Module 2-7

Overall Project Evaluation

Objectives

Describe benefits of a thorough project evaluation

Outline step-by-step procedure

List key data

Develop overall project evaluation checklist

Describe approach to structural evaluation

Introduction

Concept - Overall goal of rehabilitation design is to provide:

- **Cost-effective solution**
- **Address deficiencies**
- **Satisfy constraints**

Importance of thorough evaluation

Data Requirements

Consider data categories

Requirements also depend upon potential rehabilitation candidates

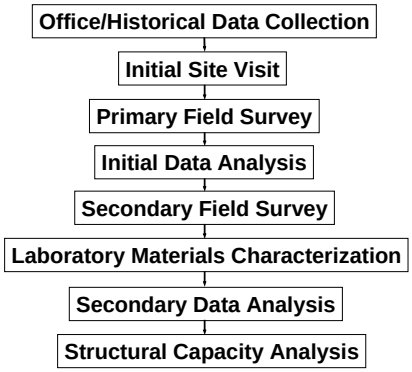
Develop checklist

Consider purposes

- **Qualitative**
- **Quantitative**

Strive for balance

Project Evaluation Flowchart



Step 1: Office / Historical Data Collection

Office files

Historical records

Step 2: Initial Site Visit

Design and maintenance engineers

- Scope of primary survey
- Assess potential mechanisms
- Identify candidate rehabilitation treatments
- Assess traffic control needs

Subjective information on distress, roughness, surface friction and drainage

"Windshield" or shoulder survey

Step 3: Primary Field Survey

Condition (Module 2-2)

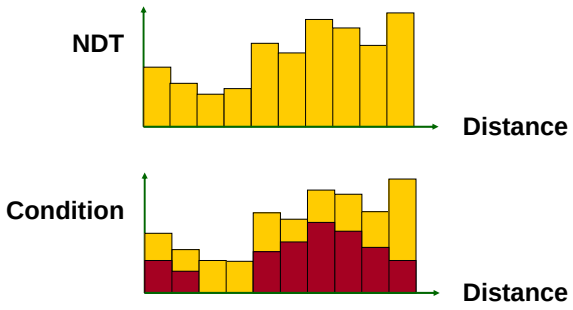
- Distress
- Roughness
- Friction

NDT (Module 2-3)

Drainage (Module 2-5)

Traffic (Module 2-6)

Step 4: Initial Data Analysis



Step 4: Initial Data Analysis

NDT

- Max / Min deflection
- Deflection indices
- Layer moduli

Condition

- Distress
- Roughness
- Surface friction

Step 4: Initial Data Analysis

Structure / Soils

- Layer thickness
- Soil type or cut / fill

Moisture / drainage

Step 5: Second Field Survey

Destructive sampling

- NDT variability
- Backcalculation problems
- Stripping

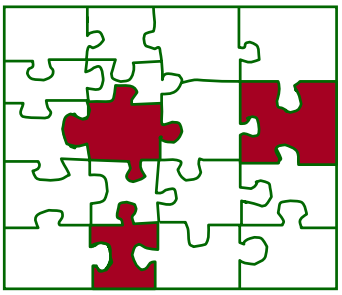
Additional NDT

- Intensive deflection testing
- Other NDT devices

Step 6: Laboratory Materials Characterization (if necessary)

- Indirect tensile strength
- Resilient modulus
- Permeability
- Existing mix properties
- Density / gradation
- Freeze-thaw durability
- Petrographic testing

Step 7: Secondary Data Analysis (if necessary)



Step 8: Structural Capacity Assessment

Three basic methods are available

By Existing Distress

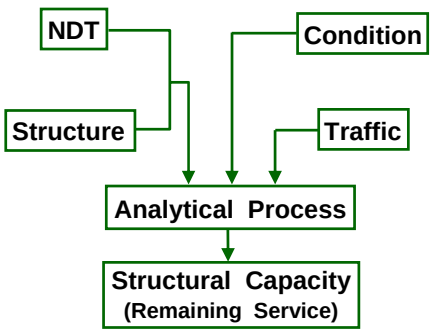
Compare current structural distress levels with “failure” criteria

By Component Analysis

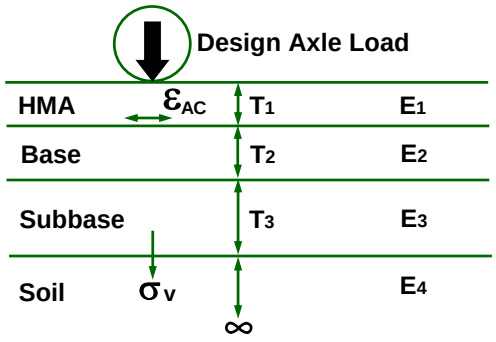
Layer	Thickness	Condition	SC
HMA	T_1	X_1	➡ SC_1
Base	T_1	X_2	➡ SC_2
Subbase	T_3	X_3	➡ SC_3

Effective Structural Capacity = Total

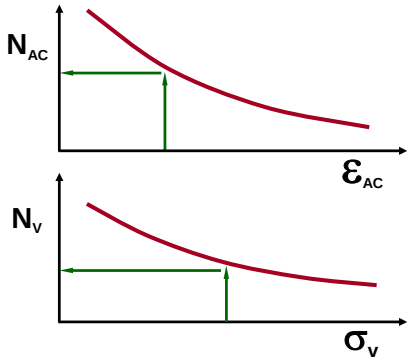
By NDT



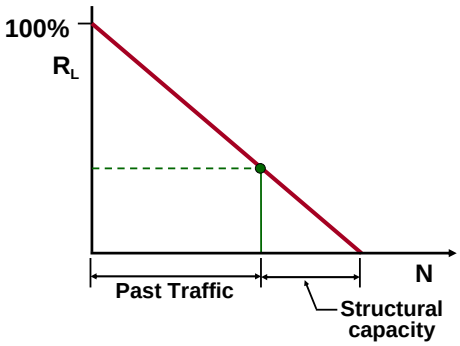
Pavement Response(s)



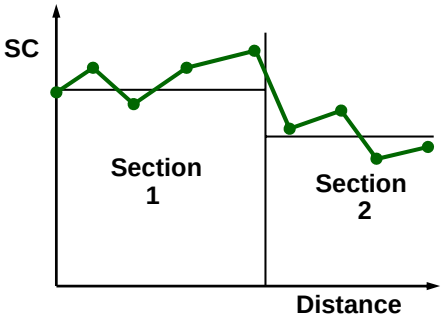
Original Service Lives



Account For Past Traffic



Average Structural Capacity



Summary

Benefits / importance

Data requirements

Project evaluation flowchart