



Systems Preservation Guide :

A Planning Process for Local Government
Management of Transportation Networks

Interactive Presentation

[CLICK HERE TO BEGIN](#)

Report Manual 2016-34B

Prepared by the:

System Preservation Pilot Counties

Doug Fischer, PE, Anoka County Engineer
Andrew Witter, PE, Assistant Anoka County Engineer
Mark Krebsbach, PE, Dakota County Engineer
Sue Miller, PE, Freeborn County Engineer
Rick West, PE, Otter Tail County Engineer
Jodi Teich, PE, Stearns County Engineer

SRF Consulting Group, Inc.

Lance Bernard, Senior Associate
Michael Marti, PE, Principal
Rena Kuehl, PE, Senior Associate
Brian Shorten, Principal

Subconsultant Team Members

Braun Intertec
Richardson Ritcher & Associates
Dr. Ken Skorseth, PhD

November 2016

Published by:

Minnesota Department of Transportation
Research Services & Library
395 John Ireland Boulevard, MS 330 St. Paul, MN
55155



Systems Preservation Guide: A Planning Process for Local Government Management of Transportation Networks

The Manual

This manual serves as a step-by-step guide to help address your system preservation needs. The manual is structured into five areas that act as a decision tree.

The five steps include:

Step 1: Helping Set the Stage

Step 2: Defining Your System Preservation Needs

Step 3: Selecting Your System Preservation Strategies

Step 4: Outreach and Communication Strategies

Step 5: Lessons Learned

CONTINUE

Next Steps

The LRRB and MnDOT will continue to explore avenues for continuing this work. Future education/training opportunities will be created to help expand the use of the system preservation methods to achieve better maintained, sustainable performance-based local transportation networks.

Questions regarding the study can be directed to:

MnDOT Research Services

research.dot@state.mn.us

651-366-3780



Back

Next

Navigating the Manual

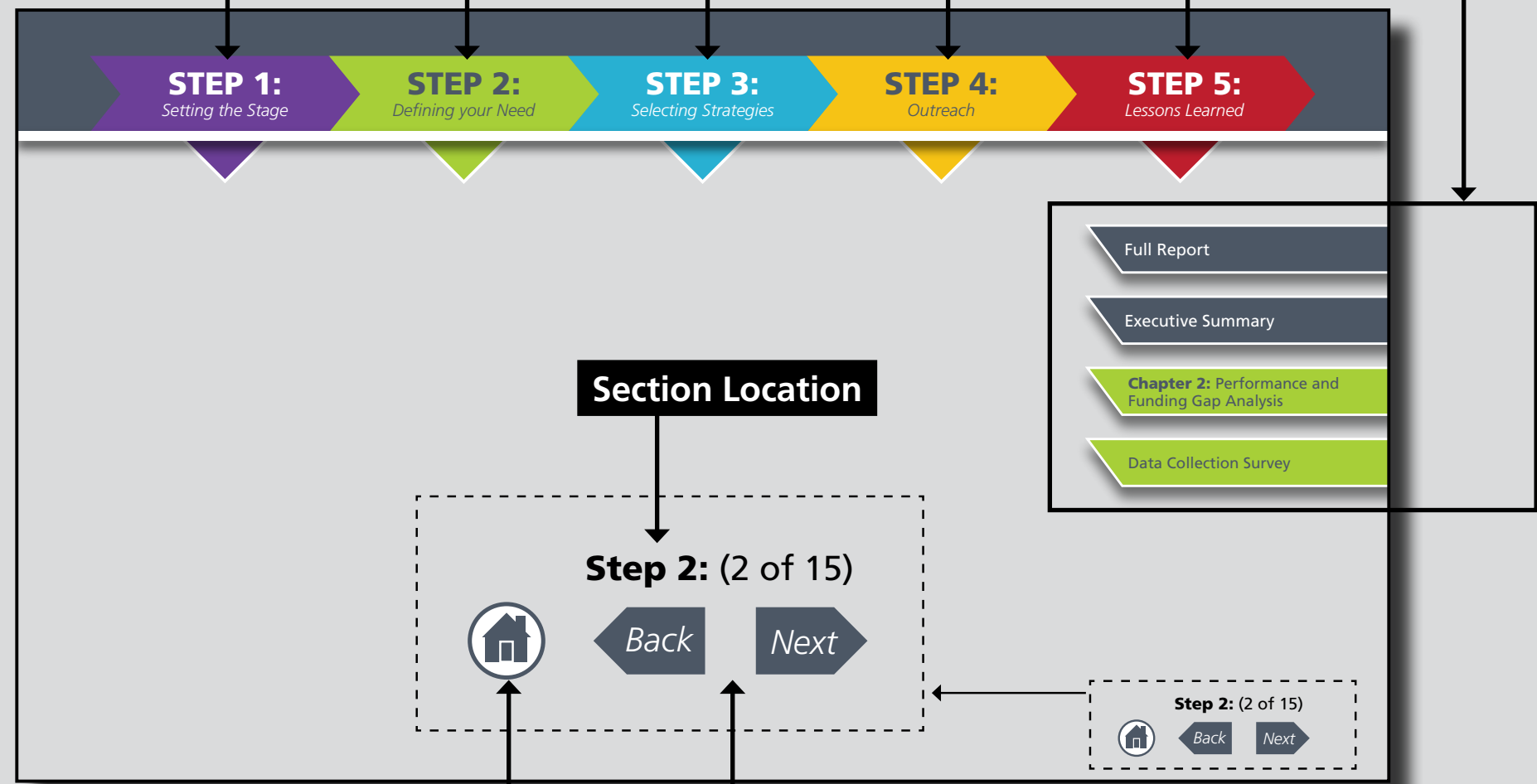
Each of the five steps can be accessed using the color **Navigation Tabs** located at the top of each page (see diagram at right).

