



Investment Level Impacts: How MnDOT is using risk to inform resource allocation decisions on the operating side of its budget

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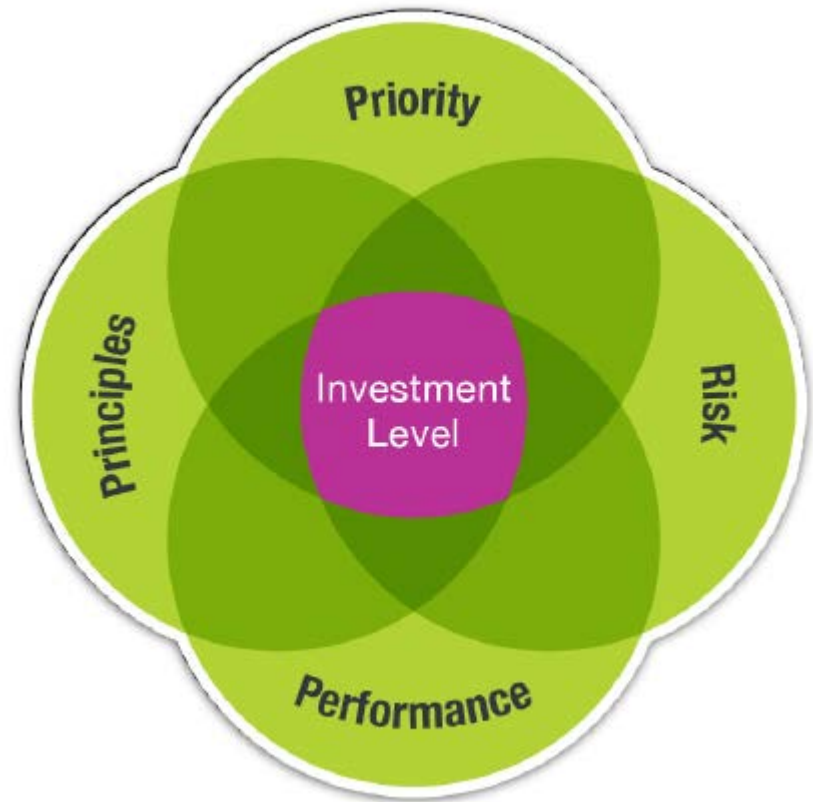
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We all have a stake in **A**  **B**



Investment Level Impacts

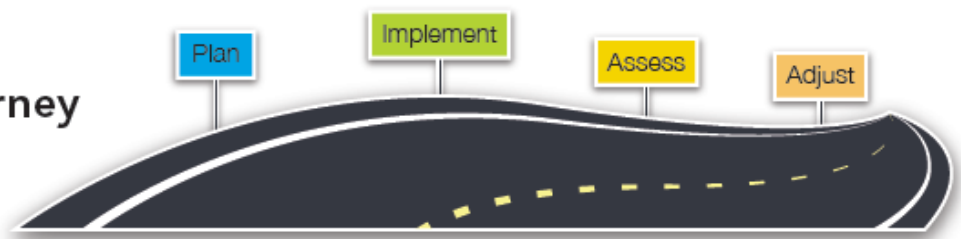
- ▶ Part of larger resource management effort and movement toward budgeting by products & services
- ▶ Exercise completed in under three months in spring 2015





Resource Management Journey

(Plan, Implement, Assess, Adjust)



Set Strategic Direction

Agency planning directives

Biennial Budget Principles

- Strategic Focus
- Internal Utilization

Prioritize Products/Services

Order by criteria from established plans

Direct Products/Services

- Tier A
- Tier B
- Tier C

Evaluated Criteria

- Integrated traveler safety
- Manage existing assets
- Critical transportation
- Quality of life
- Secure system
- Environmental health
- Economic health

Agency Support Functions

- Tier A
- Tier B
- Tier C

Evaluated Criteria

- Significance of link to Direct P/S
- Function's continuity or recovery of the transportation system
- Function's timely completion in support of Direct P/S
- Likelihood that a reduction would result in funding loss for Direct P/S or lead to increased agency expenses over time?

