvement Program (CIP) for GSP. The 5-year outlook provides a budgeting tool to estimate the required resources and a timeframe in anticipation of large construction projects.

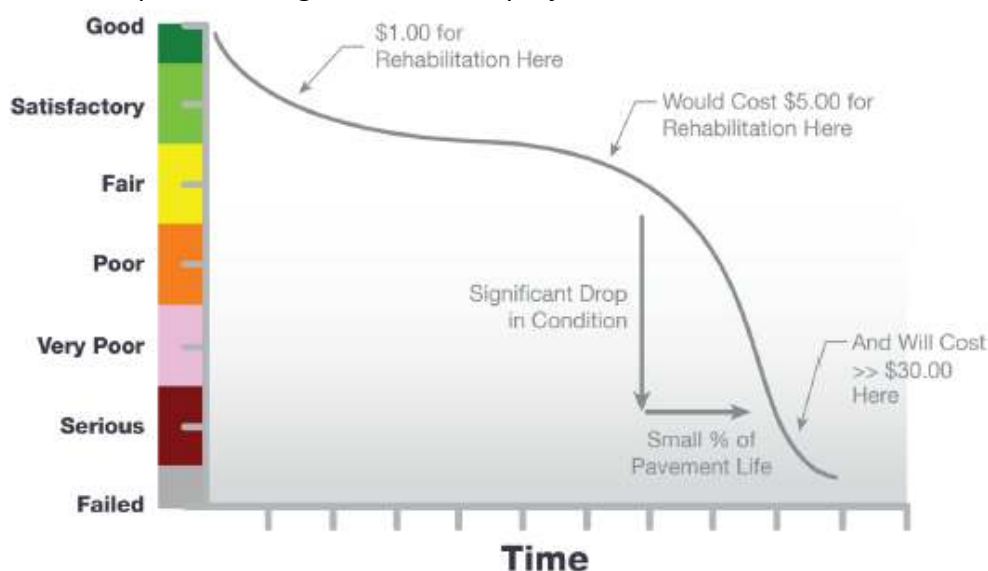


Figure 1.1 - Typical Pavement Condition Life Cycle

Figure is for conceptual purposes – unit costs are not specific to airfield pavements (AC vs PCC)

Figure 1-1 depicts the typical pavement condition life cycle, which is based on the FAA Advisory Circular 150/5380-7B “*Airport Pavement Management Program (PMP)*.” This figure depicts the increasing costs associated with maintaining or rehabbing as the pavement ages. Good preventative maintenance in the early stages of a pavement’s life is often more cost effective than waiting for the pavement to fail or exhibit traditional signs of distress before performing maintenance/rehabilitation. **Figure 1-2** shows the typical pavement condition life cycle of an AC pavement that receives regular treatment beginning approximately 12 years into its life.

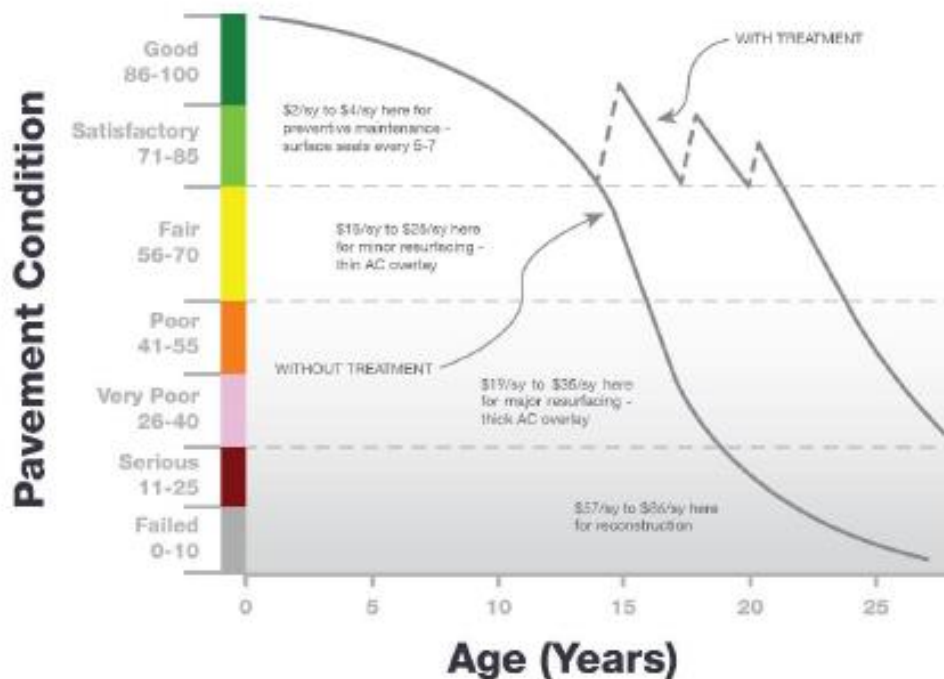


Figure 1.2 - General Pavement Treatments by Condition Range

1.3 PROJECT OBJECTIVES

The overall objectives of this study are as follows:

- ➔ Assess current airfield pavement distresses;
- ➔ Evaluate the impact of these distresses on the overall functionality of the pavements;
- ➔ Identify areas that need to be addressed both in the near future as well as long term;
- ➔ Update the existing MicroPAVER pavement management system;
- ➔ Develop an Airfield CIP for maintaining the pavements to an acceptable condition and package multiple areas into reasonable bid package projects for the District;
- ➔ Develop a Maintenance Plan to address routine airfield maintenance

1.4 PROJECT SCOPE OF WORK

The above objectives were carried out through the following tasks, which comprise the Scope of Work for this project:

- ➔ Task A – Kick-off Meeting and Project Coordination;
- ➔ Task B – Records Review;
- ➔ Task C – Update Airfield Pavement Inventory and Network Definitions;
- ➔ Task D – Incorporate Inventory and Network Definition updates into Airport's Database;
- ➔ Task E – Conduct Visual Pavement Condition Surveys and Publish PCI Results;
- ➔ Task F – Update Air Traffic Analysis, including 2017 Fleet Mix Application and New Large Aircraft (NLA);
- ➔ Task G – Update Computation of Remaining Life Analysis;
- ➔ Task H – Analyze and Tabulate Pavement Condition Numbers (PCN) per FAA Guidelines;
- ➔ Task I – Develop updates to create an Airfield CIP for a 5-year interval;
- ➔ Task J – Provide additional Site Investigation, Non-Destructive Testing and Laboratory Testing Program;
- ➔ Task K – Prepare Draft Report with Executive Summary (Technical Report and Appendices); and
- ➔ Task L – Prepare Final Report with Executive Summary (Technical Report and Appendices).

1.5 REPORT ORGANIZATION

For this update, the report will be separated into two volumes for more suitable utilization by staff. The first volume contains consolidated, results-oriented data which summarizes the project findings (Volume 1). The second volume includes appendices only and is limited to methodology, calculations, supporting data, full-sized drawings, etc., for reference (Volume 2). Below is a listing of the contents for each volume. In addition, an Executive Summary is provided as a stand-alone document.

Volume 1 – Summary Report

- ➔ Chapter 1 – Introduction
- ➔ Chapter 2 – Systems Inventory and Network Definition Update
- ➔ Chapter 3 – Pavement Condition Surveys
- ➔ Chapter 4 – Remaining Life Analysis
- ➔ Chapter 5 – Aircraft and Pavement Classification Numbers (ACN/PCN)
- ➔ Chapter 6 – Development of Airfield Capital Improvement Program (CIP)

Volume 2 - Appendices

- ➔ Appendix A – Network Definition Map
- ➔ Appendix B – Pavement Construction History
- ➔ Appendix C – MicroPAVER Work History
- ➔ Appendix D – Branch and Section Condition Report
- ➔ Appendix E – PCI Map
- ➔ Appendix F – Distress Types (with Photos)
- ➔ Appendix G – Air Traffic Data
- ➔ Appendix H – Remaining Life Data
- ➔ Appendix I – PCN/ACN Data
- ➔ Appendix J – Airfield CIP Maps and Data
- ➔ Appendix K – Maintenance Plan and Summary

Lastly, a copy of the MicroPAVER pavement management database will be provided to the Airport for future needs.

1.6 REFERENCES

The following documents/publications were utilized during the development of this PMP report:

- ASTM D5340-12 “Standard Test Method for Airport Pavement Condition Index Surveys”
- FAA Advisory Circular 150/5380-7B “Airport Pavement Management Program”
- FAA Advisory Circular 150/5380-6C “Guidelines and Procedures for Maintenance of Airport Pavements”
- FAA Advisory Circular 150/5320-6F “Airport Pavement Design and Evaluation”

CHAPTER 2: SYSTEMS INVENTORY AND NETWORK DEFINITION UPDATE



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

CHAPTER 2 – SYSTEMS INVENTORY AND NETWORK DEFINITION UPDATE

2.1 OVERVIEW

To complete the pavement evaluations and to develop a pavement management program, it is necessary to collect information related to the existing pavement's structure, condition and boundaries. The information collected is then used to define the pavement network and is incorporated into pavement analysis software to estimate pavement deterioration rates and to determine rehabilitation needs. The approaches taken to collect the required information and define the pavement network are described in this chapter.

2.2 HISTORICAL RECORD RESEARCH

As part of the previous two APMS Update studies (2004,2016), a thorough records review was performed to determine the construction and rehabilitation history of the airside pavements at the Greenville-Spartanburg International Airport. During the initial APMS Update in 2004, the Airport provided access to historical records dating back to 1962, which included as-built drawings, plans, previous pavement evaluation reports, geotechnical reports, and master plan reports. The information of interest for the pavement management implementation includes the existing pavement thickness and composition, construction dates, soil classifications, traffic forecast, and maintenance history. During the 2016 update, the consultant worked with the Airport to collect information for all construction and rehabilitation projects in the previous years.

For the 2017 update, AVCON coordinated with Airport personnel to further update the pavement inventory and rehabilitation history for all projects completed since 2016. All data collected was reviewed and the construction history of the various pavement elements on the Airport was updated. This information is summarized in the "Pavement Construction History" table for the airside pavement sections in **Appendix B**, and all pavement sections subject to construction since the 2016 APMS update are listed below in **Table 2.1**. The chronological construction history data was also input and stored in GSP's MicroPAVER database. The complete Work History Report generated from MicroPAVER is included as **Appendix C**. This report includes the following items for each section: surface type, dates of construction or last construction event, section boundaries, and section areas.

Year	Construction Event	Pavement Sections
2016	New PCC Construction	TL01-25
		TWL2-30
2016	AC Overlay	TWG-20
2017	PCC Reconstruction	ATERM-10
		ATERM-20
		ATERM-30

Table 2.1 – Construction Events Since 2016

2.3 NETWORK DEFINITION

One of the primary purposes of the systems inventory is to plan for the pavement condition surveys (the methodology is explained in the following chapter). To perform the condition surveys and other data collection activities, the pavements are first separated into management units, which help to organize the data collection effort in a logical manner. Such divisions also help later in the analysis of the collected data and in communicating the project's findings.

The establishment of divisions or management units consists of creating an organizational hierarchy of all pavements. The highest level of a pavement inventory is the *network*, which consists of the entirety of the airfield pavement. The *branch* or *facility* is the sublevel to the *network*. In the Airport setting, facilities consist of distinct runways, taxiways, aprons, and any other pavement grouping that can be defined by a change in usage. Facilities are further divided into *sections*. Sections are parts of the facility that share common attributes, such as the cross section, traffic level, and performance. As an example, for a runway, the keel (center) portion is usually defined as one section while the outer portions of the runway constitute two additional sections. This reflects the fact that even if the cross section of the runway is the same throughout, its performance is likely to be different in the keel due to more frequent traffic loading. The third subdivision or level is called a *sample unit*. Sections are divided into sample units according to well-defined rules based on surface type. For example, on airfield pavements, a sample unit is $5,000 \pm 2,000$ square feet for asphalt concrete (AC) pavement and 20 ± 8 slabs for portland cement concrete (PCC) pavement. Sample units are randomly selected for inspection to obtain representative conditions for each pavement section. Additional sample units were inspected in the field where unique or unrepresented distresses were observed in order to more accurately calculate the PCI.

For the most part, the breakdown of the pavements established during the 2004 and 2016 studies was used for the 2017 update. However, those pavement sections constructed or rehabilitated since 2016 were either added to the Network Definition or modified accordingly (see **Table 2.1** for a list of projects). The breakdown was verified in the field as part of the pavement inspection and changes were made as needed. It should be noted that there were significant variations to the rehabilitation for the Airside Terminal Apron, which in turn led to high variability in the pavement sections. As a result, extensive effort was required to update this area of the network.

To complete this APMS Update, a total of 97 Sections were evaluated through the inspection of approximately 400 field-surveyed sample units.

For convenience, each section is labeled using commonly followed conventions that identify the section by usage and sequence. For example, all runway sections begin with "RW" followed by the runway number designation (e.g., Runway 04-22 is labeled RW04). Likewise, taxiways begin with "TW," aprons begin with "A," shoulders begin with "SH," and blast pads begin with "BP."

Section numbering typically begins with “10” and proceeds in increments of 10 along the length of the facility. This is done to allow new sections to be easily added for future surveys. Thus, sections on Runway 04-22 are designated RW04-10 (Section 10), RW04-20 (Section 20), RW04-30 (Section 30), and so on. A Network Definition Map illustrating all branches, sections, and sample units is presented in **Appendix A**. The sample units inspected during this project are also identified on the Map.

Table 2.2 presents the pavement area and the percentage of pavement area by branch use (runway, taxiway, apron, shoulder, and blast pad). **Figure 2.1** graphically illustrates this information. Overall, the airside pavement network at GSP comprises approximately 7.9 million square feet of pavement. **Table 2.3** and **Figure 2.2** show the pavement areas by surface type, which are defined as follows:

- ➔ PCC – Portland cement concrete pavement;
- ➔ AC – Asphalt concrete pavement.

Most of the existing pavement network at GSP is constructed with PCC pavement (52% of the area). These sections include Airside Terminal Aprons A and B (Section 10, 20 and 30); North and South Cargo Apron; General Aviation Apron; and both south end and north end of Runway 04-22; as well as Taxiway A, B, C, J, K, most of Taxiway L, and Taxilane L01 and L02. Some sections of Taxiway L2, L3, and L5 are PCC pavement as well. The middle section of Runway 04-22; 6000 ft long, as well as the remaining sections in the network are composed of AC pavement. For the purpose of this evaluation, AC pavements include AC pavements that have been overlaid with asphalt. A final pavement surface type is PCC that has been overlaid with asphalt; however, this surface type is not present at GSP.

Branch Use	Area (SF)	Percent of Total Area
Runways	1,650,000	21%
Taxiways	2,228,411	28%
Aprons	2,286,419	29%
Shoulders	1,528,619	19%
Blast Pads	176,000	2%
Total	7,869,449	100%

Table 2.2 – Airfield Pavement Area by Branch Use

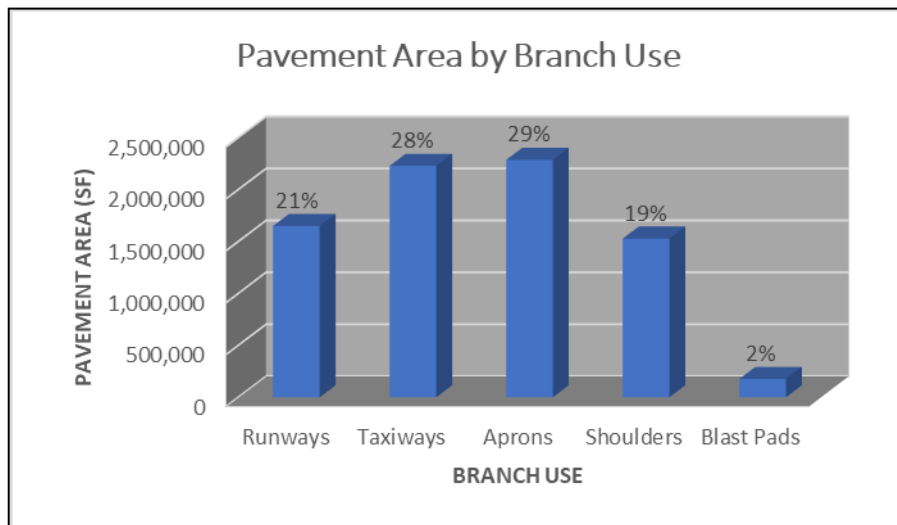


Figure 2.1 – Airfield Pavement Functional Classification Use by Area

Surface Type	Area (SF)	Percent of Total Area
PCC	4,103,122	52%
AC	3,766,327	48%
Total	7,869,449	100%

Table 2.3 – Airfield Pavement Area by Surface Type

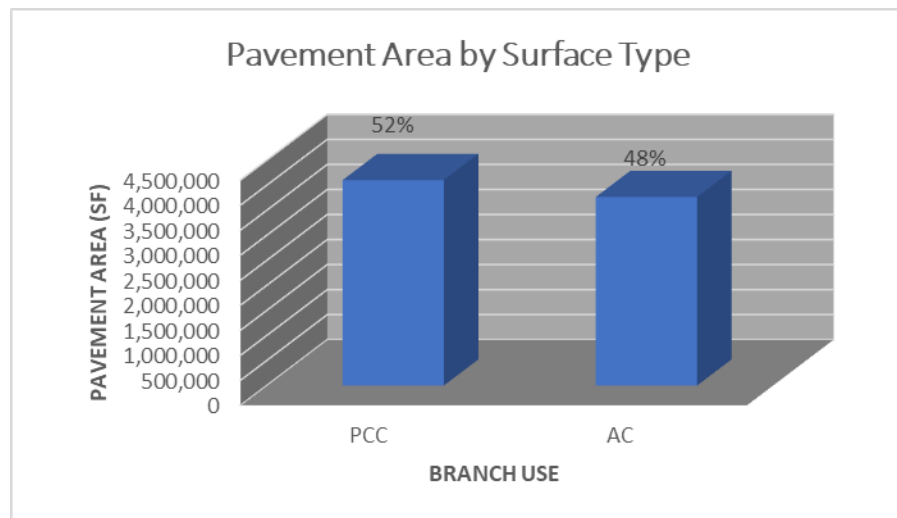


Figure 2.2 – Airfield Pavement Area vs. Surface Type

2.4 SUMMARY

At the beginning of this project, the project team worked with the Airport to conduct a thorough records review of all pavement sections that were constructed or rehabilitated since the previous Pavement Management Update in 2004 and the Pavement Condition Index Update in 2016. The review included information contained in as-built record drawings, plans, and various reports. The information obtained during this data collection effort was added to MicroPaver for further analysis. The network definition map for GSP was also updated and used as the basis for performing the pavement condition surveys, the results of which are presented in **Chapter 3**.

CHAPTER 3: PAVEMENT CONDITION SURVEYS



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

CHAPTER 3 – PAVEMENT CONDITION SURVEYS

3.1 OVERVIEW

This chapter summarizes the results of the pavement condition surveys performed on the airfield pavements at GSP in June 2017. Distress data from the inspections was entered into the MicroPAVER database to calculate the PCI values. These inspections were performed in accordance with the Pavement Condition Index (PCI) methodology, as documented in the following publications:

1. The U.S. Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5380-6C, *Guidelines and Procedures for Maintenance of Airport Pavements*.
2. The American Society for Testing and Material (ASTM) Standard D5340, *Standard Test Method for Airport Pavement Condition Index Surveys*.

3.2 PAVEMENT CONDITION INDEX (PCI) SURVEY METHODOLOGY

The PCI procedure is an objective ranking process whereby a pavement is given a numerical score based on the type, severity level, and quantity of each distress present. The PCI ranges from 0 (a failed pavement) to 100 (a pavement with no visible signs of deterioration). To evaluate the PCI for a given sample unit, each distress type observed is assigned a deduct value based on its frequency of occurrence (distress density) within that sample area and its severity. All deducts are summed and subsequently adjusted for the number of different distresses found. This corrected deduct value is subtracted from 100 to arrive at the PCI for that particular sample unit. The PCI for a pavement section is the mean PCI value of all sample units evaluated in that section.

In general terms, pavements with a PCI of more than 71 – that are not exhibiting significant load-related distress – will benefit from global preventative maintenance actions, such as joint sealing or surface treatments; and from localized preventative actions, such as crack sealing. Pavements with a PCI of 41 to 70 may require major rehabilitation, such as an overlay or partial slab repairs. Often, when a pavement has a PCI of less than 41, reconstruction is the only viable alternative due to the substantial damage to the pavement’s functional integrity. **Figure 3.1** illustrates how the type of appropriate repair varies with the PCI of a pavement section. The repair recommendations, however, will vary depending on customizations made for pavement use and priority. The cost and timeframes associated with the repairs are discussed in Chapter 6. The scale and repair types shown in **Figure 3.1** have been customized for the District to better meet the needs of GSP.

PCI		Classification	Repair Type
91-100		Excellent	Preventative Maintenance
81-90		Very Good	
71-80		Good	
61-70		Fair	Major Rehabilitation
51-60		Poor	
41-50		Very Poor	
0-40		Failed	Reconstruction

Figure 3.1 – Typical PCI Scale and Repair Type

PCI survey results are only an indirect indicator of the overall condition of the pavement because only the surface layer of a multi-layered pavement is examined. However, by examining the types of distress on a section of pavement and where its PCI rating falls on a qualitative scale, additional insight about the pavement's performance is obtained. Although PCI ratings can be used as a general guideline for identifying the repair type, examining the individual distresses measured during the survey is often more useful in assessing the cause(s) of deterioration.

The PCI may also be evaluated in terms of the percent of deducts (from a perfect score of 100) that are due to load-related distresses (defined as those distresses caused by traffic loading) and those that are due to climate and other distresses. For example, consider a pavement section that has a PCI of 60 (i.e., 40 deduct points). If 20 of those deduct points are due to load, then 50 percent of the deduct points are due to load, suggesting that traffic loading is strongly affecting the performance of the pavement.

The loss in PCI over time (i.e., the pavement's rate of deterioration) is another factor that is of interest in evaluating the performance of a pavement surface. Pavements that are exhibiting high deterioration rates should be monitored more closely.

While the PCI results give a general indication of the overall condition of the pavement, the specific maintenance or rehabilitation needs of a pavement are often obscured by such an index. In addition to reporting the PCI survey results, the survey crew also identified the specific distresses that were present, reported on the possible causes of such distresses, and related such findings to general categories of treatment. Furthermore, detailed notes were taken regarding items of importance that are not part of a typical PCI survey. During the condition surveys, the survey crews also took photographs of distresses observed on the pavement, both to record typical conditions and to highlight areas of concern.

3.3 DISTRESS TYPES

For AC-surfaced airfield pavements, there are seventeen possible distress types included in the PCI procedure, and nine of these distresses were identified during the inspections at GSP. For PCC-surfaced airfield pavements, there are sixteen identifiable distress types, and ten of these distresses were identified at GSP.

The PCI procedure separates distresses into three categories based on the expected cause of the distress. By knowing the cause(s) of the pavement deterioration, appropriate repair and rehabilitation alternatives can be identified. The three categories for distress types are load-related distresses (such as alligator cracking and rutting on AC pavements and linear cracking on PCC pavements), climate-related distresses (such as block cracking and weathering on AC pavements and durability cracking on PCC pavements), and other distresses (which include man-made distresses (such as patches and utility cuts). Load-related distresses are defined as being caused by aircraft or vehicular traffic and may provide an indication of a structural deficiency. Climate-related distresses often signify the presence of aged and/or environmentally susceptible material and include durability-related issues.

The distress types observed throughout the pavements at GSP and their related causes are presented in **Table 3.1**. There are other types of pavement distresses; however, they are not listed in **Table 3.1** because they were not observed during the current Update. They include shoving, corrugation, and polished aggregate in AC pavements and blow-ups, alkali silica reaction, and durability cracking in PCC pavements.

AC Pavement Distress	Related Cause
Bleeding	Other: Mix/Materials/Construction
Block Cracking	Environment
Longitudinal & Transverse Cracking (L&T)	Environment/Construction
Oil Spillage	Other: Oil/fuel spill
Patching and Utility Cut Patch	Other: Repair
Rutting	Load
Slippage Cracking	Other: Mix/Materials/Load
Swelling	Environment
Weathering	Environment

PCC Pavement Distress	Related Cause
Corner Break	Load
Longitudinal, Transverse & Diagonal Cracking (LTD)	Load
Joint Seal Damage	Environment
Patching, Small	Other – Repair
Patching, Large	Other – Repair
Scaling	Environment/Construction/Materials
Shattered Slab	Load
Shrinkage Cracks	Other – Construction
Spalling (Joint)	Load/Construction
Spalling (Corner)	Load/Construction

Table 3.1 – Summary of Distresses Observed at Greenville-Spartanburg International Airport

Appendix F presents an in-depth discussion of each of these distresses, including photographs of the distresses, taken during the PCI inspection.

3.4 PCI SURVEY RESULTS

A detailed discussion regarding the overall pavement conditions and distresses present for each pavement facility is included in this section of the report. **Table 3.2** lists all of the pavement sections inspected at GSP that are subject to aircraft loadings and their respective PCI values. The PCI results for each specific pavement section are discussed later in this chapter.

Overall, the airside pavements at GSP have an area-weighted PCI value of 81 indicating that the majority of the pavement system is in very good condition. **Figure 3.2** and **Figure 3.3** provide an overview of the PCI results distributed by surface type and by branch use, respectively.

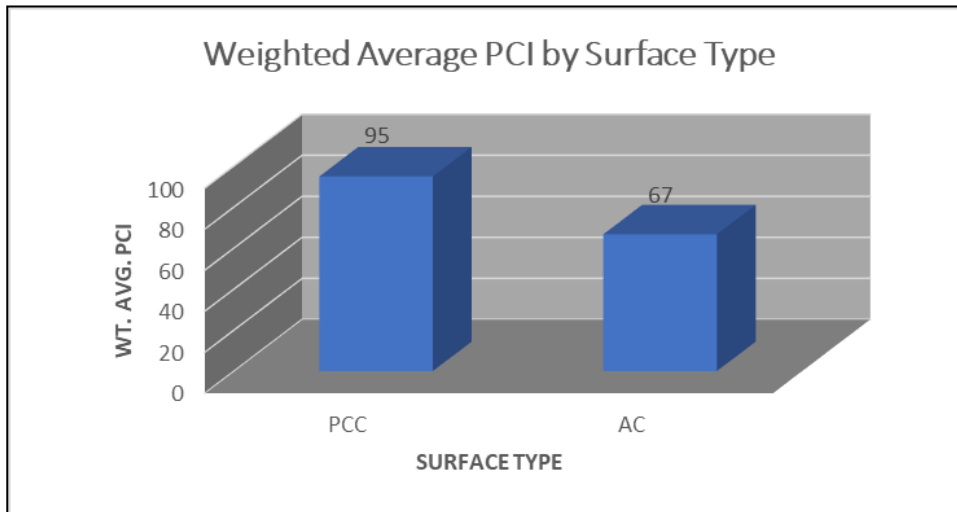


Figure 3.2 – Summary of PCI Results by Surface Type

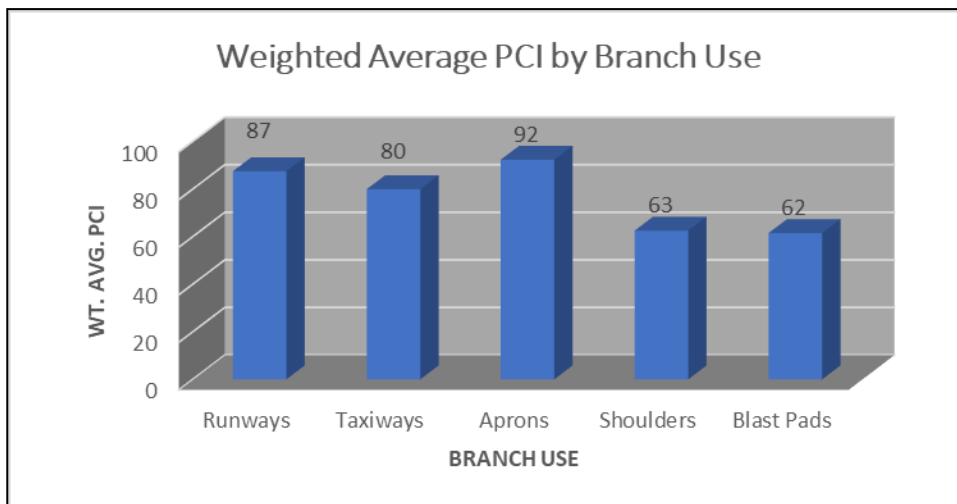


Figure 3.3 – Summary of PCI Results by Branch Use

A pavement condition map showing the PCI of each individual section is presented in **Figure 3.4** (see full size map in **Appendix E**).

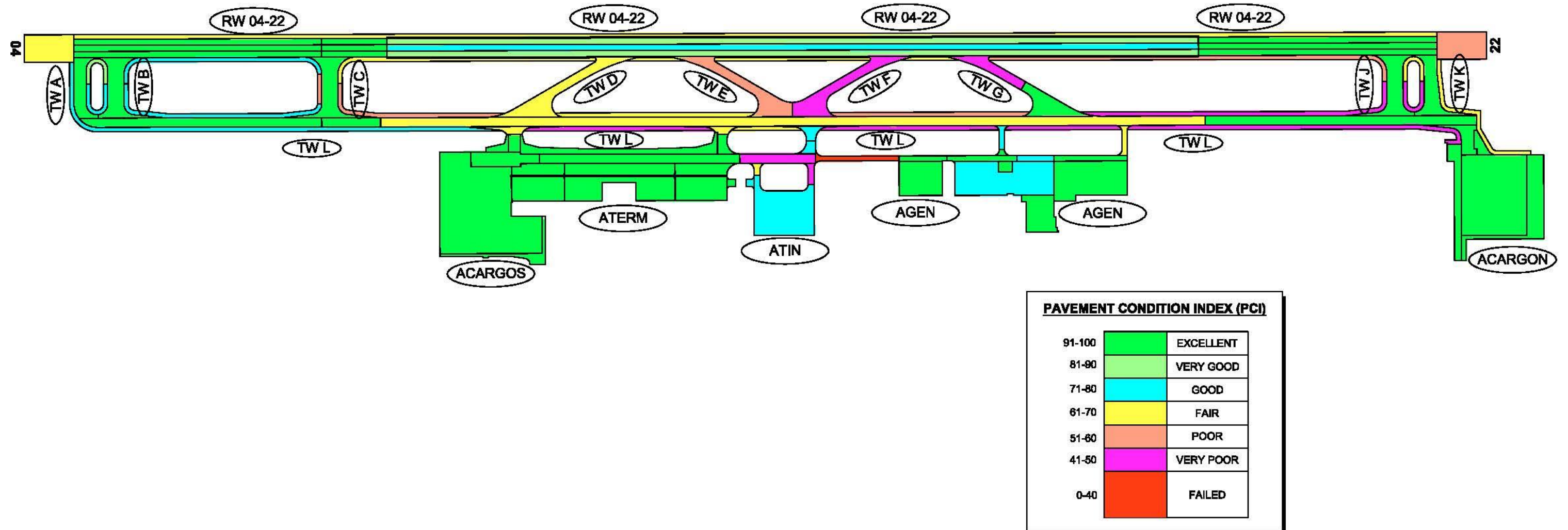


Figure 3.4 – Pavement Condition Index (PCI) Rating Map – 2017

Runway 04-22

Runway 04-22 handles all the aircraft traffic at the Airport. The runway consists of three segments, both the southern end and north end are PCC, while the middle portion is AC. The runway consists of 12 sections total with nine PCC sections and three AC sections.

Runway 04-22 was originally constructed with both asphalt and concrete portions in 1962 and was strengthened in 1977 to accommodate larger aircraft. In 1995, the runway was extended again from 7,600 ft to 9,000 ft as the Airport's name was changed to Greenville-Spartanburg International Airport. By 1999, the second runway expansion project was completed, extending the runway to 11,001 ft. Beginning in 2008 the runway was rehabilitated with a 2-inch overlay on the 6,000ft asphalt portion of the runway. A summary of the condition of each section is listed in **Table 3.3**.

Runway 04-22 has an area weighted PCI of 87 which reflects the work the Airport has done to maintain the runway in good condition.

Section	PCI	Surface Type
RW04-10	100	PCC
RW04-20	99	PCC
RW04-30	100	PCC
RW04-40	97	PCC
RW04-50	100	PCC
RW04-60	97	PCC
RW04-70	84	AC
RW04-80	75	AC
RW04-90	81	AC
RW04-100	98	PCC
RW04-110	99	PCC
RW04-120	95	PCC
PCC Area - Weighted PCI	98	
AC Area - Weighted PCI	80	
Section PCI Range	(75-100)	

Table 3.3 – Runway 04-22 PCI Summary

The landing area of RW04 is in excellent condition. Sections 10, 20, and 30 are PCC pavements and have little to no distresses. These sections have 100, 99, and 100 PCI respectively. Sections 40 and 60 contained minimal distresses while section 50 was in very good condition. These sections had PCI values of 97, 97, and 100, respectively.

Along the northern end, Sections 100, 110, and 120 showed more distresses than the southern end. Although still in great condition, these sections showed lower PCI than the other PCC sections, having a 98, 99, and 95 PCI, respectively. The primary distresses on these PCC runway sections include shrinkage, spalling, and small patches.



Small Patch



Shrinkage Crack

For this update, Section 70, 80 and 90 were duplicated using the data from 2016 report due to limited access to the runway during the inspection period. The AC pavements experienced more distresses than the PCC pavement portions. Sections 70, 80 and 90 consist of an 84, 75, and 81 PCI, respectively. Throughout the runway, the following distresses were observed: weathering, swelling, linear cracks and patching, all of which were low-severity for the AC pavement portions.



Swelling



Small Patch

Taxiway A, B and C

Located at the southern end of the runway, Taxiways A, B, and C were added as part of the runway extension project in 1999; connecting Runway 04-22 to Taxiway L. Sections TWA-10, TWB-10, and TWC-10 all have little to no distresses, having a 99, 99, and 98 PCI, respectively. The most predominant distress in these sections is joint spalling. Other distresses found in these sections are small patches, corner spalls, and some joint seal damage. The PCI results for these sections are summarize in **Table 3.4**.

Section	PCI	Surface Type
TWA-10	99	PCC
TWB-10	99	PCC
TWC-10	98	PCC
Area - Weighted PCI	99	
Section PCI Range	(98-99)	

Table 3.4 – Taxiway A, B and C PCI Summary

Taxiway D, E, F and G

Rehabilitated in 1994, both Taxiway D and F are high-speed south bound exits connecting Runway 04-22 and Taxiway L. Taxiway E and G were also rehabilitated in 1994 and are high-speed north bound exits connecting Runway 04-22 and Taxiway L. Sections TWD-10, TWE-10, TWF-10, and TWG-10 all show extensive swelling throughout the pavement as well as weathering. Longitudinal and transverse (L&T) cracks of low and medium severity were also observed in these sections. TWG-10 also shows rutting beyond the holding position marking. TWG-20, rehabilitated in 2016, showed no signs of distresses. A summary of the condition of each section is listed in **Table 3.5**.

Section	PCI	Surface Type
TWD-10	68	AC
TWE-10	58	AC
TWF-10	49	AC
TWG-10	44	AC
TWG-20	100	AC
Area - Weighted PCI	63	
Section PCI Range	(44-100)	

Table 3.5 – Taxiway D, E, F, and G PCI Summary



L&T Crack, Weathering
and Swelling



L&T Crack



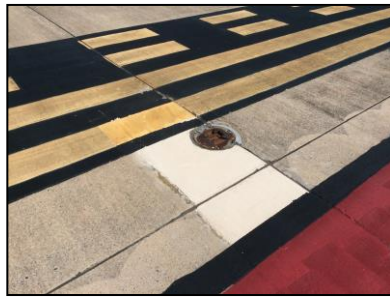
L&T Crack, Weathering,
Swelling and Rutting

Taxiway J and K

Located at the northern end of the runway, Taxiways J and K were originally constructed in 1996; connecting Runway 04-22 to Taxiway L. Sections TWJ-10 and TWK-10 show little to no distresses, having a 98 and 99 PCI, respectively. Shrinkage cracking and linear cracks, as well as small patches were found in these sections. A summary of the condition of each section is listed in **Table 3.6**.

Section	PCI	Surface Type
TWJ-10	98	PCC
TWK-10	99	PCC
Area - Weighted PCI	98	
Section PCI Range	(98-99)	

Table 3.6 – Taxiway J and K PCI Summary



Small Patch



Linear Crack

Taxiway L

Taxiway L is parallel to Runway 04-22. PCC Section TWL-10, constructed in 1999 as part of the runway extension project, is performing well, showing minor distresses such as shrinkage cracks, small patches and low-severity linear cracks. TWL-20 was reconstructed in 1996 and shows no signs of distresses. TWL-30 is the only AC pavement portion of Taxiway L; it shows extensive swelling and weathering throughout the whole section as well as some patching and low and medium severity L&T cracking. PCC Section TWL-40, constructed in 1996, is in good condition; showing some patches as well as joint spall and corner spall. The PCI results for all individual TW L sections are summarized in **Table 3.7**.

Section	PCI	Surface Type
TWL-10	96	PCC
TWL-20	100	PCC
TWL-30	61	AC
TWL-40	98	PCC
PCC Area - Weighted PCI	97	
AC Area - Weighted PCI	61	
Section PCI Range	(61-100)	

Table 3.7 – Taxiway L PCI Summary



L&T Crack



L&T Crack and Swelling



Linear Crack

Taxiway L2 and L3

Taxiways L2 and L3 connect Taxiway L to Air Cargo South Apron and Airside Terminal Apron, respectively. Taxiway L2 consists of three pavement sections, one AC-surface pavement and two PCC-surface pavements. Taxiway L3 consists of two sections, one AC-surface pavement and one PCC-surface pavement. AC Sections TWL2-10 and TWL3-10 exhibit extensive weathering as well as swelling and both low- and medium severity L&T cracks. PCC Sections TWL2-20, TWL2-30, and TWL3-20 each experience little to no distress, showing signs of shrinkage cracks, joint spalling and corner spalling. The PCI results for these sections are summarized in **Table 3.8**.

Section	PCI	Surface Type
TWL2-10	70	AC
TWL2-20	94	PCC
TWL2-30	98	PCC
TWL3-10	69	AC
TWL3-20	95	PCC
PCC Area - Weighted PCI	95	
AC Area - Weighted PCI	70	
Section PCI Range	(69-98)	

Table 3.8 – Taxiway L2 AND L3 PCI Summary

Taxiway L4, L5, and L6

Taxiway L4, composed of two AC-surface sections, connects Taxiway L to the Itinerant Apron. Taxiways L5 and L6 connect Taxiway L to the General Aviation Apron. Taxiway L5 consists of one AC-surface section (TWL5-10) and one PCC-surface section (TWL5-20), while Taxiway L6 is one AC-surface section (TWL6-10). AC Sections TWL4-10, TWL4-20, TWL5-10, and TWL6-10 all show extensive weathering, as well as swelling and L&T cracks. PCC Section TWL5-20 was reconstructed in 2015 and shows no signs of distress. A summary of the condition of each section is listed in **Table 3.9**.

Section	PCI	Surface Type
TWL4-10	75	AC
TWL4-20	71	AC
TWL5-10	76	AC
TWL5-10	100	PCC
TWL6-10	62	AC
PCC Area - Weighted PCI	100	
AC Area – Weighted PCI	71	
Section PCI Range	(62-100)	

Table 3.9 – Taxiway L4, L5 and L6 PCI Summary

Taxilanes L1 and L2

Taxilanes L1 and L2 run parallel to Taxiway L and are made up of mostly PCC-surface pavement sections, having only one AC-surface pavement section each. Taxilane L1 connects the South Cargo Apron, the Air Carrier Terminal Apron and the Itinerant Apron. PCC Sections TL01-10, TL01-20, and TL01-25 are in good condition with the occasional shrinkage cracking, joint spalls, and corner spalls. AC Section TL01-30, shows extensive weathering as well as swelling throughout the section. In addition, low, medium and high severity L&T cracks exist in a large portion of the section.

Taxilane L2 connects the Itinerant Apron to General Aviation Apron. AC Section TL02-05 shows extensive swelling as well as weathering throughout the section. In addition, block cracking of low, medium, and high severity is prevalent in this section. PCC Sections TL02-10, TL02-15 and TL02-30 are in good condition, with only few instances of shrinkage cracks, joint spalls and corner spalls. PCC Section TL02-20 shows additional distresses such as low- and medium-severity corner breaks, in addition to linear cracks, small patches, shrinkage cracks, joint spalls, and corner spalls. The PCI results for all these sections are summarized in **Table 3.10**.



L&T Crack



Linear Crack



L&T Crack and Swelling



L&T Crack and Swelling

Section	PCI	Surface Type
TL01-10	97	PCC
TL01-20	97	PCC
TL01-25	96	PCC
TL01-30	48	AC
TL02-05	33	AC
TL02-10	95	PCC
TL02-15	98	PCC
TL02-20	77	PCC
TL02-30	99	PCC
PCC Area - Weighted PCI	96	
AC Area - Weighted PCI	42	
Section PCI Range	(33-99)	

Table 3.10 – Taxiway L1 and L2 PCI Summary

Air Carrier Terminal Apron

Originally constructed in 1962, the Air Carrier Terminal Apron was under construction, in its third and final phase of reconstruction at the time of completion of the PCI analysis. Due to this project, as the reconstruction project did not include the entire ramp, the single section that was used to represent the ramp condition was broken into three different sections to reflect the condition of different areas of the ramp. Sections ATERM-10 and ATERM-20 exhibit little to no distress, exhibiting only few patch, joint spall and corner spall. Section ATERM-30 was not inspected in this update as it was in the midst of rehabilitation. However, it was assumed in this study that upon completion of construction, this section would have a PCI value of 100. A summary of the section condition is provided in **Table 3.11**.

Section	PCI	Surface Type
ATERM-10	100	PCC
ATERM-20	99	PCC
ATERM-30	100	PCC
Area - Weighted PCI	100	
Section PCI Range	(99-100)	

Table 3.11 – Air Carrier Terminal Apron PCI Summary

South Air Cargo Apron

The South Air Cargo Apron was last reconstructed in 2002. It consists of two PCC-surface pavement sections; ACARGOS-10 and ACARGOS-20, which are in good condition. Shrinkage cracking and joint spalls are the two most prevailing distresses in these sections; however, small patches and corner spalls are also present in small numbers. A summary of the section condition is presented in **Table 3.12**.

Section	PCI	Surface Type
ACARGOS-10	93	PCC
ACARGOS-20	99	PCC
Area - Weighted PCI	93	
Section PCI Range	(93-99)	

Table 3.12 –South Air Cargo Apron PCI Summary



Joint Spall

North Air Cargo Apron

Originally constructed in 1996, the North Air Cargo Apron consists of three PCC-surface pavement sections. Although all three sections are in good condition, section ACARGON-10 has the most distresses; showing signs of low and medium severity joint spalls as well as corner spalls. In addition to those distresses, small and large patches were also found in this section. Sections ACARGON-20 and ACARGON-30 show little to no signs of distress for the most part, only few occurrences of joint spalls, joint seal damage, shrinkage cracking and small and large patches were observed in these sections, reducing slightly their excellent PCI value. A summary of the section condition is provided in **Table 3.13**.

Section	PCI	Surface Type
ACARGON-10	92	PCC
ACARGON-20	97	PCC
ACARGON-30	96	PCC
TWCARGO-10	92	PCC
TWCARGO-20	94	PCC
Area - Weighted PCI	94	
Section PCI Range	(92-97)	

Table 3.13 – North Air Cargo Apron PCI Summary



Shrinkage Crack



Corner Break



Small Patch

Itinerant Apron

The Itinerant Apron originally constructed in 1962 consists of three sections: two AC-surface pavement sections and one PCC-surface pavement section. AC Sections AITIN-10 and AITIN-20 connect Taxilane L1 to section AITIN-30. Sections AITIN-10 and AITIN-20 show extensive swelling and weathering, as well as L&T cracks of both low and medium severity. PCC Section AITIN-30, shows extensive amount of distresses. Distresses found in these sections are corner break, linear cracks, small and large patches, scaling, shattered slabs, shrinkage cracks, joint spalls, and corner spalls. A summary of the section condition is listed in **Table 3.14**.

Section	PCI	Surface Type
AITIN-10	63	AC
AITIN-20	46	AC
AITIN-30	73	PCC
PCC Area - Weighted PCI	73	
AC Area - Weighted PCI	53	
Section PCI Range	(46-73)	

Table 3.14 – Itinerant Apron PCI Summary



Corner Break
and Small Patch



Shattered Slab



Linear Crack, Joint
Spall and Corner Spall

General Aviation Apron

The General Aviation Apron consists of five PCC-surface pavement sections. Sections AGEN-10 and AGEN-30 showed little to no distress, exhibiting only one instance of shrinkage crack and two small joint spalls. Section AGEN-20 experienced more distresses than the other sections; with corner breaks, low, medium, and high severity linear cracks, small and large patches, scaling, shrinkage cracks, joint spalls and corner spalls. Section AGEN-40 shows very minimal distress with only joint seal damage, small patches, shrinkage cracks, joint and corner spalls. Section AGEN-50 was reconstructed in 2015 and exhibits shrinkage cracks and a high-severity corner spall. A summary of the section condition is listed in **Table 3.15**.

Section	PCI	Surface Type
AGEN-10	100	PCC
AGEN-20	79	PCC
AGEN-30	100	PCC
AGEN-40	96	PCC
AGEN-50	97	PCC
Area - Weighted PCI	92	
Section PCI Range	(79-100)	

Table 3.15 – General Aviation Apron PCI Summary



Corner Break



Small Patch



Linear Crack



Small Patch



Corner Break



Shrinkage Crack

Fire Station Ramp 1 and 2

The Fire Station Ramp consist of two PCC-surface pavement sections. FS-10 faces the Air Carrier Terminal Apron whereas FS-20 faces the Itinerant Apron. Section FS-10 show minimal distresses; showing small patches and shrinkage cracks only. Section FS-20 exhibited corner breaks, linear cracks, and small patch distresses. A summary of the section condition is listed in **Table 3.16**.

Section	PCI	Surface Type
FS-10	92	PCC
FS-20	72	PCC
Area - Weighted PCI	82	
Section PCI Range	(72-92)	

Table 3.16 – Fire Station Ramp 1 and 2 PCI Summary



Corner Spall



Corner Break, Corner Spall
and Small Patch

Blast Pads

Two blast pad pavement sections are defined on the airfield. AC Section BP-04 shows an extensive amount of distress such as low and medium severity L&T cracks, swelling, and medium severity weathering. AC Section BP-22 experienced more deterioration than Section BP-04; the distresses experienced in this section are bleeding, low, medium, and high severity L&T cracks, oil spills, swelling and weathering. A summary of the section condition is represented in **Table 3.17**.



L&T Crack



L&T Crack and Swelling

Section	PCI	Surface Type
BP-04	69	AC
BP-22	54	AC
Area - Weighted PCI	62	
Section PCI Range	(54-69)	

Table 3.17 – Blast Pads PCI Summary

Shoulders

Thirty (30) AC-surface shoulder pavement sections are defined at GSP. These sections have an area-weighted PCI of 62. Approximately 10 percent of the sample units defined within the shoulder pavement sections were surveyed as part of the pavement management system in order to provide a general indication of their overall condition. Of the 30 sections, only eight sections have PCIs below the critical value of 55 defined for shoulder pavements. **Table 3.18** summarizes the PCI values.

Section	PCI	Surface Type	Section	PCI	Surface Type
SHRW04-10	63	AC	SHTWC-10	55	AC
SHRW04-15	81	AC	SHTWK-10	66	AC
SHRW04-20	89	AC	SHTWL-10	72	AC
SHRW04-30	78	AC	SHTWL-20	75	AC
SHRW04-40	67	AC	SHTWL-30	73	AC
SHRW04-45	81	AC	SHTWL-40	58	AC
SHRW04-50	70	AC	SHTWL-50	50	AC
SHRW04-55	83	AC	SHTWL-60	63	AC
SHRW04-60	70	AC	SHTWL-70	61	AC
SHRW04-65	81	AC	SHTWL-80	46	AC
SHRW04-70	70	AC	SHTWL-90	53	AC
SHRW04-75	83	AC	SHTWL-100	41	AC
SHRW04-80	53	AC	SHTWL-110	50	AC
SHRW04-85	81	AC	SHTWL-120	48	AC
SHRW04-90	65	AC	SHTWL-130	49	AC
RW Shoulder Area - Weighted PCI				67	
TW Shoulder Area - Weighted PCI				58	
Section PCI Range				(41-89)	

Table 3.18 – Shoulder Pavement Sections PCI Summary



L&T Crack



Block Crack, L&T Crack
and Swelling



Block Crack and L&T Crack

3.6 SUMMARY

Upon approval from the Airport; due to limited access to the runway during the inspection period, the asphalt sections of the runway were duplicated using the data from the 2016 report. Sections RW04-70, RW04-80, and RW04-90 were analyzed by their PCI values as well as their distresses observed for that inspections period.

The remaining pavement sections at GSP were surveyed according to the PCI procedure; the results of which are summarized in this chapter of the report and in **Appendix D** through **Appendix F**. Overall, the pavement sections are in very good condition, with an average area-weighted PCI of 81 for the entire pavement network at GSP.