The **Content Links** provide access to supporting documents and websites to help you throughout the process (see sidebar). Please note, Content Links will open new documents or bring you to documents located on external websites.

The **Home** button navigates to the first page of manual. Use the **Back/Next** buttons to step either direction throughout the manual. The **Section Location** indicates current location within the manual.

Click color **Navigation Tabs** to jump between five steps

Content Links provide access to documents and resources



Home

Use **Back/Next** to toggle between pages

CONTINUE

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Welcome

This manual is a compillation of research and system preservation strategies identified as part of a larger study (Systems Preservation Guide: A Planning Process for Local Government Management of Transportation Networks) prepared by the Local Road Research Board. The final report and executive summary can be accessed through a link located in the Content Links.

The purpose of the System Preservation Guide is to demonstrate useful methods to address preservation needs at the local level. As part of this effort, five pilot counties (Anoka, Dakota, Stearns, Freeborn, and Otter Tail) served as working laboratories to test various preservation tools, methods, strategies, and communication techniques. Further guidance was provided by MnDOT.

Select a step above to begin.

Full Report

Executive Summary

Intro: (4 of 4)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 1: Setting the Stage

- Introduction
- The Story
- Study Purpose
- Study Goals and Objectives
- Summary

Full Report

Executive Summary

Chapter 1: Introduction

Step 1: (1 of 7)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 1: Setting the Stage

Introduction

The first step in the process includes an understanding of the overall study. At a minimum, one should read the study's executive summary before proceeding with this manual. The executive summary will provide you a foundation for understanding the steps described throughout this manual.

The study provides detailed information regarding the study's process, goals and objectives. Step 1 in this manual provides a general overview of these elements.

Full Report

Executive Summary

Chapter 1: Introduction

Step 1: (2 of 7)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 1: Setting the Stage

The Story

For most Minnesota counties, preserving the current system has for a long time been the primary and possibly the only objective of engineers and board members. Virtually all 87 counties face a significant and increasingly difficult challenge of preserving their transportation infrastructure in a “state of good repair.” In most of these counties the transportation network represents their largest public asset.

While funding constraints continue to limit investment levels, the counties’ transportation infrastructure continue to age, and pavement and bridge conditions slowly decline. Thus, asset management is an issue of critical importance to Minnesota counties.

Full Report

Executive Summary

Chapter 1: Introduction

Step 1: (3 of 7)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 1: Setting the Stage

The Story

In light of this situation, many county engineers and their commissioners are asking important questions:

- How do we evaluate our county's preservation needs?
- How can we describe these needs in a manner that others can readily understand and describe for them the impacts of continued underinvestment?
- How do we communicate preservation needs to various key stakeholders?
- What strategies can we undertake to address preservation gaps?

Full Report

Executive Summary

Chapter 1: Introduction

Step 1: (4 of 7)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

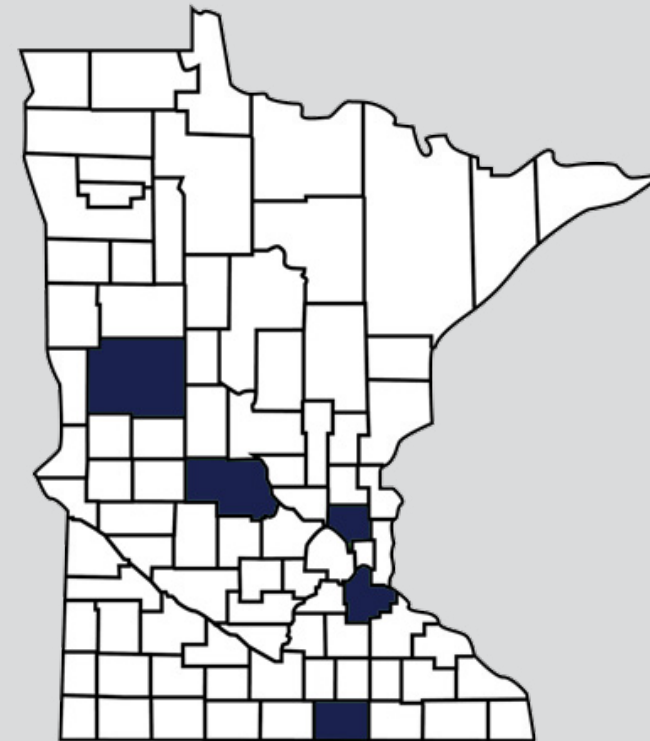
STEP 5:

Lessons Learned

Step 1: Setting the Stage

Study Purpose

The purpose of the study is to offer answers to such questions and provide example strategies used by five pilot counties (Anoka, Dakota, Freeborn, Stearns and Otter Tail) to address their preservation needs.



