

APPENDIX

DETAILED SUMMARIES OF ORGANIZATIONS SURVEYED

ORGANIZATIONS SURVEYED:

Professional Organizations & Agencies

American Association of State Highway and Transportation Officials (*AASHTO*)
American Concrete Pavement Association (*ACPA*)
American Public Transportation Association (*APTA*) & Federal Transit Administration (*FTA*)
American Public Works Association (*APWA*)
American Road and Transportation Builders Association (*ARTBA*)
American Society of Civil Engineers (*ASCE*) & Civil Engineering Research Foundation (*CERF*)
Federal Highway Administration (*FHWA*)
Foundation for Pavement Preservation (*FP²*)
Governmental Accounting Standards Board (*GASB*)
National Association of County Engineers (*NACE*)
Transportation Research Board (*TRB*)

Educational Organizations

Local Technical Assistance Program (*LTAP*)
Midwest Transportation Consortium (*MTC*) & Center for Transportation Research in Engineering (*CTRE*)
- *Iowa State University, Ames, Iowa*
Midwest Regional University Transportation Center (*MRUTC*) – *University of Wisconsin, Madison, Wisconsin*
Urban Transportation Center (*UTC*) – *University of Illinois – Chicago, Chicago, Illinois*
University Transportation Research Center (*UTRC*) & the Rudin Center for Transportation Policy and Management – *City College of New York, New York City, New York*

International Organizations

Canadian Programs:

- Federation of Canadian Municipalities (*FCM*)
- National Research Council of Canada (*NRCC*)

International Road Federation (*IRF*)
Organization for Economic and Cooperative Development (*OECD*)
World Road Federation (*PIARC*)

PROFESSIONAL ORGANIZATIONS
WORKING IN ASSET MANAGEMENT

American Association of State Highway and Transportation Officials (AASHTO):
(<http://www.transportation.org>)

Significant Past Efforts:

1st Executive Seminar on Asset Management: (September 1996 – Washington DC) – 23 states attended. One of the first conferences to bring public, private, and quasi-governmental sectors together to discuss the theory of Asset Management.

2nd Executive Seminar on Asset Management: (October 1997 – Rensselaer Polytechnic Institute, Troy, NY) – Organized to evaluate current practices and develop a cooperative strategy to move forward with Asset Management.

Asset Management Peer Exchange: (December 1999 - Scottsdale, AZ) – 33 states attended. The Exchange “provided important insights into the work that is still needed to assist the states in guiding their ongoing transportation Asset Management programs.” (AASHTO 2001 Strategic Plan Introduction) The states of New York, Minnesota, Virginia, Montana, and Michigan were present to share past experience and gain knowledge on how to further implement Asset Management strategies.

GASB 34 Training: Workshop in April 2001 to discuss the implications of GASB 34 to AASHTO member states. Sponsored by the Tennessee Department of Transportation.

Current AASHTO Efforts:

Task Force on Transportation Asset Management: Incorporated by the Board of Directors in 1998, current efforts by the Task Force include the following:

- *Strategic Plan:* To frame mission and outline goals of Task Force and AASHTO’s role in Asset Management. Developed in cooperation with FHWA, “The plan. . . provides a comprehensive, broad-based, and proactive approach to fully developing transportation Asset Management techniques and applications.” (AASHTO 2000-2010 Strategic Plan)
 - The Plan includes 5 goals and strategies. These goals “Provide the framework and focus necessary to develop partnerships, promote concepts, and assist the states in implementing the principles and practices of transportation Asset Management.”

NCHRP Project 20-24 (11) Asset Management Guidance for Transportation Agencies: One recommendation from the Strategic Plan is to develop an AASHTO Asset Management Guide. The main product of this research will be a detailed framework that allows agencies to use existing knowledge and tools to start implementing Asset Management systems. Auxiliary products will include a research agenda and a summary of best practices in states as well as national and international organizations. A target of August 2002 has been set as the final date for issuance of this report.

Asset Management Communities Website: This site is in the initial stages of development. When fully developed, it will ideally contain a discussion forum and links to research and organizations involved in Asset Management. The concept is to develop a portal through the web to facilitate information sharing and education.

(<http://assetmanagement.transportation.org/tam/aashto.nsf/home>)

AASHTO Perspectives:

Key Challenges in Asset Management: (Taken from a presentation by Tony Kane at the 4th National Transportation Asset Management Workshop, hosted by the Midwest Regional University Transportation Center, September 2001)

- Integration (engineering, management, data, GIS, decision making and resource allocation)
- Developing performance measures that reflect customer perspective as well as life cycle and “what-if” analyses.
- Encouraging management staff to support Asset Management principles, especially in developing pub-private partnerships.
- Recognizing that “one size does not fit all”. Agencies must go through their own visioning, learning and understanding of what Asset Management is and agree on the results of the NCHRP project.
- Cross-pollination is integral. Important to set up a future session with key stakeholders (FHWA, AASHTO, APWA, FTA, etc) to discuss the roles that need to be filled and who will take responsibility.
- Funding the effort.
- Move away from implying states are doing management wrong. The emphasis needs to be put on integration, which is flexible within each agency.

Partial List of AASHTO Publications:

2000-2010 AASHTO Task Force on Transportation Asset Management Strategic Plan

Asset Management Peer Exchange, Using Past Experiences to Shape Future Practice – Executive Summary

Asset Management: Advancing the State of the Art into the 21st Century through Public-Private Dialogue – Executive Summary

Periodic articles in the *AASHTO Quarterly* and *AASHTO Journal*

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American Concrete Pavement Association (ACPA)
[\(http://www.pavement.com/\)](http://www.pavement.com/)

Significant Past Efforts:

“Asset Management of Streets and Local Roads”: A technical paper and presentation describing Asset Management and how local municipalities can start integrating this concept into decision-making. Describes why Asset Management is needed, the life cycle cost analysis methodology, and supports a conclusion that improved transportation management will include a “mix of fixes” where a variety of pavement preservation technologies will be necessary to maintain infrastructure at the desired level of service.

Current ACPA Efforts:

Remaining Service Life Model: The ACPA anticipates completing a model in 2002 that will be readily available for local governments to forecast remaining service life based on their inventory of current roadway conditions. With this condition data, the model will predict when to maintenance certain segments of the system to achieve ultimate overall benefit.

Life Cycle Cost Analysis: The ACPA is also pursuing development of refined life cycle costing methodologies and are working closely with the Michigan DOT to develop such models. ACPA also has a life cycle costing model available in their WinPAS pavement design software, which is available for purchase through the internet.

