

FAARFIELD 2.0 Update

Presented to: REDAC Briefing to Sub-committee
on Airports

By: David R. Brill, P.E., Ph.D.

Date: March 3, 2021



Federal Aviation
Administration

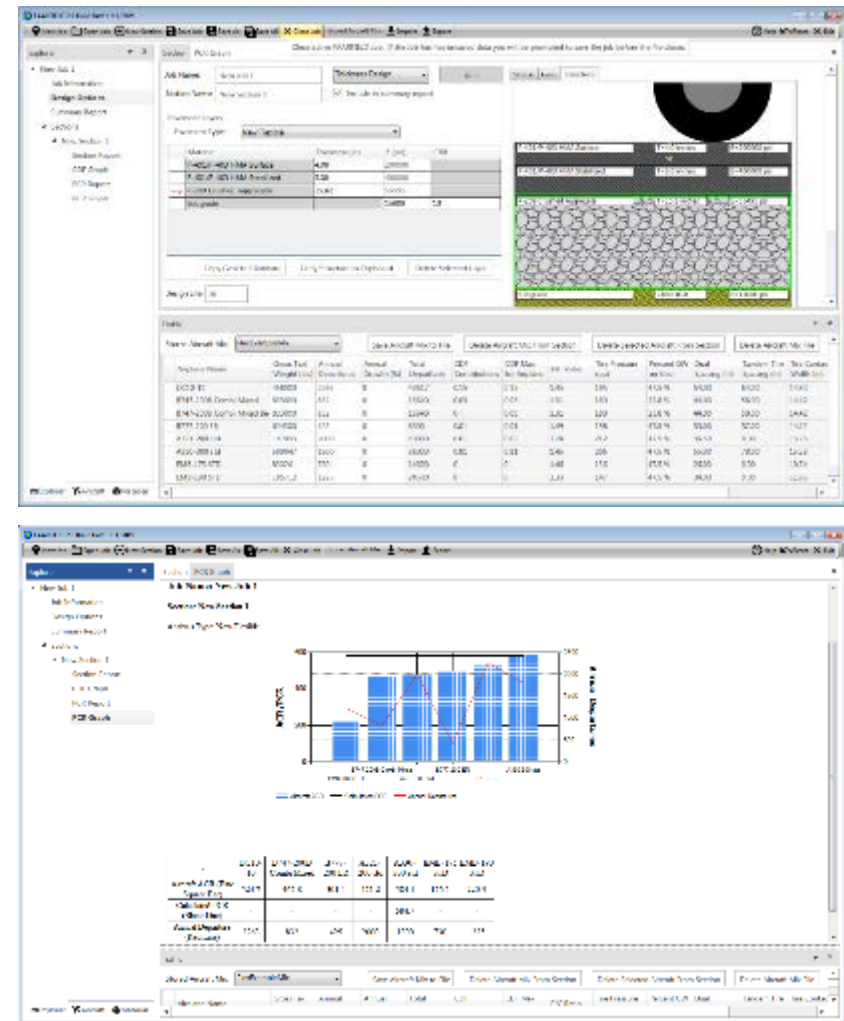


Advisory Circular Status

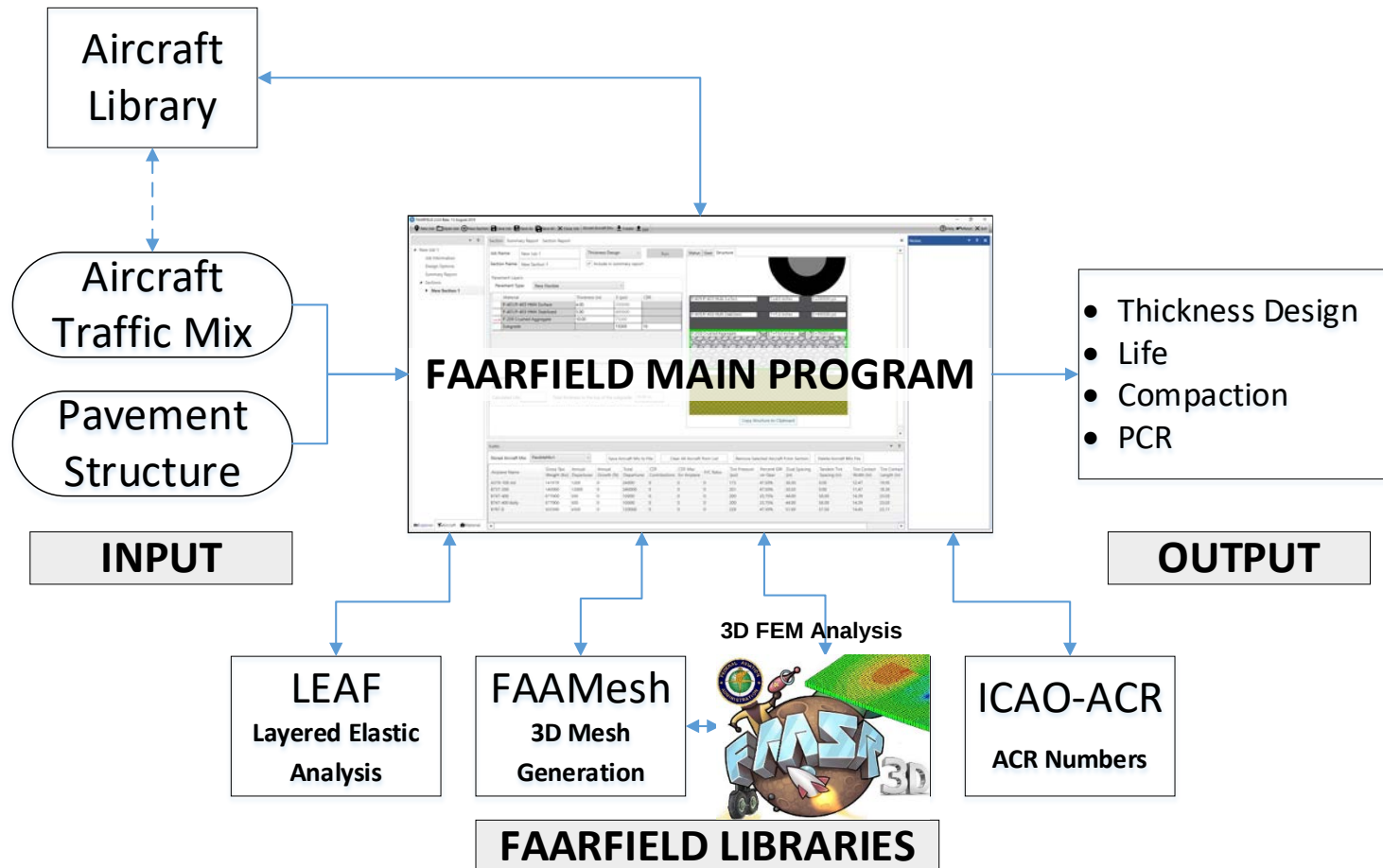
- **New AC 150/5320-6G, *Airport Pavement Design and Evaluation*.**
 - Industry review/comment ended August 2020.
 - Completed FAA legal review – final step.
 - Release expected March 2021.
- **New AC 150/5335-5D, *Standardized Method of Reporting Airport Pavement Strength - PCR*.**
 - Also in FAA legal review.
 - Release expected March 2021.
- **Both ACs incorporate FAARFIELD 2.0 for design & PCR computations.**

