

VTrans Transportation Asset Management Plan



VTrans Asset Management

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Commitment to Asset Management will **change** how the Vermont Agency of Transportation conducts its business!





Business Purpose / Need Statement



The purpose of Asset Management is to meet a **required level of service**, in the most **cost effective manner** through the management of assets for **present** and **future** customers.

Source: IIMM





Why Asset Management ?



MAP 21 Federal Requirements (2012) tied to
Agency Funding Levels

Asset Management was mandated by
Vermont Legislature
(Act 64 in 2001) and is documented under
19 V.S.A. § 10k - Highways
Chapter 1: STATE HIGHWAY LAW





Map 21 Requirements



Each State is required to develop a **risk-based** and **performance based asset management plan** for the National Highway System (NHS) to improve or preserve the condition of the assets and the performance of the system. Plan development process must be reviewed and recertified at least every 4 years. (23 U.S.C. 119(e)(1), MAP-21 § 1106)

Map 21 will establish minimum standards for Interstate pavements and NHS bridges and will require States to devote resources to improve conditions beyond the minimum requirements.





Map 21 Timeline / Penalties

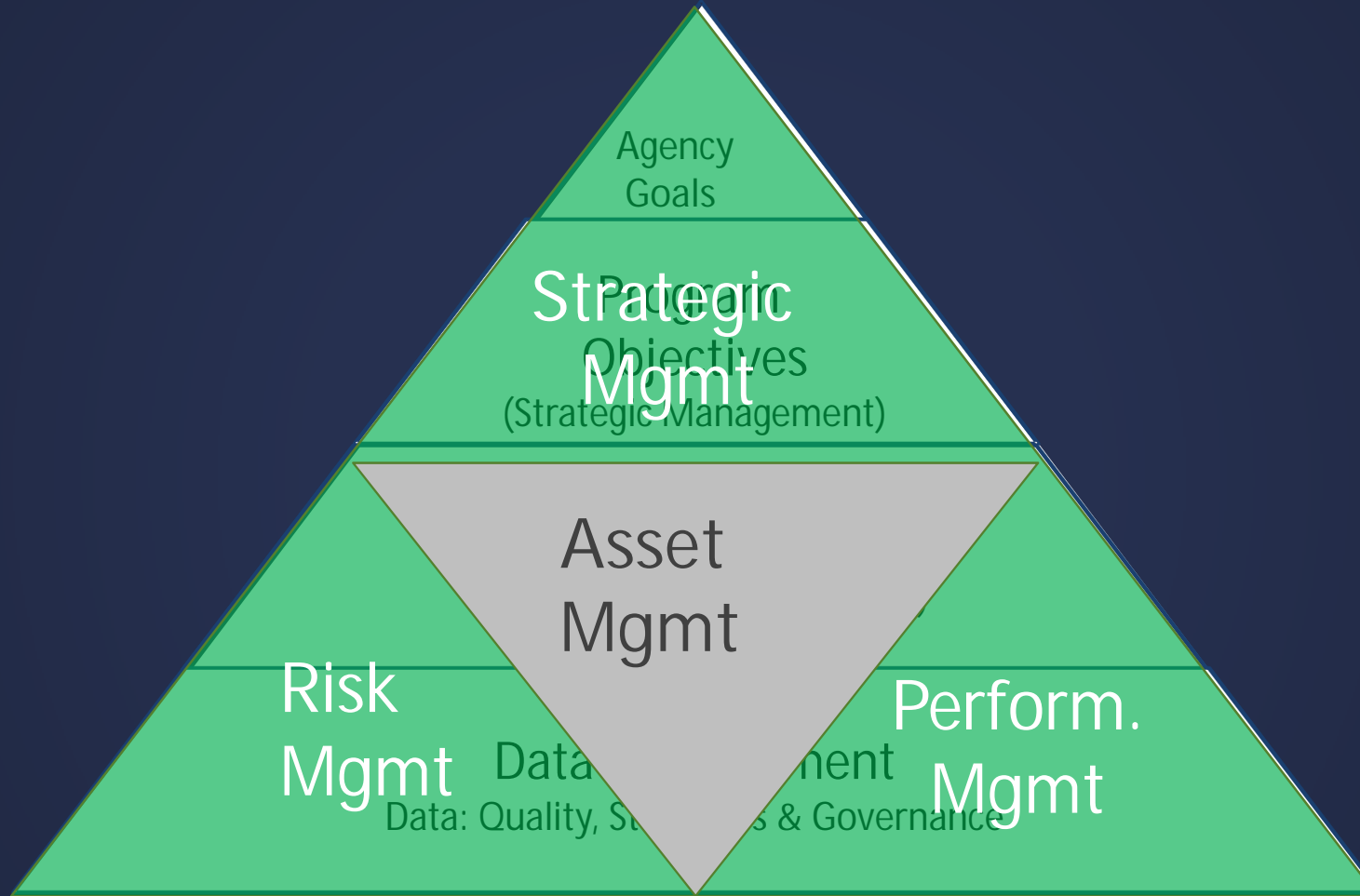
The federal rule making process is currently on-going. AASHTO Subcommittee on Asset Management expects final rule to be issued prior to October 1, 2015 resulting in each State to have a certified Transportation Asset Management Plan (TAMP) by October 1, 2016.

States which do not implement a TAMP within the established timeframe will see their Federal Share for National Highway Performance Program (NHPP) projects decrease from 80% to 65%.





AM Visualization - Simplified





2001-2002 VERMONT LEGISLATURE NO. 64. AN ACT RELATING TO THE STATE'S TRANSPORTATION CAPITAL PROGRAM AND PROJECT DEVELOPMENT PLAN.

Sec. 24. 19 V.S.A. § 10k is added to read:

§ 10k. STATEMENT OF POLICY; ASSET MANAGEMENT

The agency shall develop an **asset management plan** which is a systematic goal and **performance-driven** management and decision-making process of operating, maintaining and upgrading transportation assets **cost-effectively**.





19 V.S.A. § 10k



At a minimum, the asset management system shall:

- (1) identify transportation system indicators by which the different components of the transportation system may be evaluated;
- (2) list all of the infrastructure assets and their condition, including, but not limited to, pavements, structures, and facilities;
- (3) include deterioration rates for infrastructure assets; and
- (4) determine, long-term, the annual funds necessary to fund infrastructure maintenance at the recommended performance level.



Why Asset Management?



Asset Management Defined

MAP 21 Definition: Asset management is a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality (data) information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost. (23 U.S.C. 101(a)(2), MAP-21 § 1103)

VTrans' AM Mission

- What ?

The overall mission is to program capital or maintenance activities for assets at strategic points in the asset's life cycle with the intention of extending its expected useful life, increase performance, while minimizing the costs to manage the asset over its life span.

- How?

By meeting the required customer service level, in the most cost effective manner through the management of assets for both present and future customers."

Benefits of AM

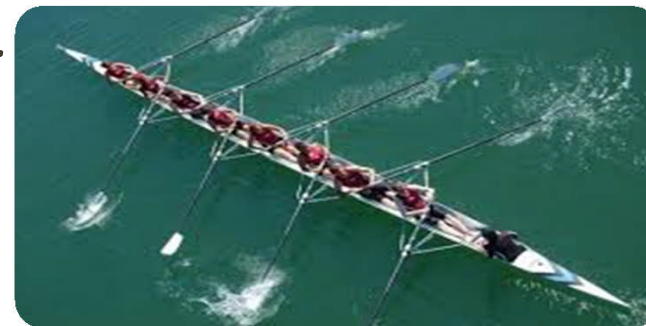
- Monitor asset status and condition, determine customer service levels, measure performance and determine any unmet needs. = Sustainability.
- Maximize the value of VTrans' capital, operations and maintenance expenditures within current revenues, while continuously delivering levels of service that the public expects and decision makers require. = Fiscal Accountability.