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American Public Transportation Association (APTA) & Federal Transit Administration (FTA):
<http://www.apta.org>
www.fta.dot.gov

Current Efforts:

APTA: Financial Management Committee: This Committee considers several areas in financial management relevant to transit operators. One recent interest is GASB 34 and its implications for transit authorities. APTA brought together consultants and interested transit agencies to discuss the Statement more. In the future, APTA will facilitate more of these discussions.

FTA: National Transit Database: Accumulation of operation and financial information on nationwide transit providers.

FTA/FHWA: Tunnel Management Guide: Phase 1 is complete – an inventory of highway and rail tunnels. Phase 2 will be a guide on standards for operation and maintenance as well as management techniques for tunnel systems.

APTA Perspectives:

The organization does not have an Asset Management effort underway, but is aware of the concept and facilitating dialogue between its members and partner organizations such as FHWA. The FHWA Primers on GASB 34 and Asset Management have been helpful to APTA in distributing information to form an initial understanding of the concepts.

FTA Perspectives:

FTA is in the process of forming initial partnerships in Asset Management with the Office of Asset Management at FHWA. They developed the National Transit Database as a first step in compiling the data needed for a management system. Rich Steinmann has led some effort to assimilate fleet management with Asset Management principles. Also, Ed Thomas has given several presentations on emerging trends and reasons to adopt Asset Management concepts. These are mainly awareness building efforts by upper-level management staff at FTA.

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American Public Works Association (APWA)
(<http://www.pubworks.org/>)

Significant Past Efforts:

Asset Management Task Force: (disbanded August 31, 1998) – Developed paper entitled “Asset Management for the Public Works Manager – Challenges and Strategies.” This report was the first concentrated effort by APWA to define Asset Management and recognize potential benefits and issues. The discussion centered on the following areas:

- **A Definition of ‘Asset Management’:** Defined Asset Management as more of an investment policy than a management tool. The focus should be to integrate the many tools that *already* exist and interpret their output from dissimilar systems. The ideal goal is to provide decision makers with a reliable, integrated analysis.
- **Reasons for and Benefits of an Asset Management Program:** The economical importance of the nation’s infrastructure and the high cost of replacement are certainly the main reasons to implement Asset Management. Immediate benefits of Asset Management will be most visible at higher levels within organizations where users can interpret the overall performance of the system.
- **Implementation Issues:** There are a myriad of legal, financial, political, and accountability issues in implementing an Asset Management system.
- **Proposed Strategy:** To move on from this initial phase several steps are necessary:
 - Identify all stakeholders and coordinate their needs and contribution. Within this effort, APWA must ensure the Asset Management concept is well understood and that disparate groups can form common strategies.
 - A commitment from management of APWA to dedicate staff time and resources to studying and developing and researching Asset Management.

Current APWA Efforts:

Leadership and Management Committee: This Committee has taken concepts from the Task Force study and incorporated it into their 2001 Business Plan in the following strategic goals:

- **Goal A1:** To influence government and private sector organizations to develop programs, systems, procedures, systems and tools that can be effectively used by public works agencies for efficient Asset Management.
- **Goal A2:** To provide information on Asset Management principles and practices as useful tools for improving public works management.
- **Goal A3:** To influence implementation of GASB Statement 34 by identifying and encouraging adoption of practical policies and tools for public works infrastructure performance monitoring and management.

GASB 34: Much of APWA's recent efforts have concentrated on development of guidance for GASB 34. APWA was involved in developing GASB 34 with the Governmental Accounting Services Board. They have several published guidebooks and videos in addition to regular training courses.

Visioning: As the industry tries to define the meaning of Asset Management, APWA is working with mainly local government to build consensus around a common definition.

2001 Congress: APWA held several sessions on Asset Management at their 2001 Congress. Several experts in the field gave presentations, including Dennis Shea, Kent Lande, Bevis Greay, and Dana Vanier. Many of these individuals are international representatives from Australia, New Zealand, and Canada.

2002 Urban Transportation Forum: The Forum will feature a day-long session on Asset Management and the state of development in local governments. The meeting will especially emphasize efforts to adopt GASB 34 and the development of pavement management and other planning systems.

Perspective: (A summary from an interview with Dennis Ross, Director of Professional Development, APWA)

Largest challenges in developing and implementing Asset Management: There are several key challenges the transportation community has to overcome in implementing Asset Management. These challenges are:

- **Coalition building:** Organizations such as APWA need to reach a common goal on the mission of Asset Management. Currently Asset Management has a different meaning to different agencies.
- **Life Cycle Costing:** Related to GASB 34, more agencies will be refining life cycle costing techniques. Future collaboration should be encouraged to standardize these techniques.
- **The "un-funded mandate":** Many local agencies perceive Asset Management theories and rhetoric to be a top-down mandate from state and federal agencies. These groups must develop common goals and strategies.

Partial List of APWA Publications:

Asset Management for the Public Works Manager – Challenges and Strategies

GASB 34 Statement & Implementation Guide

APWA Reporter: Monthly magazine periodically focusing on GASB 34 and other Asset Management related topics.

Related APWA Activities:

Rebuild America Coalition: Founded in 1987 by APWA to create public and political awareness of the need for significant infrastructure investment.

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ARTBA (American Road & Transportation Builders Association)
(<http://www.artba.org/>)

Current Efforts:

The organization has not dedicated resources specifically to Asset Management, but their literature frequently emphasizes managing, maintaining, and preserving highway assets better.

“America’s Roadway Operations: Improving Capacity and Efficiency”: ARTBA prepared this paper for the National Summit on Transportation Operations on October 16, 2001. They acknowledge a need for better operations management and outline several recommendations to achieve better efficiency. These recommendations include strategies for federal roles, funding, and resolving institutional barriers in planning and operations.

Professional Development Sections: As a form of outreach, ARTBA has a Professional Development Section listserv to encourage dialogue about management activities in several areas of transportation. This program has been most successful in the safety management and international management areas. These forums might be very useful in the future to share experiences and knowledge about Asset Management.

ARTBA Perspectives: (A summary from an interview with Brad Sant, Vice President of Safety and Education, ARTBA)

ARTBA realizes there is a growing need to shift from policies in construction to management and preservation. ARTBA is helping facilitate the knowledge of this shift, but believes Asset Management research and development should not precede needed funding for the construction industry. The focus of ARTBA and construction industry is changing, and therefore the organization is changing as well.

Partial List of ARTBA Publications

PRIDE In Transportation Construction Newsletter: The PRIDE effort concentrates on building public and political support for capital improvement to federal and state transportation infrastructure. The Newsletter summarizes these efforts as well as acknowledges best practice efforts in design and planning.

