City of Palmer

Airport Advisory Commission Packet

November 2, 2023

AIRPORT ADVISORY COMMISSION
REGULAR MEETING
NOVEMBER 2ND, 6 P.M.
CITY COUNCIL CHAMBERS
231 W. EVERGREEN AVENUE, PALMER
www.palmerak.org

CHAIR	Leighton Lee
VICE CHAIR	Jeff Helmericks
COMMISSIONER	Scott Work
COMMISSIONER	Beau Honeycutt
COMMISSIONER	Joyce Momarts
COMMISSIONER	Shannon Jardine
COMMISSIONER	Stacia Joyce

AGENDA

A. Call to Order

B. Roll Call

C. Pledge of Allegiance

D. Approval of Agenda

E. Reports – Airport Superintendent

   a. New Airport Diagram with Taxiway N project modifications

F. Audience Participation

G. Unfinished Business

H. New Business

   a. Prioritization of new lease lots
   b. Airport Capital Improvement Plan

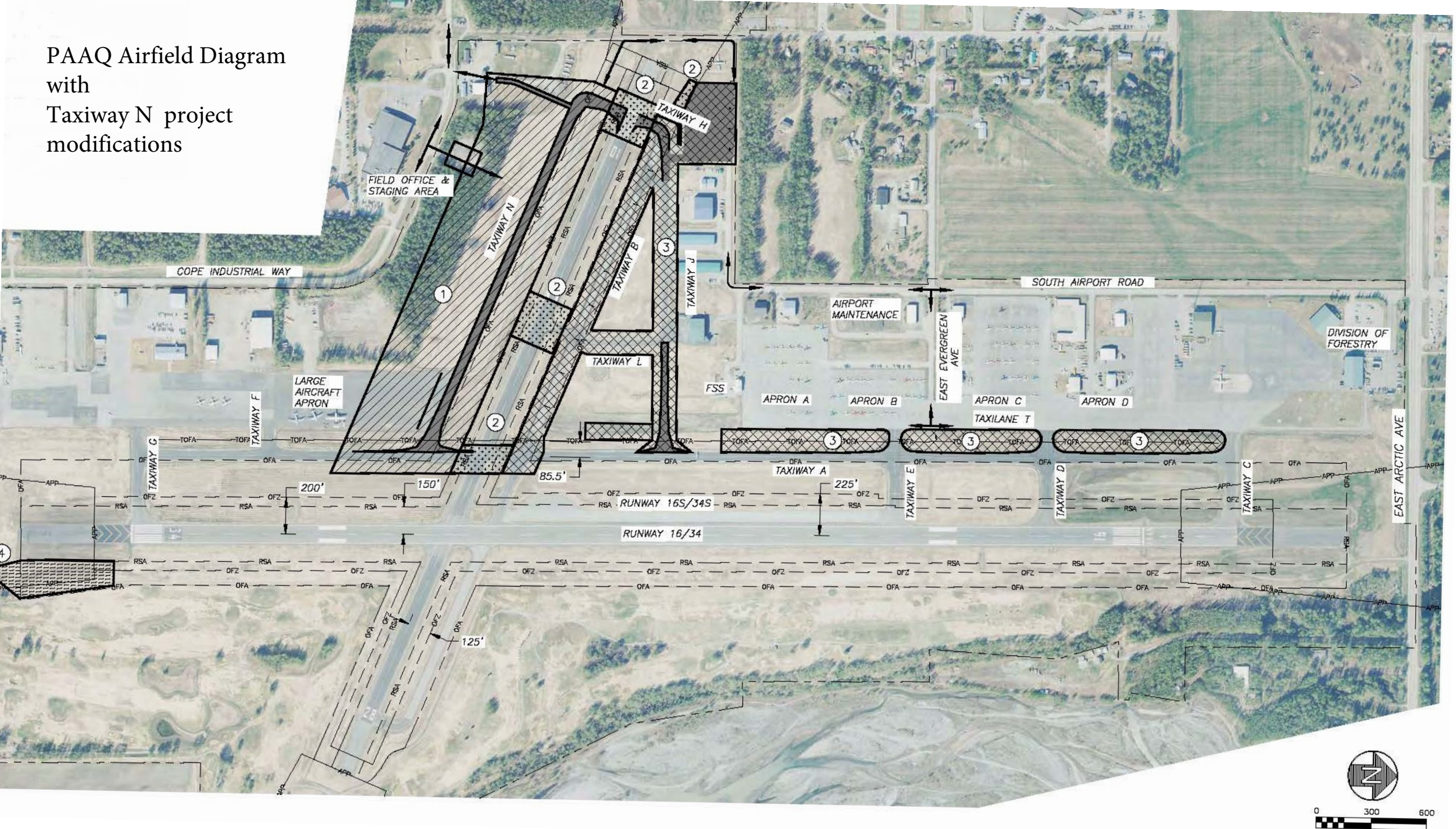
I. Public Comments

J. Commission Member Comments

K. Adjournment

Attachments

PAAQ Airfield Diagram
with
Taxiway N project
modifications



CITY OF PALMER
AIRPORT ADVISORY COMMISSION
INFORMATION MEMORANDUM 23-001

SUBJECT: Lease Lot Recommendation

AGENDA OF: November 2, 2023

ACTION: Approve or recommend changes to the lease lot priorities for lots LL7C, LL7D, LL8B, LL8C.