Evaluate Products/Services Investment Levels

Trade-Off Analysis

Scenario 1 - Base Budget

- No increase
- Assumes 3% overall agency purchasing power loss

Scenario 2 - Base + small increase

- 3% overall agency increase
- Approx. sustains current buying power

Scenario 3 - New Funding Package

- TBD

Investment Level Drivers

Investment Level Impacts

- Legal/Statutory/Policy
- Political/Stakeholder/Customer
- Other

Investment Level Impacts

- Legal/Statutory/Policy
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- Other

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Implement Investment Decisions

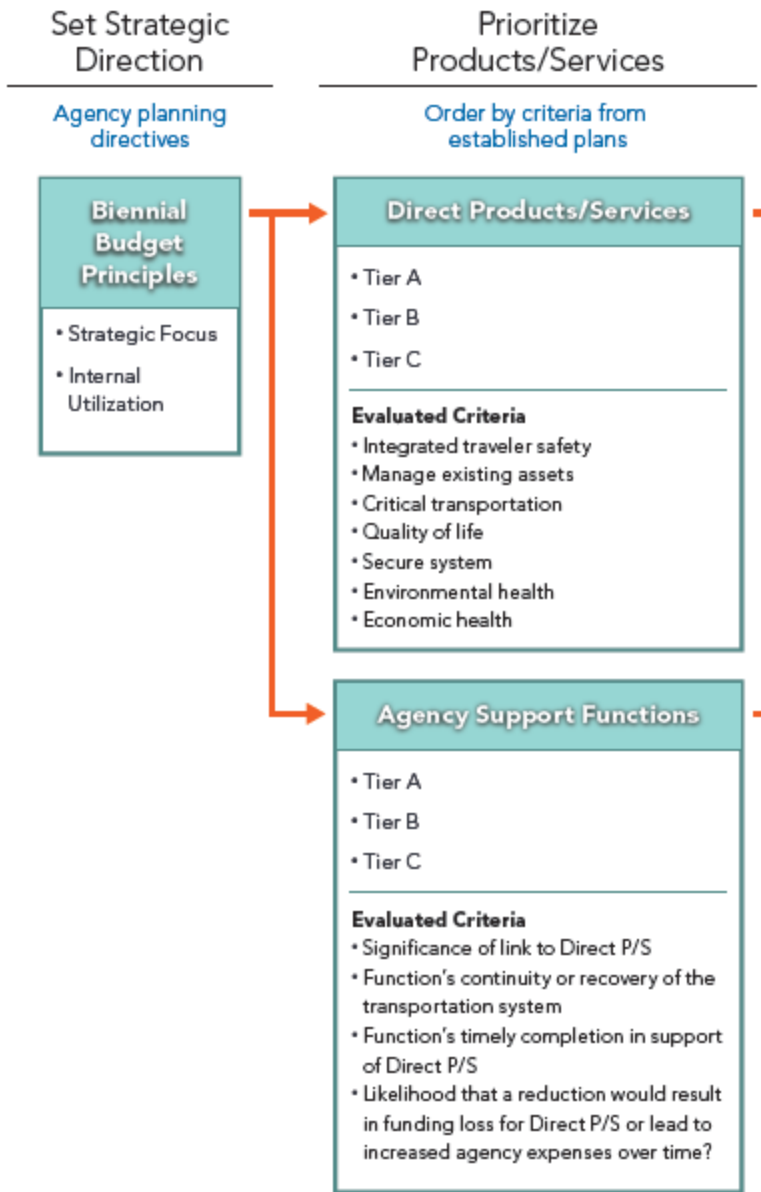
Agency Operating Budget Spend Plan

Establish Traditional Line-Item Budget by Organizational Unit

- Salaries
- Purchase services
- Supplies
- Equipment
- Etc.

Establish Products/Services Budget (New)

- Airports
- Develop Highway Improvement projects
- Highway Construction Mgmt Oversight
- Snow and Ice
- Traffic Devices Operations & Maintenance
- Etc.



- ▶ Agency planning directives and principles used to set strategic direction
- ▶ Prioritization of products and services through a pairwise comparison exercise