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American Society of Civil Engineers (ASCE) & Civil Engineering Research Foundation (CERF)

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Significant Past Efforts:

CERF - Partnership for the Advancement of Infrastructure and Its Renewal Through Innovative Products and Processes (PAIR) (March 1998 – Washington DC). CERF president Harvey M. Bernstein introduced the PAIR Initiative, a partnership between industry and government to research and restore the nation's infrastructure. The effort focuses on R&D and especially technology transfer to state and local governments.

CERF - Partnership for the Advancement of Infrastructure and Its Renewal Through Innovative Products and Processes – the Transportation Component (PAIR-T) (April 1998 – Washington DC). The result of collaboration between President Clinton's National Science and Technology Committee on Technology and the Department of Transportation. PAIR-T promoted, "the increased use of innovation, particularly advanced materials and processes in new construction, repair retrofit, and maintenance of the transportation infrastructure". However, since the PAIR-T initiative was developed, no other agencies have collaborated with CERF to further investigate these concepts.

Current ASCE and CERF Efforts:

CERF - Managing Infrastructure Assets Conference: (Spring 2001) – A collaborative effort sponsored by the National Science and Technology Committee on Technology, Research and Special Programs Administration (RSPA) of the U.S. Department of Transportation and the Naval Facilities Engineering Command (NAVFAC) convened to discuss the new concepts of Asset Management. The Conference's purpose was to gather insight from each of the above organizations, encourage further understanding, and heighten awareness by developing partnerships and increasing dialogue. No specific tasks or partnerships resulted from the Conference and CERF has not taken a role specifically in Asset Management since.

ASCE - 2001 Civil Engineering Conference and Exposition: A session met entitled "New Developments in Asset Management for Civil Infrastructure" dealing with economic and operations theories behind Asset Management. Speakers from the FHWA, Office of Asset Management, Virginia DOT, and various consulting groups were present to describe successful efforts in federal, state, and local government programs in the roadway and transit fields.

ASCE Report Card on America's Infrastructure: The Report Card is an initiative by ASCE to raise public awareness of the condition of America's infrastructure. Powerfully presented over the web, the Report Card calls for proactive management of all infrastructure assets. Several strategies related to Asset Management are supported by ASCE, including improved life cycle cost analyses, increasing funding for long term highway management research, and multi-year budgeting for state and federal capital projects.

CERF Highway Innovative Technology Evaluation Center (HITEC) Innovation Center: One of CERF's most successful innovation centers is the Highway Innovative Technology Evaluation Center (HITEC). Based on a fee-for-service approach, the Center conducts performance evaluations on high and low-tech highway technology innovations. These innovations can be in any aspect of the highway community including design, construction, operation, or maintenance. While this Center is not directly involved in promoting Asset Management, some of the innovations it tests, such as Bridge Management System software, are examples of technologies that could be used in Asset Management systems in the future.

CERF Perspectives: (A summary from an interview with Peter Kissinger, Director of the Highway Innovative Technology Evaluation Center (HITEC) Innovation Center)

CERF's role in Asset Management is really as a facilitator of testing and marketing new technologies for use in highway design, construction, operation, or maintenance. CERF supports the concept of Asset Management and is willing to participate as projects develop.

Partial List of ASCE Publications:

ASCE Journals: Topics related to management of transportation systems are frequently discussed in ASCE journals, especially the *Journal of Management in Engineering*. There are several other examples such as the *Journal of Infrastructure Systems* and *Leadership and Management in Engineering*. Since the mid-1980's articles have appeared on subjects of Asset Management, especially in managing and integrate data. A recent article in the January 2001 *Journal of Computing in Civil Engineering* by D.J. "Dana" Vanier focuses on why municipal infrastructure planning needs Asset Management tools.

Civil Engineering: A monthly publication, articles are frequently published on management system related to design, construction, operation and maintenance of transportation assets.

Partial List of CERF Publications:

The PAIR Implementation Plan: A Partnership for the Advancement of Infrastructure and its Renewal through Innovative Products and Practices

Partnership for the Advancement of Infrastructure and Its Renewal through Innovative Products and Processes (PAIR) White Paper

Partnership for the Advancement of Infrastructure and Its Renewal through Innovative Products and Processes Transportation Component (PAIR-T) White Paper

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Current Efforts:

Office of Asset Management: The Office of Asset Management is one of four offices within the FHWA Infrastructure Core Business Unit (CBU). The Office was established in February 1999 with a broad scope to provide leadership and expertise in the management of highway infrastructure assets. To approach this mission, the office contains three areas to help develop policy, provide leadership and pursue public/private partnerships:

1. *System Management and Monitoring Team:* This team develops management systems for different types of infrastructure assets, most specifically pavement and bridge programs. However, this division is also looking at management approaches to other assets where tools to monitor performance currently do not exist, such as with tunnels and road hardware. The team is split into two groups:
 - **Bridge Management Group:** This group is responsible for developing bridge management systems, and is currently involved in developing software. In a partnership with AASHTO, the Group distributes and offers technical assistance in POINTIS and AASHTOWARE to take regular maintenance data on bridge systems and predict the optimal long-term life of the structures, with and without preventative maintenance. Versions of these programs are available through the FHWA website.
 - **Pavement Management Group:** This group is developing multiyear prioritization methods and technical applications that use pavement management data to monitor roadway quality. The group is involved with several other research efforts in AASHTO, TRB, and ASCE.
2. *Construction and System Preservation Team:* This team provides leadership to promote national quality initiatives to improve pavement quality and management. Like the other teams, they also collaborate with states and national efforts, such as AASHTO, to inform a broad audience on methods to improve roadway quality. A result of this effort is the National Quality Initiative (NQI), a partnership with AASHTO and related industry to provide greater visibility of highway quality improvement initiatives on local, state, or federal scales. This team has also concentrated on disseminating new specifications on highway construction and maintenance standards. They are in the process of developing a website to serve as an electronic link to efforts in the 50 states as well as guidance from the Asset Management Guide (NCHRP Project SP20-24[11]) on quality construction and management.
3. *Evaluation and Economic Investment Team:* This team is devoted to developing a number of tools to help evaluate transportation investments from an economic standpoint, with a focus on Asset Management. This includes developing guidance on the economic requirements for developing and maintaining state highway system (referred to as the “HERS/ST” program), life cycle cost analyses, data integration, and GASB 34. The types of guidance and assistance the team provides are in narrative form (such as “fact sheets” or “primers”, which are quick guides

to what a subject is how it is important), holding workshops and meetings, and developing software.

Partial List of FHWA Publications:

Primers: These pamphlets introduce Asset Management and why the concept is important. Because the field of Asset Management is still relatively new for most organizations, these publications are providing initial leadership to define the issues most relevant to interested parties and foster dialogue on the subject. The following is a list of current *Primers* distributed by the Office:

Primer on Asset Management
Primer on GASB 34
Primer on Data Integration
Primer on Pavement Management

FOCUS: A monthly periodical from FHWA with frequent stories on Asset Management.

