



2008 Southern California  
StreetSaver User Conference  
Ontario, CA

## Overview



- ✓ Network level decision making tool
- ✓ Developed more than 20 years
- ✓ Recognized by FHWA as *"...one of the first regions in the country to implement a pavement management system that is used by nearly all of its localities."*
- ✓ Founding principle:  
It costs agencies far less to have good roads than it does to have bad roads  
=> **Pavement Preservation**

## Overview



## Overview

- **Inventory**
- Condition Assessment
- Determination of Needed Work & Funds
- Identification of Candidate Projects
- Determination of Impacts of Funding Alternatives
- Feedback

## Inventory



- What Agency Is Responsible for
- Where It Is Located
- Basic Information

## Inventory



- Absolute Minimum Data
  - Collect Only the Data Needed When It Is Needed
  - To Address Broad Funding Questions
- Required
  - Identification
  - Location (beginning & ending)
  - Area (length & width)
  - Surface type
  - Dates constructed & maintained
  - Functional classification
- Optional

# Pavement Sections



The screenshot shows the 'Edit Section' window with the following data:

Management Section Information				
Street ID:	2ND	Begin Location:	1ST	
Section ID:	01	End Location:	END	
Street Name:	2ND ST - 2ND		# of Lanes:	2
Functional Class:	C - Collector	Length (ft):	800.00	
		Width:	49.00	
		Area:	38800.0	
Surface Type:	O - AC/AC	Slab Width:	0.00	
		Slab Length:	0.00	
		# of Slabs:	0	
Fund Source:	0	Effective Date:		
		Constructed:	04/23/2001	
		MTS:	<input type="checkbox"/>	
General Code:	0	Originally Constructed:	11/11/1982	
		Culdesac:	0	
Area ID:	G	Shoulder Width:	0	
		Traffic Index:	0	
		ADT:	0	
Comments:				
Test	User6			
User2	User7			
User3	User8			
User4	User9			
User5	User10			

Documents: 0 | Delete | Clear | Save | Save & New | Save & Close | Close

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## Condition Assessment



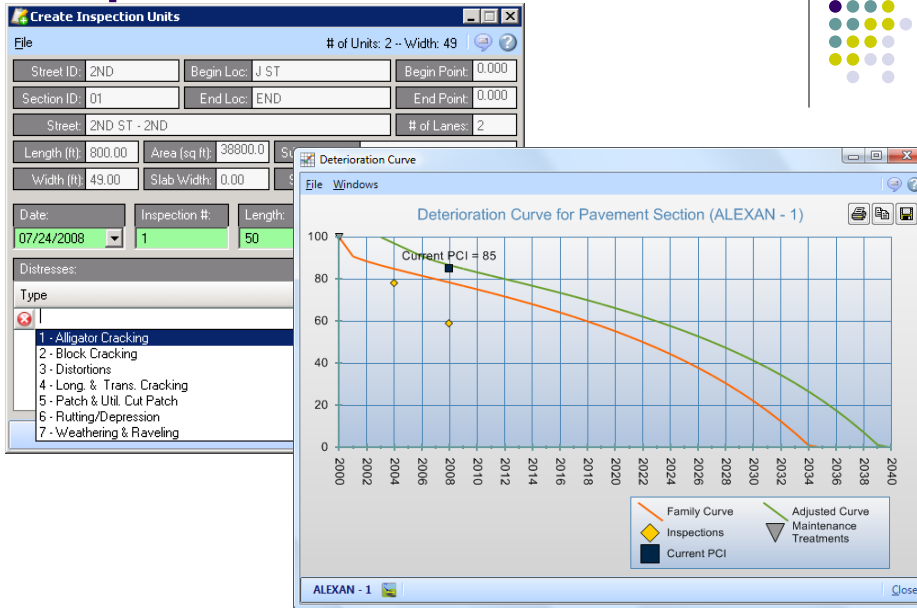
- Health of Individual Segments
  - Engineering
  - Functional
  - Safety
- Collectively Define Health of Network
  - e.g. Overall Network PCI = 65

## StreetSaver Uses PCI



- Pavement Condition Index – Developed by US Army Corp of Engineers
- Collects 7 pavement distresses for
  - Asphalt concrete (AC)
  - Portland cement concrete (PCC)
- Manual or Automated Survey

# Inspection



# PCI

- PCI Drives Many Recommendations
- Accurate PCI Depends on Accurate Distress Identification
- Quality Control During Inspection Needed
- MTC Provides Training (twice a year in Oakland)

