Montana’s Approach to Asset Management
MDT’s Performance Programming Process (P3)

Revenue & Transportation Interim Committee
Presented by: Lynn Zanto, Administrator, MDT Rail, Transit & Planning Division
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Topics

- Trends
- Asset Management Theory
- MDT Performance Programming Process (P3)
- MDT System Performance (Results)
Montana Department of Transportation
State & Federal Highway Fund Revenue Comparison FY03 thru FY15

Federal Obligations vs Inflation & Cost Indices

- Federal Obligation
- CPI-U (1999 Base Year)
- Construction Cost Index (1999 Base Year)
- 3% Inflation
Construction Program –

Contractor Payments
FY 2004-2014

Construction Program FTEs
FY 2004-2014
Trends

And – The System is Aging
Results – Un-met Needs

10 Year Estimated Need by State Highway System vs. Estimated Funding

10-year Estimated Available Funding vs. Estimated Needs

Source: MDT 2014 Transportation Needs Study-10 year
Fund Allocation & Asset Management

Asset management is a systematic and ongoing process that seeks to maximize the life of the asset in the most cost effective way.

Major features of asset management:

- Goals linked to policy objectives - TranPlan 21
- Performance measures are measurable – Quantifiable Results
- Analysis and evaluation are data driven – Management Systems
- Results inform investment decisions – Trade Off Analysis
- Monitoring and feedback – From Both Data and Customers to Links Back to Policy

MDT’s Performance Programming Process (P3) = optimal funding allocation and investment plan based on strategic highway system performance goals

Asset Management is a Key Element of Montana’s Approach to Addressing Challenges including management of an adequate fund balance in the HSSRA & supporting cost-effective, accountable decisions.
Asset Management Theory

Definition:

A systematic and ongoing process that seeks to maximize an asset’s useful life most cost effectively.

(As a Function Of Budget & Investment Strategies Over Time)

- Increased Expenditures & Strategic Investment Decisions = Condition Improves Over Status Quo
- Moderate Expenditures & Strategic Investment Decisions = Maintain Status Quo
- No Additional Expenditures & Do Nothing Policy = Condition Degrades

Satisfaction Level

Time (years)
Evaluation of Alternatives to Optimize Investment

Produces The Right Treatment At The Right Time
- Resurfacing and Rehabilitation Work Stretches Resources
- Reconstruction Work needed when Useful Life is Over
- Maintain the System, rather than Reconstructing it
- Ideal Mix = Best Package to Meet Performance Goals

Asset Management Theory
MDT’s Performance Programming Process (P3)

Performance Programming Process

A. Statewide Long Range Transportation Plan (TranPlan 21)
   - Customer Input and Routine Satisfaction Surveys
   - Technical Analysis
   - Policy Direction
   - On-Going

B. Funding Distribution Plan
   - Trade-off Analysis
   - Performance Driven
   - Tied to Management System
   - 1 Year Cycle

C. Statewide Transportation Improvement Program (STIP)
   - Project Nominations
   - Customer Input
   - Tied to Funding Plan
   - 1 Year Cycle

D. Construction Program Delivery
   - Public Involvement
   - System Monitoring
     - Pavement
     - Congestion
     - Bridge
     - Safety
   - On-Going
MDT’s Performance Programming Process (P3)

P3 Governs Interstate, NHS, and Primary Routes
MDT System Performance Results

P3 Goals and Results

• GOAL AREAS:
  Pavement Condition: Maintain average ride (smoothness) in the desirable (or superior) range
  Bridge Condition: Reduce the number of structurally deficient bridges
  Congestion: Maintain Level of Service at “B” or Above (Interstate), “C” or above (NHS/Primary)
  Safety: Reduce fatal & Serious Injuries

• RESULTS:
  Goals achieved
  Equality of Pavement Condition Achieved
  Understanding of -
  • Condition of our Assets
  • Consequences of investing or not investing
  Optimal Fund Plan
  Accountability & Conformity with State Statues

• P³ received national recognition through:
  2008 National Transportation Planning Excellence Awards
  2011 Report on the Performance of State Highway Systems
How are we doing……...

- As a result of past investments Montana’s Highway Infrastructure is in good shape
- However – at the current funding level we can’t maintain this level of performance
  - Current funding falls short of our estimated need by about $1 billion per year
  - Without additional funding we are looking at managed decline in system condition

**MDT System Performance Results**

**MDT Ride Condition Summary**

- Ride index, a measurement of road “smoothness”, is just one index considered in the overall pavement condition.
- Performance Goal: Maintain average ride in the desirable (or superior) range with less than 3% of the miles in unsatisfactory condition.

**Deficient Bridges On and Off State Highway System**

- Number of deficient bridges is decreasing.
- Deficient bridges could have reduced load-carrying capacity or have roadway geometry that does not meet today’s design standards.
- “Deficient bridges” does not mean they are unsafe for travel.
  - Includes deficient bridge-sized culverts.
MDT System Performance Results

Historic Pavement Condition by System
\% Lane Miles

- **Interstate**

- **Non-Interstate NHS**

- **Primary**

Percent of Good pavements across core systems is starting to trend downward, while fair and poor are trending upward.
MDT System Performance Results

Historic Bridge Condition by System

Percent of Good bridge decks across core systems is starting to trend downward, while fair and poor are trending upward.
Results

Public Satisfaction % Change 2001-2015

How satisfied are you with the condition of the transportation system and availability of service?

Bus Depots: 31.25%
Rest Areas: 18.97%
Bicycle Pathways: 18.87%
Passenger Rail Services: 14.63%
Other Major Highways: 9.84%
Pedestrian Walkways: 8.62%
Freight Rail Services: 8.33%
Out-of-State Air Service: 8.20%
Local Bus or Van Services: 5.66%
Airports: 5.33%
Interstate Highways: 9.84%
In-State Air Service: 9.84%
Elder/Disabled Transit Services: 2.70%
Intercity Bus Services: 1.79%

Percent
Actions to Improve Transportation System

Please tell me the priority MDT should assign to the actions to improve the transportation system in Montana.

Maintain road pavement condition
Improve transportation safety
Take appropriate measures with roadside vegetation
Include wildlife crossings and barriers in roadway projects
Maintain physical condition of local transit buses
Ensure adequate pedestrian facilities
Improve physical condition of the interstate
Improve semi-truck parking and facilities
Ensure adequate bicycle facilities
Improve rest areas
Reduce traffic congestion by increasing capacity

Mean Priority

2015 Stakeholders  2015 Public Involvement
Customer Responses to: Reductions if Overall Funding Decreases

If funding for Montana’s transportation systems decreases, which of the following should be funded at a lower level?

- Bicycle pathways
- Rest areas
- Pedestrian walkways
- Local transit buses
- Interstate highways
- Maintenance
- Other major highways

The graph shows the percent of responses in 2015 for stakeholders and public involvement.