CHAPTER 4: REMAINING LIFE ANALYSIS



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

CHAPTER 4 – REMAINING LIFE ANALYSIS

4.1 OVERVIEW

Remaining life is defined as the amount of life (expressed in terms of time or traffic loadings) that a pavement section can withstand before it fails. Pavement failure can be defined in two ways: reaching a critical roughness level (functional remaining life) or developing a critical level of a key structural distress (structural remaining life). Whichever approach is used, the estimation of remaining pavement life is a useful function of a pavement management system. At the project level, remaining life estimates provide insight into both the surface condition and the structural capacity of the existing pavement and thereby indicate the need for major rehabilitation. At the network level, remaining life predictions of families of pavements facilitate planning, scheduling, and budgeting of future rehabilitation activities, thereby contributing to the most effective use of limited resources.

For this report, we have calculated remaining life using two methods. The first method to determine remaining life involves software developed by the Federal Aviation Administration (FAA) and is based on layered elastic and three-dimensional finite element-based structural analysis. This software analyzes the load-carrying capacity of the pavement and is used to calculate the structural remaining life by examining the existing pavement structure and the intended mix and frequency of aircraft traffic. The aircraft traffic data and assumptions used for the analysis are shown in **Appendix G** and are based on a particular pavement section's anticipated aircraft fleet mix.

The second method used to evaluate the remaining life of a pavement is through analysis of the pavement's current and projected PCI value. This method does not consider any structural properties of the pavement, but rather relies on visual examination of surface distresses to predict its future behavior. Further explanation of each method and their relative findings are discussed later in this chapter.

4.2 STRUCTURAL REMAINING LIFE IN FAARFIELD

The structural remaining life is determined through an analysis of the in-situ layer properties and projected traffic using the FAA's new airport pavement thickness design program, FAARFIELD 1.305 (FAA Rigid and Flexible Iterative Elastic Layered Design), provided in Advisory Circular (AC) 150/5320-6E, *Airport Pavement Design and Evaluation*, issued in September 2009. Layered elastic and three-dimensional finite element-based design theories were adopted to address the impact of new complex gear and wheel arrangements. The design method is computationally intense, so the FAA developed a computer program called FAARFIELD to help pavement engineers implement it. Prior to the creation and use of FAARFIELD, the "design aircraft" concept was used to calculate pavement design and remaining life by converting all airfield traffic into equivalent passes of the "most demanding aircraft." However, using FAARFIELD, the "design aircraft" concept has been replaced by design for fatigue failure expressed in terms of a cumulative damage factor (CDF). CDF is the amount of the structural

fatigue life of a pavement that has been used up. It is expressed as the ratio of applied load repetitions to allowable load repetitions to failure. The entire traffic mix is entered, along with the existing pavement structure (entering the layer properties determined by evaluation). The remaining life is calculated by applying the traffic volume (or years) until a CDF of 1.0 is achieved. **Table 4.1** shows the CDF value and its relationship to a pavement's remaining life.

CDF value	Pavement Remaining Life
1	The pavement has used up all of its fatigue life.
< 1	The pavement has some life remaining, and the value of CDF gives the fraction of the life used.
> 1	The pavement has exceeded its fatigue life.

Table 4.1 – Pavement Remaining Life Based on CDF Value

For PCC pavement, modulus of subgrade reaction (k-value), expressed in pounds per cubic inch (pci) is a critical input in determining the structural remaining life. For AC pavement sections, the subgrade modulus values expressed as a California Bearing Ratio (CBR) are used in FAARFIELD to determine the structural remaining life of a particular pavement. Many of these values were available from the Non-Destructive (ND) Heavy Weight Deflectometer (HWD) tests performed in August/September 2017. The estimated CBR values ranged from 3.0 to 41.6, while the back-calculated k-values ranged from 73.1 pci to 224.3 pci. Where this information was not available, CBR and k-values were estimated using data from the 2004 report "Pavement Evaluation and Development of a Pavement Management System for Greenville-Spartanburg International Airport – Final Report". This data, in conjunction with the Pavement Construction History Table in **Appendix B** and the Air Traffic Data for each pavement section as discussed in **Appendix G** and **Chapter 5**, form the inputs used in the structural remaining life analysis.

Figure 4.1 illustrates the pavement sections at GSP which are predicted to have less than 20 years structural remaining life based on CDF values; these sections will be considered further in the development of the CIP. **Table H.1** of **Appendix H**, Remaining Life Data, contains the remaining life in years for each pavement section as described above. It should be noted that several sections were not analyzed for this part of the report, including blast pads and shoulders. These sections are not subject to aircraft loads on a regular basis, therefore calculating remaining life using this approach would be inaccurate.

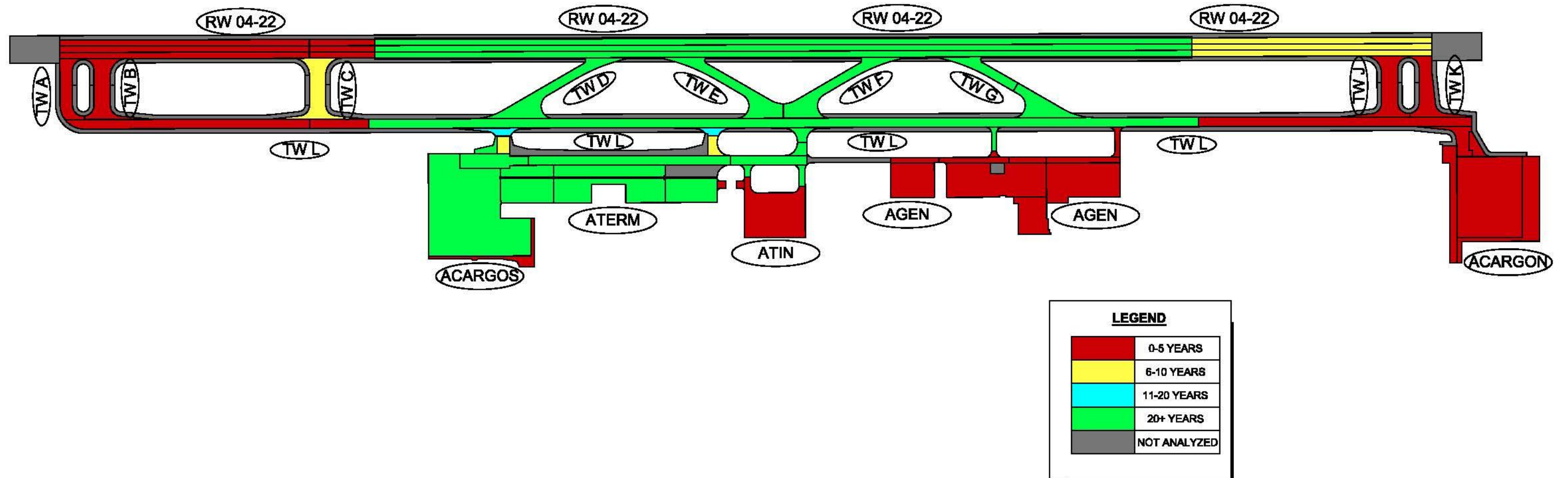


Figure 4.1 – Remaining Life – Structural Analysis in FAARFIELD

4.3 REMAINING LIFE BASED ON PCI

To determine the remaining life based on the PCI, the key input is the condition of the pavement as determined from the PCI surveys. Using the tools available through MicroPAVER, performance models are developed and used to estimate the time until the pavement reaches a critical PCI. Typically, performance models must be determined for each pavement family, or group of pavement sections with similar deterioration characteristics. A different pavement family is established for different combinations of Branch Use and Pavement Type. The performance models used in this report were determined from data collected in the 2017 PCI surveys as well as the historical behavior of the pavement as derived from the 2004 and 2016 PCI surveys at GSP. Due to changes in ASTM D5340 between inspection years, a degree of variability between different inspectors, and the lack of information between 2004 and 2016, a standard PCI deduction was introduced based on the pavement type and the age of the pavement, which is in line with industry standards. This deduction was applied to the PCI values generated in the 2017 inspection to determine approximate future PCI values and predict when the pavement will meet one of the cases below. **Table 4.2** displays the standard PCI deductions per year based on pavement type and age that was used for future PCI predictions.

Pavement Type	Pavement Age	
	0-20 years	20+ years
PCC	-1	-2
AAC	-2	-3

Table 4.2 – Standard PCI Deduction per Year

Figure 4.2 visually shows the pavement sections at GSP and their anticipated remaining life based on the two cases below. These sections will be considered further in the development of the CIP. **Table H.2** of **Appendix H**, Remaining Life Data, contains the remaining life in years for each pavement section and case as described above. The performance model prediction analysis was conducted for two cases:

- Case 1: The remaining life until major rehabilitation is recommended, which is set to the following critical PCI values:

Branch Use	PCI Value
Runway	70
Taxiway/Taxilane	65
Apron/Other	65

Table 4.3 – Critical PCI of Pavement Sections

- Case 2: The remaining life until the pavement is no longer serviceable, or functional remaining life, which is set to a PCI of 40 for all pavement facilities.

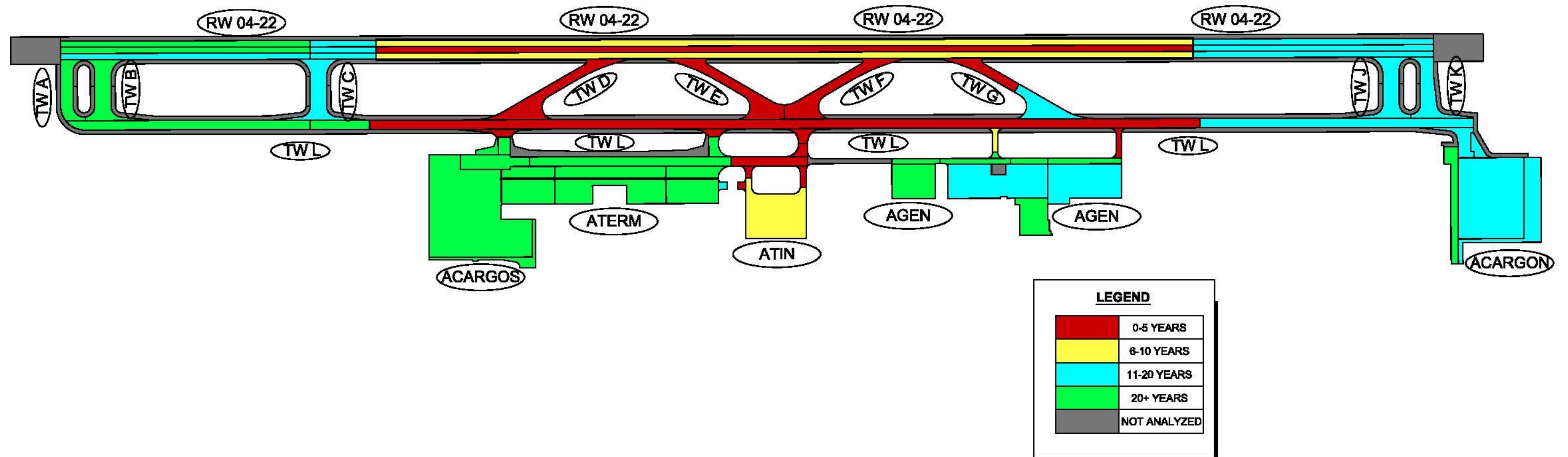


Figure 4.2 – Remaining Life to Critical PCI

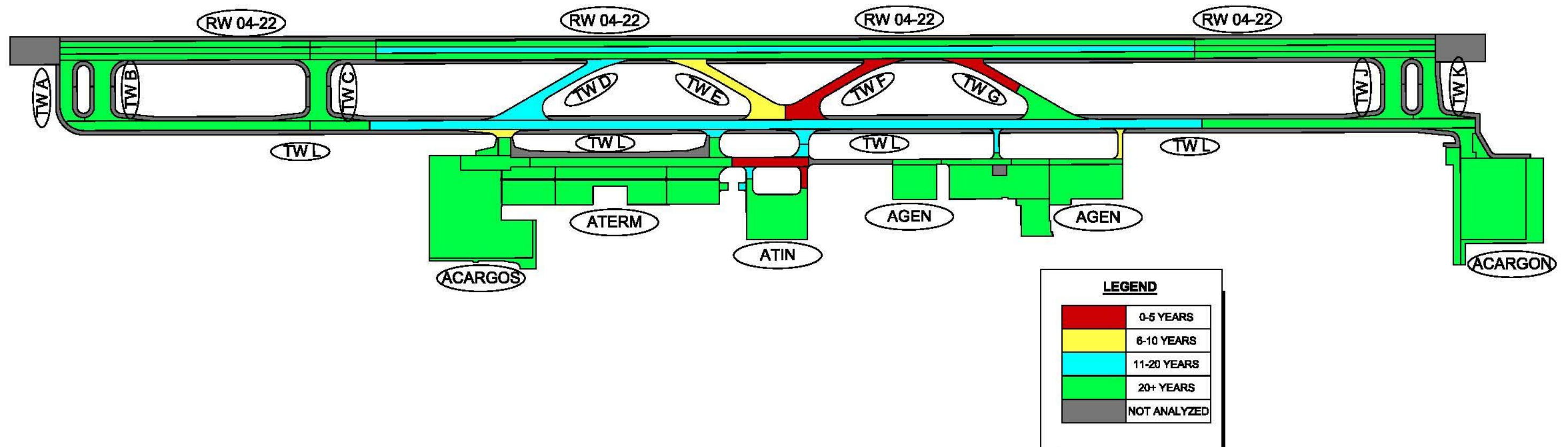


Figure 4.3 – Remaining Life to PCI = 40

4.4 REMAINING LIFE RESULTS

The remaining life results for all pavement sections, as determined both by structural analysis and PCI analysis, are summarized in **Appendix H**. The structural analysis for most sections is based on the material properties obtained from the 2017 HWD testing results as well as Record Drawings from past projects. Where Heavy Weight Deflectometer (HWD) testing was not conducted, subgrade strengths were estimated using data from “Pavement Evaluation and Development of a Pavement Management System for Greenville-Spartanburg International Airport – Final Report” from 2004.

Unlike the structural remaining life calculation, which evaluates the overall PCC pavement or AC pavement structure, the functional remaining life provides an evaluation of the most recent rehabilitation project as it only considers the existing pavement surface condition. Because the surface pavement condition has more of an immediate and direct impact on operations and safety, the functional remaining life is weighed more heavily in selecting projects for inclusion into the CIP.

Table H.1 in **Appendix H** represents a complete list of potentially problematic sections in terms of structural remaining life. However, it should be noted that zero or limited structural remaining life does not mean that the pavement is no longer functioning or that traffic should no longer use that pavement section. Although this type of analysis does not always precisely predict the pavement performance, it does provide a signal that further investigation into possible future problems is warranted. Examining multiple variables (such as structural remaining life, functional remaining life, PCN, back-calculation results, and required rehabilitation designs), the results can be collectively considered in the CIP development.

4.5 SUMMARY

The remaining life calculations provide an indication of the projected life of the pavement. Both the functional remaining life based on PCI and the structural remaining life based on load-carrying capacity were determined for the pavement sections at GSP. Overall, the analysis shows a wide variety of remaining life conditions, and some areas will require rehabilitation within the next few years. These results were used to assist in the development of the CIP, which is presented in **Chapter 6**.

CHAPTER 5: AIRCRAFT AND PAVEMENT CLASSIFICATION NUMBERS (ACN/PCN)



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

CHAPTER 5 – AIRCRAFT AND PAVEMENT CLASSIFICATION NUMBERS (ACN/PCN)

5.1 OVERVIEW

The PCI values previously provided in this report are a representation of the pavement's surface condition based on its visual assessment. PCI determinations are not based on the historical construction and typical sections of the pavement and do not provide any information regarding its load bearing capacity. At most, the type of distress showing on the surface indicates if the pavement has received excessive loads. In order to quantify the loads that are acceptable to individual sections of pavement, it is necessary to utilize another assessment methodology. This methodology is called ACN/PCN, which are acronyms for Aircraft Classification Number/Pavement Classification Number. PCN values and codes were determined using the FAA AC 150/5335-5C *Airport Pavement Design and Evaluation*.

Within this methodology, the structural strength of each pavement section is calculated based on its historical and forecast fleet mix, its actual typical section and the strength of its underlying subgrade. Data is compiled and the PCN is determined for each subject pavement section, as defined in the Network definition chapter. The PCN is composed of a numerical value and a series of coded letters. The criteria are as follows:

- Pavement Type
 - R = Rigid
 - F = Flexible
- Subgrade Strength Category
 - A = High ($k > 400$ psi/in or CBR > 13)
 - B = Medium ($k = 201$ to 400 psi/in or CBR = 8 to 13)
 - C = Low ($k = 100$ to 200 psi/in or CBR = 4 to 8)
 - D = Ultra Low ($k < 100$ psi/in or CBR < 4)
- Maximum Allowable Tire Pressure
 - W = High (no limit)
 - X = Medium (146 – 217 psi)
 - Y = Low (74 – 145 psi)
 - Z = Ultra Low (< 73 psi)
- Pavement Evaluation Method
 - T = Technical Evaluation
 - U = Using Aircraft Evaluation

For example, ACARGON-10 section has a PCN of 64 R/B/W/T, which means that the numerical strength value is 64; it is a rigid pavement; it has an effective subgrade strength between 201 and 400; there is no limit in tire pressure; and the value was actually calculated with a technical evaluation.

In this methodology, the structural strength is calculated so it can easily be compared with the actual loading applied by individual aircraft (ACN) to the pavement. This loading is typically determined by the aircraft manufacturer and is published in the Airport Planning Manuals of

each aircraft. The comparison of the calculated PCN and published ACN is a quick and easy tool for airport and airline operators to determine if specific aircraft are safe (from a structural standpoint) to operate on assigned taxiways, runways and aprons. The ACN/PCN methodology has been the only pavement reporting methodology used by ICAO for years and is now being required within the United States by the FAA. U.S. airports have historically used the Single Wheel Load, Double Wheel Load, etc., pavement reporting method, but the FAA has moved away from this old method and complies with the international PCN method.

5.2 PCN RESULTS

The complete PCN results are listed in **Appendix I**. The critical sections, listed in **Table 5.1** below, represent any pavement section at GSP that has a PCN value of less than 30 or a PCN value that is less than the minimum ACN value for that pavement section. **Table 5.2** on the following page lists the critical aircraft whose ACN values exceed the PCN value of a given pavement section.

Branch	Section	Surface Type	Weight or Traffic Restriction	PCN Code
North Cargo Area	ACARGON-10	PCC	Yes	64 R/B/W/T
North Cargo Area	ACARGON-20	PCC	Yes	9 R/B/W/T
South Cargo Area	ACARGOS-20	PCC	Yes	9 R/B/W/T
Hangar 1	AGEN-20	PCC	Yes	5 R/B/W/T
Hangar 1	AGEN-30	PCC	Yes	6 R/B/W/T
Hangar 2	AGEN-10	PCC	Yes	5 R/C/W/T
Hangar 3	AGEN-40	PCC	Yes	5 R/C/W/T
Fire Station 1	FS-10, FS-20	PCC	Yes	4 R/C/W/T
Fire Station 2	AITIN-30	PCC	Yes	5 R/C/W/T
Runway 04-22	RW04-10 – RW04-60	PCC	No	65 R/B/W/T
Runway 04-22	RW04-100 – RW04-120	PCC	No	66 R/B/W/T
Taxilane 2	TL02-10	PCC	Yes	5 R/C/W/T
Taxilane 2	TL02-15	PCC	Yes	15 R/C/W/T
Taxilane 2	TL02-30	PCC	Yes	6 R/C/W/T
Taxiway A	TWA-10	PCC	No	65 R/B/W/T
Taxiway B	TWB-10	PCC	No	63 R/B/W/T
Taxiway C	TWC-10	PCC	No	67 R/B/W/T
Taxiway J	TWJ-10	PCC	No	63 R/B/W/T
Taxiway K	TWK-10	PCC	No	63 R/B/W/T
Taxiway L	TWL-10	PCC	No	62 R/B/W/T
Taxiway L	TWL-20	PCC	No	62 R/B/W/T
Taxiway L	TWL-40	PCC	No	60 R/B/W/T
Taxiway L5	TWL5-20	PCC	Yes	15 R/B/W/T
Taxiway L6	TWL6-10	AC	Yes	2 F/D/X/T
Taxiway L9	TWCARGO	PCC	Yes	63 R/B/W/T

Table 5.1 – PCN Results for Critical Sections

A complete analysis was conducted to determine the aircraft that have higher ACN values than the critical sections' PCN. The following table represents the aircraft that are restricted on the critical pavement sections:

Critical Section	Restricted Aircraft
ACARGON-10 ACARGON-20 ACARGOS-20 AGEN-20 AGEN-30 AGEN-10 AGEN-40 FS-10, FS-20 AITIN-30 TL02-10 TL02-15 TL02-30 TWL5-20 TWL6-10 TWCARGO	2DW 150000, 2DW 400000, A300-600, A319-100 std, A320-200 Twin std, A321-200, A330-300, An-124, B707-320C, B717-200, B727-200, B737-200, B737-300, B737-400, B737-700, B737-800, B737-900, B747-400, B757-200, B757-300, B767-200, B767-300, B777-200, B787-8, C-130, C-17A, C-5, MD83, MD90-30, DW 100000, DW150000, DW 200000, DW 50000, DW 75000, SW 30000, SW 45000, SW 75000
RW04-10 – RW04-60 RW04-100 – RW04-120 TWA-10 TWC-10	A330-300, DW 200000, B777-200, B747-400, B787-8, 2DW 400000
TWB-10 TWJ-10 TWK-10 TWL-10 TWL-20	A321-200, B777-200, DW 200000, B747-400, B787-8, 2DW 400000
TWL-40	B737-900, A321-200, DW 200000, B747-400, B787-8, 2DW 400000

Table 5.2 – Restricted Aircraft by Section

Note: Generic gear configurations and maximum aircraft weights are represented in **Table 5.2** in the format "Gear Configuration Max Aircraft Weight (in pounds)" (SW = Single Wheel, DW = Dual Wheel, 2DW = Double Dual Wheel).

5.3 INTERPRETATION OF ACN/PCN RESULTS

The ACN/PCN system is structured such that a pavement with a given PCN can support an aircraft that has an ACN equal to or less than that PCN. Likewise, the pavement cannot, according to the procedure, accept an aircraft with an ACN exceeding the PCN. However, the *Aerodrome Design Manual* does allow for some overloads according to the following criteria (ICAO 2006):

- For flexible pavements, occasional movements by aircraft with an ACN not exceeding 10 percent of the reported PCN should not adversely affect the pavement.
- For rigid or composite pavements, occasional movements by aircraft with an ACN not exceeding 5 percent of the reported PCN should not adversely affect the pavement.
- The annual number of overload movements should not exceed approximately 5 percent of the total annual aircraft movements.

To evaluate the load-carrying capability of the Airport pavement sections using the ACN/PCN procedure, the section PCN is compared with the ACN of the aircraft using that particular section. At GSP, there are several pavement sections that have an ACN value that exceeds the respective PCN value, which indicates that the load bearing capacity of these sections may not be sufficient for the existing and/or forecast fleet mix. It should be noted that the PCC sections of Runway 04-22 are included as “Critical Sections”, although the ACN generally does not exceed the PCN by more than 5%. These areas are listed in **Table 5.1** and are represented graphically in **Figure 5.1**.

For reference, below are select aircraft manufacturer published ACN values for select aircraft that may operate at GSP. Each ACN is identified at various subgrade strengths and for both rigid and flexible pavement structures.

Aircraft	Weight	Tire	Flexible pavement sub-grades				Rigid pavement sub-grades			
	Maximum	Pressure	CBR%				k (MPa/m ³)			
	(kN)	(MPa)	High	Medium	Low	Very low	High	Medium	Low	Ultra low
			A	B	C	D	A	B	C	D
			15	10	6	3	150	80	40	20
A330-300	2,088	1.31	55	60	70	94	46	54	64	75
B737-900	777	1.47	44	46	51	56	51	53	55	57
B747-400ER	4,061	1.58	57	63	78	100	59	69	81	92
B777-300ER	3,345	1.52	64	71	89	120	66	85	109	131
B787-8	2,240	1.57	60	66	81	106	61	71	84	96
Bombardier CRJ900 Series	377	1.06	21	21	24	27	23	24	26	27
C-17A (Globemaster III)	2,736	0.95	46	51	61	80	55	51	61	76
C-5 Galaxy (Lockheed)	3,723	0.77	31	33	40	51	28	31	37	45
Embraer 170, 175	368	1.04	20	21	24	26	22	24	25	26
Embraer 190, 195	481	1.1	28	30	33	35	31	33	35	36
Embraer ERJ-145 Series	237	0.9	14	15	16	17	16	16	17	18
Gulfstream V	405	1.37	26	28	30	31	31	32	32	33
MD-83	716	1.14	42	45	50	53	47	50	52	54

Table 5.3 – Typical ACN Values for Select Aircraft



These identified sections have an insufficient PCN value because their overall pavement thickness is inadequate, because the subgrade in that area is apparently too weak, or because the pavement was not originally designed for the very heavy load of modern aircraft. As a result, the number of repetitions or the aircraft operating weight should be limited on those sections based on the overload guidance above, until the Pavement is strengthened. The complete PCN results can be referenced in **Appendix I** and the fleet mix used for each section can be referenced in **Appendix G**. These sections will be considered further in the development of the CIP, which is discussed in **Chapter 6**.

5.4 SUMMARY

The ACN/PCN procedure provides an internationally accepted method of analyzing pavement bearing strengths in conjunction with the aircraft using the facility. PCNs were determined for the current aircraft mix at GSP using the methodology described in FAA AC 150/5335-5C. The results indicate that there is one flexible section and twenty-four (24) rigid pavement sections that have ACNs exceeding the pavement's PCNs. Although the proposed aircraft operations do not present any immediate threat to the pavements, the PCN results suggest these pavement sections may require additional structure to meet the growing needs of the Airport.

CHAPTER 6: DEVELOPMENT OF AIRFIELD CAPITAL IMPROVEMENT PLAN (CIP)



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

CHAPTER 6 – DEVELOPMENT OF AIRFIELD CAPITAL IMPROVEMENT PROGRAM (CIP)

6.1 OVERVIEW

Both the visual surface condition and the structural condition of the entire pavement system provide insight into current pavement performance levels and future maintenance and rehabilitation needs. Short-term needs are turned into project lists, subject to budgetary and operational constraints.

This chapter presents the recommended maintenance and rehabilitation needs for airfield pavement at GSP over a 5-year period starting in 2019 for design and 2020 for construction. A year-by-year breakdown of the recommended projects within the Airfield Capital Improvement Plan (CIP) is presented for this 5-year design period (2019-2023). For this CIP, the recommended construction/rehabilitation projects are assigned to specific years and are presented project cost estimates.

6.2 DEVELOPMENT OF AIRFIELD CAPITAL IMPROVEMENT PROGRAM

Factors Considered in Selection of Candidate Projects

Several different factors are considered in determining whether a pavement is a candidate for rehabilitation within the Airfield CIP. First and foremost, the airfield pavement's overall PCI (presented in Chapter 3), which is an indication of the pavement's ability to safely serve the purpose for which it was designed, is considered. During the life of a pavement, the PCI will decrease. In general, PCIs at different levels suggest that different types of treatments are appropriate, as illustrated in **Table 6.1**.

PCI	Classification	Repair Type
91-100	Excellent	Preventative Maintenance
81-90	Very Good	
71-80	Good	
61-70	Fair	Major Rehabilitation
51-60	Poor	
41-50	Very Poor	
0-40	Failed	Reconstruction

Table 6.1 – Typical Repair Action Based on PCI

Another factor to consider is the importance of the pavement to overall operations. While different pavement facilities across the Airport might have similar PCIs that indicate a need for rehabilitation/maintenance, some pavement sections are more critical to Airport operations than others. For example, a critical PCI on the keel section of Runway 04-22 would trigger a rehabilitation project before the same PCI on a seldom-used taxiway or on a remote apron.

In addition to the pavement condition itself, the *rate* of pavement deterioration is also important. This is especially true for pavements that are not initially triggered for rehabilitation by having reached a critical PCI. A higher-than-average deterioration rate is a strong signal that the pavement may be structurally insufficient or have some other problem, and could soon reach a condition that would present an operational issue. Such pavements should be evaluated to see if the cause of the deterioration can be identified and to determine if the pavements need to be programmed for rehabilitation in the near future. In the case where a pavement section begins to deteriorate rapidly, it should be considered for rehabilitation. Upon evaluation, there were no sections that deteriorated more rapidly than is expected. Thus, the typical rate of deterioration is used to determine the remaining life until the pavement reaches a critical PCI. As discussed in Chapter 4, the critical PCIs are as follows:

- 70 for runways
- 65 for taxiways and aprons
- 65 for shoulders and blast pads

The critical PCI indicates the point at which major rehabilitation should be considered. The remaining life until reaching this critical PCI (in years) is one of the primary factors used in the development of the Airfield CIP.

Additionally, the presence of specific field conditions that might impact operations should be considered. The most important of these is the presence of Foreign Object Debris (FOD) and its potential for damaging aircraft. High-severity alligator cracking, high-severity weathering/raveling, high-severity patches, high-severity materials-related problems, high-severity scaling, and medium- and high-severity joint and corner spalling are conditions that are most likely to create a high FOD potential, and if these distresses are present, the pavement should be considered for immediate rehabilitation localized repairs, at a minimum.

Falling Weight Deflectometer (FWD) testing results from Dynatest's field investigation are also considered in the identification of candidate projects. First, the normalized deflections are evaluated to determine sections with deflections that are much higher than those predicted from elastic layer theory, which indicate a pavement structure that is deficient in some manner, such as due to deterioration within one or more pavement layers or poor subgrade conditions. Likewise, the back-calculated subgrade and pavement layer moduli are evaluated to identify sections with layers of insufficient support. The normalized deflections and back-calculated moduli are also compared to deflections with similar pavement cross sections to investigate potential deficiencies which are easily accomplished by viewing the profile plots illustrating the deflection testing results.

Finally, the pavement's structural capacity is considered in the decision-making process by evaluating the structural remaining life and PCN of each pavement section. The structural remaining life analysis—the results of which are presented in **Chapter 4**—provides an estimation of the life of each pavement section based on the damage applied by the given traffic mix for that particular section. A section with less remaining life indicates that it may have an insufficient structure for the given traffic and is thus given a higher priority within the

Airfield CIP. The PCN of each pavement section (presented in **Chapter 5**) also provides an indication of the pavement's structural capacity. If the ACN of an aircraft loading on a particular pavement section exceeds the PCN of that section, then it is more strongly considered for inclusion in the Airfield CIP.

Ranking of Selection Factors

For each selection factor, a ranking system was established to identify the urgency of each section for rehabilitation, based on the following criteria:

- ➔ High – pavement section is in need of immediate attention and should be at the top of the priority list;
- ➔ Medium – pavement section needs to be addressed and should be considered after high urgency sections;
- ➔ Low – pavement section should be monitored closely and could require minor preventative maintenance; and
- ➔ None – pavement section should not require rehabilitation within the next 20 years.

It should be noted that conditions may change over time that affect the pavement's ranking. The recommendations presented herein are based on the information available at the time of this study, which includes current pavement condition data and structural testing data from 2017. The farther out that an action is triggered, the more likely it is that the recommendations may change, which also highlights the need for updating the APMS on a periodic cycle, such as every 3 to 5 years.

Ranking systems were established for three selection factors, which have already been discussed. These factors, and the variables identified for each ranking category, are provided in **Table 6.2**.

Factor	Ranking	Criteria
PCI (Functional) Remaining Life, years	None	> 20
	Low	11 – 20
	Medium	6 – 10
	High	0 – 5
Structural Remaining Life, years	None	> 20
	Low	11 – 20
	Medium	6 – 10
	High	0 – 5
Pavement Classification Number	None	> ACN
	Low	Within 10% of ACN
	Medium	Within 20% of ACN
	High	> 20% below ACN

Table 6.2 – Priority Ranking of Selection Factors

Prioritization of Rehabilitation Projects

An investigation of the ranking of each selection factor was performed to identify and prioritize the projects for inclusion in the Airfield CIP. The PCI and associated distresses are the primary factors used to prioritize the rehabilitation needs using MicroPAVER, and the list of projects generated from MicroPAVER, which includes all pavement sections that fall below the critical PCI, was used as the starting point for prioritizing projects. However, the list was adjusted to consider factors other than PCI and to group proposed work into logical projects. MicroPAVER recommendations for major rehabilitation are generated on a section-by-section basis without regard for any rehabilitation work being performed on adjacent sections. Thus, MicroPAVER could recommend rehabilitation on a section during one year and then recommend rehabilitation of an adjacent section during a subsequent year. Of course, this is neither an economically feasible approach nor does it make sense to close the same area for rehabilitation in consecutive years. The project team looked closely at all sections that were triggered for rehabilitation and tried to group sections into sensible construction projects.

Adequately prioritizing pavement sections recommended for rehabilitation while taking into account all technical data available as part of a pavement management system can be a daunting task. Although the PCI of a section is the primary consideration for prioritizing pavement projects, the structural condition and other factors should also be considered. A summary of the pavement priority rankings for each factor are listed in **Table 6.3**.

Ultimately, all of the factors—overall pavement condition, importance of the facility to Airport operations, overall impact of improvements to that section, and coordination of work among adjacent sections—are collectively considered in the development of the Airfield CIP. A consideration of all of these factors also helps ensure that future potential problems, whether functional or structural, are identified and addressed. Even though a project priority list is developed based on the factors discussed above, these priorities do not necessarily directly correspond to the years that each project is recommended for rehabilitation in the Airfield CIP.

KEY			
Ranking	PCN Analysis*	Structural Remaining Life (Years)	Functional Remaining Life (Years)
HIGH	> 20% below ACN	0-5	0-5
MEDIUM	Within 20% of ACN	6-10	6-10
LOW	Within 10% of ACN	11-20	11-20

*PCN of Section was compared to ACN of Critical Aircraft for the Section Surface Type and Subgrade Category.

Table 6.3 – Priority Rankings for GSP Pavements

Branch ID	Section ID	Pavement Structure	PCN	Structural Remaining Life	Functional Remaining Life (PCI > 40)
ACARGON	10	14" P-501, 8" P-304	64 R/B/W/T	2.4	20+
	20	8" P-501, 8" P-304	9 R/B/W/T	0.3	20+
	30	14" P-501, 8" P-304	64 R/B/W/T	2.4	20+
ACARGOS	10	15" P-501, 8" P-304	> ACN	20+	20+
	20	8" P-501, 6" P-209	9 R/B/W/T	0.5	20+
AGEN	10	6.5" P-501, 12" P-154	5 R/C/W/T	0	20+
	20	6" P-501, 6" P-154	5 R/B/W/T	0	20+
	30	7" P-501, 4" P-209	6 R/B/W/T	0	20+
	40	6.5" P-501, 12" P-154	5 R/C/W/T	0	20+
AITIN	10	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	12
	20	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	3
	30	6" P-501, 6" P-209	5 R/C/W/T	0	20+
ATERM	10	17" P-501, 6" P-304, 6" P-209	> ACN	20+	20+
	20	17" P-501, 6" P-304, 6" P-209	> ACN	20+	20+
	30	17" P-501, 6" P-304, 6" P-209	> ACN	20+	20+
FS	10	6" P-501	4 R/C/W/T	0	20+
	20	6" P-501	4 R/C/W/T	0	16
RW04	10	14" P-501, 8" P-304	65 R/B/W/T	3.2	20+
	20	14" P-501, 8" P-304	65 R/B/W/T	3.2	20+
	30	14" P-501, 8" P-304	65 R/B/W/T	3.2	20+
	40	14" P-501, 8" P-304	65 R/B/W/T	3.2	20+
	50	14" P-501, 8" P-304	65 R/B/W/T	3.2	20+
	60	14" P-501, 8" P-304	65 R/B/W/T	3.2	20+
	70	3.5" P-401, 4" P-401, 2.5" P-401, 6" P-403, 12" P-154	> ACN	20+	20+
	80	3.5" P-401, 4" P-401, 2.5" P-401, 6" P-403, 12" P-154	> ACN	20+	18
	90	3.5" P-401, 4" P-401, 2.5" P-401, 6" P-403, 12" P-154	> ACN	20+	20+
	100	14" P-501, 8" P-304	66 R/B/W/T	5	20+
	110	14" P-501, 8" P-304	66 R/B/W/T	5	20+
	120	14" P-501, 8" P-304	66 R/B/W/T	5	20+
TL01	10	15" P-501, 8" P-304, 12" P-154	> ACN	20+	20+
	20	15" P-501, 8" P-304, 12" P-154	> ACN	20+	20+
	25	17" P-501, 6" P-304, 6" P-209	> ACN	20+	20+
	30	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	4
TL02	10	6.5" P-501, 12" P-154	5 R/C/W/T	0	20+
	15	10" P-501, 6" P-209, 12" P-154	15 R/C/W/T	0.1	20+
	30	7" P-501, 4" P-209	6 R/C/W/T	0	20+
TWA	10	14" P-501, 8" P-304	65 R/B/W/T	3.4	20+
TWB	10	14" P-501, 8" P-304	63 R/B/W/T	1.4	20+
TWC	10	14" P-501, 8" P-304	67 R/B/W/T	8.7	20+
TWCARGO	10	14" P-501, 8" P-304	63 R/B/W/T	0.6	20+
TWD	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	14
TWE	5	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	9
	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	9
TWF	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	5
TWG	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	2
	20	7" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	20+
TWJ	10	14" P-501, 8" P-304	63 R/B/W/T	1.5	20+
TWK	10	14" P-501, 8" P-304	63 R/B/W/T	1.6	20+
TWL	10	14" P-501, 8" P-304	62 R/B/W/T	1.1	20+
	20	14" P-501, 8" P-304	62 R/B/W/T	1.1	20+
	25	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	11
	30	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	11
	40	14" P-501, 8" P-304	60 R/B/W/T	0.3	20+
TWL2	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	11.3	10
	20	15" P-501, 8" P-304, 12" P-154	> ACN	5.6	20+
	30	17" P-501, 6" P-304, 6" P-209	> ACN	20+	20+
TWL3	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	18.4	15
	20	15" P-501, 8" P-304, 12" P-154	> ACN	6.5	20+
TWL4	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	18
	20	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	16
TWL5	10	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	> ACN	20+	18
	20	10" P-501, 6" P-209, 12" P-154	15 R/B/W/T	0.2	20+
TWL6	10	4" P-401, 9" P-209	3 F/D/X/T	0	8

Table 6.4 – Priority Ranking by Pavement Section

Recommended Airfield Capital Improvement Program

The development of the Airfield CIP involved a detailed assessment of each candidate airfield pavement section, as described. Both a “design” year and a “construction” year are identified for each project recommended in the Airfield CIP, with a 1-year lag between these activities. Therefore, the five-year CIP includes design years 2019 through 2023 and construction years 2020 through 2024. This is a simplistic presentation of the design/construction process but serves to provide some tangibility to the project prioritization. Identifying potential areas of concern within the later years of the CIP allows the Airport to plan for these future projects.

To adequately address the pavement-related needs over the next five years, the projects are placed into design and construction years in a manner that not only addresses the needs determined from this study, but also considers the Airport’s input and priorities. If the recommended plan is carried out, the area-weighted PCI of the system is expected to increase. Given the current overall area-weighted PCI of 81, it is realistic to expect a significant increase in the overall area-weighted PCI of the network if each of the rehabilitation projects are performed over the next five years. Each project will significantly boost the respective PCI values within the specific section, thus increasing the overall area-weighted PCI of the entire airfield.

The proposed GSP airfield pavement sections recommended for rehabilitation are listed in **Table 6.5** and presented graphically in **Figure 6.1**. These are estimated and unescalated construction and total project costs for the first 5 years (2019-2023). A breakdown of the expected costs associated with the plan is identified in **Appendix J**. As evident in **Table 6.4**, the costs presented are anticipated “project costs” including not only pavement-related costs (i.e., the cost calculated based on the unit costs presented in **Appendix J**), but also non-pavement-related work, professional fees, contingency fees, and pricing allowances. It should also be noted that no escalation is included in these costs. These costs should provide a reasonable basis for the Airport to use to identify adequate funds to perform the necessary work. A project-level evaluation is still recommended prior to rehabilitation to develop specific rehabilitation designs and guidelines for each project.

Non-pavement related work—such as lighting, turfing, drainage, signage and pavement markings, and so on—is calculated as a percentage of the pavement-related costs. For example, the non-pavement related costs for runway and taxiway pavements may be assumed to be 55 percent of the pavement-related costs, while the costs for apron pavements may be closer to 15 percent. These percentages were developed based on aviation and construction experience and vary per project. The pavement-related costs and non-pavement related costs are combined to produce a “total construction cost,” which includes mobilization (10 percent), a detailed pricing allowance (10 percent), and a contingency fee (15 percent). Professional fees (25 percent) are separated into a design fee (11 percent) that occurs in the first year and a construction fee (14 percent) that occurs the following year. The professional fees are then added to the “total construction cost” to determine the “total project cost” (see **Appendix J** for a detailed project cost breakdown).

Priority	Design Year	Construction Year	Project Description	Total Construction Cost	Total Project Cost
1	2019	2020	Taxiway L & High Speed Taxiways Rehabilitation <i>Mill and overlay 4" on Taxiways D & G, mill and overlay 2" on Taxiway L, Taxiways L2 through L4, and shoulders and full depth reconstruction of Taxiways L5 & L6. Remove Taxiways E & F</i>	\$ 7,845,000	\$ 11,300,000
2	2020	2021	Localized PCC Repairs and Joint Sealing - 3 Phases <i>Perform localized PCC repairs and rout, clean and seal joints on PCC portions of the South Cargo Apron, North Cargo Apron, and General Aviation</i>	\$ 1,982,000	\$ 2,900,000
3	2021	2022	Runway 04-22 Asphalt Rehabilitation <i>Mill and overlay 2" Runway, Shoulders, and Blast Pad</i>	\$ 6,689,000	\$ 9,700,000
4	2022	2023	Localized PCC Repairs and Joint Sealing <i>Perform localized PCC repairs and rout, clean, and seal joints on PCC portions of Runway 04-22 and Taxiways A, B, C, J, K & L</i>	\$ 1,470,000	\$ 2,200,000
5	2023	2024	Reconstruct Itinerant Apron <i>Full depth reconstruction on Itinerant Apron, Fire Station Apron and adjacent portion of Taxiway 2</i>	\$ 9,564,000	\$ 13,800,000
Total Five-Year Cost				\$ 27,550,000	\$ 39,900,000

Table 6.5 – Recommended GSP Airfield CIP Summary (2019-2024)

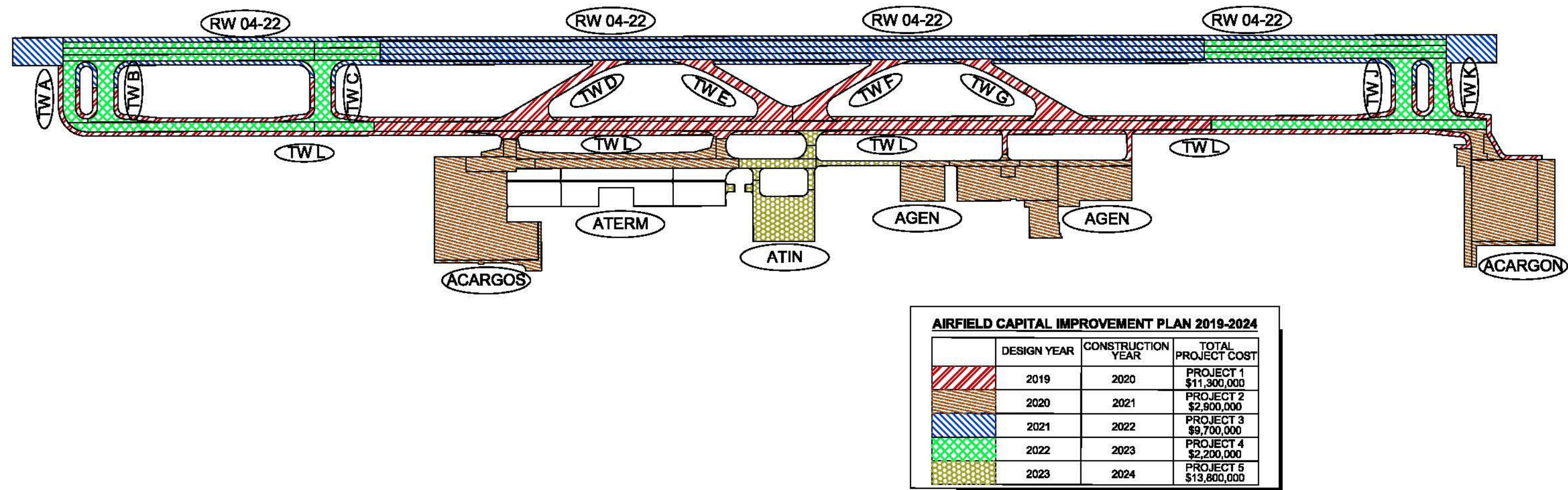


Figure 6.1 – GSP Capital Improvement Plan Map

All estimates within this report are based on 2017 dollars. Annual escalation costs were not included within the pricing. Overall, an average of approximately \$8 million per year from 2019 through 2021, \$2 million per year is needed in 2022, and \$6 million per year is needed in 2023 to address the short-term pavement needs at GSP.

6.3 MAINTENANCE PLAN

MicroPAVER provides a detailed list of immediate maintenance items (next 0 – 2 years) that address the critical distresses identified within the pavement sections. This list was then tailored to eliminate various pavement areas which will be handled in a separate manner or not at all (as described in **Appendix K**).

Maintenance projects are proposed to bridge the gap between the current condition of airfield pavements and the condition of pavement at the time of the full-scale rehabilitation project in the future. Therefore, smaller, maintenance-type projects are formulated to address the worst portions of the pavement until the large-scale project is completed in the long-term plan. The maintenance plan presented in **Appendix K** is based on the specific distresses observed during the 2017 pavement condition inspection, and the costs are specific to those distresses.

Appendix K also details the priority rankings and selection criteria used to prioritize maintenance projects and CIP projects. Based on the distresses observed during the 2017 pavement condition inspection, approximately \$850,000 is required to address the Maintenance Projects. See **Appendix K** for the Maintenance Plan and Summary.

6.4 SUMMARY

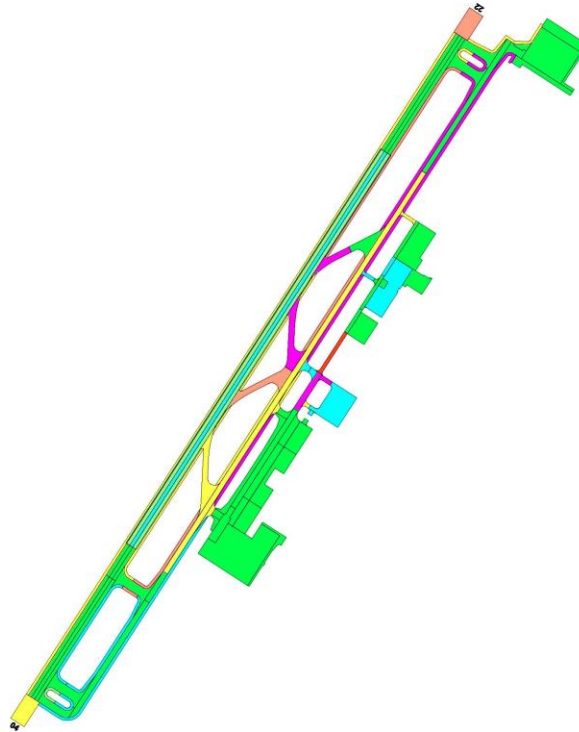
This chapter describes the process that was followed during the development of the Airfield CIP for GSP. The following factors were considered in the development of the recommended program:

- ➔ Overall condition of the pavement, including PCI and observed distress types and quantities;
- ➔ Functional remaining service life before reaching the critical PCI;
- ➔ Structural remaining life;
- ➔ Comparison of ACN and PCN;
- ➔ Timing of rehabilitation of adjacent sections;
- ➔ Coordination of rehabilitation activities both within and between facilities;
- ➔ Expected impact of section improvements on the overall pavement network;
- ➔ Project costs and annual budgets;
- ➔ Maintenance needs and projected costs.

It should be emphasized that the factors that affect performance—such as environment, loadings, construction, and material quality—are highly variable, and that a project may move up or down on the list of recommendations based on actual conditions in any given year. However, these general recommendations should serve as a good approximation of the short-term airfield pavement facility rehabilitation needs at GSP.



GREENVILLE-SPARTANBURG AIRPORT DISTRICT



GREENVILLE-SPARTANBURG INTERNATIONAL AIRPORT (GSP)

AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

Volume 2 of 2
Appendices

AUGUST 2018

Prepared By



AVCON, Inc.

