

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

TRANSPORTATION ASSET MANAGEMENT PLAN

This plan provides documentation of currently managed assets, method of management, financial information, and future plans.

May 2015

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EXECUTIVE SUMMARY

The North Dakota Department of Transportation's Transportation Asset Management Plan (TAMP) covers several sections. The TAMP describes the transportation system managed by the NDDOT, the method of managing transportation assets throughout their life cycles, the financial constraints in managing the system, the current level of service targets for each asset, and an improvement plan for the process of managing these assets.

Transportation Asset Management (TAM) is a goal-oriented, data-driven, process that ensures the impacts of budget decisions are more completely understood. These impacts can be shown by displaying the level of funding and its resulting condition for each asset class.

INTRODUCTION

The North Dakota Department of Transportation (NDDOT), in its continuing effort to ensure stewardship of public transportation funds, has adopted the goal-oriented and data-driven philosophy of Transportation Asset Management (TAM). This Transportation Asset Management Plan (TAMP) was prepared in order to document how the NDDOT will monitor and implement that TAM philosophy.

In short, TAM is a goal-oriented, data-driven way of managing transportation systems and their components such that system managers are provided the information they need to make decisions necessary to reach desired outcomes. TAM is able to assist NDDOT management in making data-supported decisions that promote cost effective decisions by measuring the performance of an asset class and projecting the effect that potential decisions have on the asset class' long term performance in the future. As such, TAM will never truly be fully implemented. Rather, it is a continuous, cyclical process that is repeated to leverage the latest advances (see Appendix A).

TAM methods and philosophies can be applied to any asset. The Engineering Divisions of the NDDOT are currently using TAM principles to manage five asset classes: pavements, bridges, signs, facilities, and maintenance equipment. The state fleet is managed by the State Fleet Division under the Deputy Director for Business Support. In the future, additional asset classes have the potential to be added to the NDDOT's Transportation Asset Management Plan. Another advantage of formal TAM is the ability to utilize a process called cross-asset analysis to quantify the impacts of investing in one asset versus another. Finally, Transportation Asset Management, at its best, provides information that allows the public to understand, verify, and relate the transportation system to their needs and objectives.

The NDDOT's vision is that TAM *fosters a culture of public dollar stewardship through data-driven, and goal-oriented decisions.*

Based on the TransAction III initiative #1, the NDDOT TAM program has adopted the mission of *strategically prioritizing the use of transportation resources and to define the levels of service to be provided and maintained* as a method of reaching that vision.

CURRENT SYSTEM DESCRIPTION

The NDDOT manages approximately 8,500 roadway miles of state highways within the state of North Dakota. Our roadway system is comprised of many individual asset classes such as pavements, bridges, safety appurtenances, drainage structures, right of way, signs, lighting, and many other ancillary items.

To facilitate the efficient management of these many assets to meet the expected performance of the overall system, the North Dakota legislature and Governor endorsed the concept of a state-system roadway classification framework called the Highway Performance Classification System (HPCS) (N.D.C.C. §24-01-03.1.) To define the expected functionality of these roadways, the NDDOT has adopted definitions for each of these classifications based on: reliability (i.e. will the roadway be available to travel as expected), types of movement (e.g. long distance versus local access), typical geometry (e.g. four-lane versus two lane), typical speeds, size and weight restrictions, pavement condition (e.g. ride quality and distress), and expected overall safety.

Since 2001, system performance has been monitored using the Department's Highway Performance Classification System (HPCS) Report. The HPCS illustrates both quantitative and qualitative goals for system performance depending on how a roadway is used. A map of the current HPCS can be found at <http://www.dot.nd.gov/divisions/planning/hwyclassification.htm> Currently there are five classifications:

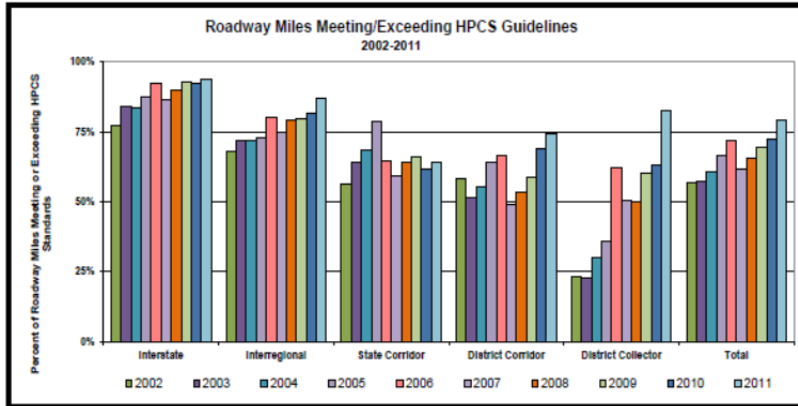
Interstate: Movements on the interstate system are primarily long-distance, interstate and intrastate traffic. Rural Interstates are multi-lane (usually four) roadway facilities and have full access control.

Interregional Corridor: Movements on Interregional highways are primarily long-distance, interstate and intrastate traffic. Interregional System highways are either two-lane or multi-lane facilities. Segments or specific locations may have partially controlled access.

State Corridor: State Corridors provide connectivity between lower and higher level roadways. Movements on these highways are primarily medium-distance intrastate traffic. State Corridors are typically two-lane facilities and have segments or locations with partially controlled access.

District Corridor: Movements on District Corridor highways are primarily short to medium distance intrastate traffic. District Corridors are two lane facilities.

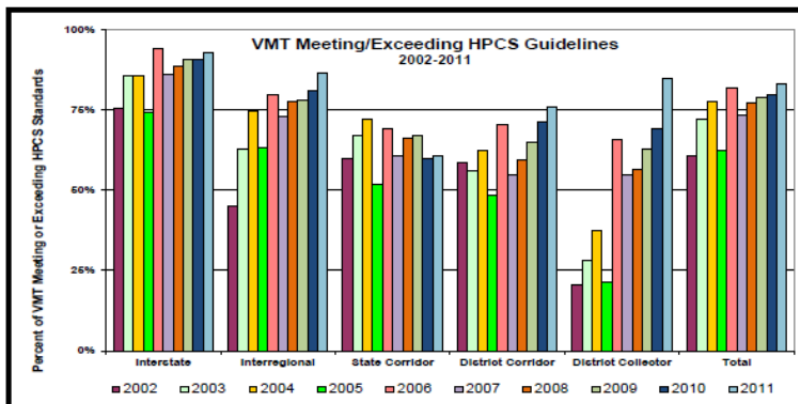
District Collector: Highways classified as District Collectors are generally short routes that provide connectivity to the higher level road systems. Movements on these highways are primarily short distance, local, farm to market traffic. District Collectors are two lane facilities.