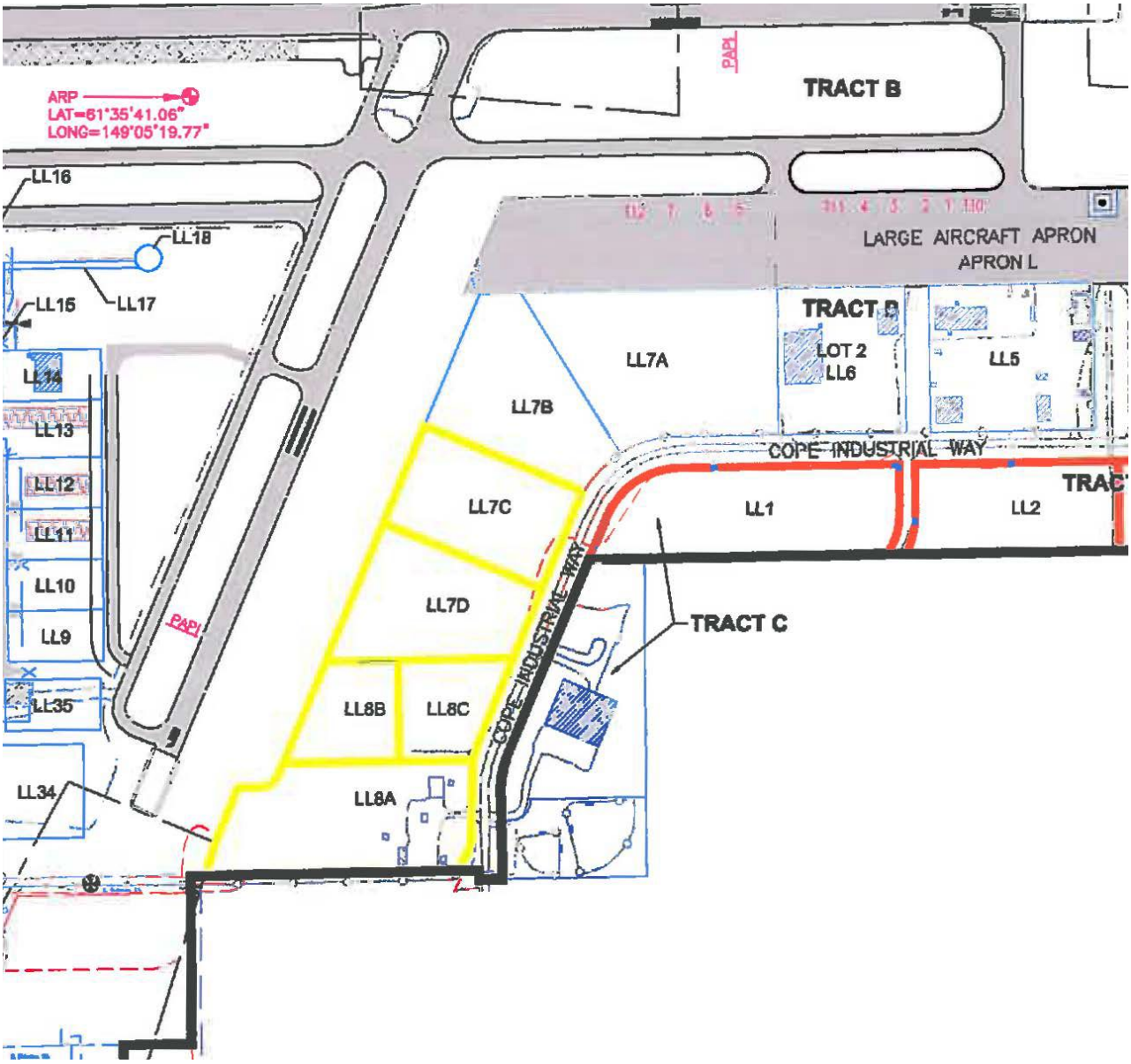
Attachment(s): 1) Lease lot diagram

Summary There are approximately 12 acres of remaining lease lots that will be accessible after the Taxiway N project is completed. The lease lot sizes and shapes may be changed depending on the final user of the land. The Airport Superintendent is proposing a list of users in order of priority

Recommendation The Airport Superintendent recommends the marketing of the lease lots in the following priority order:

1) Common aircraft storage (T-hangars, large hangar space, etc)
2) Small aviation business
3) Large aviation business
4) Individually owned hangar
5) Aircraft Tie-down

Lease Lot Diagram



Lot Number	Lot Size (acres)
LL7C	4.13
LL7D	4.40
LL8B	2.15
LL8C	2.13

CITY OF PALMER
AIRPORT ADVISORY COMMISSION
INFORMATION MEMORANDUM 23-002

SUBJECT: Airport Capital Improvement Plan Review

AGENDA OF: November 2, 2023

ACTION: Review the current capital improvement plan and approve or recommend changes to the Airport Superintendent.

Attachment(s):

1) Capital Improvement Plan summary
2) Capital Improvement Plan rationale
3) Palmer Airport Electrical Report
4) Excerpt from FAA Advisory Circular AC150
5) Pavement condition index - Wikipedia

