

Linking Strategic Targets to Pavement Management Recommendations

Katie Zimmerman, P.E.
Applied Pavement Technology, Inc.
(APTech)

NWPMA 2011 Conference



providing engineering solutions to improve pavement performance



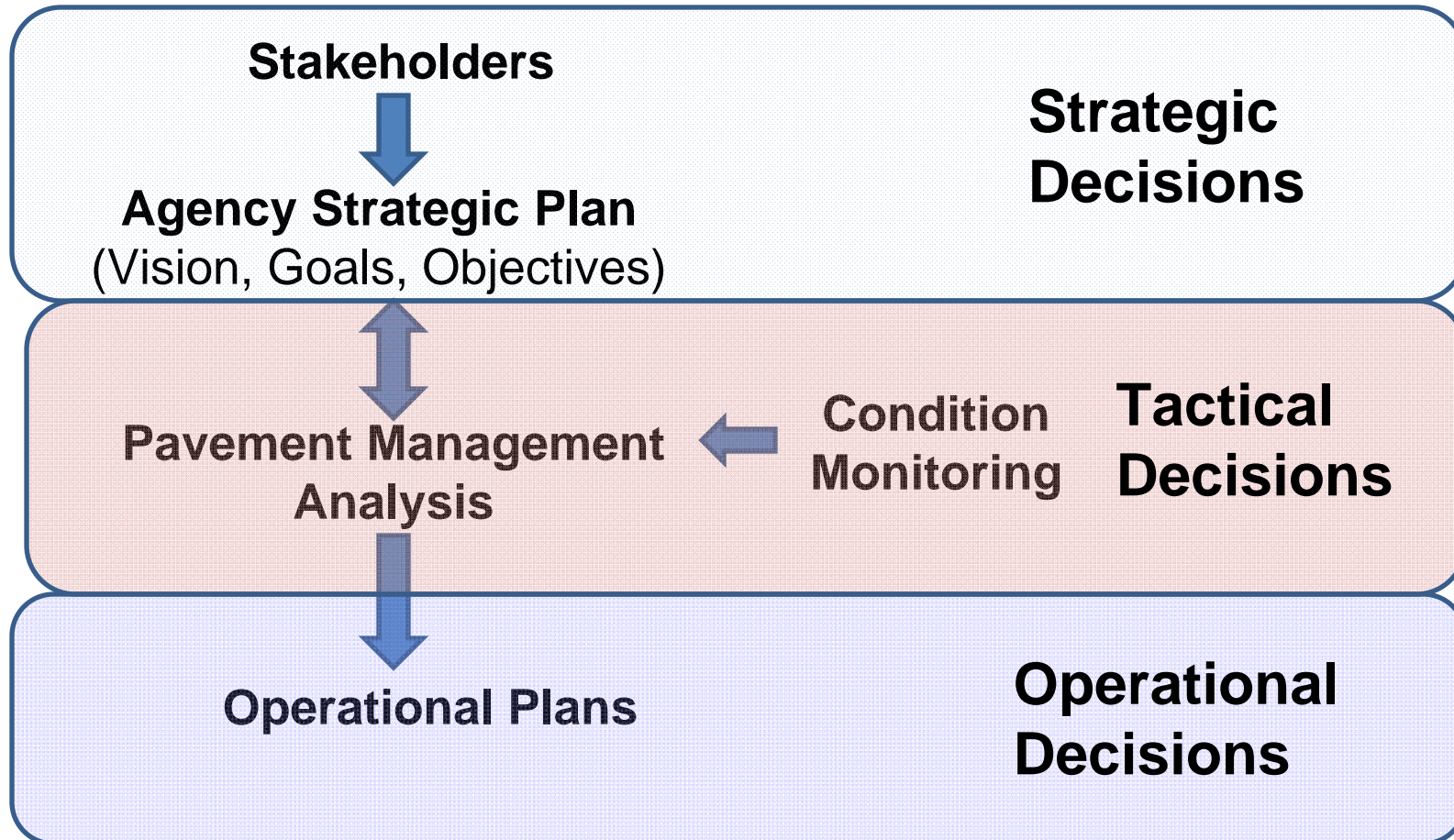
DILBERT

AVAILABLE FUNDING
FOR HIGHWAYS IS
EXPECTED TO DROP



www.dilbert.com scottadams@aol.com

Decision Levels



Issues Addressed at the Strategic Level



- What level of investment should be made in pavements?
- How should funding be split among programs?
- What are the agency's priorities?
- What are reasonable performance targets?
- What are the impacts of money diverted for expansion or congestion projects?



