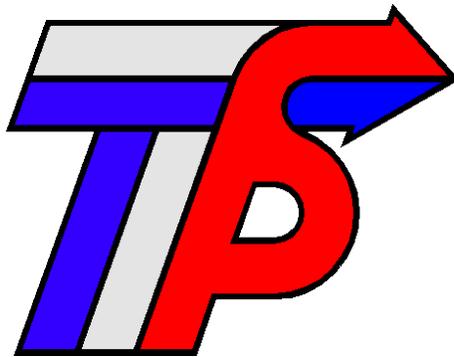


Technical Innovation and Professional Services

Strategic Plan



*for
Fiscal Years
2007-2012*

May 10, 2007

*Office of Surface Mining Reclamation and
Enforcement
U.S. Department of the Interior*



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Introduction

Background

The Office of Surface Mining Reclamation and Enforcement (OSM) was created under the Surface Mining Control and Reclamation Act of 1977 (SMCRA), Public Law 95-87, to administer programs for controlling the impacts of surface coal mining operations. SMCRA gave OSM numerous responsibilities that focused on assisting the States in developing and implementing programs for surface coal mining and reclamation operations in accordance with the purposes of the Act.

On October 1, 1987, OSM began distributing computer hardware and software to the States, Indian tribes, and OSM offices in the coal-producing states. This project was undertaken to help States meet technical and programmatic needs that enabled competent decisions based on scientifically sound data. OSM created the Technical Information Processing System (TIPS) Technical Task Force on February 26, 1988 and delegated authority to TIPS to meet this important agency objective. On July 22, 1991, OSM issued Directive INF-12 to provide guidance for the TIPS program.

Today, TIPS is the Technical Innovation and Professional Services component of OSM. TIPS provides specialized hardware, scientific software, customized software training, and technical assistance to its user community. TIPS helps strengthen the capabilities of States, Tribes, and OSM staff to enforce SMCRA through technical expertise, assistance, information, and training. TIPS supports and enhances the technical skills that States, Tribes, and OSM offices need to operate their regulatory program effectively and to implement the Surface Mining Act.

TIPS provides direct technical assistance to address specific mining and reclamation problems, maintain automated systems and databases while transferring technical capability to others through training, OJT, forums, and conferences. This effort helps to develop the skills needed for solving SMCRA related problems within each respective State. The success of TIPS helps OSM fulfill its mission to ensure that coal mines are operated in a manner while protecting citizens and the environment. TIPS helps assure that the land is restored to beneficial uses following mining, and mitigate the effects of past mining by aggressively pursuing reclamation of abandoned coal mine lands.

TIPS has a true partnership with its customers. The TIPS Steering Committee was established in 1987 to guide the TIPS initiative. The Steering Committee is composed of members from state and OSM offices who are appointed by the Interstate Mining Compact Commission and the Western Interstate Energy Board. With a Steering Committee composed of TIPS customer representatives, TIPS is able to directly address the concerns and needs of its customers. Each year the Committee meets to discuss the accomplishments of TIPS and decide where to direct future efforts. OSM's Western Regional Director serves as the Committee Chairman and reports the Committee's recommendations to OSM's Core Leadership Team.

Supporting the Goals of the Office of Surface Mining

In 2006, OSM will continue to expand the use of Technical Innovation and Professional Services in the technical decision-making processes related to SMCRA. TIPS supports OSM's restoration and protection goals¹, the Department of the Interior's goals, and the President's Management Agenda.

The TIPS mission is to provide practical, advanced tools and techniques that improve the efficiency and effectiveness of SMCRA implementation.

TIPS provides state, tribal, and OSM personnel with a comprehensive set of analytical tools to aid in technical decision-making processes related to the Surface Mining Act. TIPS services provide the technical tools to complete regulatory and reclamation tasks faster and more accurately with fewer personnel. These tools specifically allow for electronic data sharing, between industry, agencies, and the public through applications at the user's desktop. The TIPS program is currently evaluating implementation of electronic file sharing in field situations through remote access technology. TIPS supplements all applications with a comprehensive core software training program specifically developed for mining-related applications.