Full Report

Executive Summary

Chapter 1: Introduction

Step 1: (5 of 7)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 1: Setting the Stage

Study Goals and Objectives

The overall study goal is to develop a series of approaches to assist Minnesota counties in meeting their system preservation needs. Specific study objectives include:

1. Preparing a system preservation guide, with the assistance of pilot County engineers that provided real solutions to real preservation issues.
2. Presenting locally tested tools, techniques and strategies that have been proven effective.
3. Identifying useful data and decision-making resources readily available, which county engineers can draw upon in preparing their action plans.
4. Providing products and processes, documented by case studies, that can serve as examples for other counties.
5. Assessing various communication methods to gain commissioners support and to undertake a public education campaign so a preservation implementation program can be successful.
6. Suggesting, based on peer input, the best ways to migrate the study results and benefits to other practitioners.

Full Report

Executive Summary

Chapter 1: Introduction

Step 1: (6 of 7)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 1: Setting the Stage

Summary

The manual is organized so that all the tools, methods, strategies, and techniques presented in the study can be readily transferrable to other counties interested in addressing preservation needs. This is demonstrated in Steps 2 – 5.

Full Report

Executive Summary

Chapter 1: Introduction

Step 1: (7 of 7)



Back

Next

STEP 1:
Setting the Stage

STEP 2:
Defining your Need

STEP 3:
Selecting Strategies

STEP 4:
Outreach

STEP 5:
Lessons Learned

Step 2: Defining Your Needs

- Introduction
- Three Phase Approach
- Investigative Phase
- Technical Phase
- State of the County Highway System Report (SCHSR)
- Summary

Full Report

Executive Summary

Chapter 2: Performance and
Funding Gap Analysis

Step 2: (1 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Introduction

The first step in addressing a county's system preservation issues is to assemble pertinent data, evaluate it, ascertain if preservation needs exist, and determine the magnitude of these needs.

The study and manual will help you use this data to assess your preservation needs. Chapter 2 provides a detailed process in how to perform a funding gap analysis.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Step 2: (2 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Three Phase Approach

A fundamental element of the entire study process includes three phases:

- 1. Investigative Phase** – Examination of the existing highway infrastructure, current maintenance strategies, strategic plans, County policies/goals, current levels of investment and perceived and real performance shortfalls.
- 2. Technical Phase** – Review of revenue and expenditure history, preparation of “buying power” forecasts (both near and 20-year term), evaluation of the possible financial gaps, and discussion of their magnitude. This analysis should be documented.
- 3. State of the County Highway System Report (SCHSR)** – A summary of critical preservation needs and possible strategies to address issues identified by the investigative and technical phases.

Each phase is described in greater detail in Chapter 2 and discussed on the next page.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Step 2: (3 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Investigative Phase

The investigation phase is meant to be a quick assembly of data that is readily available to county staff. This data will be useful in helping inform the “Technical” and “State of the County Highway System Report” phase.

Potential data sets to consider:

- General County demographics, system size, system characteristics.
- County infrastructure quantities (miles of roads, trails, number of bridges, etc.).
- County infrastructure conditions (primarily focused on pavement and/or surface condition information).
- County maintenance methods, schedule of maintenance procedures, and changes in these methods over past 10 years.
- Level of service desired, and a feasible implementation approach.
- Current prioritization processes.
- County policies/goals/objectives used to determine local design standards.
- Recent and upcoming regulatory mandates and institutional policy changes affecting the highway system, anticipated costs, and compliance deadlines.
- Any existing performance measures used to evaluate condition, life cycle, and suitability of infrastructure.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Step 2: (4 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Investigative Phase

As part of this effort, pilot county staff used a survey tool to help collect and organize data. The survey tool assembles data into the following categories:

- General County Data
- System Characteristics
- Pavement/Bridge Management
- Pavement/Bridge Maintenance
- Programming Methods
- Past Revenues/Expenditures Levels (based on budget not actual)
- Changes/Trends in System Management

The survey tool is accessible using the link provided in the Content Links.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Data Collection Survey

Step 2: (5 of 16)



Back

Next

STEP 1:
Setting the Stage

STEP 2:
Defining your Need

STEP 3:
Selecting Strategies

STEP 4:
Outreach

STEP 5:
Lessons Learned

Step 2: Defining Your Needs

Investigative Phase

Upon completion of the survey, a meeting should be held with senior staff and the county administrator/coordinator to review and consider the data findings (i.e., documentation of current policies/procedures, quantities, condition, trends, goals, performance shortfalls and possible level of service measures).

The survey results will help county staff think critically about their current pavement/bridge management strategies. The data collected by the survey should be affirmed by the Highway Department staff, as accurate to the best of their knowledge, before it is used in the technical phase.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Data Collection Survey

Step 2: (6 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Technical Phase

The technical process includes a review of the County's:

- Current county fiscal resources for infrastructure (e.g., sources of funds, split between capital and maintenance, past investment levels and allocations within infrastructure categories).
- Loss of "buying power" analysis due to construction cost inflation.
- Known or perceived county performance shortfalls that impact maintenance or capital infrastructure needs.
- Possible financial or performance gaps in system preservation objectives
- Potential impacts to system, if gaps are not addressed.
- Assessment of acceptable/appropriate preservation strategies.

