Module 5-1

Selection of the Preferred Rehabilitation Alternative

Objectives

The selection of the preferred rehabilitation alternative for a given pavement section requires a systematic, step-by-step approach that considers all relevant factors

This modules outlines the major steps and procedures in this process

Introduction

- **There is always more than one alternative rehabilitation design available**
- **The preferred alternative is the one that meets all engineering criteria and is cost effective**
- **Alternatives have associated costs, constructability, performance life, reliability, maintainability, and other unique characteristics**

Rehabilitation Alternatives

Numerous alternatives available

- **Overlay, recycle, reconstruction**
- **Full and partial depth repairs**
- **Joint and crack sealing**
- **Slab stabilization**
- **Diamond grinding or milling**
- **Subdrainage**
- **Surface treatments**

Timing of Rehabilitation

Alternate A:

Expense

Total Additive Cost ……..= $1,800,000

Present Worth ……..= $1,118,280

Equivalent Uniform Annual Cost …… = $64,637

Timing of Rehabilitation

Alternate B:

Expense

Total Additive Cost ……..= $1,400,000

Present Worth ……..= $975,400

Equivalent Uniform Annual Cost …… = $56,378

Development of Rehabilitation Alternatives

Obtain available project information
Establish existing condition of pavement
Determine cause of distress
Develop feasible alternatives
Conduct engineering and economic analysis
Select preferred alternative
Design preferred alternative
Follow up review of pavement performance

Selection of Preferred Design

Life Cycle Cost Analysis

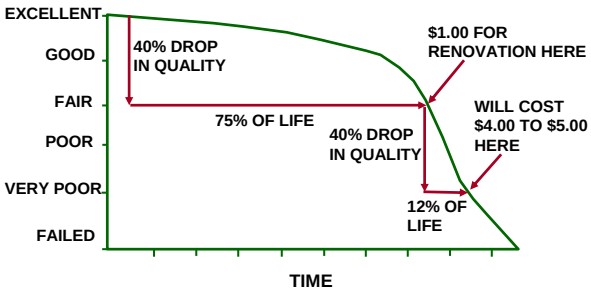
- Cost to the highway agency
- Cost to the highway user

Selection of Preferred Design

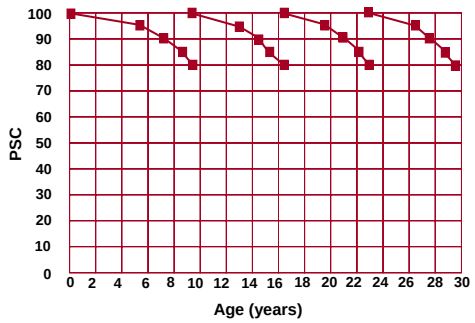
Present Worth Analysis

$$PW = C \times 1 / (1 + i)^n$$

Network Condition and Rehabilitation Timing



Network Condition and Rehabilitation Timing Example



Network Condition and Rehabilitation Timing Example

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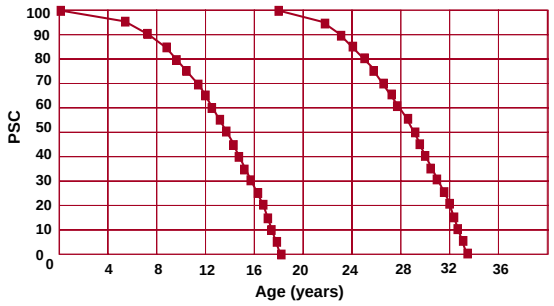

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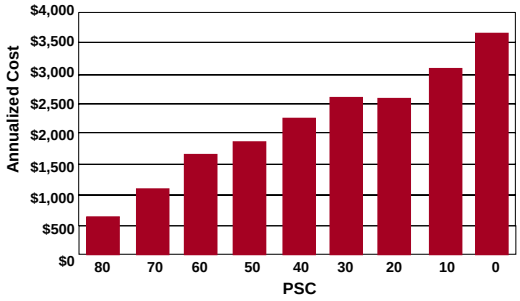

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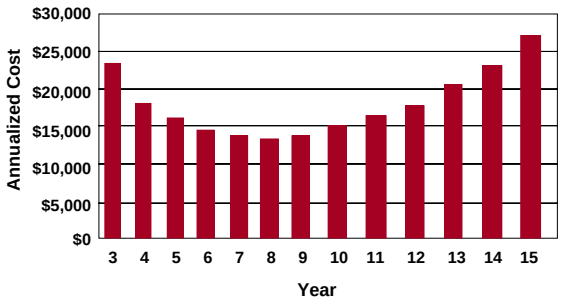

Summary

This section covered the basic aspects of treatment selection using life cycle cost analysis and consideration of other possible over-riding factors

It considered the impact of project timing and treatment selection on the overall condition of the highway network