FAARFIELD 2.0

- **Major update from version 1.4:**
 - Completely redesigned GUI with improved screen flow and explorer-based navigation.
 - A new 3D finite element computational library, FAASR3D.
 - Support for the new ICAO ACR-PCR system.
 - Ability to add, save and edit user-defined vehicles.
 - Ability to work with multiple jobs/sections at once.
 - Updated aircraft library.
- **No change to thickness design requirements at this time.**

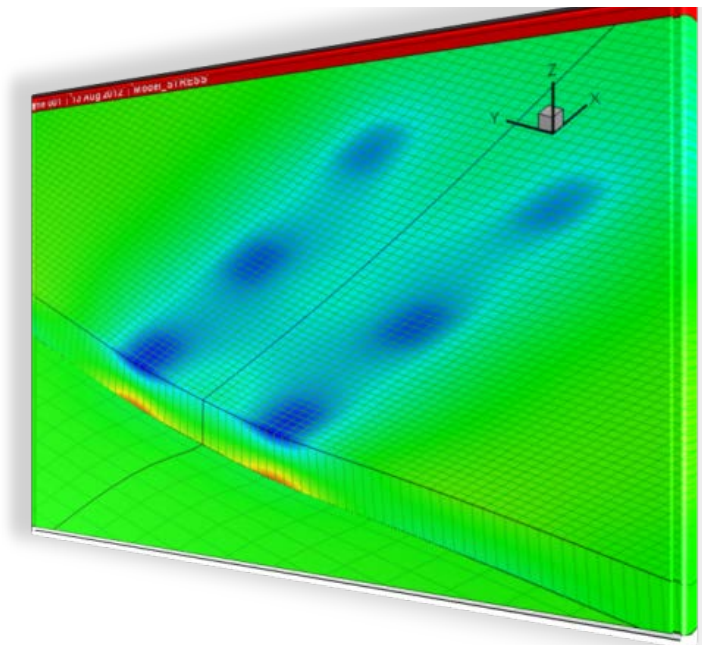


FAARFIELD 2.0 Organization



FAASR3D – FAA Structural Analysis in 3D

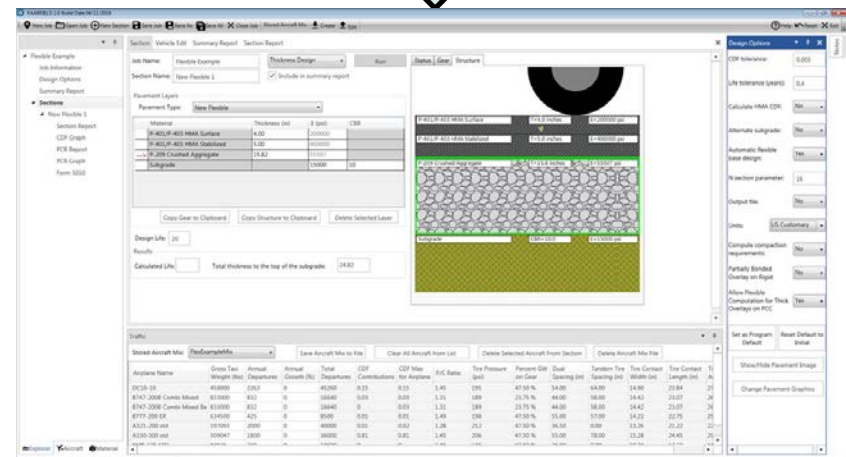
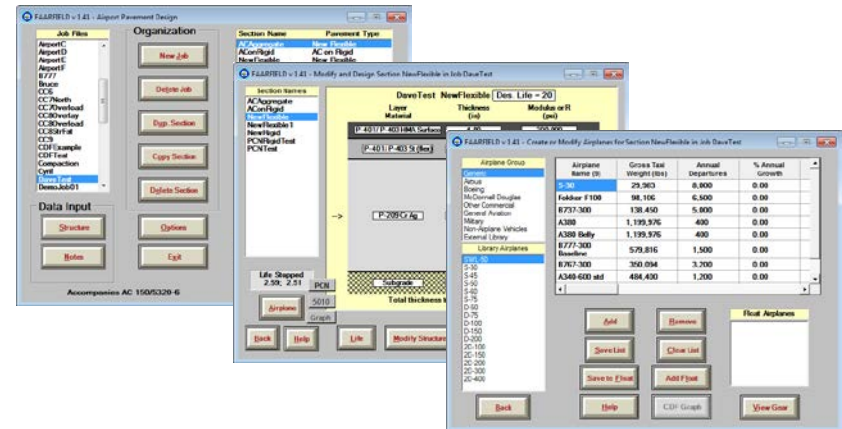
- **Visual Basic.NET library.**
- **Replaces obsolete NIKE3D Fortran program.**
 - Managed Code - compatible with Microsoft .NET memory management services.
 - Improves performance. Old code was subject to memory conflicts and crashing.
 - Freely distributable code.
- **Continued updates to improve speed & efficiency.**



GUI Modernization

Major improvements:

- Easier job and section entry.
- Explorer-based navigation.
- Improved screen re-sizing and appearance.
- Improved flow between screens.
- Ability to store traffic mixes.
- Rationalized data file structure.
- On-demand report generation.
- Remove program logic from GUI controls.
- Etc.