Environmental Protection

The TIPS suite of scientific, geospatial, and engineering core software aids the technical review of mining permits and leads to better technical decisions. These aids facilitate reviews of cumulative hydrologic impact assessments using a watershed approach, quantifying potential effects of coal mining, preventing acid mine drainage, quantifying subsidence impacts, and measuring revegetation success. TIPS provides the tools necessary to evaluate environmental assessments and impact statements related to SMCRA activities.

Environmental Restoration

TIPS provides state, tribal, and federal regulators with the scientific and engineering tools to aid in the reconnaissance, design, and construction necessary to correct past mining problems. With TIPS tools:

- Engineers and scientists assess the suitability of soil and water quality,
- Design stable post-mining slopes and drainages,
- Design mitigation of hazardous openings, and
- Develop accurate cost estimates for site construction.

TIPS tools streamline the contracting process by delivering accurate data and costs directly to the construction contractor. TIPS development of mobile computing technology allows much of this information to be delivered in real time and on-site.

¹ Office of Surface Mining Reclamation and Enforcement. 2000. *Office of Surface Mining Strategic Plan FY 2000-2005*. Washington, D.C. Available on-line at <http://www.osmre.gov/pdf/strategicplan00.pdf>

Supporting the Goals of the Department of the Interior

The Department of the Interior Strategic Plan² establishes the following goals:

- Resource Protection
- Resource Use
- Recreation
- Serving Communities

The TIPS tools enable the Department to better achieve these goals in the following ways.

Resource Protection

Resource protection is efficiently accomplished through digital modeling of environmental scenarios. With TIPS tools, potential problems can be identified before they occur. TIPS customers now routinely:

- model water-runoff for sediment transport to ensure clean stream standards are met,
- assess slope stability designs,
- analyze toxic material handling plans to ensure material is placed in the best manner to prevent acid and toxic mine drainage,
- assess water quality with respect to surface and ground water emanating from the site,
- evaluate rock mass balance to determine backfill requirements for achieving approximate original contour,
- statistically evaluate revegetation success,
- use borehole data to create a three-dimensional model of overburden quality and suitability,
- create maps and three-dimensional models of reclamation design, and
- verify mine boundaries, facility locations, and revegetation success with satellite and aerial photo image information.

Resource Use

TIPS tools allow federal, state, and tribal authorities to evaluate mining plans more efficiently; producing more accurate and efficient mine reclamation plans that better protect the environment. Automated designs and site information can now be electronically exchanged between mining and construction companies resulting in more efficient reclamation. The entire mine plan review process is expedited with faster resource recovery that is more accurate and efficient, and with greater environmental and cultural sensitivity than ever before.

² U.S. Department of the Interior. 2003. *U.S. Department of the Interior Strategic Plan FY 2003-2008*. Washington, D.C. Available on-line at http://www.doi.gov/ppp/strat_plan_fy2003_2008.pdf

Recreation

Good post-mining land use depends on efficient and effective use of resources in the reclamation process. The automated tools provided by TIPS produce more accurate and efficient mine reclamation plans which result in more effective post-mining land use. Wildlife habitat, grazing, and recreation all benefit from better reclamation design.

Serving Communities

TIPS improves OSM's ability to serve state, tribal, and other officials who are jointly charged with the regulatory mandates inherent in the Surface Mining Control and Reclamation Act (PL 95-87). With the automated tools provided by TIPS, accurate maps and 3-dimensional graphic depictions of the mining process and final reclamation design can be shared with local communities; greatly increasing comprehension of both the mining process and final site reclamation. For example, these maps and visual aids help communicate analyses of potential subsidence areas, probable hydrologic impacts, and revegetation success that support regulatory decisions. TIPS mobile computing tools place immediate technical solutions in the hands of officials directly in the field. With these accurate visual tools, community members are better informed of both the short and long term effects of the mining or reclamation project.