In Association With



McFarland Johnson

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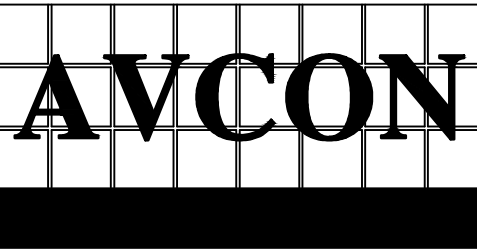
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- Appendix B – Pavement Construction History Table
- Appendix C – MicroPAVER Work History Report
- Appendix D – MicroPAVER Section/Branch Condition Report
- Appendix E – PCI Map
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- Appendix G – Air Traffic Data
- Appendix H – Remaining Life Data
- Appendix I – PCN/ACN Data
- Appendix J – Airfield CIP Maps and Data
- Appendix K – Maintenance Plan and Summary

APPENDIX A: NETWORK DEFINITION MAP



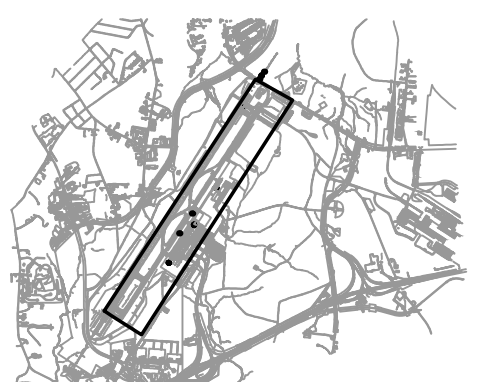
AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE



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KEY PLAN

PAVEMENT
MANAGEMENT PLAN
(PMP) UPDATE

NETWORK DEFINITION
MAP

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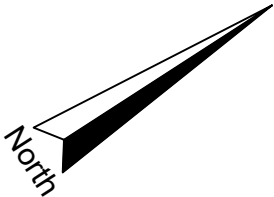
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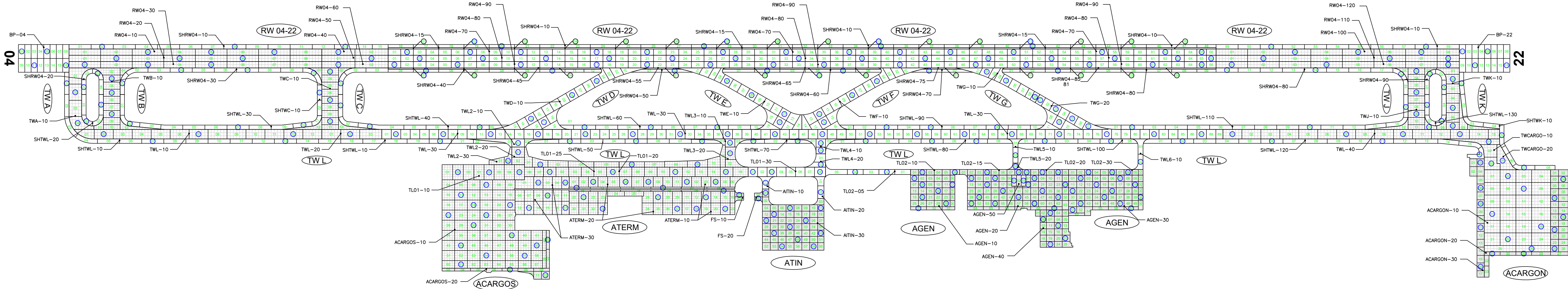
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APP. A



0' 225' 450' 900'

GRAPHIC SCALE IN FEET



LEGEND

- FACILITY NAME
- SECTION NUMBER
- RW04-120
- SAMPLE UNIT
- SURVEYED SAMPLE UNIT

APPENDIX B: PAVEMENT CONSTRUCTION HISTORY TABLE



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

Facility	Section	Construction Summary
ACARGON	10	14" P-501 / 8" P-304 (1996)
	20	8" P-501, 8" P-304 (1996)
	30	14" P-501 / 8" P-304 (2001) and 8" P-501 / 8" P-304 (2001)
ACARGOS	10	15" P-501 / 8" P-304 (2002)
	20	8" P-501 / 8" P-304 (2002)
AGEN	10	6.5" P-501 / 12" P-154 (2007)
	20	6" P-501 / 6" P-154 (1999) , 6" P-501 / 6" P-154 (2006- Localized Repairs)
	30	7" P-501 / 4" P-209 (1984)
	40	6.5" P-501 / 12" P-154 (2007)
	50	10" P-501 / 6" P-209 / 12" P-155 (2015)
AITIN	10	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , Unknown Major M&R (2009)
	20	
	30	6" P-501 / 6" P-154 (1962) , 6" P-501 / 6" P-209 (1999 - Localized Repair) , 6" P-501 / 6" P-209 (2006 - Localized Repair)
ATERM	10	17" P-501 / 6" P-304 / 6" P-209 (2017)
	20	
	30	
FS	10	6" P-501 (1963)
	20	
RW04	10	14" P-501 / 8" P-304 (1999)
	20	
	30	
	40	14" P-501 / 8" P-304 (1996)
	50	
	60	
	70	2.5" P-401 / 6" P-403 / 12" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-5.5" P-401 Overlay (1994) , Unknown Overlay (2009)
	80	
	90	
	100	14" P-501 / 8" P-304 (1996)
	110	
	120	
TL01	10	15" P-501 / 8" P-304 / 12" P-154 (2001)
	20	15" P-501 / 8" P-304 / 12" P-154 (2001)
	25	17" P-501 / 6" P-304 / 6" P-209 (2016)
	30	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , Unknown M&R (2009)
TL02	10	6.5" P-501 / 12" P-154 (2006)
	15	10" P-501 / 6" P-209 / 12" P-154 (2015)
	30	7" P-501 / 4" P-209 (1962)
TWA	10	14" P-501 / 8" P-304 (1999)
TWB	10	14" P-501 / 8" P-304 (1999)
TWC	10	14" P-501 / 8" P-304 (1996)
TWCARGO	10	14" P-501 / 8" P-304 (1996)
TWD	10	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay / 2" P-401 (1994) , AC Overlay (2010)
TWE	5	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay / 2" P-401 (1994) , AC Overlay (2010)
	10	
TWF	10	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay / 2" P-401 (1994) , AC Overlay (2010)
TWG	10	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay / 2" P-401 (1994) , AC Overlay (2010)
	20	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay / 2" P-401 (1994) , 7" P-401 Mill and Overlay (2016)
TWJ	10	14" P-501 / 8" P-304 (1996)
TWK	10	14" P-501 / 8" P-304 (1996)
TWL	10	14" P-501 / 8" P-304 (1999)
	20	14" P-501 / 8" P-304 (1996)
	25	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay

Table B-1 - Construction History Summary

Facility	Section	Construction Summary
TWL	30	/ 2" P-401 (1994) , AC Overlay (2010)
	40	14" P-501 / 8" P-304 (1996)
TWL2	10	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay / 2" P-401 (1994)
	20	15" P-501 / 8" P-304 / 12" P-154 (2001)
	30	17" P-501 / 6" P-304 / 6" P-209 (2016)
TWL3	10	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay / 2" P-401 (1994) , AC Overlay (2009)
	20	15" P-501 / 8" P-304 / 12" P-154 (2001)
TWL4	10	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay / 2" P-401 (1994) , AC Overlay (2009)
	20	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , AC Overlay (2009)
TWL5	10	3" P-401 / 6" P-403 / 19.5" P-154 (1962) , 4" P-401 Overlay (1976) , 0.5" P-401 Mill / 1.5"-3" P-401 Overlay / 2" P-401 (1994) , AC Overlay (2009)
	20	10" P-501 / 6" P-209 / 12" P-154 (2015)
TWL6	10	4" P-401 / 9" P-209 (1984) , AC Overlay (2009)

Table B-1 - Construction History Summary (cont'd)

Legend	
Spec. Num.	Material
P-154	Subbase
P-155	Lime-Treated Subgrade
P-209	Crushed Aggregate Base Course
P-304	Cement-Treated Base Course
P-401	Hot-Mix Asphalt (HMA) Surface Course
P-403	Hot-Mix Asphalt Base Course
P-501	Portland Cement Concrete (PCC) Pavement

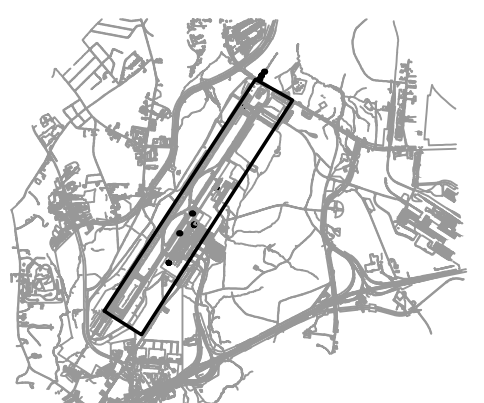
Table B-2 - FAA Specification Legend



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KEY PLAN

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CONSTRUCTION
HISTORY MAP

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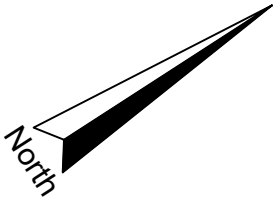
SCALE: AS NOTED

REVISIONS:			
NO.	DATE	BY	DESCRIPTION

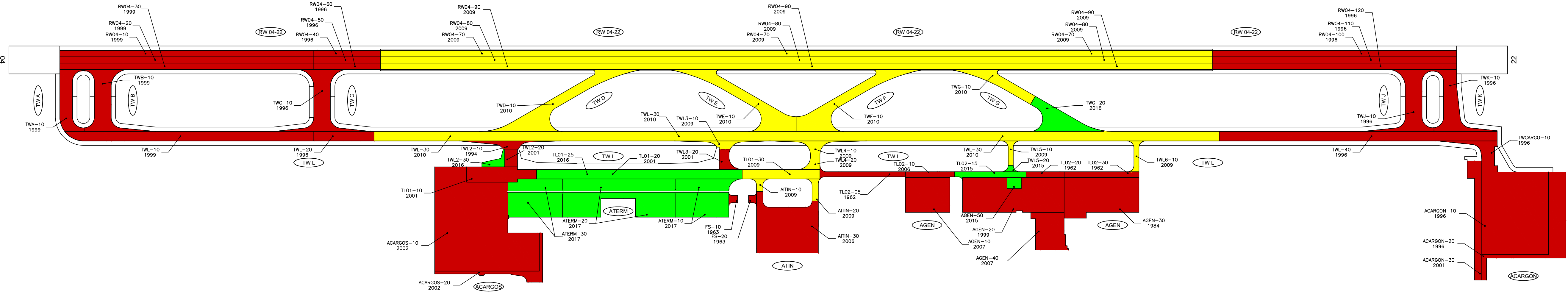
DESIGNED BY: B.S.H.
DRAWN BY: T.D.B.
CHECKED BY: M.D.
APPROVED BY: S.S.
DATE: AUGUST 2018

AVCON PROJECT NO. 2017.266.01

APP. B



0' 225' 450' 900'
GRAPHIC SCALE IN FEET



LEGEND

FACILITY NAME
YEAR OF LAST MAJOR
CONSTRUCTION EVENT

	WITHIN 5 YEARS
	5-10 YEARS AGO
	10+ YEARS AGO

APPENDIX C: MICROPAVER WORK HISTORY REPORT



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

9/18/2017

Work History Report

Pavement Database: AVCON-GSP APMS 2017

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Network: GREENVILLE-SPAR Branch: ACARGON NORTH AIR CAR Section: 10 Surface: PCC L.C.D.: 1/1/1996 Use: APRON Rank: P Length: 650.00 (Ft) Width: 525.00 (Ft) True Area: 341,250.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304

Network: GREENVILLE-SPAR Branch: ACARGON NORTH AIR CAR Section: 20 Surface: PCC L.C.D.: 1/1/1996 Use: APRON Rank: P Length: 1,341.00 (Ft) Width: 137.00 (Ft) True Area: 114,714.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	8" P-501, 8" P-304

Network: GREENVILLE-SPAR Branch: ACARGON NORTH AIR CAR Section: 30 Surface: PCC L.C.D.: 1/1/2001 Use: APRON Rank: P Length: 762.00 (Ft) Width: 100.00 (Ft) True Area: 62,212.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2001	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304 AND 8" P-501, 8" P

Network: GREENVILLE-SPAR Branch: ACARGOS SOUTH CARGO Section: 10 Surface: PCC L.C.D.: 1/1/2002 Use: APRON Rank: P Length: 820.00 (Ft) Width: 820.00 (Ft) True Area: 508,349.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2002	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	15" P-501, 8" P-304
1/1/1987	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	P-501, P-304

Network: GREENVILLE-SPAR Branch: ACARGOS SOUTH CARGO Section: 20 Surface: PCC L.C.D.: 1/1/2002 Use: APRON Rank: P Length: 1,260.00 (Ft) Width: 40.00 (Ft) True Area: 37,780.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2002	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	8" P-501, 6" P-209

Network: GREENVILLE-SPAR Branch: AGEN STEVENS GENE Section: 10 Surface: PCC L.C.D.: 1/1/2007 Use: APRON Rank: P Length: 350.00 (Ft) Width: 275.00 (Ft) True Area: 96,250.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2007	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	6.5" P-501, 12" P-155

Network: GREENVILLE-SPAR Branch: AGEN STEVENS GENE Section: 20 Surface: PCC L.C.D.: 1/1/1999 Use: APRON Rank: P Length: 800.00 (Ft) Width: 250.00 (Ft) True Area: 209,531.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2006	SL-PC	Slab Replacement - PCC	0.00	0.00	<input type="checkbox"/>	6" P-501, 6" P-154
1/1/1999	SL-PC	Slab Replacement - PCC			<input type="checkbox"/>	6" P-501, 6" P-154
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	6" P-501, 6" P-154

Network: GREENVILLE-SPAR Branch: AGEN STEVENS GENE Section: 30 Surface: PCC L.C.D.: 1/1/1984 Use: APRON Rank: P Length: 590.00 (Ft) Width: 320.00 (Ft) True Area: 170,125.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments

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Network: GREENVILLE-SPAR		Branch: AGEN		STEVENS GENE		Section: 30	Surface: PCC
L.C.D.: 1/1/1984	Use: APRON	Rank: P	Length: 590.00 (Ft)	Width: 320.00 (Ft)	True Area: 170,125.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1984	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	7" P-501, 4" P-209	

Network: GREENVILLE-SPAR		Branch: AGEN		STEVENS GENE		Section: 40	Surface: PCC
L.C.D.: 1/1/2007	Use: APRON	Rank: P	Length: 300.00 (Ft)	Width: 250.00 (Ft)	True Area: 70,641.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2007	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	6.5" P-501; 12" P-155	

Network: GREENVILLE-SPAR		Branch: AGEN		STEVENS GENE		Section: 50	Surface: PCC
L.C.D.: 1/1/2015	Use: APRON	Rank: P	Length: 87.00 (Ft)	Width: 111.00 (Ft)	True Area: 9,844.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2015	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	10" P-501; 6" P-209; 12" P-155	
1/1/2006	SL-PC	Slab Replacement - PCC	0.00	0.00	<input type="checkbox"/>	6" P-501, 6" P-154	
1/1/1999	SL-PC	Slab Replacement - PCC	0.00	0.00	<input type="checkbox"/>	6" P-501, 6" P-154	
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	6" P-501, 6" P-154	

Network: GREENVILLE-SPAR		Branch: AITIN		ITINERANT APR		Section: 10	Surface: AAC
L.C.D.: 1/1/2009	Use: APRON	Rank: T	Length: 100.00 (Ft)	Width: 50.00 (Ft)	True Area: 5,974.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2009	NONE	No Major M & R			<input checked="" type="checkbox"/>	Unkown Major M&R	
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	+4 P-401	
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154	

Network: GREENVILLE-SPAR		Branch: AITIN		ITINERANT APR		Section: 20	Surface: AAC
L.C.D.: 1/1/2009	Use: APRON	Rank: T	Length: 175.00 (Ft)	Width: 50.00 (Ft)	True Area: 9,316.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2009	NONE	No Major M & R			<input checked="" type="checkbox"/>	Unknown Major M&R	
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	+4" P-401	
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154	

Network: GREENVILLE-SPAR		Branch: AITIN		ITINERANT APR		Section: 30	Surface: PCC
L.C.D.: 1/1/1962	Use: APRON	Rank: T	Length: 425.00 (Ft)	Width: 486.00 (Ft)	True Area: 185,144.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2006	SL-PC	Slab Replacement - PCC	0.00	0.00	<input type="checkbox"/>	6" P-501, 6" P-209	
1/1/1999	SL-PC	Slab Replacement - PCC	0.00	0.00	<input type="checkbox"/>	6" P-501, 6" P-209	
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	6" P-501, 6" P-154	

Network: GREENVILLE-SPAR		Branch: ATERM		AIR CARRIER (T		Section: 10	Surface: PCC
L.C.D.: 1/1/2017	Use: APRON	Rank: P	Length: 418.00 (Ft)	Width: 300.00 (Ft)	True Area: 123,677.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	

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Work History Report

Pavement Database: AVCON-GSP APMS 2017

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Network: GREENVILLE-SPAR		Branch: ATERM		AIR CARRIER (T		Section: 10	Surface: PCC
L.C.D.: 1/1/2017	Use: APRON	Rank: P	Length: 418.00 (Ft)	Width: 300.00 (Ft)	True Area: 123,677.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2017	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	17" P-501, 6" BASE, 6" P-209, 12" P-15	
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	11" P-501, 9" P-154	

Network: GREENVILLE-SPAR		Branch: ATERM		AIR CARRIER (T		Section: 20	Surface: PCC
L.C.D.: 1/1/2017	Use: APRON	Rank: P	Length: 893.00 (Ft)	Width: 300.00 (Ft)	True Area: 219,122.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2017	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	17" P-501, 6" BASE, 6" P-209, 12" P-15	
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	11" P-501, 9" P-154	

Network: GREENVILLE-SPAR		Branch: ATERM		AIR CARRIER (T		Section: 30	Surface: PCC
L.C.D.: 1/1/2017	Use: APRON	Rank: P	Length: 422.00 (Ft)	Width: 300.00 (Ft)	True Area: 122,490.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2017	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	17" P-501, 6" BASE, 6" P-209, 12" P-15	
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	11" P-501, 9" P-154	

Network: GREENVILLE-SPAR		Branch: BP		BLASTPAD		Section: 04	Surface: AC
L.C.D.: 1/1/1996	Use: OVERRU	Rank: P	Length: 400.00 (Ft)	Width: 220.00 (Ft)	True Area: 88,000.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209	

Network: GREENVILLE-SPAR		Branch: BP		BLASTPAD		Section: 22	Surface: AC
L.C.D.: 1/1/1996	Use: OVERRU	Rank: P	Length: 400.00 (Ft)	Width: 220.00 (Ft)	True Area: 88,000.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209	

Network: GREENVILLE-SPAR		Branch: FS		FIRESTATION R		Section: 10	Surface: PCC
L.C.D.: 1/1/1963	Use: TAXIWAY	Rank: P	Length: 70.00 (Ft)	Width: 57.00 (Ft)	True Area: 4,235.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1963	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	6" P-501, 6" P-152	

Network: GREENVILLE-SPAR		Branch: FS		FIRESTATION R		Section: 20	Surface: PCC
L.C.D.: 1/1/1963	Use: TAXIWAY	Rank: P	Length: 63.00 (Ft)	Width: 57.00 (Ft)	True Area: 3,841.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1963	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	6" P-501, 6" P-152	

Network: GREENVILLE-SPAR		Branch: RW04		RUNWAY 04-22		Section: 10	Surface: PCC
L.C.D.: 1/1/1999	Use: RUNWAY	Rank: P	Length: 2,000.00 (Ft)	Width: 50.00 (Ft)	True Area: 100,000.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	

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Network: GREENVILLE-SPAR Branch: RW04 Runway: 04-22 Section: 10 Surface: PCC L.C.D.: 1/1/1999 Use: RUNWAY Rank: P Length: 2,000.00 (Ft) Width: 50.00 (Ft) True Area: 100,000.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1999	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	14" P-501, 8" P-304

Network: GREENVILLE-SPAR Branch: RW04 Runway: 04-22 Section: 100 Surface: PCC L.C.D.: 1/1/1996 Use: RUNWAY Rank: P Length: 1,925.00 (Ft) Width: 50.00 (Ft) True Area: 96,250.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304

Network: GREENVILLE-SPAR Branch: RW04 Runway: 04-22 Section: 110 Surface: PCC L.C.D.: 1/1/1996 Use: RUNWAY Rank: P Length: 1,925.00 (Ft) Width: 50.00 (Ft) True Area: 96,250.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304

Network: GREENVILLE-SPAR Branch: RW04 Runway: 04-22 Section: 120 Surface: PCC L.C.D.: 1/1/1996 Use: RUNWAY Rank: P Length: 1,925.00 (Ft) Width: 50.00 (Ft) True Area: 96,250.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304

Network: GREENVILLE-SPAR Branch: RW04 Runway: 04-22 Section: 20 Surface: PCC L.C.D.: 1/1/1999 Use: RUNWAY Rank: P Length: 2,000.00 (Ft) Width: 50.00 (Ft) True Area: 100,000.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1999	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	14" P-501, 8" P-304

Network: GREENVILLE-SPAR Branch: RW04 Runway: 04-22 Section: 30 Surface: PCC L.C.D.: 1/1/1999 Use: RUNWAY Rank: P Length: 2,000.00 (Ft) Width: 50.00 (Ft) True Area: 100,000.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1999	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	14" P-501, 8" P-304

Network: GREENVILLE-SPAR Branch: RW04 Runway: 04-22 Section: 40 Surface: PCC L.C.D.: 1/1/1996 Use: RUNWAY Rank: P Length: 525.00 (Ft) Width: 50.00 (Ft) True Area: 26,250.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	CR-PC	Complete Reconstruction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	14" P-501, 8" P-304
1/1/1962	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	

Network: GREENVILLE-SPAR Branch: RW04 Runway: 04-22 Section: 50 Surface: PCC L.C.D.: 1/1/1996 Use: RUNWAY Rank: P Length: 525.00 (Ft) Width: 50.00 (Ft) True Area: 26,250.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	CR-PC	Complete Reconstruction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	14" P-501, 8" P-304
1/1/1962	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	

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Network: GREENVILLE-SPAR		Branch: RW04	RUNWAY 04-22		Section: 60	Surface: PCC
L.C.D.: 1/1/1996		Use: RUNWAY	Rank: P	Length: 525.00 (Ft)	Width: 50.00 (Ft)	True Area: 26,250.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	CR-PC	Complete Reconstruction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	14" P-501, 8" P-304
1/1/1962	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	

Network: GREENVILLE-SPAR		Branch: RW04	RUNWAY 04-22		Section: 70	Surface: AAC
L.C.D.: 1/1/2009		Use: RUNWAY	Rank: P	Length: 6,550.00 (Ft)	Width: 50.00 (Ft)	True Area: 327,500.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2009	OL-AS	Overlay - AC Structural			<input checked="" type="checkbox"/>	
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5"-5.5" P-401
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	2.5" P-401, 6" P-201, 12" P-154

Network: GREENVILLE-SPAR		Branch: RW04	RUNWAY 04-22		Section: 80	Surface: AAC
L.C.D.: 1/1/2009		Use: RUNWAY	Rank: P	Length: 6,550.00 (Ft)	Width: 50.00 (Ft)	True Area: 327,500.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2009	OL-AS	Overlay - AC Structural			<input checked="" type="checkbox"/>	
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5"-5.5" P-401
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	2.5" P-401, 6" P-201, 12" P-154

Network: GREENVILLE-SPAR		Branch: RW04	RUNWAY 04-22		Section: 90	Surface: AAC
L.C.D.: 1/1/2009		Use: RUNWAY	Rank: P	Length: 6,550.00 (Ft)	Width: 50.00 (Ft)	True Area: 327,500.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2009	OL-AS	Overlay - AC Structural			<input checked="" type="checkbox"/>	
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5"-5.5" P-401
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	2.5" P-401, 6" P-201, 12" P-154

Network: GREENVILLE-SPAR		Branch: SHRW04	SHOULDER RUN		Section: 10	Surface: AC
L.C.D.: 1/1/1996		Use: SHOULDE	Rank: S	Length: 9,130.00 (Ft)	Width: 35.00 (Ft)	True Area: 319,525.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR		Branch: SHRW04	SHOULDER RUN		Section: 15	Surface: AC
L.C.D.: 1/1/1996		Use: SHOULDE	Rank: S	Length: 6,551.00 (Ft)	Width: 10.00 (Ft)	True Area: 65,510.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

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Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 20 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 4,501.00 (Ft) Width: 35.00 (Ft) True Area: 15,741.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 30 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,771.00 (Ft) Width: 35.00 (Ft) True Area: 61,997.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 40 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,726.00 (Ft) Width: 35.00 (Ft) True Area: 60,404.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 45 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,679.00 (Ft) Width: 10.00 (Ft) True Area: 16,792.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 50 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 402.00 (Ft) Width: 25.00 (Ft) True Area: 10,047.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 55 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 259.00 (Ft) Width: 10.00 (Ft) True Area: 2,587.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 60 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,255.00 (Ft) Width: 25.00 (Ft) True Area: 31,379.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 65 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,236.00 (Ft) Width: 10.00 (Ft) True Area: 12,355.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

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Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 70 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 402.00 (Ft) Width: 25.00 (Ft) True Area: 10,047.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 75 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 259.00 (Ft) Width: 10.00 (Ft) True Area: 2,587.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 80 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 2,854.00 (Ft) Width: 35.00 (Ft) True Area: 99,881.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 85 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,682.00 (Ft) Width: 10.00 (Ft) True Area: 16,819.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHRW04 SHOULDER RUN Section: 90 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 441.00 (Ft) Width: 35.00 (Ft) True Area: 15,420.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWC SHOULDER TAX Section: 10 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 243.00 (Ft) Width: 35.00 (Ft) True Area: 8,503.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWK SHOULDER TAX Section: 10 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,330.00 (Ft) Width: 35.00 (Ft) True Area: 46,553.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 10 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 38,000.00 (Ft) Width: 35.00 (Ft) True Area: 132,992.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

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Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 100 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 917.00 (Ft) Width: 35.00 (Ft) True Area: 32,100.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 110 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 2,609.00 (Ft) Width: 35.00 (Ft) True Area: 91,322.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 120 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 2,843.00 (Ft) Width: 35.00 (Ft) True Area: 99,512.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 130 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 538.00 (Ft) Width: 35.00 (Ft) True Area: 18,811.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 20 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 541.00 (Ft) Width: 35.00 (Ft) True Area: 18,920.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 30 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,804.00 (Ft) Width: 35.00 (Ft) True Area: 63,156.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 40 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,481.00 (Ft) Width: 35.00 (Ft) True Area: 51,836.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 50 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,412.00 (Ft) Width: 35.00 (Ft) True Area: 49,437.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

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Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 60 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,571.00 (Ft) Width: 35.00 (Ft) True Area: 55,000.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 70 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 463.00 (Ft) Width: 35.00 (Ft) True Area: 16,207.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 80 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,377.00 (Ft) Width: 35.00 (Ft) True Area: 48,179.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: SHTWL SHOULDER TAX Section: 90 Surface: AC L.C.D.: 1/1/1996 Use: SHOULDE Rank: S Length: 1,571.00 (Ft) Width: 35.00 (Ft) True Area: 55,000.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1996	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	3" P-401, 11" P-209

Network: GREENVILLE-SPAR Branch: TL01 TAXILANE AIR Section: 10 Surface: PCC L.C.D.: 1/1/2001 Use: TAXIWAY Rank: P Length: 550.00 (Ft) Width: 120.00 (Ft) True Area: 59,307.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2001	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	15" P-501, 8" P-304, 12" P-155
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	11" P-501, 9" P-154

Network: GREENVILLE-SPAR Branch: TL01 TAXILANE AIR Section: 20 Surface: PCC L.C.D.: 1/1/2001 Use: TAXIWAY Rank: P Length: 1,650.00 (Ft) Width: 75.00 (Ft) True Area: 121,425.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2001	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	Reconstruction 15" P-501, 8" P-304, 12"

Network: GREENVILLE-SPAR Branch: TL01 TAXILANE AIR Section: 25 Surface: PCC L.C.D.: 6/1/2016 Use: TAXIWAY Rank: P Length: 1,590.00 (Ft) Width: 45.00 (Ft) True Area: 87,758.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
6/1/2016	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	17" P-501, 6" BASE, 6" P-209, 12" P-15

Network: GREENVILLE-SPAR Branch: TL01 TAXILANE AIR Section: 30 Surface: AAC L.C.D.: 1/1/2009 Use: TAXIWAY Rank: P Length: 640.00 (Ft) Width: 75.00 (Ft) True Area: 45,956.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2009	NONE	No Major M & R			<input checked="" type="checkbox"/>	Unknown
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	+4" P-401

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Network: GREENVILLE-SPAR Branch: TL01 TAXILANE AIR Section: 30 Surface: AAC L.C.D.: 1/1/2009 Use: TAXIWAY Rank: P Length: 640.00 (Ft) Width: 75.00 (Ft) True Area: 45,956.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154

Network: GREENVILLE-SPAR Branch: TL02 STEVEN GA APR Section: 05 Surface: AC L.C.D.: 1/1/1962 Use: TAXIWAY Rank: P Length: 673.00 (Ft) Width: 40.00 (Ft) True Area: 27,632.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1962	NC-AC	New Construction - AC			<input checked="" type="checkbox"/>	

Network: GREENVILLE-SPAR Branch: TL02 STEVEN GA APR Section: 10 Surface: PCC L.C.D.: 1/1/2006 Use: TAXIWAY Rank: P Length: 400.00 (Ft) Width: 45.00 (Ft) True Area: 17,250.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2006	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	6.5" P-501, 12" P-155

Network: GREENVILLE-SPAR Branch: TL02 STEVEN GA APR Section: 15 Surface: PCC L.C.D.: 1/1/2015 Use: TAXIWAY Rank: P Length: 550.00 (Ft) Width: 45.00 (Ft) True Area: 25,193.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/2015	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	10" P-501, 6" P-209, 12' STAB BASE
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	

Network: GREENVILLE-SPAR Branch: TL02 STEVEN GA APR Section: 20 Surface: PCC L.C.D.: 1/1/1962 Use: TAXIWAY Rank: P Length: 300.00 (Ft) Width: 45.00 (Ft) True Area: 13,500.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1962	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	

Network: GREENVILLE-SPAR Branch: TL02 STEVEN GA APR Section: 30 Surface: PCC L.C.D.: 1/1/1962 Use: TAXIWAY Rank: P Length: 590.00 (Ft) Width: 45.00 (Ft) True Area: 26,550.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1962	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	7" P-501, 4" P-209

Network: GREENVILLE-SPAR Branch: TWA TAXIWAY A Section: 10 Surface: PCC L.C.D.: 1/1/1999 Use: TAXIWAY Rank: P Length: 488.00 (Ft) Width: 75.00 (Ft) True Area: 50,053.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1999	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304

Network: GREENVILLE-SPAR Branch: TWB TAXIWAY B Section: 10 Surface: PCC L.C.D.: 1/1/1999 Use: TAXIWAY Rank: P Length: 488.00 (Ft) Width: 132.00 (Ft) True Area: 81,551.00 (SqFt)						
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments
1/1/1999	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304

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Network: GREENVILLE-SPAR		Branch: TWC		TAXIWAY C		Section: 10	Surface: PCC
L.C.D.: 1/1/1996		Use: TAXIWAY		Rank: P	Length: 485.00 (Ft)	Width: 132.00 (Ft)	True Area: 85,241.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1996	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304	
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>		

Network: GREENVILLE-SPAR		Branch: TWCARGO		NORTH CARGO		Section: 10	Surface: PCC
L.C.D.: 1/1/1996		Use: TAXIWAY		Rank: P	Length: 245.00 (Ft)	Width: 110.00 (Ft)	True Area: 34,240.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1996	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304	

Network: GREENVILLE-SPAR		Branch: TWCARGO		NORTH CARGO		Section: 20	Surface: PCC
L.C.D.: 1/1/2001		Use: TAXIWAY		Rank: P	Length: 200.00 (Ft)	Width: 110.00 (Ft)	True Area: 15,159.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2001	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304	

Network: GREENVILLE-SPAR		Branch: TWD		TAXIWAY D		Section: 10	Surface: AAC
L.C.D.: 1/1/2010		Use: TAXIWAY		Rank: P	Length: 950.00 (Ft)	Width: 75.00 (Ft)	True Area: 107,176.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2010	OL-AS	Overlay - AC Structural			<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE 4" P-401 3" P-401, 6" P-201, 19.5" P-154	
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>		
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>		
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>		

Network: GREENVILLE-SPAR		Branch: TWE		TAXIWAY E		Section: 10	Surface: AAC
L.C.D.: 1/1/2010		Use: TAXIWAY		Rank: P	Length: 900.00 (Ft)	Width: 75.00 (Ft)	True Area: 100,487.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2010	MOL	Cold Mill and Overlay			<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE 4" P-401 3" P-401, 6" P-201, 19.5" P-154	
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>		
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>		
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>		

Network: GREENVILLE-SPAR		Branch: TWF		TAXIWAY F		Section: 10	Surface: AAC
L.C.D.: 1/1/2010		Use: TAXIWAY		Rank: P	Length: 900.00 (Ft)	Width: 75.00 (Ft)	True Area: 100,487.00 (SqFt)
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2010	OL-AS	Overlay - AC Structural			<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE 4" P-401 3" P-401, 6" P-201, 19.5" P-154	
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>		
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>		
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>		

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Network: GREENVILLE-SPAR		Branch: TWG		TAXIWAY G		Section: 10	Surface: AAC
L.C.D.: 1/1/2010	Use: TAXIWAY	Rank: P	Length: 1,000.00 (Ft)	Width: 75.00 (Ft)	True Area: 44,563.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2010	OL-AS	Overlay - AC Structural			<input checked="" type="checkbox"/>		
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE	
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401	
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154	

Network: GREENVILLE-SPAR		Branch: TWG		TAXIWAY G		Section: 20	Surface: AAC
L.C.D.: 3/1/2016	Use: TAXIWAY	Rank: P	Length: 1,000.00 (Ft)	Width: 75.00 (Ft)	True Area: 62,463.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
3/1/2016	OL-AS	Overlay - AC Structural			<input checked="" type="checkbox"/>	7" Mill and 7" P-401 Overlay	
1/1/2010	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>		
1/1/1994	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE	
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401	
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154	

Network: GREENVILLE-SPAR		Branch: TWJ		TAXIWAY J		Section: 10	Surface: PCC
L.C.D.: 1/1/1996	Use: TAXIWAY	Rank: P	Length: 490.00 (Ft)	Width: 132.00 (Ft)	True Area: 82,457.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1996	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304	

Network: GREENVILLE-SPAR		Branch: TWK		TAXIWAY K		Section: 10	Surface: PCC
L.C.D.: 1/1/1996	Use: TAXIWAY	Rank: P	Length: 490.00 (Ft)	Width: 125.00 (Ft)	True Area: 70,383.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1996	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304	

Network: GREENVILLE-SPAR		Branch: TWL		TAXIWAY L		Section: 10	Surface: PCC
L.C.D.: 1/1/1999	Use: TAXIWAY	Rank: P	Length: 2,425.00 (Ft)	Width: 75.00 (Ft)	True Area: 143,669.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1999	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304	

Network: GREENVILLE-SPAR		Branch: TWL		TAXIWAY L		Section: 20	Surface: PCC
L.C.D.: 1/1/1996	Use: TAXIWAY	Rank: P	Length: 175.00 (Ft)	Width: 75.00 (Ft)	True Area: 35,625.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1996	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304	
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>		

Network: GREENVILLE-SPAR		Branch: TWL2		TAXIWAY L2		Section: 10	Surface: AAC
L.C.D.: 1/1/2009	Use: TAXIWAY	Rank: P	Length: 64.00 (Ft)	Width: 250.00 (Ft)	True Area: 16,854.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2009	OL-AS	Overlay - AC Structural			<input checked="" type="checkbox"/>		

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Network: GREENVILLE-SPAR		Branch: TWL2		TAXIWAY L2		Section: 10	Surface: AAC
L.C.D.: 1/1/2009	Use: TAXIWAY	Rank: P	Length: 64.00 (Ft)	Width: 250.00 (Ft)	True Area: 16,854.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE	
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401	
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154	

Network: GREENVILLE-SPAR		Branch: TWL2		TAXIWAY L2		Section: 20	Surface: PCC
L.C.D.: 1/1/2001	Use: TAXIWAY	Rank: P	Length: 550.00 (Ft)	Width: 120.00 (Ft)	True Area: 14,000.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2001	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	15" P-501, 8" P-304, 12" P-155	

Network: GREENVILLE-SPAR		Branch: TWL2		TAXIWAY L2		Section: 30	Surface: PCC
L.C.D.: 8/1/2016	Use: TAXIWAY	Rank: P	Length: 180.00 (Ft)	Width: 60.00 (Ft)	True Area: 11,126.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
8/1/2016	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	17" P-501, 6" BASE, 6" P-209, 12" P-15	

Network: GREENVILLE-SPAR		Branch: TWL		TAXIWAY L		Section: 30	Surface: AAC
L.C.D.: 1/1/2010	Use: TAXIWAY	Rank: P	Length: 6,650.00 (Ft)	Width: 75.00 (Ft)	True Area: 499,349.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2010	OL-AS	Overlay - AC Structural			<input checked="" type="checkbox"/>		
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE	
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401	
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154	

Network: GREENVILLE-SPAR		Branch: TWL3		TAXIWAY L3		Section: 10	Surface: AAC
L.C.D.: 1/1/2009	Use: TAXIWAY	Rank: P	Length: 64.00 (Ft)	Width: 160.00 (Ft)	True Area: 12,137.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2009	NONE	No Major M & R			<input checked="" type="checkbox"/>	Unknown	
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE	
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401	
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154	

Network: GREENVILLE-SPAR		Branch: TWL3		TAXIWAY L3		Section: 20	Surface: PCC
L.C.D.: 1/1/2001	Use: TAXIWAY	Rank: P	Length: 160.00 (Ft)	Width: 120.00 (Ft)	True Area: 14,681.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/2001	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	15" P-501, 8" P-304, 12" P-155	

Network: GREENVILLE-SPAR		Branch: TWL		TAXIWAY L		Section: 40	Surface: PCC
L.C.D.: 1/1/1996	Use: TAXIWAY	Rank: P	Length: 2,185.00 (Ft)	Width: 75.00 (Ft)	True Area: 164,175.00 (SqFt)		
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments	
1/1/1996	NC-PC	New Construction - PCC			<input checked="" type="checkbox"/>	14" P-501, 8" P-304	

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Network: GREENVILLE-SPAR		Branch: TWL4		TAXIWAY L4		Section: 10		Surface: AAC	
L.C.D.: 1/1/2009		Use: TAXIWAY		Rank: P		Length: 225.00 (Ft)		Width: 75.00 (Ft) True Area: 16,559.00 (SqFt)	
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments			
1/1/2009	NONE	No Major M & R			<input checked="" type="checkbox"/>	Unknown			
1/1/1994	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE			
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401			
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154			

Network: GREENVILLE-SPAR		Branch: TWL4		TAXIWAY L4		Section: 20		Surface: AAC	
L.C.D.: 1/1/2009		Use: TAXIWAY		Rank: P		Length: 225.00 (Ft)		Width: 75.00 (Ft) True Area: 10,098.00 (SqFt)	
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments			
1/1/2009	NONE	No Major M & R			<input checked="" type="checkbox"/>	Unknown			
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401			
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154			

Network: GREENVILLE-SPAR		Branch: TWL5		TAXIWAY L5		Section: 10		Surface: AAC	
L.C.D.: 1/1/2009		Use: TAXIWAY		Rank: P		Length: 195.00 (Ft)		Width: 40.00 (Ft) True Area: 8,754.00 (SqFt)	
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments			
1/1/2009	NONE	No Major M & R			<input checked="" type="checkbox"/>	Unknown			
1/1/1976	OL-AS	Overlay - AC Structural	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401			
1/1/1962	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	3" P-401, 6" P-201, 19.5" P-154			
1/1/1944	MOL	Cold Mill and Overlay	0.00	0.00	<input checked="" type="checkbox"/>	0.5" MILL, 0.5" P-407, 1.5-3" P-401 LE			

Network: GREENVILLE-SPAR		Branch: TWL5		TAXIWAY L5		Section: 20		Surface: PCC	
L.C.D.: 1/1/2015		Use: TAXIWAY		Rank: P		Length: 50.00 (Ft)		Width: 78.00 (Ft) True Area: 3,074.00 (SqFt)	
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments			
1/1/2015	CR-PC	Complete Reconstruction - PCC			<input checked="" type="checkbox"/>	10" P-501, 6" P-209, 12' STAB BASE			
1/1/1962	NC-PC	New Construction - PCC	0.00	0.00	<input checked="" type="checkbox"/>	6" P-501, 6" P-154			

Network: GREENVILLE-SPAR		Branch: TWL6		TAXIWAY L6		Section: 10		Surface: AC	
L.C.D.: 1/1/2009		Use: TAXIWAY		Rank: P		Length: 241.00 (Ft)		Width: 42.00 (Ft) True Area: 11,403.00 (SqFt)	
Work Date	Work Code	Work Description	Cost	Thickness (in)	Major M&R	Comments			
1/1/2009	NONE	No Major M & R			<input checked="" type="checkbox"/>	Unknown			
1/1/1984	NC-AC	New Construction - AC	0.00	0.00	<input checked="" type="checkbox"/>	4" P-401, 9" P-209			

Summary:

Work Description	Section Count	Area Total (SqFt)	Thickness Avg (in)	Thickness STD (in)
Cold Mill and Overlay	13	1,989,353.00	0.00	0.00
Complete Reconstruction - PCC	13	1,270,672.00	0.00	0.00
New Construction - AC	51	3,766,327.00	0.00	0.00
New Construction - PCC	46	4,103,122.00	0.00	0.00
No Major M & R	8	120,197.00		
Overlay - AC Structural	28	3,960,991.00	0.00	0.00
Slab Replacement - PCC	6	809,038.00	0.00	0.00

APPENDIX D: MICROPAVER SECTION/BRANCH CONDITION REPORT



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

Pavement Database: GSP APMS

NetworkId: GSP

Branch ID	Section ID	Last Const. Date	Surface	Use	Rank	Lanes	True Area (SqFt)	Last Inspection Date	Age At Inspection	PCI
ACARGON	10	1/1/1996	PCC	APRON	P	0	341,250.00	6/26/2017	21	92
ACARGON	20	1/1/1996	PCC	APRON	P	0	114,714.00	6/26/2017	21	97
ACARGON	30	1/1/2001	PCC	APRON	P	0	62,212.00	6/26/2017	16	96
ACARGOS	10	1/1/2002	PCC	APRON	P	0	508,349.00	6/26/2017	15	93
ACARGOS	20	1/1/2002	PCC	APRON	P	0	37,780.00	6/26/2017	15	99
AGEN	10	1/1/2007	PCC	APRON	P	0	96,250.00	6/26/2017	10	100
AGEN	20	1/1/1999	PCC	APRON	P	0	209,531.00	6/26/2017	18	79
AGEN	30	1/1/1984	PCC	APRON	P	0	170,125.00	6/26/2017	33	100
AGEN	40	1/1/2007	PCC	APRON	P	0	70,641.00	6/26/2017	10	96
AGEN	50	1/1/2015	PCC	APRON	P	0	9,844.00	6/26/2017	2	97
AITIN	10	1/1/2009	AC	APRON	T	0	5,974.00	6/26/2017	8	63
AITIN	20	1/1/2009	AC	APRON	T	0	9,316.00	6/26/2017	8	46
AITIN	30	1/1/1962	PCC	APRON	T	0	185,144.00	6/26/2017	55	73
ATERM	10	1/1/2017	PCC	APRON	P	0	123,677.00	6/26/2017	0	100
ATERM	20	1/1/2017	PCC	APRON	P	0	219,122.00	6/26/2017	0	99
ATERM	30	1/1/2017	PCC	APRON	P	0	122,490.00	6/26/2017	0	100
BP	04	1/1/1996	AC	OVERRUN	P	0	88,000.00	6/26/2017	21	69
BP	22	1/1/1996	AC	OVERRUN	P	0	88,000.00	6/26/2017	21	54
FS	10	1/1/1996	PCC	TAXIWAY	P	0	4,235.00	6/26/2017	21	92
FS	20	1/1/1996	PCC	TAXIWAY	P	0	3,841.00	6/26/2017	21	72
RW04	10	1/1/1996	PCC	RUNWAY	P	0	100,000.00	6/26/2017	21	100
RW04	100	1/1/1996	PCC	RUNWAY	P	0	96,250.00	6/26/2017	21	98
RW04	110	1/1/1996	PCC	RUNWAY	P	0	96,250.00	7/26/2017	21	99
RW04	120	1/1/1996	PCC	RUNWAY	P	0	96,250.00	6/26/2017	21	95
RW04	20	1/1/1996	PCC	RUNWAY	P	0	100,000.00	6/26/2017	21	99
RW04	30	1/1/1996	PCC	RUNWAY	P	0	100,000.00	6/26/2017	21	100
RW04	40	1/1/1996	PCC	RUNWAY	P	0	26,250.00	6/26/2017	21	97
RW04	50	1/1/1996	PCC	RUNWAY	P	0	26,250.00	6/26/2017	21	100
RW04	60	1/1/1996	PCC	RUNWAY	P	0	26,250.00	6/26/2017	21	97
RW04	70	1/1/2009	AC	RUNWAY	P	0	327,500.00	6/26/2017	8	84
RW04	80	1/1/2009	AC	RUNWAY	P	0	327,500.00	6/26/2017	8	75
RW04	90	1/1/2009	AC	RUNWAY	P	0	327,500.00	6/26/2017	8	81
SHRW04	10	1/1/1996	AC	SHOULDE R-AF	S	0	319,525.00	6/26/2017	21	63
SHRW04	15	1/1/1996	AC	SHOULDE R-AF	S	0	65,510.00	6/26/2017	21	81
SHRW04	20	1/1/1996	AC	SHOULDE R-AF	S	0	15,741.00	6/26/2017	21	89
SHRW04	30	1/1/1996	AC	SHOULDE R-AF	S	0	61,997.00	6/26/2017	21	78
SHRW04	40	1/1/1996	AC	SHOULDE R-AF	S	0	60,404.00	6/26/2017	21	67
SHRW04	45	1/1/1996	AC	SHOULDE R-AF	S	0	16,792.00	6/26/2017	21	81
SHRW04	50	1/1/1996	AC	SHOULDE R-AF	S	0	10,047.00	6/26/2017	21	70
SHRW04	55	1/1/1996	AC	SHOULDE R-AF	S	0	2,587.00	6/26/2017	21	83
SHRW04	60	1/1/1996	AC	SHOULDE R-AF	S	0	31,379.00	6/26/2017	21	70

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SHRW04	65	1/1/1996	AC	SHOULDE R-AF	S	0	12,355.00	6/26/2017	21	81
SHRW04	70	1/1/1996	AC	SHOULDE R-AF	S	0	10,047.00	6/26/2017	21	70
SHRW04	75	1/1/1996	AC	SHOULDE R-AF	S	0	2,587.00	6/26/2017	21	83
SHRW04	80	1/1/1996	AC	SHOULDE R-AF	S	0	99,881.00	6/26/2017	21	53
SHRW04	85	1/1/1996	AC	SHOULDE R-AF	S	0	16,819.00	6/26/2017	21	81
SHRW04	90	1/1/1996	AC	SHOULDE R-AF	S	0	15,420.00	6/26/2017	21	65
SHTWC	10	1/1/1996	AC	SHOULDE R-AF	S	0	8,503.00	6/26/2017	21	55
SHTWK	10	1/1/1996	AC	SHOULDE R-AF	S	0	46,553.00	6/26/2017	21	66
SHTWL	10	1/1/1996	AC	SHOULDE R-AF	S	0	132,992.00	6/26/2017	21	72
SHTWL	100	1/1/1996	AC	SHOULDE R-AF	S	0	32,100.00	6/26/2017	21	41
SHTWL	110	1/1/1996	AC	SHOULDE R-AF	S	0	91,322.00	6/26/2017	21	50
SHTWL	120	1/1/1996	AC	SHOULDE R-AF	S	0	99,512.00	6/26/2017	21	48
SHTWL	130	1/1/1996	AC	SHOULDE R-AF	S	0	18,811.00	6/26/2017	21	49
SHTWL	20	1/1/1996	AC	SHOULDE R-AF	S	0	18,920.00	6/26/2017	21	75
SHTWL	30	1/1/1996	AC	SHOULDE R-AF	S	0	63,156.00	6/26/2017	21	73
SHTWL	40	1/1/1996	AC	SHOULDE R-AF	S	0	51,836.00	6/26/2017	21	58
SHTWL	50	1/1/1996	AC	SHOULDE R-AF	S	0	49,437.00	6/26/2017	21	50
SHTWL	60	1/1/1996	AC	SHOULDE R-AF	S	0	55,000.00	6/26/2017	21	63
SHTWL	70	1/1/1996	AC	SHOULDE R-AF	S	0	16,207.00	6/26/2017	21	61
SHTWL	80	1/1/1996	AC	SHOULDE R-AF	S	0	48,179.00	6/26/2017	21	46
SHTWL	90	1/1/1996	AC	SHOULDE R-AF	S	0	55,000.00	6/26/2017	21	53
TL01	10	1/1/2001	PCC	TAXIWAY	P	0	59,307.00	2/26/2017	16	97
TL01	20	1/1/2001	PCC	TAXIWAY	P	0	121,425.00	6/26/2017	16	97
TL01	25	6/1/2016	PCC	TAXIWAY	P	0	87,758.00	6/26/2017	1	96
TL01	30	1/1/2009	AC	TAXIWAY	P	0	45,956.00	6/26/2017	8	48
TL02	05	1/1/1962	AC	TAXIWAY	P	0	27,632.00	6/26/2017	55	33
TL02	10	1/1/2006	PCC	TAXIWAY	P	0	17,250.00	6/26/2017	11	95
TL02	15	1/1/2015	PCC	TAXIWAY	P	0	25,193.00	6/26/2017	2	98
TL02	20	1/1/1962	PCC	TAXIWAY	P	0	13,500.00	6/26/2017	55	77
TL02	30	1/1/1962	PCC	TAXIWAY	P	0	26,550.00	6/26/2017	55	99
TWA	10	1/1/1999	PCC	TAXIWAY	P	0	50,053.00	6/26/2017	18	99
TWB	10	1/1/1999	PCC	TAXIWAY	P	0	81,551.00	6/26/2017	18	99
TWC	10	1/1/1996	PCC	TAXIWAY	P	0	85,241.00	6/26/2017	21	98
TWCARGO	10	1/1/1996	PCC	TAXIWAY	P	0	34,240.00	6/26/2017	21	92
TWCARGO	20	1/1/2001	PCC	TAXIWAY	P	0	15,159.00	6/26/2017	16	94