Detailed information on the HPCS can be found in the Department’s HPCS Report available from the Planning/Asset Management Division.

Additionally, improvement has been seen in most HPCS categories from 2002 to 2011 based on vehicle miles travelled (VMT), thus indicating that more of the system’s users are being served to the defined expectations.

The previous and following charts indicate an investment strategy in which the roadway segments that have been improved to meet or exceed HPCS guidelines (particularly the top two levels) carry the majority of the VMT. State Corridors were the one exception to this general rule of system improvement, declining in 2011 to approximately their 2002 levels (see the figure below).

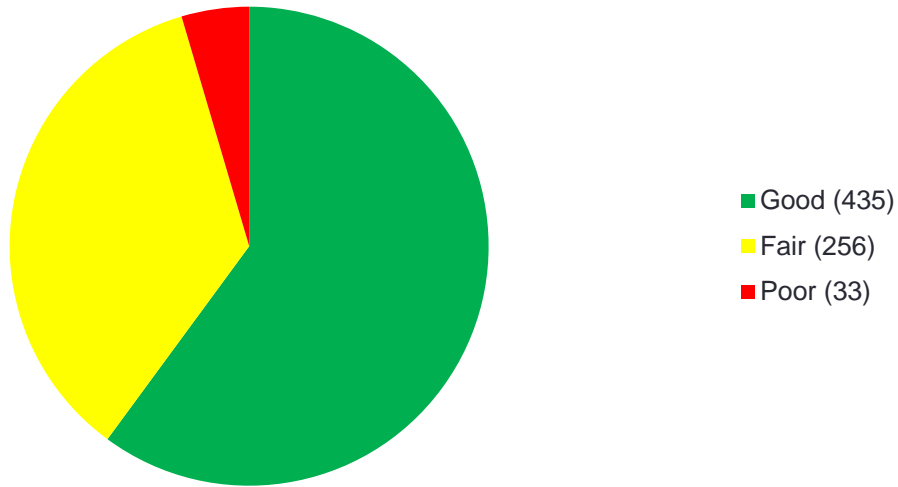


III. Bridges

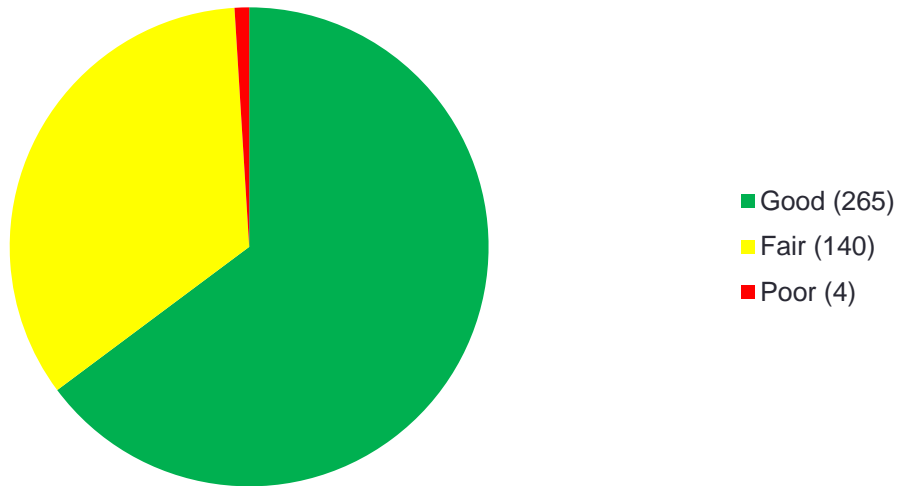
The NDDOT state bridge system is comprised of approximately 1,700 structures. Consistently over the last five years approximately 5% of these bridges do not meet current standards at any given time.

The following charts, based on 2012 data, illustrate the structural condition of the Department’s Bridges. Structural condition is a rating which uses the condition ratings of the Deck, Superstructure, Substructure and Load Carrying Capacity of the bridge.

Structural Rating State Bridges (724 Total)



Structural Ratings State Culverts (409 Total)



IV. Signs

The NDDOT uses the calibrated eye method as defined by FHWA to annually check the retroreflectivity of its signs.

Based on 2012 data, of the 63,706 signs assessed the NDDOT manages, 4,869 of the measured signs do not meet retroreflectivity standards and will be or are scheduled to be replaced. Updated condition information for the sign condition inventory using the calibrated eye method is in the process of being collected. Some

districts, however, have completed their survey. The results are listed in the table below.

| District | Number of Noncompliant Signs | Number of Signs Managed |
|-------------|------------------------------|-------------------------|
| Bismarck | Inspection Underway | 9,321 |
| Valley City | Inspection Underway | 7,147 |
| Devils Lake | 339 | 8,333 |
| Minot | 82 | 6,959 |
| Dickinson | 1,003 | 6,804 |
| Grand Forks | 2,200 | 8,506 |
| Williston | Inspection Underway | 7,085 |
| Fargo | 1,245 | 9,551 |

Although the NDDOT has maintained a sign inventory for many years, trending condition information is not available as the NDDOT began collecting condition information in 2012.

V. Snow and Ice Control Performance

The NDDOT does not currently monitor the effectiveness of each snow and ice control treatment due to limited resources and the lack of a cost effective and efficient monitoring method. Results of snow and ice control management and plans were tested thoroughly in the development of Maintenance Decision Support System (MDSS) prior to implementation. MDSS is the software program that predicts weather conditions and advises maintenance operators of the proper treatment for snow and ice conditions. Additionally, guidance for snow and ice control can be found in the NDDOT Snow and Ice Control Manual. A primer on snow and ice control can be found at <http://www.dot.nd.gov/divisions/maintenance/snow-ice-control.htm>

VI. Equipment

The NDDOT maintains the condition and operational status of the roadway system with a variety of equipment such as snowplows, tow plows, tractors, and mowers.

VII. Facilities

The NDDOT is responsible for 65 maintenance facilities of which 14 are substandard.

| Condition | Number of Buildings |
|-----------------|---------------------|
| Exemplary | 26 |
| Meets Standards | 25 |
| Substandard | 14 |
| Poor | 0 |

Examples of facilities managed by the NDDOT include salt storage sheds, maintenance section buildings, District Office buildings, NDDOT Central Office Building, Tractor Sheds, and Rest Areas.

