

# Runway 16R Rehabilitation

Prepared for CAC

\*Preliminary Plans Complete

February 7, 2012



## Briefing:

1. Pavement History
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6. Pavement Alternatives
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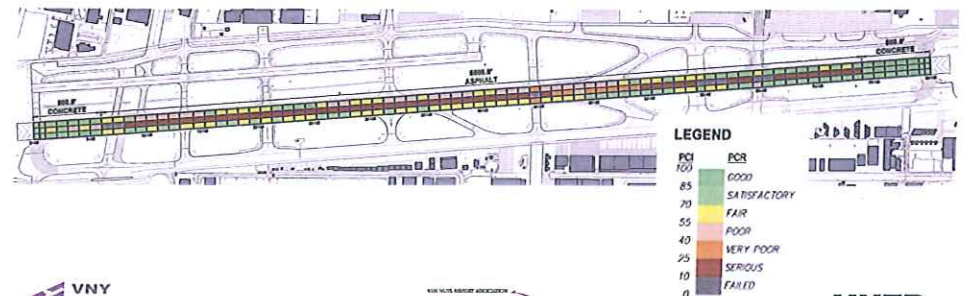
## Pavement History

- 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



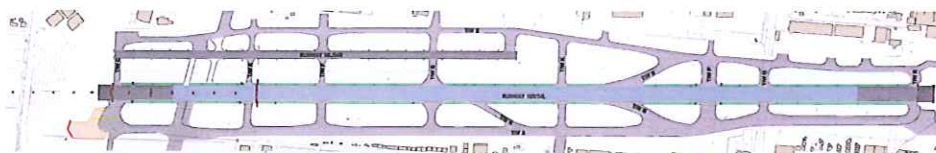
# Runway 16R Condition



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



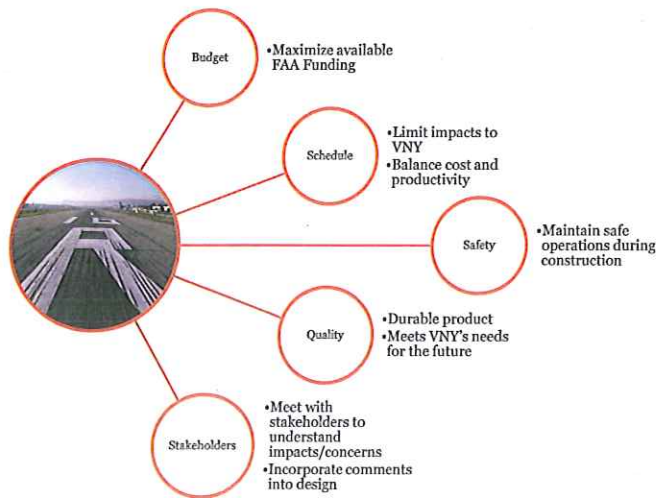
# Project Scope



Reconstruct 6,800 ft. of Asphalt  
 Reconstruct Deteriorating Shoulders  
 Construct Improved Run-Up Area



# Design Objectives & Considerations



# Paving Alternatives

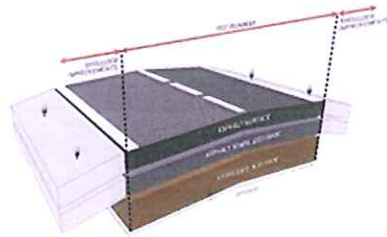
- Full Depth, Full Width Construction
- Keel Reconstruction w/Overlay
- Keel Reconstruction
- Overlay





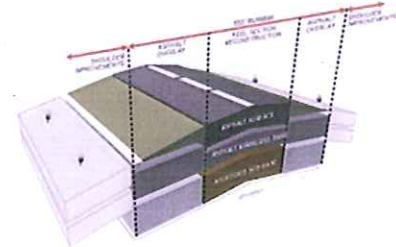
## Full Depth, Full Width Reconstruction

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



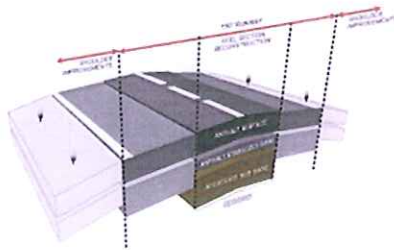
## Keel Reconstruction w/ Overlay

- 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



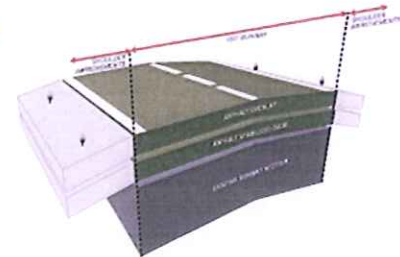
## Keel Reconstruction

- 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

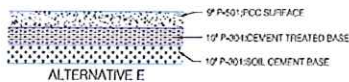
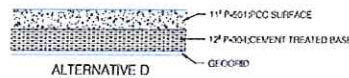


# Pavement Alternatives



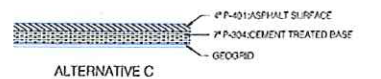
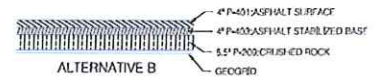
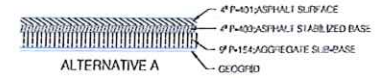
## Concrete

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



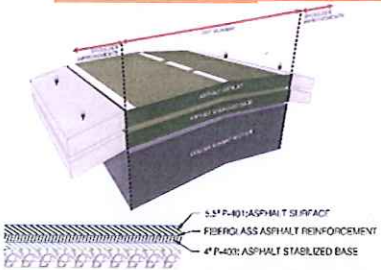
## Asphalt

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



## 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



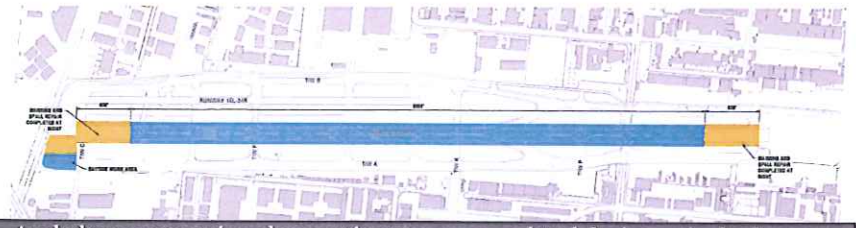
## Full Closure of 16R

### Opportunities

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

### Constraints

- Long runway closure



Asphalt reconstruction along entire runway completed during a single closure; Double shift, 6 days a week.

## Shortened Runway w/ Full Closure

### 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

Phase 2



Runway shortened to 5000', contractor to work unrestricted on 2400' of the runway. Once completed, entire runway shut down, and contractor rebuilds 5000' of asphalt in double shifts, 6 days a week.

## Anticipated Schedule





Thank you

- Questions
- Comments

**HNTB**