Benefits of AM

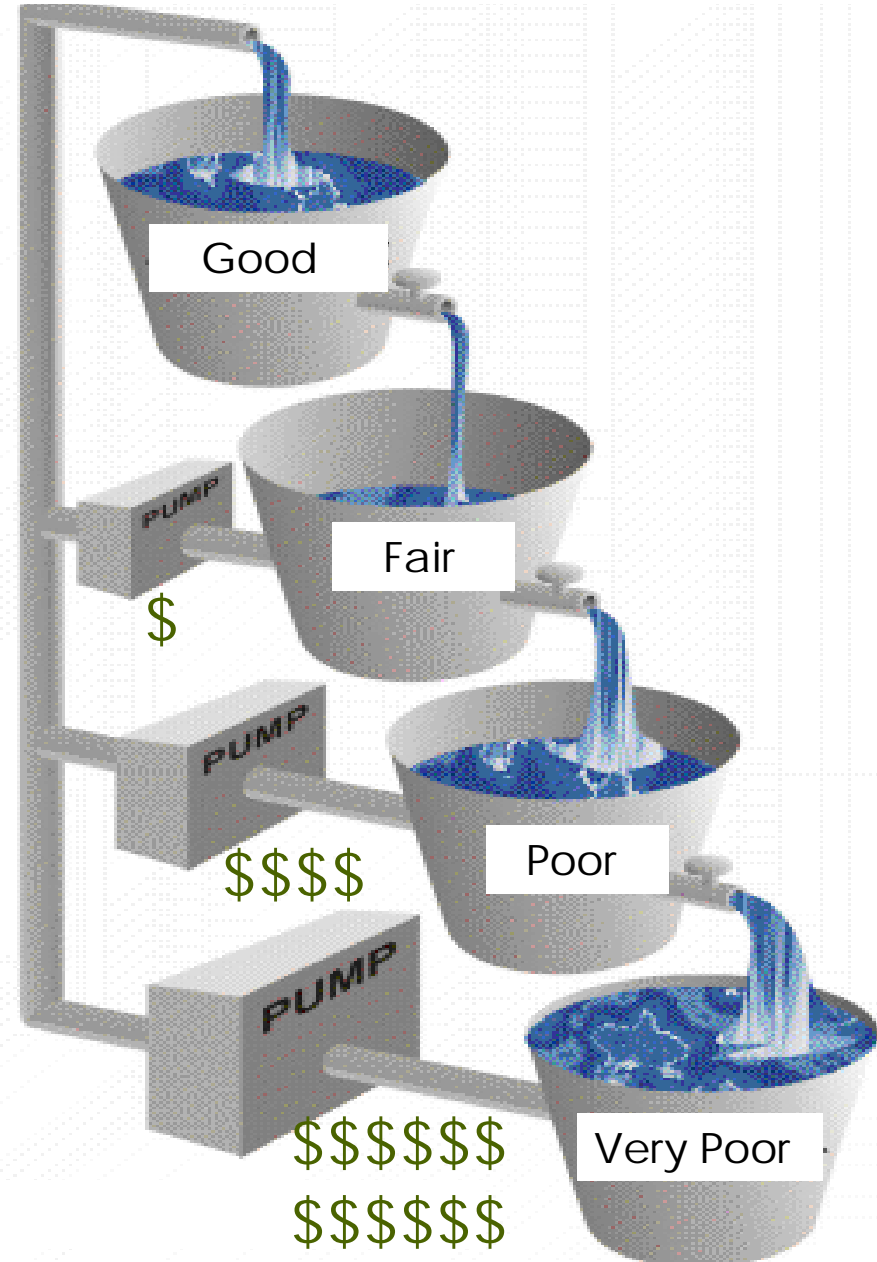
- *Develop analytical methodologies and tools required to analyze asset life-cycle costs and benefits of capital and maintenance projects, and to evaluate projects across transportation modes and programs while minimize the cost of managing the system over the long-term – resulting in an increased cost effectiveness and service life = Credible Programming.*
- Strategically time treatment interventions to help extend the asset's useful life and maximize the Agency's financial resources = Right³.

Benefits of AM

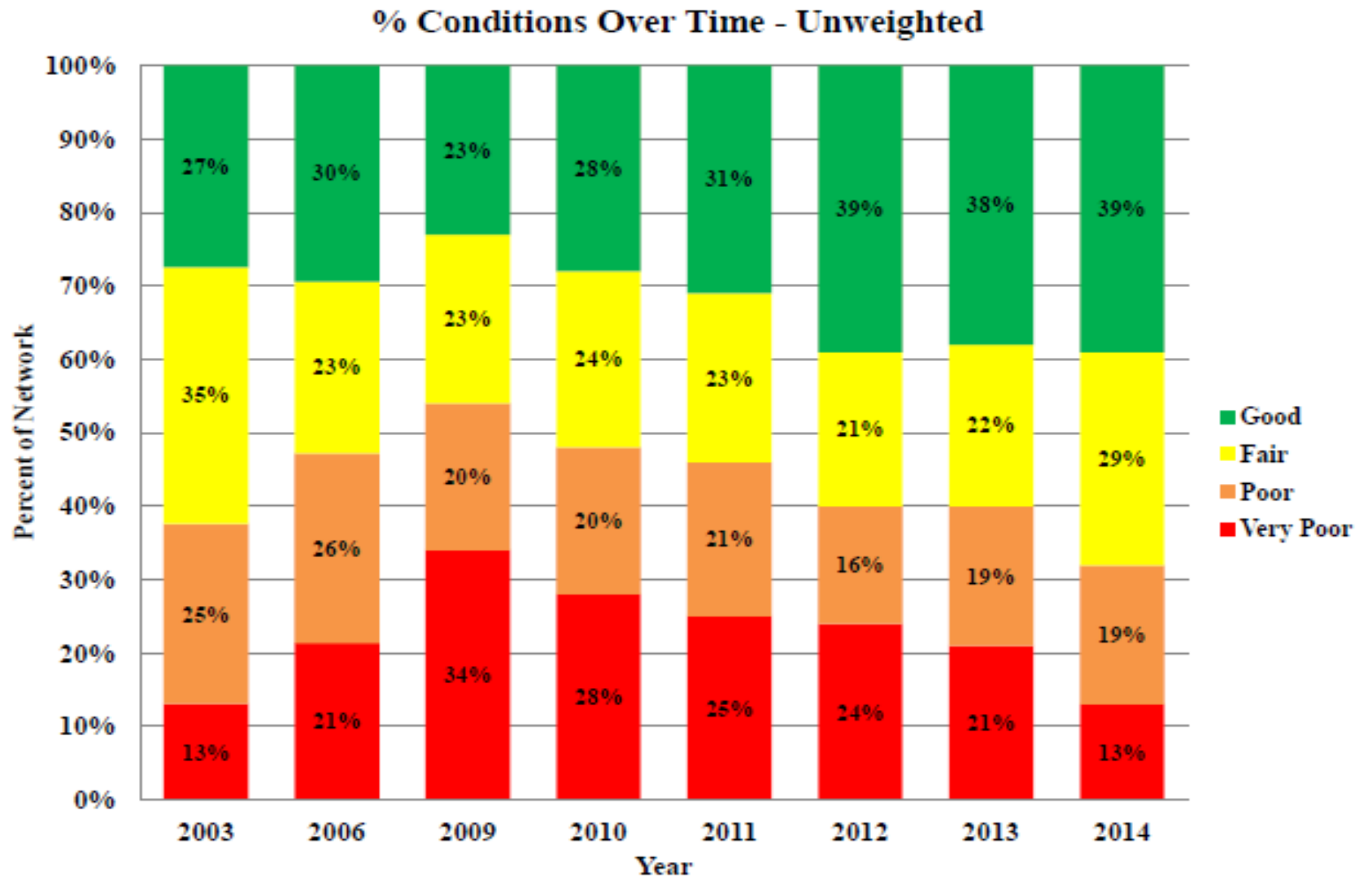
- *Suite of data management tools that generates consistent strategic information across asset types that is consistent with tactical information = Data Integration & VTransparency*
- *Develop Agency Risk Registry; resulting in reduction of risk to the Agency, better decisions and increase performance = Risk Management.*



