Mn/DOT Highway Systems Operations Plan Update

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Your Destination...Our Priority

Why A Highway Systems Operations Plan?

- Responsible for the maintenance and operations on over 30,000 lane miles of highways
- Includes entire roadway infrastructure
- Maintenance activities influenced by numerous factors
  - Cost of raw materials
  - Traffic levels
  - Weather
  - Regulatory requirements
  - Customer expectations

Maintenance and Ops Costs

- The cost to maintain our transportation system is a reflection of several fundamental elements
  - Size of the system (and it's growing)
  - Number of services provided
  - Level of service provided (performance measures)
  - Services mandated or legally required
  - Inflation
  - Efficiencies achieved through technology or improved methods and/or materials
  - Level of capital investment toward rehabilitation and/or replacements

HSOP 2005

- Risk Tolerance review not done on original HSOP
- Received increased funding in:
  - Pavement patching
  - Bridge preventative maintenance
  - Signal re-timing
  - FIRST coverage
  - Guardrail and cable median barrier repair

HSOP 2005

- Prioritized Maintenance and Operations
  - Legally Mandated Services
  - Snow and Ice Removal
  - Infrastructure Life-Cycle Optimization
  - Safety
  - Mobility

Highway Systems Operations Plan

- Snapshot of current performance and future performance based on funding limitations
- Framework for managing key maintenance and operations activities
- Major trends and key factors
- Identifies significant challenges and funding gaps
- Analyzes level of service changes and/or priorities based on different funding levels

Project Management Structure

- Steering Team
  - Overall direction on Plan policies
  - Final review
- Project Management Team
  - Provide consistency across maintenance areas
  - Monitor progress
  - Make recommendations to Steering Team
- Work Teams
  - Develop individual materials

Work Teams

- Clear Roads
- Safety and Guidance
- Roadsides
- Smooth Roads
- Structures
- Fleet and Facility Management
- Arterial and Facility Management
- Administration
- Supporting Infrastructure

Work Team Summaries

- Summaries of crucial tasks/activities performed
- Vision for future
- Coordination with State Plan and policies
- Analyze costs
  - Materials
  - Labor
  - Other obligations/mandates
- Develop budget and fiscal scenarios

Summary Format

- Introduction and Background
- Factors Affecting Capabilities
- Performance Measures
- Strategy Development/Policy Direction/ Risk
- Financial Scenario Analysis
- Implementation Strategies

Work Team Example - Clear Roads

- Introduction and Background
  - Snow and ice control – most recognizable services
  - Highest priority maintenance service (customer surveys)
  - Variable costs/services based on weather events (year to year and region to region)
  - Average spending - $63M per year

Work Team Example - Clear Roads

- Factors Affecting Capability
  - Increasing costs (salt, plow trucks, labor)
  - Staffing – flexible/temporary staff
  - More miles/more complexity to the system
  - ADA compliance
  - Environmental sensitivity

Work Team Example - Clear Roads

- Performance measure – time to regain bare lane following the end of a storm

Work Team Example - Clear Roads

Target Clearance Times for Snow and Ice Removal

Road Classification	Target Clearance Time (Hours)
Super Commuter (SC)	0 to 3
Urban Commuter (UC)	2 to 5
Rural Commuter (RC)	4 to 9
Primary Collector (PR)	6 to 12
Secondary Collector (SE)	9 to 36

Work Team Example - Clear Roads

- Strategy Development/Policy Direction/ Risk
  - Maintenance Decision Support System (MDSS) and Automated Vehicle Location (AVL) – Provide real time data
  - Anti-Icing – reduce chemical use
  - Pre-wetting – Salt/Sand treated with salt brine
  - Underbody plows – Additional lane coverage
  - Snow plow staffing – Priority staffing
  - Snow and Ice Performance Measures – Higher demands, higher costs

Prioritizing our Investments (FY2012-FY2015)

- Each work team developed unconstrained needs (GAPS) using formalized procedures ("one pagers")
  - Previous years expenditures used to obtain % of future flat budget to assign to each work team
  - Performance measures and engineering determination used to determine needs
- Summarized needs and found they were overwhelming
- Needed to make trade-offs and prioritize

Risk Assessment

- Creation of vision
- Developed risk statements from previous budget and one pagers
- Forecasted probability of risk statement occurring over the next 4 years
- Evaluated each risk statement's impact on the operations vision based on a guidance scale
  - Public perception, quality of life, system performance

Risk Assessment

- Prioritization - Score developed by likelihood of occurrence and impact
- Added budget or need (gap) requests to each risk statement
- Team felt comfortable accepting a level “1” risk for each statement – Little noticeable impact on the system
- The group challenged each risk statement gap one by one (touch exercise)
- If budgets over-managed risk (one well below level “1”) then an acceptable budget or need was developed to accept more risk (opposite was also true)

Next Steps

- Finalize Work Team Summaries
- Complete financial scenarios
- Assemble/aggregate overall budget and funding gap
- Summarize all performance measures and policy directions
- Present findings and recommendations to Project Management Team

Questions?