## Overview



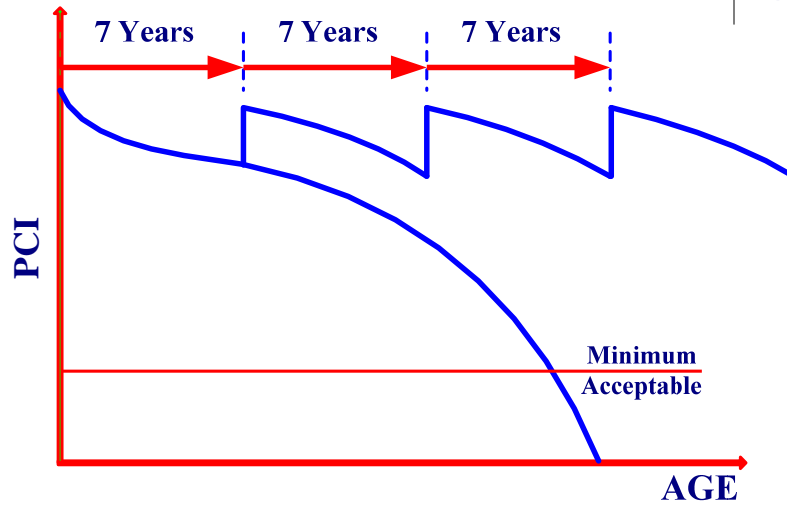
- Inventory
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## Needs Analysis

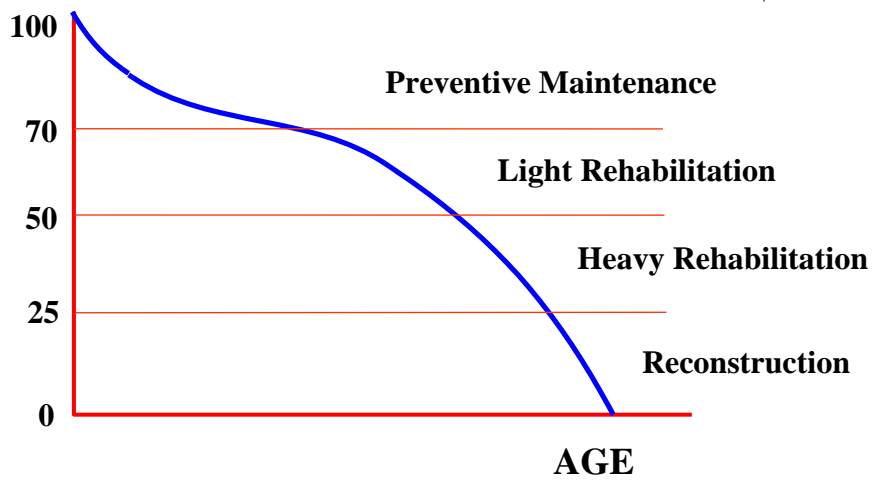


- Identify Sections Needing Work
- Estimate Funds Needed
- Preventive Maintenance
  - Minimum condition
  - Time interval
- Rehabilitation - Condition Driven

## PM – Time Sequenced



## Rehab – Condition Driven



# Decision Trees



The three screenshots show the 'PCI Breakpoints' window for Arterial roads with AC surface type. The 'Use Transitional Windows for Calculations?' checkbox is checked. The 'Condition Category' scale is shown with PCI Cap values: 90 (Very Good), 70 (Good), 50 (Poor), and 25 (Very Poor). The 'Good' category is further divided into 'Non Load' and 'Load' sub-categories. The third screenshot shows a dropdown menu for 'Surface Type' with options: AC, AC/PCC, PCC, and ST.

# Decision Trees



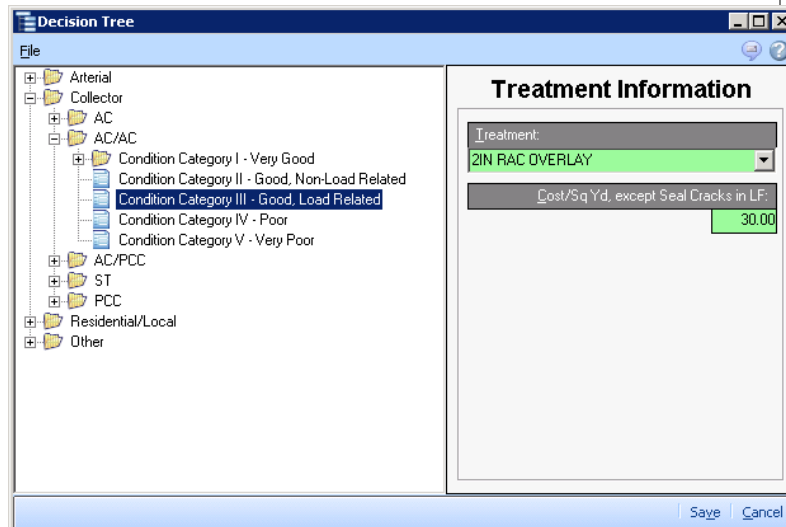
The 'Decision Tree' window shows a hierarchical tree view of road types and surface treatments. The tree structure is as follows:

- Arterial
  - AC
    - Condition Category I - Very Good
      - Crack Treatment
      - Surface Treatment
      - Restoration Treatment
    - Condition Category II - Good, Non-Load Related
    - Condition Category III - Good, Load Related
    - Condition Category IV - Poor
    - Condition Category V - Very Poor
  - AC/AC
  - AC/PCC
  - ST
  - PCC
  - Collector
  - Residential/Local
  - Other

The 'Treatment Information' panel on the right shows the following details:

- Treatment: SLURRY SEAL & CRACK SEAL
- Cost/Sq Yd, except Seal Cracks in LF: 2.50
- Years Between Surface Seals: 9

## Decision Trees

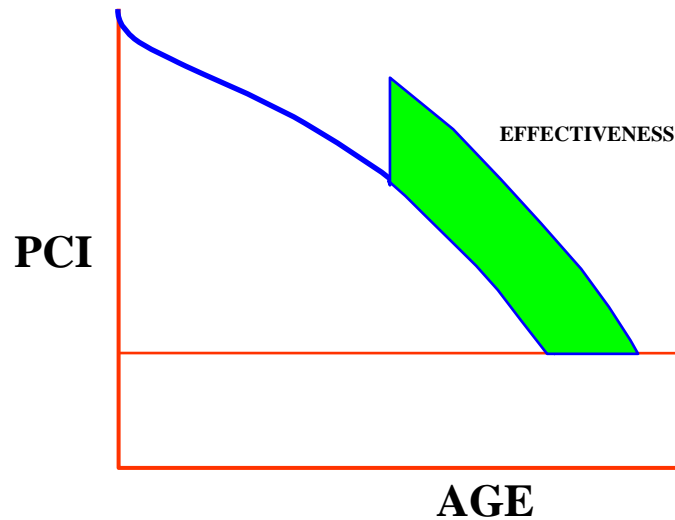


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## Prioritization Based on Cost-Effectiveness



## Prioritization Process



- Go Thru Calculation Process
- User Sets :
  - Available Funds
  - Amount PM
  - Increase Factor (Inflation of Funds)
- Results:
  - Ranked Listings of Candidates for Funding
  - GIS maps, Reports & Graphs



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## Impact of Funding Alternatives



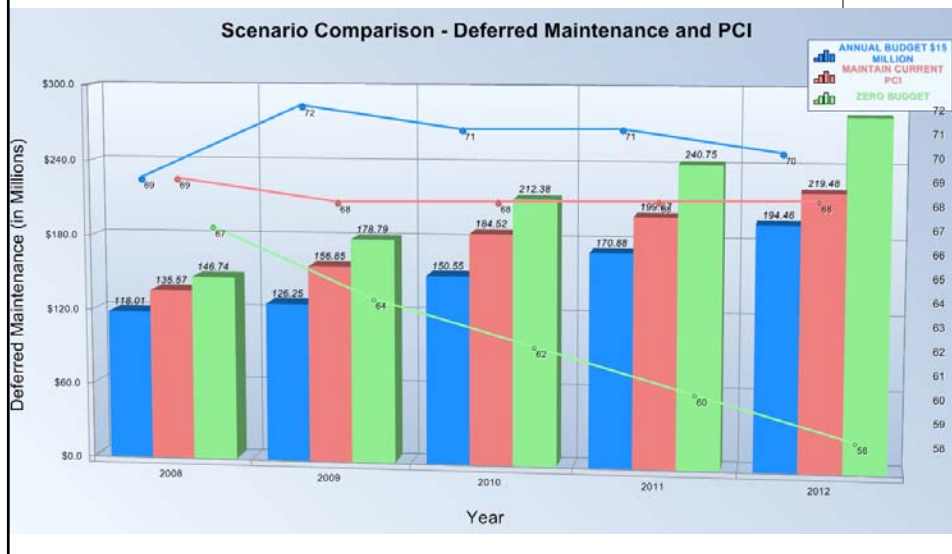
- Connect PMS to Funding Decisions
- Justify Fund Requests
- Support of Allocation Decisions
  - Fix Worst First or Cost effective ?
  - Apply PM

