



# Principles of Pavement Management

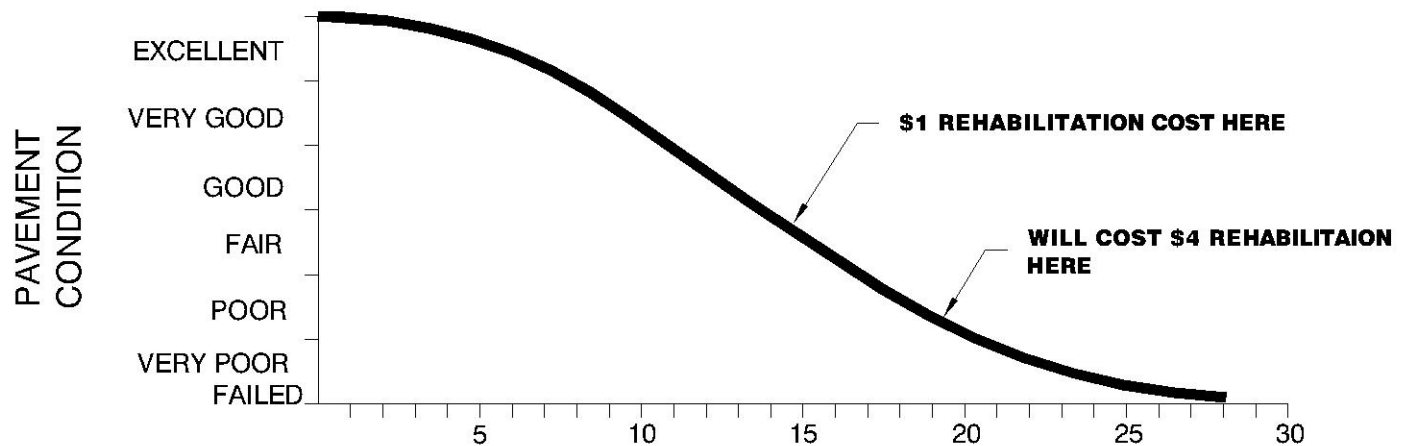
The background of the slide is a photograph of a residential street. The foreground is dominated by a wide asphalt road that is heavily cracked and shows signs of wear. White dashed lines mark the road's edge. In the background, there are green lawns, trees, and houses. A red car is parked on the right side of the road. The overall scene suggests a focus on road maintenance or infrastructure.

# 1. **Every road has a design life and will eventually fail**

- ❧ Construction materials
- ❧ Construction methods
- ❧ Design criteria



# PAVEMENT LIFE CYCLE





## **2. Each road will fail at a different time and for different reasons**

- ❧ Environmental Conditions
- ❧ Structural Conditions
- ❧ Effects of adjacent new building construction