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TWD	10	1/1/2010	AC	TAXIWAY	P	0	107,176.00	6/26/2017	7	68
TWE	10	1/1/2010	AC	TAXIWAY	P	0	100,487.00	6/26/2017	7	58
TWF	10	1/1/2010	AC	TAXIWAY	P	0	100,487.00	6/26/2017	7	49
TWG	10	1/1/2010	AC	TAXIWAY	P	0	44,563.00	6/26/2017	7	44
TWG	20	3/1/2016	AC	TAXIWAY	P	0	62,463.00	6/26/2017	1	100
TWJ	10	1/1/1996	PCC	TAXIWAY	P	0	82,457.00	6/26/2017	21	98
TWK	10	1/1/1996	PCC	TAXIWAY	P	0	70,383.00	6/26/2017	21	99
TWL	10	1/1/1996	PCC	TAXIWAY	P	0	143,669.00	6/26/2017	21	96
TWL	20	1/1/1996	PCC	TAXIWAY	P	0	35,625.00	6/26/2017	21	100
TWL	30	1/1/2010	AC	TAXIWAY	P	0	499,349.00	6/26/2017	7	61
TWL	40	1/1/1996	PCC	TAXIWAY	P	0	164,175.00	6/26/2017	21	98
TWL2	10	1/1/2009	AC	TAXIWAY	P	0	16,854.00	6/26/2017	8	70
TWL2	20	1/1/2001	PCC	TAXIWAY	P	0	14,000.00	6/26/2017	16	94
TWL2	30	8/1/2016	PCC	TAXIWAY	P	0	11,126.00	6/26/2017	1	98
TWL3	10	1/1/2009	AC	TAXIWAY	P	0	12,137.00	6/26/2017	8	69
TWL3	20	1/1/2001	PCC	TAXIWAY	P	0	14,681.00	6/26/2017	16	95
TWL4	10	1/1/2009	AC	TAXIWAY	P	0	16,559.00	6/26/2017	8	75
TWL4	20	1/1/2009	AC	TAXIWAY	P	0	10,098.00	6/26/2017	8	71
TWL5	10	1/1/2009	AC	TAXIWAY	P	0	8,754.00	6/26/2017	8	76
TWL5	20	1/1/2015	PCC	TAXIWAY	P	0	3,074.00	6/26/2017	2	100
TWL6	10	1/1/2009	AC	TAXIWAY	P	0	11,403.00	6/26/2017	8	56

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Section Condition Report (Summary)

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Pavement Database: GSP APMS

Age Category	Average Age at Inspection	Total Area (SqFt)	Number of Sections	Arithmetic Average PCI	Standard Deviation PCI	Weighted Average PCI
00-02	1	664,747.00	9	98.67	1.41	98.99
06-10	8	2,138,504.00	19	67.89	15.47	71.90
11-15	14	563,379.00	3	95.67	2.49	93.46
16-20	17	627,919.00	9	94.44	5.74	91.13
21-25	21	3,451,949.00	52	77.25	18.26	79.75
31-35	33	170,125.00	1	100.00	0.00	100.00
Over 50	55	252,826.00	4	70.50	23.81	71.57
ALL	17	7,869,449.00	97	79.53	18.76	81.31

Branch ID	Number of Sections	Sum Section Length (Ft)	Avg Section Width (Ft)	True Area (SqFt)	Use	Average PCI	Standard Deviation PCI	Weighted Average PCI
ACARGON	3	2,753.00	254.00	518,176.00	APRON	95.00	2.16	93.59
ACARGOS	2	2,080.00	430.00	546,129.00	APRON	96.00	3.00	93.42
AGEN	5	2,127.00	241.20	556,391.00	APRON	94.40	7.86	91.53
AITIN	3	700.00	195.33	200,434.00	APRON	60.67	11.15	71.45
ATERM	3	1,733.00	300.00	465,289.00	APRON	99.67	0.47	99.53
BP	2	800.00	220.00	176,000.00	OVERRUN	61.50	7.50	61.50
FS	2	133.00	57.00	8,076.00	TAXIWAY	82.00	10.00	82.49
RW04	12	33,000.00	50.00	1,650,000.00	RUNWAY	93.75	8.28	87.47
SHRW04	15	34,148.00	23.00	741,091.00	SHOULDER-	74.33	9.44	67.16
SHTWC	1	243.00	35.00	8,503.00	SHOULDER-	55.00	0.00	55.00
SHTWK	1	1,330.00	35.00	46,553.00	SHOULDER-	66.00	0.00	66.00
SHTWL	13	55,127.00	35.00	732,472.00	SHOULDER-	56.85	10.72	57.68
TL01	4	4,430.00	78.75	314,446.00	TAXIWAY	84.50	21.08	89.56
TL02	5	2,513.00	44.00	110,125.00	TAXIWAY	80.40	25.01	78.89
TWA	1	488.00	75.00	50,053.00	TAXIWAY	99.00	0.00	99.00
TWB	1	488.00	132.00	81,551.00	TAXIWAY	99.00	0.00	99.00
TWC	1	485.00	132.00	85,241.00	TAXIWAY	98.00	0.00	98.00
TWCARGO	2	445.00	110.00	49,399.00	TAXIWAY	93.00	1.00	92.61
TWD	1	950.00	75.00	107,176.00	TAXIWAY	68.00	0.00	68.00
TWE	1	900.00	75.00	100,487.00	TAXIWAY	58.00	0.00	58.00
TWF	1	900.00	75.00	100,487.00	TAXIWAY	49.00	0.00	49.00
TWG	2	2,000.00	75.00	107,026.00	TAXIWAY	72.00	28.00	76.68
TWJ	1	490.00	132.00	82,457.00	TAXIWAY	98.00	0.00	98.00
TWK	1	490.00	125.00	70,383.00	TAXIWAY	99.00	0.00	99.00
TWL	4	11,435.00	75.00	842,818.00	TAXIWAY	88.75	16.08	75.82
TWL2	3	794.00	143.33	41,980.00	TAXIWAY	87.33	12.36	85.42
TWL3	2	224.00	140.00	26,818.00	TAXIWAY	82.00	13.00	83.23
TWL4	2	450.00	75.00	26,657.00	TAXIWAY	73.00	2.00	73.48
TWL5	2	245.00	59.00	11,828.00	TAXIWAY	88.00	12.00	82.24
TWL6	1	241.00	42.00	11,403.00	TAXIWAY	56.00	0.00	56.00

7/24/2017

Branch Condition Report

Page 2 of 2

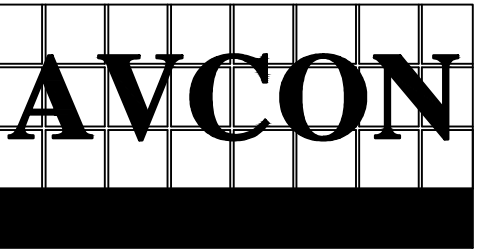
Pavement Database: GSP APMS

Use Category	Number of Sections	Total Area (SqFt)	Arithmetic Average PCI	Average STD PCI	Weighted Average PCI
APRON	16	2286419.00069891	89.38	15.44	92.31
OVERRUN	2	176000.000053799	61.50	7.50	61.50
RUNWAY	12	1650000.00050437	93.75	8.28	87.47
SHOULDER-AF	30	1528619.00046726	65.83	13.02	62.51
TAXIWAY	37	2228411.00068117	82.73	19.23	79.91
ALL	97	7869449.00240551	79.53	18.76	81.31

APPENDIX E: PCI MAP



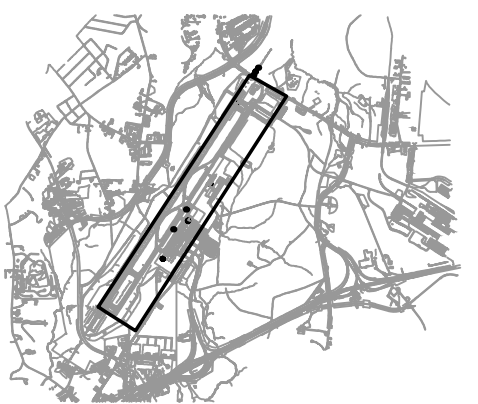
AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE



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GREENVILLE-
SPARTANBURG
INTERNATIONAL AIRPORT



KEY PLAN

PAVEMENT
MANAGEMENT PLAN
(PMP) UPDATE

PAVEMENT CONDITION
INDEX (PCI) MAP

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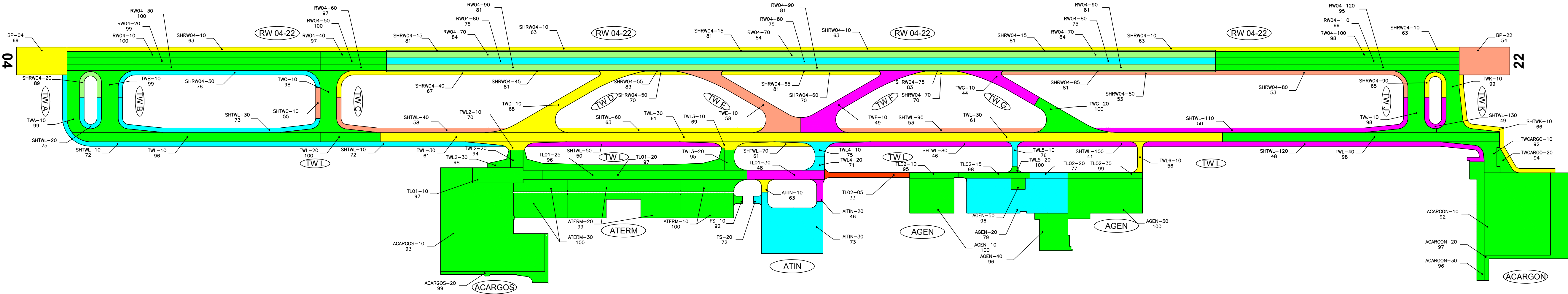
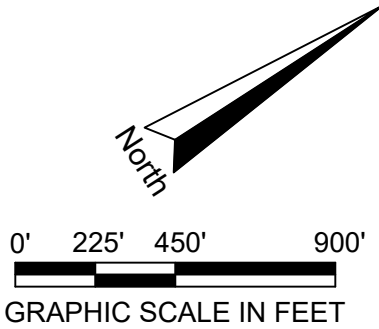
SCALE: AS NOTED

REVISIONS:			
NO.	DATE	BY	DESCRIPTION

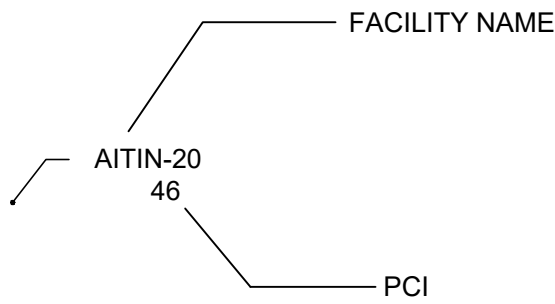
DESIGNED BY: B.S.H.
DRAWN BY: T.D.B.
CHECKED BY: M.D.
APPROVED BY: S.S.
DATE: AUGUST 2018

AVCON PROJECT NO. 2017.266.01

APP. E



LEGEND



PAVEMENT CONDITION INDEX (PCI)

91-100	Green	EXCELLENT
81-90	Light Green	VERY GOOD
71-80	Yellow	GOOD
61-70	Orange	FAIR
51-60	Red	POOR
41-50	Purple	VERY POOR
0-40	Dark Purple	FAILED

APPENDIX F: PAVEMENT DISTRESS TYPES (WITH PHOTOS)



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

APPENDIX F – PAVEMENT DISTRESS TYPES

Examples of various pavement distress types identified in this Appendix are presented by name in alphabetical order to assist airfield pavement inspectors. The various photographs are presented to aid in the identification, severity, location, extent, and probable cause of pavement distress for both flexible and rigid pavement types.

All the photographs of various pavement distresses to both Asphalt (AC) and Portland Concrete Cement (PCC) pavements were collected at Greenville-Spartanburg International Airport and assembled specifically for this report.

AC-Surface Pavement Distresses

BLEEDING

Bleeding is upward movement of asphalt in an asphalt pavement, resulting in the formation of a shiny, sticky film of asphalt on the surface. Bleeding primarily occurs when there is an excessive amount of asphalt cements or tar in the mix or the mix has a low air-void content. During hot weather, the asphalt fills the air voids and expands to the surface of the pavement. Since the bleeding process is not reversible during cold weather, asphalt or tar will accumulate on the surface.



Bleeding – Taxiway L

LONGITUDINAL AND TRANSVERSE (L&T) CRACKING

A common distress type found on the AC-surfaced pavements at Greenville-Spartanburg International Airport is longitudinal and transverse (L&T) cracking. This distress is considered climate-related and is typically found where paving lane joints have opened or where cracks have formed due to temperature fluctuations. On overlaid pavements, cracks in the underlying pavement may eventually reflect to the surface layer, also causing this type of distress to occur.

In terms of severity levels, low-severity cracks are either non-filled, lightly spalled cracks with a mean width less than $\frac{1}{4}$ inch or are properly sealed cracks of any width. A medium-severity rating is given to non-sealed, moderately spalled cracks and to non-sealed cracks having a mean width greater than $\frac{1}{4}$ inch. Cracks containing sealant that is no longer in satisfactory condition are also rated as medium severity.



Longitudinal/Transverse Cracking – Taxiway 1



Longitudinal/Transverse Cracking – Taxiway L

High-severity cracks are defined as having significant foreign object debris (FOD) due to severe spalling of the crack and often contain associated loose and broken pieces of pavement and the potential to cause damage to aircraft.



Longitudinal/Transverse Cracking – Taxiway E/F

BLOCK CRACKING

Block cracking is a climate-related distress that is present on various pavement sections at Greenville-Spartanburg International Airport. Over time, oxidation acts to stiffen the asphalt binder in the pavement, thereby limiting the pavement's ability to absorb the stresses of thermal cycling. This distress, which is the natural progression from L&T cracking, generally appears over relatively large areas as a series of longitudinal and transverse cracks arranged in a pattern of square or rectangular blocks, with sizes varying from 2 to 10 feet square. The severity levels for block cracking are defined in the same manner as for L&T cracking.



Block Cracking – Taxiway F & Taxiway L Intersection



Block Cracking – Taxilane 1

OIL SPILLAGE

Oil spillage is the deterioration or softening of the pavement surface caused by the spilling of oil, fuel, or other solvents. There are no degrees of severity for oil spillage, it is sufficient to indicate the existence of oil spillage.



Oil Spillage

PATCHING

Patching is identified as a distress because it is not an original design feature of the pavement structure. This distress type includes all partial-depth and full-depth patches, as well as utility cuts. Low-severity patches are in good condition, medium-severity patches have some deterioration and/or have a minor effect on ride quality, and high-severity patches are badly deteriorated and producing FOD or have a significant effect on ride quality.



Patching – Taxiway G

RUTTING



Rutting – Taxiway G

Rutting is characterized by surface depressions located in the wheel path. These depressions are typically caused by consolidation or lateral movement of the material in any pavement layer or a combination of pavement layers due to repeated traffic loadings. Areas of low-severity rutting exhibit rut depths that are $\frac{1}{4}$ to $\frac{1}{2}$ inch in depth, while medium-severity ruts are characterized by ruts that are greater than $\frac{1}{2}$ inch and less than 1 inch in depth. High-severity rutting is defined as any rut that is deeper than 1 inch. Rutting at GSP was observed primarily on Taxiway G.

SLIPPAGE CRACKING

Slippage cracks are characterized by crescent-shaped cracks having two ends pointed away from the direction of traffic. These types of cracks are typically located near turning or breaking areas and are produced when the turning or breaking of aircraft cause the pavement surface to deform. Slippage cracks were primarily observed on Taxiway G at GSP.



Slippage Cracking – Taxiway G



Slippage Cracking – Taxiway G

A low-strength surface mix or a poor bonding condition between the AC surface and underlying layers can also be a contributing factor to slippage cracking. No severity levels are associated with slippage cracking. Placement of asphalt layers that are too thin is another possible cause of slippage.



Slippage Cracking – Taxiway G

SWELLING

Swelling is characterized by an upward bulge in the pavement's surface. A swell may occur sharply over a small area or as a longer, gradual wave. Either type of swell can be accompanied by surface cracking.



Swelling – Taxiway L and Taxiway F Intersection



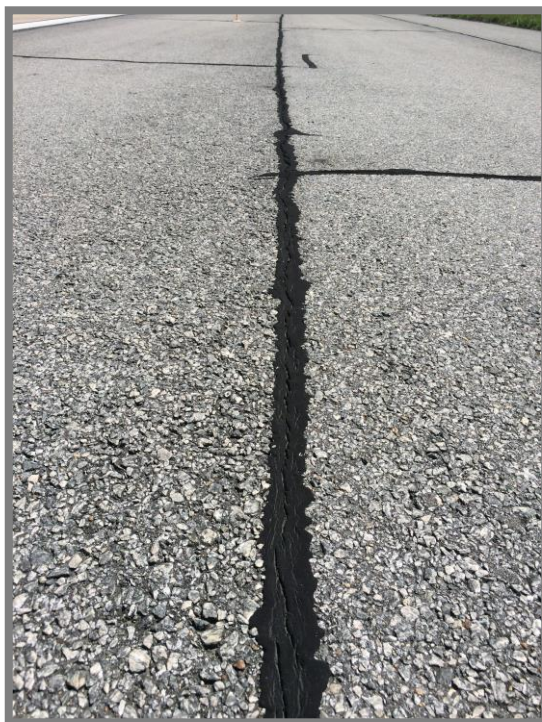
Swelling – Taxiway L and Taxiway F Intersection

WEATHERING

Weathering is the wearing away of the asphalt binder and the fine aggregate from the pavement surface. Weathering is caused by age of the asphalt pavement and climatic weather conditions.



Weathering and L&T Cracking –Runway 4-22 Shoulder



Weathering & Longitudinal Cracking – Runway 4-22

PCC-Surface Pavement Distresses

CORNER BREAK

A corner break is a crack in a PCC slab that intersects two joints at a distance less than one half of the slab length and is characterized by a crack that extends vertically through the entire slab thickness (rather than at an angle like corner spalls). Corner breaks are typically caused by load repetitions combined with loss of subgrade support and/or curling/warping stresses.



Corner Break – General Aviation Apron



Corner Break – Fire Station Apron

A low-severity corner break is associated with a crack that has little to no spalling and has a width of less than 1/8 inch. A corner break is classified as medium severity if the associated crack is not filled and is moderately spalled or has a mean width of 1/8 to 1 inch. For filled cracks, a corner break is considered medium severity if the filler is in unsatisfactory condition but not spalling or if the area between the corner break and the joints is slightly cracked. High-severity corner breaks are characterized by filled or non-filled cracks that are severely spalled, non-filled cracks with a width greater than 1 inch, or severe cracking between the crack and the joint.

LONGITUDINAL, TRANSVERSE, AND DIAGONAL (LTD) CRACKING



Longitudinal/Transverse/Diagonal Crack – Fire Station Apron

Longitudinal, transverse, and diagonal (LTD) cracks divide the slab into either two or three pieces and are caused by a combination of traffic loadings, curling stresses, and shrinkage stresses in the slab. LTD cracks were observed on the older PCC-surfaced pavements at Greenville-Spartanburg International Airport.

Low-severity LTD cracks are characterized by a crack with little to no spalling or a filled crack with filler in satisfactory condition. If a slab is divided into three pieces by low-severity cracks, the crack is still considered low severity. Medium-severity LTD cracking is recorded if a non-filled crack is moderately spalled or has a width between 1/8 and 1 inch, if a filled crack is not spalled but the filler is in unsatisfactory condition, or if the slab is divided into three pieces and one of the cracks is at least medium severity. An LTD crack is considered high severity when non-filled cracks are severely spalled causing a definite FOD potential or if the crack is greater than 1 inch in width. High-severity LTD cracking is also recorded when a slab is separated into two or three pieces and at least one of the cracks is a high-severity crack.



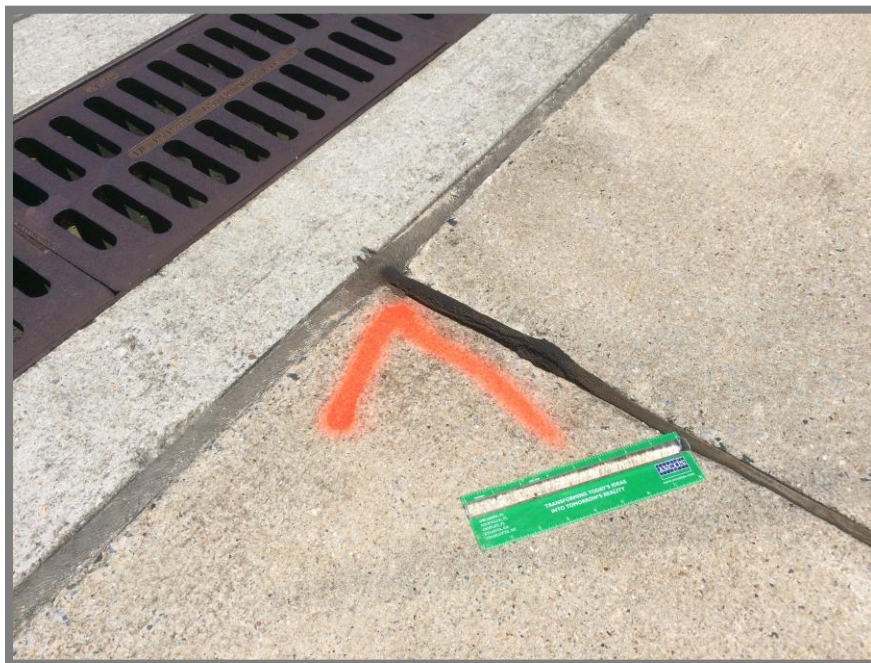
Longitudinal/Transverse/Diagonal Crack – Fire Station Apron



Longitudinal/Transverse/Diagonal Crack – Hangar 1

JOINT SEAL DAMAGE

Joint seal damage is recorded when the joint sealant is damaged to a point that it enables soil, rock, or other debris to accumulate in the joint or allows significant infiltration of water. Examples of joint seal damage include stripping of the joint sealant, extrusion of joint sealant, weed growth, hardening of the filler, or absence of the joint sealant.



Joint Seal Damage – North Cargo Area



Joint Seal Damage – North Cargo Area

Low-severity joint seal damage is recorded when the joint sealer is in good condition with only a minor amount of damage. Joint seal damage is recorded as medium severity if the joint sealant is in fairly good condition over the entire sample but one or more of the damage criteria are exhibited. If the joint sealant is in place but water can penetrate openings of 1/8 inch or less, if vegetation is present in the joint, or if the sealant is oxidized or hardened, medium-severity joint seal damage is recorded. If the joint sealant is in poor condition over the entire sample or if more than 10 percent of the sealant is missing and needs to be replaced, high-severity joint seal damage is recorded.



Joint Seal Damage & Patching – Fire Station Apron

PATCHING

Patching is an area where the original pavement has been removed and replaced with a filler material. Patches constitute a distress because they are not a part of the original pavement structure. Patches are separated into small (less than 5 square feet) and large (greater than 5 square feet). Patching was identified on numerous PCC pavement sections at Greenville-Spartanburg International Airport.



Patching – Taxiway L9

A patch is considered low-severity if it is functioning well with little to no deterioration. Medium-severity patching is a patch that exhibits some deterioration or moderate spalling and possibly minor FOD potential. High-severity patching is recorded when a patch is severely deteriorated either by spalling or cracking within the patch. High-severity patches warrant immediate replacement as they pose a significant FOD potential.



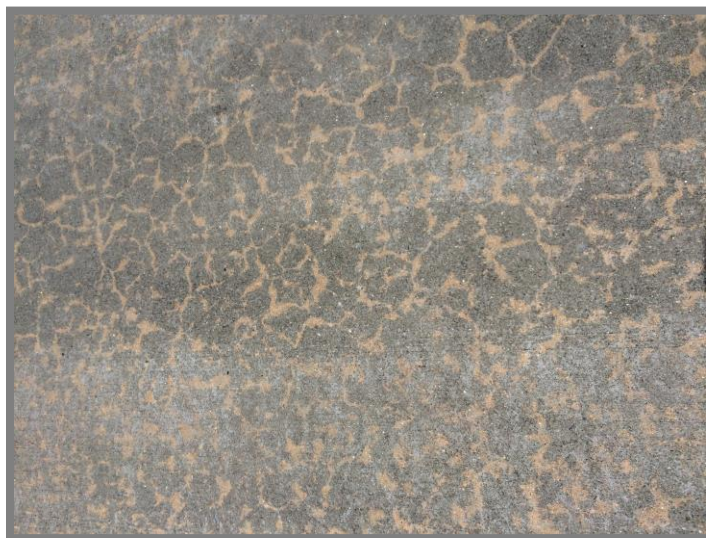
Utility Patching – North Cargo Area



Patching – Air Carrier Terminal Apron

SCALING

Surface deterioration caused by construction defects, material defects and environmental factors. Generally, scaling is exhibited by delaminating or disintegration of paste on the slab surface to the depth of the defect. Construction defects include over-finishing, addition of water to the pavement surface during finishing, lack of curing, attempted surface repairs of fresh concrete with mortar. Material defects include inadequate air entrainment for the climate. Environmental factors include freezing of concrete before adequate strength gained or thermal cycles from certain aircraft.



Scaling – Hangar 2



Scaling – North Cargo Area

SHATTERED SLABS



Shattered Slab – Fire Station Apron

A PCC slab is considered shattered when interconnecting cracks break the slab into four or more pieces. Shattered slabs are typically caused by excessive load repetitions on the pavement. If a shattered slab is recorded, no other distresses are recorded on that slab.

In terms of severity levels, a shattered slab is considered low severity when the slab is broken into four or more pieces defined by low-severity cracks. Medium-severity shattered slabs are slabs that are broken into four or five pieces with 15 percent of the interconnecting cracks being medium severity or a slab that is broken into six or more pieces with over 85 percent of the cracks at low-severity. A high-severity shattered slab is characterized by a slab that is broken into four or five pieces with some or all of the cracks being high severity or a slab that is broken into six or more pieces with over 15 percent of the cracks being medium or high severity.



Shattered Slab – Fire Station Apron

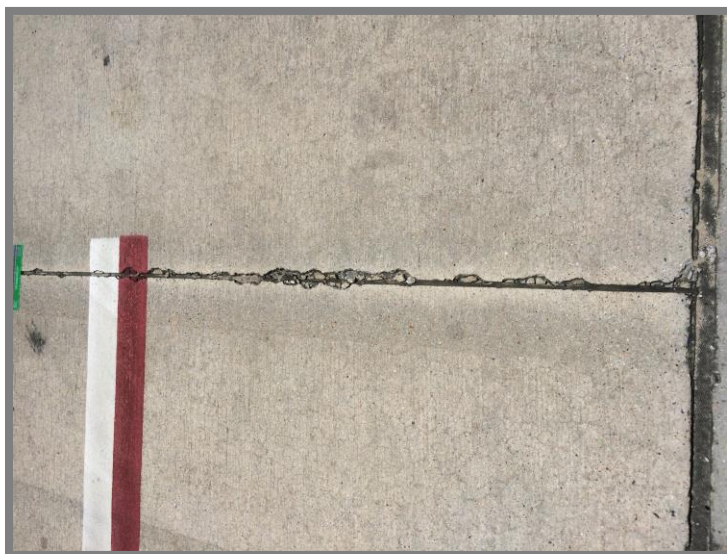
SHRINKAGE CRACKING

Shrinkage cracks are small hairline cracks that usually do not extend through the depth of the slab, are very short in length, and therefore do not extend across the entire length/width of the slab. These cracks are typically formed during the setting and curing of the PCC pavement. No severity levels are defined for shrinkage cracks.



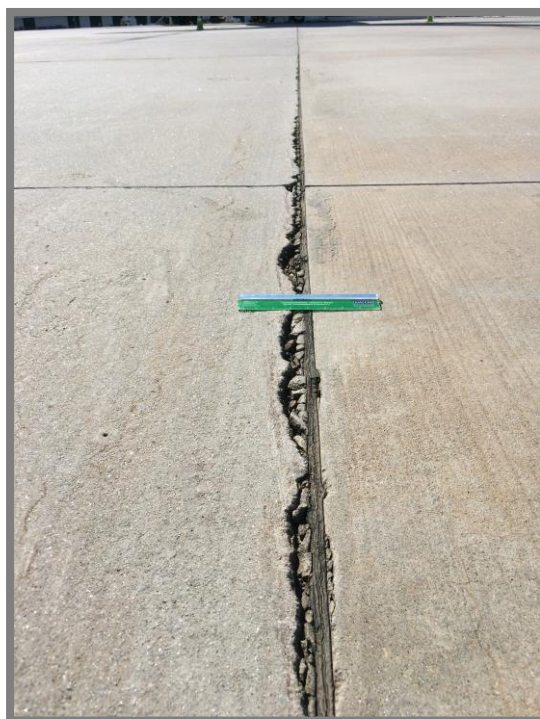
Shrinkage Cracking – Runway 4-22

JOINT SPALLING



Joint Spalling – North Cargo Area

Joint spalling is the breakdown of the slab edges within 2 feet of the joint and is typically caused by excessive stresses at the joint and repeated traffic loadings. Overworking of the PCC during construction often weakens the surface near the joints and can also result in spalling. Joint spalls typically do not extend vertically through the slab (as with cracks and corner breaks) but instead intersect the joint at an angle.



Joint Spalling – South Cargo Area

Joint spalls are considered low severity if the spall is less than 2 feet in length and is broken into no more than three pieces with little to no FOD potential. Medium-severity joint spalls are characterized by spalls over 2 feet in length that are broken into more than three pieces with some existing FOD potential. If a spall is less than 2 feet in width, it is considered medium severity if there are loose or missing pieces causing the potential for FOD. A high-severity spall is one that is broken into three or more pieces defined by one or more high-severity cracks.



Joint Spalling – North Cargo Area

CORNER SPALLING



Corner Spalling – Taxiway L9

Corner spalling, again exhibited on a majority of the PCC pavement sections, is very similar to joint spalling except the spall is located near the corner of the PCC slab. In terms of severity levels, the definitions are also similar. Low-severity corner spalls are spalls created by low-severity cracks and do not create any FOD potential. Medium-severity corner spalls are defined by medium-severity cracks having some loose or missing pieces, and high-severity corner spalls are defined by spalls that are made up of high-severity cracks with missing or loose material, therefore creating a high FOD potential.



Corner Spalling – Hangar 1

APPENDIX G: AIR TRAFFIC DATA



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

APPENDIX G – AIR TRAFFIC DATA

The characterization of traffic operations is an important part of the analysis and design of airport pavement facilities. Not only does it provide insight into the current performance of the existing pavement, it is also essential for the development of appropriate structural designs (either new pavement designs or rehabilitation designs) of sufficient thickness to withstand the repeated traffic loadings over the design life of the pavement. In addition, traffic is a critical input in the determination of structural Remaining Life and the Pavement Classification Number (PCN).

Traffic values are for use in the network-level evaluation of the airfield pavements at Greenville-Spartanburg International Airport. The traffic values presented herein are developed for the sole purpose of evaluating the pavement sections for inclusion into the Capital Improvement Program (CIP). They should not be used for other purposes, such as or project-level pavement design.

The determination of design and rehabilitation needs for a pavement facility is based largely on its projected traffic. Consequently, current and projected traffic loadings are needed to determine structural remaining life and to develop appropriate rehabilitation designs. The most recent traffic data is summarized in **Table G.1** and **Table G.2** on the following pages. **Table G.1** represents the total fleet and operations and will be utilized for all commercial service pavements. **Table G.2** represents the modified fleet and airport operations, which excludes aircraft over 100,000 pounds, and will be used for General Aviation pavements. **Table G.3** identifies the pavement sections and the utilized fleet and operations. This data was compiled from the Traffic Flow Management System Counts (TFMSC) Report for one year, October 2016 to September 2017.

Traffic Flow Assumptions

The entire fleet mix at GSP was divided into two categories for the purpose of PCN calculations and Remaining Life Analysis. This was done in an effort to accurately analyze each pavement section based on its actual use and the type of aircraft that typically operates on it. Fleet Mix A includes all of the aircraft traffic operating at GSP, while Fleet Mix B includes all aircraft operating at GSP that are equal to or less than 100,000 pounds (max. takeoff weight of the aircraft). This step ensured that pavement sections that are not subject to commercial and military aircraft are not analyzed using these groups of aircraft. Additionally, runway and taxiway shoulders, as well as runway blast pads were not analyzed structurally as they are not subjected to the aircraft loads.

Table G.3 shows which pavement sections are associated with the two fleet mixes, and **Figure G.1** shows this information on an airfield map.

Since Greenville-Spartanburg International Airport (GSP) has one runway, all of the operations are assigned to each pavement section. Without knowledge of the specific uses for each Taxiway at GSP, this approach will produce somewhat conservative results. However, the

designs are far more sensitive to the aircraft weights than the number of departures, so this conservative estimate does not drastically alter the designs. To account for the growth of GSP and the projected increase in air traffic in the coming years, a 3% growth rate was applied to each aircraft's operations for the structural remaining life analysis.

Summary

Characterization of traffic operations is an essential component in the structural evaluation and design of airport pavements. The aircraft traffic mix and traffic on the pavement network at GSP was provided in the TFMSC Report from the FAA for October 2016 – September 2017. An alternate fleet mix was generated for pavement sections not subject to commercial and military aircraft traffic, while the full fleet mix was used for the remaining pavement sections. This section-level traffic information is used for determining the structural remaining life and PCN of the various pavement sections.

Greenville-Spartanburg International Airport Fleet Mix A		
Ref. No.	Aircraft	Oct. 2016-Sep. 2017 Departures
1	2DW 150000	2
2	2DW 400000	1
3	A300-600 std	61
4	A319-100 std	166
5	A320-200 Twin std	472
6	A321-200 std	9
7	A330-300 std	2
8	An-124	1
9	B707-320C	1
10	B717-200 HGW	775
11	B727-200C Basic	44
12	B737-200 LP	1
13	B737-300	395
14	B737-400	31
15	B737-700	665
16	B737-800	22
17	B737-900	5
18	B747-400ER Freighter	156
19	B757-200	738
20	B757-300	3
21	B767-200	6
22	B767-300	170
23	B777-200 ER	4
24	B787-8	2
25	C-130	10
26	C-17A	10
27	C-5	1
28	MD83	1502
29	MD90-30ER	88
30	DW 100000	3738
31	DW 150000	101
32	DW 200000	43
33	DW 50000	1471
34	DW 75000	7694
35	SW 30000	2031
36	SW 45000	5
37	SW 75000	8

Table G.1 – Fleet Mix A

Greenville-Spartanburg International Airport Fleet Mix B		
Ref. No.	Aircraft	Oct. 2016-Sep. 2017 Departures
1	DW 100000	3738
2	DW 50000	1471
3	DW 75000	7694
4	SW 30000	2031
5	SW 45000	5
6	SW 75000	8

Table G.2 – Fleet Mix B

Pavement Sections by Fleet Mix		
Fleet Mix A		Fleet Mix B
ACARGON-10	TWB-10	ACARGON-20
ACARGON-30	TWC-10	ACARGOS-20
ACARGOS-10	TWCARGO-10	AGEN-10
ATERM-10	TWD-10	AGEN-20
ATERM-20	TWE-5	AGEN-30
ATERM-30	TWE-10	AGEN-40
RW04-10	TWF-10	AITIN-10
RW04-20	TWG-10	AITIN-20
RW04-30	TWG-20	AITIN-30
RW04-40	TWJ-10	FS-10
RW04-50	TWK-10	FS-20
RW04-60	TWL-10	TL02-10
RW04-70	TWL-20	TL02-15
RW04-80	TWL-25	TL02-30
RW04-90	TWL-30	TWL5-10
RW04-100	TWL-40	TWL5-20
RW04-110	TWL2-10	TWL6-10
RW04-120	TWL2-20	
TL01-10	TWL2-30	
TL01-20	TWL3-10	
TL01-25	TWL3-20	
TL01-30	TWL4-10	
TWA-10	TWL4-20	

Table G.3 – Pavement Sections by Fleet Mix

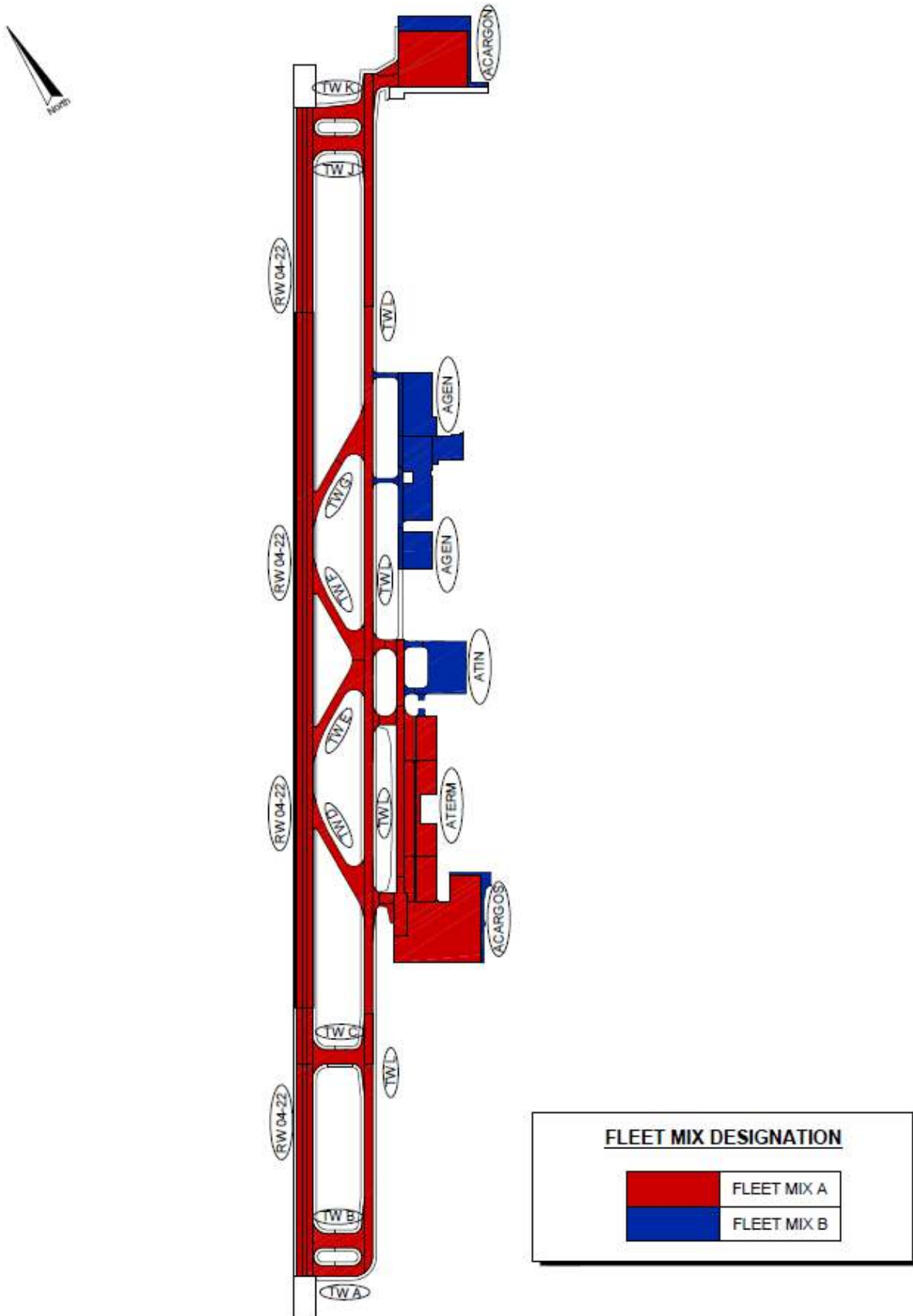


Figure G.1 – GSP Fleet Mix Designation

APPENDIX H: REMAINING LIFE DATA



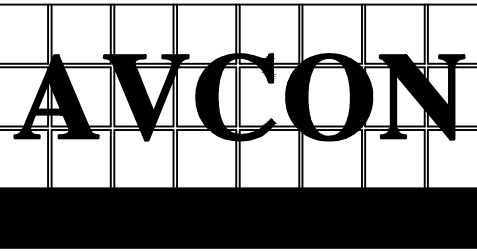
AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

Branch ID	Section ID	Surface Type	Fleet Mix	k/CBR Value	Structural Remaining Life (Years)
ACARGON	10	PCC	A	164.1	2.4
	20	PCC	B	164.1	0.3
	30	PCC	A	164.1	2.4
ACARGOS	10	PCC	A	340	20+
	20	PCC	B	340	0.5
AGEN	10	PCC	B	79	0
	20	PCC	B	196.4	0
	30	PCC	B	141.4	0
	40	PCC	B	84.8	0
AITIN	10	AAC	B	43.5	20+
	20	AAC	B	43.5	20+
	30	PCC	B	120.6	0
ATERM	10	PCC	A	292.3	20+
	20	PCC	A	292.3	20+
	30	PCC	A	292.3	20+
FS	10	PCC	B	120.6	0
	20	PCC	B	120.6	0
RW04	10	PCC	A	175.3	3.2
	20	PCC	A	175.3	3.2
	30	PCC	A	175.3	3.2
	40	PCC	A	175.3	3.2
	50	PCC	A	175.3	3.2
	60	PCC	A	175.3	3.2
	70	AAC	A	41.6	20+
	80	AAC	A	29.6	20+
	90	AAC	A	19.9	20+
	100	PCC	A	196.6	5
	110	PCC	A	196.6	5
	120	PCC	A	196.6	5
TL01	10	PCC	A	212.5	20+
	20	PCC	A	212.5	20+
	25	PCC	A	212.5	20+
	30	AAC	A	13.1	20+
TL02	10	PCC	B	73.1	0
	15	PCC	B	73.1	0.1
	30	PCC	B	73.1	0
TWA	10	PCC	A	178.3	3.4
TWB	10	PCC	A	141	1.4
TWC	10	PCC	A	224.3	8.7
TWCARGO	10	PCC	A	108.1	0.6
TWD	10	AAC	A	13	20+
TWE	5	AAC	A	16.6	20+
	10	AAC	A	9.6	20+
TWF	10	AAC	A	11.8	20+

Branch ID	Section ID	Surface Type	Fleet Mix	k/CBR Value	Structural Remaining Life (Years)
TWG	10	AAC	A	14	20+
	20	AAC	A	13	20+
TWJ	10	PCC	A	142.3	1.5
TWK	10	PCC	A	145.7	1.6
TWL	10	PCC	A	132.3	1.1
	20	PCC	A	132.3	1.1
	25	AAC	A	12.3	20+
	30	AAC	A	15.4	20+
	40	PCC	A	80	0.3
TWL2	10	AAC	A	5.6	11.3
	20	PCC	A	110.3	5.6
	30	PCC	A	110.3	20+
TWL3	10	AAC	A	6.1	18.4
	20	PCC	A	116.8	6.5
TWL4	10	AAC	A	7	20+
	20	AAC	A	7	20+
TWL5	10	AAC	B	5.2	20+
	20	PCC	B	106	0.2
TWL6	10	AC	B	2	0

Branch ID	Section ID	Surface Type	Fleet Mix	Last Major Rehabilitation	Age	PCI 2017	Critical PCI	Major Rehab. (years) (PCI=Critical)	Functional (years) (PCI ≤ 40)
ACARGON	10	PCC	A	1996	21	92	65	14	20+
	20	PCC	B	1996	21	97	65	16	20+
	30	PCC	A	2001	16	96	65	20+	20+
ACARGOS	10	PCC	A	2002	15	93	65	20+	20+
	20	PCC	B	2002	15	99	65	20+	20+
AGEN	10	PCC	B	2007	10	100	65	20+	20+
	20	PCC	B	1999	18	79	65	14	20+
	30	PCC	B	1984	33	100	65	18	20+
	40	PCC	B	2007	10	96	65	20+	20+
AITIN	10	AAC	B	2009	8	63	65	0	12
	20	AAC	B	2009	8	46	65	0	3
	30	PCC	B	2006	11	73	65	8	20+
ATERM	10	PCC	A	2017	0	100	65	20+	20+
	20	PCC	A	2017	0	99	65	20+	20+
	30	PCC	A	2017	0	100	65	20+	20+
FS	10	PCC	B	1963	54	92	65	14	20+
	20	PCC	B	1963	54	72	65	4	16
RW04	10	PCC	A	1999	18	100	70	20+	20+
	20	PCC	A	1999	18	99	70	20+	20+
	30	PCC	A	1996	21	100	70	15	20+
	40	PCC	A	1996	21	97	70	14	20+
	50	PCC	A	1996	21	100	70	15	20+
	60	PCC	A	1996	21	97	70	14	20+
	70	AAC	A	2009	8	84	70	7	20+
	80	AAC	A	2009	8	75	70	3	18
	90	AAC	A	2009	8	81	70	6	20+
	100	PCC	A	1996	21	98	70	14	20+
	110	PCC	A	1996	21	99	70	15	20+
	120	PCC	A	1996	21	95	70	13	20+
TL01	10	PCC	A	2001	16	97	65	20+	20+
	20	PCC	A	2001	16	97	65	20+	20+
	25	PCC	A	2016	1	96	65	20+	20+
	30	AAC	A	2009	8	48	65	0	4
TL02	10	PCC	B	2006	11	95	65	20+	20+
	15	PCC	B	2015	2	98	65	20+	20+
	30	PCC	B	1962	55	99	65	17	20+
TWA	10	PCC	A	1999	18	99	65	20+	20+
TWB	10	PCC	A	1999	18	99	65	20+	20+
TWC	10	PCC	A	1996	21	98	65	17	20+
TWCARGO	10	PCC	A	1996	21	92	65	14	20+
TWD	10	AAC	A	2010	7	68	65	2	14
TWE	5	AAC	A	2010	7	58	65	0	9
	10	AAC	A	2010	7	58	65	0	9
TWF	10	AAC	A	2010	7	49	65	0	5

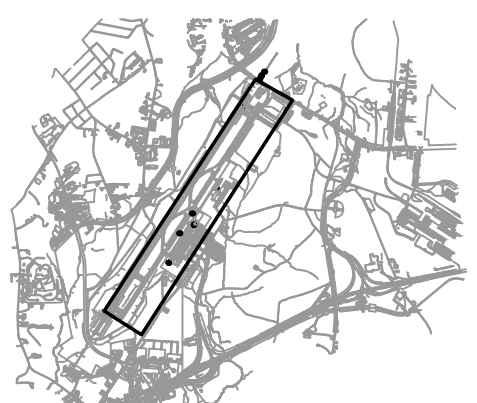
Branch ID	Section ID	Surface Type	Fleet Mix	Last Major Rehabilitation	Age	PCI 2017	Critical PCI	Major Rehab. (years) (PCI=Critical)	Functional (years) (PCI ≤ 40)
TWG	10	AAC	A	2010	7	44	65	0	2
TWG	20	AAC	A	2016	1	100	65	18	20+
TWJ	10	PCC	A	1996	21	98	65	17	20+
TWK	10	PCC	A	1996	21	99	65	17	20+
TWL	10	PCC	A	1999	18	96	65	20+	20+
	20	PCC	A	1996	21	100	65	18	20+
	25	AAC	A	2010	7	61	65	0	11
	30	AAC	A	2010	7	61	65	0	11
TWL	40	PCC	A	1996	21	98	65	17	20+
TWL2	10	AAC	A	1994	23	70	65	2	10
	20	PCC	A	2001	16	94	65	20+	20+
	30	PCC	A	2016	1	98	65	20+	20+
TWL3	10	AAC	A	2009	8	69	65	2	15
	20	PCC	A	2001	16	95	65	20+	20+
TWL4	10	AAC	A	2009	8	75	65	5	18
	20	AAC	A	2009	8	71	65	3	16
TWL5	10	AAC	B	2009	8	76	65	6	18
	20	PCC	B	2015	2	100	65	20+	20+
TWL6	10	AC	B	2009	8	56	65	0	8



