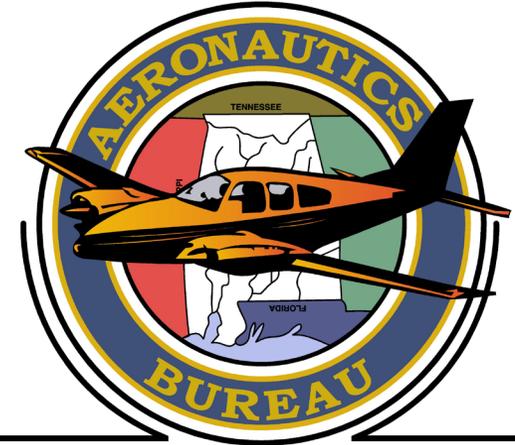


ALDOT



**Federal Aviation
Administration**



DEPARTMENT OF TRANSPORTATION

Airport Consultant Workshop

2021

ALDOT



DEPARTMENT OF TRANSPORTATION

Frank Farmer
Chief, Aeronautics Bureau

Aeronautics Bureau

Martha Hutsler

- Aeronautics Specialist/Office Manager

Taylor Janney, P.E.

- Aeronautics Engineering Manager

Jason Hare

- Aeronautics Manager

Ashlee Foy, *B. ACC., MBA*

- Staff Accountant

Gus Slaten

- Airport Inspector

Jeb Baird

- Airport Inspector



Michael Baker International

THANK YOU!!

Kimley-Horn



Neel-Schaffer, Inc.



Atkins, member of the SNC-Lavalin Group



The Cassady Company, Inc.



Overview

Aeronautics Bureau

Frank Farmer

Budget and Funding
COVID Impact on State Fuel Tax Collections
Code of Alabama

Jason Hare

Updated Grant Program Guidelines
AMPS
ACIPs/Project Applications

Taylor Janney

IFE Contract Reviews & Plan Reviews
Pavement Maintenance Program
Scoping Meetings, Pre-Construction Meetings, & Final Inspections

Ashlee Foy

ARGOS
Invoicing for Federal Funded Programs

Jeb Baird

Gus Slaten

Annual Airport Inspections
Airport Safety Self-Inspection Initiative
Aeronautics Bureau's Airport Wildlife Hazard Assessment Program

Budget and Funding

Fiscal Year 2021 State Grant Program

Approved FY21 State Funding Program = \$3.7 Million

- Largest State Funding Program
 - Included FY20 Carryover State Funds
 - Included \$1.2 Million ADECA Supplemental Funds

Aeronautics Bureau's ADECA Funding

ADECA 1.0 (2019 Alabama Legislature Regular Session) \$1.2 Million

- Funds transferred to Aeronautics Bureau and supplemented FY21 state grant program

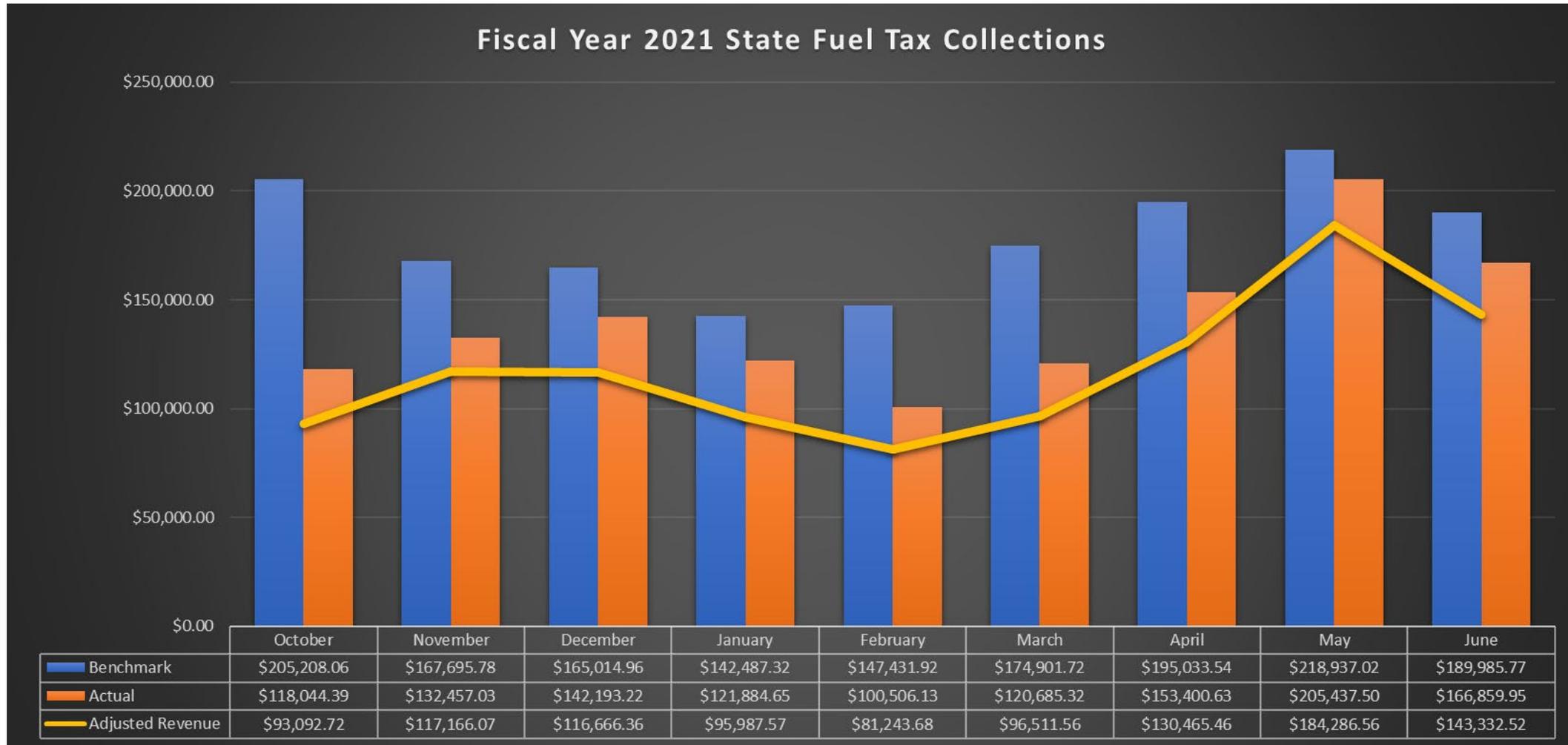
ADECA 2.0 (2020 Alabama Legislature Regular Session) \$1.2 Million

- Worked with ADECA to have funds transferred earlier this year.
- Funds will be available to supplement FY22 state grant program

ADECA 3.0 (2021 Alabama Legislature Regular Session) \$1.5 Million

- Funds will be in ADECA's budget after October 1, 2021
- Aeronautics Bureau will work on agreement and funds transfer to be available in FY23

COVID Impact on State Fuel Tax Collections





Fiscal Year 2022 State Grant Program

State aviation fuel taxes continue to be in recovery from the COVID pandemic

Retroactive refunds expected from licensed distributors (adjusted fuel revenue is only an estimate)

FY2021 state grant applications due September 15, 2021 (uncertain about construction budgets)

Taking a very conservative approach to give an estimate of FY2022 state funding program



Fiscal Year 2022 State Grant Program

State aviation fuel taxes continue to be in recovery from COVID pandemic

Retroactive refunds expected from licensed distributors (adjusted fuel revenue is only an estimate)

FY2021 state grant applications due September 15, 2021 (concern about construction budgets)

Taking a very conservative approach to give an estimate of FY2022 state funding program



**ALABAMA
DEPARTMENT OF TRANSPORTATION**

Aeronautics Bureau
1409 Coliseum Boulevard
Montgomery, Alabama 36130-3050
Phone: (334) 242-6820 FAX: (334) 353-6540
Internet: <http://www.dot.state.al.us>



John R. Cooper
Transportation Director

Kay Ivey
Governor

July 14, 2021

The Honorable Jimmy Money
Abbeville Municipal Airport
P.O. Box 427
Abbeville, AL 36310

**SUBJECT: CALL FOR AIRPORT IMPROVEMENT PROJECTS
FISCAL YEAR 2022**

Dear Mayor Money:

The purpose of this letter is to inform all publicly owned airport operators that pre-applications for airport improvement funding assistance planned for fiscal year 2022 (October 1, 2021 – September 30, 2022) are due into the Aeronautics Bureau no later than **October 1, 2021**. The Alabama Department of Transportation (ALDOT) and the Federal Aviation Administration (FAA) established this deadline so that each agency can finalize their fiscal year 2022 funding plans.

All pre-applications and capital improvement plans (ACIP) must be submitted via the ALDOT AMPS program. All documentation will be electronically signed by the sponsor and submitted to ALDOT and the FAA. If you wish to be considered for state funding assistance in fiscal year 2022, your pre-application must be received by the October 1st deadline. If you do not submit a pre-application by the deadline, you will not be eligible for funding in future years. All tasks must be completed by the deadline. For more information, please be accessed at <http://www.aldot.gov>. For information on how to apply for state funding, please visit www.aldot.gov. For information on how to apply for federal funding, please visit www.basedaircraft.com to update the FAA's National Based Aircraft Inventory Program for your airport.

October 1, 2021

Your pre-application for state funding assistance must be submitted on the FAA's Standard Form 424 when state funds are requested to match airport projects receiving federal funds. This form is generated via the AMPS program. If the pre-application for funding does not include federal funds, please submit the request on the Airport Improvement Program Application For State Funding. This form can also be completed via AMPS. Please upload a certified copy of a resolution adopted by the governing body of the airport with all pre-applications. A sample resolution is attached to this letter.



DEPARTMENT OF TRANSPORTATION

Code of Alabama

Section 23-1-372(b) - The department shall approve sites for airports and restricted landing areas, and shall license airports, restricted landing areas, and air navigation facilities...

Section 23-1-361(b) - The department shall act as the agent for each municipality, county, and airport authority for the purpose of applying for, receiving, and disbursing federal funds...

ALDOT

Jason Hare



DEPARTMENT OF TRANSPORTATION

O:334-353-6223

C:334-315-6947

hares@dot.state.al.us

ALDOT

Grant Program Guidelines



DEPARTMENT OF TRANSPORTATION

AMPS

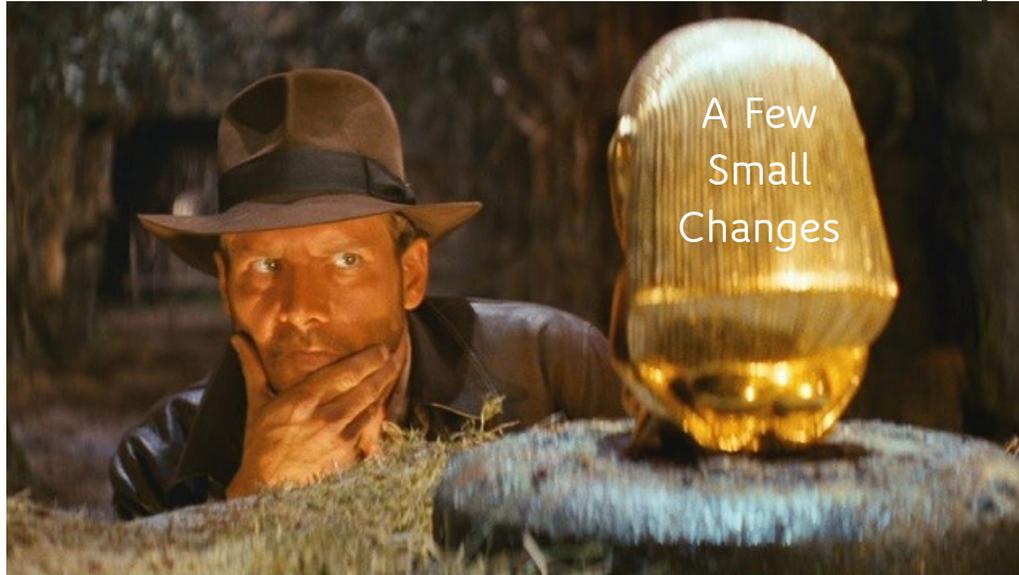
On The Horizon

Aeronautics Bureau Grant Program Guidelines

Please Review Before the Preapplication Meetings with
Your Clients

It is Very Important to Know the Changes and Updates

Aeronautics Bureau Grant Program Guidelines



How much trouble can
a few small changes be?



Aeronautics Bureau Grant Program Guidelines

The Alabama Airport Improvement Funding Program has two major priorities:

1. Develop and maintain the safe and secure operation of Alabama's airport system.
2. Preserve and improve an adequate system of airports to meet economic development trends occurring in the state.

Aeronautics Bureau Grant Program Guidelines: General Policies

- Matching Ratio 50%
- Local Matching Requirement
 - Resolution Required
- Annual Grant Application Cycle
 - Call For Projects Letter mailed on July 14, 2021
 - Preapplications Due October 1, 2021*

Aeronautics Bureau Grant Program Guidelines: General Policies



*Deadline not subject to change, even in the event of:

- Pandemic Protocols
- Natural Disasters
- Supply Chain Shortages
- Alien Invasions
- Adverse Public Reaction Caused by College Athletic Rule Changes and Conference Realignment.

Aeronautics Bureau Grant Program Guidelines: General Policies

- Project Start-up Prior to Request
 - Construction Projects Cannot Begin Prior to the Date of the Request
 - No Grant Agreements for Projects Started Prior to the Grant Agreement Being Awarded
 - Engineering/Consultant Costs May be Reimbursed for Preliminary Planning and Engineering
 - ALDOT Grant Award will be Based on Bids
- Land Appraisals
 - Required for Land Acquisition (In Line with FAA Guidelines)
 - Purchase Agreement Required (Even if the Land has Already Been Purchased by the Sponsor)

Aeronautics Grant Program Guidelines: General Policies

- Project Supervision
 - All Professional Services Contracts Must be Reviewed, Audited, and Approved
 - Construction Plans and Specifications Must be Reviewed and Approved Prior to Project Letting
 - Construction Projects With an Estimated Cost of \$20,000 or More Must be Planned and Supervised
- Reimbursement Payments
 - Requested Through ARGOS

Aeronautics Grant Program Guidelines: Eligible Projects

- Safety Projects
- Airside Improvements and Enhancements
- Landside Improvements and Enhancements
 - Hangar and Terminal Maximum Grant Amount Increased to \$500,000
- Planning and Engineering (P&E) Services
- FAA's Airport Improvement Program Projects
- Emergency Projects

Aeronautics Grant Program Guidelines: Ineligible Projects

- Day-to-Day Maintenance Costs
- Inspection/Certification of NAVAIDS
- Utilities, Payroll, Grass Cutting
- Ground Transportation and Maintenance Equipment (Mowers, Tractors, etc.)
- Construction Projects Underway or Completed Prior to ALDOT Grant Award
- Construction Projects that are not on Airport Property
- Engineering and Planning Services Performed Without a Contract Review

Aeronautics Grant Program Guidelines: Ineligible Projects



- Construction Projects Underway or Completed Prior to ALDOT Grant Award
- Engineering and Planning Services Performed Without a Contract Review

Aeronautics Grant Program Guidelines: Issues That Could Cause App/Preapp Problems

- Outstanding Grant Issued More than Two Fiscal Years Prior to Current Request
- Airport Does Not Have a License
- Adverse Audit Findings
- Violation of FAA or State Grant Assurance
- Lack of Necessary Supporting Documentation
 - Scope of Work, Justification, Cost Estimates/Bids, for example
- Lack of Appraisal or Purchase Agreement

Aeronautics Grant Program Guidelines: Application Requirements

- Communicate with ALDOT to Ensure that We are Aware of the Project and Understand Why it is Needed
- Eligible for FAA or State Funding
- Depicted on the ALP
- Consistent with Federal and State Airport System Plan
- Included in the Airport's Capital Improvement Plan
- Submitted Through AMPS

AMPS

- Please Assist the Aeronautics Bureau and the Sponsor to Ensure that the Information Listed in AMPS is Current and Correct.
- Important for Preapplication and Application Approval and for Signatures and Notifications to be Correct.
- Please be Sure to Include ALPs (in pdf format) and All Submitted Bid Tabs (as Other File).
- Increasingly Possible that Other State and Federal Agencies May be Using AMPS for Information, Planning, and Emergency Management.*

AMPS

*These Agencies...



ALDOT

Not This One



DEPARTMENT OF TRANSPORTATION

On The Horizon

- State of Alabama Emergency Management Agency
 - Air Operations Branch
 - Working Group Currently Consists of Alabama EMA, ALDOT, ALEA, National Guard, Coast Guard, ADCNR, Forestry Commission, and FEMA
 - Proposed Plans will Ultimately be the Responsibility of Airport Sponsors, but We Will Need Your Help and Support

Questions?



ALDOT



DEPARTMENT OF TRANSPORTATION

Taylor Janney, P.E.

Aeronautics Engineering Manager

ALDOT



DEPARTMENT OF TRANSPORTATION

- Pavement Maintenance Program
- Sponsor/Consultant/Funding Agencies Meetings
 - Scoping Meeting
 - Pre-Construction Meeting
 - Final Inspection
- IFE Contract Reviews
- Plan Reviews
- Consultant Meetings (Things to know)

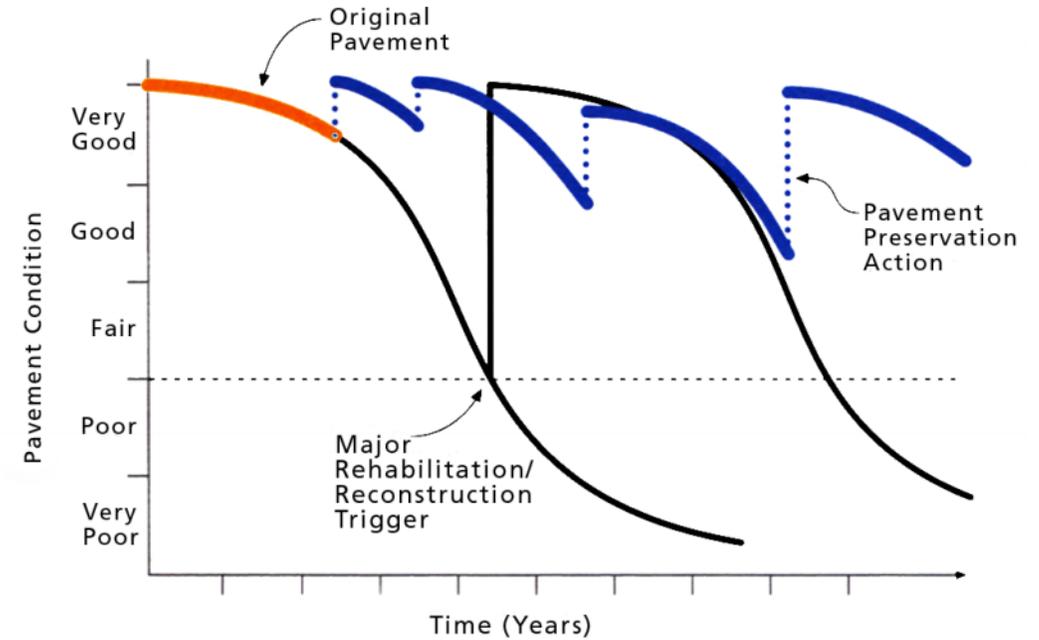
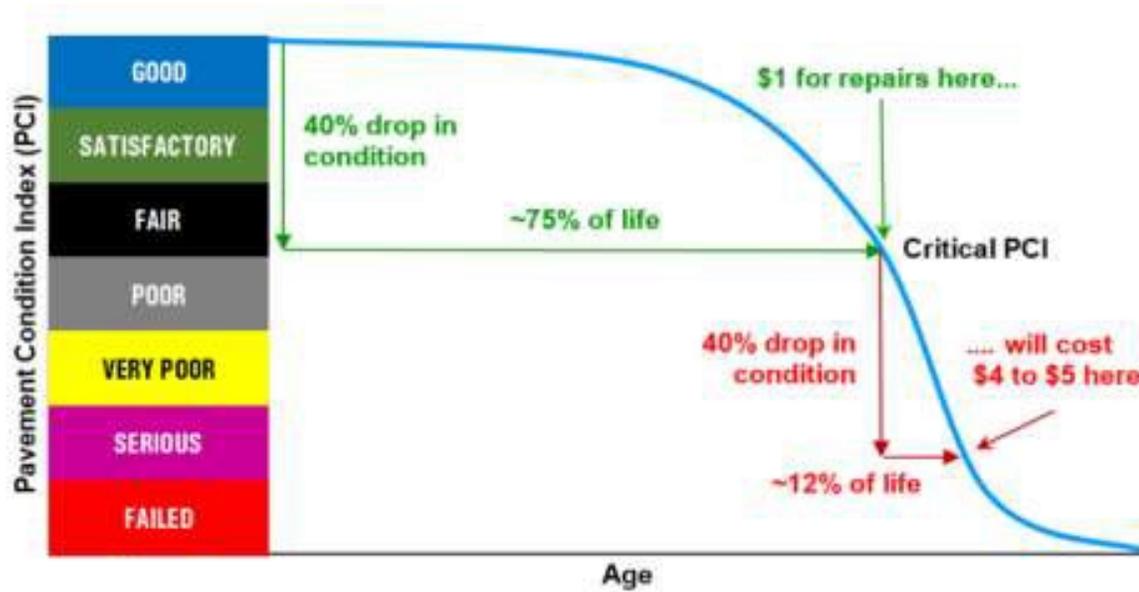
PCI Study

The Aviation Inc. team, which included All About Pavements, Inc., was awarded a contract in 2018 to update the existing Alabama Statewide Airport Pavement Management Program (APMP).

Study Included:

- Conducting Visual PCI Surveys for 59 Public Use Airports
- Updating the PAVER database
- Updating Maintenance and Rehabilitation (M&R) policies and unit cost
- Developing a 7-year Pavement Capital Improvement Program (PCIP) for each Airport studied
- Developing a georeferenced PMP network maps in GIS format for each Airport studied

Pavement Maintenance Program



Pavement Maintenance Program

Using the PCI Study, we identified roughly 130 sections of pavement at 34 Airports that would be good candidates for our program.

What makes a good candidate for our program?

- Pavement that is still in good structural shape and would benefit from pavement preservation.
- Pavement that is lower priority in the AIP program and would have difficulties competing for discretionary funding.

Pavement Maintenance Program

- Director Cooper approved our Pavement Maintenance Program for funding in April 2021
- The Director approved the program to be a 75% ALDOT funding with a 25% Sponsor Match
- The program will be administered the same as other State grants
- Will begin reaching out to airports in August to narrow down our list of projects
- Projects will consist of sealcoats, crack seals, & Microsurfacing

Sponsor/Engineer/Funding Agencies Meetings

- Scoping Meeting
- Pre-Construction Meeting
- Final Inspection

Scoping Meeting

Scoping Meetings are required for State funded Projects and recommended for Federally funded projects.

What should be discussed at the scoping meeting?

- Project Scope
- Project schedule
- Project phasing (if applicable)
- Any State or Federal Requirements i.e. Environmental
- Project Expectations



These meetings are already occurring between the Engineer & the sponsor, so why not include the ADO and ALDOT?

Pre-Construction Meeting

A Pre-construction meeting is your first and best **chance to manage expectations and clarify project goals**. This way you'll be able to identify potential conflicts and overly-vague specifications and get them resolved before you are forced into a change order or expensive rework.

MAKE SURE YOU HAVE AN AGENDA

An agenda keeps the meeting on track and eliminates surprises.

Agenda Example:

- Chain of command
- Quality control roles and responsibilities
- Introduction to the owner
- Document review
- Q&A

Final Inspection

Final Inspection is the final review of the Work of the Contractor by the Engineer of record, to determine whether issuance of the Certificate of Contract Completion is appropriate. All parties involved (Sponsor, Engineer of Record, Architect, FAA, ALDOT Aeronautics, Contractor) should receive an invitation to the final construction inspection.

ALDOT Aeronautics **will not** process the contractor's retainage invoice until the final construction inspection has taken place and a copy of the final inspection report has been received.

Independent Fee Estimate (IFE)

- ALDOT Aeronautics Bureau is responsible for reviewing professional service fees in engineering agreements for all State and Federal grants. The contracts must be reviewed prior to execution to ensure all fees are eligible for state funding.
- If the sponsor performs a project in hopes of being reimbursed with entitlement funds at a later date, the professional services agreement **MUST BE** reviewed by ALDOT to be eligible for future state funding.
- Per state law, All professional service agreements over \$50,000 must be audited by ALDOT's external Audit section.
- Use certified labor rates and the most recent ALDOT audited overhead rates

IFE Lessons Learned

1. The External Audit takes time.
 - For 2022 projects we will have an elongated schedule to help mitigate the review schedule and give the consultant more time for project design.
 - Please submit your professional services agreement to ALDOT in a timely manner and work with the ALDOT external Audit section when they request information.
 - Please include all fees in an excel format for the auditors.
2. Include the entire contract for review.
 - ALDOT will **NOT** begin the review process until **ALL** of the contract has been submitted.
3. Be detailed in the scope of work to ensure everything is included in the project.

If you have any questions regarding the ALDOT Audit process please contact ALDOT's External Audit Manager.

Rosie Fagg
External Audit Manager
(334) 244-6252
faggr@dot.state.al.us

Plan Reviews

- 50% SUBMITTALS (if required)
 - Email PDF plans
 - Copy of Engineer's Design Report if required by FAA

- 90% SUBMITTALS
 - (1) set of full size plans
 - (1) copy of project manual
 - Engineer's Estimate
 - No need for full size plans for projects such as fencing, seal coats, fuel farms etc.