Supporting the Goals of the President's Management Agenda

The TIPS investment is aligned with the President's Management Agenda³ specifically regarding the Expanded Electronic Government (E-Gov) initiative and all 4 E-Gov initiatives as follows:

- Create easy-to-find single access points to government services. TIPS provides a single access point to the automated tools used by every office tasked with carrying out the requirements of the Surface Mining Act. Guided by a Steering Committee composed of State personnel, TIPS evaluates IT systems according to customer need rather than governmental mandate.
- Reduce the reporting burden on businesses. TIPS reduces the burden by automating the reporting processes. TIPS enables and encourages electronic data submission which allows for more efficient tracking and storing of permit info.
- Share information more quickly and conveniently between the federal and state, local, and tribal governments. TIPS shares standardized information between agencies, companies, and citizens. With TIPS serving as the supply chain for Commercial off the shelf software (COTS) scientific and engineering software and equipment, relevant agency SMCRA issues are addressed with common tools. The TIPS software is identical to that used by coal mining companies, consultants and the public and act as a common

³ U.S. Office of Management and Budget. 2002. The President's Management Agenda Fiscal Year 2002. Washington, D.C. U.S. Government Printing Office. Available online at <http://www.whitehouse.gov/omb/budget/fy2002/mgmt.pdf>



platform for information dissemination between the public, Regulatory Authority and the regulated community.

- Automate internal processes to reduce costs by disseminating best practices across agencies. TIPS provides automated processes that reduce costs at the federal and state level. The TIPS investment provides shared licensing among state, tribal, and federal agencies, enterprise software purchases and maintenance, and customized training classes. TIPS has leveraged existing resources to bring higher levels of efficiency and fiscal responsibility to the agency with an average annual budget of approximately \$1.4M dollars.

TIPS provides Government to Government cost savings by electronically providing tools needed for improved performance and standardization of regulatory oversight and management of mining on State, Federal and Tribal lands. TIPS also contributes to the Government Paperwork Elimination Act (GPEA) by creating standardized tools for electronic record generation, thereby reducing the reliance on paper records.

Purpose

TIPS must prepare for fundamental and rapid technological change consistent with their goal of providing state of the art technical resources to the states, tribes, and OSM offices. This goal is driven by the need to effectively and efficiently implement SMCRA in a changing world. The purpose of the TIPS Strategic Plan is to determine how TIPS can best prepare for success over the next five year period. The plan establishes goals, objectives, strategies, and activities that will guide the TIPS program over the next 5 year time period. These activities are designed to support the goals of the OSM, Department of the Interior, and the President's Management Agenda. The strategic plan also provides the framework for a planned annual review of TIPS operations by OSM senior management. The TIPS Steering Committee will be asked to participate and contribute in this review process during its annual meeting. During this review, adjustments will be made to elements of the plan as needed and appropriate. The TIPS Strategic Plan will be used in OSM's Capital Planning and Investment Control (CPIC) process.

The TIPS Strategic Planning Team developed this comprehensive plan to:

- Implement the TIPS mission,***
- Identify the goals, objectives, and strategies for TIPS to accomplish its stated mission,***
- Align TIPS operations to support the OSM Strategic Plan,***
- Ensure compliance with Departmental EGIM, National Coal Mine Geospatial Committee and Geospatial Blueprint activities.***

TIPS Mission Statement

Provide practical, advanced tools and techniques to improve the efficiency and effectiveness in implementation of SMCRA.

Goal 1. Promote and support the use of scientific and engineering tools to achieve the requirements of SMCRA.

TIPS provides state, tribal, and federal regulators with the scientific and engineering tools to aid in the technical decision-making associated with review of mining and reclamation plans. It also provides for the reconnaissance, design, and construction necessary to correct the problems caused by past mining. These tools are used to develop a scientific basis for environmental assessments and impact statements, assess the suitability of soils and water quality, design stable post-mining slopes and drainages, design mitigation of hazardous openings, and develop accurate cost estimates for site construction.

Objectives, Indicators, and Strategies

Objective 1.1: Provide the electronic tools needed by States, Tribes, and OSM offices to implement SMCRA.

This objective is designed to support the DOI mission of Resource Protection by helping protect the Nation's natural, cultural, and heritage resources. It also supports the DOI Resource Use mission by helping manage resources to promote responsible use and sustain a dynamic economy. This objective addresses the use of TIPS tools to accomplish these mission goals.