Summary The FAA requires a Capital Review Plan to be submitted twice a year. The most recent submittal is attached. The next submittal is required by March 31, 2023.

Recommendation The Airport Superintendent recommends approval of the attached Capital Improvement Plan.

Capital Improvement Plan Summary

This Capital Improvement Project Plan update includes projects anticipated during the planning period of 2024 to 2040.

Project	Year	Title
PAQ-1	2024	Upgrade Airport Lighting and NavAids
PAQ-2	2024	Airport Master Plan, Phase 1
PAQ-3	2025	Rehabilitate Apron C
PAQ-4	2025	Airport Master Plan, Phase 2
PAQ-5	2026	Construct Sand Storage Building
PAQ-6	2026	Acquire Avigation Easement, Construct Mitigation, & Relocate RW 16 Threshold
PAQ-7	2026	Construct ARFF Building (Non-FAA)
PAQ-8	2026	Rehabilitate Aprons A, B, & D
PAQ-9	2028	Reconstruct Storm Water Outfall (Non-FAA, Non-Airport)
PAQ-10	2029	Rehabilitate Large Aircraft Apron & Heliport Pavement
PAQ-11	2030	Aviation Campground
PAQ-12	2032	Acquire Buffer Lands
PAQ-13	2040	Construct Taxiway N and Interlink, Phase 2
PAQ-14	2040	Remove Golf Course Fence; Install Security Fence

Projects

PAQ-01 **Upgrade Airport Lighting and NavAids.** This project will replace the runway and taxiway lighting and navigational aids. The new system will meet current standards and include LED fixtures.