Annual Report 2000: Office of Asset Management: This report summarizes the activities of the Office from 1999-2000, specifically detailing the accomplishments of the three Teams. As well, the report gives an update on broader efforts the Office is involved with, such as the Asset Management Guide (NCHRP Project SP20-24{11}).

Asset Management Folder: The Primers, Annual Report, and other general pamphlets describing efforts in Asset Management are available in one folder that the Office regularly distributes by request or at workshops. The folders are a good idea to consolidate the many articles the Office has produced to create a “one stop” approach.

Conferences & Workshops:

FHWA has been involved in many of the workshops to date on Asset Management. These meetings are essential in facilitating idea sharing and raising awareness about Asset Management. Commonly, the Office is a partner in funding the effort as well as supplying expertise and/or leadership. The interests of these meetings can be on the broader policy implications of Asset Management or specific technical questions, such as pavement data management or GASB 34. A partial list of the conferences/workshops held to date is:

- *Executive Workshops in 1996 and 1997:* FHWA and AASHTO sponsored these workshops to raise awareness and explore application of Asset Management in transportation agencies.
- *Data Integration Workshop:* FHWA held this workshop in 2001 to discuss why data integration is important for Asset Management systems and offer insights such as best practice examples from other transportation agencies around the nation.
- *National Pavement Preservation Forum II:* The Foundation for Pavement Preservation received assistance from FHWA to develop a conference discussing the importance of maintaining pavement assets.

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Foundation for Pavement Preservation (FP²)
(<http://www.fp2.org>)

Background:

The Foundation for Pavement Preservation (FP²), established in 1992, provides resources to advance knowledge for managing and preserving pavements. FP² supports research to educate government and industry professionals in the economical, safety, and performance advantages of pavement preservation. The Foundation encourages education, research, international education and public-private partnering.

One of the primary efforts of the Foundation is to reinforce the theme of “Applying the Right Treatment, for the Right Pavement, at the Right Time.” This approach is reliant upon the adoption of strategies that focus on movement from a “worst first” strategy for applying pavement treatments. FP² aggressively markets the idea of applying treatments to pavements while they remain in good condition.

Another guiding principle of the Foundation’s efforts is that pavement preservation is more than a list of techniques or a series of options. The movement towards a collective pavement management and Asset Management system is a new way of doing business.

Current Efforts:

2nd National Conference on Pavement Preservation: The Foundation was the host of the 2nd National Conference on Pavement Preservation in November 2001 entitled, “Protecting our Investment.” This workshop brought together mostly members of the industry and state Departments of Transportation in the Western United States to discuss the current status quo regarding pavement preservation technologies. Sessions emphasized the importance of data collection and management for implementation in pavement management systems and strategies for compliance with GASB Statement 34. These sessions focused on the current state of the practice, including the management and data systems used in California and Colorado.

Toolboxes: Assembled jointly through the FHWA and FP², these “toolboxes” contain videos, CD-ROMs, reports, brochures, manuals, and other materials on the state of the practice for pavement preservation. The materials included incorporate

Research Agenda: FP² has also adopted a formal research agenda in pavement preservation topics ranging across six strategic areas: construction practices, materials selection and mix design, treatment and selection strategy, performance, training, and policy options. These areas include 22 specific topics that the Foundation has prioritized for research execution. This effort was also coordinated through FHWA.

Development of NHI Courses

With the assistance of FHWA, FP² is developing a series of training courses administered through the National Highway Institute. NHI No. 131504 on Pavement Preservation: The Preventative Maintenance Concept (introduced in late 2000). In the fall of 2001, NHI No. 131058 was introduced: Selecting Pavements for Preventative Maintenance. These courses focus on the

selection of the right treatment, for the right pavement, at the right time. NHI No. 131056 is in development on the technical aspects of specific preventative maintenance techniques. In-field videos will be the key element of this course. FP² is also supporting the development of a long-term pavement maintenance course. The course is under development at the University of Illinois-Urbana Champaign through Dr. Sam Carpenter who is a member of the FP² Board of Directors.

Partial List of FP² Publications

Pavement Preservation Today: A quarterly publication focusing on pavement preservation activities nationwide. The Foundation often focuses on AASHTO, FHWA, and state DOT efforts. The 2001 publications mention several national research efforts and conferences in Asset Management.

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Governmental Accounting Standards Board (GASB)
(<http://www.gasb.org/repmoel/index.html>)

Background:

GASB: An independent financial reporting group:

GASB is independent of any state or federal agency and is not a professional association. It is the successor to the National Council on Governmental Accounting and is under the wing of the Financial Accounting Foundation. The Foundation contributes charitable, educational, scientific, and literary knowledge to the finance industry and the public. GASB's primary purpose is to establish standards of financial accounting and reporting for all entities of government. Because GASB exposes the government to review and requires justification for all expenditures, the organization had to evolve independently to be effective.

The Statement 34 standards were issued in July 1999. The Government Accounting Standards Advisory Council (GASAC), composed of government, financial, public interest, accountant, and auditor groups, was the main group that developed the Statement. The Council's responsibility today lies in consulting with GASB on Statement 34 issues and concerns. The Council also developed a task force (comprised of officials from AASHTO, FHWA, APWA, etc) to approach specific issues with implementation of GASB 34. As well, the GASB organization developed the Management Discussion and Analysis Section (MD&A), which is a section of the report that consolidates financial information on government assets (modeled after private companies that do the same in Annual Reports). This was to ensure the public could easily interpret Statement 34 reports.

Theory behind Statement 34:

Specifically related to transportation, GASB is important because if governments choose the preservation reporting approach, it requires calculation of the *original* value of infrastructure. The report includes all elements constructed or improved from 1980 to 1999.

Depreciation or Preservation Approach: Governments can opt to either apply depreciation to measure the financial value of assets over time, or a preservation approach, which accounts for expenditures on operation and maintenance of the asset. The preservation approach is the most desirable because it shows the public how much Departments of Transportation are spending to maintain built systems. The depreciation approach does not show this diversity and leaves the public less informed about large expenditures, possibly concluding there are no efforts in maintenance or preservation.

However, agencies can qualify for using the preservation approach only they have:

1. A current inventory of eligible assets.
2. Documentation of the asset's condition.
3. Demonstrated preservation efforts.
4. An estimate of the funds needed for preservation and maintenance.

These four areas advocate for an Asset Management system approach to managing infrastructure.

As this list shows, government will be required to provide the “full cost of servicing the public”. Before this time the reports only detailed short term assets and “cash on hand”. Now the long term, even “indefinite” – like roadway infrastructure – assets are considered.