Performance Indicator:

1. Provide 90% of software licenses needed.

TIPS provides costly state-of-the-art commercial off-the-shelf software (COTS) to over 800 customers in 96 offices nationwide through license sharing. The license sharing means that TIPS procures a number of licenses and centrally places these licenses on OSM servers. The TIPS



software user community then accesses the software through the shared license agreements; leading to substantial cost savings for each user. It also means that a limited number of customers may use the software at any given time. It is the purpose of this metric to ensure that TIPS meets no less than 90 percent of the customer demand for software licenses.

Strategies:

- **Maintain core software.** TIPS currently maintains 27 core software packages in the areas of:
 - Geographic Information System (GIS)
 - Global Positioning System (GPS)
 - Remote Sensing
 - Geology and Engineering
 - Mobile Computing, and
 - Hydrology

By making these tools available to more people, directly at their desktop and in the field, usage has greatly increased.

- **Improve software distribution.** Currently, the TIPS software distribution updates occur bi-annually or more frequently as necessary. Software is tested for bugs, licensing issues, and conflicts with TIPS and other software prior to deployment. TIPS will investigate improving the process of producing software copies for distribution. Possible improvements include:
 - Duplication of disks in all three regions.
 - Explore improving license keying via reconfiguration within OSM, hosting by states and/or hosting by vendors.
 - Expediting deployment of major software products such as ArcGIS and AutoDesk.
 - Distribution of software via DVD and portable USB hard drives.
 - Explore software distribution via internet methodologies.
- **Evaluate and prototype emerging technologies related to:**
 - Development of simplified and specialized tools for users—“e-TIPS Expert Tools”
 - Develop suite of e-tools for field personnel using basic GIS and GPS equipment.
 - Internet map servers.
 - Integrated I&E/Permitting/Reclamation solutions using geospatial and environmental data, databases, and custom software.
 - Remotely-sensed methods for detection of underground mine voids and other mining disturbances, such as
 - Ground Penetrating Radar (GPR)
 - Subsurface Interface Radar (SIR)
 - Airborne geophysical (electromagnetic, conductivity, and resistivity) surveys
 - Robotic mine mapping
 - Point-cloud technology



- Hydrologic studies of water quality using continuous monitoring data streams
- Watershed modeling/hydrology/water quality/flooding/GIS/integration.
- Geologic modeling.
- Wireless field technology.
- X-ray fluorescence and other direct-measure mineralogical devices.
- Advanced geophysical detection techniques for soils and overburden.

- **Develop and deploy new technologies with inclusion of successful new developments into core TIPS technology.**
 - Remote license checkout of TIPS software for field use.
 - Remote sensing technologies (including improved planning and acquisition) for:
 - High resolution digital aerial photography and satellite imagery
 - Light Detection and Ranging (LiDAR) data, and
 - Interferometric Synthetic Aperture Radar (InSAR) data.
 - Mobile computing using appropriate form factors such as tablet PC, PDA, and WAAS-enabled GPS receivers with TIPS software.

- **Geospatial Coordination.**
 - Continue to support DOI Enterprise Geographic Information Management efforts. Geographic Information System (GIS) professionals from the TIPS National Team represent OSM on the DOI Enterprise Geographic Information Management (EGIM) Workgroup. The EGIM Workgroup is a departmental team composed of GIS experts from all DOI bureaus. The purpose of the EGIM Team is to provide strategic leadership for enterprise GIS within the Department. Team members determine needs for standardization, implementation of GIS, direction on policy, programs, initiatives, funding priorities, organizational needs, and coordination of GIS activities among bureau, program, and DOI areas. This will provide the basis for compliance with Federal Geographic Data Committee (FGDC) Geospatial data standards.
 - TIPS will form a Geospatial Team to provide leadership within OSM and among its customer base for the management of geospatial data. This activity will corroborate with the role of providing geospatial services to TIPS customers discussed in Objective 1.2 below.
 - Develop tools and techniques to ensure state, tribal, and federal compliance with FGDC Geospatial data standards (OMB Circular No. A-16 and Executive Order 12906).
 - Investigate expanding the TIPS role to include maintaining a national geospatial data system. This position is due to OSM's unique position within the Regulated community and may allow OSM to act as a warehouse for such data.
 - Organize and chair the National Coal Mining Geospatial Committee (NCMGC) to ensure geospatial technologies, data, products and applications are efficiently and effectively disseminated to the SMCRA community. This initiative will evaluate implementation and associated impacts of the FGDC data standards and provide a vehicle for their implementation.



