

Final Project Summary — PEER Lifelines Program

Project Title—ID Number	<i>COSMOS-GEOINFO Standards for Archiving & Dissemination of Geotechnical Data—2L01</i>		
Start/End Dates	5/15/01 – 11/15/01	Budget/ Funding Source	\$45,208 / PG&E
Project Leader (boldface) and Other Team Members	Stepp (COSMOS)		

1. Project goals and objectives

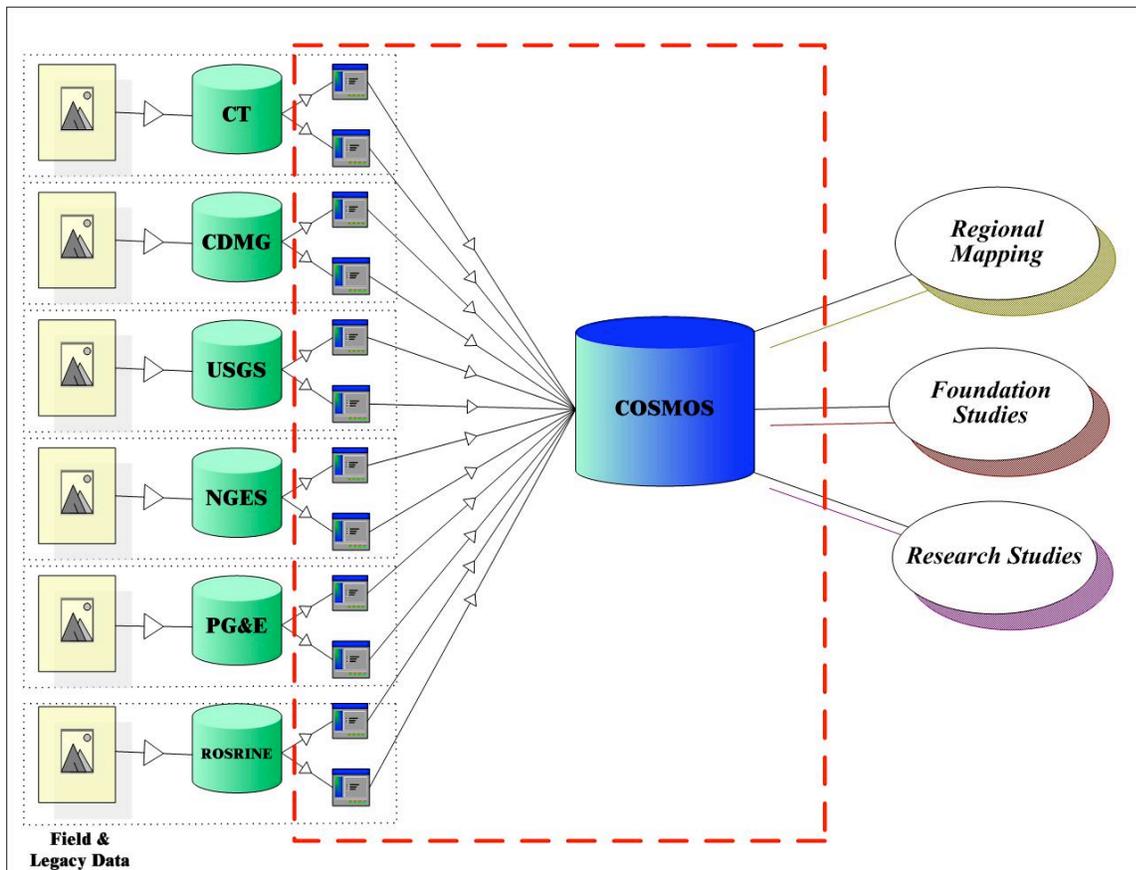
Assess state of technology, identify technology development requirements, and develop consensus recommendations for classifying, archiving, and web dissemination of geotechnical data.