Types of Information Provided By Pavement Management



- Elected Officials
 - Current and projected pavement conditions
 - Funding recommendations
 - Long-term implications of various funding levels
 - Justification for funding requests
 - Advocacy for certain programs



Types of Information Provided By Pavement Management



- Senior Agency Management
 - Justification for funding needs
 - Consequences of alternate actions
 - Recommended strategies



Types of Information Provided By Pavement Management



- General Public
 - Documentation showing how funding was used
 - Agency priorities and initiatives
 - Upcoming projects
 - Current and expected conditions





How Can You Communicate
The Information Effectively?

Who Is Your Audience?



- Illinois General Assembly
 - 15 Lawyers
 - 14 With No College Degree
 - 8 Criminal Justice/Political Science Degrees
 - 6 Business/Finance/Accounting Degrees
 - 3 Education Degrees
 - 3 Communication/Journalism Degrees
 - 2 Farmers
 - 1 Engineer
 - 1 Doctor
 - 8 Other Degree
 - 6 Unknown



A Policy-Maker's Perspective



- Typical Working Day Activities
 - Highway and pavement issues
 - Transit services
 - Municipal airports
 - Shipping
 - Trucking regulations
 - Municipal roads
 - School bus safety



A Policy-Maker's Perspective



- Decisions must be considered within an overall transportation context
 - Decisions support corridors of economic and social significance
 - Consideration given to:
 - movement of people
 - movement of trucks
 - support of tourism
 - quality of life provided to the public



A Policy-Maker's Perspective



- Factors Affecting Policy Decisions
 - Roadway pavements are highly visible
 - Politics influence decisions, but relevant information from technical staff is important



A Policy-Maker's Perspective



- Need dependable data about the highway system
- Need to be aware of expectations and priorities of certain groups
- Need projections of future needs and future pavement performance
- Need legal boundaries within which to operate
- Need to know what options are available and the implications of each



What Are They Looking For?



- An obvious message
- Graphics
- Consequences
- Differences from current practice
- Benefits conveyed in social terms



Use of Performance Measures

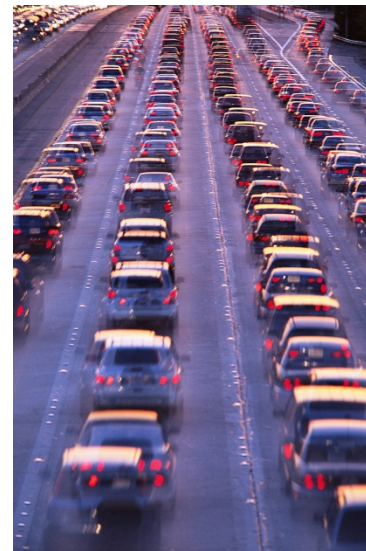
- Document whether desired outcomes are being met
- Convey trends
- Communicate your story
- Improve accountability



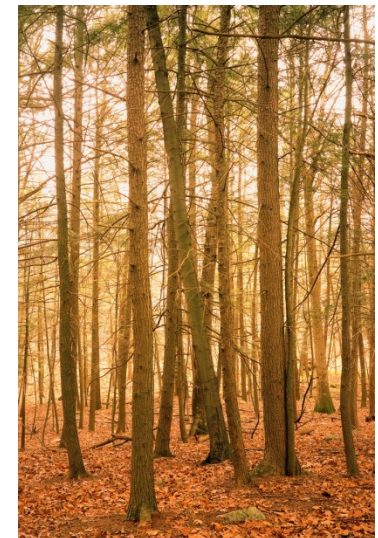
Physical Condition



Safety



Congestion



Environment



SMART Method of Evaluating Measures



- **S**pecific
- **M**easurable
- **A**chievable
- **R**esults Oriented
- **T**imely