Tier	Rank	Products and Services Groupings*	Score
Tier A			
A	1	Snow and Ice (SAI)	0.87
A	2	Airports (AIRP)	0.78
A	3	SRS - Paving (PAVE)	0.78
A	4	SRS - Shoulder Repair (SHRP)	0.78
A	5	SRS - Surface (SHRP)	0.78
A	6	BAS - Bridge Inspection (BINS)	0.77
A	7	BAS - Bridge Reactive Maintenance (BPRM)	0.76
A	8	SLS - Traffic Operations (TRMG)	0.76
A	9	SLS - Traffic Management System Maintenance and Support (TMSM)	0.76
A	10	Plan Highway System (SPR)	0.74
A	11	SLS - Signals (SGNL)	0.73
A	12	SLS - Signs (SIGN)	0.73
A	13	SLS - Striping (STMP)	0.73
A	14	SLS - Message Painting (MESS)	0.73
A	15	BAS - Bridge Preventive Maintenance (BRPM)	0.72
A	16	Radio Towers and Communications (RTC)	0.72
Tier B			
B	17	Develop Highway Improvement Projects (PE)	0.69
B	18	Highway Construction Management Oversight (CE) *score adjusted	0.69
B	19	SRS - Drainage Systems (DGRP)	0.68
B	20	BAS - Overhead Sign Structure (OSIM) Inspection & Maintenance	0.68
B	21	BAS - Tower Lighting (TLM) Inspection & Maintenance	0.68
B	22	BAS - Signal System Structural (SSIM) Inspection & Maintenance	0.68
B	23	BAS - Roadway Lighting (RLIM) Inspection & Maintenance	n/a
B	24	Rail Crossing Safety (RCS)	
B	25	SLS - Guardrail (GDRL)	
B	26	SLS - Cable Median Barrier (CABL)	
B	27	SLS - Attenuator (ATTN)	
B	28	SLS - Roadway Lighting (RLGH)	
B	29	Aviation Safety and Regulation (ASM)	
B	30	SLS - Applied research (APPS)	
Tier C			
C	31	Freight Rail Improvements (FRIM)	
C	32	Port Improvements (POIM)	
C	33	Freight System Planning (FSP)	
C	34	SRS - Clear Obstruction (CLOB)	
C	35	Transit Planning & Grants (TRAN)	
C	36	BAS - Earth Retaining System Inspection & Maintenance (RWIM)	
C	37	BAS - Noise Wall Inspection & Maintenance (NWIM)	