FAARFIELD 2.0 GUI Layout

EXPLORER

TOOLBAR

FUNCTION SELECTION

RUN

OPTIONS

HELP

PAVEMENT TYPE SELECTION

STRUCTURE TABLE

STRUCTURE IMAGE

MATERIAL LIBRARY TAB

TRAFFIC TABLE

AIRCRAFT LIBRARY TAB

FAARFIELD 2.0.0 Beta 22 January 2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit

Section

Job Name: New Job 1 Thickness Design Run Status Gear Structure

Section Name: New Section 1 Include in summary report

Pavement Layers

Pavement Type: New Flexible

Material	Thickness (in)	E (psi)	CBR
P-401/P-403 HMA Surface	4.0	200000	
P-401/P-403 HMA Stabilized	5.0	400000	
P-209 Crushed Aggregate	10.0	75000	
Subgrade		15000	10

Design Life: 20

Results

Calculated Life: Total thickness to the top of the subgrade: 19.00 in.

Copy Structure to Clipboard

Design Options

Calculate HMA CDF: No

Automatic flexible base design: Yes

Output file: No

Units: US Customary

Allow Flexible Computation for Thick Overlays on PCC: Yes

Set as Program Default Reset Default to Initial

Show/Hide Pavement Image

Change Pavement Graphics

Traffic

Stored Aircraft Mix: FlexibleMix1 Save Aircraft Mix to File Clear All Aircraft from List Remove Selected Aircraft From Section Delete Aircraft Mix File

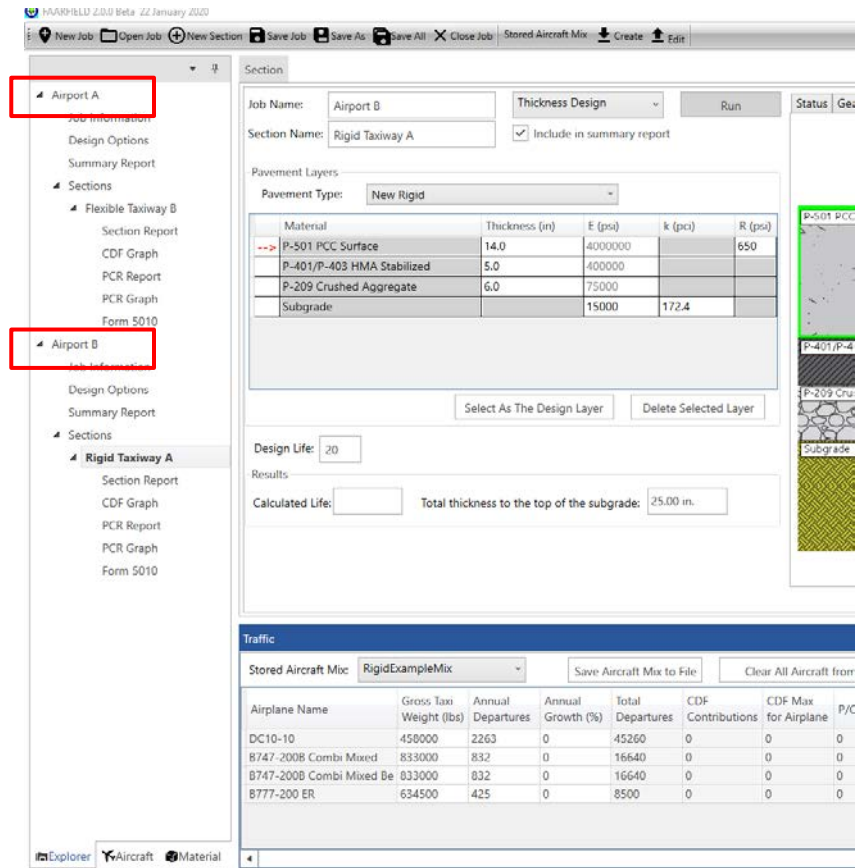
Airplane Name	Gross Taxi Weight (lbs)	Annual Departures	Annual Growth (%)	Total Departures	CDF Contributions	CDF Max for Airplane	P/C Ratio	Tire Pressure (psi)	Percent GW on Gear	Dual Spacing (in)	Tandem Tire Spacing (in)	Tire Contact Width (in)	Tire Contact Length (in)
A319-100 std	141978	1200	0	24000	0	0	0	173	47.50%	36.5	0.0	12.5	19.9
B737-300	140000	12000	0	240000	0	0	0	201	47.50%	30.5	0.0	11.5	18.4
B747-400	877000	500	0	10000	0	0	0	200	23.75%	44.0	58.0	14.4	23.0
B747-400 Belly	877000	500	0	10000	0	0	0	200	23.75%	44.0	58.0	14.4	23.0
B787-8	503500	6500	0	130000	0	0	0	228	47.50%	51.0	57.5	14.4	23.1

Explorer Aircraft Material

Design Options Notes

Explorer Navigation

- **FAARFIELD 2.0** supports multiple jobs open at the same time.
- Use the Explorer to navigate between jobs, and display:
 - Sections
 - Section Reports
 - PCR Reports/Graphs
 - 5010 Reports
 - Summary Reports (All sections in a job)



Four Functions in FAARFIELD 2.0

FAARFIELD 2.0.0 Beta 22 January 2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit

Section Section Report CDF Graph Form 5010

New Job 1

- Job Information
- Design Options
- Summary Report
- Sections
 - New Section 1
 - Section Report
 - CDF Graph
 - PCR Report
 - PCR Graph
 - Form 5010

Job Name: New Job 1

Section Name: New Section 1

Pavement Layers

Pavement Type: New Flexible

Material	Thickness (in)	E (ksi)	CBR
P-401/P-403 HMA Surface	4.0	200000	
P-401/P-403 HMA Stabilized	5.0	400000	
--> P-209 Crushed Aggregate	18.3	65665	
Subgrade		15000	10

Select As The Design Layer Delete Sel

Design Life: 20

Results

Calculated Life: Total thickness to the top of the subgrade: 27.30 in.