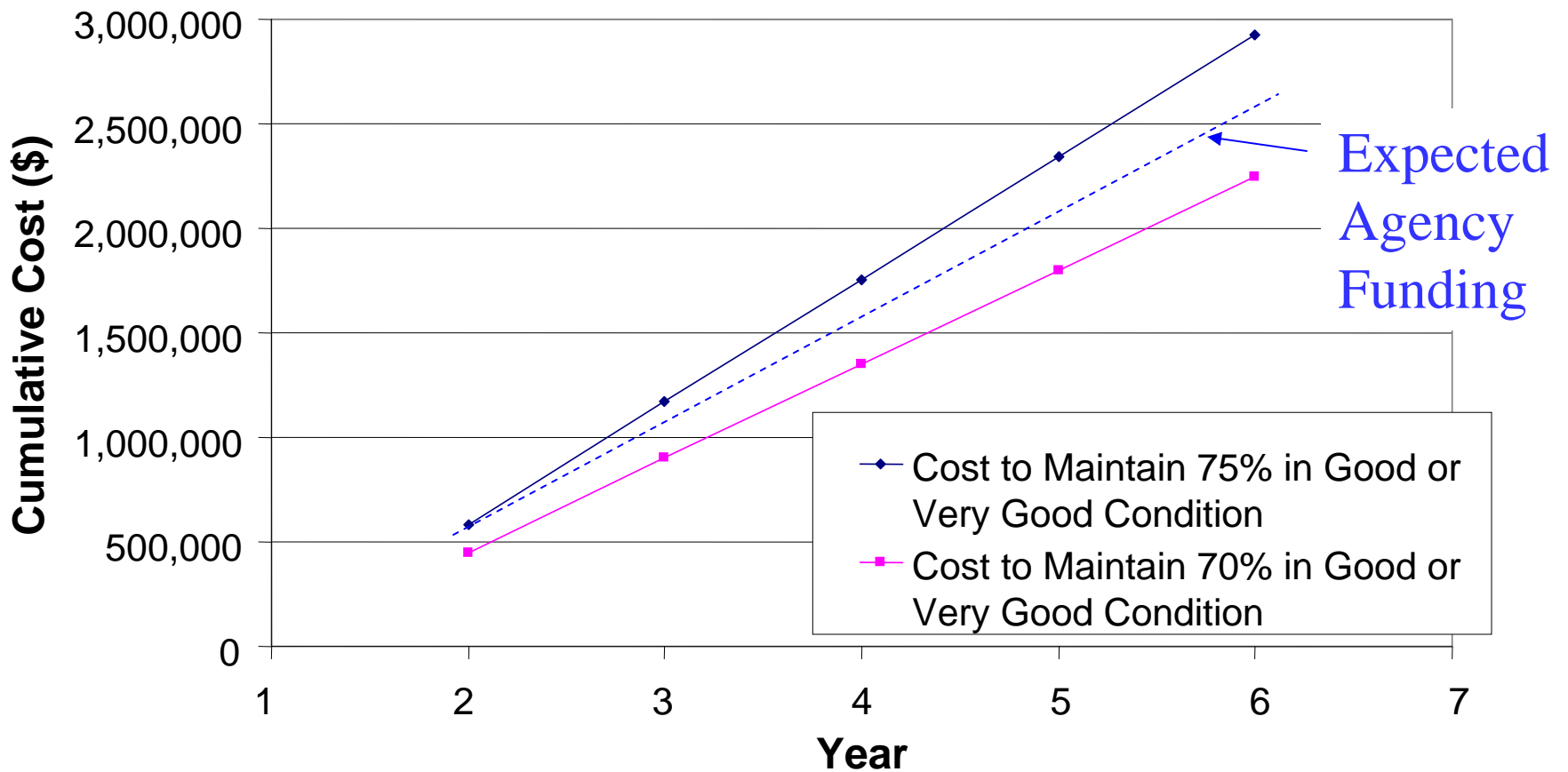
Performance Targets



- A specific measure of performance that the agency hopes to achieve



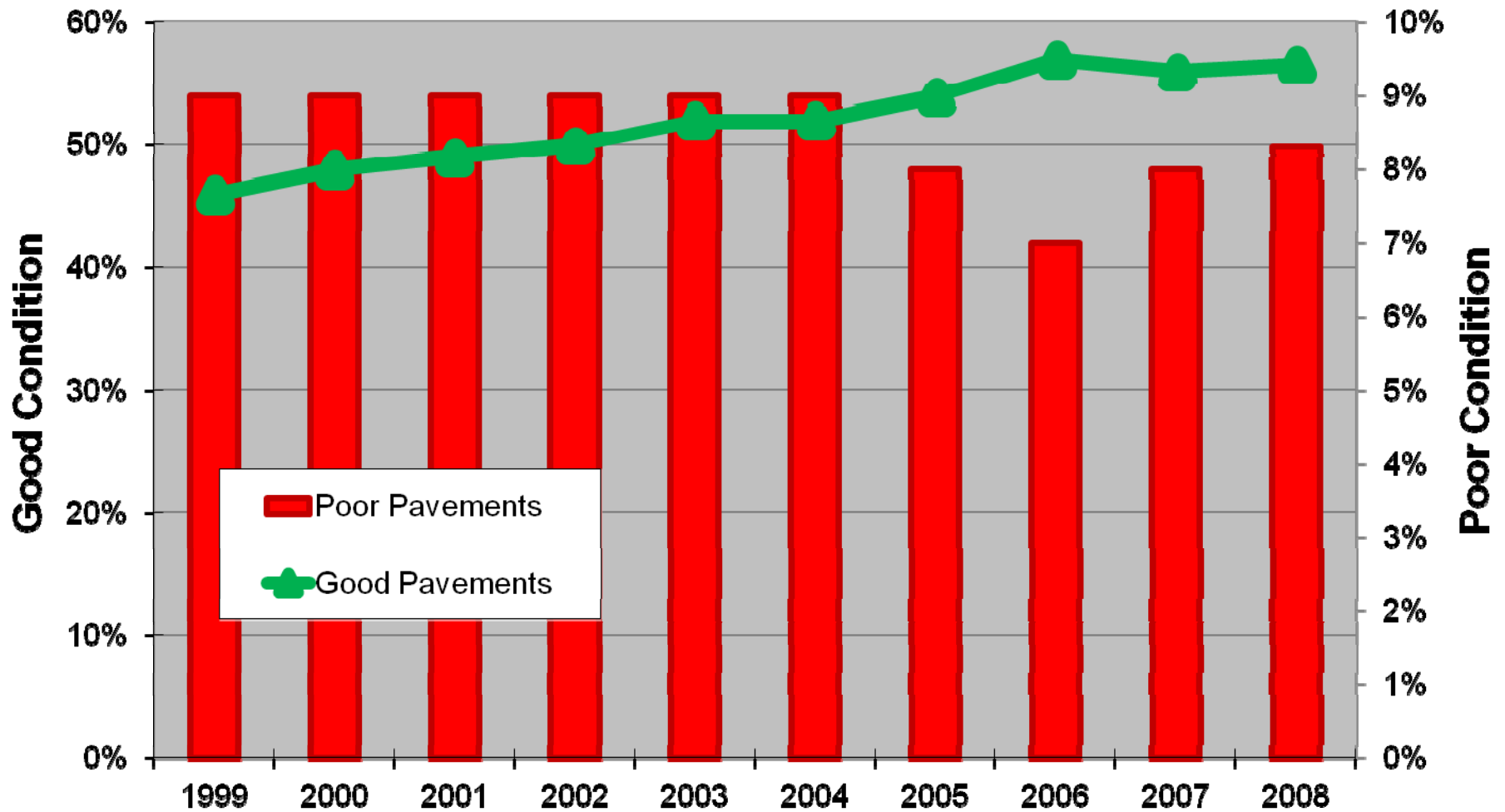
Setting Performance Targets





Methods of Presenting Pavement Management Information

Pavement Condition Trends



Telling the Story With Pictures

Level of Service "F"

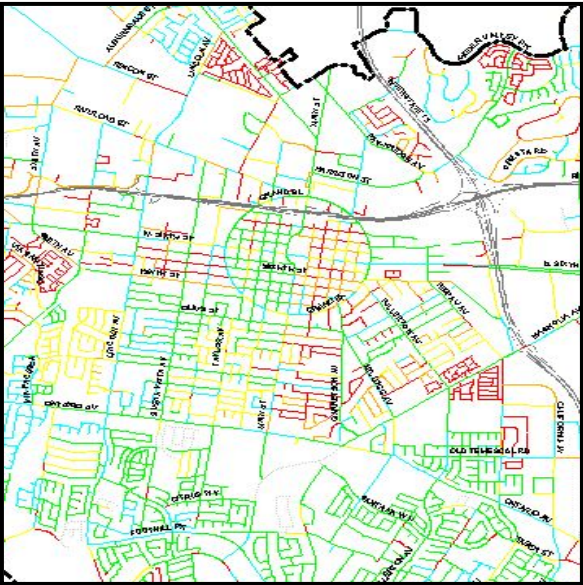


Level of Service "B"