► Prioritized tiers for both Products & Services, and Support Functions

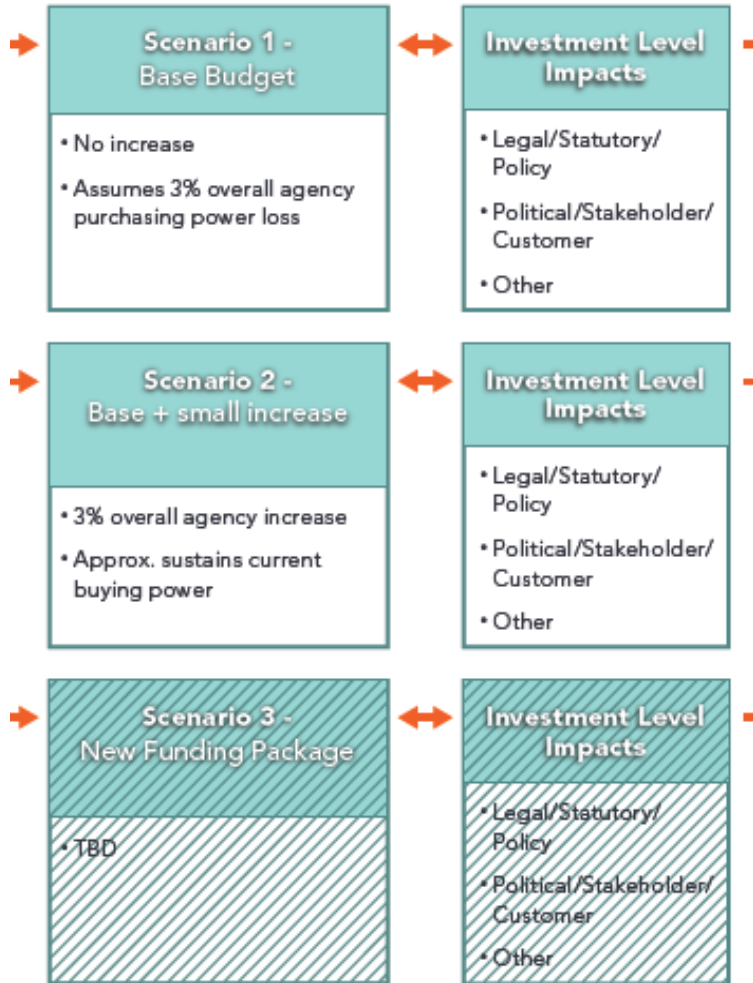
Support Functions Rank

Tier	Rank	Support Functions*	Office	Score
TIER A				
A	1	Payroll	Financial Mgmt	10.6
A	2	Accounts Payable (Highway Prog/Contractors)	Financial Mgmt	10.5
A	3	Capital Highway Financial Mgmt	Financial Mgmt	10.5
A	4	Budget Management	Financial Mgmt	10.5
A	5	Executive Branch Relations	Government Relations	10.1
A	6	Fed Project Financial Mgmt	Financial Mgmt	10.1
A	7	Construction Contracts	Chief Counsel	10.1
A	8	Legislative Relations	Government Relations	10.1
A	9	Accounts Receivable	Financial Mgmt	10.0
A	10	External Communications	Communications	10.0
A	11	Local IT Services	MN.IT	9.8
A	12	Accounting Systems Section	Financial Mgmt	9.8
A	13	Legal advice for agency contracts, agreements, leases, permits, easements, etc.	Chief Counsel	9.8
A	14	Enterprise IT Services	MN.IT	9.7
A	15	Application Services	MN.IT	9.5
A	16	Enabling Services	MN.IT	9.4
A	17	Legal Advice to Offices & Districts	Chief Counsel	9.3
A	18	CSAHMSAS Financial Mgmt	Financial Mgmt	9.3
A	19	Business Services	Administration	9.1
A	20	Materials Mgmt Team	Administration	9.1
A	21	Labor Relations	Human Resources	9.0
TIER B				
B	22	Financial Reporting	Financial Mgmt	8.8
B	23	Public Involvement/Engagement/Environmental Justice	Customer Relations	8.7
B	24	Agency-wide Safety, Emergency Mgmt & Workers Comp	Administration	8.7
B	25	Staffing and Transactions	Human Resources	8.5
B	26	Legal review/advice for legislative proposals	Chief Counsel	8.3



Evaluate Products/Services Investment Levels

Trade-Off Analysis



► Scenarios

- No increase, assumes 3% purchasing power loss overall
- 3% overall agency increase, approximately sustains buying power
- New funding package – put on hold



Identifying Impacts

- ▶ Target budgets developed for each product/service or support function based on tier, with some adjustments – prioritized inflation impacts
- ▶ Work groups formed for each product & service, support function to evaluate impacts/consequences for the two scenarios



Identifying Impacts

- ▶ Identify impacts or consequences focusing on outcomes that are almost certain to occur
- ▶ Focus on outcomes that are catastrophic or major
- ▶ Organize impacts into three categories
- ▶ Identify impact rating



Product/Service or Support Function	Budget	Description of IMPACTS or CONSEQUENCES that are almost certain to occur in the two biennia (four years)			Impact rating (pick most serious, based on examples in table)
		Legal/Statutory/Policy	Political/Stakeholder/ Customer	Other	
Drainage Systems Maintenance	FY 15 Base Level Investment: \$ enter	Lawsuits, compliance issues, environmental damage, community health	Reputation, fatality or injury, infrastructure failure resulting in congestion or detours	Project delays due to program delivery issues, future financial impacts, worker safety	Major
Scenario #1: Generalized description - Investment		<ul style="list-style-type: none"> • Possibility of torts, damage to MnDOT and adjacent property, environmental damage • Inability to institute inspection 	<ul style="list-style-type: none"> • Increased potential of culvert failure and motorist injury • Increased risk to MnDOT maintenance workers 	<ul style="list-style-type: none"> • Insufficient spare parts and delayed repairs increase risks to customers • Reduced ability to meet condition targets (falling further behind) 	
<p>Examples to assist the assessment/rating of impacts</p> <p>These are examples and the list is not exhaustive. Please include consequences that are almost certain (>90% chance) to occur in the next two biennia.</p>					Moderate
				<ul style="list-style-type: none"> • Better parts inventory and repair timeliness but still not meeting performance target 	