- Participate in the DOI Enterprise Geographic Information Management initiative that provides for standardization and unification of all GIS activities within the Department of Interior.
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Objective 1.2: Provide assistance needed by States, Tribes, and OSM offices.

This objective is designed to support the DOI Resource Protection mission by helping protect the Nation's natural, cultural, and heritage resources. It also supports the DOI mission of Resource Use by helping manage resources to promote responsible use and sustain a dynamic economy. In addition, the DOI Resource Use mission dovetails with the OSM mandate to mine coal in an efficient and environmentally friendly manner. This objective addresses the role of technical assistance to TIPS customers in meeting the overall Departmental mission goals.

Performance Indicator:

2. Provide 95% of TIPS assistance requested.

TIPS assistance is defined as on-the-job training in the use of TIPS tools to resolve site specific issues. Presently, TIPS customers submit standardized evaluation forms for all post-assistance evaluations. These data are collected and used to guide future technical assistance training requests.

Strategies:

- **Develop a method to measure TIPS technical assistance requests.** TIPS currently captures major support and assistance activities by asking customers to complete evaluation forms that are tracked and reported to OSM and DOI. The TIPS team will investigate and determine the best business approach to capturing all technical assistance provided to customers. Considerations include:
 - Use of electronic and hardcopy forms.
 - Measurement of actual performance during technical assistance.
 - Follow-up evaluation after a 3-month time period with specific impact questions to determine effectiveness of assistance provided.
 - Determining technical areas where assistance is underutilized.
- **Promote TIPS technical assistance during Service Manager visits, training courses, and technical transfer functions.** Technical assistance will be promoted a part of any and all TIPS activities to help meet our 95% performance indicator.
- **Leverage internal expertise where possible.** Provide vendor training to instructors and course developers as needed to maintain up-to-date material for all TIPS technologies.
- **Improve technical transfer through:**
 - Articles in professional publications.



- TIPS website improvement.
 - Deployment of TIPS BLOG
 - Interaction with top management at the state and federal levels.
 - Interaction with national and regional technology transfer teams.
 - Involvement with public and non-profit organizations.
 - Participation with professional organizations.
 - Hosting and participating in conferences and forums.
 - Hosting a TIPS Geospatial Technology Conference at least every four years.
 - Distributing logo and branding items.
 - Better coordinate with all regional OSM technical transfer functions and programs.
- **Develop a program for introducing new, non-core software and hardware to States for evaluation purposes.** This program is to be used for “seeding” new software and hardware into State programs to help each State partner offset initial start-up costs of new technology. It is anticipated OSM personnel will provide assistance to help State partners install, use and evaluate potential new software and hardware.
 - **Increase Web-Knowledge base support**
 - Discussion groups and news groups.
 - Comprehensive FAQ pages.
 - Sharing application of TIPS tools through papers published on the TIPS website.
 - Problems and solutions web pages broken out by software and managed by Software Managers – Tied to FAQ.
 - Continual update of information contained on the TIPS website.
 - Evaluate user-groups for each major software discipline.

Goal 2. Operate an effective training program.

TIPS provides reclamation-focused training for each of the TIPS tools. TIPS computer application training is performed at the three TIPS Training Centers in Alton, Denver, and Pittsburgh, with customer on-site training available and where appropriate. The program offers instructor-led courses each year to meet at least 50% of the total customer demand for training subject to TIPS staffing levels. In addition to the instructor-led courses, TIPS provides access to E-Training courses through various software vendors. TIPS attempts to meet all E-training course requests in a timely manner.

Objectives, Indicators, and Strategies

Objective 2.1: Provide SMCRA-centered instructor-led training in the use of TIPS tools.

This objective is designed to support the DOI mission of Serving Communities by helping to safeguard lives, property, and assets, advance scientific knowledge, and improve the quality of life for communities we serve. This is accomplished by providing the training necessary to use TIPS tools to analyze coal mining environmental issues and design effective reclamation.