Rationale: Most existing runway and taxiway lighting was installed between 2001 and 2007 and is experiencing ongoing maintenance issues. Replacement incandescent lamps are no longer available. The system has exceeded its useful life and needs to be replaced.

PAQ-02 **Airport Master Plan Update, Phase 1.** This project will consist of developing the foundational information for an Airport Master Plan update.

Rationale: The most recent Airport Master Plan was completed in 2014-2016 and needs to be updated based on recent development on the airport and surrounding areas, and to account for an overall increase in aviation interest in the area and at the airport.

PAQ-03 **Rehabilitate Apron C.** This project includes the rehabilitation of Apron C and adjacent paved areas totaling approximately 9.5 acres. Work would include milling existing pavement, reuse of a portion of millings as base course, and installation of electrical outlets, paving, and pavement markings.

Rationale: The existing pavement is an overlay that was constructed in 1996. The 2019 PCI was 55; the 2022 PCI was 47. The pavement condition is continuing to deteriorate and the pavement needs to be replaced.

PAQ-04 **Airport Master Plan Update, Phase 2.** This project will consist of completing the Airport Master Plan Update.

Rationale: The most recent Airport Master Plan was completed in 2014-2016 and needs to be updated based on recent development on the airport and surrounding areas, and to account for an overall increase in aviation interest in the area and at the airport.

PAQ-05 **Construct Sand Storage Building.** This project would construct a new 60 foot by 80 foot sand storage building adjacent to the existing airport snow removal equipment building.

Rationale: The airport experiences extended periods of cold temperatures and freezing rain, which requires sand be applied to airport surfaces for aircraft control. A sand storage building is needed to protect sand from saturation and freezing making it difficult to load into equipment.

PAQ-06 **Acquire Avigation Easement, Construct Mitigation, and Relocate RW 16 Threshold.** This project includes acquiring an avigation easement for approximately 20 acres of land located off the north end of Runway 16-34, constructing mitigation measures, removing obstacles in the approach slope (trees) and relocating the runway threshold. The underlying land is owned by the Matanuska-Susitna Borough and is located in the Matanuska River Park.

Rationale: The easement is needed to remove obstructions from the runway approach surface and to allow for full-utilization of the runway.

PAQ-07 **Construct Aircraft Rescue and Firefighting (ARFF) Building (Non-FAA).** This project would construct a new 60 foot by 80 foot ARFF building south of the west end of Runway 10-28. This project would be constructed with non-FAA funds.

Rationale: Growth at the airport continues to move towards the need to provide ARFF services. An ARFF building is needed to house ARFF equipment and personnel.

PAQ-08 **Rehabilitate Aprons A, B, & D.** This project includes the rehabilitation of a portion of Apron A and Aprons B and D and adjacent paved areas, totaling approximately 9.5 acres. Work would include milling existing pavement, reuse of a portion of millings as base course, and installation of electrical outlets, paving, and pavement markings.

Rationale: The existing pavement is an overlay that was constructed in 1996. The 2019 PCI ranged from 57-63; the 2022 PCI ranged from 48-57. The pavement condition is continuing to deteriorate and the pavement needs to be replaced.

PAQ-09 **Reconstruct Storm Water Outfall (Non-FAA).** An existing storm water outfall line is located on the north side of Runway 10-28 and crosses the airport from west airport boundary to the Matanuska River. The project would upsize the existing pipeline, add an additional

storm water pipeline to add capacity, add subsurface storage in the approach RPZ to Runway 10, or some combination of the three solutions. The project would cross Taxiways J, A, and M and Runway 16-34. The project would be funded with non-FAA funds.

Rationale: The City completed a storm water system study that determined that the existing 5,800 feet of 36-inch diameter storm water outfall line that crosses the airport is undersized for current and anticipated flows. The system must be upgraded to avoid back-ups and localized flooding.