To accomplish this analysis, recent revenue and expenditure data must be gathered (see survey tool in the Content Links).

As the financial data is reviewed, any perceived performance shortfalls that affect system maintenance should be identified and discussed. This discussion should also include the loss of buying power.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Data Collection Survey

Step 2: (7 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Technical Phase

Using the inputs collected throughout this step, a financial gap analysis should be prepared. In some cases, a county may already have a computerized pavement management system, or a somewhat similar software analysis tool that can identify and evaluate “gaps.” If not, a sketch tool is provided to help with this assessment.

The sketch tool can be accessed by using the link in the Content Links. The sketch tool also provides examples from the pilot counties to demonstrate how to use the tool.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Sketch Tool

Step 2: (8 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Technical Phase – Sketch Tool

The sketch tool provides a high-level assessments to determine if there is a gap between the county's current roadway maintenance efforts when compared to typical industry practices. The sketch tool is also used to provide a quick, quantitative answer to an engineer's key questions:

- Is my current maintenance program achieving the desired current level of service?
- What is the maintenance gap?
- What is the general cost to close the maintenance gap?

Please use the Content Links to access the sketch tool.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Sketch Tool

Step 2: (9 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Technical Phase – Sketch Tool

The following explanation is meant to demonstrate how the calculations are computed in the sketch tool; however, it should be emphasized the sketch tool is a computerized Excel spreadsheet that can complete all calculations instantly, upon inserting the necessary inputs into the model. The tool also allows county staff to effectively use various system preservation scenarios, with alternative input values.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Sketch Tool

Step 2: (10 of 16)



Back

Next

STEP 1:
Setting the Stage

STEP 2:
Defining your Need

STEP 3:
Selecting Strategies

STEP 4:
Outreach

STEP 5:
Lessons Learned

Step 2: Defining Your Needs

Technical Phase – Sketch Tool

Regarding the tool’s inputs, county staff should prepare as part of the “Investigative” phase a list of their current maintenance practices, and the average cost and frequency (miles per year) for each maintenance practice. This type of data is used in the sketch tool (see example below).

		Typical Industry Practice	Current County Practices	
	Maintenance Standards	Ave cost/mile (per county)	Years between applications (years)	Ave miles/yr (past 5 years)
Asphalt	Combined Overlay Program	\$300,000		18
	Overlay	\$300,000	50	6.0
	Mill and overlay	\$300,000	50	6.0
	Reclaim and overlay	\$300,000	50	6.0
	White Topping	\$0.00	30	0.6
	Seal Coating	\$17,000	7	17
	Crack Seal/Crack filling	\$1,600	3	30
Gravel	Regraveling	\$4,500	3	30
	Stabilization	\$6,000	3	21
	Blading	\$1,200	2	240

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Sketch Tool

Step 2: (11 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Technical Phase – Sketch Tool

The sketch tool includes a series of calculations for each maintenance treatment (e.g., seal coating, mill and overlay, and crack sealing):

- **Gap** = (Industry Practice vs. County Practice)
- **Industry Practice** = Number of miles/Years between application for specific maintenance activities
- **County Practice** = Actual miles treated (as reported by County Engineer)

For example, using the formula above, one can determine the “Industry Practice” for overlays. In the case of Freeborn County, there is a total of 373 centerline miles of CSAH asphalt, which was divided by 50 year (years between applications for overlays).

This equals an average of 7.5 miles of overlays per year that should be completed based on typical industry standards. However, based on current County practices/budget, they currently average only about 5.8 miles of overlays completed per year, producing a gap of 1.7 miles (7.5 miles – 5.8 miles = 1.7 miles) of overlays per year.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Sketch Tool

Step 2: (12 of 16)



Back

Next

STEP 1:
Setting the Stage

STEP 2:
Defining your Need

STEP 3:
Selecting Strategies

STEP 4:
Outreach

STEP 5:
Lessons Learned

Step 2: Defining Your Needs

Technical Phase – Sketch Tool

The gap data was multiplied by the cost per mile for each maintenance practice (e.g., overlays and seal coats) to calculate the gap for one year. For the overlay example, the average cost/mile of overlay based on County records was \$300,000. Thus in year one, Freeborn County had a gap of \$512,000 for this preservation on CSAHs. To determine the future funding shortfalls, the annual funding gap was extrapolated out 20 years, in five year increments, assuming a five percent inflation rate.

The results of this analysis for Freeborn County is shown below.

Freeborn County	1 Year	5 Years	10 Years	15 Years	20 Years
Gap	\$2.9M	\$18.8M	\$48.1M	\$92.1M	\$156.7M

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Sketch Tool

Step 2: (13 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Technical Phase – Sketch Tool

The sketch tool is not intended to be an exact budget analysis. It is intended to identify the order of magnitude of financial impacts, trends and red flags. The tool can also be predictive; for example, if revenues are increased the tool can document the reduction in the gap.

The gap analysis will help facilitate discussions with policy makers and should be documented in the “State of the Highway System Report to the County” phase.