Traffic

Stored Aircraft Mix: FlexExampleMix Save Aircraft Mix to File

Airplane Name	Gross Taxi Weight (lbs)	Annual Departures	Annual Growth (%)	Total Departures	CI
A320-100	150796	600	0	12000	0
A340-600 std	807333	1000	0	20000	0
A340-600 std Belly	807333	1000	0	20000	0
A380	1238998	300	0	6000	0
A380 Belly	1238998	300	0	6000	0
B737-800	174700	2000	0	40000	0
B777-300 ER	777000	1000	0	20000	0

Explorer Aircraft Material

- **THICKNESS DESIGN** – Compute required thickness per AC 150/5320-6.
- **LIFE** – Compute structural life for a given structure and traffic mix.
- **COMPACTION** – Compute subgrade compaction requirements per AC 150/5320-6 for a given structure and traffic mix. (Applies to completed designs.)
- **PCR** – Compute Pavement Classification Rating (PCR) for the structure and traffic mix.

FAARFIELD 2.0 Starting Screen

FAARFIELD 2.0.0 Beta 22 January 2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit Help Reset Exit

Section

Job Name: New Job 1 Thickness Design Run Status Gear Structure

Section Name: New Section 1 ☒ Include in summary report

Pavement Layers

Pavement Type: **New Flexible**

- HMA on Aggregate
- HMA on Flexible
- HMA on Rigid
- New Rigid
- PCC on Flexible
- Unbonded on Rigid

Material E (psi)

Select As The Design Layer Delete Selected Layer

Design Life: 20

Results

Calculated Life: Total thickness to the top of the subgrade: 0.00 in.

Copy Structure to Clipboard

Select a pavement type from drop-down list

Traffic

Stored Aircraft Mix: Save Aircraft Mix to File Clear All Aircraft from List Remove Selected Aircraft From Section Delete Aircraft Mix File

Airplane Name	Gross Taxi Weight (lbs)	Annual Departures	Annual Growth (%)	Total Departures	CDF Contributions	CDF Max for Airplane	P/C Ratio	Tire Pressure (psi)	Percent GW on Gear	Dual Spacing (in)	Tandem Tire Spacing (in)	Tire Contact Width (in)	Tire Contact Length (in)
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Explorer Aircraft Material

FAARFIELD 2.0 Design Example

FAARFIELD 2.0.0.h Beta 09/25/2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit Batch Run Selection Select All DeSelect All Help Reset Exit

Section

Job Name: New Job 1 Thickness Design Run

Section Name: New Section 1 ☒ Include in summary report ☐ Add To Batch

Pavement Layers

Pavement Type: New Flexible

Material	Thickness (in.)	E (psi)	CBR
P-401/P-403 HMA Surface	4.0	200000	
P-401/P-403 HMA Stabilized	5.0	400000	
P-209 Crushed Aggregate	10.0	75000	
Subgrade		15000	10

Select As The Design Layer Delete Selected Layer

Design Life: 20

Results

Calculated Life: Total thickness to the top of the s

Status Gear Structure

P-401/P-403 HMA Surface T=4.0 inches E=200000 psi

P-401/P-403 HMA Stabilized T=5.0 inches E=400000 psi

P-209 Crushed Aggregate T=10.0 inches E=75000 psi

Subgrade CBR=10.0 E=15000 psi

Design Options

Calculate HMA CDF: No

Automatic flexible base design: Yes

Output file: No

Units: US Customary

Allow Flexible Computation for Thickness Overlays of PCC Metric

Compute ACR for All Subgrade Categories No

Show Advanced Options

Set as Program Default Reset Default to Initial

Show/Hide Pavement Image

Change Pavement Graphics

In Options, select preferred unit system.

Traffic

Stored Aircraft Mix: Save Aircraft Mix to File Clear All Aircraft from List Remove Selected Aircraft From Section Delete Aircraft Mix File

Airplane Name	Gross Taxi Weight (lbs)	Annual Departures	Annual Growth (%)	Total Departures	CDF Contributions	CDF Max for Airplane	P/C Ratio	Tire Pressure (psi)	Percent GW on Gear	Dual Tire Spacing (in.)	Tandem Tire Spacing (in.)	Tire Contact Width (in.)	Tire Contact Length (in.)
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Explorer Aircraft Material

Design Options Notes

Pavement Structure

FAARFIELD 2.0.0.h Beta 09/25/2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit Batch Run Selection Select All DeSelect All Help Reset Exit

Section

Job Name: New Job 1 Thickness Design Run

Section Name: New Section 1 ☒ Include in summary report ☐ Add To Batch

Pavement Layers

Pavement Type: New Flexible

Material	Thickness (mm)	E (MPa)	CBR
P-401/P-403 HMA Surface	100	1378.95	
P-401/P-403 HMA Stabilized	125	2757.90	
P-209 Crushed Aggregate	250	517.11	
Subgrade		103.42	10

Select As The Design Layer Delete Selected Layer

Design Life: 20

Results

Calculated Life: Total thickness to the top of the subgrade: 475 mm

Status Gear Structure

Copy Structure to Clipboard

Design Options

Calculate HMA CDF: No

Automatic flexible base design: Yes

Output file: No

Units: Metric

Allow Flexible Computation for Thick Overlays on PCC: Yes

Compute ACR for All Subgrade Categories: No

Show Advanced Options

Set as Program Default Reset Default to Initial

Show/Hide Pavement Image

Change Pavement Graphics

Design Options Notes

You can change the structure in the table, or by clicking directly on the image.