PAQ-10 **Rehabilitate Large Aircraft Apron & Heliport Pavement.** This project includes the rehabilitation of a portion of the Large Aircraft Apron and the Heliport area pavement, totaling approximately 10.3 acres. Work would include removal of existing pavement and installation of paving and pavement markings.

Rationale: The existing pavement is an overlay that was constructed 1996. The 2019 PCI was 69. The pavement condition is continuing to deteriorate and the pavement needs to be replaced.

PAQ-11 **Aviation Campground.** This project includes purchase of approximately 7 acres of private lands, construction of approximately 1,200 feet of new taxiways and taxilanes, and twelve 20 by 20-foot paved aircraft parking pads and related improvements for an aviation campground located north of Runway 10-28.

Rationale: The project is needed to accommodate the summertime transient flying public that frequent the area.

PAQ-12 **Acquire Buffer Lands.** This project includes the purchase of approximately 35 acres of private land to the west of the airport to ensure compatible land use and to preserve space for long-term growth.

Rationale: The project is needed to provide a buffer for residential development from airport noise and to avoid incompatible residential development immediately adjacent to the airport.

PAQ-13 **Construct Taxiway N Phase 2.** This project includes construction of approximately 1,490 feet of new taxiway on the south side of Runway 10-28 east of Taxiway A and related taxiway edge lighting, markings, and signage. Project also includes removal of Taxiway B east of RW 16/34.

Rationale: The project will provide commercial lease lot access to the taxiways and runways when the golf course is converted to aviation related uses.

PAQ-14 **Remove Golf Course Fence; Install Perimeter Fence.** This project will remove approximately 8,100 feet of existing fence that separates the airfield from the golf course and is currently within the Runway 16-34 and Runway 10-28 OFAs. The project will also install a new perimeter fence along the eastern edge of the airport. The project will be performed along with decommissioning of the golf course.

Rationale: The improvements are needed to meet FAA OFA standards. Fencing will reduce the potential for conflicts with people and wildlife inadvertently entering aircraft movement areas.

MBA Consulting Engineers, Inc.

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(907) 274-2622 ▪ Fax: (907) 274-0914

October 23, 2023

HDL Engineering Consultants LLC
3335 Arctic Boulevard, Suite 100
Anchorage, AK 99503

Attention: Dave Lundin, PE

Re: Palmer Airport

Subject: Lighting System Evaluation October 2023

Dear Dave:

Palmer Airport Lighting System Evaluation October 2023

Description and Purpose of Study

The Palmer airport consists of two runways, RW 16-34, and the crosswind RW 10-28. Both runways utilize medium-intensity runway lighting systems (MIRL). Runway 16-34 is equipped with lighted runway distance remaining signs and lighted holding position signs are installed at all runway holding positions. The taxiway lighting is a medium intensity (MITL) system. Runway 16-34 is equipped with Precision Approach Path Indicator (PAPI) and Runway End Identifier Lights (REIL) systems. Runway 10-28 is equipped with Precision Approach Path Indicator (PAPI) only.

The purpose of the study was to analyze and identify problems associated with the runway and taxiway lighting system, lighted signs, regulator vault, lighted wind cones, PAPI/REIL systems, conduit, wiring and other appurtenances associated with this equipment. The following are our observations and recommendations.

Taxiway and Runway Edge Lighting Systems (Regulator vault is not included)

The runway and taxiway edge lighting fixtures and wiring are more than 15 years old. The fixtures have been well maintained. The existing runway light fixtures utilize 45 watt, 6.6 amp incandescent lamps and the existing taxiway light fixtures utilize 30 watt, 6.6 amp incandescent lamps. These incandescent lamps are getting very hard to find, and the quality of the new lamps is less than desirable. The Airport is replacing 20-30 lamps every few days.

There is a mix of glass and plastic lenses throughout the airfield. Many of the lenses are faded and some of the two-part lenses (red/green, white/yellow, etc.) are falling apart.