SYSTEM LIFE-CYCLE MANAGEMENT

Using various processes, tools, and procedures the NDDOT manages the system described in the previous section (Current System Descriptions) in the best condition afforded by the budget available. These tools and processes are periodically evaluated for potential improvements.

I. Pavements

The NDDOT's pavements are managed through the Statewide Transportation Improvement Program (STIP) development process.

The NDDOT's STIP process begins when investment strategy guidance, condition information, and Pavement Management System recommended treatment information are provided to the Department's eight Districts by the Programming and Planning/Asset Management Divisions. Using this, and other, information District Engineers develop and submit their project priorities to the Programming Division.

A Draft STIP is then developed by the Programming Division. The Draft and the Pavement Management System's projected system level conditions resulting from the Draft STIP are provided to NDDOT Executive Management for preapproval prior to releasing the document for public comment. The information provided to Executive Management allows the decision makers to see some of the impacts of the decisions they make on pavement condition. After the initial comment period, the comments are responded to and the STIP modified if necessary to develop the Final STIP. Prior to receiving final approval of the STIP, condition information is developed from the Pavement Management System software.

Pavement Management software, currently dTIMS, serves as a planning and modeling tool for the condition of the pavement. Preventative Maintenance, Minor Rehab, Structural Overlays, and Major Rehab/Reconstruction are treatments that the software considers and optimizes for pavement management reports.

Routine maintenance treatments such as crack sealing/pouring, depressed crack repair, scotch patching, spray injection patching, hot and cold mix asphalt patching, bituminous seal coats, and concrete joint sealing are also performed as needed, but these treatments are not modeled by the Pavement Management System. Guidance for routine maintenance can be found in the NDDOT Maintenance Manual.

The Revised STIP, along with condition information, is provided to Executive Management for final approval

II. Bridges

The NDDOT Bridge Management section, during the STIP development process, provides a list of all bridges at or below a requested sufficiency rating to the Bridge Engineer and Assistant Bridge Engineer. A list of bridges that have poor paint condition is also submitted for consideration.

The Bridge Engineer and Assistant Bridge Engineer compile a list of potential bridge projects based on condition and funding constraints. Consideration is also given to the proximity of a bridge project to a programmed roadway project in order to leverage cost savings and minimize construction delay impacts to the traveling public.

Bridges in need of painting are typically programmed as a group of tied projects specific to a geographic area.

Currently, the NDDOT uses software called AASHTO BRIDGEWare to populate suggested treatments for the short listed bridge project list.

BRIDGEWare is designed to support the bridge inspection program, bridge preservation program, and to predict future bridge condition. The program additionally recommends projects to maximize the benefit from a specified budget.

The data BRIDGEWare uses is gathered in the field from NDDOT Bridge inspectors.

Bridge improvement strategies include capital improvement techniques, such as, reconstruction, deck replacement, and bridge deck overlays.

The NDDOT Maintenance Manual indicates that Maintenance Personnel shall perform sweeping, cleaning of bridge components, concrete component patching, scour repair, slope protection repair, bridge deck crack sealing, and surface treatments as necessary to maintain bridge assets. These treatments are not modeled by BRIDGEWare.

III. Signs

The NDDOT is in the process of transitioning from a fixed replacement cycle to the calibrated eye method of retroreflectivity measurement. A description of this method can be found at http://safety.fhwa.dot.gov/roadway_dept/night_visib/fhwas10015/

Currently, all Regulatory and Warning signs that are older than 10 years are flagged for replacement using large scale signing projects. The calibrated eye method is then used to flag signs that are under 10 years old, but fail retroreflectivity requirements. All other signs, such as guide signs are given second priority for available funding. Over the next three years, three large scale signing projects are being programmed to eliminate backlog work.

IV. Maintenance Equipment

Assets are scheduled for replacement when they meet the equipment replacement schedule. A list of necessary equipment to maintain current level of service is developed by the Maintenance Division. Equipment is managed using FleetFocus FA software. The Maintenance Division develops and maintains plans to analyze the gap between the current operational status and condition against a baseline status and condition developed to match the Department's required level of service. Detailed information regarding the Department's Maintenance Equipment Management Plan can be obtained from the Department's Maintenance Division.

V. Facilities

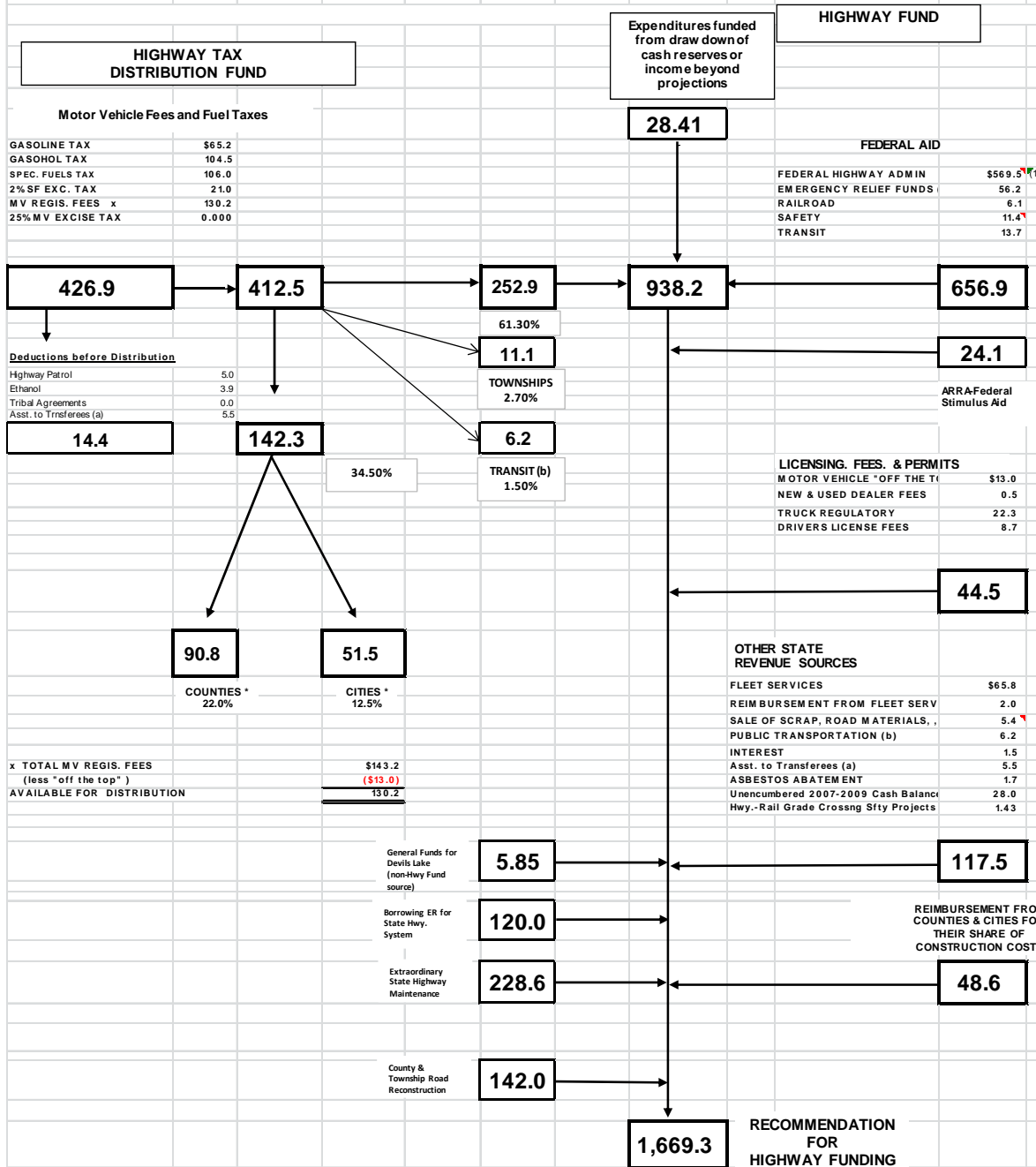
A list of maintenance section buildings and their overall condition is maintained by the Maintenance Division. As funding becomes available, the buildings are replaced in the order of worst condition first; if it is determined that the section building is still needed.