Aircraft Selection

Aircraft library has been completely reorganized and updated for the FAARFIELD 2.0 release!

FAARFIELD 2.0.0.h Beta 09/25/2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit Batch Run Selection Select All DeSelect All Help Reset Exit

Aircraft Group

Job Name: New Job 1 Thickness Design Run Add To Batch

Section Name:

Pavement Layer: New Flexible

Material	Thickness (mm)	E (MPa)	CBR
P-401/P-403 HMA Surface	100	1378.95	
P-401/P-403 HMA Stabilized	125	2757.90	
P-209 Crushed Aggregate	250	517.11	
Subgrade		103.42	10

Select As The Design Layer Delete Selected Layer

Design Life: 20

Results

Calculated Life: Total thickness to the top of the subgrade: 475 mm

Library Aircraft

FAARFIELD Aircraft Library

- B747-400ER
- B747-8
- B747-8F
- B747-SP
- B757-200
- B757-300
- B767-200
- B767-200 ER
- B767-300
- B767-300 ER
- B767-300 ER/Freighter
- B767-400 ER
- B777-200
- B777-200 Advanced Basic
- B777-200 LR
- B777-300
- B777-300 ER
- B777F

Traffic List

Stored Aircraft Mix: Save Aircraft Mix to File Clear All Aircraft from List Remove Selected Aircraft From Section Delete Aircraft Mix File

Airplane Name	Gross Taxi Weight (kg)	Annual Departures	Annual Growth (%)	Total Departures	CDF Contributions	CDF Max for Airplane	P/C Ratio	Tire Pressure (kPa)	Percent GW on Gear	Dual Tire Spacing (mm)	Tandem Tire Spacing (mm)	Tire Contact Width (mm)	Tire Length
A300-B4/C4 Std Bogie	165900	600	0	12000	0	0	0	1490	47.50%	927	1397	321	514
A319-100 std	64400	1000	0	20000	0	0	0	1193	47.50%	927	0	316	500
B727-200 Advanced Basic	84000	1000	0	20000	0	0	0	1020	47.50%	864	0	391	525
B737-300	63503	1200	0	24000	0	0	0	1386	47.50%	775	0	291	466
B747-400	397801	300	0	6000	0	0	0	1379	23.75%	1118	1473	366	585
B747-400 Belly	397801	300	0	6000	0	0	0	1379	23.75%	1118	1473	366	585
B767-200 ER	179623	2000	0	40000	0	0	0	1310	47.50%	1143	1422	356	570
B777-200 ER	298460	1000	0	20000	0	0	0	1413	47.50%	1397	1448	361	578

Design Options

Calculate HMA CDF: No

Automatic flexible base design: Yes

Output file: No

Units: Metric

Allow Flexible Computation for Thick Overlays on PCC: Yes

Compute ACR for All Subgrade Categories: No

Show Advanced Options

Set as Program Default Reset Default to Initial

Show/Hide Pavement Image

Change Pavement Graphics

Aircraft Selection

Gear data displayed on screen
(mouse over wheel to display coordinates)

FAARFIELD 2.0.0.h Beta 09/25/2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit Batch Run Selection Select All DeSelect All Help Reset Exit

Aircraft

FAARFIELD Aircraft Group

- Generic
- Airbus
- Boeing
- McDonnell Douglas
- Other Large Jet
- Regional/Commuter
- General Aviation
- Military
- Non-Airplane Vehicles
- External Library

Section

Job Name: New Job 1 Thickness Design Run

Section Name: New Section 1 ☒ Include in summary report ☐ Add To Batch

Pavement Layers

Pavement Type: New Flexible

Material	Thickness (mm)	E (MPa)	CBR
P-401/P-403 HMA Surface	100	1378.95	
P-401/P-403 HMA Stabilized	125	2757.90	
P-209 Crushed Aggregate	250	517.11	
Subgrade		103.42	10

Traffic

Stored Aircraft Mix:

Airplane Name	Gross Taxi Weight (kg)	Annual Departures	Annual Growth (%)	Total Departures	CDF Contributions	CDF Max for Airplane	P/C Ratio	Tire Pressure (kPa)	Percent GW on Gear	Dual Tire Spacing (mm)	Tandem Tire Spacing (mm)	Tire Contact Width (mm)	Tire Contact Length (mm)
A300-B4/C4 Std Bogie	165900	600	0	12000	0	0	0	1490	47.50%	927	1397	321	514
A319-100 std	64400	1000	0	20000	0	0	0	1193	47.50%	927	0	316	506
B727-200 Advanced Basic	84000	1000	0	20000	0	0	0	1020	47.50%	864	0	391	625
B737-300	63503	1200	0	24000	0	0	0	1386	47.50%	775	0	291	466
B747-400	397801	300	0	6000	0	0	0	1379	23.75%	1118	1473	366	585
B747-400 Belly	397801	300	0	6000	0	0	0	1379	23.75%	1118	1473	366	585
B767-200 ER	179623	2000	0	40000	0	0	0	1310	47.50%	1143	1422	356	570
B777-200 ER	298460	1000	0	20000	0	0	0	1413	47.50%	1397	1448	361	578

Design Options

Calculate HMA CDF: No

Automatic flexible base design: Yes

Output file: No

Units: Metric

Allow Flexible Computation for Thick Overlays on PCC: Yes

Compute ACR for All Subgrade Categories: No

Show Advanced Options

Set as Program Default Reset Default to Initial

Show/Hide Pavement Image

Change Pavement Graphics

Figure: Wheel Coordinates

Y = -1451

X = 4623

X = 4788.0

Y = -1447.8

Copy Gear to Clipboard

Save aircraft mix to file (replaces "float aircraft")

Run Thickness Design

FAARFIELD 2.0.0.h Beta 09/25/2020

Section

Job Name: New Job 1 Thickness Design **Run** Status Gear Structure

Section Name: New Section 1 ☒ Include in summary report ☐ Add To Batch

Pavement Layers

Pavement Type: New Flexible

Material	Thickness (mm)	E (MPa)	CBR
P-401/P-403 HMA Surface	100	1378.95	
P-401/P-403 HMA Stabilized	125	2757.90	
P-209 Crushed Aggregate	250	517.11	
Subgrade		103.42	10