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KEY PLAN

PAVEMENT
MANAGEMENT PLAN
(PMP) UPDATE

STRUCTURAL
REMAINING LIFE

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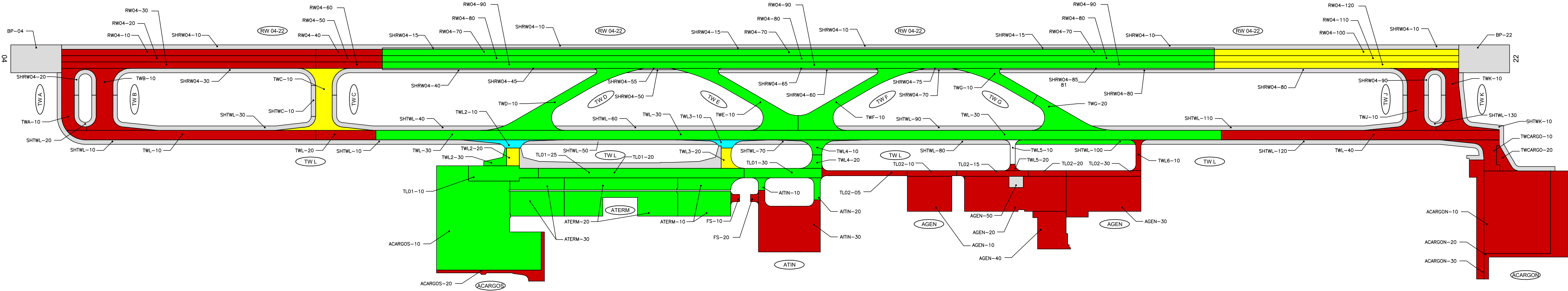
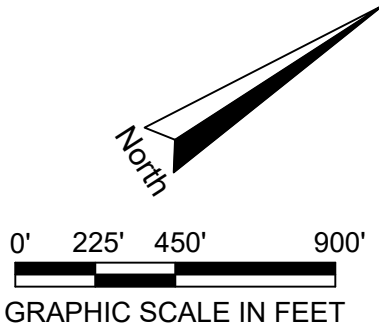
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DATE: AUGUST 2018

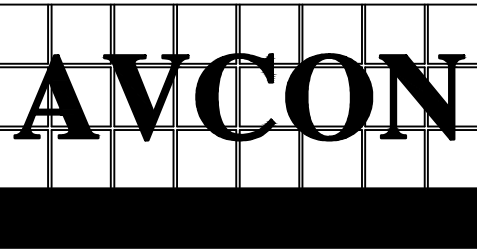
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APP. H-1



LEGEND

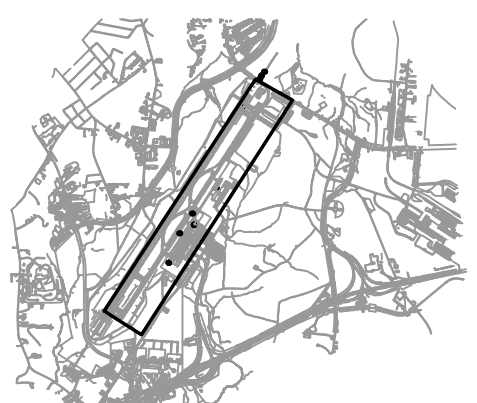
Red	0-5 YEARS
Yellow	6-10 YEARS
Cyan	11-20 YEARS
Green	20+ YEARS
Grey	NOT ANALYZED



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KEY PLAN

PAVEMENT
MANAGEMENT PLAN
(PMP) UPDATE

REMAINING LIFE TO
CRITICAL PCI

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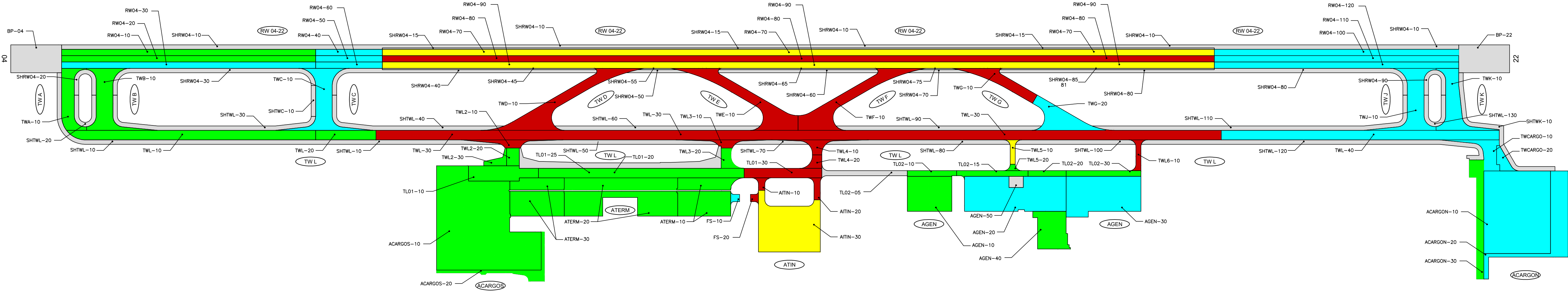
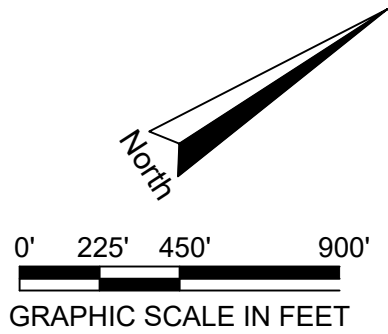
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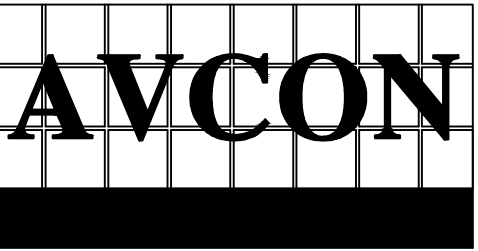
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APP. H-2



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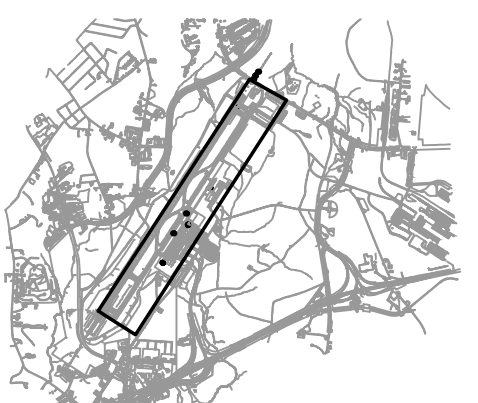
Red	0-5 YEARS
Yellow	6-10 YEARS
Cyan	11-20 YEARS
Green	20+ YEARS
Grey	NOT ANALYZED



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KEY PLAN

PAVEMENT
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FUNCTIONAL
REMAINING LIFE
(PCI = 40)

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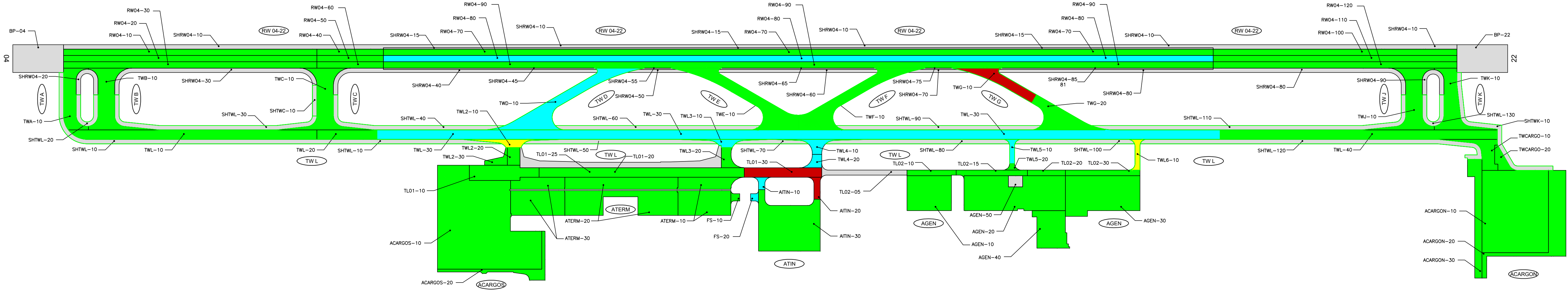
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APP. H-3

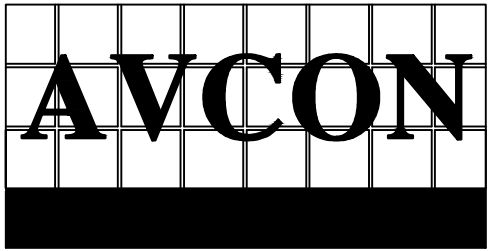
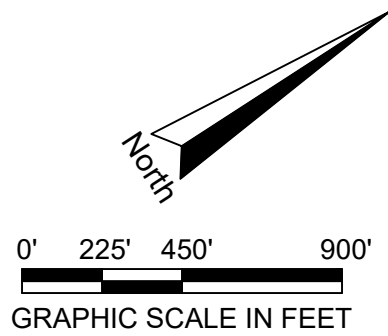


APPENDIX I: PCN/ACN DATA



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

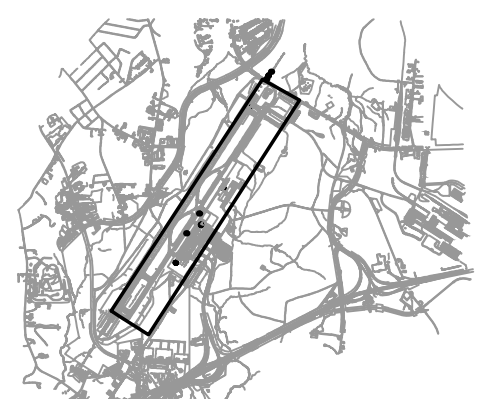
Branch	Section	Section	Area (SqFt)	Geotech k or CBR Value	PCN Value	Weight or Traffic Restriction	PCN Code
ACARGON	10	14" P-501, 8" P-304	341,250	64.2	64	No	R/B/W/T
	20	8" P-501, 8" P-304	114,714	164.1	9	Yes	R/B/W/T
	30	14" P-501, 8" P-304	62,212	64.2	64	No	R/B/W/T
ACARGOS	10	15" P-501, 8" P-304	508,349	340	83	No	R/B/W/T
	20	8" P-501, 6" P-209	37,780	340	9	Yes	R/B/W/T
AGEN	10	6.5" P-501, 12" P-154	96,250	79	5	Yes	R/C/W/T
	20	6" P-501, 6" P-154	209,531	196.4	5	Yes	R/B/W/T
	30	7" P-501, 4" P-209	170,125	141.4	6	Yes	R/B/W/T
	40	6.5" P-501, 12" P-154	70,641	84.8	5	Yes	R/C/W/T
AITIN	10	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	5,974	43.5	588	No	F/A/X/T
	20	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	9,316	43.5	588	No	F/A/X/T
	30	6" P-501, 6" P-209	185,144	120.6	5	Yes	R/C/W/T
ATERM	10	17" P-501, 6" P-304, 6" P-209	123,677	292.3	107	No	R/B/W/T
	20	17" P-501, 6" P-304, 6" P-209	219,122	292.3	107	No	R/B/W/T
	30	17" P-501, 6" P-304, 6" P-209	122,490	292.3	107	No	R/B/W/T
FS	10	6" P-501	4,235	120.6	4	Yes	R/C/W/T
	20	6" P-501	3,841	120.6	4	Yes	R/C/W/T
RW04	10	14" P-501, 8" P-304	100,000	175.3	65	No	R/B/W/T
	20	14" P-501, 8" P-304	100,000	175.3	65	No	R/B/W/T
	30	14" P-501, 8" P-304	100,000	175.3	65	No	R/B/W/T
	40	14" P-501, 8" P-304	26,250	175.3	65	No	R/B/W/T
	50	14" P-501, 8" P-304	26,250	175.3	65	No	R/B/W/T
	60	14" P-501, 8" P-304	26,250	175.3	65	No	R/B/W/T
	70	3.5" P-401, 4" P-401, 2.5" P-401, 6" P-403, 12" P-154	327,500	41.6	1446	No	F/A/X/T
	80	3.5" P-401, 4" P-401, 2.5" P-401, 6" P-403, 12" P-154	327,500	29.6	789	No	F/A/X/T
	90	3.5" P-401, 4" P-401, 2.5" P-401, 6" P-403, 12" P-154	327,500	19.9	334	No	F/A/X/T
	100	14" P-501, 8" P-304	96,250	196.6	66	No	R/B/W/T
	110	14" P-501, 8" P-304	96,250	196.6	66	No	R/B/W/T
	120	14" P-501, 8" P-304	96,250	196.6	66	No	R/B/W/T
TL01	10	15" P-501, 8" P-304, 12" P-154	59,307	212.5	82	No	R/B/W/T
	20	15" P-501, 8" P-304, 12" P-154	121,425	212.5	82	No	R/B/W/T
	25	17" P-501, 6" P-304, 6" P-209	87,758	212.5	107	No	R/B/W/T
	30	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	45,956	13.1	250	No	F/A/X/T
TL02	10	6.5" P-501, 12" P-154	17,250	73.1	5	Yes	R/C/W/T
	15	10" P-501, 6" P-209, 12" P-154	25,193	73.1	15	Yes	R/C/W/T
	30	7" P-501, 4" P-209	26,550	73.1	6	Yes	R/C/W/T
TWA	10	14" P-501, 8" P-304	50,053	178.3	65	No	R/B/W/T
TWB	10	14" P-501, 8" P-304	81,551	141	63	No	R/B/W/T
TWC	10	14" P-501, 8" P-304	85,241	224.3	67	No	R/B/W/T
TWCARGO	10	14" P-501, 8" P-304	34,240	108.1	63	No	R/B/W/T
TWD	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	107,176	13	305	No	F/B/X/T
TWE	5	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	100,487	16.6	540	No	F/A/X/T
	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154		9.6	157	No	F/B/X/T
TWF	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	100,487	11.8	167	No	F/B/X/T
TWG	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	44,563	14	319	No	F/A/X/T
	20	7" P-401, 3" P-401, 6" P-403, 19.5" P-154	62,463	13	334	No	F/B/X/T
TWJ	10	14" P-501, 8" P-304	82,457	142.3	63	No	R/B/W/T
TWK	10	14" P-501, 8" P-304	70,383	145.7	63	No	R/B/W/T
TWL	10	14" P-501, 8" P-304	143,669	132.3	62	No	R/B/W/T
	20	14" P-501, 8" P-304	35,625	132.3	62	No	R/B/W/T
	25	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	-	12.3	261	No	F/B/X/T
	30	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	499,349	15.4	290	No	F/A/X/T
	40	14" P-501, 8" P-304	164,175	80	60	No	R/B/W/T
TWL2	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	16,854	5.6	101	No	F/C/X/T
	20	15" P-501, 8" P-304, 12" P-154	14,000	110.3	79	No	R/B/W/T
	30	17" P-501, 6" P-304, 6" P-209	11,126	110.3	97	No	R/B/W/T
TWL3	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	12,137	6.1	109	No	F/C/X/T
	20	15" P-501, 8" P-304, 12" P-154	14,681	116.8	79	No	R/B/W/T
TWL4	10	2" P-401, 4" P-401, 3" P-401, 6" P-403, 19.5" P-154	16,559	7	154	No	F/C/X/T
	20	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	10,098	7	120	No	F/C/X/T
TWL5	10	4" P-401, 3" P-401, 6" P-403, 19.5" P-154	8,754	5.2	30	Yes	F/C/X/T
	20	10" P-501, 6" P-209, 12" P-154	3,074	106	15	Yes	R/B/W/T
TWL6	10	4" P-401, 9" P-209	11,403	2	3	Yes	F/D/X/T



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KEY PLAN

PAVEMENT
MANAGEMENT PLAN
(PMP) UPDATE

CRITICAL SECTIONS
(PCN)

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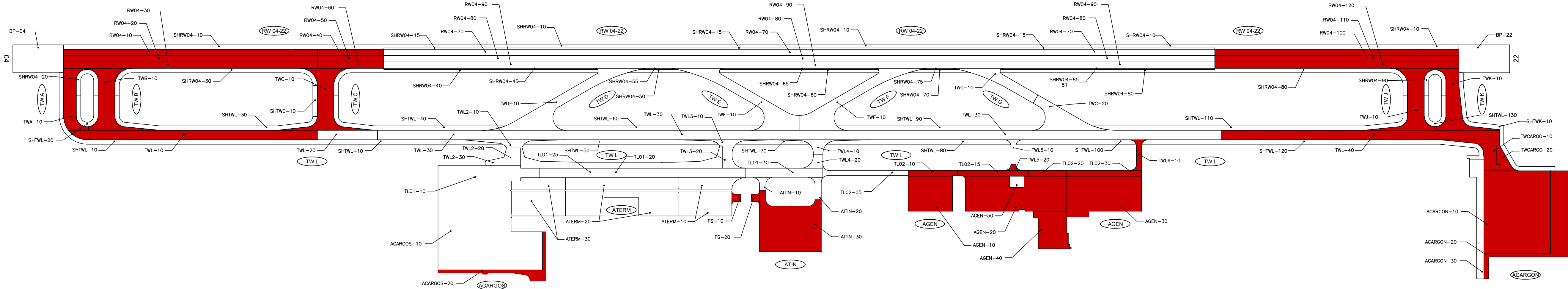
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APP. I



CRITICAL PAVEMENT SECTIONS, PCN



APPENDIX J: AIRFIELD CIP MAPS AND DATA



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE



Priority	Design Year	Construction Year	Project Description	Branch	Section	Pavement Type	2017 PCI	Section Area (SF)	Pavement Costs*	Rehabilitation Included	\$/sq. foot	Non-Pavement Costs	Total Construction Costs	Professional Fees (25%)		Contingency (15%)	Total Project Cost
														Year 1 Design Fee (11% of Construction Cost)	Year 2 Construction Fee (14% of Construction Cost)		
1	2019	2020	Taxiway L & High Speed Taxiways Rehabilitation	SHTWC	10	AC	55	8,503	\$ 22,178.66	2" Mill and Overlay	\$ 2.61	\$ 8,871.46	\$ 7,844,390.69	\$ 862,882.98	\$ 1,098,214.70	\$ 1,470,823.25	\$ 11,276,311.61
				SHTWK	10	AC	66	46,553	\$ 121,425.74	2" Mill and Overlay	\$ 2.61	\$ 48,570.30					
				SHTWL	10	AC	72	132,992	\$ 346,887.47	2" Mill and Overlay	\$ 2.61	\$ 138,754.99					
				SHTWL	20	AC	75	18,920	\$ 49,349.67	2" Mill and Overlay	\$ 2.61	\$ 19,739.87					
				SHTWL	30	AC	73	63,156	\$ 164,731.90	2" Mill and Overlay	\$ 2.61	\$ 65,892.76					
				SHTWL	40	AC	58	51,836	\$ 135,205.57	2" Mill and Overlay	\$ 2.61	\$ 54,082.23					
				SHTWL	50	AC	50	49,437	\$ 128,948.18	2" Mill and Overlay	\$ 2.61	\$ 51,579.27					
				SHTWL	60	AC	63	55,000	\$ 143,458.33	2" Mill and Overlay	\$ 2.61	\$ 57,383.33					
				SHTWL	70	AC	61	16,207	\$ 42,273.26	2" Mill and Overlay	\$ 2.61	\$ 16,909.30					
				SHTWL	80	AC	46	48,179	\$ 125,666.89	2" Mill and Overlay	\$ 2.61	\$ 50,266.76					
				SHTWL	90	AC	53	55,000	\$ 143,458.33	2" Mill and Overlay	\$ 2.61	\$ 57,383.33					
				SHTWL	100	AC	41	32,100	\$ 83,727.50	2" Mill and Overlay	\$ 2.61	\$ 33,491.00					
				SHTWL	110	AC	50	91,322	\$ 238,198.22	2" Mill and Overlay	\$ 2.61	\$ 95,279.29					
				SHTWL	120	AC	48	99,512	\$ 259,560.47	2" Mill and Overlay	\$ 2.61	\$ 103,824.19					
				SHTWL	130	AC	49	18,811	\$ 49,065.36	2" Mill and Overlay	\$ 2.61	\$ 19,626.14					
				TWD	10	AAC	68	107,176	\$ 535,284.58	4" Mill and Overlay	\$ 4.99	\$ 214,113.83					
				TWE	10	AAC	58	100,487	\$ 334,956.67	Full Depth Asphalt Pavement Removal	\$ 3.33	\$ 133,982.67					
				TWF	10	AAC	49	100,487	\$ 334,956.67	Full Depth Asphalt Pavement Removal	\$ 3.33	\$ 133,982.67					
				TWG	10	AAC	44	44,563	\$ 222,567.43	4" Mill and Overlay	\$ 4.99	\$ 89,026.97					
				TWG	20	AAC	100	62,463	\$ 311,967.98	4" Mill and Overlay	\$ 4.99	\$ 124,787.19					
				TWL	30	AAC	61	499,349	\$ 1,302,468.64	2" Mill and Overlay	\$ 2.61	\$ 520,987.46					
				TWL2	10	AAC	70	16,854	\$ 43,960.85	2" Mill and Overlay	\$ 2.61	\$ 17,584.34					
				TWL3	10	AAC	69	12,137	\$ 31,657.34	2" Mill and Overlay	\$ 2.61	\$ 12,662.94					
				TWL4	10	AAC	75	16,559	\$ 43,191.39	2" Mill and Overlay	\$ 2.61	\$ 17,276.56					
				TWL4	20	AAC	71	10,098	\$ 26,338.95	2" Mill and Overlay	\$ 2.61	\$ 10,535.58					
				TWL5	10	AAC	76	8,754	\$ 157,061.35	Full Depth Asphalt Pavement Reconstruction	\$ 17.94	\$ 62,824.54					
				TWL6	10	AAC	56	11,403	\$ 204,588.83	Full Depth Asphalt Pavement Reconstruction	\$ 17.94	\$ 81,835.53					

Table J.1 - CIP Plan Details



Priority	Design Year	Construction Year	Project Description	Branch	Section	Pavement Type	2017 PCI	Section Area (SF)	Pavement Costs*	Rehabilitation Included	\$/sq. foot	Non-Pavement Costs	Total Construction Costs	Professional Fees (25%)		Contingency (15%)	Total Project Cost
														Year 1 Design Fee (11% of Construction Cost)	Year 2 Construction Fee (14% of Construction Cost)		
2	2020	2021	Localized PCC Repairs and Joint Re-Seal - 3 Phases	ACARGOS	10	PCC	93	508,349	\$ 406,679.20	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 81,335.84	\$ 823,200.00	\$ 90,552.00	\$ 115,248.00	\$ 154,350.00	\$ 1,183,350.00
				ACARGOS	20	PCC	99	37,780	\$ 30,224.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 6,044.80					
				TL01	10	PCC	97	59,307	\$ 47,445.60	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 9,489.12					
				TL01	20	PCC	97	121,425	\$ 97,140.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 19,428.00					
				TL01	25	PCC	96	87,758	\$ 70,206.40	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 14,041.28					
				TWL2	20	PCC	94	14,000	\$ 11,200.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 2,240.00					
				TWL2	30	PCC	98	11,126	\$ 8,900.80	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 1,780.16					
				TWL3	20	PCC	95	14,681	\$ 11,744.80	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 2,348.96					
				TWL5	20	PCC	100	3,074	\$ 2,459.20	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 491.84					
				ACARGON	10	PCC	92	341,250	\$ 273,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 54,600.00	\$ 544,872.00	\$ 59,935.92	\$ 76,282.08	\$ 102,163.50	\$ 783,253.50
				ACARGON	20	PCC	97	114,714	\$ 91,771.20	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 18,354.24					
				ACARGON	30	PCC	96	62,212	\$ 49,769.60	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 9,953.92					
				TWCARGO	10	PCC	92	34,240	\$ 27,392.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 5,478.40					
				TWCARGO	20	PCC	94	15,159	\$ 12,127.20	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 2,425.44					
				AGEN	10	PCC	100	96,250	\$ 77,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 15,400.00	\$ 613,328.64	\$ 67,466.15	\$ 85,866.01	\$ 114,999.12	\$ 881,659.92
				AGEN	20	PCC	79	209,531	\$ 167,624.80	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 33,524.96					
				AGEN	30	PCC	100	170,125	\$ 136,100.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 27,220.00					
				AGEN	40	PCC	96	70,641	\$ 56,512.80	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 11,302.56					
				AGEN	50	PCC	97	9,844	\$ 7,875.20	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 1,575.04					
				TL02	10	PCC	95	17,250	\$ 13,800.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 2,760.00					
				TL02	15	PCC	98	25,193	\$ 20,154.40	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 4,030.88					
				TL02	20	PCC	77	13,500	\$ 10,800.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 2,160.00					
				TL02	30	PCC	99	26,550	\$ 21,240.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 4,248.00					

Table J.1 - CIP Plan Details (cont'd.)



Priority	Design Year	Construction Year	Project Description	Branch	Section	Pavement Type	2017 PCI	Section Area (SF)	Pavement Costs*	Rehabilitation Included	\$/sq. foot	Non-Pavement Costs	Total Construction Costs	Professional Fees (25%)		Contingency (15%)	Total Project Cost
														Year 1 Design Fee (11% of Construction Cost)	Year 2 Construction Fee (14% of Construction Cost)		
3	2021	2022	Runway 04-22 Asphalt Pavement Rehabilitation	BP	04	AC	69	88,000	\$ 229,533.33	2" Mill and Overlay	\$ 2.61	\$ 80,336.67	\$ 6,688,934.81	\$ 735,782.83	\$ 936,450.87	\$ 1,254,175.28	\$ 9,615,343.79
				BP	22	AC	54	88,000	\$ 229,533.33	2" Mill and Overlay	\$ 2.61	\$ 80,336.67					
				RW04	70	AAC	84	327,500	\$ 854,229.17	2" Mill and Overlay	\$ 2.61	\$ 298,980.21					
				RW04	80	AAC	75	327,500	\$ 854,229.17	2" Mill and Overlay	\$ 2.61	\$ 298,980.21					
				RW04	90	AAC	81	327,500	\$ 854,229.17	2" Mill and Overlay	\$ 2.61	\$ 298,980.21					
				SHRW04	10	AC	63	319,525	\$ 833,427.71	2" Mill and Overlay	\$ 2.61	\$ 291,699.70					
				SHRW04	15	AC	81	65,510	\$ 170,871.92	2" Mill and Overlay	\$ 2.61	\$ 59,805.17					
				SHRW04	20	AC	89	15,741	\$ 41,057.78	2" Mill and Overlay	\$ 2.61	\$ 14,370.22					
				SHRW04	30	AC	78	61,997	\$ 161,708.84	2" Mill and Overlay	\$ 2.61	\$ 56,598.09					
				SHRW04	40	AC	67	60,404	\$ 157,553.77	2" Mill and Overlay	\$ 2.61	\$ 55,143.82					
				SHRW04	45	AC	81	16,792	\$ 43,799.13	2" Mill and Overlay	\$ 2.61	\$ 15,329.70					
				SHRW04	50	AC	70	10,047	\$ 26,205.93	2" Mill and Overlay	\$ 2.61	\$ 9,172.07					
				SHRW04	55	AC	83	2,587	\$ 6,747.76	2" Mill and Overlay	\$ 2.61	\$ 2,361.72					
				SHRW04	60	AC	70	31,379	\$ 81,846.89	2" Mill and Overlay	\$ 2.61	\$ 28,646.41					
				SHRW04	65	AC	81	12,355	\$ 32,225.96	2" Mill and Overlay	\$ 2.61	\$ 11,279.09					
				SHRW04	70	AC	70	10,047	\$ 26,205.93	2" Mill and Overlay	\$ 2.61	\$ 9,172.07					
				SHRW04	75	AC	83	2,587	\$ 6,747.76	2" Mill and Overlay	\$ 2.61	\$ 2,361.72					
				SHRW04	80	AC	53	99,881	\$ 260,522.94	2" Mill and Overlay	\$ 2.61	\$ 91,183.03					
				SHRW04	85	AC	81	16,819	\$ 43,869.56	2" Mill and Overlay	\$ 2.61	\$ 15,354.35					
				SHRW04	90	AC	65	15,420	\$ 40,220.50	2" Mill and Overlay	\$ 2.61	\$ 14,077.18					

Table J.1 - CIP Plan Details (cont'd.)



Priority	Design Year	Construction Year	Project Description	Branch	Section	Pavement Type	2017 PCI	Section Area (SF)	Pavement Costs*	Rehabilitation Included	\$ /sq. foot	Non-Pavement Costs	Total Construction Costs	Professional Fees (25%)		Contingency (15%)	Total Project Cost
														Year 1 Design Fee (11% of Construction Cost)	Year 2 Construction Fee (14% of Construction Cost)		
4	2022	2023	Localized PCC Repairs and Joint Re-Seal	RW04	10	PCC	100	100,000	\$ 80,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 26,400.00	\$ 1,469,015.86	\$ 161,591.74	\$ 205,662.22	\$ 275,440.47	\$ 2,111,710.29
				RW04	20	PCC	99	100,000	\$ 80,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 26,400.00					
				RW04	30	PCC	100	100,000	\$ 80,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 26,400.00					
				RW04	40	PCC	97	26,250	\$ 21,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 6,930.00					
				RW04	50	PCC	100	26,250	\$ 21,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 6,930.00					
				RW04	60	PCC	97	26,250	\$ 21,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 6,930.00					
				RW04	100	PCC	98	96,250	\$ 77,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 25,410.00					
				RW04	110	PCC	99	96,250	\$ 77,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 25,410.00					
				RW04	120	PCC	95	96,250	\$ 77,000.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 25,410.00					
				TWA	10	PCC	99	50,053	\$ 40,042.40	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 13,213.99					
				TWB	10	PCC	99	81,551	\$ 65,240.80	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 21,529.46					
				TWC	10	PCC	98	85,241	\$ 68,192.80	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 22,503.62					
				TWJ	10	PCC	98	82,457	\$ 65,965.60	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 21,768.65					
				TWK	10	PCC	99	70,383	\$ 56,306.40	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 18,581.11					
				TWL	10	PCC	96	143,669	\$ 114,935.20	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 37,928.62					
				TWL	20	PCC	100	35,625	\$ 28,500.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 9,405.00					
				TWL	40	PCC	98	164,175	\$ 131,340.00	Localized Repairs and Rout, Clean and Seal Joints	\$ 0.80	\$ 43,342.20					

Table J.1 - CIP Plan Details (cont'd.)



Priority	Design Year	Construction Year	Project Description	Branch	Section	Pavement Type	2017 PCI	Section Area (SF)	Pavement Costs*	Rehabilitation Included	\$ /sq. foot	Non-Pavement Costs	Total Construction Costs	Professional Fees (25%)		Contingency (15%)	Total Project Cost
														Year 1 Design Fee (11% of Construction Cost)	Year 2 Construction Fee (14% of Construction Cost)		
5	2023	2024	Itinerant Apron Reconstruction	AITIN	10	AAC	63	5,974	\$ 107,183.52	Full Depth Asphalt Pavement Reconstruction	\$ 17.94	\$ 32,155.06	\$ 9,563,227.25	\$ 1,051,955.00	\$ 1,338,851.81	\$ 1,793,105.11	\$ 13,747,139.16
				AITIN	20	AAC	46	9,316	\$ 167,144.57	Full Depth Asphalt Pavement Reconstruction	\$ 17.94	\$ 50,143.37					
				AITIN	30	PCC	73	185,144	\$ 5,245,746.67	Full Depth PCC Pavement Reconstruction	\$ 28.33	\$ 1,573,724.00					
				FS	10	PCC	92	4,235	\$ 119,991.67	Full Depth PCC Pavement Reconstruction	\$ 28.33	\$ 35,997.50					
				FS	20	PCC	72	3,841	\$ 108,828.33	Full Depth PCC Pavement Reconstruction	\$ 28.33	\$ 32,648.50					
				TL01	30	AAC	48	45,956	\$ 824,527.23	Full Depth Asphalt Pavement Reconstruction	\$ 17.94	\$ 247,358.17					
				TL02	05	PCC	33	27,632	\$ 782,906.67	Full Depth PCC Pavement Reconstruction	\$ 28.33	\$ 234,872.00					

Table J.1 - CIP Plan Details (cont'd.)

Description	Work Unit	Unit Cost
AC Surface Course	TON	\$ 175.00
Milling - 2"	SY	\$ 3.00
Milling - 4"	SY	\$ 4.00
10-inch Crushed Aggregate Base Course	SY	\$ 40.00
15-inch Subbase	SY	\$ 30.00
6-inch Subbase	SY	\$ 15.00
8-inch Cement-Treated Base Course	SY	\$ 40.00
Tack Coat	SY	\$ 0.35
Prime Coat	SY	\$ 0.40
12-inch PCC Pavement	SY	\$ 150.00
PCC Pavement Removal	SY	\$ 35.00
AC Pavement Removal	SY	\$ 30.00
Localized PCC Repairs (Including Joint Seal)	SF	\$ 0.80

Table J.2 - Major Rehabilitation Unit Costs

PROPOSED RECONSTRUCTED PCC TAXIWAY/APRON STRUCTURE

Description	Work Unit	Unit Cost
12-inch PCC Pavement	SF	\$ 16.67
8-inch Cement-Treated Base Course	SF	\$ 4.44
15-inch Subbase	SF	\$ 3.33
PCC Pavement Removal	SF	\$ 3.89
	SF	\$ 28.33

PROPOSED RECONSTRUCTED ASPHALT TAXIWAY STRUCTURE

Description	Work Unit	Unit Cost
6-inch AC Surface Course	SF	\$ 6.71
Tack Coat	SF	\$ 0.08
Prime Coat	SF	\$ 0.04
10-inch Crushed Aggregate Base Course	SF	\$ 4.44
15-inch Subbase	SF	\$ 3.33
AC Pavement Removal	SF	\$ 3.33
	SF	\$ 17.94

PROPOSED RECONSTRUCTED ASPHALT TAXIWAY SHOULDER STRUCTURE

Description	Work Unit	Unit Cost
3-inch AC Surface Course	SF	\$ 3.35
Tack Coat	SF	\$ 0.04
Prime Coat	SF	\$ 0.04
10-inch Crushed Aggregate Base Course	SF	\$ 4.44
6-inch Subbase	SF	\$ 1.67
AC Pavement Removal	SF	\$ 3.33
	SF	\$ 12.88

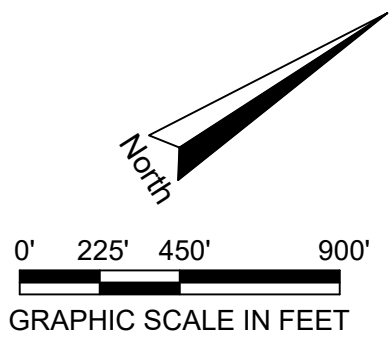
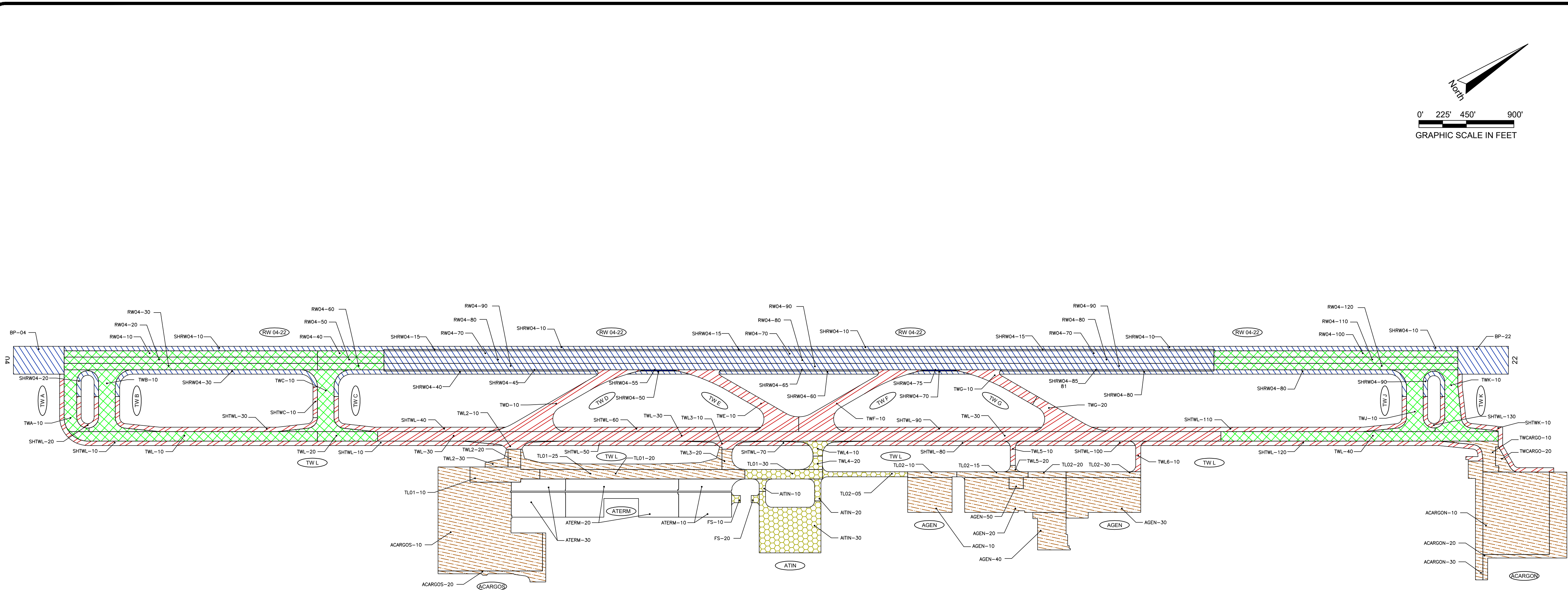
PROPOSED 2" ASPHALT MILL AND OVERLAY REHABILITATION

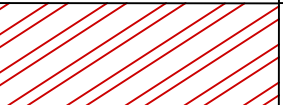


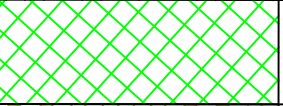
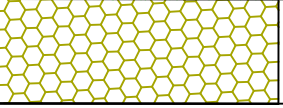
Description	Work Unit	Unit Cost
2-inch AC Surface Course	SF	\$ 2.24
Tack Coat	SF	\$ 0.04
Milling - 2"	SF	\$ 0.33
	SF	\$ 2.61

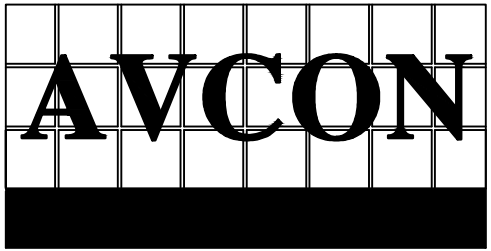
PROPOSED 4" ASPHALT MILL AND OVERLAY REHABILITATION

Description	Work Unit	Unit Cost
4-inch AC Surface Course	SF	\$ 4.47
Tack Coat	SF	\$ 0.08
Milling - 4"	SF	\$ 0.44
	SF	\$ 4.99

Table J.3 - Proposed Rehabilitation Pavement Structures



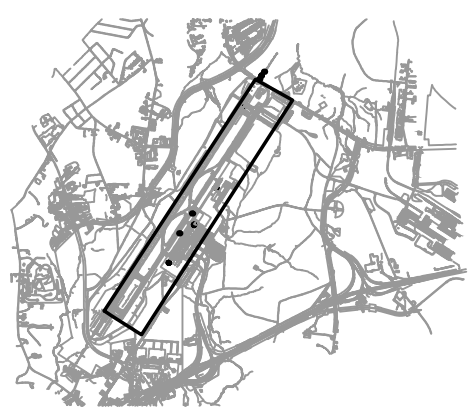
AIRFIELD CAPITAL IMPROVEMENT PLAN 2019-2024			
	DESIGN YEAR	CONSTRUCTION YEAR	TOTAL PROJECT COST
	2019	2020	PROJECT 1 \$7,990,000
	2020	2021	PROJECT 2 \$7,240,000
	2021	2022	PROJECT 3 \$8,210,000
	2022	2023	PROJECT 4 \$2,090,000
	2023	2024	PROJECT 5 \$5,615,000



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GREENVILLE-
SPARTANBURG
INTERNATIONAL AIRPORT



KEY PLAN

PAVEMENT
MANAGEMENT PLAN
(PMP) UPDATE

CAPITAL IMPROVEMENT
PLAN (CIP) MAP

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NO.	DATE	BY	DESCRIPTION

DESIGNED BY: B.S.H.
DRAWN BY: T.D.B.
CHECKED BY: M.D.
APPROVED BY: S.S.
DATE: AUGUST 2018

AVCON PROJECT NO. 2017.266.01

APP. J

APPENDIX K: MAINTENANCE PLAN AND SUMMARY



AIRPORT PAVEMENT MANAGEMENT SYSTEM UPDATE

APPENDIX K – MAINTENANCE PLAN AND SUMMARY

Overview

Pavement distress related maintenance activity plays a crucial role in the asset preservation and performance of overall airfield operations. The use of Capital Improvement Program (CIP) planning and execution, in addition to routine maintenance, allows planners of different departments and agencies the budgetary information and physical data in order to make informative airfield decisions, especially when funding is limited. This Appendix describes the development of the Maintenance Plan proposed as a supplement to the CIP proposed in **Chapter 6**. This maintenance plan describes specific maintenance issues to be addressed that will prolong the life of the pavement until a major rehabilitation project is undertaken.

Prioritization of Pavement Projects

MicroPAVER allows the user to determine the prioritization of the Major Maintenance and Rehabilitation work. **Table K.1** outlines the prioritization rule established for the Greenville-Spartanburg International Airport. These rules are based on pavement use and condition of pavement from the 2017 pavement condition inspections.

Branch Use	Priority
Runway	High
Taxiway	Medium
Apron	Low
Shoulders	Low
Blast Pads	Low

Table K.1 – Branch Use Priority Table

Summary of Methodology: Creation of Maintenance Plan

MicroPAVER was utilized to formulate a list of areas requiring localized attention based on the observed distresses during the 2017 GSP PMP pavement inspection process.

Since less than 25% of the airfield was actually surveyed, MicroPAVER formulated a method to estimate the quantities of distresses on the entire airfield for conceptual planning purposes. The distress quantity, as listed in the Maintenance Plan, is the predicted amount of distresses expected within the entire pavement section. These values were extrapolated based on the observed quantity of distresses within surveyed sample units and the area of the section. The accuracy of the predicted work quantity is subjective not only in regards to the percentage of surveyed area with respect to total section area but also in the concentration of distress within a surveyed sample unit. Even though ASTM sampling methods were utilized, few select instances represent very conservative, often unrealistic, values for the predicted work quantity. The data from the 2017 pavement condition inspections was extrapolated at the section level to determine the approximate number of distresses in a given section, and subsequently a pavement branch. The Maintenance Plan simply provides loose budgetary estimates for planning purposes.

The Maintenance Plan is important to the conservation of the Airport's success and should not be overlooked. A solid maintenance plan prevents more costly pavement repairs towards the end of a pavement's expected life cycle. The proposed Maintenance Plan provided, in conjunction with the proposed CIP Plan, serves as a solid planning tool in maintaining GSP as a leader in the airport industry.