FINANCIAL SUMMARY

Prior to the 2011-2013 biennium, North Dakota's state highways were paid for with federal funding, with state funding supplied for the match and maintenance activities. The state match and maintenance activity funds came from the state gas tax and motor vehicle registration fees. Beginning with the 2011-2013 biennium, general fund monies were supplied to address the impacts from the increased industrialization of western North Dakota. Approximately 75% of federal funding sources were used on the state system with 25% for counties and local governments.

North Dakota Transportation funding revenues and distributions are described in the following charts:

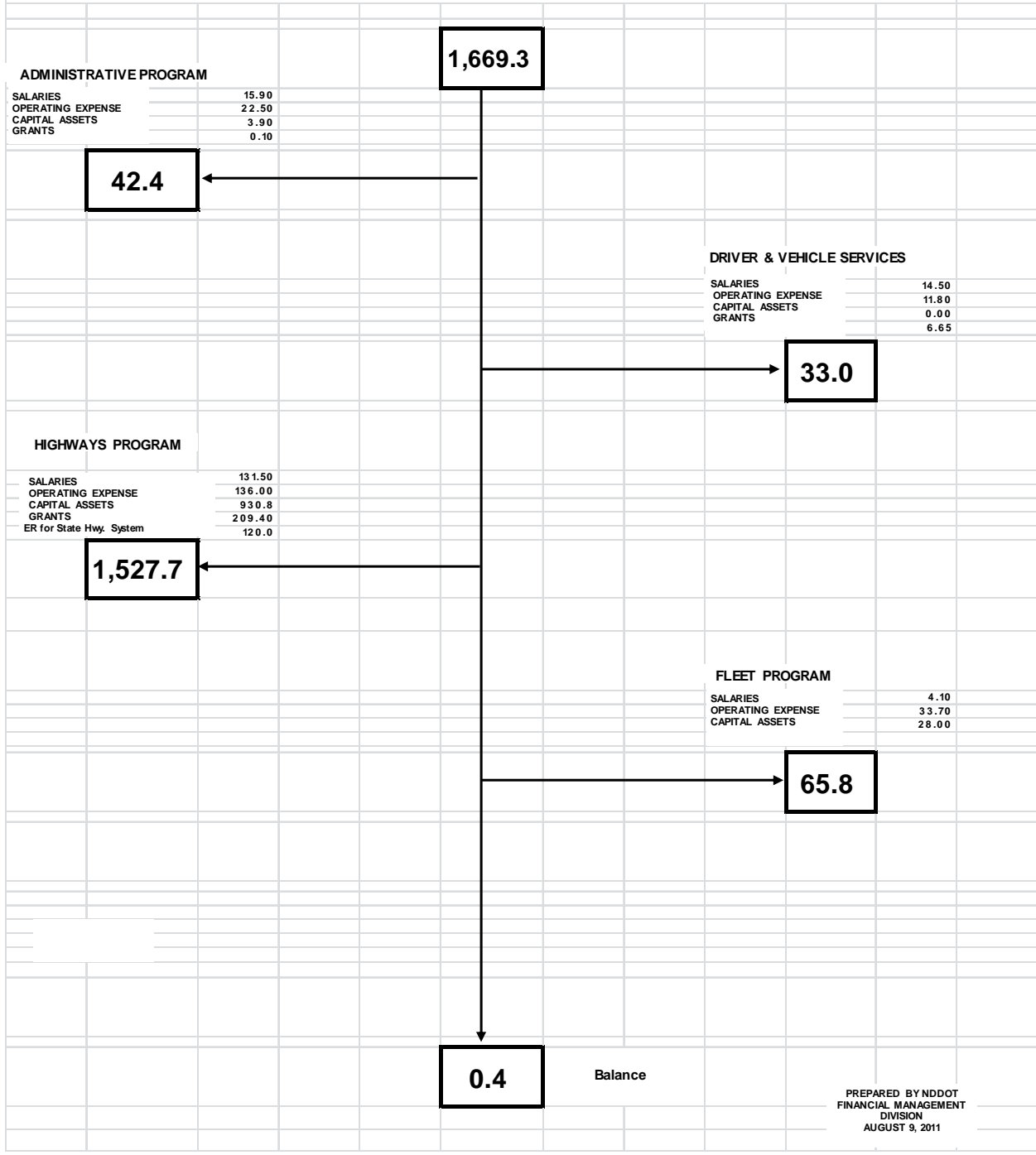
**DEPARTMENT OF TRANSPORTATION
ENROLLED HB 1012
2011 - 2013 BIENNIUM REVENUE**
(MILLIONS)



(1) Federal Transportation Funds available to make Bond Payments during this biennium are derived from the principal categories of FHWA funds described under "Federal Transportation Funds" above funds described under "Federal Transportation Funds" above

**DEPARTMENT OF TRANSPORTATION
ENROLLED HB 1012
2011 - 2013 BIENNIUM EXPENDITURES**

(MILLIONS)



PREPARED BY NDDOT
FINANCIAL MANAGEMENT
DIVISION
AUGUST 9, 2011

LEVEL OF SERVICE TARGETS

This NDDOT TAMP is intended to support the state's long-range transportation plan called TransAction III. Full details of which can be found at:

<http://www.dot.nd.gov/business/transactioniii/transactioniii.htm>

This iteration of the NDDOT's TAMP focuses on three of TransAction III Values:

Safety and Security: Transportation safety and security is the state's number one priority. Reasonable efforts should be made to plan, design, build and operate a transportation system that allows travelers and freight to move safely and securely.