It is also important to note that in many cases, local economic conditions are such that the gap cannot be fully resolved by increasing maintenance revenue (e.g. raising County levy, gaining additional intergovernmental transfer funds, new revenue system etc.). The pilot counties found other solutions also needed to be explored to achieve a balanced approach among preservation options.

These general preservation strategies are discussed in Step 3.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Sketch Tool

Step 2: (14 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

State of the County Highway System Report (SCHSR)

The last phase of the analysis process is to compile all the system preservation data into a State of the County Highway System Report (SCHSR). The report should summarize key findings regarding the county's highway system:

- Characteristics
- Management
- Maintenance
- Performance and measures
- Relevant revenue and expenditure history
- System financial and performance gap
- Potential impacts of status quo, and tools

In essence, this report will provide a foundation for presenting material to inform the County Commission and/or other key stakeholders on the preservation needs.

A SCHSR example can be accessed using the Content Links. This example can be used as a template for your SCHSR.

*The SCHSR example represents a point in time. Information in the report may be out of date.

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

SCHSR Example: Dakota County*

Step 2: (15 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 2: Defining Your Needs

Summary

By fulfilling this step, which includes several phases (investigative, technical and state of the county highway system report) the county will have a solid data base, compelling documentation/rationale and considerable presentation material to inform the County Commission and/or other key stakeholders on the preservation needs.

Achieving this step will help guide you in pursuing various preservation strategies (Step 3).

Full Report

Executive Summary

Chapter 2: Performance and Funding Gap Analysis

Step 2: (16 of 16)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

- Introduction
- System Preservation Strategies
- Jurisdictional Transfers
- Classification of County Highway by Different Maintenance Standards and Schedules
- Reverted Surfaces
- Transportation Plans
- Performance Standards and Measures
- Project Prioritization
- New Revenue Sources
- New Maintenance Techniques
- Additional Resources
- Summary

Full Report

Executive Summary

Chapter 4: Preservation Strategies

Step 3: (1 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Introduction

Eight specific preservation strategies were identified as potential methods to improve system preservation efforts and/or minimize the financial gaps discovered in Step 2. The manual provides a general overview of each step, in addition to providing precedent examples. Specific information regarding a particular strategy can be found in Chapter 4 and can be accessed using the Content Links.

Full Report

Executive Summary

Chapter 4: Preservation Strategies

Step 3: (2 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

System Preservation Strategies

The eight preservation strategies were organized into four general categories and documented in Chapter 4:

System Adjustments

- [Interjurisdictional Transfers](#)
- [Classification of County Highway by Different Maintenance Standards and Schedules](#)
- [Reverted Surfaces](#)

Planning and Programming

- [Transportation Plans](#)
- [Performance Standards and Measures](#)
- [Project Prioritization](#)

Revenue Enhancements

- [New Revenue Sources](#)

Cost Reduction or Longer Life Cycle Maintenance Methods

- [New Maintenance Techniques](#)

Full Report

Executive Summary

Chapter 4: Preservation Strategies

Step 3: (3 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

System Preservation Strategies

A summary of each strategy's objective, general approach, and impact are highlighted throughout this section. Detailed information on how to implement a particular strategy is available by using the Content Links.

In some cases, one of the pilot counties may have chosen to apply a particular preservation strategy to meet their county needs. These precedent examples are available in the navigation pane.

Anoka County:

Jurisdictional Transfers and Project Prioritization

Dakota County:

Jurisdictional Transfers, Performance Measures, Project Prioritization, and Transportation Plans

Freeborn County:

Tiered System by Different Maintenance Standards and Schedules, and New Revenue Sources

Otter Tail County:

Jurisdictional Transfers, New Revenue Sources, Performance Measures, Project Prioritization, Tiered System by Different Maintenance Standards and Schedules, and Transportation Plans

Stearns County:

Jurisdictional Transfers, Performance Measures, Project Prioritization, and Transportation Plans

Full Report

Executive Summary

Chapter 4: Preservation Strategies

Step 3: (4 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Strategy: Jurisdictional Transfers

Objective

Jurisdiction realignment will match the management of roadways with their intended function and with the jurisdiction best suited to maintain the highway.

General Approach

This strategy provides county engineers with a set of rules and typical jurisdictional characteristics (travelshed, trips served, volumes, continuity, surface, condition, function, etc.) and a process for their use in developing jurisdictional transfer recommendations to adjust the County highway system mileage.

Impact

This strategy will have a direct impact on reducing system size and preservation costs. The result will be a better performing; smaller County highway system that reduces preservation costs and maximizes efficient use of tax dollars.

Full Report

Executive Summary

Jurisdictional Transfer Analysis Strategy

Anoka County Case Study

Step 3: (5 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Strategy: Classification of County Highway by Different Maintenance Standards and Schedules

Objective

A preservation program that will dedicate maintenance resources according to standards and schedules established for specific tiers of the highway system.

General Approach

Provide county engineers the tools and methodology needed to complete an analysis of their County's system. This analysis will evaluate the county highway system, identify key routes or tiers (usually higher functioning CSAH routes) determine performance and customize targets preservation standards and schedules.

Impact

Impact this strategy will have a direct impact on preservation costs and will better balance the allocation of limited financial resources the long-term maintenance needs of critical county highways.