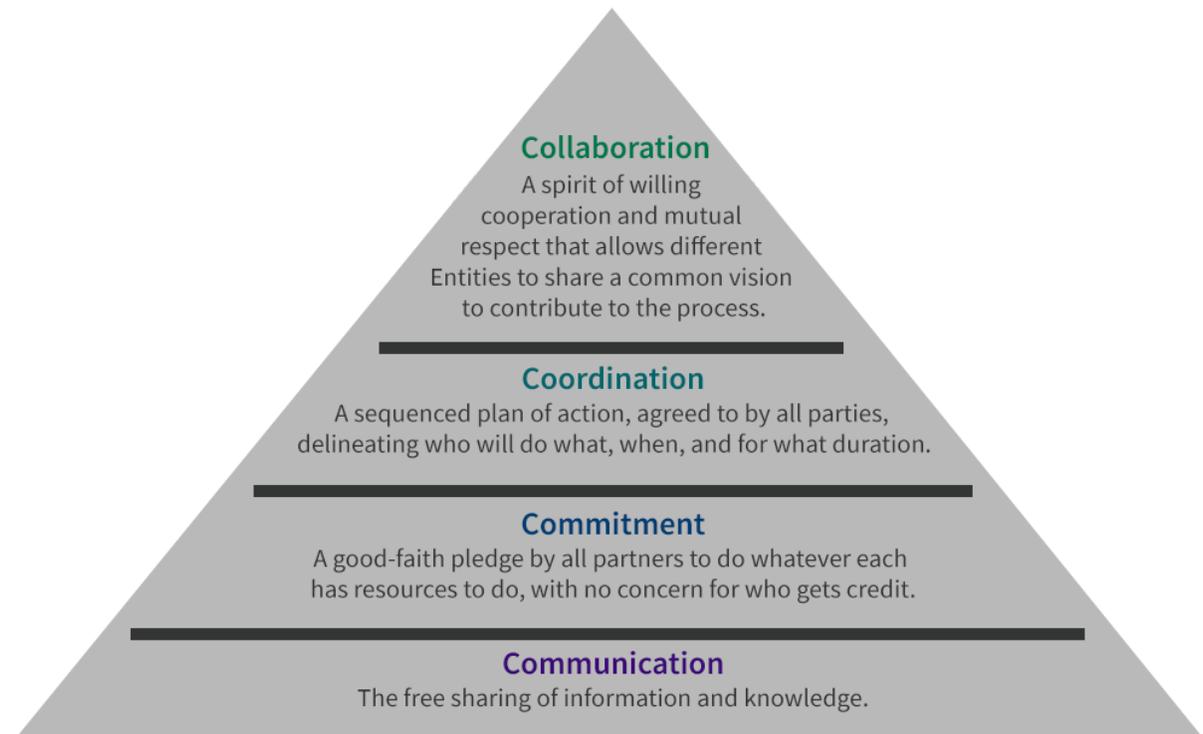
The Four C's of Partnering

Each grant is a partnership between the FAA, the Sponsor, ALDOT, and the Consultant

The Four C's of a Partnership

1. **Communication** is the foundation of a partnership. It is the free sharing of information and knowledge.
2. **Commitment** is a good faith pledge by all partners to do whatever each has resources to do.
3. **Coordination** is a sequenced plan of action, agreed to by all parties, delineating who will do what, when, and for what duration.
4. **Collaboration** is a spirit of willing cooperation and mutual respect that allows different entities to share a common vision to contribute to the process.

The Four C's of Partnering



Upcoming Consultant Meetings and other items

- Put Parcel numbers on CIP when listing land acquisition.
- When listing a large paving or sealcoat project, please list Runways, Taxiways, and Aprons separate.
- The sponsor needs to list at least \$750,000 in their 5 year CIP in order to be eligible for non-primary entitlement monies.
- ALDOT will not process any construction payment invoices without the required weekly construction reports.
- Resident Project Representatives (RPR) are some of the most important people on the project. We need to do a better job of educating them on project safety and ensure they follow the Construction Safety Plan.
- Use of ALDOT 424 State Mix and ALDOT 825 Crushed Aggregate Base is approved for asphalt pavement serving aircraft less than 30,000 lbs **IF** you specify using these specifications in your Engineers Design Report.

QUESTIONS?



ALDOT



DEPARTMENT OF TRANSPORTATION

Ashlee Foy
Grant Manager
Accountant

Aeronautics Reimbursement Grant Organization System (ARGOS)

Reminders

- ❖ Grant number must be on the invoices.
- ❖ Make notes about invoice on the invoice that is being submitted to have it on record in ARGOS.
 - If only part of the invoice is being paid (zeroing out) make note on first draw and if there is an amendment and you want to get paid for the rest, make that note on the next draw as well so the invoice does not get overpaid.
- ❖ Once you submit a request over 90% make sure the Program Manager has the closeout documents or drafts.

- ❖ Retainage invoices should have nothing in the amount earned box and a negative amount in the amount retained box.
- ❖ When you submitting backup that contains a check, redact or cross out banking information on the bottom of the check.
- ❖ CARES and ACRGP requests are processed a little different. The FAA reviews them for final approval. Closeout documents must be sent to me and not the program managers and I'll attach them to the invoice once I make the draw.
- ❖ Move towards all direct deposit payments by Fiscal Year 2023.
- ❖ Tentative Year-End Closeout date will be **August 6, 2021**.

ALDOT



Feel free to contact
me.

foya@dot.state.al.us
334-242-6859

ALDOT



DEPARTMENT OF TRANSPORTATION

Airport Licensing and Wildlife Hazard Assessment/Site Visit Program

Gus Slaten and Jeb Baird
Airport Inspectors

Status Update

- ❖ Staff constraints since November 2017
- ❖ Annual inspection rotation
- ❖ 280 Sites to Inspect
 - ❖ Public and Private Airports
 - ❖ Heliports
- ❖ If there is an urgent need, let us know



Airport Inspections

- ❖ Required by State Law annually and fulfills 5010 contract
- ❖ ALDOT and FAA surfaces analyzed
- ❖ Use as tool when developing CIP
 - ❖ Emailed to You
 - ❖ Online – ALDOT Website
 - ❖ AMPS
 - ❖ Contact Us

Inspection Area	Violation/Maintenance	Corrective Action
Approach and Departure Paths	VIOLATION	Remove trees on RWY 18 Approach shown in Appendix 2.
Primary Surface	VIOLATION	Remove gravel and debris from primary surface of RWY 18/36. Continue Repairs on RWY 18/36 shoulders. Remove trees obstructing view.
Runway Safety Area	VIOLATION	Plan a project to repair the affected runway section.
Airport Lighting	Maintenance	Repair/Replace inoperable lighting components.
Airport Surface Conditions	Maintenance	Proceed with planned maintenance to the affected area of Runway 6/24. Plan a pavement maintenance project for Runway 18/36.

Airport Inspections Continued

- ❖ Code of Alabama § 23-1-359 and ALDOT Administrative Code Chapter 450-9-1:
 - ❖ Approach and Departure Paths
 - ❖ Primary Surface (Object Free Area)
 - ❖ Runway Safety Area
 - ❖ Airport Markings
 - ❖ Wind Direction Indicator
 - ❖ Airport Lighting
 - ❖ Runway, Taxiway, and Apron Conditions
 - ❖ Fueling Area Requirements
 - ❖ Prohibited Activities

Correcting Deficiencies



360 Day From Receipt of Report



Corrective Action Plan

Should Show Timeline



Mandatory Closure Notice

During and Post Project Inspections

- ❖ Consultant shall ensure that the agreed safety plan is followed
- ❖ Airport must be inspected at the conclusion of any project that affects an ALDOT surface
- ❖ Runways may not be re-opened until an inspection occurs (if runway was closed)

VIOLATION





Airport Self-Inspection Initiative

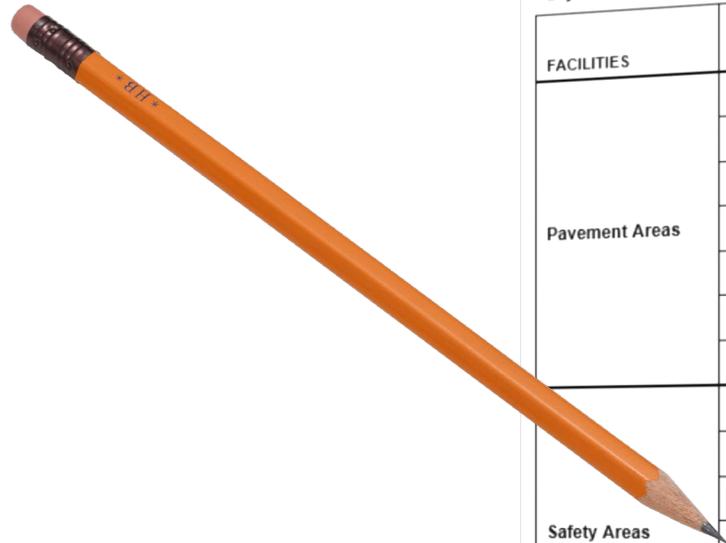
- ❖ Airports should be performing self inspections
 - ❖ Daily preferred; Weekly or at least monthly at a minimum
- ❖ Inspection checklist will be attached to all future airport inspections
- ❖ The best way to mitigate safety deficiencies
- ❖ Should increase the number of licenses issued upon first inspection

AIRPORT SAFETY SELF-INSPECTION CHECKLIST

DATE: _____ DAY: _____

Satisfactory
 Unsatisfactory

Day Inspector/Time: _____ Night Inspector/Time: _____



FACILITIES	CONDITIONS			REMARKS	RESOLVED BY (Date/Initials)
		D	N		
Pavement Areas	Pavement lips over 3"				
	Hole - 5" diam. 3" deep				
	Cracks/spalling/heaves				
	FOD: gravel/debris/sand				
	Rubber deposits				
	Ponding/edge dams				
Safety Areas	Ruts/humps/erosion				
	Drainage/construction				
	Support equipment/aircraft				
	Frangible bases				
	Unauthorized objects				
Markings	Clearly visible/standard				
	Runway markings				
	Taxiway markings				
	Holding position markings				
	Glass beads				
Signs	Standard/meet Sign Plan				
	Obscured/operable				
	Damaged/retroreflective				



JET A

FLAMMABLE

NO S



105 Feet from Centerline







Wildlife Hazard Assessment/Site Visit Program (USDA)

- ❖ Cooperative Program between ALDOT and USDA Wildlife Services
- ❖ Wildlife Hazard Site Visit (WHSV) – Singular Visit/s
- ❖ Wildlife Hazard Assessment (WHA) – Year Long Study
- ❖ FAA Requires a USDA Recommendation for Fencing





Possible Management Recommendations

- ❖ Fencing
- ❖ Vegetation Management
- ❖ Manage Water Detention and Retention Areas
- ❖ Removal of Unnecessary Equipment
- ❖ Wildlife Control
 - ❖ Trapping
 - ❖ Lethal Control – Last Resort if No Response to Non-Lethal Efforts

Wildlife Survey

- ❖ Does your airport have a WHSV/WHA/or Wildlife Hazard Management Plan? When was it completed?
- ❖ Does your airport have a wildlife depredation permit? Federal, State, or Local?
- ❖ Does your Airport have fencing around entire premises? If so, how high?

Deer Strike
Narrowly
Avoided





Our Mission...

providing a safe, efficient, environmentally sound intermodal transportation system for all users, especially the taxpayers of Alabama. We also aim to facilitate economic and social development and prosperity through the efficient movement of people and goods and to facilitate intermodal connections within Alabama.



Online Services

Latest News

Performance



Featured Programs



Environmental Programs

- Environmental Information
- Construction Stormwater Management
- Environmental Planning & Permitting
- Municipal Separate Storm Sewer System Program
- Roadway Maintenance Environmental Oversight
- Stormwater Permitting & Design
- Report an Environmental Concern



Safety Programs

- Alabama Service Assistance Patrol
- Bicycle & Pedestrian Plan
- Highway Safety Improvement
- Safety Outreach Programs and Initiatives
- Traffic Incident Management
- Walk to School Day
- Work Zone Awareness



Engineering Programs

- Electronic Construction Best Management Practices Plan
- Emergency Bridge Inspection Team
- Product Evaluation Program
- Rail-Highway Program
- Research Program
- Specific Service Signing Program



Local Programs & Transit

- ALTRANS
- Intercity Bus Program
- Local Public Agency Projects
- Public Transportation Program
- Rural Transit Program
- Urbanized Areas Transit
- Unified Planning Work Program
- Rural Transit Assistance
- Enhanced Mobility of Seniors & Individuals with Disabilities



Funding Programs

- Alabama Infrastructure Bank
- ATRIP-I
- ATRIP-II
- Industrial Access Program
- Rebuild Alabama Annual Grant Program

Complete List of Programs

Below is a searchable list of all ALDOT programs. The list can be filtered by category using the dropdown. In addition, entering search words into the search box will also filter the list.

Program Category Reset Filter

Show 10 entries

Search:

ALL CURRENT PROGRAMS
Aeronautics
Alabama Infrastructure Bank (ATIB)
Alabama Service Assistance Patrol (ASAP)



Aeronautics



What is ALDOT's Role in Alabama Aviation?

ALDOT serves as Alabama's state aviation regulator and by authority of the Code of Alabama Act 2000-220, the Department has general supervision over all phases of aeronautics within the State.

ALDOT's Aeronautics Bureau focuses on three broad programmatic areas: (1) airport system planning and development; (2) Promoting airport safety and security; and (3) inspecting and licensing airports and heliports to ensure that they meet certain minimum standards of safety and design. ALDOT serves the aviation community and the general public by assuring that aviation fuel taxes and other supplemental revenues are spent on projects that will preserve and improve Alabama's air transportation system. Ensuring the long-term viability and safety of Alabama's airport system is considered essential for the state's economic growth.

ALDOT's Aeronautics Bureau focuses on three broad programmatic areas: (1) airport system planning and development; (2) Promoting airport safety and security; and (3) inspecting and licensing airports and heliports to ensure that they meet certain minimum standards of safety and design. ALDOT serves the aviation community and the general public by assuring that aviation fuel taxes and other supplemental revenues are spent on projects that will preserve and improve Alabama's air transportation system. Ensuring the long-term viability and safety of Alabama's airport system is considered essential for the state's economic growth.

General Information
Contact Info
Aeronautics Information
Documents & Forms Coming Soon!
Aeronautics Bureau Aircraft Usage
FAA Memorandum of Understanding
Airport Development and Planning
2020 Alabama Statewide Airport System Plan and Economic Impact Study
Airport Pavement Management
Airport Grants and Funding
Airport and Heliport Licensing
How to Construct and License An Airport or Heliport Coming Soon!
Airport Safety Inspections
ALDOT Airport Administrative Code
ALDOT Heliport Administrative Code



ALDOT's Aeronautics Bureau focuses on three broad programmatic areas: (1) airport system planning and development; (2) Promoting airport safety and security; and (3) inspecting and licensing airports and heliports to ensure that they meet certain minimum standards of safety and design. ALDOT serves the aviation community and the general public by assuring that aviation fuel taxes and other supplemental revenues are spent on projects that will preserve and improve Alabama's air transportation system. Ensuring the long-term viability and safety of Alabama's airport system is considered essential for the state's economic growth.

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How to Construct and License An Airport or Heliport Coming Soon!
Airport Safety Inspections
ALDOT Airport Administrative Code
ALDOT Heliport Administrative Code

← Presentation Found Here



A high-angle, close-up photograph of an airplane's wing and fuselage, viewed from above. The aircraft is white with visible rivets and panel lines. Below the wing, a vast expanse of white, fluffy clouds stretches to the horizon under a clear blue sky. The text "ANY QUESTIONS?" is overlaid in the center in a white, serif font.

ANY QUESTIONS?

THANK YOU!



**SOUTHEAST CEMENT
PROMOTION ASSOCIATION**

LUNCH SPONSOR

Dave Avant

Phone: 334-322-4242

davant@secement.org

FAA 2021 -2022 Funding

- **At this time, FAA is currently working with SIX funding programs for airports.**
- **Three COVID relief programs**
- **Supplemental funding program**
- **AIP for 2021**
- **AIP for 2022**

CARES Act - 2020

- **Coronavirus Aid, Relief and Economic Security (CARES) Act of 2020**
- **GA funds \$1,000 – \$157,000**
- **Primary airport funds in the millions**
- **Funding is for operations & maintenance**
- **All CARES Act grants have been issued**
- **Nationwide, \$6.9B has been expended to date**

CRRSA - 2021

- **Coronavirus Response and Relief Supplemental Appropriations Act 2021 (CRRSA) ACRGP**
- **GA funds \$9,000 – \$57,000**
- **Additional funds for Contract Tower ops**
- **Primary airport funds in the millions**
- **Additional funds for airport concessions**
- **Funding is for operational uses only**
- **All CRRSA grants have been issued**

ARPA - 2021

- **The American Rescue Plan Act of 2021 (ARPA)**
- **GA funds \$22,000 – \$148,000**
- **Primary airport funds in the millions**
- **Additional funds for airport concessions**
- **Funding is for operational uses only**
- **Grant applications have been emailed out**
- **Signed grant apps are due by 11/30/2021**

2021 Supplemental Appropriation

- **Expect one or two projects in Alabama to be funded.**
- **Expect announcement of selected projects in August, 2021.**
- **Selected Airports will need to work with their PM to get a grant prior to funds expiring.**

AIP 2021

- **Expect just nine more grant offers in Alabama under AIP2021 funding.**
- **AIP2021 is almost done**
- **Thank you for your efforts to date.**



AIP 2022

- **Pre-Apps for FY2022 are due to ALDOT by **October 1, 2021****
- **Include an item with a base bid that does not exceed available entitlement funding.**
- **Be sure to breakout pavement components as separate line items (i.e. runway, taxiway, apron)**
- **Lighting for each component is a separate line item!**

AIP 2022 more

- **Get your consultant contracts processed through ALDOT early and then get them executed.**
- **All Projects will need an ENVIRONMENTAL action. Could be a CAT-EX, but do not wait on this. DO NOT Assume a CAT-EX.**
- **Pre-Apps for FY2022 are due to ALDOT by **October 1, 2021****

Infrastructure Bill 2022

- **If it happens, it is expected to be in addition to regular FY2022 AIP.**
- **Local share = unknown**
- **Will AIP rules apply = unknown**
- **Timing for funds availability = unknown**
- **Will there be separate “Supplemental Funding” in 2022 = unknown**
- **You know as much as we do about the proposed infrastructure bill for 2022.**

Web PAGES

- <https://www.faa.gov/airports/aip/>
- https://www.faa.gov/airports/cares_act/
- <https://www.faa.gov/airports/crrsaa/>
- https://www.faa.gov/airports/airport_rescue_grants/

QUESTIONS???



Advisory Circulars Update and Modification of Standards (MOS)

Jeff Orr
Lead Civil Engineer/Program Manager
Jackson ADO



New and Revised FAA Airports Series 150 Advisory Circulars (ACs)



Number	Title	Publication Date
150/5320-6G	Airport Pavement Design and Evaluation (posted 6/7/2021)	6/7/2021
150/5345-53D	<p>Airport Lighting Equipment Certification Program (posted 6/4/2021)</p> <p>New/Revised Comments: May 2021 Addendum to AC 150/5345-53D (updated 6/4/2021)</p> <p>Letter Clarifying the Use of Non-Original Equipment Manufacturer (OEM) Components in Certified Airport Lighting Equipment (2/20/2019)</p>	9/26/2012
150/5210-17C	<p>Programs for Training of Aircraft Rescue and Firefighting Personnel (posted 5/28/2021)</p> <p>New/Revised Comments: Addendum for Quarter 3 FY 2021 (5/28/2021)</p>	6/12/2015
150/5230-4B	<p>Aircraft Fuel Storage, Handling, Training, and Dispensing on Airports (posted 5/28/2021)</p> <p>New/Revised Comments: Quarter 3 FY 2021 Addendum (5/28/2021)</p> <p>Errata Sheet (4/6/2018)</p>	9/28/2012
150/5220-23A	Frangible Connections (posted 4/15/2021)	4/13/2021
150/5370-14B	<p>Hot Mix Asphalt Paving Handbook (posted 2/23/2021)</p> <p>New/Revised Comments: Letter Proposing to Cancel AC 150/5370-14B - Comment by March 24, 2021</p>	9/27/2013



Draft ACs

Number	Title	Current AC	Deadline for Comments
150/5200-28G (PDF, 1.2 MB)	<p>Draft AC 150/5200-28G, Notices to Air Missions (NOTAMs) for Airport Operators (posted 07/20/2021)</p> <p>This draft AC contains the FAA standards for airport operators on the issuance of Notices to Air Missions (NOTAMs). It provides guidance on using the NOTAM system for airport condition reporting and procedures used to describe, format, and disseminate information on unanticipated or temporary changes to components of, or hazards in, the National Airspace System (NAS).</p> <ul style="list-style-type: none"> • Industry Letter for Draft AC 150/5200-28G (PDF, 276 KB) • Comment Matrix for Draft AC 150/5200-28G (MS Excel, 32 KB) 	150/5200-28F	9/01/2021
150/5190-4B (PDF, 3.5 MB)	<p>Draft AC 150/5190-4B, Airport Land Use Compatibility Planning (posted 06/22/2021)</p> <p>This AC is intended to help airports comply with their grant assurances concerning all the compatible land use issues, including obstructions and hazard to airport navigation, airport noise, wildlife and bird hazard attractants, and protection of persons and property on the ground. It will also help a broad audience, including local land use planning authorities, better understand the effects of non-compatible land use on the safety and utility of airport operations and identify compatible land use development tools and techniques to protect surrounding communities from adverse effects associated with airport operations.</p> <p>Once published, this AC will replace AC 150/5190-4A, <i>Model Zoning Ordinance to Limit Height of Objects Around Airports</i>, dated December 14, 1987, and the <i>Interim Guidance on Land Uses Within a Runway Protection Zone (RPZ)</i>, dated September 2012.</p> <ul style="list-style-type: none"> • Industry Letter for Draft AC 150/5190-4B (PDF, 160 KB) • Comment Matrix for Draft AC 150/5190-4B (MS Excel, 36 KB) 	150/5190-4A	8/06/2021

Modification of Standards

FAA Order 5300.1G Effective September 29, 2017

<https://www.faa.gov/documentLibrary/media/Order/order-5300-1G-modifications-to-standards.pdf>

Modification of Standards (MOS). Any deviation from, or addition to standards, applicable to airport design, material, and construction standards, or equipment projects . . .



SUBJ: Modifications to Agency Airport Design, Construction, and Equipment Standards

1. **Purpose of this Order.** This order establishes the process for the initiation, revision, coordination, and management of Modifications of Standards (MOS) applicable to airport design, construction material, and equipment projects. This order is the foundation of a web-based automated application of MOS. The automated application for submitting MOS is a step-by-step process facilitated within Airports Geographic Information System (AGIS).
2. **Applicability.** This order is applicable to all projects funded under the Airport Improvement Program (AIP) and Passenger Facility Charge (PFC) programs at all obligated airports, or as required to support any public approach procedure. Eligibility determinations under AIP or PFC are independent of any approval action for an MOS. New MOS requests initiated after March 31, 2018, must use the automated MOS process. Manual MOS processing must follow applicable sections of this order as it applies to current regional procedures until the automated tool is accessible.
3. **Cancellation.** This order cancels Federal Aviation Administration (FAA) Order 5300.1F, *Modifications to Agency Airport Design, Construction, and Equipment Standards*, dated June 30, 2000.
4. **Audience.** This order applies to all Office of Airports (ARP) personnel.
5. **Definitions.**
 - a. **Design Standards.** Standards applying to the dimensional criteria of runways, taxiways, and location of associated infrastructure found in Advisory Circular (AC) 150/5300-13, *Airport Design*; and current 150/AC series.
 - b. **Construction Standards.** Standards applying to installation methods and tolerances found in AC 150/5370-10, *Standards for Specifying Construction of Airports*.
 - c. **Equipment Standards.** Standards applying to snow removal, Aircraft Rescue and Fire Fighting (ARFF) and other equipment ACs among the 150/series.
 - d. **Materials Standards.** Standards applying to the approval of type, properties, or characteristics of materials found in AC 150/5370-10.
 - e. **Modification of Standards (MOS).** Any deviation from, or addition to standards, applicable to airport design, material, and construction standards, or equipment projects resulting in an acceptable level of safety, useful life, lower costs, greater efficiency, or the need to accommodate an unusual local condition on a specific project through approval on a case-by-case basis.



5. Definitions.

a. **Design Standards.** Standards applying to the dimensional criteria of runways, taxiways, and location of associated infrastructure found in Advisory Circular (AC) 150/5300-13, *Airport Design*; and current 150/AC series.

b. **Construction Standards.** Standards applying to installation methods and tolerances found in AC 150/5370-10, *Standards for Specifying Construction of Airports*.

c. **Equipment Standards.** Standards applying to snow removal, Aircraft Rescue and Fire Fighting (ARFF) and other equipment ACs among the 150/series.

d. **Materials Standards.** Standards applying to the approval of type, properties, or characteristics of materials found in AC 150/5370-10.

6. **Exemptions.** This order does not cover exemptions from Title 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*, or from Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*.

7. **Background.** Laws, regulations and Airport Sponsor Grant Assurances require compliance with current FAA standards. The following provisions require an airport to meet FAA standards:

a. **Airport and Airway Improvement Act.** The Airport and Airway Improvement Act of 1982 (“the Act”), Public Law 97-248, codified in subchapter I of Chapter 471, Title 49 of the United States Code, as amended, requires an airport requesting an AIP grant to comply with FAA standards. The statute states in part, “An application for a project grant under this subchapter may propose airport development only if the development complies with standards the Secretary prescribes or approves, including standards for site location, airport layout, site preparation, paving, lighting, and safety of approaches.”

b. **Airport Improvement Program (AIP) Grant Funded Projects.** Grant Assurance No. 34, *Policies, Standards, and Specifications*, requires a federally obligated airport to “carry out the project in accordance with policies, standards, and specifications approved by the Secretary, including but not limited to, the advisory circulars listed in the current Advisory Circulars for AIP Projects, ... and in accordance with applicable state policies, standards, and specifications approved by the Secretary.”

c. **Obligated Airport.** Title 49 U.S.C. § 47107(a)(16) and Grant Assurance No. 29, *Airport Layout Plan*, require the airport to maintain an up-to-date Airport Layout Plan (ALP) depicting existing and future airport facilities as referenced in paragraph 12.b. AC 150/5070-6, *Airport Master Plans*, establishes standards for ALPs, which includes the requirement to identify unusual design features and/or modifications to FAA Airports design standards. FAA approval of an ALP indicates the existing or proposed development depicted on the ALP conforms to FAA airport design standards or that an approved modification to standards has been issued.

d. **Passenger Facility Charges (PFC).** Title 14 CFR Part 158, *Passenger Facility Charges, Appendix A — Assurances 9, Standards and Specifications*, states, “The public agency hereby assures and certifies, with respect to this project that: ...It will carry out the project in accordance with FAA airport design, construction, and equipment standards and specifications contained in advisory circulars current on the date of project approval.”

e. **Runway Safety Areas (RSAs).**

(1) A MOS is not issued for RSA dimensions. Instead, the Regional Airports Division Manager will evaluate RSAs and issue a RSA determination in accordance with FAA Order 5200.8, *Runway Safety Area Program*, and FAA Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*, for each affected runway at federally obligated airports and airports certificated under 14 CFR Part 139 within their geographic purview. For further information on RSA design standards, see AC 150/5300-13.

(2) To capture operational mitigations and establish an acceptable level of safety where parallel taxiways are within the RSA, use a runway to parallel taxiway separation MOS.

e. Runway Safety Areas (RSAs).

(1) A MOS is not issued for RSA dimensions. Instead, the Regional Airports Division Manager will evaluate RSAs and issue a RSA determination in accordance with FAA Order 5200.8, *Runway Safety Area Program*, and FAA Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*, for each affected runway at federally obligated airports and airports certificated under 14 CFR Part 139 within their geographic purview. For further information on RSA design standards, see AC 150/5300-13.