Distress Type	Severity	Work Type Description
Bleeding	n/a	Monitor
Block Cracking	H	Crack Seal
	M	Crack Seal
	L	Monitor
L&T Cracking	H	Crack Seal
	M	Crack Seal
	L	Monitor
Oil Spillage	n/a	AC Patch (Partial Depth)
Patching	H	AC Patch (Full Depth)
	M	AC Patch (Full Depth)
	L	Monitor
Rutting	H	AC Patch (Full Depth)
	M	AC Patch (Full Depth)
	L	Monitor
Slippage Cracking	n/a	AC Patch (Full Depth)
Swelling	H	AC Patch (Full Depth)
	M	Monitor
	L	Monitor
Weathering	H	AC Patch (Partial Depth)
	M	AC Patch (Partial Depth)
	L	Monitor

Table K.2 – AC Pavement Distresses & Maintenance

Distress Type	Severity	Work Type Description
Corner Break	H	PCC Patch (Full Depth)
	M	PCC Patch (Full Depth)
	L	Crack Seal
LTD Cracking	H	PCC Patch (Full Depth)
	M	Crack Seal
	L	Monitor
Joint Seal Damage	H	Joint Seal
	M	Joint Seal
	L	Monitor
Patching	H	PCC Patch (Full Depth)
	M	Monitor
	L	Monitor
Scaling	H	Slab Replacement
	M	Monitor
	L	Monitor
Shattered Slab	H	Slab Replacement
	M	Slab Replacement
	L	Monitor
Shrinkage Cracking	n/a	Monitor
Spalling (Joint & Corner)	H	PCC Patch (Full Depth)
	M	PCC Patch (Full Depth)
	L	Monitor

Table K.3 – PCC Pavement Distresses & Maintenance

Repair Policy Description	Work Unit	Unit Cost
Joint Seal	LF	\$ 5.00
Slab Replacement	SF	\$ 100.00
Full-Depth PCC Patch	SF	\$ 40.00
Crack Sealing - PCC	LF	\$ 5.00
Crack Sealing - AC	LF	\$ 4.00
Patching - AC Partial Depth	SF	\$ 6.00
Patching - AC Full Depth	SF	\$ 20.00

Table K.4 – Pavement Repair Unit Costs

Branch ID	Section ID	Description	Severity	Quantity	Work Description	Work Quantity	Unit	Unit Cost	Estimated Construction Cost	Professional Fees (25%)	Contingency (15%)	Estimated Total Project Cost
ACARGON	10	Joint Spall	Medium	2	Full Depth Patch	30	SF	\$ 40.00	\$ 1,200.00	\$ 300.00	\$ 225.00	\$ 1,725.00
		Corner Spall	Medium	1	Full Depth Patch	15	SF	\$ 40.00	\$ 600.00	\$ 150.00	\$ 112.50	\$ 862.50
AITIN	30	Joint Spall	Medium	2	Full Depth Patch	30	SF	\$ 40.00	\$ 1,200.00	\$ 300.00	\$ 225.00	\$ 1,725.00
		Corner Spall	Medium	2	Full Depth Patch	30	SF	\$ 40.00	\$ 1,200.00	\$ 300.00	\$ 225.00	\$ 1,725.00
		Corner Break	Medium	11	Full Depth Patch	1350	SF	\$ 40.00	\$ 54,000.00	\$ 13,500.00	\$ 10,125.00	\$ 77,625.00
		Corner Break	High	3	Full Depth Patch	375	SF	\$ 40.00	\$ 15,000.00	\$ 3,750.00	\$ 2,812.50	\$ 21,562.50
		Shattered Slab	Medium	1	Slab Replacement	1000	SF	\$ 100.00	\$ 100,000.00	\$ 25,000.00	\$ 18,750.00	\$ 143,750.00
AGEN	20	Joint Spall	Medium	4	Full Depth Patch	54	SF	\$ 40.00	\$ 2,160.00	\$ 540.00	\$ 405.00	\$ 3,105.00
		Joint Spall	High	1	Full Depth Patch	15	SF	\$ 40.00	\$ 600.00	\$ 150.00	\$ 112.50	\$ 862.50
		Corner Spall	Medium	5	Full Depth Patch	69	SF	\$ 40.00	\$ 2,760.00	\$ 690.00	\$ 517.50	\$ 3,967.50
		Corner Spall	High	1	Full Depth Patch	15	SF	\$ 40.00	\$ 600.00	\$ 150.00	\$ 112.50	\$ 862.50
		Corner Break	High	1	Full Depth Patch	125	SF	\$ 40.00	\$ 5,000.00	\$ 1,250.00	\$ 937.50	\$ 7,187.50
		LTD Crack	Medium	1	Crack Seal	75	LF	\$ 4.00	\$ 300.00	\$ 75.00	\$ 56.25	\$ 431.25
		LTD Crack	High	1	Full Depth Patch	75	LF	\$ 40.00	\$ 3,000.00	\$ 750.00	\$ 562.50	\$ 4,312.50
ACARGOS	10	Joint Spall	Medium	2	Full Depth Patch	30	SF	\$ 40.00	\$ 1,200.00	\$ 300.00	\$ 225.00	\$ 1,725.00
FS	20	Corner Break	High	1	Full Depth Patch	50	SF	\$ 40.00	\$ 2,000.00	\$ 500.00	\$ 375.00	\$ 2,875.00
AGEN	50	Corner Spall	High	1	Full Depth Patch	6	SF	\$ 40.00	\$ 240.00	\$ 60.00	\$ 45.00	\$ 345.00
TL01	20	Corner Break	Medium	1	Full Depth Patch	50	SF	\$ 40.00	\$ 2,000.00	\$ 500.00	\$ 375.00	\$ 2,875.00
TWL2	20	Joint Spall	Medium	1	Full Depth Patch	9	SF	\$ 40.00	\$ 360.00	\$ 90.00	\$ 67.50	\$ 517.50
Total									\$ 193,420.00			\$ 278,041.25

Table K.5 - PCC Maintenance

Branch ID	Section ID	Description	Severity	Quantity	Work Description	Work Quantity	Unit	Unit Cost	Estimated Construction Cost	Professional Fees (25%)	Contingency (15%)	Estimated Total Project Cost
BP	04	Weathering	Medium	400	AC Patch (Partial Depth)	1067	SF	\$ 6.00	\$ 6,402.00	\$ 1,600.50	\$ 1,200.38	\$ 9,202.88
		LT Cracking	Medium	65	Crack Seal	173	LF	\$ 4.00	\$ 692.00	\$ 173.00	\$ 129.75	\$ 994.75
BP	22	LT Cracking	Medium	1350	Crack Seal	3600	LF	\$ 4.00	\$ 14,400.00	\$ 3,600.00	\$ 2,700.00	\$ 20,700.00
		LT Cracking	High	165	Crack Seal	440	LF	\$ 4.00	\$ 1,760.00	\$ 440.00	\$ 330.00	\$ 2,530.00
TWA	10	Weathering	Medium	125	AC Patch (Partial Depth)	250	SF	\$ 6.00	\$ 1,500.00	\$ 375.00	\$ 281.25	\$ 2,156.25
TWD	10	LT Cracking	Medium	30	Crack Seal	113	LF	\$ 4.00	\$ 452.00	\$ 113.00	\$ 84.75	\$ 649.75
TWE	10	LT Cracking	Medium	40	Crack Seal	136	LF	\$ 4.00	\$ 544.00	\$ 136.00	\$ 102.00	\$ 782.00
TWF	10	LT Cracking	Medium	525	Crack Seal	1785	LF	\$ 4.00	\$ 7,140.00	\$ 1,785.00	\$ 1,338.75	\$ 10,263.75
TWG	10	LT Cracking	Medium	100	Crack Seal	300	LF	\$ 4.00	\$ 1,200.00	\$ 300.00	\$ 225.00	\$ 1,725.00
		LT Cracking	High	25	Crack Seal	75	LF	\$ 4.00	\$ 300.00	\$ 75.00	\$ 56.25	\$ 431.25
SHRW04	10	Weathering	Medium	500	AC Patch (Partial Depth)	3500	SF	\$ 6.00	\$ 21,000.00	\$ 5,250.00	\$ 3,937.50	\$ 30,187.50
		LT Cracking	Medium	500	Crack Seal	3500	LF	\$ 4.00	\$ 14,000.00	\$ 3,500.00	\$ 2,625.00	\$ 20,125.00
		LT Cracking	High	390	Crack Seal	2730	LF	\$ 4.00	\$ 10,920.00	\$ 2,730.00	\$ 2,047.50	\$ 15,697.50
SHRW04	30	Weathering	Medium	525	AC Patch (Partial Depth)	1313	SF	\$ 6.00	\$ 7,878.00	\$ 1,969.50	\$ 1,477.13	\$ 11,324.63
SHRW04	40	Weathering	Medium	800	AC Patch (Partial Depth)	1733	SF	\$ 6.00	\$ 10,398.00	\$ 2,599.50	\$ 1,949.63	\$ 14,947.13
		LT Cracking	Medium	110	Crack Seal	238	LF	\$ 4.00	\$ 952.00	\$ 238.00	\$ 178.50	\$ 1,368.50
SHRW04	80	Weathering	Medium	350	AC Patch (Partial Depth)	1108	SF	\$ 6.00	\$ 6,648.00	\$ 1,662.00	\$ 1,246.50	\$ 9,556.50
		LT Cracking	Medium	900	Crack Seal	2850	LF	\$ 4.00	\$ 11,400.00	\$ 2,850.00	\$ 2,137.50	\$ 16,387.50
		LT Cracking	High	450	Crack Seal	1425	LF	\$ 4.00	\$ 5,700.00	\$ 1,425.00	\$ 1,068.75	\$ 8,193.75
SHRW04	90	LT Cracking	Medium	125	Crack Seal	250	LF	\$ 4.00	\$ 1,000.00	\$ 250.00	\$ 187.50	\$ 1,437.50
		LT Cracking	High	90	Crack Seal	180	LF	\$ 4.00	\$ 720.00	\$ 180.00	\$ 135.00	\$ 1,035.00
SHTWL	10	Weathering	Medium	140	AC Patch (Partial Depth)	440	SF	\$ 6.00	\$ 2,640.00	\$ 660.00	\$ 495.00	\$ 3,795.00
SHTWL	30	Weathering	Medium	145	AC Patch (Partial Depth)	399	SF	\$ 6.00	\$ 2,394.00	\$ 598.50	\$ 448.88	\$ 3,441.38
SHTWL	40	Weathering	Medium	600	AC Patch (Partial Depth)	1560	SF	\$ 6.00	\$ 9,360.00	\$ 2,340.00	\$ 1,755.00	\$ 13,455.00
		LT Cracking	Medium	30	Crack Seal	78	LF	\$ 4.00	\$ 312.00	\$ 78.00	\$ 58.50	\$ 448.50
		LT Cracking	High	375	Crack Seal	975	LF	\$ 4.00	\$ 3,900.00	\$ 975.00	\$ 731.25	\$ 5,606.25
SHTWL	50	LT Cracking	Medium	150	Crack Seal	400	LF	\$ 4.00	\$ 1,600.00	\$ 400.00	\$ 300.00	\$ 2,300.00
		LT Cracking	High	150	Crack Seal	400	LF	\$ 4.00	\$ 1,600.00	\$ 400.00	\$ 300.00	\$ 2,300.00
SHTWL	60	Weathering	Medium	1850	AC Patch (Partial Depth)	6167	SF	\$ 6.00	\$ 37,002.00	\$ 9,250.50	\$ 6,937.88	\$ 53,190.38
SHTWL	70	Weathering	Medium	100	AC Patch (Partial Depth)	150	SF	\$ 6.00	\$ 900.00	\$ 225.00	\$ 168.75	\$ 1,293.75
		LT Cracking	Medium	100	Crack Seal	150	LF	\$ 4.00	\$ 600.00	\$ 150.00	\$ 112.50	\$ 862.50
SHTWL	80	Weathering	Medium	200	AC Patch (Partial Depth)	533	SF	\$ 6.00	\$ 3,198.00	\$ 799.50	\$ 599.63	\$ 4,597.13
		LT Cracking	Medium	650	Crack Seal	1733	LF	\$ 4.00	\$ 6,932.00	\$ 1,733.00	\$ 1,299.75	\$ 9,964.75
		LT Cracking	High	275	Crack Seal	733	LF	\$ 4.00	\$ 2,932.00	\$ 733.00	\$ 549.75	\$ 4,214.75
SHTWL	90	Weathering	Medium	500	AC Patch (Partial Depth)	1667	SF	\$ 6.00	\$ 10,002.00	\$ 2,500.50	\$ 1,875.38	\$ 14,377.88
		LT Cracking	Medium	650	Crack Seal	2167	LF	\$ 4.00	\$ 8,668.00	\$ 2,167.00	\$ 1,625.25	\$ 12,460.25
		LT Cracking	High	275	Crack Seal	917	LF	\$ 4.00	\$ 3,668.00	\$ 917.00	\$ 687.75	\$ 5,272.75
SHTWL	100	Weathering	Medium	200	AC Patch (Partial Depth)	600	SF	\$ 6.00	\$ 3,600.00	\$ 900.00	\$ 675.00	\$ 5,175.00
		LT Cracking	Medium	1300	Crack Seal	3900	LF	\$ 4.00	\$ 15,600.00	\$ 3,900.00	\$ 2,925.00	\$ 22,425.00
		LT Cracking	High	300	Crack Seal	900	LF	\$ 4.00	\$ 3,600.00	\$ 900.00	\$ 675.00	\$ 5,175.00
SHTWL	110	LT Cracking	Medium	550	Crack Seal	1650	LF	\$ 4.00	\$ 6,600.00	\$ 1,650.00	\$ 1,237.50	\$ 9,487.50
		LT Cracking	High	300	Crack Seal	900	LF	\$ 4.00	\$ 3,600.00	\$ 900.00	\$ 675.00	\$ 5,175.00
SHTWL	120	Block Cracking	Medium	100	Crack Seal	320	LF	\$ 4.00	\$ 1,280.00	\$ 320.00	\$ 240.00	\$ 1,840.00
		LT Cracking	Medium	750	Crack Seal	2400	LF	\$ 4.00	\$ 9,600.00	\$ 2,400.00	\$ 1,800.00	\$ 13,800.00
		LT Cracking	High	500	Crack Seal	1600	LF	\$ 4.00	\$ 6,400.00	\$ 1,600.00	\$ 1,200.00	\$ 9,200.00
SHTWL	130	LT Cracking	Medium	675	Crack Seal	1350	LF	\$ 4.00	\$ 5,400.00	\$ 1,350.00	\$ 1,012.50	\$ 7,762.50
		LT Cracking	High	250	Crack Seal	500	LF	\$ 4.00	\$ 2,000.00	\$ 500.00	\$ 375.00	\$ 2,875.00
SHTWC	10	Block Cracking	High	120	Crack Seal	240	LF	\$ 4.00	\$ 960.00	\$ 240.00	\$ 180.00	\$ 1,380.00
SHTWK	10	Weathering	Medium	100	AC Patch (Partial Depth)	267	SF	\$ 6.00	\$ 1,602.00	\$ 400.50	\$ 300.38	\$ 2,302.88

Table K.6 - AC Maintenance



Branch ID	Section ID	Description	Severity	Quantity	Work Description	Work Quantity	Unit	Unit Cost	Estimated Construction Cost	Professional Fees (25%)	Contingency (15%)	Estimated Total Project Cost
SHTWK	10	LT Cracking	Medium	60	Crack Seal	160	LF	\$ 4.00	\$ 640.00	\$ 160.00	\$ 120.00	\$ 920.00
		LT Cracking	High	200	Crack Seal	533	LF	\$ 4.00	\$ 2,132.00	\$ 533.00	\$ 399.75	\$ 3,064.75
TWL	30	LT Cracking	Medium	1115	Crack Seal	5513	LF	\$ 4.00	\$ 22,052.00	\$ 5,513.00	\$ 4,134.75	\$ 31,699.75
TWL2	10	LT Cracking	Medium	15	Crack Seal	45	LF	\$ 4.00	\$ 180.00	\$ 45.00	\$ 33.75	\$ 258.75
TL02	10	Block Cracking	Medium	7500	Crack Seal	18750	LF	\$ 4.00	\$ 75,000.00	\$ 18,750.00	\$ 14,062.50	\$ 107,812.50
		Block Cracking	High	300	Crack Seal	750	LF	\$ 4.00	\$ 3,000.00	\$ 750.00	\$ 562.50	\$ 4,312.50
AITIN	10	LT Cracking	Medium	50	Crack Seal	50	LF	\$ 4.00	\$ 200.00	\$ 50.00	\$ 37.50	\$ 287.50
AITIN	20	LT Cracking	Medium	60	Crack Seal	120	LF	\$ 4.00	\$ 480.00	\$ 120.00	\$ 90.00	\$ 690.00
TL01	30	LT Cracking	Medium	500	Crack Seal	1333	LF	\$ 4.00	\$ 5,332.00	\$ 1,333.00	\$ 999.75	\$ 7,664.75
		LT Cracking	High	25	Crack Seal	67	LF	\$ 4.00	\$ 268.00	\$ 67.00	\$ 50.25	\$ 385.25
TWL6	10	LT Cracking	Medium	50	Crack Seal	100	LF	\$ 4.00	\$ 400.00	\$ 100.00	\$ 75.00	\$ 575.00
Total									\$ 390,640.00			\$ 561,545.00

Table K.6 - AC Maintenance (cont'd.)

GREENVILLE-SPARTANBURG INTERNATIONAL AIRPORT



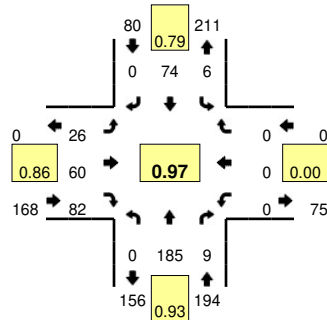
DECEMBER 2019
AIRPORT MASTER PLAN UPDATE
APPENDIX B: TRAFFIC COUNT REPORT



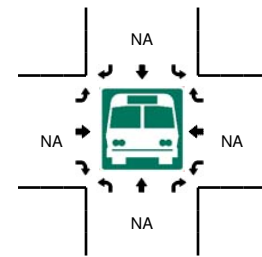
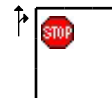
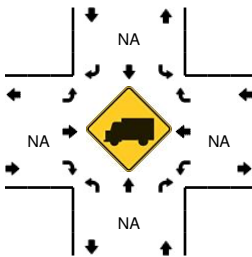
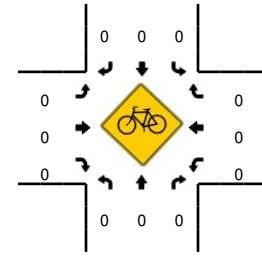
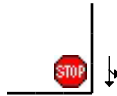
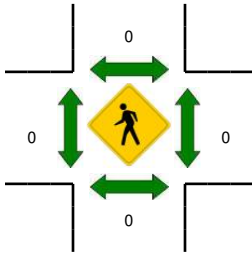
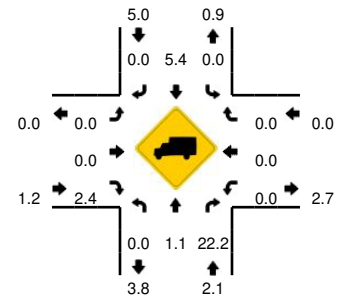
McFarland Johnson

LOCATION: GSP Dr -- Rental Car Dwy
CITY/STATE: Greer, SC

QC JOB #: 14557201
DATE: Tue, Nov 14 2017



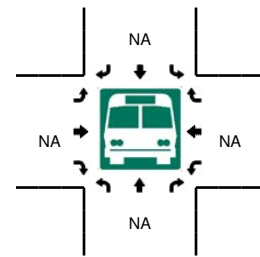
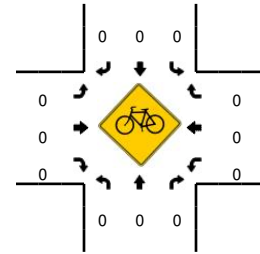
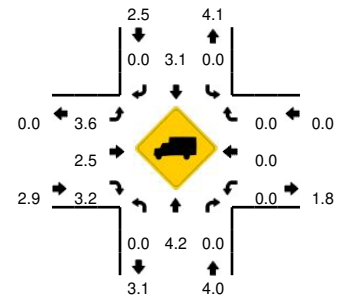
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Peak 15-Min: 9:30 AM -- 9:45 AM

[illegible]

Comments:

Method for determining peak hour: Total Entering Volume

QC JOB #: 14557202
DATE: Tue, Nov 14 2017

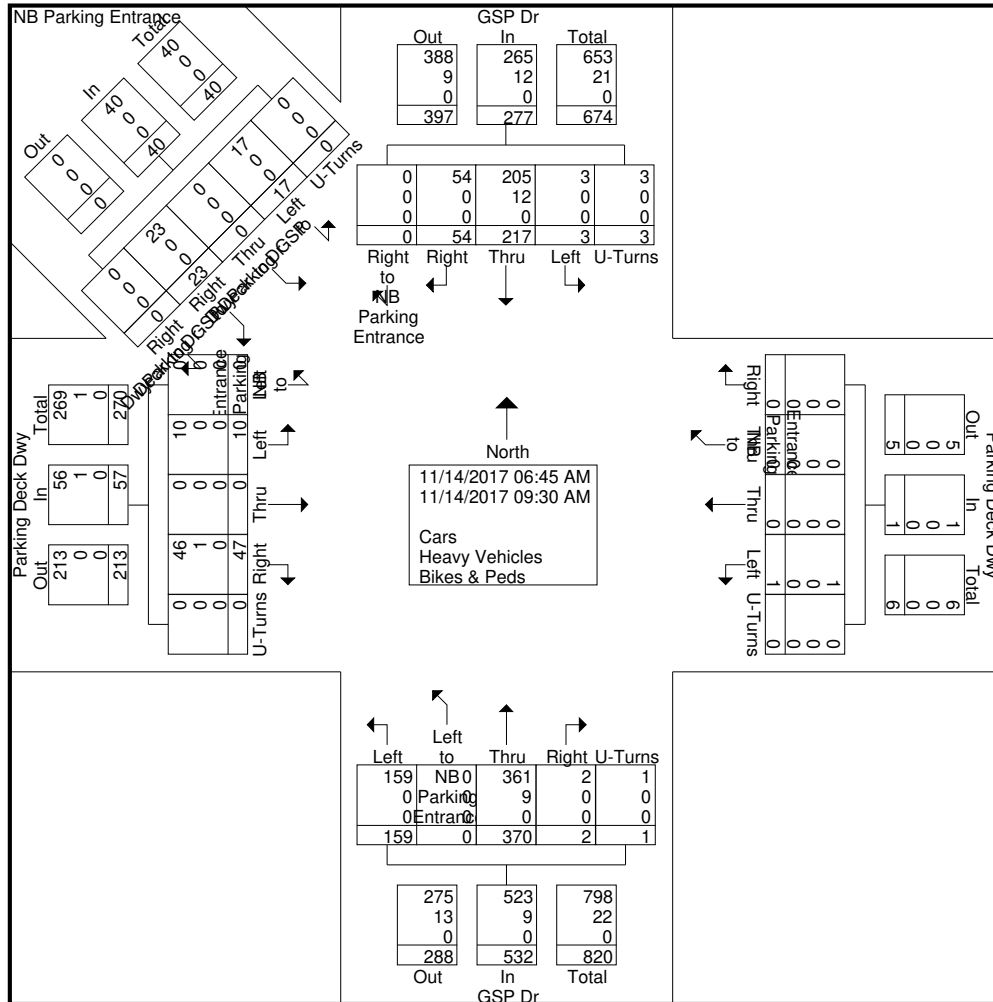


Comments:

Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 2

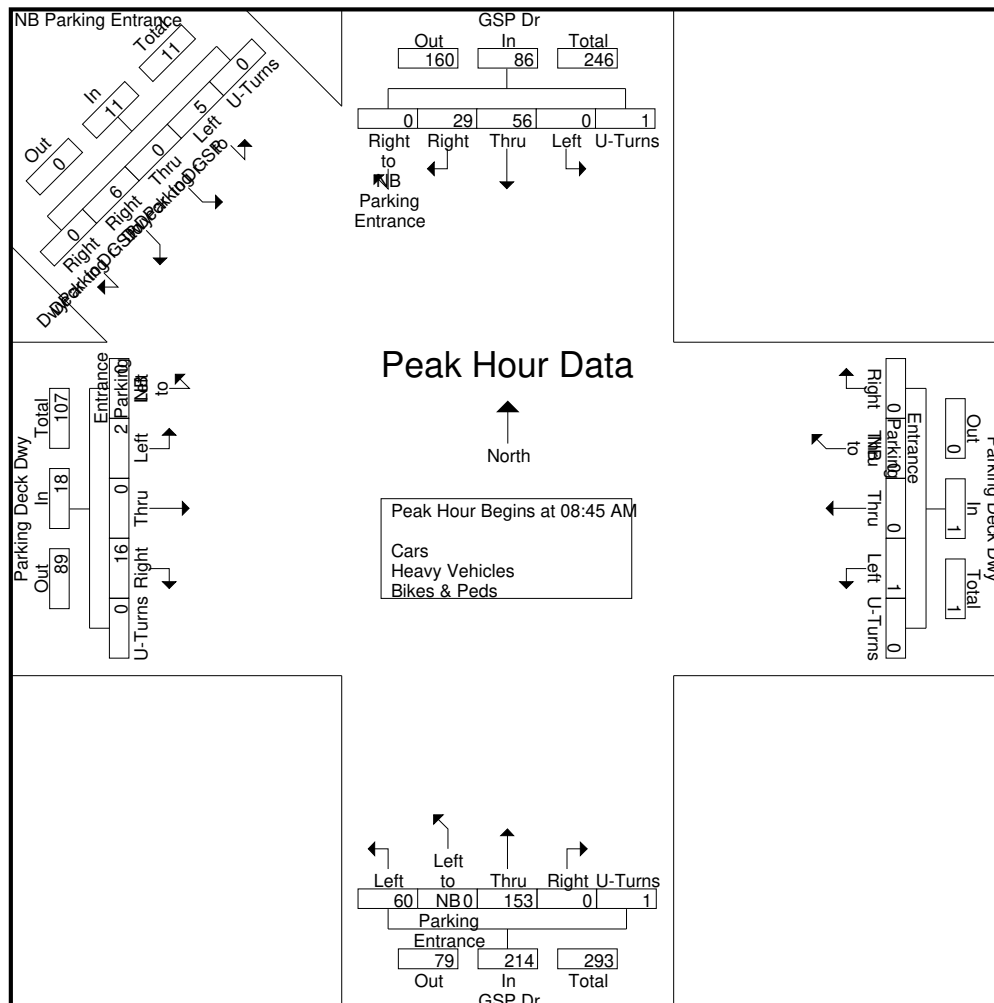


Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 3

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	Peds	App. Total	Right	Thru	Left	Left to NB Parki ng Entra nce	Peds	App. Total	Right to Parki ng Deck Dwy	Right to GSP Dr	Thru to Parki ng Deck Dwy	Left to GSP Dr	Peds	App. Total	Int. Total	
Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 08:45 AM																																
08:45 AM	0	9	14	0	0	23	0	0	0	1	0	1	0	34	0	19	1	54	3	0	1	0	0	4	0	0	0	3	0	3	85	
09:00 AM	0	3	16	0	1	20	0	0	0	0	0	0	0	37	0	17	0	54	4	0	0	0	0	4	0	3	0	2	0	5	83	
09:15 AM	0	6	12	0	0	18	0	0	0	0	0	0	0	43	0	7	0	50	6	0	0	0	0	6	0	1	0	0	0	1	75	
09:30 AM	0	11	14	0	0	25	0	0	0	0	0	0	0	39	0	17	0	56	3	0	1	0	0	4	0	2	0	0	0	2	87	
Total Volume	0	29	56	0	1	86	0	0	0	1	0	1	0	153	0	60	1	214	16	0	2	0	0	18	0	6	0	5	0	11	330	
% App. Total	0	33.7	65.1	0	1.2		0	0	0	100	0		0	71.5	0	28	0.5		88.9	0	11.1	0	0		0	54.5	0	45.5	0			
PHF	.000	.659	.875	.000	.250	.860	.000	.000	.000	.250	.000	.250	.000	.890	.000	.789	.250	.955	.667	.000	.500	.000	.000	.750	.000	.500	.000	.417	.000	.550	.948	



Quality Counts, LLC

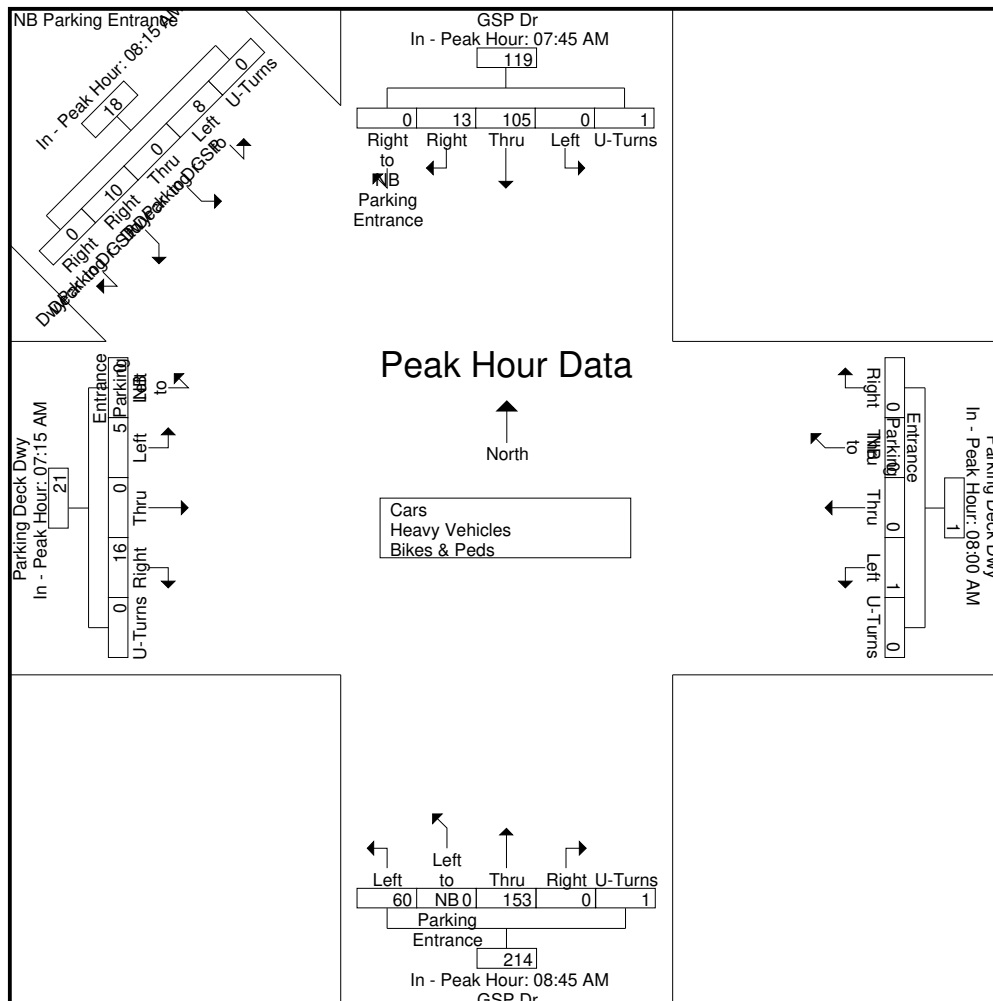
920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 4

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound					
Start Time	Right to NB Parking Entrance	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parking Entrance	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right to NB Parking Deck Dwy	Right to NB Parking Dr	Thru to NB Parking Deck Dwy	Left to NB Parking Dr	Peds	App. Total	Int. Total

Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM						08:00 AM						08:45 AM						07:15 AM						08:15 AM					
+0 mins.	0	2	33	0	1	36	0	0	0	0	0	0	0	34	0	19	1	54	3	0	1	0	0	4	0	4	0	1	0	5
+15 mins.	0	3	28	0	0	31	0	0	0	0	0	0	0	37	0	17	0	54	5	0	1	0	0	6	0	3	0	2	0	5
+30 mins.	0	3	22	0	0	25	0	0	0	0	0	0	0	43	0	7	0	50	5	0	0	0	0	5	0	0	0	3	0	3
+45 mins.	0	5	22	0	0	27	0	0	0	1	0	1	0	39	0	17	0	56	3	0	3	0	0	6	0	3	0	2	0	5
Total Volume	0	13	105	0	1	119	0	0	0	1	0	1	0	153	0	60	1	214	16	0	5	0	0	21	0	10	0	8	0	18
% App. Total	0	10.9	88.2	0	0.8		0	0	0	100	0		0	71.5	0	28	0.5		76.2	0	23.8	0	0		0	55.6	0	44.4	0	
PHF	.000	.650	.795	.000	.250	.826	.000	.000	.000	.250	.000	.250	.000	.890	.000	.789	.250	.955	.800	.000	.417	.000	.000	.875	.000	.625	.000	.667	.000	.900



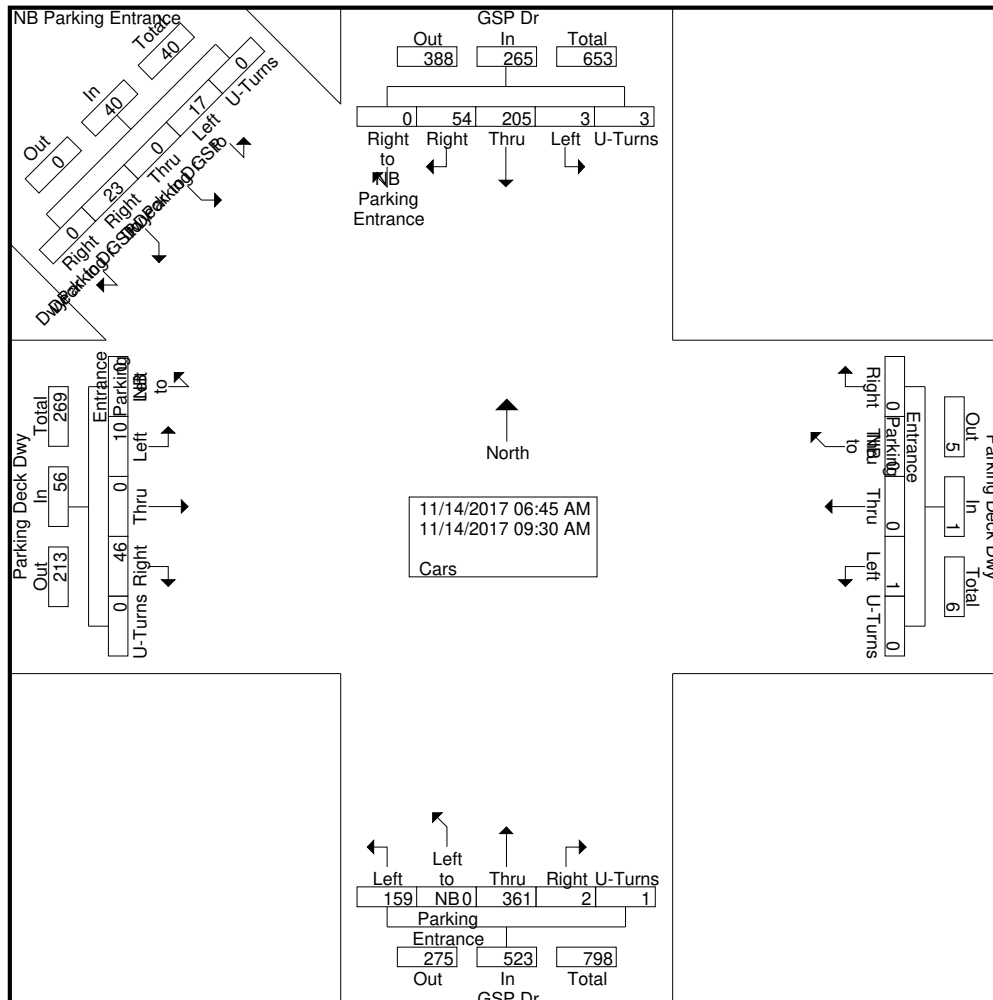
Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 1

Groups Printed- Cars

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound											
Start Time	Right to NB Parking Entrance	Right	Thru	Left	U-Turns	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	U-Turns	App. Total	Right	Thru	Left to NB Parking Entrance	Left	U-Turns	App. Total	Right	Thru	Left	Left to NB Parking Entrance	U-Turns	App. Total	Right to NB Parking Deck Dwy	Right to GSP Dr	Thru to NB Parking Deck Dwy	Left to NB Parking Deck Dwy	U-Turns	App. Total	Int. Total					
06:45 AM	0	5	15	0	0	20	0	0	0	0	0	0	1	57	0	5	0	63	6	0	0	0	0	6	0	1	0	1	0	2	91					
Total	0	5	15	0	0	20	0	0	0	0	0	0	1	57	0	5	0	63	6	0	0	0	0	6	0	1	0	1	0	2	91					
07:00 AM	0	3	7	2	0	12	0	0	0	0	0	0	0	33	0	9	0	42	3	0	0	0	0	3	0	3	0	1	0	4	61					
07:15 AM	0	3	13	0	0	16	0	0	0	0	0	0	0	17	0	9	0	26	3	0	1	0	0	4	0	1	0	5	0	6	52					
07:30 AM	0	1	20	1	1	23	0	0	0	0	0	0	0	17	0	14	0	31	5	0	1	0	0	6	0	1	0	1	0	2	62					
07:45 AM	0	2	33	0	1	36	0	0	0	0	0	0	0	20	0	15	0	35	5	0	0	0	0	5	0	3	0	1	0	4	80					
Total	0	9	73	3	2	87	0	0	0	0	0	0	0	87	0	47	0	134	16	0	2	0	0	18	0	8	0	8	0	16	255					
08:00 AM	0	3	26	0	0	29	0	0	0	0	0	0	0	24	0	17	0	41	3	0	3	0	0	6	0	1	0	0	0	1	77					
08:15 AM	0	3	20	0	0	23	0	0	0	0	0	0	0	15	0	14	0	29	1	0	0	0	0	1	0	4	0	1	0	5	58					
08:30 AM	0	5	19	0	0	24	0	0	0	0	0	0	1	26	0	16	0	43	4	0	3	0	0	7	0	3	0	2	0	5	79					
08:45 AM	0	9	13	0	0	22	0	0	0	1	0	1	0	34	0	19	1	54	3	0	1	0	0	4	0	0	0	3	0	3	84					
Total	0	20	78	0	0	98	0	0	0	1	0	1	1	99	0	66	1	167	11	0	7	0	0	18	0	8	0	6	0	14	298					
09:00 AM	0	3	16	0	1	20	0	0	0	0	0	0	0	36	0	17	0	53	4	0	0	0	0	4	0	3	0	2	0	5	82					
09:15 AM	0	6	11	0	0	17	0	0	0	0	0	0	0	43	0	7	0	50	6	0	0	0	0	6	0	1	0	0	0	1	74					
09:30 AM	0	11	12	0	0	23	0	0	0	0	0	0	0	39	0	17	0	56	3	0	1	0	0	4	0	2	0	0	0	2	85					
Grand Total	205												361						159																	
Approch %	20.4 77.4						100						40.8						30.4						82.1 17.9						57.5 42.5					

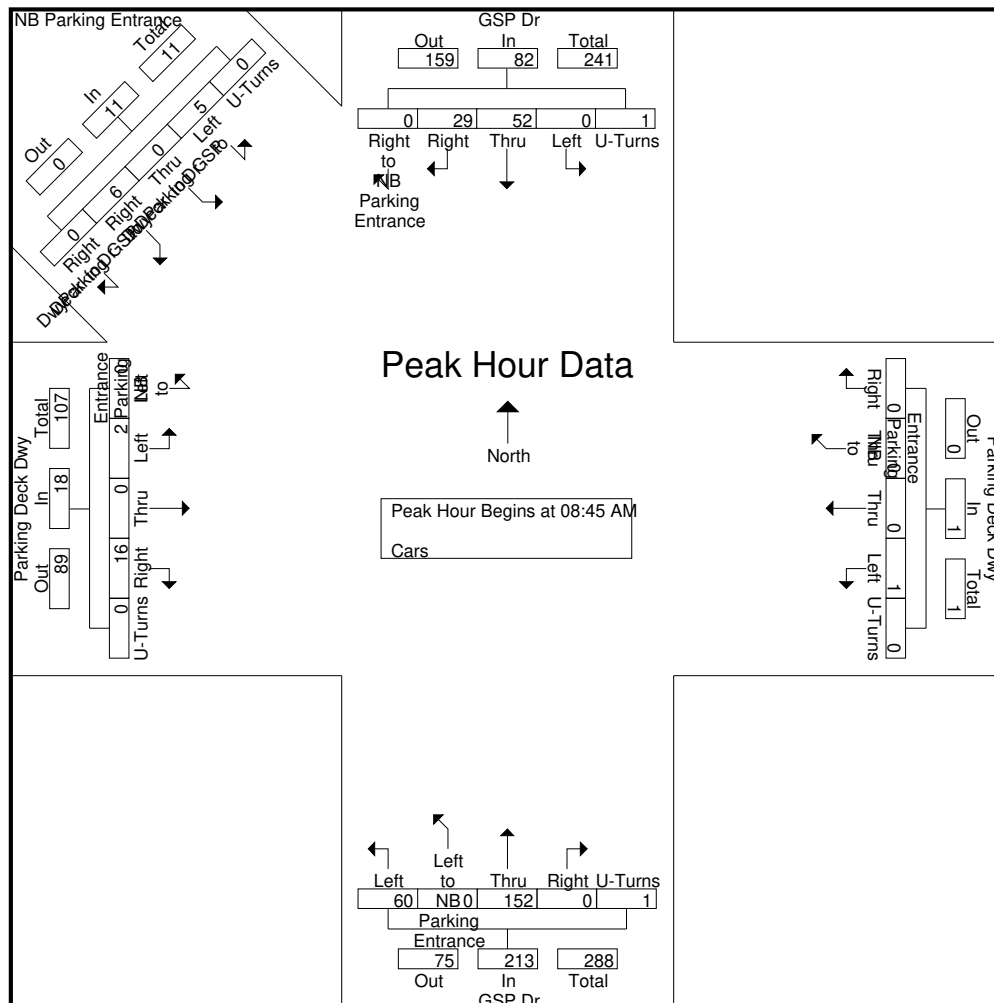


Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 2

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	U- Turns	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	U- Turns	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	U- Turns	App. Total	Right	Thru	Left	Left to NB Parki ng Entra nce	U- Turns	App. Total	Right to NB Parki ng Deck Dwy	Right to to Parki ng Dr	Thru to to Parki ng Deck Dwy	Left to to Parki ng Dr	U- Turns	App. Total	Int. Total	
Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 08:45 AM																																
08:45 AM	0	9	13	0	0	22	0	0	0	1	0	1	0	34	0	19	1	54	3	0	1	0	0	4	0	0	0	3	0	3	84	
09:00 AM	0	3	16	0	1	20	0	0	0	0	0	0	0	36	0	17	0	53	4	0	0	0	0	4	0	3	0	2	0	5	82	
09:15 AM	0	6	11	0	0	17	0	0	0	0	0	0	0	43	0	7	0	50	6	0	0	0	0	6	0	1	0	0	0	1	74	
09:30 AM	0	11	12	0	0	23	0	0	0	0	0	0	0	39	0	17	0	56	3	0	1	0	0	4	0	2	0	0	0	2	85	
Total Volume	0	29	52	0	1	82	0	0	0	1	0	1	0	152	0	60	1	213	16	0	2	0	0	18	0	6	0	5	0	11	325	
% App. Total	0	35.4	63.4	0	1.2		0	0	0	100	0		0	71.4	0	28.2	0.5		88.9	0	11.1	0	0		0	54.5	0	45.5	0			
PHF	.000	.659	.813	.000	.250	.891	.000	.000	.000	.250	.000	.250	.000	.884	.000	.789	.250	.951	.667	.000	.500	.000	.000	.750	.000	.500	.000	.417	.000	.550	.956	



Quality Counts, LLC

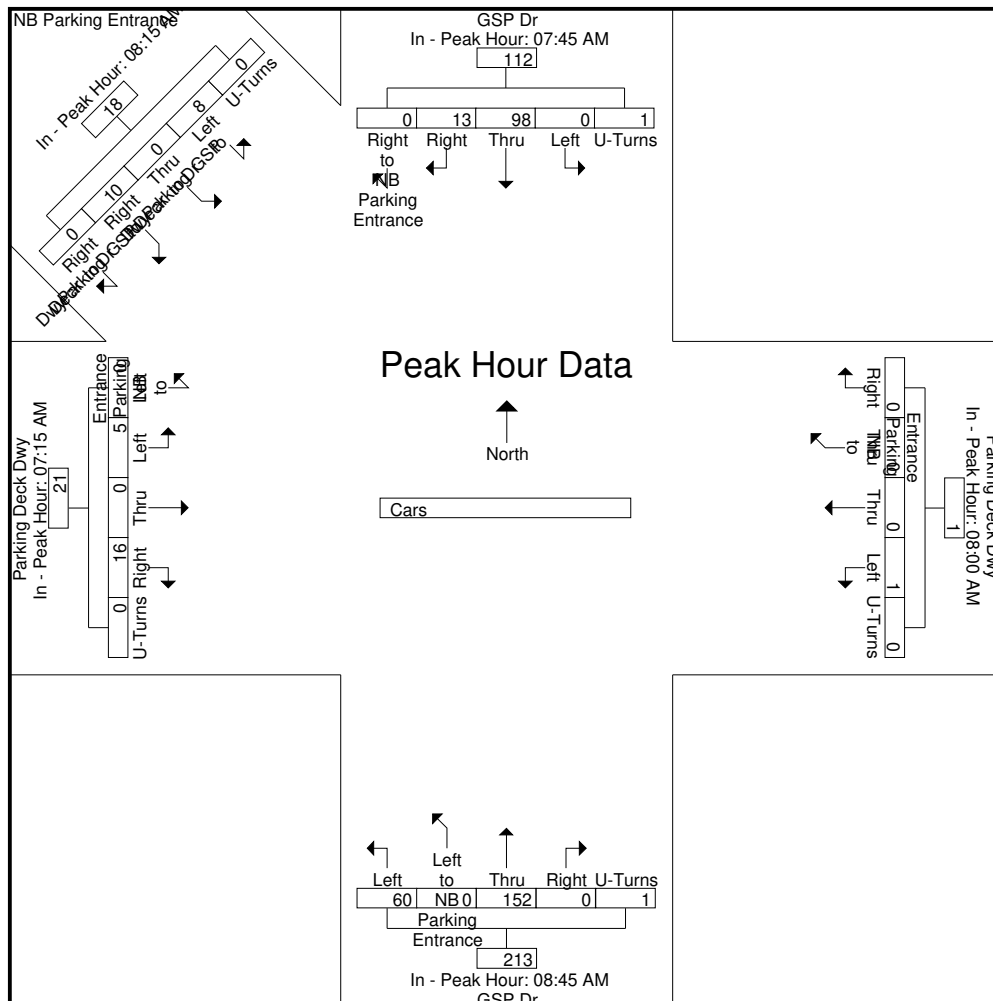
920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 3

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound						
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	U- Turns	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	U- Turns	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	U- Turns	App. Total	Right	Thru	Left	Left to NB Parki ng Entra nce	U- Turns	App. Total	Right to NB Parki ng Deck Dwy	Right to NB Parki ng Dr	Thru to NB Parki ng Deck Dwy	Left to NB Parki ng Dr	U- Turns	App. Total	Int. Total

Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM						08:00 AM						08:45 AM						07:15 AM						08:15 AM					
+0 mins.	0	2	33	0	1	36	0	0	0	0	0	0	0	34	0	19	1	54	3	0	1	0	0	4	0	4	0	1	0	5
+15 mins.	0	3	26	0	0	29	0	0	0	0	0	0	0	36	0	17	0	53	5	0	1	0	0	6	0	3	0	2	0	5
+30 mins.	0	3	20	0	0	23	0	0	0	0	0	0	0	43	0	7	0	50	5	0	0	0	0	5	0	0	0	3	0	3
+45 mins.	0	5	19	0	0	24	0	0	0	1	0	1	0	39	0	17	0	56	3	0	3	0	0	6	0	3	0	2	0	5
Total Volume	0	13	98	0	1	112	0	0	0	1	0	1	0	152	0	60	1	213	16	0	5	0	0	21	0	10	0	8	0	18
% App. Total	0	11.6	87.5	0	0.9		0	0	0	100	0		0	71.4	0	28.2	0.5		76.2	0	23.8	0	0		0	55.6	0	44.4	0	
PHF	.000	.650	.742	.000	.250	.778	.000	.000	.000	.250	.000	.250	.000	.884	.000	.789	.250	.951	.800	.000	.417	.000	.000	.875	.000	.625	.000	.667	.000	.900



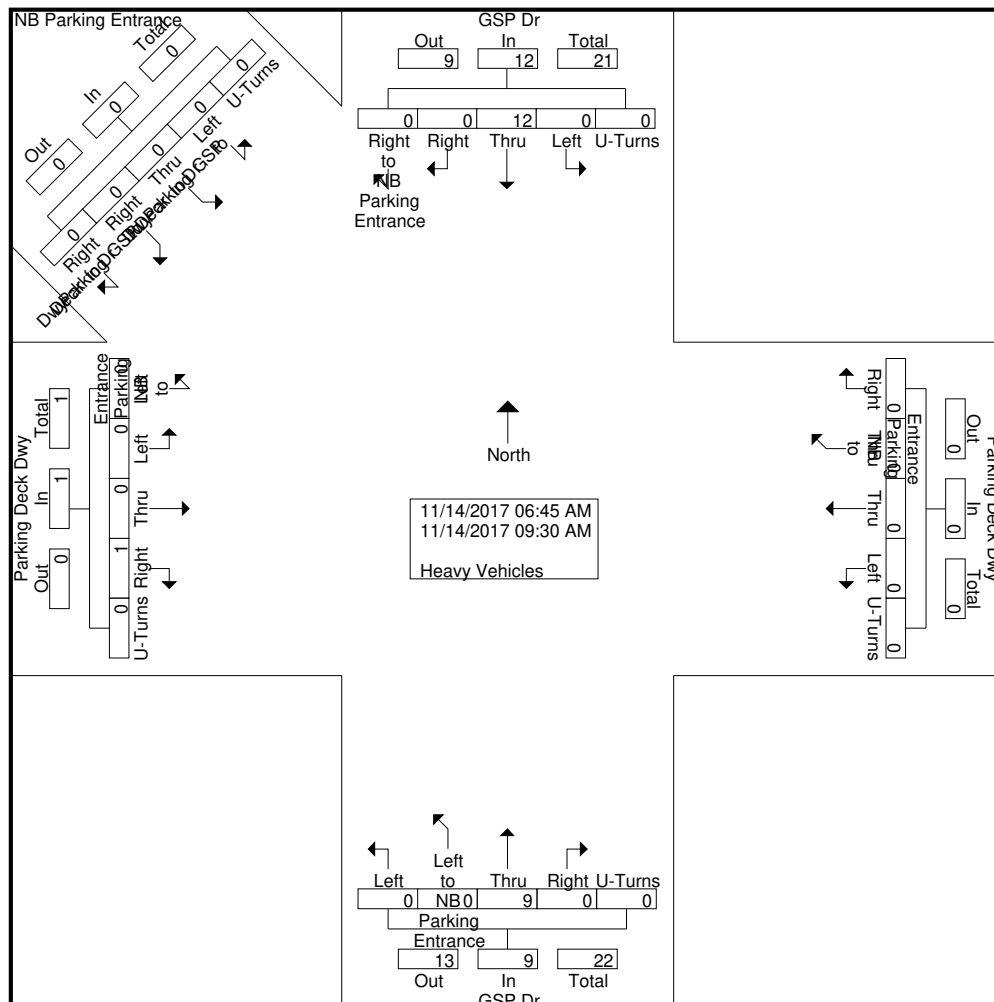
Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 1

Groups Printed- Heavy Vehicles

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound						
Start Time	Right to NB Parking Entrance	Right	Thru	Left	U-Turns	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	U-Turns	App. Total	Right	Thru	Left to NB Parking Entrance	Left	U-Turns	App. Total	Right	Thru	Left	Left to NB Parking Entrance	U-Turns	App. Total	Right to NB Parking Deck Dwy	Right to GSP Dr	Thru to NB Parking Deck Dwy	Left to NB Parking Deck Dwy	U-Turns	App. Total	Int. Total
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	1	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	6
08:00 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
08:15 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	4
08:30 AM	0	0	3	0	0	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
08:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	8	0	0	8	0	0	0	0	0	0	0	3	0	0	0	3	1	0	0	0	0	0	1	0	0	0	0	0	12
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
09:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
09:30 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total																															
Approch %			100											100					100												
			54.5											40.9																	

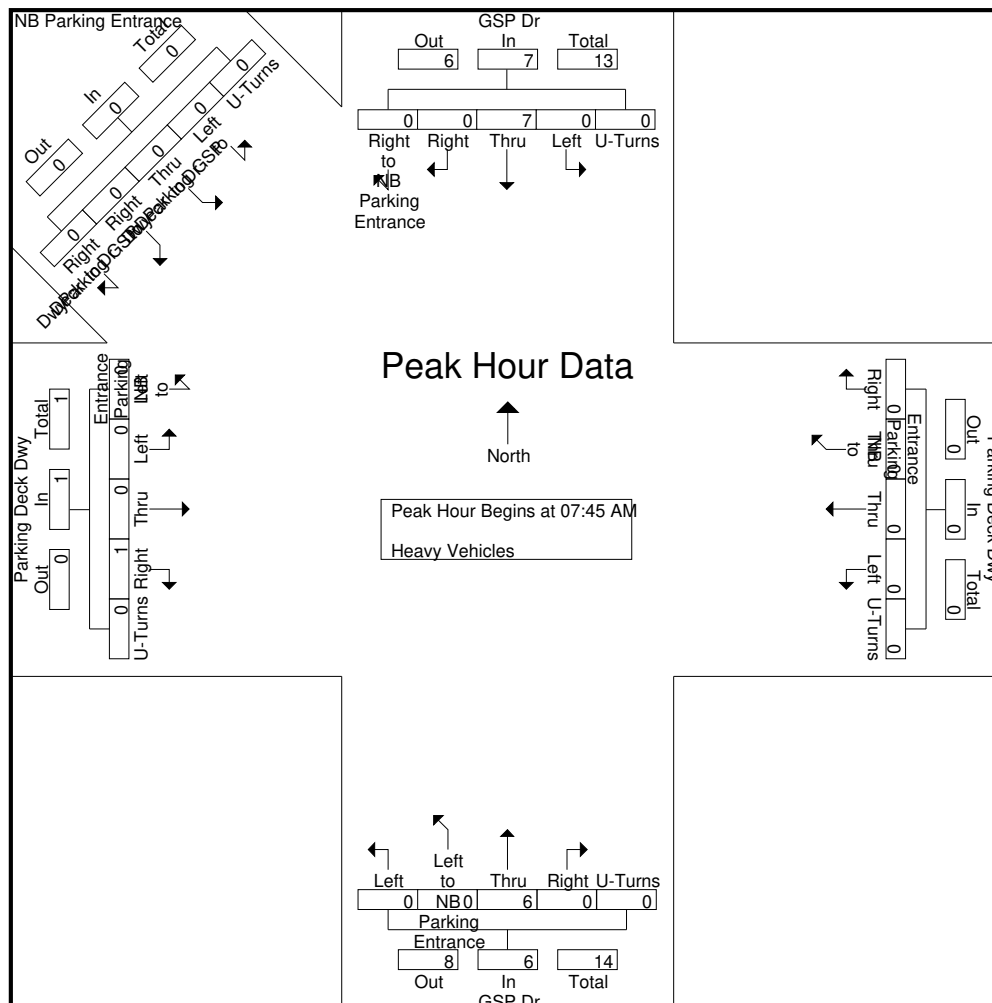


Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 2

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parking Entrance	Right	Thru	Left	U-Turns	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	U-Turns	App. Total	Right	Thru	Left to NB Parking Entrance	Left	U-Turns	App. Total	Right	Thru	Left	Parking to NB Entrance	U-Turns	App. Total	Right to NB Parking Deck Dwy	Right to GSP Dr	Thru to NB Parking Deck Dwy	Left to GSP Dr	U-Turns	App. Total	Int. Total	
Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 07:45 AM																																
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	
08:00 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	
08:15 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	4	
08:30 AM	0	0	3	0	0	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	
Total Volume	0	0	7	0	0	7	0	0	0	0	0	0	0	6	0	0	0	6	1	0	0	0	0	0	1	0	0	0	0	0	14	
% App. Total	0	0	100	0	0		0	0	0	0	0		0	100	0	0	0		100	0	0	0	0		0	0	0	0	0			
PHF	.000	.000	.583	.000	.000	.583	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.000	.500	.250	.000	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.875	