Select As The Design Layer Delete Selected Layer

Design Life: 20

Results

Calculated Life: Total thickness to the top of the subgrade: 475 mm

Design Options

Calculate HMA CDF: No

Automatic flexible base design: Yes

Output file: No

Units: Metric

Allow Flexible Computation for Thick Overlays on PCC: Yes

Compute ACR for All Subgrade Categories: No

Show Advanced Options

Set as Program Default Reset Default to Initial

Show/Hide Pavement Image

Change Pavement Graphics

Traffic

Stored Aircraft Mix: Save Aircraft Mix to File Clear All Aircraft from List Remove Selected Aircraft From Section Delete Aircraft Mix File

Airplane Name	Gross Taxi Weight (kg)	Annual Departures	Annual Growth (%)	Total Departures	CDF Contributions	CDF Max for Airplane	P/C Ratio	Tire Pressure (kPa)	Percent GW on Gear	Dual Tire Spacing (mm)	Tandem Tire Spacing (mm)	Tire Contact Width (mm)	Tire Contact Length (mm)
A300-B4/C4 Std Bogie	165900	600	0	12000	0	0	0	1490	47.50%	927	1397	321	514
A319-100 std	64400	1000	0	20000	0	0	0	1193	47.50%	927	0	316	506
B727-200 Advanced Basic	84000	1000	0	20000	0	0	0	1020	47.50%	864	0	391	625
B737-300	63503	1200	0	24000	0	0	0	1386	47.50%	775	0	291	466
B747-400	397801	300	0	6000	0	0	0	1379	23.75%	1118	1473	366	585
B747-400 Belly	397801	300	0	6000	0	0	0	1379	23.75%	1118	1473	366	585
B767-200 ER	179623	2000	0	40000	0	0	0	1310	47.50%	1143	1422	356	570
B777-200 ER	298460	1000	0	20000	0	0	0	1413	47.50%	1397	1448	361	578

FAARFIELD Aircraft Group

Generic

Airbus

Boeing

McDonnell Douglas

Other Large Jet

Regional/Commuter

General Aviation

Military

Non-Airplane Vehicles

External Library

FAARFIELD Aircraft Library

B747-400ER

B747-8

B747-8F

B747-SP

B757-200

B757-300

B767-200

B767-200 ER

B767-300

B767-300 ER

B767-300 ER/Freighter

B767-400 ER

B777-200

B777-200 ER

B777-200 LR

B777-300

B777-300 ER

B777F

Explorer Aircraft Material

Design Complete

FAARFIELD 2.0.0.h Beta 09/25/2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit Batch Run Selection Select All DeSelect All Help Reset Exit

Aircraft

FAARFIELD Aircraft Group

- Generic
- Airbus
- Boeing
- McDonnell Douglas
- Other Large Jet
- Regional/Commuter
- General Aviation
- Military
- Non-Airplane Vehicles
- External Library

Section

Job Name: New Job 1 Thickness Design Run

Section Name: New Section 1 ☒ Include in summary report ☐ Add To Batch

Pavement Layers

Pavement Type: New Flexible

Material	Thickness (mm)	E (MPa)	CBR
P-401/P-403 HMA Surface	100	1378.95	
P-401/P-403 HMA Stabilized	125	2757.90	
P-209 Crushed Aggregate	367	363.33	
Subgrade		103.42	10

Select As The Design Layer Delete Selected Layer

Design Life: 20

Results

Calculated Life: Total thickness to the top of the subgrade: 592 mm

Status Gear Structure

Design Completed
Run Time: 3 seconds
Subgrade CDF = 1.00;

Design Options

Calculate HMA CDF: No

Automatic flexible base design: Yes

Output file: No

Units: Metric

Allow Flexible Computation for Thick Overlays on PCC: Yes

Compute ACR for All Subgrade Categories: No

Show Advanced Options

Set as Program Default Reset Default to Initial

Show/Hide Pavement Image

Change Pavement Graphics

Traffic

Stored Aircraft Mix: Save Aircraft Mix to File Clear All Aircraft from List Remove Selected Aircraft From Section Delete Aircraft Mix File

Airplane Name	Gross Taxi Weight (kg)	Annual Departures	Annual Growth (%)	Total Departures	CDF Contributions	CDF Max for Airplane	P/C Ratio	Tire Pressure (kPa)	Percent GW on Gear	Dual Tire Spacing (mm)	Tandem Tire Spacing (mm)	Tire Contact Width (mm)	Tire Contact Length (mm)
A300-B4/C4 Std Bogie	165900	600	0	12000	0.07	0.08	1.32	1490	47.50%	927	1397	321	514
A319-100 std	64400	1000	0	20000	0	0	1.32	1193	47.50%	927	0	316	506
B727-200 Advanced Basic	84000	1000	0	20000	0	0.03	1.3	1020	47.50%	864	0	391	625
B737-300	63503	1200	0	24000	0	0	1.4	1386	47.50%	775	0	291	466
B747-400	397801	300	0	6000	0.26	0.26	1.36	1379	23.75%	1118	1473	366	585
B747-400 Belly	397801	300	0	6000	0	0.26	1.36	1379	23.75%	1118	1473	366	585
B767-200 ER	179623	2000	0	40000	0.15	0.18	1.38	1310	47.50%	1143	1422	356	570
B777-200 ER	298460	1000	0	20000	0.53	0.53	1.55	1413	47.50%	1397	1448	361	578

Design Options Notes

Design Complete

FAARFIELD 2.0.0.h Beta 09/25/2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit Batch Run Selection Select All DeSelect All Help Reset Exit