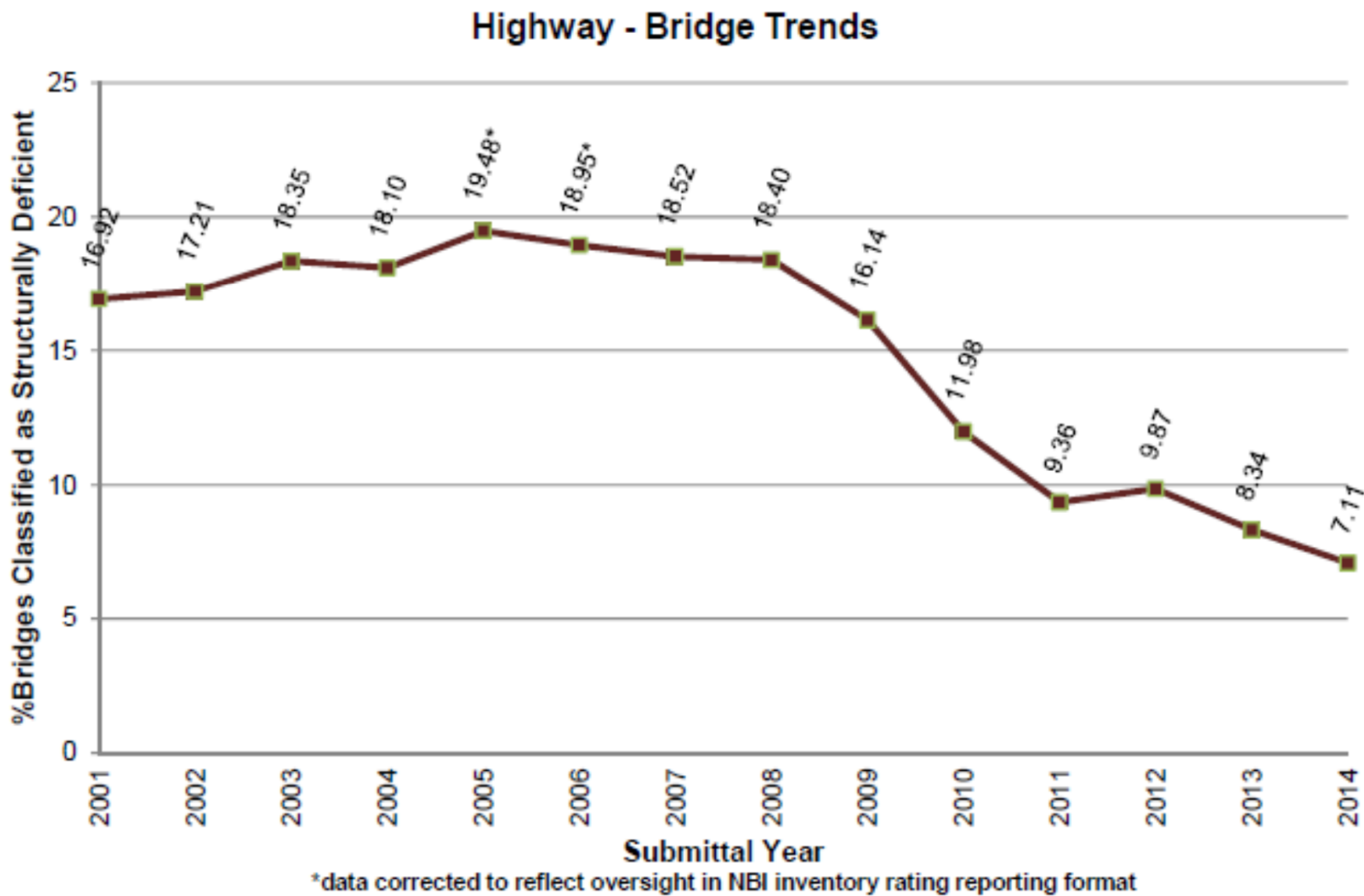
Decisions, Decisions ...