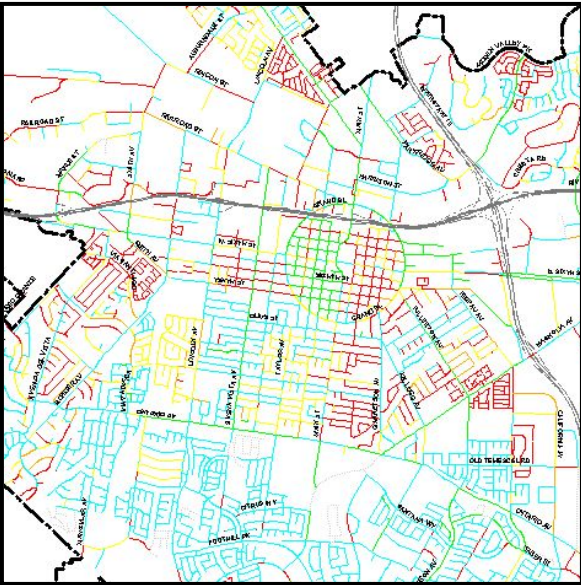
Use of GIS



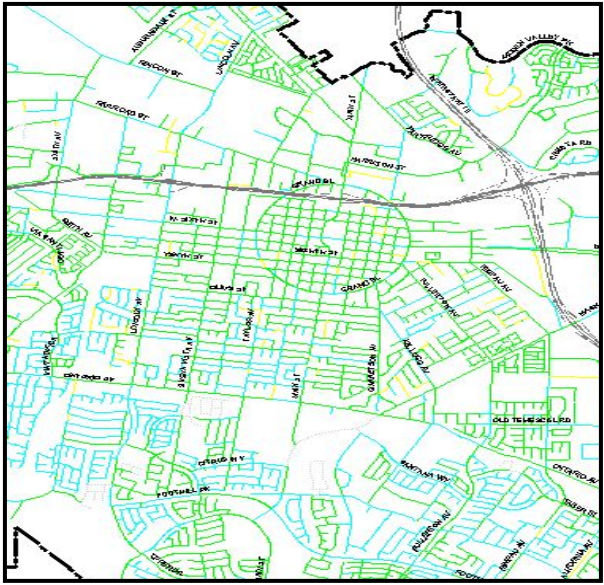
Current Conditions



Current Budget - \$10m



Unlimited funds - \$70m



Asset Management Plans

- Background
- Description of services provided
- Description of current & targeted conditions
- Program descriptions
- Financial requirements & funding strategies
- Performance metrics
- Commitment to users





**Are We Presenting The Right
Information?**

Financial Sustainability



- An assessment of the financial sustainability involves a comparison of:
 - Long-term financial capacity (resources)
 - Long-term financial requirements