Quality Counts, LLC

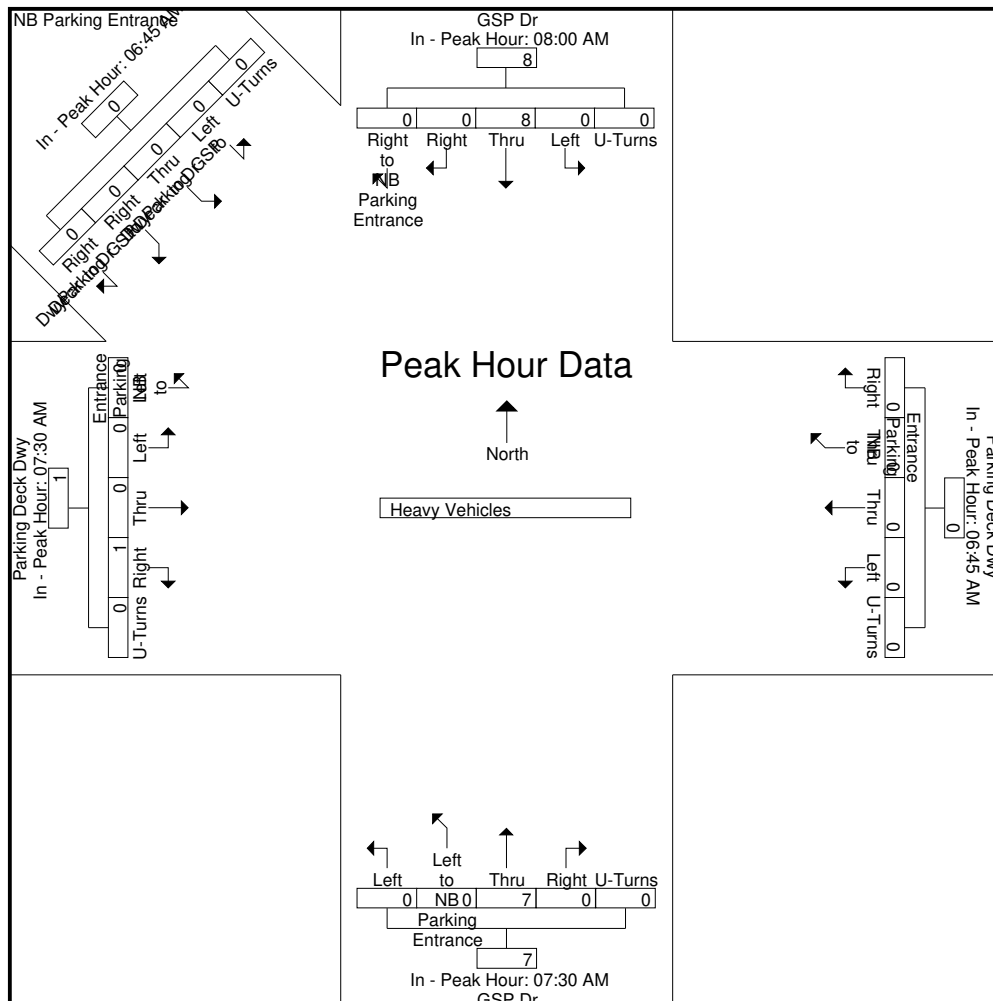
920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 3

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound						
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	U- Turns	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	U- Turns	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	U- Turns	App. Total	Right	Thru	Left	Left to NB Parki ng Entra nce	U- Turns	App. Total	Right to NB Parki ng Deck Dwy	Right to NB Parki ng Dr	Thru to NB Parki ng Deck Dwy	Left to NB Parki ng Dr	U- Turns	App. Total	Int. Total

Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM						06:45 AM						07:30 AM						07:30 AM						06:45 AM					
+0 mins.	0	0	2	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	2	0	0	2	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	3	0	0	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0
Total Volume	0	0	8	0	0	8	0	0	0	0	0	0	0	7	0	0	0	7	1	0	0	0	0	1	0	0	0	0	0	0
% App. Total	0	0	100	0	0		0	0	0	0	0		0	100	0	0	0		100	0	0	0	0		0	0	0	0	0	
PHF	.000	.000	.667	.000	.000	.667	.000	.000	.000	.000	.000	.000	.000	.583	.000	.000	.000	.583	.250	.000	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000



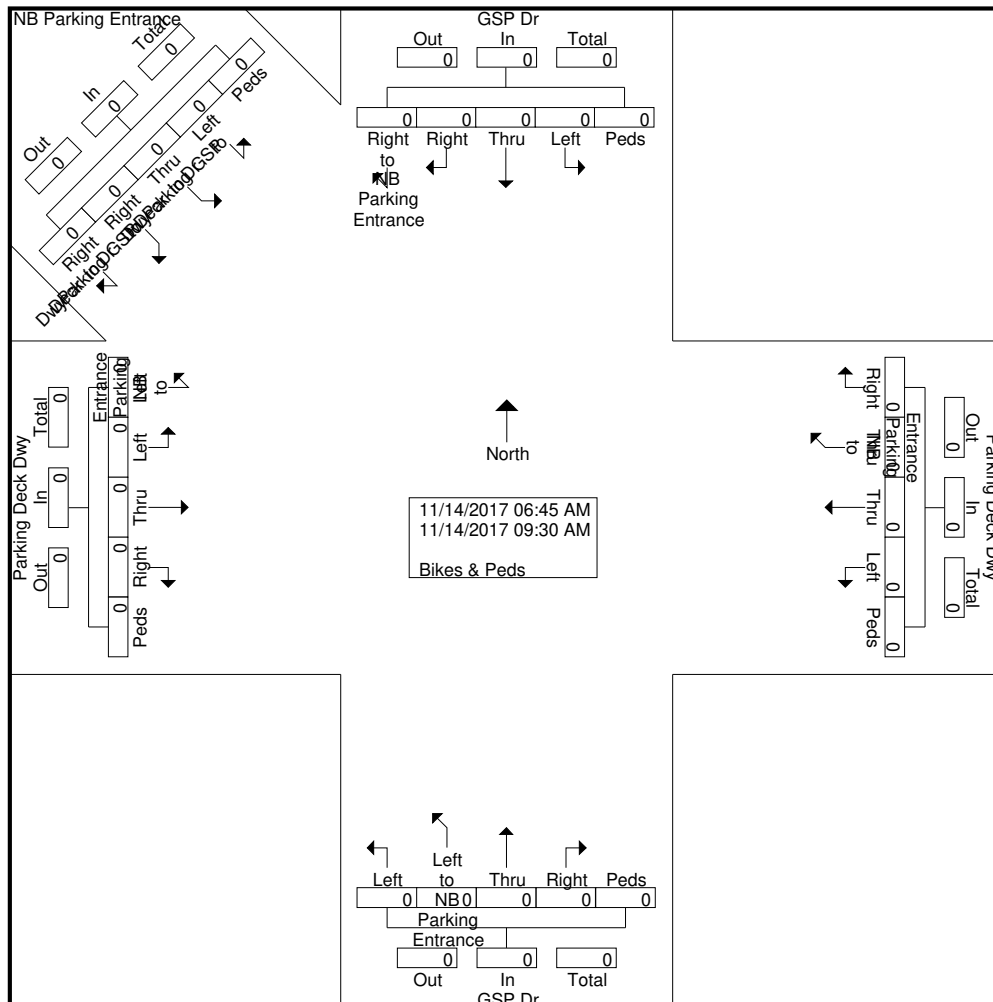
Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 1

Groups Printed- Bikes & Peds

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound						
Start Time	Right to NB Parking Entrance	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parking Entrance	Left	Peds	App. Total	Right	Thru	Left	Left to NB Parking Entrance	Peds	App. Total	Right to NB Parking Deck Dwy	Right to NB GSP Dr	Thru to NB Parking Deck Dwy	Left to NB GSP Dr	Peds	App. Total	Int. Total
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total																															
Approch %																															



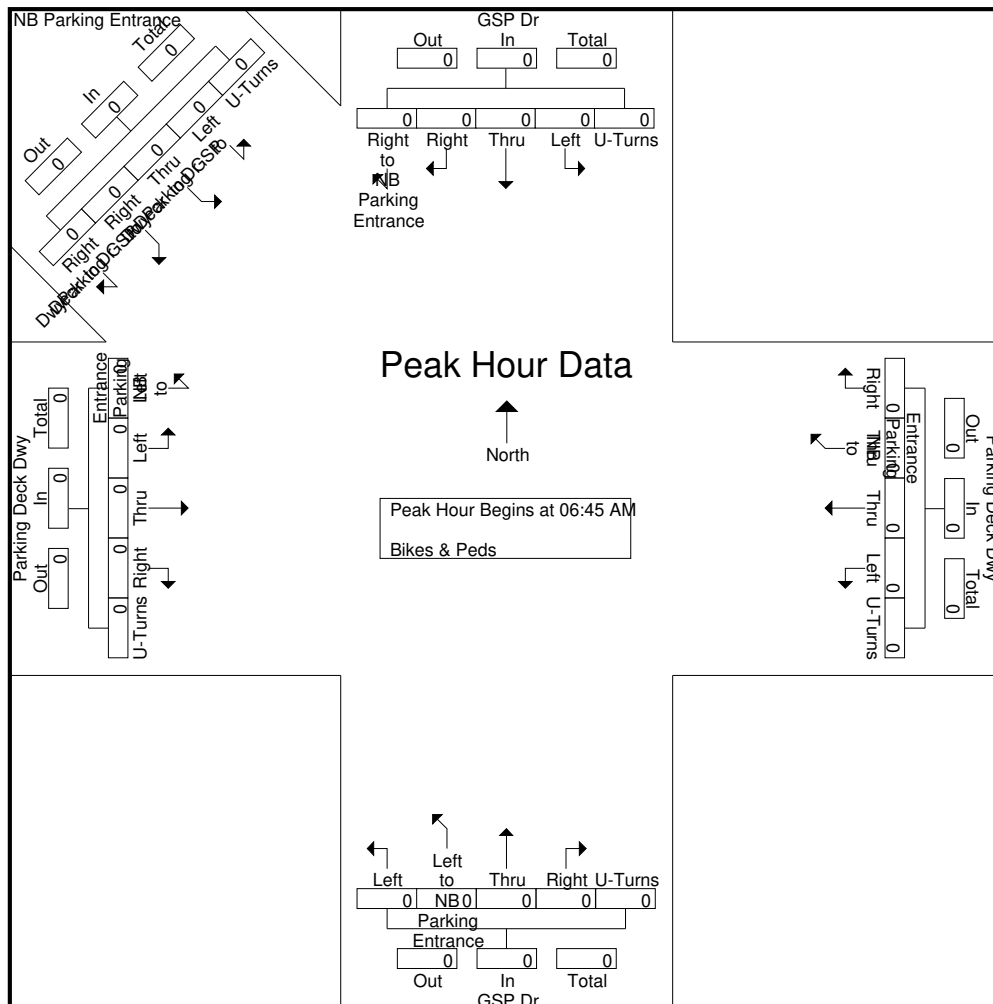
Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 2

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	Peds	App. Total	Right	Thru	Left	Park ing Deck Entra nce	Peds	App. Total	Right to NB Parki ng Deck Dwy	Right to GSP Dr	Thru to NB Parki ng Deck Dwy	Left to GSP Dr	Peds	App. Total	Int. Total	
Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 06:45 AM																																
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume																																
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 06:45 AM



Quality Counts, LLC

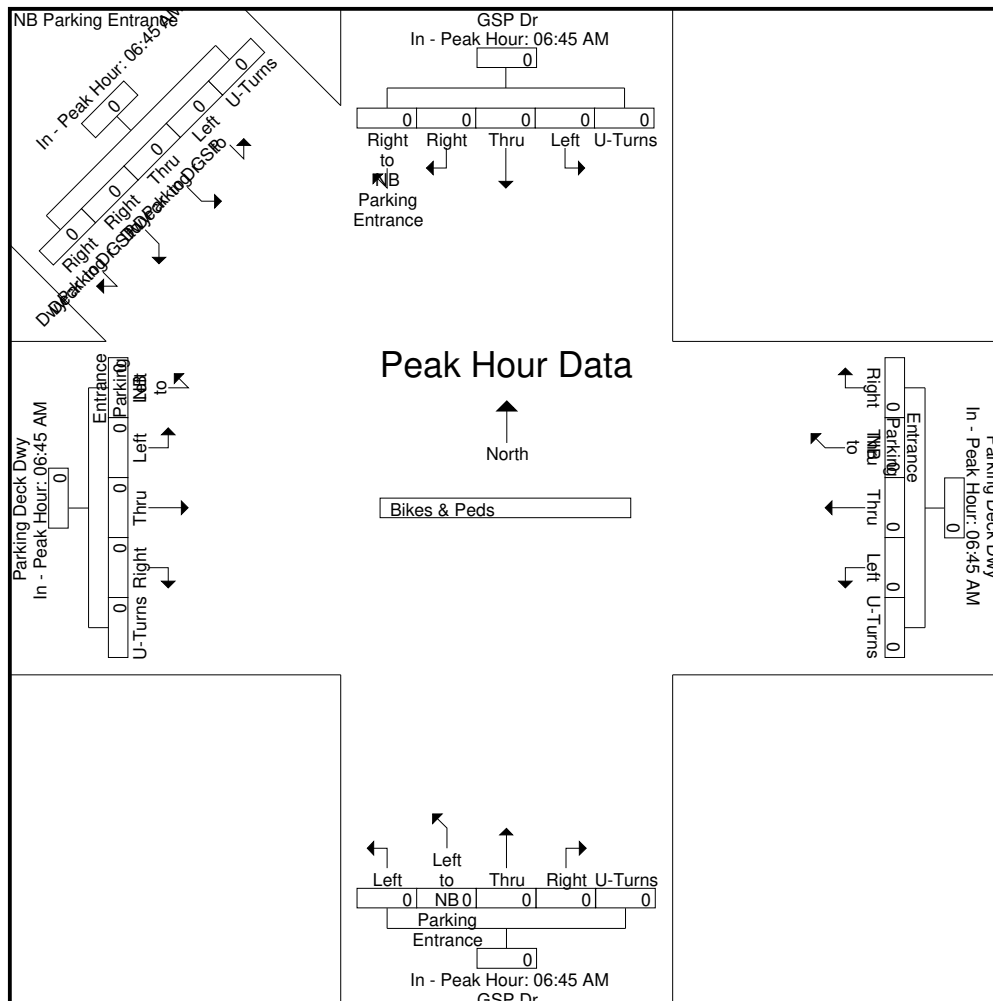
920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557203
Site Code : 14557203
Start Date : 11/14/2017
Page No : 3

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound					
Start Time	Right to NB Parking Entrance	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parking Entrance	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right to NB Parking Deck Dwy	Right to GSP Dr	Thru to NB Parking Deck Dwy	Left to GSP Dr	Peds	App. Total	Int. Total

Peak Hour Analysis From 06:45 AM to 09:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM						06:45 AM						06:45 AM						06:45 AM						06:45 AM					
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

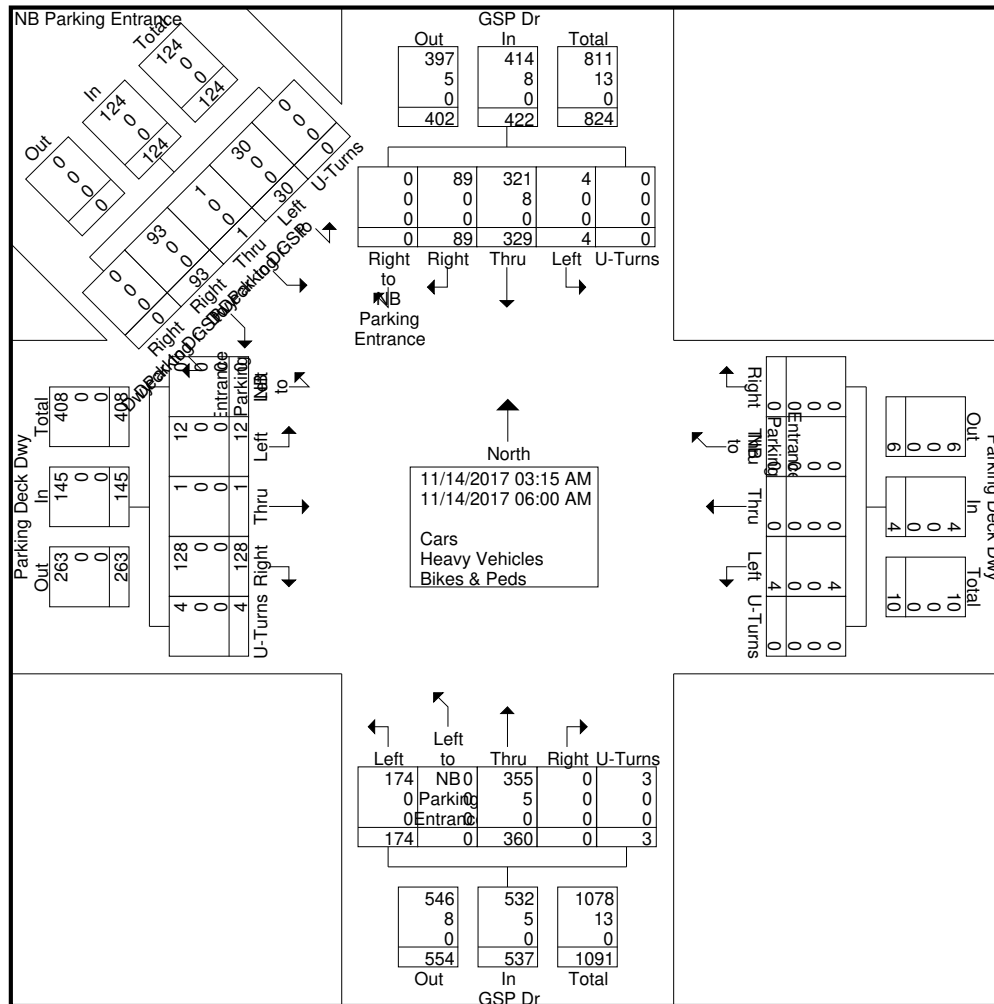


File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 1

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound						
Start Time	Right to NB Parking Entrance	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parking Entrance	Left	Peds	App. Total	Right	Thru	Left	Left to NB Parking Entrance	Peds	App. Total	Right to NB Parking Deck Dwy	Right to GSP Dr	Thru to NB Parking Deck Dwy	Left to NB Parking Deck Dwy	Peds	App. Total	Int. Total
03:15 AM	0	8	16	0	0	24	0	0	0	0	0	0	0	36	0	10	1	47	6	0	0	0	0	6	0	5	0	1	0	6	83
03:30 AM	0	11	19	3	0	33	0	0	0	1	0	1	0	45	0	13	2	60	14	0	1	0	0	15	0	9	0	3	0	12	121
03:45 AM	0	6	19	0	0	25	0	0	0	0	0	0	0	25	0	15	0	40	13	0	3	0	0	16	0	12	0	4	0	16	97
Total	0	25	54	3	0	82	0	0	0	1	0	1	0	106																	
04:00 AM	0	12	20	0	0	32	0	0	0	0	0	0	0	21	0	11	0	32	6	0	1	0	0	7	0	4	0	0	0	4	75
04:15 AM	0	7	30	0	0	37	0	0	0	0	0	0	0	30	0	18	0	48	6	0	0	0	0	6	0	6	1	3	0	10	101
04:30 AM	0	4	36	0	0	40	0	0	0	1	0	1	0	44	0	13	0	57	11	0	1	0	0	12	0	13	0	3	0	16	126
04:45 AM	0	6	42	1	0	49	0	0	0	2	0	2	0	23	0	8	0	31	9	0	1	0	0	10	0	3	0	2	0	5	97
Total	0	29	128										118																		
05:00 AM	0	7	29	0	0	36	0	0	0	0	0	0	0	32	0	13	0	45	11	0	1	0	0	12	0	4	0	5	0	9	102
05:15 AM	0	8	24	0	0	32	0	0	0	0	0	0	0	38	0	14	0	52	9	0	1	0	0	10	0	8	0	2	0	10	104
05:30 AM	0	8	40	0	0	48	0	0	0	0	0	0	0	31	0	18	0	49	19	1	2	0	1	23	0	14	0	4	0	18	138
05:45 AM	0	7	28	0	0	35	0	0	0	0	0	0	0	26	0	24	0	50	7	0	0	0	2	9	0	8	0	2	0	10	104
Total	0	30	121										127																		
06:00 AM	0	5	26	0	0	31	0	0	0	0	0	0	0	9	0	17	0	26	17	0	1	0	1	19	0	7	0	1	0	8	84
Grand Total			329										360		174				128												1232
Apprch %		21.1								100					32.4				88.3										24.2		
			26.7										29.2		14.1				10.4												
Cars	0	89	321	4	0	414	0	0	0	4	0	4	0	355	0	174	3	532	128	1	12	0	4	145	0	93	1	30	0	124	1219
% Cars	0	100	97.6	100	0	98.1	0	0	0	100	0	100	0																		

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
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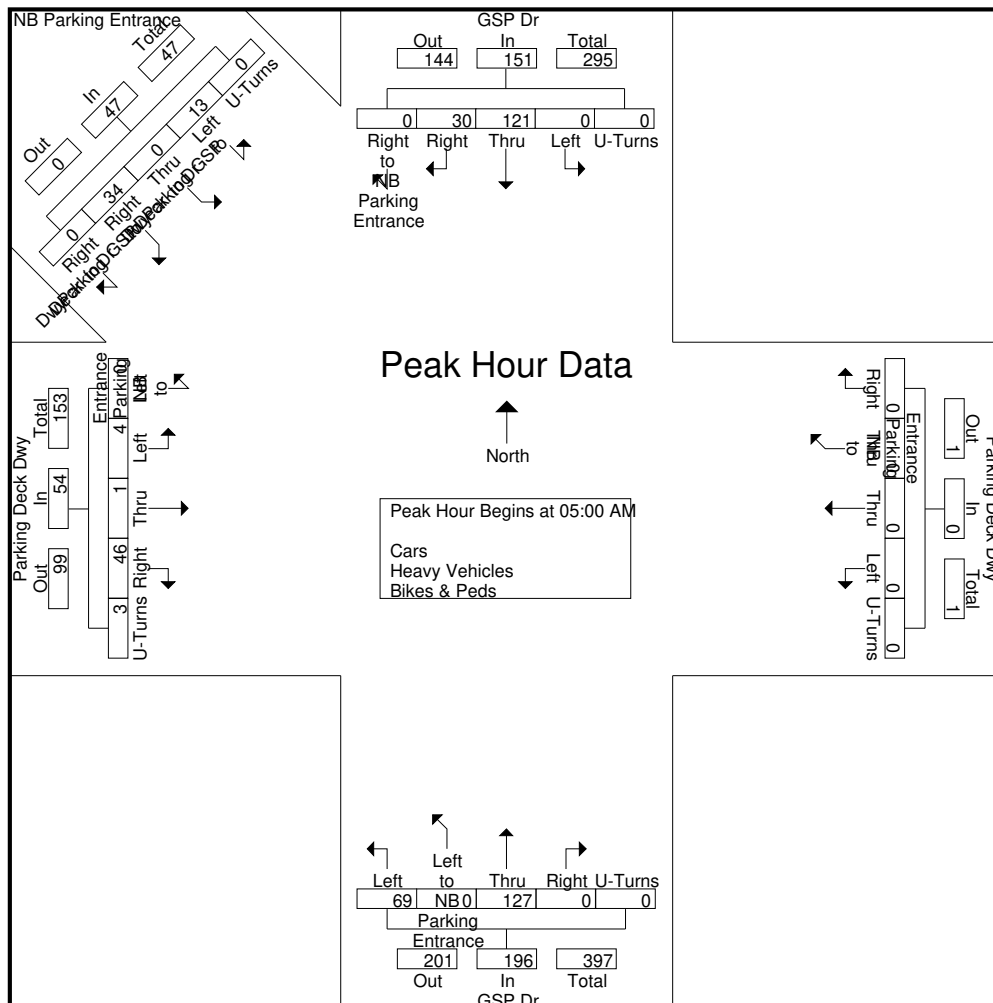


Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 3

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	Peds	App. Total	Right	Thru	Left	Left to NB Parki ng Entra nce	Peds	App. Total	Right to Parki ng Deck Dwy	Right to GSP Dr	Thru to Parki ng Deck Dwy	Left to GSP Dr	Peds	App. Total	Int. Total	
Peak Hour Analysis From 03:15 AM to 06:00 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 05:00 AM																																
05:00 AM	0	7	29	0	0	36	0	0	0	0	0	0	0	32	0	13	0	45	11	0	1	0	0	12	0	4	0	5	0	9	102	
05:15 AM	0	8	24	0	0	32	0	0	0	0	0	0	0	38	0	14	0	52	9	0	1	0	0	10	0	8	0	2	0	10	104	
05:30 AM	0	8	40	0	0	48	0	0	0	0	0	0	0	31	0	18	0	49	19	1	2	0	1	23	0	14	0	4	0	18	138	
05:45 AM	0	7	28	0	0	35	0	0	0	0	0	0	0	26	0	24	0	50	7	0	0	0	2	9	0	8	0	2	0	10	104	
Total Volume	0	30	121	0	0	151	0	0	0	0	0	0	0	127	0	69	0	196	46	1	4	0	3	54	0	34	0	13	0	47	448	
% App. Total	0	19.9	80.1	0	0		0	0	0	0	0		0	64.8	0	35.2	0		85.2	1.9	7.4	0	5.6		0	72.3	0	27.7	0			
PHF	.000	.938	.756	.000	.000	.786	.000	.000	.000	.000	.000	.000	.000	.836	.000	.719	.000	.942	.605	.250	.500	.000	.375	.587	.000	.607	.000	.650	.000	.653	.812	



Quality Counts, LLC

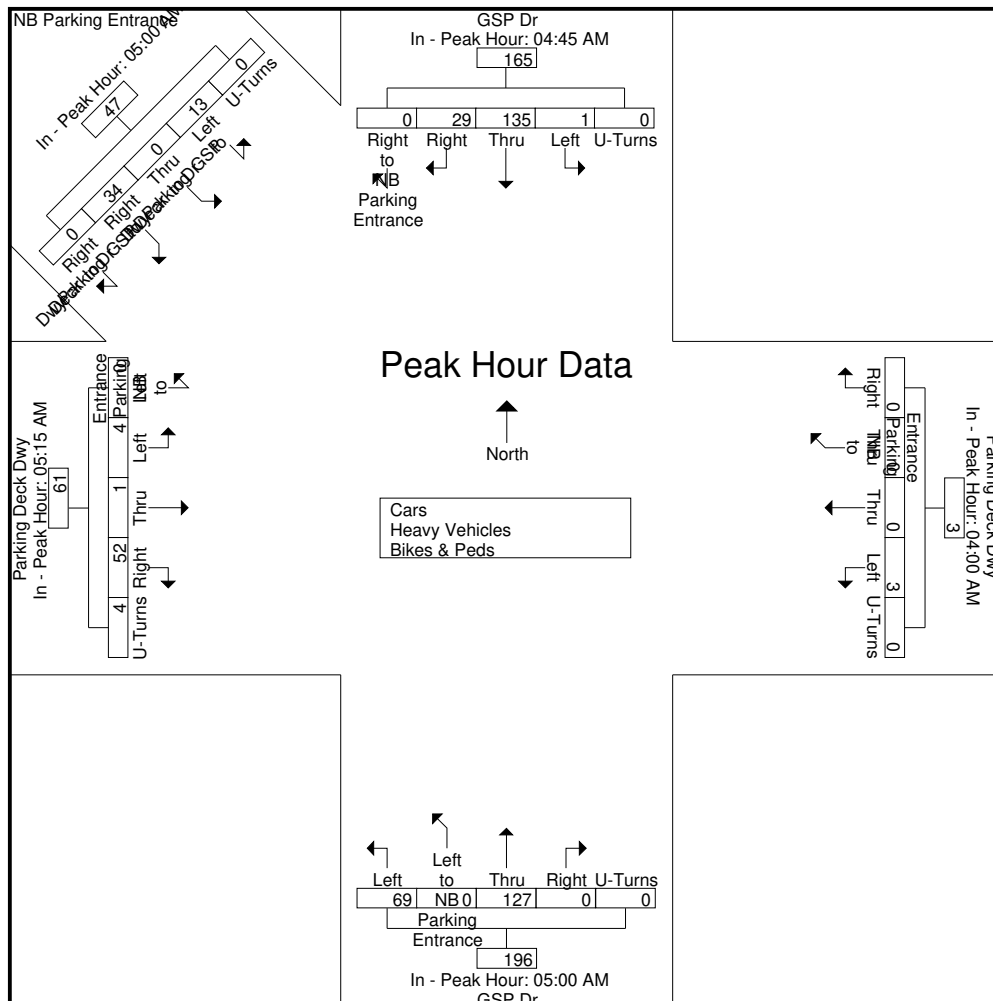
920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 4

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound					
Start Time	Right to NB Parking Entrance	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parking Entrance	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right to NB Parking Entrance	Right to NB Parking Entrance	Thru to NB Parking Entrance	Left to NB Parking Entrance	Peds	App. Total	Int. Total

Peak Hour Analysis From 03:15 AM to 06:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 AM						04:00 AM						05:00 AM						05:15 AM						05:00 AM					
+0 mins.	0	6	42	1	0	49	0	0	0	0	0	0	0	32	0	13	0	45	9	0	1	0	0	10	0	4	0	5	0	9
+15 mins.	0	7	29	0	0	36	0	0	0	0	0	0	0	38	0	14	0	52	19	1	2	0	1	23	0	8	0	2	0	10
+30 mins.	0	8	24	0	0	32	0	0	0	1	0	1	0	31	0	18	0	49	7	0	0	0	2	9	0	14	0	4	0	18
+45 mins.	0	8	40	0	0	48	0	0	0	2	0	2	0	26	0	24	0	50	17	0	1	0	1	19	0	8	0	2	0	10
Total Volume	0	29	135	1	0	165	0	0	0	3	0	3	0	127	0	69	0	196	52	1	4	0	4	61	0	34	0	13	0	47
% App. Total	0	17.6	81.8	0.6	0		0	0	0	100	0		0	64.8	0	35.2	0		85.2	1.6	6.6	0	6.6		0	72.3	0	27.7	0	
PHF	.000	.906	.804	.250	.000	.842	.000	.000	.000	.375	.000	.375	.000	.836	.000	.719	.000	.942	.684	.250	.500	.000	.500	.663	.000	.607	.000	.650	.000	.653



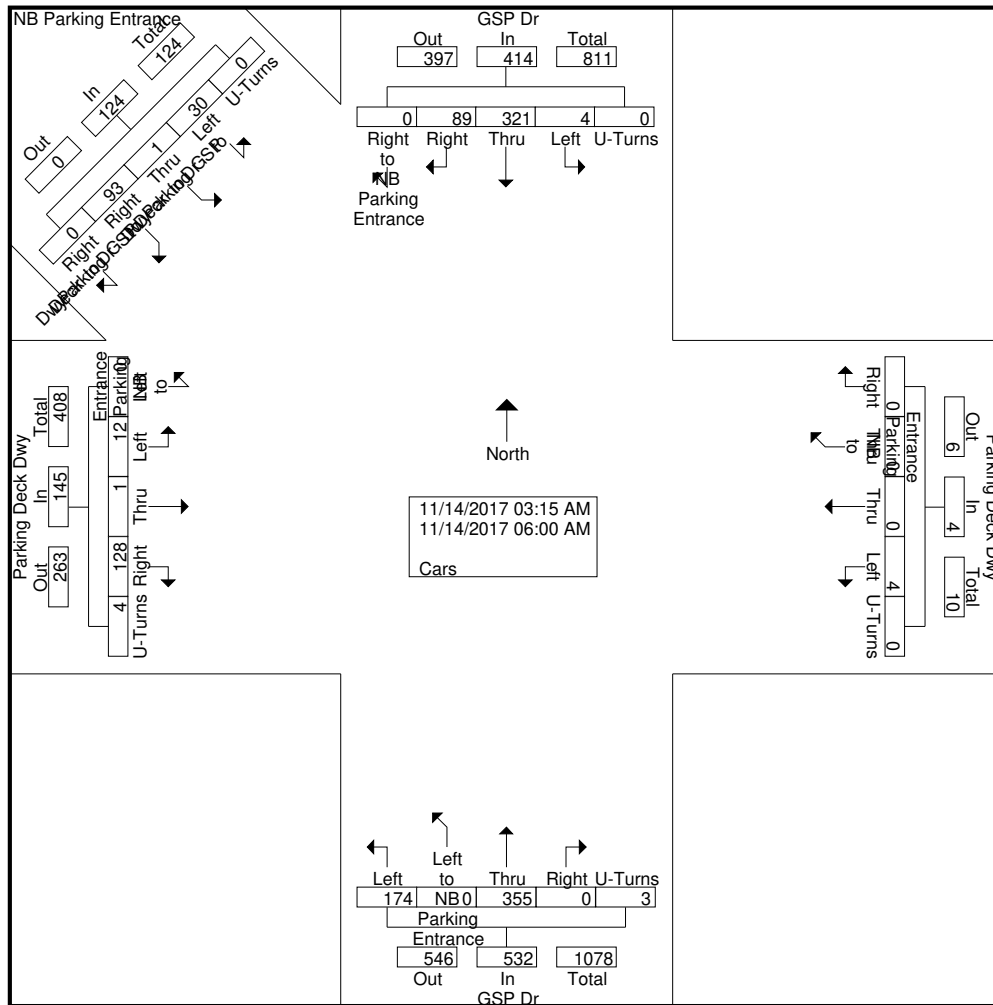
Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 1

Groups Printed- Cars

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parking Entrance	Right	Thru	Left	U-Turns	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	U-Turns	App. Total	Right	Thru	Left to NB Parking Entrance	Left	U-Turns	App. Total	Right	Thru	Left	Left to NB Parking Entrance	U-Turns	App. Total	Right to NB Parking Deck Dwy	Right to NB GSP Dr	Thru to NB Parking Deck Dwy	Left to NB GSP Dr	U-Turns	App. Total	Int. Total	
03:15 AM	0	8	15	0	0	23	0	0	0	0	0	0	0	36	0	10	1	47	6	0	0	0	0	6	0	5	0	1	0	6	82	
03:30 AM	0	11	19	3	0	33	0	0	0	1	0	1	0	44	0	13	2	59	14	0	1	0	0	15	0	9	0	3	0	12	120	
03:45 AM	0	6	19	0	0	25	0	0	0	0	0	0	0	25	0	15	0	40	13	0	3	0	0	16	0	12	0	4	0	16	97	
Total	0	25	53	3	0	81	0	0	0	1	0	1	0	105																		
04:00 AM	0	12	20	0	0	32	0	0	0	0	0	0	0	21	0	11	0	32	6	0	1	0	0	7	0	4	0	0	0	4	75	
04:15 AM	0	7	28	0	0	35	0	0	0	0	0	0	0	30	0	18	0	48	6	0	0	0	0	6	0	6	1	3	0	10	99	
04:30 AM	0	4	36	0	0	40	0	0	0	1	0	1	0	44	0	13	0	57	11	0	1	0	0	12	0	13	0	3	0	16	126	
04:45 AM	0	6	39	1	0	46	0	0	0	2	0	2	0	23	0	8	0	31	9	0	1	0	0	10	0	3	0	2	0	5	94	
Total	0	29	123										118																			
05:00 AM	0	7	29	0	0	36	0	0	0	0	0	0	0	32	0	13	0	45	11	0	1	0	0	12	0	4	0	5	0	9	102	
05:15 AM	0	8	23	0	0	31	0	0	0	0	0	0	0	34	0	14	0	48	9	0	1	0	0	10	0	8	0	2	0	10	99	
05:30 AM	0	8	39	0	0	47	0	0	0	0	0	0	0	31	0	18	0	49	19	1	2	0	1	23	0	14	0	4	0	18	137	
05:45 AM	0	7	28	0	0	35	0	0	0	0	0	0	0	26	0	24	0	50	7	0	0	0	2	9	0	8	0	2	0	10	104	
Total	0	30	119										123																			
06:00 AM	0	5	26	0	0	31	0	0	0	0	0	0	0	9	0	17	0	26	17	0	1	0	1	19	0	7	0	1	0	8	84	
Grand Total			321										355		174				128												1219	
Approach %		21.5	77.5							100			66.7		32.7				88.3									24.2				
			26.3										29.1		14.3				10.5													

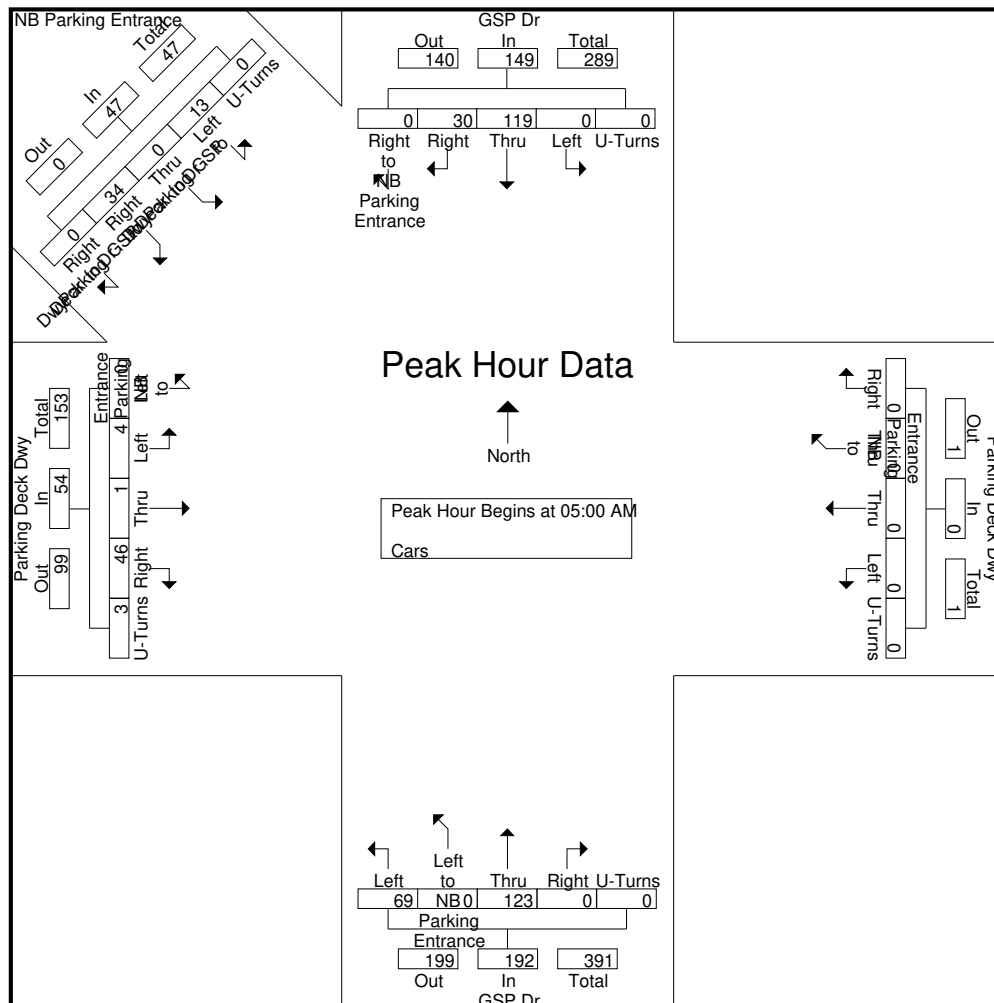


Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 2

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	U- Turns	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	U- Turns	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	U- Turns	App. Total	Right	Thru	Left	Left to NB Parki ng Entra nce	U- Turns	App. Total	Right to NB Parki ng Deck Dwy	Right to GSP Dr	Thru to NB Parki ng Deck Dwy	Left to GSP Dr	U- Turns	App. Total	Int. Total	
Peak Hour Analysis From 03:15 AM to 06:00 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 05:00 AM																																
05:00 AM	0	7	29	0	0	36	0	0	0	0	0	0	0	32	0	13	0	45	11	0	1	0	0	12	0	4	0	5	0	9	102	
05:15 AM	0	8	23	0	0	31	0	0	0	0	0	0	0	34	0	14	0	48	9	0	1	0	0	10	0	8	0	2	0	10	99	
05:30 AM	0	8	39	0	0	47	0	0	0	0	0	0	0	31	0	18	0	49	19	1	2	0	1	23	0	14	0	4	0	18	137	
05:45 AM	0	7	28	0	0	35	0	0	0	0	0	0	0	26	0	24	0	50	7	0	0	0	2	9	0	8	0	2	0	10	104	
Total Volume	0	30	119	0	0	149	0	0	0	0	0	0	0	123	0	69	0	192	46	1	4	0	3	54	0	34	0	13	0	47	442	
% App. Total	0	20.1	79.9	0	0		0	0	0	0	0		0	64.1	0	35.9	0		85.2	1.9	7.4	0	5.6		0	72.3	0	27.7	0			
PHF	.000	.938	.763	.000	.000	.793	.000	.000	.000	.000	.000	.000	.000	.904	.000	.719	.000	.960	.605	.250	.500	.000	.375	.587	.000	.607	.000	.650	.000	.653	.807	



Quality Counts, LLC

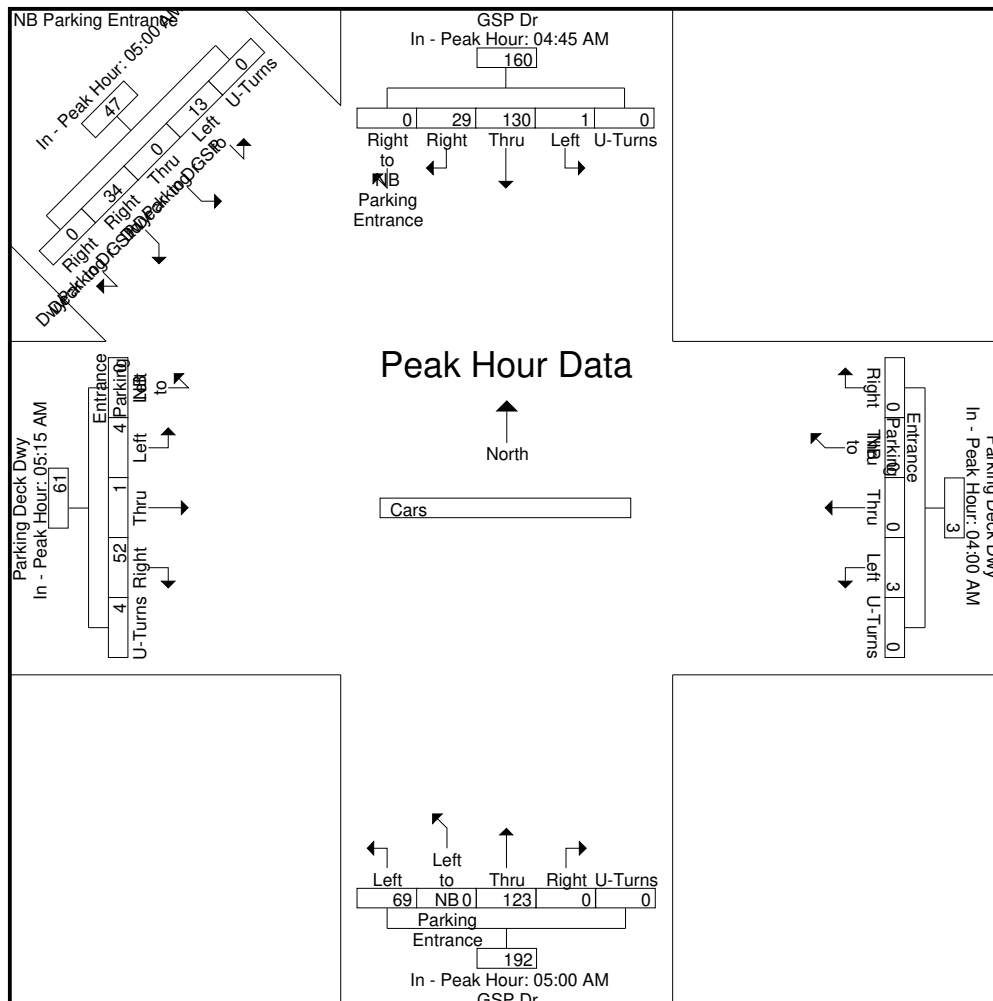
920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 3

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound						
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	U- Turns	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	U- Turns	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	U- Turns	App. Total	Right	Thru	Left	Left to NB Parki ng Entra nce	U- Turns	App. Total	Right to NB Parki ng Deck Dwy	Right to NB Parki ng Deck Dwy	Thru to NB Parki ng Deck Dwy	Left to NB Parki ng Deck Dwy	U- Turns	App. Total	Int. Total

Peak Hour Analysis From 03:15 AM to 06:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 AM						04:00 AM						05:00 AM						05:15 AM						05:00 AM					
+0 mins.	0	6	39	1	0	46	0	0	0	0	0	0	0	32	0	13	0	45	9	0	1	0	0	10	0	4	0	5	0	9
+15 mins.	0	7	29	0	0	36	0	0	0	0	0	0	0	34	0	14	0	48	19	1	2	0	1	23	0	8	0	2	0	10
+30 mins.	0	8	23	0	0	31	0	0	0	1	0	1	0	31	0	18	0	49	7	0	0	0	2	9	0	14	0	4	0	18
+45 mins.	0	8	39	0	0	47	0	0	0	2	0	2	0	26	0	24	0	50	17	0	1	0	1	19	0	8	0	2	0	10
Total Volume	0	29	130	1	0	160	0	0	0	3	0	3	0	123	0	69	0	192	52	1	4	0	4	61	0	34	0	13	0	47
% App. Total	0	18.1	81.2	0.6	0		0	0	0	100	0		0	64.1	0	35.9	0		85.2	1.6	6.6	0	6.6		0	72.3	0	27.7	0	
PHF	.000	.906	.833	.250	.000	.851	.000	.000	.000	.375	.000	.375	.000	.904	.000	.719	.000	.960	.684	.250	.500	.000	.500	.663	.000	.607	.000	.650	.000	.653



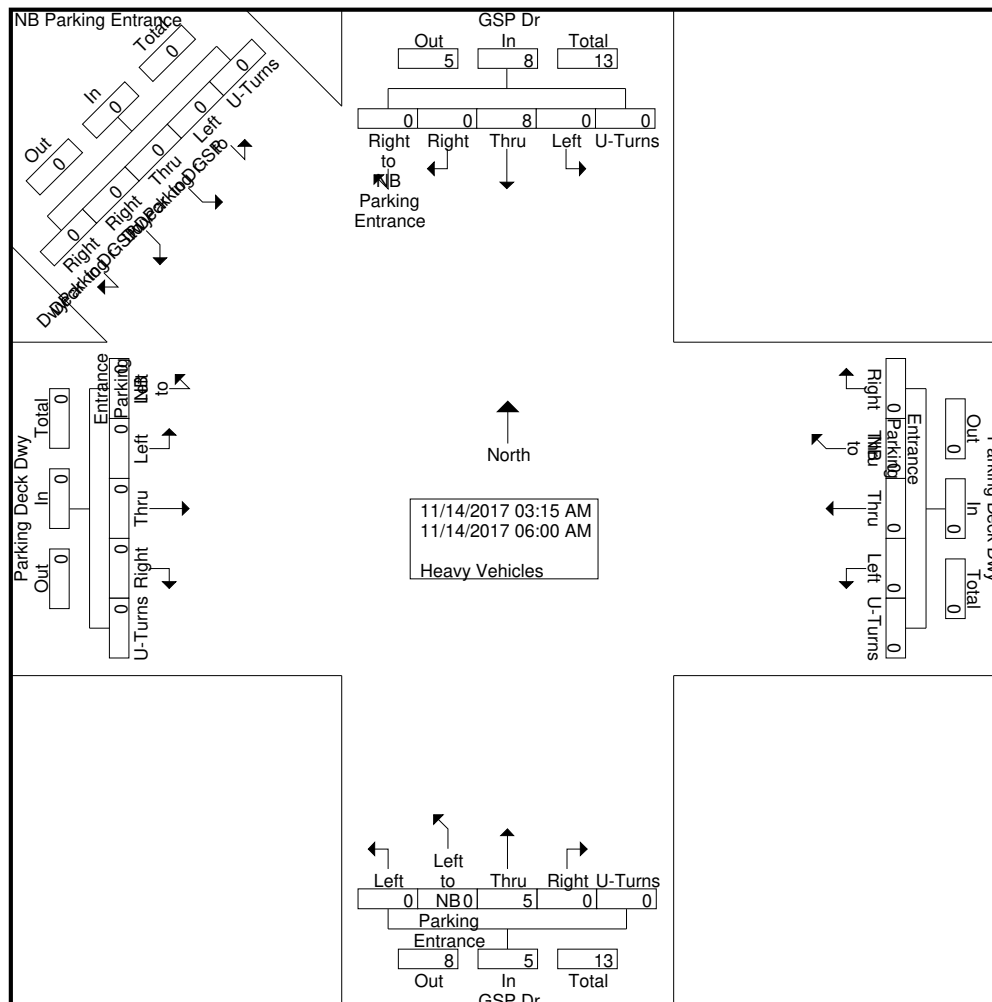
Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 1