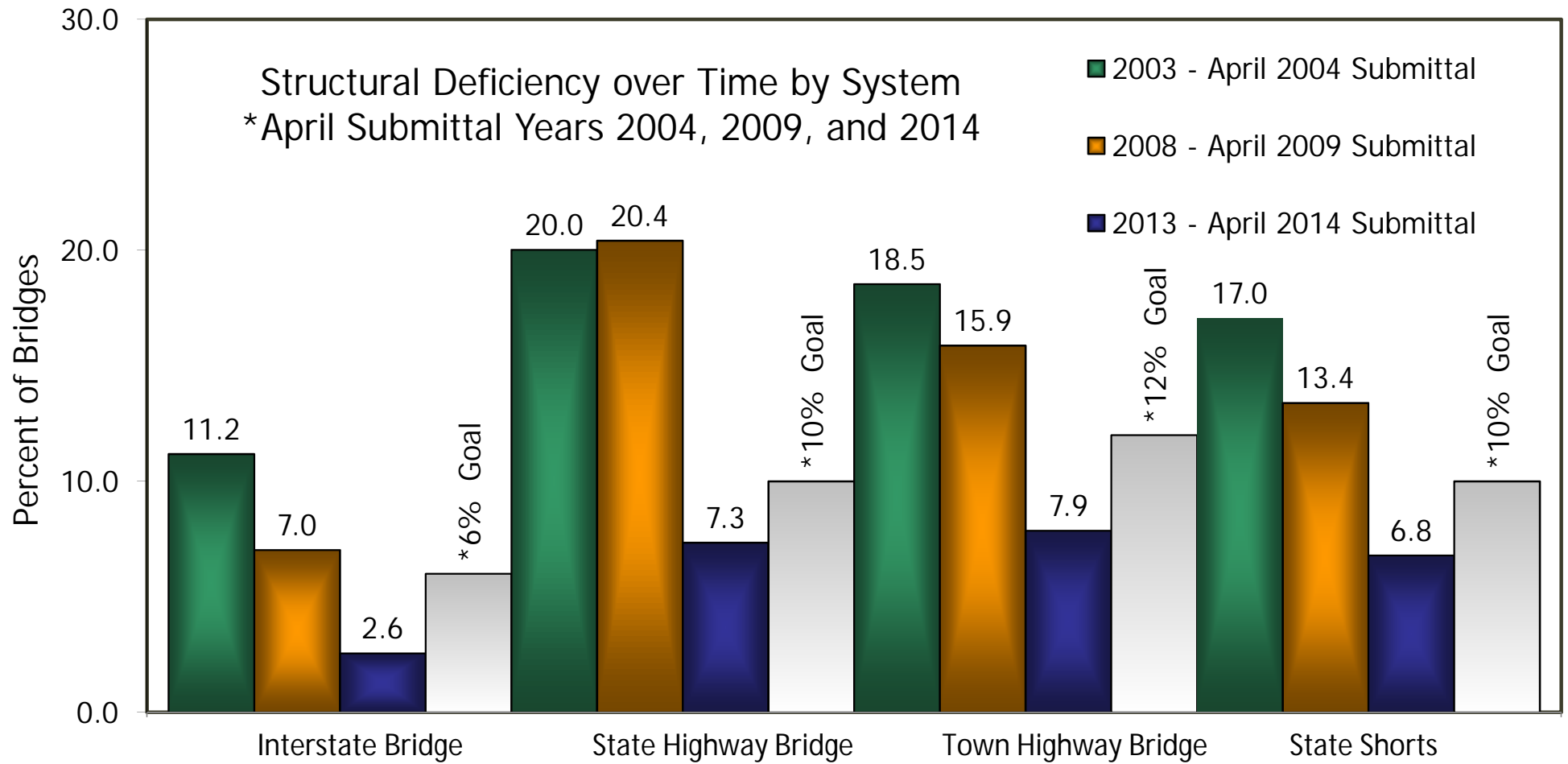


Pavement Condition Composite Index

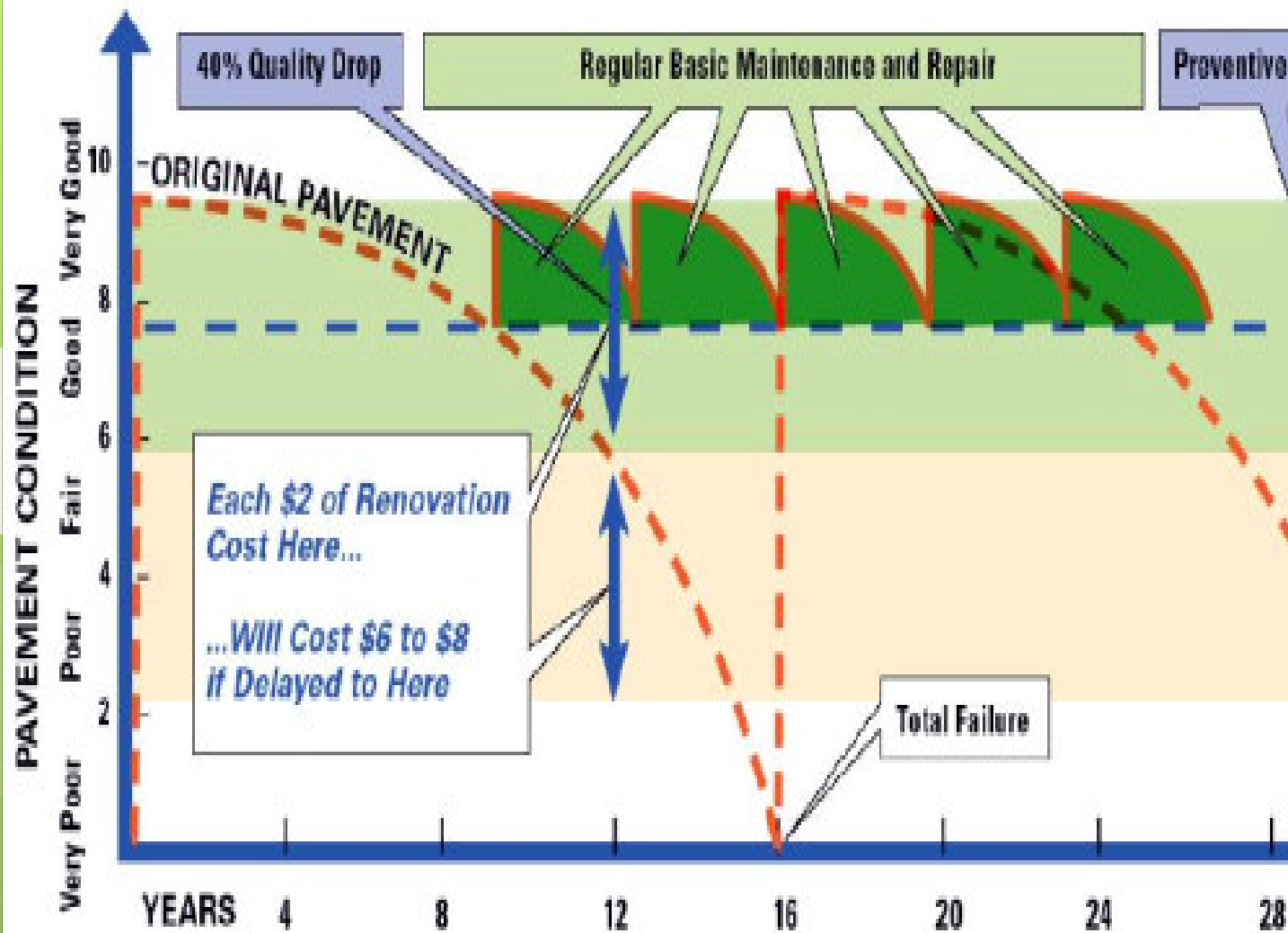


Bridge Condition Composite Index



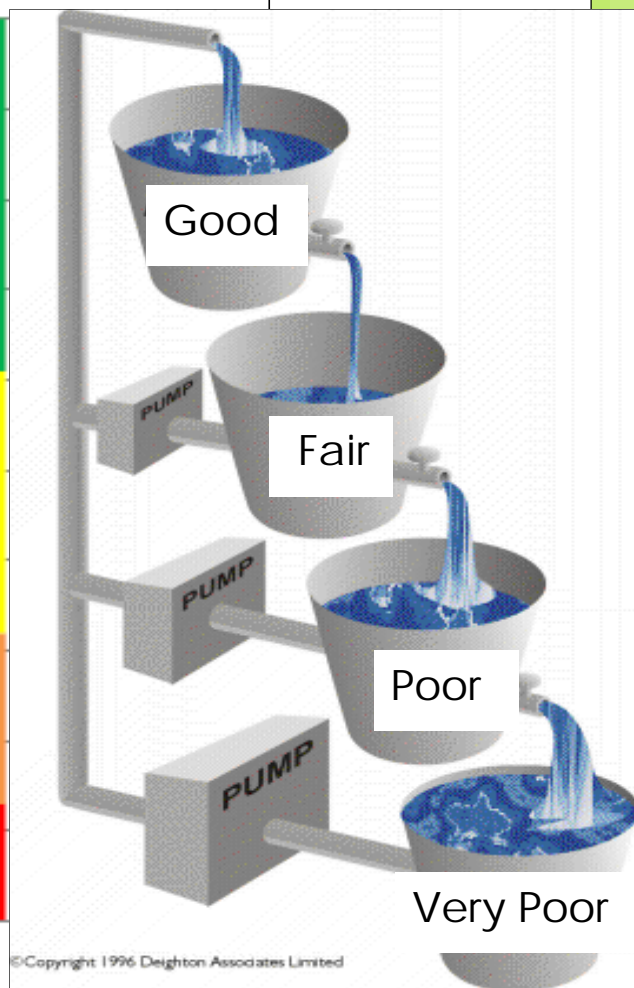
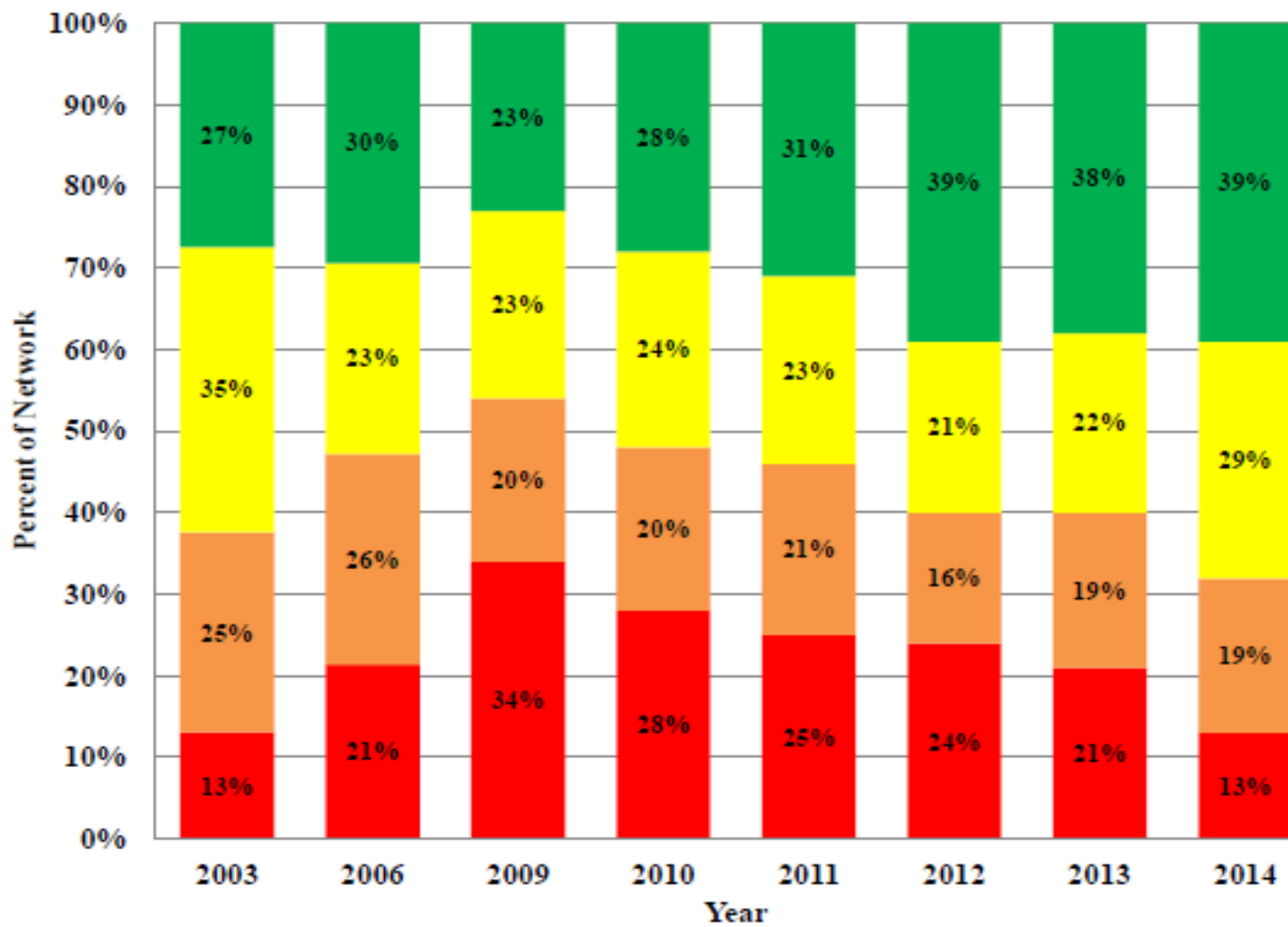