Organizations of varying size will be phased in at different periods. The largest (100+ million) first, which is by June 15, 2001. 2002 and 2003 are the next years for progressively smaller organizations.

Motivation behind GASB 34:

Public perception and its effect on municipal bond ratings is the main motivation for agencies to adopt GASB 34 and develop Asset Management systems. Through the Statement, the public will achieve a deeper understanding of agency expenditures. If a DOT is shown as not complying with GASB or some erroneous expenditures are reported, the bond rating for the agency could be affected. However, the Statement could also be an opportunity for agencies that have comprehensive management systems to justify the efficiency of their programs and expenditures. Overall, the policy is a tool to foster awareness of the need to maintain the built environment in the agency and the public.

GASB Outreach Efforts:

The GASB Website is well organized to inform public on the purpose of Statement 34 through best-case examples, technical documentation, and other forms of outreach. As well, the organization collects and distributes many articles to increase awareness of what the program means and/or specific items of interest. The GASB organization has several training courses as well as guidance publications for sale on implementation.

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NACE (National Association of County Engineers)
(<http://www.naco.org/affils/nace/index.htm>)

Significant Past Efforts:

“County Perspective on Pavement Preservation” (October 1998 speech by past Director, Duane Blanck). A non-technical perspective on benefits of pavement preservation, the article emphasized the importance of “keeping all roads in full service with minimum expense and the least inconvenience to traffic.” Most relevant was his discussion of preservation issues such as development of a pavement management program with condition rating schemes, ability to weigh alternatives, and establishment long-term programs. Other issues approached are choice in the type of preservation activity and the quality of preservation work. He also outlines several challenges, including level of service and cost of resources.

NACo/NACE GASB 34 Informational Website – A forum where recent lessons learned from GASB 34 are posted. Some technical advice offered on developing the accounting standards as well as county best-practices documentation.

Current Efforts:

NACE 2002 Conference (March 2002): This Conference featured a session entitled, “Asset Management and GASB 34 in Public Works” as part of the technical program track. This focus serves to update county officials on the status of GASB 34 implementation across the nation and report on some best-case examples.

Partial List of NACE Publications

NACo/NACE Issue Brief: Performance Measurement – A tool for managing county government (July 1999) In relation to Asset Management, this brief details guidance for performance budgeting and maintenance of county assets. There are several best-case examples to demonstrate programs currently in use.

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TRB (Transportation Research Board)
(<http://www.trb.org>)

Background:

TRB is a research consortium mainly composed of committees that sponsor research and discuss many disciplines of transportation. Transportation Asset Management is recognized by TRB as an important area of research, and there are several Committees that address Asset Management generally or are developing awareness and research on specific components of Asset Management, such as Pavement Management Systems. The TRB Asset Management Task Force is designing a research agenda to investigate a variety of issues that relate to implementation of Asset Management in transportation agencies, cities, the private sector and other groups.

Current Efforts:

Committee A1T50, Task Force on Asset Management: The Committee outlined several areas in their December 2001 First Report of Activity. Some of their key responsibilities are listed below:

Coordination: To bring disparate aspects of Asset Management generated in a wide number of other Committees at TRB under one framework. The Task Force will work on bringing them and many other interests in public and private agencies across all modes under the following sub-areas of Asset Management:

- Goals and Objectives
- Planning and Programming
- Data Management and Analysis
- Implementation
- Internal Alignment
- External Communications

A key effort will be to coordinate efforts through meetings, workshops, conferences, and publications.

Address Emerging Issues: The Task Force will address emerging issues related to Asset Management. The concept is to realize Asset Management is a holistic approach to management of the transportation system and that many concerns need to be addressed that fall out of the niche already carved for Asset Management.

Internal Alignment: Also the Task Force is really the first effort to date that is approaching the human or soft issues of Asset Management. Phrased as "Internal Alignment" in the report, discussion of organizational structure will initiate research on how to structure an organization to implement Asset Management.

Research Agenda: The Task Force is also developing a set of recommendations for further research in Asset Management. This list is comprehensive and extends to all areas of the management theory, such as defining Asset Management and its benefits, technical aspects, and measures needed to sustain practice and demonstrate its effectiveness.

Partial Listing of Other Committees working in the concept of Asset Management: In reference to the Task Force recommendation of Coordination with other TRB Committees, a partial listing of possible Committees:¹

A1A07: Strategic Management: Emphasis on cooperative planning and transportation decisions. Several examples of current applications of technology involving several interests to develop a system that works better. Asset Management is not a research area, but its concepts of implementation are discussed, such as inter-departmental agreements, public/private partnerships, etc.

A2B01: Committee on Pavement Management Systems: This group realizes the importance of integrating pavement management into Asset Management techniques and outlines several strategies to make this happen. As well, there is also discussion on strategies to develop more comprehensive pavement management systems.

A3C06: Committee on Structures Maintenance and Management: This group recognizes the need to integrate bridge management with Asset Management. They outline several steps to develop comprehensive BMS and future improvements/applications.

A1D01: Statewide Multi-modal Transportation Planning: A good perspective on how transportation planning on a regional scale will call for greater collaboration, integration of new technologies, performance-based contracting and planning, etc. This Committee also acknowledges that Asset Management systems can facilitate the implementation of operation and maintenance programs.

National Highway Research and Technology (R&T) Partnership: Effort produced a report to (1) identify highway R&T needs for sponsoring organizations (sponsoring organizations were federal agencies, state DOTs, and several associations, foundations, and institutes) and (2) demonstrate value of partnership efforts to carrying out R&T. The lead organizations developing the report were FHWA, AASHTO, and TRB. Four R&T areas were discussed:

1. Safety,
2. Infrastructure Renewal,
3. Operations and Mobility,
4. Policy Analysis, Planning and Systems Monitoring.

Asset Management was one of the subset areas discussed under the Infrastructure Renewal area. Some general costs of implementation are summarized here as well as some specific themes that should be explored: Information Management, Decision Support Tools, Implementation, and Education.

TRB Research Projects (in collaboration with AASHTO & NCHRP):

Review of GASB 34 Compliance in DOTs (NCHRP proj. 19-04)

¹ Much information on these Committees is contained on a CD developed by TRB entitled, "Transportation in the New Millennium", which is available through www.trb.org.