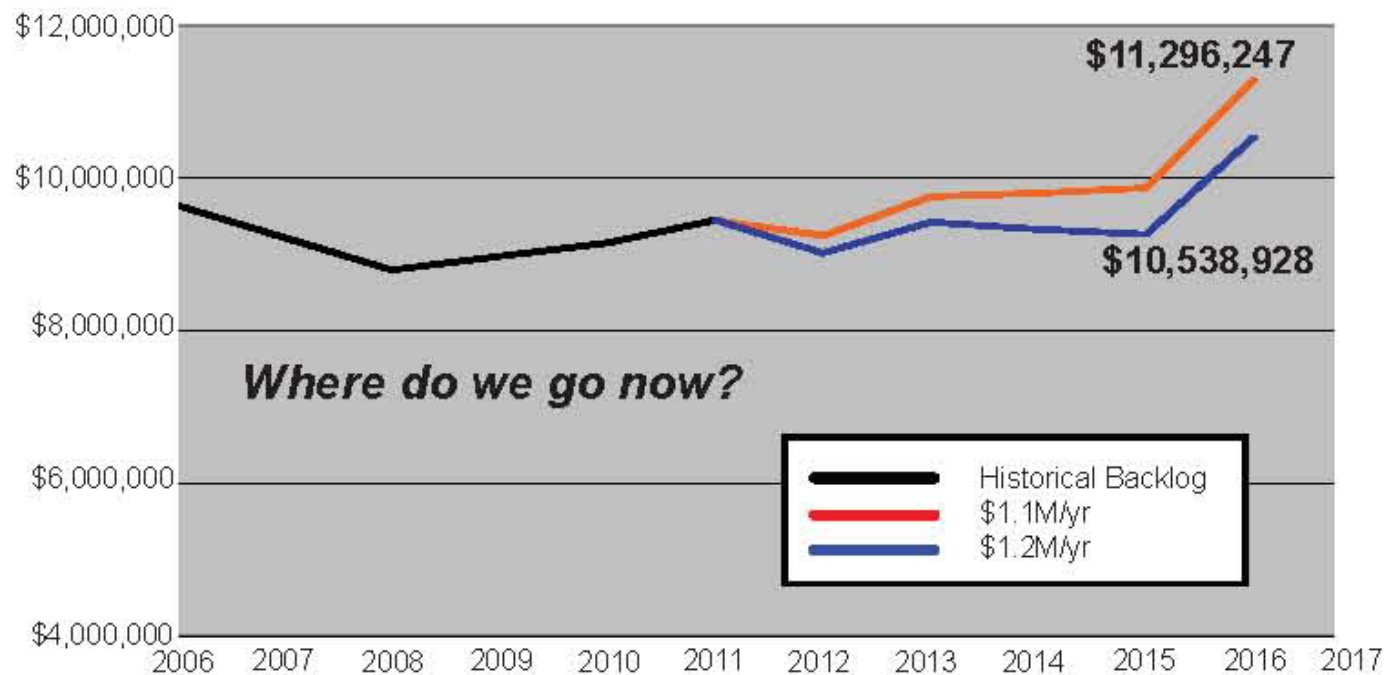
<http://www.ipwea.org.au/bookshop/aifmg/>



Example of a Financially Unsustainable Situation

- Town of Bedford, MA Public Works Department

TOWN OF BEDFORD'S FUTURE BACKLOG PROJECTION



Consider This



- You currently do not own a car
- You have \$11,000 in savings
- A new car costs \$20,000 plus \$1,000 in fees
- A 4-year old car costs \$10,000 plus \$1,000 in fees

This example is taken from the Australian Infrastructure Financial Management Guidelines, Version 1.1., 2000 published by IPWEA



How Do The Options Compare?



- Service – Consider reliability, maintenance, and features
- Purchase Cost – Consider the need for financing
- Operating Costs – Consider registration, insurance, fuel, and maintenance
- Cost Savings – Both options save \$80/month
- Residual Value in 5 Years – Used: \$4,000; New: \$10,000 less balance of loan due (\$6,000) = \$4000)



Additional Annual Costs of Each Option



Activity	Used Car	New Car
Loan Repayment	\$0	\$1,482
Operating Cost	\$5,050	\$4,550
Depreciation (5 years)	\$1,400 ($\$7000/5$)	\$2,200 ($\$11,000/5$)
Subtotal	\$6,450	\$8,232
Less Savings	(\$960)	(\$960)
Total	\$5,490	\$7,272



Financial Sustainability Metrics



- Asset Sustainability Ratio
- Asset Consumption Ratio
- Asset Renewal Funding Ratio



Asset Sustainability Ratio



- What? Asset replacement expenditure/Annual depreciation expense
- Why? Helps you determine whether assets are being replaced or renewed at the same rate as they are wearing out
- Values will vary depending on the age of the assets
- Target: 100%



Asset Consumption Ratio



- What? Depreciated replacement cost/Current replacement cost of the same assets
- Why? It gives you an indication of the aged condition of the physical assets
- Typical values are between 40 and 80 percent



Asset Renewal Funding Ratio



- What? Net Present Value (NPV) of projected 10 year capital renewal funding outlays/NPV of projected 10 year capital renewal expenditures in an Asset Management Plan
- Why? Provides an indication of whether the agency can fund its projected renewal and replacement projects in the future
- Typical values are between 40 and 80 percent



In The End...



- This type of information helps document needs and builds the case for additional funding
- It demonstrates a commitment to openness and accountability and invites both inspection and scrutiny
- It provides decision makers with the information they need to make informed decisions



It Helps Prevent



- Establishing goals that can't be met
- Dramatic increases in unfunded needs
- Political influences
- Uninformed decision making





**If your information is being
used to influence decisions,**

Your pavement management
system is a success!