Full Report

Executive Summary

Classification of County Highways (Tiers) Strategy

Freeborn County Case Study

Step 3: (6 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Strategy: Reverted Surfaces

Objective

Reverted surface for suitable highways will reduce preservation costs.

General Approach

Provide county engineers with “best practice” information on this option, and lessons learned from successful “unpave” programs completed by similar counties or in the region.

Impact

This strategy will have a direct impact on the maintenance costs for the system, by reducing capital costs and shifting dollars to higher volume routes that are in need of repair. It will adjust the surface characteristics of the system.

Full Report

Executive Summary

Reverted Surfaces Strategy

Step 3: (7 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Strategy: Transportation Plans

Objective

A county transportation plan will identify long-term transportation needs and their relationship to other planning factors, while respecting community values and assets.

General Approach

Provide county engineers an outline of key elements of a transportation plan, and highlight the tools and processes used to develop these key elements; specifically, elements focused on system preservation needs. Furthermore, include a thorough review of data sources available at the regional and state level that can be used by counties in developing or updating a transportation plan, and detailed information on methods to carry out the public process.

Impact

A county transportation plan will establish a framework to directly impact the system's preservation needs by incorporating into the plan many of the particular preservation strategies noted in this chapter.

Full Report

Executive Summary

Transportation Plan Strategy

Otter Tail County Case Study

Step 3: (8 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Strategy: Performance Standards and Measures

Objective

A performance-based approach will improve the accountability of local transportation investments, assess risks related to different performance levels, monitor progress and increase transparency.

General Approach

Provide county engineers with a synopsis of best practices used in developing meaningful performance standards and measurements for critical county assets (roads, bridges) or system performance (safety, mobility, operations, etc.) and provide methods to document and report progress related to preservation targets.

Impact

This strategy will have a direct impact on preservation needs by establishing standards, measures and a monitoring program to report on system performance over time.

Full Report

Executive Summary

Performance Standards and Measures Strategy

Stearns County Case Study

Step 3: (9 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Strategy: Project Prioritization

Objective

Project prioritization methodology that allows for alternative scenario planning, is understandable and transparent, will improve preservation programming decisions.

General Approach

Provide county engineers a prioritization tool, and project prioritization methods, (priority goals and performance metrics, ranking criteria, databases, electronic prioritizations spreadsheets, tying the analysis to GIS so mapping of needs/improvements can easily be completed). Using the computerized prioritization tool, the county engineer can rank county roadway segments to determine their significance within the county system and geographically display alternative scenarios. The scoring is based on established performance measures, using readily available data inputs which can address a wide-range of transportation elements. The end result is a cumulative score for each roadway segment, the higher the

score, the higher the project or roadway priority. By using these tools the county engineers can develop his/her own project prioritization program for use in preparing capital improvement programs and longer term planning schedules.

Impact

While prioritization, will not directly close the financial gap, it will influence the allocation of limited preservation resources to align with preservation performance measurers and to make better investments. It will, based on criteria and weighting factors, ensure that the most appropriate preservation projects are scheduled in a timely fashion to maximize project impact and minimize long-term preservation costs. The prioritization tool also provides a rationale for and transparency to, the programming process and can document unmet needs. The project prioritization list gives County staff the ability to effectively communicate project needs to elected leaders, residents and stakeholders.

Full Report

Executive Summary

Project Prioritization Strategy

Stearns County Case Study

Step 3: (10 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Strategy: New Revenue Sources

Objective

New revenue will allow counties to expand and accelerate preservation initiatives.

General Approach

Provide information on various system preservation financial programs and strategies for consideration by the county engineers. This information should be defined and summarized in a matrix, identifying internal, external and inter-jurisdictional transfer funding sources, and their applicability to County preservation needs, and their probability of funding success.

Impact

Revenue enhancements, as a strategy, will directly address the preservation needs, and advance a county's expanded preservation program.

Full Report

Executive Summary

New Revenue Sources
Strategy

Step 3: (11 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Strategy: New Maintenance Techniques

Objective

New methods will provide better roadway surfaces, longer service life and higher traffic volume thresholds, resulting in more stable road maintenance costs.

General Approach

Provide county engineers information on methods that can be used to extend the life of pavements, lower maintenance costs, etc.

Impact

Cost reduction or life cycle extension strategies that save money, or extend surface life can directly benefit preservation needs, and minimize any identified financial gap.

Full Report

Executive Summary

New Maintenance Techniques
Strategy

Step 3: (12 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Additional Resources

In order to successfully maintain and manage the County's roadway system, county engineers need to be aware of the myriad of decision making resources available beyond these eight system preservation strategies.

A Resource Guide is available documenting the numerous tools and resources that exist to aid local agencies in managing their roadways. While some are very well known and widely used, others have not been implemented or are not being used to their full potential.

Full Report

Executive Summary

Chapter 3: Resource Guide

Step 3: (13 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 3: Selecting Your System Preservation Strategies

Summary

Of the eight specific preservation strategies presented, pilot counties found the following to be most applicable and useful to them:

- Jurisdictional transfers
- Transportation plans
- Preservation performance measures
- Project prioritization
- Revenue enhancements

Additionally, both Otter Tail and Freeborn Counties boldly developed and adopted tiered roadway maintenance systems, which incorporated many of the above preservation strategies into this new overall approach. New maintenance techniques and reverted surfaces were preservation strategies not selected by pilot county engineers, but certainly may have value to other Minnesota counties.