Performance Indicator:

3. Achieve 90% overall student satisfaction rate for the training classes provided.

This metric measures the quality of all training provided by TIPS and is derived by polling each student at the end of each class. Each response receives a score (1-10), the scores are summed and then divided by the total possible score. Students rate their satisfaction with the instructor(s), training facilities and their overall satisfaction with the class.

Strategies:

- **Revise the TIPS student registration policy.** After the annual training class schedule is finalized, TIPS Training Contacts will be asked to submit nominations for all persons in their organization who will be attending each scheduled class. This list is requested in August-September of each year. Remaining slots not reserved through nominations are then released for all customers to reserve slots on a first come, first served basis.
- **Implement follow-up training effectiveness measurement.** TIPS course managers, instructors, and Service Managers will solicit feedback via phone calls, BLOGS, follow-up site visits or other measures to determine the effectiveness of TIPS training after course completion.
- **Maintain state of the art training facilities.** Supply hardware and software resources and computer training facility management for customer training in the TIPS Training Centers. Explore possibilities of streaming video or other web-based course delivery technologies.
- **Conduct on-site training.** On site training helps to efficiently use training dollars by training students with minimal cost. This effort seeks to provide training to groups at locations more convenient to the training requestor. This strategy can also be used with less than standard class sizes.



- **Increase outreach for “on-the-job-training” (OJT) with customers.** This effort seeks to train smaller groups through hands-on training by a smaller instructor pool. This teaching method is accomplished by using TIPS personnel to work on a specific task or project and offers an efficient use of training dollars.
- **Coordinate TIPS training with NTTP training efforts.**
 - Jointly work with NTTP to migrate to DOI’s iLearn learning management system.
 - Advance the possibility of coordinating with NTTP to develop joint courses that include instruction in TIPS software.
 - Advance joint use of TIPS Training Centers and facilities for NTTP and TIPS courses.
 - Coordinate with NTTP in customer surveys and scheduling of TIPS courses and instructors.
 - Contribute course titles, course descriptions, and instructor biographies to the TIPS-NTTP annual catalog.
 - Schedule TIPS instructors to take advantage of NTTP’s Instructor Training Course (ITC) and refresher courses.
 - Share student, instructor, and course information via the DOI Enterprise training database.
- **Develop effective succession planning for the training program.**
 - Develop long-term training plans that address student enrollment based upon workforce changes.
 - Develop a plan to pass on the institutional knowledge of instructors.
 - Encourage highly effective students to become instructors.
 - Assess and plan for changes in staffing and expertise.
- **Revise courses utilizing up-to-date student and instructor materials that will facilitate the effective use of TIPS software.**
 - Update the TIPS Training Program Operations Manual best practices manual in conjunction with individual course material.
 - Promote use of software or web-based training materials.
 - Engage in course development to keep current with software upgrades or new software additions.
- **Maintain an updated course schedule where potential class shortfalls are identified significantly in advance of a class.**
 - Quarterly review of upcoming TIPS courses to identify shortfalls.
 - Mass emailing of class openings to all State TIPS training contacts and course managers.
- **Partner with NTTP to group all current course offerings by Career Path Series.** Participate in the newly formed Instructor Advisory Council. Among it’s many duties, the Council will develop a Career Series and Completion of Course of Study certificate program that includes a listing of related courses, prerequisites and a course progression list.



- **Continuously seek to improve the training experience.**
 - Incorporate state-of-the-art instructional techniques and materials.
 - Incorporate interactive computer delivery of introductory or preparatory course material.
 - Provide TIPS curricula that allow discipline-specific programs.
 - Internally audit TIPS training evaluations for improvement opportunities and to resolve any issues.
 - Reinvent training processes through GPRA techniques.

 - **Partner with NTTP to assist in formalizing issuance of CEU's by employing accrediting procedures from the International Association for Continuing Education and Training (IACET).** NTTP and TIPS are collaborating to secure the necessary authorizations in order to provide CEU's for classes.

 - **Fulfill advanced training requests.** Provide vendor training to individuals that have already attended established TIPS courses in their specialty and require more advanced skills.

 - **Increase TIPS training staff to continue steady growth.** Recently, a full time Training Program Team Leader position was filled in Denver. The establishment of this full time position was needed to accelerate progress in instructor recruitment, E-training development, course development, coordination with NTTP and other OSM programs, maintain the TIPS Training Program Operations Manual, and address training quality issues. Training Course Managers in Alton and Pittsburgh are part of OSM's work force plan and will be filled in the future. These positions in Alton and Pittsburgh would coordinate with the Denver Training Program Team Leader to provide the management and coordination needed to successfully deliver scheduled classes, recruit instructors, and develop specialized courses. All will work closely with the current TIPS Course Managers.

 - **Develop discipline specific course series with pre-requisite introductory courses.** This course series will be aimed at the major disciplines within the OSM technical arena. The course series will be designed with introductory material offered prior to advanced level courses. Each student is expected to have the pre-requisite course work or equivalent background material prior to attending more advanced course work.

 - **Implementation of team concept for all TIPS software disciplines**
 - Discipline specific teams will evaluate new software packages, updates to existing software, course manager duties, roles and responsibilities, instructor pools and evaluate new software. The goal of each team is to efficiently and effectively maintain the software and instruction associated with the TIPS software packages.
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Objective 2.2: Provide e-training in the use of TIPS tools.

This objective is designed to support the DOI mission of Serving Communities by helping to safeguard lives, property, and assets, advance scientific knowledge, and improve the quality of life for communities we serve. This objective also meets the goal of the President's Management Agenda for E-Government.

Demand for TIPS training exceeds the resources to provide the training requested by customers. This initiative allows TIPS to meet much more of the customer demand for training. The following improvements to TIPS training are attainable by offering e-learning courses to:

- Reduce training travel costs.
- Prepare students for instructor-led or other advanced software courses.
- Provide customers with on demand training 24/7.
- Provide customer – directed content.
- Reduce opportunity costs (Cost to the customer of being away from the office).
- Provide distance training options.
- Provide a broader choice of courses.
- Promote follow-up access from students to instructor and instructor to students.
- Allow more cost effective training.
- Allow easier content update.
- Enable customer-directed review.
- Enable broader training delivery modes.

Performance Indicator:

4. TIPS will offer 5 e-learning courses for customers.

The number of e-learning courses offered may vary each year depending upon the number offered by vendors and those newly developed by OSM. Although the number of e-learning course available is not controlled by TIPS, the intention is to offer as many e-learning courses as possible to meet customer needs. TIPS will develop more courses as funding and staff resources become available.

Strategies:

- **Continue to offer and update existing e-learning courses.**
 - ESRI
 - AutoDesk
 - SurvCADD
 - Galena
 - BLEP
 - SDPS
- **Develop an AMD e-learning course.**



- **Explore inclusion of existing vendor or user-group developed on-line course offerings in the TIPS e-training suite.**
- **Develop e-learning courses that focus on basic skills.** This is intended to emphasize the fundamentals of using TIPS software tools. It teaches basic use of the software so that the student can learn from first-hand use of the tools or from TIPS instructor-led classes. This training may be applied to all TIPS tools.
- **Develop e-learning courses that check for knowledge of basic concepts.** This is intended to ensure that the student understands basic principles and concepts before proceeding to subject matter. For example, a student should understand what acidity means before learning how to use AMD-Treat software.
- **Investigate accreditation of e-courses.**
- **Increase the completion rate of e-courses.** Possible solutions may include:
 - Availability of on-line instructors
 - Use of BLOG or chat rooms
 - Rewards for completion of courses
 - Endorsement from the Director
 - Conducting outreach to managers. This may include encouragement from the Director to support in-office training efforts by making time available for staff, adjusting workloads, and providing appropriate local training areas.
 - More efficient e-course schedules. This may include making smaller modules of larger courses, a phased approach, or offering a classroom setting with an on-site mentor.
- **Develop an effective follow-up tracking system.** Establish a process to follow-up with students to increase the number of students that begin and complete an e-training class. This process will include evaluation of obstacles that prevent course completion and mechanisms to remove obstacles.
- **Acquire feedback from e-course participants to identify shortcomings, technical or timing issues, and other improvements.**
- **Market on-line courses.** Use different methodologies to provide information to customers regarding the benefits of on-line courses, thus increasing enrollment in said courses.