(3) A MOS may be considered for RSA grading where existing conditions may not allow for a feasible cost beneficial solution.

f. Procurement Requirements for Federally Assisted Projects. The procurement requirements for Federally assisted projects are typically conveyed to prospective bidders in two locations in a sponsor's procurement document: 1) General Provisions, AC 150/5370-10 sections 10–90, and 2) the sponsor's front end procurement documents (e.g. instructions-to-bidders, bid form, supplementary conditions, etc.). Proposed changes to the General Provisions of AC 150/5370-10 require conformance to this order. Proposed changes to AIP procurement standards (2 CFR §§200.318-200.326), applicable regulatory provisions such as Disadvantaged Business Enterprise requirements (49 CFR Part 26) or AIP statutory requirements such as Buy American Preference (49 U.S.C § 50101) require the airport to directly coordinate with the FAA Airports District Office for allowability and course of action for FAA review.

8. Policy. A national policy for MOS ensures uniformity in the application of standards.

a. An airport must submit a request for a modification of design standards for:

(1) Any proposed deviations from standards during the review of airport design and siting standards.

(2) Any proposed design elements on an airport project not meeting standards.

(3) Any proposed (new scheduled) operations of a higher category of aircraft, regardless of the number of operations, or an increase in service level (for example from CAT I to CAT II) proposed to operate on existing infrastructure that does not meet the standards.

(4) MOS may also be necessary as part of a proposed waiver, Air Traffic Control (ATC) Standard Operating Procedure (SOP), or a Letter of Agreement (LOA).

b. Subject to the limits of paragraph 10, an airport must submit a modification of materials specifications request if available materials cannot meet the requirements of the specification or are at a significantly higher cost.

c. An airport must submit a request for a modification of construction installation method and tolerances (best practices) when it result in cost savings or greater efficiency without sacrificing safety or useful life, and is subject to the limits of paragraph 10.

d. An airport must submit a modification of equipment standards request only when justified by unusual local conditions.

e. An airport may submit a request for a modification from the general provisions of AC 150/5370-10 if the proposed changes are required to conform to local laws and regulations. An airport may bundle all of the revisions in the general provisions sections 10 – 110 into one request.

f. Duration of an MOS Approval:

(1) MOS that are applicable to material and/or construction standards are approved for the life of the project.

(2) All MOS associated with design standards expire no later than 5 years from the approved date. The airport must re-submit the MOS for review and approval if an extension is requested.

f. Duration of an MOS Approval:

(1) MOS that are applicable to material and/or construction standards are approved for the life of the project.

(2) All MOS associated with design standards expire no later than 5 years from the approved date. The airport must re-submit the MOS for review and approval if an extension is requested.

(3) All MOS associated with design standards must be reviewed whenever there is an opportunity to meet standards, when situations change, or if a MOS is no longer required.

g. An approved MOS cannot be modified. The airport must submit a new MOS if changes are needed.

h. Approval or Disapproval of a MOS Requests at any level:

(1) The FAA documents the reason for disapproval and determination by including it in the comment box in Airports GIS. For disapproval, it must include any recommendations or suggestions to improve the request.

i. An MOS is not applicable for:

(1) Non-standard RSA dimensions.

(2) Non-standard Obstacle Free Zone (OFZ) surfaces.

(3) Non-standard approach / departure surfaces.

(4) To match existing equipment owned by the airport.

(5) Impermissible land use within Runway Protection Zone (RPZ) limits. See [AC 150/5300-13](#) for details.

j. State standards must be prepared in accordance with [AC 150/5100-13, Development of State Standards for Nonprimary Airports](#). Once the FAA has approved the use of a State Standard, the standard approved under [AC 150/5100-13](#) may be used for nonprimary airport development without a MOS in the state where the standard was approved. Use of the state standard in states other than where the standard was approved is prohibited.

9. **Approval Letters.** MOS approval letters must contain the following for each modification:

- A reference to the standard being modified
- Conditions associated with the MOS approval, when necessary
- The effective period of the modification
- A statement that the modification is subject to review at any time if conditions originally justifying the modification changes, or if the FAA deems re-evaluation as being in the public's best interest.

10. **Determining the Appropriate FAA Review Authority.**

a. **Headquarters Office.** The Director of Airport Safety and Standards, AAS-1 (or designee), must approve a MOS for the following areas listed below, and as specified in Appendix A.

(1) All MOS for runway to parallel taxiway separations.

(2) Standards for siting navigational or lighting aids.

(3) Standards for marking, lighting, and signs on airport runways, taxiways, taxilanes, and aprons.

(4) Equipment specifications in [AC 150/5345-53, Airport Lighting Equipment Certification Program](#).

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(3) Non-standard approach / departure surfaces.

(4) To match existing equipment owned by the airport.

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- (2) Standards for siting navigational or lighting aids.
- (3) Standards for marking, lighting, and signs on airport runways, taxiways, taxilanes, and aprons.
- (4) Equipment specifications in AC 150/5345-53, *Airport Lighting Equipment Certification Program*.

(5) New, updated, or modified construction methods and material specifications where there is no previous MOS approval.

(6) Quality control or acceptance criteria of materials and finished products.

(a) Quality control criteria, including all performance tests to determine if adjustments are necessary to stay within specification limits. This includes aggregate gradation within tolerance for subbase, base, and surface courses; asphalt content for bituminous mixes; and slump and air content for concrete mixes.

(b) Acceptance testing, including all criteria and performance tests to determine acceptability of the material or finished product, includes: density and thickness for subgrade, subbase, base courses, and bituminous pavement; flexural strength and thickness for concrete pavement; and surface tolerances for subbase, base, and surface courses.

b. Regional Office. The Regional Airports Division Manager may approve modifications described below and as listed per Appendix A. The Division Manager may choose to delegate the following MOS types to the Airports District Office (ADO) manager:

(1) Modifications of equipment standards (except signs or lighting equipment) on a case-by-case basis when the modification provides an acceptable level of safety and an economically feasible alternative, based on unique local conditions (Note that meeting existing equipment does not constitute a unique local condition.)

(2) Modifications of construction standards having previous AAS-1 approval for use within a region on a case-by-case basis without further review by AAS-1.

(3) Modifications of material standards having previous AAS-1 approval for use within a region on a case-by-case basis without further review by AAS-1.

(4) Modifications based on current Engineering Briefs (EBs).

(5) General Provisions under AC 150/5370-10.

11. **The MOS Process.** For process flow information and diagrams about initiating, viewing, delegating authority, and approving a MOS using Airports GIS, see the Airports GIS online help located at <https://airports-gis.faa.gov>.

a. Airports District Office Review.

(1) The ADO is responsible for validating and accepting the airport's initiation of the MOS. The ADO is also responsible for reviewing the MOS for accuracy, completeness, and providing their recommendation for approving, disapproving, and coordinating with the region and other lines of business.

(2) An airport's request must include a certification that:

(a) Modifications to materials, construction or equipment standards will provide a product that will meet FAA standards for acceptance and that the finished product will perform for its intended design life, based on historical data.

(b) Modifications to standards will provide an acceptable level of safety.

(c) The modification is necessary to conform to local laws and regulations (if applicable).

b. Regional Office. The Regional Airports Division Manager may approve modifications described below and as listed per Appendix A. The Division Manager may choose to delegate the following MOS types to the Airports District Office (ADO) manager:

(1) Modifications of equipment standards (except signs or lighting equipment) on a case-by-case basis when the modification provides an acceptable level of safety and an economically feasible alternative, based on unique local conditions (Note that meeting existing equipment does not constitute a unique local condition.)

(2) Modifications of construction standards having previous AAS-1 approval for use within a region on a case-by-case basis without further review by AAS-1.

(3) Modifications of material standards having previous AAS-1 approval for use within a region on a case-by-case basis without further review by AAS-1.

(4) Modifications based on current Engineering Briefs (EBs).

(5) General Provisions under AC 150/5370-10.

a. Airports District Office Review.

(1) The ADO is responsible for validating and accepting the airport's initiation of the MOS. The ADO is also responsible for reviewing the MOS for accuracy, completeness, and providing their recommendation for approving, disapproving, and coordinating with the region and other lines of business.

(2) An airport's request must include a certification that:

(a) Modifications to materials, construction or equipment standards will provide a product that will meet FAA standards for acceptance and that the finished product will perform for its intended design life, based on historical data.

(b) Modifications to standards will provide an acceptable level of safety.

(c) The modification is necessary to conform to local laws and regulations (if applicable).

(d) Unique local conditions require the MOS.

b. Airports District Office (or Block Grant State) Review. Once the airport has created a MOS, reviewed and electronically signed the MOS, Airports GIS forwards it to the ADO or State Block Grant (SBG) for the appropriate action.

c. Airports Regional Office (RO) Review. The RO (or ADO or SBG if delegated) is responsible for coordinating with regional lines of business. The RO will review the MOS. If required per Appendix A, the RO must forward the MOS electronically along with the Regional recommendation to Headquarters for Headquarters review.

(1) Airspace Review.

(a) Construction or alterations affecting navigable airspace may require an Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) review to fulfill the requirements outlined in 14 CFR Part 77. This may also be coordinated by the ADO.

(b) RO must coordinate modifications that may impact existing or future aircraft operations, instrument flight procedures, navigational aids, or facilities associated with instrument procedures as necessary with Flight Standards, the Air Traffic Organization (ATO) Technical Operations/Engineering Service, the ATO Mission Support Services Aeronautical Navigation Products and appropriate Air Traffic Control Tower (ATCT) where applicable and the Service Center Operations Support Group and Flight Procedures Team.

(c) An aeronautical study in OE/AAA is conducted by the appropriate FAA lines of business before the approval of a MOS. In order to document an airspace or OE/AAA review, the RO/ADO must attach the review and findings to the airport's MOS request in Airports GIS, in a non-editable format such as Portable Document Format (PDF). Include the Nonrule Making Airport (NRA) case number for tracking purposes.

(2) Safety Management System (SMS) / Safety Risk Management (SRM) Review.

(a) The RO must perform an appropriate level of SRM on the MOS request.

(b) A positive SRM result does not automatically mean that a MOS should be approved. Attach SRM documentation to the MOS package in Airports-GIS.

d. Headquarters Office Review. Once the RO reviews the MOS, if necessary per paragraph 10.a, it is then forwarded electronically via Airports GIS to the Headquarters (AAS100) Manager's general delivery mailbox for appropriate action.

12. Documentation.

a. All records pertaining to the MOS, including documents, pictures, and/or approval letters, will be maintained within the Airports GIS MOS Tool.

b. The airport must update the ALP to reflect approved modifications of airport design standards. The airport must include in the ALP a table listing the approved MOS. The table must include the approval letter dates and identify associated airspace review case numbers.

(1) Airspace Review.

(a) Construction or alterations affecting navigable airspace may require an Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) review to fulfill the requirements outlined in 14 CFR Part 77. This may also be coordinated by the ADO.

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(c) An aeronautical study in OE/AAA is conducted by the appropriate FAA lines of business before the approval of a MOS. In order to document an airspace or OE/AAA review, the RO/ADO must attach the review and findings to the airport's MOS request in Airports GIS, in a non-editable format such as Portable Document Format (PDF). Include the Nonrule Making Airport (NRA) case number for tracking purposes.

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(a) The RO must perform an appropriate level of SRM on the MOS request.

(b) A positive SRM result does not automatically mean that a MOS should be approved. Attach SRM documentation to the MOS package in Airports-GIS.

Modification of Standards (MOS) are processed through the Airport Data and Information Portal (ADIP)

<https://adip.faa.gov/agis/public/#/public>



Welcome to the Airport Data and Information Portal

Your one stop for Airport Data!

[Go To Advanced Facility Search](#)

The Airport Data and Information Portal (ADIP) helps the Federal Aviation Administration (FAA) collect airport and aeronautical data to meet the demands of the Next Generation National Airspace System. Guided by Advisory Circulars (ACs), the Airport Sponsor or proponents are key links in the information chain. Use the Airport Data and Information Portal to access airport data and submit changes matching defined business rules. FAA lines of business are notified once data has been submitted and approved.

 Register

Request a Public Account and select your role

 MyAccess

Login/Register for all @faa.gov users

 Public Login

Login for Airports, Consultants, State and other users

There are no pending actions for you, Jeffrey.

Background

Airport: BIRMINGHAM-SHUTTLESWORTH INTL
Location(City / State): BIRMINGHAM, AL
Loc ID: BHM

Runway	Aircraft Approach Category (AAC)	Airplane Design Group (ADG)	Visibility Minimums
06/24	D Approach speed 141 knots or more but less than 166 knots	IV Wingspan: 118' - < 171' (36 m - < 52 m) Tail Height: 45' - < 60' (13.5 m - < 18.5 m)	120 Lower than 1/4 mile 0

Affected Taxiway	Taxiway Design Group
Taxiway A	TDG-5

Design Aircraft (Each Runway/Taxiway):
Airbus A300

AIP Grant Number:
PFC Number:

Modification of Standards

AC Number: 150/5300-13A	Chapter: 3	Paragraph: 320	Page Number: 92
Title of Standard Being Modified (Cite Reference Document): Airport Design		AC Published Date: 09/27/2012	
EB Number: --			
Airport Engineering Briefs:		EB Published Date:	

Category: Design

Sub Category: Runway to Taxiway Separation

1. Standard/Requirement:

According to FAA AC 150/5300-13A, Table A7-10, Runway Design Standards Matrix C/D/E-IV, the runway centerline to parallel taxiway centerline requirement is 400 feet. An approximately 8,200 linear foot portion of Taxiway A extending southwest from the air carrier terminal apron to the Runway 6 threshold meets a runway centerline to taxiway centerline separation of 350 feet. Further evaluation is included in the attached analysis letter.

[Less](#)

2. Proposed:

A modification of standards to allow aircraft access on Taxiway A southwest of the air carrier terminal apron to the Runway 6 threshold until a permanent solution is in place. The existing condition currently meets design standards for Group II or smaller. As a result, the existing configuration restricts operations of aircraft in Group III or greater. The relocation of Taxiway A is planned in the short-term to provide a 500 foot runway centerline to taxiway centerline separation, consistent with the 2018 FAA approved airport layout plan. Further evaluation is included in the attached analysis letter.

[Less](#)

3. Explain Why Standard Cannot be Met (FAA ORDER 5300.1):

The runway centerline to taxiway centerline separation cannot be met due to the proximity of Taxiway A to Runway 6/24. The initial construction of Taxiway A predated current FAA design standards.

4. Discuss Viable Alternatives (FAA ORDER 5300.1):

The interim solution is the requested Modification of Standards. The proposed short-term solution will be the relocation of Taxiway A to meet runway centerline to taxiway centerline separation standards. Further discussion is included in the attached analysis letter.

5. Explain Why the Modification is Necessary to Conform to Local Laws and Regulations (if Applicable):

Not applicable.

6. State Why Modification Would Provide Acceptable Level of Safety, Economy, Durability, and Workmanship (FAA ORDER 5300.1):

The Modification of Standards, as requested, would not change any existing airfield configuration and therefore not have any associated cost, durability, or workmanship concerns. The proposed MOS would allow aircraft to taxiway to the runway while Runway 6/24 is in use and therefore provide optimal circulation efficiency on the airfield. The proposed solution (Taxiway A relocation) would meet all FAA design standards, has an estimated cost of \$73,000,000, and would be constructed to ensure it would meet the useful life expectations outlined in the AIP Handbook.

[Less](#)

7. Explain any Special Operational Procedures and/or Restrictions Necessary to Accommodate the Modification of Standards:

No new special operational procedures or restrictions are requested to accommodate the Modification of Standards.

Sponsor

Full Name:

John Rostas

Position:

Planning Manager

Date:

09/28/2020

ADO

Date of Latest FAA Signed ALP: 09/27/2018

Recommendation:

Recommend approval. This current condition has existed for many years. This MOS formally documents prior operational agreements that exist to ensure safety. A permanent solution to this issue is to relocate the taxiway to meet current standards. An environmental assessment for the TW relocation is planned for FY21.

Additional information can be uploaded to explain the request including drawing, letters, operational procedures, etc.



Flexible Pavement Design

Presented to: Alabama Consultants Conference

By: Graham Coffelt, P.E., MBA

July 27, 2021



Federal Aviation
Administration





Agenda

- **Pavement Design**
 - Traffic Considerations
 - Selection of Pavement Type
 - FAARFIELD Design Software
 - Example using 1.41



FAARFIELD 2.0 (6/8/2021)-What's New?

- Based on AC 150/5320-6G, Airport Pavement Design and Evaluation (**JUNE 7, 2021**) – **Appendix H**
- Supports AC 150/5335-5D Standardized Method of Reporting Pavement Strength –PCR (**DRAFT**)
- Supports the new ICAO ACR-PCR system
- **Completely new graphical interface**
- Updated aircraft library
- Incorporates complex 3D finite element analysis for pavement design





Surface Course

- **What Surface does the FAA prefer??**

Smooth, Durable, FOD free, properly drained with adequate macro/micro texture to facilitate the control of aircraft





Aircraft Traffic Considerations

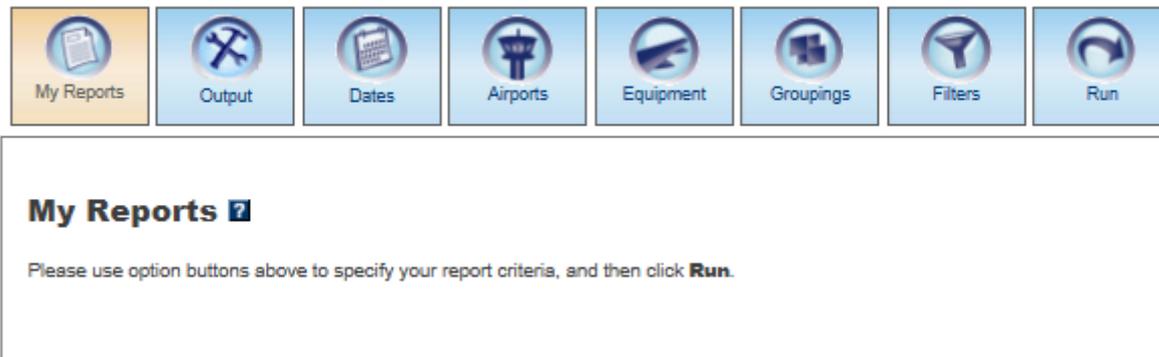
- **Load**
 - Maximum Takeoff Weight
 - FAARFIELD used manufacturer weights and load distribution
- **Landing Gear Type and Geometry**
- **Tire Pressure (currently as high as 254 psi)**
- **Volume**
 - Generally Departure Traffic
 - If aircraft arrive and depart same weight then 2 X
 - FAARFIELD calculates total departures over design life



Traffic Flow Management System Counts (TFMSC)

- <https://aspm.faa.gov/tfms/sys/Airport.asp>

Traffic Flow Management System Counts > Airport View



My Reports ?

Please use option buttons above to specify your report criteria, and then click **Run**.

- While TFMSC reliably captures the vast majority of IFR traffic and some VFR traffic, it has several limitations and challenges. First, due to limited radar coverage and incomplete messaging, TFMS may exclude certain flights that do not enter the enroute airspace and other low-altitude flights.



TFMSC Report

TFMSC Report (Airport)

From 01/2016 To 12/2016 | Airport=L...

#	Airport	Physical Class	Aircraft	Departures	Arrivals	Total Operations
1		-	-1 - unknown	6	9	15
2		-	BDGG - unknown	0	1	1
3		-	BK17 - Eurocopter BK-117	17	16	33
4		-	BL17 - Bellanca Viking	1	1	2
5		-	C240 - Cessna TTx Model T240	2	2	4
6		-	H47 - Boeing CH-47 Chinook	1	2	3
7		-	H60 - Sikorsky SH-60 Seahawk	1	19	20
8		-	H72 - UH-72 Lakota is a twin-engine	1	9	10
9		-	HELO - Helicopter	0	2	2
10		-	P46 - unknown	0	1	1
11		-	UH60 - Blackhawk Helicopter	4	0	4
12		-	UH72 - UH-72 Lakota	0	3	3
Sub-Total for -				33	65	98
13		Jet	ASTR - IAI Astra 1125	3	3	6
14		Jet	BE40 - Raytheon/Beech Beechjet 400/T-1	55	54	109
15		Jet	C25A - Cessna Citation CJ2	2	2	4
16		Jet	C25B - Cessna Citation CJ3	23	22	45
17		Jet	C25C - Cessna Citation CJ4	6	7	13
18		Jet	C500 - Cessna 500/Citation I	30	23	53
19		Jet	C501 - Cessna I/SP	20	20	40
20		Jet	C510 - Cessna Citation Mustang	18	16	34
21		Jet	C525 - Cessna CitationJet/CJ1	27	21	48
22		Jet	C550 - Cessna Citation II/Bravo	57	47	104
23		Jet	C560 - Cessna Citation V/Ultra/Encore	12	12	24
24		Jet	C56X - Cessna Excel/XLS	6	6	12
25		Jet	C650 - Cessna IIII/M/VII	3	3	6
26		Jet	C680 - Cessna Citation Sovereign	1	1	2
27		Jet	CL30 - Bombardier (Canadair) Challenger 300	2	2	4
28		Jet	CL60 - Bombardier Challenger 600/601/604	3	3	6





Aircraft Traffic Volume

- In general design for ‘regularly’ using aircraft
- ‘Regular’ use 250 annual departures (500 operations)
- Sensitivity analysis for occasional or seasonal
 - Design Section
 - After adjusting structure for rounding and construction evaluate impact to life, considering **all** aircraft





Remember - in FAARFIELD



Pass/Coverage Ratio Concept

- **Wander** = the width over which the centerline of the aircraft is distributed 75% of the time
- **Coverage** = application of the maximum stress or strain at a point on the pavement
- **Pass/Coverage Ratio** = the number of aircraft passes resulting in one coverage on a given strip.
- **See Report No FAA-RD-74-036** *Field Survey and Analysis of Aircraft Distribution on Airport Pavements*



Cumulative Damage Factor (CDF)

- **Cumulative Damage Factor**
 - Fatigue Failure expressed in terms of ratio of applied load repetitions to allowable load repetitions to failure
- **CDF = $\Sigma (n_i / N_i)$, where:**
 - n_i = actual passes of individual aircraft i
 - N_i = allowable passes of individual aircraft i
- **When CDF = 1, design life is exhausted.**
- **FAARFIELD Notes**
 - Gear location and wander considered separately for each aircraft in total mix.
 - CDF is calculated for each 10” wide strip over a 820” width.
 - Uses Miner’s rule to sum damage for each strip.



FAARFIELD-Material Properties

Table 3-2. Allowable Modulus Values and Poisson's Ratios Used in FAARFIELD

- **Pavement layers are assigned a thickness, elastic modulus and Poisson's ratio.**
 - Layer thickness varies, subject to minimum thickness requirements.
 - Elastic moduli are either fixed or variable (within permissible range)
 - Poisson's ratio is fixed.
- **Rigid pavement analysis requires at least 3 layers (PCC surface, base & subgrade)**
- **Flexible pavement analysis may have as few as 2 layers (HMA surface and subgrade)**

Layer Type	FAA Specified Layer	Rigid Pavement psi (MPa)	Flexible Pavement psi (MPa)	Poisson's Ratio
Surface	P-501 PCC	4,000,000 (30,000)	NA	0.15
	P-401/P-403/P-601 HMA	NA	200,000 (1,380) ¹	0.35
Stabilized Base and Subbase	P-401/P-403HMA	400,000 (3,000)		0.35
	P-306 Lean Concrete	700,000 (5,000)		0.20
	P-304 cement treated base	500,000 (3,500)		0.20
	P-301 soil cement	250,000 (1,700)		0.20
	Variable stabilized rigid	250,000 to 700,000 (1,700 to 5,000)	NA	0.20
	Variable stabilized flexible	NA	150,000 to 400,000 (1,000 to 3,000)	0.35
Granular Base and Subbase	P-209 crushed aggregate	Program Defined		0.35
	P-208, aggregate	Program Defined		0.35
	P-219, Recycled concrete aggregate	Program Defined		0.35
	P-211, Lime rock	Program Defined		0.35
	P-154 uncrushed aggregate	Program Defined		0.35
Subgrade	Subgrade	1,000 to 50,000 (7 to 350)		0.35
User-defined	User-defined layer	1,000 to 4,000,000 (7 to 30,000)		0.35

Notes:

1. A fixed modulus value for hot mix surfacing is set in the program at 200,000 psi (1380 MPa). This modulus value was conservatively chosen and corresponds to a pavement temperature of approximately 90°F (32°C).



FAARFIELD Input Requirements

FAARFIELD v 1.41 - Modify and Design Section NewFlexible in Job PROJECT

Section Names
AConFlex01
NewFlexible

PROJECT NewFlexible Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	5.00	400,000
P-209 Cr Ag	18.57	58,856

Subgrade CBR=8.0 12,000

Total thickness to the top of the subgrade, t = 28.57 in

Design Stopped 1.41: 0.19

Buttons: Airplane, Back, Help, Life/Compaction, Modify Structure, Design Structure, Save Structure

FAARFIELD v 1.41 - Create or Modify Airplanes for Section NewFlexible in Job PROJECT

Airplane Name (11)	Gross Taxi Weight (lbs)	Annual Departures	% Annual Growth
A320-100	150,796	600	0.00
A340-600 std	805,128	1,000	0.00
A340-600 std Belly	805,128	1,000	0.00
A380	1,239,000	300	0.00
A380 Belly	1,239,000	300	0.00
B737-800	174,700	2,000	0.00
B747-400	877,000	400	0.00
B747-400 Belly	877,000	400	0.00

Buttons: Add, Remove, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, View Gear

Float Airplanes: A320-100, A340-600 std, A340-600 std Belly, A380, A380 Belly, B737-800, B747-400, B747-400 Belly

Structure Window

- For each structural layer:
 - Material type (FAA specification)
 - Layer Thickness
 - Modulus or R-value (if applicable)
- There are built-in restrictions on the layer types, including relative position and layer properties.
- For subgrade, can enter CBR or k and FAARFIELD will convert to E.

Aircraft Window

- Select airplane from library.
- For each airplane in the mix:
 - Aircraft Name
 - Gross Taxi Weight
 - Annual departures and percent annual growth if applicable
- Enter data for all airplanes in the mix.