LIVE LOADS

ULTRAVIOLET DEGRADATION

OXIDATION OF  
ASPHALT

BITUMINOUS SURFACE

**SURFACE WATER**

**WATER IN BASE CAUSES  
SOFTENING AND MIXING  
WITH SUBBASE**

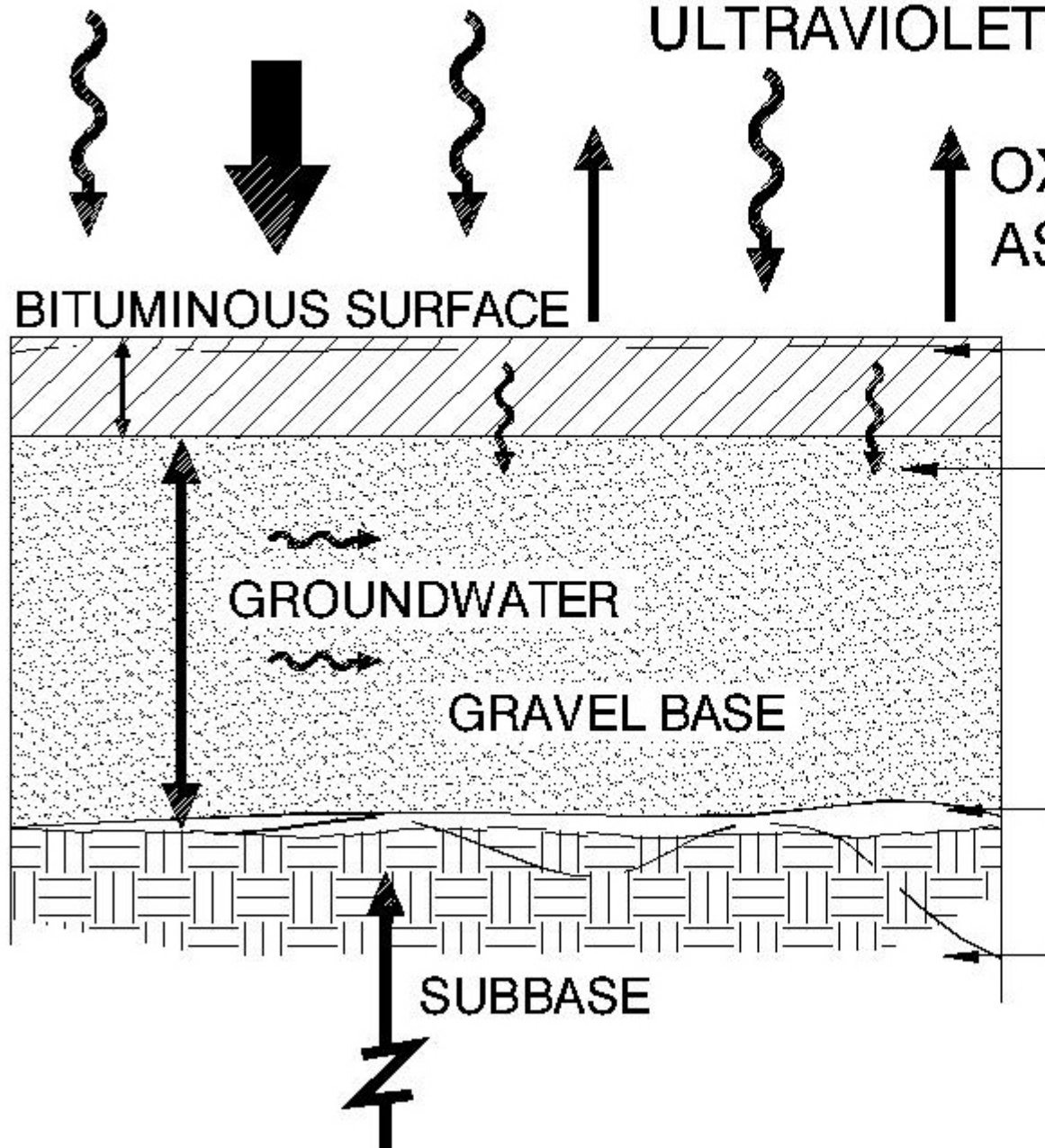
GROUNDWATER

GRAVEL BASE

**SWELLING OF SUBBASE**

**UNSTABLE SUBBASE/HEAVING  
(FROST HEAVE)**

SUBBASE





### **3. The goal of pavement management is to provide the best road service to the community at the lowest effective cost**

- ❧ Level of service
- ❧ Regular Maintenance
- ❧ Maximize the useful life / investment
- ❧ Perform the *right* rehabilitation at the *right* time



# Pavement Management in Action

## 1. Maintenance

- ⌘ Crack sealing
- ⌘ Drainage repairs
- ⌘ Pavement repairs
- ⌘ Seal coat / slurry seal
- ⌘ Curb repairs

# Pavement Management in Action

## 2. Rehabilitation

- ⌘ Mill & resurface
- ⌘ Intersection improvements
- ⌘ Drainage improvements (underdrains)
- ⌘ Traffic considerations
- ⌘ Improve utilities (sanitary, water, others)

## 3. Reconstruction

- ⌘ Remove existing road structure and construct as new



# Fox Glen





# Benefits of Pavement Management Engineering

- ⌘ Independent evaluation of pavement condition
- ⌘ Comprehensive evaluation of work needed
- ⌘ Preparation of engineering specifications and design, with appropriate rehabilitation work
- ⌘ Competitive construction bids
- ⌘ Owner assistance- insurance protection for owner, advertising, bidding, contract preparation, recommendation of award, pay request review
- ⌘ Bids are comparable (all contractors are bidding the same work)
- ⌘ Construction inspection / quality control of the completed work
- ⌘ Available for questions that may arise or unusual conditions encountered during construction, final acceptance
- ⌘ Broad engineering experience with a wide range of concerns – drainage, soils, concrete and bituminous materials, local contractor contacts
- ⌘ Design layout / survey staking