The Cost of "Timely" Maintenance

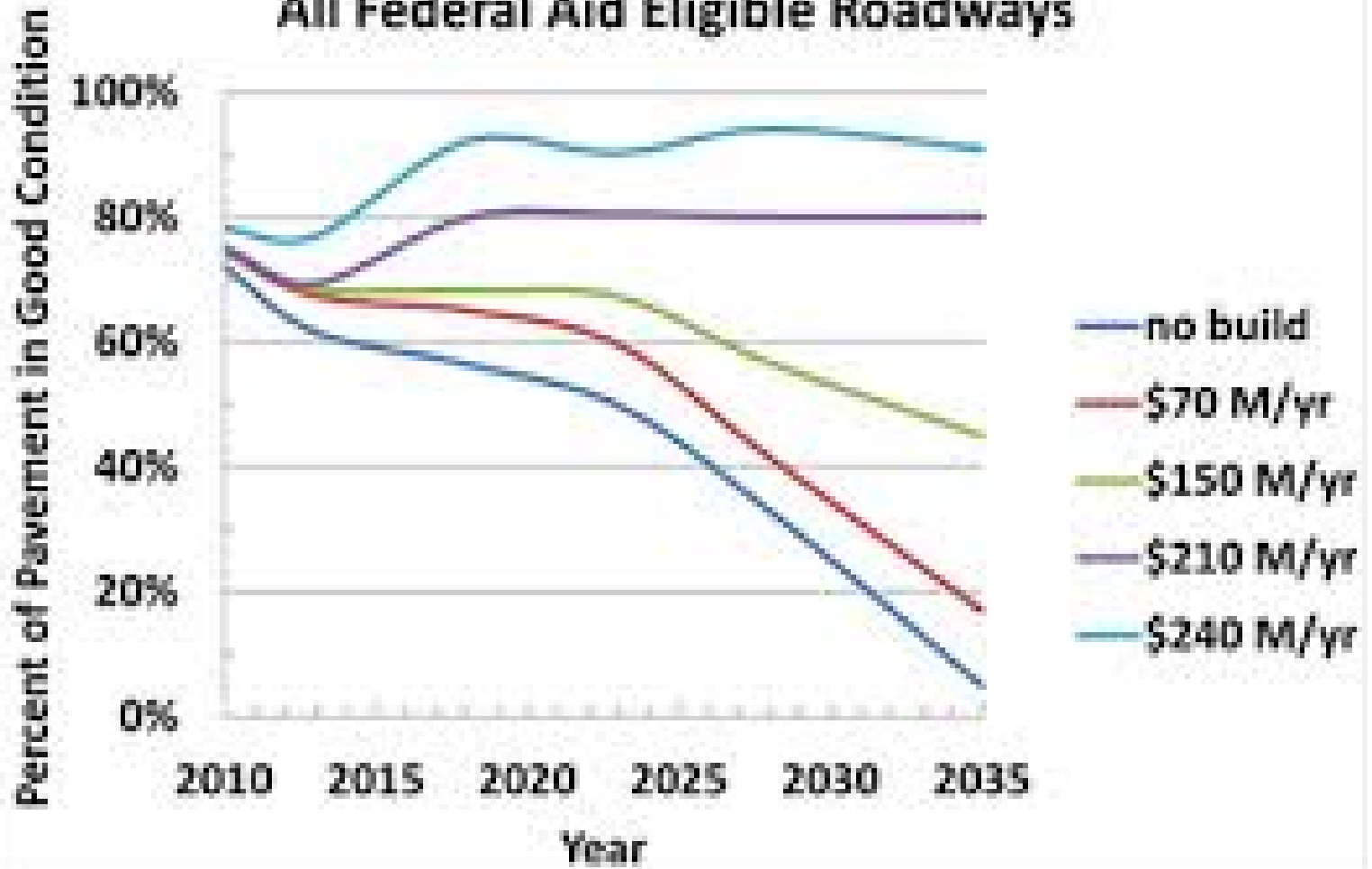


What's In Your Bucket?

% Conditions Over Time - Unweighted



Pavement Performance versus Annual Budget All Federal Aid Eligible Roadways



TAM Update – Key Highlights



VTrans Asset Management

VTrans' Mission, Vision & Goals

Mission: Provide for the safe and efficient movement of people and goods.

Vision: A safe, reliable and multimodal transportation system that promotes Vermont's quality of life and economic wellbeing.

Goals:

1. Provide a safe and resilient transportation system in an environmentally responsible manner.
2. Preserve, maintain and operate the transportation system in the most cost effective and efficient manner.
3. Provide Vermonters energy efficient, travel choices/options.
4. Provide quality customer service.
5. Develop a workforce to meet the strategic needs of the Agency.

Overview & Purpose

Asset Management is an Agency-wide commitment to excellence and applies to all departments and divisions within VTrans; Finance & Administration, Motor Vehicles, Operations, Policy, Planning & Intermodal Development and Program Development.

As of February 2014, VTrans has begun developing a Transportation Asset Management Plan (TAMP) to comply with both State and Federal (MAP-21) legislation. VTrans is developing the TAMP through an intra-Agency work group (TAMP-WG) committed to improving how the Agency conducts its business.