Starting Screen – No Job Files

Click on "New Job"

FAARFIELD v 1.41 - Airport Pavement Design

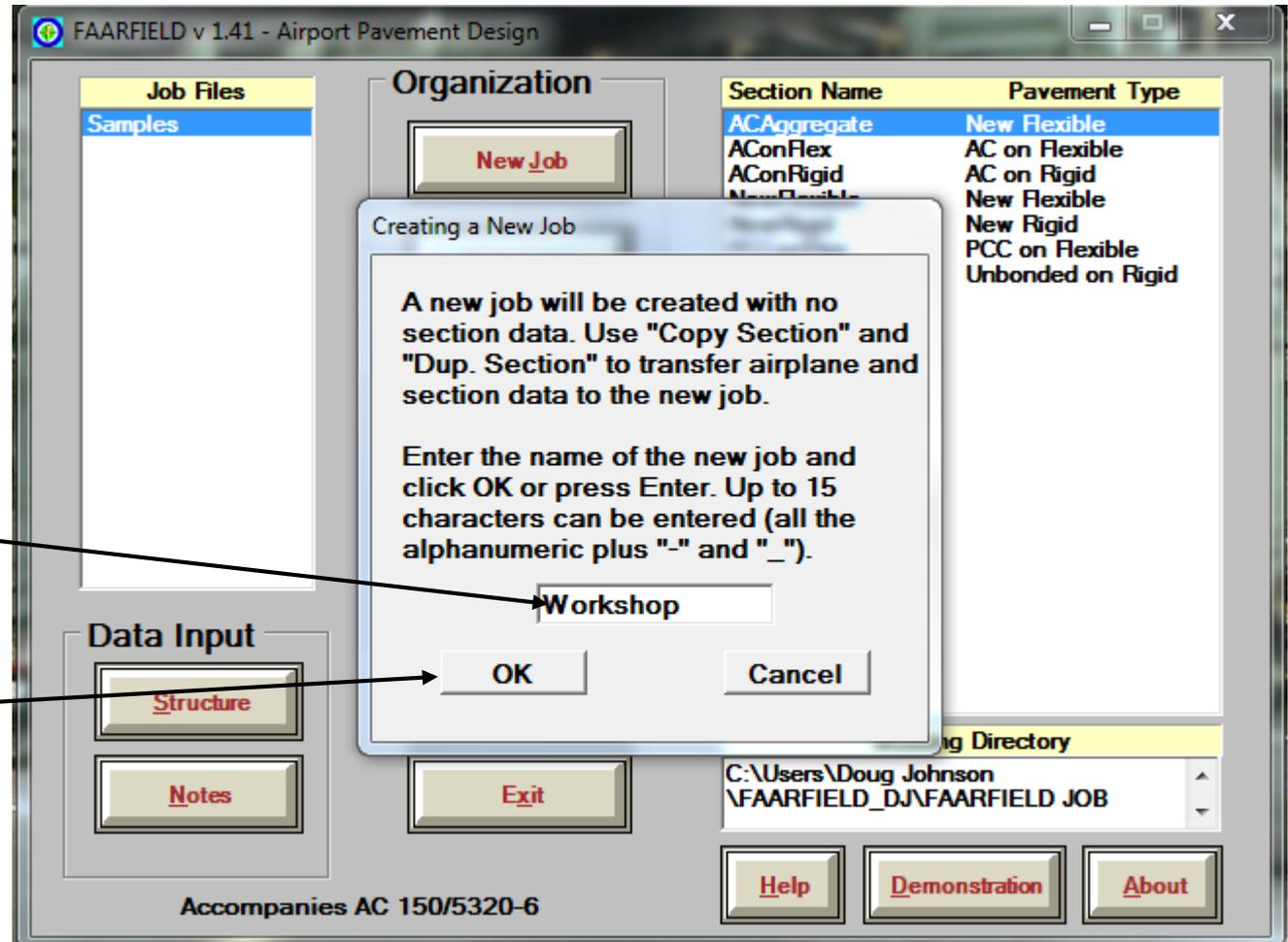
Section Name	Pavement Type
ACAggregate	New Flexible
AConFlex	AC on Flexible
AConRigid	AC on Rigid
NewFlexible	New Flexible
NewRigid	New Rigid
PCConFlex	PCC on Flexible
PCConRigid	Unbonded on Rigid

Working Directory
C:\Users\Doug Johnson\FAARFIELD_DJ\FAARFIELD JOB

Accompanies AC 150/5320-6



Creating/Naming a Job File

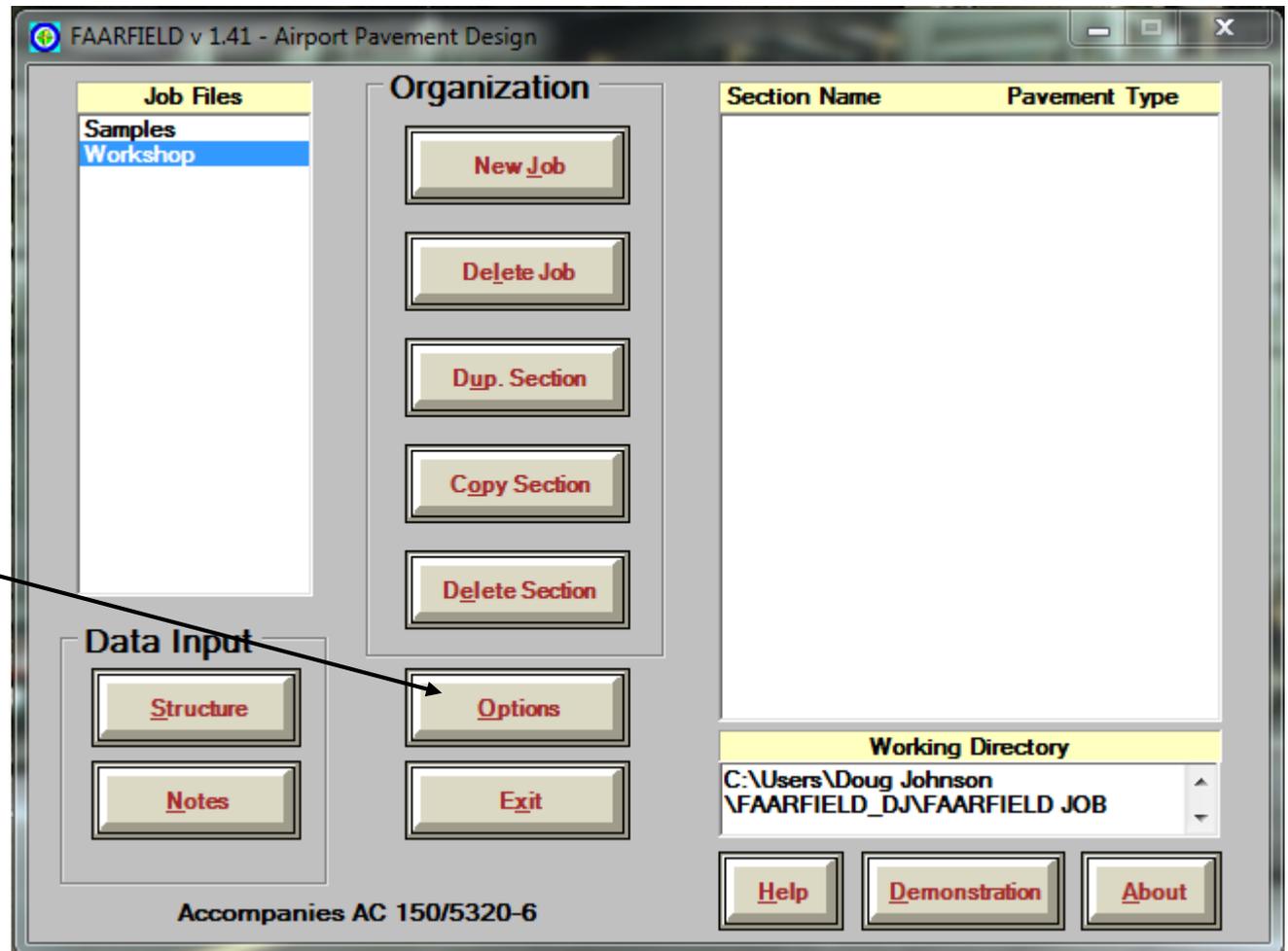


Enter Job Title

Click OK



Options Screen - Units



Click Options



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Options Screen

The image shows a software dialog box titled "Options" with a close button (X) in the top right corner. The dialog is divided into two main sections: "Pavement Structure Options" and "General Options".

Pavement Structure Options

- New Flexible**
 - HMA on Flexible
 - New Rigid
 - PCC on Flexible
 - CDF Tolerance
- HMA on Rigid**
 - Unbonded on Rigid
 - Part Bonded on Rigid
 - Life Tolerance [years]
- New Flexible**
 - HMA on Flexible
 - HMA CDF
 - Alternate Subgrade
- New Flexible**
 - Enable Automatic Base Design
- Unbonded on Rigid**
 - Part Bonded on Rigid
 - NSection Parameter
- Partially Bonded Overlay on Rigid**
 - Enabled

General Options

- Units: English Metric
- Batch Mode
- Allow Flexible Computation for Thick Overlays in PCC
- Out File
- Save Notes to PDF
- Compute Compaction Requirements

Buttons: OK, Restore Default

Background window: Pavement Type, Directory, Documents, Help, About

Footer: Accompanies AC 150P/320-6



Copy Basic Section/Pavement Type from Samples

Click on "Samples"

Section Name	Pavement Type
ACAggregate	New Flexible
AConFlex	AC on Flexible
AConRigid	AC on Rigid
NewFlexible	New Flexible
NewRigid	New Rigid
PCConFlex	PCC on Flexible
PCConRigid	Unbonded on Rigid

Working Directory
C:\Users\Doug Johnson
\\FAARFIELD_DJ\FAARFIELD JOB

Accompanies AC 150/5320-6

Help Demonstration About



Copy Basic Section/Pavement Type from Samples

Default Basic Pavement Sections

Click on "Copy Section"

FAARFIELD v 1.41 - Airport Pavement Design

Job Files

- Samples
- Workshop

Organization

- New Job
- Delete Job
- Dup. Section
- Copy Section
- Delete Section

Data Input

- Structure
- Notes
- Options
- Exit

Section Name	Pavement Type
ACAggregate	New Flexible
AConFlex	AC on Flexible
AConRigid	AC on Rigid
NewFlexible	New Flexible
NewRigid	New Rigid
PCConFlex	PCC on Flexible
PCConRigid	Unbonded on Rigid

Working Directory

C:\Users\Doug Johnson
VFAARFIELD_DJ\FARFIELD JOB

Help Demonstration About

Accompanies AC 150/5320-6





7 Basic Starting Structures in FAARFIELD

<u>Section Name</u>	<u>Pavement Type</u>
ACAggregate	New flexible on aggregate base
AConFlex	HMA overlay on flexible pavement
AConRigid	HMA overlay on rigid pavement
NewFlexible	New flexible on stabilized base
New Rigid	New rigid on stabilized base
PCConFlex	PCC Overlay on flexible
PCConRigid	Unbonded PCC on rigid

Be sure to select the pavement type that most correctly represents your design requirements.



Copy a Sample Pavement Section

Click on desired pavement section.

Then click on the project where the section will be saved

(or you may drag the desired section to the 'Job File' where the section is to be saved)

FAARFIELD v 1.41 - Airport Pavement Design

Section Name	Pavement Type
ACAggregate	New Flexible
AConFlex	AC on Flexible
AConRigid	AC on Rigid
NewFlexible	New Flexible
NewRigid	New Rigid
PCConFlex	PCC on Flexible
PCConRigid	Unbonded on Rigid

Working Directory
C:\Users\Doug Johnson\FAARFIELD_DJ\FAARFIELD JOB

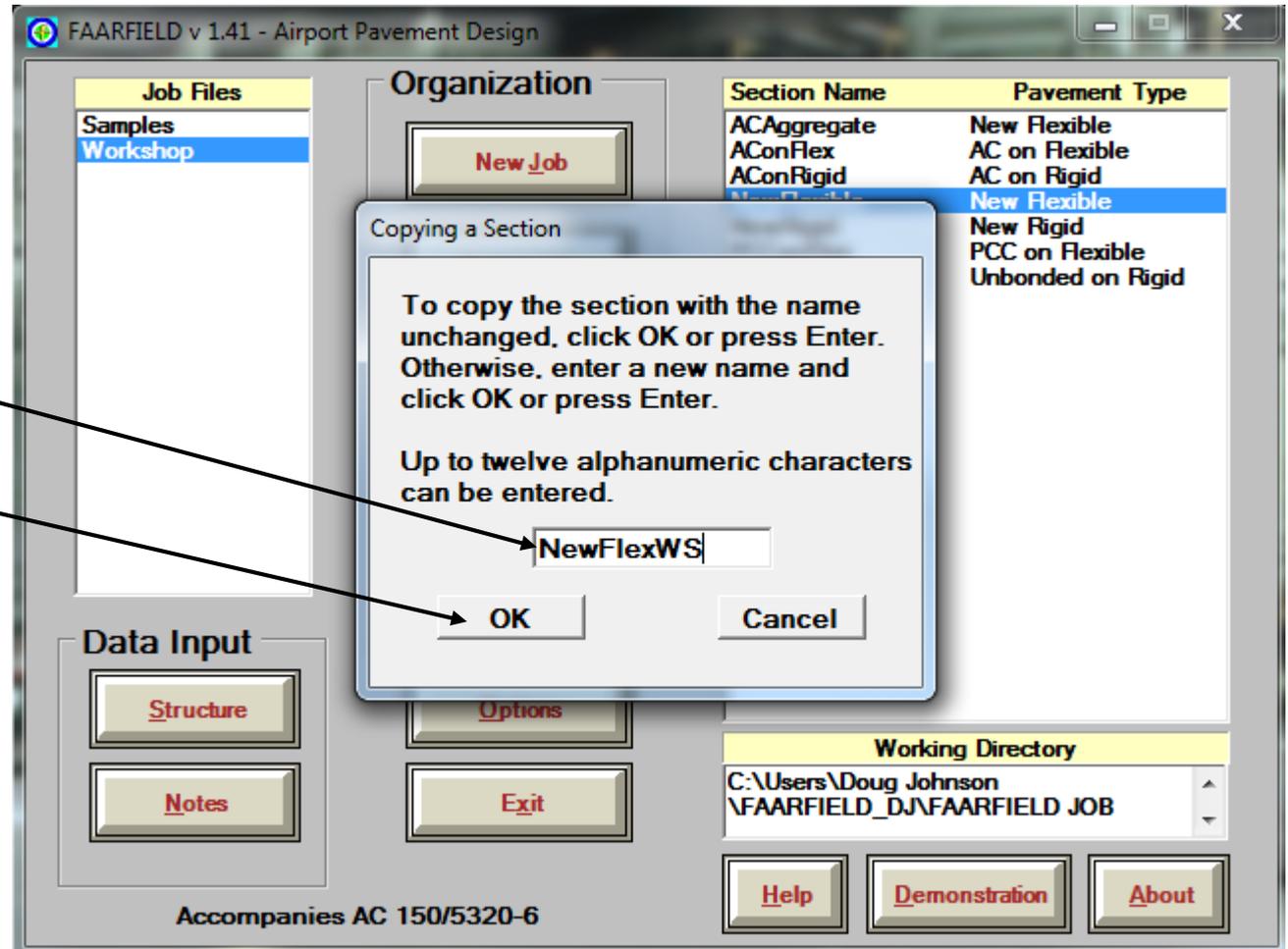
Accompanies AC 150/5320-6

Buttons: Help, Demonstration, About



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Create a New Job Title

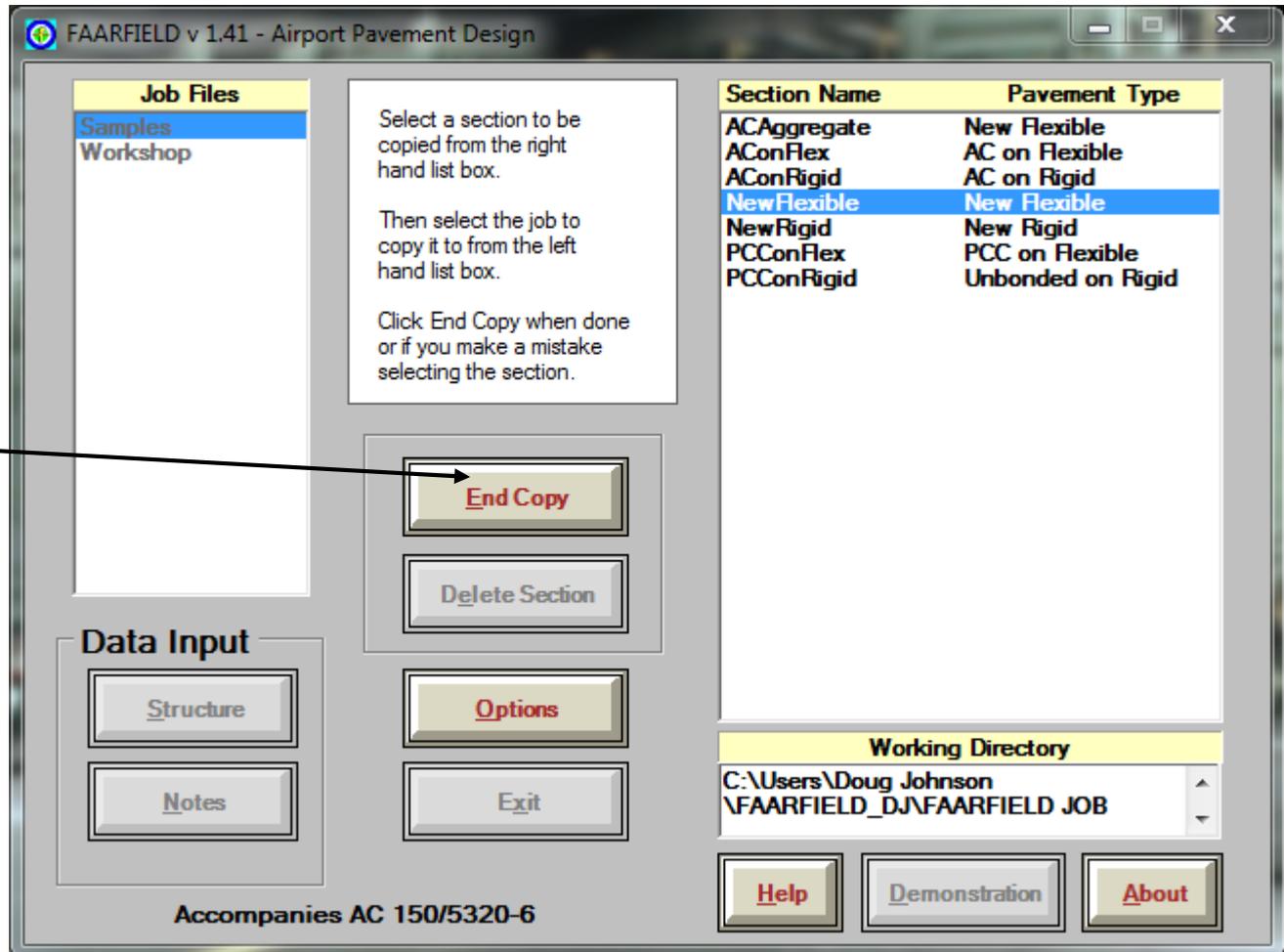


Enter title for section

Click OK



Create a New Job Title



Click "End Copy"

Note: If you 'drag and drop' section onto Job you skip the step of selecting copy section, end copy.



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Working With a Pavement Section

1. Select the job and
2. then the section
you want to analyze.

3. Click on
“Structure” to open
the job file.

FAARFIELD v 1.41 - Airport Pavement Design

Job Files
Samples
Workshop

Organization

New Job

Delete Job

Dup. Section

Copy Sections

Delete Section

Data Input

Structure

Notes

Options

Exit

Section Name	Pavement Type
NewFlexWS	New Flexible

Working Directory

C:\Users\Doug Johnson
FAARFIELD_DJ\FAARFIELD JOB

Help Demonstration About

Accompanies AC 150/5320-6



Working With a Pavement Section

The selected sample pavement structure will appear.

Click on “Modify Structure” to modify the structure if desired.

FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	8.00	400,000
P-209 Cr Ag	10.00	75,000
Subgrade	CBR = 10.0	15,000

Total thickness to the top of the subgrade, t = 23.00 in

Status

Buttons: Back, Help, Life, **Modify Structure**, Design Structure, Save Structure



Modifying a Pavement Section

FAARFIELD v 1.41 - Modifying Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	8.00	400,000
P-209 Cr Ag	10.00	75,000
Subgrade	CBR = 10.0	15,000

Total thickness to the top of the subgrade, t = 23.00 in

Modifying Structure

Airplane

Back Help Life End Modify Add/Delete Layer Save Structure

Click on the layer material that you want to modify.

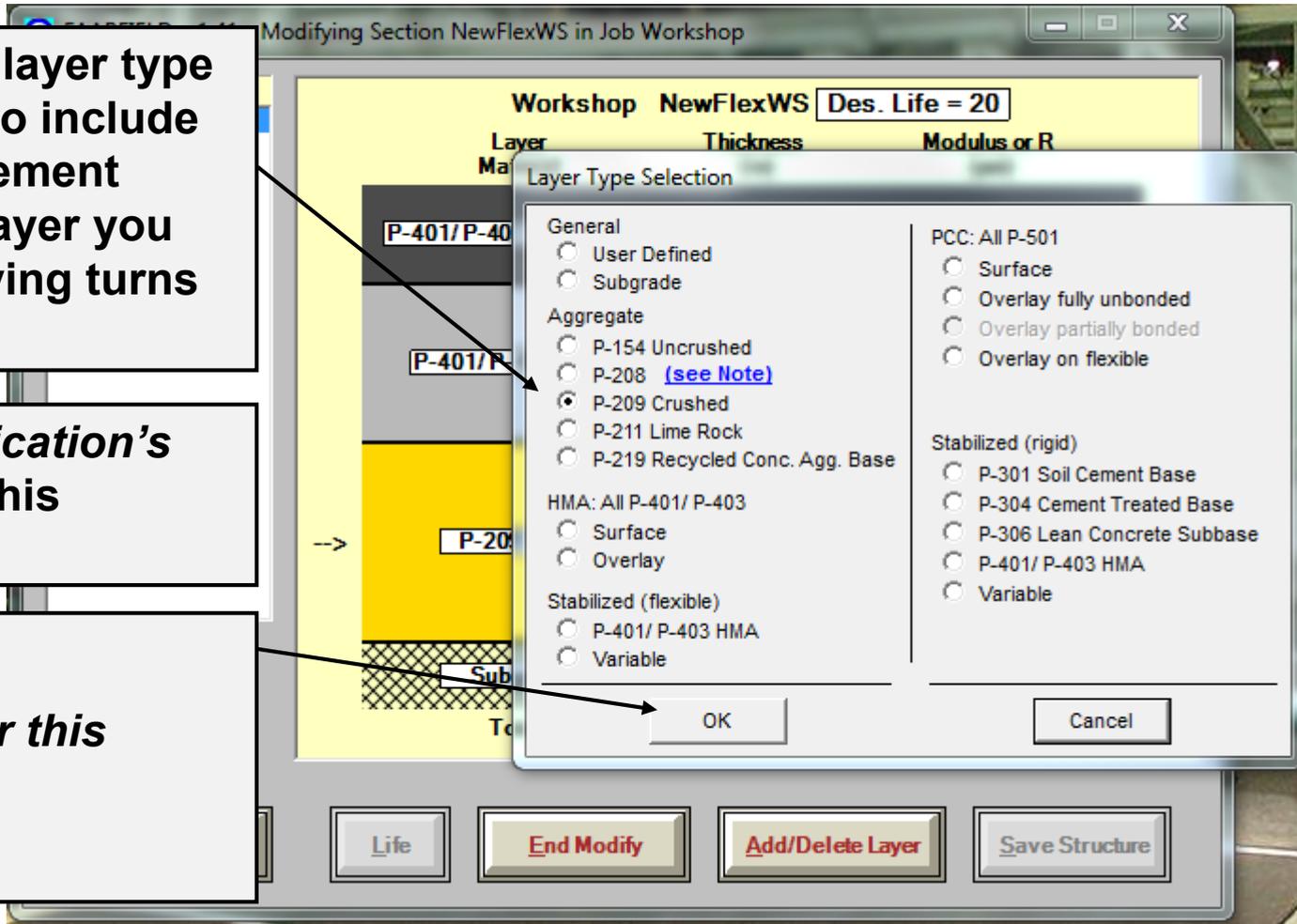


Modifying a Pavement Section

Select the layer type you want to include in the pavement section. (layer you are modifying turns 'yellow')

(No modification's made for this example)

Click OK
(Cancel for this example)



Layer Placement Restrictions

- **There are restrictions on placement of certain pavement layers, e.g.:**
 - Cannot place an overlay below a surface course.
 - Cannot have two aggregate base layers (P-209 on P-209) in the structure.
 - Aggregate layer cannot be the surface layer.
- **Some layer changes cause changes in the pavement type.**
 - Changing the surface HMA layer to PCC will change the pavement type to new rigid.



Modifying a Pavement Section

FAARFIELD v 1.41 - Modifying Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	8.00	400,000
P-209 Cr Ag	10.00	75,000
Subgrade	CBR = 10.0	15,000

Total thickness to the top of the subgrade, t = 23.00 in

Status
Airplane

Back Help Life End Modify Add/Delete Layer Save Structure

Click on a property in to modify it.

Modify the subgrade CBR for this example.



Modifying a Pavement Section

Enter the new value for the material property.

****Some materials will have limits on allowable values.**

Click OK

FAARFIELD v 1.41 - Modifying Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
		0,000
		0,000
Subgrade	CBR = 10.0	15,000

Total thickness to the top of the subgrade, t = 23.00 in

Status

Back Help Life End Modify Add/Delete Layer Save Structure

St (Flexible)

Subgrade CBR can be set in the range 0.7 to 33.3 percent.

Enter the new value in percent and click OK or press Enter.

Click Cancel at any time to retain the old value.

8

OK Cancel



Modifying a Pavement Section

FAARFIELD v 1.41 - Modifying Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	8.00	400,000
P-209 Cr Ag	10.00	75,000
Subgrade	CBR = 8.0	12,000

Total thickness to the top of the subgrade, t = 23.00 in

Status

Airplane

Back Help Life End Modify Add/Delete Layer Save Structure

New values appear in the structure window.

When done changing properties, click 'End Modify'



Enter Traffic Mixture

Click on "Airplane" to enter traffic mix

FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	8.00	400,000
P-209 Cr Ag	10.00	75,000
Subgrade	CBR = 8.0	12,000

Total thickness to the top of the subgrade, t = 23.00 in

Status

Airplane

Back Help Life Modify Structure Design Structure Save Structure



Enter Traffic Mixture

Use "Clear List" to clear the default existing traffic mixture

FAARFIELD v 1.41 - Create or Modify Airplanes for Section NewFlexWS in Job Workshop

Airplane Group	Airplane Name (4)	Gross Taxi Weight (lbs)	Annual Departures	% Annual Growth	De
Generic	DC10-10	458,000	2,263	0.00	45
Airbus	B747-200B	873,000	832	0.00	10
Boeing	Combi Mixed	873,000	832	0.00	10
McDonnell Douglas	B747-200B	873,000	832	0.00	10
Other Commercial	Combi Mixed	873,000	832	0.00	10
General Aviation	Belly	873,000	832	0.00	10
Military	B777-200 ER	634,500	425	0.00	8
Non-Airplane Vehicles					
External Library					

Library Airplanes

- SWL-50
- S-30
- S-45
- S-50
- S-60
- S-75
- D-50
- D-75
- D-100
- D-150
- D-200
- 2D-100
- 2D-150
- 2D-200
- 2D-300
- 2D-400

Buttons: Add, Remove, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, View Gear

Float Airplanes



Enter Traffic Mixture

For each airplane:

Click on the desired airplane group.

