



Federal Aviation
Administration

Determining Layer Properties for PCR Evaluation

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Determining Layer Properties for PCR Evaluation



Pavement Evaluation Process

Flexible Pavement –

- Layer thicknesses
- Subgrade CBR
- Layer Properties



Rigid Pavement –

- Layer thicknesses
- Concrete Flexural Strength
- Subgrade modulus
- Layer properties



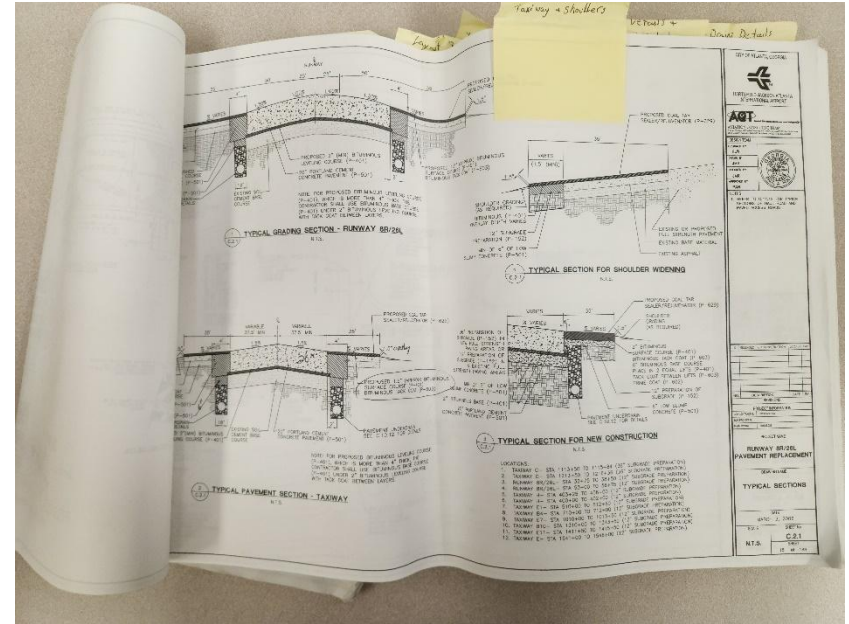
Pavement Evaluation Process

- Methodical Step-by-Step Process
 - Records Research
 - Site Inspection
 - Sampling & Testing
 - Direct Sampling Procedures
 - Nondestructive Testing
 - Falling Weight Deflectometer
 - Ground Penetrating Radar
 - Infrared Thermography
 - Pavement Condition Index
 - Roughness
 - Skid Resistance
- Evaluation Report



Pavement Evaluation Process

- Records research
 - Design drawings and reports
 - As-built drawings
 - Maintenance history/logs
 - Weather records
 - Traffic history



Pavement Evaluation Process

- Site Inspection
 - Visual inspection for general condition
 - Drainage Survey (Pavement)
 - Pumping
 - Joint/crack seal condition
 - Standing or ponded water
 - Weed growth
 - Moisture in joints/cracks
 - Shoulder condition
 - Pavement slopes



Pavement Evaluation Process

- Site Inspection
 - Drainage Survey (Structures)
 - Clogged inlet grates
 - Catch basins/pipes
 - Settlement
 - Outfall ditch stoppage
 - Erosion around structures
 - Structural damage



Pavement Evaluation Process

- Sampling & Testing
 - Direct Sampling Procedures
 - Coring
 - Borings
 - Material sampling
 - Determination
 - Pavement layer thicknesses
 - Pavement layer material types
 - Pavement layer material properties and conditions



Pavement Evaluation Process

- Sampling & Testing
 - Subgrade
 - Dynamic Cone penetrometer
 - Soil classification
 - Field CBR
 - Modulus of subgrade reaction
 - Unbound base and subbase
 - Visual material classification
 - Field CBR
 - Resilient modulus



Pavement Evaluation Process

- Sampling & Testing

- Asphalt Concrete

- Resilient modulus
 - Split tensile
 - Stripping
 - Aggregate gradation
 - Asphalt extraction
 - Asphalt content
 - Penetration
 - Softening point

- Portland Cement Concrete

- Indirect tensile
 - Flexural strength
 - Compressive strength



Pavement Evaluation – NDT and Minimally Destructive Testing

- NDT can be used for structural evaluation
 - Evaluate load-carrying capacity.
 - Provide material properties of pavement layers.
 - Compare parts of pavement system.
 - Provide structural performance data to supplement PCI.
- Limitations to NDT
 - Quantitative results obtained from NDT data are model-dependent.
 - Testing at different times of the year may give different results.



Pavement Evaluation – NDT and Minimally Destructive Testing

- Types of NDT and Minimally DT
 - FWD
 - Ground Penetrating Radar
 - DCP
 - PSPA



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