The fixtures along the length of each runway are approximately 200 feet apart or less, and appear to comply with FAA Advisory Circular AC150/5340-30J. The existing galvanized steel light bases appear to be in good condition, although there are times during the year when there is significant water standing in the light bases and conduit. The top 8-10 feet of soil does not percolate very well, below that layer is gravel. The water reportedly does eventually find its way out.

The following cable insulation resistance readings were taken on October 10, 2023 for both runway circuits.

R/W 16-34	23 megohms
R/W 10-28	240 megohms

For comparison, we require 2000 M ohms for new construction.

The existing conduit, light bases, handholes, and duct system is well laid out and for the most part is expected to be in usable condition.

Recommendations for the Runway and Taxiway Lighting Systems

Replace the edge light fixtures for both runways, and the taxiway edge light fixtures that were not replaced in the recent project. Replace the wiring and transformers. Provide LED fixtures with properly sized transformers.

Utilize the existing conduits, duct banks, light bases, handholes, and appurtenances.

Explore the possibility of adding some drains in a few low spots, maybe some deep dry wells or connection to a storm drain if possible.

Electrical Equipment Building (EEB)

The existing EEB is located just east of the FSS building. The 120/240V, single phase, 400A electrical service is obtained from a transformer just north of the EEB. The main disconnect switch is installed on the north side of the EEB.

The constant current regulators (CCR) for the runways are manufactured by Hevi-Duty and were relocated into the EEB in 2002. The 1977 plans show a new 7.5 kW CCR for the new N/S runway, and the other runway CCR to remain, but we can't confirm if these are the ones that are still in use. The Hevi-Duty CCR's do not have a local control switch. The CCR for the taxiway circuit is manufactured by ADB and was installed in 2017. The regulators consist of the following:

Taxiway Lighting	25 KW
Runway 10-28	7.5 KW
Runway 16/34	7.5 KW

The output current was measured for all three CCR's on 10-10-23. RW 10-28 is running 0.1 amp high on all three steps. The other two CCR's are within the allowable tolerance.

Recommendation - EEB

Replace all runway and taxiway CCR's with units properly sized for new LED fixtures. Include a local graphic user interface on each CCR with the capability to perform and log automatic cable insulation resistance (IR) testing.

Airport Signs

Most of the existing signs on the Airport are LED, size 2. The existing signs are in good condition and the locations appear to meet FAA AC requirements.

Recommendations – Airport Signs
Upgrade the remaining existing non-LED signs to LED. Utilize existing concrete bases and conduit if possible.

Runway Distance Remaining Signs
Distance remaining signs are installed on Runway 16-34. The signs are a size 5 sign. The signs are LED and are connected to and a part of the runway lighting wiring and duct system.

Recommendation – Runway Distance Remaining Signs
Existing Runway Distance Remaining Signs to remain.

Wind Cones
Five lighted wind cones are installed at the airport with one at the approach end of Runway's 10, 28, 16, and 34, with the fifth at the segmented circle. All wind cones are size 1, the primary is L-807, all supplemental wind cones are L-806. All of the wind cones are 120V and in good condition.

Recommendations – Wind Cone
Existing wind cones to remain.

Approach Lighting System
The PAPI and REIL systems are over 15 years old and are powered from 120/240V circuits in the EEB.

There are some safety concerns with the REIL's. The REIL's on 16-34 are experiencing issues with intensity and sequencing. Each pair has one REIL that is not as bright as the other one. The pairs also are not synchronized, they are flashing independently. They are also experiencing issues with the cabinet interlock switches.

M&O reportedly replaced a section of faulty wire in the PAPI/REIL system recently.

Recommendations – Approach Lighting System
Replace the existing PAPI and REIL's with new LED versions.

Replace the PAPI/REIL wiring. Utilize existing conduit if possible.

This concludes our report. Please call if there are any questions.

Sincerely,

MBA CONSULTING ENGINEERS, INC.