Then select the desired airplane from the library and click "Add"

Repeat for the complete traffic mixture.

FAARFIELD v 1.41 - Create or Modify Airplanes for Section NewFlexWS in Job Workshop

Airplane Group	Airplane Name (1)	Gross Taxi Weight (lbs)	Annual Departures	% Annual Growth	De
Generic					
Airbus	A320-100	150,796	1,200	0.00	24
Boeing					
McDonnell Douglas					
Other Commercial					
General Aviation					
Military					
Non-Airplane Vehicles					
External Library					

Library Airplanes

- A300-B2 SB
- A300-B2 std
- A300-B4 std
- A300-B4 LB
- A300-600 std
- A300-600 LB
- A310-200
- A310-300
- A318-100 std
- A318-100 opt
- A319-100 std
- A319-100 opt
- A320-100
- A320-200 Twin std
- A320-200 Twin opt
- A320 Bogie
- A321-100 std

Buttons: Add, Remove, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, View Gear

Float Airplanes



Traffic Mix for This Example

No.	Name	Gross Wt., lbs.	Annual Departures	Annual Growth, %
1	A320-100	150,796	600	0.00
2	A340-600 std	807,333	1,000	0.00
2	A340-600 std Belly	807,333	1,000	0.00
3	A380	1,238,998	300	0.00
3	A380 Belly	1,238,998	300	0.00
4	B737-800	174,700	2,000	0.00
5	B747-400	877,000	400	0.00
5	B747-400 Belly	877,000	400	0.00
6	B747-400ER	913,000	300	0.00
6	B747-400ER Belly	913,000	300	0.00
8	B757-300	273,500	1,200	0.00

Note: Aircraft with main and belly gear show up as two aircraft but linked for weight and departures



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Adjusting Airplane Information

Gross Taxi Weight, Annual Departures and % Annual Growth may be modified.

Airplane Name (11)	Gross Taxi Weight (lbs)	Annual Departures	% Annual Growth
A320-100	150,796	600	0.00
A340-600 std	807,333	1,000	0.00
A340-600 std Belly	807,333	1,000	0.00
A380	1,238,998	300	0.00
A380 Belly	1,238,998	300	0.00
B737-800	174,700	2,000	0.00
B747-400	877,000	400	0.00
B747-400 Belly	877,000	400	0.00



Adjusting Airplane Information - Annual Departures

Click on “Annual Departures” to change departures for an airplane.

FAARFIELD v 1.41 - Create or Modify Airplanes for Section NewFlexWS in Job Workshop

Airplane Name (11)	Gross Taxi Weight (lbs)	Annual Departures	% Annual Growth
A380	1,238,998	300	0.00
A380 Belly	1,238,998	300	0.00
B737-800	174,700	2,000	0.00
B747-400	877,000	400	0.00
B747-400 Belly	877,000	400	0.00
B747-400ER	913,000	300	0.00
B747-400ER Belly	913,000	300	0.00
B757-300	273,500	1,200	0.00

Library Airplanes

- B737-800
- B737-900
- B737-900 ER
- B737 BBJ
- B737 BBJ2
- B747-100 SF
- B747-200B Combi Mixed
- B747-300 Combi Mixed
- B747-400
- B747-400ER
- B747-8
- B747-8F
- B747-SP
- B757-200
- B757-300**
- B767-200
- B767-200 ER

Float Airplanes

- A320-100
- A340-600 std
- A340-600 std Belly
- A380
- A380 Belly
- B737-800
- B747-400
- B747-400 Belly

Buttons: Add, Remove, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, View Gear



Adjusting Airplane Information - Annual Departures

Enter the annual departures of the airplane and click OK.

The screenshot shows a software interface titled "FAARFIELD v 1.41 - Create or Modify Airplanes for Section Newflexible in Job PROJECT". It features a table of airplane data and a dialog box for editing.

Airplane Group	Airplane Name (TI)	Gross Taxi Weight (lbs)	Annual Departures	% Annual Growth
Generic	A320-100	150,796	600	0.00
Airbus	A340-600 wtd	805,128	1,000	0.00
McDonnell Douglas	A340-600 wtd	805,128	1,000	0.00
Other Commercial	Bully			
General Aviation				
Military				
Non-Airplane Vehicles				
External Library				

The dialog box, titled "Changing Annual Departures", contains the following text:

Enter a new value for annual departures in the range:
0 to 100,000
Click Cancel at any time to retain the old value.

The input field in the dialog box contains the value "300".

Buttons visible in the dialog box include "OK" and "Cancel".

Buttons visible in the background software interface include "Save List", "Clear List", "Save to [List]", "Add [List]", "Back", "Help", "CDF Graph", and "View Gear".



Annual Departures in FAARFIELD

- **Annual departures has the same meaning as in the previous design procedure.**
- **Arrivals are ignored.**
- **For design purposes, FAARFIELD uses the total annual departures, multiplied by the design period in years times % growth:**
 - e.g., 1200 annual departures × 20 years = 24,000 departures.



Adjusting Annual Growth Information

Click on the annual growth value to bring up the dialog box.

Allowable range of percent annual growth is +/- 10%.

Enter the percent annual growth and click OK.

The screenshot shows the FAARFIELD v 1.41 software interface. The main window displays a table of airplane data with columns for Airplane Name (11), Gross Taxi Weight (lbs), Annual Departures, and % Annual Growth. The 'A380' row is selected, and its '% Annual Growth' value of 0.00 is highlighted with a red box. A dialog box titled 'Changing Incremental Departures' is open, showing a range of -10.00 to 10.00 for the percent incremental annual departures. The dialog box also contains a text input field and buttons for OK, Cancel, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, and View Gear.

Airplane Group	Airplane Name (11)	Gross Taxi Weight (lbs)	Annual Departures	% Annual Growth
Generic				
Airbus	A380	1,238,998	300	0.00
Boeing	A380 Belly	1,238,998	300	0.00
McDonnell Douglas	B737-800	174,700	2,000	0.00
Other Commercial	B747-400	877,000	400	0.00
General Aviation				
Military				
Non-Airplane Vehicles				
External Library				

Library Airplanes

- B737-800
- B737-900
- B737-900 ER
- B737 BBJ
- B737 BBJ2
- B747-100 SF
- B747-200B Combi Mixed
- B747-300 Combi Mixed
- B747-400
- B747-400ER
- B747-8
- B747-8F
- B747-SP
- B757-200
- B757-300
- B767-200
- B767-200 ER

Changing Incremental Departures

Enter a new value for percent incremental annual departures in the range:

-10.00 to 10.00

Click Cancel at any time to retain the old value.

Buttons: OK, Cancel, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, View Gear



Federal Aviation
Administration

Viewing Airplane Information

Scroll over to reveal additional columns of information.

FAARFIELD v 1.41 - Create or Modify Airplanes for Section NewFlexWS in Job Workshop

Airplane Group	Airplane Name (11)	Annual Departures	% Annual Growth	Total Departures
Generic	A380	300	0.00	6,000
Airbus	A380 Belly	300	0.00	6,000
Boeing	B737-800	2,000	0.00	40,000
McDonnell Douglas	B747-400	400	0.00	8,000
Other Commercial	B747-400 Belly	400	0.00	8,000
General Aviation	B747-400ER	300	0.00	6,000
Military	B747-400ER Belly	300	0.00	6,000
Non-Airplane Vehicles	B757-300	1,200	0.00	24,000
External Library				

Library Airplanes

- B737-800
- B737-900
- B737-900 ER
- B737 BBJ
- B737 BBJ2
- B747-100 SF
- B747-200B Combi Mixed
- B747-300 Combi Mixed
- B747-400
- B747-400ER
- B747-8
- B747-8F
- B747-SP
- B757-200
- B757-300**
- B767-200
- B767-200 ER

Float Airplanes

- A320-100
- A340-600 std
- A340-600 std Belly
- A380
- A380 Belly
- B737-800
- B747-400
- B747-400 Belly

Buttons: Add, Remove, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, View Gear



Viewing Airplane Information

Values in CDF and P/C ratio columns will be zero until design analysis is completed.

Save the list, then 'click' the Back button.

The screenshot displays the FAARFIELD v 1.41 software interface. The window title is "FAARFIELD v 1.41 - Create or Modify Airplanes for Section NewFlexible in Job PROJECT". The interface is divided into several sections:

- Airplane Group:** A list of categories including Generic, Airbus, Boeing (highlighted), McDonnell Douglas, Other Commercial, General Aviation, Military, Non-Airplane Vehicles, and External Library.
- Library Airplanes:** A list of specific airplane models, with B757-300 highlighted.
- Table:** A table with columns for Airplane Name (11), CDF Contribution, CDF Max for Airplane, and P/C Ratio. All values are currently 0.00.
- Buttons:** A set of control buttons including Add, Remove, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, and View Gear.
- Float Airplanes:** An empty box for listing float airplanes.

Airplane Name (11)	CDF Contribution	CDF Max for Airplane	P/C Ratio
A320-100	0.00	0.00	0.00
A340-600 std	0.00	0.00	0.00
A340-600 std Belly	0.00	0.00	0.00
A380	0.00	0.00	0.00
A380 Belly	0.00	0.00	0.00
B737-800	0.00	0.00	0.00
B747-400	0.00	0.00	0.00
B747-400 Belly	0.00	0.00	0.00



Performing the Pavement Design

The layer with the small arrow is the layer that will be adjusted to during the structural design.

The location of the arrow is determined by the type of structure.

FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	8.00	400,000
P-209 Cr Ag	10.00	75,000
Subgrade	CBR = 8.0	12,000

Total thickness to the top of the subgrade, t = 23.00 in

Status

Airplane

Back Help Life Modify Structure Design Structure Save Structure



Layers Adjusted During Design

PAVEMENT TYPE	LAYER ADJUSTED
ACAggregate	P-154 Subbase
AConFlex	P-401 AC Overlay
AConRigid	P-401 AC Overlay
NewFlexible	P-209 Subbase
NewRigid	PCC Surface
PCConFlex	PCC Overlay on Flex
PCConRigid	PCC Overlay Unbond

For new flexible sections, the arrow can be moved by double-clicking next to the desired base or subbase layer in “modify structure” mode.



Design Life

Click on “Des. Life” to change the number of years for the structural design period.

When the dialog box appears, enter the desired number of years (1-50).

NOTE: The standard for FAA design is 20 years.

FAARFIELD v 1.41 - Modifying Section NewFlexWS in Job Workshop

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
Subgrade	23.00	12,000

Total thickness to the top of the subgrade, $t = 23.00$ in

Des. Life = 20

Changing Pavement Life

Enter a new value for life in years. Life is always a whole number in the range: 1 to 50.

Click Cancel at any time to retain the old value.

Buttons: Back, Help, Life, End Modify, Add/Delete Layer, Save Structure



Performing the Pavement Design

You are now ready to design the structure. Simply click on "Design Structure."

The program will keep you informed about the status of the design.

The screenshot shows the FAARFIELD v 1.41 software interface. The window title is "FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop". The main area displays a pavement structure design for "Workshop NewFlexWS" with a "Des. Life = 20". The structure consists of four layers: a top HMA surface, a flexible base, a granular base, and a subgrade. The total thickness to the top of the subgrade is 23.00 inches.

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	8.00	400,000
P-209 Cr Ag	10.00	75,000
Subgrade	CBR = 8.0	12,000

Total thickness to the top of the subgrade, t = 23.00 in

The interface includes a "Section Names" list on the left with "NewFlexWS" selected. Below the list are buttons for "Status", "Airplane", "Back", "Help", "Life", "Modify Structure", "Design Structure", and "Save Structure".



Result of the Pavement Design

The program will adjust the design layer until a CDF of 1.0 is achieved.

FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	5.00	400,000
P-209 Cr Ag	18.63	59,149
Subgrade	CBR = 8.0	12,000

N = 3; Sublayers, Subgrade CDF = 1.00; t = 28.63 in

Design Stopped 7.71; 7.52

Airplane

Back Help Life Modify Structure Design Structure Save Structure



Result of the Pavement Design

FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	5.00	400,000
P-209 Cr Ag	18.63	59,149
Subgrade	CBR = 8.0	12,000

N = 3; Sublayers; Subgrade CDF = 1.00; t = 28.63 in

Design Stopped 7.71; 7.52

Airplane

Back Help Life Modify Structure Design Structure Save Structure

The program has also determined the minimum base layer requirement (5 in. for P-403 base).



Reviewing Airplane Data After Completing the Design

FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/ P-403 HMA Surface	5.00	200,000
P-401/ P-403 St (flex)	5.00	400,000
-->		
P-209 Cr Ag	18.63	59,133
Subgrade	CBR = 8.0	12,000

N = 2; Sublayers; Subgrade CDF = 1.00; t = 28.63 in

Design Stopped
5.23; 5.13

Airplane

Back Help Life Modify Structure Design Structure Save Structure

Click on "Airplane"



Federal Aviation
Administration

Reviewing Airplane Data After Completing the Design

CDF and P/C ratio information is now available.

This information allows you to see which airplanes have the largest impact on the pavement design.

FAARFIELD v 1.41 - Create or Modify Airplanes for Section NewFlexWS in Job Workshop

Airplane Group	Airplane Name (11)	CDF Contribution	CDF Max for Airplane	P/C Ratio
Generic				
Airbus				
Boeing				
McDonnell Douglas				
Other Commercial				
General Aviation				
Military				
Non-Airplane Vehicles				
External Library				
Library Airplanes				
B737-600				
B737-700				
B737-800				
B737-900				
B737-900 ER				
B737 BBJ				
B737 BBJ2				
B747-100 SF				
B747-200B Combi Mixed				
B747-300 Combi Mixed				
B747-400				
B747-400ER				
B747-8				
B747-8F				
B747-SP				
B757-200				
B757-300				

Buttons: Add, Remove, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, View Gear

Float Airplanes: A320-100, A340-600 std, A340-600 std Belly, A380, A380 Belly, B737-800, B747-400, B747-400 Belly



Reviewing the Pavement Design Data

FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	5.00	400,000
P-209 Cr Ag	18.63	59,133
Subgrade	CBR = 8.0	12,000

Total thickness to the top of the subgrade, t = 28.63 in

Design Stopped
5.23; 5.13

Airplane

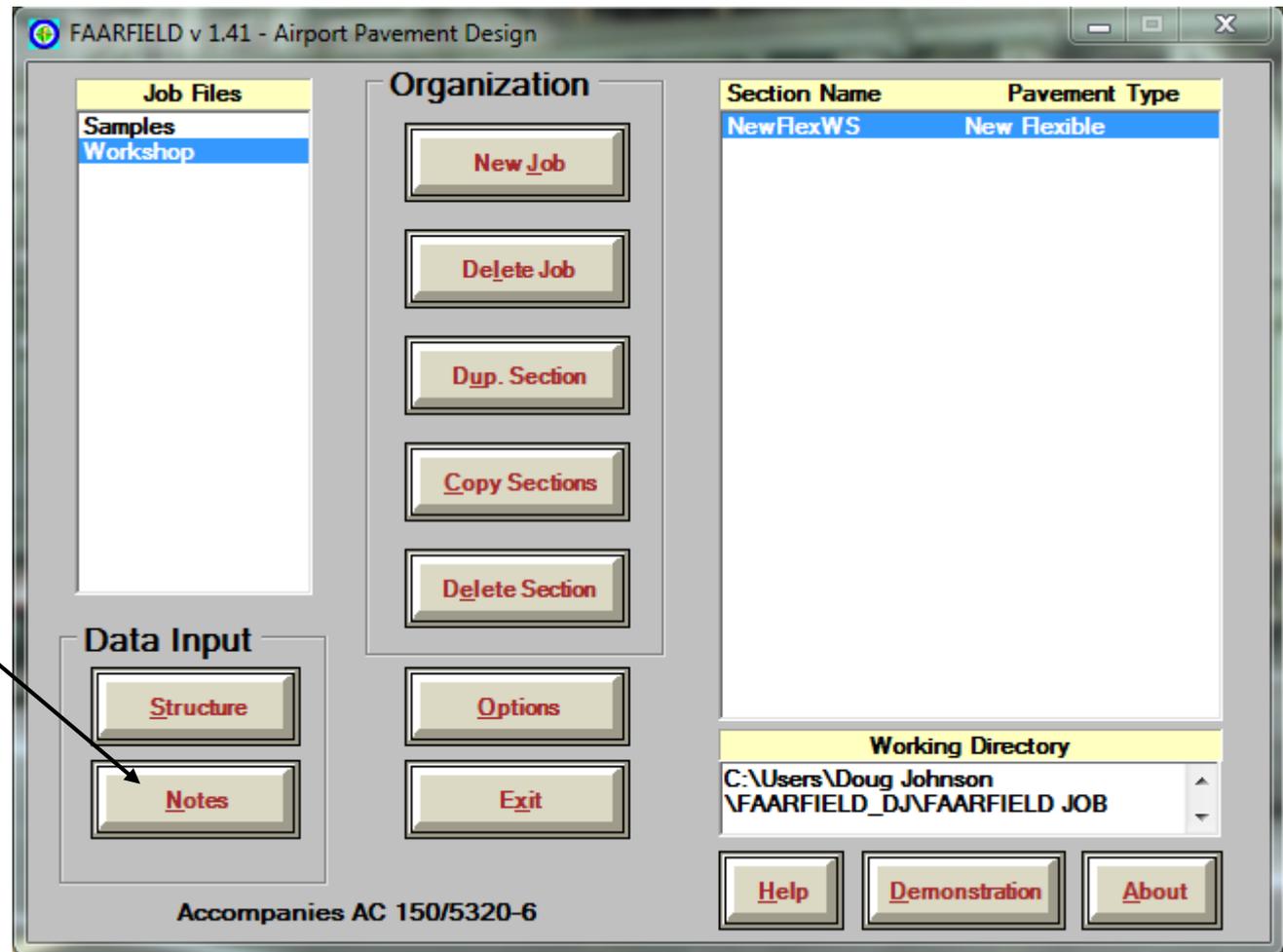
Back Help Life Modify Structure Design Structure Save Structure

When finished with the design, click the "Back" button.

PDF of design report automatically saved to working directory



Reviewing Design Information



To view a summary of the design information, click the “Notes” button.



Reviewing Design Information

You can view the summary data or copy it to other electronic media.

Design report automatically saved as a PDF into working directory.

FAARFIELD v 1.41 - Notes and Information for Job Workshop

Section Names
NewFlexWS

Design Information for Section NewFlexWS

FAARFIELD v 1.41 - Airport Pavement Design

Section NewFlexWS in Job Workshop.
Working directory is C:\Users\Doug Johnson\FAARFIELD_DJ\FAARFIELD JOB FILES\Workshop\

The structure is New Flexible. Asphalt CDF was not computed.
Design Life = 20 years.
A design for this section was completed on 09/08/16 at 13:30:25.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	P-401/ P-403 HMA Surface	5.00	200,000	0.35	0
2	P-401/ P-403 St (flex)	5.00	400,000	0.35	0
3	P-209 Cr Ag	18.63	59,133	0.35	0
4	Subgrade	0.00	12,000	0.35	0

Total thickness to the top of the subgrade = 28.63 in

Airplane Information

Help

Back Save PDF Save XML Save Print Design Info Notes Copy



Design Output

File Name: *JobName_SectionName.pdf*

FAARFIELD
FAARFIELD v 1.41 - Airport Pavement Design

Section NewFlexWS in Job Workshop.
Working directory is C:\Users\Doug Johnson\FAARFIELD_DJ\FAARFIELD JOB FILES\Workshop\

The structure is New Flexible. Asphalt CDF was not computed.
Design Life = 20 years.
A design for this section was completed on 09/08/16 at 13:30:25.

Structure Data

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength Rpsi
1	P-401/ P-403 HMA Surface	5.00	200,000	0.35	0
2	P-401/ P-403 St (flex)	5.00	400,000	0.35	0
3	P-209 Cr Ag	18.63	59,133	0.35	0
4	Subgrade	0.00	12,000	0.35	0

Total thickness to the top of the subgrade = 28.63 in

Aircraft List

Airplane Information

No.	Name	Gross Wt. lbs	Local Crestures	% Annual Growth
1	A320-100	150,796	600	0.00
2	A340-600 str	807,888	1,000	0.00
3	A340-600 str Betty	807,888	1,000	0.00
4	A390	1,228,899	300	0.00
5	A390 Betty	1,228,899	300	0.00
6	B737-800	174,700	2,000	0.00
7	B747-400	877,000	400	0.00
8	B747-400 Betty	877,000	400	0.00
9	B747-400ER	913,000	300	0.00
10	B747-400ER Betty	913,000	300	0.00
11	B767-300	278		

CDF Data

Additional Airplane Information

Subgrade CDF

No.	Name	CDF Contribution	CDF Max for Airplane	PI/C Ratio
1	A320-100	0.00	0.00	1.28
2	A340-600 str	0.81	0.81	1.34
3	A340-600 str Betty	0.00	0.28	1.34
4	A390	0.03	0.04	1.32
5	A390 Betty	0.00	0.04	1.45
6	B737-800	0.00	0.00	1.28

7	B747-400	0.05	0.05	1.20
8	B747-400 Betty	0.00	0.05	1.21
9	B747-400ER	0.11	0.11	1.22
10	B747-400ER Betty	0.00	0.11	1.22
11	B767-300	0.00	0.00	1.28

User is responsible for checking frost protection requirements.

Designed Pavement Section

Workshop NewFlexWS | Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/ P-403 HMA Surface	5.00	200,000
P-401/ P-403 St (flex)	5.00	400,000
P-209 Cr Ag	18.63	59,133
Subgrade	CBR = 8.0	12,000

N = 2, Sublayers; Subgrade CDF = 1.00, t = 28.63 in



Federal Aviation Administration

Reviewing Design Information

Notice the statement “asphalt CDF was not computed.”

This means that the fatigue in the bottom of the HMA layer was not checked.

The design assumed the failure was in the subgrade (which is true the majority of the time).

FAARFIELD v 1.41 - Notes and Information for Job Workshop

Section Names
NewFlexWS

Design Information for Section NewFlexWS

FAARFIELD v 1.41 - Airport Pavement Design

Section NewFlexWS in Job Workshop.
Working directory is C:\Users\Doug Johnson\FAARFIELD_DJ\FAARFIELD JOB FILES\Workshop\

The structure is New Flexibl: Asphalt CDF was not computed.
Design Life = 20 years.
A design for this section was completed on 09/08/16 at 13:30:25.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	P-401/ P-403 HMA Surface	5.00	200,000	0.35	0
2	P-401/ P-403 St (flex)	5.00	400,000	0.35	0
3	P-209 Cr Ag	18.63	59,133	0.35	0
4	Subgrade	0.00	12,000	0.35	0

Total thickness to the top of the subgrade = 28.63 in

Airplane Information

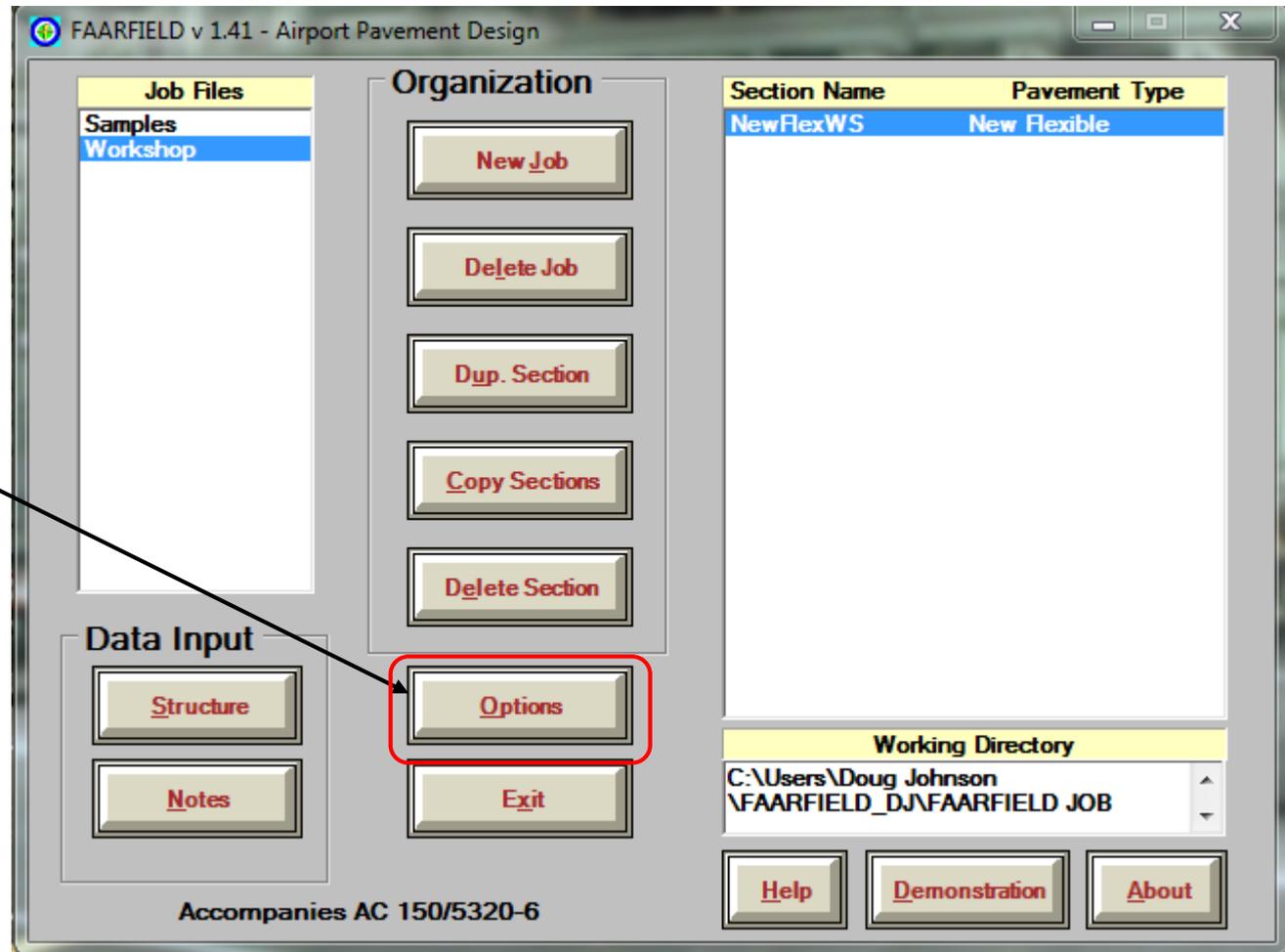
Help

Back Save PDF Save XML Save Print Design Info Notes Copy



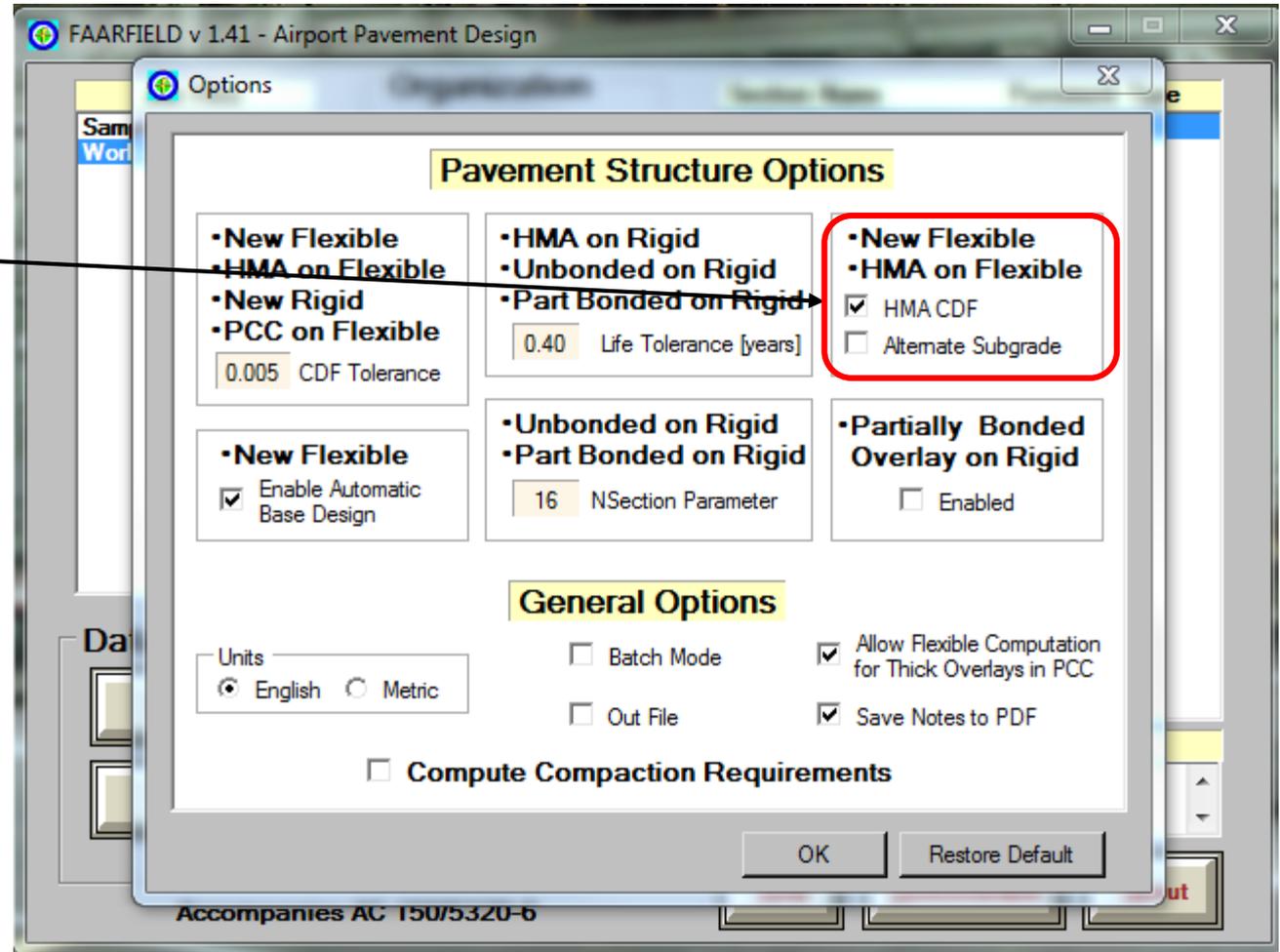
Computing Fatigue in the HMA Layer

The user can access the optional program features including the HMA layer CDF by clicking on the Options button from the starting screen, or by pressing ALT-O from anywhere in the program.