Analytic Tools to support Asset Management (NCHRP proj. 20-57)

Asset Management Guide (NCHRP proj. 20-24[11])

Multimodal Tradeoffs (NCHRP proj. 08-36 Task 7 to be used in proj. 20-57)

Partial List of TRB Publications

What We Know About Asset Management – Latest research agenda from the TRB Asset Management Task Force (A1T50)

Partial List of Papers/Presentations from TRB 80th Annual Meeting (January 2001):

- The Role of Pavement Management in Comprehensive Asset Management Contracts (Authors: Kathryn A. Zimmerman Angela S. Wolters, Howard Kallman,)
- Consultant's Perspective of Highway Network Asset Management Practice in England (Author: Jason Schirnack)
- Using Common Elements of Asset Management and Pavement Management to Maximize Overall Benefits (Authors: Lynne Cowe Falls, Ralph Haas, Sue McNeil, Susan Tighe)
- Applying the Government Accounting Standards Board Statement 34: Lessons From the Field (Authors: Anthony J. Kadlec, Sue McNeil)

Partial List of Papers/Presentations from TRB 81st Annual Meeting (January 2002):

- Actors and Directions in U.S. Transportation Asset Management (Authors: Odd J. Stalebrink, Jonathan L. Gifford)
- Framework of Regional Transit Asset Management System (Authors: Supin L. Yoder, John DeLaurentiis, Richard J. Bacigalupo)
- Managing Geotechnical Assets – A New Perspective for Dealing with Geotechnical Issues (Authors: Kristen L. Sanford Bernhardt, J. Erik Loehr)
- Prototype Hybrid Configuration/Asset Management System to Support
- Transportation Management Systems (Authors: Brian L. Smith, Dave Hodgins)
- Multipurpose asset valuation for civil infrastructure: Aligning valuation approaches with asset management objectives and stakeholder interests (Authors: Adjo Amekudzi, Pannapa Herabat, Shuchun Wang, Creighton Lancaster)
- Applying the Cost Approach for Pavement Valuation and Asset Management (Authors: Pannapa Herabat, Adjo A. Amekudzi, Poovadol Sirirangsi,

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EDUCATIONAL ORGANIZATIONS
WITH AN EMPHASIS IN ASSET MANAGEMENT

Local Technical Assistance Program (LTAP)
(<http://www.ltap.org>)

Background:

LTAP is a conduit established by FHWA for transferring technological innovation into the local government sector. There is a national center which distributes information about each LTAP center and is a centralizing effort of LTAP goals and missions. However, the real strength of LTAP are the individual offices in each state.

Current Efforts:

Asset Management Awareness Building: Each LTAP is unique in this regard. Most centers currently have management system training of some kind. This could be in a specific component of transportation systems, like bridge management software, or on the human side, such as advice on effective leadership. As the visibility of Asset Management grows, LTAP is an ideal place to transfer information to local government. It has a history of technology and information sharing between the federal government, private industry and academia to local municipalities.

Roadway Management Conference (Virginia LTAP, March 2002): An all-day workshop at this conference highlighted Asset Management and why it is important to local government. Discussion revolved around implementation issues, technical considerations, policy implications, and GASB 34.

Perspectives (A summary from an interview with Doyt Bolling, Director of the Utah LTAP Center)

Several LTAP efforts around nation are actually assisting local governments setup the first phases of an Asset Management system. Utah, Michigan, New Hampshire have some relatively significant efforts. LTAPs are responding to local government's most pressing needs, mainly in data integration and interagency collaboration. LTAPs can help "jump start" an organization into starting Asset Management systems, but it is not referred to as "Asset Management". An incremental approach is needed to build the blocks necessary for an Asset Management system of the future. No municipalities can secure the funding or resources to implement a full Asset Management system all at once. Instead, most agencies are phasing the most relevant components in first.

Partial List of LTAP Publications

Most state LTAPs have a newsletter. Often these publications, such as the Iowa LTAP, have information related to GASB 34 compliance, pavement and bridge management issues (specifically the New Hampshire LTAP), and in rare instances Asset Management (Utah LTAP).

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Midwest Transportation Consortium (MTC) & Center for Transportation Research and Education (CTRE) – Iowa State University, Ames, Iowa
(<http://www.ctre.iastate.edu/mtc>)
(<http://www.ctre.iastate.edu>)

CTRE sponsors most of the efforts in the MTC and Iowa LTAP to disseminate research and educate transportation officials in the area of Asset Management.

Current Efforts:

Courses: MTC helped develop four courses in transportation management issues, with a general introduction to Asset Management concepts. The four universities involved were: Iowa State University, Lincoln University, Univ. of Missouri – St Louis, and the University of Northern Iowa. Course themes ranged from public policy/administration and marketing to transportation geography and planning.

Co-sponsored the 2001 4th National Transportation Asset Management Workshop: The MTC was a co-sponsor of the September 2001 Workshop held by the Midwest Regional University Transportation Center (MRUTC) in Madison, Wisconsin. Many of the sessions in the Workshop focused on publicizing the efforts of AASHTO, FHWA, and TRB in the field as well as the practical lessons learned from city, county, state, and transit agencies implementing Asset Management techniques. In addition, curriculum and course development in Asset Management received considerable attention.

GASB 34 Implementation: MTC and CTRE have sponsored GASB 34 Workshops, which a large amount of Iowa municipalities attended. As a result, MTC and CTRE assisted Iowa County Finance Committee developing guidelines for counties to use in implementing GASB 34. A part of the response to this effort is a small website developed by MTC on GASB 34 (<http://www.ctre.iastate.edu/gasb34/index.htm>).

Current Research: MTC is currently conducting several projects in the field of Asset Management. They are:

- Addressing Integration Issues and Developing a Protocol for Integration of Global Positioning Systems Data with Linear Referenced Data in an Asset Management System
- GIS-Based Integrated Rural and Small Urban Transit Asset Management System
- Decision-Support System for Management of Slope Construction and Repair Activities—An Asset Management Building Block
- Roadway Asset Management System Manual for Local Governments
- Artificial Intelligence-Based Optimization of Management of Snow Removal
- Development of a Model Asset Management Strategic Plan

TREXPO Website: Produced to facilitate sharing of Asset Management and other transportation related topics over the web, especially for rural Consortium member state communities. Available on the internet at: <http://www.trexpo.org>

Partial List of CTRE & MTC Publications:

MTC Asset: A quarterly newsletter that reports on current MTC activities in Asset Management as well as nationwide conferences and research

Technology News: A shared publication between Iowa LTAP and CTRE with occasional articles in Asset Management. The March-April 2001 publication summarized GASB 34 and the implications for local government. The article succinctly stated the differences between the depreciation and preservation approach to Statement 34 and the considerations for agencies in both approaches.

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Midwest Regional University Transportation Center (MRUTC) – University of Wisconsin, Madison, Wisconsin
(www.mrutc.org)

Background

The MRUTC is a University Transportation Center sponsored through the Department of Civil Engineering at the University of Wisconsin, Madison. The Center sponsors several Asset Management research and course development efforts. Many of these efforts are developed at the following universities: University of Wisconsin– Madison, University of Wisconsin– Milwaukee, UW– Superior, Marquette University, Northwestern University, University of Illinois - Chicago, University of Cincinnati, University of Dayton, University of Minnesota, Wayne State University, Lac Courtes Oreilles Ojibwa, Community College, Richard J. Daley College.