The purpose of this policy statement is to memorialize the commitment of VTrans' executive leadership to;

- support the development and implementation of the TAMP,
- support the TAMP-WG in its quest to develop and implement the TAMP.
- institutionalize asset management processes so it is sustained through future organizational changes in leadership, and
- utilize continuous improvement strategies to optimize asset performance in a cost-effective manner while providing excellent customer service.

Policy Statement

Who are our Customers?

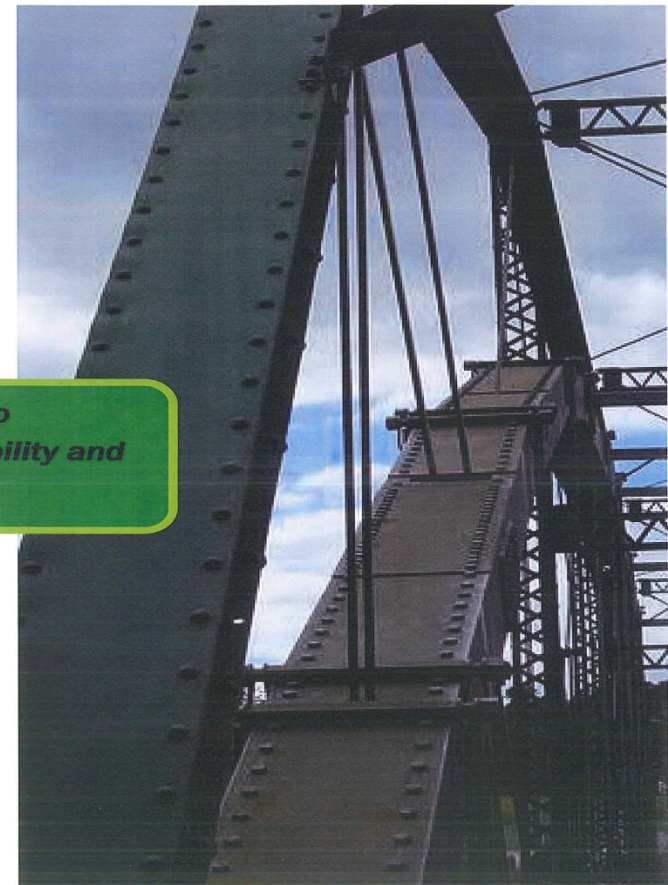
VTrans' customers are our Vermont residents, businesses and visitors who rely on VTrans to manage transportation assets in a cost-effective, efficient and sustainable manner. They depend on us to be good stewards of the resources entrusted to us. As good stewards, we do more than account for our assets, we minimize operating costs while ensuring proper use, maintenance and performance. These actions form the foundation of our commitment to provide quality customer service.

Asset Management is a commitment to sustainability, transparency, accountability and customer service.

Challenges

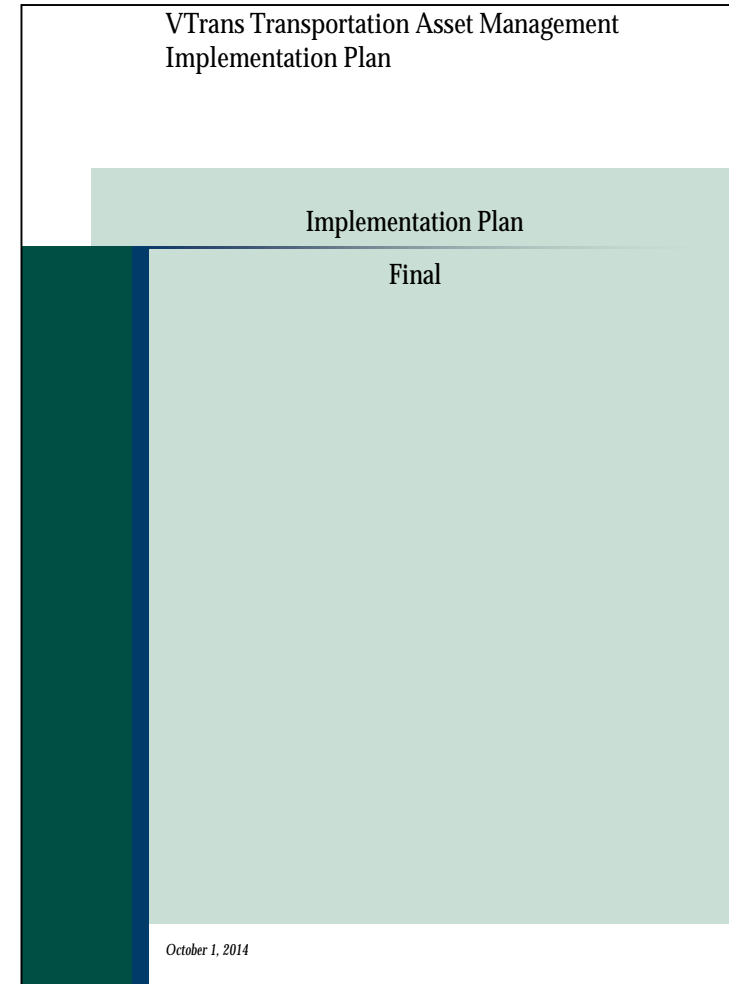
Transportation infrastructure managers nationwide are facing many challenges, including aging assets and tighter budgets. The complexity is increased due to limited infrastructure information, the need to satisfy multiple stakeholders' expectations and the demand for more sustainable transportation solutions.

VTrans is committed to responding proactively to these needs and is responsible for ensuring that Vermont's transportation system remains in good working order regardless of its age. Therefore, the challenge to manage transportation infrastructure assets has led VTrans to emphasize an asset management policy as a business process that drives quality decisions based on accurate data and analysis. The primary purpose of Asset Management is to use available funding strategically and efficiently.



AM Gap Analysis

- In 2014 VTrans worked with FHWA and its Consultant AMEC to identify AM gaps; where we are versus where we want to be.
- Recommendations to close these gaps have been rolled into VTrans' TAMP Work Plan



AMP Organizational Structure

Chad Allen

Admin.

1 position

Kevin Viani

Data Management

Asset Inventory

4 positions

Systems

Pavement Mgmt
Bridge Mgmt
2 positions

Mike Hedges

Budget & Programming

Budget

Programming

3 positions

Bridge Inspection

Chief Bridge Inspector,
Load Raters(2), Bridge
Inspectors (8)

Mike Pologruto

Performance

Estimating

1 position

Quality Assurance

1 position

Risk Mgmt

1 position

VTrans' TAMP

TAMP Work Plan Development

Chapter	Title
6.1	EXECUTIVE SUMMARY
6.2	REGULATORY REQUIREMENTS
6.3	TAM BUSINESS MODEL
6.4	ASSET MANAGEMENT GOALS, OBJECTIVES AND STRATEGIES
6.5	AM PERFORMANCE MEASURES
6.6	CUSTOMER SERVICE LEVELS
6.7	AM DECISION-MAKING PROCESSES

VTrans Transportation Asset Management Plan



VTrans' TAMP

TAMP Work Plan Development

Chapter	Title
6.8	ASSET INVENTORY & CONDITIONS
6.9	LIFE CYCLE COST CONSIDERATIONS
6.10	FINANCIAL PLAN
6.11	INVESTMENT STRATEGIES
6.12	FUTURE GROWTH & DEMAND
6.13	RISK MANAGEMENT
6.14	AM ENHANCEMENT PLAN
6.15	COMMUNICATION, OUTREACH & REPORTING

TAMP Implementation

Define Direction

- ◇ Define Scope of TAM in Agency
- ◇ **Review Agency Mission, Vision & Goals**
- ◇ **Conduct Self Assessment and Gap Analysis**

