IOWA FALLS
MUNICIPAL AIRPORT
REHABILITATE
RUNWAY 13/31

FAA AIP#3-19-0048-011
PRESENTATION OUTLINE

- General Project Info/Scope
- Existing Runway 13/31 Conditions
- Design Approach
- Proposed Design
- Project Highlights
- Construction Photos
PROJECT INFORMATION

- **Owner:** City of Iowa Falls (Iowa Falls Airport Authority)
- **Engineer:** McClure Engineering
- **Prime Contractor:** Godbersen-Smith Construction
- **Project Construction Cost:** $2.24 Million (Cares Grant), 100% FAA Share
- **Contract Duration:** 70 working days
GENERAL PROJECT SCOPE

• Runway 13/31 Rehab (4,601’ x 75’), Taxiway B1 and Taxiway B3
  • Preparation of Existing Surface for Overlay
  • PCC Overlay (Whitetopping)
  • Underdrain Installation
  • Drainage Improvements
  • Pavement Markings
  • Lighting Adjustments
EXISTING RUNWAY 13/31 CONDITIONS

AIRPORT LAYOUT
EXISTING RUNWAY 13/31 CONDITIONS

WORK HISTORY
1981 – Runway 13/31 Constructed (4,001’x75’), 4.5” HMA
EXISTING RUNWAY 13/31 CONDITIONS

WORK HISTORY
1981 – Runway 13/31 Constructed
(4,001’x75’), 4.5” HMA
2000 – Runway 13/31 Asphalt Overlay,
4” HMA
EXISTING RUNWAY 13/31 CONDITIONS

WORK HISTORY

1981 – Runway 13/31 Constructed
(4,001’x75’), 4.5” HMA

2000 – Runway 13/31 Asphalt Overlay,
4” HMA

2012 – Runway 13 Extension (6,000’x75’),
RWY Turnarounds Construction, 4.5” HMA
EXISTING RUNWAY 13/31 CONDITIONS

PAVEMENT CONDITION INDEX (PCI)
(PCI values reflect 2017 values)

1981 – Runway 13/31 Constructed
(4,001’x75’), 4.5” HMA

2000 – Runway 13/31 Asphalt Overlay,
4” HMA

2012 – Runway 13 Extension (6,000’x75’),
RWY Turnarounds Construction, 4.5” HMA

Source: Iowa Airport Pavement Management System (Iowa DOT Aviation Bureau)
TYPICAL SECTION: EXISTING

EXISTING RUNWAY 13/31 TYPICAL SECTION (EXTENSION)
STA 100+00 TO STA 106+00
NO SCALE

EXISTING RUNWAY 13/31 TYPICAL SECTION (ORIGINAL 4,000’ RUNWAY)
STA 106+00 TO STA 146+01.50
NO SCALE
EXISTING RUNWAY 13/31 CONDITIONS

- Pavement Distresses
- Drainage Issues
# Potential Alternatives

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<th><strong>Rehab</strong></th>
<th><strong>Recon</strong></th>
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<td>2. Concrete Overlay (unbonded) on existing Asphalt</td>
<td>1. Total Reconstruction (PCC)</td>
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<td>2. Total Reconstruction (HMA)</td>
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# Potential Alternatives

## Rehab

1. **Asphalt Mill/Overlay**
   - Initial Cost
   - Life (Yrs.)

2. **Concrete Overlay (unbonded) on existing Asphalt**
   - Initial Cost
   - Life (Yrs.)

3. **Full Depth Reclamation**
   - Initial Cost
   - Life (Yrs.)

## Recon

1. **Total Reconstruction (PCC)**
   - Initial Cost
   - Life (Yrs.)