	Legal/Statutory/Policy	Political/Stakeholder/ Customer	Other
Catastrophic (Worst Case Scenario)	<ul style="list-style-type: none"> • Major violation of law • Major litigation or class actions • Significant prosecution or fines • Permanent environmental damage spanning a wide area, threatens survival of flora or fauna • Severe threat to community health • Death(s) due to a single event (MnDOT worker or member of the public) 	<ul style="list-style-type: none"> • Dramatic and sudden loss of credibility and public trust and/or federal government intervention • Nearly complete loss of legislative or executive support • Consistent negative media attention (years) • Major infrastructure failure • Death(s) due to a single event • Extended, unplanned closure (months) resulting in congestion and extended detours 	<ul style="list-style-type: none"> • Critical project with broad benefits delayed for more than one construction season • Catastrophic impact due to inability to manage to lowest life cycle cost, premature deterioration, poor construction installation, or other • Worker fatality or permanent disability
Major	<ul style="list-style-type: none"> • Violation of law or contract, or major litigation • Prosecution or fines • Severe temporary damage to community health requiring years of recovery 	<ul style="list-style-type: none"> • Prolonged and considerable loss of trust and credibility • Consistent negative media attention (months) • Localized infrastructure failure • Serious injuries due to a single 	<ul style="list-style-type: none"> • Critical project with broad benefits delayed until the next construction season • Major impact due to inability to manage to lowest life cycle cost, premature deterioration, poor

► **Materials provided for exercise**



Summary of Results

- ▶ Resource Investment Council discusses results, recommends revisions as needed

<i>Rail Crossing Safety (8)</i>	654,709	(19,641)	-3.0%	635,068	Moderate		18,634	2.9%	653,702	No Impact
<i>Highway Construction Management Oversight (11)</i>	78,721,428	(1,943,885)	-2.5%	76,777,543	Major		279,792	0.4%	77,057,335	Major
<i>Develop Highway Improvement Projects (12)</i>	122,167,685	(3,016,713)	-2.5%	119,150,972	Major		5,410,804	4.5%	124,561,777	Moderate
<i>Overhead Sign Structure Inspection (15B)</i>	14,915	(522)	-3.5%	14,393	No Impact		45	0.3%	14,438	No Impact
<i>Applied research (22A)</i>	1,126,897	(39,441)	-3.5%	1,087,456	Minor		4,522	0.4%	1,091,978	Minor
<i>Attenuator Maintenance (23A)</i>	419,900	(14,697)	-3.5%	405,204	Moderate		1,254	0.3%	406,458	Moderate
<i>Guardrail Maintenance (23B)</i>	7,330,401	(256,564)	-3.5%	7,073,837	Moderate		273,963	3.9%	7,347,800	No Impact
<i>Cable Median Barrier Maintenance (23C)</i>	1,392,118	(48,724)	-3.5%	1,343,394	Minor		5,349	0.4%	1,348,743	Minor
<i>Roadway Lighting Operations and Maintenance (24D)</i>	7,360,941	(257,633)	-3.5%	7,103,308	Moderate		5,015	0.1%	7,108,324	Moderate
<i>Drainage Systems Maintenance (30)</i>	14,076,130	(492,665)	-3.5%	13,583,465	Moderate		38,736	0.3%	13,622,201	Moderate



Managing Impacts

- ▶ After assessment of consequences, next step is an evaluation of strategies to minimize impacts

EXAMPLES

Management Strategy	Snow & Ice	Bridge Inspection
Avoid	NA	NA
Mitigate/Minimize	<p>Modify plowing operations or targets.</p> <p>Accelerate technology adoption if cost-effective.</p>	<p>Increase use of on-site data entry.</p> <p>Examine benefits of regional bridge inspection centers.</p> <p>Evaluate other states' solutions.</p>
Transfer	Investigate opportunities to manage idle capacity by sharing plowing and routes with local units of government	NA
Accept	Accept the consequences with no effort to manage or reduce them	Accept the consequences with no effort to manage or reduce them