Significant Past Efforts:

4th National Transportation Asset Management Workshop, “Taking the Next Step in Asset Management” (September 2001): This workshop was the largest ever held in North America on the subject of Asset Management. Many of the US groups involved in Asset Management, such as AASHTO, APTA, APWA, FHWA, MTC, NACE, TRB, and UTC, co-sponsored the Workshop. The Workshop structure intended to bring different groups and their members together to foster information and idea sharing. Many of the sessions in the Workshop focused on publicizing the efforts of AASHTO, FHWA, and TRB in the field as well as the practical lessons learned from city, county, state, and transit agencies implementing Asset Management techniques. In addition, curriculum and course development in Asset Management received considerable attention.

Current Efforts:

Course Development: The MRUTC is helping develop several courses on transportation management and policy. Some of the courses considered are:

- Civil and Environmental Engineering Decision-Making
- Management of Infrastructure Systems
- Transportation Management and Policy
- Summer Forum: Contemporary Issues in Wisconsin Transportation
- Deterioration and Rehabilitation of Transportation Facilities

Master’s Degree in Transportation Management and Policy (Possible availability to students by Fall 2003): Several Departments at the University of Wisconsin, Madison are developing an interdisciplinary program in transportation management and policy. The program will recognize the broad perspective of Asset Management and offer courses that consider the political, societal, environmental, technical, and economic considerations in developing and/or maintaining transportation infrastructure. The program would be available to students with diverse backgrounds, including but not limited to public policy, business, land management, engineering, economics, and planning.

Research Projects: There are several projects currently sponsored by the MRUTC. They are as follows:

- Synthesis of National Transportation Asset Management Practices (this report)
- Evaluation of Near-Transportation Private Sector Asset Management Practices
- Evaluation of Transportation Organization Outsourcing: Decision Making Criteria for Outsourcing Opportunities
- Optimal Resource Allocation for the Purchase of New Buses and the Rebuilding of Existing Buses as a Part of a Transit Asset Management Strategy for State DOTs
- Develop a Multi-objective Decision Support Framework for Transportation Investments
- Optimizing Transportation Investments within the Lac Courtes Oreilles/ Sawyer County Transit System
- Long- Range Optimal Deployment of ITS Strategies: Concept Definition
- Best Practices for Linking Strategic Planning to Resource Allocation and Implementation Decisions Using Elements of a Transportation Asset Management Program
- Evaluation of Shipper Requirements and Potential Cargo Required to Establish a Rail–Truck–Marine Intermodal Terminal in the Twin Port of Superior, Wisconsin and Duluth, Minnesota

The MRUTC also sponsored projects in local government Asset Management practices and is developing future projects in capital preventive maintenance techniques, the economic benefits of maintenance, and a summary of data collection and integration best practices.

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University of Illinois, Chicago – Urban Transportation Center (UTC) – University of Illinois – Chicago, Chicago, Illinois
[\(http://131.193.92.223/\)](http://131.193.92.223/)

Background:

The UTC has a broad focus in research efforts to improve the current transportation systems surrounding the Chicago area and throughout the United States. They support faculty and courses to develop individuals who are interested in developing and maintaining efficient transportation networks. Within these broader goals, the UTC recognizes the need for enhanced management of transportation infrastructure and has several projects and coursework related to Asset Management.

Current Efforts:

Research Projects: There are several current projects related to Asset Management at the UTC:

- Evaluation of Near-Transportation Private Sector Asset Management Practices: Sponsored by the MRUTC, this project focuses on sharing private sector activities that will benefit public agencies developing Asset Management systems.
- Best Practices for Linking Strategic Planning to Resource Allocation and Implementation Decisions Using Elements of a Transportation Asset Management Program: Also sponsored by the MRUTC, this project will survey transportation agencies that are developing strategic plans and using them to influence funding and resource allocation.
- Maintenance and Management of Transit Infrastructure: Sponsored by the Great Cities University Consortium (in collaboration with the University of Alabama at Birmingham).

Course Offerings: The UTC Director, Professor Sue McNeil teaches a course in Transportation Infrastructure Management which significantly investigates Asset Management theory and implementation concerns. Professor Joe DiJohn also teaches a course in Transportation Management. The Center is continuing to develop management courses and training as their focus evolves.

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**City College of New York – University Transportation Research Center (UTRC)
& New York University – Rudin Center for Transportation Policy and Management (NYU) –
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(<http://tid1s0.engr.ccnycunyc.edu/utrc/index.html>)**

Background:

Due to the location of UTRC and the Rudin Center in New York City, these organizations tend to focus on large city transportation issues. The UTRC has a broad focus, but mostly sponsors technical research in regional transportation management issues. The Rudin Center conducts research and education in urban transportation policy and management.

Significant Past Efforts:

UTRC: Regional Transportation Research Initiatives Conference: Several research organizations and national agencies met in November 2001 to discuss the major research needs of the New York region. Pertaining to Asset Management, there were discussions on planning, policy, human management, and new technologies for efficient operation of transportation systems. The Rudin Center was involved in these research discussions, especially in “turning research into policy” - the implementation phase of Asset Management that many organizations are struggling with today.

Rudin Center: “Inter-Jurisdictional Coordination for Traffic Management”: This research project surveyed the implementation of traffic management systems in several major cities of the United States. The study discovered some main barriers to developing this multi-agency management group was on the “human” side of the organization. Technology and data sharing were not the greatest obstacles as long as intentions were clearly stated and roles/responsibilities understood. The study emphasized the need for a strong leader, to build the system incrementally, and develop in-house technical expertise. Overall, these management systems are very effective today and a positive sign that application of Asset Management techniques to the public sector is possible.

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INTERNATIONAL ORGANIZATIONS
WITH AN EMPHASIS IN ASSET MANAGEMENT

Brief Summary of Canadian Organizations Working in Transportation Asset Management

National Research Council of Canada (NRCC) (<http://www.nrc.ca>)

Federation of Canadian Municipalities (FCM) (<http://www.fcm.ca/english/>)

Transportation Association of Canada (TAC) (<http://www.tac-atc.ca/>)

Asset Management in Canada typically means more than management of roadways. Discussion focuses on all public infrastructure assets, including buildings, sewer, etc. The process is heavily dependent on service life prediction and emphasizes modeling, probability methods, and information technology as the basis of Asset Management.