Full Report

Executive Summary

Chapter 4: Preservation Strategies

Step 3: (14 of 14)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 4: Outreach and Communication Strategies

- Introduction
- Identifying Communication Needs
- Developing a Communications Plan
- Developing Communication Tools and Messages
- Precedent Example
- Summary

Full Report

Executive Summary

Chapter 5: Communication Plan

Chapter 6: Outreach Efforts

Step 4: (1 of 8)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 4: Outreach and Communication Strategies

Introduction

It is important to the success of any new preservation strategy (see Step 3) that the county develops an effective communication plan prior to embarking on the effort. The communication plan's primary goal should be to assist county staff by providing them with the tools, methods, and information they need so that they can present and discuss technical and non-technical information with the County Board, key stakeholders and members of the public.

This step provides guidance on outreach and communication strategies and examples of various outreach materials used by the pilot counties. These strategies are discussed in greater detail in Chapter 5 and 6.

Full Report

Executive Summary

Chapter 5: Communication Plan

Chapter 6: Outreach Efforts

Step 4: (2 of 8)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 4: Outreach and Communication Strategies

Identifying Communication Needs

Before developing a communications plan, county staff should first consider the communications needs and protocols of their County Board. The following set of questions is proposed to help define Board expectations so county staff can plan the appropriate process for the new preservation program or strategy.

- Who could be impacted by the preservation program?
- Does the preservation program represent a significant shift in County policy or practices?
- Consider both positive and negative impacts.
- Consider both direct and indirect impacts.
- Determine who should be consulted regarding the decision-making process for developing and/or approving the preservation program?

Chapter 5 and 6 provides additional steps that need to be considered when identify your communication needs.

Full Report

Executive Summary

Chapter 5: Communication Plan

Chapter 6: Outreach Efforts

Step 4: (3 of 8)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 4: Outreach and Communication Strategies

Developing a Communications Plan

The communications plan can be as simple or as complex as needed, from a few pages to a multi-chapter document, developed with support from county departments.

The communications plan should consider and address the following critical components:

- What are elected officials understanding of the issues?
- What factors are important to them in resource allocation and prioritization?
- What are the known or anticipated concerns of your elected officials?
- What are the known or anticipated concerns of your community members?
- Which preservation strategies will the Board be willing to consider?
- What key elements of the preservation program need to be communicated?
- Who should receive information about the preservation program? (i.e., audiences)
- What questions would a key stakeholder or audience have about the preservation program?
- How should you respond to anticipated questions about the preservation program? (i.e., key messages)
- How to tell the county's preservation story with technical data?

Full Report

Executive Summary

Chapter 5: Communication Plan

Chapter 6: Outreach Efforts

Step 4: (4 of 8)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 4: Outreach and Communication Strategies

Developing Communication Tools and Messages

The following outline identifies key components of a communication plan that county staff should consider prior to establishing his or her communication process.

- **Project Background:** Provide background and context for the preservation program. Identify key facts about the preservation program that will need to be communicated.
- **Communications Plan Context:** Identify any broader goals or plans approved by the Board that should shape the communications plan for the preservation program.
- **Communication Plan Goals:** Identify specific communications goals.
- **Key Messages:** Define key messages and provide important information about the preservation program and answer anticipated questions. Messages should be succinct and easily remembered.
- **Audiences:** Identify key audiences who the engineer believes should receive information about the preservation program directly.
- **Communications and Public Engagement Tools:** Identify specific actions, activities and communications tools to use to communicate directly with key audiences.
- **Plan Implementation:** Develop a timeline and budget for identified communications and public engagement tools.

Full Report

Executive Summary

Chapter 5: Communication Plan

Chapter 6: Outreach Efforts

Step 4: (5 of 8)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 4: Outreach and Communication Strategies

Developing Communication Tools and Messages

Precedent Example

Otter Tail County implemented an innovative public outreach effort to inform, educate and seek citizen involvement in the development of preservation strategies needed to address the County's performance and financial gap. This effort was completed as part of the County's first ever Transportation Plan. The campaign was comprehensive, extensive, and effective.

Please review various elements of the campaign and preservation methods and materials by accessing materials in the Content Links.

Full Report

Executive Summary

Chapter 5: Communication Plan

Chapter 6: Outreach Efforts

Otter Tail County Preservation Campaign

Step 4: (6 of 8)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 4: Outreach and Communication Strategies

Developing Communication Tools and Messages

The pilot counties used various forms of media and materials to convey their system preservation needs and strategies.

Examples include:

- Visual Tools: Photographs, Maps and Graphics
- Online Tools: Project Websites and Online Communications Services
- Power Point Presentations to Elected Leaders and Stakeholders

Precedent examples of these materials are provided in the Content Links, which represents examples from Otter Tail County.