Douglas M. Hanke
Electrical Project Designer

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PART I: THE PROCESS OF PREPARING MASTER PLAN STUDIES

Chapter 1 Introduction

101. PURPOSE AND APPLICATION

This Advisory Circular (AC) provides guidance for the preparation of master plans for all airports. Its intent is to foster the development and adoption of a flexible approach to master planning that devotes resources and attention to critical issues. Planners should tailor an individual master plan to the unique conditions at the study airport. As a result, master plans for individual airports will vary in what elements they include and in the level of detail.

An airport master plan is a comprehensive study of an airport and usually describes the short-, medium-, and long-term development plans to meet future aviation demand. The category of study that includes master plans and master plan updates can therefore be thought of as a continuum that varies by level of detail and associated effort.

The elements of a master planning process will vary in complexity and level of detail, depending on the size, function, issues, and problems of the individual airport. The technical steps described in this AC are generally applicable, although each step should be undertaken only to the extent necessary to produce a meaningful product for a specific airport. However, study elements for large and/or complex airports may involve unique technical analyses beyond those detailed in this AC. The sponsor, the sponsor's consultant, and FAA representatives must carefully prepare a scope of work that reflects the circumstances of the individual airport.

102. INTENDED USERS

This publication is intended primarily for use by members of the aviation community, especially those directly involved in preparing master plans: airport sponsors, airport staff, airport consultants, FAA representatives, and state aviation officials. It will also be useful to airport board members; municipal officials; state, regional, and local planning personnel; and the general public.

103. NEED FOR NEW GUIDANCE

Methods and techniques associated with airport master plan studies have evolved since the last version of this AC was published in 1985. This update incorporates current industry methods and procedures commonly employed in the preparation and documentation of master plan studies.

104. FUNCTION OF MASTER PLAN STUDIES

a. Airport master plans are prepared to support the modernization or expansion of existing airports or the creation of a new airport. The master plan is the sponsor's strategy for the development of the airport.

b. The goal of a master plan is to provide the framework needed to guide future airport development that will cost-effectively satisfy aviation demand, while considering potential environmental and socioeconomic impacts. The FAA strongly encourages that planners consider the possible environmental and socioeconomic costs associated with alternative development concepts, and the possible means of avoiding, minimizing, or mitigating impacts to sensitive resources at the appropriate level of detail for facilities planning.

c. Each master plan should meet the following objectives:

1) Document the issues that the proposed development will address.

2) Justify the proposed development through the technical, economic, and environmental investigation of concepts and alternatives.

3) Provide an effective graphic presentation of the development of the airport and anticipated land uses in the vicinity of the airport.

4) Establish a realistic schedule for the implementation of the development proposed in the plan, particularly the short-term capital improvement program.

5) Propose an achievable financial plan to support the implementation schedule.

6) Provide sufficient project definition and detail for subsequent environmental evaluations that may be required before the project is approved.

7) Present a plan that adequately addresses the issues and satisfies local, state, and Federal regulations.

8) Document policies and future aeronautical demand to support municipal or local deliberations on spending, debt, land use controls, and other policies necessary to preserve the integrity of the airport and its surroundings.

9) Set the stage and establish the framework for a continuing planning process. Such a process should monitor key conditions and permit changes in plan recommendations as required.

105. ORGANIZATION AND USE OF THE ADVISORY CIRCULAR

a. **Structure of the Advisory Circular** – The Advisory Circular is presented in two parts:

1) ***Part I – The Process of Preparing Master Plan Studies*** provides an introduction to the Advisory Circular, an overview of master plan studies, and a summary of the pre-planning process.

2) ***Part II – Elements of Master Plan Studies*** provides a detailed discussion of the various elements of master plan studies, including the components of master plan technical reports and the plan drawings that accompany them.

b. As noted above, Part II of the AC details the individual elements of a master plan study. Although they are presented in the order found in a typical master plan report, issues in some chapters may have a direct bearing on those in other chapters. Environmental and financial feasibility considerations, for example, must be considered throughout the process. These cross-linkages are explicitly identified in the relevant chapters of Part II.

c. The AC includes several appendices of supplemental materials. Appendix A presents a glossary of terms that are commonly used in airport master planning. Appendix B provides a list of useful reference materials, including other advisory circulars, FAA orders, appropriate Code of Federal Regulations, Transportation Security Regulations, security-related publications, FAA reports, and general airport publications. Appendix C provides a listing of potential stakeholders in the public involvement program of the master planning process. Appendix D provides a discussion of environmental factors in airport master planning. Appendix E provides guidance on the site selection process. Appendix F shows the general guidelines in preparing the airport layout plan drawing set.

