Runway 16R Rehabilitation

Prepared for CAC

*Preliminary Plans Complete

February 7, 2012

Briefing:
1. Pavement History
2. Existing Conditions
3. Project Scope
4. Design Objectives
5. Paving Alternatives
6. Pavement Alternatives
7. Phasing Alternatives
8. Schedule
9. Questions and Comments

Pavement History

- Runway 16R was extended to its current configuration in the late 50's
  - Sherman Way overpass allowed for lengthening of the runway
  - Concrete ends constructed
- Asphalt resurfacing of the runway in 1993
- Emergency overlay of runway keel, June 2011

APMS Results

- Airport Pavement Management System
  - Visual condition survey found the majority of the runway asphalt to be in serious condition
  - Non-Destructive Testing showed deterioration of base layers
  - Runway was projected to exhaust its useful life in Summer of 2011
Runway 16R Condition

- Severe cracking along wheel paths
- Large FOD developing along centerline
- Severe cracking

Project Scope

- Reconstruct 6,800 ft. of Asphalt
- Reconstruct deteriorating shoulders
- Construct improved run-up area

Design Objectives & Considerations

- Budget
  - Maximize available FAA funding
- Schedule
  - Limit impacts to VNY
  - Balance cost and productivity
- Safety
  - Maintain safe operations during construction
- Durable product
  - Meets VNY's needs for the future
- Meet VNY stakeholders' needs
  - Understand input/concerns
  - Incorporate comments into design

Paving Alternatives

- Full Depth, Full Width Construction
- Keel Reconstruction w/ Overlay
- Keel Reconstruction
- Overlay
Full Depth, Full Width Reconstruction

- Advantages
  - High Quality Product
  - Durable
  - Fix existing grade breaks
- Disadvantages
  - Long closure duration

Keel Reconstruction w/ Overlay

- Advantages
  - High Quality surface finish
  - Durable pavement within the wheel tracks of aircraft
  - Fix existing grade breaks
  - Shortened Closure
- Disadvantages
  - Overlay on the edges may require additional reactive repair
  - Differential settling between overlay and keel

Keel Reconstruction

- Advantages
  - High quality pavement in wheel tracks
  - Shortened closure duration
- Disadvantages
  - Edges will continue to deteriorate and will need significant repairs
  - Differential settling between new and existing pavements
  - Cannot make improvements to the runway grade

Overlay

- Advantages
  - Short Duration
- Disadvantages
  - Underlying pavement is in need of removal, distresses may propagate up
  - Shortened life, less than a year
    - Not eligible for FAA Funding
    - Will require frequent runway closures to repair and or resurface
  - Thickness of asphalt required would impact adjacent facilities
Pavement Alternatives

Asphalt
- Advantages
  - Simple construction
  - Rapid placement of asphalt
  - Can open facility shortly after placement of material
  - 20 year design life
- Disadvantages
  - Will require regular maintenance

Concrete
- Advantages
  - 40 year design life
  - Limited maintenance
  - Proven to be robust at VNY
- Disadvantages
  - Long construction durations
  - Long cure period before opening facility

Overlay
- Advantages
  - Short Construction Duration
- Disadvantages
  - Short design life, less than a year
  - Existing distresses will likely propagate into overlay
  - Will require reactive repair, runway closures
  - Thick asphalt section, potential for rutting and difficulty connecting with adjacent pavement
  - Not eligible for FAA Funding
**Phasing Alternatives**

- Alternatives developed to maximize design objectives
  - Quality and Durability
  - Aggressive Schedule
  - Safe Operations
  - Within Budget
  - Stakeholder Input
- Options:
  - Full Closure
  - Shortened Runway
- Each alternative has an associated cost due to contractor operations
  - Costs compared to a base case: full closure of 16R with a flexible construction schedule

**Full Closure of 16R**

**Opportunities**
- High quality construction, with low risk of delays
- Reduced construction cost

**Constraints**
- Long runway closure

**Anticipated Schedule**

**Opportunities**
- Provides schedule flexibility for contractor to get up to speed
- 5000' runway should allow minimal impacts to operations
- Large work areas
  - High quality, high efficiency

**Constraints**
- Shortened runway is VFR, 16R Ops only
- Operations over personnel and equipment

Phase 1
- Some preliminary work
- Full runway shutdown

Phase 2
- Full rehabilitation
- Total project

Runway shortened to goods for contractor to work in restricted area of the runway. Once completed, entire runway will allow contractor to complete 5000' of asphalt in double shifts, 3 days a week.
Thank you

- Questions
- Comments

HNTB