Aircraft

FAARFIELD Aircraft Group

Generic

Airbus

Boeing

McDonnell Douglas

Other Large Jet

Regional/Commuter

General Aviation

Military

Non-Airplane Vehicles

External Library

FAARFIELD Aircraft Library

B747-400ER

B747-8

B747-8F

B747-SP

B757-200

B757-300

B767-200

B767-200 ER

B767-300

B767-300 ER

B767-300 ER/Freighter

B767-400 ER

B777-200

B777-200 ER

B777-200 LR

B777-300

B777-300 ER

B777F

Explorer Aircraft Material

Section

Job Name: New Job 1 Thickness Design Run

Section Name: New Section 1 Include in summary report Add To Batch

Pavement Layers

Pavement Type: New Flexible

Material	Thickness (mm)	E (MPa)	CBR
P-401/P-403 HMA Surface	100	1378.95	
P-401/P-403 HMA Stabilized	125	2757.90	
P-209 Crushed Aggregate	367	363.33	
Subgrade		103.42	10

Select As The Design Layer Delete Selected Layer

Design Life: 20

Results

Calculated Life: Total thickness to the top of the subgrade: 592 mm

Traffic

Stored Aircraft Mix: Save Aircraft Mix to File Clear All Aircraft from List Remove Selected Aircraft From Section Delete Aircraft Mix File

Airplane Name	Gross Taxi Weight (kg)	Annual Departures	Annual Growth (%)	Total Departures	CDF Contributions	CDF Max for Airplane	P/C Ratio	Tire Pressure (kPa)	Percent GW on Gear	Dual Tire Spacing (mm)	Tandem Tire Spacing (mm)	Tire Contact Width (mm)	Tire Contact Length (mm)
A300-B4/C4 Std Bogie	165900	600	0	12000	0.07	0.08	1.32	1490	47.50%	927	1397	321	514
A319-100 std	64400	1000	0	20000	0	0	1.32	1193	47.50%	927	0	316	506
B727-200 Advanced Basic	84000	1000	0	20000	0	0.03	1.3	1020	47.50%	864	0	391	625
B737-300	63503	1200	0	24000	0	0	1.4	1386	47.50%	775	0	291	466
B747-400	397801	300	0	6000	0.26	0.26	1.36	1379	23.75%	1118	1473	366	585
B747-400 Belly	397801	300	0	6000	0	0.26	1.36	1379	23.75%	1118	1473	366	585
B767-200 ER	179623	2000	0	40000	0.15	0.18	1.38	1310	47.50%	1143	1422	356	570
B777-200 ER	298460	1000	0	20000	0.53	0.53	1.55	1413	47.50%	1397	1448	361	578

Design Options

Calculate HMA CDF: No

Automatic flexible base design: Yes

Output file: No

Units: Metric

Allow Flexible Computation for Thick Overlays on PCC: Yes

Compute ACR for All Subgrade Categories: No

Show Advanced Options

Set as Program Default Reset Default to Initial

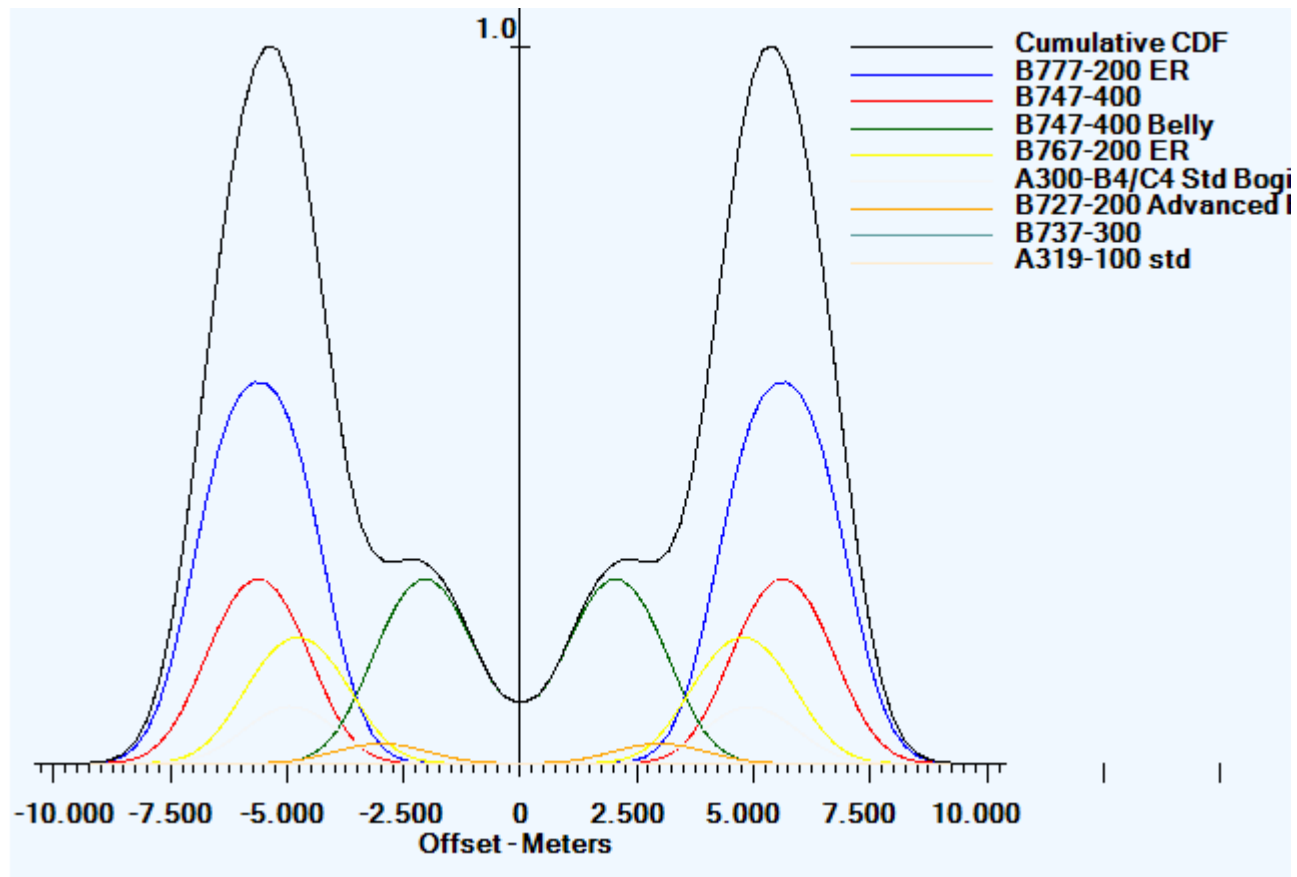
Show/Hide Pavement Image

Change Pavement Graphics

Design Options Notes

Copy Structure to Clipboard

Cumulative Damage Factor (CDF)



User-Defined Aircraft Mode

Create, edit and save user-defined aircraft within the program.