Pavement condition index

(Redirected from Pavement Condition Index)

The **pavement condition index** (**PCI**) is a numerical index between 0 and 100, which is used to indicate the general condition of a pavement section. The PCI is widely used in transportation civil engineering[1] and asset management, and many municipalities use it to measure the performance of their road infrastructure and their levels of service.[2] It is a statistical measure and requires manual survey of the pavement. This index was originally developed by the United States Army Corps of Engineers as an airfield pavement rating system,[3] but later modified for roadway pavements[4] and standardized by the ASTM.[4][5] The surveying processes and calculation methods have been documented and standardized by ASTM for both roads and airport pavements:

- ASTM D6433 - 20: Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys[6]
- ASTM D5340 - 20: Standard Test Method for Airport Pavement Condition Index Surveys[7]

Calculation

The method is based on a visual survey of the number and types of distresses in a pavement. First, the type and extent of existing distresses, their severity level is collected. Next, distress density is calculated for each type of distress. The density values are translated into deduct value (DV) and corrected deduct value (CDV) using a set of curves proposed by the ASTM. The ASTM does not include the formulae of these curves, but they are recalculated by researchers.[1][5] Finally, the value of the PCI is calculated in an iterative process. The result of the analysis is a numerical value between 0 and 100, with 100 representing the best possible condition and 0 representing the worst possible condition.

Alligator cracking is one of the distress types used to calculate the PCI.

Pavement distress types for asphalt pavements include:

- Alligator cracking
- Bleeding
- Block cracking
- Bumps and sags
- Corrugations
- Depressions
- Edge cracking
- Joint reflections
- Lane/shoulder drop-off
- Longitudinal and transverse cracking
- Low ride quality
- Patching and utility cut patching
- Polished aggregate
- Potholes
- Rutting
- Shoving
- Slippage cracking
- Swelling
- Weathering and raveling

Number of potholes is an important input for calculating the PCI of a road.

For relatively small pavement systems, the entire system may be surveyed. For large pavement systems, the process may involve surveying a random or representative sample of the entire system with the following steps:

- Divide the total pavement section into sample units (approximately 5000 square feet).
- Based on the number of sample units in the total section, a certain number of these units are selected to be tested. For example, if there are 40 or more sample units, 10% are tested.
- The type, extent and severity of pavement distress in each section are recorded using the ASTM Standard D 5340 method.
- The PCI of each tested sample unit is calculated using the method defined in the standard. In summary this involves calculating the distress quantities and the distress densities for each tested unit. These values are used to determine a deduct value and this deduct value is subtracted from 100 to give the PCI value.
- If the surveyed samples are representative of the overall system, the PCI of the pavement system is then assumed to be equal to the PCI of the sampled areas.

This condition index can give a good indication of the pavement condition of a network.[8] However, trained personnel are required to complete the complicated survey procedure.[9]

Categorization

The ASTM divides the PCI into seven classes as follows, but in practice a PCI lower than 40 is almost impassable.[5][10]

PCI range	Class
85-100	Good
70-85	Satisfactory
55-70	Fair
40-55	Poor
25-40	Very Poor
10-25	Serious
0-10	Failed

Relationship with roughness

PCI is correlated with the performance indicators measuring roughness such as international roughness index (IRI).[10][11] Generally, a road with a high PCI has a low IRI, and a road with a high IRI has a low PCI. However, this is not always the case. For example, two roads with the same PCI can have significantly different IRI values as a result of having different types of distresses or grades.[11]

See also

- Pavement classification number
- International Roughness Index
- AASHO Road Test – AASHO experiment for studying highway pavements deterioration

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