Align the Organization

- ◇ Develop change strategy
- ◇ **Integrate TAM into org. culture**
- ◇ **Integrate TAM into business processes**
- ◇ **Define Asset Mgmt roles & responsibilities**
- ◇ **Review / Develop Performance Mgmt goals for each asset**

Construct the TAMP

- ◇ TAMP to be developed in phases pending asset maturity levels

Develop Processes, Tools & Systems

- ◇ Predictive Modeling
- ◇ **Trade-off Analyses**
- ◇ **Life Cycle Mgmt**
- ◇ **Data Collection & Mgmt**
- ◇ **Data & Financial Integration**

TAM Goals & Objectives

- Goal 1. Meet the minimum Federal (MAP-21) and State legislative requirements regarding Asset Management implementation
 - Objective 1A. Develop GIS-based Asset Registry
 - Objective 1B. Develop Customer Service Levels (CSLs)
 - Objective 1C. Develop a Financial Plan

TAM Goals & Objectives

- Goal 2. Develop factual, risk based, and data driven Asset Management processes
 - Objective 2A. Develop and Document Life Cycle Costs Processes
 - Objective 2B. Develop Data Management Framework
 - Objective 2C. Develop Risk Integration Plan

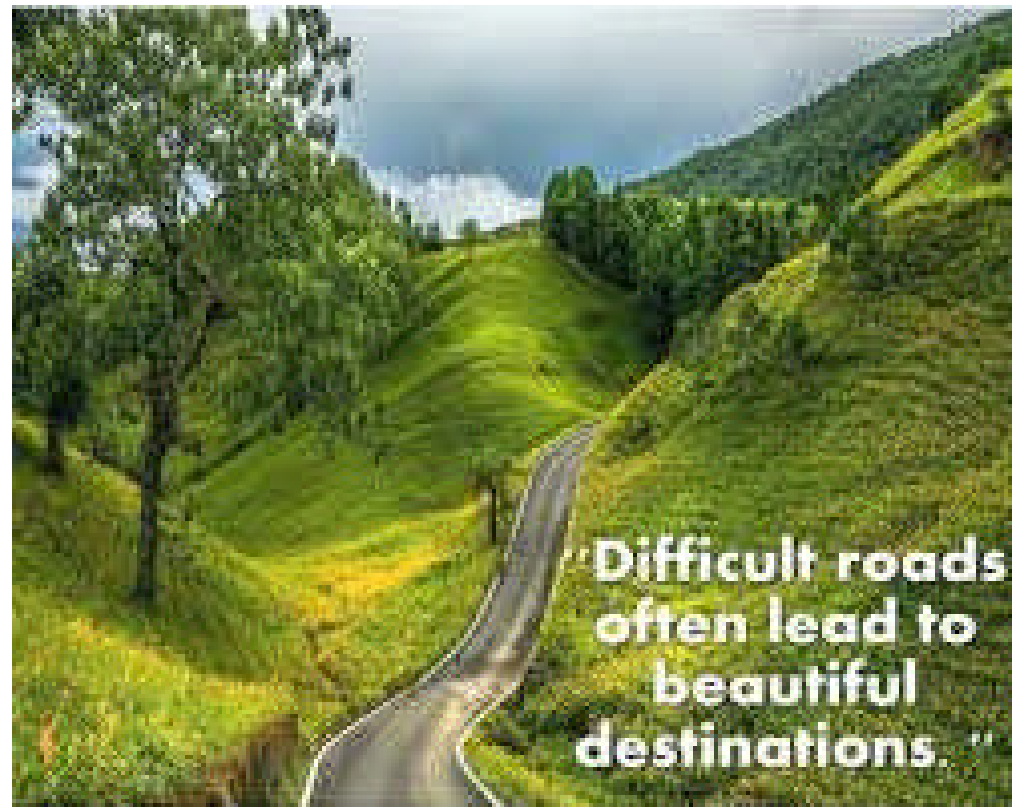
TAM Goals & Objectives

- Goal 3. Use asset management to manage the Agency's physical infrastructure, drive the budget development process, and support the Agency's Strategic Plan
 - Objective 3A. Develop Risk-based Tradeoff Analysis Processes
 - Objective 3B. Define Asset Management Budget Process Framework
 - Objective 3C. Develop Investment Policies and Procedures Framework

TAM Goals & Objectives

- Goal 4. Integrate asset management into VTrans' culture
 - Objective 4A. Strengthen asset management-focused Organizational Structure
 - Objective 4B. Institutionalize asset management across the entire Agency
 - Objective 4C. Document and prioritize asset management process enhancements or improvements

Where is Asset Management Taking Us?

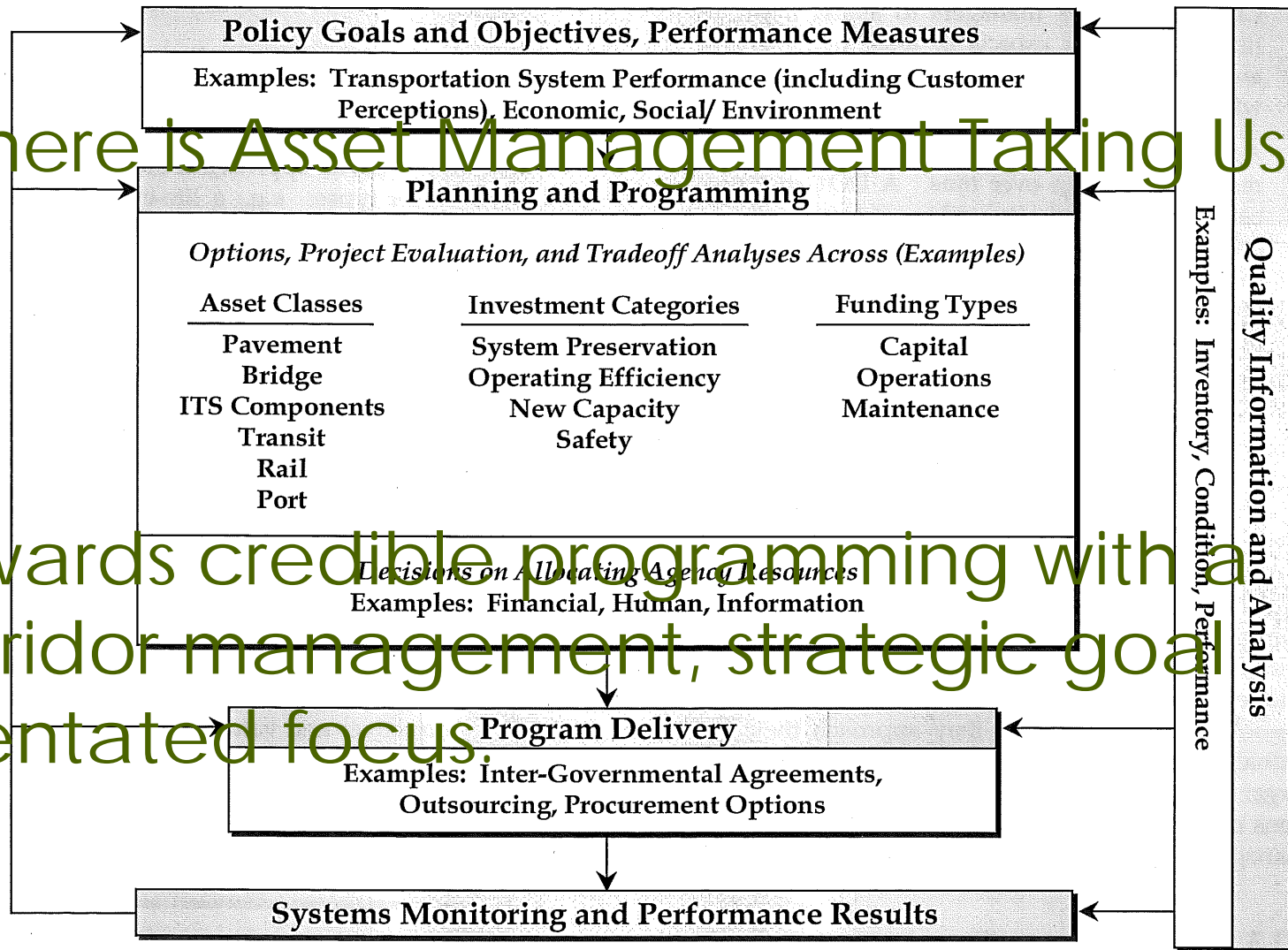


**Difficult roads
often lead to
beautiful
destinations.**

Where is Asset Management Taking Us?