Computing Fatigue in the HMA Layer

To compute the HMA fatigue, check the “HMA CDF” box and re-run the design.



Computing Fatigue in the HMA Layer

As this example demonstrates, the controlling feature is almost always the subgrade.

(i.e., the subgrade CDF has reached 1.0 (failure) while the HMA CDF is still 0.09.)

FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop

Section Names
NewFlexWS

Workshop NewFlexWS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	5.00	400,000
P-209 Cr Ag	18.63	59,133
Subgrade	CBR = 8.0	12,000

N = 0; HMA CDF = 0.09; Sublayers: Subgrade CDF = 1.0; t = 28.63 in

Design Stopped 3.20; 1.44

Airplane

Back Help Life Modify Structure Design Structure Save Structure

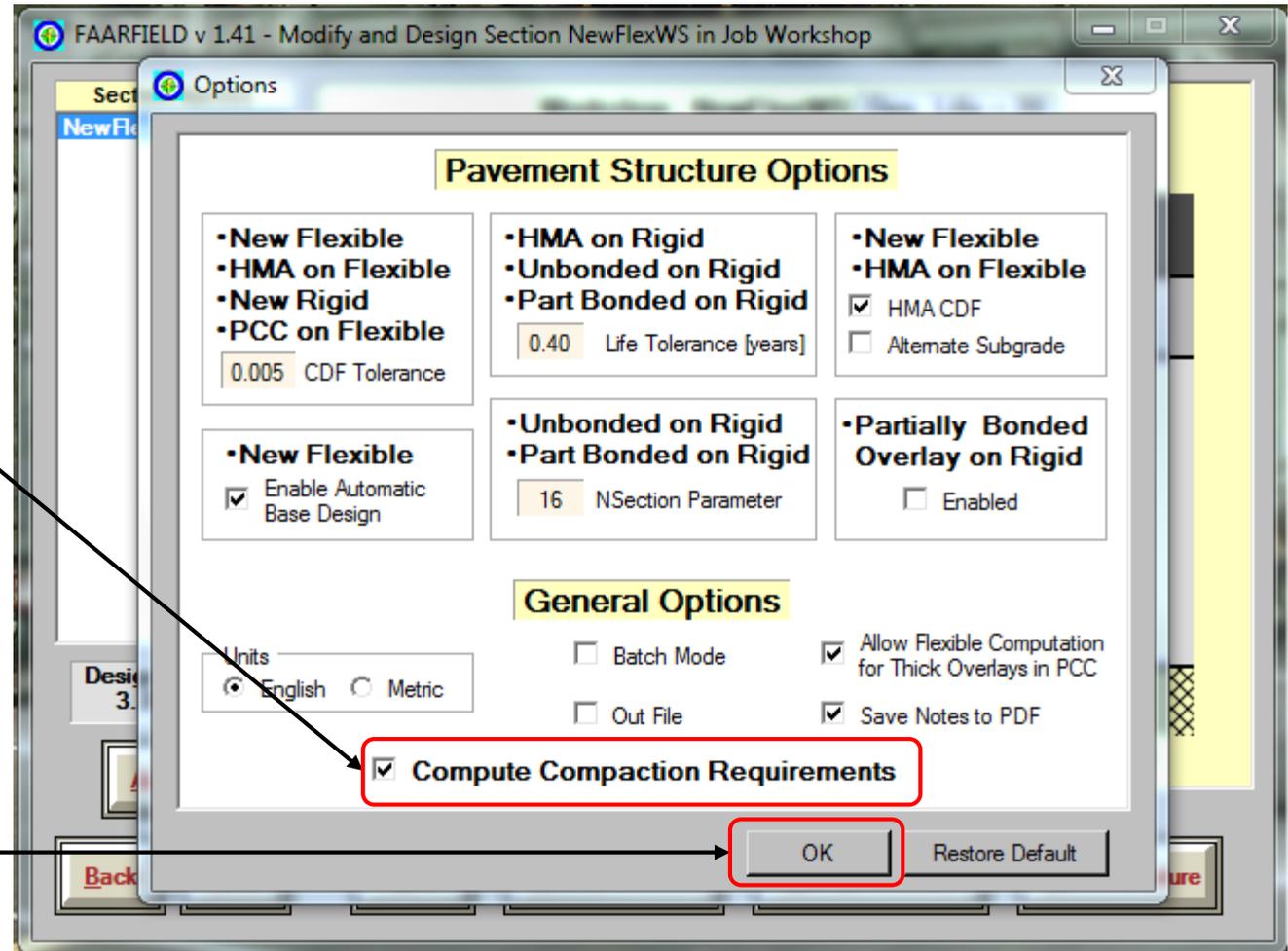


Compute Compaction Criteria

Press ALT-O to bring up the Options window.

Check "Compute Compaction Requirements."

Click OK



Federal Aviation
Administration

Compute Compaction Criteria

Run "Design Structure" again.

The "Life" button is now "Life/Compaction." Click "Life/Compaction."

The screenshot shows the FAARFIELD v 1.41 software interface. The window title is "FAARFIELD v 1.41 - Modify and Design Section NewFlexWS in Job Workshop". The main area displays a road design section for "Workshop NewFlexWS" with a "Des. Life = 20". The design is stopped at 3.20; 1.44. The design consists of several layers:

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	5.00	200,000
P-401/P-403 St (flex)	5.00	400,000
P-209 Cr Ag	18.63	59,133
Subgrade	CBR = 8.0	12,000

Design parameters: N = 0; HMA CDF = 0.09; Sublayers; Subgrade CDF = 1.00; t = 28.63 in.

The interface includes several buttons: "Airplane", "Back", "Help", "Life/Compaction", "Modify Structure", "Design Structure", and "Save Structure". The "Life/Compaction" and "Design Structure" buttons are highlighted with red boxes. Arrows from the text boxes point to these buttons.



Compute Compaction - Notes

Scroll down until the heading “Subgrade Compaction Requirements” is displayed.

Two tables display the compaction requirements for non-cohesive and cohesive soils, respectively.

Compaction depths here given in inches.

FAARFIELD v 1.41 - Notes and Information for Job Workshop

Section Names
NewFlexWS

Design Information for Section NewFlexWS

Subgrade Compaction Requirements

NonCohesive Soil

Percent Maximum Dry Density(%)	Depth of compaction from pavement surface (in)	Depth of compaction from top of subgrade (in)	Critical Airplane for Compaction
100	0 - 34	0 - 5	A380 Belly
95	34 - 105	5 - 76	A380 Belly
90	105 - 177	76 - 148	A380 Belly

Cohesive Soil

Percent Maximum Dry Density(%)	Depth of compaction from pavement surface (in)	Depth of compaction from top of subgrade (in)	Critical Airplane for Compaction
95	0 - 30	0 - 1	A380 Belly
90	30 - 78	1 - 49	A380 Belly
85	78 - 127	49 - 98	A380 Belly
80	127 - 174	98 - 145	A380 Belly

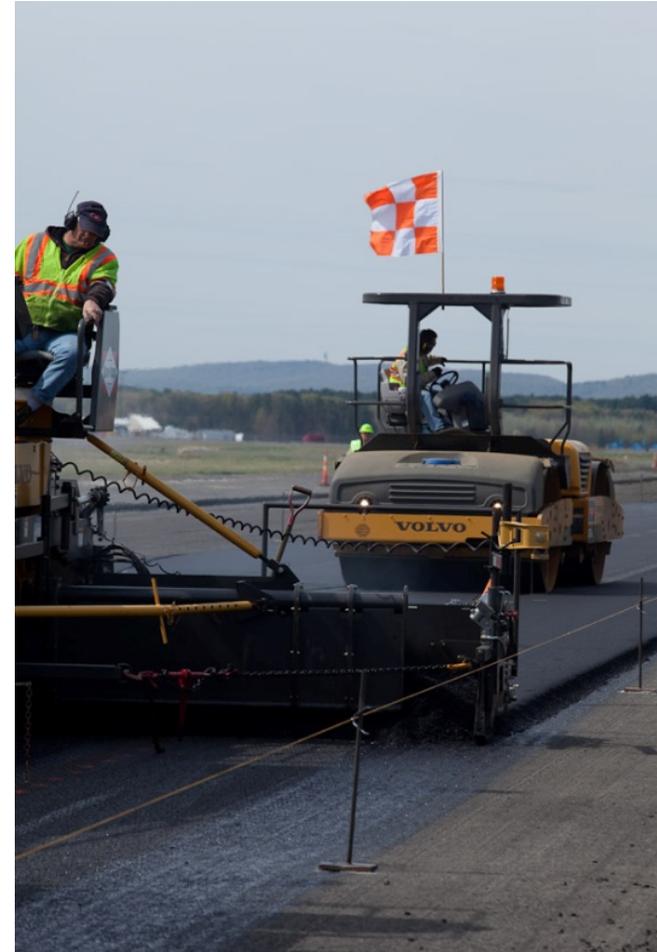
Subgrade Compaction Notes:
1. Noncohesive soils, for the purpose of determining compaction control, are those

Help

Back Save PDE Save XML Save Print Design Info Notes Copy



Flexible Pavement Overlay Design



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Asphalt Overlay Design

Click on "Samples"
Then Copy Basic
Section To New
Project

FAARFIELD v 1.41 - Airport Pavement Design

Job Files	Organization	Section Name	Pavement Type
Samples	New Job	ACAggregate	New Flexible
Workshop	Delete Job	AConFlex	AC on Flexible
	Dup. Section	AConRigid	AC on Rigid
	Copy Sections	NewFlexible	New Flexible
	Delete Section	NewRigid	New Rigid
		PConFlex	PCC on Flexible
		PConRigid	Unbonded on Rigid

Data Input

Structure

Notes

Options

Exit

Working Directory

C:\Users\Doug Johnson
\FAARFIELD_DJ\FAARFIELD JOB

Help Demonstration About

Accompanies AC 150/5320-6



Federal Aviation
Administration

Asphalt Overlay Design - Copy Basic Section

Default Basic Pavement Sections

Click on “Copy Section”
(or ‘click on section name and drag and drop to Job File)

FAARFIELD v 1.41 - Airport Pavement Design

Section Name	Pavement Type
ACAggregate	New Flexible
AConFlex	AC on Flexible
AConRigid	AC on Rigid
NewFlexible	New Flexible
NewRigid	New Rigid
PCConFlex	PCC on Flexible
PCConRigid	Unbonded on Rigid

Working Directory
C:\Users\Doug Johnson
FAARFIELD_DJ\FAARFIELD JOB

Accompanies AC 150/5320-6



Federal Aviation
Administration

7 Basic Starting Structures in FAARFIELD

<u>Section Name</u>	<u>Pavement Type</u>
ACAggregate	New flexible on aggregate base
AConFlex	HMA overlay on flexible pavement
AConRigid	HMA overlay on rigid pavement
NewFlexible	New flexible on stabilized base
New Rigid	New rigid on stabilized base
PCCConFlex	PCC Overlay on flexible
PCCConRigid	Unbonded PCC on rigid

Select the pavement type that most correctly represents your design requirements.



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Asphalt Overlay Design

Copy Pavement Section from Samples to Project

Click on desired pavement section.

Then click on the project where the section will be saved.

FAARFIELD v 1.41 - Airport Pavement Design

Job Files

- Sample
- Workshop

Organization

- New Job
- Delete Job
- Dup. Section
- Copy Sections
- Delete Section

Data Input

- Structure
- Notes

Options

- Options
- Exit

Section Name	Pavement Type
ACAggregate	New Flexible
AConFlex	AC on Flexible
AConRigid	AC on Rigid
NewFlexible	New Flexible
NewRigid	New Rigid
PCConFlex	PCC on Flexible
PCConRigid	Unbonded on Rigid

Working Directory

C:\Users\Doug Johnson\FAARFIELD_DJ\FAARFIELD JOB

Help Demonstration About

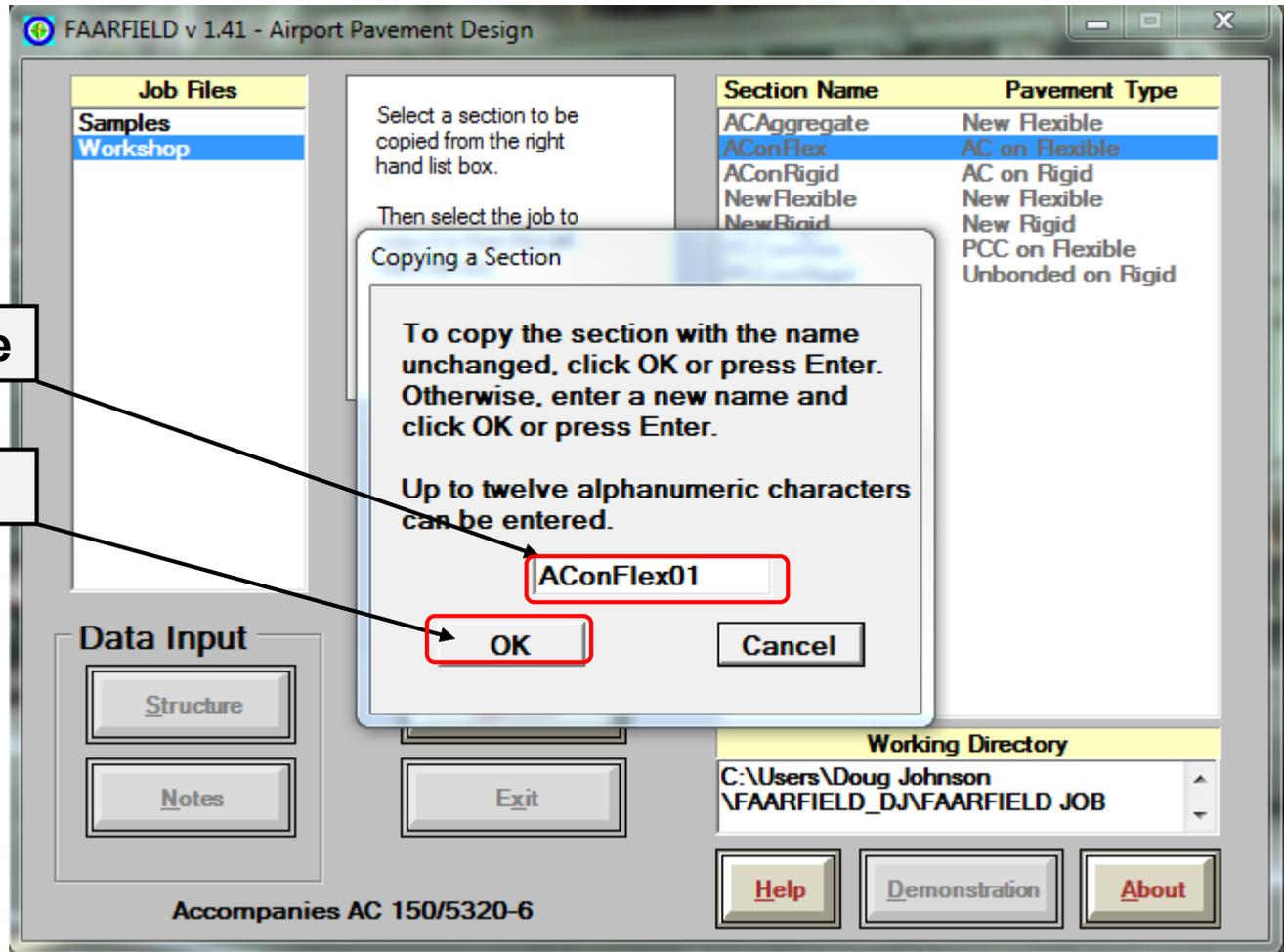
Accompanies AC 150/5320-6



Federal Aviation
Administration

Asphalt Overlay Design

Create a New Section Title



Enter Section title

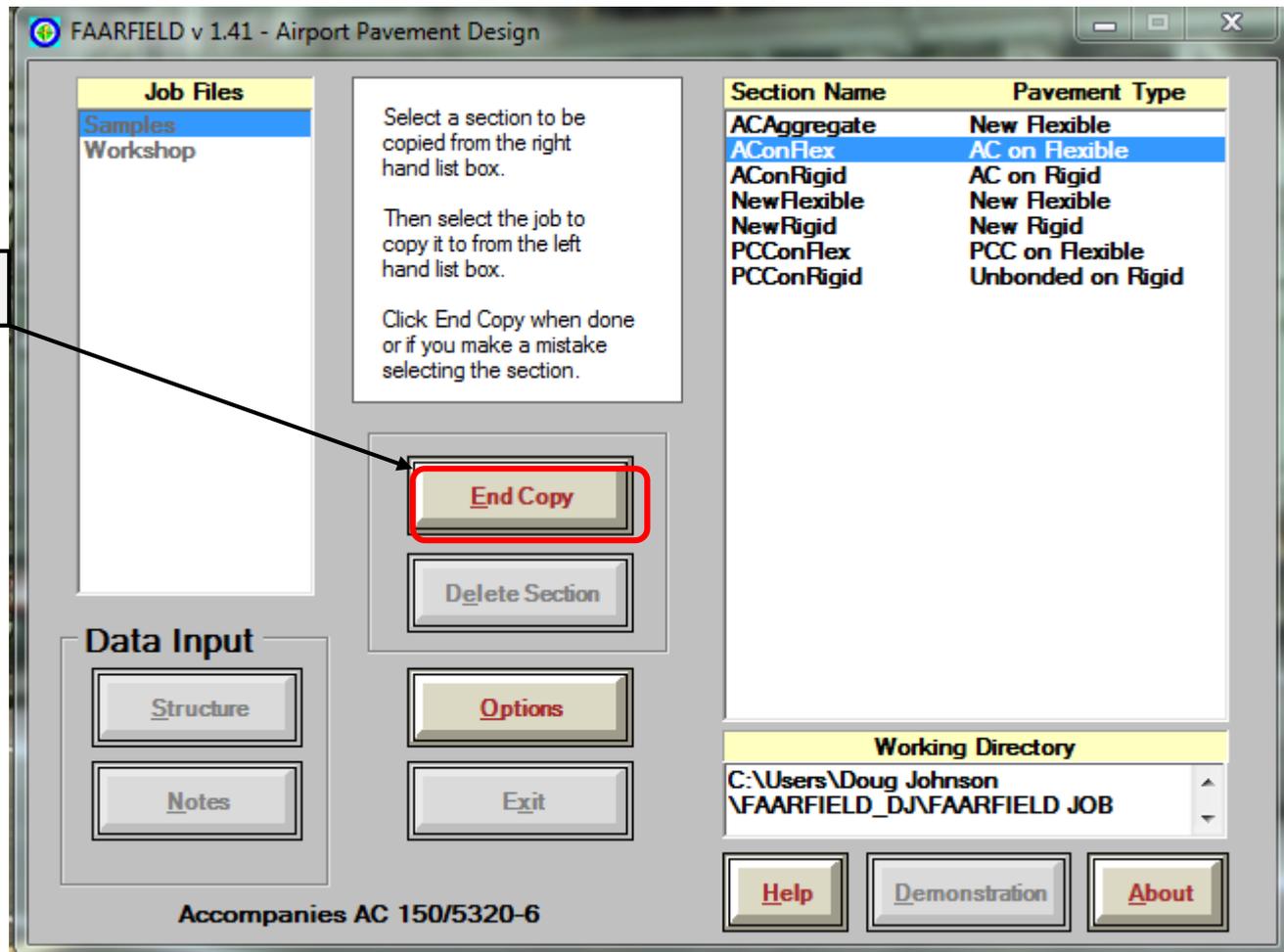
Click OK



Federal Aviation
Administration

Asphalt Overlay Design

Copy Section to Job



Click "End Copy"

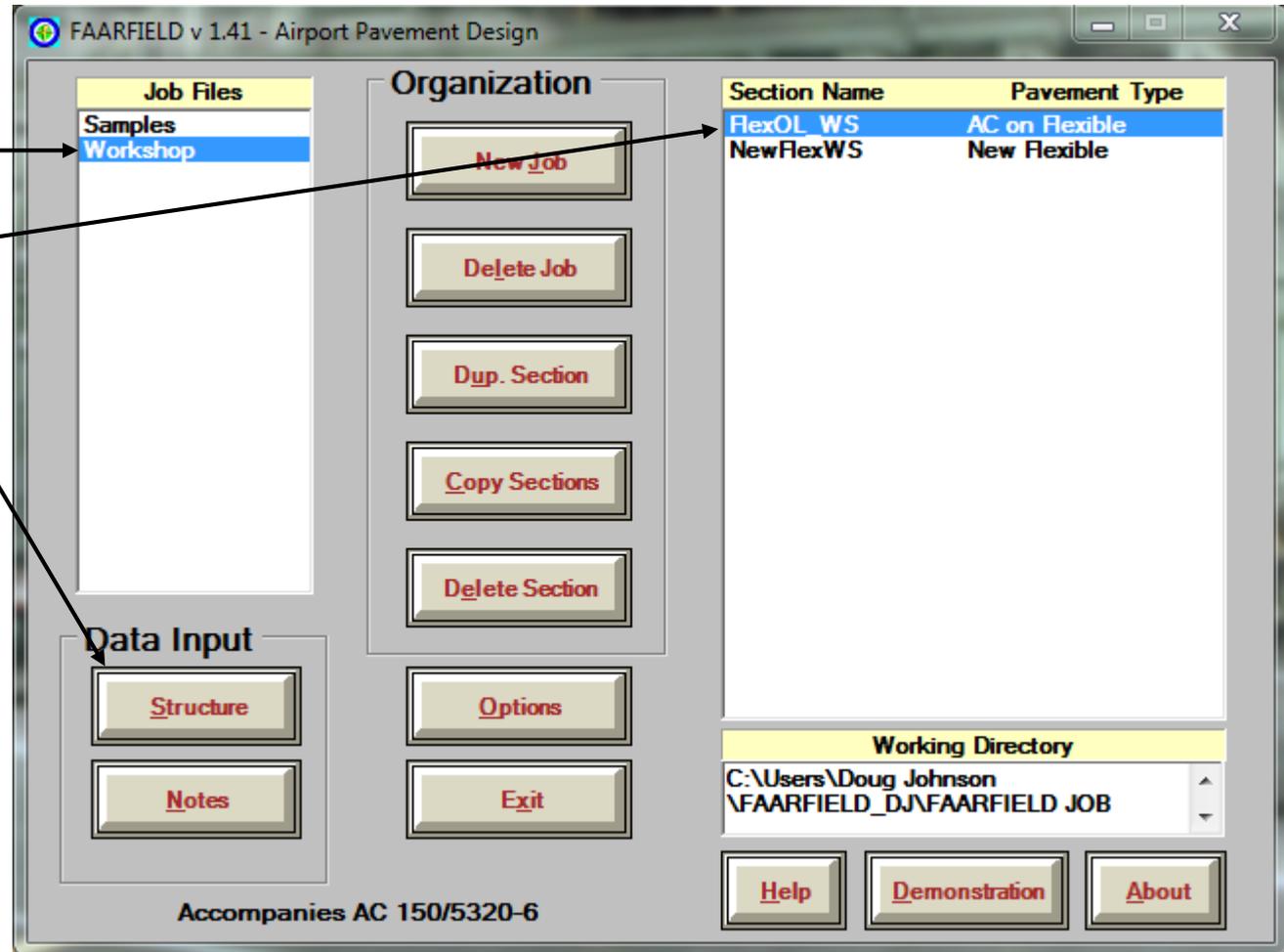


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Asphalt Overlay Design

Working With a Pavement Section

1. Select the job and
2. Select the section you want to analyze.
3. Click on “Structure” to open the file.



Asphalt Overlay Design

FAARFIELD v 1.41 - Modify and Design Section FlexOL_WS in Job Workshop

Section Names
FlexOL_WS
NewFlexWS

Workshop FlexOL_WS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/ P-403 HMA Overlay	4.00	200,000
P-401/ P-403 HMA Surface	4.00	200,000
Variable St (flex)	10.00	150,000
P-209 Cr Ag	6.00	75,000
Subgrade	CBR = 10.0	15,000

Total thickness to the top of the subgrade, t = 24.00 in

Life Stopped
4.21; 3.93

Airplane

Back Help Life **Modify Structure** Design Structure Save Structure

Standard Starting Cross Section

Click on "Modify Structure"



Federal Aviation Administration

Asphalt Overlay Design

Modify the Cross Section

Click on "End Modify," then click on "Save Structure."