Maintainable and Sustainable: The transportation system should be strategically developed considering long-term investment versus short-term demands. The use of transportation resources should be prioritized and levels of service to be provided should be defined. The system should not be over-built or under-built. Preserving and maintaining the system should be emphasized over new construction.

Reliable and Predictable: Today's fast-paced lifestyles and globally integrated economy require a transportation system that is reliable and predictable. Technological advances, larger and more efficient equipment, the evolution of shuttle trains, and "just-in-time" manufacturing emphasize reliability and predictability of travel time and cost. Multiple modal options (highway/rail, rail/pipeline, etc.) should be promoted to improve reliability and predictability.

The current targets for level of service vary depending on the asset. Current targets are as follows:

I. Pavements

| HPCS Classification | Miles with IRI in "Excellent" or "Good" |
|------------------------|---|
| Interstate | 95% |
| Interregional Corridor | 95% |
| State Corridor | 90% |
| District Corridor | 85% |
| District Collector | 80% |

II. Bridges

MAP 21 (the current transportation legislation) designates that less than 10% of the National Highway System's bridges, as measured by deck area, be deficient. Bridges with sufficiency ratings less than 50 should be considered for replacement. Less than 25% of a bridge should be in paint condition state 3 or worse. An additional goal is that bridges on the transportation network have the load carrying capacity to avoid posting the bridge with restrictions.

III. Signs

All signs in the state should meet federal retroreflectivity requirements.

IMPROVEMENT PLAN

NDDOT Asset Management team (pulled from representatives of several divisions) performed a departmental self-assessment (see Appendix B) as outlined in the AASHTO Transportation Asset Management Guide Vol. 1. Reviewing the gaps between where the Department is, and where it wants to be regarding asset management helped identify three categories for improvement.

- I. System Monitoring and Feedback
- II. Proactive Role in Policy Formulation
- III. Decision Support Tools

The following projects are the first steps toward improving these key areas:

- I. Implement the most recent system-level performance measures and targets for pavements, bridges, and safety.
- II. Investigate off the shelf cross asset analysis programs.
- III. Update the bridge-management processes and system to incorporate bridge management data in cross-asset analysis.
- IV. Develop a tool for trade-off analysis of facility and maintenance equipment management data to assist state funded investment strategy.
- V. Procure maintenance-management software to aid in the tracking and optimization of work orders and material usage. The data would be linked to the pavement-management tools in order to refine pavement-preservation recommendations.
- VI. Research and develop pavement-management systems that utilize new distress scoring, facilitating implementation of distress-based modeling.
- VII. Refine asset management systems for new performance measures.
- VIII. Update the TAMP in order to meet new federal requirements.
- IX. Refine the department's Functional Capacity model.
- X. Refine the annual investment strategy procedure to include pavement preservation and functional capacity investment class committees.
- XI. Develop investment classes aligned with major budget categories for inclusion in the trade-off analysis.

CONCLUSION

The implementing, evaluating, improving, documenting, and reporting outlined in this TAMP will allow the NDDOT to improve the return on investment for the public dollars dedicated to transportation in North Dakota. TAM is a continuous, cyclical process and must be repeated to leverage the latest advances in our understanding of our customers' needs and technology to keep the NDDOT current with industry best practices. TAM will never truly be concluded,

because the Transportation System's needs constantly change. However, the NDDOT will be able to stay current by following the principles in this TAMP.

APPENDIX A
THE FIVE STEP TAM CYCLE



APPENDIX B

GAP ANALYSIS QUESTIONARE

NCHRP Synthesis 43-01: Use of TAM Principles in State Highway Agencies Initial Survey: SelfAssessment Exercise - Transportation Asset Management Guide Volume 1

About the Survey



Dear *[contact("first name")] [contact("last name")]*,

The Transportation Research Board (TRB) is preparing a synthesis on the "Use of Transportation Asset Management (TAM) Principles in State Highway Agencies".

This is being done for the NCHRP synthesis program, under the sponsorship of the American Association of State Highway and Transportation Officials, in cooperation with the Federal Highway Administration.

This synthesis will help document TAM state of practice and the extent to which agencies have shifted their organizational cultures and business processes to support performance-based decisions that consider long-term investment options based on quality data.

To complete the synthesis of TAM practices, two questionnaires will be conducted.

The initial, attached, includes the self-assessment from the first volume of the AASHTO AM Guide.

After the results from the initial effort are evaluated; a comprehensive questionnaire on the use of TAM principles will be sent to the respondents covering a variety of assets other than just pavements and bridges.

For each category in the self-assessment exercise; there are two sets of questions. The first set is to get your input on the current use of asset management principles at your agency (current, in red). The second set is to get your input on the desired level of implementation in 5 years (desired level in 5 years). Please make sure the two sets are answered for each category.

The synthesis report will focus on the practices of state highway agencies from the questionnaires results, follow-up interviews, and a focus group meeting at the TAM Conference in San Diego in April of 2012. The report will include examples of how mature practices have been used for a variety of assets, including roadway hardware (e.g., signs and guardrails), ITS, bridges, and pavements.

This questionnaire is being sent to all of the state DOTs AM contact list. **If you are not the appropriate person at your agency to complete this questionnaire, please forward it to the correct person. This**

should represent a collective response from each DOT. If needed, please consult other staff from different offices. Your cooperation in completing the questionnaire will ensure the success of this effort.

Please complete and submit this questionnaire by **December 16, 2011**. We estimate that it should take approximately *60 minutes* to complete. If you have any questions, please contact our principal investigator, Omar Smadi at smadi@iastate.edu or 515 294-7110. Any supporting materials can be sent directly to Omar Smadi by email or at the address shown at the end of the questionnaire.

Thank you very much for your time and cooperation.