## Results of Impact Analysis



- Ability to Compare Impacts of Different Funding Scenarios
  - Different Funding Levels
  - Different Allocation Approaches
  - Different Approaches to Treatment
- Answer “What If?”
- Select Desired Scenario for Network-Level Recommendations

## Results of Impact Analysis



# Results of Impact Analysis



- Possible changes to Network level recommendations
  - Political
  - Delay due to Sewer & utility work
  - Group streets for construction & contract packages
  - Plan multi-year, multi-phase projects
  - Corridor analysis
  
- Solution: Project Selection

# Project Selection



The screenshot shows the 'Edit Project Selection' window with the following data:

ST ID - Sec ID	Street Name	Begin Location	End Location	Needs P
ABLE - 01	ABEL PL SOUTH END -	WYNDHAM DR	END	71
ABLE - 02	ABEL PL NORTH END -	WYNDHAM DR	CADE DR	71
ABRAHA - 01	ABRAHAM ST - ABRAHA	BISHOP AVE	BENCHMARK AVE	68
ABUELO - 01	ABUELO WAY - ABUEL	ESPARITO AVE	END	70
ADAMS - 02	ADAMS AVE - ADAMS	FREMONT BLVD	ROBERTS AVE	71
ALTON - 01	ALTON CT - ALTON	SUTTON LOOP	END	74
AMARIL - 01	AMARILLO CT - AMARIL	TUOLUMNE DR	END	
AMBERW - 01	AMBERWOOD DR - AM	KENWOOD DR	DEEP CREEK RD	
AMECA - 01	AMECA CT - AMECA	VINCENTE ST	END	
AMIENS - 01	AMIENS AVE - AMIENS	FREDERICK LN	E/O DUKE LN	
ANN - 01	ANN ST - ANN	MARTHA AVE	EDWARD AVE	

Treatment for Section: ABLE - 01				
Year	Treatment	PM Treatment	Unit Cost	Res
2008	DO NOTHING	<input type="checkbox"/>	\$0	
2009	SLURRY SEAL & CRACK SEAL	<input checked="" type="checkbox"/>	\$3.7	
2010	DO NOTHING	<input type="checkbox"/>	\$0	<input checked="" type="checkbox"/>
2011	DO NOTHING	<input type="checkbox"/>	\$0	<input checked="" type="checkbox"/>
2012	DO NOTHING	<input type="checkbox"/>	\$0	<input checked="" type="checkbox"/>

Cumulative Totals	
2008 Totals:	\$0.00
2009 Totals:	\$4,493,686.69
2010 Totals:	\$0.00
2011 Totals:	\$0.00
2012 Totals:	\$0.00
The total costs for this project is: \$4,493,686.69	

## Overview

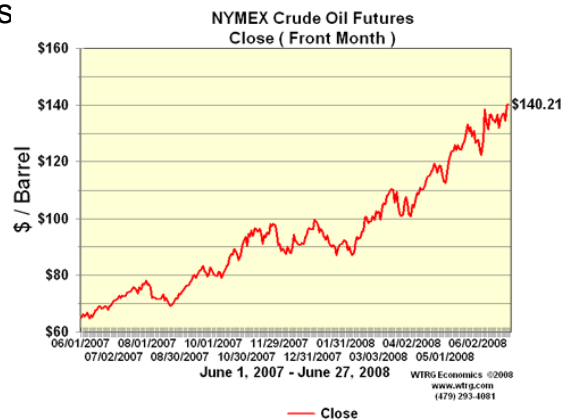


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## Feedback



- Agency Must Review & Update:
  - M&R Strategies
  - Treatment Costs



## Upkeep



- Enter Work Completed
- Periodically Re-inspect Sections
  - Arterials & Collectors – 2 years
  - Residential & others – 4-5 years
  - Quality control during inspections

## Pricing

(effective September 1, 2008)



Users	Subscription Fees
Bay Area	\$1,250/ year
Outside Bay Area	\$1,500/ year
Consultants	\$2,000/ year

## Subscription fee includes:



- On demand, available 7x24x365 thru an Internet browser
- Unlimited users login
- Database storage and recovery
- Daily database backup and download via FTP
- Virtual on-site and hotline technical support
- Free upgrades and enhancements
- Access to premium training programs

## For more information:



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Free StreetSaver Demo:  
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