Groups Printed- Heavy Vehicles

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parking Entrance	Right	Thru	Left	U-Turns	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	U-Turns	App. Total	Right	Thru	Left to NB Parking Entrance	Left	U-Turns	App. Total	Right	Thru	Left	Left to NB Parking Entrance	U-Turns	App. Total	Right to NB Parking Deck Dwy	Right to NB GSP Dr	Thru to NB Parking Deck Dwy	Left to NB GSP Dr	U-Turns	App. Total	Int. Total	
03:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
03:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
03:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	
04:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:15 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:45 AM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
Total	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	5	
05:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
05:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	2	0	0	2	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	6	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total																																
Approch %	100												100																			
	61.5												38.5																			

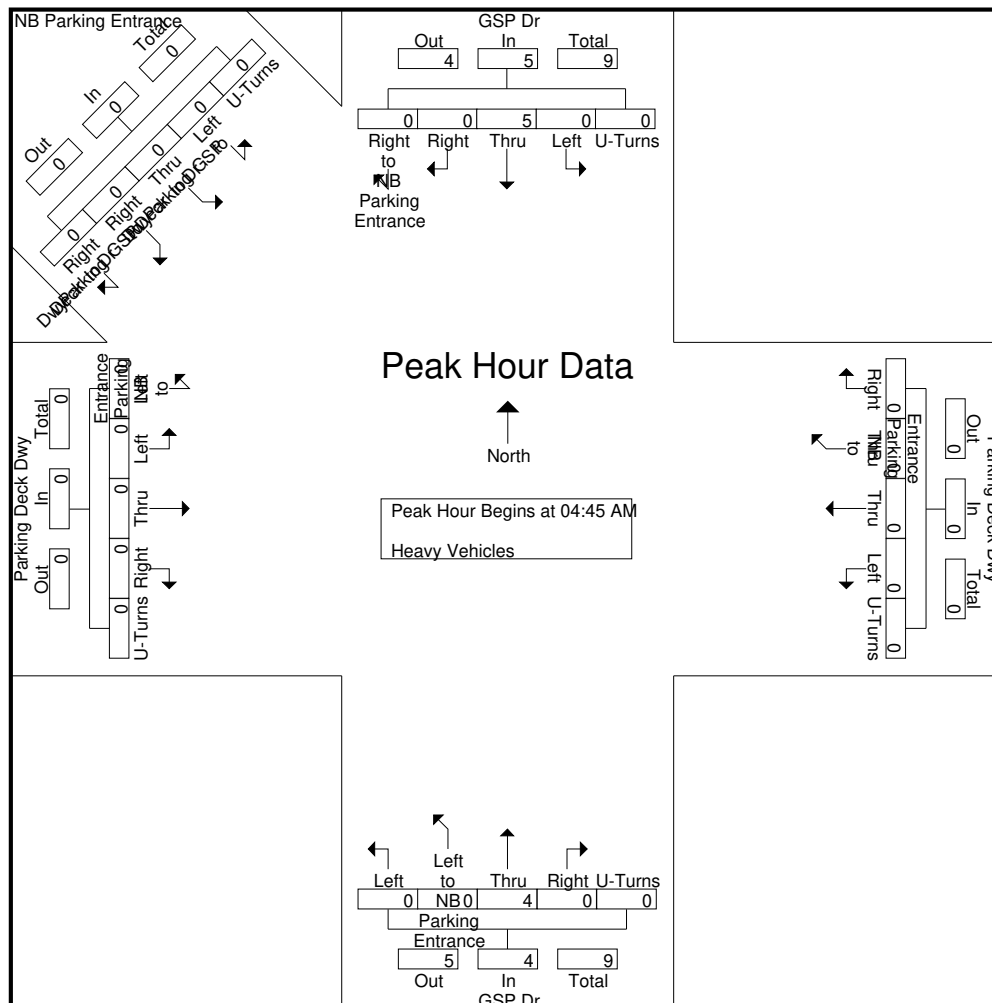


Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 2

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	U- Turns	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	U- Turns	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	U- Turns	App. Total	Right	Thru	Left	Left to NB Parki ng Entra nce	U- Turns	App. Total	Right to NB Parki ng Deck Dwy	Right to GSP Dr	Thru to Parki ng Deck Dwy	Left to GSP Dr	U- Turns	App. Total	Int. Total	
Peak Hour Analysis From 03:15 AM to 06:00 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 04:45 AM																																
04:45 AM	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
05:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	5	
05:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Total Volume																																
% App. Total	0	0	100	0	0		0	0	0	0	0		0	100	0	0	0		0	0	0	0	0		0	0	0	0	0			
PHF	.000	.000	.417	.000	.000	.417	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.450	



Quality Counts, LLC

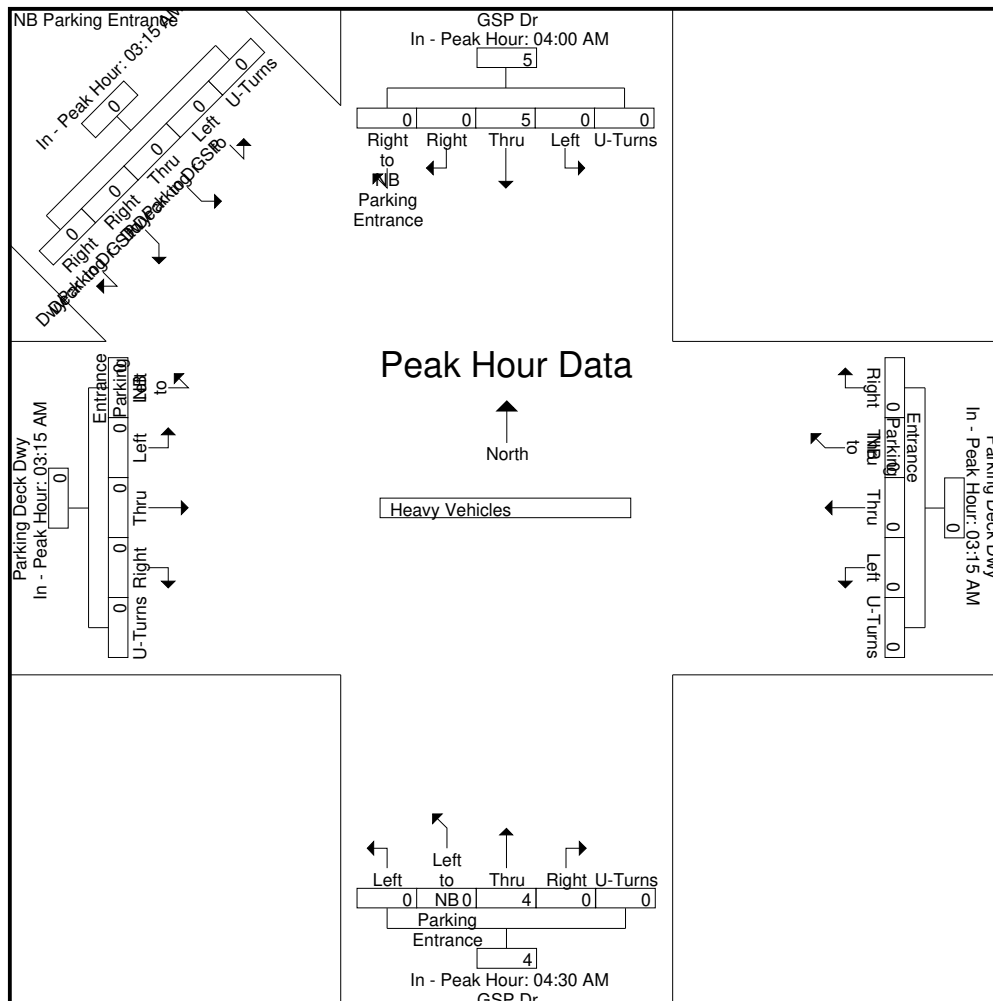
920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 3

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parki ng Entra nce	Right	Thru	Left	U- Turns	App. Total	Right	Thru to NB Parki ng Entra nce	Thru	Left	U- Turns	App. Total	Right	Thru	Left to NB Parki ng Entra nce	Left	U- Turns	App. Total	Right	Thru	Left	Left to NB Parki ng Entra nce	U- Turns	App. Total	Right to NB Parki ng Deck Dwy	Right to NB Parki ng Dr	Thru to NB Parki ng Deck Dwy	Left to NB Parki ng Dr	U- Turns	App. Total	Int. Total	

Peak Hour Analysis From 03:15 AM to 06:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 AM						03:15 AM						04:30 AM						03:15 AM						03:15 AM					
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	3	0	0	3	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	5	0	0	5	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	100	0	0		0	0	0	0	0		0	100	0	0	0		0	0	0	0	0		0	0	0	0	0	
PHF	.000	.000	.417	.000	.000	.417	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



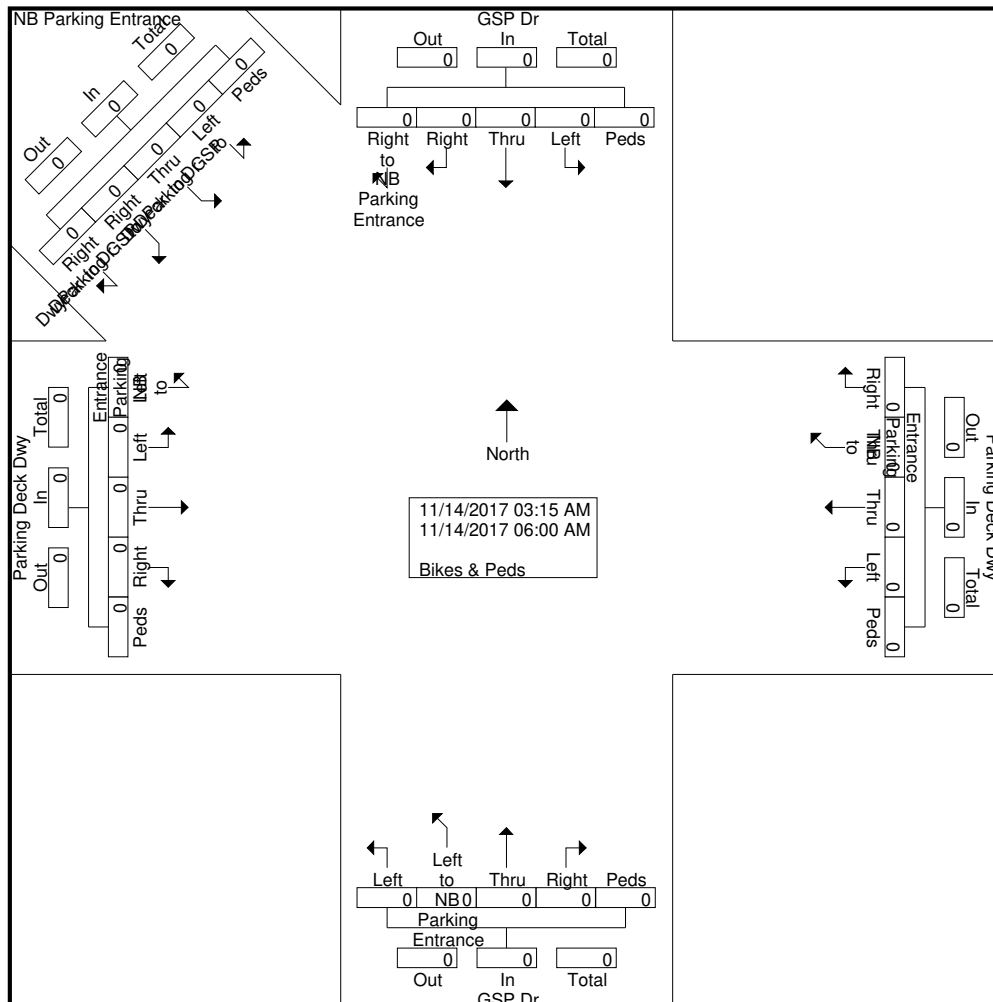
Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 1

Groups Printed- Bikes & Peds

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound													
Start Time	Right to NB						Right	Thru to NB					Right		Left to NB					Right		Left to NB				Right		Thru to NB				Right to	Right	Thru to	Left			
	Parki ng	Right	Thru	Left	Peds	App. Total	Parki ng	Entr nce	Thru	Left	Peds	App. Total	Parki ng	Entr nce	Thru	Left	Peds	App. Total	Parki ng	Entr nce	Thru	Left	Peds	App. Total	Parki ng	Entr nce	Thru	Left	Peds	App. Total	Parki ng	to GSP	Parki ng	to GSP	Peds	App. Total	Int. Total	
03:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total																																						0
Approch %																																						



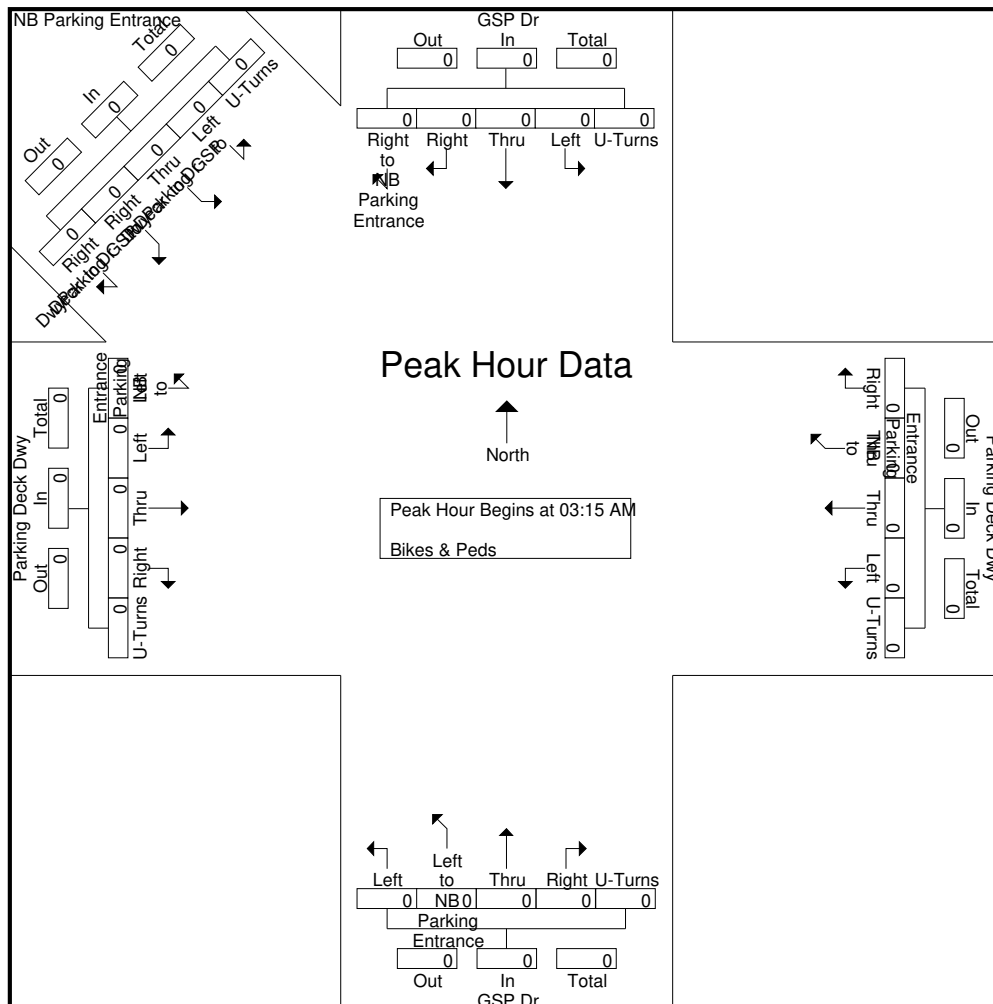
Quality Counts, LLC

920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 2

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound							
Start Time	Right to NB Parking Entrance	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parking Entrance	Left	Peds	App. Total	Right	Thru	Left	Parking to NB Parking Deck Entrance	Peds	App. Total	Right to NB Parking Deck Dwy	Right to GSP Dr	Thru to NB Parking Deck Dwy	Left to GSP Dr	Peds	App. Total	Int. Total	
Peak Hour Analysis From 03:15 AM to 06:00 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 03:15 AM																																
03:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
03:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
03:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume																																
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	

Peak Hour Analysis From 03:15 AM to 06:00 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:15 AM



Quality Counts, LLC

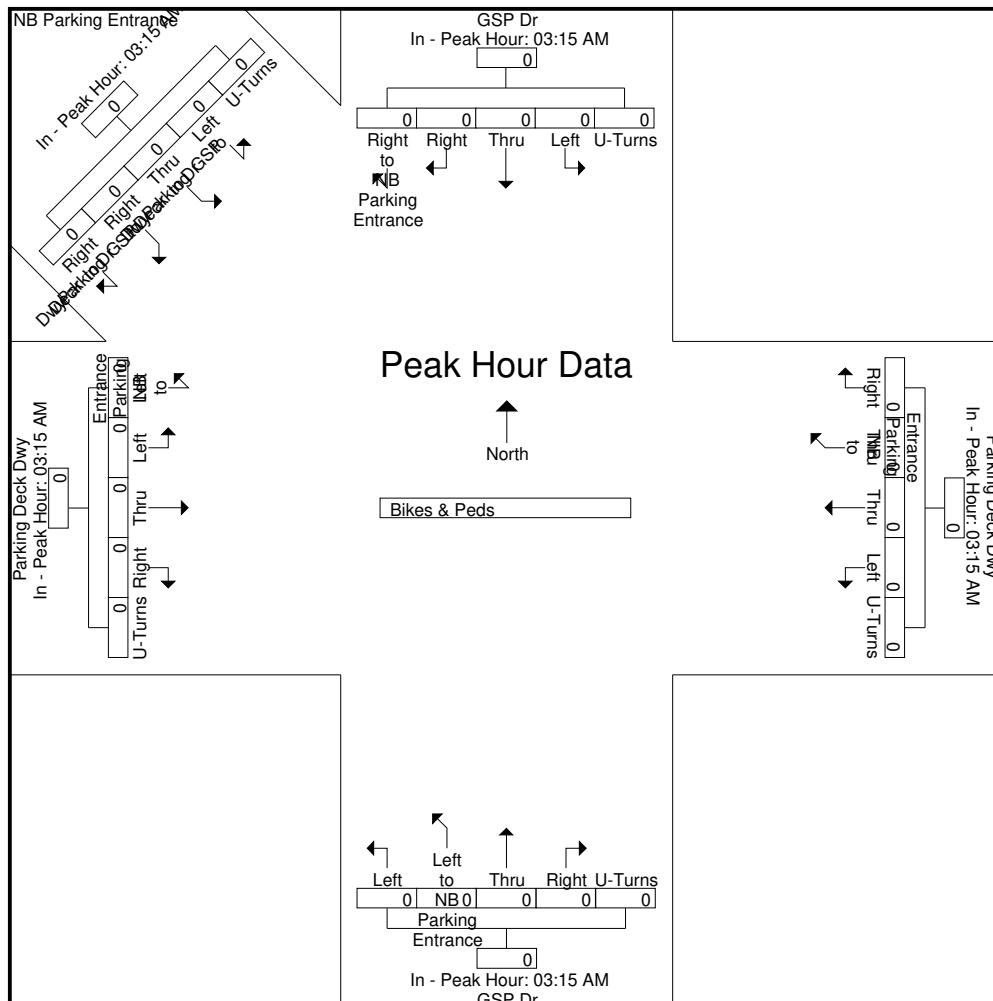
920 Blairhill Rd, STE B106
Charlotte, NC 28217

File Name : 14557204
Site Code : 14557204
Start Date : 11/14/2017
Page No : 3

	GSP Dr Southbound						Parking Deck Dwy Westbound						GSP Dr Northbound						Parking Deck Dwy Eastbound						NB Parking Entrance Southeastbound					
Start Time	Right to NB Parking Entrance	Right	Thru	Left	Peds	App. Total	Right	Thru to NB Parking Entrance	Thru	Left	Peds	App. Total	Right	Thru	Left to NB Parking Entrance	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right to NB Parking Deck Dwy	Right to GSP Dr	Thru to NB Parking Deck Dwy	Left to GSP Dr	Peds	App. Total	Int. Total

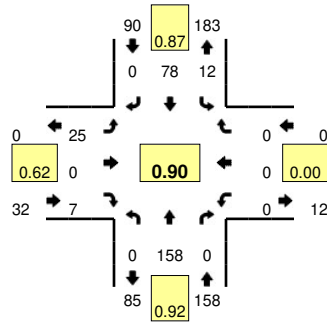
Peak Hour Analysis From 03:15 AM to 06:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:15 AM						03:15 AM						03:15 AM						03:15 AM						03:15 AM					
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

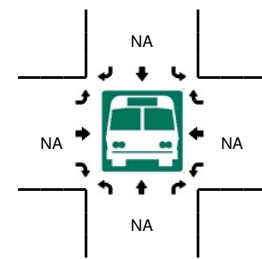
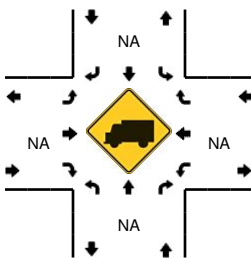
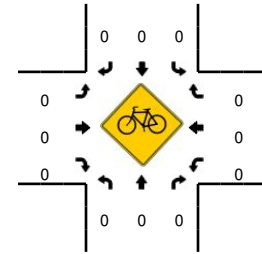
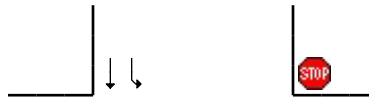
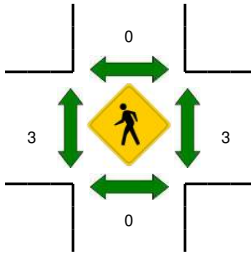
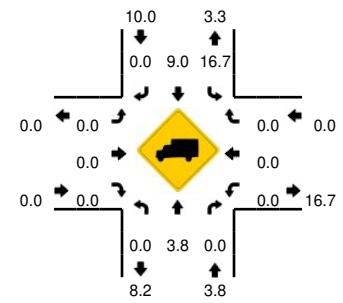


LOCATION: GSP Dr -- Aviation Pkwy SB
CITY/STATE: Greer, SC

QC JOB #: 14557205
DATE: Tue, Nov 14 2017



Peak-Hour: 8:45 AM -- 9:45 AM
Peak 15-Min: 9:30 AM -- 9:45 AM

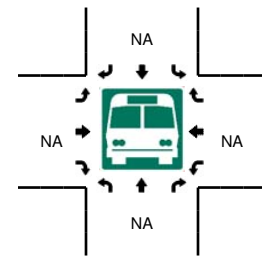
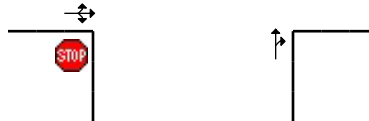
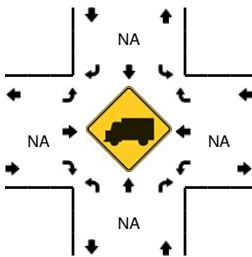
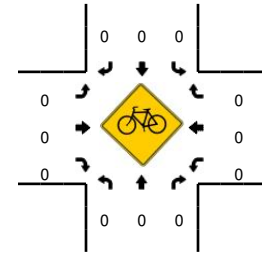
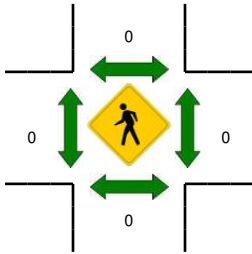
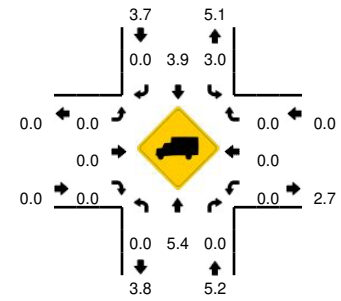
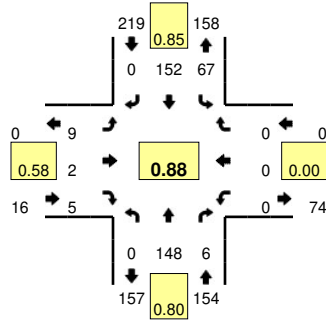
[illegible]

Comments:

LOCATION: GSP Dr -- Aviation Pkwy SB
CITY/STATE: Greer, SC

QC JOB #: 14557206
DATE: Tue, Nov 14 2017

Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

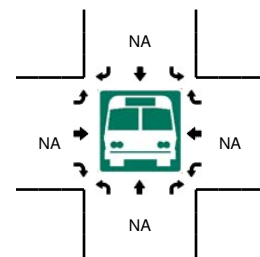
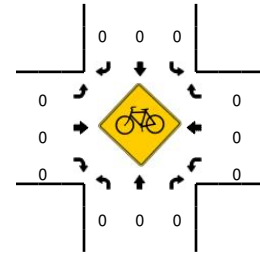
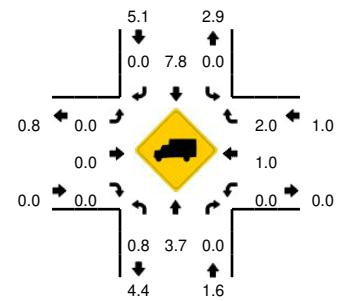


15-Min Count Period Beginning At	GSP Dr (Northbound)				GSP Dr (Southbound)				Aviation Pkwy SB (Eastbound)				Aviation Pkwy SB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:15 PM	0	35	0	0	8	23	0	0	2	2	3	0	0	0	0	0	73	
3:30 PM	0	49	0	0	13	30	0	0	3	0	3	0	0	0	0	0	98	
3:45 PM	0	33	1	0	25	25	0	0	2	2	1	0	0	0	0	0	89	
4:00 PM	0	20	1	0	13	31	0	0	1	0	1	0	0	0	0	0	67	327
4:15 PM	0	32	0	0	11	39	0	0	4	1	0	0	0	0	0	0	87	341
4:30 PM	0	46	2	0	15	37	0	1	5	1	3	0	0	0	0	0	110	353
4:45 PM	0	27	1	0	18	49	0	0	2	0	0	0	0	0	0	0	97	361
5:00 PM	0	37	1	0	14	35	0	0	2	1	1	0	0	0	0	0	91	385
5:15 PM	0	38	2	0	19	31	0	0	0	0	1	0	0	0	0	0	91	389
5:30 PM	0	33	2	0	17	46	0	0	0	0	1	0	0	0	0	0	99	378
5:45 PM	0	28	0	0	11	34	0	0	0	0	2	0	0	0	0	0	75	356
6:00 PM	0	11	0	0	7	31	0	0	0	0	0	0	0	0	0	0	49	314
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	184	8	0	60	148	0	4	20	4	12	0	0	0	0	0	440	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Method for determining peak hour: Total Entering Volume

QC JOB #: 14557207
DATE: Tue, Nov 14 2017

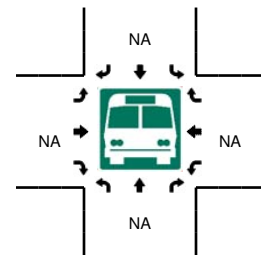
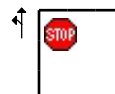
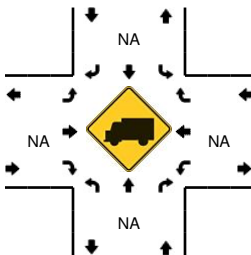
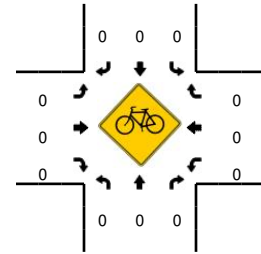
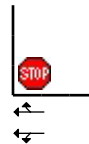
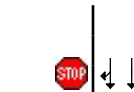
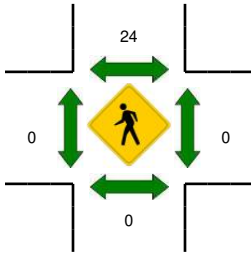
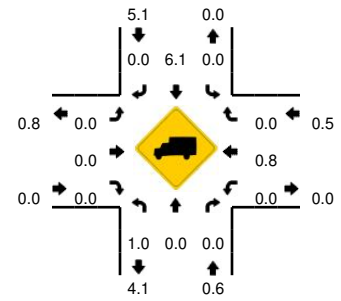
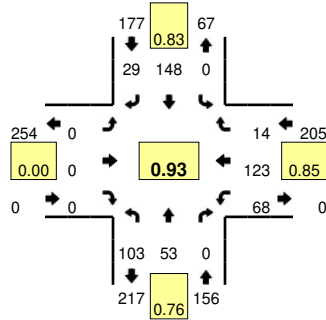


Comments:

LOCATION: GSP Dr -- Aviation Pkwy NB
CITY/STATE: Greer, SC

QC JOB #: 14557208
DATE: Tue, Nov 14 2017

Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



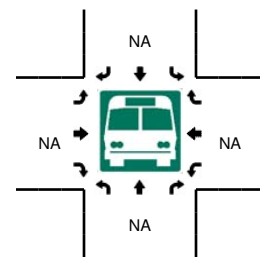
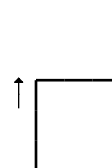
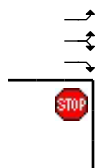
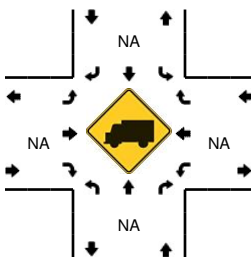
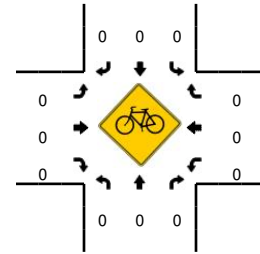
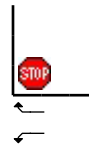
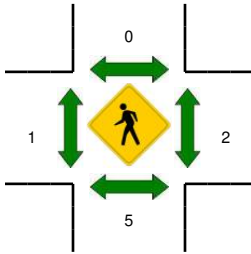
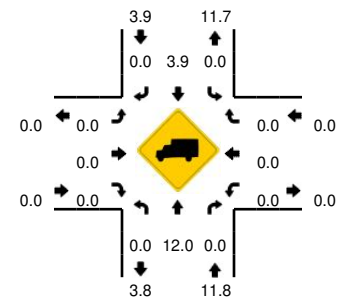
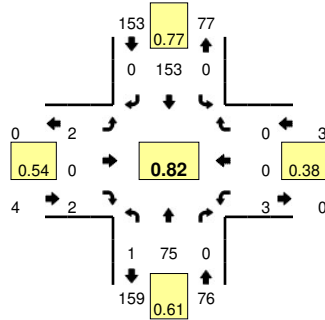
15-Min Count Period Beginning At	GSP Dr (Northbound)				GSP Dr (Southbound)				Aviation Pkwy NB (Eastbound)				Aviation Pkwy NB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:15 PM	25	13	0	0	0	17	8	0	0	0	0	0	11	43	8	0	125	
3:30 PM	39	14	0	0	0	32	13	0	0	0	0	0	11	39	10	0	158	
3:45 PM	19	16	0	0	0	40	6	0	0	0	0	0	9	31	1	0	122	
4:00 PM	20	3	0	0	0	25	3	0	0	0	0	0	17	25	7	0	100	505
4:15 PM	25	13	0	0	0	32	8	0	0	0	0	0	16	34	3	0	131	511
4:30 PM	35	16	0	0	0	40	4	0	0	0	0	0	13	33	4	0	145	498
4:45 PM	20	8	0	1	0	48	9	0	0	0	0	0	21	26	5	0	138	514
5:00 PM	22	16	0	0	0	28	8	0	0	0	0	0	18	30	2	0	124	538
5:15 PM	25	13	0	0	0	38	7	0	0	0	0	0	11	25	3	0	122	529
5:30 PM	20	13	0	0	0	47	13	0	0	0	0	0	15	30	2	0	140	524
5:45 PM	16	12	0	0	0	34	5	0	0	0	0	0	12	19	5	0	103	489
6:00 PM	8	4	0	0	0	33	1	0	0	0	0	0	4	22	3	0	75	440
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	140	64	0	0	0	160	16	0	0	0	0	0	52	132	16	0	580	
Heavy Trucks	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	
Pedestrians	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	36	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: GSP Dr -- Parking Lot Dwys
CITY/STATE: Greer, SC

QC JOB #: 14557209
DATE: Tue, Nov 14 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

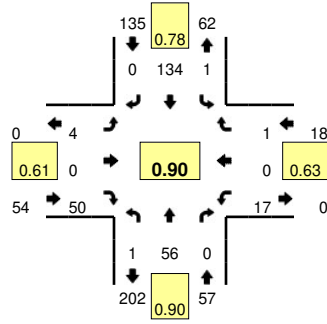


15-Min Count Period Beginning At	GSP Dr (Northbound)				GSP Dr (Southbound)				Parking Lot Dwys (Eastbound)				Parking Lot Dwys (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:45 AM	0	43	0	1	0	10	0	0	0	0	4	0	0	0	0	0	58	
7:00 AM	0	26	0	1	0	15	0	0	0	0	0	0	0	0	0	0	42	
7:15 AM	0	14	0	0	0	19	0	0	0	0	3	0	0	0	0	0	36	
7:30 AM	0	22	0	0	0	29	0	0	1	0	0	0	1	0	0	0	53	189
7:45 AM	0	22	0	0	0	50	0	0	0	0	0	0	0	0	0	0	72	203
8:00 AM	0	21	0	1	0	46	0	0	1	0	0	0	0	0	0	0	69	230
8:15 AM	0	10	0	0	0	28	0	0	0	0	2	0	2	0	0	0	42	236
8:30 AM	0	14	0	0	0	26	0	0	0	0	1	0	0	0	0	0	41	224
8:45 AM	0	24	0	0	0	22	0	0	0	0	2	0	0	0	0	0	48	200
9:00 AM	0	12	0	2	0	20	0	0	0	0	3	0	0	0	0	0	37	168
9:15 AM	0	16	0	0	0	11	0	0	1	0	2	0	0	0	0	0	30	156
9:30 AM	0	19	0	1	0	14	0	0	1	0	6	0	1	0	0	0	42	157
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	88	0	0	0	200	0	0	0	0	0	0	0	0	0	0	288	
Heavy Trucks	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12	
Pedestrians	4				0				0				0				4	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

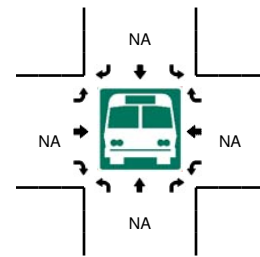
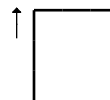
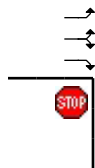
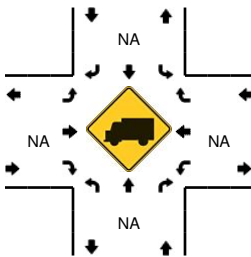
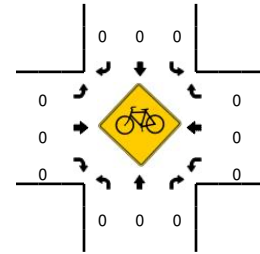
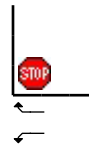
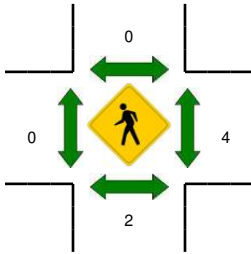
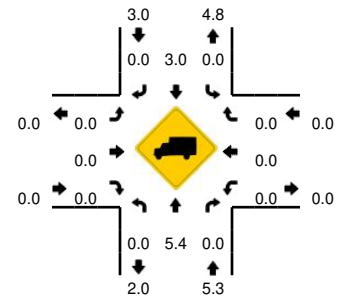
Comments:

LOCATION: GSP Dr -- Parking Lot Dwys
CITY/STATE: Greer, SC

QC JOB #: 14557210
DATE: Tue, Nov 14 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

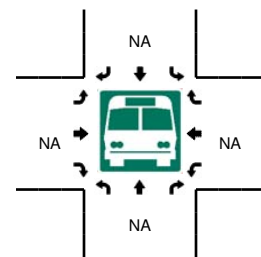
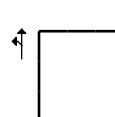
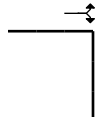
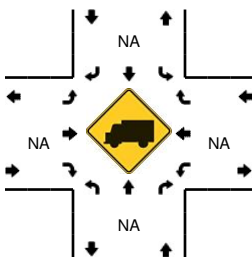
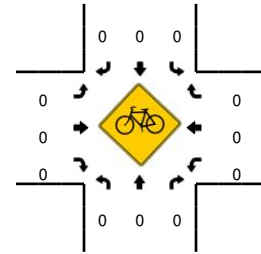
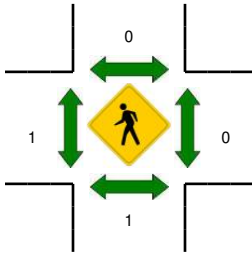
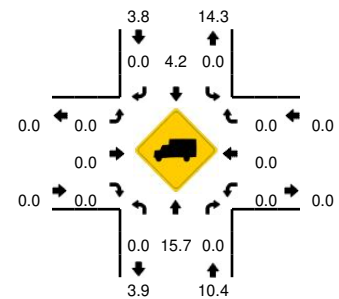
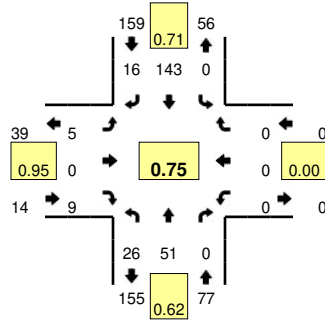
[illegible]

Comments:

LOCATION: GSP Dr -- Airport/FAA Offices Dwy
CITY/STATE: Greer, SC

QC JOB #: 14557211
DATE: Tue, Nov 14 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



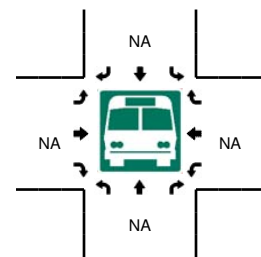
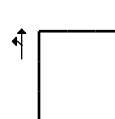
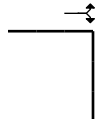
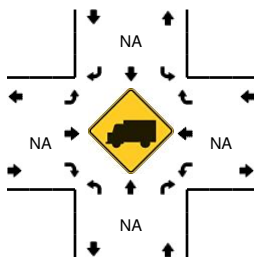
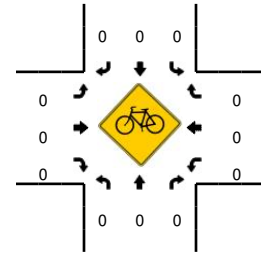
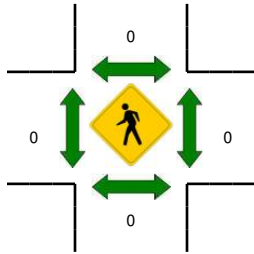
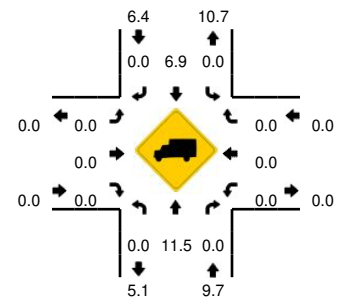
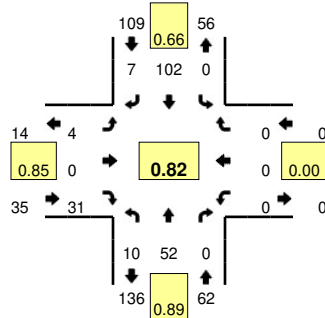
15-Min Count Period Beginning At	GSP Dr (Northbound)				GSP Dr (Southbound)				Airport/FAA Offices Dwy (Eastbound)				Airport/FAA Offices Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:45 AM	5	39	0	0	0	8	7	1	0	0	2	0	0	0	0	0	62	
7:00 AM	3	23	0	2	0	11	2	0	2	0	2	0	0	0	0	0	45	
7:15 AM	4	8	0	2	0	14	2	0	0	0	3	0	0	0	0	0	33	
7:30 AM	7	15	0	1	0	29	3	0	0	0	0	0	0	0	0	0	55	195
7:45 AM	9	12	0	1	0	47	9	0	2	0	3	0	0	0	0	0	83	216
8:00 AM	5	14	0	0	0	42	3	0	1	0	3	0	0	0	0	0	68	239
8:15 AM	2	10	0	1	0	25	1	0	2	0	3	0	0	0	0	0	44	250
8:30 AM	3	10	0	0	0	24	2	0	3	0	2	0	0	0	0	0	44	239
8:45 AM	8	12	0	2	0	16	2	0	1	0	3	0	0	0	0	0	44	200
9:00 AM	6	7	0	1	0	18	1	0	0	0	1	0	0	0	0	0	34	166
9:15 AM	6	12	0	0	0	11	2	0	3	0	0	0	0	0	0	0	34	156
9:30 AM	2	13	0	3	0	6	3	0	0	0	4	0	0	0	0	0	31	143
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	36	48	0	4	0	188	36	0	8	0	12	0	0	0	0	0	332	
Heavy Trucks	0	8	0		0	4	0		0	0	0		0	0	0		12	
Pedestrians	4				0					4			0				8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: GSP Dr -- Airport/FAA Offices Dwy
CITY/STATE: Greer, SC

QC JOB #: 14557212
DATE: Tue, Nov 14 2017

Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



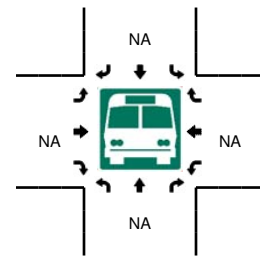
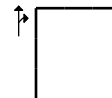
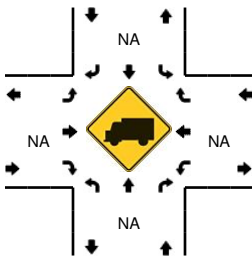
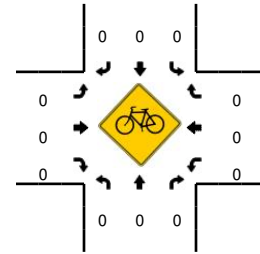
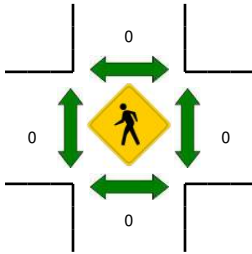
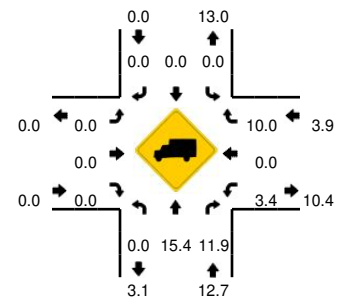
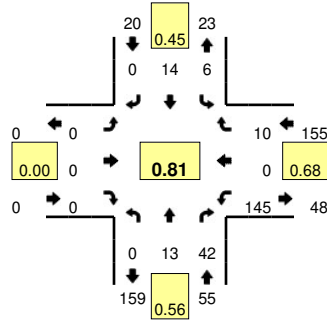
15-Min Count Period Beginning At	GSP Dr (Northbound)				GSP Dr (Southbound)				Airport/FAA Offices Dwy (Eastbound)				Airport/FAA Offices Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:15 PM	7	11	0	3	0	13	1	1	1	0	5	0	0	0	0	0	42	
3:30 PM	4	18	0	1	0	16	1	0	1	0	6	0	0	0	0	0	47	
3:45 PM	1	14	0	0	0	14	0	0	3	0	6	0	0	0	0	0	38	
4:00 PM	1	4	0	2	0	14	0	0	2	0	5	0	0	0	0	0	28	155
4:15 PM	3	7	0	1	0	21	1	0	0	0	10	0	0	0	0	0	43	156
4:30 PM	3	14	0	2	0	17	1	0	3	0	10	0	0	0	0	0	50	159
4:45 PM	1	10	0	1	0	35	6	0	1	0	9	0	0	0	0	0	63	184
5:00 PM	1	17	0	1	0	16	1	0	1	0	10	0	0	0	0	0	47	203
5:15 PM	1	14	0	1	0	18	0	0	2	0	3	0	0	0	0	0	39	199
5:30 PM	4	11	0	0	0	33	0	0	0	0	9	0	0	0	0	0	57	206
5:45 PM	8	10	0	0	0	25	1	0	1	0	5	0	0	0	0	0	50	193
6:00 PM	3	4	0	1	0	17	1	0	3	0	9	0	0	0	0	0	38	184
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	40	0	4	0	140	24	0	4	0	36	0	0	0	0	0	252	
Heavy Trucks	0	4	0		0	20	0		0	0	0		0	0	0		24	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: GSP Dr -- Stevens Rd
CITY/STATE: Greer, SC

QC JOB #: 14557213
DATE: Tue, Nov 14 2017

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

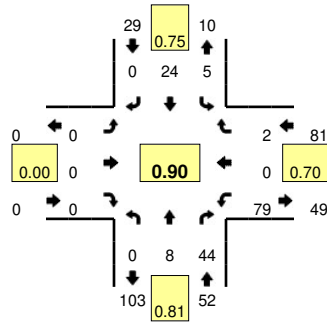


15-Min Count Period Beginning At	GSP Dr (Northbound)				GSP Dr (Southbound)				Stevens Rd (Eastbound)				Stevens Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:45 AM	0	25	14	0	1	1	0	0	0	0	0	0	12	0	12	0	65	
7:00 AM	0	13	11	0	0	0	0	0	0	0	0	0	11	0	5	0	40	
7:15 AM	0	1	7	0	0	7	0	0	0	0	0	0	10	0	3	0	28	
7:30 AM	0	1	15	0	3	11	0	0	0	0	0	0	22	0	0	0	52	185
7:45 AM	0	2	10	0	0	1	0	0	0	0	0	0	54	0	4	0	71	191
8:00 AM	0	4	11	0	2	1	0	0	0	0	0	0	44	0	4	0	66	217
8:15 AM	0	6	6	0	1	1	0	0	0	0	0	0	25	0	2	0	41	230
8:30 AM	0	4	9	0	1	2	0	0	0	0	0	0	25	0	0	0	41	219
8:45 AM	0	6	6	0	1	5	0	0	0	0	0	0	16	0	1	0	35	183
9:00 AM	0	2	4	1	2	8	0	0	0	0	0	0	8	0	5	0	30	147
9:15 AM	0	4	9	0	1	2	0	0	0	0	0	0	11	0	5	0	32	138
9:30 AM	0	6	9	0	0	4	0	0	0	0	0	0	6	0	1	0	26	123
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	8	40	0	0	4	0	0	0	0	0	0	216	0	16	0	284	
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	0	0		4	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

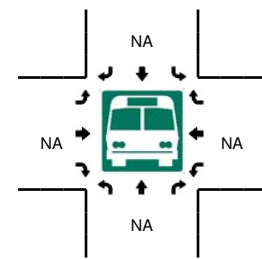
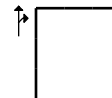
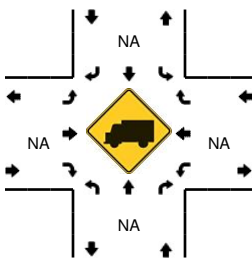
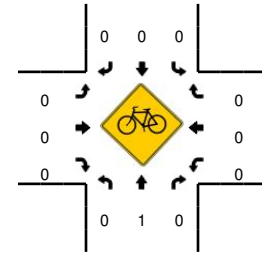
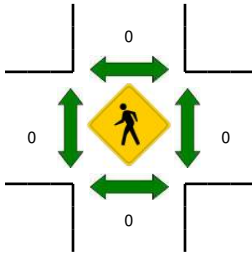
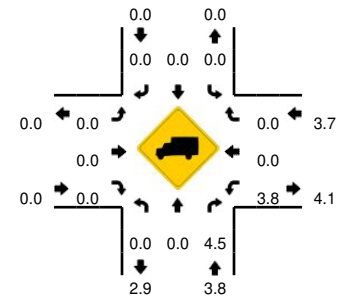
Comments:

LOCATION: GSP Dr -- Stevens Rd
CITY/STATE: Greer, SC

QC JOB #: 14557214
DATE: Tue, Nov 14 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

[illegible]

Comments: