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## Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No. <b>CFDA 20.701</b>	
4. Title and Subtitle Documenting Training Opportunities Related to Transportation Asset Management		5. Report Date October 5, 2005	
		6. Performing Organization Code	
7. Author/s Mary R. Ebeling and Jason Bittner		8. Performing Organization Report No. <b>MRUTC 06-02</b>	
9. Performing Organization Name and Address <b>Midwest Regional University Transportation Center University of Wisconsin-Madison 1415 Engineering Drive, Madison, WI 53706</b>		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No. <b>0092-05-23</b>	
12. Sponsoring Organization Name and Address U.S. Department of Transportation Research and Special Programs Administration 400 7 <sup>th</sup> Street, SW Washington, DC 20590-0001		13. Type of Report and Period Covered <b>Final Report [March 2005 – October 2005]</b>	
		14. Sponsoring Agency Code	
15. Supplementary Notes <b>Project completed for the Midwest Regional University Transportation Center with support from the Wisconsin Department of Transportation, Michigan Department of Transportation, and Federal Highway Administration Office of Asset Management.</b>			
16. Abstract  <b>Many public agencies are now seeking training in the concepts, tools and processes of Transportation Asset Management. Some are creating their own training materials. Some are relying on vendors. Others rely on public providers such as Local Technical Assistance Program (LTAP) centers. While efforts to create Asset Management training have resulted in greater availability and variety of training opportunities, the lack of coordination between groups providing these courses can lead to a lack of accessibility. To date no comprehensive inventory has been done of available training. This study represents the first attempt at such an inventory.</b>  <b>Since no registry of Asset Management training exists, the project relied heavily on an advisory group of transportation professionals who are close to Asset Management activities. The group made valuable suggestions on agencies, institutions, and vendors to include in the survey, and often provided information on courses not available on the internet. The project is divided into two primary parts; Asset Management courses available to practitioners of transportation for professional development and for-credit course offerings available at universities. For the purposes of this study professional development courses were defined broadly, and include the traditional half-day, single-day, and multi-day seminars as well as web-based seminars, on-line courses, and teleconference-based classes. The second part of this study involved identifying Asset Management courses available for credit through universities. These courses are also documented in this report.</b>			
17. Key Words  Asset Management, Training, Professional Development	18. Distribution Statement <b>No restrictions. This report is available through the Transportation Research Information Services of the National Transportation Library.</b>		
19. Security Classification (of this report) <b>Unclassified</b>	20. Security Classification (of this page) <b>Unclassified</b>	21. No. Of Pages	22. Price <b>-0-</b>

Form DOT F 1700.7 (8-72)

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## **Introduction**

Transportation infrastructure is vital to the economic well being of the individual states and the nation. However, limited budgets, coupled with increasing demand on the transportation network, continue to pose pressing challenges to state transportation decision-makers. To address these demands on infrastructure, decision-makers are working to develop a comprehensive process to assist in evaluating investment options for operating and maintaining transportation facilities. Asset Management systems are emerging as the vehicles to meet this challenge.

Asset Management is a strategic approach to managing transportation infrastructure. It can be described as the systematic process of operating, maintaining, and upgrading physical assets cost-effectively. It combines engineering and mathematical analyses with sound business practice and economic theory. Asset Management systems are goal-driven and, like the traditional planning process, include components for data collection, strategic evaluation, program selection, and feedback. Asset Management systems take a comprehensive view of infrastructure assets and evaluate the tradeoffs that must be made to assure system-management programs and projects result in the greatest benefit to the consumer while making the best use of available funding. The Asset Management model explicitly addresses integration of decisions made across the various program areas. These decisions should be made based on quality information and well-defined objectives. Its purpose is simple – Asset Management seeks to maximize the benefits of transportation programs for its users by employing well-defined goals and tapping available resources.<sup>1</sup>

Many public agencies are now seeking training in the concepts, tools and processes of Transportation Asset Management. Some are creating their own training materials. Some are relying on vendors. Others rely on public providers such as Local Technical Assistance Program (LTAP) centers<sup>2</sup>. While efforts to create Asset Management training have resulted in greater availability and variety of training opportunities, the lack of coordination between groups providing these courses can lead to a lack of accessibility. To date no comprehensive inventory has been done of available training. This study represents the first attempt at such an inventory.

## **Survey Methods**

Since no registry of Asset Management training exists, the project also relied heavily on an advisory group of transportation professionals who are close to Asset Management activities. The group included representatives from state LTAPs, public sector employees, and private sector consultants who met through a series of teleconferences and email exchanges. This group suggested agencies, institutions and vendors to include in the survey and often provided information on courses that was not available on the internet. These suggestions, in conjunction with an internet search for training

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<sup>1</sup> Adapted from AASHTO Task Force on Asset Management 1999 and the AASHTO Asset Management Guide.

<sup>2</sup> LTAP centers are part of a national network that works to enable local units of government to improve their roads and bridges by supplying them with training programs and other forms assistance.

opportunities, helped identify available courses. In addition, the advisory group provided guidance on the team's research efforts throughout the course of the study.

The project is divided into two primary parts; Asset Management courses available to practitioners of transportation for professional development and for-credit course offerings available at universities. For the purposes of this study professional development courses were defined broadly, and include the traditional half-day, single-day, and multi-day seminars as well as web-based seminars, on-line courses, and teleconference-based classes. The second part of this study involved identifying Asset Management courses available for credit through universities. These courses are documented in this report. Common elements of the for-credit courses are also outlined in this report.

Data on professional development courses was collected through three primary methods. An internet search and consultation with the advisory group revealed approximately 70 courses, although the level of detail available on these offerings varied widely. In addition, course providers had the opportunity to fill in missing information and provide the most up-to-date course data by completing an internet-based survey for each of the courses they offered. Thirty-three surveys were completed in response to this opportunity. A copy of the survey is included in Appendix A. In addition, course materials have been collected when available. Specific information on courses, including course abstracts, can be found in Appendix B. Course syllabi can be found in Appendix C.

Information on university based, for-credit courses was gathered in consultation with the advisory group and through the internet. Providers of academic courses were not asked to fill out the on-line survey, however. Researchers made this decision mainly because the bulk of the information on course offerings is available through university web sites. In addition, as most courses in a University setting are available only to registered students, the applicability of the course locations may be limited.

Since Asset Management-termed training covers a wide range of topics, professional short courses were categorized by type and a detailed abstract written for each training course identified. This information is included in Appendix B at the end of the report. It should be noted that, despite efforts to catalogue as many training opportunities as possible, it was not feasible to collect data on all Asset Management courses currently offered. There are several reasons for this:

- the course information may not be available on the web;
- the advisory group may not have been aware of the course,
- the offering agency may choose to not share details on its materials for proprietary reasons, or;
- the offering agency may not have responded to requests to complete a survey about its course(s).

The information included in Appendix B reflects courses recorded through the survey responses *and* courses identified through the internet search. It includes the most complete and up-to-date information available to researchers.

## **Results**

The results of the data-collection effort for this study are reported below. Responses to the internet survey were used to analyze the variety of courses available for professional development among transportation professionals. Information on professional-development courses is discussed first, with university-based, for-credit offerings considered second.

### **Professional Development Courses**

Professional development courses offer transportation practitioners, policy makers, and public officials a means to continue their education and incorporate current thinking on topics such as Asset Management into their daily practice. The following discussion of professional development courses is based on information collected through the survey of Asset Management courses.

#### *General Course Offerings*

The range of classes offered to transportation professionals, grouped by subject, is displayed in Figure 1, shown below. Survey respondents could choose between 14 categories to describe their course offerings. Clearly, general courses on Asset Management and roadways are the most accessible training available for transportation professionals. It is interesting that flexible pavement management is more heavily emphasized than rigid pavement, possibly because more local roads are constructed of flexible pavement than rigid pavement. It appears that the generalized training in Asset Management is the most easily accessible training while professionals seeking more specialized knowledge will need to expend greater effort to locate the training they desire.

One subject not specifically mentioned in the survey responses included Rigid Pavement Maintenance and Repair. Although survey responses were not received for courses with this subject, the internet search for Transportation Asset Management courses revealed that courses are available for this topic. Additional details on these courses are available in Appendix B, Course Abstracts.



Figure 1

*Topics Covered*

Figure 2 displays the range of topics covered in individual Asset Management courses and shows the breadth of topics that might be discussed within an available course. For instance, Pavement Maintenance and Repair could be covered under a course on Asset Management, as would Bridge Rehabilitation. The theme of Asset Management might be touched on in a policy course explaining GASB-34.

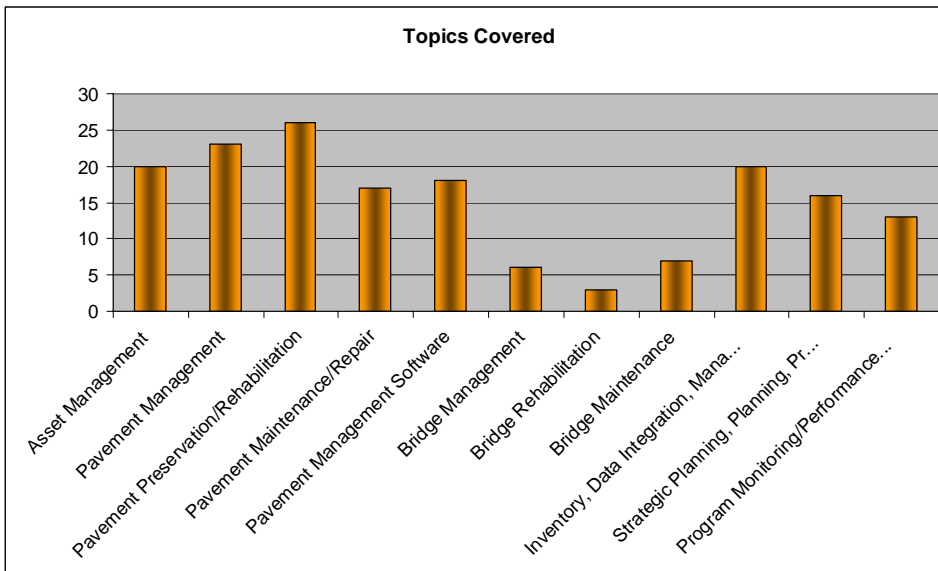


Figure 2

### Audience

Figure 3 displays the different audiences for which Asset Management courses are typically designed. Local technical staff, State DOT technical staff, and "other" were the three most common responses. The "other" category most likely refers to state field staff, managerial, and other elected officials.

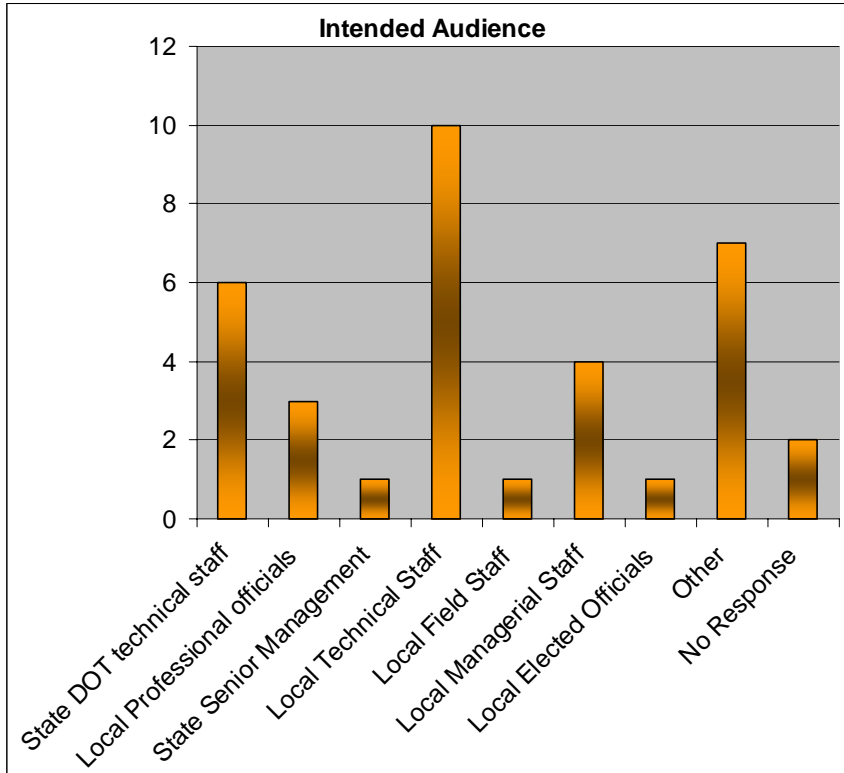
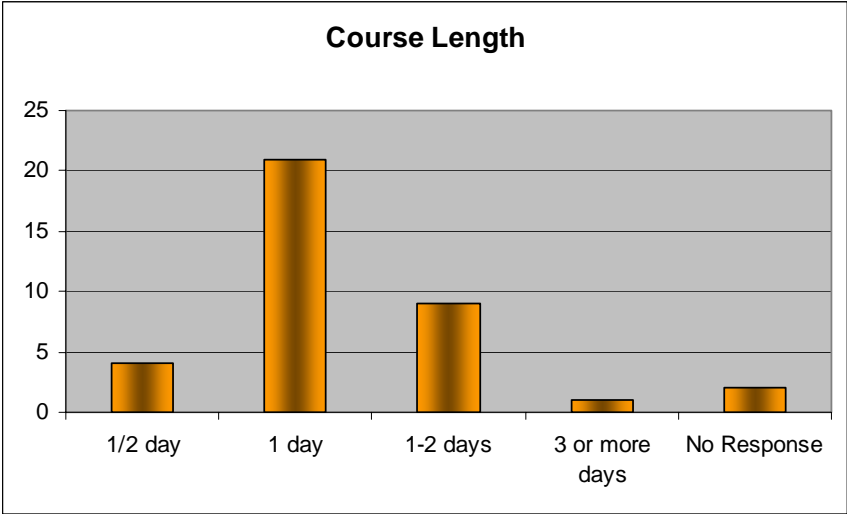
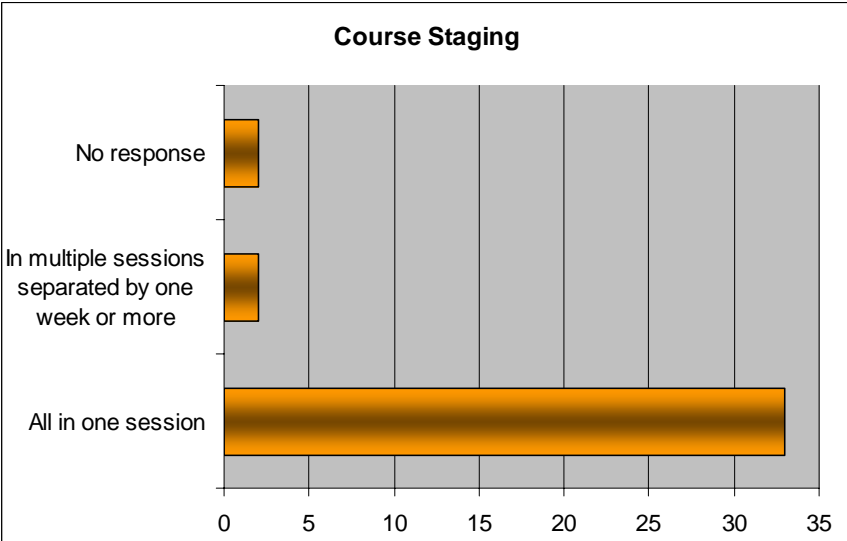


Figure 3

*Course Length and Staging*



**Figure 4**



**Figure 5**

Figures 4 and 5 show that the majority of courses last a single day with the course materials covered in a single session. As the information on intended audience shows (Figure 3 above), most participants are local and DOT technical staff who have responsibilities in the field and for designing and implementing maintenance and construction projects. Given this situation, the more intensive, single-session, one-day courses are probably successful because they fit into the busy schedules of most transportation professionals.

## Instructional Techniques

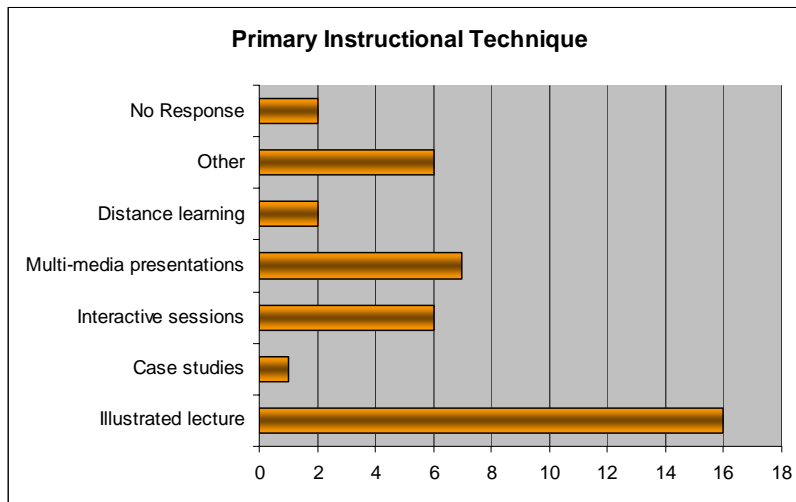


Figure 6

As Figure 6 and 7 show, illustrated lectures, multi-media presentations, and interactive sessions represent the most common instructional techniques used. Survey respondents did not select group discussions or problem solving from the list of options as primary instructional techniques used. However, it is clear from Figure 7 that these powerful teaching tools are incorporated into many of the courses offered. The two figures clearly show that a wide range of teaching techniques are employed during Asset Management training courses.

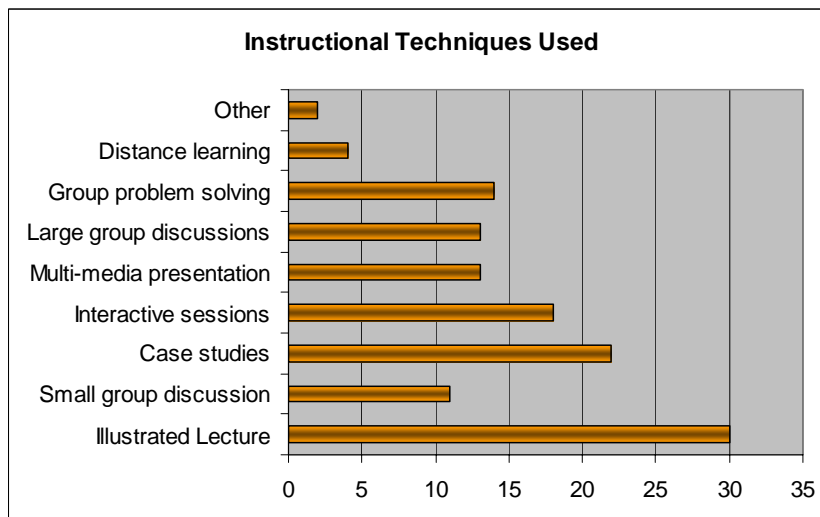
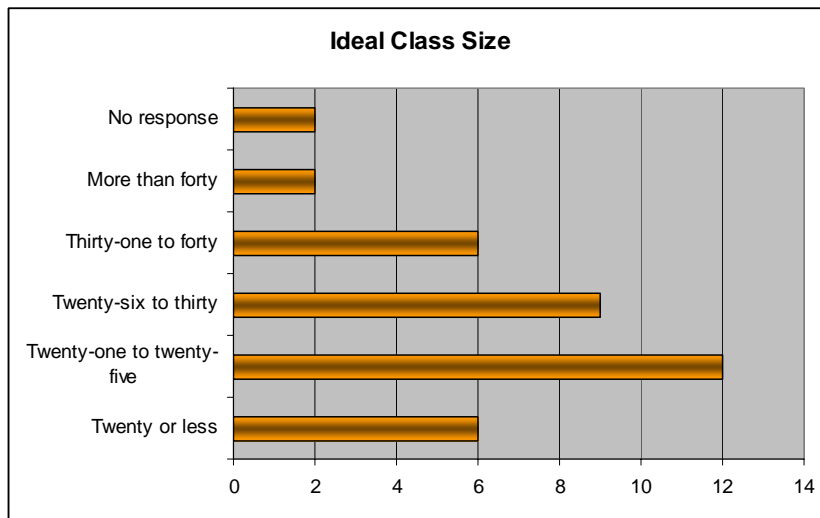


Figure 7

### *Class Size*

When considering the type of instructional techniques employed in a course, it is important to consider class size. For example, classes with 20 or fewer participants lend themselves to greater interaction between participants as well as group discussion and problem solving. As classes increase in size, an instructor will need to employ creative techniques such as break-out sessions to get the same type of interaction between attendants. As Figure 8 shows, the majority of survey respondents noted that their preferred class size is between 21 and 25. This class size is best suited to larger group discussion, illustrated lectures, and small group discussions organized into break-out sessions.

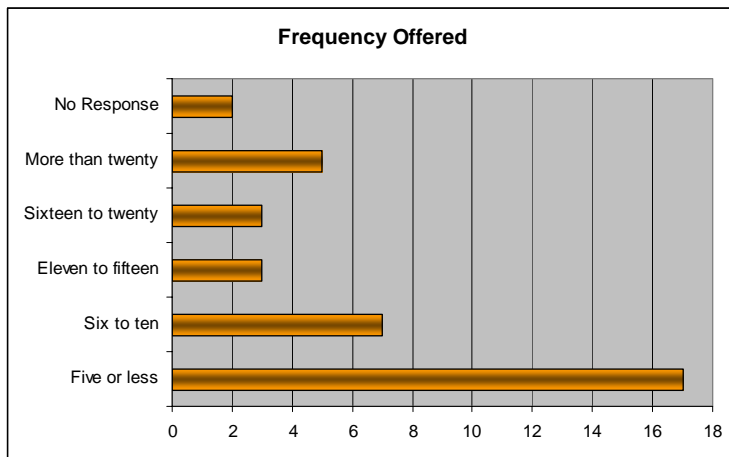


**Figure 8**

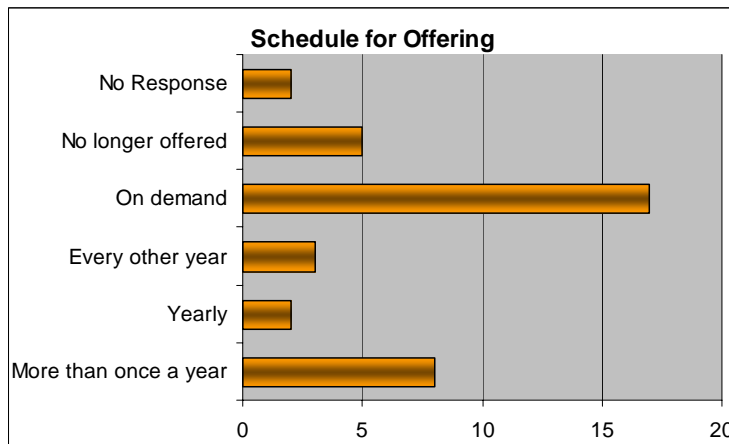
### *Frequency and Schedule of Course Offerings*

The vast majority of Asset Management training courses are offered “on demand” with agencies, Departments of Transportation, and transportation consultants assessing their needs for Asset Management training and arranging course schedules accordingly. As the charts below show (Figures 9 and 10), not only is the majority of training offered on an as needed basis, many of the available courses have been offered five or fewer times.

The survey responses also revealed the regularity of course offerings by course title. As one might expect, certain types of courses are offered more frequently than others. For instance, courses on pavement maintenance and pavement management are offered more frequently than courses on road, street, and sign management. Not surprisingly, courses focusing on data management and software training have become popular. For example, the Metropolitan Transportation Commission’s course, Streetsaver V.8 Computer Training Parts 1 & 2, has been offered more than twenty times.



**Figure 9**



**Figure 10**

*Geographic Coverage of Courses and Classroom Location*

Figure 11 depicts the geographic coverage of the Asset Management courses identified by this study. The majority of available courses focus on the offering institution's home state and Asset Management issues particular to the area's transportation network although some courses offer regional or international perspectives. Figure 12 illustrates the classroom locations most commonly used. Not surprisingly, courses are typically located at either a third location such as a hotel, or at the client's facilities. Courses taught at a third location most likely are open to transportation professionals from a variety of area agencies, whereas courses offered at a client's facilities might be restricted to employees of a single organization.

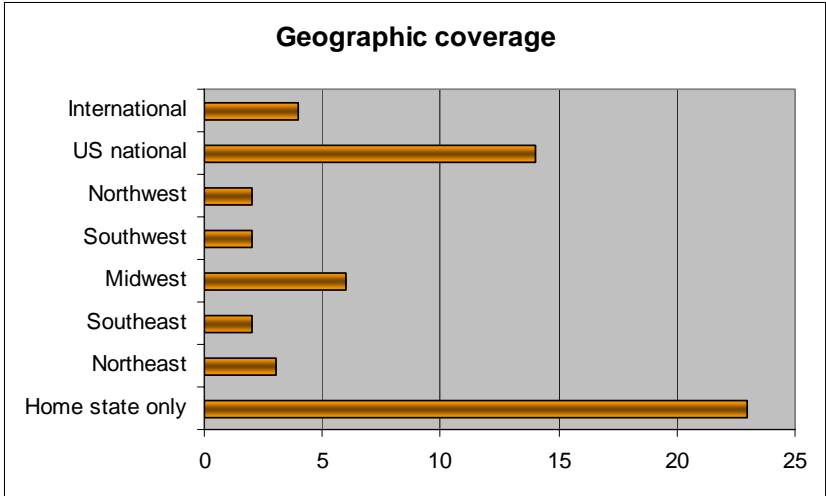


Figure 11

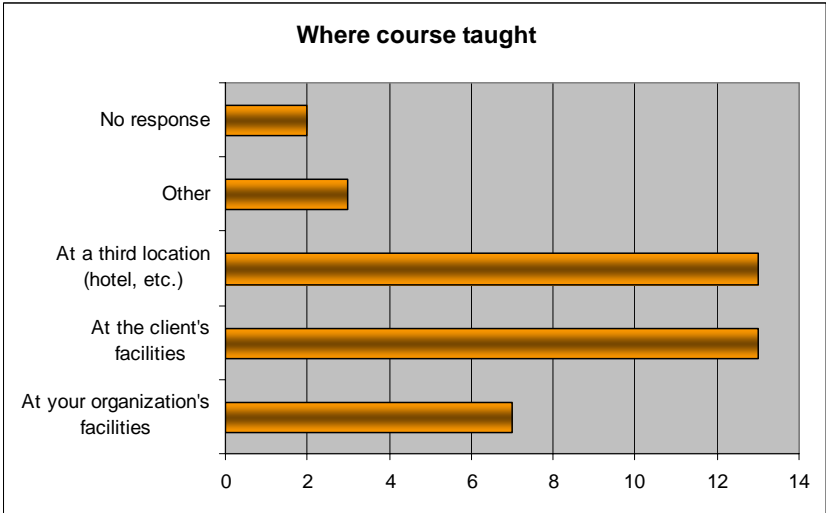
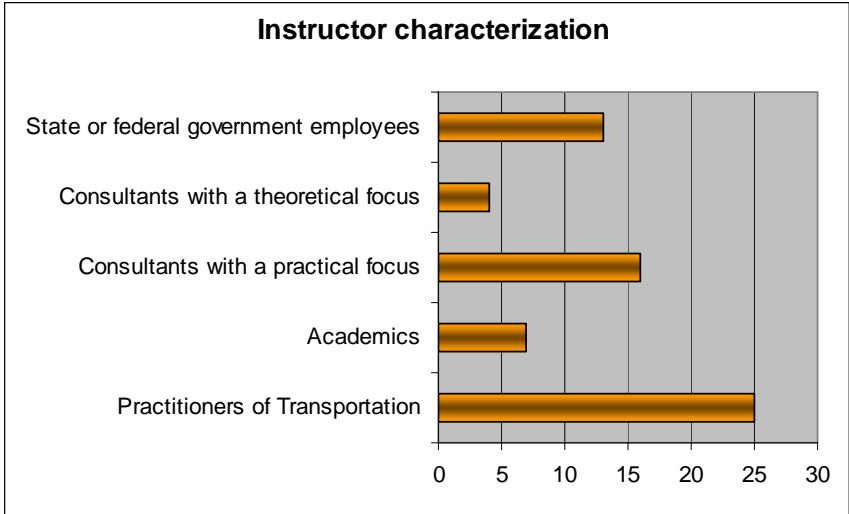


Figure 12

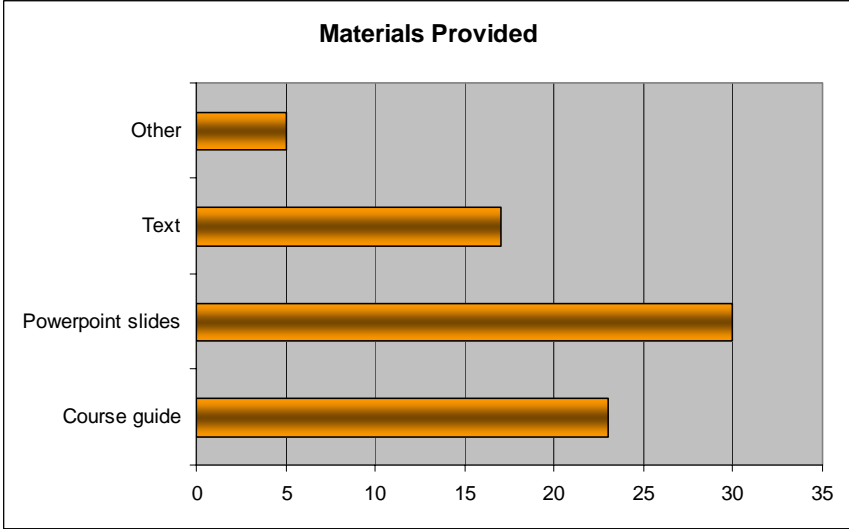
*Instructor Characterization*

As Figure 13 shows, Asset Management training instructors tend to be practicing transportation professionals. The majority of instructors are practitioners, public employees, or consultants with a practical focus. Trainers with theoretical or academic backgrounds do not appear to be in demand for professional-development training, probably due to the need for practical and real-life applications in Asset Management within the transportation profession.



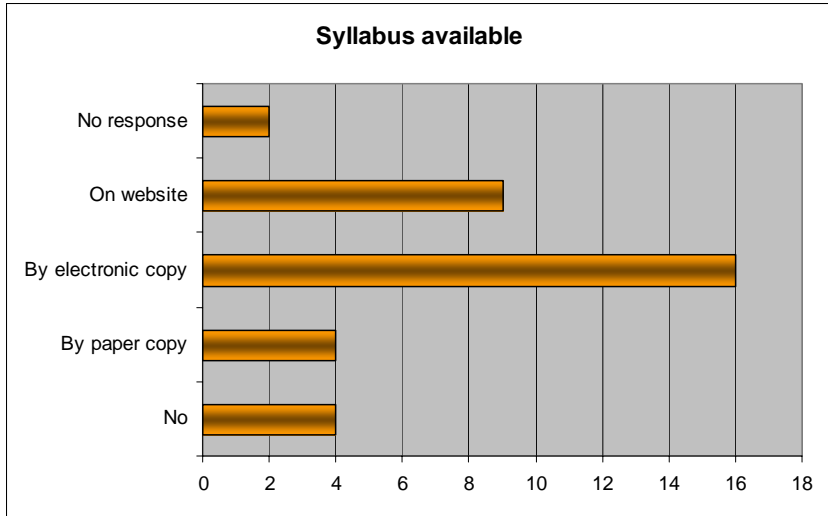
**Figure 13**

*Course Materials Provided and Availability of Syllabus*



**Figure 14**

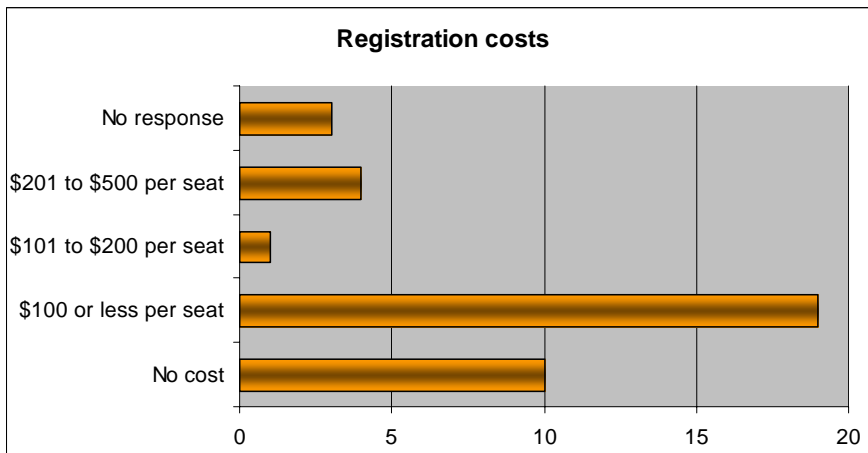
Available course materials and syllabi for individual courses were collected as part of the study (Figures 14 and 15). A majority of the course information that is available is through individual course websites or through electronic media such as PowerPoint. Researchers collected course syllabi and additional information when available. This information is available in Appendices B and C.



**Figure 15**

*Registration Costs and Continuing Education Credits*

Figures 16 and 17 display information on course registration costs and availability of continuing education credits. The low registration costs (\$100 or less per seat) for most Transportation Asset Management professional development courses and the availability of continuing education credits most likely act as an incentive for transportation professionals to participate in Asset Management training. In addition, the growing acceptance of Asset Management practices in the field of transportation coupled with the rapid development of computer software to help the transportation planner track and develop projects and manage budgets has sparked a growing demand for this type of training. The increasing number of professionals receiving Asset Management training should in turn lead to a greater awareness and application of these Asset Management principals.



**Figure 16**

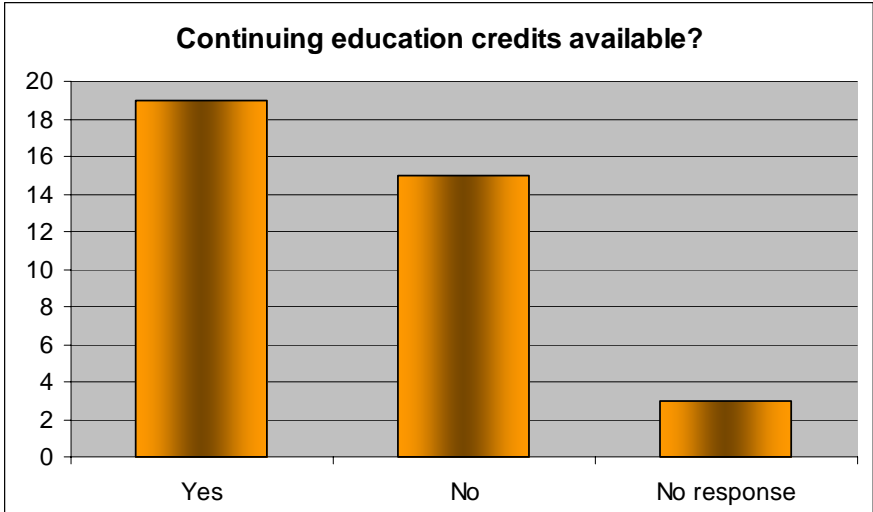


Figure 17

*Course Updates*

For this training to remain current and useful to transportation professionals, courses must be updated periodically to reflect current thinking in the field. As Figure 18 shows, the majority of Asset Management Courses available to the transportation professional receive regular updates.

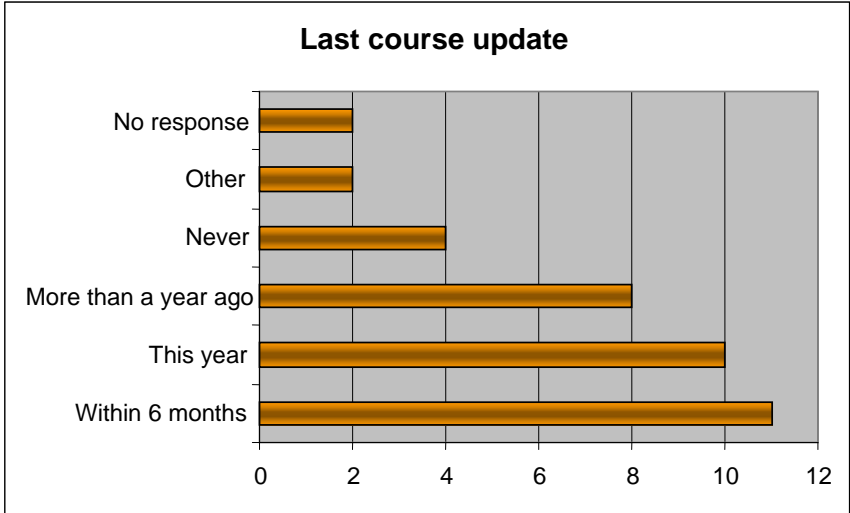


Figure 18

## **Review of Existing For-Credit University Based Courses**

As early as 1980, the American Public Works Association prepared a format for developing a master's degree specialization in public works engineering/administration in schools of Engineering. The American Society of Civil Engineers endorsed the document. Using this established specialization has facilitated the development of several university and college programs in infrastructure management. As the concepts of infrastructure management emerged in the 1990s to coalesce around the term Asset Management, most university offerings remain generally entitled "infrastructure management."

This review does not attempt to exhaustively catalog all for-credit courses in infrastructure management. It is limited to courses that have adopted the study of Transportation Asset Management as outlined above and, most importantly, it is limited to the courses that formally embrace the term "Asset Management." For these reasons, identified courses that may incorporate one or more specific Asset Management tools or concepts (i.e. Pavement Preservation or Data Collection) and courses that include a discussion of the subject in a seminar/guest lecture format as well as courses that include only brief readings or non-specific discussion of the concepts associated with Transportation Asset Management are not included in this summarization.

Furthermore, the courses identified in this analysis do not include courses or programs offered through technical or vocational schools. Vocational opportunities do exist in infrastructure maintenance (including courses in energy fields such as electric transmission) and for some other maintenance based applications (including those in fleet maintenance). These opportunities, however, were not analyzed.

Based upon a keyword internet search, followed by reviews of existing course lists and past presenters and participants in national activities, sixteen courses were identified for further analysis.

Detailed information on these 16 courses was collected. The information gathered included formal catalog course descriptions, syllabi and contact information available on websites and through university publications. Reading lists and other materials (homework assignments, sample exams, and project descriptions) were compiled for those courses as available.

The following table details the courses included in this analysis.

<b>Course Title</b>	<b>Institution</b>
Infrastructure Management	Carnegie Mellon University
Transportation Asset Management	George Mason University
Infrastructure Engineering	George Mason University
Infrastructure Systems Management	Georgia Institute of Technology
Transportation Infrastructure/Asset Management	Iowa State University
Engineering Management of Highway Networks	Michigan State University
Public Infrastructure Management	Northwestern University
Transportation Management Systems	Ohio State University
Highway Infrastructure Management	Purdue University
Transportation Infrastructure Management	University of California-Berkeley
Infrastructure Management	University of Illinois-Chicago
Infrastructure Management	University of Mississippi
Infrastructure Management Principles	University of Texas-Austin
Infrastructure Management	University of Virginia
Management of Infrastructure Systems	University of Wisconsin-Madison
Pavement and Bridge Infrastructure Systems	Virginia Technological University

**TABLE 1: Courses Including Transportation Asset Management topics**

### *Broad Observations*

The vast majority of courses focusing on Transportation Asset Management are offered within the Department of Civil Engineering at their respective universities. One course identified a School of Public Policy as the home Department. Surprisingly, it is the only course in the entire collection that is entitled "Transportation Asset Management." It is not surprising that Asset Management courses are typically found within Civil Engineering departments, listed under the umbrella term "Infrastructure Management." This concentration in Civil Engineering may be due to the fact that most professionals in the traditional field of transportation receive their education through Civil Engineering departments.

Fourteen of the sixteen courses are offered for the equivalent of three standard credit hours. One course is offered for four credits and another carries five credits. Surveyed courses are offered at the graduate level with advanced undergraduate students allowed to attend. The time offerings varied from three days a week to one day a week with extended lecture periods.

The most common offerings are titled 'Infrastructure Management'. Other titles, including 'Transportation Asset Management' or 'Management of Pavement Networks' were also used, however much less frequently. Most courses do focus primarily on highways and bridges, with little attention given to other modal areas.

The majority of offerings do not prescribe a textbook, but have reading materials drawn from research papers and government publications. Those courses that do prescribe a text, prefer *'Infrastructure Management'* by Hudson, Haas and Uddin (3). It appears that most of the reading lists reference the National Cooperative Highway Research Program (NCHRP) Project 20-24(11) "Transportation Asset Management Guide," produced in 2002 (4).

### *Common Elements*

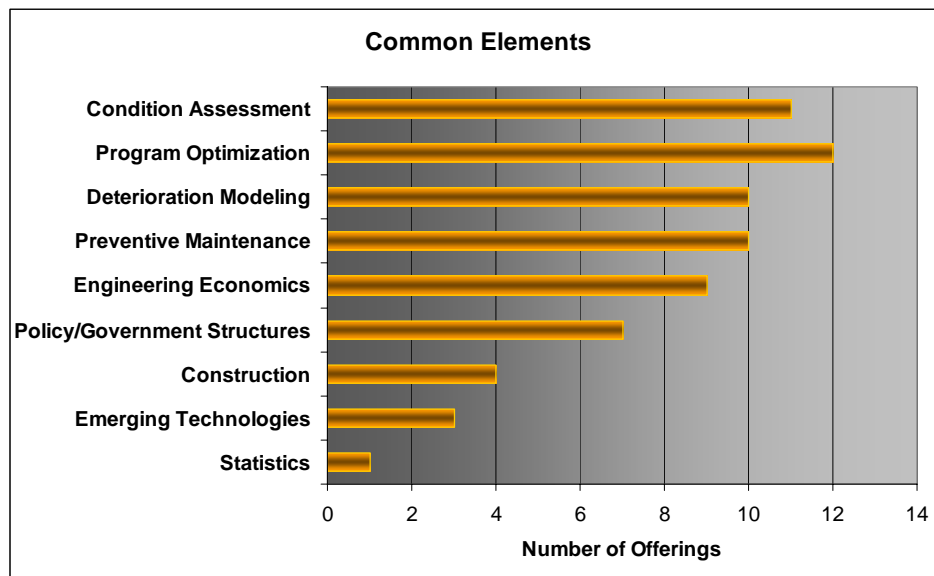
The collected materials displayed several common components within the course descriptions and syllabi. For the sake of consistency within the study, the elements were broadly categorized into nine specific areas. The nine elements identified as important to the practice of Transportation Asset Management were:

- Condition Assessment
- Program Optimization
- Deterioration Modeling
- Preventive Maintenance
- Engineering Economics
- Policy/Governance Structures
- Construction
- Emerging Technologies
- Statistics

Condition assessments generally referred to systems that place ratings on specific transportation facilities. Courses focusing on a specific rating system in detail were counted here. University based courses included analysis and introduction to rating systems that can be expressed in numeric scores or rankings as well as letter grades. The Program optimization category included courses that used models at either the budget or transportation component levels. These lectures prepare students for making choices within constrained environments. The research identified that deterioration modeling using long-term performance data is introduced in several courses. Finally, preventive maintenance techniques or studies, engineering economics and its application, and introductions to public policymaking round out the most common elements in for-credit offerings.

This categorization is intended to reflect the broad topic areas or discussions in each course. The review does not explore the length or depth to which each topic was addressed in the class. For example, some material may be discussed for only one lecture in one course while is the focus of multiple lectures in another. For the purposes of this categorization, each is scored the same.

The figure below identifies the most common thematic areas in the sixteen courses.



**FIGURE 19 Common Elements Observed in TAM Courses (n=16)**

As Figure 19 shows, no categorized element examined in this survey appears in each course offering. The use of deterioration models, program optimization techniques, and condition assessment are the most common.

### **Conclusion**

This survey of Asset Management training opportunities provides a broad view of the scope of courses available to the transportation professional and the university student of transportation. The number of professional development courses identified during an internet search (70) suggests that Asset Management techniques have gained the attention of transportation professionals and policy makers at a variety of levels in the decision-making hierarchy. The availability of for-credit courses suggests that students of Civil Engineering are exposed to the tools and techniques of Asset Management as they prepare to go into the professional field of transportation. As the number and variety of university-based Asset Management courses continues to grow, students will come into the transportation field with even greater knowledge of Asset Management practices and tools.

As Asset Management systems become established to meet the increasing challenge of maintaining existing transportation infrastructure, decision-makers and other transportation professionals will gain new tools to evaluate their options and make decisions concerning the operation and maintenance needs of existing transportation facilities.

### *Next Steps*

The current effort to catalogue available courses as comprehensively as possible should make these training opportunities more accessible to the myriad of people working in the transportation field. The real value in this collection of information is in the syllabi and the catalog of courses available in both areas. This material is being added to a website to maintain current information as well as to easily sort through the material.

For agencies and organizations planning to offer an Asset Management training course, information on current courses, presented in Appendix B, and course syllabi, presented in Appendix C, should be valuable. Additionally, a searchable document library is available that provides this information in a easy to use, accessible format. The website address for the Catalog of Transportation Asset Management Courses is:  
[www.mrutc.org/outreach/tamtraining](http://www.mrutc.org/outreach/tamtraining).

## Appendix A – Training Survey

**Complete one survey for each course offered.**

### **Organization**

1. Organization:
2. Contact Name:
3. Address:  
Phone #:  
E-mail:  
Website:

**Course:** Title:  
Organization:  
Contact Name:  
Address:  
Phone #:  
E-mail:  
Website:

1. Focus: (Select only one)
  - a. Asset Management
  - b. Flexible Pavement Management
    - i. Preservation and Rehabilitation
    - ii. Maintenance and Repair
    - iii. Life cycle cost analysis
    - iv. Management Software
  - c. Rigid Pavement Management
    - i. Preservation and Rehabilitation
    - ii. Maintenance and Repair
    - iii. Life cycle cost analysis
    - iv. Management Software
  - d. Bridge Management
    - i. Rehabilitation
    - ii. Maintenance
  - e. Inventory, Data Integration and Management
  - f. Strategic Planning, planning and programming
  - g. Program Monitoring and Performance Measurement

## Appendix A – Training Survey

2. Topics included: (Check all that are appropriate)
  - a. Asset Management
  - b. Pavement Management
    - i. Preservation and Rehabilitation
    - ii. Maintenance and Repair
    - iii. Life cycle cost analysis
    - iv. Management Software
  - c. Bridge Management
    - i. Rehabilitation
    - ii. Maintenance
  - d. Inventory, Data Integration and Management
  - e. Strategic Planning, planning and programming
  - f. Program Monitoring and Performance Measurement
  
3. Primary intended audience:
  - a. Local government
    - i. Professional officials
    - ii. Elected officials
    - iii. Managerial staff
    - iv. Technical staff
    - v. Field staff
  - b. State Agency
    - i. Senior management
    - ii. Elected officials
    - iii. Managerial staff
    - iv. DOT technical staff
    - v. Field staff
  - c. Other \_\_\_\_\_
  
4. Course length (instructional hours):
  - a. ½ day (up to four hours)
  - b. 1 day (between five and eight hours)
  - c. 1 - 2 days (between 12 and 24 hours)
  - d. 3 days or more (more than twenty-four hours)
  
5. How is the course normally staged?
  - a. All in one session
  - b. In multiple sessions separated by one week or more
  - c. Online
  - d. Other \_\_\_\_\_

## Appendix A – Training Survey

6. Primary instructional technique:
  - a. Illustrated lecture
  - b. Small group discussion
  - c. Case studies
  - d. Interactive sessions
  - e. Multi-media presentations
  - f. Large group discussions
  - g. Group problem solving
  - h. Distance learning
  - i. Other\_\_\_\_\_
  
7. Instructional techniques used: (Check all that apply)
  - a. Illustrated lecture
  - b. Small group discussion
  - c. Case studies
  - d. Interactive sessions
  - e. Multi-media presentations
  - f. Large group discussions
  - g. Group problem solving
  - h. Distance learning
  - i. Other\_\_\_\_\_
  
8. Ideal class size:
  - a. Twenty or less
  - b. Twenty-one to twenty-five
  - c. Twenty-six to thirty
  - d. Thirty-one to forty
  - e. More than forty
  
9. How often has this course been taught?
  - a. Five or less
  - b. Six to ten
  - c. Eleven to fifteen
  - d. Fifteen to twenty
  - e. More than twenty
  
10. What is the schedule for offering this course?
  - a. More than once a year
  - b. Yearly
  - c. Every other year
  - d. On demand
  - e. This course is no longer offered
  
11. Where is the course typically taught?
  - a. At your organization's facilities
  - b. At the client's facilities

## Appendix A – Training Survey

- c. At a third location (hotel, etc.)
  - d. Other
12. How would you characterize the instructors? (Check all that apply)
- a. Practitioners of transportation
  - b. Academics
  - c. Consultants with a practical focus
  - d. Consultants with a theoretical focus
  - e. State or federal government agency employees
13. What is the geographic coverage of your organization
- a. Home state only
  - b. US regional
    - i. NE
    - ii. SE
    - iii. MW
    - iv. SW
    - v. NW
  - c. US National
  - d. International
14. What materials are provided to participants in the course? (Check all that apply)
- a. Course guide
  - b. Powerpoint slides
  - c. Text
  - d. Topical monographs
  - e. Other
15. Can you provide us with a syllabus/description of the course?
- a. No
  - b. By paper copy
  - c. By electronic copy
  - d. They're on the website, listed above
  - e. Other
16. What is the average registration cost of the course?
- a. No cost
  - b. \$100 or less per seat
  - c. \$101 to \$200 per seat
  - d. \$201 to \$500 per seat
  - e. More than \$500 per seat
17. Are PDH, CEU credits available for this course?
- a. Yes (How many?\_\_\_\_\_)
  - b. No

## Appendix A – Training Survey

18. When was the course material last updated?

- a. Within 6 months
- b. This year
- c. More than a year ago
- d. Never
- e. Other\_\_\_\_\_

19. Do you have any other comments?

## Appendix B – Asset Management Course Abstracts

*The information included in this appendix is accurate at the time of writing. Information on the most recent course updates and any newly available courses can be found in a searchable document library based on this appendix. Please visit [www.mrutc.org/outreach/tamtraining](http://www.mrutc.org/outreach/tamtraining) to access this information.*

### AMERICAN SOCIETY OF CIVIL ENGINEERS COURSES

#### Asphalt Pavement Preservation and Rehabilitation

Abstract: This video assists engineers in the development of the most reliable and cost-effective rehabilitation alternatives for asphalt pavements. The video is broken into two units: pavement management concepts and pavement rehabilitation procedures. The first unit addresses pavement management concepts at the project level, including an overview of pavement management, pavement structural and condition assessment, distress mechanisms for Hot Mix Asphalt, and project evaluation. The second unit provides information on pavement rehabilitation through pavement maintenance techniques, surface rehabilitation procedures, recycling of asphalt pavements, and asphalt overlays.

Duration: Not Available

Contact: ASCE Continuing Education 1-800-548-2723

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#### Preventive Pavement Maintenance

Abstract: This course introduces participants to the overall components of a pavement preventive maintenance program and presents background information from agencies that have implemented pavement management programs. Selecting appropriate treatments and applying treatments to a pavement at the right time are also keys to the successful use of preventive maintenance. To help improve the use of preventive maintenance treatments, this course offers a broad overview of the purpose and expected performance of these treatments. Guidance is also provided on the factors that are considered in selecting a specific preventive maintenance treatment to use for a given pavement condition.

Duration: Not available

Contact: ASCE Continuing Education 1-800-548-2723

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#### Bridge Rehabilitation

Abstract: With the rapid aging of the national highway infrastructure, state and local governments are spending more and more money on bridge rehabilitation. Currently, most states spend more money on bridge replacement and rehabilitation than building new bridges. This trend will certainly continue. Bridge rehabilitation design differs from new bridge design in many ways. It requires a very high degree of knowledge and skill in structure condition evaluation, structural analysis, application of new materials, maintenance of traffic (staged construction), construction methods, and project lifecycle cost analysis. All of these are

## **Appendix B – Asset Management Course Abstracts**

project specific, and require sound judgment to develop the best design alternative. Because of the complexity, most universities do not offer undergraduate or graduate courses on this subject. This two-day seminar covers subjects such as: structure condition evaluation, bridge load rating and rehabilitation analysis, state-of-the-art rehabilitation techniques, alternative analysis models, new material applications, construction methods and constructability analysis, and project lifecycle cost analysis.

Duration: Not available

Contact: ASCE Continuing Education 1-800-548-2723

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### **AMERICAN PUBLIC WORKS ASSOCIATION (APWA) COURSES**

#### **Implementing GASB 34 – What It Could Mean For You**

Abstract: This two-hour visual and audio CD-ROM program shows how GASB 34 can "shine a new light" on the value of roads, water facilities, bridges, buildings and traffic systems for your elected officials and citizens. Also, learn how using GASB 34 can lead to keeping infrastructure in top condition.

Duration: ½ day

Contact: Ashley or Laura, 1-800-848-2792 (phone), 1-816-472-0406 (fax)

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#### **Pavement Management Systems: Finding the Best Fit**

Abstract: Pavement Management Systems (PMS) consist of data sets and tools for making cost-effective decisions concerning pavement maintenance and rehabilitation. PMS give you an accurate assessment of the condition of your pavement, so you can make sound management decisions

Duration: ½ day

Contact: Ashley or Laura, 1-800-848-2792 (phone), 1-816-472-0406 (fax),

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## Appendix B – Asset Management Course Abstracts

### APPLIED PAVEMENT TECHNOLOGY (APTECH), INC. COURSES

#### Pavement Management

Abstract: This course provides an excellent introduction to pavement management. The course introduces each of the components of a pavement management system, including the inventory, condition surveys, database development, performance modeling, and the development of a multi-year program. Methods of collecting and reporting inventory and condition information are also covered. This course was originally developed through NHI but is now offered through APTEch.

Duration: 1-2 days

Contact: Katie Zimmerman, 1-217-398-3977, [kzimmerman@pavementsolutions.com](mailto:kzimmerman@pavementsolutions.com)

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#### Pavement Preservation Series

Abstract: APTEch has developed a series of courses on Pavement Preservation that may be taught independently or may be combined to meet the unique needs of a transportation agency. The first course, The Preventive Maintenance Concept, presents effective pavement maintenance techniques and includes guidelines on the allocation of funding for preventive maintenance activities and examples of successful practices in state highway agencies. The second course, Selecting Pavements for Preventive Maintenance, concentrates on identifying and evaluating sites that are appropriate candidates for preventive maintenance and determining the appropriate treatment to apply. The third course, Design and Construction of Quality Preventive Maintenance Treatments, presents the critical design factors for preventive maintenance techniques and the recommended procedures for construction. The final course, Integrating Pavement Preservation Practices and Pavement Management, addresses the essential partnership between pavement management and maintenance activities. The course introduces the ways that a pavement management system can support a pavement preservation program and the techniques involved in preventive maintenance treatments in a multi-year program. This course was originally developed through NHI but is now offered through both NHI and APTEch.

Duration: 1-2 days

Contact: Katie Zimmerman, 1-217-398-3977, [kimmerman@pavementsolutions.com](mailto:kimmerman@pavementsolutions.com)

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## Appendix B – Asset Management Course Abstracts

### CALIFORNIA LTAP/INSTITUTE OF TECHNOLOGY TRANSFER COURSES

#### Asphalt Pavement Maintenance and Rehabilitation Techniques for Local Agencies

Abstract: This course covers the basics of flexible pavement maintenance and repair using an Asset Management lens.

Duration: Not available

Contact: Michele Cushnie, 1-510-231-5674

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### CAMBRIDGE SYSTEMATICS, INC. COURSES

#### Transportation Asset Management

Abstract: This course presents the concepts, principles, and examples of techniques of Transportation Asset Management. This course explains the concepts and principles underlying Asset Management, develops a management framework that illustrates best practices in relevant management procedures, provides a self-assessment guide that you can apply within your own agency to identify potential areas of Asset Management improvement, and applies these ideas to several agency functions: policy formulation, planning and programming, program delivery, and the role of information in decision support, transportation system monitoring, and reporting. These guidelines for Asset Management can be customized and tailored to the needs and priorities of your particular agency. This course was originally developed through NHI and is now offered through both NHI and Cambridge Systematics, Inc.

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### COLORADO LTAP COURSES

#### Preventive Pavement Maintenance

Abstract: Not available

Duration: Not available

Contact: [cltap@colorado.edu](mailto:cltap@colorado.edu)

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## **Appendix B – Asset Management Course Abstracts**

### **CONNECTICUT TRANSPORTATION INSTITUTE/TECHNOLOGY TRANSFER CENTER COURSES**

#### **Asset Management (part of Road Scholar program)**

Abstract: Not available

Duration: Not available

Contact: Mary McCarthy, Connecticut Transportation Institute, 179 Middle Turnpike, Unit 5202, Storrs, CT 06269-5202, 1-860-486-5400, mary@enr.uconn.edu, cti@uconn.edu

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### **CORNELL LOCAL ROADS PROGRAM COURSES**

#### **Pavement Maintenance**

Abstract: The class covers selection of the proper maintenance activity to correct or prevent pavement problems. How to perform various maintenance techniques is also illustrated.

Duration: 1 day

Contact: clrp@cornell.edu

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### **FEDERAL HIGHWAY ADMINISTRATION/NATIONAL HIGHWAY INSTITUTE COURSES**

#### **AASHTO Pavement Overlay Design**

Abstract: Using visual aids, case studies, and workshops facilitated by hands-on usage of appropriate computer software packages, participants will learn to identify items to consider in overlay design, procedures and considerations in pavement overlay, and how to choose an overlay design under various existing conditions. Participants will receive a copy of the course notes which should serve as a valuable future reference on this subject. The course focuses on Part III, Chapters 1, 2, 3, and 5 (as revised) of the "AASHTO Guide for Design of Pavement Structures." Participants will need to furnish their own 1993 "AASHTO Guide for Design of Pavement Structures."

Duration: Not available

Contact: Larry Jones 1-703-235-0523, larry.jones@fhwa.dot.gov

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## Appendix B – Asset Management Course Abstracts

### **Advanced Pavement Life Cycle Cost Analysis (LCCA) Workshop**

Abstract: This training course includes an overview of the FHWA's Life-Cycle Cost Analysis methodology including the determination of agency and user costs, probabilistic analysis, and provides an in-depth review and hands on training in the use of new FHWA LCCA software.

Duration: 1-2 days

Contact: francine.shaw-whitson@fhwa.dot.gov

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### **Analysis of PMS Data for Engineering (NHI Course # 11135A)**

Abstract: This course is a compilation of case studies from States that are using the years of condition data stored in their Pavement Management System (PMS) to: 1. track the real life performance of pavements; 2. evaluate and analyze pavement overlay design; 3. track performance of materials and construction; 4. incorporate preventive maintenance actions; and 5. evaluate maintenance or pavement performance.

Duration: Not available

Contact: Larry Jones 1-703-235-0523, larry.jones@fhwa.dot.gov

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### **Bridge Maintenance Training (NHI Course # 131029A)**

Abstract: This course focuses on cost-effective bridge maintenance and repair procedures performed by typical transportation agency crews. Included are step-by-step instructions for preparing for and performing maintenance and repair on common bridge elements. Bridge preservation is emphasized throughout. While engineers often attend, the material is designed for bridge crew supervisors and technicians.

Duration: Not available

Contact: Larry Jones 1-703-235-0523, larry.jones@fhwa.dot.gov

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### **Design and Construction of Quality Preventive Maintenance Treatments**

Abstract: In preventive maintenance, the types of treatments and the timing of their applications provide highway agencies with a very broad range of life-extending treatment techniques and enable agencies to achieve their goals of enhancing pavement performance in a cost-effective and efficient manner while meeting their customers' need for an improved level of service. By using pavement management data for network level analysis, an effective pavement strategy can be developed that utilizes reconstruction, rehabilitation, and preventive maintenance actions. When used at the project level, pavement management can assist the decision-maker in selecting the best pavement preservation option to be designed and applied.

## Appendix B – Asset Management Course Abstracts

This course targets those field personnel involved in constructing preventive maintenance treatments. It contains modules on all of the categories of preventive maintenance treatments in widespread use today, focusing on the best practices for designing and constructing those treatments. It also addresses troubleshooting construction practices, so that participants can clearly identify the results of poor construction practices. This is the third in a series of four courses on the general subject of pavement preservation.

Duration: Not available

Contact: Larry Jones 1-703-235-0523, [larry.jones@fhwa.dot.gov](mailto:larry.jones@fhwa.dot.gov)

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### **Economic Analysis for Highway Decision Makers Workshop**

Abstract: Economic analysis methods can be very helpful in evaluating highway investments. Such methods can reveal whether a project's transportation benefits exceed its costs to the public, when best to undertake the project, and what is the most cost-effective means of implementing it. The workshop covers a broad range of economic subjects, including inflation, life-cycle cost analysis, benefit-cost analysis, and risk analysis. No prior training in economic analysis is required.

Duration: 1 day

Contact: Eric Gabler, 1-202-366-4036, [eric.gabler@fhwa.dot.gov](mailto:eric.gabler@fhwa.dot.gov)

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### **Hot Mix Asphalt Pavement Evaluation and Rehabilitation (NHI course number 131063A)**

Abstract: Course presents state-of-the-practice and state-of-the-art techniques to identify the causes and patterns of different types of pavement distress, and what techniques for rehabilitation, selection, design, and construction can be applied for the various types of distress. Upon completion of the course, participants will be able to describe typical behavior and performance of HMA pavements; identify common types of HMA pavement distress and be able to describe their mechanisms; describe key components of a thorough project-level evaluation; describe the variety of rehabilitation techniques available and state what deficiencies they have; Identify feasible rehabilitation techniques for HMA pavements exhibiting different distresses and conditions, and; develop process for selecting the preferred revalidation alternative.

Duration: Not available

Contact: Larry Jones 1-703-235-0523 Email:[larry.jones@fhwa.dot.gov](mailto:larry.jones@fhwa.dot.gov)

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## Appendix B – Asset Management Course Abstracts

### **Pavement Condition Index - The Remaining Service Life**

Abstract: Not available

Duration: Not available

Contact: Larry Jones 1-703-235-0523, [larry.jones@fhwa.dot.gov](mailto:larry.jones@fhwa.dot.gov)

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### **Pavement Life Cycle Cost Analysis (LCCA) Software Workshop**

Abstract: This free workshop introduces the FHWA's RealCost pavement (LCCA) tool, which can be used to evaluate total agency costs and costs to the public associated with construction work zones over the life-cycle of the pavement project.

Duration: 1-2 days

Contact: Francine Shaw-Whitson, 1-202-366-0392, [francine.shaw-whitson@fhwa.dot.gov](mailto:francine.shaw-whitson@fhwa.dot.gov)

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### **Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments (NHI Course # 31103A)**

Abstract: This course is the third in a series of training courses on pavement preservation. The course is designed to assist the participant in the design and construction of preventive maintenance treatments for both hot-mix asphalt and Portland cement concrete pavements, including examples of “poor practices” in the construction of the preventive maintenance treatments and critical post-construction/pre-opening inspection objectives.

Duration: Not available

Contact: Larry Jones 1-703-235-0523, [larry.jones@fhwa.dot.gov](mailto:larry.jones@fhwa.dot.gov)

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### **Pavement Preservation \_ Selecting Pavements for Preventative Maintenance (NHI Course # 131058A)**

Abstract: This short course focuses on selecting the right pavement for various preservation treatments by evaluating the merits of each treatment under various field conditions. This course will illustrate in detail the pavement evaluation, project selection, and material considerations for the various preventive maintenance applications. This is the second in a

## Appendix B – Asset Management Course Abstracts

series of four courses on the general subject of pavement preservation. The first NHI course is 131054 - Pavement Preservation: The Preventive Maintenance Concept. The third and fourth NHI courses will be 131103 - Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments and 131104 - Pavement Preservation: Integrating Pavement Preservation Practices and Pavement Management.

Duration: Not available

Contact: Larry Jones 1-703-235-0523, [larry.jones@fhwa.dot.gov](mailto:larry.jones@fhwa.dot.gov)

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### **Pavement Preservation \_ the Preventive Maintenance Concept**

Abstract: This training course provides an introduction to the concept of pavement preventive maintenance, including a description of currently available tools and technology that make the implementation of a pavement preventive maintenance program feasible. Targeting an audience of upper management and policy makers in highway agencies, the course focuses on the information needed to develop or improve a preventive maintenance program and illustrates the steps that five states have taken in the development of their own preventive maintenance programs. Considerably less emphasis is given to actual pavement preventive maintenance techniques themselves, although an extensive listing of pertinent references is provided for each technique. This is the first in a series of four courses on the general subject of pavement preservation. The second is NHI Course 131058 Pavement Preservation: Selecting Pavements for Preventive Maintenance. The third and fourth NHI courses will be 131103 Pavement Preservation: Design and Construction of Quality Preventive Maintenance Treatments and 131104 Pavement Preservation: Integrating Pavement Preservation Practices and Pavement Management.

Duration: Not available

Contact: Larry Jones 1-703-235-0523, [larry.jones@fhwa.dot.gov](mailto:larry.jones@fhwa.dot.gov)

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### **Pavement Preservation: Integrating Pavement Preservation Practices and Pavement Management (NHI Courses #: 131104A)**

Abstract: This course is the fourth in a series of training courses on pavement preservation. The objectives for this course are: to name several ways pavement management tools can support a pavement preservation program at the project-, network-, and strategic-analysis levels; to list the reasons it is important for an agency to integrate pavement preservation into its pavement management activities, to name the ways that pavement preservation techniques can be integrated into pavement management models; and to name some of the common obstacles to the successful integration of pavement preservation and pavement management programs. Strategies for overcoming these obstacles are presented. Although

## Appendix B – Asset Management Course Abstracts

any individual involved with preventive maintenance will benefit from this course, it is primarily intended for pavement management engineers, maintenance management engineers, and planning and programming personnel.

Duration: Not available

Contact: Larry Jones 1-703-235-0523, [larry.jones@fhwa.dot.gov](mailto:larry.jones@fhwa.dot.gov)

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### **Pontis Bridge Management System (NHI Course # 131056A)**

Abstract: Pontis is a computer software program, owned and licensed by AASHTO, that is designed to assist bridge managers and practitioners in analyzing bridge data. Pontis helps predict future bridge conditions and needs, determine optimal policies, and recommend projects and schedules within budget and policy limitations. The course covers entering and editing inspection data, developing a bridge preservation policy, performing bridge network level analyses, developing bridge projects, running Pontis reports, and refining Pontis results. The course focuses on an agency's business process steps, key concepts of bridge management and their application to Pontis, using the software, instructor demonstration exercises, and practical student exercises. Each participant will receive a participant notebook. Six laptop computers containing the PONTIS 4.3 software and sample training database are furnished by the NHI for use in the training course.

Duration: Not available

Contact: Larry Jones 1-703-235-0523, [larry.jones@fhwa.dot.gov](mailto:larry.jones@fhwa.dot.gov)

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### **Transportation Asset Management (NHI Course Number: 131106A)**

Abstract: This course presents the concepts, principles, and examples of techniques of Transportation Asset Management. It covers material in the Transportation Asset Management Guide that has been developed in the National Cooperative Highway Research Program (NCRHP) Project 20-24(11). The Guide is the reference for this course, and is distributed to course participants together with this Workbook. This course explains the concepts and principles underlying Asset Management, develops a management framework that illustrates best practices in relevant management procedures, provides a self-assessment guide that you can apply within your own agency to identify potential areas of Asset Management improvement, and applies these ideas to several agency functions: policy formulation, planning and programming, program delivery, and the role of information in decision support, transportation system monitoring, and reporting. These guidelines for Asset Management can be customized and tailored to the needs and priorities of your particular agency. This course was developed by NHI but is often presented by private consultants.

Duration: 1 day

Contact: Larry Jones 1-703-235-0523, [larry.jones@fhwa.dot.gov](mailto:larry.jones@fhwa.dot.gov) or John Taylor, 1-703-235-0524, [john.taylor@fhwa.dot.gov](mailto:john.taylor@fhwa.dot.gov)

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## Appendix B – Asset Management Course Abstracts

### FLORIDA LTAP COURSES

#### Asphalt Road Maintenance

Abstract: This one-day course introduces techniques for asphalt pavement evaluation. Pavement condition rating, non-destructive testing, and how to select the best maintenance treatments are covered. Maintenance treatments and new technologies are also considered.

Duration: 1 day

Contact: Chris Ritch, Workshop Coordinator, 1-352-392-2371 ext. 223, [chris@ce.ufl.edu](mailto:chris@ce.ufl.edu)

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#### Integrating Pavement Preservation Practices and Pavement Management

Abstract: Designed to provide information needed to successfully use pavement management activities to support a pavement preservation program. Condensed form NHI course, offered by FHWA.

Duration: Not available

Contact: Chris Ritch, Workshop Coordinator 1-352-392-2371 ext. 223, [chris@ce.ufl.edu](mailto:chris@ce.ufl.edu)

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#### Pavement Management

Abstract: This course covers available pavement management analytical techniques that are used to perform multi-year prioritization. This demo will enable Pavement Management Engineers to analyze the condition data, in combination with historical performance data and cost data; and identify cost-effective pavement rehabilitation strategies for various funding levels for the development of a multi-year-prioritized list of pavement rehabilitation projects.

Duration: Not available

Contact: Chris Ritch, Workshop Coordinator, 1-352-392-2371 ext. 223, [chris@ce.ufl.edu](mailto:chris@ce.ufl.edu)

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## Appendix B – Asset Management Course Abstracts

### IDAHO LTAP COURSES

#### Asset Management Workshop

Abstract: This course covers Asset Management and flexible pavement management. Bridge management and data integration are also considered.

Duration: Not available

Contact: Bruce W. Drewes, Training and Research Manager, 1-208-364-6166, [bdrewes@uidaho.edu](mailto:bdrewes@uidaho.edu)

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#### Inventory, Data Integration and Management

Abstract: This course covers inventory, data integration, and management, and Asset Management.

Duration: 1-2 days

Contact: Bruce W. Drewes, Training and Research Manager, 1-208-364-6166, [bdrewes@uidaho.edu](mailto:bdrewes@uidaho.edu)

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### ILLINOIS LTAP COURSES

#### Pavement Management using Micropaver

Abstract: This course provides the background needed for effective use of the PAVER Pavement Management System. Training includes extensive hands-on activities and workshops on key topics; participants can choose from two full sessions. Highlights of the course include fundamentals of pavement management; Pavement Condition Index procedure; pavement conditions prediction; project-level management; network-level management; and the MicroPaver computer system, including an introduction to Paver 4.2 for Windows.

Duration: Not available

Contact: Lynn Brownfield, 1-800-895-9345, [lpadilla@ad.uiuc.edu](mailto:lpadilla@ad.uiuc.edu); [techctr@uiuc.edu](mailto:techctr@uiuc.edu)

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## **Appendix B – Asset Management Course Abstracts**

### **Pavement Maintenance**

Abstract: This course teaches students to recognize the causes of pavement failure and make and/or recommend corrective measures including alleviating the cause, selecting the proper materials and methods, and documenting the work accomplished. The course also covers various types of road surfaces with the emphasis on flexible bases and developing a pavement management system.

Duration: Not available

Contact: Lynn Brownfield, 1-800-895-9345, lpadilla@ad.uiuc.edu; techctr@uiuc.edu

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## **INDIANA LTAP COURSES**

### **Asset Management Series**

Abstract: This course covers the benefits and reasons for developing an Asset Management system. Data management and reconciliation between local and state data are considered, as is the evolution of Indiana's pavement management inventory. The benefits of developing a sign inventory, conducting an inventory and managing the resulting data are also covered. Local transportation professionals and elected officials will benefit from this series.

Duration: 1 day

Contact: Contact: Purdue University, 1-765-494-7225

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### **Road, Street, and Sign Management**

Abstract: This course covers the reasons for developing and maintaining an Asset Management system for Indiana's roads, streets and signs. The course also considers maintenance and repair options for roadway assets.

Duration: 1 day

Contact: Contact: Purdue University, 1-765-494-7225

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## Appendix B – Asset Management Course Abstracts

### CTRE/IOWA LTAP COURSES

#### Fundamentals of Pavement Management

Abstract: This course includes an overview of pavement management techniques, including general pavement management training, PMS fundamentals, software and GIS training, and distress data overview.

Duration: 1 day

Contact: Omar Smadi, PhD, 1-515-294-7110, smadi@iastate.edu; Iowa LTAP/CTRE, 2901 S. Loop Drive, Suite 3100, Ames, IA 50010, 515-294-8103 , Duane Smith, LTAP Director, 1-515-294-8817, desmith@iastate.edu

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#### dTIMS Training (Pavement Management Software)

Abstract: This course offers an overview of Iowa's pavement management software. The practical training provides instruction on setting up dTIMS and operating procedures. Tools for pavement analysis, including incremental benefit/cost analysis, performance parameters, and decision trees are also covered in this workshop.

Duration: ½ day

Contact: Omar Smadi, PhD, 1-515-294-7110, smadi@iastate.edu; Iowa LTAP/CTRE, 2901 S. Loop Drive, Suite 3100, Ames, IA 50010, 515-294-8103 , Duane Smith, LTAP Director, 1-515-294-8817, desmith@iastate.edu

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#### GIS Training Workshop

Abstract: This course provides an overview of data integration techniques, including a discussion of data sources, methodology, and challenges to data integration. The course covers basic GIS tools and techniques for data analysis, including conducting queries and printing maps.

Duration: ½ day

Contact: Omar Smadi, PhD, 1-515-294-7110, smadi@iastate.edu; Iowa LTAP/CTRE, 2901 S. Loop Drive, Suite 3100, Ames, IA 50010, 515-294-8103 , Duane Smith, LTAP Director, 1-515-294-8817, desmith@iastate.edu

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## **Appendix B – Asset Management Course Abstracts**

### **Pavement Management Software**

Abstract: This course provides an overview of pavement management software and covers flexible pavement maintenance and repair, life-cycle cost analysis, and strategic planning for roadway maintenance.

Duration: ½ day

Contact: Omar Smadi, PhD, 1-515-294-7110, smadi@iastate.edu; Iowa LTAP/CTRE, 2901 S. Loop Drive, Suite 3100, Ames, IA 50010, 515-294-8103 , Duane Smith, LTAP Director, 1-515-294-8817, desmith@iastate.edu

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## **KENTUCKY LTAP COURSES**

### **Road Surface Management for Local Agencies**

Abstract: Given the tremendous investment in roads and streets, it is important that local officials implement a system to determine pavement conditions and prioritize maintenance and rehabilitation. This is good practice and provides a subjective and defensible process for evaluating needs and requesting financial resources. This course provides local officials with the management tools necessary to implement a program in their city or county. Participants also receive guidance on contract documents, materials requirements and oversight of construction operations.

Duration: Not available

Contact: fegenb@engr.uky.edu

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## **MAINE DOT/LOCAL ROADS CENTER COURSES**

### **Maintaining Local Bridges**

Abstract: Workshop is designed to educate local officials about simple bridge maintenance techniques that will extend the service life of a bridge. It will also provide helpful information towards developing a management system for locally maintained bridges.

Duration: Not available

Contact: 1-207-624-3290

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## Appendix B – Asset Management Course Abstracts

### Road Surface Management for Maine Towns (RSMS)

Abstract: This course, "Road Surface Management for Maine Towns", was developed and presented by the Maine Local Roads Center to meet the growing demand for a training program which explains the road surface management process in straight-forward, easy to understand terms to town officials and road people in local communities throughout Maine. This manual serves that purpose. The material presented is applicable to both gravel and paved roads and it can be used by both large and small municipalities.

It was introduced to Maine municipalities in 1990 and many, many towns/cities are currently using RSMS to "defend" their road maintenance budgets. It is common to find road budgets which are increasing in many Maine towns because of the presence of a "system" for road work.

Duration: 1-2 days

Contact: Jerry Douglass, 1-207-624-3290, [jerry.douglass@maine.gov](mailto:jerry.douglass@maine.gov)

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## METROPOLITAN TRANSPORTATION COMMISSION COURSES

### Workshop - Street Saver 8.0 parts 1 & 2

Abstract: Provides instruction on how to perform data entry functions and database calculations using StreetSaver 8.0

Duration: 1-2 days

Contact: Theresa Romell, 1-510-817-3243, [tromell@mtc.ca.gov](mailto:tromell@mtc.ca.gov)

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### Southern California Mini-User Conference

Abstract: Provides participants with an introduction to StreetSaver and gives an overview of the program. This course will show participants how to use StreetSaver to develop capital improvement plans, GIS applications, funding; benefits and demonstrates how to use StreetSaver to develop a Pavement Management System.

Durations: 1-2 days

Contact: Theresa Romell, 1-510-817-3243, [tromell@mtc.ca.gov](mailto:tromell@mtc.ca.gov)

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## Appendix B – Asset Management Course Abstracts

### MICHIGAN LTAP COURSES

#### RoadSoft GIS 6.0 Introductory Hands-On Training

Abstract: This workshop provides an overview of RoadSoft GIS 6.0 and provides detailed instruction on each of the modules that the program contains. The workshop is designed to reinforce instruction by giving students hands-on experience operating RoadSoft GIS 6.0 using their respective agency's data.

Duration: Not available

Contact: [ltap@mtu.edu](mailto:ltap@mtu.edu)

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#### Introduction to Asset/Pavement Management

Abstract: This course covers the basics of Asset Management and flexible pavement preservation, rehabilitation, maintenance and repair, and management software.

Duration: 1 day

Contact: [ltap@mtu.edu](mailto:ltap@mtu.edu)

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### MIDWEST TRANSPORTATION CONSORTIUM COURSES

#### Asset Management/GASB 34

Abstract: This course covers the requirements of GASB 34 and how they relate to Asset Management systems for infrastructure.

Duration: Not available

Contact: 1-515-294-8103

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## Appendix B – Asset Management Course Abstracts

### MINNESOTA LTAP COURSES

#### Asphalt Pavement Maintenance and Preservation

Abstract: This workshop provides an overview of the available technology and tools for implementing a successful pavement preservation program. In addition, the workshop will introduce some new preventative maintenance technologies. An effective pavement preservation program encompasses a full range of maintenance strategies, as well as rehabilitation treatments, with the goal of enhancing pavement performance (ride, quality, safety, service life, etc.). Pavement preservation takes the maintenance process one step further by carefully choosing and timing pavement maintenance applications to extend the life of the pavement.

Duration: 1 day

Contact: Mindy Jones, 1-612-625-1813

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#### Bridge Maintenance

Abstract: Workshop is designed for personnel with local units of government responsible for and interested in developing a good bridge maintenance program. Gathering of data on bridge maintenance needs, common bridge problems with examples of maintenance treatments, and dealing with bridge emergencies will be covered.

Duration: Not available

Contact: Mindy Jones, 1-612-625-1818

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### MISSISSIPPI LTAP COURSES

#### Asset Management (GASB 34)

Abstract: This course covers the requirements of GASB 34 and how they relate to Asset Management systems for infrastructure.

Duration: 1 day

Contact: Ivory Williams, 1-601-979-2339, [tsquare@jsums.edu](mailto:tsquare@jsums.edu)

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## Appendix B – Asset Management Course Abstracts

### NATIONAL CENTER FOR PAVEMENT PRESERVATION COURSES

#### Pavement Preservation – Applied Asset Management Training Course

Abstract: This two-day course provides transportation officials and practitioners with a comprehensive understanding of pavement preservation. It identifies the efficiencies gained by developing and selecting pavement strategies that reduce long-term operating costs, improve safety, pavement conditions, and user satisfaction. The course provides personnel with an understanding of pavement condition indices, terminology, and applied Asset Management principles appropriate for both network and project applications. Policy-level administrators and highway/street managers learn cost-effective strategies for planning and managing highway and street networks. The information is useful in budget planning and allocating resources to meet future demands.

Duration: 1-2 days

Contact: Patte Hahn, 1-517-432-8220, hahnp@msu.edu

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### NEVADA LTAP COURSES

#### Asphalt Pavement Maintenance

Abstract: This course covers pavement evaluation, including techniques, equipment, materials for effective crack sealing, and procedures, equipment, and materials for effective asphalt patching. Utility repair, design, specification, and construction quality control of asphalt overlays are also covered.

Duration: Not available

Contact: [Maria Ardila-Coulson](mailto:maria@unr.edu), maria@unr.edu

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### NEW HAMPSHIRE LTAP COURSES

#### Pavement Repair Treatments

Abstract: This course informs participants of asphalt pavement repair treatments, the conditions for their best use, and their costs.

Duration: Not available

Contact: UNH T2 Center at 1-603-862-2826 or 1-800-423-0060

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## Appendix B – Asset Management Course Abstracts

### NEW JERSEY LTAP COURSES

#### **Asphalt Roads: Common Maintenance Problems (course no. 580)**

Abstract: This course covers timely asphalt pavement maintenance and techniques, the economics of timely pavement maintenance, common causes of pavement failure and repair techniques.

Duration: Not available

Contact: Ruth Gacser, CAIT-LTAP 93 Road One, Piscataway, New Jersey, 08854, 1-732-445-3632 (phone), 1-732-445-5636 (fax)

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### NORTH CAROLINA LTAP COURSES

#### **Pavement Management Systems (PMS)**

Abstract: This course provides participants with an overview of PMS and describes the basic components of a PMS. It outlines the step-by-step methodology for developing, implementing and maintaining a PMS. It also identifies key elements such as relational databases, automated data collection equipment, and multi-year prioritization.

Duration: Not available

Contact: James B. Martin, Program Director, 1-919-515-8620, jbm@unity.ncsu.edu

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### OHIO LTAP COURSES

#### **Asphalt Pavement Preservation, Evaluation, Maintenance, Rehabilitation**

Abstract: This workshop addresses: (a) basic performance characteristics of Hot-Mix Asphalt (HMA) pavements; (b) evaluation of common distress types and their causes; and (c) available maintenance and rehabilitation treatments (including the procedures for applying them properly). These topics and the benefits of Preventive Maintenance activities ('a stitch in time saves nine') will be discussed in relation to the Pavement Preservation concept: applying 'the right treatment to the right pavement at the right time', in order to maximize service life and minimize long-term costs.

Duration: Not available

Contact: Ohio LTAP, 1-614-387-7359

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## **Appendix B – Asset Management Course Abstracts**

### **Asset Management I- Framework for Decision Making**

Abstract: This workshop is designed for local public works officials in Ohio. The course focuses on the need for Asset Management and analyzes the consequences of investment decisions from a variety of perspectives. The course exposes public works employees to the concepts and benefits of Asset Management, focusing on the benefits of establishing this type of program.

Duration: 1 day

Contact: Ohio LTAP, 1-614-387-7359

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### **Asset Management II- Inventory Collection & Evaluation**

Abstract: This course primarily presents the best methods of developing an accurate inventory for a local agency's roadway or street system including utilities. Computer software, data management, and data integration are covered. Examples, a group exercise, and a detailed how-to manual are included in the course materials. The manual has spreadsheets, databases, GIS information, and roadway capacity software. Asset Management software examples and sources are discussed.

Duration: 1 day

Contact: Ohio LTAP, 1-614-387-7359

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### **Concrete Pavement Preservation, Evaluation, Maintenance & Rehabilitation**

Abstract: This workshop addresses: (a) basic performance characteristics of Portland Cement Concrete (PCC) pavements; (b) evaluation of common distress types and their causes; and (c) available maintenance and rehabilitation treatments (including the procedures for applying them properly). These topics and the benefits of Preventive Maintenance activities ('a stitch in time saves nine') will be discussed in relation to the Pavement Preservation concept: applying 'the right treatment to the right pavement at the right time', in order to maximize service life and minimize long- term costs.

Duration: Not available

Contact: Ohio LTAP, 1-614-387-7359

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## **Appendix B – Asset Management Course Abstracts**

### **Maintenance and Repair of Low-Volume Roads (Gravel & Chip-seal)**

Abstract: There are still many miles of unpaved gravel roads and simply-paved Chip-Seal roads in the eastern half of Ohio, especially in rural areas. This workshop will address the basic principles and methods for maintaining and repairing these low-volume local roads. The information will be presented in a straight forward, practical manner, focusing mainly on operation considerations.

Duration: Not available

Contact: Ohio LTAP, 1-614-387-7359

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### **Maintenance and Repair of Low-Volume Roads- for NW Ohio**

Abstract: This workshop is a modified version of LTAP's popular workshop on "Maintenance and Repair of Low Volume Local Roads (Gravel and Chip-Seal)". Recognizing that there are relatively few unpaved public roads left in North-Western Ohio, most of the 'gravel roads' portion has been eliminated from this session. Instead, the main focus will be on chip-seal and asphalt roads. The basic principles and methods for construction, maintaining, and repairing these low-volume local roads will be addressed. The information will be presented in a straight forward, practical manner.

Duration: Not available

Contact: Ohio LTAP, 1-614-387-7359

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## **TRANSEDUCATION PROGRAM COURSES**

### **Infrastructure Asset Management (AMS) – Best Practices**

Abstract: This is a comprehensive two-day course on a user-friendly system aimed to assist government agencies of all sizes, managers, engineers, and maintenance personnel in making more informed, cost effective decisions about the infrastructure components for which they are responsible. The workshop will also provide participants with proven, practical tools, techniques, and procedures for developing an AMS master plan and starting a pro-active maintenance program.

Duration: 1-2 days

Contact: Juli Kobayashi [juli@eng.hawaii.edu](mailto:juli@eng.hawaii.edu)

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## **Appendix B – Asset Management Course Abstracts**

### **TRANSPEED/UNIVERSITY OF WASHINGTON COURSES**

#### **Introduction to Pavement Management System**

Abstract: This course covers pavement management basics, federal and state guidelines, how to implement a Pavement Management System.

Duration: Not available

Contact: Christy Roop Pack, 1-206-221-3936

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### **UTAH LTAP COURSES**

#### **Asset Management**

Abstract: This course focuses on asphalt pavement preservation and Asset Management. Participants learn how to identify asphalt pavement distress types, conduct condition surveys and determine root causes of these distresses. The course also helps participants learn to determine the appropriate and most cost effective pavement preservation technique to use; determine the proper timing for applying the various pavement preservation treatments; and apply effective quality control and construction practice in the application of each treatment.

Duration: Not available

Contact: Doyt Bolling, 1-435-797-2933, doyt@cc.usu.edu

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#### **Flexible Pavement Preservation**

Abstract: This course covers flexible pavement preservation, rehabilitation, and maintenance and repair. Life-cycle cost analysis, management software, inventory and data management and strategic planning and programming are also covered, as is bridge maintenance and management.

Duration: 1 day

Contact: Doyt Bolling, 1-435-797-2933, doyt@cc.usu.edu

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## **Appendix B – Asset Management Course Abstracts**

### **GPS and Asset Management**

Abstract: This course focuses on GPS operations, including satellites, accuracy, PDOP, differential correction; planning software; data dictionary creation and edit; field data collection; as well as practical, back in the office tasks such as data download, data correction, and export.

Duration: Not available

Contact: Doyt Bolling, 1-435-797-2933, doyt@cc.usu.edu

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### **Rigid Pavement Preservation**

Abstract: This course covers rigid pavement preservation, rehabilitation, and maintenance and repair. Life-cycle cost analysis, management software, inventory and data management and strategic planning and programming are also covered, as is bridge maintenance and management.

Duration: 1 day

Contact: Doyt Bolling, 1-435-797-2933, doyt@cc.usu.edu

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## **VIRGINIA TRANSPORTATION TECHNOLOGY TRANSFER CENTER (LTAP) COURSES**

### **Asset Management: GASB 34**

Abstract: This course covers the requirements of GASB 34 and how they relate to Asset Management systems for infrastructure.

Duration: 1-2 days

Contact: Russ Neyman, 1-434-293-1964, russ.neyman@vdot.virginia.gov

## Appendix C – Course Syllabi

**FORTHCOMING** Please visit [www.mrutc.org/outreach/tamtraining](http://www.mrutc.org/outreach/tamtraining) to access this information.