2. **Total Reconstruction (HMA)**
   - Initial Cost
   - Life (Yrs.)
EXISTING SOIL CONDITIONS

• Geotechnical report → soils were better than expected
  – Sandy, lean clayey soils = good for pavement; not as susceptible to freeze/thaw cycle
• Favors rehabilitation methods over full reconstruction methods
Unbonded Concrete Overlay on Asphalt Pavements

- Are generally 4–11 in. (100–280 mm) thick (JPCP or CRCP)
- Are essentially designed as a new concrete pavement on a stable base course, assuming an unbonded condition between the layers

**Application and Uses**
Unbonded concrete overlays on asphalt pavements

- May be appropriate for asphalt pavements with significant deterioration such as severe rutting, potholes, alligator cracking, subgrade/subbase issues, shoving, and pumping; see Figure 31
- Are generally 4–11 in. (100–280 mm) thick (JPCP or CRCP)
- Are essentially designed as a new concrete pavement on a stable base course, assuming an unbonded condition between the layers
- Restore or increase the structural capacity of existing pavement
- Eliminate surface defects such as rutting and shoving
- Improve surface characteristics (friction, noise, and smoothness)
- Reduce urban heat island effect by increasing pavement surface albedo

**Figure 32. Unbonded concrete overlay (previously called conventional whitetopping) of poor-to-deteriorated condition asphalt pavement**

**Figure 33. Unbonded concrete overlay of asphalt pavement**

Guide to Concrete Overlays
<table>
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<th>Pros</th>
<th>Cons</th>
<th>Initial Cost</th>
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<td><strong>REHAB</strong></td>
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| Asphalt Mill/Overlay                  | • Low initial cost  
• Shortest construction duration  
• Keeps lights and underdrain | • Shortest Life  
• Reflective cracking  
• Limited Grade Correction  
• Doesn’t improve drainage | $2.1M        | 12 - 15      |
|Concrete Overlay (unbonded) on existing Asphalt | • Eliminates reflective cracks  
• Short construction duration  
• Satisfactory Subgrade conditions  
• Improves Transverse Grades/drainage  
• Eliminates Base/Subgrade Recon  
• Provides stabilized base material | • Crack prep required  
• Nominal Milling Req’d  
• Runway Grade increase  
• Likely impacts lights  
• Lots of fill req’d (shoulder embankment)  
• Limited Grade Correction | $2.6M        | 20 - 25      |
|Full Depth Reclamation                 | • Eliminates reflective cracks  
• High Quality Base  
• Recycles on-site material | • Satisfactory Subgrade Conditions (eliminating good base material)  
• Possible grade increase  
• Likely impacts lights  
• Requires new edge drains  
• Most expensive rehab expensive  
• Longer construction duration | $3.4M        | 20 - 25      |
| **RECON**                             |                                                                      |                                                                      |              |              |
| Total Reconstruction (PCC)            | • Longest life  
• Recycle PCC into base  
• Can correct steep grades  
• Improves subgrade condition | • Overkill based on pavement condition  
• Pavement Removal Costs  
• Highest initial cost  
• Longest construction duration | $4.1M        | 35+          |
|Total Reconstruction (HMA)             | • Longest life  
• Recycle PCC into base  
• Can correct steep grades  
• Improves subgrade condition | • Overkill based on pavement condition  
• Pavement Removal Costs  
• High initial cost  
• Longer construction duration | $3.5M        | 35+          |
TYPICAL SECTION: PROPOSED

PROPOSED RUNWAY 13/31 TYPICAL SECTION (EXTENSION)
STA 100+00 TO STA 106+00
NO SCALE

PROPOSED RUNWAY 13/31 TYPICAL SECTION (ORIGINAL RWY)
STA 106+00 TO STA 146+01.50
NO SCALE

EXISTING SALVAGED RUNWAY EDGE LIGHT
EXISTING COUNTERPOISE (TO BE REMOVED AND REPLACED)

PROPOSED 4" LONGITUDINAL SUBDRAIN
Simultaneous projects constructed during same construction season

- Parallel Taxiway B Project ($3.17 Million)

Both projects received 100% FAA funding

Improved airfield drainage
QUESTIONS AND ANSWERS?