FAARFIELD v 1.41 - Modifying Section FlexOL_WS in Job Workshop

Section Names
FlexOL_WS
NewFlexWS

Workshop FlexOL_WS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Overlay	4.00	200,000
P-401/P-403 HMA Surface	5.00	200,000
Variable St (flex)	7.00	150,000
P-209 Cr Ag	8.00	75,000
Subgrade	CBR = 10.0	15,000

Total thickness to the top of the subgrade, t = 24.00 in

Life Stopped
4.21 - 3.93

Airplane

Back Help Life End Modify Add/Delete Layer Save Structure



Asphalt Overlay Design –Aircraft

Use the same aircraft design mix as the new flexible example.

(To copy this list Select the NewFlexible section, then click “Airplane.”

Click “Save to Float” to send the traffic mix to the “Float Airplanes” list.

FAARFIELD v 1.41 - Create or Modify Airplanes for Section FlexOL_WS in Job Workshop

Airplane Group	Airplane Name (11)	Gross Taxi Weight (lbs)	Annual Departures	% Annual Growth
Generic	A320-100	150,796	600	0.00
Airbus	A340-600 std	807,333	1,000	0.00
Boeing	A340-600 std Belly	807,333	1,000	0.00
McDonnell Douglas	A380	1,238,998	300	0.00
Other Commercial	A380 Belly	1,238,998	300	0.00
General Aviation	B737-800	174,700	2,000	0.00
Military	B747-400	877,000	400	0.00
Non-Airplane Vehicles	B747-400 Belly	877,000	400	0.00
External Library				

Library Airplanes

- B737-600
- B737-700
- B737-800
- B737-900
- B737-900 ER
- B737 BBJ
- B737 BBJ2
- B747-100 SF
- B747-200B Combi Mixed
- B747-300 Combi Mixed
- B747-400
- B747-400ER
- B747-8
- B747-8F
- B747-SP
- B757-200
- B757-300

Buttons: Add, Remove, Save List, Clear List, Save to Float, Add Float, Back, Help, CDF Graph, View Gear

Float Airplanes

- A320-100
- A340-600 std
- A340-600 std Belly
- A380
- A380 Belly
- B737-800
- B747-400
- B747-400 Belly



Performing Overlay Design

The layer with the small arrow is the layer that will be adjusted to provide the structural design.

The location of the arrow is determined by the type of structure.

FAARFIELD v 1.41 - Modify and Design Section AConFlex01 in Job PROJECT

PROJECT AConFlex01 Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Overlay	4.00	200,000
P-401/P-403 HMA Surface	5.00	200,000
Variable St (flex)	7.00	150,000
P-209 Cr Ag	8.00	44,366
Subgrade	CBR = 10.0	15,000

N = 3; HMA CDF = 0.01; Subgrade CDF = 1.00; t = 24.00 in

Section Names: AConFlex01, NewFlexible

Design Stopped 1.55; 0.24

Airplane

Back Help Life Modify Structure Design Structure Save Structure



Performing Overlay Design

You are now ready to design the structure. Simply click on “Design Structure.”

The program will keep you informed about the status of the design.

FAARFIELD v 1.41 - Modify and Design Section FlexOL_WS in Job Workshop

Section Names
FlexOL_WS
NewFlexWS

Workshop FlexOL_WS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/ P-403 HMA Overlay	4.00	200,000
P-401/ P-403 HMA Surface	4.00	200,000
Variable St (flex)	7.00	150,000
P-209 Cr Ag	8.00	75,000
Subgrade	CBR = 10.0	15,000

Total thickness to the top of the subgrade, t = 23.00 in

Life Stopped
4.21; 3.93

Airplane

Back Help Life Modify Structure Design Structure Save Structure



Result of Overlay Design

5.74" P-401 Asphalt Overlay.

FAA recommends rounding to nearest 0.5", technically could go to 5.5" but in this case could consider 6.0"

Must use 'Engineering Judgment'

FAARFIELD v 1.41 - Modify and Design Section FlexOL_WS in Job Workshop

Section Names
FlexOL_WS
NewFlexWS

Workshop FlexOL_WS Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/ P-403 HMA Overlay	5.74	200,000
P-401/ P-403 HMA Surface	4.00	200,000
Variable St (flex)	7.00	150,000
P-209 Cr Ag	8.00	44,366
Subgrade	CBR = 10.0	15,000

N = 3; HMA CDF = 0.01; Subgrade CDF = 1.00; t = 24.74 in

Design Stopped
8.36; 7.52

Airplane

Back Help Life Modify Structure Design Structure Save Structure



Graham Coffelt, P.E., MBA

601-664-9886

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**Federal Aviation
Administration**

Community Planner

Alabama

Jackson, Mississippi Airports District Office

Brian Hendry, RLA

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Section 163 Determinations

Alabama & Mississippi Airports

Refer to JAN ADO MEMO

Dated February 5, 2021

Section 163 Review Process
within the JAN ADO

Section 163 Determinations



Federal Aviation Administration

Memorandum

Date: February 5, 2021
 To: Files
 From: Manager, Jackson Airports District Office (JAN-ADO)
 Subject: Section 163 Review and Determinations on selected projects proposed for Fiscal Year 2022 (FY21) Airport Improvement Program (AIP) Funding

This memo serves to memorialize JAN-ADO's Section 163 Review Process for Airport Improvement Program Projects (AIP) projects planned for Fiscal Year 2021 (FY21) funding. Each project has been classified as:

1. Category 1: No Section 163 review, or
2. Category 2: FAA retains full authority and NEPA reviews follow past practices. These projects require only a simple determination and this memo serves that purpose.
3. Category 3: Require a separate review under Section 163

Projects are listed in Attachment 1 (Alabama Projects) and Attachment 2 (Mississippi Projects).

Background

The JAN-ADO will issue AIP grants for approximately 150 projects in FY21. Approximately 85% of JAN-ADO's FY21 AIP projects fall into Category 1 or 2 projects mentioned above. The remainder will need a separate Section 163 review.

The attached list of projects has been evaluated in accordance with:

- APP-1 memo dated October 27, 2020, "Instructions to Airports District Offices and Regional Office of Airports Employees Regarding Airport Layout Plan Reviews and Projects Potentially Affected by Section 163 of the FAA Reauthorization Act of 2018."
- FAA Training "Process for Making Determinations on FAA's Approval Authority-Section 163" Presented by APP-400 November 2020.
- Email correspondence from APP-400 (Michael Lawrence) "163 Determinations" that airport projects will fall into three (3) categories.

Attachment 1: Alabama – Section 163 requirements for planned FY21 AIP projects.

Color Code

- No Determination Required (Category 1)
- Simple Determination (Category 2)
- All Other Projects – Separate Section 163 Determination Required (Category 3)

City	Loc ID	Grant Year	Supporting Docs / Project Description
Albertville	8A0	2021	Corporate Taxilane Reconstruction Taxiway Reconstruction
Courtland	9A4	2021	Airfield Drainage Improvements
Cullman	CMD	2021	Reconstruct Runway 02/20 Reconstruct Runway Edge Lights
Decatur	DCU	2021	Master Plan/ALP Update
Fort Payne	4A9	2021	Apron Rehabilitation-Phase 2 Construction
Guntersville	8A1	2021	Runway Rehabilitation
Haleyville	1M4	2021	Install Perimeter Fencing not Required by 49 CFR 1542 (Wildlife Fencing) Phase 2
Huntsville International	HSV	2021	Terminal Rehab (Reimbursement) Terminal Access Road Rehab (Glenn Hearn) Taxiway Rehabilitation (Parallel TW C-north, C1, C2, C3, C4, and E5) PCI Study
Huntsville-Madison Exec.	MDQ	2021	Improve Runway Safety Area-Runway 18
Muscle Shoals	MSL	2021	Improve RSA RW 12/30 (Design Only)
Oneonta	20A	2021	Approach Clearing Airfield Drainage Improvements
Russellville	M22	2021	Rehabilitate Runway (mill and overlay) Reconstruct Runway Edge Lights
Scottsboro	4A6	2021	Acquire Land for Development (Parcels 20, 36 (partial for ROFA and ROFZ), 98 (Reimbursement-\$54000), 99, and 102)
Abbeville	0J0	2021	Justification Study, EA, & ALP
Andalusia	79J	2021	RSA Improvements
Auburn	AUO	2021	RSA EA
Dothan	DHN	2021	Rehab TW A
Elba	14J	2021	Taxilane Rehab
Floralda	0J4	2021	TW, Apron and Access Road (Grad Drain)
Geneva	33J	2021	Rehabilitate Apron and Taxilanes
Geneva	33J	2021	Perimeter Fencing
Montgomery	MGM	2021	No Project Submitted - FAA planned TW A & Hotspot Correction
Troy	TOI	2021	RW 7/25 Rehab



Section 163 Determinations

- **3 Categories of Projects**

- Category 1: No Section 163 Review Required**

- Projects not normally shown on ALP but AIP funded.

- Examples: Pavement maintenance (crack seal, overlays), equipment/vehicle purchases, NAVAID replacement.

- Category 2: Simple Determination**

- FAA full authority & NEPA applies.

- Examples: Projects involving movement & non-movement areas, runway visibility zones, RPZ's, approach / departure procedures, etc. as shown on JAN ADO MEMO annually.

- Category 3: Individual Review under Section 163**

- All Other Projects

Section 163 Determinations

Category 3: Individual Review under Section 163

(Adversely affect value of prior Federal investments)

Questions to Answer:

1. Does the proposal materially impact the safe and efficient operation of aircraft at, to, or from the airport; or
2. Adversely affect the safety of people or property on the ground adjacent to the airport as a result of aircraft operations; or
3. Adversely affect the value of prior Federal investments to a significant extent.

Section 163 Determinations

Category 3: Individual Review under Section 163

(Adversely affect value of prior Federal investments)

4. Does the proposal affect the following areas:

- Aircraft Movement Areas (AOA)
- Changes or alternations to RVZs
- Changes or alternations to RPZs
- Changes or alternations to ATCT Line of Sight
- Any Development within NAVAID Criteria Areas
- Changes resulting from new approach or departure procedure

Section 163 Determinations

Category 3: Individual Review under Section 163

(Adversely affect value of prior Federal investments)

Documents required to make 163 Determination:

- Sponsor's Letter requesting action
- Airport Layout Plan (ALP)
- Exhibit A
- Source of Funding for Property Purchase
- Source(s) of funding for proposed project (If Known)
- Property Deed(s)

Section 163 Determinations

Category 3: Individual Review under Section 163

(Adversely affect value of prior Federal investments)

FAA Response Letter (163 Determination)

When an **Individual Determination** has been made for a project, ADO will send letter to sponsor explaining decision. FAA either did or did not have approval authority over project. Determination Letter needs to clearly identify:

1. Proposed project description, including sufficient land acquisition history, if applicable;
2. Determination and rationale regarding whether or not FAA has ALP approval authority for the proposed project.

Section 163 Determinations

Category 3: Individual Review under Section 163

(Adversely affect value of prior Federal investments)

FAA Response Letter (163 Determination)

3. Rationale regarding whether the sponsor must obtain a release of obligations prior to undertaking the proposed project; and
4. Whether there is a federal action subject to NEPA.

Questions?

- **JAN ADO Community Planner**
 - Brian Hendry, RLA
 - brian.hendry@faa.gov
 - 601-664-9897



**GOOOOO
DAWGS!!**

**SIC 'EM
WOOF
WOOF
WOOF**

FAA

Office of Airports

Topic:

Airspace Analysis and Construction

Safety Phasing Plans

Luke Flowers, Program Manager
FAA/Airports District Office
Jackson, MS

July 27, 2021



•Federal Aviation
•Administration



Airspace Analysis

- **Notice of Proposed Construction or Alteration (FAA Form 7460-1)**
 - Required to be submitted for all construction off and on airport that exceed the heights established in **Part 77.9 Construction or alteration requiring notice.**
 - Equipment for permanent proposals.
 - FAA coordinates the proposed construction with all LOBs to determine what effects it may have on airspace and landing areas.



NRA Case Proposals Required for:

- Buildings
- Temporary Cranes
- Fences & Power Lines
- Solar Facilities
- Construction Safety Phasing Plans (CSPP)
- Airport Layout Plans
- Modification of airport design standards
- Any other airport case when deemed necessary to assess the safe and efficient use of the navigable airspace by aircraft and/or the safety of persons and property on the ground.



Notice of Construction On Airport

- It is imperative that all new structures that are planned to be constructed on airport be studied to determine effect to airspace.
- 7460-1 must be filed no later than 45 days prior to allow time for review and determination.
- Failure to provide these notices of construction is a violation of grant assurances as required by Order 5190.6B - FAA Airport Compliance Manual
- Chapter 20 of this Order, Compatible Land Use and Airspace Protection, provides additional information relating to Grant Assurance 20, Hazard Removal and Mitigation, and obstruction protection.



Permanent vs Temporary Proposals



PERMANENT	TEMPORARY
ALP Update	No ALP Update
7460-1 contains no length of time	7460-1 contains length of time
Buildings, Antennas, Nav aids, Aprons, Fences, etc...	Cranes, Equipment, Batch Plants, Staging Areas, etc.



Processing Permanent and Temporary Proposals

ARP Responsibilities

- Updating OE/AAA runway database (VGSI, ALS, Part 77 Code)
- Review, Correct & Verify case data
- In accordance w/Airport Design Standards (AC 150/5300-13)
- Coordinate with other LOBs
- Ensure permanent proposal is consistent with ALP
- In accordance w/Wildlife Attractants Standards (AC150/5200-33)
- Provide a determination letter to proponent.
- Request update ALP after favorable determination

Note: Flight Procedures responsible for protecting TERPS



Temporary Construction Objects

Submit separate study for all vertical projects

Examples

- **Construction access routes**
- **Staging areas**
- **Equipment (cranes, signage, etc.)**
- **Material stockpiles**
- **Batch plants**

7460 studies should be completed prior to CSPP development to allow early identification of aeronautical impacts.

Do not wait until after bids to submit temporary object studies



Identifying Objects for Temporary Construction Activity

Object/Group	Points-of-Interest	Height	Remarks
Work Site Area	<ul style="list-style-type: none"> – Corners of work area boundary – Phase boundary limits – Select points of terrain change in proximity to construction elements 	<ul style="list-style-type: none"> – Height of highest piece of equipment (as extended) that is anticipated to operate in various 	<ul style="list-style-type: none"> – Encourage Sponsor to initiate these studies prior to submittal of CSPP to FAA – If project is phased, identify the area boundaries per phase limits – Identify areas that may still have work activities after runway is re-opened
Equipment Parking	<ul style="list-style-type: none"> – Corners of parking area 		<ul style="list-style-type: none"> – Encourage Sponsor to initiate these studies prior to submittal of CSPP to FAA – If combined with staging area
Staging area	<ul style="list-style-type: none"> – Corners of staging area 		<ul style="list-style-type: none"> – Encourage Sponsor to initiate these studies prior to submittal of CSPP to FAA – Include batch plant information
Stockpile	<ul style="list-style-type: none"> – Corners of area designated for material stockpiles 	<ul style="list-style-type: none"> – Height of stockpile (e.g. 25' agl) – If equipment operates on top or above stockpile, add height of equipment to stockpile elevation 	<ul style="list-style-type: none"> – Encourage Sponsor to initiate these studies prior to submittal of CSPP to FAA – Recommend Sponsor establish contractual limits on stockpile heights (e.g. "must not exceed 25' agl")
Batch Plant	<ul style="list-style-type: none"> – Corners of area reserved for batch plant. 	<ul style="list-style-type: none"> – Height of the highest appurtenance on the 	<ul style="list-style-type: none"> – Typically submitted by contractor – Assume highest point occurs at all

ENCOURAGE SPONSOR TO INITIATE STUDIES PRIOR TO SUBMITTING CSPP!



Determining points for Temporary Cranes

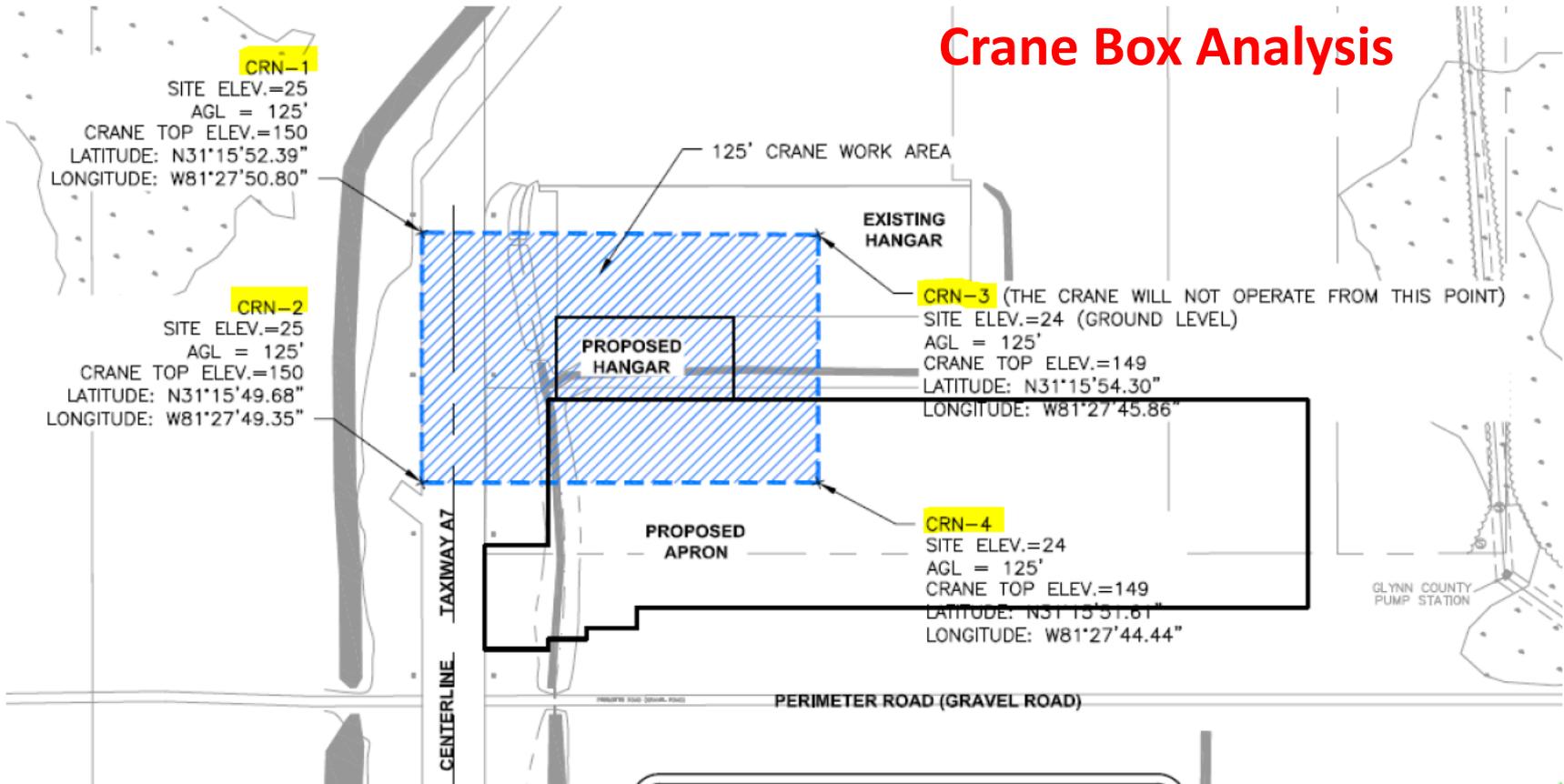


•**Area/Box Analysis**



Determining points for Temporary Cranes

Typical Plan sheet submitted for Crane Box Analysis



Best Practices for submitting Temporary Cranes

- The highest site elevation, or finished grade elevation in the box area should be recorded as the site elevation (SE).
- The tallest point on the crane boom(s) should be recorded as the above ground elevation (AGL), and the closest point of the crane boom to the nearest runway should be recorded as the latitude/longitude for the case.
- In the Description of Proposal field, state that the data submitted is the point of the crane boom that is closest to the nearest runway and the tip of the boom.



Best Practices for submitting Temporary Cranes

Typical Recommended Data for Crane Cases

- Crane Type (boom, crawler, tower, side lift, gantry, jib, etc.).
- Crane make and model and, if requested, the horizontal and vertical lift profile.
- Description of what activity will be conducted and what type of material the crane will hoist.
- Reference CSPP SOP Table 1 for CSPP review requirements. (Note: the CSPP will still need to be submitted as a separate study for a separate determination)



Survey Accuracy Codes

- **Survey Accuracy Code is 4D for all cases entered by the proponent**
- **ADO can change Accuracy Code if proponent provides stamped survey**
- **Recommend proponent obtain 1A survey when necessary**

- Accuracy Code 4D: + 250' Horizontal
+ 50' Vertical

- Accuracy Code 2C: + 50' Horizontal
+ 20' Vertical

- Accuracy Code 1A: + 20' Horizontal
+ 3' Vertical



Permanent Construction Objects

Examples

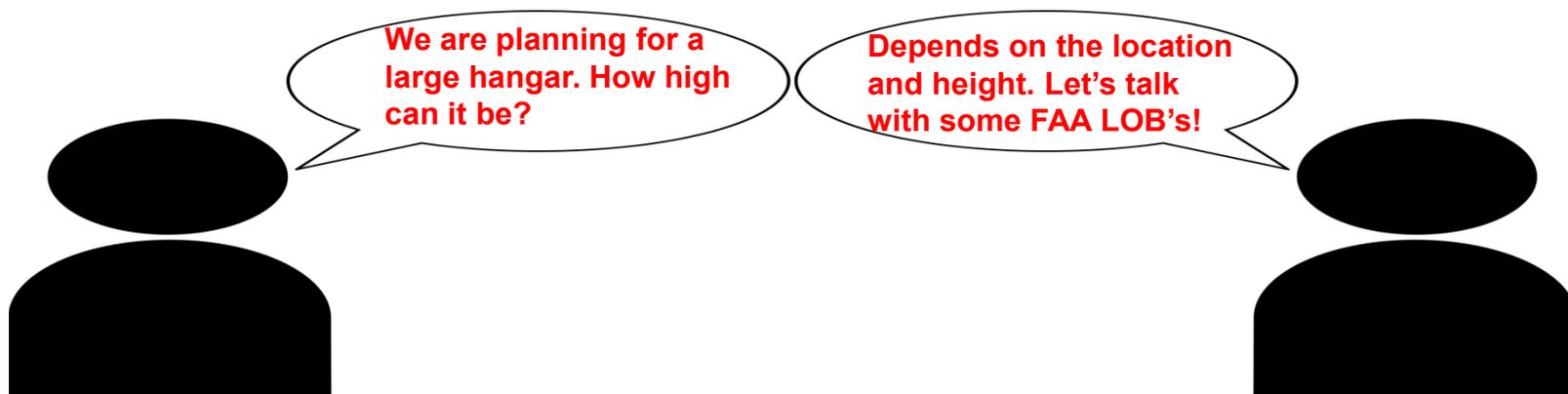
- Buildings
- Vaults
- Pole

7460 permanent object studies should be completed prior to CSPP development to allow early identification of aeronautical impacts.

AIP funded development should submit the Part 77 notification for permanent objects early in the design phase.



Best Practices for Point(s) Submission



Ensure Data is sufficient for each LOB

Project location may require multiple submittals for a LOB to evaluate:

- Objects in the runway approach areas. (Flight Procedures)
- Objects near Navaids. (Tech Ops)
- Objects at Hub size airports. (Flight Procedures & Tech Ops)
- Objects at airports with Precision Instrument Approach Procedures. (Flight Procedures)

Prior to Mapping & Verifying case(s)

Coordinate with LOB to determine the number and location of critical points needed for the study. This can sometimes reduce the number of cases submitted for LOB evaluations.



Best Practices for Point(s) Submission

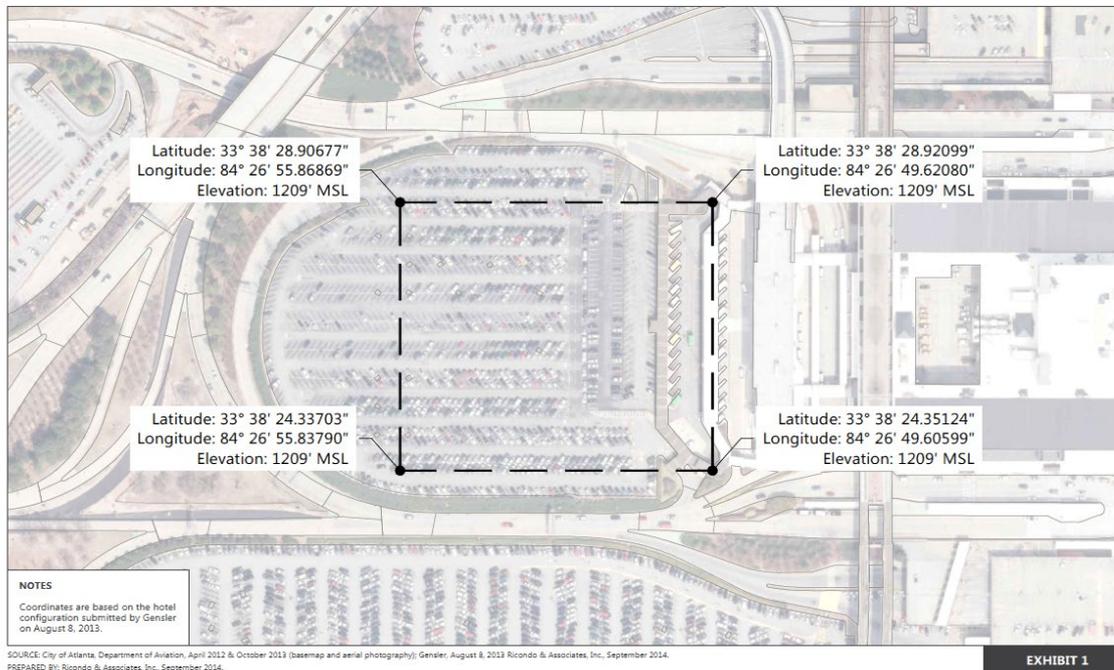
Feasibility Studies

- Determine possible impacts and NEH at location.
- Determination not to be misconstrued as the final approval for construction if mitigations required such as reimbursable agreements. Include expiration date!