FAARFIELD 2.0.0 Beta 22 January 2020

New Job Open Job New Section Save Job Save As Save All Close Job Stored Aircraft Mix Create Edit Help Reset Exit

Aircraft Section **Vehicle Edit**

FAARFIELD Aircraft Group

- Generic
- Airbus
- Boeing
- McDonnell Douglas
- Other Commercial
- General Aviation
- Military
- Non-Airplane Vehicles
- External Library

FAARFIELD Aircraft Library

- C-141A ICAO Flexible
- 2D-400 Ext1 (UDA)
- B737-900xt (UDA)
- B737-9ext (UDA)
- B767 ER Growth (UDA)
- Test3D (UDA)

User Defined Aircraft Info

Select Aircraft: B767 ER Growth (UDA)

Gross Taxi Weight (lbs): 413000

Percent Gross Weight On Whole Main Gear: 0.95

PCR Percent Gross Weight On Gear: 0.924

Tire Pressure (psi): 200

User Defined Gear

Design Options

Calculate HMA CDF: No

Automatic flexible base design: Yes

Output file: No

Units: US Customary

Allow Flexible Computation for Thick Overlays on PCC: Yes

Set as Program Default Reset Default to Initial

Show/Hide Pavement Image

Change Pavement Graphics

Tires

X Coord. (in)	Y Coord. (in)
-224.3	28.0
-179.3	28.0
-224.3	-28.0
-179.3	-28.0

Evaluation Points

X Coord. (in)	Y Coord. (in)
-201.8	0.0
-201.8	-8.8
-201.8	-17.5
-197.3	-19.6
-192.8	-21.7
-188.3	-23.8

Delete Tire Delete Eval. Point Update Gear Image Update User Defined Aircraft

Traffic

Stored Aircraft Mix: Save Aircraft Mix to File Clear All Aircraft from List Remove Selected Aircraft From Section Delete Aircraft Mix File

Airplane Name	Gross Taxi Weight (lbs)	Annual Departures	Annual Growth (%)	Total Departures	CDF Contributions	CDF Max for Airplane	P/C Ratio	Tire Pressure (psi)	Percent GW on Gear	Dual Spacing (in)	Tandem Tire Spacing (in)	Tire Contact Width (in)	Tire Contact Length (in)
A320-100	150796	600	0	12000	0	0	0	200	47.50%	36.5	0.0	11.9	19.1
A340-600 std	807333	1000	0	20000	0	0	0	234	35.98%	55.0	78.0	15.7	25.2
A340-600 std Belly	807333	1000	0	20000	0	0	0	222	23.04%	46.3	77.9	12.9	20.7
A380	1238998	300	0	6000	0	0	0	218	19.00%	53.1	66.9	14.7	23.5
A380 Belly	1238998	300	0	6000	0	0	0	218	28.50%	0.0	0.0	14.7	23.5
B737-800	174700	2000	0	40000	0	0	0	204	47.50%	34.0	0.0	12.7	20.4

Design Options Notes



User-Defined Aircraft

- **FAARFIELD treats UDA just like other library aircraft, except they have (UDA) appended to the aircraft name.**
- **UDA data are stored in files in:**
C:\Users\[user]\Documents\My FAARFIELD\User Defined Aircraft
- **UDA data are also saved to the job file – useful if a job is sent to another user.**

FAARFIELD 2.0 Download

<http://www.airporttech.tc.faa.gov/Products/Airport-Pavement-Software-Programs>

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FAA NATPF / Monday, June 22, 2020 / Categories: AirportPavementSoftware

FAARFIELD 2.0.0.e RC

FAARFIELD 2.0.0.e RC is the evaluation version of the FAARFIELD 2.0 airport pavement thickness design software accompanying DRAFT AC 150/5320-6G, Airport Pavement Design and Evaluation.

FAARFIELD 2.0.0.e RC (Release Candidate) is the evaluation version of the airport pavement thickness design software accompanying DRAFT AC 150/5320-6G, Airport Pavement Design and Evaluation. FAARFIELD 2.0 features:

- A completely redesigned graphical user interface (GUI) with improved screen flow and explorer-based navigation.
- A new 3D finite element computational library, FAASR3D (FAA Structural Response – 3D), written in Visual Basic.NET™.
- Support for the new ICAO ACR-PCR system (planned to replace ACN-PCN).
- New graphical vehicle editor provides the ability to add, save and edit user-defined vehicles.
- Updated aircraft library.
- Ability to work with multiple jobs/sections at once.

Notes:

- FAARFIELD stands for FAA Rigid and Flexible Iterative Elastic Layered Design. FAARFIELD 2.0 incorporates full 3D finite element responses to aircraft loads (for new rigid pavements and rigid overlays). The 3D finite element models used for rigid pavement designs are computationally intensive and may result in long run times, depending on the computer characteristics. We would appreciate your comments concerning this program and your suggestions on how it could be improved.
- FAARFIELD 2.0 runs on Windows™ operating systems. Windows 7 or higher is recommended. Please follow installation instructions in the readme file.
- Point of contact: For questions, comments or further information concerning this program, please contact Dr. David R. Brill, FAA Airport Technology R&D Branch, ANG-E262.

FAARFIELD 2.0.0.e RC is an evaluation version and is not currently an FAA design standard. To download the current standard software FAARFIELD 1.42, use the following link: [FAARFIELD 1.42](#)

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Thank You!

<http://www.airporttech.tc.faa.gov/>
david.brill@faa.gov

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