QUESTIONNAIRE INSTRUCTIONS

1. To view and print the entire questionnaire, Click on the following link and print using "control p" <http://www.surveygizmo.com/s3/687535/NCHRP-Synthesis-43-01-Use-of-TAM-Principles-in-State-Highway-Agencies-AM-AASHTO-SelfAssessment>
2. To save your partial answers and complete the questionnaire later, click on the "Save and Continue Later" link in the upper right hand corner of your screen. A link to the incomplete questionnaire will be emailed to you from *SurveyGizmo*. To return to the questionnaire later, open the email from *SurveyGizmo* and click on the link.
3. To pass a partially completed questionnaire to a colleague, click on the on the "Save and Continue Later" link in the upper right hand corner of your screen. A link to the incomplete questionnaire will be emailed to you from *SurveyGizmo*." Open the email from *SurveyGizmo* and forward it to a colleague informing them of what section they need to complete. Please make sure that they send the partially completed questionnaire back to you before it is submitted.
4. To view and print your answers before submitting the questionnaire, click forward to page 16. You can print using "control p" or you can click "Download PDF Version" at the bottom of the page to view and print a PDF of the survey with your responses.
5. To submit the survey, click on "Submit" on the review page.

Please enter the date (MM/DD/YYYY).

Please enter your contact information.

First Name *

Last Name *

Title

Agency/Organization

City

State *

Email Address *

Phone Number *

New Text/HTML/Rich Media Element

PART A. POLICY GUIDANCE

1. How Does Policy Guidance Benefit from Improved Asset Management Practice (Please state current level and desired level in five years)?

1.1. (CURRENT) POLICY GUIDANCE BENEFITING FROM GOOD ASSET MANAGEMENT PRACTICE

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|----------------------------------|----------------------------------|----------------------------------|
| A1. Policy guidance supports preservation of existing infrastructure assets. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A2. Policy guidance encourages resource allocation and project selection based on cost-effectiveness or benefit/cost analysis. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A3. Policies support a long-term, lifecycle approach to evaluating investment benefits and costs. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A4. Policy guidance considers customer perceptions and expectations. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A5. Our customers contribute to the process that formulates policy goals and objectives. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

1.2. (DESIRED LEVEL IN 5 YEARS) POLICY GUIDANCE BENEFITING FROM GOOD ASSET MANAGEMENT PRACTICE

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|-----------------------|----------------------------------|----------------------------------|
| A1. Policy guidance supports preservation of existing infrastructure assets. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A2. Policy guidance encourages resource allocation and project selection based on cost-effectiveness or benefit/cost analysis. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A3. Policies support a long-term, lifecycle approach to evaluating investment benefits and costs. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A4. Policy guidance considers customer perceptions and expectations. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A5. Our customers contribute to the process that formulates policy goals and objectives. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

PART A. POLICY GUIDANCE

1.3. (CURRENT) STRONG FRAMEWORK FOR PERFORMANCE-BASED RESOURCE ALLOCATION

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|----------------------------------|-----------------------|-----------------------|
| A6. Policy guidance on resource allocation allows our agency sufficient flexibility to pursue a performance-based approach. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A7. Our agency has a business plan or strategic plan with comprehensive, well-defined goals and objectives to guide resource allocation. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | |
|--|----------------------------------|-----------------------|-----------------------|-----------------------|
| A8. Our agency's goals and objectives are linked to specific performance measures and evaluation criteria for resource allocation. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|--|----------------------------------|-----------------------|-----------------------|-----------------------|

1.4. (DESIRED LEVEL IN 5 YEARS) STRONG FRAMEWORK FOR PERFORMANCE-BASED RESOURCE ALLOCATION

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|-----------------------|----------------------------------|-----------------------|
| A6. Policy guidance on resource allocation allows our agency sufficient flexibility to pursue a performance-based approach. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A7. Our agency has a business plan or strategic plan with comprehensive, well-defined goals and objectives to guide resource allocation. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A8. Our agency's goals and objectives are linked to specific performance measures and evaluation criteria for resource allocation. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

PART A. POLICY GUIDANCE

1.5. (CURRENT) PROACTIVE ROLE IN POLICY FORMULATION

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|----------------------------------|----------------------------------|-----------------------|-----------------------|
| A9. Our agency estimates the resources needed to accomplish particular objectives as part of policy development. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A10. Our agency regularly communicates to customers and other stakeholders our accomplishments in meeting policy objectives. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | |
|---|----------------------------------|-----------------------|-----------------------|-----------------------|
| A11. Our agency works with political leaders and other stakeholders to present funding options and consequences as part of our budget proposal. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|---|----------------------------------|-----------------------|-----------------------|-----------------------|

1.6. (DESIRED LEVEL IN 5 YEARS) PROACTIVE ROLE IN POLICY FORMULATION

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|-----------------------|-----------------------|----------------------------------|----------------------------------|
| A9. Our agency estimates the resources needed to accomplish particular objectives as part of policy development. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A10. Our agency regularly communicates to customers and other stakeholders our accomplishments in meeting policy objectives. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| A11. Our agency works with political leaders and other stakeholders to present funding options and consequences as part of our budget proposal. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

PART B. PLANNING AND PROGRAMMING

2. Do Resource Allocation Decisions Reflect Good Practice in Asset Management?

2.1. (CURRENT) CONSIDERATION OF ALTERNATIVES IN PLANNING AND PROGRAMMING

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|----------------------------------|-----------------------|-----------------------|-----------------------|
| B1. Our agency's long-range plan includes an evaluation of capital, operational, and modal alternatives to meet system deficiencies. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| B2. Capital versus maintenance expenditure tradeoffs are explicitly considered in the preservation of assets like pavements and bridges. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | |
|---|----------------------------------|-----------------------|-----------------------|-----------------------|
| B3. Capital versus operations tradeoffs are explicitly considered in seeking to improve traffic movement. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|---|----------------------------------|-----------------------|-----------------------|-----------------------|

2.2. (DESIRED LEVEL IN 5 YEARS) CONSIDERATION OF ALTERNATIVES IN PLANNING AND PROGRAMMING

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|----------------------------------|----------------------------------|----------------------------------|-----------------------|
| B1. Our agency's long-range plan includes an evaluation of capital, operational, and modal alternatives to meet system deficiencies. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| B2. Capital versus maintenance expenditure tradeoffs are explicitly considered in the preservation of assets like pavements and bridges. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B3. Capital versus operations tradeoffs are explicitly considered in seeking to improve traffic movement. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