Significant Canadian Efforts in Asset Management:

National Guide to Sustainable Municipal Infrastructure (www.infraguide.ca): This Guide will consist of two items: (1) A decision making and investment planning tool and (2) case studies and best practices for sustainability. The Federation of Canadian Municipalities and the National Research Council of Canada sponsor the effort.

Municipal Infrastructure Investment Planning Project: This is a three-year project, starting in 2001, to develop an inventory of case studies and best practices in infrastructure investment planning. The Program will evaluate current technical tools and develop long-term investment planning approaches, specifically with service life predictions and maintenance prioritization models. The final product will be an assimilation of several guidelines and manuals for use in local government in Asset Management implementation.

Partial List of Canadian Publications:

Transportation Asset Management Primer: Developed by the Transportation Association of Canada, this Primer introduces the concept of Asset Management and outlines a general framework to help municipalities start envisioning systems of their own.

Measuring and Reporting Highway Asset Value, Condition and Performance (February 2000): This report explores three areas of Asset Management: capital assets valuation, performance measurement, and executive information systems. Outlined are several implementation strategies as well as a general Asset Management framework.

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International Road Federation (IRF)
<http://www.irfnet.org/IRFMID.HTM>

Current Efforts:

Roads and Highways Division: A unit within the Transport Department of the World Bank. The Division researches development of management systems in different countries and offers technical assistance. Their outreach emphasis is in assisting an agency to manage resources more efficiently and restructure current divisions to accommodate increases in demand. All of these efforts are Asset Management concepts, but not referred to as such by the Division.

First International Seminar on Asset Management (November 2001): The IRF has been holding conferences in the past on management techniques, but this is the first in Asset Management. The Seminar was developed primarily for transportation agency managers from other countries to become acquainted with Asset Management principles and techniques. It was a five day workshop that focused on the three main areas: strategic goal setting, data generation, and planning and implementation.

Organization for Economic Co-operation and Development (OECD)
(<http://www.oecd.org>)

Current Efforts:

Road Transport Research (RTR): Within the Transport Division of OECD, this group is the primary investigator of Asset Management systems and research. They have been working in Asset Management over the past decade and the while concept is still relatively new, listed below are several reports and other efforts:

- *Road Transport and Intermodal Linkages Research Program:* Developed publication entitled, “Asset Management for the Roads Sector” (July 2001). This was the first report to come out of OECD specifically detailing what Asset Management is, how administrations achieve Asset Management practices, and what the implications are for data collection and management. Gives advice on how to integrate performance modeling and other techniques into an Asset Management systems for enhanced decision-making. Some important topics covered in the report include:
 - A listing of current Asset Management efforts in different countries.
 - An Appendix detailing an Asset Management framework with attention to the variety of planning and strategizing that will be necessary to develop comprehensive management programs.

Partial List of OECD Publications:

Asset Management for the Roads Sector (July 2001)

Advanced Road Transport Technologies (1994) – Highlights the need for optimum application of advanced technologies and for systematically developing policies for maximum efficiency.

Road Tunnel Management (1992)

Road Maintenance Management Systems in Developing Countries (1995)

Road Maintenance and Rehabilitation: Funding and allocation strategies (1995)

Bridge Management (1992) – Highlights that improved inspection techniques paired with comprehensive data banks should be used to rationalize current and future bridge funding and rehabilitation.

Road Monitoring for Maintenance Management in Developing Countries (1991) – presents a manual to streamline the road monitoring process.

Appraisal of the Social and Economic Affects of Road Network Improvements (1988) Concludes that policy measures for large scale projects should take into account the effectiveness of public resource allocation and the potential for private enterprise involvement in roadway improvements.

World Road Federation (PIARC)
(<http://www.piarc.org>)

Background:

The vision of PIARC is to “be a world leader in providing information on roads and road transport policy and practices within an integrated sustainable transport context.” Related to Asset Management, PIARC has many efforts in research to distribute and develop knowledge of roadway management techniques.

Current Efforts:

HDM-4: Highway Development and Management System – A software system for investigating choices in investing in road transport infrastructure. The objective of development was to investigate the economic viability of multiple road projects to help develop a system of prioritization for development and maintenance. Cost-benefit and life cycle analyses are some of the techniques discussed to improve planning and programming road maintenance.

Road Management Committee: At the 21st PIARC World Road Congress (October 1999), the Road Management Committee identified future needs to share relationships with OECD, FHWA, AASHTO, and Austroads to develop Asset Management systems. They also see a responsibility to track implementation of HDM-4 (described above) and research how the private sector should be involved in operation and maintenance of roadway assets.

Partial List of PIARC Publications:

“Routes/Roads” Periodical: A journal documenting some Asset Management techniques used in other countries (especially Australia) and progress of Committees like the Road Management Committee.

Save Your Countries Roads (October 1999): A very informative introduction to Asset Management techniques and why they are important.

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No. CFDA 20.701	
4. Title and Subtitle Synthesis of National Efforts In Transportation Asset Management		5. Report Date May 31, 2002	
		6. Performing Organization Code	
7. Author/s Bill Obermann, Jason Bittner, Ernie Wittwer		8. Performing Organization Report No. MRUTC Project 01-01	
9. Performing Organization Name and Address Midwest Regional University Transportation Center University of Wisconsin-Madison 1415 Engineering Drive, Madison, WI 53706		10. Work Unit No. (TR AIS)	
		11. Contract or Grant No. DTRS 99-G-0005	
12. Sponsoring Organization Name and Address U.S. Department of Transportation Research and Special Programs Administration 400 7 th Street, SW Washington, DC 20590-0001		13. Type of Report and Period Covered Research Report [09/01 – 05/02]	
		14. Sponsoring Agency Code	
15. Supplementary Notes Project completed for the Midwest Regional University Transportation Center with support from the Wisconsin Department of Transportation.			
16. Abstract Several national groups research and disseminate information about Asset Management. As of 2001, AASHTO and FHWA are two of the well-known organizations working in the field. An informal survey was conducted in late 2001 to determine if there are other groups also researching or pursuing Asset Management strategies. Results show many professional, governmental, and educational groups are pursuing Asset Management concepts and research. However, while many groups are interested in Asset Management, there are currently limited venues (conferences, committees, workshops) to share information and ideas. As the concept of Asset Management grows, the authors suggest enhancing collaboration efforts, researching how Asset Management can align with competing community goals, reinforcing the nature of Asset Management as an interdisciplinary concept, and emphasizing the need for communication and leadership as Asset Management systems are implemented.			
17. Key Words transportation asset management, transportation infrastructure management, transportation planning, GASB 34		18. Distribution Statement No restrictions. This report is available through the Transportation Research Information Services of the National Transportation Library.	
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. No. Of Pages 78	22. Price -0-

Form DOT F 1700.7 (8-72)

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