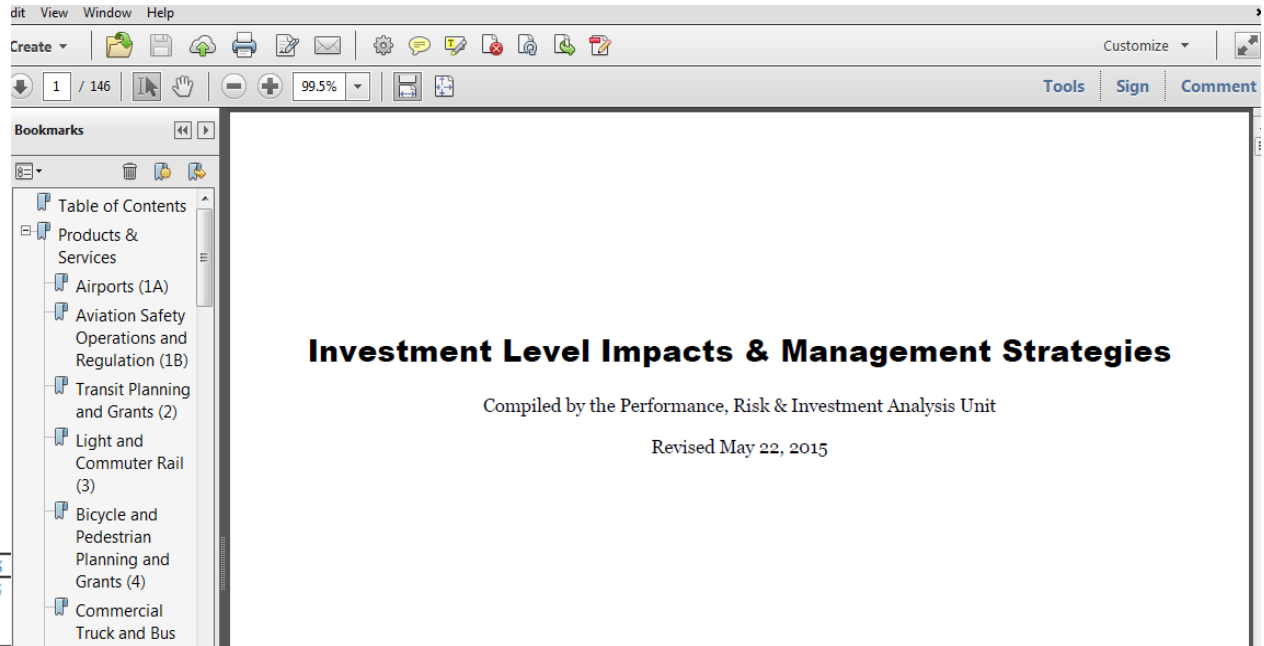


Suggestions for managing impacts

- ▶ Consider setting a mitigation target
- ▶ Think about who else could do the work
- ▶ Shift resources from a lower priority activity
- ▶ Consider a scope, timeline or process change



Final one page summary document and report



<i>Rail Crossing Safety (8)</i>	532,255	(15,968)	-3.0%								
<i>Highway Construction Management Oversight (11)</i>	60,118,290	(1,682,059)	-2.5%								
<i>Develop Highway Improvement Projects (12)</i>	108,337,950	(2,675,212)	-2.5%	105,662,738	Major	Major	5,039,000	4.8%	110,701,738	Moderate	Moderate
<i>Non-Bridge Structures Inspection & Maintenance (15B)</i>	12,826	(449)	-3.5%	12,377	No Impact	No Impact	-	0.0%	12,377	No Impact	No Impact
<i>Applied research (22A)</i>	670,944	(23,483)	-3.5%	647,461	Minor	Minor	-	0.0%	647,461	Minor	Minor
<i>Attenuator Maintenance (23A)</i>	366,929	(12,843)	-3.5%	354,086	Moderate	Minor	-	0.0%	354,086	Moderate	Minor
<i>Guardrail Maintenance (23B)</i>	6,362,100	(222,674)	-3.5%	6,139,426	Moderate	Minor	250,000	4.1%	6,389,426	No Impact	No Impact
<i>Cable Median Barrier Maintenance (23C)</i>	1,177,584	(41,215)	-3.5%	1,136,369	Minor	Minor	-	0.0%	1,136,369	Minor	Minor
<i>Roadway Lighting Inspection and Maintenance (24F)</i>	7,129,744	(249,541)	-3.5%	6,880,203	Moderate	Moderate	-	0.0%	6,880,203	Moderate	Moderate
<i>Tower Lighting Inspection and Maintenance (24G)</i>	7,129,744	(249,541)	-3.5%	6,880,203	Moderate	Moderate	-	0.0%	6,880,203	Moderate	Moderate
<i>Locate One Call (24H)</i>			0.0%	-	Moderate	Moderate		0.0%	-	Moderate	Moderate
<i>Drainage Systems Maintenance (30)</i>	12,062,629	(422,192)	-3.5%	11,640,437	Moderate	Moderate	-	0.0%	11,640,437	Moderate	Minor



Implement Investment Decisions

Agency Operating
Budget Spend Plan



- ▶ In June 2015, MnDOT rolled out Budgeting by Products and Services
- ▶ Included an operating budget organized by traditional line-item and by products & services
- ▶ Work continues to refine the process



Lessons Learned

- ▶ This new way of thinking about resources is challenging
- ▶ Would work best with just the right amount of detail and sub-products & services
- ▶ Results were meaningful, even with a compressed timeline for completion



Thank you!

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