2. Benefits of the results of this project to develop technologies and protocols to mitigate the vulnerability of electric systems and other lifelines to damage directly and indirectly caused by earthquakes. Also, benefits to develop assessment techniques to evaluate damage to electric systems caused by earthquakes and to assess fiscal impacts due to the loss of electric service to the community.

This work is relevant to PEER Lifelines research and to the sponsors' ongoing management of geotechnical hazards. It focused on integration of distributed geotechnical databases and on developing architecture for data archiving and web dissemination of multiple, linked geotechnical databases.

3. Brief description of the accomplishments of the project

The Project organized and held a workshop to assess state of technology, identify technology development requirements, and develop consensus recommendations and a work plan for the development of web-based system for archiving, and web dissemination of geotechnical data. The workshop developed the concept of a central hub that would function as a virtual geotechnical data center through which data providers share data and disseminate their own data. The most important conclusion of the workshop based on the invited papers and discussions, was that the development of a virtual geotechnical data center for web dissemination of linked geotechnical databases can be largely accomplished by modifying existing technologies. The workshop defined the primary needs for a development project as: 1) define the functional requirements for design of the virtual center, 2) define necessary data formats, data dictionaries, indexes, and exchange standards, and 3) define and link the organizational components of the overall system. The principal consensus recommendation for future development was that, initially, a pilot implementation of a virtual geotechnical data center should be developed. The pilot system should involve several large data providers including California Department of Transportation (Caltrans), Pacific Gas and Electric Company (PG&E), California Geological Survey (CGS), and the U. S. Geological Survey (USGS). Building on this pilot system, the links can be expanded to include other data providers and the general user community. A specific action plan for developing the pilot virtual system was developed. The overall concept and essential components of the proposed Geotechnical Virtual Data Center (GVDC) are shown in the figure below.



Elements of an extensible web-based virtual geotechnical database center (GVDC)

4. Describe any instances where you are aware that your results have been used in industry

The results of this project consist of a workshop proceeding, which included an action plan for the development of a Pilot GVDC. The work plan is being implemented by PEER LL Project 2L02.

5. Methodology employed

The methodology consisted of planning and holding a workshop: identification of participants, identification of subject content, identification of appropriate discussion topics and structure, compilation of the findings and recommendations of the workshop, and publication of the workshop proceedings.

6. Other related work conducted within and/or outside PEER

This work is relevant to PEER Lifelines geotechnical research. It is focused on developing an optimal system for data archiving, transfer and dissemination of geotechnical data that is capable of serving the needs of both researchers and practitioners.

7. Recommendations for the future work: what do you think should be done next?

This project developed a plan for developing a Pilot GVDC, which includes four main tasks: 1) definition of geotechnical data user scenarios for a GVDC that links the CDMG, CalTrans, PG&E, and USGS

geotechnical databases, 2) development of a data dictionary standard for the pilot system which can be expanded to a larger system linking multiple geotechnical databases, 3) integration of these results to implement the pilot system, and 4) plan and implement a workshop that is structured to obtain geotechnical community consensus and deliver a workshop proceedings that will serve as an expanded implementation plan for development of GVDC that is capable of linking a large number of geotechnical databases.

8. Author(s), Title, and Date for the final report for this project

Jennifer N. Swift and J. Carl Stepp, 2002. "Development of Archiving and Web Dissemination of Geotechnical Data", in Proceedings SMIP02 Seminar on Utilization of Strong-Motion Data, Las Angeles, CA, California Strong-Motion Instrumentation Program, Sacramento, CA.

J. C. Stepp, J. Swift, C. Roblee, L Turner, C. Real, W. U. Savage, and C. M. Johnson, editors (2001). Proceedings, Workshop on Archiving and Web Dissemination of Geotechnical Data, COSMOS Publication CP-2001/03, Richmond, CA.

J. Carl Stepp, and J. Swift, 2001. "COSMOS Workshop on Archiving and Web Dissemination of Geotechnical Data", COSMOS Newsletter, Issue No. 5, August.