PART B. PLANNING AND PROGRAMMING

2.3. (CURRENT) PERFORMANCE-BASED PLANNING AND A CLEAR LINKAGE AMONG POLICY, PLANNING, AND PROGRAMMING

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|-----------------------|----------------------------------|----------------------------------|-----------------------|
| B4. Our agency's long-range plan is consistent with currently established policy goals and objectives. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B5. Our agency's long-range plan includes strategies that are consistent with plausible projections of future revenues. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| B6. Our agency's long-range plan provides clear and specific guidance for the capital program development process. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | |
|--|-----------------------|-----------------------|-----------------------|----------------------------------|
| B7. Our agency periodically updates its planning and programming methods to keep abreast of current policy guidance, customer expectations, and critical performance criteria. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
|--|-----------------------|-----------------------|-----------------------|----------------------------------|

2.4. (DESIRED LEVEL IN 5 YEARS) PERFORMANCE-BASED PLANNING AND A CLEAR LINKAGE AMONG POLICY, PLANNING, AND PROGRAMMING

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|----------------------------------|----------------------------------|-----------------------|
| B4. Our agency's long-range plan is consistent with currently established policy goals and objectives. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B5. Our agency's long-range plan includes strategies that are consistent with plausible projections of future revenues. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| B6. Our agency's long-range plan provides clear and specific guidance for the capital program development process. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B7. Our agency periodically updates its planning and programming methods to keep abreast of current policy guidance, customer expectations, and critical performance criteria. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

PART B. PLANNING AND PROGRAMMING

2.5. (CURRENT) PERFORMANCE-BASED PROGRAMMING PROCESS

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|-----------------------|-------------|-----------|--------------------|
| B8. Criteria used to set program priorities, select projects, and | | | | |

| | | | | |
|--|-----------------------|----------------------------------|----------------------------------|-----------------------|
| allocate resources are consistent with stated policy objectives and defined performance measures. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| B9. Our agency's programs are consistent with realistic projections of future revenues. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B10. Our agency's programs are based on realistic estimates of costs, benefits, and impacts on system performance. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B11. Project selection is based primarily on an objective assessment of relative merits and the ability to meet performance targets. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B12. The preservation program budget is based upon analyses of leastlifecycle cost rather than exclusive reliance on worst-first strategies. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| B13. A maintenance quality assurance study has been implemented to define levels of service for transportation system maintenance. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

2.6. (DESIRED LEVEL IN 5 YEARS) PERFORMANCE-BASED PROGRAMMING PROCESS

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|-----------------------|-----------------------|----------------------------------|----------------------------------|
| B8. Criteria used to set program priorities, select projects, and allocate resources are consistent with stated policy objectives and defined performance measures. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B9. Our agency's programs are consistent with realistic projections of future revenues. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B10. Our agency's programs are based on realistic estimates of costs, benefits, and impacts on system performance. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

| | | | | |
|--|-----------------------|-----------------------|----------------------------------|----------------------------------|
| B11. Project selection is based primarily on an objective assessment of relative merits and the ability to meet performance targets. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| B12. The preservation program budget is based upon analyses of leastlifecycle cost rather than exclusive reliance on worst-first strategies. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| B13. A maintenance quality assurance study has been implemented to define levels of service for transportation system maintenance. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

PART C. PROGRAM DELIVERY

3. Are Appropriate Program Delivery Processes that Reflect Industry Good Practices Being Implemented?

3.1. (CURRENT) CONSIDERATION OF ALTERNATIVE PROJECT DELIVERY MECHANISMS

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|----------------------------------|----------------------------------|-----------------------|-----------------------|
| C1. Our agency periodically evaluates the use of alternative delivery options such as maintenance outsourcing, intergovernmental agreements, design-build, design-build-maintain, and similar options. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| C2. Our agency has an incentive program for recognizing or rewarding outstanding performance in improving upon schedule, quality, and cost objectives. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3.2. (DESIRED LEVEL IN 5 YEARS) CONSIDERATION OF ALTERNATIVE PROJECT DELIVERY MECHANISMS

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|--------------------------|----------------|--------------|-----------------------|
| | | | | |

| | | | | |
|--|-----------------------|----------------------------------|----------------------------------|-----------------------|
| C1. Our agency periodically evaluates the use of alternative delivery options such as maintenance outsourcing, intergovernmental agreements, design-build, design-build-maintain, and similar options. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| C2. Our agency has an incentive program for recognizing or rewarding outstanding performance in improving upon schedule, quality, and cost objectives. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

PART C. PROGRAM DELIVERY

3.3. (CURRENT) EFFECTIVE PROGRAM MANAGEMENT

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|----------------------------------|----------------------------------|----------------------------------|-----------------------|
| C3. Our agency solicits input from all affected parties to ensure that project scope is consistent with objectives of the project. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C4. Our agency uses well-defined program delivery measures to track adherence to project scope, schedule, and budget. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| C5. Our agency has a well-established and functioning process to approve project changes and program adjustments. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C6. When adding projects or changing project schedules, our agency considers effects on the delivery of other projects in the program. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| C7. Projects with significant changes to scope, schedule, or cost are reprioritized to ensure that they are still competitive in cost and performance. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

| | | | | |
|--|-----------------------|-----------------------|----------------------------------|-----------------------|
| C8. Agency executives and program managers are regularly kept informed of program delivery status. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C9. External stakeholders and policymakers feel that they are sufficiently updated on program delivery status. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

3.4. (DESIRED LEVEL IN 5 YEARS) EFFECTIVE PROGRAM MANAGEMENT

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|-----------------------|----------------------------------|-----------------------|
| C3. Our agency solicits input from all affected parties to ensure that project scope is consistent with objectives of the project. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C4. Our agency uses well-defined program delivery measures to track adherence to project scope, schedule, and budget. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C5. Our agency has a well-established and functioning process to approve project changes and program adjustments. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C6. When adding projects or changing project schedules, our agency considers effects on the delivery of other projects in the program. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C7. Projects with significant changes to scope, schedule, or cost are reprioritized to ensure that they are still competitive in cost and performance. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C8. Agency executives and program managers are regularly kept informed of program delivery status. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C9. External stakeholders and policymakers feel that they are sufficiently updated on program delivery status. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

PART C. PROGRAM DELIVERY

3.5. (CURRENT) COST TRACKING AND ESTIMATING

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|--------------------------|----------------------------------|----------------------------------|-----------------------|
| C10. Our agency maintains and uses information on the full unit costs of construction activities. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C11. Our agency maintains and uses information on the full unit costs of maintenance activities. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3.6. (DESIRED LEVEL IN 5 YEARS) COST TRACKING AND ESTIMATING

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|--------------------------|-----------------------|----------------------------------|----------------------------------|
| C10. Our agency maintains and uses information on the full unit costs of construction activities. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| C11. Our agency maintains and uses information on the full unit costs of maintenance activities. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