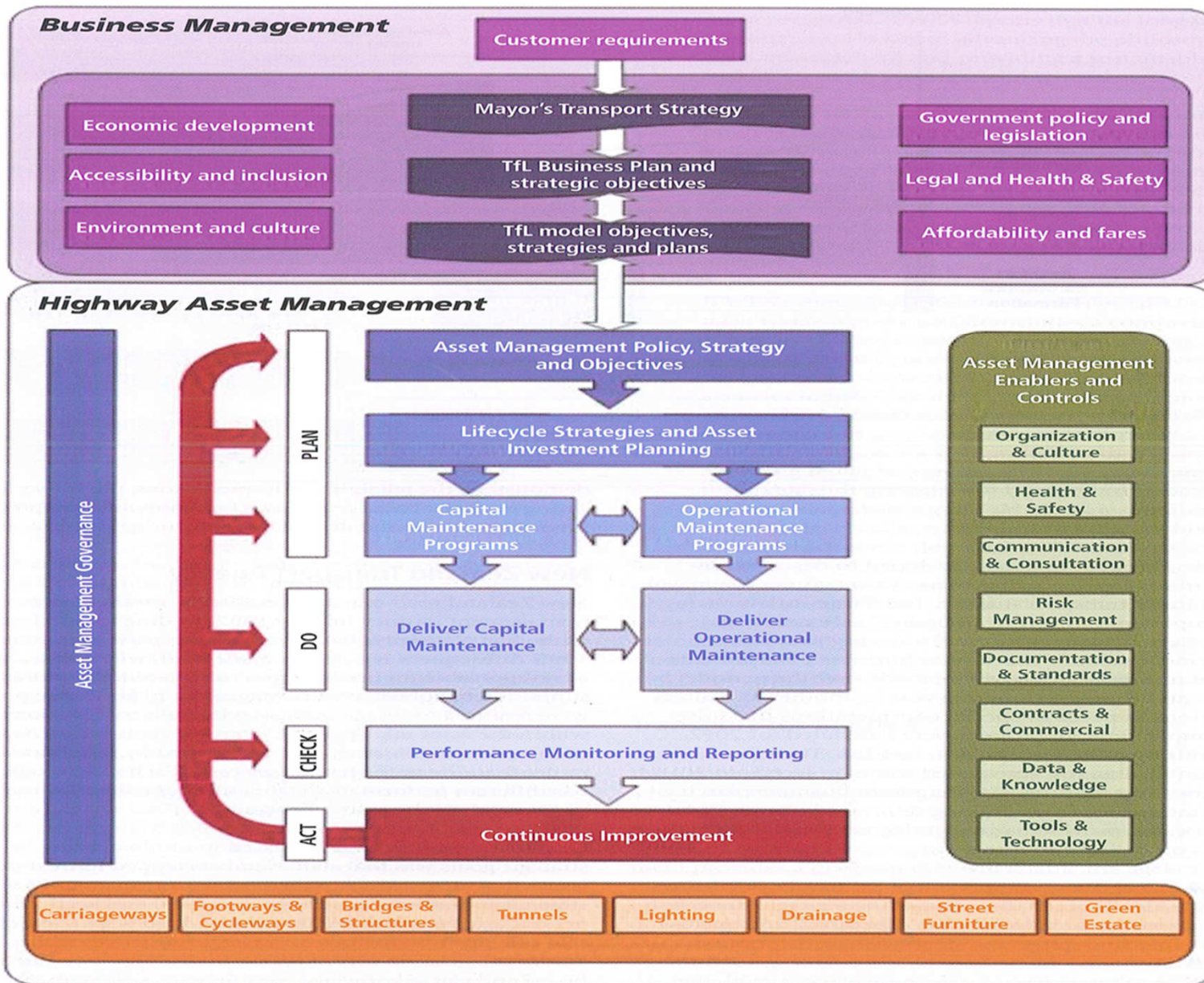
- Establishment of Customer Service Levels
- Ability to conduct Life Cycle Cost Analyses
- Calculation of Benefit Cost Ratios or Return on Investment for programmed activities
- Long term financial decisions based on data, considering risk and driven by performance!

Where is Asset Management Taking Us?



Towards credible programming with a corridor management, strategic goal orientated focus.

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Where is Asset Management Taking Us?

- Vermont State Standards – not the what but rather the creative collaborative process; working with external partners and developing key working relationships

Anticipated future impacts related to;

- corridor management
- customer service level discussions

- Budget Development – AMP B&P Section leading Highways Division budget development

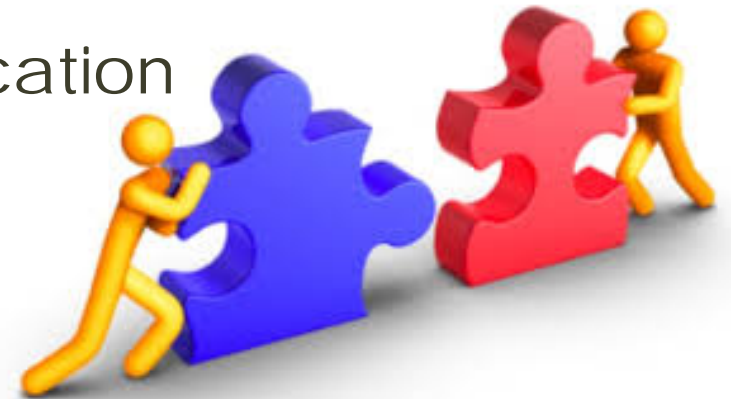
How are we going to get there?

Through integration of a series of best AM practices identified in Europe, Australia and in the United States.

The AM community in US are collectively developing these best practices. Some States better than others. Some States have not started their TAMP yet!

Working together. Effective Communication

Alignment with Strategic Goals.



Best Practices

Asset Inventory

1

Identify and prepare an accurate asset inventory database, graphically represented spatially on a GIS platform.

Example:

Interactive GIS map of asset locations with “pop-up” information of asset condition.

Customer Service & Continuous Improvement

2

Work with stakeholders to determine Customer Service Levels (CSLs). Identify performance measures and indicators to continuously monitor status.

Example:

Condition Target:
Maintain a minimum of 75% of pavements above a “Very Poor” Condition.

Risk Management

3

Develop Agency risk registry. Identify, quantify and prioritize risks associated with asset management. Develop risk mitigation plans to reduce exposure.

Example:

Analyze freight corridors for bridge restrictions & overall economic impacts. Strategies are developed to remove restrictions.

Life Cycle Cost Management

4

Determine minimum life cycle costs for maintaining, rehabilitating and replacing assets to provide the highest levels of service over time.

Example:

Apply the right treatment, using the right materials, at the right location and at the right time.

Trade-off Analyses

5

Develop ability to predict asset condition over time and to use this information to establish long term funding strategies to maintain assets at sustainable CSLs.

Example:

Manage customer expectations in a fiscally responsible and environmentally sensitive manner for present and future generations.

Questions ?

This is how we do business:

- Preserve our assets and minimize their whole life cost
- Operate in a financially sustainable manner
- Provide a framework to improve performance on a long-term basis



Asset Management & Performance Bureau

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