Full Report

Executive Summary

Chapter 5: Communication Plan

Chapter 6: Outreach Efforts

Otter Tail County Preservation Campaign

Otter Tail County Power Point

Otter Tail Transportation Plan Website

Step 4: (7 of 8)



Back

Next

STEP 1:
Setting the Stage

STEP 2:
Defining your Need

STEP 3:
Selecting Strategies

STEP 4:
Outreach

STEP 5:
Lessons Learned

Step 4: Outreach and Communication Strategies

Summary

Implementing a strategic communications plan by using the framework provided in this study will help county staff and county commissioners make the case for increased investment or implementation of other preservation strategies to address the transportation needs of the county

Full Report

Executive Summary

Chapter 5: Communication Plan

Chapter 6: Outreach Efforts

Otter Tail County Preservation Campaign

Otter Tail County Power Point

Otter Tail Transportation Plan Website

Step 4: (8 of 8)



Back

Next

STEP 1:
Setting the Stage

STEP 2:
Defining your Need

STEP 3:
Selecting Strategies

STEP 4:
Outreach

STEP 5:
Lessons Learned

Step 5: Lessons Learned

- Introduction
- Lessons Learned
- Guidance and Direction

Full Report

Executive Summary

Chapter 7: Conclusion and Recommendations

Step 5: (1 of 4)



Back

Next

STEP 1:
Setting the Stage

STEP 2:
Defining your Need

STEP 3:
Selecting Strategies

STEP 4:
Outreach

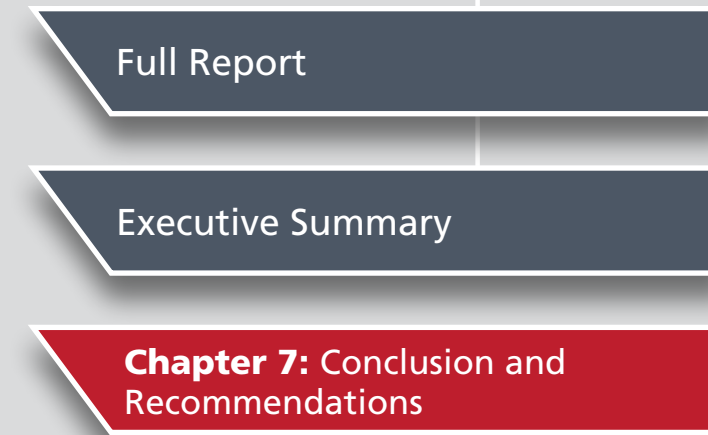
STEP 5:
Lessons Learned

Step 5: Lessons Learned

Introduction

The system preservation accomplishments achieved by the pilot counties are noteworthy, and their experiences and lessons learned using the System Preservation Guide, merit sharing among peer practitioners.

Conclusions and recommendations from the study are documented in Chapter 7.



Step 5: (2 of 4)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 5: Lessons Learned

Lessons Learned

The pilot county engineers believe important findings and lessons were realized that are of value to other practitioners. Examples of these lessons learned include:

- Generally citizens, stakeholders, and elected leaders want to be good stewards of their public infrastructure and with solid, well presented data, they can understand the value of preservation action, as well as the consequences of inaction.
- A factual, data-driven process and use of understandable graphics (local pictures, charts, maps etc.) to explain current asset conditions and investment gaps will greatly facilitate implementation of the preservation program.
- Preparation of the State of the County Highway System Report (SCHSR), including needs data, and performance and financial gap analysis was proven to be essential and effective in educating various stakeholders on preservation needs.
- Non-revenue producing preservation strategies, over time, can also be effective in reducing the gap; however, they too can be as controversial as revenue enhancements; in either case, a sound education program of why implementation is needed is important.

Full Report

Executive Summary

Chapter 7: Conclusion and Recommendations

Step 5: (3 of 4)



Back

Next

STEP 1:

Setting the Stage

STEP 2:

Defining your Need

STEP 3:

Selecting Strategies

STEP 4:

Outreach

STEP 5:

Lessons Learned

Step 5: Lessons Learned

Guidance and Direction

Each pilot county worked on various system preservation strategies. As part of this effort, the county engineers can share their experience and lessons learned. Each of the pilot counties may be contacted to learn more about specific strategies:

Anoka County

Jurisdictional Transfers and Project Prioritization

Andrew Witter, PE, Assistant County Engineer

P: 763-862-4200

E: andrew.witter@co.anoka.mn.us

Dakota County

Jurisdictional Transfers, Performance Measures, Project Prioritization, and Transportation Plans

Mark Krebsbach, PE, County Engineer

P: 952-891-7102

E: mark.krebsbach@co.dakota.mn.us

Freeborn County

Tiered System by Different Maintenance Standards and Schedules, and New Revenue Sources

Sue Miller, PE, County Engineer

P: 507-377-5188

E: sue.miller@co.freeborn.mn.us

Otter Tail County

Jurisdictional Transfers, New Revenue Sources, Performance Measures, Project Prioritization, Tiered System by Different Maintenance Standards and Schedules, and Transportation Plans

Rick West, PE, County Engineer

P: 218-998-8470

E: rwest@co.ottertail.mn.us

Stearns County

Jurisdictional Transfers, Performance Measures, Project Prioritization, and Transportation Plans

Jodi Teich, PE, County Engineer

P: 320-255-6180

E: Jodi.Teich@co.stearns.mn.us

Full Report

Executive Summary

Chapter 7: Conclusion and Recommendations

Step 5: (4 of 4)



Back

Next