PART D. INFORMATION AND ANALYSIS

4. Do Information Resources Effectively Support Asset Management Policies and Decisions?

4.1. (CURRENT) EFFECTIVE AND EFFICIENT DATA COLLECTION

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|--------------------------|-----------------------|----------------------------------|-----------------------|
| D1. Our agency has a complete and up-to-date inventory of our major assets. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

| | | | | |
|--|-----------------------|-----------------------|----------------------------------|-----------------------|
| D2. Our agency regularly collects information on the condition of our assets. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D3. Our agency regularly collects information on the performance of our assets (e.g., serviceability, ride quality, capacity, operations, and safety improvements). | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D4. Our agency regularly collects customer perceptions of asset condition and performance. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D5. Our agency continually seeks to improve the efficiency of data collection (e.g., through sampling techniques, use of automated equipment, other methods appropriate to our transportation system). | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

4.2. (DESIRED LEVEL IN 5 YEARS) EFFECTIVE AND EFFICIENT DATA COLLECTION

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|-----------------------|-----------------------|----------------------------------|----------------------------------|
| D1. Our agency has a complete and up-to-date inventory of our major assets. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D2. Our agency regularly collects information on the condition of our assets. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D3. Our agency regularly collects information on the performance of our assets (e.g., serviceability, ride quality, capacity, operations, and safety improvements). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D4. Our agency regularly collects customer perceptions of asset condition and performance. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

| | | | | |
|--|-----------------------|-----------------------|-----------------------|----------------------------------|
| D5. Our agency continually seeks to improve the efficiency of data collection (e.g., through sampling techniques, use of automated equipment, other methods appropriate to our transportation system). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
|--|-----------------------|-----------------------|-----------------------|----------------------------------|

PART D. INFORMATION AND ANALYSIS

4.3. (CURRENT) INFORMATION INTEGRATION AND ACCESS

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|-----------------------|----------------------------------|-----------------------|
| D6. Agency managers and staff at different levels can quickly and conveniently obtain information they need about asset characteristics, location, usage, condition, or performance. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D7. Our agency has established standards for geographic referencing that allow us to bring together information for different asset classes. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D8. Our agency can easily produce map displays showing needs/deficiencies for different asset classes and planned/programmed projects. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D9. Our agency has established data standards to promote consistent treatment of existing asset-related data and guide development of future applications. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

4.4. (DESIRED LEVEL IN 5 YEARS) INFORMATION INTEGRATION AND ACCESS

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|-------------|-----------|--------------------|
|--|-----------------------|-------------|-----------|--------------------|

| | | | | |
|--|-----------------------|-----------------------|-----------------------|----------------------------------|
| D6. Agency managers and staff at different levels can quickly and conveniently obtain information they need about asset characteristics, location, usage, condition, or performance. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D7. Our agency has established standards for geographic referencing that allow us to bring together information for different asset classes. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D8. Our agency can easily produce map displays showing needs/deficiencies for different asset classes and planned/programmed projects. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D9. Our agency has established data standards to promote consistent treatment of existing asset-related data and guide development of future applications. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

PART D. INFORMATION AND ANALYSIS

4.5. (CURRENT) USE OF DECISION-SUPPORT TOOLS

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------------|----------------------------------|----------------------------------|--------------------------|
| D10. Information on actual work accomplishments and costs is used to improve the cost-projection capabilities of our asset management systems. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| D11. Information on changes in asset condition over time is used to improve forecasts of asset life and deterioration in our asset management systems. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

4.6. (DESIRED LEVEL IN 5 YEARS) USE OF DECISION-SUPPORT TOOLS

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|-----------------------|----------------------------------|-----------------------|
| D10. Information on actual work accomplishments and costs is used to improve the cost-projection capabilities of our asset management systems. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D11. Information on changes in asset condition over time is used to improve forecasts of asset life and deterioration in our asset management systems. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |

PART D. INFORMATION AND ANALYSIS

4.7. (CURRENT) USE OF DECISION-SUPPORT TOOLS (CONTINUED)

Our agency uses asset management decision-support tools to:

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|-----------------------|----------------------------------|----------------------------------|-----------------------|
| D12. Calculate and report actual system performance; | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D13. Identify system deficiencies or needs; | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D14. Rank candidate projects for the capital program; | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D15. Forecast future system performance given a proposed program of projects; and | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| D16. Forecast future system performance under different mixes of investment levels by program category. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4.8. (DESIRED LEVEL IN 5 YEARS) USE OF DECISION-SUPPORT TOOLS (CONTINUED) Our agency uses asset management decision-support tools to:

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|-----------------------|-----------------------|-----------------------|----------------------------------|
| D12. Calculate and report actual system performance; | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D13. Identify system deficiencies or needs; | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D14. Rank candidate projects for the capital program; | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D15. Forecast future system performance given a proposed program of projects; and | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D16. Forecast future system performance under different mixes of investment levels by program category. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

PART D. INFORMATION AND ANALYSIS

4.9. (CURRENT) SYSTEM MONITORING AND FEEDBACK

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|---|----------------------------------|-----------------------|-----------------------|-----------------------|
| D17. Our agency monitors actual system performance and compares these values to targets projected for its capital preservation program. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| D18. Our agency monitors actual system performance and compares these values to targets projected for its capital improvement program. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| D19. Our agency monitors actual system performance and compares these values to targets projected for its maintenance and operations program. | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | |
|--|-----------------------|----------------------------------|-----------------------|-----------------------|
| D20. We periodically distribute reports of performance measures relevant to customer/stakeholder satisfaction with transportation system and services. | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|--|-----------------------|----------------------------------|-----------------------|-----------------------|

4.10. (DESIRED LEVEL IN 5 YEARS) SYSTEM MONITORING AND FEEDBACK

| | Strongly Disagree (1) | Neutral (2) | Agree (3) | Strongly Agree (4) |
|--|-----------------------|-----------------------|----------------------------------|----------------------------------|
| D17. Our agency monitors actual system performance and compares these values to targets projected for its capital preservation program. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D18. Our agency monitors actual system performance and compares these values to targets projected for its capital improvement program. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| D19. Our agency monitors actual system performance and compares these values to targets projected for its maintenance and operations program. | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| D20. We periodically distribute reports of performance measures relevant to customer/stakeholder satisfaction with transportation system and services. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

Review

Thank You!

Thank you for taking our survey. Your response is very important to us. If you have any questions or comments, please feel free to contact Omar Smadi at:

- E-mail: smadi@iastate.edu
- Phone: (515) 294-7110