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

SEPTEMBER 2014

[Preliminary Draft for Discussion Purposes Only]



Hotel Feasibility
Airspace Study



Federal Aviation
Administration

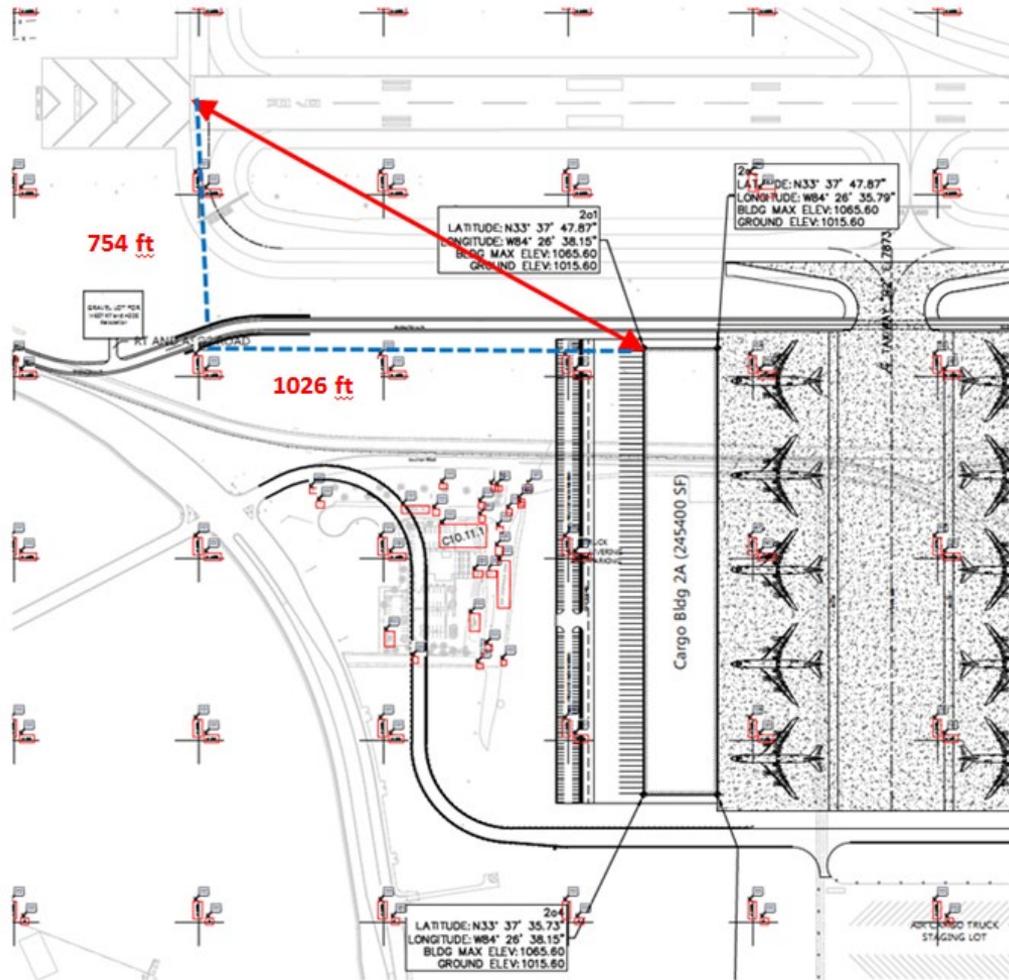
Best Practices for submitting Buildings

FAA JO 7400.2K provides for a efficient method by allowing the proponent to submit one case point in iOE/AAA. This information would be considered worst case. Here's what is needed when you can process the case with one point:

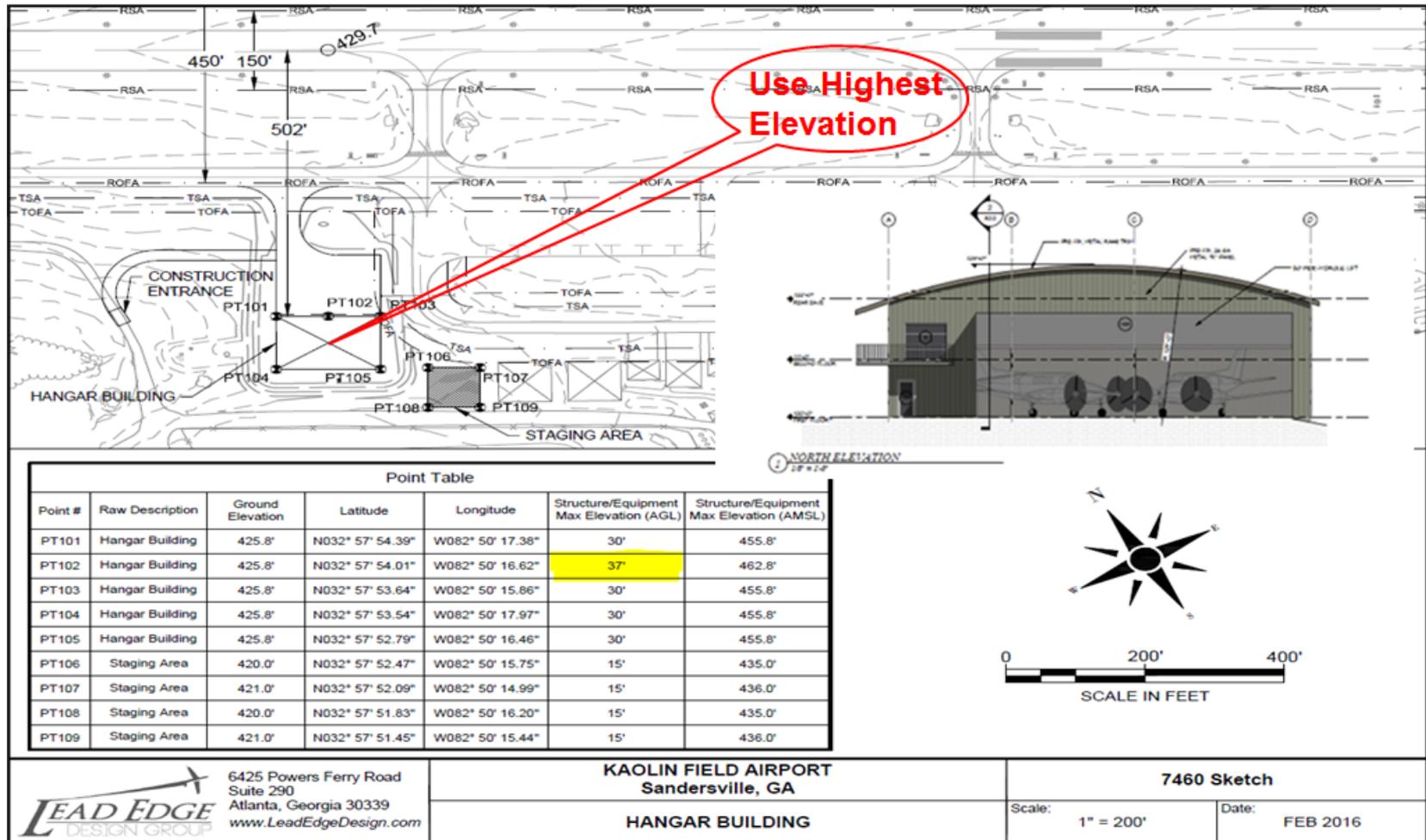
- The highest site elevation, or finished ground elevation should be recorded as the site elevation (SE).**
- The tallest point on the building should be recorded as the above ground elevation (AGL).**
- Plan view drawing indicating the building corners Lat/Log w/elevations.**
- In the Description of Proposal field, state that the data submitted is the point of the building that is closest to the nearest runway and the tallest point of the building.**



- ➔ The closest point of the building to the nearest runway should be recorded as the latitude/longitude for the case. The out and over measurements should also be provided in the case to allow for a cross check of the location (always required).



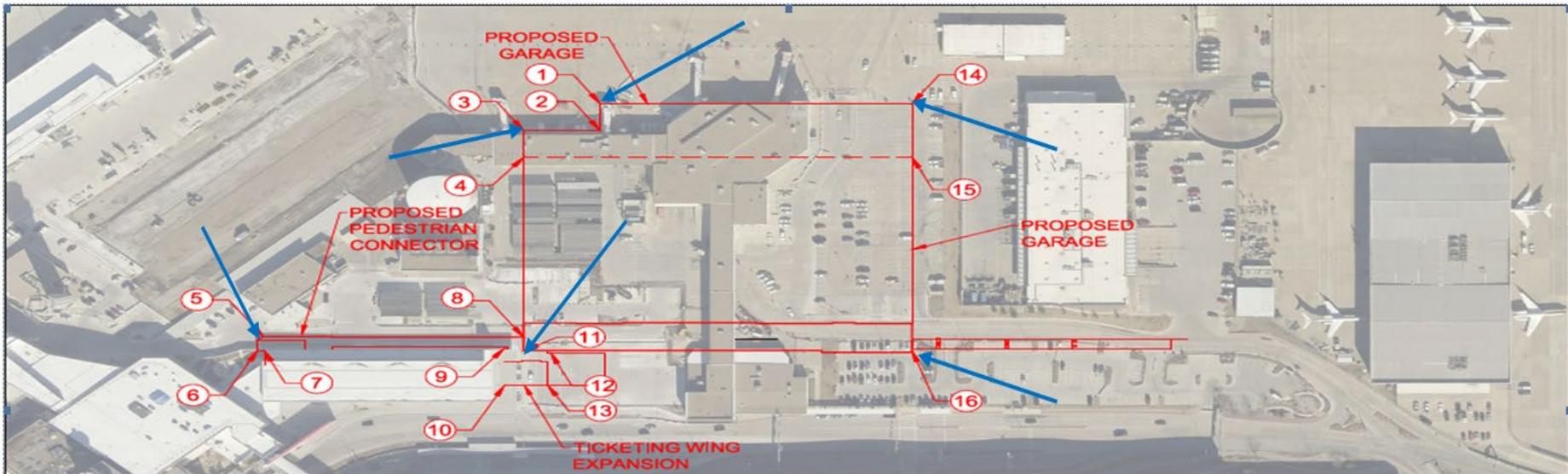
Determining points for Buildings



In the event the sponsor submits a single building with 4 separate NRAs that are not grouped, then the ADO PM should group all 4 cases into a single project by assigning a project name.



Determining points for Buildings



POINT	LATITUDE	LONGITUDE	ELEVATION
1	N32° 50' 40.19"	W96° 50' 48.27"	480 548
2	N32° 50' 39.81"	W96° 50' 48.74"	480 548
3	N32° 50' 40.56"	W96° 50' 49.61"	480 548
4	N32° 50' 40.17"	W96° 50' 50.08"	480 548
5	N32° 50' 40.17"	W96° 50' 56.16"	480 516
6	N32° 50' 40.02"	W96° 50' 56.48"	480 516
7	N32° 50' 39.95"	W96° 50' 56.40"	480 516
8	N32° 50' 37.59"	W96° 50' 53.20"	480 523
9	N32° 50' 37.62"	W96° 50' 53.62"	480 523
10	N32° 50' 37.09"	W96° 50' 54.27"	480 523
11	N32° 50' 37.39"	W96° 50' 53.44"	480 574
12	N32° 50' 37.09"	W96° 50' 53.17"	480 523
13	N32° 50' 36.66"	W96° 50' 53.77"	480 523
14	N32° 50' 37.11"	W96° 50' 44.70"	480 548
15	N32° 50' 36.34"	W96° 50' 45.64"	480 548
16	N32° 50' 33.56"	W96° 50' 49.01"	480 574

← Point of Interest

Roof Ridge Line



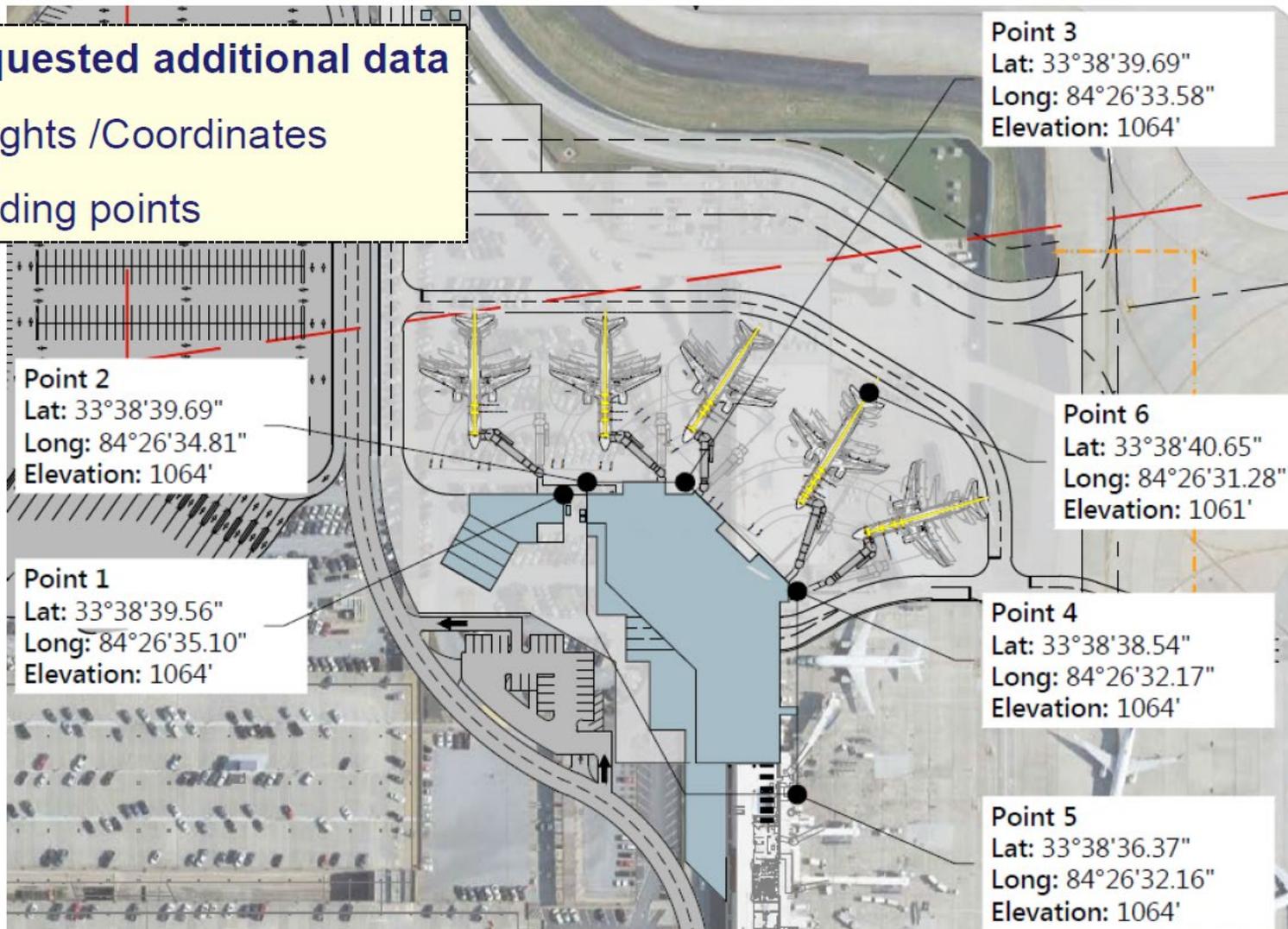
May 13, 2016
Page 1 of 1



Determining points for Buildings

FPT Requested additional data

- Tail Heights /Coordinates
- All Building points



Additional Data items may be requested for Building Cases

- **Site plan depicting building footprint and also depicting location of where filed latitude/longitude coordinates are located on site plan with orientation reference to True North.**
- **Site plan with airport layout showing orientation to runway(s).**
- **Physical building dimensions.**
- **Vertical profile drawing for each building side.**
- **Reference CSPP SOP Table 1 for CSPP review requirements. (Note: the CSPP will still need to be submitted as a separate study for a separate determination)**



Additional Data items may be requested for Building Cases

- **Type of roof construction with vertical profile detail showing pitch, orientation with respect to the building footprint.**
- **Material Composition of roof and exterior facade of building.**
- **Identify any additional exterior metallic roof top or lateral building appurtenances such as air handlers, duct-work, railing systems, and antenna systems, lightning protection, etc.**



Best Practices for submitting Fences

Fence cases should be submitted with the following information:

Do not submit every fence post.

Process for Fence Cases:

- Obtain a site plan depicting the fence alignment.
- Each transition point of the alignment should be entered on a plan sheet.
- ADO should screen drawing to assess if specific points may be needed by LOBs
 - If shielded by trees, buildings, etc...then evaluation is not needed for that fence section.
 - If fence in approach is below threshold elevation, evaluation may not be need for that fence section.
- Contact LOB if required
- Determine number of cases required

Additional recommend submittals with case

- Fabrication material and fence detail sheet.
- Case remarks should accurately describe proposal fence project.
- Fence sections in runway approach areas, near nav aids or at hub airports may require multiple points of interest for responding LOB evaluators.



Construction Safety Phasing Plans (CSPP)



U.S. Department
of Transportation

Federal Aviation
Administration

Advisory Circular

Subject: Operational Safety on
Airports During Construction

Date: 9/29/11
Initiated by: AAS-100

AC No: 150/5370-2F

1. **Purpose.** This AC sets forth guidelines for operational safety on airports during construction.
2. **What this AC Cancels.** This AC cancels AC 150/5370-2E, Operational Safety on Airports During Construction, dated January 17, 2003.
3. **Whom This AC Affects.** This AC assists airport operators in complying with Title 14 Code of Federal Regulations (CFR) Part 139, Certification of Airports (Part 139). For those certificated airports, this AC provides one way, but not the only way, of meeting those requirements. The use of this AC is mandatory for those airport construction projects receiving funds under the Airport Improvement Program (AIP) or the Passenger Facility Charge (PFC) Program. See Grant Assurance No. 34, "Policies, Standards, and Specifications," and PFC Assurance No. 9, "Standard and Specifications." While we do not require non-certificated airports without grant agreements to adhere to these guidelines, we recommend that they do so to help these airports maintain operational safety during construction.
4. **Principal Changes.**
 - a. Construction activities are prohibited in safety areas while the associated runway or taxiway is open to aircraft.
 - b. Guidance is provided in incorporating Safety Risk Management.
 - c. Recommended checklists are provided for writing Construction Safety and Phasing Plans and for daily inspections.
5. **Reading Material Related to this AC.** Numerous ACs are referenced in the text of this AC. These references do not include a revision letter, as they are to be read as referring to the latest version. Appendix 1 contains a list of reading material on airport construction, design, and potential safety hazards during construction, as well as instructions for obtaining these documents.

Michael J. O'Donnell
Director of Airport Safety and Standards



Review of CSPP

- **Required for all on-airfield projects**
 - **Reference AC 150/5370-2F, Operational Safety on Airports During Construction**
- **OE/AAA Airspace Study**
 - **Allow minimum 45 days for coordination**
 - **Complete with FAA determination prior to pre-construction conference**
 - **On Airport & Off Airport**
- **Please use SOP 1 and checklist:**
<https://www.faa.gov/airports/resources/sops/media/arp-SOP-100-CSPP-Eval.pdf>



CSPP

- The review of a CSPP through the OE/AAA system is unlike the review of a specific object or structure.
- The review of a CSPP in OE/AAA typically addresses the general location, character and overall safety mitigation detail of the proposed project.
- Identify possible unacceptable adverse effects on existing aeronautical operations, air traffic control procedures, and airport traffic patterns including:
 - (1) Pavement closures
 - (2) Revised taxi routes
 - (3) Traffic flow
 - (4) Line of sight
 - (5) Resource limitations (facilities, equipment and personnel)



CSPP Coordination via iOE/AAA

The review of a CSPP through the iOE/AAA system does not fully establish whether or not construction objects will have an adverse effect on navigable airspace.



ARP Responsibilities

Responsible for reviewing, coordinating, and approving CSPPs with the other FAA lines of businesses



CSPP SOP – Review Requirements

	AIP Funded Projects (Includes partial AIP participation) ¹		PFC Funded Projects (100%)	Non-Federally Funded Projects	
	Part 139	Non-Part 139	Part 139	Part 139	Non-Part 139
Part 77 Notice (Construction Objects) ²					
Within AOA	Required	Required	Required	Required	Required
Outside of AOA	Required	Required	Required	Required	Required
Sponsor Preparation and Submittal of a CSPP ³					
Within AOA	Required	Required	Required	Certificate holder must comply with §139 requirements ⁴	Not Required
Outside of AOA	Not Required	Not Required	Not Required	Not Required	Not Required
PM Review of CSPP for Conformance to AC 150/5370-2 Standards ⁵					
Within AOA	Required	Required	Not Required ⁶	Not required	Not Required
Outside of AOA	Not Required	Not Required	Not Required	Not Required	Not Required
ACSI Review of CSPP for Compliance with Part 139 ⁷					
Within AOA	ACSI Discretion	Not Required	ACSI Discretion	ACSI Discretion	Not Required
Outside of AOA	Not Required	Not Required	Not Required	Not Required	Not Required

IN ASO, ACSI WILL REVIEW ALL CSPP AT PART 139 AIRPORTS, REGARDLESS OF FUNDING



Review submittal

- Recommend on using Checklist for CSPP Review (Appendix F of SOP)

CSPP Element	Element Addressed?			Remarks
	Yes	No	N/A	
Coordination (Section 205)				
- Contractor Progress Meetings				
- Addresses necessary actions when changes are proposed to CSPP				
- Provisions for FAA ATO Coordination				
Phasing (Section 206)				
- Phase Elements				
- Construction Safety Drawings				
Area and Operations Affected by Construction Activity (Section 207)				
- Identification of affected Areas				
- Mitigation Affects				
Navigation Aid Protection (Section 208)				
- Operational NAVAID Critical areas				
Contractor Access (Section 209)				
- Location of Stockpiles Construction Material				
- Vehicle and Pedestrian Operations				
Wildlife Management (Section 210)				
- Trash				
- Standing Water				
- Tall Grass				
- Fencing and Gates				
- Disruption of Wildlife Habitat				
Foreign Object Debris (Section 211)				
- FOD Control Measures				
Hazardous Material Management (Section 212)				
- Hazardous Material Controls				



Process via iOE/AAA

- **Proponent creates NRA airspace case**
 - Enter the Airport Reference Point for Lat./Long.
 - Enter “0” for site elevation (SE)
 - Enter “0” for above ground level (AGL)
- **Input Case Information:**
 - **Component Type:** Construction Safety Plan
 - **Development Type:** Constr. Safety Plan – Miscellaneous
 - **Describe/Remarks:** Add a brief description of study. Example: *Airspace review of the construction safety phasing plan for an apron reconstruction project at XYZ airport. Additional airspace studies included in the associated project which includes the work site area, equipment parking, and staging area.*



Cloning Cases & Creating Projects

- **Cloning**

- Decreases the amount of data entry necessary to create a new case that has many of the same attributes as an existing case.

- **Projects**

- Links individual cases together as a group.
- Gives the reviewers a better understanding of project
- Determination letter can include multiple ASN's.



Creating a Project

Find: 2015 AGL [] NRA [] GO Cases Help Tools Log Out Data Reports Options

Case Data Part 77 Analysis Generate Letters Documents Corresp Archive Div Respons

Study (ASN): 2013-AGL-7090-NRA **Rush:** Notice Of: Construction [v]
 Prior Study: 2013 [v] - AGL [v] - 670 [] NRA [] Go Duration: Permanent [v]
 Project: [] [Update](#) Months: [] Begin: []
 Status: DET [] to-Prop [] Days: [] End: [] Received: 12/23/2013
 Entered: 12/23/2013
 Det-to-Prop: 03/21/2014 Sta

Sponsor Representative Click To Assign/Update/Create Project

Sponsor*: Columbus Regional airport Authority
 Attention Of: Matt Devereaux
 Address 1: 4600 International Gateway
 Address 2: []
 City*: Columbus
 State*: OH [v] Postal Code*: 43219
 Country*: United States [v]
 Telephone*: (614) 239-5017 Ext: [] Fax: (614) 238-7850
 E-mail: mdevereaux@columbusairports.com

Loc ID*: CMH [v]
 Airport: PORT COLUMBUS INTL
 City: COLUMBUS

Proposed
 SE*: 810
 AGL*: 50
 AMSL*: 860
 Latitude*: 39 - 59 - 57.14 [v]
 Longitude*: 82 - 53 - 23.87 [v]
 Datum*: NAD83 [v] Original Yes
 Accuracy: 4D [v] +/- View Quick Map

Submitted To
 AT-OEG: N ADO: P TC
 FP: F FS: P FM
 USAF: S USA: S US
 AT-OSG: N ATCT: P SE
 DHS: S

AP Sponsor: AP(139): C/
 FSDO: SMO: OT

Remarks* [Case Notes \(1\)](#) [Additional Info](#)

Describe/Remarks:
 LED billboard being mounted to the east side of the Fairfield Inn & Suites which is currently under construction.(building studied under ASN 2013-AGL-670-NRA).

ADO Contact*: Brian Tenkhoff [v]
 Telephone: (734) 229-2933 Ext: []
 Office*: DET-600 [v]
 SBG Contact: []
 Telephone: []

Division(s) Not Responded

Case Saved Part 77 Case Data Div POS Design Nearest Circle
Popups: Map Summary Quick View Resp Report Surfaces Report Airport Search

Record 22 of 1914



Assign Project Create Project

Project:*

Assign Close

To create a project, hit the “Create Project” tab.

Assign Project Create Project

Project Name:*

Description:

Create Close

For projects already created, simply begin typing the name of the project and hit “Assign”.

Tip!

**CREATE A PROJECT NAME YOU WILL REMEMBER AND STAY CONSISTENT
EXAMPLE: ORD – 2015 TAXIWAY ALPHA RECONSTRUCTION PROJECT**



Importance of Following the CSPP

- **Must adhere to all the requirements approved on the CSPP**
- **Please read and follow all comments in the 7460 determination letter! These comments come from all LOBs.**
- **We have found many instances when contractor and engineer are not following the CSPP.**
- **Violations:**
 - Aircraft and/or construction accidents that could result in injuries and fatalities
 - Assurance 20, Hazard Removal and Mitigation, and obstruction protection could result in possible civil penalties from FAA.
- **Safety is the most important on all airport projects should be taking serious by all parties.**
- **All CSPPs should be developed in accordance with the SOP and AC 150/5370-2F, Operational Safety on Airports During Construction**





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